

# **Weatherford 8500 Serial Driver Help**

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## Weatherford 8500 Serial Driver Help

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Help version 1.018

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## **Overview**

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The Weatherford 8500 Serial Driver allows the monitoring of real-time data and immediate control of the Rod Pump Controller (RPC) devices and other Weatherford controllers that are used at wellhead facilities. It provides an easy and reliable way to read and write data to Weatherford series devices via the Weatherford 8500 protocol through client applications (including HMI, SCADA, Historian, MES, ERP, and countless custom applications).

## **Channel Setup**

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This driver supports multiple channel settings. For more information, refer to "What is a Channel?" in the server help file.

## **Communication Serialization**

The Weatherford 8500 Serial Driver supports Communication Serialization, which specifies whether data transmissions should be limited to one channel at a time. For more information, refer to "Channel Properties - Advanced" in the server help file.

## Device Setup

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### Supported Device Models

WellPilot RPOC  
 WellPilot/ePIC VSD  
 ePIC RPC  
 M2000  
 8800  
 8750  
 8500/8650

### Firmware Versions

For the minimum Firmware revision for all supported device models, refer to the table below.

| Model              | Minimum Firmware Revision Supported | Dynagraph Function Code | Events Function Code |
|--------------------|-------------------------------------|-------------------------|----------------------|
| WellPilot RPOC     | 1.02.13                             | 25, 16                  | 24, 16               |
| WellPilot/ePIC VSD | 2.08                                | 16                      | 16                   |
| ePIC RPC           | 1.10                                | 16                      | 16                   |
| M2000              | 4.07                                | 16                      | 16                   |
| 8800               | 4.08                                | 16                      | 16                   |
| 8750               | 3.99                                | 16                      | N/A.                 |
| 8750, 8500/8650    | 3.99                                | 5, 6, 7                 | N/A.                 |

### Maximum Number of Channels and Devices

The maximum number of channels is 256. The maximum number of devices per channel is 4095.

### Device IDs

The valid Device ID range is 0 to 4094. The Broadcast ID (4095) is not supported.

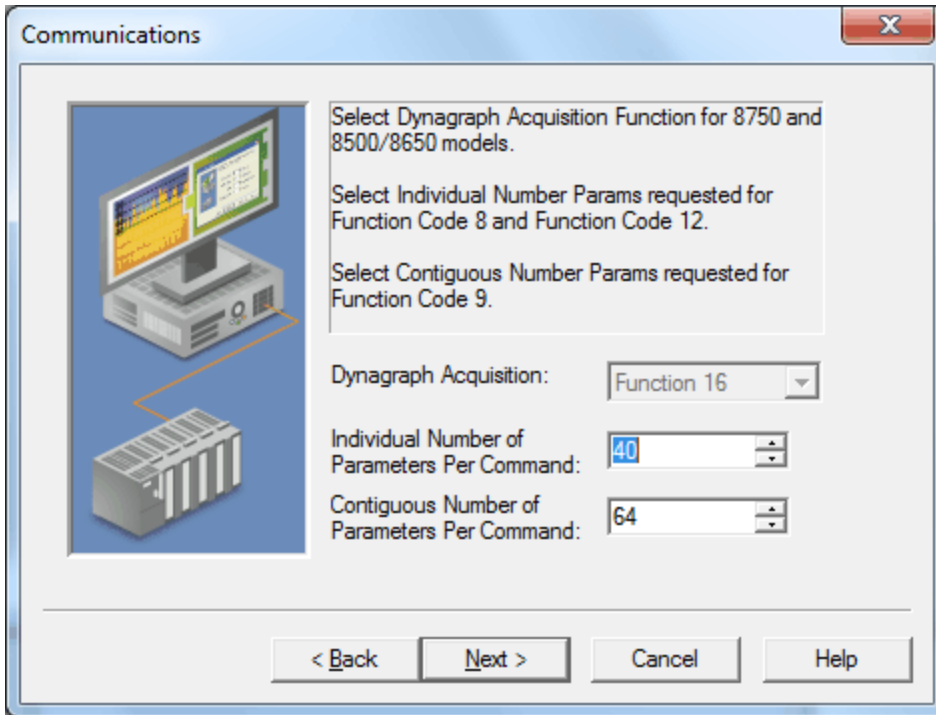
### Automatic Tag Generation

Event (EV) type tags will not be created for Surface and Downhole items because they will be Bad without proper Event IDs. The groups that will be created include Function, Buffer, Command, Dynagraph, and Parameters. For more information, refer to [Address Descriptions](#).

**Note:** When performing synchronous Reads or Writes for large array items, users may need to increase the OPC timeout setting. For more information, refer to the "Project Properties - OPC DA Settings" topic in the server help file.

## Communications

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Descriptions of the parameters are as follows:

- **Dynagraph Acquisition:** This parameter specifies the Dynagraph Acquisition Function for 8750 and 8500/8650 models. The default setting is Function 16, which is used exclusively for all other models. To determine the Function Codes available to a specific device model, refer to the "Firmware Versions" table in [Device Setup](#).
- **Individual Number of Parameters Per Command:** This parameter specifies the maximum number of parameters that will be requested for Function Code 8 read requests and written for Function Code 12 write requests. It only applies to Parameter Tags. The default setting is 40.

**Note:** Function Code 8 read requests will not be issued if the "Contiguous Number of Parameters Per Command" setting is greater than 1.

- **Contiguous Number of Parameters Per Command:** This parameter specifies the maximum number of parameters that will be requested for Function Code 9 read requests. The default setting is 64.

**Note 1:** Function Code 9 read requests will not be issued when the value is set to 1. Function Code 8 read requests will be issued using the "Individual Number of Parameters Per Command" setting.

**Note 2:** If receiving Event Log messages with negative exception codes, users should set this parameter to 1 and then re-attempt communications.



## Data Types Description

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| <b>Data Type</b> | <b>Description</b>           | <b>8500 Native Type</b>       |
|------------------|------------------------------|-------------------------------|
| Byte             | Unsigned 8 bit value         | Byte                          |
| Word             | Unsigned 16 bit value        | Word                          |
| Short            | Signed 16 bit value          | SWord                         |
| DWord            | Unsigned 32 bit value        | Long, Time, Time24, and Date. |
| Float            | 32 bit floating point value  | Float                         |
| String           | Null terminated ASCII string | Command and Display.*         |

\*Display parameters vary in size. The current maximum size for a display parameter is 16 characters.

## Address Descriptions

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For more information, select a link from the list below.

[Function Items](#)

[Buffer Items](#)

[Command Items](#)

[Well Command Items](#)

[Dynagraph and Xdynagraph10 Items](#)

[Surface and Downhole Items](#)

[Parameter Items](#)

### Parameter Listings

Parameter listings vary according to device model. For more information on a specific device model, select a link from the list below.

[WellPilot RPOC Parameter Listings](#)

[WellPilot/ePIC VSD Parameter Listings](#)

[ePIC RPC Parameter Listings](#)

[M2000 Parameter Listings](#)

[8800 Parameter Listings](#)

[8750 and 8500/8650 Parameter Listings](#)

### Function Items

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The Weatherford 8500 Serial Driver provides support for executing function codes.

| Data Item           | Data Type | Access     | Description  |
|---------------------|-----------|------------|--|
| Function.Code       | Short     | Write Only | Writing a number to this item causes the corresponding function to be executed.                          |
| Function.Parameters | String    | Read/Write | The string written to this item will be transmitted as command parameters when the function is executed. |
| Function.Result     | Short     | Read Only  | The result of the function.  |
| Function.ResultData | String    | Read Only  | If the function returns data, it will be placed into the value of this item.                             |

### Function Codes

| Decimal | Hex | Description   |
|---------|-----|---|
| 0       | 00  | Remote keyboard/display.                            |
| 1       | 01  | Request parameter information.                      |
| 3       | 03  | Request load scaling parameters.*                   |
| 4       | 04  | Force a message to be displayed.                    |
| 5       | 05  | Request pump on well data buffer.*                  |
| 6       | 06  | Request present well data buffer.*                  |
| 7       | 07  | Request pump off well data buffer.*                 |
| 8       | 08  | Request values of individually selected parameters. |
| 9       | 09  | Request values of a contiguous parameter group.     |
| 10      | 0A  | Request values of a predefined parameter group.     |
| 11      | 0B  | Clear all slave errors.                             |
| 12      | 0C  | Write values of individually selected parameters.   |
| 13      | 0D  | Write values of a contiguous parameter group.       |
| 14      | 0E  | Write values of a predefined parameter group.       |
| 15      | 0F  | Execute a Command parameter.                        |
| 16      | 10  | Request well data buffer expanded function.*        |
| 17      | 11  | Force well into idle time.*                         |
| 18      | 12  | Turn well on.*                                      |
| 19      | 13  | Remote rolling display.                             |
| 20      | 14  | N/A.  |
| 21      | 15  | N/A.  |

|     |    |   |
|-----|----|---|
| 24  | 18 | Event Directory Retrieval.                    |
| 25  | 19 | Surface and Downhole Card Retrieval.          |
| 255 | FF | Request ID (slave type and Firmware version). |

\*Rod pump controller specific code.

## Buffer Items

Buffer Items allow for the retrieval of buffered information as returned by the selected dynagraph acquisition method. Users can select to obtain the dynagraphs using function 16 or functions 5, 6, and 7 through the Dynagraph Acquisition property (located in **Device Properties | Communications**). This operation is performed by writing values to Buffer items, then writing a non-zero value to the Buffer.Trigger data item.

This buffer may also be polled at regular intervals by writing a non-zero value to the Buffer.Polled data item.

| Data Item                         | Data Type | Access     | Description   |
|-----------------------------------|-----------|------------|---|
| Buffer.Identifier                 | String    | Read/Write | A string containing a single character representing the buffer identifier. It may be one of the following:<br><br>N: Pump On<br>P: Present<br>S: Shutdown<br><br>The default setting is N.  |
| Buffer.LoadType                   | String    | Read/Write | Specifies the format of load data returned. It may be one of the following:<br><br>P: Pounds<br>F: Fractional<br><br>The default setting is P.  |
| Buffer.FormattedLoadPrecision     | String    | Read/Write | If LoadType is in pounds, this value represents the precision of load value. It may be 3: 3 hex digits. The default setting is 3.   |
| Buffer.PositionInclusionAndType   | String    | Read/Write | Determines the format of returned position data values. It may be one of the following:<br><br>V: Voltage values.<br>S: Fractional synthesized position values.<br>F: Fractional actual position values.<br><br>The default setting is F. |
| Buffer.FormattedPositionPrecision | String    | Read/Write | If PositionInclusionAndType is set to "F," this value represents the precision of position values. It may be 3: 3 hex digits. The default setting is 3.   |
| Buffer.NumberOfCycles             | Short     | Read/Write | The number of cycles the device will copy into the buffer. If this value is set to zero, the server will attempt to copy all available data. The default setting is 1.  |
| Buffer.CycleMarkingCharacter      | String    | Read/Write | Specifies where the well cycles are marked. This item is ignored if NumberOfCycles is zero, and PositionInclusionAndType is "F". It may be B: Start and/or mark copied well cycles at bottom of stroke. The default setting is B.         |
| Buffer.OverlapFlag                | String    | Read/Write | Specifies the amount of data overlap since the last read. It may be N: No overlap. The default setting is N.  |
| Buffer.MaxMsgDatapoints           | Short     | Read/Write | Maximum number of data points to return in a message. The valid range is 60 to 280. The default setting is 80.  |
| Buffer.Trigger                    | Short     | Write Only | Writing a non-zero value to this item triggers the retrieval of buffered data according to the values in parameter items.   |

|                 |              |            |   |
|-----------------|--------------|------------|---|
|                 |              |            | <b>Note:</b> The write will fail if the .Polled item is non-zero.   |
| Buffer.Polled   | Short        | Read/Write | Writing to this item enables or disables polling. When set to a non-zero value, polling will be enabled. When set to zero, polling will be disabled. The default setting is 0.<br><br><b>Note:</b> When polling is enabled, reads will update the output items .Load, .Position, and .Result. |
| Buffer.Load     | Array, DWord | Read Only  | Array of load value returned by the buffer function. The size of the array returned equals the number of points returned by Function Code 16.<br><br><b>Note:</b> No data is indicated by a single value of 0x80000000.   |
| Buffer.Position | Array, DWord | Read Only  | Array of position values returned by the buffer function. The size of the array returned equals the number of points returned by Function Code 16.<br><br><b>Note:</b> No data is indicated by a single value of 0x80000000.  |
| Buffer.Result   | Short        | Read Only  | The result code of the function.  |

### Command Items

These data items provide support for function 15. They allow a client to execute a Command parameter.

| Data Item          | Data Type | Access     | Description  |
|--------------------|-----------|------------|--|
| Command.Value      | Long      | Read/Write | Writing a value to this item will trigger a command parameter item. The value written to this item must be the number of the command parameter item. |
| Command.Result     | Short     | Read Only  | The result code of this function.  |
| Command.ResultData | String    | Read Only  | The data returned by the command.  |

### Well Command Items

Well Command Items enables users to execute the commands used to turn a well on or force it into idle time.

| Data Item   | Data Type | Access     | Description   |
|-------------|-----------|------------|---|
| ClearError  | Boolean   | Write Only | Supports function 11: Clear All Slave Errors. When written to, the server will send function 11 to the device.      |
| IdleCommand | Boolean   | Write Only | Implements function 17: Force Well Into Idle Time. When written to, the server will send function 17 to the device. |
| RunCommand  | Boolean   | Write Only | Supports function 18: Turn Well On. When written to, the server will send function 18 to the device.                |

### Dynagraph and Xdynagraph10 Items

The Dynagraph data item consists of an Array of DWords. The item syntax is *Dynagraph:(ST,SH,LA):(P,L)[:NumCycles[:MaxPoints[:StartingIndex]]]*. For more information on the format of the array, refer to the table below.

#### Dynagraph Parameters

| Parameters | Description  |
|------------|--|
| ST, SH, LA | Collection time.<br><br>ST: Startup<br>SH: Shutdown<br>LA: Live Action |
| P, L       | Card Type.   |

|                |   |
|----------------|---|
|                | P: Percentage<br>L: Load  |
| Num Cycles     | Number of cycles the device will copy into the buffer. This is optional. The valid range is 0 to 255.<br><br>(DEFAULT - 0 = all available data)                     |
| Max Points     | Maximum number of points the device will transmit in a single message. This is optional. The valid range is 60 to 280. The default setting is 80.                   |
| Starting Index | Index of the starting point to be copied from the device. This is optional. The valid range is 0 to 4095.<br><br>(DEFAULT - 0 = start at the beginning of the data) |

### Event/Fault Retrieval

The Weatherford 8500 Serial Driver can retrieve a list of faults or events and supply them in Array of Long format. The following syntax can be used to retrieve this list: *Xdynagraph10:(E,F):GetDirectory*.

| Parameters   | Description  |
|--------------|--|
| Xdynagraph10 | The version of the extension protocol to use.                |
| E, F         | Buffer Type.<br><br>E: Event/alarm buffer<br>F: Fault buffer |

The array of values returned for this item are formatted as follows:

| Index | Value                | Data Types |
|-------|----------------------|------------|
| 0     | Timestamp Date.      | Long       |
| 1     | Timestamp Time.      | Long       |
| 2     | Reason Code.         | Long       |
| 3...  | Next Event or Fault. | Long       |

### Extended Dynagraph Parameters

Using Function Code 16 Extension Protocol v.1.0, the driver can retrieve the dynagraph card for any given index and supply it in Array of DWord format. The item syntax is *(Xdynagraph10):(E,F):GetCard:Index:(P,L) [:NumofCards[:NumofPoints[:PointStartingIndex]]]*.

| Parameters         | Description   |
|--------------------|---|
| Xdynagraph10       | The version of the extension protocol to use.   |
| E, F               | Buffer Type.<br><br>E: Event/alarm buffer<br>F: Fault buffer  |
| Index              | Card set index to retrieve.<br><br>Valid range is 0 to 254 for extended protocol v1.0. An index of 0 returns the last recorded event, 1 returns the second last, and so on. |
| P, L               | Card Type.<br><br>P: Percentage<br>L: Load  |
| NumofCards         | Number of cycles the device will copy into the buffer. This is optional. The valid range is 0 to 255.<br><br>(DEFAULT - 0 = all available data)                             |
| NumofPoints        | Maximum number of points the device will transmit in a single message. This is optional. The valid range is 60 to 280. The default setting is 80.                           |
| PointStartingIndex | Index of the starting point to be copied from the device. The valid range is 0 to 4095.<br><br>(DEFAULT - 0 = start at the beginning of the data)                           |

**Dynagraph and Xdynagraph10 Data Format**

| Index                      | Value  | Data Type | Description  |
|----------------------------|--|-----------|--|
| 0                          | 3  | DWord     | Dynagraph format version.  |
| 1                          | 10   | DWord     | Well Data Start Index.   |
| 2                          | Number of position points +<br>Number of load points<br>returned.  | DWord     | Well Data Length.  |
| 3                          | Date or 0  | DWord     | Date if Xdynagraph10.  |
| 4                          | Time or 0  | DWord     | Time if Xdynagraph10.  |
| 5                          | 1: Percent<br>2: Load  | DWord     | Card Type.   |
| 6                          | Dynagraph:<br>1: Startup<br>2: Shutdown<br>4: Live Action<br><br>Xdynagraph10:<br>5: Event/Alarm<br>6: Fault | DWord     | Collection Time if Dynagraph.<br>Buffer Type if Xdynagraph10.  |
| 7                          | 0  | DWord     | Reserved.  |
| 8                          | 0  | DWord     | Reserved.  |
| 9                          | The 16-bit reason code asso-<br>ciated with the event or 0.  | DWord     | Reason Code if Xdynagraph10.   |
| Well Data First Pos Index  | Value of the first position point.   | DWord     | Well Data First Position Point.<br><br><b>Note:</b> Index is equal to Well Data Start Index.                       |
| Well Data First Load Index | Value of the first load point.   | DWord     | Well Data First Load Point.<br><br><b>Note:</b> Index is equal to Well Data Start Index + 1.                       |
| ...                        |  |           |  |
| Well Data Last Pos Index   | Value of the last position point.  | DWord     | Well Data Last Position Point.<br><br><b>Note:</b> Index is equal to Well Data Start Index + Well Data Length - 2. |
| Well Data Last Load Index  | Value of the last load point.  | DWord     | Well Data Last Load Point.<br><br><b>Note:</b> Index is equal to Well Data Start Index + Well Data Length - 1.     |

**Surface and Downhole Items****Event Directory Retrieval**

The Weatherford 8500 Serial Driver can retrieve a list of fault, alarm, or plain events using Function code 24 and supply them in an Array of DWord format. The item syntax is *EventDirectory:(F,A,P)[:MaxEvents]*.

| Parameter | Description   |
|-----------|---|
| F, A, P   | Event Type.<br><br>F: Fault Events<br>A: Alarm Events<br>P: Plain Events  |
| MaxEvents | The maximum number of events to return in each protocol packet response. The range is 20 to 100. The default setting is 30. |

The array of values returned for this item are formatted as follows:

| Index | Value   | Data Type |
|-------|---|-----------|
| 0     | Event Identification Number (ID) for Event 1. | DWord     |

|      |  |       |
|------|--|-------|
| 1    | Reason Code for Event 1.                           | DWord |
| 2    | Event Timestamp for Event 1.                       | DWord |
| 3    | Number of cards stored with the event for Event 1. | DWord |
| 4    | Downhole data available for Event 1.               | DWord |
| 5... | Next Event Data (up to 256 events).                | DWord |

**Note:** If no events are available, a single event will be returned to indicate as much. It will be formatted as displayed in the table below.

| Index | Value   | Data Type |
|-------|---|-----------|
| 0     | Event Identification Number (Id) = 0xFFFF0000 | DWord     |
| 1     | Reason Code = 0x0000FFFF                      | DWord     |
| 2     | Event Timestamp = 0                           | DWord     |
| 3     | Number of cards = 0                           | DWord     |
| 4     | Downhole data available = 0                   | DWord     |

### Surface and Downhole Card Retrieval

The Weatherford 8500 Serial Driver can retrieve Surface and Downhole data using Function code 25 and supply it in an Array of DWord format. The item syntax is *SurfaceAndDownhole:(ST,SH,LA,EV):(S,D):EventId:NumStrokes[:MaxPoints]*.

| Parameter      | Description   |
|----------------|---|
| ST, SH, LA, EV | Card Type.<br><br>ST: Startup<br>SH: Shutdown<br>LA: Live Action<br>EV: Event   |
| S, D, B        | Location.<br><br>S: Surface<br>D: Downhole<br>B: Both Surface and Downhole  |
| EventID        | Event Identifier. Identifies an event from the event buffer directory or a card set from a previous card request. The range is 0 to 4095. |
| NumStrokes     | Number of strokes of data to return. The range is 0 to 5.   |
| MaxPoints      | Max number of data points to return in each response. The range is 60 to 280. The default setting is 80.                                  |

The array of values returned for this item are formatted as follows:

**Note:** There is the same number of points in the surface and downhole cards for each card.

| Index   | Value  | Data Type |
|---|--|-----------|
| 0   | Event header.Event Id  | DWord     |
| 1   | Event header.Reason Code                                     | DWord     |
| 2   | Event header.Timestamp                                       | DWord     |
| 3   | Event header.card count                                      | DWord     |
| 4   | Event header.Load Scaling Index                              | DWord     |
| 5   | Card #1 header.Data Count                                    | DWord     |
| 6   | Card #1 header.Original Data Count                           | DWord     |
| 7   | Card #1 header.Skip Factor                                   | DWord     |
| 8   | Card #1 header.Load Offset                                   | DWord     |
| 9   | Card #1 header.Pump Fillage                                  | DWord     |
| 10  | Card #1 header.Flags   | DWord     |
| 11...   | Next Card header up to Event header.card count Card headers. |           |
| Index = 5 + (Event header.card count * 6)     | Card #1 Data, Position #1                                    | DWord     |
| Index = 5 + (Event header.card count * 6) + 1 | Card #1 Data, Load #1  | DWord     |

|   |       |
|---|-------|
| ...   | DWord |
| Card #1 Data, Position # header.Data Count              | DWord |
| Card #1 Data, Load # header.Data Count                  | DWord |
| Last Card # Data, Position #1                           | DWord |
| Last Card # Data, Load #1                               | DWord |
| ...   |       |
| Last Card # Data, Position # header.Data Count          | DWord |
| Last Card # Data, Load # header.Data Count              | DWord |
| Card #1 Downhole Data, Position #1                      | DWord |
| Card #1 Downhole Data, Load #1                          | DWord |
| ...   |       |
| Card #1 Downhole Data, Position # header.Data Count     | DWord |
| Card #1 Downhole Data, Load # header.Data Count         | DWord |
| Last Card # Downhole Data, Position #1                  | DWord |
| Last Card # Downhole Data, Load #1                      | DWord |
| ...   |       |
| Last Card # Downhole Data, Position # header.Data Count | DWord |
| Last Card # Downhole Data, Load # header.Data Count     | DWord |

**Note 1:** Card Data will be either Surface or Downhole if Location is S or D.

**Note 2:** Card Downhole Data will only be present if Location is B.

**Note 3:** If an invalid Event ID is supplied when using Card Type EV, an event header will be returned to indicate as much. It will be formatted as displayed in the table below.

| Index | Value                                 | Data Type |
|-------|---------------------------------------|-----------|
| 0     | Event header.Event Id = 0xFFFF0000    | DWord     |
| 1     | Event header.Reason Code = 0x0000FFFF | DWord     |
| 2     | Event header.Timestamp = 0            | DWord     |
| 3     | Event header.card count = 0           | DWord     |
| 4     | Event header.Load Scaling Index = 0   | DWord     |

## Parameter Items

Parameter items allow access to device parameters. The syntax for a parameter item is *Param:xxxx.Value[-Specifier]*, where "xxxx" represents the parameter number to be accessed and "Specifier" is one of the following identifiers:

| Data Item           | Data Type | Access | Description   |
|---------------------|-----------|--------|---|
| Param:xxxx.Value    | String    | *      | The raw data value for this parameter.                            |
| Param:xxxx.Value;S  | Short     | *      | 2-byte signed integer.  |
| Param:xxxx.Value;B  | Byte      | *      | 1-byte unsigned integer.  |
| Param:xxxx.Value;W  | Word      | *      | 2-byte unsigned integer.  |
| Param:xxxx.Value;L  | DWord     | *      | 4-byte unsigned integer.  |
| Param:xxxx.Value;F  | Float     | *      | 32-bit floating point number.                                     |
| Param:xxxx.Value;TS | DWord     | *      | 3-byte timestamp, stored as the number of seconds since midnight. |
| Param:xxxx.Value;TH | DWord     | *      | 3-byte timestamp, stored in hexadecimal digits as 00HHMMSS.       |
| Param:xxxx.Value;DH | DWord     | *      | 3-byte date, stored in hexadecimal digits as 00YYMMDD.            |

\*Access varies according to the parameter number. Users must look at the parameter listings to find the access for the parameter that is to be obtained. For example, when looking at Parameters 1-300, parameter 1 is Read/Write and parameter 5 is Read Only. For more information on a specific parameter, refer to [Address Descriptions](#).

## Array Support



Arrays are allowed for all data type format specifiers, and are Read Only. The array syntax is *Param:xxxx.Value;Specifier[Size]*. Examples of the syntax are as follows:

```
Param:00054.Value;B[2]
Param:00930.Value;W[30]
```

**Note 1:** All arrays are two-dimensional. Size specifies the number of columns; a row size of 1 is implicit. Size cannot exceed 225. For example, "Param:xxx.Value;W[20]" will be returned as an Array of Words with dimensions "[1][20]".

**Note 2:** All items in array must have the same native 8500 data type. If all items do not have the same native 8500 data type when the read is processed, an error will be generated and the quality will be Bad.

### Parameter Listings Override

A method to override the check of a parameter address against the parameter listings table within the driver is provided for the following:

1. New parameters that are undefined.
2. Defined parameters that change data type.

The override syntax is *Param:xxxx.Value [;Specifier];OV* and *Param:xxxx.Value ;Specifier [Size];OV*. Examples of the syntax are as follows:

1. Param:04000.Value;B;OV. This specifies that parameter 4000 is of type Byte, and that it is not in the driver table. The default access is Read/Write.
2. Param:04010.Value;OV. This specifies that parameter 4010 is of type String, and that it is not in the driver table. The default access is Read/Write.

**Caution:** The parameter listings override should only be used by advanced users.

## WellPilot RPOC Parameter Listings

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For information on a specific range of parameters, select a link from the list below.

- [Parameters 1-300](#)
- [Parameters 301-600](#)
- [Parameters 601-900](#)
- [Parameters 901-1199](#)
- [Parameters 1202-1500](#)
- [Parameters 1501-1800](#)
- [Parameters 1801-2100](#)
- [Parameters 2101-2400](#)
- [Parameters 2401-2700](#)
- [Parameters 2701-3000](#)
- [Parameters 3001-3300](#)
- [Parameters 3301-3659](#)

**Important:** For additional parameter details, refer to the device's User Manual.

### Parameters 1-300

---

| Parameter | 8500 Native Type | Access     | Description               |
|-----------|------------------|------------|---------------------------|
| 1         | Word             | Read/Write | User Password Entry.      |
| 2         | Word             | Read/Write | Unit Address (ID).        |
| 3         | Time24           | Read/Write | Current Time of Day.      |
| 4         | Date             | Read/Write | Today's Date.             |
| 5         | Byte             | Read Only  | Day of the week.          |
| 6         | Command          | Read/Write | Manual set TOS.           |
| 7         | Command          | Read/Write | Auto set TOS.             |
| 8         | Display          | Read Only  | TOS to PSW stroke fract.  |
| 10        | Command          | Read/Write | Print Parameter List.     |
| 14        | Byte             | Read Only  | Load units (Lb/Kg).       |
| 15        | Byte             | Read/Write | Date Display Format.      |
| 16        | Byte             | Read/Write | Time of Day Format.       |
| 17        | Byte             | Read/Write | Elapsed Time Format.      |
| 18        | Command          | Read/Write | Show Parameter List.      |
| 19        | Command          | Read/Write | Show Parameter Structure. |
| 20        | Time             | Read/Write | Idle time.                |
| 21        | Byte             | Read/Write | Pump-off Position %.      |
| 22        | Byte             | Read/Write | Pump-off Action.          |
| 23        | Byte             | Read/Write | Pump-off Load %.          |
| 24        | Byte             | Read/Write | POC strokes for pumpoff.  |
| 25        | Time             | Read/Write | Pump-up delay.            |
| 26        | Byte             | Read/Write | POC Method.               |
| 27        | Time             | Read/Write | POC Override timer.       |
| 28        | Byte             | Read/Write | Ovr timer powerup action. |
| 29        | Byte             | Read/Write | Motor speed control type. |
| 30        | Byte             | Read/Write | POC control source.       |
| 31        | Command          | Read/Write | Manual off/reset.         |
| 32        | Command          | Read/Write | Manual ctrl xfer.         |
| 33        | Command          | Read/Write | Manual s/ware timer.      |
| 34        | Byte             | Read/Write | Position input source.    |
| 35        | Byte             | Read/Write | Load input source.        |
| 36        | Time             | Read/Write | Target cycle time.        |
| 37        | Byte             | Read/Write | Action for under 50% run. |
| 38        | Time             | Read/Write | Off time limit - max.     |
| 39        | Byte             | Read/Write | Off time limit enable.    |

|    |         |            |                               |
|----|---------|------------|-------------------------------|
| 40 | Byte    | Read/Write | % ABC goal value.             |
| 41 | Byte    | Read/Write | % ABC dead band value.        |
| 42 | Word    | Read Only  | Up stroke peak value.         |
| 43 | Word    | Read Only  | Down stroke peak value.       |
| 44 | Word    | Read Only  | Peak difference in mV.        |
| 45 | SWord   | Read Only  | Peak difference in %.         |
| 46 | Word    | Read/Write | Air balance purge time.       |
| 47 | Byte    | Read/Write | Details on Stat Screen.       |
| 48 | Word    | Read/Write | User Def Learn SPM.           |
| 50 | Byte    | Read/Write | Peak energy ctrl. enable.     |
| 51 | Time24  | Read/Write | Begin run inhibit time.       |
| 52 | Time24  | Read/Write | End run inhibit time.         |
| 53 | Time    | Read/Write | Power On Restart Delay.       |
| 54 | Byte    | Read/Write | Startup Control State.        |
| 55 | Byte    | Read/Write | Time to Idle at Startup.      |
| 56 | Byte    | Read/Write | Use random startup delay.     |
| 57 | Word    | Read Only  | Min Speed Gauge[0].           |
| 58 | Word    | Read Only  | Min Speed Gauge[1].           |
| 59 | Word    | Read Only  | Min Speed Gauge[2].           |
| 60 | Word    | Read Only  | Max Speed Gauge[0].           |
| 61 | Word    | Read Only  | Max Speed Gauge[1].           |
| 62 | Word    | Read Only  | Max Speed Gauge[2].           |
| 63 | Byte    | Read/Write | Strain gauge Target type.     |
| 64 | Byte    | Read/Write | Conditions for SG adjust.     |
| 65 | Word    | Read/Write | Cycle minimum target.         |
| 66 | Word    | Read/Write | Cycle average target.         |
| 67 | Word    | Read/Write | Cycle maximum target.         |
| 68 | Word    | Read/Write | SG Load step limit in pounds. |
| 69 | Word    | Read Only  | SG Load step limit in uV.     |
| 70 | Command | Read/Write | Set Load Zero.                |
| 71 | Word    | Read/Write | Offset in offset mV.          |
| 72 | Display | Read Only  | Offset in volts.              |
| 73 | Word    | Read/Write | Known load to set gain.       |
| 74 | SWord   | Read/Write | Load input gain.              |
| 75 | Display | Read Only  | Load gain Lb/mV or Kg/mV.     |
| 76 | Word    | Read Only  | Load raw input and volts.     |
| 77 | Word    | Read Only  | Load input in mV.             |
| 78 | Word    | Read Only  | Load input in pounds.         |
| 79 | Word    | Read Only  | Min load last stroke.         |
| 80 | Word    | Read Only  | Max load last stroke.         |
| 81 | Word    | Read/Write | Calibration minimum load.     |
| 82 | Word    | Read/Write | Calibration maximum load.     |
| 83 | Word    | Read Only  | Min load from last start.     |
| 84 | Word    | Read Only  | Max load from last start.     |
| 85 | Word    | Read Only  | Min load since power up.      |
| 86 | Word    | Read Only  | Max load since power up.      |
| 87 | Word    | Read Only  | Span over last stroke.        |
| 88 | Word    | Read Only  | Min span since power up.      |
| 89 | Word    | Read Only  | Load Average last stroke.     |
| 90 | Word    | Read Only  | Min average since pwr up.     |
| 91 | Word    | Read Only  | Max average since pwr up.     |
| 92 | Word    | Read Only  | Min load since pwr up mV.     |
| 93 | Word    | Read Only  | Max load since pwr up mV.     |
| 94 | Command | Read/Write | Reset pwrup min/max.          |
| 95 | Word    | Read Only  | Load fail ADC raw and V.      |

|     |         |            |                            |
|-----|---------|------------|----------------------------|
| 96  | Word    | Read Only  | Load fail input in mV.     |
| 97  | Word    | Read/Write | Load Scaling Low.          |
| 98  | Word    | Read/Write | Load Scaling High.         |
| 99  | Command | Read/Write | Cal. Load Sensor.          |
| 100 | Command | Read/Write | Cal. Position Ref.         |
| 101 | Byte    | Read/Write | Position Synthesis Type.   |
| 102 | Word    | Read Only  | Position raw input & Vlts. |
| 103 | Word    | Read Only  | Position input in volts.   |
| 104 | Word    | Read Only  | Min Position last stroke.  |
| 105 | Word    | Read Only  | Max Position last stroke.  |
| 106 | Word    | Read Only  | Pos span last stroke.      |
| 107 | Word    | Read Only  | Pos span filtered.         |
| 108 | Word    | Read/Write | Dir. debounce time.        |
| 109 | Byte    | Read Only  | Bottoms w/no pos. fault.   |
| 110 | Command | Read/Write | Clear Position Ref.        |
| 113 | Byte    | Read/Write | MK-II Compensate Pos.      |
| 114 | Byte    | Read/Write | DPS: Load De-skew.         |
| 115 | Byte    | Read/Write | LLoad Cycles for stage 2.  |
| 116 | Byte    | Read/Write | LL Stg.2 strokes f/viol.   |
| 117 | Byte    | Read/Write | LL Stg.2 cycles f/action.  |
| 120 | Word    | Read/Write | Scratch data [0].          |
| 121 | Word    | Read/Write | Scratch data [1].          |
| 122 | Word    | Read/Write | Scratch data [2].          |
| 123 | Word    | Read/Write | Scratch data [3].          |
| 124 | Word    | Read/Write | Scratch data [4].          |
| 125 | Byte    | Read/Write | Good strokes for filter.   |
| 127 | Byte    | Read/Write | Enable PSW as R/S input.   |
| 128 | Byte    | Read/Write | Good strokes f/PSW reset.  |
| 129 | Byte    | Read/Write | Log cleared PSW error.     |
| 130 | Word    | Read/Write | TOS to PSW stroke fract.   |
| 131 | Command | Read/Write | Reverse PSW setting.       |
| 132 | Word    | Read Only  | Last PSW interval.         |
| 133 | Byte    | Read/Write | Close debounce interval.   |
| 134 | Byte    | Read/Write | Open debounce interval.    |
| 135 | Byte    | Read/Write | Use PSW opening.           |
| 136 | Byte    | Read/Write | Filtered interval min %.   |
| 137 | Byte    | Read/Write | Filtered interval max %.   |
| 138 | Byte    | Read Only  | Filtered strokes counter.  |
| 139 | Word    | Read Only  | Last Stroke interval.      |
| 140 | Word    | Read Only  | Filtered Stroke interval.  |
| 141 | Word    | Read Only  | Last Stroke Well Speed.    |
| 142 | Word    | Read Only  | Filtered Well Speed.       |
| 143 | Byte    | Read Only  | Bottoms counter.           |
| 144 | Byte    | Read Only  | Debounce closed flag.      |
| 145 | Word    | Read Only  | Debounce closed interval.  |
| 146 | Word    | Read Only  | Raw Switch Closings.       |
| 147 | Word    | Read Only  | Switches since On/Off.     |
| 148 | Byte    | Read Only  | BOS Count (no PSW fault).  |
| 149 | Command | Read/Write | Change speed.              |
| 150 | Byte    | Read Only  | Legacy line frequency.     |
| 155 | Display | Read Only  | Ethernet MAC Address.      |
| 156 | Long    | Read/Write | Ethernet IP Address.       |
| 157 | Long    | Read/Write | Ethernet Netmask.          |
| 158 | Long    | Read/Write | Ethernet Gateway.          |
| 159 | Display | Read Only  | Ethernet Status.           |

|     |      |            |                              |
|-----|------|------------|------------------------------|
| 168 | Word | Read/Write | AI Latch Alarms.             |
| 174 | Byte | Read Only  | Dyno Data Skip Factor.       |
| 175 | Byte | Read Only  | Comm SkipFactor.             |
| 176 | Word | Read Only  | Comm Interval.               |
| 180 | Word | Read Only  | DI status bits.              |
| 181 | Word | Read/Write | DI 1 low order counts.       |
| 182 | Word | Read/Write | DI 1 high order counts.      |
| 183 | Word | Read/Write | DI 2 low order counts.       |
| 184 | Word | Read/Write | DI 2 high order counts.      |
| 185 | Word | Read/Write | DI 3 low order counts.       |
| 186 | Word | Read/Write | DI 3 high order counts.      |
| 187 | Word | Read/Write | DI 4 low order counts.       |
| 188 | Word | Read/Write | DI 4 high order counts.      |
| 189 | Word | Read/Write | DI 5 low order counts.       |
| 190 | Word | Read/Write | DI 5 high order counts.      |
| 191 | Word | Read/Write | DI 6 low order counts.       |
| 192 | Word | Read/Write | DI 6 high order counts.      |
| 193 | Word | Read Only  | AI Status as DI.             |
| 194 | Word | Read/Write | AI 1 low counts.             |
| 195 | Word | Read/Write | AI 1 high counts.            |
| 196 | Word | Read/Write | AI 2 low counts.             |
| 197 | Word | Read/Write | AI 2 high counts.            |
| 198 | Word | Read/Write | AI 3 low counts.             |
| 199 | Word | Read/Write | AI 3 high counts.            |
| 200 | Byte | Read/Write | Sensor Failure Action.       |
| 204 | Byte | Read/Write | No. Run times to average.    |
| 205 | Time | Read Only  | Recorded average on time.    |
| 206 | Time | Read/Write | Manual set timer on time.    |
| 207 | Time | Read Only  | Latest average on time.      |
| 208 | Word | Read/Write | Low Low Load Limit.          |
| 209 | Byte | Read/Write | Low Low Load Action.         |
| 210 | Word | Read/Write | Low Load Limit.              |
| 211 | Word | Read/Write | High Load Limit.             |
| 212 | Word | Read/Write | Low Average Load Limit.      |
| 213 | Byte | Read/Write | High Load Violation Strokes. |
| 214 | Byte | Read/Write | High Load Action.            |
| 215 | Byte | Read/Write | Low Load Violation Strokes.  |
| 216 | Byte | Read/Write | Low Load Action.             |
| 217 | Word | Read/Write | Load Violation Deadband.     |
| 218 | Word | Read/Write | High High Load Limit.        |
| 219 | Byte | Read/Write | High High Load Action.       |
| 220 | Byte | Read/Write | Off time multiplier.         |
| 221 | Time | Read/Write | Limit to multiplied time.    |
| 222 | Byte | Read/Write | Low Load Span Strokes.       |
| 223 | Word | Read/Write | Low Load Span Limit.         |
| 225 | Byte | Read/Write | Low Load Span Action.        |
| 226 | Time | Read/Write | Load span Well off timer.    |
| 227 | Time | Read/Write | Load span Well on timer.     |
| 228 | Byte | Read/Write | Pumpoffs to clear P227.      |
| 230 | Byte | Read/Write | Immediate pumpoffs for viol. |
| 231 | Byte | Read/Write | Immediate Pumpoff Action.    |
| 232 | Time | Read/Write | Min run time.                |
| 233 | Byte | Read/Write | Min run times for action.    |
| 234 | Byte | Read/Write | Min run time action.         |
| 235 | Time | Read/Write | Maximum cycle run time.      |

|     |       |            |                             |
|-----|-------|------------|-----------------------------|
| 236 | Byte  | Read/Write | Max cycle runtime Action.   |
| 237 | Time  | Read/Write | Maximum daily run time.     |
| 238 | Byte  | Read/Write | Max daily runtime action.   |
| 239 | Time  | Read/Write | Off timer for max run.      |
| 240 | Time  | Read/Write | On timer for max run.       |
| 241 | Byte  | Read/Write | Pumpoffs to clear P240.     |
| 242 | Time  | Read Only  | Qualified cycle on timer.   |
| 243 | Time  | Read Only  | Qualified daily on timer.   |
| 245 | Byte  | Read/Write | Viol.entry deglitch time.   |
| 246 | Byte  | Read/Write | Viol. exit deglitch time.   |
| 249 | Byte  | Read/Write | AI 1 low action.            |
| 250 | Byte  | Read/Write | AI 1 high action.           |
| 251 | Byte  | Read/Write | AI 2 low action.            |
| 252 | Byte  | Read/Write | AI 2 high action.           |
| 253 | Byte  | Read/Write | AI 3 low action.            |
| 254 | Byte  | Read/Write | AI 3 high action.           |
| 255 | Word  | Read Only  | Current Card Area.          |
| 256 | Word  | Read/Write | Minimum Card Area.          |
| 257 | Byte  | Read/Write | Minimum Card Area Action.   |
| 258 | Word  | Read/Write | Maximum Card Area.          |
| 259 | Byte  | Read/Write | Maximum Card Area Action.   |
| 260 | Byte  | Read/Write | Control Failure Action.     |
| 261 | Time  | Read/Write | Control Failure Timeout.    |
| 262 | Byte  | Read/Write | Pump On settling time.      |
| 263 | Byte  | Read/Write | Pump Off settling time.     |
| 265 | Word  | Read Only  | Min Position last cycle.    |
| 266 | Word  | Read Only  | Max Position last cycle.    |
| 267 | Word  | Read Only  | Min Position since powerup. |
| 268 | Word  | Read Only  | Max Position since powerup. |
| 269 | Word  | Read Only  | Min Pos Span since powerup. |
| 270 | Word  | Read/Write | Min position span.          |
| 271 | Word  | Read/Write | Min position value.         |
| 272 | Word  | Read/Write | Max position value.         |
| 273 | Byte  | Read/Write | Pos. fault entry time.      |
| 274 | Word  | Read Only  | Min Load Gauge[0].          |
| 275 | Word  | Read Only  | Min Load Gauge[1].          |
| 276 | Word  | Read Only  | Min Load Gauge[2].          |
| 277 | Word  | Read Only  | Max Load Gauge[0].          |
| 278 | Word  | Read Only  | Max Load Gauge[1].          |
| 279 | Word  | Read Only  | Max Load Gauge[2].          |
| 280 | Word  | Read Only  | AI-1 Raw input and volts.   |
| 281 | Word  | Read Only  | AI-1 Input value.           |
| 282 | SWord | Read Only  | AI-1 Scaled EGU value.      |
| 283 | Byte  | Read/Write | AI-1 Input type.            |
| 284 | Byte  | Read/Write | AI-1 EGU decimal places.    |
| 285 | Byte  | Read/Write | AI-1 EGU label.             |
| 286 | SWord | Read/Write | AI-1 Scaling low value.     |
| 287 | SWord | Read/Write | AI-1 Scaling high value.    |
| 288 | SWord | Read/Write | AI-1 Low alarm limit.       |
| 289 | Byte  | Read/Write | AI-1 Low alarm action 1.    |
| 290 | Byte  | Read/Write | AI-1 Low alarm action 2.    |
| 291 | SWord | Read/Write | AI-1 High alarm limit.      |
| 292 | Byte  | Read/Write | AI-1 High alarm action 1.   |
| 293 | Byte  | Read/Write | AI-1 High alarm action 2.   |
| 294 | Word  | Read/Write | AI-1 Alarms deadband.       |

|     |         |            |                           |
|-----|---------|------------|---------------------------|
| 295 | SWord   | Read Only  | AI-1 Min record value.    |
| 296 | SWord   | Read Only  | AI-1 Max record value.    |
| 299 | Command | Read/Write | AI-1 Rst min/max.         |
| 300 | Word    | Read Only  | AI-1 last stroke average. |

### Parameters 301-600

| Parameter | 8500 Native Type | Access     | Description               |
|-----------|------------------|------------|---------------------------|
| 301       | Word             | Read Only  | AI-1 Min stroke average.  |
| 302       | Word             | Read Only  | AI-1 Max stroke average.  |
| 309       | Word             | Read Only  | AI Alarm status bits.     |
| 310       | Word             | Read Only  | AI-2 Raw input and volts. |
| 311       | Word             | Read Only  | AI-2 Input value.         |
| 312       | SWord            | Read Only  | AI-2 Scaled EGU value.    |
| 313       | Byte             | Read/Write | AI-2 Input type.          |
| 314       | Byte             | Read/Write | AI-2 EGU decimal places.  |
| 315       | Byte             | Read/Write | AI-2 EGU label.           |
| 316       | SWord            | Read/Write | AI-2 Scaling low value.   |
| 317       | SWord            | Read/Write | AI-2 Scaling high value.  |
| 318       | SWord            | Read/Write | AI-2 Low alarm limit.     |
| 319       | Byte             | Read/Write | AI-2 Low alarm action 1.  |
| 320       | Byte             | Read/Write | AI-2 Low alarm action 2.  |
| 321       | SWord            | Read/Write | AI-2 High alarm limit.    |
| 322       | Byte             | Read/Write | AI-2 High alarm action 1. |
| 323       | Byte             | Read/Write | AI-2 High alarm action 2. |
| 324       | Word             | Read/Write | AI-2 Alarms deadband.     |
| 325       | SWord            | Read Only  | AI-2 Min record value.    |
| 326       | SWord            | Read Only  | AI-2 Max record value.    |
| 329       | Command          | Read/Write | AI-2 Rst min/max.         |
| 330       | Word             | Read Only  | AI-3 Raw input and volts. |
| 331       | Word             | Read Only  | AI-3 Input value.         |
| 332       | SWord            | Read Only  | AI-3 Scaled EGU value.    |
| 333       | Byte             | Read/Write | AI-3 Input type.          |
| 334       | Byte             | Read/Write | AI-3 EGU decimal places.  |
| 335       | Byte             | Read/Write | AI-3 EGU label.           |
| 336       | SWord            | Read/Write | AI-3 Scaling low value.   |
| 337       | SWord            | Read/Write | AI-3 Scaling high value.  |
| 338       | SWord            | Read/Write | AI-3 Low alarm limit.     |
| 339       | Byte             | Read/Write | AI-3 Low alarm action 1.  |
| 340       | Byte             | Read/Write | AI-3 Low alarm action 2.  |
| 341       | SWord            | Read/Write | AI-3 High alarm limit.    |
| 342       | Byte             | Read/Write | AI-3 High alarm action 1. |
| 343       | Byte             | Read/Write | AI-3 High alarm action 2. |
| 344       | Word             | Read/Write | AI-3 Alarms deadband.     |
| 345       | SWord            | Read Only  | AI-3 Min record value.    |
| 346       | SWord            | Read Only  | AI-3 Max record value.    |
| 348       | Long             | Read Only  | Gauge Period Strokes.     |
| 349       | Command          | Read/Write | AI-3 Rst min/max.         |
| 350       | Command          | Read/Write | Test Fault Lamp.          |
| 351       | Command          | Read/Write | Software reset.           |
| 353       | Command          | Read/Write | System shutdown.          |
| 355       | Byte             | Read/Write | Minimum # faults.         |
| 356       | Byte             | Read/Write | Minimum # events.         |
| 357       | Word             | Read/Write | Enable Event Record[0].   |
| 358       | Word             | Read/Write | Enable Event Record[1].   |

|     |         |            |                           |
|-----|---------|------------|---------------------------|
| 359 | Word    | Read/Write | Enable Event Record[2].   |
| 360 | Word    | Read/Write | Enable Event Record[3].   |
| 361 | Word    | Read/Write | Enable Event Record[4].   |
| 362 | Word    | Read/Write | Enable Event Record[5].   |
| 363 | Word    | Read/Write | Enable Event Record[6].   |
| 364 | Word    | Read/Write | Enable Event Record[7].   |
| 365 | Command | Read/Write | Manual Record Event.      |
| 366 | Command | Read/Write | Clear Event Records.      |
| 369 | Display | Read Only  | POC display/downhole.     |
| 370 | Display | Read Only  | POC display/position.     |
| 371 | Display | Read Only  | POC display/load.         |
| 372 | Display | Read Only  | POC display/P26 method.   |
| 373 | Word    | Read Only  | Surface card pump fill %. |
| 375 | Word    | Read Only  | Estimated POC load value. |
| 376 | Word    | Read Only  | Load at POC position.     |
| 380 | Byte    | Read/Write | HAND Sw DI PntNum.        |
| 381 | Byte    | Read/Write | OFF Sw DI PntNum.         |
| 384 | Long    | Read Only  | Gauge Period Strokes.     |
| 385 | Word    | Read Only  | Avg Fillage[0].           |
| 386 | Word    | Read Only  | Avg Fillage[1].           |
| 387 | Word    | Read Only  | Avg Fillage[2].           |
| 388 | Word    | Read Only  | Avg Fillage[3].           |
| 389 | Word    | Read Only  | Last alarm event.         |
| 390 | Time24  | Read Only  | Time at last prog. stop.  |
| 391 | Date    | Read Only  | Date at last prog. stop.  |
| 392 | Time24  | Read Only  | Time at last (re)start.   |
| 393 | Date    | Read Only  | Date at last (re)start.   |
| 394 | Time    | Read Only  | Last prog. stop period.   |
| 395 | Long    | Read Only  | Last fatal error addr.    |
| 396 | Time24  | Read Only  | last error/status time.   |
| 397 | Date    | Read Only  | last error/status date.   |
| 398 | Word    | Read Only  | Days counter.             |
| 399 | Time    | Read Only  | Rollover counter.         |
| 400 | Time    | Read Only  | Pump run time[0].         |
| 401 | Time    | Read Only  | Pump run time[1].         |
| 402 | Time    | Read Only  | Pump run time[2].         |
| 403 | Time    | Read Only  | Pump run time[3].         |
| 404 | Time    | Read Only  | Pump run time[4].         |
| 405 | Time    | Read Only  | Pump run time[5].         |
| 406 | Time    | Read Only  | Pump run time[6].         |
| 407 | Time    | Read Only  | Pump run time[7].         |
| 408 | Time    | Read Only  | Pump run time[8].         |
| 409 | Time    | Read Only  | Pump run time[9].         |
| 410 | Time    | Read Only  | Pump run time[10].        |
| 411 | Time    | Read Only  | Pump run time[11].        |
| 412 | Time    | Read Only  | Pump run time[12].        |
| 413 | Time    | Read Only  | Pump run time[13].        |
| 414 | Time    | Read Only  | Pump run time[14].        |
| 415 | Time    | Read Only  | Pump run time[15].        |
| 416 | Time    | Read Only  | Pump run time[16].        |
| 417 | Time    | Read Only  | Pump run time[17].        |
| 418 | Byte    | Read Only  | Undisturbed pump cycles.  |
| 419 | Time    | Read Only  | Present pump off time.    |
| 420 | Time    | Read Only  | Daily run time[0].        |
| 421 | Time    | Read Only  | Daily run time[1].        |



|     |         |            |                             |
|-----|---------|------------|-----------------------------|
| 422 | Time    | Read Only  | Daily run time[2].          |
| 423 | Time    | Read Only  | Daily run time[3].          |
| 424 | Time    | Read Only  | Daily run time[4].          |
| 425 | Time    | Read Only  | Daily run time[5].          |
| 426 | Time    | Read Only  | Daily run time[6].          |
| 427 | Time    | Read Only  | Daily run time[7].          |
| 429 | Time24  | Read/Write | Gauge Time.                 |
| 430 | Word    | Read Only  | Today undisturbed cycles.   |
| 431 | Word    | Read Only  | Ystdy undisturbed cycles.   |
| 432 | Time    | Read Only  | Tday undisturbed avg.run.   |
| 433 | Time    | Read Only  | Yday undisturbed avg.run.   |
| 434 | Time    | Read Only  | Time to next gauge time.    |
| 435 | Word    | Read Only  | STA Cur DN Speed.           |
| 436 | Word    | Read Only  | STA Cur TOP Speed.          |
| 437 | Word    | Read Only  | STA Cur BOT Speed.          |
| 438 | Word    | Read Only  | STA Cur UP Speed.           |
| 439 | Time    | Read Only  | Tday tot.undisturbed run.   |
| 441 | Date    | Read Only  | Gauge period start date.    |
| 442 | Time    | Read Only  | Daily run time[0].          |
| 443 | Time    | Read Only  | Daily run time[1].          |
| 444 | Time    | Read Only  | Daily run time[2].          |
| 445 | Time    | Read Only  | Daily run time[3].          |
| 446 | Time    | Read Only  | Daily run time[4].          |
| 447 | Time    | Read Only  | Daily run time[5].          |
| 448 | Time    | Read Only  | Daily run time[6].          |
| 449 | Time    | Read Only  | Daily run time[7].          |
| 450 | Display | Read Only  | Base IO Firmware version.   |
| 451 | Display | Read Only  | Base IO Firmware checksum.  |
| 452 | Word    | Read Only  | CAN Display Msg Count.      |
| 453 | Word    | Read Only  | CAN PumpData Msg Count.     |
| 454 | Word    | Read Only  | CAN IO_Data Msg Count.      |
| 455 | Word    | Read/Write | CAN PumpData Min Count.     |
| 456 | Word    | Read/Write | CAN PumpData Max Count.     |
| 460 | Display | Read Only  | 00165 IO Firmware Version.  |
| 461 | Display | Read Only  | 00165 IO Firmware Checksum. |
| 467 | Byte    | Read/Write | Create System Backup.       |
| 468 | Command | Read/Write | Remove SD Card.             |
| 469 | Byte    | Read Only  | SD Card status.             |
| 470 | Byte    | Read/Write | System Restore.             |
| 471 | Command | Read/Write | Force Save Params.          |
| 472 | Command | Read/Write | Reset to defaults.          |
| 473 | Word    | Read/Write | Supervisor Password.        |
| 474 | Byte    | Read Only  | Current Security Level.     |
| 475 | Command | Read/Write | Perform Upgrade.            |
| 477 | Byte    | Read Only  | App Firmware version rev.   |
| 478 | Byte    | Read Only  | App Firmware version major. |
| 479 | Byte    | Read Only  | App Firmware version minor. |
| 489 | Byte    | Read/Write | Configuration change.       |
| 490 | Byte    | Read Only  | Legacy F/W version major.   |
| 491 | Byte    | Read Only  | Legacy F/W version minor.   |
| 492 | Word    | Read Only  | Hardware option flags[0].   |
| 493 | Word    | Read Only  | Hardware option flags[1].   |
| 494 | Word    | Read Only  | Hardware option flags[2].   |
| 496 | Word    | Read/Write | Analog inputs enable.       |
| 497 | Word    | Read/Write | Digital inputs enable.      |

|     |         |            |                           |
|-----|---------|------------|---------------------------|
| 498 | Word    | Read/Write | Ext AI msg counter.       |
| 499 | Word    | Read/Write | Ext DI msg counter.       |
| 500 | Word    | Read/Write | User Password Code.       |
| 501 | Time    | Read/Write | Pass Code Timeout.        |
| 507 | Byte    | Read/Write | EGD Contrast Setting.     |
| 508 | Byte    | Read/Write | Display Updates Per Sec.  |
| 509 | Byte    | Read/Write | Display Rolls per second. |
| 510 | Word    | Read/Write | Debug Message Control.    |
| 512 | Byte    | Read/Write | Number of Raw Cards.      |
| 513 | Byte    | Read Only  | Collecting Card Number.   |
| 520 | Word    | Read Only  | Pump Control Status 1.    |
| 521 | Word    | Read Only  | Pump Control Status 2.    |
| 522 | Word    | Read Only  | Pump Control Status 3.    |
| 523 | Command | Read/Write | Clear All Alarms.         |
| 524 | Command | Read/Write | Start Pump.               |
| 525 | Command | Read/Write | Idle Pump.                |
| 526 | Byte    | Read Only  | Pump Control State.       |
| 527 | Word    | Read Only  | Active Alarms[0].         |
| 528 | Word    | Read Only  | Active Alarms[1].         |
| 529 | Word    | Read Only  | Active Alarms[2].         |
| 530 | Word    | Read Only  | Active Alarms[3].         |
| 531 | Word    | Read Only  | Active Alarms[4].         |
| 532 | Word    | Read Only  | Active Alarms[5].         |
| 533 | Word    | Read Only  | Active Alarms[6].         |
| 534 | Word    | Read Only  | Active Alarms[7].         |
| 535 | Word    | Read Only  | Non-Clearable Alarms[0].  |
| 536 | Word    | Read Only  | Non-Clearable Alarms[1].  |
| 537 | Word    | Read Only  | Non-Clearable Alarms[2].  |
| 540 | Byte    | Read Only  | Worst Pump Control State. |
| 541 | Word    | Read Only  | Accumulated Alarms[0].    |
| 542 | Word    | Read Only  | Accumulated Alarms[1].    |
| 543 | Word    | Read Only  | Accumulated Alarms[2].    |
| 544 | Word    | Read Only  | Accumulated Alarms[3].    |
| 545 | Word    | Read Only  | Accumulated Alarms[4].    |
| 546 | Word    | Read Only  | Accumulated Alarms[5].    |
| 547 | Word    | Read Only  | Accumulated Alarms[6].    |
| 548 | Word    | Read Only  | Accumulated Alarms[7].    |
| 549 | Display | Read Only  | FW P/N.                   |
| 550 | Display | Read Only  | FW Version.               |
| 551 | Display | Read Only  | Download Apps P/N.        |
| 552 | Display | Read Only  | DL Version full ID.       |
| 553 | Display | Read Only  | DL Apps compiled date.    |
| 554 | Display | Read Only  | DL Apps compiled time.    |
| 555 | Display | Read Only  | Controller ID message.    |
| 556 | Command | Read/Write | Display Rolling ID.       |
| 557 | Display | Read Only  | Kernel Part Number.       |
| 558 | Display | Read Only  | Kernel Version.           |
| 559 | Display | Read Only  | Kernel build date & time. |
| 560 | Byte    | Read/Write | DI 1 closed action.       |
| 561 | Byte    | Read/Write | DI 1 open action.         |
| 562 | Byte    | Read/Write | DI 2 closed action.       |
| 563 | Byte    | Read/Write | DI 2 open action.         |
| 564 | Byte    | Read/Write | DI 3 closed action.       |
| 565 | Byte    | Read/Write | DI 3 open action.         |
| 566 | Byte    | Read/Write | DI 4 closed action.       |

|     |      |            |                           |
|-----|------|------------|---------------------------|
| 567 | Byte | Read/Write | DI 4 open action.         |
| 568 | Byte | Read/Write | DI 5 closed action.       |
| 569 | Byte | Read/Write | DI 5 open action.         |
| 570 | Byte | Read/Write | DI 6 closed action.       |
| 571 | Byte | Read/Write | DI 6 open action.         |
| 572 | Byte | Read/Write | DI 7 closed action.       |
| 573 | Byte | Read/Write | DI 7 open action.         |
| 574 | Byte | Read/Write | DI 8 closed action.       |
| 575 | Byte | Read/Write | DI 8 open action.         |
| 578 | Word | Read Only  | High Speed accum.lo word. |
| 579 | Word | Read Only  | High Speed accum.hi word. |
| 580 | Word | Read/Write | D/O 1 pulse timer.        |
| 581 | Word | Read/Write | D/O 2 pulse timer.        |
| 582 | Word | Read/Write | D/O 3 pulse timer.        |
| 583 | Word | Read/Write | D/O 4 pulse timer.        |
| 584 | Word | Read/Write | D/O 5 pulse timer.        |
| 585 | Word | Read/Write | D/O 6 pulse timer.        |
| 586 | Word | Read/Write | D/O 7 pulse timer.        |
| 587 | Word | Read/Write | D/O 8 pulse timer.        |
| 590 | Word | Read/Write | D/O 1 pulse ticks.        |
| 591 | Word | Read/Write | D/O 2 pulse ticks.        |
| 592 | Word | Read/Write | D/O 3 pulse ticks.        |
| 593 | Word | Read/Write | D/O 4 pulse ticks.        |
| 594 | Word | Read/Write | D/O 5 pulse ticks.        |
| 595 | Word | Read/Write | D/O 6 pulse ticks.        |
| 596 | Word | Read/Write | D/O 7 pulse ticks.        |
| 597 | Word | Read/Write | D/O 8 pulse ticks.        |
| 598 | Word | Read/Write | D/O ON flag bits.         |
| 599 | Word | Read/Write | D/O status bits.          |
| 600 | Byte | Read/Write | Simulate input data.      |

## Parameters 601-900

| Parameter | 8500 Native Type | Access     | Description                |
|-----------|------------------|------------|----------------------------|
| 601       | Byte             | Read/Write | Remote data format.        |
| 602       | Byte             | Read/Write | Remote baud rate.          |
| 603       | Word             | Read/Write | Comm. status bits.         |
| 604       | Byte             | Read/Write | Present MMI data format.   |
| 605       | Byte             | Read/Write | Present MMI baud rate.     |
| 606       | Byte             | Read/Write | Carrier detect on delay.   |
| 607       | Byte             | Read/Write | Carrier detect off delay.  |
| 608       | Byte             | Read/Write | Carrier detect drop limit. |
| 609       | Byte             | Read/Write | Radio turn on delay.       |
| 610       | Byte             | Read/Write | Radio turn off delay.      |
| 611       | Byte             | Read/Write | Max radio on time in sec.  |
| 612       | Byte             | Read/Write | Receive timeout in secs.   |
| 613       | Byte             | Read/Write | Host port protocol.        |
| 614       | Byte             | Read/Write | Modbus Card Type.          |
| 615       | Byte             | Read/Write | Modbus Card Load option.   |
| 616       | Byte             | Read/Write | Modbus Card Number.        |
| 617       | Byte             | Read/Write | Modbus Card Posn. type.    |
| 618       | Byte             | Read/Write | Dyno Data Comm. Format.    |
| 619       | Byte             | Read/Write | Position data available.   |
| 620       | Word             | Read/Write | Comm. group address.       |
| 621       | Word             | Read Only  | Max radio on time ticks.   |

|     |         |            |                           |
|-----|---------|------------|---------------------------|
| 622 | Word    | Read Only  | Max xmit msg time ticks.  |
| 623 | Word    | Read Only  | Max xmit msg in bytes.    |
| 624 | Word    | Read Only  | Xmit buffer size (bytes). |
| 625 | Byte    | Read/Write | Host port connection.     |
| 626 | Word    | Read/Write | TCP Port number.          |
| 628 | Byte    | Read/Write | All address respond time. |
| 629 | Command | Read/Write | Clear comm. stats.        |
| 630 | Display | Read Only  | Last data recvd as ASCII. |
| 631 | Word    | Read Only  | Character errors.         |
| 632 | Word    | Read Only  | Characters received.      |
| 633 | Word    | Read Only  | Header characters rcv'd.  |
| 634 | Word    | Read Only  | Trailer characters rcv'd. |
| 635 | Word    | Read Only  | Framed messages rcv'd.    |
| 636 | Word    | Read Only  | Good framed msgs rcv'd.   |
| 637 | Word    | Read Only  | Messages processed.       |
| 638 | Word    | Read Only  | Commands processed.       |
| 639 | Word    | Read Only  | Responses transmitted.    |
| 640 | Word    | Read Only  | Characters transmitted.   |
| 641 | Byte    | Read/Write | MBH Comm Port Mode.       |
| 644 | Byte    | Read/Write | Tx test spacing delay.    |
| 645 | Byte    | Read Only  | Last character received.  |
| 646 | Byte    | Read/Write | Tx test data format.      |
| 647 | Byte    | Read/Write | Tx test character.        |
| 648 | Byte    | Read/Write | Tx test time in seconds.  |
| 650 | Long    | Read Only  | Current Time of Day.      |
| 651 | Long    | Read Only  | System Shutdown Time.     |
| 652 | Long    | Read Only  | System Startup Time.      |
| 653 | Long    | Read Only  | last error/status time.   |
| 670 | Time    | Read Only  | Daily run time[0].        |
| 671 | Time    | Read Only  | Daily run time[1].        |
| 672 | Time    | Read Only  | Daily run time[2].        |
| 673 | Time    | Read Only  | Daily run time[3].        |
| 674 | Time    | Read Only  | Daily run time[4].        |
| 675 | Time    | Read Only  | Daily run time[5].        |
| 676 | Time    | Read Only  | Daily run time[6].        |
| 677 | Time    | Read Only  | Daily run time[7].        |
| 678 | Time    | Read Only  | Daily run time[8].        |
| 679 | Time    | Read Only  | Daily run time[9].        |
| 680 | Time    | Read Only  | Daily run time[10].       |
| 681 | Time    | Read Only  | Daily run time[11].       |
| 682 | Time    | Read Only  | Daily run time[12].       |
| 683 | Time    | Read Only  | Daily run time[13].       |
| 684 | Time    | Read Only  | Daily run time[14].       |
| 685 | Time    | Read Only  | Daily run time[15].       |
| 686 | Time    | Read Only  | Daily run time[16].       |
| 687 | Time    | Read Only  | Daily run time[17].       |
| 688 | Time    | Read Only  | Daily run time[18].       |
| 689 | Time    | Read Only  | Daily run time[19].       |
| 690 | Time    | Read Only  | Daily run time[20].       |
| 691 | Time    | Read Only  | Daily run time[21].       |
| 692 | Time    | Read Only  | Daily run time[22].       |
| 693 | Time    | Read Only  | Daily run time[23].       |
| 694 | Time    | Read Only  | Daily run time[24].       |
| 695 | Time    | Read Only  | Daily run time[25].       |
| 696 | Time    | Read Only  | Daily run time[26].       |

|     |         |            |                           |
|-----|---------|------------|---------------------------|
| 697 | Time    | Read Only  | Daily run time[27].       |
| 698 | Time    | Read Only  | Daily run time[28].       |
| 699 | Time    | Read Only  | Daily run time[29].       |
| 700 | Word    | Read Only  | AI-4 Raw input and volts. |
| 701 | Word    | Read Only  | AI-4 Input value.         |
| 702 | SWord   | Read Only  | AI-4 Scaled EGU value.    |
| 703 | Byte    | Read/Write | AI-4 Input type.          |
| 704 | Byte    | Read/Write | AI-4 EGU decimal places.  |
| 705 | Byte    | Read/Write | AI-4 EGU label.           |
| 706 | SWord   | Read/Write | AI-4 Scaling low value.   |
| 707 | SWord   | Read/Write | AI-4 Scaling high value.  |
| 708 | SWord   | Read/Write | AI-4 Low alarm limit.     |
| 709 | Byte    | Read/Write | AI-4 Low alarm action 1.  |
| 710 | Byte    | Read/Write | AI-4 Low alarm action 2.  |
| 711 | SWord   | Read/Write | AI-4 High alarm limit.    |
| 712 | Byte    | Read/Write | AI-4 High alarm action 1. |
| 713 | Byte    | Read/Write | AI-4 High alarm action 2. |
| 714 | Word    | Read/Write | AI-4 Alarms deadband.     |
| 715 | SWord   | Read Only  | AI-4 Min record value.    |
| 716 | SWord   | Read Only  | AI-4 Max record value.    |
| 719 | Command | Read/Write | AI-4 Rst min/max.         |
| 720 | Word    | Read Only  | AI-5 Raw input and volts. |
| 721 | Word    | Read Only  | AI-5 Input value.         |
| 722 | SWord   | Read Only  | AI-5 Scaled EGU value.    |
| 723 | Byte    | Read/Write | AI-5 Input type.          |
| 724 | Byte    | Read/Write | AI-5 EGU decimal places.  |
| 725 | Byte    | Read/Write | AI-5 EGU label.           |
| 726 | SWord   | Read/Write | AI-5 Scaling low value.   |
| 727 | SWord   | Read/Write | AI-5 Scaling high value.  |
| 728 | SWord   | Read/Write | AI-5 Low alarm limit.     |
| 729 | Byte    | Read/Write | AI-5 Low alarm action 1.  |
| 730 | Byte    | Read/Write | AI-5 Low alarm action 2.  |
| 731 | SWord   | Read/Write | AI-5 High alarm limit.    |
| 732 | Byte    | Read/Write | AI-5 High alarm action 1. |
| 733 | Byte    | Read/Write | AI-5 High alarm action 2. |
| 734 | Word    | Read/Write | AI-5 Alarms deadband.     |
| 735 | SWord   | Read Only  | AI-5 Min record value.    |
| 736 | SWord   | Read Only  | AI-5 Max record value.    |
| 739 | Command | Read/Write | AI-5 Rst min/max.         |
| 740 | Word    | Read Only  | AI-6 Raw input and volts. |
| 741 | Word    | Read Only  | AI-6 Input value.         |
| 742 | SWord   | Read Only  | AI-6 Scaled EGU value.    |
| 743 | Byte    | Read/Write | AI-6 Input type.          |
| 744 | Byte    | Read/Write | AI-6 EGU decimal places.  |
| 745 | Byte    | Read/Write | AI-6 EGU label.           |
| 746 | SWord   | Read/Write | AI-6 Scaling low value.   |
| 747 | SWord   | Read/Write | AI-6 Scaling high value.  |
| 748 | SWord   | Read/Write | AI-6 Low alarm limit.     |
| 749 | Byte    | Read/Write | AI-6 Low alarm action 1.  |
| 750 | Byte    | Read/Write | AI-6 Low alarm action 2.  |
| 751 | SWord   | Read/Write | AI-6 High alarm limit.    |
| 752 | Byte    | Read/Write | AI-6 High alarm action 1. |
| 753 | Byte    | Read/Write | AI-6 High alarm action 2. |
| 754 | Word    | Read/Write | AI-6 Alarms deadband.     |
| 755 | SWord   | Read Only  | AI-6 Min record value.    |

|     |         |            |                           |
|-----|---------|------------|---------------------------|
| 756 | SWord   | Read Only  | AI-6 Max record value.    |
| 759 | Command | Read/Write | AI-6 Rst min/max.         |
| 760 | Word    | Read Only  | AI-7 Raw input and volts. |
| 761 | Word    | Read Only  | AI-7 Input value.         |
| 762 | SWord   | Read Only  | AI-7 Scaled EGU value.    |
| 763 | Byte    | Read/Write | AI-7 Input type.          |
| 764 | Byte    | Read/Write | AI-7 EGU decimal places.  |
| 765 | Byte    | Read/Write | AI-7 EGU label.           |
| 766 | SWord   | Read/Write | AI-7 Scaling low value.   |
| 767 | SWord   | Read/Write | AI-7 Scaling high value.  |
| 768 | SWord   | Read/Write | AI-7 Low alarm limit.     |
| 769 | Byte    | Read/Write | AI-7 Low alarm action 1.  |
| 770 | Byte    | Read/Write | AI-7 Low alarm action 2.  |
| 771 | SWord   | Read/Write | AI-7 High alarm limit.    |
| 772 | Byte    | Read/Write | AI-7 High alarm action 1. |
| 773 | Byte    | Read/Write | AI-7 High alarm action 2. |
| 774 | Word    | Read/Write | AI-7 Alarms deadband.     |
| 775 | SWord   | Read Only  | AI-7 Min record value.    |
| 776 | SWord   | Read Only  | AI-7 Max record value.    |
| 779 | Command | Read/Write | AI-7 Rst min/max.         |
| 780 | Word    | Read Only  | AI-8 Raw input and volts. |
| 781 | Word    | Read Only  | AI-8 Input value.         |
| 782 | SWord   | Read Only  | AI-8 Scaled EGU value.    |
| 783 | Byte    | Read/Write | AI-8 Input type.          |
| 784 | Byte    | Read/Write | AI-8 EGU decimal places.  |
| 785 | Byte    | Read/Write | AI-8 EGU label.           |
| 786 | SWord   | Read/Write | AI-8 Scaling low value.   |
| 787 | SWord   | Read/Write | AI-8 Scaling high value.  |
| 788 | SWord   | Read/Write | AI-8 Low alarm limit.     |
| 789 | Byte    | Read/Write | AI-8 Low alarm action 1.  |
| 790 | Byte    | Read/Write | AI-8 Low alarm action 2.  |
| 791 | SWord   | Read/Write | AI-8 High alarm limit.    |
| 792 | Byte    | Read/Write | AI-8 High alarm action 1. |
| 793 | Byte    | Read/Write | AI-8 High alarm action 2. |
| 794 | Word    | Read/Write | AI-8 Alarms deadband.     |
| 795 | SWord   | Read Only  | AI-8 Min record value.    |
| 796 | SWord   | Read Only  | AI-8 Max record value.    |
| 798 | Word    | Read Only  | VSD Startup Out%.         |
| 799 | Command | Read/Write | AI-8 Rst min/max.         |
| 800 | Byte    | Read/Write | Fluid calc. X1 point.     |
| 801 | Byte    | Read/Write | Fluid calc. X2 point.     |
| 802 | Byte    | Read/Write | Fluid calc. Y1 point.     |
| 803 | Byte    | Read/Write | Fluid calc. Y2 point.     |
| 804 | Word    | Read Only  | Fluid calc.Stroke Length. |
| 805 | Byte    | Read/Write | Fluid Stroke calc.Method. |
| 806 | Word    | Read/Write | Surface stroke(in x 100). |
| 807 | Word    | Read/Write | Pump bore dia.(in x 100). |
| 808 | Word    | Read Only  | Avg. surface stroke (in). |
| 809 | Word    | Read/Write | Avg. fluid stroke (in).   |
| 810 | Word    | Read/Write | Pump efficiency (% * 10). |
| 811 | Word    | Read Only  | Daily Production[0].      |
| 812 | Word    | Read Only  | Daily Production[1].      |
| 813 | Word    | Read Only  | Daily Production[2].      |
| 814 | Word    | Read Only  | Daily Production[3].      |
| 815 | Word    | Read Only  | Daily Production[4].      |

|     |        |            |                              |
|-----|--------|------------|------------------------------|
| 816 | Word   | Read Only  | Daily Production[5].         |
| 817 | Word   | Read Only  | Daily Production[6].         |
| 818 | Word   | Read Only  | Daily Production[7].         |
| 819 | Word   | Read Only  | Daily Production[8].         |
| 820 | Word   | Read Only  | Daily Production[9].         |
| 821 | Word   | Read Only  | Daily Production[10].        |
| 822 | Word   | Read Only  | Daily Production[11].        |
| 823 | Word   | Read Only  | Daily Production[12].        |
| 824 | Word   | Read Only  | Daily Production[13].        |
| 825 | Word   | Read Only  | Daily Production[14].        |
| 826 | Word   | Read Only  | Daily Production[15].        |
| 827 | Word   | Read Only  | Daily Production[16].        |
| 828 | Word   | Read Only  | Daily Production[17].        |
| 829 | Word   | Read Only  | Daily Production[18].        |
| 830 | Word   | Read Only  | Daily Production[19].        |
| 831 | Word   | Read Only  | Daily Production[20].        |
| 832 | Word   | Read Only  | Daily Production[21].        |
| 833 | Word   | Read Only  | Daily Production[22].        |
| 834 | Word   | Read Only  | Daily Production[23].        |
| 835 | Word   | Read Only  | Daily Production[24].        |
| 836 | Word   | Read Only  | Daily Production[25].        |
| 837 | Word   | Read Only  | Daily Production[26].        |
| 838 | Word   | Read Only  | Daily Production[27].        |
| 839 | Word   | Read Only  | Daily Production[28].        |
| 840 | Word   | Read Only  | Daily Production[29].        |
| 841 | Byte   | Read/Write | Lower Band Size.             |
| 842 | Word   | Read Only  | Fluid calc. error flags.     |
| 843 | Word   | Read/Write | Preset fluid stroke.         |
| 844 | Byte   | Read Only  | Current Run Mode.            |
| 845 | Byte   | Read Only  | Fluid calc.Calculated X1.    |
| 846 | Byte   | Read Only  | Fluid calc.Calculated X2.    |
| 847 | Byte   | Read Only  | Fluid calc.Calculated Y1.    |
| 848 | Byte   | Read Only  | Fluid calc.Calculated Y2.    |
| 849 | Word   | Read Only  | Fluid Strokes calculated.    |
| 850 | Time24 | Read/Write | Start Time A Weekend.        |
| 851 | Byte   | Read/Write | Run Mode A Weekend.          |
| 852 | Time   | Read/Write | Run Time A Weekend.          |
| 853 | Time24 | Read/Write | Start Time B Weekend.        |
| 854 | Byte   | Read/Write | Run Mode B Weekend.          |
| 855 | Time   | Read/Write | Run Time B Weekend.          |
| 856 | Time24 | Read/Write | Start Time A Weekday.        |
| 857 | Byte   | Read/Write | Run Mode A Weekday.          |
| 858 | Time   | Read/Write | Run Time A Weekday.          |
| 859 | Time24 | Read/Write | Start Time B Weekday.        |
| 860 | Byte   | Read/Write | Run Mode B Weekday.          |
| 861 | Time   | Read/Write | Run Time B Weekday.          |
| 862 | Byte   | Read/Write | Timer control enable.        |
| 870 | Word   | Read/Write | Param # for User display[0]. |
| 871 | Word   | Read/Write | Param # for User display[1]. |
| 872 | Word   | Read/Write | Param # for User display[2]. |
| 873 | Word   | Read/Write | Param # for User display[3]. |
| 874 | Word   | Read/Write | Param # for User display[4]. |
| 875 | Word   | Read/Write | Param # for User display[5]. |
| 876 | Word   | Read/Write | Param # for User display[6]. |
| 877 | Word   | Read/Write | Param # for User display[7]. |

|     |         |            |                               |
|-----|---------|------------|-------------------------------|
| 878 | Word    | Read/Write | Param # for User display[8].  |
| 879 | Word    | Read/Write | Param # for User display[9].  |
| 880 | Word    | Read/Write | Param # for User display[10]. |
| 881 | Word    | Read/Write | Param # for User display[11]. |
| 890 | Word    | Read/Write | Logger channel source[0].     |
| 891 | Word    | Read/Write | Logger channel source[1].     |
| 892 | Word    | Read/Write | Logger channel source[2].     |
| 893 | Word    | Read/Write | Logger channel source[3].     |
| 894 | Word    | Read/Write | Logger channel source[4].     |
| 895 | Word    | Read/Write | Logger channel source[5].     |
| 896 | Word    | Read/Write | Logger channel source[6].     |
| 897 | Word    | Read/Write | Logger channel source[7].     |
| 898 | Byte    | Read/Write | Logger freeze channel.        |
| 899 | Command | Read/Write | Clr Logger History.           |
| 900 | Word    | Read Only  | Hour log freeze buff [0].     |

### Parameters 901-1199

| Parameter | 8500 Native Type | Access    | Description                 |
|-----------|------------------|-----------|-----------------------------|
| 901       | Word             | Read Only | Hour log freeze buff [1].   |
| 902       | Word             | Read Only | Hour log freeze buff [2].   |
| 903       | Word             | Read Only | Hour log freeze buff [3].   |
| 904       | Word             | Read Only | Hour log freeze buff [4].   |
| 905       | Word             | Read Only | Hour log freeze buff [5].   |
| 906       | Word             | Read Only | Hour log freeze buff [6].   |
| 907       | Word             | Read Only | Hour log freeze buff [7].   |
| 908       | Word             | Read Only | Hour log freeze buff [8].   |
| 909       | Word             | Read Only | Hour log freeze buff [9].   |
| 910       | Word             | Read Only | Hour log freeze buff [10].  |
| 911       | Word             | Read Only | Hour log freeze buff [11].  |
| 912       | Word             | Read Only | Hour log freeze buff [12].  |
| 913       | Word             | Read Only | Hour log freeze buff [13].  |
| 914       | Word             | Read Only | Hour log freeze buff [14].  |
| 915       | Word             | Read Only | Hour log freeze buff [15].  |
| 916       | Word             | Read Only | Hour log freeze buff [16].  |
| 917       | Word             | Read Only | Hour log freeze buff [17].  |
| 918       | Word             | Read Only | Hour log freeze buff [18].  |
| 919       | Word             | Read Only | Hour log freeze buff [19].  |
| 920       | Word             | Read Only | Hour log freeze buff [20].  |
| 921       | Word             | Read Only | Hour log freeze buff [21].  |
| 922       | Word             | Read Only | Hour log freeze buff [22].  |
| 923       | Word             | Read Only | Hour log freeze buff [23].  |
| 930       | Word             | Read Only | Daily log freeze buff [0].  |
| 931       | Word             | Read Only | Daily log freeze buff [1].  |
| 932       | Word             | Read Only | Daily log freeze buff [2].  |
| 933       | Word             | Read Only | Daily log freeze buff [3].  |
| 934       | Word             | Read Only | Daily log freeze buff [4].  |
| 935       | Word             | Read Only | Daily log freeze buff [5].  |
| 936       | Word             | Read Only | Daily log freeze buff [6].  |
| 937       | Word             | Read Only | Daily log freeze buff [7].  |
| 938       | Word             | Read Only | Daily log freeze buff [8].  |
| 939       | Word             | Read Only | Daily log freeze buff [9].  |
| 940       | Word             | Read Only | Daily log freeze buff [10]. |
| 941       | Word             | Read Only | Daily log freeze buff [11]. |
| 942       | Word             | Read Only | Daily log freeze buff [12]. |



|      |      |            |                             |
|------|------|------------|-----------------------------|
| 943  | Word | Read Only  | Daily log freeze buff [13]. |
| 944  | Word | Read Only  | Daily log freeze buff [14]. |
| 945  | Word | Read Only  | Daily log freeze buff [15]. |
| 946  | Word | Read Only  | Daily log freeze buff [16]. |
| 947  | Word | Read Only  | Daily log freeze buff [17]. |
| 948  | Word | Read Only  | Daily log freeze buff [18]. |
| 949  | Word | Read Only  | Daily log freeze buff [19]. |
| 950  | Word | Read Only  | Daily log freeze buff [20]. |
| 951  | Word | Read Only  | Daily log freeze buff [21]. |
| 952  | Word | Read Only  | Daily log freeze buff [22]. |
| 953  | Word | Read Only  | Daily log freeze buff [23]. |
| 954  | Word | Read Only  | Daily log freeze buff [24]. |
| 955  | Word | Read Only  | Daily log freeze buff [25]. |
| 956  | Word | Read Only  | Daily log freeze buff [26]. |
| 957  | Word | Read Only  | Daily log freeze buff [27]. |
| 958  | Word | Read Only  | Daily log freeze buff [28]. |
| 959  | Word | Read Only  | Daily log freeze buff [29]. |
| 968  | Byte | Read Only  | Current Runtime Segment.    |
| 969  | Byte | Read/Write | Runtime Freeze Segment      |
| 970  | Time | Read Only  | Runtime Freeze Buffer[0].   |
| 971  | Time | Read Only  | Runtime Freeze Buffer[1].   |
| 972  | Time | Read Only  | Runtime Freeze Buffer[2].   |
| 973  | Time | Read Only  | Runtime Freeze Buffer[3].   |
| 974  | Time | Read Only  | Runtime Freeze Buffer[4].   |
| 975  | Time | Read Only  | Runtime Freeze Buffer[5].   |
| 976  | Time | Read Only  | Runtime Freeze Buffer[6].   |
| 977  | Time | Read Only  | Runtime Freeze Buffer[7].   |
| 978  | Time | Read Only  | Runtime Freeze Buffer[8].   |
| 979  | Time | Read Only  | Runtime Freeze Buffer[9].   |
| 980  | Time | Read Only  | Runtime Freeze Buffer[10].  |
| 981  | Time | Read Only  | Runtime Freeze Buffer[11].  |
| 982  | Time | Read Only  | Runtime Freeze Buffer[12].  |
| 983  | Time | Read Only  | Runtime Freeze Buffer[13].  |
| 984  | Time | Read Only  | Runtime Freeze Buffer[14].  |
| 985  | Time | Read Only  | Runtime Freeze Buffer[15].  |
| 986  | Time | Read Only  | Runtime Freeze Buffer[16].  |
| 987  | Time | Read Only  | Runtime Freeze Buffer[17].  |
| 988  | Time | Read Only  | Runtime Freeze Buffer[18].  |
| 989  | Time | Read Only  | Runtime Freeze Buffer[19].  |
| 990  | Time | Read Only  | Runtime Freeze Buffer[20].  |
| 991  | Time | Read Only  | Runtime Freeze Buffer[21].  |
| 992  | Time | Read Only  | Runtime Freeze Buffer[22].  |
| 993  | Time | Read Only  | Runtime Freeze Buffer[23].  |
| 994  | Time | Read Only  | Runtime Freeze Buffer[24].  |
| 995  | Time | Read Only  | Runtime Freeze Buffer[25].  |
| 996  | Time | Read Only  | Runtime Freeze Buffer[26].  |
| 997  | Time | Read Only  | Runtime Freeze Buffer[27].  |
| 998  | Time | Read Only  | Runtime Freeze Buffer[28].  |
| 999  | Time | Read Only  | Runtime Freeze Buffer[29].  |
| 1000 | Byte | Read/Write | Host alarm 00 action.       |
| 1001 | Byte | Read/Write | Host alarm 01 action.       |
| 1002 | Byte | Read/Write | Host alarm 02 action.       |
| 1003 | Byte | Read/Write | Host alarm 03 action.       |
| 1004 | Byte | Read/Write | Host alarm 04 action.       |
| 1005 | Byte | Read/Write | Host alarm 05 action.       |

|      |         |            |                                |
|------|---------|------------|--------------------------------|
| 1006 | Byte    | Read/Write | Host alarm 06 action.          |
| 1007 | Byte    | Read/Write | Host alarm 07 action.          |
| 1008 | Byte    | Read/Write | Host alarm 08 action.          |
| 1009 | Byte    | Read/Write | Host alarm 09 action.          |
| 1010 | Byte    | Read/Write | Host alarm 10 action.          |
| 1011 | Byte    | Read/Write | Host alarm 11 action.          |
| 1012 | Byte    | Read/Write | Host alarm 12 action.          |
| 1013 | Byte    | Read/Write | Host alarm 13 action.          |
| 1014 | Byte    | Read/Write | Host alarm 14 action.          |
| 1015 | Byte    | Read/Write | Host alarm 15 action.          |
| 1016 | Byte    | Read/Write | Activate Host Alarm.           |
| 1020 | Time24  | Read Only  | Tr. Valve Buffer time.         |
| 1021 | Date    | Read Only  | Tr. Valve Buffer date.         |
| 1022 | Time24  | Read Only  | St. Valve Buffer time.         |
| 1023 | Date    | Read Only  | St. Valve Buffer date.         |
| 1024 | Word    | Read Only  | Travelling Valve value.        |
| 1025 | Time24  | Read Only  | Tr. Valve value time.          |
| 1026 | Date    | Read Only  | Tr. Valve value date.          |
| 1027 | Word    | Read Only  | Standing Valve value.          |
| 1028 | Time24  | Read Only  | St. Valve value time.          |
| 1029 | Date    | Read Only  | St. Valve value date.          |
| 1030 | Word    | Read Only  | CBE Value.                     |
| 1031 | Time24  | Read Only  | CBE Value time.                |
| 1032 | Date    | Read Only  | CBE Value date.                |
| 1033 | Byte    | Read/Write | CBE Crank Angle flag.          |
| 1034 | Command | Read/Write | Clear Valve Check.             |
| 1060 | Byte    | Read Only  | Fluid calc. first str counted. |
| 1061 | Word    | Read Only  | Fluid calc. stroke_incr.       |
| 1062 | Long    | Read/Write | Fluid calc. pump_vol.          |
| 1063 | Long    | Read/Write | Fluid calc. daily_tot_vol.     |
| 1064 | Long    | Read/Write | Fluid calc. daily_str_acc.     |
| 1065 | Long    | Read/Write | Fluid calc. surf_str_acc.      |
| 1066 | Word    | Read/Write | Fluid calc. dbg parm1.         |
| 1067 | Word    | Read/Write | Fluid calc. dbg parm1.         |
| 1068 | Byte    | Read/Write | FP Catch-up Calc.              |
| 1070 | Command | Read/Write | Reset Alarm Summary.           |
| 1153 | Word    | Read Only  | Tot strokes today.             |
| 1154 | Word    | Read Only  | STA BotSeg Start Pos (mV).     |
| 1155 | Word    | Read Only  | STA BotSeg Stop Pos (mV).      |
| 1156 | Word    | Read Only  | STA TopSeg Start Pos (mV).     |
| 1157 | Word    | Read Only  | STA TopSeg Stop Pos (mV).      |
| 1158 | Word    | Read Only  | STA TOP Seg Detected (mV).     |
| 1159 | Word    | Read Only  | STA DN Seg Detected (mV).      |
| 1160 | Word    | Read Only  | STA BOT Seg Detected (mV).     |
| 1161 | Word    | Read Only  | STA UP Seg Detected (mV).      |
| 1162 | Word    | Read/Write | Unused EE based param.         |
| 1163 | Word    | Read/Write | BOS ctr f/TMP CTL LOSS.        |
| 1165 | Word    | Read Only  | STA BOS Seg Duration.          |
| 1166 | Word    | Read Only  | STA TOS Seg Duration.          |
| 1167 | Display | Read Only  | VSD Startup Speed State.       |
| 1168 | Word    | Read/Write | VSD ctl filt ctr.              |
| 1169 | Word    | Read/Write | VSD: AO Output (mA).           |
| 1170 | Long    | Read Only  | Accum Pump Fillage.            |
| 1171 | Display | Read Only  | VSD: Speed Src.                |
| 1172 | Time    | Read/Write | VSD: eval timer.               |

|      |       |            |                           |
|------|-------|------------|---------------------------|
| 1173 | Byte  | Read/Write | VSD: Learn Error Code.    |
| 1174 | Byte  | Read/Write | VSD: Control Filter.      |
| 1175 | Byte  | Read Only  | VSD: Tol State.           |
| 1176 | Byte  | Read Only  | VSD: Abs Tol State.       |
| 1177 | Word  | Read Only  | VSD: Control SPM.         |
| 1178 | Word  | Read/Write | VSD: Step Value.          |
| 1179 | Byte  | Read/Write | Startup Stroke Count.     |
| 1180 | SWord | Read/Write | A/O-1 Override EGU Value. |
| 1181 | Word  | Read Only  | A/O-1 Output Raw Counts.  |
| 1182 | SWord | Read Only  | A/O-1 Scaled EGU Value.   |
| 1183 | Byte  | Read/Write | A/O-1 Range Select.       |
| 1184 | Byte  | Read/Write | A/O-1 EGU Decimal Places. |
| 1185 | Byte  | Read/Write | A/O-1 EGU Label.          |
| 1186 | SWord | Read/Write | A/O-1 Low Scale.          |
| 1187 | SWord | Read/Write | A/O-1 High Scale.         |
| 1188 | Word  | Read/Write | A/O-1 Source Parameter.   |
| 1189 | Byte  | Read/Write | A/O-1 Override Enable.    |
| 1190 | Byte  | Read/Write | MBS Comm Baud Rate.       |
| 1191 | Byte  | Read/Write | MBS Data Bits.            |
| 1192 | Byte  | Read/Write | MBS Comm Parity.          |
| 1193 | Byte  | Read/Write | MBS Comm Stop Bits.       |
| 1194 | Byte  | Read/Write | MBS Comm RTS Delay.       |
| 1195 | Byte  | Read/Write | MBS Comm RTS Hld.         |
| 1196 | Byte  | Read/Write | MBS Comm Rx Tmout.        |
| 1197 | Byte  | Read/Write | MBS Comm PTT Tmout.       |
| 1198 | Byte  | Read/Write | MBS Comm Protocol.        |
| 1199 | Byte  | Read/Write | MBS Comm Port Mode.       |

### Parameters 1202-1500

| Parameter | 8500 Native Type | Access     | Description                    |
|-----------|------------------|------------|--------------------------------|
| 1202      | Word             | Read/Write | MBS Comm Rx Chars.             |
| 1203      | Word             | Read/Write | MBS Comm Tx Chars.             |
| 1206      | Word             | Read/Write | MBS Comm BadRxChrs.            |
| 1208      | Command          | Read/Write | MBS Comm Clr Stats.            |
| 1230      | Byte             | Read/Write | Speed Trim Adjust Enable.      |
| 1231      | Word             | Read/Write | STA Trim Speed.                |
| 1232      | Word             | Read/Write | STA BOT Start Angle (deg).     |
| 1233      | Word             | Read/Write | STA BOT Stop Angle (deg).      |
| 1234      | Word             | Read/Write | STA TOP Start Angle (deg).     |
| 1235      | Word             | Read/Write | STA TOP Stop Angle (deg).      |
| 1236      | Word             | Read/Write | STA Consecutive Trans.         |
| 1237      | Word             | Read/Write | STA Max Top/Bot Seg Time (ms). |
| 1238      | Word             | Read/Write | STA Max UP Speed.              |
| 1239      | Word             | Read/Write | STA Max DN Speed.              |
| 1240      | Word             | Read/Write | STA Max TRNS Speed.            |
| 1241      | Word             | Read/Write | STA Dn Speed Diff.             |
| 1242      | Byte             | Read/Write | STA Dn Speed Diff Dir.         |
| 1246      | Byte             | Read Only  | STA Current Segment.           |
| 1247      | Word             | Read Only  | STA Current Timer.             |
| 1248      | Byte             | Read Only  | STA Next Segment.              |
| 1249      | Byte             | Read/Write | Direction Num of Samples.      |
| 1250      | Byte             | Read/Write | VSD Enable Flag.               |
| 1251      | Word             | Read Only  | VSD Base Output%.              |
| 1252      | Byte             | Read/Write | VSD Tolerance (+/-%).          |

|      |         |            |                            |
|------|---------|------------|----------------------------|
| 1253 | Word    | Read/Write | VSD Init Speed Chg.        |
| 1254 | Word    | Read Only  | VSD Min Cntrl Out%.        |
| 1255 | Word    | Read Only  | VSD Max Cntrl Out%.        |
| 1256 | Word    | Read/Write | VSD Min SPM.               |
| 1257 | Word    | Read/Write | VSD Max SPM.               |
| 1258 | Word    | Read/Write | VSD Min Speed Chg.         |
| 1259 | Word    | Read Only  | VSD Control Out.           |
| 1260 | Time    | Read Only  | VSD Out Tolerance Tm.      |
| 1261 | Time    | Read/Write | VSD Evaluation Time.       |
| 1262 | Byte    | Read/Write | VSD Out Tol Action.        |
| 1263 | Word    | Read/Write | VSD SPM Override Val.      |
| 1264 | Byte    | Read/Write | VSD SPM Override Flg.      |
| 1265 | Word    | Read/Write | VSD Avg Output.            |
| 1266 | Display | Read Only  | VSD Mode.                  |
| 1267 | Display | Read Only  | VSD Avg Pumpoff.           |
| 1268 | Word    | Read/Write | SPM Startup value.         |
| 1269 | Word    | Read Only  | Avg SPM gauge period.      |
| 1270 | Word    | Read Only  | SPM Measured.              |
| 1271 | Word    | Read Only  | AO Min Output (mA).        |
| 1272 | Word    | Read Only  | AO Max Output (mA).        |
| 1273 | Byte    | Read/Write | Min Pump Fillage.          |
| 1274 | Byte    | Read/Write | Min Fill Stroke Count.     |
| 1275 | Byte    | Read/Write | Min Fill Action.           |
| 1276 | Display | Read Only  | Cur Pump Fillage.          |
| 1277 | Word    | Read Only  | Min Speed Change (%).      |
| 1278 | Word    | Read/Write | Speed Tolerance (SPM).     |
| 1279 | Word    | Read Only  | Low Tol Stroke Ctr.        |
| 1280 | Word    | Read Only  | Lo-Tol Strokes Yesterday.  |
| 1281 | Word    | Read Only  | Lo-Tol Strokes 2 days ago. |
| 1282 | Word    | Read Only  | High Tol Stroke Ctr.       |
| 1283 | Word    | Read Only  | Hi-Tol Strokes Yesterday.  |
| 1284 | Word    | Read Only  | Hi-Tol Strokes 2 days ago. |
| 1285 | Word    | Read Only  | In Tol Stroke Ctr.         |
| 1286 | Word    | Read Only  | In-Tol Strokes Yesterday.  |
| 1287 | Word    | Read Only  | In-Tol Strokes 2 days ago. |
| 1288 | Word    | Read Only  | Avg SPM yesterday.         |
| 1289 | Word    | Read Only  | Avg SPM two days ago.      |
| 1290 | Byte    | Read/Write | Rod Load Ctrl Enable.      |
| 1291 | Word    | Read/Write | RLC Hi Gain.               |
| 1292 | Word    | Read/Write | RLC Lo Gain.               |
| 1293 | Display | Read Only  | RLC State.                 |
| 1294 | Word    | Read/Write | RLC Load Deadband.         |
| 1295 | Word    | Read/Write | RLC Lo Load Limit.         |
| 1296 | Word    | Read/Write | RLC Hi Load Limit.         |
| 1297 | Word    | Read/Write | RLC Min Out SPM.           |
| 1298 | Command | Read/Write | VSD Cfg Save.              |
| 1300 | Byte    | Read/Write | Dev 1 Flags.               |
| 1301 | Byte    | Read/Write | Dev 1 Unit ID              |
| 1303 | Byte    | Read/Write | Dev 1 RTS Delay.           |
| 1304 | Byte    | Read/Write | Dev 1 RTS Hold.            |
| 1305 | Word    | Read/Write | Dev 1 Mx Stat/Coils.       |
| 1306 | Word    | Read/Write | Dev 1 Max Analog Regs.     |
| 1309 | Command | Read/Write | Dev 1 Clr Stats.           |
| 1310 | Word    | Read Only  | Dev 1 Rx Chars.            |
| 1311 | Word    | Read Only  | Dev 1 Tx Chars.            |

|      |         |            |                        |
|------|---------|------------|------------------------|
| 1312 | Word    | Read Only  | Dev 1 Rx Msgs.         |
| 1313 | Word    | Read Only  | Dev 1 Tx Msgs.         |
| 1314 | Word    | Read Only  | Dev 1 BadRxChars.      |
| 1315 | Word    | Read Only  | Dev 1 Bad Rx Msgs.     |
| 1316 | Word    | Read Only  | Dev 1 Retries.         |
| 1317 | Word    | Read Only  | Dev 1 ErrorCount.      |
| 1318 | Word    | Read Only  | Dev 1 Status.          |
| 1320 | Byte    | Read/Write | Dev 2 Flags.           |
| 1321 | Byte    | Read/Write | Dev 2 Unit ID.         |
| 1323 | Byte    | Read/Write | Dev 2 RTS Delay.       |
| 1324 | Byte    | Read/Write | Dev 2 RTS Hold.        |
| 1325 | Word    | Read/Write | Dev 2 Mx Stat/Coils.   |
| 1326 | Word    | Read/Write | Dev 2 Max Analog Regs. |
| 1329 | Command | Read/Write | Dev 2 Clr Stats.       |
| 1330 | Word    | Read Only  | Dev 2 Rx Chars.        |
| 1331 | Word    | Read Only  | Dev 2 Tx Chars.        |
| 1332 | Word    | Read Only  | Dev 2 Rx Msgs.         |
| 1333 | Word    | Read Only  | Dev 2 Tx Msgs.         |
| 1334 | Word    | Read Only  | Dev 2 BadRxChars.      |
| 1335 | Word    | Read Only  | Dev 2 Bad Rx Msgs.     |
| 1336 | Word    | Read Only  | Dev 2 Retries.         |
| 1337 | Word    | Read Only  | Dev 2 ErrorCount.      |
| 1338 | Word    | Read Only  | Dev 2 Status.          |
| 1340 | Byte    | Read/Write | Dev 3 Flags.           |
| 1341 | Byte    | Read/Write | Dev 3 Unit ID.         |
| 1343 | Byte    | Read/Write | Dev 3 RTS Delay.       |
| 1344 | Byte    | Read/Write | Dev 3 RTS Hold.        |
| 1345 | Word    | Read/Write | Dev 3 Mx Stat/Coils.   |
| 1346 | Word    | Read/Write | Dev 3 Max Analog Regs. |
| 1349 | Command | Read/Write | Dev 3 Clr Stats.       |
| 1350 | Word    | Read Only  | Dev 3 Rx Chars.        |
| 1351 | Word    | Read Only  | Dev 3 Tx Chars.        |
| 1352 | Word    | Read Only  | Dev 3 Rx Msgs.         |
| 1353 | Word    | Read Only  | Dev 3 Tx Msgs.         |
| 1354 | Word    | Read Only  | Dev 3 BadRxChars.      |
| 1355 | Word    | Read Only  | Dev 3 Bad Rx Msgs.     |
| 1356 | Word    | Read Only  | Dev 3 Retries.         |
| 1357 | Word    | Read Only  | Dev 3 ErrorCount.      |
| 1358 | Word    | Read Only  | Dev 3 Status.          |
| 1360 | Byte    | Read/Write | Dev 4 Flags.           |
| 1361 | Byte    | Read/Write | Dev 4 Unit ID.         |
| 1363 | Byte    | Read/Write | Dev 4 RTS Delay.       |
| 1364 | Byte    | Read/Write | Dev 4 RTS Hold.        |
| 1365 | Word    | Read/Write | Dev 4 Mx Stat/Coils.   |
| 1366 | Word    | Read/Write | Dev 4 Max Analog Regs. |
| 1369 | Command | Read/Write | Dev 4 Clr Stats.       |
| 1370 | Word    | Read Only  | Dev 4 Rx Chars.        |
| 1371 | Word    | Read Only  | Dev 4 Tx Chars.        |
| 1372 | Word    | Read Only  | Dev 4 Rx Msgs.         |
| 1373 | Word    | Read Only  | Dev 4 Tx Msgs.         |
| 1374 | Word    | Read Only  | Dev 4 BadRxChars.      |
| 1375 | Word    | Read Only  | Dev 4 Bad Rx Msgs.     |
| 1376 | Word    | Read Only  | Dev 4 Retries.         |
| 1377 | Word    | Read Only  | Dev 4 ErrorCount.      |
| 1378 | Word    | Read Only  | Dev 4 Status.          |

|      |         |            |                        |
|------|---------|------------|------------------------|
| 1380 | Byte    | Read/Write | Dev 5 Flags.           |
| 1381 | Byte    | Read/Write | Dev 5 Unit ID.         |
| 1383 | Byte    | Read/Write | Dev 5 RTS Delay.       |
| 1384 | Byte    | Read/Write | Dev 5 RTS Hold.        |
| 1385 | Word    | Read/Write | Dev 5 Mx Stat/Coils.   |
| 1386 | Word    | Read/Write | Dev 5 Max Analog Regs. |
| 1389 | Command | Read/Write | Dev 5 Clr Stats.       |
| 1390 | Word    | Read Only  | Dev 5 Rx Chars.        |
| 1391 | Word    | Read Only  | Dev 5 Tx Chars.        |
| 1392 | Word    | Read Only  | Dev 5 Rx Msgs.         |
| 1393 | Word    | Read Only  | Dev 5 Tx Msgs.         |
| 1394 | Word    | Read Only  | Dev 5 BadRxChars.      |
| 1395 | Word    | Read Only  | Dev 5 Bad Rx Msgs.     |
| 1396 | Word    | Read Only  | Dev 5 Retries.         |
| 1397 | Word    | Read Only  | Dev 5 ErrorCount.      |
| 1398 | Word    | Read Only  | Dev 5 Status.          |
| 1400 | Byte    | Read/Write | Dev 6 Flags.           |
| 1401 | Byte    | Read/Write | Dev 6 Unit ID.         |
| 1403 | Byte    | Read/Write | Dev 6 RTS Delay.       |
| 1404 | Byte    | Read/Write | Dev 6 RTS Hold.        |
| 1405 | Word    | Read/Write | Dev 6 Mx Stat/Coils.   |
| 1406 | Word    | Read/Write | Dev 6 Max Analog Regs. |
| 1409 | Command | Read/Write | Dev 6 Clr Stats.       |
| 1410 | Word    | Read Only  | Dev 6 Rx Chars.        |
| 1411 | Word    | Read Only  | Dev 6 Tx Chars.        |
| 1412 | Word    | Read Only  | Dev 6 Rx Msgs.         |
| 1413 | Word    | Read Only  | Dev 6 Tx Msgs.         |
| 1414 | Word    | Read Only  | Dev 6 BadRxChars.      |
| 1415 | Word    | Read Only  | Dev 6 Bad Rx Msgs.     |
| 1416 | Word    | Read Only  | Dev 6 Retries.         |
| 1417 | Word    | Read Only  | Dev 6 ErrorCount.      |
| 1418 | Word    | Read Only  | Dev 6 Status.          |
| 1420 | Byte    | Read/Write | Dev 7 Flags.           |
| 1421 | Byte    | Read/Write | Dev 7 Unit ID.         |
| 1423 | Byte    | Read/Write | Dev 7 RTS Delay.       |
| 1424 | Byte    | Read/Write | Dev 7 RTS Hold.        |
| 1425 | Word    | Read/Write | Dev 7 Mx Stat/Coils.   |
| 1426 | Word    | Read/Write | Dev 7 Max Analog Regs. |
| 1429 | Command | Read/Write | Dev 7 Clr Stats.       |
| 1430 | Word    | Read Only  | Dev 7 Rx Chars.        |
| 1431 | Word    | Read Only  | Dev 7 Tx Chars.        |
| 1432 | Word    | Read Only  | Dev 7 Rx Msgs.         |
| 1433 | Word    | Read Only  | Dev 7 Tx Msgs.         |
| 1434 | Word    | Read Only  | Dev 7 BadRxChars.      |
| 1435 | Word    | Read Only  | Dev 7 Bad Rx Msgs.     |
| 1436 | Word    | Read Only  | Dev 7 Retries.         |
| 1437 | Word    | Read Only  | Dev 7 ErrorCount.      |
| 1438 | Word    | Read Only  | Dev 7 Status.          |
| 1440 | Byte    | Read/Write | Dev 8 Flags.           |
| 1441 | Byte    | Read/Write | Dev 8 Unit ID.         |
| 1443 | Byte    | Read/Write | Dev 8 RTS Delay.       |
| 1444 | Byte    | Read/Write | Dev 8 RTS Hold.        |
| 1445 | Word    | Read/Write | Dev 8 Mx Stat/Coils.   |
| 1446 | Word    | Read/Write | Dev 8 Max Analog Regs. |
| 1449 | Command | Read/Write | Dev 8 Clr Stats.       |

|      |      |            |                           |
|------|------|------------|---------------------------|
| 1450 | Word | Read Only  | Dev 8 Rx Chars.           |
| 1451 | Word | Read Only  | Dev 8 Tx Chars.           |
| 1452 | Word | Read Only  | Dev 8 Rx Msgs.            |
| 1453 | Word | Read Only  | Dev 8 Tx Msgs.            |
| 1454 | Word | Read Only  | Dev 8 BadRxChars.         |
| 1455 | Word | Read Only  | Dev 8 Bad Rx Msgs.        |
| 1456 | Word | Read Only  | Dev 8 Retries.            |
| 1457 | Word | Read Only  | Dev 8 ErrorCount.         |
| 1458 | Word | Read Only  | Dev 8 Status.             |
| 1460 | Word | Read Only  | STA Max Up Speed Pct.     |
| 1461 | Word | Read Only  | STA Max Down Speed Pct.   |
| 1462 | Word | Read Only  | STA Max Trns Speed Pct.   |
| 1463 | Word | Read Only  | STA Down Speed Diff Pct.  |
| 1464 | Word | Read Only  | STA Trim Speed Pct.       |
| 1465 | Byte | Read/Write | Pump Dir DO PntNum.       |
| 1466 | Word | Read Only  | STA Cur Down Speed Pct.   |
| 1467 | Word | Read Only  | STA Cur TOP Speed Pct.    |
| 1468 | Word | Read Only  | STA Cur BOT Speed Pct.    |
| 1469 | Word | Read Only  | STA Cur Up Speed Pct.     |
| 1470 | Word | Read Only  | RLC Load Hist[0].         |
| 1471 | Word | Read Only  | RLC Load Hist[1].         |
| 1472 | Word | Read Only  | RLC Load Hist[2].         |
| 1473 | Word | Read Only  | RLC Duration Hist[0].     |
| 1474 | Word | Read Only  | RLC Duration Hist[1].     |
| 1475 | Word | Read Only  | RLC Duration Hist[2].     |
| 1476 | Word | Read Only  | RLC Event Sequence Num 1. |
| 1477 | Word | Read Only  | RLC Event Sequence Num 2. |
| 1478 | Word | Read Only  | RLC Event Sequence Num 3. |
| 1479 | Time | Read/Write | VSD: In Tol Timer.        |
| 1480 | Word | Read Only  | RLC Hi Evt Ctr Cur.       |
| 1481 | Word | Read Only  | RLC Hi Evt Ctr Yest.      |
| 1482 | Word | Read Only  | RLC Hi Evt Ctr Yest-1.    |
| 1483 | Word | Read Only  | RLC Lo Evt Ctr Cur.       |
| 1484 | Word | Read Only  | RLC Lo Evt Ctr Yest.      |
| 1485 | Word | Read Only  | RLC Lo Evt Ctr Yest-1.    |
| 1486 | Word | Read Only  | RLC Event Min Speed 1.    |
| 1487 | Word | Read Only  | RLC Event Min Speed 2.    |
| 1488 | Word | Read Only  | RLC Event Min Speed 3.    |
| 1489 | Word | Read/Write | VSD InTol Chg Ctr.        |
| 1496 | Time | Read/Write | VSD InTol Max Time.       |
| 1497 | Word | Read/Write | VSD In Tol Speed Diff.    |
| 1498 | Word | Read/Write | STA Output Pct.           |
| 1499 | Word | Read/Write | RLC Output %.             |
| 1500 | Byte | Read/Write | Scn Mask Select.          |

### Parameters 1501-1800

| Parameter | 8500 Native Type | Access     | Description         |
|-----------|------------------|------------|---------------------|
| 1501      | Word             | Read/Write | Scn Retries.        |
| 1502      | Word             | Read/Write | Scn Retry Delay.    |
| 1503      | Word             | Read/Write | Scn Scan Delay.     |
| 1504      | Word             | Read/Write | Scn Cycle Delay.    |
| 1505      | Word             | Read/Write | Scn Auto Refresh.   |
| 1508      | Display          | Read Only  | Scn Disp State.     |
| 1510      | Byte             | Read/Write | Scan1 Blk 1 Access. |

|      |      |            |                              |
|------|------|------------|------------------------------|
| 1511 | Byte | Read/Write | Scan1 Blk 1 Device.          |
| 1512 | Word | Read/Write | Scan1 Blk 1 Start Reg.       |
| 1513 | Word | Read/Write | Scan1 Blk 1 Quantity.        |
| 1514 | Word | Read/Write | Scan1 Blk 1 Database Index.  |
| 1515 | Byte | Read/Write | Scan1 Blk 2 Access.          |
| 1516 | Byte | Read/Write | Scan1 Blk 2 Device.          |
| 1517 | Word | Read/Write | Scan1 Blk 2 Start Reg.       |
| 1518 | Word | Read/Write | Scan1 Blk 2 Quantity.        |
| 1519 | Word | Read/Write | Scan1 Blk 2 Database Index.  |
| 1520 | Byte | Read/Write | Scan1 Blk 3 Access.          |
| 1521 | Byte | Read/Write | Scan1 Blk 3 Device.          |
| 1522 | Word | Read/Write | Scan1 Blk 3 Start Reg.       |
| 1523 | Word | Read/Write | Scan1 Blk 3 Quantity.        |
| 1524 | Word | Read/Write | Scan1 Blk 3 Database Index.  |
| 1525 | Byte | Read/Write | Scan1 Blk 4 Access.          |
| 1526 | Byte | Read/Write | Scan1 Blk 4 Device.          |
| 1527 | Word | Read/Write | Scan1 Blk 4 Start Reg.       |
| 1528 | Word | Read/Write | Scan1 Blk 4 Quantity.        |
| 1529 | Word | Read/Write | Scan1 Blk 4 Database Index.  |
| 1530 | Byte | Read/Write | Scan1 Blk 5 Access.          |
| 1531 | Byte | Read/Write | Scan1 Blk 5 Device.          |
| 1532 | Word | Read/Write | Scan1 Blk 5 Start Reg.       |
| 1533 | Word | Read/Write | Scan1 Blk 5 Quantity.        |
| 1534 | Word | Read/Write | Scan1 Blk 5 Database Index.  |
| 1535 | Byte | Read/Write | Scan1 Blk 6 Access.          |
| 1536 | Byte | Read/Write | Scan1 Blk 6 Device.          |
| 1537 | Word | Read/Write | Scan1 Blk 6 Start Reg.       |
| 1538 | Word | Read/Write | Scan1 Blk 6 Quantity.        |
| 1539 | Word | Read/Write | Scan1 Blk 6 Database Index.  |
| 1540 | Byte | Read/Write | Scan1 Blk 7 Access.          |
| 1541 | Byte | Read/Write | Scan1 Blk 7 Device.          |
| 1542 | Word | Read/Write | Scan1 Blk 7 Start Reg.       |
| 1543 | Word | Read/Write | Scan1 Blk 7 Quantity.        |
| 1544 | Word | Read/Write | Scan1 Blk 7 Database Index.  |
| 1545 | Byte | Read/Write | Scan1 Blk 8 Access.          |
| 1546 | Byte | Read/Write | Scan1 Blk 8 Device.          |
| 1547 | Word | Read/Write | Scan1 Blk 8 Start Reg.       |
| 1548 | Word | Read/Write | Scan1 Blk 8 Quantity.        |
| 1549 | Word | Read/Write | Scan1 Blk 8 Database Index.  |
| 1550 | Byte | Read/Write | Scan1 Blk 9 Access.          |
| 1551 | Byte | Read/Write | Scan1 Blk 9 Device           |
| 1552 | Word | Read/Write | Scan1 Blk 9 Start Reg.       |
| 1553 | Word | Read/Write | Scan1 Blk 9 Quantity.        |
| 1554 | Word | Read/Write | Scan1 Blk 9 Database Index.  |
| 1555 | Byte | Read/Write | Scan1 Blk 10 Access.         |
| 1556 | Byte | Read/Write | Scan1 Blk 10 Device.         |
| 1557 | Word | Read/Write | Scan1 Blk 10 Start Reg       |
| 1558 | Word | Read/Write | Scan1 Blk 10 Quantity.       |
| 1559 | Word | Read/Write | Scan1 Blk 10 Database Index. |
| 1560 | Byte | Read/Write | Scan1 Blk 11 Access.         |
| 1561 | Byte | Read/Write | Scan1 Blk 11 Device.         |
| 1562 | Word | Read/Write | Scan1 Blk 11 Start Reg.      |
| 1563 | Word | Read/Write | Scan1 Blk 11 Quantity.       |
| 1564 | Word | Read/Write | Scan1 Blk 11 Database Index. |
| 1565 | Byte | Read/Write | Scan1 Blk 12 Access.         |



|      |      |            |                              |
|------|------|------------|------------------------------|
| 1566 | Byte | Read/Write | Scan1 Blk 12 Device.         |
| 1567 | Word | Read/Write | Scan1 Blk 12 Start Reg.      |
| 1568 | Word | Read/Write | Scan1 Blk 12 Quantity.       |
| 1569 | Word | Read/Write | Scan1 Blk 12 Database Index. |
| 1570 | Byte | Read/Write | Scan1 Blk 13 Access.         |
| 1571 | Byte | Read/Write | Scan1 Blk 13 Device          |
| 1572 | Word | Read/Write | Scan1 Blk 13 Start Reg       |
| 1573 | Word | Read/Write | Scan1 Blk 13 Quantity        |
| 1574 | Word | Read/Write | Scan1 Blk 13 Database Index. |
| 1575 | Byte | Read/Write | Scan1 Blk 14 Access.         |
| 1576 | Byte | Read/Write | Scan1 Blk 14 Device.         |
| 1577 | Word | Read/Write | Scan1 Blk 14 Start Reg.      |
| 1578 | Word | Read/Write | Scan1 Blk 14 Quantity.       |
| 1579 | Word | Read/Write | Scan1 Blk 14 Database Index. |
| 1580 | Byte | Read/Write | Scan1 Blk 15 Access.         |
| 1581 | Byte | Read/Write | Scan1 Blk 15 Device.         |
| 1582 | Word | Read/Write | Scan1 Blk 15 Start Reg.      |
| 1583 | Word | Read/Write | Scan1 Blk 15 Quantity.       |
| 1584 | Word | Read/Write | Scan1 Blk 15 Database Index. |
| 1585 | Byte | Read/Write | Scan1 Blk 16 Access.         |
| 1586 | Byte | Read/Write | Scan1 Blk 16 Device.         |
| 1587 | Word | Read/Write | Scan1 Blk 16 Start Reg.      |
| 1588 | Word | Read/Write | Scan1 Blk 16 Quantity.       |
| 1589 | Word | Read/Write | Scan1 Blk 16 Database Index. |
| 1600 | Long | Read Only  | AO Cal Volt Lo Counts.       |
| 1601 | Long | Read Only  | AO Cal Volt Hi Counts.       |
| 1602 | Long | Read Only  | AO Cal Curr Lo Counts.       |
| 1603 | Long | Read Only  | AO Cal Curr Hi Counts.       |
| 1605 | Byte | Read/Write | Scan1 Blk 17 Access.         |
| 1606 | Byte | Read/Write | Scan1 Blk 17 Device.         |
| 1607 | Word | Read/Write | Scan1 Blk 17 Start Reg.      |
| 1608 | Word | Read/Write | Scan1 Blk 17 Quantity.       |
| 1609 | Word | Read/Write | Scan1 Blk 17 Database Index. |
| 1610 | Byte | Read/Write | Scan1 Blk 18 Access.         |
| 1611 | Byte | Read/Write | Scan1 Blk 18 Device.         |
| 1612 | Word | Read/Write | Scan1 Blk 18 Start Reg.      |
| 1613 | Word | Read/Write | Scan1 Blk 18 Quantity.       |
| 1614 | Word | Read/Write | Scan1 Blk 18 Database Index. |
| 1615 | Byte | Read/Write | Scan1 Blk 19 Access.         |
| 1616 | Byte | Read/Write | Scan1 Blk 19 Device.         |
| 1617 | Word | Read/Write | Scan1 Blk 19 Start Reg.      |
| 1618 | Word | Read/Write | Scan1 Blk 19 Quantity.       |
| 1619 | Word | Read/Write | Scan1 Blk 19 Database Index. |
| 1620 | Byte | Read/Write | Scan1 Blk 20 Access.         |
| 1621 | Byte | Read/Write | Scan1 Blk 20 Device.         |
| 1622 | Word | Read/Write | Scan1 Blk 20 Start Reg.      |
| 1623 | Word | Read/Write | Scan1 Blk 20 Quantity.       |
| 1624 | Word | Read/Write | Scan1 Blk 20 Database Index. |
| 1625 | Byte | Read/Write | Scan1 Blk 21 Access.         |
| 1626 | Byte | Read/Write | Scan1 Blk 21 Device.         |
| 1627 | Word | Read/Write | Scan1 Blk 21 Start Reg.      |
| 1628 | Word | Read/Write | Scan1 Blk 21 Quantity.       |
| 1629 | Word | Read/Write | Scan1 Blk 21 Database Index. |
| 1630 | Byte | Read/Write | Scan1 Blk 22 Access.         |
| 1631 | Byte | Read/Write | Scan1 Blk 22 Device.         |

|      |      |            |                              |
|------|------|------------|------------------------------|
| 1632 | Word | Read/Write | Scan1 Blk 22 Start Reg.      |
| 1633 | Word | Read/Write | Scan1 Blk 22 Quantity.       |
| 1634 | Word | Read/Write | Scan1 Blk 22 Database Index. |
| 1635 | Byte | Read/Write | Scan1 Blk 23 Access.         |
| 1636 | Byte | Read/Write | Scan1 Blk 23 Device.         |
| 1637 | Word | Read/Write | Scan1 Blk 23 Start Reg.      |
| 1638 | Word | Read/Write | Scan1 Blk 23 Quantity.       |
| 1639 | Word | Read/Write | Scan1 Blk 23 Database Index. |
| 1640 | Byte | Read/Write | Scan1 Blk 24 Access.         |
| 1641 | Byte | Read/Write | Scan1 Blk 24 Device.         |
| 1642 | Word | Read/Write | Scan1 Blk 24 Start Reg.      |
| 1643 | Word | Read/Write | Scan1 Blk 24 Quantity.       |
| 1644 | Word | Read/Write | Scan1 Blk 24 Database Index. |
| 1645 | Byte | Read/Write | Scan1 Blk 25 Access.         |
| 1646 | Byte | Read/Write | Scan1 Blk 25 Device.         |
| 1647 | Word | Read/Write | Scan1 Blk 25 Start Reg.      |
| 1648 | Word | Read/Write | Scan1 Blk 25 Quantity.       |
| 1649 | Word | Read/Write | Scan1 Blk 25 Database Index. |
| 1650 | Byte | Read/Write | Scan1 Blk 26 Access.         |
| 1651 | Byte | Read/Write | Scan1 Blk 26 Device.         |
| 1652 | Word | Read/Write | Scan1 Blk 26 Start Reg.      |
| 1653 | Word | Read/Write | Scan1 Blk 26 Quantity.       |
| 1654 | Word | Read/Write | Scan1 Blk 26 Database Index. |
| 1655 | Byte | Read/Write | Scan1 Blk 27 Access.         |
| 1656 | Byte | Read/Write | Scan1 Blk 27 Device.         |
| 1657 | Word | Read/Write | Scan1 Blk 27 Start Reg.      |
| 1658 | Word | Read/Write | Scan1 Blk 27 Quantity.       |
| 1659 | Word | Read/Write | Scan1 Blk 27 Database Index. |
| 1660 | Byte | Read/Write | Scan1 Blk 28 Access.         |
| 1661 | Byte | Read/Write | Scan1 Blk 28 Device.         |
| 1662 | Word | Read/Write | Scan1 Blk 28 Start Reg.      |
| 1663 | Word | Read/Write | Scan1 Blk 28 Quantity.       |
| 1664 | Word | Read/Write | Scan1 Blk 28 Database Index. |
| 1665 | Byte | Read/Write | Scan1 Blk 29 Access.         |
| 1666 | Byte | Read/Write | Scan1 Blk 29 Device.         |
| 1667 | Word | Read/Write | Scan1 Blk 29 Start Reg.      |
| 1668 | Word | Read/Write | Scan1 Blk 29 Quantity.       |
| 1669 | Word | Read/Write | Scan1 Blk 29 Database Index. |
| 1670 | Byte | Read/Write | Scan1 Blk 30 Access.         |
| 1671 | Byte | Read/Write | Scan1 Blk 30 Device.         |
| 1672 | Word | Read/Write | Scan1 Blk 30 Start Reg.      |
| 1673 | Word | Read/Write | Scan1 Blk 30 Quantity.       |
| 1674 | Word | Read/Write | Scan1 Blk 30 Database Index. |
| 1675 | Byte | Read/Write | Scan1 Blk 31 Access.         |
| 1676 | Byte | Read/Write | Scan1 Blk 31 Device.         |
| 1677 | Word | Read/Write | Scan1 Blk 31 Start Reg.      |
| 1678 | Word | Read/Write | Scan1 Blk 31 Quantity.       |
| 1679 | Word | Read/Write | Scan1 Blk 31 Database Index. |
| 1680 | Byte | Read/Write | Scan1 Blk 32 Access.         |
| 1681 | Byte | Read/Write | Scan1 Blk 32 Device.         |
| 1682 | Word | Read/Write | Scan1 Blk 32 Start Reg.      |
| 1683 | Word | Read/Write | Scan1 Blk 32 Quantity.       |
| 1684 | Word | Read/Write | Scan1 Blk 32 Database Index. |
| 1700 | Word | Read/Write | Dbase Chg Flags 0- 15.       |
| 1701 | Word | Read/Write | Dbase Chg Flags 16- 31.      |

|      |      |            |                          |
|------|------|------------|--------------------------|
| 1702 | Word | Read/Write | Dbase Chg Flags 32- 47.  |
| 1703 | Word | Read/Write | Dbase Chg Flags 48- 63.  |
| 1704 | Word | Read/Write | Dbase Chg Flags 64- 79.  |
| 1705 | Word | Read/Write | Dbase Chg Flags 80- 95.  |
| 1706 | Word | Read/Write | Dbase Chg Flags 96-111.  |
| 1707 | Word | Read/Write | Dbase Chg Flags 112-127. |
| 1708 | Word | Read/Write | Dbase Chg Flags 128-143. |
| 1709 | Word | Read/Write | Dbase Chg Flags 144-159. |
| 1710 | Word | Read/Write | Dbase Chg Flags 160-175. |
| 1711 | Word | Read/Write | Dbase Chg Flags 176-191. |
| 1712 | Word | Read/Write | Dbase Chg Flags 192-207. |
| 1713 | Word | Read/Write | Dbase Chg Flags 208-223. |
| 1714 | Word | Read/Write | Dbase Chg Flags 224-239. |
| 1715 | Word | Read/Write | Dbase Chg Flags 240-255. |
| 1716 | Word | Read/Write | Dbase Chg Flags 256-271. |
| 1717 | Word | Read/Write | Dbase Chg Flags 272-287. |
| 1718 | Word | Read/Write | Dbase Chg Flags 288-303. |
| 1719 | Word | Read/Write | Dbase Chg Flags 304-319. |
| 1720 | Word | Read/Write | Dbase Chg Flags 320-335. |
| 1721 | Word | Read/Write | Dbase Chg Flags 336-351. |
| 1722 | Word | Read/Write | Dbase Chg Flags 352-367. |
| 1723 | Word | Read/Write | Dbase Chg Flags 368-383. |
| 1724 | Word | Read/Write | Dbase Chg Flags 384-399. |
| 1725 | Word | Read/Write | Dbase Chg Flags 400-415. |
| 1726 | Word | Read/Write | Dbase Chg Flags 416-431. |
| 1727 | Word | Read/Write | Dbase Chg Flags 432-447. |
| 1728 | Word | Read/Write | Dbase Chg Flags 448-463. |
| 1729 | Word | Read/Write | Dbase Chg Flags 464-479. |
| 1730 | Word | Read/Write | Dbase Chg Flags 480-495. |
| 1731 | Word | Read/Write | Dbase Chg Flags 496-511. |
| 1732 | Word | Read/Write | Dbase Chg Flags 512-527. |
| 1733 | Word | Read/Write | Dbase Chg Flags 528-543. |
| 1734 | Word | Read/Write | Dbase Chg Flags 544-559. |
| 1750 | Word | Read/Write | ModScan Reg 0.           |
| 1751 | Word | Read/Write | ModScan Reg 1.           |
| 1752 | Word | Read/Write | ModScan Reg 2.           |
| 1753 | Word | Read/Write | ModScan Reg 3.           |
| 1754 | Word | Read/Write | ModScan Reg 4.           |
| 1755 | Word | Read/Write | ModScan Reg 5.           |
| 1756 | Word | Read/Write | ModScan Reg 6.           |
| 1757 | Word | Read/Write | ModScan Reg 7.           |
| 1758 | Word | Read/Write | ModScan Reg 8.           |
| 1759 | Word | Read/Write | ModScan Reg 9.           |
| 1760 | Word | Read/Write | ModScan Reg 10.          |
| 1761 | Word | Read/Write | ModScan Reg 11.          |
| 1762 | Word | Read/Write | ModScan Reg 12.          |
| 1763 | Word | Read/Write | ModScan Reg 13.          |
| 1764 | Word | Read/Write | ModScan Reg 14.          |
| 1765 | Word | Read/Write | ModScan Reg 15.          |
| 1766 | Word | Read/Write | ModScan Reg 16.          |
| 1767 | Word | Read/Write | ModScan Reg 17.          |
| 1768 | Word | Read/Write | ModScan Reg 18.          |
| 1769 | Word | Read/Write | ModScan Reg 19.          |
| 1770 | Word | Read/Write | ModScan Reg 20.          |
| 1771 | Word | Read/Write | ModScan Reg 21.          |

|      |      |            |                 |
|------|------|------------|-----------------|
| 1772 | Word | Read/Write | ModScan Reg 22. |
| 1773 | Word | Read/Write | ModScan Reg 23. |
| 1774 | Word | Read/Write | ModScan Reg 24. |
| 1775 | Word | Read/Write | ModScan Reg 25. |
| 1776 | Word | Read/Write | ModScan Reg 26. |
| 1777 | Word | Read/Write | ModScan Reg 27. |
| 1778 | Word | Read/Write | ModScan Reg 28. |
| 1779 | Word | Read/Write | ModScan Reg 29. |
| 1780 | Word | Read/Write | ModScan Reg 30. |
| 1781 | Word | Read/Write | ModScan Reg 31. |
| 1782 | Word | Read/Write | ModScan Reg 32. |
| 1783 | Word | Read/Write | ModScan Reg 33. |
| 1784 | Word | Read/Write | ModScan Reg 34. |
| 1785 | Word | Read/Write | ModScan Reg 35. |
| 1786 | Word | Read/Write | ModScan Reg 36. |
| 1787 | Word | Read/Write | ModScan Reg 37. |
| 1788 | Word | Read/Write | ModScan Reg 38. |
| 1789 | Word | Read/Write | ModScan Reg 39. |
| 1790 | Word | Read/Write | ModScan Reg 40. |
| 1791 | Word | Read/Write | ModScan Reg 41. |
| 1792 | Word | Read/Write | ModScan Reg 42. |
| 1793 | Word | Read/Write | ModScan Reg 43. |
| 1794 | Word | Read/Write | ModScan Reg 44. |
| 1795 | Word | Read/Write | ModScan Reg 45. |
| 1796 | Word | Read/Write | ModScan Reg 46. |
| 1797 | Word | Read/Write | ModScan Reg 47. |
| 1798 | Word | Read/Write | ModScan Reg 48. |
| 1799 | Word | Read/Write | ModScan Reg 49. |
| 1800 | Word | Read/Write | ModScan Reg 50. |

### Parameters 1801-2100

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| Parameter | 8500 Native Type | Access     | Description     |
|-----------|------------------|------------|-----------------|
| 1801      | Word             | Read/Write | ModScan Reg 51. |
| 1802      | Word             | Read/Write | ModScan Reg 52. |
| 1803      | Word             | Read/Write | ModScan Reg 53. |
| 1804      | Word             | Read/Write | ModScan Reg 54. |
| 1805      | Word             | Read/Write | ModScan Reg 55. |
| 1806      | Word             | Read/Write | ModScan Reg 56. |
| 1807      | Word             | Read/Write | ModScan Reg 57. |
| 1808      | Word             | Read/Write | ModScan Reg 58. |
| 1809      | Word             | Read/Write | ModScan Reg 59. |
| 1810      | Word             | Read/Write | ModScan Reg 60. |
| 1811      | Word             | Read/Write | ModScan Reg 61. |
| 1812      | Word             | Read/Write | ModScan Reg 62. |
| 1813      | Word             | Read/Write | ModScan Reg 63. |
| 1814      | Word             | Read/Write | ModScan Reg 64. |
| 1815      | Word             | Read/Write | ModScan Reg 65. |
| 1816      | Word             | Read/Write | ModScan Reg 66. |
| 1817      | Word             | Read/Write | ModScan Reg 67. |
| 1818      | Word             | Read/Write | ModScan Reg 68. |
| 1819      | Word             | Read/Write | ModScan Reg 69. |
| 1820      | Word             | Read/Write | ModScan Reg 70. |
| 1821      | Word             | Read/Write | ModScan Reg 71. |
| 1822      | Word             | Read/Write | ModScan Reg 72. |

|      |      |            |                  |
|------|------|------------|------------------|
| 1823 | Word | Read/Write | ModScan Reg 73.  |
| 1824 | Word | Read/Write | ModScan Reg 74.  |
| 1825 | Word | Read/Write | ModScan Reg 75.  |
| 1826 | Word | Read/Write | ModScan Reg 76.  |
| 1827 | Word | Read/Write | ModScan Reg 77.  |
| 1828 | Word | Read/Write | ModScan Reg 78.  |
| 1829 | Word | Read/Write | ModScan Reg 79.  |
| 1830 | Word | Read/Write | ModScan Reg 80.  |
| 1831 | Word | Read/Write | ModScan Reg 81.  |
| 1832 | Word | Read/Write | ModScan Reg 82.  |
| 1833 | Word | Read/Write | ModScan Reg 83.  |
| 1834 | Word | Read/Write | ModScan Reg 84.  |
| 1835 | Word | Read/Write | ModScan Reg 85.  |
| 1836 | Word | Read/Write | ModScan Reg 86.  |
| 1837 | Word | Read/Write | ModScan Reg 87.  |
| 1838 | Word | Read/Write | ModScan Reg 88.  |
| 1839 | Word | Read/Write | ModScan Reg 89.  |
| 1840 | Word | Read/Write | ModScan Reg 90.  |
| 1841 | Word | Read/Write | ModScan Reg 91.  |
| 1842 | Word | Read/Write | ModScan Reg 92.  |
| 1843 | Word | Read/Write | ModScan Reg 93.  |
| 1844 | Word | Read/Write | ModScan Reg 94.  |
| 1845 | Word | Read/Write | ModScan Reg 95.  |
| 1846 | Word | Read/Write | ModScan Reg 96.  |
| 1847 | Word | Read/Write | ModScan Reg 97.  |
| 1848 | Word | Read/Write | ModScan Reg 98.  |
| 1849 | Word | Read/Write | ModScan Reg 99.  |
| 1850 | Word | Read/Write | ModScan Reg 100. |
| 1851 | Word | Read/Write | ModScan Reg 101. |
| 1852 | Word | Read/Write | ModScan Reg 102. |
| 1853 | Word | Read/Write | ModScan Reg 103. |
| 1854 | Word | Read/Write | ModScan Reg 104. |
| 1855 | Word | Read/Write | ModScan Reg 105. |
| 1856 | Word | Read/Write | ModScan Reg 106. |
| 1857 | Word | Read/Write | ModScan Reg 107. |
| 1858 | Word | Read/Write | ModScan Reg 108. |
| 1859 | Word | Read/Write | ModScan Reg 109. |
| 1860 | Word | Read/Write | ModScan Reg 110. |
| 1861 | Word | Read/Write | ModScan Reg 111. |
| 1862 | Word | Read/Write | ModScan Reg 112. |
| 1863 | Word | Read/Write | ModScan Reg 113. |
| 1864 | Word | Read/Write | ModScan Reg 114. |
| 1865 | Word | Read/Write | ModScan Reg 115. |
| 1866 | Word | Read/Write | ModScan Reg 116. |
| 1867 | Word | Read/Write | ModScan Reg 117. |
| 1868 | Word | Read/Write | ModScan Reg 118. |
| 1869 | Word | Read/Write | ModScan Reg 119. |
| 1870 | Word | Read/Write | ModScan Reg 120. |
| 1871 | Word | Read/Write | ModScan Reg 121. |
| 1872 | Word | Read/Write | ModScan Reg 122. |
| 1873 | Word | Read/Write | ModScan Reg 123. |
| 1874 | Word | Read/Write | ModScan Reg 124. |
| 1875 | Word | Read/Write | ModScan Reg 125. |
| 1876 | Word | Read/Write | ModScan Reg 126. |
| 1877 | Word | Read/Write | ModScan Reg 127. |

|      |      |            |                  |
|------|------|------------|------------------|
| 1878 | Word | Read/Write | ModScan Reg 128. |
| 1879 | Word | Read/Write | ModScan Reg 129. |
| 1880 | Word | Read/Write | ModScan Reg 130. |
| 1881 | Word | Read/Write | ModScan Reg 131. |
| 1882 | Word | Read/Write | ModScan Reg 132. |
| 1883 | Word | Read/Write | ModScan Reg 133. |
| 1884 | Word | Read/Write | ModScan Reg 134. |
| 1885 | Word | Read/Write | ModScan Reg 135. |
| 1886 | Word | Read/Write | ModScan Reg 136. |
| 1887 | Word | Read/Write | ModScan Reg 137. |
| 1888 | Word | Read/Write | ModScan Reg 138. |
| 1889 | Word | Read/Write | ModScan Reg 139. |
| 1890 | Word | Read/Write | ModScan Reg 140. |
| 1891 | Word | Read/Write | ModScan Reg 141. |
| 1892 | Word | Read/Write | ModScan Reg 142. |
| 1893 | Word | Read/Write | ModScan Reg 143. |
| 1894 | Word | Read/Write | ModScan Reg 144. |
| 1895 | Word | Read/Write | ModScan Reg 145. |
| 1896 | Word | Read/Write | ModScan Reg 146. |
| 1897 | Word | Read/Write | ModScan Reg 147. |
| 1898 | Word | Read/Write | ModScan Reg 148. |
| 1899 | Word | Read/Write | ModScan Reg 149. |
| 1900 | Word | Read/Write | ModScan Reg 150. |
| 1901 | Word | Read/Write | ModScan Reg 151. |
| 1902 | Word | Read/Write | ModScan Reg 152. |
| 1903 | Word | Read/Write | ModScan Reg 153. |
| 1904 | Word | Read/Write | ModScan Reg 154. |
| 1905 | Word | Read/Write | ModScan Reg 155. |
| 1906 | Word | Read/Write | ModScan Reg 156. |
| 1907 | Word | Read/Write | ModScan Reg 157. |
| 1908 | Word | Read/Write | ModScan Reg 158. |
| 1909 | Word | Read/Write | ModScan Reg 159. |
| 1910 | Word | Read/Write | ModScan Reg 160. |
| 1911 | Word | Read/Write | ModScan Reg 161. |
| 1912 | Word | Read/Write | ModScan Reg 162. |
| 1913 | Word | Read/Write | ModScan Reg 163. |
| 1914 | Word | Read/Write | ModScan Reg 164. |
| 1915 | Word | Read/Write | ModScan Reg 165. |
| 1916 | Word | Read/Write | ModScan Reg 166. |
| 1917 | Word | Read/Write | ModScan Reg 167. |
| 1918 | Word | Read/Write | ModScan Reg 168. |
| 1919 | Word | Read/Write | ModScan Reg 169. |
| 1920 | Word | Read/Write | ModScan Reg 170. |
| 1921 | Word | Read/Write | ModScan Reg 171. |
| 1922 | Word | Read/Write | ModScan Reg 172. |
| 1923 | Word | Read/Write | ModScan Reg 173. |
| 1924 | Word | Read/Write | ModScan Reg 174. |
| 1925 | Word | Read/Write | ModScan Reg 175. |
| 1926 | Word | Read/Write | ModScan Reg 176. |
| 1927 | Word | Read/Write | ModScan Reg 177. |
| 1928 | Word | Read/Write | ModScan Reg 178. |
| 1929 | Word | Read/Write | ModScan Reg 179. |
| 1930 | Word | Read/Write | ModScan Reg 180. |
| 1931 | Word | Read/Write | ModScan Reg 181. |
| 1932 | Word | Read/Write | ModScan Reg 182. |

|      |      |            |                  |
|------|------|------------|------------------|
| 1933 | Word | Read/Write | ModScan Reg 183. |
| 1934 | Word | Read/Write | ModScan Reg 184. |
| 1935 | Word | Read/Write | ModScan Reg 185. |
| 1936 | Word | Read/Write | ModScan Reg 186. |
| 1937 | Word | Read/Write | ModScan Reg 187. |
| 1938 | Word | Read/Write | ModScan Reg 188. |
| 1939 | Word | Read/Write | ModScan Reg 189. |
| 1940 | Word | Read/Write | ModScan Reg 190. |
| 1941 | Word | Read/Write | ModScan Reg 191. |
| 1942 | Word | Read/Write | ModScan Reg 192. |
| 1943 | Word | Read/Write | ModScan Reg 193. |
| 1944 | Word | Read/Write | ModScan Reg 194. |
| 1945 | Word | Read/Write | ModScan Reg 195. |
| 1946 | Word | Read/Write | ModScan Reg 196. |
| 1947 | Word | Read/Write | ModScan Reg 197. |
| 1948 | Word | Read/Write | ModScan Reg 198. |
| 1949 | Word | Read/Write | ModScan Reg 199. |
| 1950 | Word | Read/Write | ModScan Reg 200. |
| 1951 | Word | Read/Write | ModScan Reg 201. |
| 1952 | Word | Read/Write | ModScan Reg 202. |
| 1953 | Word | Read/Write | ModScan Reg 203. |
| 1954 | Word | Read/Write | ModScan Reg 204. |
| 1955 | Word | Read/Write | ModScan Reg 205. |
| 1956 | Word | Read/Write | ModScan Reg 206. |
| 1957 | Word | Read/Write | ModScan Reg 207. |
| 1958 | Word | Read/Write | ModScan Reg 208. |
| 1959 | Word | Read/Write | ModScan Reg 209. |
| 1960 | Word | Read/Write | ModScan Reg 210. |
| 1961 | Word | Read/Write | ModScan Reg 211. |
| 1962 | Word | Read/Write | ModScan Reg 212. |
| 1963 | Word | Read/Write | ModScan Reg 213. |
| 1964 | Word | Read/Write | ModScan Reg 214. |
| 1965 | Word | Read/Write | ModScan Reg 215. |
| 1966 | Word | Read/Write | ModScan Reg 216. |
| 1967 | Word | Read/Write | ModScan Reg 217. |
| 1968 | Word | Read/Write | ModScan Reg 218. |
| 1969 | Word | Read/Write | ModScan Reg 219. |
| 1970 | Word | Read/Write | ModScan Reg 220. |
| 1971 | Word | Read/Write | ModScan Reg 221. |
| 1972 | Word | Read/Write | ModScan Reg 222. |
| 1973 | Word | Read/Write | ModScan Reg 223. |
| 1974 | Word | Read/Write | ModScan Reg 224. |
| 1975 | Word | Read/Write | ModScan Reg 225. |
| 1976 | Word | Read/Write | ModScan Reg 226. |
| 1977 | Word | Read/Write | ModScan Reg 227. |
| 1978 | Word | Read/Write | ModScan Reg 228. |
| 1979 | Word | Read/Write | ModScan Reg 229. |
| 1980 | Word | Read/Write | ModScan Reg 230. |
| 1981 | Word | Read/Write | ModScan Reg 231. |
| 1982 | Word | Read/Write | ModScan Reg 232. |
| 1983 | Word | Read/Write | ModScan Reg 233. |
| 1984 | Word | Read/Write | ModScan Reg 234. |
| 1985 | Word | Read/Write | ModScan Reg 235. |
| 1986 | Word | Read/Write | ModScan Reg 236. |
| 1987 | Word | Read/Write | ModScan Reg 237. |

|      |      |            |                  |
|------|------|------------|------------------|
| 1988 | Word | Read/Write | ModScan Reg 238. |
| 1989 | Word | Read/Write | ModScan Reg 239. |
| 1990 | Word | Read/Write | ModScan Reg 240. |
| 1991 | Word | Read/Write | ModScan Reg 241. |
| 1992 | Word | Read/Write | ModScan Reg 242. |
| 1993 | Word | Read/Write | ModScan Reg 243. |
| 1994 | Word | Read/Write | ModScan Reg 244. |
| 1995 | Word | Read/Write | ModScan Reg 245. |
| 1996 | Word | Read/Write | ModScan Reg 246. |
| 1997 | Word | Read/Write | ModScan Reg 247. |
| 1998 | Word | Read/Write | ModScan Reg 248. |
| 1999 | Word | Read/Write | ModScan Reg 249. |
| 2000 | Word | Read/Write | ModScan Reg 250. |
| 2001 | Word | Read/Write | ModScan Reg 251. |
| 2002 | Word | Read/Write | ModScan Reg 252. |
| 2003 | Word | Read/Write | ModScan Reg 253. |
| 2004 | Word | Read/Write | ModScan Reg 254. |
| 2005 | Word | Read/Write | ModScan Reg 255. |
| 2006 | Word | Read/Write | ModScan Reg 256. |
| 2007 | Word | Read/Write | ModScan Reg 257. |
| 2008 | Word | Read/Write | ModScan Reg 258. |
| 2009 | Word | Read/Write | ModScan Reg 259. |
| 2010 | Word | Read/Write | ModScan Reg 260. |
| 2011 | Word | Read/Write | ModScan Reg 261. |
| 2012 | Word | Read/Write | ModScan Reg 262. |
| 2013 | Word | Read/Write | ModScan Reg 263. |
| 2014 | Word | Read/Write | ModScan Reg 264. |
| 2015 | Word | Read/Write | ModScan Reg 265. |
| 2016 | Word | Read/Write | ModScan Reg 266. |
| 2017 | Word | Read/Write | ModScan Reg 267. |
| 2018 | Word | Read/Write | ModScan Reg 268. |
| 2019 | Word | Read/Write | ModScan Reg 269. |
| 2020 | Word | Read/Write | ModScan Reg 270. |
| 2021 | Word | Read/Write | ModScan Reg 271. |
| 2022 | Word | Read/Write | ModScan Reg 272. |
| 2023 | Word | Read/Write | ModScan Reg 273. |
| 2024 | Word | Read/Write | ModScan Reg 274. |
| 2025 | Word | Read/Write | ModScan Reg 275. |
| 2026 | Word | Read/Write | ModScan Reg 276. |
| 2027 | Word | Read/Write | ModScan Reg 277. |
| 2028 | Word | Read/Write | ModScan Reg 278. |
| 2029 | Word | Read/Write | ModScan Reg 279. |
| 2030 | Word | Read/Write | ModScan Reg 280. |
| 2031 | Word | Read/Write | ModScan Reg 281. |
| 2032 | Word | Read/Write | ModScan Reg 282. |
| 2033 | Word | Read/Write | ModScan Reg 283. |
| 2034 | Word | Read/Write | ModScan Reg 284. |
| 2035 | Word | Read/Write | ModScan Reg 285. |
| 2036 | Word | Read/Write | ModScan Reg 286. |
| 2037 | Word | Read/Write | ModScan Reg 287. |
| 2038 | Word | Read/Write | ModScan Reg 288. |
| 2039 | Word | Read/Write | ModScan Reg 289. |
| 2040 | Word | Read/Write | ModScan Reg 290. |
| 2041 | Word | Read/Write | ModScan Reg 291. |
| 2042 | Word | Read/Write | ModScan Reg 292. |



|      |      |            |                  |
|------|------|------------|------------------|
| 2043 | Word | Read/Write | ModScan Reg 293. |
| 2044 | Word | Read/Write | ModScan Reg 294. |
| 2045 | Word | Read/Write | ModScan Reg 295. |
| 2046 | Word | Read/Write | ModScan Reg 296. |
| 2047 | Word | Read/Write | ModScan Reg 297. |
| 2048 | Word | Read/Write | ModScan Reg 298. |
| 2049 | Word | Read/Write | ModScan Reg 299. |
| 2050 | Word | Read/Write | ModScan Reg 300. |
| 2051 | Word | Read/Write | ModScan Reg 301. |
| 2052 | Word | Read/Write | ModScan Reg 302. |
| 2053 | Word | Read/Write | ModScan Reg 303. |
| 2054 | Word | Read/Write | ModScan Reg 304. |
| 2055 | Word | Read/Write | ModScan Reg 305. |
| 2056 | Word | Read/Write | ModScan Reg 306. |
| 2057 | Word | Read/Write | ModScan Reg 307. |
| 2058 | Word | Read/Write | ModScan Reg 308. |
| 2059 | Word | Read/Write | ModScan Reg 309. |
| 2060 | Word | Read/Write | ModScan Reg 310. |
| 2061 | Word | Read/Write | ModScan Reg 311. |
| 2062 | Word | Read/Write | ModScan Reg 312. |
| 2063 | Word | Read/Write | ModScan Reg 313. |
| 2064 | Word | Read/Write | ModScan Reg 314. |
| 2065 | Word | Read/Write | ModScan Reg 315. |
| 2066 | Word | Read/Write | ModScan Reg 316. |
| 2067 | Word | Read/Write | ModScan Reg 317. |
| 2068 | Word | Read/Write | ModScan Reg 318. |
| 2069 | Word | Read/Write | ModScan Reg 319. |
| 2070 | Word | Read/Write | ModScan Reg 320. |
| 2071 | Word | Read/Write | ModScan Reg 321. |
| 2072 | Word | Read/Write | ModScan Reg 322. |
| 2073 | Word | Read/Write | ModScan Reg 323. |
| 2074 | Word | Read/Write | ModScan Reg 324. |
| 2075 | Word | Read/Write | ModScan Reg 325. |
| 2076 | Word | Read/Write | ModScan Reg 326. |
| 2077 | Word | Read/Write | ModScan Reg 327. |
| 2078 | Word | Read/Write | ModScan Reg 328. |
| 2079 | Word | Read/Write | ModScan Reg 329. |
| 2080 | Word | Read/Write | ModScan Reg 330. |
| 2081 | Word | Read/Write | ModScan Reg 331. |
| 2082 | Word | Read/Write | ModScan Reg 332. |
| 2083 | Word | Read/Write | ModScan Reg 333. |
| 2084 | Word | Read/Write | ModScan Reg 334. |
| 2085 | Word | Read/Write | ModScan Reg 335. |
| 2086 | Word | Read/Write | ModScan Reg 336. |
| 2087 | Word | Read/Write | ModScan Reg 337. |
| 2088 | Word | Read/Write | ModScan Reg 338. |
| 2089 | Word | Read/Write | ModScan Reg 339. |
| 2090 | Word | Read/Write | ModScan Reg 340. |
| 2091 | Word | Read/Write | ModScan Reg 341. |
| 2092 | Word | Read/Write | ModScan Reg 342. |
| 2093 | Word | Read/Write | ModScan Reg 343. |
| 2094 | Word | Read/Write | ModScan Reg 344. |
| 2095 | Word | Read/Write | ModScan Reg 345. |
| 2096 | Word | Read/Write | ModScan Reg 346. |
| 2097 | Word | Read/Write | ModScan Reg 347. |

|      |      |            |                  |
|------|------|------------|------------------|
| 2098 | Word | Read/Write | ModScan Reg 348. |
| 2099 | Word | Read/Write | ModScan Reg 349. |
| 2100 | Word | Read/Write | ModScan Reg 350. |

### Parameters 2100-2400

| Parameter | 8500 Native Type | Access     | Description      |
|-----------|------------------|------------|------------------|
| 2101      | Word             | Read/Write | ModScan Reg 351. |
| 2102      | Word             | Read/Write | ModScan Reg 352. |
| 2103      | Word             | Read/Write | ModScan Reg 353. |
| 2104      | Word             | Read/Write | ModScan Reg 354. |
| 2105      | Word             | Read/Write | ModScan Reg 355. |
| 2106      | Word             | Read/Write | ModScan Reg 356. |
| 2107      | Word             | Read/Write | ModScan Reg 357. |
| 2108      | Word             | Read/Write | ModScan Reg 358. |
| 2109      | Word             | Read/Write | ModScan Reg 359. |
| 2110      | Word             | Read/Write | ModScan Reg 360. |
| 2111      | Word             | Read/Write | ModScan Reg 361. |
| 2112      | Word             | Read/Write | ModScan Reg 362. |
| 2113      | Word             | Read/Write | ModScan Reg 363. |
| 2114      | Word             | Read/Write | ModScan Reg 364. |
| 2115      | Word             | Read/Write | ModScan Reg 365. |
| 2116      | Word             | Read/Write | ModScan Reg 366. |
| 2117      | Word             | Read/Write | ModScan Reg 367. |
| 2118      | Word             | Read/Write | ModScan Reg 368. |
| 2119      | Word             | Read/Write | ModScan Reg 369. |
| 2120      | Word             | Read/Write | ModScan Reg 370. |
| 2121      | Word             | Read/Write | ModScan Reg 371. |
| 2122      | Word             | Read/Write | ModScan Reg 372. |
| 2123      | Word             | Read/Write | ModScan Reg 373. |
| 2124      | Word             | Read/Write | ModScan Reg 374. |
| 2125      | Word             | Read/Write | ModScan Reg 375. |
| 2126      | Word             | Read/Write | ModScan Reg 376. |
| 2127      | Word             | Read/Write | ModScan Reg 377. |
| 2128      | Word             | Read/Write | ModScan Reg 378. |
| 2129      | Word             | Read/Write | ModScan Reg 379. |
| 2130      | Word             | Read/Write | ModScan Reg 380. |
| 2131      | Word             | Read/Write | ModScan Reg 381. |
| 2132      | Word             | Read/Write | ModScan Reg 382. |
| 2133      | Word             | Read/Write | ModScan Reg 383. |
| 2134      | Word             | Read/Write | ModScan Reg 384. |
| 2135      | Word             | Read/Write | ModScan Reg 385. |
| 2136      | Word             | Read/Write | ModScan Reg 386. |
| 2137      | Word             | Read/Write | ModScan Reg 387. |
| 2138      | Word             | Read/Write | ModScan Reg 388. |
| 2139      | Word             | Read/Write | ModScan Reg 389. |
| 2140      | Word             | Read/Write | ModScan Reg 390. |
| 2141      | Word             | Read/Write | ModScan Reg 391. |
| 2142      | Word             | Read/Write | ModScan Reg 392. |
| 2143      | Word             | Read/Write | ModScan Reg 393. |
| 2144      | Word             | Read/Write | ModScan Reg 394. |
| 2145      | Word             | Read/Write | ModScan Reg 395. |
| 2146      | Word             | Read/Write | ModScan Reg 396. |
| 2147      | Word             | Read/Write | ModScan Reg 397. |
| 2148      | Word             | Read/Write | ModScan Reg 398. |

|      |      |            |                  |
|------|------|------------|------------------|
| 2149 | Word | Read/Write | ModScan Reg 399. |
| 2150 | Word | Read/Write | ModScan Reg 400. |
| 2151 | Word | Read/Write | ModScan Reg 401. |
| 2152 | Word | Read/Write | ModScan Reg 402. |
| 2153 | Word | Read/Write | ModScan Reg 403. |
| 2154 | Word | Read/Write | ModScan Reg 404. |
| 2155 | Word | Read/Write | ModScan Reg 405. |
| 2156 | Word | Read/Write | ModScan Reg 406. |
| 2157 | Word | Read/Write | ModScan Reg 407. |
| 2158 | Word | Read/Write | ModScan Reg 408. |
| 2159 | Word | Read/Write | ModScan Reg 409. |
| 2160 | Word | Read/Write | ModScan Reg 410. |
| 2161 | Word | Read/Write | ModScan Reg 411. |
| 2162 | Word | Read/Write | ModScan Reg 412. |
| 2163 | Word | Read/Write | ModScan Reg 413. |
| 2164 | Word | Read/Write | ModScan Reg 414. |
| 2165 | Word | Read/Write | ModScan Reg 415. |
| 2166 | Word | Read/Write | ModScan Reg 416. |
| 2167 | Word | Read/Write | ModScan Reg 417. |
| 2168 | Word | Read/Write | ModScan Reg 418. |
| 2169 | Word | Read/Write | ModScan Reg 419. |
| 2170 | Word | Read/Write | ModScan Reg 420. |
| 2171 | Word | Read/Write | ModScan Reg 421. |
| 2172 | Word | Read/Write | ModScan Reg 422. |
| 2173 | Word | Read/Write | ModScan Reg 423. |
| 2174 | Word | Read/Write | ModScan Reg 424. |
| 2175 | Word | Read/Write | ModScan Reg 425. |
| 2176 | Word | Read/Write | ModScan Reg 426. |
| 2177 | Word | Read/Write | ModScan Reg 427. |
| 2178 | Word | Read/Write | ModScan Reg 428. |
| 2179 | Word | Read/Write | ModScan Reg 429. |
| 2180 | Word | Read/Write | ModScan Reg 430. |
| 2181 | Word | Read/Write | ModScan Reg 431. |
| 2182 | Word | Read/Write | ModScan Reg 432. |
| 2183 | Word | Read/Write | ModScan Reg 433. |
| 2184 | Word | Read/Write | ModScan Reg 434. |
| 2185 | Word | Read/Write | ModScan Reg 435. |
| 2186 | Word | Read/Write | ModScan Reg 436. |
| 2187 | Word | Read/Write | ModScan Reg 437. |
| 2188 | Word | Read/Write | ModScan Reg 438. |
| 2189 | Word | Read/Write | ModScan Reg 439. |
| 2190 | Word | Read/Write | ModScan Reg 440. |
| 2191 | Word | Read/Write | ModScan Reg 441. |
| 2192 | Word | Read/Write | ModScan Reg 442. |
| 2193 | Word | Read/Write | ModScan Reg 443. |
| 2194 | Word | Read/Write | ModScan Reg 444. |
| 2195 | Word | Read/Write | ModScan Reg 445. |
| 2196 | Word | Read/Write | ModScan Reg 446. |
| 2197 | Word | Read/Write | ModScan Reg 447. |
| 2198 | Word | Read/Write | ModScan Reg 448. |
| 2199 | Word | Read/Write | ModScan Reg 449. |
| 2200 | Word | Read/Write | ModScan Reg 450. |
| 2201 | Word | Read/Write | ModScan Reg 451. |
| 2202 | Word | Read/Write | ModScan Reg 452. |
| 2203 | Word | Read/Write | ModScan Reg 453. |

|      |      |            |                  |
|------|------|------------|------------------|
| 2204 | Word | Read/Write | ModScan Reg 454. |
| 2205 | Word | Read/Write | ModScan Reg 455. |
| 2206 | Word | Read/Write | ModScan Reg 456. |
| 2207 | Word | Read/Write | ModScan Reg 457. |
| 2208 | Word | Read/Write | ModScan Reg 458. |
| 2209 | Word | Read/Write | ModScan Reg 459. |
| 2210 | Word | Read/Write | ModScan Reg 460. |
| 2211 | Word | Read/Write | ModScan Reg 461. |
| 2212 | Word | Read/Write | ModScan Reg 462. |
| 2213 | Word | Read/Write | ModScan Reg 463. |
| 2214 | Word | Read/Write | ModScan Reg 464. |
| 2215 | Word | Read/Write | ModScan Reg 465. |
| 2216 | Word | Read/Write | ModScan Reg 466. |
| 2217 | Word | Read/Write | ModScan Reg 467. |
| 2218 | Word | Read/Write | ModScan Reg 468. |
| 2219 | Word | Read/Write | ModScan Reg 469. |
| 2220 | Word | Read/Write | ModScan Reg 470. |
| 2221 | Word | Read/Write | ModScan Reg 471. |
| 2222 | Word | Read/Write | ModScan Reg 472. |
| 2223 | Word | Read/Write | ModScan Reg 473. |
| 2224 | Word | Read/Write | ModScan Reg 474. |
| 2225 | Word | Read/Write | ModScan Reg 475. |
| 2226 | Word | Read/Write | ModScan Reg 476. |
| 2227 | Word | Read/Write | ModScan Reg 477. |
| 2228 | Word | Read/Write | ModScan Reg 478. |
| 2229 | Word | Read/Write | ModScan Reg 479. |
| 2230 | Word | Read/Write | ModScan Reg 480. |
| 2231 | Word | Read/Write | ModScan Reg 481. |
| 2232 | Word | Read/Write | ModScan Reg 482. |
| 2233 | Word | Read/Write | ModScan Reg 483. |
| 2234 | Word | Read/Write | ModScan Reg 484. |
| 2235 | Word | Read/Write | ModScan Reg 485. |
| 2236 | Word | Read/Write | ModScan Reg 486. |
| 2237 | Word | Read/Write | ModScan Reg 487. |
| 2238 | Word | Read/Write | ModScan Reg 488. |
| 2239 | Word | Read/Write | ModScan Reg 489. |
| 2240 | Word | Read/Write | ModScan Reg 490. |
| 2241 | Word | Read/Write | ModScan Reg 491. |
| 2242 | Word | Read/Write | ModScan Reg 492. |
| 2243 | Word | Read/Write | ModScan Reg 493. |
| 2244 | Word | Read/Write | ModScan Reg 494. |
| 2245 | Word | Read/Write | ModScan Reg 495. |
| 2246 | Word | Read/Write | ModScan Reg 496. |
| 2247 | Word | Read/Write | ModScan Reg 497. |
| 2248 | Word | Read/Write | ModScan Reg 498. |
| 2249 | Word | Read/Write | ModScan Reg 499. |
| 2250 | Word | Read/Write | ModScan Reg 500. |
| 2251 | Word | Read/Write | ModScan Reg 501. |
| 2252 | Word | Read/Write | ModScan Reg 502. |
| 2253 | Word | Read/Write | ModScan Reg 503. |
| 2254 | Word | Read/Write | ModScan Reg 504. |
| 2255 | Word | Read/Write | ModScan Reg 505. |
| 2256 | Word | Read/Write | ModScan Reg 506. |
| 2257 | Word | Read/Write | ModScan Reg 507. |
| 2258 | Word | Read/Write | ModScan Reg 508. |

|      |      |            |                     |
|------|------|------------|---------------------|
| 2259 | Word | Read/Write | ModScan Reg 509.    |
| 2260 | Word | Read/Write | ModScan Reg 510.    |
| 2261 | Word | Read/Write | ModScan Reg 511.    |
| 2262 | Word | Read/Write | ModScan Reg 512.    |
| 2263 | Word | Read/Write | ModScan Reg 513.    |
| 2264 | Word | Read/Write | ModScan Reg 514.    |
| 2265 | Word | Read/Write | ModScan Reg 515.    |
| 2266 | Word | Read/Write | ModScan Reg 516.    |
| 2267 | Word | Read/Write | ModScan Reg 517.    |
| 2268 | Word | Read/Write | ModScan Reg 518.    |
| 2269 | Word | Read/Write | ModScan Reg 519.    |
| 2270 | Word | Read/Write | ModScan Reg 520.    |
| 2271 | Word | Read/Write | ModScan Reg 521.    |
| 2272 | Word | Read/Write | ModScan Reg 522.    |
| 2273 | Word | Read/Write | ModScan Reg 523.    |
| 2274 | Word | Read/Write | ModScan Reg 524.    |
| 2275 | Word | Read/Write | ModScan Reg 525.    |
| 2276 | Word | Read/Write | ModScan Reg 526.    |
| 2277 | Word | Read/Write | ModScan Reg 527.    |
| 2278 | Word | Read/Write | ModScan Reg 528.    |
| 2279 | Word | Read/Write | ModScan Reg 529.    |
| 2280 | Word | Read/Write | ModScan Reg 530.    |
| 2281 | Word | Read/Write | ModScan Reg 531.    |
| 2282 | Word | Read/Write | ModScan Reg 532.    |
| 2283 | Word | Read/Write | ModScan Reg 533.    |
| 2284 | Word | Read/Write | ModScan Reg 534.    |
| 2285 | Word | Read/Write | ModScan Reg 535.    |
| 2286 | Word | Read/Write | ModScan Reg 536.    |
| 2287 | Word | Read/Write | ModScan Reg 537.    |
| 2288 | Word | Read/Write | ModScan Reg 538.    |
| 2289 | Word | Read/Write | ModScan Reg 539.    |
| 2290 | Word | Read/Write | ModScan Reg 540.    |
| 2291 | Word | Read/Write | ModScan Reg 541.    |
| 2292 | Word | Read/Write | ModScan Reg 542.    |
| 2293 | Word | Read/Write | ModScan Reg 543.    |
| 2294 | Word | Read/Write | ModScan Reg 544.    |
| 2295 | Word | Read/Write | ModScan Reg 545.    |
| 2296 | Word | Read/Write | ModScan Reg 546.    |
| 2297 | Word | Read/Write | ModScan Reg 547.    |
| 2298 | Word | Read/Write | ModScan Reg 548.    |
| 2299 | Word | Read/Write | ModScan Reg 549.    |
| 2300 | Long | Read/Write | ModScan Lng Reg 0.  |
| 2301 | Long | Read/Write | ModScan Lng Reg 1.  |
| 2302 | Long | Read/Write | ModScan Lng Reg 2.  |
| 2303 | Long | Read/Write | ModScan Lng Reg 3.  |
| 2304 | Long | Read/Write | ModScan Lng Reg 4.  |
| 2305 | Long | Read/Write | ModScan Lng Reg 5.  |
| 2306 | Long | Read/Write | ModScan Lng Reg 6.  |
| 2307 | Long | Read/Write | ModScan Lng Reg 7.  |
| 2308 | Long | Read/Write | ModScan Lng Reg 8.  |
| 2309 | Long | Read/Write | ModScan Lng Reg 9.  |
| 2310 | Long | Read/Write | ModScan Lng Reg 10. |
| 2311 | Long | Read/Write | ModScan Lng Reg 11. |
| 2312 | Long | Read/Write | ModScan Lng Reg 12. |
| 2313 | Long | Read/Write | ModScan Lng Reg 13. |

|      |      |            |                     |
|------|------|------------|---------------------|
| 2314 | Long | Read/Write | ModScan Lng Reg 14  |
| 2315 | Long | Read/Write | ModScan Lng Reg 15  |
| 2316 | Long | Read/Write | ModScan Lng Reg 16. |
| 2317 | Long | Read/Write | ModScan Lng Reg 17. |
| 2318 | Long | Read/Write | ModScan Lng Reg 18. |
| 2319 | Long | Read/Write | ModScan Lng Reg 19. |
| 2320 | Long | Read/Write | ModScan Lng Reg 20. |
| 2321 | Long | Read/Write | ModScan Lng Reg 21. |
| 2322 | Long | Read/Write | ModScan Lng Reg 22. |
| 2323 | Long | Read/Write | ModScan Lng Reg 23. |
| 2324 | Long | Read/Write | ModScan Lng Reg 24. |
| 2325 | Long | Read/Write | ModScan Lng Reg 25. |
| 2326 | Long | Read/Write | ModScan Lng Reg 26. |
| 2327 | Long | Read/Write | ModScan Lng Reg 27. |
| 2328 | Long | Read/Write | ModScan Lng Reg 28. |
| 2329 | Long | Read/Write | ModScan Lng Reg 29. |
| 2330 | Long | Read/Write | ModScan Lng Reg 30. |
| 2331 | Long | Read/Write | ModScan Lng Reg 31. |
| 2332 | Long | Read/Write | ModScan Lng Reg 32. |
| 2333 | Long | Read/Write | ModScan Lng Reg 33. |
| 2334 | Long | Read/Write | ModScan Lng Reg 34. |
| 2335 | Long | Read/Write | ModScan Lng Reg 35. |
| 2336 | Long | Read/Write | ModScan Lng Reg 36. |
| 2337 | Long | Read/Write | ModScan Lng Reg 37. |
| 2338 | Long | Read/Write | ModScan Lng Reg 38. |
| 2339 | Long | Read/Write | ModScan Lng Reg 39. |
| 2340 | Long | Read/Write | ModScan Lng Reg 40. |
| 2341 | Long | Read/Write | ModScan Lng Reg 41. |
| 2342 | Long | Read/Write | ModScan Lng Reg 42. |
| 2343 | Long | Read/Write | ModScan Lng Reg 43. |
| 2344 | Long | Read/Write | ModScan Lng Reg 44. |
| 2345 | Long | Read/Write | ModScan Lng Reg 45. |
| 2346 | Long | Read/Write | ModScan Lng Reg 46. |
| 2347 | Long | Read/Write | ModScan Lng Reg 47. |
| 2348 | Long | Read/Write | ModScan Lng Reg 48. |
| 2349 | Long | Read/Write | ModScan Lng Reg 49. |
| 2350 | Long | Read/Write | ModScan Lng Reg 50. |
| 2351 | Long | Read/Write | ModScan Lng Reg 51. |
| 2352 | Long | Read/Write | ModScan Lng Reg 52. |
| 2353 | Long | Read/Write | ModScan Lng Reg 53. |
| 2354 | Long | Read/Write | ModScan Lng Reg 54. |
| 2355 | Long | Read/Write | ModScan Lng Reg 55. |
| 2356 | Long | Read/Write | ModScan Lng Reg 56. |
| 2357 | Long | Read/Write | ModScan Lng Reg 57. |
| 2358 | Long | Read/Write | ModScan Lng Reg 58. |
| 2359 | Long | Read/Write | ModScan Lng Reg 59. |
| 2360 | Long | Read/Write | ModScan Lng Reg 60. |
| 2361 | Long | Read/Write | ModScan Lng Reg 61. |
| 2362 | Long | Read/Write | ModScan Lng Reg 62. |
| 2363 | Long | Read/Write | ModScan Lng Reg 63. |
| 2364 | Long | Read/Write | ModScan Lng Reg 64. |
| 2365 | Long | Read/Write | ModScan Lng Reg 65. |
| 2366 | Long | Read/Write | ModScan Lng Reg 66. |
| 2367 | Long | Read/Write | ModScan Lng Reg 67. |
| 2368 | Long | Read/Write | ModScan Lng Reg 68. |

|      |      |            |                      |
|------|------|------------|----------------------|
| 2369 | Long | Read/Write | ModScan Lng Reg 69.  |
| 2370 | Long | Read/Write | ModScan Lng Reg 70.  |
| 2371 | Long | Read/Write | ModScan Lng Reg 71.  |
| 2372 | Long | Read/Write | ModScan Lng Reg 72.  |
| 2373 | Long | Read/Write | ModScan Lng Reg 73.  |
| 2374 | Long | Read/Write | ModScan Lng Reg 74.  |
| 2375 | Long | Read/Write | ModScan Lng Reg 75.  |
| 2376 | Long | Read/Write | ModScan Lng Reg 76.  |
| 2377 | Long | Read/Write | ModScan Lng Reg 77.  |
| 2378 | Long | Read/Write | ModScan Lng Reg 78.  |
| 2379 | Long | Read/Write | ModScan Lng Reg 79.  |
| 2380 | Long | Read/Write | ModScan Lng Reg 80.  |
| 2381 | Long | Read/Write | ModScan Lng Reg 81.  |
| 2382 | Long | Read/Write | ModScan Lng Reg 82.  |
| 2383 | Long | Read/Write | ModScan Lng Reg 83.  |
| 2384 | Long | Read/Write | ModScan Lng Reg 84.  |
| 2385 | Long | Read/Write | ModScan Lng Reg 85.  |
| 2386 | Long | Read/Write | ModScan Lng Reg 86.  |
| 2387 | Long | Read/Write | ModScan Lng Reg 87.  |
| 2388 | Long | Read/Write | ModScan Lng Reg 88.  |
| 2389 | Long | Read/Write | ModScan Lng Reg 89.  |
| 2390 | Long | Read/Write | ModScan Lng Reg 90.  |
| 2391 | Long | Read/Write | ModScan Lng Reg 91.  |
| 2392 | Long | Read/Write | ModScan Lng Reg 92.  |
| 2393 | Long | Read/Write | ModScan Lng Reg 93.  |
| 2394 | Long | Read/Write | ModScan Lng Reg 94.  |
| 2395 | Long | Read/Write | ModScan Lng Reg 95.  |
| 2396 | Long | Read/Write | ModScan Lng Reg 96.  |
| 2397 | Long | Read/Write | ModScan Lng Reg 97.  |
| 2398 | Long | Read/Write | ModScan Lng Reg 98.  |
| 2399 | Long | Read/Write | ModScan Lng Reg 99.  |
| 2400 | Long | Read/Write | ModScan Lng Reg 100. |

### Parameters 2401-2700

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| Parameter | 8500 Native Type | Access     | Description          |
|-----------|------------------|------------|----------------------|
| 2401      | Long             | Read/Write | ModScan Lng Reg 101. |
| 2402      | Long             | Read/Write | ModScan Lng Reg 102. |
| 2403      | Long             | Read/Write | ModScan Lng Reg 103. |
| 2404      | Long             | Read/Write | ModScan Lng Reg 104. |
| 2405      | Long             | Read/Write | ModScan Lng Reg 105. |
| 2406      | Long             | Read/Write | ModScan Lng Reg 106. |
| 2407      | Long             | Read/Write | ModScan Lng Reg 107. |
| 2408      | Long             | Read/Write | ModScan Lng Reg 108. |
| 2409      | Long             | Read/Write | ModScan Lng Reg 109. |
| 2410      | Long             | Read/Write | ModScan Lng Reg 110. |
| 2411      | Long             | Read/Write | ModScan Lng Reg 111. |
| 2412      | Long             | Read/Write | ModScan Lng Reg 112. |
| 2413      | Long             | Read/Write | ModScan Lng Reg 113. |
| 2414      | Long             | Read/Write | ModScan Lng Reg 114. |
| 2415      | Long             | Read/Write | ModScan Lng Reg 115. |
| 2416      | Long             | Read/Write | ModScan Lng Reg 116. |
| 2417      | Long             | Read/Write | ModScan Lng Reg 117. |
| 2418      | Long             | Read/Write | ModScan Lng Reg 118. |
| 2419      | Long             | Read/Write | ModScan Lng Reg 119. |

|      |      |            |                      |
|------|------|------------|----------------------|
| 2420 | Long | Read/Write | ModScan Lng Reg 120. |
| 2421 | Long | Read/Write | ModScan Lng Reg 121. |
| 2422 | Long | Read/Write | ModScan Lng Reg 122. |
| 2423 | Long | Read/Write | ModScan Lng Reg 123. |
| 2424 | Long | Read/Write | ModScan Lng Reg 124. |
| 2425 | Long | Read/Write | ModScan Lng Reg 125. |
| 2426 | Long | Read/Write | ModScan Lng Reg 126. |
| 2427 | Long | Read/Write | ModScan Lng Reg 127. |
| 2428 | Long | Read/Write | ModScan Lng Reg 128. |
| 2429 | Long | Read/Write | ModScan Lng Reg 129. |
| 2430 | Long | Read/Write | ModScan Lng Reg 130. |
| 2431 | Long | Read/Write | ModScan Lng Reg 131. |
| 2432 | Long | Read/Write | ModScan Lng Reg 132. |
| 2433 | Long | Read/Write | ModScan Lng Reg 133. |
| 2434 | Long | Read/Write | ModScan Lng Reg 134. |
| 2435 | Long | Read/Write | ModScan Lng Reg 135. |
| 2436 | Long | Read/Write | ModScan Lng Reg 136. |
| 2437 | Long | Read/Write | ModScan Lng Reg 137. |
| 2438 | Long | Read/Write | ModScan Lng Reg 138. |
| 2439 | Long | Read/Write | ModScan Lng Reg 139. |
| 2440 | Long | Read/Write | ModScan Lng Reg 140. |
| 2441 | Long | Read/Write | ModScan Lng Reg 141. |
| 2442 | Long | Read/Write | ModScan Lng Reg 142. |
| 2443 | Long | Read/Write | ModScan Lng Reg 143. |
| 2444 | Long | Read/Write | ModScan Lng Reg 144. |
| 2445 | Long | Read/Write | ModScan Lng Reg 145. |
| 2446 | Long | Read/Write | ModScan Lng Reg 146. |
| 2447 | Long | Read/Write | ModScan Lng Reg 147. |
| 2448 | Long | Read/Write | ModScan Lng Reg 148. |
| 2449 | Long | Read/Write | ModScan Lng Reg 149. |
| 2450 | Long | Read/Write | ModScan Lng Reg 150. |
| 2451 | Long | Read/Write | ModScan Lng Reg 151. |
| 2452 | Long | Read/Write | ModScan Lng Reg 152. |
| 2453 | Long | Read/Write | ModScan Lng Reg 153. |
| 2454 | Long | Read/Write | ModScan Lng Reg 154. |
| 2455 | Long | Read/Write | ModScan Lng Reg 155. |
| 2456 | Long | Read/Write | ModScan Lng Reg 156. |
| 2457 | Long | Read/Write | ModScan Lng Reg 157. |
| 2458 | Long | Read/Write | ModScan Lng Reg 158. |
| 2459 | Long | Read/Write | ModScan Lng Reg 159. |
| 2460 | Long | Read/Write | ModScan Lng Reg 160. |
| 2461 | Long | Read/Write | ModScan Lng Reg 161. |
| 2462 | Long | Read/Write | ModScan Lng Reg 162. |
| 2463 | Long | Read/Write | ModScan Lng Reg 163. |
| 2464 | Long | Read/Write | ModScan Lng Reg 164. |
| 2465 | Long | Read/Write | ModScan Lng Reg 165. |
| 2466 | Long | Read/Write | ModScan Lng Reg 166. |
| 2467 | Long | Read/Write | ModScan Lng Reg 167. |
| 2468 | Long | Read/Write | ModScan Lng Reg 168. |
| 2469 | Long | Read/Write | ModScan Lng Reg 169. |
| 2470 | Long | Read/Write | ModScan Lng Reg 170. |
| 2471 | Long | Read/Write | ModScan Lng Reg 171. |
| 2472 | Long | Read/Write | ModScan Lng Reg 172. |
| 2473 | Long | Read/Write | ModScan Lng Reg 173. |
| 2474 | Long | Read/Write | ModScan Lng Reg 174. |



|      |      |            |                      |
|------|------|------------|----------------------|
| 2475 | Long | Read/Write | ModScan Lng Reg 175. |
| 2476 | Long | Read/Write | ModScan Lng Reg 176. |
| 2477 | Long | Read/Write | ModScan Lng Reg 177. |
| 2478 | Long | Read/Write | ModScan Lng Reg 178. |
| 2479 | Long | Read/Write | ModScan Lng Reg 179. |
| 2480 | Long | Read/Write | ModScan Lng Reg 180. |
| 2481 | Long | Read/Write | ModScan Lng Reg 181. |
| 2482 | Long | Read/Write | ModScan Lng Reg 182. |
| 2483 | Long | Read/Write | ModScan Lng Reg 183. |
| 2484 | Long | Read/Write | ModScan Lng Reg 184. |
| 2485 | Long | Read/Write | ModScan Lng Reg 185. |
| 2486 | Long | Read/Write | ModScan Lng Reg 186. |
| 2487 | Long | Read/Write | ModScan Lng Reg 187. |
| 2488 | Long | Read/Write | ModScan Lng Reg 188. |
| 2489 | Long | Read/Write | ModScan Lng Reg 189. |
| 2490 | Long | Read/Write | ModScan Lng Reg 190. |
| 2491 | Long | Read/Write | ModScan Lng Reg 191. |
| 2492 | Long | Read/Write | ModScan Lng Reg 192. |
| 2493 | Long | Read/Write | ModScan Lng Reg 193. |
| 2494 | Long | Read/Write | ModScan Lng Reg 194. |
| 2495 | Long | Read/Write | ModScan Lng Reg 195. |
| 2496 | Long | Read/Write | ModScan Lng Reg 196. |
| 2497 | Long | Read/Write | ModScan Lng Reg 197. |
| 2498 | Long | Read/Write | ModScan Lng Reg 198. |
| 2499 | Long | Read/Write | ModScan Lng Reg 199. |
| 2500 | Long | Read/Write | ModScan Lng Reg 200. |
| 2501 | Long | Read/Write | ModScan Lng Reg 201. |
| 2502 | Long | Read/Write | ModScan Lng Reg 202. |
| 2503 | Long | Read/Write | ModScan Lng Reg 203. |
| 2504 | Long | Read/Write | ModScan Lng Reg 204. |
| 2505 | Long | Read/Write | ModScan Lng Reg 205. |
| 2506 | Long | Read/Write | ModScan Lng Reg 206. |
| 2507 | Long | Read/Write | ModScan Lng Reg 207. |
| 2508 | Long | Read/Write | ModScan Lng Reg 208. |
| 2509 | Long | Read/Write | ModScan Lng Reg 209. |
| 2510 | Long | Read/Write | ModScan Lng Reg 210. |
| 2511 | Long | Read/Write | ModScan Lng Reg 211. |
| 2512 | Long | Read/Write | ModScan Lng Reg 212. |
| 2513 | Long | Read/Write | ModScan Lng Reg 213. |
| 2514 | Long | Read/Write | ModScan Lng Reg 214. |
| 2515 | Long | Read/Write | ModScan Lng Reg 215. |
| 2516 | Long | Read/Write | ModScan Lng Reg 216. |
| 2517 | Long | Read/Write | ModScan Lng Reg 217. |
| 2518 | Long | Read/Write | ModScan Lng Reg 218. |
| 2519 | Long | Read/Write | ModScan Lng Reg 219. |
| 2520 | Long | Read/Write | ModScan Lng Reg 220. |
| 2521 | Long | Read/Write | ModScan Lng Reg 221. |
| 2522 | Long | Read/Write | ModScan Lng Reg 222. |
| 2523 | Long | Read/Write | ModScan Lng Reg 223. |
| 2524 | Long | Read/Write | ModScan Lng Reg 224. |
| 2525 | Long | Read/Write | ModScan Lng Reg 225. |
| 2526 | Long | Read/Write | ModScan Lng Reg 226. |
| 2527 | Long | Read/Write | ModScan Lng Reg 227. |
| 2528 | Long | Read/Write | ModScan Lng Reg 228. |
| 2529 | Long | Read/Write | ModScan Lng Reg 229. |

|      |       |            |                      |
|------|-------|------------|----------------------|
| 2530 | Long  | Read/Write | ModScan Lng Reg 230. |
| 2531 | Long  | Read/Write | ModScan Lng Reg 231. |
| 2532 | Long  | Read/Write | ModScan Lng Reg 232. |
| 2533 | Long  | Read/Write | ModScan Lng Reg 233. |
| 2534 | Long  | Read/Write | ModScan Lng Reg 234. |
| 2535 | Long  | Read/Write | ModScan Lng Reg 235. |
| 2536 | Long  | Read/Write | ModScan Lng Reg 236. |
| 2537 | Long  | Read/Write | ModScan Lng Reg 237. |
| 2538 | Long  | Read/Write | ModScan Lng Reg 238. |
| 2539 | Long  | Read/Write | ModScan Lng Reg 239. |
| 2540 | Long  | Read/Write | ModScan Lng Reg 240. |
| 2541 | Long  | Read/Write | ModScan Lng Reg 241. |
| 2542 | Long  | Read/Write | ModScan Lng Reg 242. |
| 2543 | Long  | Read/Write | ModScan Lng Reg 243. |
| 2544 | Long  | Read/Write | ModScan Lng Reg 244. |
| 2545 | Long  | Read/Write | ModScan Lng Reg 245. |
| 2546 | Long  | Read/Write | ModScan Lng Reg 246. |
| 2547 | Long  | Read/Write | ModScan Lng Reg 247. |
| 2548 | Long  | Read/Write | ModScan Lng Reg 248. |
| 2549 | Long  | Read/Write | ModScan Lng Reg 249. |
| 2550 | Long  | Read/Write | ModScan Lng Reg 250. |
| 2551 | Long  | Read/Write | ModScan Lng Reg 251. |
| 2552 | Long  | Read/Write | ModScan Lng Reg 252. |
| 2553 | Long  | Read/Write | ModScan Lng Reg 253. |
| 2554 | Long  | Read/Write | ModScan Lng Reg 254. |
| 2555 | Long  | Read/Write | ModScan Lng Reg 255. |
| 2556 | Long  | Read/Write | ModScan Lng Reg 256. |
| 2557 | Long  | Read/Write | ModScan Lng Reg 257. |
| 2558 | Long  | Read/Write | ModScan Lng Reg 258. |
| 2559 | Long  | Read/Write | ModScan Lng Reg 259. |
| 2560 | Long  | Read/Write | ModScan Lng Reg 260. |
| 2561 | Long  | Read/Write | ModScan Lng Reg 261. |
| 2562 | Long  | Read/Write | ModScan Lng Reg 262. |
| 2563 | Long  | Read/Write | ModScan Lng Reg 263. |
| 2564 | Long  | Read/Write | ModScan Lng Reg 264. |
| 2565 | Long  | Read/Write | ModScan Lng Reg 265. |
| 2566 | Long  | Read/Write | ModScan Lng Reg 266. |
| 2567 | Long  | Read/Write | ModScan Lng Reg 267. |
| 2568 | Long  | Read/Write | ModScan Lng Reg 268. |
| 2569 | Long  | Read/Write | ModScan Lng Reg 269. |
| 2570 | Long  | Read/Write | ModScan Lng Reg 270. |
| 2571 | Long  | Read/Write | ModScan Lng Reg 271. |
| 2572 | Long  | Read/Write | ModScan Lng Reg 272. |
| 2573 | Long  | Read/Write | ModScan Lng Reg 273. |
| 2574 | Long  | Read/Write | ModScan Lng Reg 274. |
| 2575 | Float | Read/Write | ModScan Flt Reg 0.   |
| 2576 | Float | Read/Write | ModScan Flt Reg 1.   |
| 2577 | Float | Read/Write | ModScan Flt Reg 2.   |
| 2578 | Float | Read/Write | ModScan Flt Reg 3.   |
| 2579 | Float | Read/Write | ModScan Flt Reg 4.   |
| 2580 | Float | Read/Write | ModScan Flt Reg 5.   |
| 2581 | Float | Read/Write | ModScan Flt Reg 6.   |
| 2582 | Float | Read/Write | ModScan Flt Reg 7.   |
| 2583 | Float | Read/Write | ModScan Flt Reg 8.   |
| 2584 | Float | Read/Write | ModScan Flt Reg 9.   |

|      |       |            |                     |
|------|-------|------------|---------------------|
| 2585 | Float | Read/Write | ModScan Flt Reg 10. |
| 2586 | Float | Read/Write | ModScan Flt Reg 11. |
| 2587 | Float | Read/Write | ModScan Flt Reg 12. |
| 2588 | Float | Read/Write | ModScan Flt Reg 13. |
| 2589 | Float | Read/Write | ModScan Flt Reg 14. |
| 2590 | Float | Read/Write | ModScan Flt Reg 15. |
| 2591 | Float | Read/Write | ModScan Flt Reg 16. |
| 2592 | Float | Read/Write | ModScan Flt Reg 17. |
| 2593 | Float | Read/Write | ModScan Flt Reg 18. |
| 2594 | Float | Read/Write | ModScan Flt Reg 19. |
| 2595 | Float | Read/Write | ModScan Flt Reg 20. |
| 2596 | Float | Read/Write | ModScan Flt Reg 21. |
| 2597 | Float | Read/Write | ModScan Flt Reg 22. |
| 2598 | Float | Read/Write | ModScan Flt Reg 23. |
| 2599 | Float | Read/Write | ModScan Flt Reg 24. |
| 2600 | Float | Read/Write | ModScan Flt Reg 25. |
| 2601 | Float | Read/Write | ModScan Flt Reg 26. |
| 2602 | Float | Read/Write | ModScan Flt Reg 27. |
| 2603 | Float | Read/Write | ModScan Flt Reg 28. |
| 2604 | Float | Read/Write | ModScan Flt Reg 29. |
| 2605 | Float | Read/Write | ModScan Flt Reg 30. |
| 2606 | Float | Read/Write | ModScan Flt Reg 31. |
| 2607 | Float | Read/Write | ModScan Flt Reg 32. |
| 2608 | Float | Read/Write | ModScan Flt Reg 33. |
| 2609 | Float | Read/Write | ModScan Flt Reg 34. |
| 2610 | Float | Read/Write | ModScan Flt Reg 35. |
| 2611 | Float | Read/Write | ModScan Flt Reg 36. |
| 2612 | Float | Read/Write | ModScan Flt Reg 37. |
| 2613 | Float | Read/Write | ModScan Flt Reg 38. |
| 2614 | Float | Read/Write | ModScan Flt Reg 39. |
| 2615 | Float | Read/Write | ModScan Flt Reg 40. |
| 2616 | Float | Read/Write | ModScan Flt Reg 41. |
| 2617 | Float | Read/Write | ModScan Flt Reg 42. |
| 2618 | Float | Read/Write | ModScan Flt Reg 43. |
| 2619 | Float | Read/Write | ModScan Flt Reg 44. |
| 2620 | Float | Read/Write | ModScan Flt Reg 45. |
| 2621 | Float | Read/Write | ModScan Flt Reg 46. |
| 2622 | Float | Read/Write | ModScan Flt Reg 47. |
| 2623 | Float | Read/Write | ModScan Flt Reg 48. |
| 2624 | Float | Read/Write | ModScan Flt Reg 49. |
| 2625 | Float | Read/Write | ModScan Flt Reg 50. |
| 2626 | Float | Read/Write | ModScan Flt Reg 51. |
| 2627 | Float | Read/Write | ModScan Flt Reg 52. |
| 2628 | Float | Read/Write | ModScan Flt Reg 53. |
| 2629 | Float | Read/Write | ModScan Flt Reg 54. |
| 2630 | Float | Read/Write | ModScan Flt Reg 55. |
| 2631 | Float | Read/Write | ModScan Flt Reg 56. |
| 2632 | Float | Read/Write | ModScan Flt Reg 57. |
| 2633 | Float | Read/Write | ModScan Flt Reg 58. |
| 2634 | Float | Read/Write | ModScan Flt Reg 59. |
| 2635 | Float | Read/Write | ModScan Flt Reg 60. |
| 2636 | Float | Read/Write | ModScan Flt Reg 61. |
| 2637 | Float | Read/Write | ModScan Flt Reg 62. |
| 2638 | Float | Read/Write | ModScan Flt Reg 63. |
| 2639 | Float | Read/Write | ModScan Flt Reg 64. |

|      |       |            |                      |
|------|-------|------------|----------------------|
| 2640 | Float | Read/Write | ModScan Flt Reg 65.  |
| 2641 | Float | Read/Write | ModScan Flt Reg 66.  |
| 2642 | Float | Read/Write | ModScan Flt Reg 67.  |
| 2643 | Float | Read/Write | ModScan Flt Reg 68.  |
| 2644 | Float | Read/Write | ModScan Flt Reg 69.  |
| 2645 | Float | Read/Write | ModScan Flt Reg 70.  |
| 2646 | Float | Read/Write | ModScan Flt Reg 71.  |
| 2647 | Float | Read/Write | ModScan Flt Reg 72.  |
| 2648 | Float | Read/Write | ModScan Flt Reg 73.  |
| 2649 | Float | Read/Write | ModScan Flt Reg 74.  |
| 2650 | Float | Read/Write | ModScan Flt Reg 75.  |
| 2651 | Float | Read/Write | ModScan Flt Reg 76.  |
| 2652 | Float | Read/Write | ModScan Flt Reg 77.  |
| 2653 | Float | Read/Write | ModScan Flt Reg 78.  |
| 2654 | Float | Read/Write | ModScan Flt Reg 79.  |
| 2655 | Float | Read/Write | ModScan Flt Reg 80.  |
| 2656 | Float | Read/Write | ModScan Flt Reg 81.  |
| 2657 | Float | Read/Write | ModScan Flt Reg 82.  |
| 2658 | Float | Read/Write | ModScan Flt Reg 83.  |
| 2659 | Float | Read/Write | ModScan Flt Reg 84.  |
| 2660 | Float | Read/Write | ModScan Flt Reg 85.  |
| 2661 | Float | Read/Write | ModScan Flt Reg 86.  |
| 2662 | Float | Read/Write | ModScan Flt Reg 87.  |
| 2663 | Float | Read/Write | ModScan Flt Reg 88.  |
| 2664 | Float | Read/Write | ModScan Flt Reg 89.  |
| 2665 | Float | Read/Write | ModScan Flt Reg 90.  |
| 2666 | Float | Read/Write | ModScan Flt Reg 91.  |
| 2667 | Float | Read/Write | ModScan Flt Reg 92.  |
| 2668 | Float | Read/Write | ModScan Flt Reg 93.  |
| 2669 | Float | Read/Write | ModScan Flt Reg 94.  |
| 2670 | Float | Read/Write | ModScan Flt Reg 95.  |
| 2671 | Float | Read/Write | ModScan Flt Reg 96.  |
| 2672 | Float | Read/Write | ModScan Flt Reg 97.  |
| 2673 | Float | Read/Write | ModScan Flt Reg 98.  |
| 2674 | Float | Read/Write | ModScan Flt Reg 99.  |
| 2675 | Float | Read/Write | ModScan Flt Reg 100. |
| 2676 | Float | Read/Write | ModScan Flt Reg 101. |
| 2677 | Float | Read/Write | ModScan Flt Reg 102. |
| 2678 | Float | Read/Write | ModScan Flt Reg 103. |
| 2679 | Float | Read/Write | ModScan Flt Reg 104. |
| 2680 | Float | Read/Write | ModScan Flt Reg 105. |
| 2681 | Float | Read/Write | ModScan Flt Reg 106. |
| 2682 | Float | Read/Write | ModScan Flt Reg 107. |
| 2683 | Float | Read/Write | ModScan Flt Reg 108. |
| 2684 | Float | Read/Write | ModScan Flt Reg 109. |
| 2685 | Float | Read/Write | ModScan Flt Reg 110. |
| 2686 | Float | Read/Write | ModScan Flt Reg 111. |
| 2687 | Float | Read/Write | ModScan Flt Reg 112. |
| 2688 | Float | Read/Write | ModScan Flt Reg 113. |
| 2689 | Float | Read/Write | ModScan Flt Reg 114. |
| 2690 | Float | Read/Write | ModScan Flt Reg 115. |
| 2691 | Float | Read/Write | ModScan Flt Reg 116. |
| 2692 | Float | Read/Write | ModScan Flt Reg 117. |
| 2693 | Float | Read/Write | ModScan Flt Reg 118. |
| 2694 | Float | Read/Write | ModScan Flt Reg 119. |

|      |       |            |                      |
|------|-------|------------|----------------------|
| 2695 | Float | Read/Write | ModScan Flt Reg 120. |
| 2696 | Float | Read/Write | ModScan Flt Reg 121. |
| 2697 | Float | Read/Write | ModScan Flt Reg 122. |
| 2698 | Float | Read/Write | ModScan Flt Reg 123. |
| 2699 | Float | Read/Write | ModScan Flt Reg 124. |
| 2700 | Float | Read/Write | ModScan Flt Reg 125. |

### Parameters 2701-3000

| Parameter | 8500 Native Type | Access     | Description          |
|-----------|------------------|------------|----------------------|
| 2701      | Float            | Read/Write | ModScan Flt Reg 126. |
| 2702      | Float            | Read/Write | ModScan Flt Reg 127. |
| 2703      | Float            | Read/Write | ModScan Flt Reg 128. |
| 2704      | Float            | Read/Write | ModScan Flt Reg 129. |
| 2705      | Float            | Read/Write | ModScan Flt Reg 130. |
| 2706      | Float            | Read/Write | ModScan Flt Reg 131. |
| 2707      | Float            | Read/Write | ModScan Flt Reg 132. |
| 2708      | Float            | Read/Write | ModScan Flt Reg 133. |
| 2709      | Float            | Read/Write | ModScan Flt Reg 134. |
| 2710      | Float            | Read/Write | ModScan Flt Reg 135. |
| 2711      | Float            | Read/Write | ModScan Flt Reg 136. |
| 2712      | Float            | Read/Write | ModScan Flt Reg 137. |
| 2713      | Float            | Read/Write | ModScan Flt Reg 138. |
| 2714      | Float            | Read/Write | ModScan Flt Reg 139. |
| 2715      | Float            | Read/Write | ModScan Flt Reg 140. |
| 2716      | Float            | Read/Write | ModScan Flt Reg 141. |
| 2717      | Float            | Read/Write | ModScan Flt Reg 142. |
| 2718      | Float            | Read/Write | ModScan Flt Reg 143. |
| 2719      | Float            | Read/Write | ModScan Flt Reg 144. |
| 2720      | Float            | Read/Write | ModScan Flt Reg 145. |
| 2721      | Float            | Read/Write | ModScan Flt Reg 146. |
| 2722      | Float            | Read/Write | ModScan Flt Reg 147. |
| 2723      | Float            | Read/Write | ModScan Flt Reg 148. |
| 2724      | Float            | Read/Write | ModScan Flt Reg 149. |
| 2725      | Float            | Read/Write | ModScan Flt Reg 150. |
| 2726      | Float            | Read/Write | ModScan Flt Reg 151. |
| 2727      | Float            | Read/Write | ModScan Flt Reg 152. |
| 2728      | Float            | Read/Write | ModScan Flt Reg 153. |
| 2729      | Float            | Read/Write | ModScan Flt Reg 154. |
| 2730      | Float            | Read/Write | ModScan Flt Reg 155. |
| 2731      | Float            | Read/Write | ModScan Flt Reg 156. |
| 2732      | Float            | Read/Write | ModScan Flt Reg 157. |
| 2733      | Float            | Read/Write | ModScan Flt Reg 158. |
| 2734      | Float            | Read/Write | ModScan Flt Reg 159. |
| 2735      | Float            | Read/Write | ModScan Flt Reg 160. |
| 2736      | Float            | Read/Write | ModScan Flt Reg 161. |
| 2737      | Float            | Read/Write | ModScan Flt Reg 162. |
| 2738      | Float            | Read/Write | ModScan Flt Reg 163. |
| 2739      | Float            | Read/Write | ModScan Flt Reg 164. |
| 2740      | Float            | Read/Write | ModScan Flt Reg 165. |
| 2741      | Float            | Read/Write | ModScan Flt Reg 166. |
| 2742      | Float            | Read/Write | ModScan Flt Reg 167. |
| 2743      | Float            | Read/Write | ModScan Flt Reg 168. |
| 2744      | Float            | Read/Write | ModScan Flt Reg 169. |
| 2745      | Float            | Read/Write | ModScan Flt Reg 170. |

|      |       |            |                      |
|------|-------|------------|----------------------|
| 2746 | Float | Read/Write | ModScan Flt Reg 171. |
| 2747 | Float | Read/Write | ModScan Flt Reg 172. |
| 2748 | Float | Read/Write | ModScan Flt Reg 173. |
| 2749 | Float | Read/Write | ModScan Flt Reg 174. |
| 2750 | Float | Read/Write | ModScan Flt Reg 175. |
| 2751 | Float | Read/Write | ModScan Flt Reg 176. |
| 2752 | Float | Read/Write | ModScan Flt Reg 177. |
| 2753 | Float | Read/Write | ModScan Flt Reg 178. |
| 2754 | Float | Read/Write | ModScan Flt Reg 179. |
| 2755 | Float | Read/Write | ModScan Flt Reg 180. |
| 2756 | Float | Read/Write | ModScan Flt Reg 181. |
| 2757 | Float | Read/Write | ModScan Flt Reg 182. |
| 2758 | Float | Read/Write | ModScan Flt Reg 183. |
| 2759 | Float | Read/Write | ModScan Flt Reg 184. |
| 2760 | Float | Read/Write | ModScan Flt Reg 185. |
| 2761 | Float | Read/Write | ModScan Flt Reg 186. |
| 2762 | Float | Read/Write | ModScan Flt Reg 187. |
| 2763 | Float | Read/Write | ModScan Flt Reg 188. |
| 2764 | Float | Read/Write | ModScan Flt Reg 189. |
| 2765 | Float | Read/Write | ModScan Flt Reg 190. |
| 2766 | Float | Read/Write | ModScan Flt Reg 191. |
| 2767 | Float | Read/Write | ModScan Flt Reg 192. |
| 2768 | Float | Read/Write | ModScan Flt Reg 193. |
| 2769 | Float | Read/Write | ModScan Flt Reg 194. |
| 2770 | Float | Read/Write | ModScan Flt Reg 195. |
| 2771 | Float | Read/Write | ModScan Flt Reg 196. |
| 2772 | Float | Read/Write | ModScan Flt Reg 197. |
| 2773 | Float | Read/Write | ModScan Flt Reg 198. |
| 2774 | Float | Read/Write | ModScan Flt Reg 199. |
| 2775 | Float | Read/Write | ModScan Flt Reg 200. |
| 2776 | Float | Read/Write | ModScan Flt Reg 201. |
| 2777 | Float | Read/Write | ModScan Flt Reg 202. |
| 2778 | Float | Read/Write | ModScan Flt Reg 203. |
| 2779 | Float | Read/Write | ModScan Flt Reg 204. |
| 2780 | Float | Read/Write | ModScan Flt Reg 205. |
| 2781 | Float | Read/Write | ModScan Flt Reg 206. |
| 2782 | Float | Read/Write | ModScan Flt Reg 207. |
| 2783 | Float | Read/Write | ModScan Flt Reg 208. |
| 2784 | Float | Read/Write | ModScan Flt Reg 209. |
| 2785 | Float | Read/Write | ModScan Flt Reg 210. |
| 2786 | Float | Read/Write | ModScan Flt Reg 211. |
| 2787 | Float | Read/Write | ModScan Flt Reg 212. |
| 2788 | Float | Read/Write | ModScan Flt Reg 213. |
| 2789 | Float | Read/Write | ModScan Flt Reg 214. |
| 2790 | Float | Read/Write | ModScan Flt Reg 215. |
| 2791 | Float | Read/Write | ModScan Flt Reg 216. |
| 2792 | Float | Read/Write | ModScan Flt Reg 217. |
| 2793 | Float | Read/Write | ModScan Flt Reg 218. |
| 2794 | Float | Read/Write | ModScan Flt Reg 219. |
| 2795 | Float | Read/Write | ModScan Flt Reg 220. |
| 2796 | Float | Read/Write | ModScan Flt Reg 221. |
| 2797 | Float | Read/Write | ModScan Flt Reg 222. |
| 2798 | Float | Read/Write | ModScan Flt Reg 223. |
| 2799 | Float | Read/Write | ModScan Flt Reg 224. |
| 2800 | Float | Read/Write | ModScan Flt Reg 225. |

|      |         |            |                       |
|------|---------|------------|-----------------------|
| 2801 | Float   | Read/Write | ModScan Flt Reg 226.  |
| 2802 | Float   | Read/Write | ModScan Flt Reg 227.  |
| 2803 | Float   | Read/Write | ModScan Flt Reg 228.  |
| 2804 | Float   | Read/Write | ModScan Flt Reg 229.  |
| 2805 | Float   | Read/Write | ModScan Flt Reg 230.  |
| 2806 | Float   | Read/Write | ModScan Flt Reg 231.  |
| 2807 | Float   | Read/Write | ModScan Flt Reg 232.  |
| 2808 | Float   | Read/Write | ModScan Flt Reg 233.  |
| 2809 | Float   | Read/Write | ModScan Flt Reg 234.  |
| 2810 | Float   | Read/Write | ModScan Flt Reg 235.  |
| 2811 | Float   | Read/Write | ModScan Flt Reg 236.  |
| 2812 | Float   | Read/Write | ModScan Flt Reg 237.  |
| 2813 | Float   | Read/Write | ModScan Flt Reg 238.  |
| 2814 | Float   | Read/Write | ModScan Flt Reg 239.  |
| 2815 | Float   | Read/Write | ModScan Flt Reg 240.  |
| 2816 | Float   | Read/Write | ModScan Flt Reg 241.  |
| 2817 | Float   | Read/Write | ModScan Flt Reg 242.  |
| 2818 | Float   | Read/Write | ModScan Flt Reg 243.  |
| 2819 | Float   | Read/Write | ModScan Flt Reg 244.  |
| 2820 | Float   | Read/Write | ModScan Flt Reg 245.  |
| 2821 | Float   | Read/Write | ModScan Flt Reg 246.  |
| 2822 | Float   | Read/Write | ModScan Flt Reg 247.  |
| 2823 | Float   | Read/Write | ModScan Flt Reg 248.  |
| 2824 | Float   | Read/Write | ModScan Flt Reg 249.  |
| 2825 | Float   | Read/Write | ModScan Flt Reg 250.  |
| 2826 | Float   | Read/Write | ModScan Flt Reg 251.  |
| 2827 | Float   | Read/Write | ModScan Flt Reg 252.  |
| 2828 | Float   | Read/Write | ModScan Flt Reg 253.  |
| 2829 | Float   | Read/Write | ModScan Flt Reg 254.  |
| 2830 | Float   | Read/Write | ModScan Flt Reg 255.  |
| 2831 | Float   | Read/Write | ModScan Flt Reg 256.  |
| 2832 | Float   | Read/Write | ModScan Flt Reg 257.  |
| 2833 | Float   | Read/Write | ModScan Flt Reg 258.  |
| 2834 | Float   | Read/Write | ModScan Flt Reg 259.  |
| 2835 | Float   | Read/Write | ModScan Flt Reg 260.  |
| 2836 | Float   | Read/Write | ModScan Flt Reg 261.  |
| 2837 | Float   | Read/Write | ModScan Flt Reg 262.  |
| 2838 | Float   | Read/Write | ModScan Flt Reg 263.  |
| 2839 | Float   | Read/Write | ModScan Flt Reg 264.  |
| 2840 | Float   | Read/Write | ModScan Flt Reg 265.  |
| 2841 | Float   | Read/Write | ModScan Flt Reg 266.  |
| 2842 | Float   | Read/Write | ModScan Flt Reg 267.  |
| 2843 | Float   | Read/Write | ModScan Flt Reg 268.  |
| 2844 | Float   | Read/Write | ModScan Flt Reg 269.  |
| 2845 | Float   | Read/Write | ModScan Flt Reg 270.  |
| 2846 | Float   | Read/Write | ModScan Flt Reg 271.  |
| 2847 | Float   | Read/Write | ModScan Flt Reg 272.  |
| 2848 | Float   | Read/Write | ModScan Flt Reg 273.  |
| 2849 | Float   | Read/Write | ModScan Flt Reg 274.  |
| 2879 | Word    | Read/Write | Num of WDT Resets.    |
| 2880 | Byte    | Read/Write | Cygnal Watchdog.      |
| 2881 | Command | Read/Write | Reset Cygnal NV.      |
| 2882 | Command | Read/Write | Fetch Cygnal NV.      |
| 2883 | Word    | Read/Write | Cygnal Tx Cnts / Sec. |
| 2884 | Word    | Read/Write | Cygnal Num Lo Cnts.   |



|      |         |            |                               |
|------|---------|------------|-------------------------------|
| 2885 | Byte    | Read/Write | WDT Priority Check.           |
| 2886 | Byte    | Read Only  | Shutdown Type.                |
| 2887 | Byte    | Read Only  | Watchdog Status.              |
| 2888 | Byte    | Read/Write | System Watchdog.              |
| 2889 | Long    | Read/Write | CAN TX Retries.               |
| 2890 | Long    | Read/Write | MCF Sample Max Time.          |
| 2891 | Display | Read Only  | Pos Sensor Fault Src.         |
| 2892 | Long    | Read/Write | C8051 Diagnostic Info.        |
| 2893 | Byte    | Read/Write | C8051 Auto Recovery.          |
| 2894 | Byte    | Read/Write | AutoRecovery Retries.         |
| 2895 | Byte    | Read/Write | AutoRecovery Actions.         |
| 2896 | Word    | Read/Write | Pos Value for PosSensFault.   |
| 2897 | Word    | Read/Write | Max Blocking Priority.        |
| 2898 | Byte    | Read/Write | Idle Task Reset Limit.        |
| 2899 | Word    | Read/Write | Idle Task Resets.             |
| 2900 | Byte    | Read/Write | VSD DH Tolerance (+/-%).      |
| 2910 | Byte    | Read/Write | DO1 Status Indicator.         |
| 2911 | Byte    | Read/Write | Preset Load Gain.             |
| 2920 | Word    | Read/Write | Pumping Unit Catalog Id #.    |
| 2921 | Byte    | Read/Write | Pumping Unit Type.            |
| 2922 | Byte    | Read/Write | Counterbalance Type.          |
| 2923 | Word    | Read/Write | API Gear Rating.              |
| 2924 | Word    | Read/Write | API Beam Rating.              |
| 2925 | Word    | Read/Write | API Max Stroke.               |
| 2926 | Display | Read Only  | Unit ID for LOWIS.            |
| 2927 | Display | Read Only  | Pumping Unit API Designation. |
| 2928 | Display | Read Only  | Pumping Unit Description.     |
| 2929 | Word    | Read/Write | Dimension A (in x 100).       |
| 2930 | Word    | Read/Write | Dimension C (in x 100).       |
| 2931 | Word    | Read/Write | Dimension I (in x 100).       |
| 2932 | Word    | Read/Write | Dimension K (in x 100).       |
| 2933 | Word    | Read/Write | Dimension P (in x 100).       |
| 2934 | Word    | Read/Write | Pin 1 Str.Len (in x 100).     |
| 2935 | Word    | Read/Write | Pin 2 Str.Len (in x 100).     |
| 2936 | Word    | Read/Write | Pin 3 Str.Len (in x 100).     |
| 2937 | Word    | Read/Write | Pin 4 Str.Len (in x 100).     |
| 2938 | Word    | Read/Write | Pin 5 Str.Len (in x 100).     |
| 2939 | Word    | Read/Write | Pin 1 Radius (in x 100).      |
| 2940 | Word    | Read/Write | Pin 2 Radius (in x 100).      |
| 2941 | Word    | Read/Write | Pin 3 Radius (in x 100).      |
| 2942 | Word    | Read/Write | Pin 4 Radius (in x 100).      |
| 2943 | Word    | Read/Write | Pin 5 Radius (in x 100).      |
| 2944 | SWord   | Read/Write | Structural Unbalance.         |
| 2945 | SWord   | Read/Write | CB Phase Angle (Deg.).        |
| 2946 | Word    | Read/Write | Air Bal. "M" value (sq.in).   |
| 2947 | Word    | Read/Write | Air Bal. "S" value (psi).     |
| 2948 | Byte    | Read/Write | Pin Number.                   |
| 2949 | Word    | Read/Write | CBT (units = 100 in-lb).      |
| 2950 | Word    | Read/Write | CBE (lb).                     |
| 2951 | Byte    | Read/Write | CBE Angle.                    |
| 2952 | Byte    | Read/Write | Crank Rotation.               |
| 2953 | Word    | Read/Write | Air Bal. BOS press (psi).     |
| 2954 | Word    | Read/Write | Air Bal. TOS press (psi).     |
| 2955 | Word    | Read/Write | Torque Alarm Limit.           |
| 2956 | Byte    | Read/Write | Strokes for Torque Alarm.     |



|      |         |            |                              |
|------|---------|------------|------------------------------|
| 2957 | Byte    | Read/Write | Torque Alarm Action.         |
| 2958 | Command | Read/Write | Calc Torque Factors.         |
| 2959 | Command | Read/Write | Reload Unit Catalog.         |
| 2960 | Float   | Read Only  | Max torque last upstroke.    |
| 2961 | Float   | Read Only  | Max torque last downstroke.  |
| 2962 | Byte    | Read/Write | Torque Unbalance Filter #.   |
| 2963 | SWord   | Read Only  | Torque Unbalance %.          |
| 2964 | SWord   | Read Only  | Filtered Torque Unbalance %. |
| 3000 | Word    | Read/Write | Pump depth.                  |

### Parameters 3001-3300

| Parameter | 8500 Native Type | Access     | Description                    |
|-----------|------------------|------------|--------------------------------|
| 3001      | Word             | Read/Write | Fluid depth.                   |
| 3002      | Word             | Read/Write | Surface stroke (in x 100).     |
| 3003      | Float            | Read/Write | Oil API gravity.               |
| 3004      | Float            | Read/Write | Oil specific gravity.          |
| 3005      | Float            | Read/Write | Water specific gravity.        |
| 3006      | Byte             | Read/Write | Water cut.                     |
| 3007      | Float            | Read/Write | D/H Damping factor.            |
| 3008      | Word             | Read/Write | D/H Load offset.               |
| 3009      | SByte            | Read/Write | D/H Position data skew.        |
| 3010      | Byte             | Read/Write | D/H Config status.             |
| 3011      | Byte             | Read/Write | D/H fill min position %.       |
| 3012      | Word             | Read/Write | D/H fill diff. tolerance.      |
| 3013      | Byte             | Read/Write | D/H fill area tolerance.       |
| 3014      | Byte             | Read/Write | D/H Pump-off Position %.       |
| 3015      | Byte             | Read/Write | D/H strokes for pumpoff.       |
| 3016      | Byte             | Read/Write | D/H strokes for failure.       |
| 3017      | Byte             | Read/Write | D/H fallback method.           |
| 3018      | Byte             | Read/Write | D/H strokes for recovery.      |
| 3019      | Byte             | Read/Write | D/H failure Action.            |
| 3020      | Float            | Read/Write | Rod type 1 density.            |
| 3021      | Float            | Read/Write | Rod type 1 elasticity.         |
| 3022      | Float            | Read/Write | Rod type 1 propagation.        |
| 3025      | Float            | Read/Write | Rod type 2 density.            |
| 3026      | Float            | Read/Write | Rod type 2 elasticity.         |
| 3027      | Float            | Read/Write | Rod type 2 propagation.        |
| 3030      | Float            | Read/Write | Rod type 3 density.            |
| 3031      | Float            | Read/Write | Rod type 3 elasticity.         |
| 3032      | Float            | Read/Write | Rod type 3 propagation.        |
| 3035      | Float            | Read/Write | Rod type 4 density.            |
| 3036      | Float            | Read/Write | Rod type 4 elasticity.         |
| 3037      | Float            | Read/Write | Rod type 4 propagation.        |
| 3040      | Float            | Read/Write | Rod type 5 density.            |
| 3041      | Float            | Read/Write | Rod type 5 elasticity.         |
| 3042      | Float            | Read/Write | Rod type 5 propagation.        |
| 3045      | Byte             | Read/Write | Taper 1 rod type.              |
| 3046      | Byte             | Read/Write | Taper 1 rod count.             |
| 3047      | Float            | Read/Write | Taper 1 rod diameter (inches). |
| 3048      | Float            | Read/Write | Taper 1 rod length (feet).     |
| 3050      | Byte             | Read/Write | Taper 2 rod type.              |
| 3051      | Byte             | Read/Write | Taper 2 rod count.             |
| 3052      | Float            | Read/Write | Taper 2 rod diameter (inches). |
| 3053      | Float            | Read/Write | Taper 2 rod length (feet).     |

|      |       |            |                                 |
|------|-------|------------|---------------------------------|
| 3055 | Byte  | Read/Write | Taper 3 rod type.               |
| 3056 | Byte  | Read/Write | Taper 3 rod count.              |
| 3057 | Float | Read/Write | Taper 3 rod diameter (inches).  |
| 3058 | Float | Read/Write | Taper 3 rod length (feet).      |
| 3060 | Byte  | Read/Write | Taper 4 rod type.               |
| 3061 | Byte  | Read/Write | Taper 4 rod count.              |
| 3062 | Float | Read/Write | Taper 4 rod diameter (inches).  |
| 3063 | Float | Read/Write | Taper 4 rod length (feet).      |
| 3065 | Byte  | Read/Write | Taper 5 rod type.               |
| 3066 | Byte  | Read/Write | Taper 5 rod count.              |
| 3067 | Float | Read/Write | Taper 5 rod diameter (inches).  |
| 3068 | Float | Read/Write | Taper 5 rod length (feet).      |
| 3070 | Byte  | Read/Write | Taper 6 rod type.               |
| 3071 | Byte  | Read/Write | Taper 6 rod count.              |
| 3072 | Float | Read/Write | Taper 6 rod diameter (inches).  |
| 3073 | Float | Read/Write | Taper 6 rod length (feet).      |
| 3075 | Byte  | Read/Write | Taper 7 rod type.               |
| 3076 | Byte  | Read/Write | Taper 7 rod count.              |
| 3077 | Float | Read/Write | Taper 7 rod diameter (inches).  |
| 3078 | Float | Read/Write | Taper 7 rod length (feet).      |
| 3080 | Byte  | Read/Write | Taper 8 rod type.               |
| 3081 | Byte  | Read/Write | Taper 8 rod count.              |
| 3082 | Float | Read/Write | Taper 8 rod diameter (inches).  |
| 3083 | Float | Read/Write | Taper 8 rod length (feet).      |
| 3085 | Byte  | Read/Write | Taper 9 rod type.               |
| 3086 | Byte  | Read/Write | Taper 9 rod count.              |
| 3087 | Float | Read/Write | Taper 9 rod diameter (inches).  |
| 3088 | Float | Read/Write | Taper 9 rod length (feet).      |
| 3090 | Byte  | Read/Write | Taper 10 rod type.              |
| 3091 | Byte  | Read/Write | Taper 10 rod count.             |
| 3092 | Float | Read/Write | Taper 10 rod diameter (inches). |
| 3093 | Float | Read/Write | Taper 10 rod length (feet).     |
| 3095 | Byte  | Read/Write | Taper 11 rod type.              |
| 3096 | Byte  | Read/Write | Taper 11 rod count.             |
| 3097 | Float | Read/Write | Taper 11 rod diameter (inches). |
| 3098 | Float | Read/Write | Taper 11 rod length (feet).     |
| 3100 | Byte  | Read/Write | Taper 12 rod type.              |
| 3101 | Byte  | Read/Write | Taper 12 rod count.             |
| 3102 | Float | Read/Write | Taper 12 rod diameter (inches). |
| 3103 | Float | Read/Write | Taper 12 rod length (feet).     |
| 3105 | Byte  | Read/Write | Taper 13 rod type.              |
| 3106 | Byte  | Read/Write | Taper 13 rod count.             |
| 3107 | Float | Read/Write | Taper 13 rod diameter (inches). |
| 3108 | Float | Read/Write | Taper 13 rod length (feet).     |
| 3110 | Byte  | Read/Write | Taper 14 rod type.              |
| 3111 | Byte  | Read/Write | Taper 14 rod count.             |
| 3112 | Float | Read/Write | Taper 14 rod diameter (inches). |
| 3113 | Float | Read/Write | Taper 14 rod length (feet).     |
| 3115 | Byte  | Read/Write | Taper 15 rod type.              |
| 3116 | Byte  | Read/Write | Taper 15 rod count.             |
| 3117 | Float | Read/Write | Taper 15 rod diameter (inches). |
| 3118 | Float | Read/Write | Taper 15 rod length (feet).     |
| 3120 | Byte  | Read/Write | Taper 16 rod type.              |
| 3121 | Byte  | Read/Write | Taper 16 rod count.             |
| 3122 | Float | Read/Write | Taper 16 rod diameter (inches). |

|      |         |            |                                 |
|------|---------|------------|---------------------------------|
| 3123 | Float   | Read/Write | Taper 16 rod length (feet).     |
| 3125 | Byte    | Read/Write | Taper 17 rod type.              |
| 3126 | Byte    | Read/Write | Taper 17 rod count.             |
| 3127 | Float   | Read/Write | Taper 17 rod diameter (inches). |
| 3128 | Float   | Read/Write | Taper 17 rod length (feet).     |
| 3130 | Byte    | Read/Write | Taper 18 rod type.              |
| 3131 | Byte    | Read/Write | Taper 18 rod count.             |
| 3132 | Float   | Read/Write | Taper 18 rod diameter (inches). |
| 3133 | Float   | Read/Write | Taper 18 rod length (feet).     |
| 3135 | Byte    | Read/Write | Taper 19 rod type.              |
| 3136 | Byte    | Read/Write | Taper 19 rod count.             |
| 3137 | Float   | Read/Write | Taper 19 rod diameter (inches). |
| 3138 | Float   | Read/Write | Taper 19 rod length (feet).     |
| 3140 | Byte    | Read/Write | Taper 20 rod type.              |
| 3141 | Byte    | Read/Write | Taper 20 rod count.             |
| 3142 | Float   | Read/Write | Taper 20 rod diameter (inches). |
| 3143 | Float   | Read/Write | Taper 20 rod length (feet).     |
| 3144 | Command | Read/Write | D/H cfg for simul.              |
| 3145 | Word    | Read Only  | D/H stroke len. (in x 100).     |
| 3146 | SWord   | Read Only  | D/H Min load last stroke.       |
| 3147 | Word    | Read Only  | D/H Max load last stroke.       |
| 3148 | Word    | Read Only  | D/H load span last stroke.      |
| 3149 | Word    | Read Only  | D/H fillage (% x 100).          |
| 3150 | Word    | Read Only  | D/H area ratio (% x 100).       |
| 3151 | Byte    | Read Only  | D/H Pump-off stroke count.      |
| 3152 | Byte    | Read/Write | D/H Enable.                     |
| 3153 | Byte    | Read/Write | D/H Pump fillage method.        |
| 3154 | Word    | Read Only  | D/H fillage - method 1.         |
| 3155 | Word    | Read Only  | D/H fillage - method 2.         |
| 3156 | Word    | Read Only  | D/H fillage - method 3.         |
| 3157 | Byte    | Read Only  | D/H E-J calc success %.         |
| 3158 | Byte    | Read Only  | D/H method 3 success %.         |
| 3159 | Byte    | Read Only  | D/H full card by area %.        |
| 3160 | Word    | Read Only  | D/H First PDF slot min.         |
| 3161 | Word    | Read Only  | D/H First PDF slot max.         |
| 3162 | Word    | Read Only  | D/H Fillage PDF results.        |
| 3164 | Long    | Read Only  | DH Gauge Period Strokes.        |
| 3165 | Word    | Read Only  | DH Avg Fillage[0].              |
| 3166 | Word    | Read Only  | DH Avg Fillage[1].              |
| 3167 | Word    | Read Only  | DH Avg Fillage[2].              |
| 3168 | Word    | Read Only  | DH Avg Fillage[3].              |
| 3169 | Long    | Read Only  | DH Accum Pump Fillage.          |
| 3200 | Long    | Read Only  | Total for Hourly Data[0].       |
| 3201 | Long    | Read Only  | Total for Hourly Data[1].       |
| 3202 | Long    | Read Only  | Total for Hourly Data[2].       |
| 3203 | Long    | Read Only  | Total for Hourly Data[3].       |
| 3204 | Long    | Read Only  | Total for Hourly Data[4].       |
| 3205 | Long    | Read Only  | Total for Hourly Data[5].       |
| 3206 | Long    | Read Only  | Total for Hourly Data[6].       |
| 3207 | Long    | Read Only  | Total for Hourly Data[7].       |
| 3208 | Long    | Read Only  | Counts for Hourly Data[0].      |
| 3209 | Long    | Read Only  | Counts for Hourly Data[1].      |
| 3210 | Long    | Read Only  | Counts for Hourly Data[2].      |
| 3211 | Long    | Read Only  | Counts for Hourly Data[3].      |
| 3212 | Long    | Read Only  | Counts for Hourly Data[4].      |

|      |      |           |                            |
|------|------|-----------|----------------------------|
| 3213 | Long | Read Only | Counts for Hourly Data[5]. |
| 3214 | Long | Read Only | Counts for Hourly Data[6]. |
| 3215 | Long | Read Only | Counts for Hourly Data[7]. |
| 3216 | Long | Read Only | Total for Daily Data[0].   |
| 3217 | Long | Read Only | Total for Daily Data[1].   |
| 3218 | Long | Read Only | Total for Daily Data[2].   |
| 3219 | Long | Read Only | Total for Daily Data[3].   |
| 3220 | Long | Read Only | Total for Daily Data[4].   |
| 3221 | Long | Read Only | Total for Daily Data[5].   |
| 3222 | Long | Read Only | Total for Daily Data[6].   |
| 3223 | Long | Read Only | Total for Daily Data[7].   |
| 3224 | Long | Read Only | Counts for Daily Data[0].  |
| 3225 | Long | Read Only | Counts for Daily Data[1].  |
| 3226 | Long | Read Only | Counts for Daily Data[2].  |
| 3227 | Long | Read Only | Counts for Daily Data[3].  |
| 3228 | Long | Read Only | Counts for Daily Data[4].  |
| 3229 | Long | Read Only | Counts for Daily Data[5].  |
| 3230 | Long | Read Only | Counts for Daily Data[6].  |
| 3231 | Long | Read Only | Counts for Daily Data[7].  |
| 3300 | Time | Read Only | Daily run time[0].         |

### Parameters 3301-3659

| Parameter | 8500 Native Type | Access    | Description         |
|-----------|------------------|-----------|---------------------|
| 3301      | Time             | Read Only | Daily run time[1].  |
| 3302      | Time             | Read Only | Daily run time[2].  |
| 3303      | Time             | Read Only | Daily run time[3].  |
| 3304      | Time             | Read Only | Daily run time[4].  |
| 3305      | Time             | Read Only | Daily run time[5].  |
| 3306      | Time             | Read Only | Daily run time[6].  |
| 3307      | Time             | Read Only | Daily run time[7].  |
| 3308      | Time             | Read Only | Daily run time[8].  |
| 3309      | Time             | Read Only | Daily run time[9].  |
| 3310      | Time             | Read Only | Daily run time[10]. |
| 3311      | Time             | Read Only | Daily run time[11]. |
| 3312      | Time             | Read Only | Daily run time[12]. |
| 3313      | Time             | Read Only | Daily run time[13]. |
| 3314      | Time             | Read Only | Daily run time[14]. |
| 3315      | Time             | Read Only | Daily run time[15]. |
| 3316      | Time             | Read Only | Daily run time[16]. |
| 3317      | Time             | Read Only | Daily run time[17]. |
| 3318      | Time             | Read Only | Daily run time[18]. |
| 3319      | Time             | Read Only | Daily run time[19]. |
| 3320      | Time             | Read Only | Daily run time[20]. |
| 3321      | Time             | Read Only | Daily run time[21]. |
| 3322      | Time             | Read Only | Daily run time[22]. |
| 3323      | Time             | Read Only | Daily run time[23]. |
| 3324      | Time             | Read Only | Daily run time[24]. |
| 3325      | Time             | Read Only | Daily run time[25]. |
| 3326      | Time             | Read Only | Daily run time[26]. |
| 3327      | Time             | Read Only | Daily run time[27]. |
| 3328      | Time             | Read Only | Daily run time[28]. |
| 3329      | Time             | Read Only | Daily run time[29]. |
| 3330      | Time             | Read Only | Daily run time[30]. |
| 3331      | Time             | Read Only | Daily run time[31]. |

|      |      |           |                     |
|------|------|-----------|---------------------|
| 3332 | Time | Read Only | Daily run time[32]. |
| 3333 | Time | Read Only | Daily run time[33]. |
| 3334 | Time | Read Only | Daily run time[34]. |
| 3335 | Time | Read Only | Daily run time[35]. |
| 3336 | Time | Read Only | Daily run time[36]. |
| 3337 | Time | Read Only | Daily run time[37]. |
| 3338 | Time | Read Only | Daily run time[38]. |
| 3339 | Time | Read Only | Daily run time[39]. |
| 3340 | Time | Read Only | Daily run time[40]. |
| 3341 | Time | Read Only | Daily run time[41]. |
| 3342 | Time | Read Only | Daily run time[42]. |
| 3343 | Time | Read Only | Daily run time[43]. |
| 3344 | Time | Read Only | Daily run time[44]. |
| 3345 | Time | Read Only | Daily run time[45]. |
| 3346 | Time | Read Only | Daily run time[46]. |
| 3347 | Time | Read Only | Daily run time[47]. |
| 3348 | Time | Read Only | Daily run time[48]. |
| 3349 | Time | Read Only | Daily run time[49]. |
| 3350 | Time | Read Only | Daily run time[50]. |
| 3351 | Time | Read Only | Daily run time[51]. |
| 3352 | Time | Read Only | Daily run time[52]. |
| 3353 | Time | Read Only | Daily run time[53]. |
| 3354 | Time | Read Only | Daily run time[54]. |
| 3355 | Time | Read Only | Daily run time[55]. |
| 3356 | Time | Read Only | Daily run time[56]. |
| 3357 | Time | Read Only | Daily run time[57]. |
| 3358 | Time | Read Only | Daily run time[58]. |
| 3359 | Time | Read Only | Daily run time[59]. |
| 3360 | Time | Read Only | Daily run time[60]. |
| 3361 | Time | Read Only | Daily run time[61]. |
| 3362 | Time | Read Only | Daily run time[62]. |
| 3363 | Time | Read Only | Daily run time[63]. |
| 3364 | Time | Read Only | Daily run time[64]. |
| 3365 | Time | Read Only | Daily run time[65]. |
| 3366 | Time | Read Only | Daily run time[66]. |
| 3367 | Time | Read Only | Daily run time[67]. |
| 3368 | Time | Read Only | Daily run time[68]. |
| 3369 | Time | Read Only | Daily run time[69]. |
| 3370 | Time | Read Only | Daily run time[70]. |
| 3371 | Time | Read Only | Daily run time[71]. |
| 3372 | Time | Read Only | Daily run time[72]. |
| 3373 | Time | Read Only | Daily run time[73]. |
| 3374 | Time | Read Only | Daily run time[74]. |
| 3375 | Time | Read Only | Daily run time[75]. |
| 3376 | Time | Read Only | Daily run time[76]. |
| 3377 | Time | Read Only | Daily run time[77]. |
| 3378 | Time | Read Only | Daily run time[78]. |
| 3379 | Time | Read Only | Daily run time[79]. |
| 3380 | Time | Read Only | Daily run time[80]. |
| 3381 | Time | Read Only | Daily run time[81]. |
| 3382 | Time | Read Only | Daily run time[82]. |
| 3383 | Time | Read Only | Daily run time[83]. |
| 3384 | Time | Read Only | Daily run time[84]. |
| 3385 | Time | Read Only | Daily run time[85]. |
| 3386 | Time | Read Only | Daily run time[86]. |

|      |      |           |                       |
|------|------|-----------|-----------------------|
| 3387 | Time | Read Only | Daily run time[87].   |
| 3388 | Time | Read Only | Daily run time[88].   |
| 3389 | Time | Read Only | Daily run time[89].   |
| 3390 | Time | Read Only | Daily run time[90].   |
| 3391 | Time | Read Only | Daily run time[91].   |
| 3392 | Time | Read Only | Daily run time[92].   |
| 3393 | Time | Read Only | Daily run time[93].   |
| 3394 | Time | Read Only | Daily run time[94].   |
| 3395 | Time | Read Only | Daily run time[95].   |
| 3396 | Time | Read Only | Daily run time[96].   |
| 3397 | Time | Read Only | Daily run time[97].   |
| 3398 | Time | Read Only | Daily run time[98].   |
| 3399 | Time | Read Only | Daily run time[99].   |
| 3400 | Time | Read Only | Daily run time[100].  |
| 3401 | Time | Read Only | Daily run time[101].  |
| 3402 | Time | Read Only | Daily run time[102].  |
| 3403 | Time | Read Only | Daily run time[103].  |
| 3404 | Time | Read Only | Daily run time[104].  |
| 3405 | Time | Read Only | Daily run time[105].  |
| 3406 | Time | Read Only | Daily run time[106].  |
| 3407 | Time | Read Only | Daily run time[107].  |
| 3408 | Time | Read Only | Daily run time[108].  |
| 3409 | Time | Read Only | Daily run time[109].  |
| 3410 | Time | Read Only | Daily run time[110].  |
| 3411 | Time | Read Only | Daily run time[111].  |
| 3412 | Time | Read Only | Daily run time[112].  |
| 3413 | Time | Read Only | Daily run time[113].  |
| 3414 | Time | Read Only | Daily run time[114].  |
| 3415 | Time | Read Only | Daily run time[115].  |
| 3416 | Time | Read Only | Daily run time[116].  |
| 3417 | Time | Read Only | Daily run time[117].  |
| 3418 | Time | Read Only | Daily run time[118].  |
| 3419 | Time | Read Only | Daily run time[119].  |
| 3420 | Word | Read Only | Daily Production[0].  |
| 3421 | Word | Read Only | Daily Production[1].  |
| 3422 | Word | Read Only | Daily Production[2].  |
| 3423 | Word | Read Only | Daily Production[3].  |
| 3424 | Word | Read Only | Daily Production[4].  |
| 3425 | Word | Read Only | Daily Production[5].  |
| 3426 | Word | Read Only | Daily Production[6].  |
| 3427 | Word | Read Only | Daily Production[7].  |
| 3428 | Word | Read Only | Daily Production[8].  |
| 3429 | Word | Read Only | Daily Production[9].  |
| 3430 | Word | Read Only | Daily Production[10]. |
| 3431 | Word | Read Only | Daily Production[11]. |
| 3432 | Word | Read Only | Daily Production[12]. |
| 3433 | Word | Read Only | Daily Production[13]. |
| 3434 | Word | Read Only | Daily Production[14]. |
| 3435 | Word | Read Only | Daily Production[15]. |
| 3436 | Word | Read Only | Daily Production[16]. |
| 3437 | Word | Read Only | Daily Production[17]. |
| 3438 | Word | Read Only | Daily Production[18]. |
| 3439 | Word | Read Only | Daily Production[19]. |
| 3440 | Word | Read Only | Daily Production[20]. |
| 3441 | Word | Read Only | Daily Production[21]. |

|      |      |           |                       |
|------|------|-----------|-----------------------|
| 3442 | Word | Read Only | Daily Production[22]. |
| 3443 | Word | Read Only | Daily Production[23]. |
| 3444 | Word | Read Only | Daily Production[24]. |
| 3445 | Word | Read Only | Daily Production[25]. |
| 3446 | Word | Read Only | Daily Production[26]. |
| 3447 | Word | Read Only | Daily Production[27]. |
| 3448 | Word | Read Only | Daily Production[28]. |
| 3449 | Word | Read Only | Daily Production[29]. |
| 3450 | Word | Read Only | Daily Production[30]. |
| 3451 | Word | Read Only | Daily Production[31]. |
| 3452 | Word | Read Only | Daily Production[32]. |
| 3453 | Word | Read Only | Daily Production[33]. |
| 3454 | Word | Read Only | Daily Production[34]. |
| 3455 | Word | Read Only | Daily Production[35]. |
| 3456 | Word | Read Only | Daily Production[36]. |
| 3457 | Word | Read Only | Daily Production[37]. |
| 3458 | Word | Read Only | Daily Production[38]. |
| 3459 | Word | Read Only | Daily Production[39]. |
| 3460 | Word | Read Only | Daily Production[40]. |
| 3461 | Word | Read Only | Daily Production[41]. |
| 3462 | Word | Read Only | Daily Production[42]. |
| 3463 | Word | Read Only | Daily Production[43]. |
| 3464 | Word | Read Only | Daily Production[44]. |
| 3465 | Word | Read Only | Daily Production[45]. |
| 3466 | Word | Read Only | Daily Production[46]. |
| 3467 | Word | Read Only | Daily Production[47]. |
| 3468 | Word | Read Only | Daily Production[48]. |
| 3469 | Word | Read Only | Daily Production[49]. |
| 3470 | Word | Read Only | Daily Production[50]. |
| 3471 | Word | Read Only | Daily Production[51]. |
| 3472 | Word | Read Only | Daily Production[52]. |
| 3473 | Word | Read Only | Daily Production[53]. |
| 3474 | Word | Read Only | Daily Production[54]. |
| 3475 | Word | Read Only | Daily Production[55]. |
| 3476 | Word | Read Only | Daily Production[56]. |
| 3477 | Word | Read Only | Daily Production[57]. |
| 3478 | Word | Read Only | Daily Production[58]. |
| 3479 | Word | Read Only | Daily Production[59]. |
| 3480 | Word | Read Only | Daily Production[60]. |
| 3481 | Word | Read Only | Daily Production[61]. |
| 3482 | Word | Read Only | Daily Production[62]. |
| 3483 | Word | Read Only | Daily Production[63]. |
| 3484 | Word | Read Only | Daily Production[64]. |
| 3485 | Word | Read Only | Daily Production[65]. |
| 3486 | Word | Read Only | Daily Production[66]. |
| 3487 | Word | Read Only | Daily Production[67]. |
| 3488 | Word | Read Only | Daily Production[68]. |
| 3489 | Word | Read Only | Daily Production[69]. |
| 3490 | Word | Read Only | Daily Production[70]. |
| 3491 | Word | Read Only | Daily Production[71]. |
| 3492 | Word | Read Only | Daily Production[72]. |
| 3493 | Word | Read Only | Daily Production[73]. |
| 3494 | Word | Read Only | Daily Production[74]. |
| 3495 | Word | Read Only | Daily Production[75]. |
| 3496 | Word | Read Only | Daily Production[76]. |

|      |      |           |                        |
|------|------|-----------|------------------------|
| 3497 | Word | Read Only | Daily Production[77].  |
| 3498 | Word | Read Only | Daily Production[78].  |
| 3499 | Word | Read Only | Daily Production[79].  |
| 3500 | Word | Read Only | Daily Production[80].  |
| 3501 | Word | Read Only | Daily Production[81].  |
| 3502 | Word | Read Only | Daily Production[82].  |
| 3503 | Word | Read Only | Daily Production[83].  |
| 3504 | Word | Read Only | Daily Production[84].  |
| 3505 | Word | Read Only | Daily Production[85].  |
| 3506 | Word | Read Only | Daily Production[86].  |
| 3507 | Word | Read Only | Daily Production[87].  |
| 3508 | Word | Read Only | Daily Production[88].  |
| 3509 | Word | Read Only | Daily Production[89].  |
| 3510 | Word | Read Only | Daily Production[90].  |
| 3511 | Word | Read Only | Daily Production[91].  |
| 3512 | Word | Read Only | Daily Production[92].  |
| 3513 | Word | Read Only | Daily Production[93].  |
| 3514 | Word | Read Only | Daily Production[94].  |
| 3515 | Word | Read Only | Daily Production[95].  |
| 3516 | Word | Read Only | Daily Production[96].  |
| 3517 | Word | Read Only | Daily Production[97].  |
| 3518 | Word | Read Only | Daily Production[98].  |
| 3519 | Word | Read Only | Daily Production[99].  |
| 3520 | Word | Read Only | Daily Production[100]. |
| 3521 | Word | Read Only | Daily Production[101]. |
| 3522 | Word | Read Only | Daily Production[102]. |
| 3523 | Word | Read Only | Daily Production[103]. |
| 3524 | Word | Read Only | Daily Production[104]. |
| 3525 | Word | Read Only | Daily Production[105]. |
| 3526 | Word | Read Only | Daily Production[106]. |
| 3527 | Word | Read Only | Daily Production[107]. |
| 3528 | Word | Read Only | Daily Production[108]. |
| 3529 | Word | Read Only | Daily Production[109]. |
| 3530 | Word | Read Only | Daily Production[110]. |
| 3531 | Word | Read Only | Daily Production[111]. |
| 3532 | Word | Read Only | Daily Production[112]. |
| 3533 | Word | Read Only | Daily Production[113]. |
| 3534 | Word | Read Only | Daily Production[114]. |
| 3535 | Word | Read Only | Daily Production[115]. |
| 3536 | Word | Read Only | Daily Production[116]. |
| 3537 | Word | Read Only | Daily Production[117]. |
| 3538 | Word | Read Only | Daily Production[118]. |
| 3539 | Word | Read Only | Daily Production[119]. |
| 3540 | Time | Read Only | Pump run time[0].      |
| 3541 | Time | Read Only | Pump run time[1].      |
| 3542 | Time | Read Only | Pump run time[2].      |
| 3543 | Time | Read Only | Pump run time[3].      |
| 3544 | Time | Read Only | Pump run time[4].      |
| 3545 | Time | Read Only | Pump run time[5].      |
| 3546 | Time | Read Only | Pump run time[6].      |
| 3547 | Time | Read Only | Pump run time[7].      |
| 3548 | Time | Read Only | Pump run time[8].      |
| 3549 | Time | Read Only | Pump run time[9].      |
| 3550 | Time | Read Only | Pump run time[10].     |
| 3551 | Time | Read Only | Pump run time[11].     |



|      |      |           |                    |
|------|------|-----------|--------------------|
| 3552 | Time | Read Only | Pump run time[12]. |
| 3553 | Time | Read Only | Pump run time[13]. |
| 3554 | Time | Read Only | Pump run time[14]. |
| 3555 | Time | Read Only | Pump run time[15]. |
| 3556 | Time | Read Only | Pump run time[16]. |
| 3557 | Time | Read Only | Pump run time[17]. |
| 3558 | Time | Read Only | Pump run time[18]. |
| 3559 | Time | Read Only | Pump run time[19]. |
| 3560 | Time | Read Only | Pump run time[20]. |
| 3561 | Time | Read Only | Pump run time[21]. |
| 3562 | Time | Read Only | Pump run time[22]. |
| 3563 | Time | Read Only | Pump run time[23]. |
| 3564 | Time | Read Only | Pump run time[24]. |
| 3565 | Time | Read Only | Pump run time[25]. |
| 3566 | Time | Read Only | Pump run time[26]. |
| 3567 | Time | Read Only | Pump run time[27]. |
| 3568 | Time | Read Only | Pump run time[28]. |
| 3569 | Time | Read Only | Pump run time[29]. |
| 3570 | Time | Read Only | Pump run time[30]. |
| 3571 | Time | Read Only | Pump run time[31]. |
| 3572 | Time | Read Only | Pump run time[32]. |
| 3573 | Time | Read Only | Pump run time[33]. |
| 3574 | Time | Read Only | Pump run time[34]. |
| 3575 | Time | Read Only | Pump run time[35]. |
| 3576 | Time | Read Only | Pump run time[36]. |
| 3577 | Time | Read Only | Pump run time[37]. |
| 3578 | Time | Read Only | Pump run time[38]. |
| 3579 | Time | Read Only | Pump run time[39]. |
| 3580 | Time | Read Only | Pump run time[40]. |
| 3581 | Time | Read Only | Pump run time[41]. |
| 3582 | Time | Read Only | Pump run time[42]. |
| 3583 | Time | Read Only | Pump run time[43]. |
| 3584 | Time | Read Only | Pump run time[44]. |
| 3585 | Time | Read Only | Pump run time[45]. |
| 3586 | Time | Read Only | Pump run time[46]. |
| 3587 | Time | Read Only | Pump run time[47]. |
| 3588 | Time | Read Only | Pump run time[48]. |
| 3589 | Time | Read Only | Pump run time[49]. |
| 3590 | Time | Read Only | Pump run time[50]. |
| 3591 | Time | Read Only | Pump run time[51]. |
| 3592 | Time | Read Only | Pump run time[52]. |
| 3593 | Time | Read Only | Pump run time[53]. |
| 3594 | Time | Read Only | Pump run time[54]. |
| 3595 | Time | Read Only | Pump run time[55]. |
| 3596 | Time | Read Only | Pump run time[56]. |
| 3597 | Time | Read Only | Pump run time[57]. |
| 3598 | Time | Read Only | Pump run time[58]. |
| 3599 | Time | Read Only | Pump run time[59]. |
| 3600 | Time | Read Only | Pump run time[60]. |
| 3601 | Time | Read Only | Pump run time[61]. |
| 3602 | Time | Read Only | Pump run time[62]. |
| 3603 | Time | Read Only | Pump run time[63]. |
| 3604 | Time | Read Only | Pump run time[64]. |
| 3605 | Time | Read Only | Pump run time[65]. |
| 3606 | Time | Read Only | Pump run time[66]. |

|      |      |           |                     |
|------|------|-----------|---------------------|
| 3607 | Time | Read Only | Pump run time[67].  |
| 3608 | Time | Read Only | Pump run time[68].  |
| 3609 | Time | Read Only | Pump run time[69].  |
| 3610 | Time | Read Only | Pump run time[70].  |
| 3611 | Time | Read Only | Pump run time[71].  |
| 3612 | Time | Read Only | Pump run time[72].  |
| 3613 | Time | Read Only | Pump run time[73].  |
| 3614 | Time | Read Only | Pump run time[74].  |
| 3615 | Time | Read Only | Pump run time[75].  |
| 3616 | Time | Read Only | Pump run time[76].  |
| 3617 | Time | Read Only | Pump run time[77].  |
| 3618 | Time | Read Only | Pump run time[78].  |
| 3619 | Time | Read Only | Pump run time[79].  |
| 3620 | Time | Read Only | Pump run time[80].  |
| 3621 | Time | Read Only | Pump run time[81].  |
| 3622 | Time | Read Only | Pump run time[82].  |
| 3623 | Time | Read Only | Pump run time[83].  |
| 3624 | Time | Read Only | Pump run time[84].  |
| 3625 | Time | Read Only | Pump run time[85].  |
| 3626 | Time | Read Only | Pump run time[86].  |
| 3627 | Time | Read Only | Pump run time[87].  |
| 3628 | Time | Read Only | Pump run time[88].  |
| 3629 | Time | Read Only | Pump run time[89].  |
| 3630 | Time | Read Only | Pump run time[90].  |
| 3631 | Time | Read Only | Pump run time[91].  |
| 3632 | Time | Read Only | Pump run time[92].  |
| 3633 | Time | Read Only | Pump run time[93].  |
| 3634 | Time | Read Only | Pump run time[94].  |
| 3635 | Time | Read Only | Pump run time[95].  |
| 3636 | Time | Read Only | Pump run time[96].  |
| 3637 | Time | Read Only | Pump run time[97].  |
| 3638 | Time | Read Only | Pump run time[98].  |
| 3639 | Time | Read Only | Pump run time[99].  |
| 3640 | Time | Read Only | Pump run time[100]. |
| 3641 | Time | Read Only | Pump run time[101]. |
| 3642 | Time | Read Only | Pump run time[102]. |
| 3643 | Time | Read Only | Pump run time[103]. |
| 3644 | Time | Read Only | Pump run time[104]. |
| 3645 | Time | Read Only | Pump run time[105]. |
| 3646 | Time | Read Only | Pump run time[106]. |
| 3647 | Time | Read Only | Pump run time[107]. |
| 3648 | Time | Read Only | Pump run time[108]. |
| 3649 | Time | Read Only | Pump run time[109]. |
| 3650 | Time | Read Only | Pump run time[110]. |
| 3651 | Time | Read Only | Pump run time[111]. |
| 3652 | Time | Read Only | Pump run time[112]. |
| 3653 | Time | Read Only | Pump run time[113]. |
| 3654 | Time | Read Only | Pump run time[114]. |
| 3655 | Time | Read Only | Pump run time[115]. |
| 3656 | Time | Read Only | Pump run time[116]. |
| 3657 | Time | Read Only | Pump run time[117]. |
| 3658 | Time | Read Only | Pump run time[118]. |
| 3659 | Time | Read Only | Pump run time[119]. |

## WellPilot/ePIC VSD Parameter Listings

For information on a specific range of parameters, select a link from the list below.

[Parameters 1-300](#)

[Parameters 309-599](#)

[Parameter Listings 601-900](#)

[Parameter Listings 901-1199](#)

[Parameter Listings 1201- 1500](#)

[Parameter Listings 1501-2524](#)

**Important:** For additional parameter details, refer to the device's User Manual.

### Parameters 1-300

| Parameter | Data Type | Access     | Description  |
|-----------|-----------|------------|--|
| 1         | Word      | Read/Write | User-entered password.   |
| 2         | Word      | Read/Write | Communication address for remote communications (0 to 4094).                               |
| 3         | Time24    | Read/Write | Time of day:<br>hh:mm:ss<br>am/pm  |
| 4         | Date      | Read/Write | Today's date (mm/dd/yy).   |
| 5         | Byte      | Read/Write | Current day of the week .<br><br>Automatically set when Parameter 4 is set.                |
| 6         | Command   | Read/Write | Manual top of stroke.<br><br>Locates Position Switch in reference to TOS.                  |
| 7         | Command   | Read/Write | Automatic top of stroke (Automatic using Continuous Position signal input).                |
| 8         | Display   | Read Only  | TOS to Position Switch stroke fraction (in counts where Position Switch closes after TOS). |
| 10        | Command   | Read/Write | Output Parameter list (outputs parameter list to host).                                    |
| 14        | Byte      | Read/Write | Load units (Lb/Kg):<br><br>0 = Pounds<br>1 = Kg. Metric                                    |
| 15        | Byte      | Read/Write | Numeric/alphabetic date format:<br><br>0 = Numeric<br>1 = Alphabetic                       |
| 16        | Byte      | Read/Write | 12/24 Hour clock display:<br><br>0 = Mil<br>1 = AM/PM                                      |
| 17        | Byte      | Read/Write | Long time day/hour split – Run Time format.<br><br>0 = hours only<br>1 = days/hours        |
| 18        | Byte      | Read/Write | Real Time Clock source on AC power (not functional).                                       |
| 19        | Byte      | Read/Write | Real Time Clock source on AC fail:<br><br>1 = Real Time Clock                              |
| 20        | Time24    | Read/Write | Idle time set by operator based on well conditions:<br><br>hh:mm:ss                        |

|    |         |            |   |
|----|---------|------------|---|
| 21 | Byte    | Read/Write | Pump-off Position %:<br>0 = Bottom of Stroke<br>100 = Top of Stroke   |
| 22 | Byte    | Read/Write | Pump-off Action.<br><br>Any Command Action other than "Go To Idle" will generate a non-clearable alarm. POC mode can be set to any valid action code.   |
| 23 | Byte    | Read/Write | Pump-off Load %:<br><br>0 = Minimum Load during stroke<br>100 = Maximum Load during stroke  |
| 24 | Byte    | Read/Write | POC strokes for pumpoff. Maximum consecutive pump-off strokes allowed before going to idle time.  |
| 25 | Time24  | Read/Write | Pump-up delay (hh:mm:ss).   |
| 26 | Byte    | Read/Write | POC Method:<br><br>0 = Quadrant Method – Lower RH<br>1 = Point Method – Along Base Line<br>2 = Reverse POC using Method 0<br>3 = Reverse POC using Method 1<br>4 = ESP Only (Disables POC for RPC use)<br>5 = ESP Only (Disables POC for RPC use)<br>6 = ESP Only (Disables POC for RPC use)<br>7 = ESP Only (Disables POC for RPC use)<br>8 = Quadrant Method – Upper LH<br>9 = Point Method – Upper (100%) Line<br>10 = Reverse POC using Method 8<br>11 = Reverse POC using Method 9 |
| 27 | Time24  | Read/Write | POC override timer (hh:mm:ss) set by operator. No POC until timer decrements to zero.   |
| 28 | Byte    | Read/Write | Override timer power-up action of clearing flag.<br><br>0 = No PowerUp Clear<br>1 = PowerUP Clear   |
| 29 | Byte    | Read/Write | Motor speed control type:<br><br>0 = Fixed Speed (on/off control)<br>1 = Normal VSD<br>2 = Dynamic VSD  |
| 30 | Byte    | Read/Write | [This parameter is not used.]   |
| 31 | Command | Read/Write | Manual off until reset – Operator input.  |
| 32 | Command | Read/Write | Manual control transfer – Operator input.   |
| 33 | Command | Read/Write | Manual software timer – Operator input.   |
| 34 | Byte    | Read/Write | Position input source.<br><br>0 = Position Switch<br>1 = Continuous Position Sensor<br>2 = Monitor Only Mode  |
| 35 | Byte    | Read/Write | Load input source.<br><br>0 = Load Cell<br>1 = Strain Gauge   |
| 36 | Time24  | Read/Write | Target cycle time (hh:mm:ss) 00-99:59:59. Set to 00:00:00 to disable automatic idle time.   |
| 37 | Byte    | Read/Write | Action for under 50% run:<br><br>0 = No Action<br>1 = Disable with Fault Lamp<br>2 = Halve Cycle with No Fault Lamp<br>3 = Halve Cycle with Fault Lamp  |

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| 38 | Time24  | Read/Write | Off time limit. Maximum allowed off time and restart automatically.  |
| 39 | Byte    | Read/Write | Off time limit enable/disable:<br><br>0 = Disable<br>1 = Enable<br>Off Until Reset is the action, when enabled.  |
| 40 | Byte    | Read/Write | % ABC goal value – Set to 0% to disable.   |
| 41 | Byte    | Read/Write | % ABC dead band value.   |
| 42 | Word    | Read Only  | Upstroke peak value in Milivolts.  |
| 43 | Word    | Read Only  | Downstroke peak value in Milivolts.  |
| 44 | Word    | Read Only  | Peak difference in mV – Positive value means upstroke peak value was higher than down-stroke peak value.   |
| 45 | Word    | Read Only  | Peak difference in % - Not used in control and will show a slightly lower value than the selected % control values.  |
| 46 | Word    | Read/Write | Air balance purge time – Open time of Purge Air Cylinder valve.<br><br>Range is 0 – 65535 (546.1 Seconds in a 60Hz system).  |
| 50 | Byte    | Read/Write | Peak energy control enable flag:<br><br>0 = Disabled<br>1 = Enabled  |
| 51 | Time24  | Read/Write | Begin run inhibit time (hh:mm:ss and am/pm).   |
| 52 | Time24  | Read/Write | End run inhibit time (hh:mm:ss and am/pm).   |
| 53 | Time24  | Read/Write | Power On Restart Delay Time.   |
| 54 | Byte    | Read/Write | Startup Control State:<br><br>0 = Normal<br>1 = Software Timer<br>2 = Control Transfer<br>3 = Off until reset  |
| 55 | Byte    | Read/Write | Time to Idle at Startup:<br><br>0 = Retained Idle Time<br>1 = Full Idle Time<br>2 = No Idle Time   |
| 56 | Byte    | Read/Write | Use Random Startup Delay:<br><br>0 = Disabled<br>1 = Enabled   |
| 63 | Byte    | Read/Write | Strain gauge target type:<br><br>0 = Cycle minimum<br>1 = Cycle average<br>2 = Cycle maximum   |
| 64 | Byte    | Read/Write | Conditions for SG adjust:<br><br>0 = Adjust Valid (if running tracking with valid load span)<br>1 = Adjust Running (if unit running)<br>2 = Adjust Always (at all times) |
| 65 | Word    | Read/Write | Cycle minimum target (Lb).   |
| 66 | Word    | Read/Write | Cycle average target (Lb).   |
| 67 | Word    | Read/Write | Cycle maximum target (Lb).   |
| 68 | Word    | Read/Write | SG Load step limit in pounds.  |
| 69 | Word    | Read Only  | SG Load step limit in uV.  |
| 70 | Command | Read/Write | Set zero load i/p offset.<br><br><b>Note:</b> Ensure that the Load Cell is fully unloaded.   |
| 71 | Word    | Read/Write | Offset in offset mV.   |

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|     |         |            | Normally set automatically (20000 = 0.00). Set this Parameter along with Parameter 70.   |
| 72  | Word    | Read Only  | Offset in volts – Set this Parameter along with Parameter 70.  |
| 73  | Word    | Read/Write | Known load to set gain (Input in lbs) using known standard calibrated load measuring device.   |
| 74  | Word    | Read/Write | Load input gain (Lb./mV).<br><br>Automatically set with Parameter 73 or set for specific load cell range.  |
| 75  | Display | Read Only  | Load gain Lb/mV or Kg/mV - (Lb./mV) .<br><br>Automatically set with Parameter 73.  |
| 76  | Word    | Read Only  | Load raw input and volts (Counts / Volt).  |
| 77  | Word    | Read Only  | Load input in mV.  |
| 78  | Word    | Read Only  | Current Load - lbs.  |
| 79  | Word    | Read Only  | Minimum load last stroke - lbs.  |
| 80  | Word    | Read Only  | Max load last stroke - lbs.  |
| 81  | Word    | Read/Write | Calibration minimum load.  |
| 82  | Word    | Read/Write | Calibration maximum load - lbs.  |
| 83  | Word    | Read Only  | Minimum load from last start - lbs.  |
| 84  | Word    | Read Only  | Maximum load from last start - lbs.  |
| 85  | Word    | Read Only  | Min load since power up - lbs.   |
| 86  | Word    | Read Only  | Max load since power up - lbs.   |
| 87  | Word    | Read Only  | Span over last stroke - lbs.   |
| 88  | Word    | Read Only  | Min span since power up - lbs.   |
| 89  | Word    | Read Only  | Load Average last stroke - lbs.  |
| 90  | Word    | Read Only  | Min average since power up - lbs.  |
| 91  | Word    | Read Only  | Max average since power up - lbs.  |
| 92  | Word    | Read Only  | Min load since power up mV.  |
| 93  | Word    | Read Only  | Max load since power up mV.  |
| 94  | Command | Read/Write | Reset power up min/max Load Values – P85, 86, 88, 90, 91, 92, & 93 are reset.  |
| 95  | Word    | Read Only  | Load fail ADC raw and V – Counts and Volts.  |
| 96  | Word    | Read Only  | Load fail input in mV.   |
| 99  | Command | Read/Write | Calibrate Load Sensor.   |
| 100 | Command | Read/Write | Calibrate Position Reference.  |
| 101 | Byte    | Read/Write | Position Synthesis Type:<br><br>0 = Simple (Sinusoid)<br>1 = MKII Compensation<br>2 = Calibrated Position  |
| 102 | Word    | Read Only  | Position raw input & Volts – counts & Volts.   |
| 103 | Word    | Read Only  | Position input in volts.   |
| 104 | Word    | Read Only  | Min Position last stroke – Volts (Ref. P271).  |
| 105 | Word    | Read Only  | Max Position last stroke – Volts (Ref. P272).  |
| 106 | Word    | Read Only  | Pos span last stroke.  |
| 107 | Word    | Read Only  | Pos span filtered.   |
| 108 | Word    | Read/Write | Dir. debounce time in ticks.   |
| 109 | Byte    | Read Only  | Bottoms with no position fault.  |
| 113 | Byte    | Read/Write | MK-II Compensate Position.<br><br>This parameter defines the percentage of the amplitude of the cosine of the 2nd harmonic of the stroke frequency to subtract from the synthesized position which effectively speeds up the down stroke. The range of acceptable values is from 0 to 24%. The value should be 0% for a conventional unit. We recommend a value of 20% for a large Mark II unit. |
| 114 | Byte    | Read/Write | DPS: Load De-skew - Delay (for use when using DPS with   |

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|     |         |            | Mark II units):<br>0 = 0 mSec<br>1 = 50 mSec<br>2 = 100 mSec<br>3 = 150 mSec<br>4 = 200 mSec<br>5 = 250 mSec<br>6 = 300 mSec<br>7 = 350 mSec |
| 115 | Byte    | Read/Write | Low Load Cycles for stage 2.   |
| 116 | Byte    | Read/Write | Low Load Stage 2 strokes for violation.  |
| 117 | Byte    | Read/Write | Low Load Stage 2 cycles for action.  |
| 120 | Word    | Read/Write | Scratch data 1.  |
| 121 | Word    | Read/Write | Torq% mult factor (if 10=>/10).  |
| 122 | Word    | Read/Write | Scratch data 3 - Same as P120.   |
| 123 | Word    | Read/Write | Scratch data 4 - Same as P120.   |
| 124 | Word    | Read/Write | Scratch data 5 - Same as P120.   |
| 125 | Byte    | Read/Write | Good strokes for filter.   |
| 127 | Byte    | Read/Write | Enable Position Switch as Run/Stop input - Monitor Mode Only.<br><br>0 = Disable<br>1 = Enable   |
| 128 | Byte    | Read/Write | Good strokes for Position Switch reset.  |
| 129 | Byte    | Read/Write | Log cleared Position Switch error.<br><br>0 = No Log Clear<br>1 = Log Clear  |
| 130 | Word    | Read/Write | TOS to Position Switch stroke fraction. Stroke = 65536 count.  |
| 131 | Command | Read/Write | Reverse Position Switch setting.   |
| 132 | Word    | Read Only  | Last Position Switch interval. Ticks/sec.  |
| 133 | Byte    | Read/Write | Position Switch as Run /Stop debounce.   |
| 134 | Byte    | Read/Write | Open debounce interval. Ticks/sec.   |
| 135 | Byte    | Read/Write | Use Position Switch opening:<br><br>0 = Use Close<br>1 = Use Open  |
| 136 | Byte    | Read/Write | Filtered interval minimum % - Minimum allowed as percent of normal from normal.  |
| 137 | Byte    | Read/Write | Filtered interval maximum % - Maximum allowed as percent of normal from normal.  |
| 138 | Byte    | Read Only  | Filtered strokes counter - in counts.  |
| 139 | Word    | Read Only  | Last Stroke interval - counts/second.  |
| 140 | Word    | Read Only  | Filtered Stroke interval - counts/second.  |
| 141 | Word    | Read Only  | Last Stroke Well Speed - (PPM*100).  |
| 142 | Word    | Read Only  | Filtered Well Speed - (PPM*100).   |
| 143 | Byte    | Read Only  | Bottoms counter - in counts.   |
| 144 | Byte    | Read Only  | Debounced closed flag - Open/Closed.   |
| 147 | Word    | Read Only  | Debounced Switches Since Last Turn Off/On.   |
| 149 | Command | Read/Write | Well Speed Change - Clear and reset all SPM information.   |
| 160 | Word    | Read Only  | AI-1 raw input and volts - Counts/Volt.  |
| 161 | Word    | Read Only  | AI-1 Input value - Volts.  |
| 162 | Word    | Read Only  | AI-1 Minimum recorded value.   |
| 163 | Word    | Read Only  | AI-1 Maximum recorded value.   |
| 164 | Word    | Read Only  | AI-1 last stroke average.  |
| 165 | Word    | Read Only  | AI-1 Minimum stroke average.   |

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| 166 | Word    | Read Only  | AI-1 Maximum stroke average.   |
| 167 | Command | Read/Write | AI-1 Reset minimum/maximum.  |
| 168 | Word    | Read/Write | Latch AI alarms enable.  |
| 170 | Word    | Read/Write | DO 1 on timer – Operator set manual ON time and /or serves as countdown timer. Set in Ticks.   |
| 171 | Word    | Read/Write | DO 2 on timer – Operator set manual ON time and /or serves as countdown timer. Set in Ticks.   |
| 172 | Byte    | Read/Write | DO 1 on flag – Remains in set condition until reset manually or by action code.  |
| 173 | Byte    | Read/Write | DO 2 on flag – Remains in set condition until reset manually or by action code.  |
| 174 | Byte    | Read Only  | Current dyno data skip factor.   |
| 175 | Byte    | Read Only  | Dyno data skip factor for last card requested by host.   |
| 176 | Word    | Read Only  | Stroke interval in 1/120 sec ticks for last card requested by host.  |
| 178 | Word    | Read/Write | DO1 action ticks. Number of ticks equal to pulse duration required (Tick = 1/120 Sec.)   |
| 179 | Word    | Read/Write | DO2 action ticks – Seconds (DO1 and DO2).  |
| 180 | Word    | Read Only  | DI status bits:<br><br>Octal Value / DI Location<br>000001 = DI1 (State: 0=On, 1=Off)<br>000002 = DI2 (State: 0=On, 1=Off)<br>000004 = DI3 (State: 0=On, 1=Off)<br>000010 = DI4 (State: 0=On, 1=Off)<br>000020 = DI5 (State: 0=On, 1=Off)<br>000040 = DI6 (State: 0=On, 1=Off)<br>000100 = DI7 (State: 0=On, 1=Off)<br>000200 = DI8 (State: 0=On, 1=Off) |
| 181 | Word    | Read/Write | DI 1 low order counts - 0 to 65,535 counts and reset to zero.  |
| 182 | Word    | Read/Write | DI 1 high order counts - P181 rollover count.  |
| 183 | Word    | Read/Write | DI 2 low order counts - Same as P181.  |
| 184 | Word    | Read/Write | DI 2 high order counts - Same as P182.   |
| 185 | Word    | Read/Write | DI 3 low order counts - Same as P181.  |
| 186 | Word    | Read/Write | DI 3 high order counts - Same as P182.   |
| 187 | Word    | Read/Write | DI 4 low order counts - Same as P181.  |
| 188 | Word    | Read/Write | DI 4 high order counts - Same as P182.   |
| 189 | Word    | Read/Write | DI 5 low order counts - Same as P181.  |
| 190 | Word    | Read/Write | DI 5 high order counts - Same as P182.   |
| 191 | Word    | Read/Write | DI 6 low order counts - Same as P181.  |
| 192 | Word    | Read/Write | DI 6 high order counts - Same as P182.   |
| 193 | Word    | Read Only  | AI status as DI:<br><br>Octal Value / Description<br>000004 = AI1 Selected<br>000010 = AI2 Selected  |
| 194 | Word    | Read/Write | AI 1 low order counts - Same as P181.  |
| 195 | Word    | Read/Write | AI 1 high order counts - Same as P182.   |
| 196 | Word    | Read/Write | AI 2 low order counts - Same as P181.  |
| 197 | Word    | Read/Write | AI 2 high order counts - Same as P182.   |
| 198 | Word    | Read/Write | AI 3 low order counts - Same as P181.  |
| 199 | Word    | Read/Write | AI 3 high order counts - Same as P182.   |
| 200 | Byte    | Read/Write | Sensor Failure Action:<br><br>0 = Invalid Action<br>1 = Soft time<br>2 = Control Transfer<br>3 = Off/Reset   |
| 204 | Byte    | Read/Write | No. run cycles to average - If zero, value in P206 used.   |



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| 205 | Time24 | Read Only  | Recorded average on time - If no value in P205 or P206, P204 controls transfer.   |
| 206 | Time24 | Read/Write | Manual set timer ON time – hh:mm:ss.  |
| 207 | Time24 | Read Only  | Latest average ON time.   |
| 208 | Word   | Read/Write | Low-Low load limit - Pounds.  |
| 209 | Byte   | Read/Write | <p>Low-Low load Violation action:</p> <p>0 = Lamp Only - Fault Lamp Illuminates.<br/> 1 = Soft Time - Software Timer Controls Pumping Unit based on P204.<br/> 2 = CNTL Xfer - Control is Transferred.<br/> 3 = Off/Reset - Turns Controller OFF until Reset by Operator.<br/> 4 = Idle Time - Pumping Starts in Idle Time.<br/> 5 = Idle + ALM - Pumping Starts in Idle Time and Fault Lamp Illuminates.<br/> 6 = Start Pump - Starts Pump if Conditions Allow<br/> 7 = No Action - No Action is taken.<br/> 8 = Pulse DO1 - Pulses Digital Output 1 (Wired as DI7/DO7)<br/> 9 = Pulse DO2 - Pulses Digital Output 2 (Wired as DI8/DO8)<br/> 10 = DO1 OFF - Turns DO1 OFF (Wired as DI7/DO7)<br/> 11 = DO2 OFF - Turns DO2 OFF (Wired as DI8/DO8)<br/> 12 = DO1 ON - Turns DO1 ON (Wired as DI7/DO7)<br/> 13 = DO2 ON - Turns DO2 ON (Wired as DI8/DO8)<br/> x6 = Pulse DIOx - Pulses DIOx*<br/> x7 = Turn DIOx OFF - Turns DIOx OFF*<br/> x8 = Turn DIOx ON - Turns DIOx ON*</p> <p>*The small "x" in the last three action codes is user input. For example, to "Pulse" DIO5, input "56" as the Action Code. To turn DIO5 ON, input 58 as the action code.</p> |
| 210 | Word   | Read/Write | Low load limit - Pounds. Not used if set to zero.   |
| 211 | Word   | Read/Write | High load limit - Pounds. Not used if set to zero.  |
| 212 | Word   | Read/Write | Low average load limit – Pounds. Use only if low load goes below zero load (shallow well) and low load limit cannot be used.  |
| 213 | Byte   | Read/Write | High Load violation strokes - Used for P211, and P214 before action. Load limit has a separate counter.   |
| 214 | Byte   | Read/Write | <p>High Load violation action (For P211 and 213):</p> <p>0 = Lamp Only<br/> 1 = Soft Time<br/> 2 = Control Transfer<br/> 3 = Off/Reset<br/> 4 = Idle Time<br/> 5 = Idle + Alarm</p>   |
| 215 | Byte   | Read/Write | Low Load violation strokes – For P210 and 212.  |
| 216 | Byte   | Read/Write | <p>Low Load violation action – For P210, 212, and 215.</p> <p>0 = Lamp Only<br/> 1 = Soft Time<br/> 2 = Control Transfer<br/> 3 = Off/Reset<br/> 4 = Idle Time<br/> 5 = Idle + Alarm</p>  |
| 217 | Word   | Read/Write | Load violation Deadband - pounds.   |
| 218 | Word   | Read/Write | High-High Load limit - pounds.  |
| 219 | Byte   | Read/Write | High-High Load action. See P209 for action codes.   |
| 220 | Byte   | Read/Write | Off time multiplier - (0.1 units).  |
|     |        |            | [15 = 1.5 multiplier]. Disables low load span and cycle run time for set period. Determined by actual power off interval times.   |

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| 221 | Time24 | Read/Write | Limit to multiplied time - hh:mm:ss 72:00:00 = 3 Days.   |
| 222 | Byte   | Read/Write | Number of Low Load span strokes required before action - for P223.   |
| 223 | Word   | Read/Write | Minimum valid load span - Pounds. Should be set to 50-70% of Normal Operating Load Span (P87).   |
| 225 | Byte   | Read/Write | Low Load span Action of P223.<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset<br>4 = Idle Time<br>5 = Idle + Alarm  |
| 226 | Time24 | Read/Write | Load span Well off timer - Time the well has been "off" including power failures. This is multiplied by P220 to get recovery time.   |
| 227 | Time24 | Read/Write | Load span Well on timer - Time left before the recovery time period times out.   |
| 228 | Byte   | Read/Write | Pumpoffs to clear P227.  |
| 230 | Byte   | Read/Write | Immediate pumpoffs for violation - Not used if zero Pump Off allowed before action.  |
| 231 | Byte   | Read/Write | Immediate Pumpoff Action.  |
| 232 | Time24 | Read/Write | Minimum run time - hh:mm:ss. Set at zero to disable.   |
| 233 | Byte   | Read/Write | Minimum run times for action - Number of Consecutive Minimum Cycle run Times Violations before Action [2]  |
| 234 | Byte   | Read/Write | Minimum run time action - Fault msg. "MIN CYCLE action".<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset  |
| 235 | Time24 | Read/Write | Maximum cycle run time - hh:mm:ss. Set to zero to disable.   |
| 236 | Byte   | Read/Write | Maximum cycle runtime Action - Fault Message "MAX CYCLE Action ON TIME":<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset<br>4 = Idle Time<br>5 = Idle + Alarm |
| 237 | Time24 | Read/Write | Maximum daily run time - hh:mm:ss.<br><br>Not used if set to 00:00:00.   |
| 238 | Byte   | Read/Write | Maximum daily runtime action:<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset   |
| 239 | Time24 | Read/Write | Off timer for maximum run, unless changed by operator. Time format.  |
| 240 | Time24 | Read/Write | On timer for maximum run, unless changed by operator. Time format.   |
| 241 | Byte   | Read/Write | Pumpoffs to clear P240.  |
| 242 | Time24 | Read Only  | Qualified cycle ON timer.  |
| 243 | Time24 | Read Only  | Qualified daily ON timer.  |
| 245 | Byte   | Read/Write | Violation entry deglitch time - 2 = 0.1 Seconds.   |
| 246 | Byte   | Read/Write | violation exit deglitch time - 3 = 0.15 Seconds.   |
| 249 | Byte   | Read/Write | AI 1 low action.   |
| 250 | Byte   | Read/Write | AI 1 high action.  |

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| 251 | Byte    | Read/Write | AI 2 low action.   |
| 252 | Byte    | Read/Write | AI 2 high action.  |
| 253 | Byte    | Read/Write | AI 3 low action.   |
| 254 | Byte    | Read/Write | AI 3 high action.  |
| 255 | Word    | Read Only  | Current Card Area in Ft-Lb.  |
| 256 | Word    | Read/Write | Minimum Card Area in Ft-Lb.  |
| 257 | Byte    | Read/Write | Minimum Card Area Action.  |
| 258 | Word    | Read/Write | Maximum Card Area in Ft-Lb.  |
| 259 | Byte    | Read/Write | Maximum Card Area Action.  |
| 260 | Byte    | Read/Write | Control Failure Action:<br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset |
| 261 | Time24  | Read/Write | Required time - hh:mm:ss.<br>Must be set to at least 30 seconds less than P20.                     |
| 262 | Byte    | Read/Write | Pump On settling time - Delay (Sec) before expected running after start-up.                        |
| 263 | Byte    | Read/Write | Pump Off settling time - Delay (Sec) before expected stop after turned off.                        |
| 265 | Word    | Read Only  | Min Position Last Cycle.   |
| 266 | Word    | Read Only  | Max position Last Cycle.   |
| 267 | Word    | Read Only  | Min position since power on.   |
| 268 | Word    | Read Only  | Max position since power on.   |
| 270 | Word    | Read/Write | Min position span - 250 = 0.250 Volts. Operator can set to accommodate signal span.                |
| 271 | Word    | Read/Write | Min position value - 2125 = 0.125 volts.   |
| 272 | Word    | Read/Write | Max position value - 6000 = 4.000 volts.   |
| 273 | Byte    | Read/Write | Position fault entry time - 5 = 0.250 seconds.   |
| 280 | Word    | Read Only  | AI-1 raw input and volts - A/D Counts / Volts.   |
| 281 | Word    | Read Only  | AI-1 Input value - Offset Volts.   |
| 282 | Word    | Read Only  | AI-1 Scaled EGU value - Scaled EGU Value.  |
| 283 | Byte    | Read/Write | AI-1 Input type.   |
| 284 | Byte    | Read/Write | AI-1 EGU decimal places.   |
| 285 | Byte    | Read/Write | AI-1 EGU label.  |
| 286 | Word    | Read/Write | AI-1 Scaling low value.  |
| 287 | Word    | Read/Write | AI-1 Scaling high value.   |
| 288 | Word    | Read/Write | AI-1 Low alarm limit.  |
| 289 | Byte    | Read/Write | AI-1 Low alarm action 1.   |
| 290 | Byte    | Read/Write | AI-1 Low alarm action 2.   |
| 291 | Word    | Read/Write | AI-1 High alarm limit.   |
| 292 | Byte    | Read/Write | AI-1 High alarm action 1.  |
| 293 | Byte    | Read/Write | AI-1 High alarm action 2.  |
| 294 | Word    | Read/Write | AI-1 Alarms deadband.  |
| 295 | Word    | Read Only  | AI-1 Min recorded value in Volts.  |
| 296 | Word    | Read Only  | AI-1 Max recorded value in Volts.  |
| 297 | Word    | Read Only  | AI-1 last stroke average in Volts.   |
| 298 | Word    | Read Only  | AI-1 Min stroke average in Volts.  |
| 299 | Word    | Read Only  | AI-1 Max stroke average in Volts.  |
| 300 | Command | Read/Write | AI-1 Reset min/max - Resets all for AI-1.  |

### Parameters 309-599

| Parameter | Data Type | Access     | Description           |
|-----------|-----------|------------|-----------------------|
| 309       | Word      | Read/Write | AI alarm status bits: |

|     |         |            | Octal Value / Description<br>000001 = Extra Channel 1 Low Alarm<br>000002 = Extra Channel 2 Low Alarm<br>000004 = Extra Channel 1 High Alarm<br>000010 = Extra Channel 2 High Alarm |
|-----|---------|------------|---|
| 310 | Word    | Read Only  | AI-2 raw input and volts - Counts / Volts   |
| 311 | Word    | Read Only  | AI-2 Input value - Volts  |
| 312 | Word    | Read Only  | AI-2 Scaled EGU value - Scaled EGU Value  |
| 313 | Byte    | Read/Write | AI-2 Input type - Refer to Table 7.   |
| 314 | Byte    | Read/Write | AI-2 EGU decimal places - Refer to Table 8.   |
| 315 | Byte    | Read/Write | AI-2 EGU label - Refer to Table 6.  |
| 316 | Word    | Read/Write | AI-2 Scaling low value  |
| 317 | Word    | Read/Write | AI-2 Scaling high value   |
| 318 | Word    | Read/Write | AI-2 Low alarm limit  |
| 319 | Byte    | Read/Write | AI-2 Low alarm action 1 – Refer to Table 2.   |
| 320 | Byte    | Read/Write | AI-2 Low alarm action 2 – Refer to Table 2.   |
| 321 | Word    | Read/Write | AI-2 High alarm limit   |
| 322 | Byte    | Read/Write | AI-2 High alarm action 1 – Refer to Table 2.  |
| 323 | Byte    | Read/Write | AI-2 High alarm action 2 – Refer to Table 2.  |
| 324 | Word    | Read/Write | AI-2 Alarms deadband  |
| 325 | Word    | Read Only  | AI-2 Min recorded value   |
| 326 | Word    | Read Only  | AI-2 Max recorded value   |
| 329 | Command | Read/Write | AI-2 Reset min/max  |
| 330 | Word    | Read Only  | AI-3 raw input and volts - Count  |
| 331 | Word    | Read Only  | AI-3 Input value - Millivolts   |
| 332 | Word    | Read Only  | AI-3 Scaled EGU value   |
| 333 | Byte    | Read/Write | AI-3 Input type - Refer to Table 7.   |
| 334 | Byte    | Read/Write | AI-3 EGU decimal places - Refer to Table 8.   |
| 335 | Byte    | Read/Write | AI-3 EGU label - Refer to Table 6.  |
| 336 | Word    | Read/Write | AI-3 Scaling low value  |
| 337 | Word    | Read/Write | AI-3 Scaling high value   |
| 338 | Word    | Read/Write | AI-3 Low alarm limit  |
| 339 | Byte    | Read/Write | AI-3 Low alarm action 1 – Refer to Table 2.   |
| 340 | Byte    | Read/Write | AI-3 Low alarm action 2 – Refer to Table 2.   |
| 341 | Word    | Read/Write | AI-3 High alarm limit   |
| 342 | Byte    | Read/Write | AI-3 High alarm action 1 – Refer to Table 2.  |
| 343 | Byte    | Read/Write | AI-3 High alarm action 2 – Refer to Table 2.  |
| 344 | Word    | Read/Write | AI-3 Alarms deadband  |
| 345 | Word    | Read Only  | AI-3 Min recorded value   |
| 346 | Word    | Read Only  | AI-3 Max recorded value   |
| 349 | Command | Read/Write | AI-3 Reset min/max  |
| 350 | Command | Read/Write | 15 sec fault lamp test  |
| 351 | Command | Read/Write | Software reset  |
| 352 | Command | Read/Write | Repeat last roll display  |
| 355 | Byte    | Read/Write | Minimum Fault Events  |
| 356 | Byte    | Read/Write | Minimum Alarm Events  |
| 357 | Word    | Read/Write | Event Card Enable Bits 1 - Hex value 00 – 0F  |
| 358 | Word    | Read/Write | Event Card Enable Bits 2 - Hex value 10 – 1F  |
| 359 | Word    | Read/Write | Event Card Enable Bits 3 - Hex value 20 – 2F  |
| 360 | Word    | Read/Write | Event Card Enable Bits 4 - Hex value 30 – 3F  |
| 361 | Word    | Read/Write | Event Card Enable Bits 5 - Hex value 40 – 4F  |
| 362 | Word    | Read/Write | Event Card Enable Bits 6 - Hex value 50 – 52  |
| 363 | Word    | Read/Write | Event Card Enable Bits 7 - Hex value 60 –   |
| 365 | Command | Read/Write | Record Event Buffer   |
| 366 | Command | Read/Write | Clear Event Buffer  |

|     |         |           |  |
|-----|---------|-----------|--|
| 370 | Display | Read Only | POC display/position - Percent   |
| 371 | Display | Read Only | POC display/load - Percent   |
| 372 | Display | Read Only | POC display/P26 method - Depends on P26 (POC Method). Value shows when <POC DSPLY> is pressed on RPC.  |
| 373 | Word    | Read Only | Surface card pump fill % -   |
| 374 | Word    | Read Only | Reason code for load fail alarms:<br><br>1 = load fail conversion error: read_a2d() returns 0xffff.<br>2 = load fail raw error: read_a2d() returns load > 0xffff.<br>3 = load fail calculation error: after scaling the input offset mV value is > 22 mV or < -1 mV. |
| 375 | Word    | Read Only | Estimated POC load value - Pounds  |
| 376 | Word    | Read Only | Load at POC position - Pounds  |
| 384 | Word    | Read Only | Stroke counter in the current gauge period   |
| 385 | Word    | Read Only | Running average pump fillage in this gauge period  |
| 386 | Word    | Read Only | Yesterday's average pump fillage   |
| 387 | Word    | Read Only | Average pump fillage two days ago  |
| 388 | Word    | Read Only | Average pump fillage three days ago  |
| 389 | Word    | Read Only | Last error/status alarm - Shows the last error or status alarm.  |
| 390 | Time24  | Read Only | Time at last program stop  |
| 391 | Date    | Read Only | Date at last program stop  |
| 392 | Time24  | Read Only | Time at last (re)start   |
| 393 | Date    | Read Only | Date at last (re)start   |
| 394 | Time24  | Read Only | Last program stop interval   |
| 395 | Long    | Read Only | Last fatal error address - Programmer error information only.  |
| 396 | Time24  | Read Only | Last error/status time   |
| 397 | Date    | Read Only | Last error/status date   |
| 398 | Word    | Read Only | Days counter - Number of days of operation.  |
| 399 | Time24  | Read Only | Rollover counter - hh:mm:ss Current day count. At 24-hours count goes to P398.   |
| 400 | Time24  | Read Only | Present pump run time - Run cycle in progress.   |
| 401 | Time24  | Read Only | Previous interval[1]   |
| 402 | Time24  | Read Only | Previous interval[2]   |
| 403 | Time24  | Read Only | Previous interval[3]   |
| 404 | Time24  | Read Only | Previous interval[4]   |
| 405 | Time24  | Read Only | Previous interval[5]   |
| 406 | Time24  | Read Only | Previous interval[6]   |
| 407 | Time24  | Read Only | Previous interval[7]   |
| 408 | Time24  | Read Only | Previous interval[8]   |
| 409 | Time24  | Read Only | Previous interval[9]   |
| 410 | Time24  | Read Only | Previous interval[10]  |
| 411 | Time24  | Read Only | Previous interval[11]  |
| 412 | Time24  | Read Only | Previous interval[10]  |
| 413 | Time24  | Read Only | Previous interval[13]  |
| 414 | Time24  | Read Only | Previous interval[14]  |
| 415 | Time24  | Read Only | Previous interval[15]  |
| 416 | Time24  | Read Only | Previous interval[16]  |
| 417 | Time24  | Read Only | Previous interval[17]  |
| 418 | Byte    | Read Only | Undisturbed pump cycles - Run cycle is from pumping unit start-up by the RPC to pumping unit RPC shut down and the start of idle time.   |
| 419 | Time24  | Read Only | Present pump off time  |
| 420 | Time24  | Read Only | Today's run time - In V2.00 the RPC holds 29 days of run time history in P670 - P699. P420 - P427 are still functional but not the complete history.   |

|     |         |            |  |
|-----|---------|------------|--|
| 421 | Time24  | Read Only  | Yesterdays run time  |
| 422 | Time24  | Read Only  | Run time 2 days ago  |
| 423 | Time24  | Read Only  | Run time 3 days ago  |
| 424 | Time24  | Read Only  | Run time 4 days ago  |
| 425 | Time24  | Read Only  | Run time 5 days ago  |
| 426 | Time24  | Read Only  | Run time 6 days ago  |
| 427 | Time24  | Read Only  | Run time 7 days ago  |
| 429 | Time24  | Read/Write | Gauge period start time - hh:mm:ss   |
| 430 | Word    | Read Only  | Today undisturbed cycles   |
| 431 | Word    | Read Only  | Ystdy undisturbed cycles   |
| 432 | Time24  | Read Only  | Tday undisturbed average run   |
| 433 | Time24  | Read Only  | Yday undisturbed average run   |
| 434 | Time24  | Read Only  | Time to next gauge time  |
| 439 | Time24  | Read Only  | Today total undisturbed run  |
| 441 | Date    | Read Only  | This period start date   |
| 442 | Time24  | Read Only  | Todays run time  |
| 443 | Time24  | Read Only  | Yesterdays run time  |
| 444 | Time24  | Read Only  | Run time 2 days ago  |
| 445 | Time24  | Read Only  | Run time 3 days ago  |
| 446 | Time24  | Read Only  | Run time 4 days ago  |
| 447 | Time24  | Read Only  | Run time 5 days ago  |
| 448 | Time24  | Read Only  | Run time 6 days ago  |
| 449 | Time24  | Read Only  | Run time 7 days ago  |
| 450 | Word    | Read Only  | ADC Zero reference raw input - Counts  |
| 451 | Word    | Read Only  | ADC Zero reference filtered - Counts   |
| 452 | Word    | Read Only  | ADC 5 Volt reference raw input - Counts  |
| 453 | Word    | Read Only  | ADC 5 Volt reference filtered - Counts   |
| 454 | Word    | Read Only  | ADC Filtered span - Counts   |
| 455 | Byte    | Read Only  | ADC Failure channel:<br><br>Value / Description<br>0 = Zero Volts Calibration<br>1 = Full Scale Calibration<br>2 = Load Input<br>3 = Position Input<br>4 = First Extra |
| 456 | Word    | Read Only  | Lowest allowed value   |
| 457 | Word    | Read Only  | Highest allowed value  |
| 458 | Word    | Read Only  | ADC Failure actual value   |
| 459 | Command | Read/Write | Reset Idle task timing. Enter to reset Task Times.   |
| 460 | Display | Read Only  | CPU Idle task timing - Interval in Ticks   |
| 461 | Display | Read Only  | CPU usage profile = xx/yy/zz<br><br>xx = System Overhead P<br>zz = Percent Useful Workercent<br>yy = Percent Idle  |
| 462 | Byte    | Read Only  | Max Flood Task   |
| 463 | Word    | Read Only  | Max Flood Time   |
| 464 | Word    | Read Only  | Flood Counter  |
| 470 | Command | Read/Write | Do heap walk   |
| 471 | Byte    | Read/Write | Display debug parameters   |
| 472 | Command | Read/Write | Reset to factory default<br><br>Important: All field set parameters are lost if this action taken. Enter eP Service Password in P473 first.                            |
| 473 | Word    | Read/Write | Maintenance password<br><br>Important: User Password (8500) allows edits to RO param-  |

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|     |      |            | eters such as run time data. Master Service Password = 5500. This parameter should only be used by eP service personnel.   |
| 478 | Byte | Read Only  | Current F/W version  |
| 479 | Byte | Read Only  | Current F/W sub-version  |
| 480 | Word | Read Only  | NVS Initialized value  |
| 481 | Word | Read Only  | NVS chars used   |
| 482 | Word | Read Only  | NVS Unused space (bytes)   |
| 483 | Word | Read Only  | NVS Used space (bytes)   |
| 484 | Byte | Read Only  | NVS F/W version  |
| 485 | Byte | Read Only  | NVS F/W sub-version  |
| 486 | Word | Read Only  | NVS F/W Part Number  |
| 489 | Byte | Read/Write | Configuration Change - Set to "1" whenever volatile parameter is changed.  |
| 490 | Byte | Read Only  | Legacy F/W version   |
| 491 | Byte | Read Only  | Legacy F/W sub-version   |
| 492 | Word | Read Only  | Hardware option bits 1:<br><br>Octal Value / Description<br>000004 = Memory<br>000010 = Memory Expansion<br>000020 = Indication Bit<br>000040 = Memory Bank Expansion<br>000100 = Control PIO<br>000200 = UART<br>000400 = Radio ID                                    |
| 493 | Word | Read Only  | Hardware option bits 2:<br><br>Octal Value / Description<br>000001 = Larger EEPROM<br>000002 = CPI Type LCD Display<br>000004 = Keypad (Detected when pressed)<br>000008 = Battery Backup<br>000010 = Densitron Type LCD Display<br>000040 = Enhanced Graphics Display |
| 494 | Word | Read Only  | Hardware option bits 3:<br><br>Value / Description<br>0 = No Comm Boards<br>1 = Unknown or Bad Comm Board<br>2 = UART Board<br>3 = UART Board with Expanded Memory<br>4 = Radio Modem Board<br>5 = Hardwired Modem Board   |
| 496 | Word | Read/Write | Analog inputs enable - AI1 & AI2 channel used. Enter value in Octal.<br><br>If AI1, enter "1".<br>If AI2, enter "2".<br>If both AI1 and AI2, enter "3".  |
| 497 | Word | Read/Write | Digital inputs enable:<br><br>Octal Value / Description<br>000001 = DI1 Selected<br>000002 = DI2 Selected<br>000004 = DI3 Selected<br>000010 = DI4 Selected<br>000020 = DI5 Selected<br>000040 = DI6 Selected<br>000100 = DI7 Selected<br>000200 = DI8 Selected        |

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| 498 | Word    | Read Only  | N/A.  |
| 499 | Byte    | Read/Write | N/A.  |
| 500 | Word    | Read/Write | Keypad password   |
| 501 | Byte    | Read/Write | Password timeout - (Minutes) Password at P1 clear if no keypad entry made in time-out interval.   |
| 507 | Byte    | Read Only  | EGD Contrast  |
| 508 | Byte    | Read/Write | Updates per second - Every 1 to 5 times per second.   |
| 509 | Byte    | Read/Write | Rolls per second - From 2 to 15 rolls / second.   |
| 510 | Word    | Read Only  | N/A.  |
| 511 | Word    | Read Only  | N/A.  |
| 512 | Word    | Read Only  | N/A.  |
| 513 | Word    | Read Only  | N/A.  |
| 514 | Byte    | Read/Write | Expand Lb Dyno:<br><br>0 = Disable (Sequence from % card to normal card back to % card)<br>1 = Enable (Sequence from % card to expanded pound card to normal card back to % card)   |
| 515 | Word    | Read Only  | Auto setup  |
| 516 | Word    | Read Only  | Communication pump on   |
| 517 | Word    | Read Only  | Communication present   |
| 518 | Word    | Read Only  | Communication pump off  |
| 519 | Word    | Read Only  | Communication frozen  |
| 520 | Word    | Read Only  | Status bits 1: See Table 16.  |
| 521 | Word    | Read Only  | Status bits 2: See Table 17   |
| 522 | Word    | Read Only  | Status bits 3:  |
| 523 | Command | Read/Write | Clear Errors. Enter to clear.   |
| 524 | Command | Read/Write | Turn Pump On. Enter to activate   |
| 525 | Command | Read/Write | Idle Pump. Enter to activate  |
| 526 | Byte    | Read Only  | POC Control state:<br><br>Value / Description<br>0 = Normal or Lamp Only Error<br>1 = Software Timer<br>2 = Control Transferred via Watchdog Relay<br>3 = Off Until Reset by Operator   |
| 527 | Word    | Read Only  | Error bits 1:<br><br>Octal Value / Description<br>000001 "CONTROL FAILURE"<br>000002 "LOW LOAD LIMIT"<br>000004 "HIGH LOAD LIMIT"<br>000010 "LOW LOAD AVERAGE"<br>000020 "POS SWITCH FAIL"<br>000040 "MULTIPLE POS SW"<br>000100 "CLRD POS SEN PRB"<br>000200 "CLRD MULP POS SW"<br>000400 " LOW LOAD SPAN"<br>001000 "LOAD INPUT FAULT"<br>002000 "POS SENSOR FAULT"<br>004000 "CLRD POS SEN PRB"<br>010000 "NO TIMER VALUE"<br>020000 " A/D FAILURE"<br>040000 "MANUAL OFF (31)"<br>100000 "POC OVERRIDE(27)" |
| 528 | Word    | Read Only  | Error bits 2:<br><br>Octal Value / Description<br>000001 IMMED. PUMPOFF<br>000002 MIN CYCLE ONTIME  |



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|     |      |           | 000004 MAX CYCLE ONTIME<br>000010 MAX DAILY ONTIME<br>000020 PARAMS INIT'ED<br>000040 PARAMS EXPANDED<br>000100 PARMs FROM EEPROM<br>000200 "EEPROM CELL BAD<br>000400 EEPROM FAILURE<br>001000 BAD STATUS VAR<br>002000 BAD ERROR BIT(S)<br>004000 ? TIME ? DATE ?<br>010000 BAD TIME&DATE IC<br>020000 WRONG LINE FREQ<br>040000 MANUAL CTRL XFER<br>100000 MANUAL SOFT TIME  |
| 529 | Word | Read Only | Error bits 3:<br><br>Octal Value / Description<br>000001 CPU FELL BEHIND<br>000002 CLRD BAD RTC CHP<br>000004 MTR OFF TOO LONG<br>000010 DI1 CLOSED ALARM<br>000020 DI1 OPEN ALARM<br>000040 DI2 CLOSED ALARM<br>000100 DI2 OPEN ALARM<br>000200 AI1 DIG 0 ALARM<br>000400 AI1 DIG 1 ALARM<br>001000 AI2 DIG 0 ALARM<br>004000 AI3 DIG 0 ALARM<br>010000 AI3 DIG 1 ALARM<br>020000 HI-HI LOAD LIMIT<br>040000 REVERSE PUMPOFF<br>100000 AB AMPS TOO LOW                 |
| 530 | Word | Read Only | Error bits 4:<br><br>Octal Value / Description<br>000001 DI3 CLOSED ALARM<br>000002 DI3 OPEN ALARM<br>000004 DI4 CLOSED ALARM<br>000010 DI4 OPEN ALARM<br>000020 DI5 CLOSED ALARM<br>000040 DI5 OPEN ALARM<br>000100 DI6 CLOSED ALARM<br>000200 DI6 OPEN ALARM<br>000400 AI1 LOW LIMIT<br>001000 AI1 HIGH LIMIT<br>002000 AI2 LOW LIMIT<br>004000 AI2 HIGH LIMIT<br>010000 AI3 LOW LIMIT<br>020000 AI3 HIGH LIMIT<br>040000 AB ADD AIR FORCE<br>100000 AB REL AIR FORCE |
| 531 | Word | Read Only | Error bits 5:<br><br>Octal Value / Description<br>000001 DI7 CLOSED ALARM<br>000002 DI7 OPEN ALARM<br>000004 DI8 CLOSED ALARM<br>000010 DI8 OPEN ALARM<br>000020 PROGRAM ERROR<br>000040 BAD SHUTDOWN<br>000100 AI4 LOW LIMIT<br>000200 AI4 HIGH LIMIT<br>000400 AI5 LOW LIMIT<br>001000 AI5 HIGH LIMIT   |

|     |      |           |   |
|-----|------|-----------|---|
|     |      |           | 002000 AI6 LOW LIMIT<br>004000 AI6 HIGH LIMIT<br>010000 AI7 LOW LIMIT<br>020000 AI7 HIGH LIMIT<br>040000 AI8 LOW LIMIT<br>100000 AI8 HIGH LIMIT   |
| 532 | Word | Read Only | Error bits 6:<br><br>000001 RUN UNDER 50%<br>000002 DIVIDE ERROR<br>000004 FLUID CALC ERR - x052<br>000010 LONG LOW LD SPAN - x053<br>000020 LOW CARD AREA - x054<br>000040 HIGH CARD AREA - x055<br>000100 LO-LO LOAD LIMIT - x056<br>000200 LOAD CONV FAIL - EPIC II - x057<br>000400 VSD LEARN ERR (P1173) - EPIC II - VSD - x058<br>001000 HOA Sw = HAND - EPIC II - VSD - x059<br>002000 VSD Config Error - EPIC II - VSD - x060<br>004000 HOA Sw = OFF - EPIC II - VSD - x061<br>010000 PWR-ON STATE OPT - x062<br>020000 DAC Fail - EPIC II - DAC - x063<br>040000 VSD OVERTIME - EPIC II - VSD - x064<br>100000 VSD LO FILLAGE - EPIC II - x065 |
| 533 | Word | Read Only | Error bits 7 (Host alarms)<br><br>000001 GEARBOX TORQUE<br>000002 MAX LOAD DEVIATION<br>000004 MIN LOAD DEVIATION<br>000010 LOAD SPAN DEVIATION<br>000020 UNIT OUT OF BALANCE<br>000040 RUN TIME DEVIATION<br>000100 CARD AREA DEVIATION<br>000200 LOW PUMPING EFFICIENCY<br>000400 HIGH ROD STRESS<br>01000 PRIME MOVER SIZE<br>004000 HOST ALARM 11<br>010000 HOST ALARM 12<br>020000 HOST ALARM 13<br>040000 HOST ALARM 14<br>100000 HOST ALARM 15   |
| 535 | Word | Read Only | Non-clearable err bits 1:<br><br>Octal Value Error Display<br>000001 BAD ROM CRC<br>000002 BAD COMM BOARD<br>000004 CONSTANT COM INT<br>000010 P535-Bit 3 ERR<br>000020 P535-Bit 4 ERR<br>000040 P535-Bit 5 ERR<br>000100 P535-Bit 6 ERR<br>000200 P535-Bit 7 ERR<br>000400 BAD POWER STATUS<br>001000 NO AC POWER<br>002000 BATTERY LOW<br>004000 P535-Bit 11 ERR<br>010000 P535-Bit 12 ERR<br>020000 P535-Bit 13 ERR<br>040000 P535-Bit 14 ERR<br>100000 P535-Bit 15 ERR  |
| 536 | Word | Read Only | Non-clearable err bits 2:<br><br>Octal Value / Description  |

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|-----|------|-----------|--|
|     |      |           | <p>000001 NO TOP OF STROKE<br/> 000002 P536-Bit 1 ERR<br/> 000004 P536-Bit 2 ERR<br/> 000010 PARAM 21 MISSING<br/> 000020 PARAM 22 INVALID<br/> 000040 PARAM 23 MISSING<br/> 000100 PARAM 24 MISSING<br/> 000200 P536-Bit 7 ERR<br/> 000400 P536-Bit 8 ERR<br/> 001000 P536-Bit 9 ERR<br/> 002000 PARAM 20 MISSING<br/> 004000 P536-Bit 11 ERR<br/> 010000 P536-Bit 12 ERR<br/> 020000 NO POS MEMORY<br/> 040000 P536-Bit 14 ERR<br/> 100000 P536-Bit 15 ERR</p>   |
| 537 | Word | Read Only | <p>Non-clearable err bits 3:</p> <p>Octal Value / Description<br/> 000001 RESTART NEEDED<br/> 000002 BAD EVENT BUFFER<br/> 000004 BAD POSITION CAL<br/> 000010 P537-Bit 3 ERR<br/> 000020 TEMP CONTRL LOSS<br/> 000040 P537-Bit 5 ERR<br/> 000100 P537-Bit 6 ERR<br/> 000200 BAD FLUID PARAM<br/> 000400 COMM OUTPUT TEST<br/> 001000 I/O ID FAILURE<br/> 002000 UNSUPPORTED I/O<br/> 004000 NO I/O EXP BOARD<br/> 010000 NO EXP COMM BD<br/> 020000 P537-Bit 13 ERR<br/> 040000 P537-Bit 14 ERR<br/> 100000 P537-Bit 15 ERR</p>                                   |
| 540 | Byte | Read Only | <p>Worst POC Control state:</p> <p>Value / Description<br/> 0 = Normal or Lamp Only if error(s)<br/> 1 = Software Timer<br/> 2 = Control Transferred by Watchdog Relay<br/> 3 = Off Until Reset by Operator</p>  |
| 541 | Word | Read Only | <p>Accumulated error bits 1:</p> <p>Octal Value / Description<br/> 000001 "CONTROL FAILURE"<br/> 000002 "LOW LOAD LIMIT"<br/> 000004 "HIGH LOAD LIMIT"<br/> 000010 "LOW LOAD AVERAGE"<br/> 000020 "POS SWITCH FAIL"<br/> 000040 "MULTIPLE POS SW"<br/> 000100 "CLRD POS SEN PRB"<br/> 000200 "CLRD MULP POS SW"<br/> 000400 " LOW LOAD SPAN"<br/> 001000 "LOAD INPUT FAULT"<br/> 002000 "POS SENSOR FAULT"<br/> 004000 "CLRD POS SEN PRB"<br/> 010000 "NO TIMER VALUE"<br/> 020000 " A/D FAILURE"<br/> 040000 "MANUAL OFF (31)"<br/> 100000 "POC OVERRIDE(27)"</p> |
| 542 | Word | Read Only | <p>Accumulated error bits 2:</p>   |

|     |      |           |  |
|-----|------|-----------|--|
|     |      |           | <p>Octal Value / Description</p> <p>000001 IMMED. PUMPOFF</p> <p>000002 MIN CYCLE ONTIME</p> <p>000004 MAX CYCLE ONTIME</p> <p>000010 MAX DAILY ONTIME</p> <p>000020 PARAMS INIT'ED</p> <p>000040 PARAMS EXPANDED</p> <p>000100 PARMS FROM EEPROM</p> <p>000200 "EEPROM CELL BAD</p> <p>000400 EEPROM FAILURE</p> <p>001000 BAD STATUS VAR</p> <p>002000 BAD ERROR BIT(S)</p> <p>004000 ? TIME ? DATE ?</p> <p>010000 BAD TIME&amp;DATE IC</p> <p>020000 WRONG LINE FREQ</p> <p>040000 MANUAL CTRL XFER</p>  |
| 543 | Word | Read Only | <p>Accumulated error bits 3:</p> <p>Octal Value / Description</p> <p>000001 CPU FELL BEHIND</p> <p>000002 CLRD BAD RTC CHP</p> <p>000004 MTR OFF TOO LONG</p> <p>000010 DI1 CLOSED ALARM</p> <p>000020 DI1 OPEN ALARM</p> <p>000040 DI2 CLOSED ALARM</p> <p>000100 DI2 OPEN ALARM</p> <p>000200 AI1 DIG 0 ALARM</p> <p>000400 AI1 DIG 1 ALARM</p> <p>001000 AI2 DIG 0 ALARM</p> <p>002000 AI2 DIG 1 ALARM</p> <p>004000 AI3 DIG 0 ALARM</p> <p>010000 AI3 DIG 1 ALARM</p> <p>020000 HI-HI LOAD LIMIT</p> <p>040000 REVERSE PUMPOFF</p> <p>100000 AB AMPS TOO LOW</p> |
| 544 | Word | Read Only | <p>Accumulated error bits 4:</p> <p>Octal Value / Description</p> <p>000001 DI3 CLOSED ALARM</p> <p>000002 DI3 OPEN ALARM</p> <p>000004 DI4 CLOSED ALARM</p> <p>000010 DI4 OPEN ALARM</p> <p>000020 DI5 CLOSED ALARM</p> <p>000040 DI5 OPEN ALARM</p> <p>000100 DI6 CLOSED ALARM</p> <p>000200 DI6 OPEN ALARM</p> <p>000400 AI1 LOW LIMIT</p> <p>001000 AI1 HIGH LIMIT</p> <p>002000 AI2 LOW LIMIT</p> <p>004000 AI2 HIGH LIMIT</p> <p>010000 AI3 LOW LIMIT</p> <p>020000 AI3 HIGH LIMIT</p> <p>040000 AB ADD AIR FORCE</p> <p>100000 AB REL AIR FORCE</p>           |
| 545 | Word | Read Only | <p>Accumulated error bits 5:</p> <p>Octal Value / Description</p> <p>000001 DI7 CLOSED ALARM</p> <p>000002 DI7 OPEN ALARM</p> <p>000004 DI8 CLOSED ALARM</p> <p>000010 DI8 OPEN ALARM</p> <p>000020 PROGRAM ERROR</p> <p>000040 BAD SHUTDOWN</p> <p>000100 AI4 LOW LIMIT</p>   |

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|-----|---------|------------|--|
|     |         |            | 000200 AI4 HIGH LIMIT<br>000400 AI5 LOW LIMIT<br>001000 AI5 HIGH LIMIT<br>002000 AI6 LOW LIMIT<br>004000 AI6 HIGH LIMIT<br>010000 AI7 LOW LIMIT<br>020000 AI7 HIGH LIMIT<br>040000 AI8 LOW LIMIT<br>100000 AI8 HIGH LIMIT  |
| 546 | Word    | Read Only  | Accumulated error bits 6:<br><br>Octal Value / Description<br>000001 RUN UNDER 50%<br>000002 DIVIDE ERROR<br>000004 FLUID CALC ERR<br>000010 LONG LOW LD SPAN<br>000020 LOW CARD AREA<br>000040 HIGH CARD AREA<br>000100 LO-LO LOAD LIMIT<br>000200 LOAD CONV FAIL - EPIC II<br>000400 VSD LEARN ERR (P1173) - EPIC II - VSD<br>001000 HOA Sw = HAND - EPIC II - VSD<br>002000 VSD Config Error - EPIC II - VSD<br>004000 HOA Sw = OFF - EPIC II - VSD<br>010000 PWR-ON STATE OPT<br>020000 DAC Fail - EPIC II - DAC<br>040000 VSD OVERTIME - EPIC II - VSD<br>100000 VSD LO FILLAGE - EPIC II |
| 547 | Word    | Read Only  | Accumulated error bits 7 (Host alarms)<br><br>Octal Value / Description<br>000001 GEARBOX TORQUE<br>000002 MAX LOAD DEVIATION<br>000004 MIN LOAD DEVIATION<br>000010 LOAD SPAN DEVIATION<br>000020 UNIT OUT OF BALANCE<br>000040 RUN TIME DEVIATION<br>000100 CARD AREA DEVIATION<br>000200 LOW PUMPING EFFICIENCY<br>000400 HIGH ROD STRESS<br>001000 PRIME MOVER SIZE<br>002000 HOST ALARM 10<br>004000 HOST ALARM 11<br>010000 HOST ALARM 12<br>020000 HOST ALARM 13<br>040000 HOST ALARM 14<br>100000 HOST ALARM 15  |
| 549 | Display | Read Only  | Firmware part number   |
| 550 | Display | Read Only  | Firmware source full ID  |
| 551 | Display | Read Only  | Firmware compiled date   |
| 552 | Display | Read Only  | Firmware compiled time   |
| 555 | Display | Read Only  | Controller ID message  |
| 556 | Command | Read/Write | Rolling unit ID message  |
| 560 | Byte    | Read/Write | DI 1 closed (ON) action - Refer to Table 2.  |
| 561 | Byte    | Read/Write | DI 1 open (OFF) action - Refer to Table 2.   |
| 562 | Byte    | Read/Write | DI 2 closed (ON) action - Refer to Table 2.  |
| 563 | Byte    | Read/Write | DI 2 open (OFF) action - Refer to Table 2.   |
| 564 | Byte    | Read/Write | DI 3 closed (ON) action - Refer to Table 2.  |
| 565 | Byte    | Read/Write | DI 3 open (OFF) action - Refer to Table 2.   |
| 566 | Byte    | Read/Write | DI 4 closed (ON) action - Refer to Table 2.  |
| 567 | Byte    | Read/Write | DI 4 open (OFF) action - Refer to Table 2.   |
| 568 | Byte    | Read/Write | DI 5 closed (ON) action - Refer to Table 2.  |

|     |      |            |  |
|-----|------|------------|--|
| 569 | Byte | Read/Write | DI 5 open (OFF) action - Refer to Table 2.   |
| 570 | Byte | Read/Write | DI 6 closed (ON) action - Refer to Table 2.  |
| 571 | Byte | Read/Write | DI 6 open (OFF) action - Refer to Table 2.   |
| 572 | Byte | Read/Write | DI 7 closed (ON) action - Refer to Table 2.  |
| 573 | Byte | Read/Write | DI 7 open (OFF) action - Refer to Table 2.   |
| 574 | Byte | Read/Write | DI 8 closed (ON) action - Refer to Table 2.  |
| 575 | Byte | Read/Write | DI 8 open (OFF) action - Refer to Table 2.   |
| 578 | Word | Read/Write | Non-Functional   |
| 579 | Word | Read/Write | Non-Functional   |
| 580 | Word | Read/Write | D/O 1 pulse timer.   |
| 581 | Word | Read/Write | D/O 2 pulse timer.   |
| 582 | Word | Read/Write | D/O 3 pulse timer.   |
| 583 | Word | Read/Write | D/O 4 pulse timer.   |
| 584 | Word | Read/Write | D/O 5 pulse timer.   |
| 585 | Word | Read/Write | D/O 6 pulse timer  |
| 586 | Word | Read/Write | D/O 7 pulse timer.   |
| 587 | Word | Read/Write | D/O 8 pulse timer.   |
| 590 | Word | Read/Write | D/O 1 pulse ticks (120 ticks = 1 sec.)   |
| 591 | Word | Read/Write | D/O 2 pulse ticks (120 ticks = 1 sec.)   |
| 592 | Word | Read/Write | D/O 3 pulse ticks (120 ticks = 1 sec.)   |
| 593 | Word | Read/Write | D/O 4 pulse ticks (120 ticks = 1 sec.)   |
| 594 | Word | Read/Write | D/O 5 pulse ticks (120 ticks = 1 sec.)   |
| 595 | Word | Read/Write | D/O 6 pulse ticks (120 ticks = 1 sec.)   |
| 596 | Word | Read/Write | D/O 7 pulse ticks (120 ticks = 1 sec.)   |
| 597 | Word | Read/Write | D/O 8 pulse ticks (120 ticks = 1 sec.)   |
| 598 | Word | Read/Write | D/O ON flag bits:<br><br>Octal Value / Description<br>000001 = DIO1 on Flag<br>000002 = DIO2 on Flag<br>000004 = DIO3 on Flag<br>000010 = DIO4 on Flag<br>000020 = DIO5 on Flag<br>000040 = DIO6 on Flag<br>000100 = DIO7 on Flag<br>000200 = DIO8 on Flag |
| 599 | Word | Read Only  | D/O status bits:<br><br>Octal Value / Description<br>000001 = DIO1 Closed<br>000002 = DIO2 Closed<br>000004 = DIO3 Closed<br>000010 = DIO4 Closed<br>000020 = DIO5 Closed<br>000040 = DIO6 Closed<br>000100 = DIO7 Closed<br>000200 = DIO8 Closed          |

### Parameters 601-900

| Parameter | Data Type | Access     | Description  |
|-----------|-----------|------------|--|
| 601       | Byte      | Read/Write | Remote data format - Refer to Table 4.   |
| 602       | Byte      | Read/Write | Remote baud rate - Refer to Table 5.   |
| 603       | Word      | Read Only  | Communications status bits:<br><br>Octal Value / Description<br>000001 = CRC Security<br>000002 = Large Receive Buffer<br>000004 = Large Transmit Buffer |

|     |      |            |  |
|-----|------|------------|--|
|     |      |            | 000010 = Using Modem<br>000020 = Communication Out Test  |
| 604 | Byte | Read/Write | Present MMI data format - Refer to Table 4.  |
| 605 | Byte | Read/Write | Present MMI baud rate - Refer to Table 5.  |
| 606 | Byte | Read/Write | Carrier detect ON delay - in ticks   |
| 607 | Byte | Read/Write | Carrier detect OFF delay - in ticks  |
| 608 | Byte | Read/Write | Carrier detect drop limit - in ticks   |
| 609 | Byte | Read/Write | Radio turn ON delay - 30 = 0.25 seconds in ticks   |
| 610 | Byte | Read/Write | Radio turn OFF delay - 12 = 0.1 seconds in ticks   |
| 611 | Byte | Read/Write | Max radio ON time in seconds   |
| 612 | Byte | Read/Write | Receive timeout in seconds   |
| 613 | Byte | Read/Write | Modem port protocol -<br><br>Value / Description<br>0 = 8500 (Remote)<br>1 = 8550 (Local)<br>2 = MODBUS ASCII<br>3 = MODBUS RTU  |
| 614 | Byte | Read/Write | Modbus Card Type:<br><br>Value / Description<br>0 = Start-up<br>1 = Live Action<br>2 = Shutdown<br>3 = Valve Check   |
| 615 | Byte | Read/Write | Modbus Card Load option:<br><br>Value / Description<br>0 = Pound<br>1 = Percent  |
| 616 | Byte | Read/Write | Modbus Card Number:<br><br>Value / Description<br>0 = Card 1<br>1 = Card 2<br>2 = Card 3<br>3 = Card 4<br>4 = Card 5   |
| 617 | Byte | Read/Write | Modbus Card Position type:<br><br>Value / Description<br>0 = Synthesized Fraction<br>1 = Fractional Actual<br>2 = Voltage  |
| 618 | Byte | Read/Write | 8500 protocol dyno data format<br><br>0=Original<br>1=Data Skip  |
| 619 | Byte | Read/Write | Position data available - Actual position data available from RPC for analysis programs Operator must enter proper value to provide controller compatibility with host software. Enter value in P619 as follows:<br><br>0 = When no continuous position data is available to the controller.<br>1 = To be used when continuous position input data is available to the controller and 8500 protocol used.<br>2 = Calibration of the Position Sensor. |
| 620 | Word | Read/Write | Communications group address   |
| 621 | Word | Read Only  | Maximum radio ON time in ticks   |
| 622 | Word | Read Only  | Maximum transmit message time in ticks   |

|     |         |            |  |
|-----|---------|------------|--|
| 623 | Word    | Read Only  | Maximum transmit message in bytes  |
| 624 | Word    | Read Only  | transmit buffer size (bytes)   |
| 628 | Byte    | Read/Write | All address respond time - RPC responds to host inquiries for this time duration. Transmit address is ignored.   |
| 629 | Command | Read/Write | Clear communications statistics - Clear P630 through P642. Enter to clear.   |
| 630 | Display | Read Only  | Last data received as ASCII  |
| 631 | Word    | Read/Write | Character errors   |
| 632 | Word    | Read/Write | Characters received  |
| 633 | Word    | Read/Write | Header characters received   |
| 634 | Word    | Read/Write | Trailer characters received  |
| 635 | Word    | Read/Write | Framed messages received   |
| 636 | Word    | Read/Write | Good framed messages received  |
| 637 | Word    | Read/Write | Messages processed   |
| 638 | Word    | Read/Write | Commands processed   |
| 639 | Word    | Read/Write | Responses transmitted  |
| 640 | Word    | Read/Write | Characters transmitted   |
| 641 | Word    | Read/Write | Max Delay time - This is the maximum delay time between receiving a request on the modem port and keying RTS since system reset. (Max value since reset)     |
| 642 | Word    | Read/Write | Last Delay time - This is the time from receiving the last request on the modem port to de-asserting RTS. (Last value calculated)                            |
| 644 | Byte    | Read/Write | Tx test spacing delay  |
| 645 | Byte    | Read Only  | Last character received  |
| 646 | Byte    | Read/Write | Tx test data format - See Table 4  |
| 647 | Byte    | Read/Write | Tx test character  |
| 648 | Byte    | Read/Write | Tx test time in seconds  |
| 650 | Long    | Read Only  | Current Time of Day - in seconds   |
| 651 | Long    | Read Only  | System Shutdown Time - in seconds  |
| 652 | Long    | Read Only  | System Startup Time - in seconds   |
| 653 | Long    | Read Only  | POC State Change Time - in seconds   |
| 654 | Word    | Read/Write | Communication parity errors counter  |
| 655 | Word    | Read/Write | Communication framing errors counter   |
| 656 | Word    | Read/Write | Communication overrun errors counter   |
| 660 | Byte    | Read/Write | Cursor location  |
| 661 | Byte    | Read/Write | LCD Test Timer   |
| 668 | Byte    | Read Only  | RTC Error code:<br><br>Value / Description<br>0 = No Error<br>1 = Bad Second Interval<br>2 = Read All 1's<br>3 = Write Confirm<br>4 = Cannot Read Same Twice |
| 669 | Byte    | Read Only  | Seconds value from RTC   |
| 670 | Time24  | Read Only  | Today's run time   |
| 671 | Time24  | Read Only  | Yesterday's run time   |
| 672 | Time24  | Read Only  | Run time 2 days ago  |
| 673 | Time24  | Read Only  | Run time 3 days ago  |
| 674 | Time24  | Read Only  | Run time 4 days ago  |
| 675 | Time24  | Read Only  | Run time 5 days ago  |
| 676 | Time24  | Read Only  | Run time 6 days ago  |
| 677 | Time24  | Read Only  | Run time 7 days ago  |
| 678 | Time24  | Read Only  | Run time 8 days ago  |
| 679 | Time24  | Read Only  | Run time 9 days ago  |
| 680 | Time24  | Read Only  | Run time 10 days ago   |



|     |         |            |   |
|-----|---------|------------|---|
| 681 | Time24  | Read Only  | Run time 11 days ago                        |
| 682 | Time24  | Read Only  | Run time 12 days ago                        |
| 683 | Time24  | Read Only  | Run time 13 days ago                        |
| 684 | Time24  | Read Only  | Run time 14 days ago                        |
| 685 | Time24  | Read Only  | Run time 15 days ago                        |
| 686 | Time24  | Read Only  | Run time 16 days ago                        |
| 687 | Time24  | Read Only  | Run time 17 days ago                        |
| 688 | Time24  | Read Only  | Run time 18 days ago                        |
| 689 | Time24  | Read Only  | Run time 19 days ago                        |
| 690 | Time24  | Read Only  | Run time 20 days ago                        |
| 691 | Time24  | Read Only  | Run time 21 days ago                        |
| 692 | Time24  | Read Only  | Run time 22 days ago                        |
| 693 | Time24  | Read Only  | Run time 23 days ago                        |
| 694 | Time24  | Read Only  | Run time 24 days ago                        |
| 695 | Time24  | Read Only  | Run time 25 days ago                        |
| 696 | Time24  | Read Only  | Run time 26 days ago                        |
| 697 | Time24  | Read Only  | Run time 27 days ago                        |
| 698 | Time24  | Read Only  | Run time 28 days ago                        |
| 699 | Time24  | Read Only  | Run time 29 days ago                        |
| 700 | Word    | Read Only  | AI-4 raw input and volts                    |
| 701 | Word    | Read Only  | AI-4 Input value                            |
| 702 | Word    | Read Only  | AI-4 Scaled EGU value                       |
| 703 | Byte    | Read/Write | AI-4 Input type - Refer to Table 7.         |
| 704 | Byte    | Read/Write | AI-4 EGU decimal places - Refer to Table 8. |
| 705 | Byte    | Read/Write | AI-4 EGU label - Refer to Table 6.          |
| 706 | Word    | Read/Write | AI-4 Scaling low value                      |
| 707 | Word    | Read/Write | AI-4 Scaling high value                     |
| 708 | Word    | Read/Write | AI-4 Low alarm limit                        |
| 709 | Byte    | Read/Write | AI-4 Low alarm action 1. Refer to Table 2.  |
| 710 | Byte    | Read/Write | AI-4 Low alarm action 2. Refer to Table 2.  |
| 711 | Word    | Read/Write | AI-4 High alarm limit                       |
| 712 | Byte    | Read/Write | AI-4 High alarm action 1. Refer to Table 2. |
| 713 | Byte    | Read/Write | AI-4 High alarm action 2. Refer to Table 2. |
| 714 | Word    | Read/Write | AI-4 Alarms deadband                        |
| 715 | Word    | Read Only  | AI-4 Min recorded value                     |
| 716 | Word    | Read Only  | AI-4 Max recorded value                     |
| 719 | Command | Read/Write | AI-4 Reset minimum/maximum                  |
| 720 | Word    | Read Only  | AI-5 raw input and volts                    |
| 721 | Word    | Read Only  | AI-5 Input value                            |
| 722 | Word    | Read Only  | AI-5 Scaled EGU value                       |
| 723 | Byte    | Read/Write | AI-5 Input type - Refer to Table 7.         |
| 724 | Byte    | Read/Write | AI-5 EGU decimal places - Refer to Table 8. |
| 725 | Byte    | Read/Write | AI-5 EGU label - Refer to Table 6.          |
| 726 | Word    | Read/Write | AI-5 Scaling low value                      |
| 727 | Word    | Read/Write | AI-5 Scaling high value                     |
| 728 | Word    | Read/Write | AI-5 Low alarm limit                        |
| 729 | Byte    | Read/Write | AI-5 Low alarm action 1. Refer to Table 2.  |
| 730 | Byte    | Read/Write | AI-5 Low alarm action 2. Refer to Table 2.  |
| 731 | Word    | Read/Write | AI-5 High alarm limit                       |
| 732 | Byte    | Read/Write | AI-5 High alarm action 1. Refer to Table 2. |
| 733 | Byte    | Read/Write | AI-5 High alarm action 2. Refer to Table 2. |
| 734 | Word    | Read/Write | AI-5 Alarms deadband                        |
| 735 | Word    | Read Only  | AI-5 Min recorded value                     |
| 736 | Word    | Read Only  | AI-5 Max recorded value                     |
| 739 | Command | Read/Write | AI-5 Reset minimum/maximum                  |

|     |         |            |   |
|-----|---------|------------|---|
| 740 | Word    | Read Only  | AI-6 raw input and volts                    |
| 741 | Word    | Read Only  | AI-6 Input value                            |
| 742 | Word    | Read Only  | AI-6 Scaled EGU value                       |
| 743 | Byte    | Read/Write | AI-6 Input type - Refer to Table 7.         |
| 744 | Byte    | Read/Write | AI-6 EGU decimal places - Refer to Table 8. |
| 745 | Byte    | Read/Write | AI-6 EGU label - Refer to Table 6.          |
| 746 | Word    | Read/Write | AI-6 Scaling low value                      |
| 747 | Word    | Read/Write | AI-6 Scaling high value                     |
| 748 | Word    | Read/Write | AI-6 Low alarm limit                        |
| 749 | Byte    | Read/Write | AI-6 Low alarm action 1. Refer to Table 2.  |
| 750 | Byte    | Read/Write | AI-6 Low alarm action 2. Refer to Table 2.  |
| 751 | Word    | Read/Write | AI-6 High alarm limit                       |
| 752 | Byte    | Read/Write | AI-6 High alarm action 1. Refer to Table 2. |
| 753 | Byte    | Read/Write | AI-6 High alarm action 2. Refer to Table 2. |
| 754 | Word    | Read/Write | AI-6 Alarms deadband                        |
| 755 | Word    | Read Only  | AI-6 Min recorded value                     |
| 756 | Word    | Read Only  | AI-6 Max recorded value                     |
| 759 | Command | Read/Write | AI-6 Reset minimum/maximum                  |
| 760 | Word    | Read Only  | AI-7 raw input and volts                    |
| 761 | Word    | Read Only  | AI-7 Input value                            |
| 762 | Word    | Read Only  | AI-7 Scaled EGU value                       |
| 763 | Byte    | Read/Write | AI-7 Input type - Refer to Table 7.         |
| 764 | Byte    | Read/Write | AI-7 EGU decimal places - Refer to Table 8. |
| 765 | Byte    | Read/Write | AI-7 EGU label - Refer to Table 6.          |
| 766 | Word    | Read/Write | AI-7 Scaling low value                      |
| 767 | Word    | Read/Write | AI-7 Scaling high value                     |
| 768 | Word    | Read/Write | AI-7 Low alarm limit                        |
| 769 | Byte    | Read/Write | AI-7 Low alarm action 1. Refer to Table 2.  |
| 770 | Byte    | Read/Write | AI-7 Low alarm action 2. Refer to Table 2.  |
| 771 | Word    | Read/Write | AI-7 High alarm limit                       |
| 772 | Byte    | Read/Write | AI-7 High alarm action 1. Refer to Table 2. |
| 773 | Byte    | Read/Write | AI-7 High alarm action 2. Refer to Table 2. |
| 774 | Word    | Read/Write | AI-7 Alarms deadband                        |
| 775 | Word    | Read Only  | AI-7 Min recorded value                     |
| 776 | Word    | Read Only  | AI-7 Max recorded value                     |
| 779 | Command | Read/Write | AI-7 Reset min/max                          |
| 780 | Word    | Read Only  | AI-8 raw input and volts                    |
| 781 | Word    | Read Only  | AI-8 Input value                            |
| 782 | Word    | Read Only  | AI-8 Scaled EGU value                       |
| 783 | Byte    | Read/Write | AI-8 Input type - Refer to Table 7.         |
| 784 | Byte    | Read/Write | AI-8 EGU decimal places - Refer to Table 8. |
| 785 | Byte    | Read/Write | AI-8 EGU label - Refer to Table 6.          |
| 786 | Word    | Read/Write | AI-8 Scaling low value                      |
| 787 | Word    | Read/Write | AI-8 Scaling high value                     |
| 788 | Word    | Read/Write | AI-8 Low alarm limit                        |
| 789 | Byte    | Read/Write | AI-8 Low alarm action 1. Refer to Table 2.  |
| 790 | Byte    | Read/Write | AI-8 Low alarm action 2. Refer to Table 2.  |
| 791 | Word    | Read/Write | AI-8 High alarm limit                       |
| 792 | Byte    | Read/Write | AI-8 High alarm action 1. Refer to Table 2. |
| 793 | Byte    | Read/Write | AI-8 High alarm action 2. Refer to Table 2. |
| 794 | Word    | Read/Write | AI-8 Alarms deadband                        |
| 795 | Word    | Read Only  | AI-8 Min recorded value                     |
| 796 | Word    | Read Only  | AI-8 Max recorded value                     |
| 799 | Command | Read/Write | AI-8 Reset min/max                          |
| 800 | Byte    | Read/Write | Fluid calculation X1 point in %             |

|     |      |            |  |
|-----|------|------------|--|
| 801 | Byte | Read/Write | Fluid calculation X2 point in %  |
| 802 | Byte | Read/Write | Fluid calculation Y1 point in %  |
| 803 | Byte | Read/Write | Fluid calculation Y2 point in %  |
| 804 | Word | Read Only  | Fluid calculated Stroke Length in inches   |
| 805 | Byte | Read/Write | Fluid Stroke calculation Method:<br><br>Value / Description<br>0 = Disabled<br>1 = Short Method<br>2 = Long Method<br>3 = Full Stroke Short<br>4 = Full Stroke Long<br>5 = Preset Stroke |
| 806 | Word | Read/Write | Surface stroke(in x 100)   |
| 807 | Word | Read/Write | Pump bore diameter (in x 100)  |
| 808 | Word | Read Only  | Average surface stroke (in)  |
| 809 | Word | Read Only  | Average fluid stroke (in)  |
| 810 | Word | Read/Write | Pump efficiency (% * 10)   |
| 811 | Word | Read Only  | Fluid displacement today   |
| 812 | Word | Read Only  | fluid displacement Yesterday   |
| 813 | Word | Read Only  | Fluid displacement 2 days ago  |
| 814 | Word | Read Only  | Fluid displacement 3 days ago  |
| 815 | Word | Read Only  | Fluid displacement 4 days ago  |
| 816 | Word | Read Only  | Fluid displacement 5 days ago  |
| 817 | Word | Read Only  | Fluid displacement 6 days ago  |
| 818 | Word | Read Only  | Fluid displacement 7 days ago  |
| 819 | Word | Read Only  | Fluid displacement 8 days ago  |
| 820 | Word | Read Only  | Fluid displacement 9 days ago  |
| 821 | Word | Read Only  | Fluid displacement 10 days ago   |
| 822 | Word | Read Only  | Fluid displacement 11 days ago   |
| 823 | Word | Read Only  | Fluid displacement 12 days ago   |
| 824 | Word | Read Only  | Fluid displacement 13 days ago   |
| 825 | Word | Read Only  | Fluid displacement 14 days ago   |
| 826 | Word | Read Only  | Fluid displacement 15 days ago   |
| 827 | Word | Read Only  | Fluid displacement 16 days ago   |
| 828 | Word | Read Only  | Fluid displacement 17 days ago   |
| 829 | Word | Read Only  | Fluid displacement 18 days ago   |
| 830 | Word | Read Only  | Fluid displacement 19 days ago   |
| 831 | Word | Read Only  | Fluid displacement 20 days ago   |
| 832 | Word | Read Only  | Fluid displacement 21 days ago   |
| 833 | Word | Read Only  | Fluid displacement 22 days ago   |
| 834 | Word | Read Only  | Fluid displacement 23 days ago   |
| 835 | Word | Read Only  | Fluid displacement 24 days ago   |
| 836 | Word | Read Only  | Fluid displacement 25 days ago   |
| 837 | Word | Read Only  | Fluid displacement 26 days ago   |
| 838 | Word | Read Only  | Fluid displacement 27 days ago   |
| 839 | Word | Read Only  | Fluid displacement 28 days ago   |
| 840 | Word | Read Only  | Fluid displacement 29 days ago   |
| 841 | Byte | Read/Write | Lower Band Size  |
| 842 | Word | Read Only  | Fluid calculation error flags  |
| 843 | Word | Read/Write | Preset fluid stroke in inches  |
| 844 | Byte | Read Only  | Current Run Mode   |
| 845 | Byte | Read Only  | Fluid calculation, Calculated X1   |
| 846 | Byte | Read Only  | Fluid calculation, Calculated X2   |
| 847 | Byte | Read Only  | Fluid calculation, Calculated Y1   |
| 848 | Byte | Read Only  | Fluid calculation, Calculated Y2   |

|     |        |            |   |
|-----|--------|------------|---|
| 849 | Word   | Read Only  | Fluid Strokes calculated<br><br>Timing Control Modes<br>0 = Continuous: Unit does not detect pump-off, thereby running all the time.<br>1 = Pump-Off: Detects Pump-Off condition.<br>2 = On/Off: Well runs according to programmed run time and turns off. The unit will wait until parameter 20 (Idle Time) expires and then begin a new pumping cycle.<br>3 = Shutdown: Well is not running |
| 850 | Time24 | Read/Write | Start Time A Weekend (hh:mm:ss)   |
| 851 | Byte   | Read/Write | Run Mode A Weekend (0 - 3)  |
| 852 | Time24 | Read/Write | Run Time A Weekend (hh:mm:ss)   |
| 853 | Time24 | Read/Write | Start Time B Weekend (hh:mm:ss)   |
| 854 | Byte   | Read/Write | Run Mode B Weekend (0 - 3)  |
| 855 | Time24 | Read/Write | Run Time B Weekend (hh:mm:ss)   |
| 856 | Time24 | Read/Write | Start Time A Weekday (hh:mm:ss)   |
| 857 | Byte   | Read/Write | Run Mode A Weekday (0 - 3)  |
| 858 | Time24 | Read/Write | Run Time A Weekday (hh:mm:ss)   |
| 859 | Time24 | Read/Write | Start Time B Weekday (hh:mm:ss)   |
| 860 | Byte   | Read/Write | Run Mode B Weekday (0 - 3)  |
| 861 | Time24 | Read/Write | Run Time B Weekday (hh:mm:ss)   |
| 862 | Byte   | Read/Write | Timer control enable:<br><br>0 = Disable<br>1 = Enable  |
| 863 | Byte   | Read/Write | Motor torque percent analog input point.<br><br>This parameter will accept a value between 0 and 8 and specifies which analog input point is to be used to get the motor torque percent from the F7 via a 4-20 mA signal. A value of zero means the feature is disabled.  |
| 864 | Word   | Read Only  | Current Motor Torque in Per Cent %  |
| 865 | Byte   | Read/Write | Torq% Disp SRC: 0=MB, > 1 = AI  |
| 866 | Word   | Read Only  | Min up torque percent last stroke (integer)   |
| 867 | Word   | Read Only  | Max up torque percent last stroke (integer)   |
| 868 | Word   | Read Only  | Min down torque percent last stroke (integer)   |
| 869 | Word   | Read Only  | Max down torque percent last stroke (integer)   |
| 870 | Word   | Read/Write | Parameter # for User display 1  |
| 871 | Word   | Read/Write | Parameter # for User display 2  |
| 872 | Word   | Read/Write | Parameter # for User display 3  |
| 873 | Word   | Read/Write | Parameter # for User display 4  |
| 874 | Word   | Read/Write | Parameter # for User display 5  |
| 875 | Word   | Read/Write | Parameter # for User display 6  |
| 876 | Word   | Read/Write | Parameter # for User display 7  |
| 877 | Word   | Read/Write | Parameter # for User display 8  |
| 878 | Word   | Read/Write | Parameter # for User display 9  |
| 879 | Word   | Read/Write | Parameter # for User display10  |
| 880 | Word   | Read/Write | Parameter # for User display11  |
| 881 | Word   | Read/Write | Parameter # for User display12  |
| 882 | Word   | Read/Write | The queue head index (0-96). This is the array index of the earliest event in the queue. If P882 = P883 the queue is empty. If P883 immediately precedes P882 then the queue is full.   |
| 883 | Word   | Read/Write | The queue tail index (0-96). This is the array index where the next event in the queue will be stored.  |
| 884 | Word   | Read/Write | A sequence number that will be stored into the next alarm summary record. The sequence number increments from 1 to 999 and then rolls back to 1. Note: This number is not dis-  |

|     |         |            |  |
|-----|---------|------------|--|
|     |         |            | played and will be removed in a later release. |
| 885 | Byte    | Read Only  | Torque history index. (Diagnostic usage only)  |
| 886 | Word    | Read Only  | Avg min up torque percent (integer)            |
| 887 | Word    | Read Only  | Avg max up torque percent (integer)            |
| 888 | Word    | Read Only  | Avg min down torque percent (integer)          |
| 889 | Word    | Read Only  | Avg max down torque percent (integer)          |
| 890 | Word    | Read/Write | Logger channel 1 source                        |
| 891 | Word    | Read/Write | Logger channel 2 source                        |
| 892 | Word    | Read/Write | Logger channel 3 source                        |
| 893 | Word    | Read/Write | Logger channel 4 source                        |
| 894 | Word    | Read/Write | Logger channel 5 source                        |
| 895 | Word    | Read/Write | Logger channel 6 source                        |
| 896 | Word    | Read/Write | Logger channel 7 source                        |
| 897 | Word    | Read/Write | Logger channel 8 source                        |
| 898 | Byte    | Read/Write | Logger freeze channel (Channels 1 – 8)         |
| 899 | Command | Read/Write | Clear Logger History. Enter to Clear.          |
| 900 | Word    | Read Only  | Hour log freeze buffer 00                      |

### Parameters 901-1199

| Parameter | Data Type | Access    | Description                |
|-----------|-----------|-----------|----------------------------|
| 901       | Word      | Read Only | Hour log freeze buffer 01  |
| 902       | Word      | Read Only | Hour log freeze buffer 02  |
| 903       | Word      | Read Only | Hour log freeze buffer 03  |
| 904       | Word      | Read Only | Hour log freeze buffer 04  |
| 905       | Word      | Read Only | Hour log freeze buffer 05  |
| 906       | Word      | Read Only | Hour log freeze buffer 06  |
| 907       | Word      | Read Only | Hour log freeze buffer 07  |
| 908       | Word      | Read Only | Hour log freeze buffer 08  |
| 909       | Word      | Read Only | Hour log freeze buffer 09  |
| 910       | Word      | Read Only | Hour log freeze buffer 10  |
| 911       | Word      | Read Only | Hour log freeze buffer 11  |
| 912       | Word      | Read Only | Hour log freeze buffer 12  |
| 913       | Word      | Read Only | Hour log freeze buffer 13  |
| 914       | Word      | Read Only | Hour log freeze buffer 14  |
| 915       | Word      | Read Only | Hour log freeze buffer 15  |
| 916       | Word      | Read Only | Hour log freeze buffer 16  |
| 917       | Word      | Read Only | Hour log freeze buffer 17  |
| 918       | Word      | Read Only | Hour log freeze buffer 18  |
| 919       | Word      | Read Only | Hour log freeze buffer 19  |
| 920       | Word      | Read Only | Hour log freeze buffer 20  |
| 921       | Word      | Read Only | Hour log freeze buffer 21  |
| 922       | Word      | Read Only | Hour log freeze buffer 22  |
| 923       | Word      | Read Only | Hour log freeze buffer 23  |
| 930       | Word      | Read Only | Daily log freeze buffer 00 |
| 931       | Word      | Read Only | Daily log freeze buffer 01 |
| 932       | Word      | Read Only | Daily log freeze buffer 02 |
| 933       | Word      | Read Only | Daily log freeze buffer 03 |
| 934       | Word      | Read Only | Daily log freeze buffer 04 |
| 935       | Word      | Read Only | Daily log freeze buffer 05 |
| 936       | Word      | Read Only | Daily log freeze buffer 06 |
| 937       | Word      | Read Only | Daily log freeze buffer 07 |
| 938       | Word      | Read Only | Daily log freeze buffer 08 |
| 939       | Word      | Read Only | Daily log freeze buffer 09 |
| 940       | Word      | Read Only | Daily log freeze buffer 10 |

|     |         |            |   |
|-----|---------|------------|---|
| 941 | Word    | Read Only  | Daily log freeze buffer 11  |
| 942 | Word    | Read Only  | Daily log freeze buffer 12  |
| 943 | Word    | Read Only  | Daily log freeze buffer 13  |
| 944 | Word    | Read Only  | Daily log freeze buffer 14  |
| 945 | Word    | Read Only  | Daily log freeze buffer 15  |
| 946 | Word    | Read Only  | Daily log freeze buffer 16  |
| 947 | Word    | Read Only  | Daily log freeze buffer 17  |
| 948 | Word    | Read Only  | Daily log freeze buffer 18  |
| 949 | Word    | Read Only  | Daily log freeze buffer 19  |
| 950 | Word    | Read Only  | Daily log freeze buffer 20  |
| 951 | Word    | Read Only  | Daily log freeze buffer 21  |
| 952 | Word    | Read Only  | Daily log freeze buffer 22  |
| 953 | Word    | Read Only  | Daily log freeze buffer 23  |
| 954 | Word    | Read Only  | Daily log freeze buffer 24  |
| 955 | Word    | Read Only  | Daily log freeze buffer 25  |
| 956 | Word    | Read Only  | Daily log freeze buffer 26  |
| 957 | Word    | Read Only  | Daily log freeze buffer 27  |
| 958 | Word    | Read Only  | Daily log freeze buffer 28  |
| 959 | Word    | Read Only  | Daily log freeze buffer 29  |
| 960 | Word    | Read/Write | Entering a queue array index in this field will cause the record associated with that index to be displayed in P961-965.  |
| 961 | Date    | Read Only  | P961 = date   |
| 962 | Time    | Read Only  | P962 = time   |
| 963 | byte    | Read Only  | P963 = alarm type   |
| 964 | Word    | Read Only  |   |
| 965 | Word    | Read Only  | 1=clearable   |
| 966 | Command | Read/Write | Executing this command will cause the record in P961-965 to be written added to the alarm queue at the index specified by the tail pointer (P883). This is used for testing only. |
| 967 | Command | Read/Write | Executing this command will initialize the alarm summary queue. P882 and 883 will be set to zero and the array of records will be set to zero.                                    |
| 968 | Byte    | Read Only  | Current Runtime Segment   |
| 969 | Byte    | Read/Write | Runtime Freeze Segment:<br><br>0 = Current Segment<br>1 = 00:00 - 04:00<br>2 = 04:00 - 08:00<br>3 = 08:00 - 12:00<br>4 = 12:00 - 16:00<br>5 = 16:00 - 20:00<br>6 = 20:00 - 24:00  |
| 970 | Time24  | Read Only  | Runtime Freeze Buffer 00  |
| 971 | Time24  | Read Only  | Runtime Freeze Buffer 01  |
| 972 | Time24  | Read Only  | Runtime Freeze Buffer 02  |
| 973 | Time24  | Read Only  | Runtime Freeze Buffer 03  |
| 974 | Time24  | Read Only  | Runtime Freeze Buffer 04  |
| 975 | Time24  | Read Only  | Runtime Freeze Buffer 05  |
| 976 | Time24  | Read Only  | Runtime Freeze Buffer 06  |
| 977 | Time24  | Read Only  | Runtime Freeze Buffer 07  |
| 978 | Time24  | Read Only  | Runtime Freeze Buffer 08  |
| 979 | Time24  | Read Only  | Runtime Freeze Buffer 09  |
| 980 | Time24  | Read Only  | Runtime Freeze Buffer 10  |
| 981 | Time24  | Read Only  | Runtime Freeze Buffer 11  |
| 982 | Time24  | Read Only  | Runtime Freeze Buffer 12  |
| 983 | Time24  | Read Only  | Runtime Freeze Buffer 13  |
| 984 | Time24  | Read Only  | Runtime Freeze Buffer 14  |

|      |        |            |   |
|------|--------|------------|---|
| 985  | Time24 | Read Only  | Runtime Freeze Buffer 15  |
| 986  | Time24 | Read Only  | Runtime Freeze Buffer 16  |
| 987  | Time24 | Read Only  | Runtime Freeze Buffer 17  |
| 988  | Time24 | Read Only  | Runtime Freeze Buffer 18  |
| 989  | Time24 | Read Only  | Runtime Freeze Buffer 19  |
| 990  | Time24 | Read Only  | Runtime Freeze Buffer 20  |
| 991  | Time24 | Read Only  | Runtime Freeze Buffer 21  |
| 992  | Time24 | Read Only  | Runtime Freeze Buffer 22  |
| 993  | Time24 | Read Only  | Runtime Freeze Buffer 23  |
| 994  | Time24 | Read Only  | Runtime Freeze Buffer 24  |
| 995  | Time24 | Read Only  | Runtime Freeze Buffer 25  |
| 996  | Time24 | Read Only  | Runtime Freeze Buffer 26  |
| 997  | Time24 | Read Only  | Runtime Freeze Buffer 27  |
| 998  | Time24 | Read Only  | Runtime Freeze Buffer 28  |
| 999  | Time24 | Read Only  | Runtime Freeze Buffer 29  |
| 1000 | Byte   | Read/Write | Host alarm 00 action (Refer to Table 2)   |
| 1001 | Byte   | Read/Write | Host alarm 01 action (Refer to Table 2)   |
| 1002 | Byte   | Read/Write | Host alarm 02 action (Refer to Table 2)   |
| 1003 | Byte   | Read/Write | Host alarm 03 action (Refer to Table 2)   |
| 1004 | Byte   | Read/Write | Host alarm 04 action (Refer to Table 2)   |
| 1005 | Byte   | Read/Write | Host alarm 05 action (Refer to Table 2)   |
| 1006 | Byte   | Read/Write | Host alarm 06 action (Refer to Table 2)   |
| 1007 | Byte   | Read/Write | Host alarm 07 action (Refer to Table 2)   |
| 1008 | Byte   | Read/Write | Host alarm 08 action (Refer to Table 2)   |
| 1009 | Byte   | Read/Write | Host alarm 09 action (Refer to Table 2)   |
| 1010 | Byte   | Read/Write | Host alarm 10 action (Refer to Table 2)   |
| 1011 | Byte   | Read/Write | Host alarm 11 action (Refer to Table 2)   |
| 1012 | Byte   | Read/Write | Host alarm 12 action (Refer to Table 2)   |
| 1013 | Byte   | Read/Write | Host alarm 13 action (Refer to Table 2)   |
| 1014 | Byte   | Read/Write | Host alarm 14 action (Refer to Table 2)   |
| 1015 | Byte   | Read/Write | Host alarm 15 action (Refer to Table 2)   |
| 1016 | Byte   | Read/Write | Set Host alarm:<br>"Host Alarm 00" - "Gearbox Torque"<br>"Host Alarm 01" - "Maximum Load Deviation"<br>"Host Alarm 02" - "Maximum Load Deviation"<br>"Host Alarm 03" - "Minimum Load Deviation"<br>"Host Alarm 04" - "Load Span Deviation"<br>"Host Alarm 05" - "Out of Balance"<br>"Host Alarm 06" - "Run Time Deviation"<br>"Host Alarm 07" - "Card Area Deviation"<br>"Host Alarm 08" - "Low Pumping Efficiency"<br>"Host Alarm 09" - "High Rod Stress"<br>"Host Alarm 10" - "Prime Mover Size"<br>"Host Alarm 11-16" - --Undefined Spares-- |
| 1020 | Time24 | Read Only  | Traveling Valve Buffer time   |
| 1021 | Date   | Read Only  | Traveling Valve Buffer date   |
| 1022 | Time24 | Read Only  | Standing Valve Buffer time  |
| 1023 | Date   | Read Only  | Standing Valve Buffer date  |
| 1024 | Word   | Read Only  | Traveling Valve value in pounds   |
| 1025 | Time24 | Read Only  | Traveling Valve value time  |
| 1026 | Date   | Read Only  | Traveling Valve value date  |
| 1027 | Word   | Read Only  | Standing Valve value in pounds  |
| 1028 | Time24 | Read Only  | Standing Valve value time   |
| 1029 | Date   | Read Only  | Standing Valve value date   |
| 1030 | Word   | Read Only  | CBE Value in pounds   |
| 1031 | Time24 | Read Only  | CBE Value time  |

|           |         |            |   |
|-----------|---------|------------|---|
| 1032      | Date    | Read Only  | CBE Value date  |
| 1033      | Byte    | Read Only  | CBE Crank Angle Flag<br>0 = Crank at 90 deg.<br>1 = Crank at 270 deg.   |
| 1040-1152 | N/A.    | N/A.       | Internal Scratch-Pad use. Not an operator parameter   |
| 1153      | Word    | Read Only  | Total Strokes Today   |
| 1154      | Word    | Read Only  | STA BotSeg Start Pos (mV)   |
| 1155      | Word    | Read Only  | STA BotSeg Stop Pos (mV)  |
| 1156      | Word    | Read Only  | STA TopSeg Start Pos (mV)   |
| 1157      | Word    | Read Only  | STA TopSeg Stop Pos (mV)  |
| 1158      | Word    | Read Only  | STA TOP Seg Detected (mV)   |
| 1159      | Word    | Read Only  | STA DN Seg Detected (mV)  |
| 1160      | Word    | Read Only  | STA BOT Seg Detected (mV)   |
| 1161      | Word    | Read Only  | STA UP Seg Detected (mV)  |
| 1162      | Word    | Read/Write | Min Stroke DataCount  |
| 1163      | Word    | Read/Write | BOS ctr f/TMP CTL LOSS  |
| 1164      | Word    | Read/Write | VSD Startup Status  |
| 1165      | Word    | Read/Write | STA: BOT seg duration *requires password  |
| 1166      | Word    | Read/Write | STA: TOP seg duration *requires password  |
| 1167      | Word    | Read Only  | VSD Startup Speed State   |
| 1168      | Word    | Read Only  | VSD control filter counter.   |
| 1169      | Word    | Read Only  | DAC output in mA (Unit = .01 mA).   |
| 1170      | Long    | Read/Write | VSD long value1   |
| 1171      | Display | Read Only  | VSD: Speed Src  |
| 1172      | Time    | Read Only  | Current evaluation timer. This value is initialized to P1261 and counts down. The average output is calculated at the end of the evaluation time (when this value = 00:00:00).  |
| 1173      | Word    | Read/Write | Learn mode error alarm reason code set when learn mode error (P532, bit 8):<br><br>1 = measured SPM = 0<br>2 = I <sub>max</sub> has been calculated to be > 20.00 mA. It will be clamped to 20.00 mA.<br>3 = max output% (P1255) has been calculated as zero. The output will be set = 0 and the VSD task will be stopped. This value is not cleared but will be updated at the next learn error alarm. |
| 1174      | Byte    | Read/Write | VSD control filter.   |
| 1175      | Word    | Read/Write | Tolerance state - Hi/Lo/In.   |
| 1176      | Word    | Read/Write | Absolute tolerance state - Hi/Lo/In.  |
| 1177      | Word    | Read Only  | The current speed output in SPM. Calculated from P1259. (Unit = .01 SPM)  |
| 1178      | Word    | Read Only  | The current VSD step value in percent. (Unit = .01%).   |
| 1179      | Byte    | Read/Write | Startup Stroke Count  |
| 1180      | Word    | Read/Write | Override EU Value   |
| 1181      | Word    | Read Only  | Output Raw Counts   |
| 1182      | Word    | Read Only  | A/O-1 Scaled Output EU  |
| 1183      | Byte    | Read/Write | A/O-1 Range Select<br><br>0 = 0-25mA,<br>1 = 4-20mA   |
| 1184      | Byte    | Read/Write | A/O-1 EU Decimal Places [2]   |
| 1185      | Byte    | Read/Write | A/O-1 EU Label [10]<br><br>Value / Description<br>0 = VLTS (Voltage)<br>1 = AMPS (Amperage)<br>2 = PSIG (Lbs per square inch – gauge)   |



|      |      |            |   |
|------|------|------------|---|
|      |      |            | 3 = DEGF (Temperature - degrees F)<br>4 = DEGC (Temperature - degrees C)<br>5 = FEET (Feet)<br>6 = METR (Meter)<br>7 = BBLS (Barrels)<br>8 = MSCF (1000 Standard Cubic Feet)<br>9 = --- (Blank)<br>10 = % (Percent)<br>11 = BPD (Barrels per day) |
| 1186 | Word | Read/Write | A/O-1 EU Scaling Low Value [0]  |
| 1187 | Word | Read/Write | A/O-1 EU Scaling High Value [10000]   |
| 1188 | Word | Read/Write | A/O-1 EU Source Parameter [0]<br>0 = Disable  |
| 1189 | Byte | Read/Write | A/O-1 Override Enable [0]<br><br>Value / Description<br>0 = Disable<br>1 = Enable   |
| 1190 | Byte | Read/Write | Baud Rate [11] Refer to table 5.  |
| 1191 | Byte | Read/Write | Data Bits [8] 7 or 8  |
| 1192 | Byte | Read/Write | Parity<br>Value / Description<br>0 = None<br>1 = Odd<br>2 = Even  |
| 1193 | Byte | Read/Write | Stop Bits [1] 1 or 2  |
| 1194 | Byte | Read/Write | RTS Delay [2] (50 mSec ticks)<br><br>This value is not used. Refer to RTS Delay in the device Configuration block.  |
| 1195 | Byte | Read/Write | RTS Hold (MTO Delay) [2] (50 mSec ticks)<br><br>This value is not used. Refer to RTS Hold in the device Configuration block.  |
| 1196 | Byte | Read/Write | RX Time Out [40]  |
| 1197 | Byte | Read/Write | PTT Time Out [40] (seconds)<br><br>(TX Msg Timeout)   |
| 1198 | Byte | Read/Write | Protocol<br><br>Value / Description<br>0 = None<br>1 = MODBUS ASCII<br>2 = MODBUS RTU   |
| 1199 | Byte | Read/Write | Serial Port Mode<br><br>Value / Description<br>0 = RS-485<br>1 = RS-232   |

### Parameters 1201-1500

| Parameter | Data Type | Access     | Description                        |
|-----------|-----------|------------|------------------------------------|
| 1202      | Word      | Read/Write | ExCom1 Rx Chars.                   |
| 1203      | Word      | Read/Write | ExCom1 Tx Chars.                   |
| 1206      | Word      | Read/Write | Number of Bad Characters Received. |
| 1208      | Command   | Read/Write | Clear statistics for COM1.         |
| 1210      | Byte      | Read/Write | Baud Rate [11].                    |
| 1211      | Byte      | Read/Write | Data Bits [8] 7 or 8.              |
| 1212      | Byte      | Read/Write | Parity:                            |

|      |         |            |  |
|------|---------|------------|--|
|      |         |            | Value / Description<br>0 = None<br>1 = Odd<br>2 = Even   |
| 1213 | Byte    | Read/Write | Stop Bits [1] 1 or 2.  |
| 1214 | Byte    | Read/Write | RTS Delay [2].   |
| 1215 | Byte    | Read/Write | RTS Hold [2].  |
| 1216 | Byte    | Read/Write | RX Time Out [40].  |
| 1217 | Byte    | Read/Write | PTT Time Out [40].   |
| 1218 | Byte    | Read/Write | Protocol:<br><br>Value / Description<br>0 = None<br>1 = MODBUS ASCII<br>2 = MODBUS RTU   |
| 1219 | Byte    | Read/Write | Serial Port Mode:<br><br>Value / Description<br>0 = RS-485<br>1 = RS-232   |
| 1222 | Word    | Read/Write | ExCom2 Rx Chars.   |
| 1223 | Word    | Read/Write | ExCom2 Tx Chars.   |
| 1226 | Word    | Read/Write | Number of Bad Characters Received.   |
| 1228 | Command | Read/Write | Clear statistics for COM2.   |
| 1229 | Byte    | Read/Write | Comm. Test Time Seconds.   |
| 1230 | Byte    | Read/Write | STA enable:<br><br>0= disable<br>1= enable   |
| 1231 | Word    | Read/Write | Speed trim factor (SPM x 100). This the spm that will be subtracted from the pump speed when the stroke enters the BOS or TOS segment.   |
| 1232 | Word    | Read/Write | BOS Segment beginning angle (DEG). Valid = 181 to 359 or 0. P1232-1233 are the BOS segment begin and end angles. The BOS must begin in the right hemisphere and end in the left hemisphere. It can begin or end at 0 degrees. If begin = end = 0 degrees then the segment is disabled. All angles must be < 360. Begin = end = non-zero angle is not allowed. The BOS segment cannot overlap the TOS segment.  |
| 1233 | Word    | Read/Write | BOS Segment ending angle (DEG). Valid = 0 - 179.   |
| 1234 | Word    | Read/Write | TOS Segment beginning angle (DEG). Valid = 0 - 180. Cannot be 180 if P1235 = 180. P1234 & 1235 are the TOS segment begin and end angles. The TOS must begin in the left hemisphere and end in the right hemisphere. It can begin or end at 180 degrees. If begin = end = 0 degrees then the segment is disabled. If begin = end = 0 degrees then the segment is disabled. All angles must be < 360. Begin = end = non zero angle is not allowed. The TOS segment cannot overlap the BOS segment. |
| 1235 | Word    | Read/Write | TOS Segment ending angle (DEG). Valid = 180 - 359. Cannot be 180 if P1234 = 180.   |
| 1236 | Word    | Read/Write | "STA: Trans detect count". This is the number of consecutive samples required to determine a segment transition. It was named "STA: Max seg tick count". On the STA setup screen the tag for P1236 is ConsecSamp.  |
| 1238 | Word    | Read/Write | Max UP speed in STA mode. Unit = .01 SPM. This is the max speed that the unit will run in the up direction. Must be <= P1257, VSD max speed. Unit = .01 SPM.   |

|      |      |            |  |
|------|------|------------|--|
| 1239 | Word | Read/Write | Max DN speed in STA mode. Unit = .01 SPM. This is the max speed that the unit will run in the down direction. Must be $\leq$ P1257, VSD max speed. Unit = .01 SPM.   |
| 1240 | Word | Read/Write | Max transition speed in STA mode. This is the speed thru the top or bottom segments. Unit = .01 SPM  |
| 1241 | Word | Read/Write | Down speed differential. Unit = .01 SPM. This speed is added/subtracted to/from the base stroke speed when the pump exits the top segment.   |
| 1242 | Word | Read/Write | Down speed differential direction : 0=Subtract, 1=Add. This specifies whether the down speed differential in P1241 is added or subtracted from the base speed.   |
| 1246 | Word | Read Only  | STAT state:<br>0 = Inactive<br>1 = UP Stroke<br>2 = TOS Segment<br>3 = DN Stroke<br>4 = BOS Segment  |
| 1247 | Word | Read Only  | Current STA segment timer (50 msec ticks).   |
| 1248 | Word | Read Only  | STA Next Segment.  |
| 1250 | Byte | Read/Write | VSD Enable Flag [0]:<br><br>Value / Description<br>0 = Disable<br>1 = (Future)<br>2 = ePACII   |
| 1251 | Word | Read Only  | Base VSD Output. This is a percent value calculated by the VSD app at each bottom of stroke based on the last fillage measurement. This value will normally become the next output% (P1259) but this may be modified by the STA app. Units = .01%. |
| 1252 | Byte | Read/Write | VSD Pumpoff Position Tolerance (+/-%). This defines the VSD pumpoff tolerance range relative to the setpoint (P21). Set by the operator. Must be non-zero.   |
| 1253 | Byte | Read/Write | Initial speed change. The resolution is 0.01 SPM.  |
| 1254 | Word | Read Only  | Min Control Output (%). Minimum control out-put that will be presented to the variable speed drive. It is expressed as a percentage of the full 4-20 mA range. Units = .01%. (such as, 4mA = 0, 20mA = 10000). Calculated in learn mode.           |
| 1255 | Word | Read Only  | Max Control Output (%). Maximum control out-put that will be presented to the variable speed drive. It is expressed as a percentage of the full 4-20 mA range. Units = .01%. (such as, 4mA = 0, 20mA = 10000) . Calculated in learn mode.          |
| 1256 | Word | Read/Write | Min SPM that the pump is configured to run. Set by the operator. Units = .01 SPM. (such as, 105 = 10.5 SPM).   |
| 1257 | Word | Read/Write | Max SPM that the pump is configured to run. Set by the operator. Units = .01 SPM. (such as, 105 = 10.5 SPM).   |
| 1258 | Word | Read/Write | VSD % change limit. This is in units of .01%. The default value of 10 = 0.1% and the maximum value = 10.00%.   |
| 1259 | Word | Read Only  | Current (present) Control Output (% x 100) (0-10000). Control output value used to set the pump speed. This is the default source parameter for Analog Output 1 and the parameter number is stored in AO parameter 1188.                           |
| 1260 | Time | Read Only  | Out of Tolerance Time. Incremented by real time clock when the pumpoff level is outside tolerance range. Reset to zero when pump-off level is within tolerance range. Calculated by POC.   |
| 1261 | Time | Read/Write | Evaluation Period. Time period for time limit for Out of Tolerance time alarm and periodic re-evaluation of average control output. Set by the operator.   |
| 1262 | Byte | Read/Write | Out of Tolerance Alarm Action. Action taken if the pumpoff   |

|      |         |            |  |
|------|---------|------------|--|
|      |         |            | level remains continuously outside the tolerance range for the time period set in P1261. Set by the operator.<br><br>0 = LAMP ONLY<br>1 = SOFT TIME<br>2 = CNTL XFER<br>3 = OFF/RESET<br>4 = IDLE TIME<br>5 = NO ACTION  |
| 1263 | Word    | Read/Write | SPM Override Value. Output value to be used when the controller is in VSD over-ride (P1264 = 1). This value is bounded by P1256 and P1257. Set by the operator. Units = .01 SPM.   |
| 1264 | Byte    | Read/Write | SPM Override Flag. When set to zero, VSD control operates normally. When set to 1, the VSD control output is defined by P1263, P1256, or P1257. Set by the operator.<br><br>0 = Disabled<br>1 = Enabled  |
| 1265 | Word    | Read/Write | Average Control Output (% x 100). Present average control output averaged over the time period set in P1261, used as the initial value for the VSD control output in certain situations. The POC calculates by this value, but after entering the service pass-word, the operator can modify this parameter. |
| 1266 | Display | Read Only  | VSD Mode Display. Mode/state of VSD control.   |
| 1267 | Display | Read Only  | Average Pumpoff Position Display. Displays the present average pumpoff position and the setpoint.  |
| 1268 | Word    | Read/Write | SPM Startup value. This SPM value will be used as the default sent to the VSD when entering the normal run state or pump down.   |
| 1269 | Word    | Read Only  | Avg Speed (SPM) for current gauge period. Units = .01 SPM.   |
| 1270 | Word    | Read Only  | SPM measured during learn mode. Units = .01 SPM.   |
| 1271 | Word    | Read Only  | Output current associated with min SPM. Calculated in learn mode. Unit = .01 mA.   |
| 1272 | Word    | Read Only  | Output current associated with max SPM. Calculated in learn mode. Unit = .01 mA.   |
| 1273 | Byte    | Read/Write | Min pump fillage allowed. If the pump fillage is less than this value for the number of strokes specified in P1274 then an alarm is generated and the action specified in P1275 will be taken.   |
| 1274 | Byte    | Read/Write | Min pump fillage - number of strokes.  |
| 1275 | Byte    | Read/Write | Minimum Fill - Alarm Action:<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = CNTL Xfer<br>3 = Off/Reset<br>4 = Idle Time<br>5 = Idle + ALM  |
| 1276 | Display | Read Only  | Current pump off position value.   |
| 1277 | Word    | Read Only  | Step limit percent value. Units = .01%.  |
| 1278 | Word    | Read/Write | Speed tolerance (SPM). Units = .01 SPM.  |
| 1279 | Word    | Read Only  | Low tolerance stroke count - current gauge period.   |
| 1280 | Word    | Read Only  | Low tolerance stroke count - yesterday.  |
| 1281 | Word    | Read Only  | Low tolerance stroke count - day before yesterday.   |
| 1282 | Word    | Read Only  | High tolerance stroke count - current gauge period.  |
| 1283 | Word    | Read Only  | High tolerance stroke count - yesterday.   |
| 1284 | Word    | Read Only  | High tolerance stroke count - day before yesterday.  |
| 1285 | Word    | Read Only  | In tolerance stroke count - current gauge period.  |

|      |         |            |  |
|------|---------|------------|--|
| 1286 | Word    | Read Only  | In tolerance stroke count – yesterday.   |
| 1287 | Word    | Read Only  | In tolerance stroke count – day before yesterday.  |
| 1288 | Word    | Read Only  | Avg Speed (SPM) for yesterday:<br>Units = .01 SPM.   |
| 1289 | Word    | Read Only  | Avg Speed (SPM) for day before yesterday:<br>Units = .01 SPM.  |
| 1290 | Byte    | Read/Write | Rod Load Control enable<br>0 = Disable<br>1 = Enable   |
| 1291 | Byte    | Read/Write | RLC Hi Gain – a factor in units of .1 used to calculate speed change% during a hi RLC event. For example, 20 = gain factor of 2.0. The speed change during an RLC event is: Chg% = (load/lo load limit) X gain/10. |
| 1292 | Byte    | Read/Write | RLC Lo Gain – a factor in units of .1 used to calculate speed change% during a lo RLC event. For example, 20 = gain factor of 2.0. The speed change during an RLC event is: Chg% = (load/lo load limit) X gain/10. |
| 1293 | Display | Read Only  | RLC state. This is a Run-Time parameter.<br>0 = inactive<br>1 = active lo<br>2 = active hi   |
| 1294 | Word    | Read/Write | RLC load deadband. Used to determine if an RLC event has begun or ended. Restricted to <= 2000.  |
| 1295 | Word    | Read/Write | RLC Lo Load Limit (LBs).   |
| 1296 | Word    | Read/Write | RLC Hi Load Limit (LBs).   |
| 1297 | Word    | Read/Write | RLC Min Speed.   |
| 1300 | Byte    | Read/Write | Device 1 Flags:<br>0 = NORMAL<br>1 = BYTE SWAP<br>2 = WORD SWAP<br>3 = REVERSED<br>4 = DISABLED  |
| 1301 | Byte    | Read/Write | Device 1 Unit ID.  |
| 1303 | Byte    | Read/Write | Device 1 RTS Delay (50 msec ticks).<br>Used by MBS instead of P1194.   |
| 1304 | Byte    | Read/Write | Device 1 RTS Hold (50 msec ticks).<br>Used by MBS instead of P1195.  |
| 1305 | Word    | Read/Write | Device 1 Max Status/Coils.   |
| 1306 | Word    | Read/Write | Device 1 Max Analog Regs.  |
| 1309 | Command | Read/Write | Device 1 Clear Stats.  |
| 1310 | Word    | Read Only  | Device 1 Rx Chars.   |
| 1311 | Word    | Read Only  | Device 1 Tx Chars.   |
| 1312 | Word    | Read Only  | Device 1 Rx Msgs.  |
| 1313 | Word    | Read Only  | Device 1 Tx Msgs.  |
| 1314 | Word    | Read Only  | Device 1 Bad Rx Chars.   |
| 1315 | Word    | Read Only  | Device 1 Bad Rx Msgs.  |
| 1316 | Word    | Read Only  | Device 1 Retries.  |
| 1317 | Word    | Read Only  | Device 1 ErrorCount – counts no replies.   |
| 1318 | Word    | Read Only  | Device 1 Status – if ErrorCount > 3 then Statue = 1, else 0.   |
| 1320 | Byte    | Read/Write | Device 2 Flags:<br>0 = NORMAL<br>1 = BYTE SWAP   |

|      |      |            |   |
|------|------|------------|---|
|      |      |            | 2 = WORD SWAP<br>3 = REVERSED<br>4 = DISABLED   |
| 1321 | Byte | Read/Write | Device 2 Unit ID.   |
| 1323 | Byte | Read/Write | Device 2 RTS Delay (50 msec ticks).   |
| 1324 | Byte | Read/Write | Device 2 RTS Hold (50 msec ticks).  |
| 1325 | Word | Read/Write | Device 2 Max Status/Coils.  |
| 1326 | Word | Read/Write | Device 2 Max Analog Regs.   |
| 1329 | Cmnd | Read/Write | Device 2 Clear Stats.   |
| 1330 | Word | Read Only  | Device 2 Rx Chars.  |
| 1331 | Word | Read Only  | Device 2 Tx Chars.  |
| 1332 | Word | Read Only  | Device 2 Rx Msgs.   |
| 1333 | Word | Read Only  | Device 2 Tx Msgs.   |
| 1334 | Word | Read Only  | Device 2 Bad Rx Chars.  |
| 1335 | Word | Read Only  | Device 2 Bad Rx Msgs.   |
| 1336 | Word | Read Only  | Device 2 Retries.   |
| 1337 | Word | Read Only  | Device 2 ErrorCount.  |
| 1338 | Word | Read Only  | Device 2 Status.  |
| 1340 | Byte | Read/Write | Device 3 Flags:<br><br>0 = NORMAL<br>1 = BYTE SWAP<br>2 = WORD SWAP<br>3 = REVERSED<br>4 = DISABLED |
| 1341 | Byte | Read/Write | Device 3 Unit ID.   |
| 1343 | Byte | Read/Write | Device 3 RTS Delay (50 msec ticks).   |
| 1344 | Byte | Read/Write | Device 3 RTS Hold (50 msec ticks).  |
| 1345 | Word | Read/Write | Device 3 Max Status/Coils.  |
| 1346 | Word | Read/Write | Device 3 Max Analog Regs.   |
| 1349 | Cmnd | Read/Write | Command Device 3 Clear Stats.   |
| 1350 | Word | Read Only  | Device 3 Rx Chars.  |
| 1351 | Word | Read Only  | Device 3 Tx Chars.  |
| 1352 | Word | Read Only  | Device 3 Rx Msgs.   |
| 1353 | Word | Read Only  | Device 3 Tx Msgs.   |
| 1354 | Word | Read Only  | Device 3 Bad Rx Chars.  |
| 1355 | Word | Read Only  | Device 3 Bad Rx Msgs.   |
| 1356 | Word | Read Only  | Device 3 Retries.   |
| 1357 | Word | Read Only  | Device 3 ErrorCount.  |
| 1358 | Word | Read Only  | Device 3 Status.  |
| 1360 | Byte | Read/Write | Device 4 Flags:<br><br>0 = NORMAL<br>1 = BYTE SWAP<br>2 = WORD SWAP<br>3 = REVERSED<br>4 = DISABLED |
| 1361 | Byte | Read/Write | Device 4 Unit ID.   |
| 1363 | Byte | Read/Write | Device 4 RTS Delay (50 msec ticks).   |
| 1364 | Byte | Read/Write | Device 4 RTS Hold (50 msec ticks).  |
| 1365 | Word | Read/Write | Device 4 Max Status/Coils.  |
| 1366 | Word | Read/Write | Device 4 Max Analog Regs.   |
| 1369 | Cmnd | Read/Write | Device 4 Clear Stats.   |
| 1370 | Word | Read Only  | Device 4 Rx Chars.  |
| 1371 | Word | Read Only  | Device 4 Tx Chars.  |
| 1372 | Word | Read Only  | Device 4 Rx Msgs.   |
| 1373 | Word | Read Only  | Device 4 Tx Msgs.   |

|      |      |            |   |
|------|------|------------|---|
| 1374 | Word | Read Only  | Device 4 Bad Rx Chars.  |
| 1375 | Word | Read Only  | Device 4 Bad Rx Msgs.   |
| 1376 | Word | Read Only  | Device 4 Retries.   |
| 1377 | Word | Read Only  | Device 4 ErrorCount.  |
| 1378 | Word | Read Only  | Device 4 Status.  |
| 1380 | Byte | Read/Write | Device 5 Flags:<br><br>0 = NORMAL<br>1 = BYTE SWAP<br>2 = WORD SWAP<br>3 = REVERSED<br>4 = DISABLED |
| 1381 | Byte | Read/Write | Device 5 Unit ID.   |
| 1383 | Byte | Read/Write | Device 5 RTS Delay (50 msec ticks).   |
| 1384 | Byte | Read/Write | Device 5 RTS Hold (50 msec ticks).  |
| 1385 | Word | Read/Write | Device 5 Max Status/Coils.  |
| 1386 | Word | Read/Write | Device 5 Max Analog Regs.   |
| 1389 | Cmnd | Read/Write | Device 5 Clear Stats.   |
| 1390 | Word | Read Only  | Device 5 Rx Chars.  |
| 1391 | Word | Read Only  | Device 5 Tx Chars.  |
| 1392 | Word | Read Only  | Device 5 Rx Msgs.   |
| 1393 | Word | Read Only  | Device 5 Tx Msgs.   |
| 1394 | Word | Read Only  | Device 5 Bad Rx Chars.  |
| 1395 | Word | Read Only  | Device 5 Bad Rx Msgs.   |
| 1396 | Word | Read Only  | Device 5 Retries.   |
| 1397 | Word | Read Only  | Device 5 ErrorCount.  |
| 1398 | Word | Read Only  | Device 5 Status.  |
| 1400 | Byte | Read/Write | Device 6 Flags:<br><br>0 = NORMAL<br>1 = BYTE SWAP<br>2 = WORD SWAP<br>3 = REVERSED<br>4 = DISABLED |
| 1401 | Byte | Read/Write | Device 6 Unit ID.   |
| 1403 | Byte | Read/Write | Device 6 RTS Delay (50 msec ticks).   |
| 1404 | Byte | Read/Write | Device 6 RTS Hold (50 msec ticks).  |
| 1405 | Word | Read/Write | Device 6 Max Status/Coils.  |
| 1406 | Word | Read/Write | Device 6 Max Analog Regs.   |
| 1409 | cmnd | Read/Write | Device 6 Clear Stats.   |
| 1410 | Word | Read Only  | Device 6 Rx Chars.  |
| 1411 | Word | Read Only  | Device 6 Tx Chars.  |
| 1412 | Word | Read Only  | Device 6 Rx Msgs.   |
| 1413 | Word | Read Only  | Device 6 Tx Msgs.   |
| 1414 | Word | Read Only  | Device 6 Bad Rx Chars.  |
| 1415 | Word | Read Only  | Device 6 Bad Rx Msgs.   |
| 1416 | Word | Read Only  | Device 6 Retries.   |
| 1417 | Word | Read Only  | Device 6 ErrorCount.  |
| 1418 | Word | Read Only  | Device 6 Status.  |
| 1420 | Byte | Read/Write | Device 7 Flags:<br><br>0 = NORMAL<br>1 = BYTE SWAP<br>2 = WORD SWAP<br>3 = REVERSED<br>4 = DISABLED |
| 1421 | Byte | Read/Write | Device 7 Unit ID.   |
| 1423 | Byte | Read/Write | Device 7 RTS Delay (50 msec ticks).   |

|      |      |            |  |
|------|------|------------|--|
| 1424 | Byte | Read/Write | Device 7 RTS Hold (50 msec ticks).   |
| 1425 | Word | Read/Write | Device 7 Max Status/Coils.   |
| 1426 | Word | Read/Write | Device 7 Max Analog Regs.  |
| 1429 | Cmnd | Read/Write | Device 7 Clear Stats.  |
| 1430 | Word | Read Only  | Device 7 Rx Chars.   |
| 1431 | Word | Read Only  | Device 7 Tx Chars.   |
| 1432 | Word | Read Only  | Device 7 Rx Msgs.  |
| 1433 | Word | Read Only  | Device 7 Tx Msgs.  |
| 1434 | Word | Read Only  | Device 7 Bad Rx Chars.   |
| 1435 | Word | Read Only  | Device 7 Bad Rx Msgs.  |
| 1436 | Word | Read Only  | Device 7 Retries.  |
| 1437 | Word | Read Only  | Device 7 ErrorCount.   |
| 1438 | Word | Read Only  | Device 7 Status.   |
| 1440 | Byte | Read/Write | Device 8 Flags:<br><br>0 = NORMAL<br>1 = BYTE SWAP<br>2 = WORD SWAP<br>3 = REVERSED<br>4 = DISABLED  |
| 1441 | Byte | Read/Write | Device 8 Unit ID.  |
| 1443 | Byte | Read/Write | Device 8 RTS Delay (50 msec ticks).  |
| 1444 | Byte | Read/Write | Device 8 RTS Hold (50 msec ticks).   |
| 1445 | Word | Read/Write | Device 8 Max Status/Coils.   |
| 1446 | Word | Read/Write | Device 8 Max Analog Regs.  |
| 1449 | Cmnd | Read/Write | Device 8 Clear Stats.  |
| 1450 | Word | Read Only  | Device 8 Rx Chars.   |
| 1451 | Word | Read Only  | Device 8 Tx Chars.   |
| 1452 | Word | Read Only  | Device 8 Rx Msgs.  |
| 1453 | Word | Read Only  | Device 8 Tx Msgs.  |
| 1454 | Word | Read Only  | Device 8 Bad Rx Chars.   |
| 1455 | Word | Read Only  | Device 8 Bad Rx Msgs.  |
| 1456 | Word | Read Only  | Device 8 Retries   |
| 1457 | Word | Read Only  | Device 8 ErrorCount  |
| 1458 | Word | Read Only  | Device 8 Status  |
| 1460 | Word | Read Only  | Max up speed output percent. (Unit=.01%)   |
| 1461 | Word | Read Only  | Max dn speed output percent. (Unit=.01%)   |
| 1462 | Word | Read Only  | Max trans speed output percent. (Unit=.01%)  |
| 1463 | Word | Read Only  | Max dn speed diff. output percent. (Unit=.01%)   |
| 1464 | Word | Read Only  | Trim Speed output percent. (Unit=.01%).  |
| 1465 | Byte | Read/Write | Pump direction DO point number. Valid range = 1 - 8, 0 = disable. If this is greater than 0 then the DO point specified by this parameter will be closed during up strokes and opened during down strokes. |
| 1466 | Word | Read Only  | Current down speed output%. (Unit=.01%).   |
| 1467 | Word | Read Only  | Current TOS segment speed output%. (Unit=.01%).  |
| 1468 | Word | Read Only  | Current BOS segment speed output%. (Unit=.01%).  |
| 1469 | Word | Read Only  | STA Cur Up Speed Pct.  |
| 1470 | Word | Read Only  | Latest RLC event load. Max load during a hi event or min load during a lo event.   |
| 1471 | Word | Read Only  | Second Latest RLC event load. Max load during a hi event or min load during a lo event.  |
| 1472 | Word | Read Only  | Third Latest RLC event load. Max load during a hi event or min load during a lo event.   |
| 1473 | Word | Read Only  | Latest RLC event duration in mSec.   |
| 1474 | Word | Read Only  | Second Latest RLC event duration in mSec.  |
| 1475 | Word | Read Only  | Third Latest RLC event duration in mSec.   |



|      |         |            |   |
|------|---------|------------|---|
| 1476 | Word    | Read Only  | Latest RLC event sequence number (0-65535).                                     |
| 1477 | Word    | Read Only  | Second Latest RLC event sequence number.  |
| 1478 | Word    | Read Only  | Third Latest RLC event sequence number.   |
| 1479 | Time    | Read Only  | InTol Timer.  |
| 1480 | Word    | Read Only  | Current RLC hi event count during current gauge period.                         |
| 1481 | Word    | Read Only  | Yesterdays RLC hi event count at gauge time.                                    |
| 1482 | Word    | Read Only  | Day before yesterdays RLC hi event count at gauge time.                         |
| 1483 | Word    | Read Only  | Current RLC lo event count during current gauge period.                         |
| 1484 | Word    | Read Only  | Yesterdays RLC lo event count at gauge time.                                    |
| 1485 | Word    | Read Only  | Day before yesterdays RLC lo event count at gauge time.                         |
| 1486 | Word    | Read Only  | Latest RLC event minimum speed attained during the event (SPM). Unit = .01 SPM. |
| 1487 | Word    | Read Only  | Next to Latest RLC event minimum speed attained.                                |
| 1488 | Word    | Read Only  | Earliest RLC event minimum speed attained.                                      |
| 1489 | Word    | Read/Write | VSD InTol Chg Ctr.  |
| 1490 | Display | N/A.       | User Tag 7.   |
| 1491 | Display | N/A.       | User Tag 8.   |
| 1492 | Display | N/A.       | User Tag 9.   |
| 1493 | Display | N/A.       | User Tag 10.  |
| 1494 | Display | N/A.       | User Tag 11.  |
| 1495 | Display | N/A.       | User Tag 12.  |
| 1496 | Time    | Read/Write | VSD InTol Max Time.   |
| 1497 | Word    | Read/Write | VSD In Tol Speed Diff.  |
| 1498 | Word    | Read Only  | STA Output Pct.   |
| 1499 | Word    | Read Only  | RLC Output %.   |
| 1500 | Byte    | Read/Write | Scan 1 Enable/Disable. This parameter is not used.                              |

### Parameters 1501-2524

| Parameter | Data Type | Access     | Description                                       |
|-----------|-----------|------------|---|
| 1501      | Word      | Read/Write | Scan 1 Retries [1].                               |
| 1502      | Word      | Read/Write | Scan 1 Retry Delay [2] Seconds.                   |
| 1503      | Word      | Read/Write | Scan 1 Scan Delay [1] 0.05 Seconds.               |
| 1504      | Word      | Read/Write | Scan 1 Cycle Delay [2] Seconds.                   |
| 1505      | Word      | Read/Write | Scan 1 Auto Refresh [300] Seconds.                |
| 1506      | Word      | Read/Write | Scan 1 Maximum Status / Coils Per Poll [228].     |
| 1507      | Word      | Read/Write | Scan 1 Maximum Analogs / Holding Registers [127]. |
| 1508      | Display   | Read Only  | Scan 1 Status (XX:XX NN Poll/DTRY N).             |
| 1510      | Byte      | Read/Write | Scan 1 / Block 1 Access.                          |
| 1511      | Byte      | Read/Write | Scan 1 / Block 1 Remote Address [1].              |
| 1512      | Word      | Read/Write | Scan 1 / Block 1 Starting Register.               |
| 1513      | Word      | Read/Write | Scan 1 / Block 1 Number of Registers.             |
| 1514      | Word      | Read/Write | Scan 1 / Block 1 Index Zero-based.                |
| 1515      | Byte      | Read/Write | Scan 1 / Block 2 Access.                          |
| 1516      | Byte      | Read/Write | Scan 1 / Block 2 Remote Address [1].              |
| 1517      | Word      | Read/Write | Scan 1 / Block 2 Starting Register.               |
| 1518      | Word      | Read/Write | Scan 1 / Block 2 Number of Registers.             |
| 1519      | Word      | Read/Write | Scan 1 / Block 2 Index Zero-based.                |
| 1520      | Byte      | Read/Write | Scan 1 / Block 3 Access.                          |
| 1521      | Byte      | Read/Write | Scan 1 / Block 3 Remote Address [1].              |
| 1522      | Word      | Read/Write | Scan 1 / Block 3 Starting Register.               |
| 1523      | Word      | Read/Write | Scan 1 / Block 3 Number of Registers.             |
| 1524      | Word      | Read/Write | Scan 1 / Block 3 Index Zero-based.                |
| 1525      | Byte      | Read/Write | Scan 1 / Block 4 Access.                          |
| 1526      | Byte      | Read/Write | Scan 1 / Block 4 Remote Address [1].              |

|      |      |            |  |
|------|------|------------|--|
| 1527 | Word | Read/Write | Scan 1 / Block 4 Starting Register.    |
| 1528 | Word | Read/Write | Scan 1 / Block 4 Number of Registers.  |
| 1529 | Word | Read/Write | Scan 1 / Block 4 Index Zero-based.     |
| 1530 | Byte | Read/Write | Scan 1 / Block 5 Access.               |
| 1531 | Byte | Read/Write | Scan 1 / Block 5 Remote Address [1].   |
| 1532 | Word | Read/Write | Scan 1 / Block 5 Starting Register.    |
| 1533 | Word | Read/Write | Scan 1 / Block 5 Number of Registers.  |
| 1534 | Word | Read/Write | Scan 1 / Block 5 Index Zero-based.     |
| 1535 | Byte | Read/Write | Scan 1 / Block 6 Access.               |
| 1536 | Byte | Read/Write | Scan 1 / Block 6 Remote Address [1].   |
| 1537 | Word | Read/Write | Scan 1 / Block 6 Starting Register.    |
| 1538 | Word | Read/Write | Scan 1 / Block 6 Number of Registers.  |
| 1539 | Word | Read/Write | Scan 1 / Block 6 Index Zero-based.     |
| 1540 | Byte | Read/Write | Scan 1 / Block 7 Access.               |
| 1541 | Byte | Read/Write | Scan 1 / Block 7 Remote Address [1].   |
| 1542 | Word | Read/Write | Scan 1 / Block 7 Starting Register.    |
| 1543 | Word | Read/Write | Scan 1 / Block 7 Number of Registers.  |
| 1544 | Word | Read/Write | Scan 1 / Block 7 Index Zero-based.     |
| 1545 | Byte | Read/Write | Scan 1 / Block 8 Access.               |
| 1546 | Byte | Read/Write | Scan 1 / Block 8 Remote Address [1].   |
| 1547 | Word | Read/Write | Scan 1 / Block 8 Starting Register.    |
| 1548 | Word | Read/Write | Scan 1 / Block 8 Number of Registers.  |
| 1549 | Word | Read/Write | Scan 1 / Block 8 Index Zero-based.     |
| 1550 | Byte | Read/Write | Scan 1 / Block 9 Access.               |
| 1551 | Byte | Read/Write | Scan 1 / Block 9 Remote Address [1].   |
| 1552 | Word | Read/Write | Scan 1 / Block 9 Starting Register.    |
| 1553 | Word | Read/Write | Scan 1 / Block 9 Number of Registers.  |
| 1554 | Word | Read/Write | Scan 1 / Block 9 Index Zero-based.     |
| 1555 | Byte | Read/Write | Scan 1 / Block 10 Access.              |
| 1556 | Byte | Read/Write | Scan 1 / Block 10 Remote Address [1].  |
| 1557 | Word | Read/Write | Scan 1 / Block 10 Starting Register.   |
| 1558 | Word | Read/Write | Scan 1 / Block 10 Number of Registers. |
| 1559 | Word | Read/Write | Scan 1 / Block 10 Index Zero-based.    |
| 1560 | Byte | Read/Write | Scan 1 / Block 11 Access.              |
| 1561 | Byte | Read/Write | Scan 1 / Block 11 Remote Address [1].  |
| 1562 | Word | Read/Write | Scan 1 / Block 11 Starting Register.   |
| 1563 | Word | Read/Write | Scan 1 / Block 11 Number of Registers. |
| 1564 | Word | Read/Write | Scan 1 / Block 11 Index Zero-based.    |
| 1565 | Byte | Read/Write | Scan 1 / Block 12 Access.              |
| 1566 | Byte | Read/Write | Scan 1 / Block 12 Remote Address [1].  |
| 1567 | Word | Read/Write | Scan 1 / Block 12 Starting Register.   |
| 1568 | Word | Read/Write | Scan 1 / Block 12 Number of Registers. |
| 1569 | Word | Read/Write | Scan 1 / Block 12 Index Zero-based.    |
| 1570 | Byte | Read/Write | Scan 1 / Block 13 Access.              |
| 1571 | Byte | Read/Write | Scan 1 / Block 13 Remote Address [1].  |
| 1572 | Word | Read/Write | Scan 1 / Block 13 Starting Register.   |
| 1573 | Word | Read/Write | Scan 1 / Block 13 Number of Registers. |
| 1574 | Word | Read/Write | Scan 1 / Block 13 Index Zero-based.    |
| 1575 | Byte | Read/Write | Scan 1 / Block 14 Access.              |
| 1576 | Byte | Read/Write | Scan 1 / Block 14 Remote Address [1].  |
| 1577 | Word | Read/Write | Scan 1 / Block 14 Starting Register.   |
| 1578 | Word | Read/Write | Scan 1 / Block 14 Number of Registers. |
| 1579 | Word | Read/Write | Scan 1 / Block 14 Index Zero-based.    |
| 1580 | Byte | Read/Write | Scan 1 / Block 15 Access.              |
| 1581 | Byte | Read/Write | Scan 1 / Block 15 Remote Address [1].  |

|      |         |            |   |
|------|---------|------------|---|
| 1582 | Word    | Read/Write | Scan 1 / Block 15 Starting Register.                |
| 1583 | Word    | Read/Write | Scan 1 / Block 15 Number of Registers.              |
| 1584 | Word    | Read/Write | Scan 1 / Block 15 Index Zero-based.                 |
| 1585 | Byte    | Read/Write | Scan 1 / Block 16 Access.                           |
| 1587 | Word    | Read/Write | Scan 1 / Block 16 Starting Register.                |
| 1588 | Word    | Read/Write | Scan 1 / Block 16 Number of Registers.              |
| 1589 | Word    | Read/Write | Scan 1 / Block 16 Index Zero-based.                 |
| 1600 | Byte    | Read/Write | Scan 2 Enable/Disable . This parameter is not used. |
| 1601 | Word    | Read/Write | Scan 2 Retries [1].                                 |
| 1602 | Word    | Read/Write | Scan 2 Retry Delay [2] Seconds.                     |
| 1603 | Word    | Read/Write | Scan 2 Scan Delay [1] 0.05 Seconds.                 |
| 1604 | Word    | Read/Write | Scan 2 Cycle Delay [2] Seconds.                     |
| 1605 | Word    | Read/Write | Scan 2 Auto Refresh [300] Seconds.                  |
| 1606 | Word    | Read/Write | Scan 2 Maximum Status / Coils Per Poll [228].       |
| 1607 | Word    | Read/Write | Scan 2 Maximum Analogs / Holding Registers [127].   |
| 1608 | Display | Read Only  | Scan 2 Status (XX:XX NN Poll/DTRY N).               |
| 1610 | Byte    | Read/Write | Scan 2 / Block 1 Access.                            |
| 1611 | Byte    | Read/Write | Scan 2 / Block 1 Remote Address [1].                |
| 1612 | Word    | Read/Write | Scan 2 / Block 1 Starting Register.                 |
| 1613 | Word    | Read/Write | Scan 2 / Block 1 Number of Registers.               |
| 1614 | Word    | Read/Write | Scan 2 / Block 1 Index Zero-based.                  |
| 1615 | Byte    | Read/Write | Scan 2 / Block 2 Access.                            |
| 1616 | Byte    | Read/Write | Scan 2 / Block 2 Remote Address [1].                |
| 1617 | Word    | Read/Write | Scan 2 / Block 2 Starting Register.                 |
| 1618 | Word    | Read/Write | Scan 2 / Block 2 Number of Registers.               |
| 1619 | Word    | Read/Write | Scan 2 / Block 2 Index Zero-based.                  |
| 1620 | Byte    | Read/Write | Scan 2 / Block 3 Access.                            |
| 1621 | Byte    | Read/Write | Scan 2 / Block 3 Remote Address [1]                 |
| 1622 | Word    | Read/Write | Scan 2 / Block 3 Starting Register                  |
| 1623 | Word    | Read/Write | Scan 2 / Block 3 Number of Registers.               |
| 1624 | Word    | Read/Write | Scan 2 / Block 3 Index Zero-based                   |
| 1625 | Byte    | Read/Write | Scan 2 / Block 4 Access                             |
| 1626 | Byte    | Read/Write | Scan 2 / Block 4 Remote Address [1]                 |
| 1627 | Word    | Read/Write | Scan 2 / Block 4 Starting Register                  |
| 1628 | Word    | Read/Write | Scan 2 / Block 4 Number of Registers.               |
| 1629 | Word    | Read/Write | Scan 2 / Block 4 Index Zero-based.                  |
| 1630 | Byte    | Read/Write | Scan 2 / Block 5 Access.                            |
| 1631 | Byte    | Read/Write | Scan 2 / Block 5 Remote Address [1].                |
| 1632 | Word    | Read/Write | Scan 2 / Block 5 Starting Register.                 |
| 1633 | Word    | Read/Write | Scan 2 / Block 5 Number of Registers.               |
| 1634 | Word    | Read/Write | Scan 2 / Block 5 Index - Zero-based.                |
| 1635 | Byte    | Read/Write | Scan 2 / Block 6 Access.                            |
| 1636 | Byte    | Read/Write | Scan 2 / Block 6 Remote Address [1].                |
| 1637 | Word    | Read/Write | Scan 2 / Block 6 Starting Register.                 |
| 1638 | Word    | Read/Write | Scan 2 / Block 6 Number of Registers.               |
| 1639 | Word    | Read/Write | Scan 2 / Block 4 Index Zero-based.                  |
| 1640 | Byte    | Read/Write | Scan 2 / Block 7 Access.                            |
| 1641 | Byte    | Read/Write | Scan 2 / Block 7 Remote Address [1].                |
| 1642 | Word    | Read/Write | Scan 2 / Block 7 Starting Register.                 |
| 1643 | Word    | Read/Write | Scan 2 / Block 7 Number of Registers.               |
| 1644 | Word    | Read/Write | Scan 2 / Block 7 Index Zero-based.                  |
| 1645 | Byte    | Read/Write | Scan 2 / Block 8 Access.                            |
| 1646 | Byte    | Read/Write | Scan 2 / Block 8 Remote Address [1].                |
| 1647 | Word    | Read/Write | Scan 2 / Block 8 Starting Register.                 |
| 1648 | Word    | Read/Write | Scan 2 / Block 8 Number of Registers.               |

|      |      |            |  |
|------|------|------------|--|
| 1649 | Word | Read/Write | Scan 2 / Block 8 Index Zero-based.                   |
| 1650 | Byte | Read/Write | Scan 2 / Block 9 Access.                             |
| 1651 | Byte | Read/Write | Scan 2 / Block 9 Remote Address [1].                 |
| 1652 | Word | Read/Write | Scan 2 / Block 9 Starting Register.                  |
| 1653 | Word | Read/Write | Scan 2 / Block 9 Number of Registers.                |
| 1654 | Word | Read/Write | Scan 2 / Block 9 Index Zero-based.                   |
| 1655 | Byte | Read/Write | Scan 2 / Block 10 Access.                            |
| 1656 | Byte | Read/Write | Scan 2 / Block 10 Remote Address [1].                |
| 1657 | Word | Read/Write | Scan 2 / Block 10 Starting Register.                 |
| 1658 | Word | Read/Write | Scan 2 / Block 10 Number of Registers.               |
| 1659 | Word | Read/Write | Scan 2 / Block 10 Index Zero-based.                  |
| 1660 | Byte | Read/Write | Scan 2 / Block 11 Access.                            |
| 1661 | Byte | Read/Write | Scan 2 / Block 11 Remote Address [1].                |
| 1662 | Word | Read/Write | Scan 2 / Block 11 Starting Register.                 |
| 1663 | Word | Read/Write | Scan 2 / Block 11 Number of Registers.               |
| 1664 | Word | Read/Write | Scan 2 / Block 11 Index Zero-based.                  |
| 1665 | Byte | Read/Write | Scan 2 / Block 12 Access.                            |
| 1666 | Byte | Read/Write | Scan 2 / Block 12 Remote Address [1].                |
| 1667 | Word | Read/Write | Scan 2 / Block 12 Starting Register.                 |
| 1668 | Word | Read/Write | Scan 2 / Block 12 Number of Registers.               |
| 1669 | Word | Read/Write | Scan 2 / Block 12 Index Zero-based.                  |
| 1670 | Byte | Read/Write | Scan 2 / Block 13 Access.                            |
| 1671 | Byte | Read/Write | Scan 2 / Block 13 Remote Address [1].                |
| 1672 | Word | Read/Write | Scan 2 / Block 13 Starting Register.                 |
| 1673 | Word | Read/Write | Scan 2 / Block 13 Number of Registers.               |
| 1674 | Word | Read/Write | Scan 2 / Block 13 Index Zero-based.                  |
| 1675 | Byte | Read/Write | Scan 2 / Block 14 Access.                            |
| 1676 | Byte | Read/Write | Scan 2 / Block 14 Remote Address [1].                |
| 1677 | Word | Read/Write | Scan 2 / Block 14 Starting Register.                 |
| 1678 | Word | Read/Write | Scan 2 / Block 14 Number of Registers.               |
| 1679 | Word | Read/Write | Scan 2 / Block 14 Index Zero-based.                  |
| 1680 | Byte | Read/Write | Scan 2 / Block 15 Access.                            |
| 1681 | Byte | Read/Write | Scan 2 / Block 15 Remote Address [1].                |
| 1682 | Word | Read/Write | Scan 2 / Block 15 Starting Register.                 |
| 1683 | Word | Read/Write | Scan 2 / Block 15 Number of Registers.               |
| 1684 | Word | Read/Write | Scan 2 / Block 15 Index Zero-based.                  |
| 1685 | Byte | Read/Write | Scan 2 / Block 16 Access.                            |
| 1686 | Byte | Read/Write | Scan 2 / Block 16 Remote Address [1].                |
| 1687 | Word | Read/Write | Scan 2 / Block 16 Starting Register.                 |
| 1688 | Word | Read/Write | Scan 2 / Block 16 Number of Registers.               |
| 1689 | Word | Read/Write | Scan 2 / Block 16 Index Zero-based.                  |
| 1700 | Word | Read/Write | Dbase Change Flags 000-015.                          |
| ...  |      |            | ...  |
| 1734 | Word | Read/Write | Dbase Change Flags 544-549.                          |
| 1750 | Word | Read/Write | Modscan Register 0 to register 549.                  |
| ...  |      |            | ...  |
| 2299 | Word | Read/Write | N/A.   |
| 2300 | Long | Read/Write | Modscan Long Register 0 thru Long Register 224.      |
| ...  |      |            | These values are overlaid on parameters 1750 – 2299. |
| 2524 | Long | Read/Write | N/A.   |

## ePIC RPC Parameter Listings

For information on a specific range of parameters, select a link from the list below.

- [Parameter Listings 1-300](#)
- [Parameter Listings 309-599](#)
- [Parameter Listings 601-900](#)
- [Parameter Listings 901-1180](#)

**Important:** For additional parameter details, refer to the device's User Manual.

### Parameters 1-300

| Parameter | Data Type | Access     | Description   |
|-----------|-----------|------------|---|
| 1         | Word      | Read/Write | User-entered Password.  |
| 2         | Word      | Read/Write | Communication Address for remote communications (0 to 4094).  |
| 3         | Time24    | Read/Write | Time of day:<br><br>hh:mm:ss<br>am/pm   |
| 4         | Date      | Read/Write | Today's Date (mm/dd/yy).  |
| 5         | Byte      | Read/Write | Current Day of the week. This is automatically set when Parameter 4 is set.   |
| 6         | Command   | Read/Write | Manual top of stroke (locates Position Switch in reference to TOS).   |
| 7         | Command   | Read/Write | Automatic top of stroke (automatic using Continuous Position signal input).   |
| 8         | Display   | Read Only  | TOS to Position Switch stroke fraction (in counts where Position Switch closes after TOS).  |
| 10        | Command   | Read/Write | Output Parameter list (outputs parameter list to host).   |
| 14        | Byte      | Read/Write | Load units (Lb/Kg):<br><br>0 = Pounds<br>1 = Kg. Metric   |
| 15        | Byte      | Read/Write | Numeric/alphabetic date format:<br><br>0 = Numeric<br>1 = Alphanumeric  |
| 16        | Byte      | Read/Write | 12/24 Hour clock display:<br><br>0 = Military<br>1 = AM/PM  |
| 17        | Byte      | Read/Write | Long time day/hour split – Run Time format:<br><br>0 = hours only<br>1 = days/hours   |
| 18        | Byte      | Read/Write | Real Time Clock source on AC power (not functional).  |
| 19        | Byte      | Read/Write | Real Time Clock source on AC fail:<br><br>1 = Real Time Clock   |
| 20        | Time24    | Read/Write | Idle time, set by operator based on well conditions (hh:mm:ss).   |
| 21        | Byte      | Read/Write | Pump-off Position %:<br><br>0 = Bottom of Stroke<br>100 = Top of Stroke   |
| 22        | Byte      | Read/Write | Pump-off Action. The Monitor Only mode defaults to "Go To Idle" and any command action other than "Go To Idle" will generate a non-clearable alarm. POC mode can be set to any valid action code. |

|    |         |            |   |
|----|---------|------------|---|
| 23 | Byte    | Read/Write | Pump-off Load %:<br>0 = Minimum Load during stroke<br>100 = Maximum Load during stroke  |
| 24 | Byte    | Read/Write | POC strokes for pumpoff – Maximum consecutive pump-off strokes allowed before going to idle time.   |
| 25 | Time24  | Read/Write | Pump-up delay (hh:mm:ss).   |
| 26 | Byte    | Read/Write | POC Method:<br>0 = Quadrant Method – Lower RH<br>1 = Point Method – Along Base Line<br>2 = Reverse POC using Method 0<br>3 = Reverse POC using Method 1<br>4 = ESP Only (Disables POC for RPC use)<br>5 = ESP Only (Disables POC for RPC use)<br>6 = ESP Only (Disables POC for RPC use)<br>7 = ESP Only (Disables POC for RPC use)<br>8 = Quadrant Method – Upper LH<br>9 = Point Method – Upper (100%) Line<br>10 = Reverse POC using Method 8<br>11 = Reverse POC using Method 9 |
| 27 | Time24  | Read/Write | POC Override timer (hh:mm:ss) set by operator. No POC until timer decrements to zero.   |
| 28 | Byte    | Read/Write | Override timer power-up action of clearing flag:<br>0 = No PowerUp Clear<br>1 = PowerUP Clear   |
| 29 | Byte    | Read/Write | Motor speed control type:<br>0 = Fixed Speed (on/off control)<br>1 = Normal VSD<br>2 = Dynamic VSD  |
| 30 | Byte    | Read/Write | [This parameter is not used.]   |
| 31 | Command | Read/Write | Manual off until reset – Operator input.  |
| 32 | Command | Read/Write | Manual control transfer – Operator input.   |
| 33 | Command | Read/Write | Manual software timer – Operator input.   |
| 34 | Byte    | Read/Write | Position input source:<br>0 = Position Switch<br>1 = Continuous Position Sensor<br>2 = Monitor Only Mode  |
| 35 | Byte    | Read/Write | Load input source:<br>0 = Load Cell<br>1 = Strain Gauge   |
| 36 | Time24  | Read/Write | Target cycle time (hh:mm:ss) 00-99:59:59. Set to 00:00:00 to disable automatic idle time.   |
| 37 | Byte    | Read/Write | Action for under 50% run:<br>0 = No Action<br>1 = Disable with Fault Lamp<br>2 = Halve Cycle with No Fault Lamp<br>3 = Halve Cycle with Fault Lamp  |
| 38 | Time24  | Read/Write | Off time limit – Maximum allowed off time and restart automatically.  |
| 39 | Byte    | Read/Write | Off time limit enable/disable:<br>0 = Disable<br>1 = Enable<br>Off Until Reset is the action, when enabled.   |
| 40 | Byte    | Read/Write | % ABC goal value – Set to 0% to disable.  |

|    |         |            |   |
|----|---------|------------|---|
| 41 | Byte    | Read/Write | % ABC dead band value.  |
| 42 | Word    | Read Only  | Upstroke peak value in Milivolts.   |
| 43 | Word    | Read Only  | Downstroke peak value in Milivolts.   |
| 44 | Word    | Read Only  | Peak difference in mV. Positive value means upstroke peak value was higher than down-stroke peak value.   |
| 45 | Word    | Read Only  | Peak difference in %. This is not used in control and will show a slightly lower value than the selected % control values.  |
| 46 | Word    | Read/Write | Air balance purge time. Open time of Purge Air Cylinder valve. Range is 0 – 65535 (546.1 Seconds in a 60Hz system).   |
| 50 | Byte    | Read/Write | Peak energy control enable flag:<br>0 = Disabled<br>1 = Enabled   |
| 51 | Time24  | Read/Write | Begin run inhibit time (hh:mm:ss and am/pm).  |
| 52 | Time24  | Read/Write | End run inhibit time (hh:mm:ss and am/pm).  |
| 53 | Time24  | Read/Write | Power On Restart Delay Time.  |
| 54 | Byte    | Read/Write | Startup Control State:<br>0 = Normal<br>1 = Software Timer<br>2 = Control Transfer<br>3 = Off until reset   |
| 55 | Byte    | Read/Write | Time to Idle at Startup:<br>0 = Retained Idle Time<br>1 = Full Idle Time<br>2 = No Idle Time  |
| 56 | Byte    | Read/Write | Use Random Startup Delay:<br>0 = Disabled<br>1 = Enabled  |
| 63 | Byte    | Read/Write | Strain gauge Target type:<br>0 = Cycle minimum<br>1 = Cycle average<br>2 = Cycle maximum  |
| 64 | Byte    | Read/Write | Conditions for SG adjust:<br>0 = Adjust Valid if running tracking with valid load span (P223)<br>1 = Adjust Running (if unit running)<br>2 = Adjust Always (at all times) |
| 65 | Word    | Read/Write | Cycle minimum target (Lb).  |
| 66 | Word    | Read/Write | Cycle average target (Lb).  |
| 67 | Word    | Read/Write | Cycle maximum target (Lb).  |
| 68 | Word    | Read/Write | SG Load step limit in pounds.   |
| 69 | Word    | Read Only  | SG Load step limit in uV.   |
| 70 | Command | Read/Write | Set zero load i/p offset.<br><br><b>Note:</b> Ensure that Load Cell is fully unloaded.  |
| 71 | Word    | Read/Write | Offset in offset mV – Normally set automatically (20000 = 0.00). Set this Parameter along with P70.   |
| 72 | Word    | Read Only  | Offset in volts – Set this Parameter along with P70.  |
| 73 | Word    | Read/Write | Known load to set gain – Input in lbs. Using known standard calibrated load measuring device.   |
| 74 | Word    | Read/Write | Load input gain - (Lb./mV) Automatically set with P73 or set for specific load cell range.  |

|     |         |            |   |
|-----|---------|------------|---|
| 75  | Display | Read Only  | Load gain Lb/mV or Kg/mV - (Lb./mV) Automatically set with P73.   |
| 76  | Word    | Read Only  | Load raw input and volts - Counts / Volt.   |
| 77  | Word    | Read Only  | Load input in mV.   |
| 78  | Word    | Read Only  | Current Load - lbs.   |
| 79  | Word    | Read Only  | Minimum load last stroke - lbs.   |
| 80  | Word    | Read Only  | Max load last stroke - lbs.   |
| 81  | Word    | Read/Write | Calibration minimum load.   |
| 82  | Word    | Read/Write | Calibration maximum load - lbs.   |
| 83  | Word    | Read Only  | Minimum load from last start - lbs.   |
| 84  | Word    | Read Only  | Maximum load from last start - lbs.   |
| 85  | Word    | Read Only  | Min load since power up - lbs.  |
| 86  | Word    | Read Only  | Max load since power up - lbs.  |
| 87  | Word    | Read Only  | Span over last stroke - lbs.  |
| 88  | Word    | Read Only  | Min span since power up - lbs.  |
| 89  | Word    | Read Only  | Load Average last stroke - lbs.   |
| 90  | Word    | Read Only  | Min average since power up - lbs.   |
| 91  | Word    | Read Only  | Max average since power up - lbs.   |
| 92  | Word    | Read Only  | Min load since power up mV.   |
| 93  | Word    | Read Only  | Max load since power up mV.   |
| 94  | Command | Read/Write | Reset power up min/max Load Values - P85, 86, 88, 90, 91, 92, & 93 are reset.   |
| 95  | Word    | Read Only  | Load fail ADC raw and V - Counts and Volts.   |
| 96  | Word    | Read Only  | Load fail input in mV.  |
| 99  | Command | Read/Write | Calibrate Load Sensor.  |
| 100 | Command | Read/Write | Calibrate Position Reference.   |
| 101 | Byte    | Read/Write | Position Synthesis Type:<br>0 = Simple (Sinusoid)<br>1 = MKII Compensation<br>2 = Calibrated Position   |
| 102 | Word    | Read Only  | Position raw input & Volts - counts & Volts.  |
| 103 | Word    | Read Only  | Position input in volts.  |
| 104 | Word    | Read Only  | Min Position last stroke - Volts (Ref. P271).   |
| 105 | Word    | Read Only  | Max Position last stroke - Volts (Ref. P272).   |
| 106 | Word    | Read Only  | Pos span last stroke.   |
| 107 | Word    | Read Only  | Pos span filtered.  |
| 108 | Word    | Read/Write | Dir. debounce time in ticks.  |
| 109 | Byte    | Read Only  | Bottoms with no position fault.   |
| 113 | Byte    | Read/Write | MK-II Compensate Position. This parameter defines the percentage of the amplitude of the cosine of the 2nd harmonic of the stroke frequency to subtract from the synthesized position which effectively speeds up the down stroke. The range of acceptable values is from 0 to 24%. The value should be 0% for a conventional unit. A value of 20% is recommended for a large Mark II unit. |
| 114 | Byte    | Read/Write | DPS: Load De-skew - Delay (for use when using DPS with Mark II units):<br>0 = 0 mSec<br>1 = 50 mSec<br>2 = 100 mSec<br>3 = 150 mSec<br>4 = 200 mSec<br>5 = 250 mSec<br>6 = 300 mSec<br>7 = 350 mSec   |
| 115 | Byte    | Read/Write | Low Load Cycles for stage 2.  |



|     |         |            |  |
|-----|---------|------------|--|
| 116 | Byte    | Read/Write | Low Load Stage 2 strokes for violation.  |
| 117 | Byte    | Read/Write | Low Load Stage 2 cycles for action.  |
| 120 | Word    | Read/Write | Scratch data 1.  |
| 121 | Word    | Read/Write | Torq% mult factor (if 10= $\geq$ /10).   |
| 122 | Word    | Read/Write | Scratch data 3 – Same as P120.   |
| 123 | Word    | Read/Write | Scratch data 4 – Same as P120.   |
| 124 | Word    | Read/Write | Scratch data 5 – Same as P120.   |
| 125 | Byte    | Read/Write | Good strokes for filter.   |
| 127 | Byte    | Read/Write | Enable Position Switch as Run/Stop input (Monitor Mode Only):<br><br>0 = Disable<br>1 = Enable |
| 128 | Byte    | Read/Write | Good strokes for Position Switch reset.  |
| 129 | Byte    | Read/Write | Log cleared Position Switch error:<br><br>0 = No Log Clear<br>1 = Log Clear                    |
| 130 | Word    | Read/Write | TOS to Position Switch stroke fraction.<br><br>Stroke = 65536 count.                           |
| 131 | Command | Read/Write | Reverse Position Switch setting.   |
| 132 | Word    | Read Only  | Last Position Switch interval. Ticks/sec.  |
| 133 | Byte    | Read/Write | Position Switch as Run /Stop debounce.   |
| 134 | Byte    | Read/Write | Open debounce interval. Ticks/sec.   |
| 135 | Byte    | Read/Write | Use Position Switch opening:<br><br>0 = Use Close<br>1 = Use Open                              |
| 136 | Byte    | Read/Write | Filtered interval minimum % - Minimum allowed as percent of normal from normal.                |
| 137 | Byte    | Read/Write | Filtered interval maximum % - Maximum allowed as percent of normal from normal.                |
| 138 | Byte    | Read Only  | Filtered strokes counter – in counts.  |
| 139 | Word    | Read Only  | Last Stroke interval – counts/second.  |
| 140 | Word    | Read Only  | Filtered Stroke interval – counts/second.  |
| 141 | Word    | Read Only  | Last Stroke Well Speed – (PPM*100).  |
| 142 | Word    | Read Only  | Filtered Well Speed – (PPM*100).   |
| 143 | Byte    | Read Only  | Bottoms counter – in counts.   |
| 144 | Byte    | Read Only  | Debounced closed flag – Open/Closed.   |
| 147 | Word    | Read Only  | Debounced Switches Since Last Turn Off/On.   |
| 149 | Command | Read/Write | Well Speed Change – Clear and reset all SPM information.                                       |
| 160 | Word    | Read Only  | AI-1 raw input and volts – Counts/Volt.  |
| 161 | Word    | Read Only  | AI-1 Input value - Volts.  |
| 162 | Word    | Read Only  | AI-1 Minimum recorded value.   |
| 163 | Word    | Read Only  | AI-1 Maximum recorded value.   |
| 164 | Word    | Read Only  | AI-1 last stroke average.  |
| 165 | Word    | Read Only  | AI-1 Minimum stroke average.   |
| 166 | Word    | Read Only  | AI-1 Maximum stroke average.   |
| 167 | Command | Read/Write | AI-1 Reset minimum/maximum.  |
| 168 | Word    | Read/Write | Latch AI alarms enable.  |
| 170 | Word    | Read/Write | DO 1 on timer – Operator set manual ON time and /or serves as countdown timer. Set in Ticks.   |
| 171 | Word    | Read/Write | DO 2 on timer – Operator set manual ON time and /or serves as countdown timer. Set in Ticks.   |
| 172 | Byte    | Read/Write | DO 1 on flag – Remains in set condition until reset manually or by action code.                |
| 173 | Byte    | Read/Write | DO 2 on flag – Remains in set condition until reset manually or by action code.                |

|     |        |            |  |
|-----|--------|------------|--|
| 174 | Byte   | Read Only  | Current dyno data skip factor.   |
| 175 | Byte   | Read Only  | Dyno data skip factor for last card requested by host.   |
| 176 | Word   | Read Only  | Stroke interval in 1/120 sec ticks for last card requested by host.  |
| 178 | Word   | Read/Write | DO1 action ticks – Number of ticks equal to pulse duration required (Tick = 1/120 Sec.).   |
| 179 | Word   | Read/Write | DO2 action ticks – Seconds (DO1 and DO2).  |
| 180 | Word   | Read Only  | DI status bits:<br><br>Octal Value / DI Location<br>000001 = DI1 (State: 0 = On, 1 = Off)<br>000002 = DI2 (State: 0 = On, 1 = Off)<br>000004 = DI3 (State: 0 = On, 1 = Off)<br>000010 = DI4 (State: 0 = On, 1 = Off)<br>000020 = DI5 (State: 0 = On, 1 = Off)<br>000040 = DI6 (State: 0 = On, 1 = Off)<br>000100 = DI7 (State: 0 = On, 1 = Off)<br>000200 = DI8 (State: 0 = On, 1 = Off) |
| 181 | Word   | Read/Write | DI 1 low order counts - 0 to 65,535 counts and reset to zero.  |
| 182 | Word   | Read/Write | DI 1 high order counts - P181 rollover count.  |
| 183 | Word   | Read/Write | DI 2 low order counts - Same as P181.  |
| 184 | Word   | Read/Write | DI 2 high order counts - Same as P182.   |
| 185 | Word   | Read/Write | DI 3 low order counts - Same as P181.  |
| 186 | Word   | Read/Write | DI 3 high order counts - Same as P182.   |
| 187 | Word   | Read/Write | DI 4 low order counts - Same as P181.  |
| 188 | Word   | Read/Write | DI 4 high order counts - Same as P182.   |
| 189 | Word   | Read/Write | DI 5 low order counts - Same as P181.  |
| 190 | Word   | Read/Write | DI 5 high order counts - Same as P182.   |
| 191 | Word   | Read/Write | DI 6 low order counts - Same as P181.  |
| 192 | Word   | Read/Write | DI 6 high order counts - Same as P182.   |
| 193 | Word   | Read Only  | AI status as DI:<br><br>Octal Value / Description<br>000004 = AI1 Selected<br>000010 = AI2 Selected  |
| 194 | Word   | Read/Write | AI 1 low order counts - Same as P181.  |
| 195 | Word   | Read/Write | AI 1 high order counts - Same as P182.   |
| 196 | Word   | Read/Write | AI 2 low order counts - Same as P181.  |
| 197 | Word   | Read/Write | AI 2 high order counts - Same as P182.   |
| 198 | Word   | Read/Write | AI 3 low order counts - Same as P181.  |
| 199 | Word   | Read/Write | AI 3 high order counts - Same as P182.   |
| 200 | Byte   | Read/Write | Sensor Failure Action:<br><br>0 = Invalid Action<br>1 = Soft time<br>2 = Control Transfer<br>3 = Off/Reset   |
| 204 | Byte   | Read/Write | No. run cycles to average - If zero, value in P206 used.   |
| 205 | Time24 | Read Only  | Recorded average on time - If no value in P205 or P206, P204 controls transfer.  |
| 206 | Time24 | Read/Write | Manual set timer ON time (hh:mm:ss).   |
| 207 | Time24 | Read Only  | Latest average ON time.  |
| 208 | Word   | Read/Write | Low-Low load limit - Pounds.   |
| 209 | Byte   | Read/Write | Low-Low load Violation action:<br><br>0 = Lamp Only - Fault Lamp Illuminates.<br>1 = Soft Time - Software Timer Controls Pumping Unit based on P204.<br>2 = CNTL Xfer - Control is Transferred.  |

|     |        |            |  |
|-----|--------|------------|--|
|     |        |            | <p>3 = Off/Reset - Turns Controller OFF until Reset by Operator.<br/> 4 = Idle Time - Pumping Starts in Idle Time.<br/> 5 = Idle + ALM - Pumping Starts in Idle Time and Fault Lamp Illuminates.<br/> 6 = Start Pump - Starts Pump if Conditions Allow<br/> 7 = No Action - No Action is taken.<br/> 8 = Pulse DO1 - Pulses Digital Output 1 (Wired as DI7/DO7)<br/> 9 = Pulse DO2 - Pulses Digital Output 2 (Wired as DI8/DO8)<br/> 10 = DO1 OFF - Turns DO1 OFF (Wired as DI7/DO7)<br/> 11 = DO2 OFF - Turns DO2 OFF (Wired as DI8/DO8)<br/> 12 = DO1 ON - Turns DO1 ON (Wired as DI7/DO7)<br/> 13 = DO2 ON - Turns DO2 ON (Wired as DI8/DO8)<br/> x6 = Pulse DIOx - Pulses DIOx*<br/> x7 = Turn DIOx OFF - Turns DIOx OFF*<br/> x8 = Turn DIOx ON - Turns DIOx ON*</p> <p>*The small "x" in the last three action codes is user input. For example, to "Pulse" DIO5, input "56" as the Action Code. To turn DIO5 ON, input 58 as the action code.</p> |
| 210 | Word   | Read/Write | Low load limit - Pounds. Not used if set to zero.  |
| 211 | Word   | Read/Write | High load limit - Pounds. Not used if set to zero.   |
| 212 | Word   | Read/Write | Low average load limit - Pounds. Use only if low load goes below zero load (shallow well) and low load limit cannot be used.   |
| 213 | Byte   | Read/Write | High Load violation strokes - Used for P211, and P214 before action. Load limit has a separate counter.  |
| 214 | Byte   | Read/Write | High Load violation action - For P211 and 213.<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset<br>4 = Idle Time<br>5 = Idle + Alarm   |
| 215 | Byte   | Read/Write | Low Load violation strokes - For P210 and 212.   |
| 216 | Byte   | Read/Write | Low Load violation action - For P210, 212, and 215:<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset<br>4 = Idle Time<br>5 = Idle + Alarm  |
| 217 | Word   | Read/Write | Load violation Deadband - pounds.  |
| 218 | Word   | Read/Write | High-High Load limit - pounds.   |
| 219 | Byte   | Read/Write | High-High Load action.   |
| 220 | Byte   | Read/Write | Off time multiplier (0.1 units):<br><br>[15 = 1.5 multiplier]. Disables low load span and cycle run time for set period. Determined by actual power off interval times.  |
| 221 | Time24 | Read/Write | Limit to multiplied time - hh:mm:ss 72:00:00 = 3 Days.   |
| 222 | Byte   | Read/Write | Number of Low Load span strokes required before action - for P223.   |
| 223 | Word   | Read/Write | Minimum valid load span - Pounds. Should be set to 50-70% of Normal Operating Load Span (P87).   |
| 225 | Byte   | Read/Write | Low Load span Action of P223:<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset<br>4 = Idle Time  |

|     |        |            |  |
|-----|--------|------------|--|
|     |        |            | 5 = Idle + Alarm   |
| 226 | Time24 | Read/Write | Load span Well off timer - Time the well has been "off" including power failures. This is multiplied by P220 to get recovery time.   |
| 227 | Time24 | Read/Write | Load span Well on timer - Time left before the recovery time period times out.   |
| 228 | Byte   | Read/Write | Pumpoffs to clear P227.  |
| 230 | Byte   | Read/Write | Immediate pumpoffs for violation - Not used if zero Pump Off allowed before action.  |
| 231 | Byte   | Read/Write | Immediate Pumpoff Action.  |
| 232 | Time24 | Read/Write | Minimum run time (hh:mm:ss). Set at zero to disable.   |
| 233 | Byte   | Read/Write | Minimum run times for action - Number of Consecutive Minimum Cycle run Times Violations before Action [2].   |
| 234 | Byte   | Read/Write | Minimum run time action - Fault msg. "MIN CYCLE action":<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset  |
| 235 | Time24 | Read/Write | Maximum cycle run time - hh:mm:ss. Set to zero to disable.   |
| 236 | Byte   | Read/Write | Maximum cycle runtime Action - Fault Message "MAX CYCLE Action ON TIME":<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset<br>4 = Idle Time<br>5 = Idle + Alarm |
| 237 | Time24 | Read/Write | Maximum daily run time (hh:mm:ss). Not used if set to 00:00:00.  |
| 238 | Byte   | Read/Write | Maximum daily runtime action:<br><br>0 = Lamp Only<br>1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset   |
| 239 | Time24 | Read/Write | Off timer for maximum run, unless changed by operator. Time format.  |
| 240 | Time24 | Read/Write | On timer for maximum run, unless changed by operator. Time format.   |
| 241 | Byte   | Read/Write | Pumpoffs to clear P240.  |
| 242 | Time24 | Read Only  | Qualified cycle ON timer.  |
| 243 | Time24 | Read Only  | Qualified daily ON timer.  |
| 245 | Byte   | Read/Write | Violation entry deglitch time - 2 = 0.1 Seconds.   |
| 246 | Byte   | Read/Write | violation exit deglitch time - 3 = 0.15 Seconds.   |
| 249 | Byte   | Read/Write | AI 1 low action.   |
| 250 | Byte   | Read/Write | AI 1 high action.  |
| 251 | Byte   | Read/Write | AI 2 low action.   |
| 252 | Byte   | Read/Write | AI 2 high action.  |
| 253 | Byte   | Read/Write | AI 3 low action.   |
| 254 | Byte   | Read/Write | AI 3 high action.  |
| 255 | Word   | Read Only  | Current Card Area in Ft-Lb.  |
| 256 | Word   | Read/Write | Minimum Card Area in Ft-Lb.  |
| 257 | Byte   | Read/Write | Minimum Card Area Action.  |
| 258 | Word   | Read/Write | Maximum Card Area in Ft-Lb.  |
| 259 | Byte   | Read/Write | Maximum Card Area Action.  |
| 260 | Byte   | Read/Write | Control Failure Action:<br><br>0 = Lamp Only   |

|     |         |            |   |
|-----|---------|------------|---|
|     |         |            | 1 = Soft Time<br>2 = Control Transfer<br>3 = Off/Reset                              |
| 261 | Time24  | Read/Write | Required time (hh:mm:ss). Must be set to at least 30 seconds less than P20.         |
| 262 | Byte    | Read/Write | Pump On settling time - Delay (Sec) before expected running after start-up.         |
| 263 | Byte    | Read/Write | Pump Off settling time - Delay (Sec) before expected stop after turned off.         |
| 265 | Word    | Read Only  | Min Position Last Cycle.  |
| 266 | Word    | Read Only  | Max position Last Cycle.  |
| 267 | Word    | Read Only  | Min position since power on.  |
| 268 | Word    | Read Only  | Max position since power on.  |
| 270 | Word    | Read/Write | Min position span - 250 = 0.250 Volts. Operator can set to accommodate signal span. |
| 271 | Word    | Read/Write | Min position value - 2125 = 0.125 volts.  |
| 272 | Word    | Read/Write | Max position value - 6000 = 4.000 volts.  |
| 273 | Byte    | Read/Write | Position fault entry time - 5 = 0.250 seconds.                                      |
| 280 | Word    | Read Only  | AI-1 raw input and volts - A/D Counts / Volts.                                      |
| 281 | Word    | Read Only  | AI-1 Input value - Offset Volts.  |
| 282 | Word    | Read Only  | AI-1 Scaled EGU value - Scaled EGU Value.   |
| 283 | Byte    | Read/Write | AI-1 Input type.  |
| 284 | Byte    | Read/Write | AI-1 EGU decimal places.  |
| 285 | Byte    | Read/Write | AI-1 EGU label.   |
| 286 | Word    | Read/Write | AI-1 Scaling low value.   |
| 287 | Word    | Read/Write | AI-1 Scaling high value.  |
| 288 | Word    | Read/Write | AI-1 Low alarm limit.   |
| 289 | Byte    | Read/Write | AI-1 Low alarm action 1.  |
| 290 | Byte    | Read/Write | AI-1 Low alarm action 2.  |
| 291 | Word    | Read/Write | AI-1 High alarm limit.  |
| 292 | Byte    | Read/Write | AI-1 High alarm action 1.   |
| 293 | Byte    | Read/Write | AI-1 High alarm action 2.   |
| 294 | Word    | Read/Write | AI-1 Alarms deadband.   |
| 295 | Word    | Read Only  | AI-1 Min recorded value in Volts.   |
| 296 | Word    | Read Only  | AI-1 Max recorded value in Volts.   |
| 297 | Word    | Read Only  | AI-1 last stroke average in Volts.  |
| 298 | Word    | Read Only  | AI-1 Min stroke average in Volts.   |
| 299 | Word    | Read Only  | AI-1 Max stroke average in Volts.   |
| 300 | Command | Read/Write | AI-1 Reset min/max - Resets all for AI-1.   |

### Parameters 309-599

| Parameter | Data Type | Access     | Description  |
|-----------|-----------|------------|--|
| 309       | Word      | Read/Write | AI alarm status bits:<br><br>Octal Value / Description<br>000001 = Extra Channel 1 Low Alarm<br>000002 = Extra Channel 2 Low Alarm<br>000004 = Extra Channel 1 High Alarm<br>000010 = Extra Channel 2 High Alarm |
| 310       | Word      | Read Only  | AI-2 raw input and volts - Counts / Volts.   |
| 311       | Word      | Read Only  | AI-2 Input value - Volts.  |
| 312       | Word      | Read Only  | AI-2 Scaled EGU value - Scaled EGU Value.  |
| 313       | Byte      | Read/Write | AI-2 Input type.   |
| 314       | Byte      | Read/Write | AI-2 EGU decimal places.   |
| 315       | Byte      | Read/Write | AI-2 EGU label.  |
| 316       | Word      | Read/Write | AI-2 Scaling low value.  |

|     |         |            |  |
|-----|---------|------------|--|
| 317 | Word    | Read/Write | AI-2 Scaling high value.   |
| 318 | Word    | Read/Write | AI-2 Low alarm limit.  |
| 319 | Byte    | Read/Write | AI-2 Low alarm action 1.   |
| 320 | Byte    | Read/Write | AI-2 Low alarm action 2.   |
| 321 | Word    | Read/Write | AI-2 High alarm limit.   |
| 322 | Byte    | Read/Write | AI-2 High alarm action 1.  |
| 323 | Byte    | Read/Write | AI-2 High alarm action 2.  |
| 324 | Word    | Read/Write | AI-2 Alarms deadband.  |
| 325 | Word    | Read Only  | AI-2 Min recorded value.   |
| 326 | Word    | Read Only  | AI-2 Max recorded value.   |
| 329 | Command | Read/Write | AI-2 Reset min/max.  |
| 330 | Word    | Read Only  | AI-3 raw input and volts - Count.  |
| 331 | Word    | Read Only  | AI-3 Input value - Millivolts.   |
| 332 | Word    | Read Only  | AI-3 Scaled EGU value.   |
| 333 | Byte    | Read/Write | AI-3 Input type.   |
| 334 | Byte    | Read/Write | AI-3 EGU decimal places.   |
| 335 | Byte    | Read/Write | AI-3 EGU label.  |
| 336 | Word    | Read/Write | AI-3 Scaling low value.  |
| 337 | Word    | Read/Write | AI-3 Scaling high value.   |
| 338 | Word    | Read/Write | AI-3 Low alarm limit.  |
| 339 | Byte    | Read/Write | AI-3 Low alarm action 1.   |
| 340 | Byte    | Read/Write | AI-3 Low alarm action 2.   |
| 341 | Word    | Read/Write | AI-3 High alarm limit.   |
| 342 | Byte    | Read/Write | AI-3 High alarm action 1.  |
| 343 | Byte    | Read/Write | AI-3 High alarm action 2.  |
| 344 | Word    | Read/Write | AI-3 Alarms deadband.  |
| 345 | Word    | Read Only  | AI-3 Min recorded value.   |
| 346 | Word    | Read Only  | AI-3 Max recorded value.   |
| 349 | Command | Read/Write | AI-3 Reset min/max.  |
| 350 | Command | Read/Write | 15 sec fault lamp test.  |
| 351 | Command | Read/Write | Software reset.  |
| 352 | Command | Read/Write | Repeat last roll display.  |
| 355 | Byte    | Read/Write | Minimum Fault Events.  |
| 356 | Byte    | Read/Write | Minimum Alarm Events.  |
| 357 | Word    | Read/Write | Event Card Enable Bits 1 - Hex value 00 - 0F.  |
| 358 | Word    | Read/Write | Event Card Enable Bits 2 - Hex value 10 - 1F.  |
| 359 | Word    | Read/Write | Event Card Enable Bits 3 - Hex value 20 - 2F.  |
| 360 | Word    | Read/Write | Event Card Enable Bits 4 - Hex value 30 - 3F.  |
| 361 | Word    | Read/Write | Event Card Enable Bits 5 - Hex value 40 - 4F.  |
| 362 | Word    | Read/Write | Event Card Enable Bits 6 - Hex value 50 - 5F.  |
| 363 | Word    | Read/Write | Event Card Enable Bits 7 - Hex value 60.   |
| 365 | Command | Read/Write | Record Event Buffer.   |
| 366 | Command | Read/Write | Clear Event Buffer.  |
| 370 | Display | Read Only  | POC display/position - Percent.  |
| 371 | Display | Read Only  | POC display/load - Percent.  |
| 372 | Display | Read Only  | POC display/P26 method depends on P26 (POC Method). Value shows when <POC DSPLY> is pressed on RPC.  |
| 373 | Word    | Read Only  | Surface card pump fill %.  |
| 374 | Word    | Read Only  | Reason code for load fail alarms:<br><br>1 = load fail conversion error: read_a2d() returns 0xffff.<br>2 = load fail raw error: read_a2d() returns load > 0xffff.<br>3 = load fail calculation error: after scaling the input offset mV value is > 22 mV or < -1 mV. |
| 375 | Word    | Read Only  | Estimated POC load value - Pounds.   |
| 376 | Word    | Read Only  | Load at POC position - Pounds.   |
| 389 | Word    | Read Only  | Last error/status alarm - Shows the last error or status   |

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|     |        |            | alarm.   |
| 390 | Time24 | Read Only  | Time at last program stop.   |
| 391 | Date   | Read Only  | Date at last program stop.   |
| 392 | Time24 | Read Only  | Time at last (re)start.  |
| 393 | Date   | Read Only  | Date at last (re)start.  |
| 394 | Time24 | Read Only  | Last program stop interval.  |
| 395 | Long   | Read Only  | Last fatal error address - Programmer error information only.  |
| 396 | Time24 | Read Only  | Last error/status time.  |
| 397 | Date   | Read Only  | Last error/status date.  |
| 398 | Word   | Read Only  | Days counter - Number of days of operation.  |
| 399 | Time24 | Read Only  | Rollover counter - hh:mm:ss. Current day count.<br><br><b>Note:</b> At 24-hours count goes to P398.  |
| 400 | Time24 | Read Only  | Present pump run time - Run cycle in progress.   |
| 401 | Time24 | Read Only  | Previous interval[1].  |
| 402 | Time24 | Read Only  | Previous interval[2].  |
| 403 | Time24 | Read Only  | Previous interval[3].  |
| 404 | Time24 | Read Only  | Previous interval[4].  |
| 405 | Time24 | Read Only  | Previous interval[5].  |
| 406 | Time24 | Read Only  | Previous interval[6].  |
| 407 | Time24 | Read Only  | Previous interval[7].  |
| 408 | Time24 | Read Only  | Previous interval[8].  |
| 409 | Time24 | Read Only  | Previous interval[9].  |
| 410 | Time24 | Read Only  | Previous interval[10].   |
| 411 | Time24 | Read Only  | Previous interval[11].   |
| 412 | Time24 | Read Only  | Previous interval[10].   |
| 413 | Time24 | Read Only  | Previous interval[13].   |
| 414 | Time24 | Read Only  | Previous interval[14].   |
| 415 | Time24 | Read Only  | Previous interval[15].   |
| 416 | Time24 | Read Only  | Previous interval[16].   |
| 417 | Time24 | Read Only  | Previous interval[17].   |
| 418 | Byte   | Read Only  | Undisturbed pump cycles - Run cycle is from pumping unit start-up by the RPC to pumping unit RPC shut down and the start of idle time.               |
| 419 | Time24 | Read Only  | Present pump off time.   |
| 420 | Time24 | Read Only  | Today's run time - In V2.00 the RPC holds 29 days of run time history in P670 - P699. P420 - P427 are still functional but not the complete history. |
| 421 | Time24 | Read Only  | Yesterdays run time.   |
| 422 | Time24 | Read Only  | Run time 2 days ago.   |
| 423 | Time24 | Read Only  | Run time 3 days ago.   |
| 424 | Time24 | Read Only  | Run time 4 days ago.   |
| 425 | Time24 | Read Only  | Run time 5 days ago.   |
| 426 | Time24 | Read Only  | Run time 6 days ago.   |
| 427 | Time24 | Read Only  | Run time 7 days ago.   |
| 429 | Time24 | Read/Write | Gauge period start time - hh:mm:ss.  |
| 430 | Word   | Read Only  | Today undisturbed cycles.  |
| 431 | Word   | Read Only  | Yesterday undisturbed cycles.  |
| 432 | Time24 | Read Only  | Today undisturbed average run.   |
| 433 | Time24 | Read Only  | Yesterday undisturbed average run.   |
| 434 | Time24 | Read Only  | Time to next gauge time.   |
| 439 | Time24 | Read Only  | Today total undisturbed run.   |
| 440 | N/A.   | N/A.       | Legacy unused 8500 parameter.  |
| 441 | Date   | Read Only  | This period start date.  |
| 442 | Time24 | Read Only  | Today's run time.  |

|     |         |            |   |
|-----|---------|------------|---|
| 443 | Time24  | Read Only  | Yesterdays run time.  |
| 444 | Time24  | Read Only  | Run time 2 days ago.  |
| 445 | Time24  | Read Only  | Run time 3 days ago.  |
| 446 | Time24  | Read Only  | Run time 4 days ago.  |
| 447 | Time24  | Read Only  | Run time 5 days ago.  |
| 448 | Time24  | Read Only  | Run time 6 days ago.  |
| 449 | Time24  | Read Only  | Run time 7 days ago.  |
| 450 | Word    | Read Only  | ADC Zero reference raw input - Counts.  |
| 451 | Word    | Read Only  | ADC Zero reference filtered - Counts.   |
| 452 | Word    | Read Only  | ADC 5 Volt reference raw input - Counts.  |
| 453 | Word    | Read Only  | ADC 5 Volt reference filtered - Counts.   |
| 454 | Word    | Read Only  | ADC Filtered span - Counts.   |
| 455 | Byte    | Read Only  | ADC Failure channel:<br><br>Value / Description<br>1 = Full Scale Calibration<br>2 = Load Input<br>3 = Position Input<br>4 = First Extra  |
| 456 | Word    | Read Only  | Lowest allowed value.   |
| 457 | Word    | Read Only  | Highest allowed value.  |
| 458 | Word    | Read Only  | ADC Failure actual value.   |
| 459 | Command | Read/Write | Reset Idle task timing. Enter to reset Task Times.  |
| 460 | Display | Read Only  | CPU Idle task timing - Interval in Ticks.   |
| 461 | Display | Read Only  | CPU usage profile = xx/yy/zz.<br><br>xx = System Overhead Percent<br>yy = Percent Idle<br>zz = Percent Useful Work  |
| 462 | Byte    | Read Only  | Max Flood Task.   |
| 463 | Word    | Read Only  | Max Flood Time.   |
| 464 | Word    | Read Only  | Flood Counter.  |
| 471 | Byte    | RW         | Display debug parameters.   |
| 472 | Command | Read/Write | Reset to factory default.<br><br><b>Note:</b> All field set parameters are lost if this action taken. Enter eP Service Password in P473 first.  |
| 473 | Word    | Read/Write | Maintenance password.<br><br><b>Note:</b> User Password (8500) allows edits to Read Only parameters, such as run time data. Master Service Password = 5500. This parameter should only be used by eP service personnel. |
| 478 | Byte    | Read Only  | Current F/W version.  |
| 479 | Byte    | Read Only  | Current F/W sub-version.  |
| 480 | Word    | Read Only  | NVS Initialized value.  |
| 481 | Word    | Read Only  | NVS chars used.   |
| 482 | Word    | Read Only  | NVS Unused space (bytes).   |
| 483 | Word    | Read Only  | NVS Used space (bytes).   |
| 484 | Byte    | Read Only  | NVS F/W version.  |
| 485 | Byte    | Read Only  | NVS F/W sub-version.  |
| 486 | Word    | Read Only  | NVS F/W Part Number.  |
| 489 | Byte    | Read/Write | Configuration Change - Set to "1" whenever volatile parameter is changed.   |
| 490 | Byte    | Read Only  | Legacy F/W version.   |
| 491 | Byte    | Read Only  | Legacy F/W sub-version.   |
| 492 | Word    | Read Only  | Hardware option bits 1:   |



|     |      |            |  |
|-----|------|------------|--|
|     |      |            | Octal Value / Description<br>000004 = Memory<br>000010 = Memory Expansion<br>000020 = Indication Bit<br>000040 = Memory Bank Expansion<br>000100 = Control PIO<br>000200 = UART<br>000400 = Radio ID   |
| 493 | Word | Read Only  | Hardware option bits 2:<br><br>Octal Value / Description<br>000001 = Larger EEPROM<br>000002 = CPI Type LCD Display<br>000004 = Keypad (Detected when pressed)<br>000008 = Battery Backup<br>000010 = Densitron Type LCD Display<br>000040 = Enhanced Graphics Display |
| 494 | Word | Read Only  | Hardware option bits 3:<br><br>Value / Description<br>0 = No Comm Boards<br>1 = Unknown or Bad Comm Board<br>2 = UART Board<br>3 = UART Board with Expanded Memory<br>4 = Radio Modem Board<br>5 = Hardwired Modem Board   |
| 496 | Word | Read/Write | Analog inputs enable - AI1 & AI2 channel used. Enter value in Octal.<br><br>If AI1, enter "1".<br>If AI2, enter "2".<br>If both AI1 and AI2, enter "3".  |
| 497 | Word | Read/Write | Digital inputs enable:<br><br>Octal Value / Description<br>000001 = DI1 Selected<br>000002 = DI2 Selected<br>000004 = DI3 Selected<br>000010 = DI4 Selected<br>000020 = DI5 Selected<br>000040 = DI6 Selected<br>000100 = DI7 Selected<br>000200 = DI8 Selected        |
| 498 | Word | Read Only  | N/A.   |
| 499 | Byte | Read/Write | N/A.   |
| 500 | Word | Read/Write | Keypad password.   |
| 501 | Byte | Read/Write | Password timeout - (Minutes) Password at P1 clear if no keypad entry made in time-out interval.  |
| 507 | Byte | Read Only  | EGD Contrast.  |
| 508 | Byte | Read/Write | Updates per second - Every 1 to 5 times per second.  |
| 509 | Byte | Read/Write | Rolls per second - From 2 to 15 rolls / second.  |
| 510 | Word | Read Only  | N/A.   |
| 511 | Word | Read Only  | N/A.   |
| 512 | Word | Read Only  | N/A.   |
| 513 | Word | Read Only  | N/A.   |
| 514 | Byte | Read/Write | Expand Lb Dyno:<br><br>0 = Disable (Sequence from % card to normal card back to % card).<br>1 = Enable (Sequence from % card to expanded pound card to normal card back to % card).  |
| 515 | Word | Read Only  | Auto setup.  |

|     |         |            |   |
|-----|---------|------------|---|
| 516 | Word    | Read Only  | Communication pump on.  |
| 517 | Word    | Read Only  | Communication present.  |
| 518 | Word    | Read Only  | Communication pump off.   |
| 519 | Word    | Read Only  | Communication frozen.   |
| 520 | Word    | Read Only  | Status bits 1.  |
| 521 | Word    | Read Only  | Status bits 2.  |
| 522 | Word    | Read Only  | Status bits 3.  |
| 523 | Command | Read/Write | Clear Errors. Enter to clear.   |
| 524 | Command | Read/Write | Turn Pump On. Enter to activate.  |
| 525 | Command | Read/Write | Idle Pump. Enter to activate.   |
| 526 | Byte    | Read Only  | POC Control state:<br><br>Value / Description<br>0 = Normal or Lamp Only Error<br>1 = Software Timer<br>2 = Control Transferred via Watchdog Relay<br>3 = Off Until Reset by Operator   |
| 527 | Word    | Read Only  | Error bits 1:<br><br>Octal Value / Description<br>000001 "CONTROL FAILURE"<br>000002 " LOW LOAD LIMIT"<br>000004 "HIGH LOAD LIMIT"<br>000010 "LOW LOAD AVERAGE"<br>000020 "POS SWITCH FAIL"<br>000040 "MULTIPLE POS SW"<br>000100 "CLRD POS SEN PRB"<br>000200 "CLRD MULP POS SW"<br>000400 " LOW LOAD SPAN"<br>001000 "LOAD INPUT FAULT"<br>002000 "POS SENSOR FAULT"<br>004000 "CLRD POS SEN PRB"<br>010000 " NO TIMER VALUE"<br>020000 " A/D FAILURE"<br>040000 "MANUAL OFF (31)"<br>100000 "POC OVERRIDE(27)" |
| 528 | Word    | Read Only  | Error bits 2:<br><br>Octal Value / Description<br>000001 IMMED. PUMPOFF<br>000002 MIN CYCLE ONTIME<br>000004 MAX CYCLE ONTIME<br>000010 MAX DAILY ONTIME<br>000020 PARAMS INIT'ED<br>000040 PARAMS EXPANDED<br>000100 PARMS FROM EEPROM<br>000200 "EEPROM CELL BAD"<br>000400 EEPROM FAILURE<br>001000 BAD STATUS VAR<br>002000 BAD ERROR BIT(S)<br>004000 ? TIME ? DATE ?<br>010000 BAD TIME&DATE IC<br>020000 WRONG LINE FREQ<br>040000 MANUAL CTRL XFER<br>100000 MANUAL SOFT TIME                             |
| 529 | Word    | Read Only  | Error bits 3:<br><br>Octal Value / Description<br>000001 CPU FELL BEHIND<br>000002 CLRD BAD RTC CHP<br>000004 MTR OFF TOO LONG<br>000010 DI1 CLOSED ALARM   |

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|-----|------|-----------|---|
|     |      |           | 000020 DI1 OPEN ALARM<br>000040 DI2 CLOSED ALARM<br>000100 DI2 OPEN ALARM<br>000200 AI1 DIG 0 ALARM<br>000400 AI1 DIG 1 ALARM<br>001000 AI2 DIG 0 ALARM<br>002000 AI2 DIG 1 ALARM<br>004000 AI3 DIG 0 ALARM<br>010000 AI3 DIG 1 ALARM<br>020000 HI-HI LOAD LIMIT<br>040000 REVERSE PUMPOFF<br>100000 AB AMPS TOO LOW  |
| 530 | Word | Read Only | Error bits 4:<br><br>Octal Value / Description<br>000001 DI3 CLOSED ALARM<br>000002 DI3 OPEN ALARM<br>000004 DI4 CLOSED ALARM<br>000010 DI4 OPEN ALARM<br>000020 DI5 CLOSED ALARM<br>000040 DI5 OPEN ALARM<br>000100 DI6 CLOSED ALARM<br>000200 DI6 OPEN ALARM<br>000400 AI1 LOW LIMIT<br>001000 AI1 HIGH LIMIT<br>002000 AI2 LOW LIMIT<br>004000 AI2 HIGH LIMIT<br>010000 AI3 LOW LIMIT<br>020000 AI3 HIGH LIMIT<br>040000 AB ADD AIR FORCE<br>100000 AB REL AIR FORCE   |
| 531 | Word | Read Only | Error bits 5:<br><br>Octal Value / Description<br>000001 DI7 CLOSED ALARM<br>000002 DI7 OPEN ALARM<br>000004 DI8 CLOSED ALARM<br>000010 DI8 OPEN ALARM<br>000020 PROGRAM ERROR<br>000040 BAD SHUTDOWN<br>000100 AI4 LOW LIMIT<br>000200 AI4 HIGH LIMIT<br>000400 AI5 LOW LIMIT<br>001000 AI5 HIGH LIMIT<br>002000 AI6 LOW LIMIT<br>004000 AI6 HIGH LIMIT<br>010000 AI7 LOW LIMIT<br>020000 AI7 HIGH LIMIT<br>040000 AI8 LOW LIMIT<br>100000 AI8 HIGH LIMIT  |
| 532 | Word | Read Only | Error bits 6:<br><br>000001 RUN UNDER 50%<br>000002 DIVIDE ERROR<br>000004 FLUID CALC ERR - x052<br>000010 LONG LOW LD SPAN - x053<br>000020 LOW CARD AREA - x054<br>000040 HIGH CARD AREA - x055<br>000100 LO-LO LOAD LIMIT - x056<br>000200 LOAD CONV FAIL - EPIC II - x057<br>000400 VSD LEARN ERR (P1173) - EPIC II - VSD - x058<br>001000 HOA Sw = HAND - EPIC II - VSD - x059<br>002000 VSD Config Error - EPIC II - VSD - x060<br>004000 HOA Sw = OFF - EPIC II - VSD - x061<br>010000 PWR-ON STATE OPT - x062 |

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|-----|------|-----------|---|
|     |      |           | 020000 DAC Fail - EPIC II - DAC - x063<br>040000 VSD OVERTIME - EPIC II - VSD - x064<br>100000 VSD LO FILLAGE - EPIC II - x065  |
| 533 | Word | Read Only | Error bits 7 (Host alarms)<br><br>000001 GEARBOX TORQUE<br>000002 MAX LOAD DEVIATION<br>000004 MIN LOAD DEVIATION<br>00010 LOAD SPAN DEVIATION<br>000020 UNIT OUT OF BALANCE<br>000040 RUN TIME DEVIATION<br>000100 CARD AREA DEVIATION<br>000200 LOW PUMPING EFFICIENCY<br>000400 HIGH ROD STRESS<br>01000 PRIME MOVER SIZE<br>002000 HOST ALARM 10<br>004000 HOST ALARM 11<br>010000 HOST ALARM 12<br>020000 HOST ALARM 13<br>040000 HOST ALARM 14<br>100000 HOST ALARM 15              |
| 535 | Word | Read Only | Non-clearable err bits 1:<br><br>Octal Value Error Display<br>000001 BAD ROM CRC<br>000002 BAD COMM BOARD<br>000004 CONSTANT COM INT<br>000010 P535-Bit 3 ERR<br>000020 P535-Bit 4 ERR<br>000040 P535-Bit 5 ERR<br>000100 P535-Bit 6 ERR<br>000200 P535-Bit 7 ERR<br>000400 BAD POWER STATUS<br>001000 NO AC POWER<br>002000 BATTERY LOW<br>004000 P535-Bit 11 ERR<br>010000 P535-Bit 12 ERR<br>020000 P535-Bit 13 ERR<br>040000 P535-Bit 14 ERR<br>100000 P535-Bit 15 ERR                |
| 536 | Word | Read Only | Non-clearable err bits 2:<br><br>Octal Value / Description<br>000001 NO TOP OF STROKE<br>000002 P536-Bit 1 ERR<br>000004 P536-Bit 2 ERR<br>000010 PARAM 21 MISSING<br>000020 PARAM 22 INVALID<br>000040 PARAM 23 MISSING<br>000100 PARAM 24 MISSING<br>000200 P536-Bit 7 ERR<br>000400 P536-Bit 8 ERR<br>001000 P536-Bit 9 ERR<br>002000 PARAM 20 MISSING<br>004000 P536-Bit 11 ERR<br>010000 P536-Bit 12 ERR<br>020000 NO POS MEMORY<br>040000 P536-Bit 14 ERR<br>100000 P536-Bit 15 ERR |
| 537 | Word | Read Only | Non-clearable err bits 3:<br><br>Octal Value / Description<br>000001 RESTART NEEDED<br>000002 BAD EVENT BUFFER  |

|     |      |           |  |
|-----|------|-----------|--|
|     |      |           | <p>000004 BAD POSITION CAL<br/> 000010 P537-Bit 3 ERR<br/> 000020 TEMP CONTRL LOSS<br/> 000040 P537-Bit 5 ERR<br/> 000100 P537-Bit 6 ERR<br/> 000200 BAD FLUID PARAM<br/> 000400 COMM OUTPUT TEST<br/> 001000 I/O ID FAILURE<br/> 002000 UNSUPPORTED I/O<br/> 004000 NO I/O EXP BOARD<br/> 010000 NO EXP COMM BD<br/> 020000 P537-Bit 13 ERR<br/> 040000 P537-Bit 14 ERR<br/> 100000 P537-Bit 15 ERR</p>   |
| 540 | Byte | Read Only | <p>Worst POC Control state:</p> <p>Value / Description<br/> 0 = Normal or Lamp Only if error(s)<br/> 1 = Software Timer<br/> 2 = Control Transferred by Watchdog Relay<br/> 3 = Off Until Reset by Operator</p>  |
| 541 | Word | Read Only | <p>Accumulated error bits 1:</p> <p>Octal Value / Description<br/> 000001 "CONTROL FAILURE"<br/> 000002 " LOW LOAD LIMIT"<br/> 000004 "HIGH LOAD LIMIT"<br/> 000010 "LOW LOAD AVERAGE"<br/> 000020 "POS SWITCH FAIL"<br/> 000040 "MULTIPLE POS SW"<br/> 000100 "CLRD POS SEN PRB"<br/> 000200 "CLRD MULP POS SW"<br/> 000400 " LOW LOAD SPAN"<br/> 001000 "LOAD INPUT FAULT"<br/> 002000 "POS SENSOR FAULT"<br/> 004000 "CLRD POS SEN PRB"<br/> 010000 " NO TIMER VALUE"<br/> 020000 " A/D FAILURE"<br/> 040000 "MANUAL OFF (31)"<br/> 100000 "POC OVERRIDE(27)"</p> |
| 542 | Word | Read Only | <p>Accumulated error bits 2:</p> <p>Octal Value / Description<br/> 000001 IMMED. PUMPOFF<br/> 000002 MIN CYCLE ONTIME<br/> 000004 MAX CYCLE ONTIME<br/> 000010 MAX DAILY ONTIME<br/> 000020 PARAMS INIT'ED<br/> 000040 PARAMS EXPANDED<br/> 000100 PARMS FROM EEPROM<br/> 000200 "EEPROM CELL BAD"<br/> 000400 EEPROM FAILURE<br/> 001000 BAD STATUS VAR<br/> 002000 BAD ERROR BIT(S)<br/> 004000 ? TIME ? DATE ?<br/> 010000 BAD TIME&amp;DATE IC<br/> 020000 WRONG LINE FREQ<br/> 040000 MANUAL CTRL XFER<br/> 100000 MANUAL SOFT TIME</p>                         |
| 543 | Word | Read Only | <p>Accumulated error bits 3:</p> <p>Octal Value / Description<br/> 000001 CPU FELL BEHIND<br/> 000002 CLRD BAD RTC CHP</p>   |

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|-----|------|-----------|--|
|     |      |           | 000004 MTR OFF TOO LONG<br>000010 DI1 CLOSED ALARM<br>000020 DI1 OPEN ALARM<br>000040 DI2 CLOSED ALARM<br>000100 DI2 OPEN ALARM<br>000200 AI1 DIG 0 ALARM<br>000400 AI1 DIG 1 ALARM<br>001000 AI2 DIG 0 ALARM<br>002000 AI2 DIG 1 ALARM<br>004000 AI3 DIG 0 ALARM<br>010000 AI3 DIG 1 ALARM<br>020000 HI-HI LOAD LIMIT<br>040000 REVERSE PUMPOFF<br>100000 AB AMPS TOO LOW   |
| 544 | Word | Read Only | Accumulated error bits 4:<br><br>Octal Value / Description<br>000001 DI3 CLOSED ALARM<br>000002 DI3 OPEN ALARM<br>000004 DI4 CLOSED ALARM<br>000010 DI4 OPEN ALARM<br>000020 DI5 CLOSED ALARM<br>000040 DI5 OPEN ALARM<br>000100 DI6 CLOSED ALARM<br>000200 DI6 OPEN ALARM<br>000400 AI1 LOW LIMIT<br>001000 AI1 HIGH LIMIT<br>002000 AI2 LOW LIMIT<br>004000 AI2 HIGH LIMIT<br>010000 AI3 LOW LIMIT<br>020000 AI3 HIGH LIMIT<br>040000 AB ADD AIR FORCE<br>100000 AB REL AIR FORCE                                      |
| 545 | Word | Read Only | Accumulated error bits 5:<br><br>Octal Value / Description<br>000001 DI7 CLOSED ALARM<br>000002 DI7 OPEN ALARM<br>000002 DI7 OPEN ALARM<br>000002 DI7 OPEN ALARM<br>000004 DI8 CLOSED ALARM<br>000010 DI8 OPEN ALARM<br>000020 PROGRAM ERROR<br>000040 BAD SHUTDOWN<br>000100 AI4 LOW LIMIT<br>000200 AI4 HIGH LIMIT<br>000400 AI5 LOW LIMIT<br>001000 AI5 HIGH LIMIT<br>002000 AI6 LOW LIMIT<br>004000 AI6 HIGH LIMIT<br>010000 AI7 LOW LIMIT<br>020000 AI7 HIGH LIMIT<br>040000 AI8 LOW LIMIT<br>100000 AI8 HIGH LIMIT |
| 546 | Word | Read Only | Accumulated error bits 6:<br><br>Octal Value / Description<br>000001 RUN UNDER 50%<br>000002 DIVIDE ERROR<br>000004 FLUID CALC ERR<br>000010 LONG LOW LD SPAN<br>000020 LOW CARD AREA<br>000040 HIGH CARD AREA<br>000100 LO-LO LOAD LIMIT  |

|     |         |            |   |
|-----|---------|------------|---|
|     |         |            | 000200 LOAD CONV FAIL - EPIC II<br>000400 VSD LEARN ERR (P1173) - EPIC II - VSD<br>001000 HOA Sw = HAND - EPIC II - VSD<br>002000 VSD Config Error - EPIC II - VSD<br>004000 HOA Sw = OFF - EPIC II - VSD<br>010000 PWR-ON STATE OPT<br>020000 DAC Fail - EPIC II - DAC<br>040000 VSD OVERTIME - EPIC II - VSD<br>100000 VSD LO FILLAGE - EPIC II   |
| 547 | Word    | Read Only  | Accumulated error bits 7 (Host alarms)<br><br>Octal Value / Description<br>000001 GEARBOX TORQUE<br>000002 MAX LOAD DEVIATION<br>000004 MIN LOAD DEVIATION<br>000010 LOAD SPAN DEVIATION<br>000020 UNIT OUT OF BALANCE<br>000040 RUN TIME DEVIATION<br>000100 CARD AREA DEVIATION<br>000200 LOW PUMPING EFFICIENCY<br>000400 HIGH ROD STRESS<br>001000 PRIME MOVER SIZE<br>002000 HOST ALARM 10<br>004000 HOST ALARM 11<br>010000 HOST ALARM 12<br>020000 HOST ALARM 13<br>040000 HOST ALARM 14<br>100000 HOST ALARM 15 |
| 549 | Display | Read Only  | Firmware part number.   |
| 550 | Display | Read Only  | Firmware source full ID.  |
| 551 | Display | Read Only  | Firmware compiled date.   |
| 552 | Display | Read Only  | Firmware compiled time.   |
| 555 | Display | Read Only  | Controller ID message.  |
| 556 | Command | Read/Write | Rolling unit ID message.  |
| 557 | Word    | Read Only  | Legacy Unused 8500 Parameter.   |
| 558 | Word    | Read Only  | Legacy Unused 8500 Parameter.   |
| 560 | Byte    | Read/Write | DI 1 closed (ON) action.  |
| 561 | Byte    | Read/Write | DI 1 open (OFF) action.   |
| 562 | Byte    | Read/Write | DI 2 closed (ON) action.  |
| 563 | Byte    | Read/Write | DI 2 open (OFF) action.   |
| 564 | Byte    | Read/Write | DI 3 closed (ON) action.  |
| 565 | Byte    | Read/Write | DI 3 open (OFF) action.   |
| 566 | Byte    | Read/Write | DI 4 closed (ON) action.  |
| 567 | Byte    | Read/Write | DI 4 open (OFF) action.   |
| 568 | Byte    | Read/Write | DI 5 closed (ON) action.  |
| 569 | Byte    | Read/Write | DI 5 open (OFF) action.   |
| 570 | Byte    | Read/Write | DI 6 closed (ON) action.  |
| 571 | Byte    | Read/Write | DI 6 open (OFF) action.   |
| 572 | Byte    | Read/Write | DI 7 closed (ON) action.  |
| 573 | Byte    | Read/Write | DI 7 open (OFF) action.   |
| 574 | Byte    | Read/Write | DI 8 closed (ON) action.  |
| 575 | Byte    | Read/Write | DI 8 open (OFF) action.   |
| 578 | Word    | Read/Write | Non-Functional.   |
| 579 | Word    | Read/Write | Non-Functional.   |
| 580 | Word    | Read/Write | D/O 1 pulse timer.  |
| 581 | Word    | Read/Write | D/O 2 pulse timer.  |
| 582 | Word    | Read/Write | D/O 3 pulse timer.  |
| 583 | Word    | Read/Write | D/O 4 pulse timer.  |
| 584 | Word    | Read/Write | D/O 5 pulse timer.  |

|     |      |            |  |
|-----|------|------------|--|
| 585 | Word | Read/Write | D/O 6 pulse timer  |
| 586 | Word | Read/Write | D/O 7 pulse timer.   |
| 587 | Word | Read/Write | D/O 8 pulse timer.   |
| 590 | Word | Read/Write | D/O 1 pulse ticks (120 ticks = 1 sec.).  |
| 591 | Word | Read/Write | D/O 2 pulse ticks (120 ticks = 1 sec.).  |
| 592 | Word | Read/Write | D/O 3 pulse ticks (120 ticks = 1 sec.).  |
| 593 | Word | Read/Write | D/O 4 pulse ticks (120 ticks = 1 sec.).  |
| 594 | Word | Read/Write | D/O 5 pulse ticks (120 ticks = 1 sec.).  |
| 595 | Word | Read/Write | D/O 6 pulse ticks (120 ticks = 1 sec.).  |
| 596 | Word | Read/Write | D/O 7 pulse ticks (120 ticks = 1 sec.).  |
| 597 | Word | Read/Write | D/O 8 pulse ticks (120 ticks = 1 sec.).  |
| 598 | Word | Read/Write | D/O ON flag bits:<br><br>Octal Value / Description<br>000001 = DIO1 on Flag<br>000002 = DIO2 on Flag<br>000004 = DIO3 on Flag<br>000010 = DIO4 on Flag<br>000020 = DIO5 on Flag<br>000040 = DIO6 on Flag<br>000100 = DIO7 on Flag<br>000200 = DIO8 on Flag |
| 599 | Word | Read Only  | D/O status bits:<br><br>Octal Value / Description<br>000001 = DIO1 Closed<br>000002 = DIO2 Closed<br>000004 = DIO3 Closed<br>000010 = DIO4 Closed<br>000020 = DIO5 Closed<br>000040 = DIO6 Closed<br>000100 = DIO7 Closed<br>000200 = DIO8 Closed          |

### Parameters 601-900

| Parameter | Data Type | Access     | Description   |
|-----------|-----------|------------|---|
| 601       | Byte      | Read/Write | Remote data format.   |
| 602       | Byte      | Read/Write | Remote baud rate.   |
| 603       | Word      | Read Only  | Communications status bits:<br><br>Octal Value / Description<br>000001 = CRC Security<br>000002 = Large Receive Buffer<br>000004 = Large Transmit Buffer<br>000010 = Using Modem<br>000020 = Communication Out Test |
| 604       | Byte      | Read/Write | Present MMI data format.  |
| 605       | Byte      | Read/Write | Present MMI baud rate.  |
| 606       | Byte      | Read/Write | Carrier detect ON delay - in ticks.   |
| 607       | Byte      | Read/Write | Carrier detect OFF delay - in ticks.  |
| 608       | Byte      | Read/Write | Carrier detect drop limit - in ticks.   |
| 609       | Byte      | Read/Write | Radio turn ON delay - 30 = 0.25 seconds in ticks.   |
| 610       | Byte      | Read/Write | Radio turn OFF delay - 12 = 0.1 seconds in ticks.   |
| 611       | Byte      | Read/Write | Max radio ON time in seconds.   |
| 612       | Byte      | Read/Write | Receive timeout in seconds.   |
| 613       | Byte      | Read/Write | Modem port protocol:<br><br>Value / Description   |



|     |         |            |  |
|-----|---------|------------|--|
|     |         |            | 0 = 8500 (Remote)<br>1 = 8550 (Local)<br>2 = MODBUS ASCII<br>3 = MODBUS RTU  |
| 614 | Byte    | Read/Write | Modbus Card Type:<br><br>Value / Description<br>0 = Start-up<br>1 = Live Action<br>2 = Shutdown<br>3 = Valve Check   |
| 615 | Byte    | Read/Write | Modbus Card Load option:<br><br>Value / Description<br>0 = Pound<br>1 = Percent  |
| 616 | Byte    | Read/Write | Modbus Card Number:<br><br>Value / Description<br>0 = Card 1<br>1 = Card 2<br>2 = Card 3<br>3 = Card 4<br>4 = Card 5   |
| 617 | Byte    | Read/Write | Modbus Card Position type:<br><br>Value / Description<br>0 = Synthesized Fraction<br>1 = Fractional Actual<br>2 = Voltage  |
| 618 | Byte    | Read/Write | 8500 protocol dyno data format:<br><br>0=Original<br>1=Data Skip   |
| 619 | Byte    | Read/Write | Position data available. The actual position data available from RPC for analysis programs: the operator must enter proper value to provide controller compatibility with host software. Enter value in P619 as follows:<br><br>0 = When no continuous position data is available to the controller.<br>1 = To be used when continuous position input data is available to the controller and 8500 protocol used.<br>2 = Calibration of the Position Sensor. |
| 620 | Word    | Read/Write | Communications group address.  |
| 621 | Word    | Read Only  | Maximum radio ON time in ticks.  |
| 622 | Word    | Read Only  | Maximum transmit message time in ticks.  |
| 623 | Word    | Read Only  | Maximum transmit message in bytes.   |
| 624 | Word    | Read Only  | transmit buffer size (bytes).  |
| 625 | N/A.    | N/A.       | Legacy Unused 8500 Parameter.  |
| 626 | N/A.    | N/A.       | Legacy Unused 8500 Parameter.  |
| 627 | N/A.    | N/A.       | Legacy Unused 8500 Parameter.  |
| 628 | Byte    | Read/Write | All address respond time - RPC responds to host inquiries for this time duration. Transmit address is ignored.   |
| 629 | Command | Read/Write | Clear communications statistics - Clear P630 through P642. Enter to clear.   |
| 630 | Display | Read Only  | Last data received as ASCII.   |
| 631 | Word    | Read/Write | Character errors.  |
| 632 | Word    | Read/Write | Characters received.   |
| 633 | Word    | Read/Write | Header characters received.  |
| 634 | Word    | Read/Write | Trailer characters received.   |

|     |        |            |  |
|-----|--------|------------|--|
| 635 | Word   | Read/Write | Framed messages received.  |
| 636 | Word   | Read/Write | Good framed messages received.   |
| 637 | Word   | Read/Write | Messages processed.  |
| 638 | Word   | Read/Write | Commands processed.  |
| 639 | Word   | Read/Write | Responses transmitted.   |
| 640 | Word   | Read/Write | Characters transmitted.  |
| 641 | Word   | Read/Write | Max Delay time. This is the maximum delay time between receiving a request on the modem port and keying RTS since system reset (max value since reset).      |
| 642 | Word   | Read/Write | Last Delay time. This is the time from receiving the last request on the modem port to de-asserting RTS (Last value calculated).                             |
| 644 | Byte   | Read/Write | Tx test spacing delay.   |
| 645 | Byte   | Read Only  | Last character received.   |
| 646 | Byte   | Read/Write | Tx test data format.   |
| 647 | Byte   | Read/Write | Tx test character.   |
| 648 | Byte   | Read/Write | Tx test time in seconds.   |
| 650 | Long   | Read Only  | Current Time of Day - in seconds.  |
| 651 | Long   | Read Only  | System Shutdown Time - in seconds.   |
| 652 | Long   | Read Only  | System Startup Time - in seconds.  |
| 653 | Long   | Read Only  | POC State Change Time - in seconds.  |
| 654 | Word   | Read/Write | Communication parity errors counter.   |
| 655 | Word   | Read/Write | Communication framing errors counter.  |
| 656 | Word   | Read/Write | Communication overrun errors counter.  |
| 660 | Byte   | Read/Write | Cursor location.   |
| 661 | Byte   | Read/Write | LCD Test Timer.  |
| 665 | N/A.   | N/A.       | Legacy Unused 8500 Parameter.  |
| 666 | N/A.   | N/A.       | Legacy Unused 8500 Parameter.  |
| 667 | N/A.   | N/A.       | Legacy Unused 8500 Parameter.  |
| 668 | Byte   | Read Only  | RTC Error code:<br><br>Value / Description<br>0 = No Error<br>1 = Bad Second Interval<br>2 = Read All 1's<br>3 = Write Confirm<br>4 = Cannot Read Same Twice |
| 669 | Byte   | Read Only  | Seconds value from RTC.  |
| 670 | Time24 | Read Only  | Today's run time.  |
| 671 | Time24 | Read Only  | Yesterday's run time.  |
| 672 | Time24 | Read Only  | Run time 2 days ago.   |
| 673 | Time24 | Read Only  | Run time 3 days ago.   |
| 674 | Time24 | Read Only  | Run time 4 days ago.   |
| 675 | Time24 | Read Only  | Run time 5 days ago.   |
| 676 | Time24 | Read Only  | Run time 6 days ago.   |
| 677 | Time24 | Read Only  | Run time 7 days ago.   |
| 678 | Time24 | Read Only  | Run time 8 days ago.   |
| 679 | Time24 | Read Only  | Run time 9 days ago.   |
| 680 | Time24 | Read Only  | Run time 10 days ago.  |
| 681 | Time24 | Read Only  | Run time 11 days ago.  |
| 682 | Time24 | Read Only  | Run time 12 days ago.  |
| 683 | Time24 | Read Only  | Run time 13 days ago.  |
| 684 | Time24 | Read Only  | Run time 14 days ago.  |
| 685 | Time24 | Read Only  | Run time 15 days ago.  |
| 686 | Time24 | Read Only  | Run time 16 days ago.  |
| 687 | Time24 | Read Only  | Run time 17 days ago.  |
| 688 | Time24 | Read Only  | Run time 18 days ago.  |

|     |         |            |                             |
|-----|---------|------------|-----------------------------|
| 689 | Time24  | Read Only  | Run time 19 days ago.       |
| 690 | Time24  | Read Only  | Run time 20 days ago.       |
| 691 | Time24  | Read Only  | Run time 21 days ago.       |
| 692 | Time24  | Read Only  | Run time 22 days ago.       |
| 693 | Time24  | Read Only  | Run time 23 days ago.       |
| 694 | Time24  | Read Only  | Run time 24 days ago.       |
| 695 | Time24  | Read Only  | Run time 25 days ago.       |
| 696 | Time24  | Read Only  | Run time 26 days ago.       |
| 697 | Time24  | Read Only  | Run time 27 days ago.       |
| 698 | Time24  | Read Only  | Run time 28 days ago.       |
| 699 | Time24  | Read Only  | Run time 29 days ago.       |
| 700 | Word    | Read Only  | AI-4 raw input and volts.   |
| 701 | Word    | Read Only  | AI-4 Input value.           |
| 702 | Word    | Read Only  | AI-4 Scaled EGU value.      |
| 703 | Byte    | Read/Write | AI-4 Input type.            |
| 704 | Byte    | Read/Write | AI-4 EGU decimal places.    |
| 705 | Byte    | Read/Write | AI-4 EGU label.             |
| 706 | Word    | Read/Write | AI-4 Scaling low value.     |
| 707 | Word    | Read/Write | AI-4 Scaling high value.    |
| 708 | Word    | Read/Write | AI-4 Low alarm limit.       |
| 709 | Byte    | Read/Write | AI-4 Low alarm action 1.    |
| 710 | Byte    | Read/Write | AI-4 Low alarm action 2.    |
| 711 | Word    | Read/Write | AI-4 High alarm limit.      |
| 712 | Byte    | Read/Write | AI-4 High alarm action 1.   |
| 713 | Byte    | Read/Write | AI-4 High alarm action 2.   |
| 714 | Word    | Read/Write | AI-4 Alarms deadband.       |
| 715 | Word    | Read Only  | AI-4 Min recorded value.    |
| 716 | Word    | Read Only  | AI-4 Max recorded value.    |
| 719 | Command | Read/Write | AI-4 Reset minimum/maximum. |
| 720 | Word    | Read Only  | AI-5 raw input and volts.   |
| 721 | Word    | Read Only  | AI-5 Input value.           |
| 722 | Word    | Read Only  | AI-5 Scaled EGU value.      |
| 723 | Byte    | Read/Write | AI-5 Input type.            |
| 724 | Byte    | Read/Write | AI-5 EGU decimal places.    |
| 725 | Byte    | Read/Write | AI-5 EGU label.             |
| 726 | Word    | Read/Write | AI-5 Scaling low value.     |
| 727 | Word    | Read/Write | AI-5 Scaling high value.    |
| 728 | Word    | Read/Write | AI-5 Low alarm limit.       |
| 729 | Byte    | Read/Write | AI-5 Low alarm action 1.    |
| 730 | Byte    | Read/Write | AI-5 Low alarm action 2.    |
| 731 | Word    | Read/Write | AI-5 High alarm limit.      |
| 732 | Byte    | Read/Write | AI-5 High alarm action 1.   |
| 733 | Byte    | Read/Write | AI-5 High alarm action 2.   |
| 734 | Word    | Read/Write | AI-5 Alarms deadband.       |
| 735 | Word    | Read Only  | AI-5 Min recorded value.    |
| 736 | Word    | Read Only  | AI-5 Max recorded value.    |
| 739 | Command | Read/Write | AI-5 Reset minimum/maximum. |
| 740 | Word    | Read Only  | AI-6 raw input and volts.   |
| 741 | Word    | Read Only  | AI-6 Input value.           |
| 742 | Word    | Read Only  | AI-6 Scaled EGU value.      |
| 743 | Byte    | Read/Write | AI-6 Input type.            |
| 744 | Byte    | Read/Write | AI-6 EGU decimal places.    |
| 745 | Byte    | Read/Write | AI-6 EGU label.             |
| 746 | Word    | Read/Write | AI-6 Scaling low value.     |
| 747 | Word    | Read/Write | AI-6 Scaling high value.    |

|     |         |            |   |
|-----|---------|------------|---|
| 748 | Word    | Read/Write | AI-6 Low alarm limit.   |
| 749 | Byte    | Read/Write | AI-6 Low alarm action 1.  |
| 750 | Byte    | Read/Write | AI-6 Low alarm action 2.  |
| 751 | Word    | Read/Write | AI-6 High alarm limit.  |
| 752 | Byte    | Read/Write | AI-6 High alarm action 1.   |
| 753 | Byte    | Read/Write | AI-6 High alarm action 2.   |
| 754 | Word    | Read/Write | AI-6 Alarms deadband.   |
| 755 | Word    | Read Only  | AI-6 Min recorded value.  |
| 756 | Word    | Read Only  | AI-6 Max recorded value.  |
| 759 | Command | Read/Write | AI-6 Reset minimum/maximum.   |
| 760 | Word    | Read Only  | AI-7 raw input and volts.   |
| 761 | Word    | Read Only  | AI-7 Input value.   |
| 762 | Word    | Read Only  | AI-7 Scaled EGU value.  |
| 763 | Byte    | Read/Write | AI-7 Input type.  |
| 764 | Byte    | Read/Write | AI-7 EGU decimal places.  |
| 765 | Byte    | Read/Write | AI-7 EGU label.   |
| 766 | Word    | Read/Write | AI-7 Scaling low value.   |
| 767 | Word    | Read/Write | AI-7 Scaling high value.  |
| 768 | Word    | Read/Write | AI-7 Low alarm limit.   |
| 769 | Byte    | Read/Write | AI-7 Low alarm action 1.  |
| 770 | Byte    | Read/Write | AI-7 Low alarm action 2.  |
| 771 | Word    | Read/Write | AI-7 High alarm limit.  |
| 772 | Byte    | Read/Write | AI-7 High alarm action 1.   |
| 773 | Byte    | Read/Write | AI-7 High alarm action 2.   |
| 774 | Word    | Read/Write | AI-7 Alarms deadband.   |
| 775 | Word    | Read Only  | AI-7 Min recorded value.  |
| 776 | Word    | Read Only  | AI-7 Max recorded value.  |
| 779 | Command | Read/Write | AI-7 Reset min/max.   |
| 780 | Word    | Read Only  | AI-8 raw input and volts.   |
| 781 | Word    | Read Only  | AI-8 Input value.   |
| 782 | Word    | Read Only  | AI-8 Scaled EGU value.  |
| 783 | Byte    | Read/Write | AI-8 Input type.  |
| 784 | Byte    | Read/Write | AI-8 EGU decimal places.  |
| 785 | Byte    | Read/Write | AI-8 EGU label.   |
| 786 | Word    | Read/Write | AI-8 Scaling low value.   |
| 787 | Word    | Read/Write | AI-8 Scaling high value.  |
| 788 | Word    | Read/Write | AI-8 Low alarm limit.   |
| 789 | Byte    | Read/Write | AI-8 Low alarm action 1.  |
| 790 | Byte    | Read/Write | AI-8 Low alarm action 2.  |
| 791 | Word    | Read/Write | AI-8 High alarm limit.  |
| 792 | Byte    | Read/Write | AI-8 High alarm action 1.   |
| 793 | Byte    | Read/Write | AI-8 High alarm action 2.   |
| 794 | Word    | Read/Write | AI-8 Alarms deadband.   |
| 795 | Word    | Read Only  | AI-8 Min recorded value.  |
| 796 | Word    | Read Only  | AI-8 Max recorded value.  |
| 799 | Command | Read/Write | AI-8 Reset min/max.   |
| 800 | Byte    | Read/Write | Fluid calculation X1 point in %.  |
| 801 | Byte    | Read/Write | Fluid calculation X2 point in %.  |
| 802 | Byte    | Read/Write | Fluid calculation Y1 point in %.  |
| 803 | Byte    | Read/Write | Fluid calculation Y2 point in %.  |
| 804 | Word    | Read Only  | Fluid calculated Stroke Length in inches.   |
| 805 | Byte    | Read/Write | Fluid Stroke calculation Method:<br><br>Value / Description<br>0 = Disabled<br>1 = Short Method |

|     |      |            |  |
|-----|------|------------|--|
|     |      |            | 2 = Long Method<br>3 = Full Stroke Short<br>4 = Full Stroke Long<br>5 = Preset Stroke  |
| 806 | Word | Read/Write | Surface stroke(in x 100).  |
| 807 | Word | Read/Write | Pump bore diameter (in x 100).   |
| 808 | Word | Read Only  | Average surface stroke (in).   |
| 809 | Word | Read Only  | Average fluid stroke (in).   |
| 810 | Word | Read/Write | Pump efficiency (% * 10).  |
| 811 | Word | Read Only  | Fluid displacement today.  |
| 812 | Word | Read Only  | fluid displacement Yesterday.  |
| 813 | Word | Read Only  | Fluid displacement 2 days ago.   |
| 814 | Word | Read Only  | Fluid displacement 3 days ago.   |
| 815 | Word | Read Only  | Fluid displacement 4 days ago.   |
| 816 | Word | Read Only  | Fluid displacement 5 days ago.   |
| 817 | Word | Read Only  | Fluid displacement 6 days ago.   |
| 818 | Word | Read Only  | Fluid displacement 7 days ago.   |
| 819 | Word | Read Only  | Fluid displacement 8 days ago.   |
| 820 | Word | Read Only  | Fluid displacement 9 days ago.   |
| 821 | Word | Read Only  | Fluid displacement 10 days ago.  |
| 822 | Word | Read Only  | Fluid displacement 11 days ago.  |
| 823 | Word | Read Only  | Fluid displacement 12 days ago.  |
| 824 | Word | Read Only  | Fluid displacement 13 days ago.  |
| 825 | Word | Read Only  | Fluid displacement 14 days ago.  |
| 826 | Word | Read Only  | Fluid displacement 15 days ago.  |
| 827 | Word | Read Only  | Fluid displacement 16 days ago.  |
| 828 | Word | Read Only  | Fluid displacement 17 days ago.  |
| 829 | Word | Read Only  | Fluid displacement 18 days ago   |
| 830 | Word | Read Only  | Fluid displacement 19 days ago.  |
| 831 | Word | Read Only  | Fluid displacement 20 days ago.  |
| 832 | Word | Read Only  | Fluid displacement 21 days ago.  |
| 833 | Word | Read Only  | Fluid displacement 22 days ago.  |
| 834 | Word | Read Only  | Fluid displacement 23 days ago.  |
| 835 | Word | Read Only  | Fluid displacement 24 days ago.  |
| 836 | Word | Read Only  | Fluid displacement 25 days ago.  |
| 837 | Word | Read Only  | Fluid displacement 26 days ago.  |
| 838 | Word | Read Only  | Fluid displacement 27 days ago.  |
| 839 | Word | Read Only  | Fluid displacement 28 days ago.  |
| 840 | Word | Read Only  | Fluid displacement 29 days ago.  |
| 841 | Byte | Read/Write | Lower Band Size.   |
| 842 | Word | Read Only  | Fluid calculation error flags.   |
| 843 | Word | Read/Write | Preset fluid stroke in inches.   |
| 844 | Byte | Read Only  | Current Run Mode.  |
| 845 | Byte | Read Only  | Fluid calculation, Calculated X1.  |
| 846 | Byte | Read Only  | Fluid calculation, Calculated X2.  |
| 847 | Byte | Read Only  | Fluid calculation, Calculated Y1.  |
| 848 | Byte | Read Only  | Fluid calculation, Calculated Y2.  |
| 849 | Word | Read Only  | Fluid Strokes calculated.<br><br>Timing Control Modes:<br>0 = Continuous. Unit does not detect pump-off, thereby running all the time.<br>1 = Pump-Off. Detects Pump-Off condition.<br>2 = On/Off. Well runs according to programmed run time and turns off. The unit will wait until parameter 20 (Idle Time) expires and then begin a new pumping cycle.<br>3 = Shutdown. Well is not running. |

|     |         |            |  |
|-----|---------|------------|--|
| 850 | Time24  | Read/Write | Start Time A Weekend (hh:mm:ss).                       |
| 851 | Byte    | Read/Write | Run Mode A Weekend (0 - 3).                            |
| 852 | Time24  | Read/Write | Run Time A Weekend (hh:mm:ss).                         |
| 853 | Time24  | Read/Write | Start Time B Weekend (hh:mm:ss).                       |
| 854 | Byte    | Read/Write | Run Mode B Weekend (0 - 3).                            |
| 855 | Time24  | Read/Write | Run Time B Weekend (hh:mm:ss).                         |
| 856 | Time24  | Read/Write | Start Time A Weekday (hh:mm:ss).                       |
| 857 | Byte    | Read/Write | Run Mode A Weekday (0 - 3).                            |
| 858 | Time24  | Read/Write | Run Time A Weekday (hh:mm:ss).                         |
| 859 | Time24  | Read/Write | Start Time B Weekday (hh:mm:ss).                       |
| 860 | Byte    | Read/Write | Run Mode B Weekday (0 - 3).                            |
| 861 | Time24  | Read/Write | Run Time B Weekday (hh:mm:ss).                         |
| 862 | Byte    | Read/Write | Timer control enable:<br><br>0 = Disable<br>1 = Enable |
| 870 | Word    | Read/Write | Parameter # for User display 1.                        |
| 871 | Word    | Read/Write | Parameter # for User display 2.                        |
| 872 | Word    | Read/Write | Parameter # for User display 3.                        |
| 873 | Word    | Read/Write | Parameter # for User display 4.                        |
| 874 | Word    | Read/Write | Parameter # for User display 5.                        |
| 875 | Word    | Read/Write | Parameter # for User display 6.                        |
| 876 | Word    | Read/Write | Parameter # for User display 7.                        |
| 877 | Word    | Read/Write | Parameter # for User display 8.                        |
| 878 | Word    | Read/Write | Parameter # for User display 9.                        |
| 879 | Word    | Read/Write | Parameter # for User display 10.                       |
| 880 | Word    | Read/Write | Parameter # for User display 11.                       |
| 881 | Word    | Read/Write | Parameter # for User display 12                        |
| 890 | Word    | Read/Write | Logger channel 1 source.                               |
| 891 | Word    | Read/Write | Logger channel 2 source.                               |
| 892 | Word    | Read/Write | Logger channel 3 source.                               |
| 893 | Word    | Read/Write | Logger channel 4 source.                               |
| 894 | Word    | Read/Write | Logger channel 5 source.                               |
| 895 | Word    | Read/Write | Logger channel 6 source.                               |
| 896 | Word    | Read/Write | Logger channel 7 source.                               |
| 897 | Word    | Read/Write | Logger channel 8 source.                               |
| 898 | Byte    | Read/Write | Logger freeze channel (Channels 1 - 8).                |
| 899 | Command | Read/Write | Clear Logger History. Enter to Clear.                  |
| 900 | Word    | Read Only  | Hour log freeze buffer 00.                             |

### Parameters 901-1180

| Parameter | Data Type | Access    | Description                |
|-----------|-----------|-----------|----------------------------|
| 901       | Word      | Read Only | Hour log freeze buffer 01. |
| 902       | Word      | Read Only | Hour log freeze buffer 02. |
| 903       | Word      | Read Only | Hour log freeze buffer 03. |
| 904       | Word      | Read Only | Hour log freeze buffer 04. |
| 905       | Word      | Read Only | Hour log freeze buffer 05. |
| 906       | Word      | Read Only | Hour log freeze buffer 06. |
| 907       | Word      | Read Only | Hour log freeze buffer 07. |
| 908       | Word      | Read Only | Hour log freeze buffer 08. |
| 909       | Word      | Read Only | Hour log freeze buffer 09. |
| 910       | Word      | Read Only | Hour log freeze buffer 10. |
| 911       | Word      | Read Only | Hour log freeze buffer 11. |
| 912       | Word      | Read Only | Hour log freeze buffer 12. |

|     |        |            |  |
|-----|--------|------------|--|
| 913 | Word   | Read Only  | Hour log freeze buffer 13.   |
| 914 | Word   | Read Only  | Hour log freeze buffer 14.   |
| 915 | Word   | Read Only  | Hour log freeze buffer 15.   |
| 916 | Word   | Read Only  | Hour log freeze buffer 16.   |
| 917 | Word   | Read Only  | Hour log freeze buffer 17.   |
| 918 | Word   | Read Only  | Hour log freeze buffer 18.   |
| 919 | Word   | Read Only  | Hour log freeze buffer 19.   |
| 920 | Word   | Read Only  | Hour log freeze buffer 20.   |
| 921 | Word   | Read Only  | Hour log freeze buffer 21.   |
| 922 | Word   | Read Only  | Hour log freeze buffer 22.   |
| 923 | Word   | Read Only  | Hour log freeze buffer 23.   |
| 930 | Word   | Read Only  | Daily log freeze buffer 00.  |
| 931 | Word   | Read Only  | Daily log freeze buffer 01.  |
| 932 | Word   | Read Only  | Daily log freeze buffer 02.  |
| 933 | Word   | Read Only  | Daily log freeze buffer 03.  |
| 934 | Word   | Read Only  | Daily log freeze buffer 04.  |
| 935 | Word   | Read Only  | Daily log freeze buffer 05.  |
| 936 | Word   | Read Only  | Daily log freeze buffer 06.  |
| 937 | Word   | Read Only  | Daily log freeze buffer 07.  |
| 938 | Word   | Read Only  | Daily log freeze buffer 08.  |
| 939 | Word   | Read Only  | Daily log freeze buffer 09.  |
| 940 | Word   | Read Only  | Daily log freeze buffer 10.  |
| 941 | Word   | Read Only  | Daily log freeze buffer 11.  |
| 942 | Word   | Read Only  | Daily log freeze buffer 12.  |
| 943 | Word   | Read Only  | Daily log freeze buffer 13.  |
| 944 | Word   | Read Only  | Daily log freeze buffer 14.  |
| 945 | Word   | Read Only  | Daily log freeze buffer 15.  |
| 946 | Word   | Read Only  | Daily log freeze buffer 16.  |
| 947 | Word   | Read Only  | Daily log freeze buffer 17.  |
| 948 | Word   | Read Only  | Daily log freeze buffer 18.  |
| 949 | Word   | Read Only  | Daily log freeze buffer 19.  |
| 950 | Word   | Read Only  | Daily log freeze buffer 20.  |
| 951 | Word   | Read Only  | Daily log freeze buffer 21.  |
| 952 | Word   | Read Only  | Daily log freeze buffer 22.  |
| 953 | Word   | Read Only  | Daily log freeze buffer 23.  |
| 954 | Word   | Read Only  | Daily log freeze buffer 24.  |
| 955 | Word   | Read Only  | Daily log freeze buffer 25.  |
| 956 | Word   | Read Only  | Daily log freeze buffer 26.  |
| 957 | Word   | Read Only  | Daily log freeze buffer 27.  |
| 958 | Word   | Read Only  | Daily log freeze buffer 28.  |
| 959 | Word   | Read Only  | Daily log freeze buffer 29.  |
| 968 | Byte   | Read Only  | Current Runtime Segment.   |
| 969 | Byte   | Read/Write | Runtime Freeze Segment:<br>0 = Current Segment<br>1 = 00:00 - 04:00<br>2 = 04:00 - 08:00<br>3 = 08:00 - 12:00<br>4 = 12:00 - 16:00<br>5 = 16:00 - 20:00<br>6 = 20:00 - 24:00 |
| 970 | Time24 | Read Only  | Runtime Freeze Buffer 00.  |
| 971 | Time24 | Read Only  | Runtime Freeze Buffer 01.  |
| 972 | Time24 | Read Only  | Runtime Freeze Buffer 02.  |
| 973 | Time24 | Read Only  | Runtime Freeze Buffer 03.  |
| 974 | Time24 | Read Only  | Runtime Freeze Buffer 04.  |

|      |        |            |   |
|------|--------|------------|---|
| 975  | Time24 | Read Only  | Runtime Freeze Buffer 05.   |
| 976  | Time24 | Read Only  | Runtime Freeze Buffer 06.   |
| 977  | Time24 | Read Only  | Runtime Freeze Buffer 07.   |
| 978  | Time24 | Read Only  | Runtime Freeze Buffer 08.   |
| 979  | Time24 | Read Only  | Runtime Freeze Buffer 09.   |
| 980  | Time24 | Read Only  | Runtime Freeze Buffer 10.   |
| 981  | Time24 | Read Only  | Runtime Freeze Buffer 11.   |
| 982  | Time24 | Read Only  | Runtime Freeze Buffer 12.   |
| 983  | Time24 | Read Only  | Runtime Freeze Buffer 13.   |
| 984  | Time24 | Read Only  | Runtime Freeze Buffer 14.   |
| 985  | Time24 | Read Only  | Runtime Freeze Buffer 15.   |
| 986  | Time24 | Read Only  | Runtime Freeze Buffer 16.   |
| 987  | Time24 | Read Only  | Runtime Freeze Buffer 17.   |
| 988  | Time24 | Read Only  | Runtime Freeze Buffer 18.   |
| 989  | Time24 | Read Only  | Runtime Freeze Buffer 19.   |
| 990  | Time24 | Read Only  | Runtime Freeze Buffer 20.   |
| 991  | Time24 | Read Only  | Runtime Freeze Buffer 21.   |
| 992  | Time24 | Read Only  | Runtime Freeze Buffer 22.   |
| 993  | Time24 | Read Only  | Runtime Freeze Buffer 23.   |
| 994  | Time24 | Read Only  | Runtime Freeze Buffer 24.   |
| 995  | Time24 | Read Only  | Runtime Freeze Buffer 25.   |
| 996  | Time24 | Read Only  | Runtime Freeze Buffer 26.   |
| 997  | Time24 | Read Only  | Runtime Freeze Buffer 27.   |
| 998  | Time24 | Read Only  | Runtime Freeze Buffer 28.   |
| 999  | Time24 | Read Only  | Runtime Freeze Buffer 29.   |
| 1000 | Byte   | Read/Write | Host alarm 00 action.   |
| 1001 | Byte   | Read/Write | Host alarm 01 action.   |
| 1002 | Byte   | Read/Write | Host alarm 02 action.   |
| 1003 | Byte   | Read/Write | Host alarm 03 action.   |
| 1004 | Byte   | Read/Write | Host alarm 04 action.   |
| 1005 | Byte   | Read/Write | Host alarm 05 action.   |
| 1006 | Byte   | Read/Write | Host alarm 06 action.   |
| 1007 | Byte   | Read/Write | Host alarm 07 action.   |
| 1008 | Byte   | Read/Write | Host alarm 08 action.   |
| 1009 | Byte   | Read/Write | Host alarm 09 action.   |
| 1010 | Byte   | Read/Write | Host alarm 10 action.   |
| 1011 | Byte   | Read/Write | Host alarm 11 action.   |
| 1012 | Byte   | Read/Write | Host alarm 12 action.   |
| 1013 | Byte   | Read/Write | Host alarm 13 action.   |
| 1014 | Byte   | Read/Write | Host alarm 14 action.   |
| 1015 | Byte   | Read/Write | Host alarm 15 action.   |
| 1016 | Byte   | Read/Write | Set Host alarm:<br>"Host Alarm 00" - "Gearbox Torque"<br>"Host Alarm 01" - "Maximum Load Deviation"<br>"Host Alarm 02" - "Maximum Load Deviation"<br>"Host Alarm 03" - "Minimum Load Deviation"<br>"Host Alarm 04" - "Load Span Deviation"<br>"Host Alarm 05" - "Out of Balance"<br>"Host Alarm 06" - "Run Time Deviation"<br>"Host Alarm 07" - "Card Area Deviation"<br>"Host Alarm 08" - "Low Pumping Efficiency"<br>"Host Alarm 09" - "High Rod Stress"<br>"Host Alarm 10" - "Prime Mover Size"<br>"Host Alarm 11-16" - "--Undefined Spares--" |
| 1020 | Time24 | Read Only  | Traveling Valve Buffer time.  |
| 1021 | Date   | Read Only  | Traveling Valve Buffer date.  |



|           |         |            |  |
|-----------|---------|------------|--|
| 1022      | Time24  | Read Only  | Standing Valve Buffer time.  |
| 1023      | Date    | Read Only  | Standing Valve Buffer date.  |
| 1024      | Word    | Read Only  | Traveling Valve value in pounds.                                       |
| 1025      | Time24  | Read Only  | Traveling Valve value time.  |
| 1026      | Date    | Read Only  | Traveling Valve value date.  |
| 1027      | Word    | Read Only  | Standing Valve value in pounds.  |
| 1028      | Time24  | Read Only  | Standing Valve value time.   |
| 1029      | Date    | Read Only  | Standing Valve value date.   |
| 1030      | Word    | Read Only  | CBE Value in pounds.   |
| 1031      | Time24  | Read Only  | CBE Value time.  |
| 1032      | Date    | Read Only  | CBE Value date.  |
| 1033      | Byte    | Read Only  | CBE Crank Angle Flag:<br>0 = Crank at 90 deg.<br>1 = Crank at 270 deg. |
| 1040-1152 | N/A.    | N/A.       | Internal Scratch-Pad use. Not an operator parameter.                   |
| 1153      | Word    | Read/Write | PS_intr_flag @ BOS.  |
| 1154      | Word    | Read/Write | PS_intr_flag (LIVE).   |
| 1155      | Word    | Read/Write | BOS w/ Psw IntrFlag=0 ctr.   |
| 1156      | Word    | Read/Write | PSW Intr Semaphore ctr.  |
| 1157      | Word    | Read/Write | P34 shadow var.  |
| 1158      | Word    | Read/Write | BOS w/ PswIntrFlag=255 ctr.  |
| 1159      | Word    | Read Only  | Last stroke data count.  |
| 1160      | Word    | Read Only  | SigBottom ctr FindBot.   |
| 1161      | Word    | Read Only  | Position in SigBottom.   |
| 1162      | Word    | Read/Write | Min Stroke DataCount.  |
| 1163      | Word    | Read Only  | BOS ctr f/TMP CTL Loss.  |
| 1164      | Command | Read/Write | Clear Diags Cmd.   |
| 1165      | Word    | Read/Write | First Strokes Counted.   |
| 1166      | Word    | Read/Write | Stroke Increment.  |
| 1167      | Long    | Read/Write | Daily Total Vol (cu. in*10).   |
| 1168      | Long    | Read/Write | Last Pump Vol (cu. in*10).   |
| 1169      | Long    | Read/Write | Daily Stroke Acc (inch*100).   |
| 1170      | Long    | Read/Write | Surface Stroke Acc (inch*100).   |
| 1171      | Long    | Read/Write | Long Dbg Param.  |
| 1172      | Long    | Read/Write | Long Dbg Param.  |
| 1173      | Word    | Read/Write | Stroke Incr > 1 Counter.   |
| 1174      | Word    | Read/Write | Max Stroke Increment.  |
| 1175      | Word    | Read/Write | Min fluid stroke length.   |
| 1176      | Word    | Read/Write | Max fluid stroke length.   |
| 1177      | Word    | Read/Write | 1st Stroke Conted=0 counter.   |
| 1178      | Word    | Read/Write | Unused fluid calc param.   |
| 1179      | Word    | Read/Write | Unused fluid calc param.   |
| 1180      | Byte    | Read/Write | FP Catch-up Calc.  |

## M2000 Parameter Listings

For information on a specific range of parameters, select a link from the list below.

[Parameter Listings 1-300](#)

[Parameter Listings 309-600](#)

[Parameter Listings 601-862](#)

**Important:** For additional parameter details, refer to the device's User Manual.

### Parameters 1-300

| Parameter | Data Type | Access     | Description  |
|-----------|-----------|------------|--|
| 1         | Word      | Read/Write | Password - Operator Entry.   |
| 2         | Word      | Read/Write | Device Address [4094].   |
| 3         | Time      | Read/Write | Time of Day:<br><br>hh:mm:ss [am/pm]   |
| 4         | Date      | Read/Write | Current Date:<br><br>mm/dd/yy<br>mmm dd, yyyy  |
| 5         | Byte      | Read/Write | Current Day of Week.   |
| 6         | Command   | Read/Write | Manually Mark TOS.   |
| 7         | Command   | Read/Write | Mark Top of Stroke (TOS).  |
| 8         | Display   | Read Only  | TOS to PSW fract of str.   |
| 14        | Byte      | Read/Write | Load Engineering Units:<br><br>Value / Description<br>0 = Pounds<br>1 = Kg. Metric                             |
| 15        | Byte      | Read/Write | Month Format:<br><br>Value / Description<br>0 = Numeric<br>1 = Alphabetic                                      |
| 16        | Byte      | Read/Write | Time Format:<br><br>Value / Description<br>0 = Military<br>1 = AM/PM   |
| 17        | Byte      | Read/Write | Run Time Format:<br><br>Value / Description<br>0 = Hours only<br>1 = Days / Hours                              |
| 18        | Byte      | Read/Write | Clock Source AC Power [1].   |
| 19        | Byte      | Read/Write | Clock Source on Battery Backup [1]:<br><br>Value/Description<br>1 = Real-time Clock                            |
| 20        | Time      | Read/Write | Idle Time [00:05:00].  |
| 21        | Byte      | Read/Write | POC Position Limit Line Percent.   |
| 23        | Byte      | Read/Write | POC Load Limit Line Percentage.  |
| 24        | Byte      | Read/Write | pump-off strokes for idle time.  |
| 25        | Time      | Read/Write | Pump Up Delay Time.  |
| 26        | Byte      | Read/Write | POC Method:<br><br>Value / Description<br>0 = Quadrant Method - Lower RH<br>1 = Point Method - Along Base Line |

|    |         |            |  |
|----|---------|------------|--|
|    |         |            | <p>2 = Reverse POC using Method 0<br/> 3 = Reverse POC using Method 1<br/> 4 = ESP Only (Disables POC for RPC use)<br/> 8 = Quadrant Method - Upper LH<br/> 9 = Point Method - Upper (100%) Line<br/> 10 = Reverse POC using Method 8<br/> 11 = Reverse POC using Method 9</p> |
| 27 | Time    | Read/Write | POC Override Timer.  |
| 28 | Byte    | Read/Write | <p>Override Timer Power-up Clear Flag [1]:</p> <p>Value / Description<br/> 0 = No<br/> 1 = Yes</p>   |
| 29 | Byte    | Read/Write | <p>Timer Status:</p> <p>Value / Description<br/> 0 = No<br/> 1 = Yes</p>   |
| 30 | Byte    | Read/Write | <p>Command ACF Status:</p> <p>Value / Description<br/> 0 = Not On<br/> 1 = On</p>  |
| 31 | Command | Read/Write | Force Off Until Reset.   |
| 32 | Command | Read/Write | Force Control Transfer.  |
| 33 | Command | Read/Write | Force Software Timer.  |
| 34 | Byte    | Read/Write | <p>POC Position Sensor Type:</p> <p>0 = Position Switch<br/> 1 = Continuous Position</p>   |
| 35 | Byte    | Read/Write | <p>Load Sensor Type:</p> <p>0 = Load Cell<br/> 1 = Strain Gauge</p>  |
| 36 | Time    | Read/Write | Target Cycle Time  |
| 37 | Byte    | Read/Write | <p>Cycle Time Adjust [2]:</p> <p>Value / Description<br/> 0 = Disable with No Fault Lamp<br/> 1 = Disable with Fault Lamp<br/> 2 = Enable with No Fault Lamp<br/> 3 = Enable with Fault Lamp</p>   |
| 38 | Time    | Read/Write | Motor Off Time Limit.  |
| 39 | Byte    | Read/Write | <p>Enable/Disable Restart Protection:</p> <p>Value / Description<br/> 0 = Disable<br/> 1 = Enable - Off Until Reset is action when enabled.</p>  |
| 40 | Byte    | Read/Write | Air Balance Control Goal %.  |
| 41 | Byte    | Read/Write | ABC Deadband Percentage.   |
| 42 | Word    | Read Only  | Upstroke Peak Value.   |
| 43 | Word    | Read Only  | Downstroke Peak Value.   |
| 44 | Word    | Read Only  | Air Balance Peak Difference.   |
| 45 | Word    | Read Only  | Air Balance Peak Difference.   |
| 46 | Word    | Read/Write | ABC Purge Enable Time.   |
| 50 | Byte    | Read/Write | <p>Peak Energy Control Enable Flag:</p> <p>Value / Description<br/> 0 = Disabled<br/> 1 = Enabled</p>  |
| 51 | Time    | Read/Write | Begin Run Inhibit Time.  |

|     |         |            |   |
|-----|---------|------------|---|
| 52  | Time    | Read/Write | End Run Inhibit Time.   |
| 53  | Time    | Read/Write | AC Power Fail Restart.  |
| 63  | Byte    | Read/Write | Dynamometer Reference Point (Target Type):<br><br>Value / Description<br>0 = Cycle minimum<br>1 = Cycle average<br>2 = Cycle maximum                      |
| 64  | Byte    | Read/Write | Conditions Required for Auto-Self:<br><br>Value / Description<br>0 = If running tracking with valid load span.<br>1 = If unit running<br>2 = At all times |
| 65  | Word    | Read/Write | Cycle Minimum Load "Target".  |
| 66  | Word    | Read/Write | Cycle Average Load "Target".  |
| 67  | Word    | Read/Write | Cycle Maximum Load "Target".  |
| 68  | Word    | Read/Write | Reference Adjust Limit.   |
| 69  | Word    | Read Only  | Tracking Step Limit.  |
| 70  | Command | Read/Write | Load Sensor "Zero Set" Command.   |
| 71  | Word    | Read/Write | Load Sensor Offset.   |
| 72  | Display | Read Only  | Load Sensor Offset.   |
| 73  | Word    | Read/Write | Dead Weight Load Value.   |
| 74  | Word    | Read/Write | Load Sensor Gain [1500].  |
| 75  | Display | Read Only  | Display of Load Cell Gain.  |
| 76  | Word    | Read Only  | Current Load Sensor Input.  |
| 77  | Word    | Read Only  | Current Load Sensor Input.  |
| 78  | Word    | Read Only  | Current Load Sensor Input.  |
| 79  | Word    | Read Only  | Load Min. Over Last Cycle.  |
| 80  | Word    | Read Only  | Load Max. Over Last Cycle.  |
| 83  | Word    | Read Only  | Load Minimum Since Last Pump Start.   |
| 84  | Word    | Read Only  | Load Maximum Since Last Pump Start.   |
| 85  | Word    | Read Only  | Load Minimum Since Power Up.  |
| 86  | Word    | Read Only  | Load Maximum Since Power Up.  |
| 87  | Word    | Read Only  | Load Span Over Last Cycle.  |
| 88  | Word    | Read Only  | Lowest Since Power Up.  |
| 89  | Word    | Read Only  | Load Avg. Over Last Cycle.  |
| 90  | Word    | Read Only  | Lowest Load Average Since Power Up.   |
| 91  | Word    | Read Only  | Highest Load Average Since Power Up.  |
| 92  | Word    | Read Only  | Load Min. Since Power Up.   |
| 93  | Word    | Read Only  | Load Max. Since Power Up.   |
| 94  | Command | Read/Write | Reset Minimum / Maximum Loads.  |
| 95  | Word    | Read Only  | Failure A/D Channel.  |
| 96  | Word    | Read Only  | Failure Value.  |
| 97  | Word    | Read Only  | Lower Limit to Scaled Values.   |
| 98  | Word    | Read Only  | Lower Limit to Scaled Values.   |
| 102 | Word    | Read Only  | Position Sensor Input.  |
| 103 | Word    | Read Only  | Current Position Sensor Input.  |
| 104 | Word    | Read Only  | Position Sensor Minimum Input over Cycle.   |
| 105 | Word    | Read Only  | Position Sensor Maximum Input over Cycle  |
| 106 | Word    | Read Only  | Input Signal Span over Cycle.   |
| 107 | Word    | Read Only  | Filtered Input Cycle Span.  |
| 108 | Word    | Read/Write | Debounce Time in Ticks.   |
| 109 | Byte    | Read Only  | Bottoms with No Continuous Position Faults.   |
| 110 | Word    | Read/Write | Time (Ticks / Seconds) from BOS to Well Bottom Call.  |
| 111 | Word    | Read/Write | Minimum Time (Ticks / Sec.) to Well Bottom Call.  |
| 112 | Word    | Read/Write | Maximum Time (Ticks / Sec.) to Well Bottom Call.  |

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|-----|---------|------------|--|
| 113 | Byte    | Read/Write | MK-II Compensate Pos.  |
| 114 | Byte    | Read/Write | Load Signal Delay (For use when using DPS with MarkII units):<br><br>0 = 0 mSec<br>1 = 50 mSec<br>2 = 100 mSec<br>3 = 150 mSec<br>4 = 200 mSec<br>5 = 250 mSec<br>6 = 300 mSec<br>7 = 350 mSec |
| 115 | Byte    | Read/Write | Number of cycles if P225 = "Go to idle" for stage 1 [0].   |
| 116 | Byte    | Read/Write | Low load span counter.   |
| 117 | Byte    | Read/Write | Number of cycles allowed before "Off before reset" .   |
| 120 | Word    | Read/Write | Scratch Pad Word 1.  |
| 121 | Word    | Read/Write | Scratch Pad Word 2.  |
| 122 | Word    | Read/Write | Scratch Pad Word 3.  |
| 123 | Word    | Read/Write | Scratch Pad Word 4.  |
| 124 | Word    | Read/Write | Scratch Pad Word 5.  |
| 125 | Byte    | Read/Write | Good Cycle Intervals Required [10].  |
| 128 | Byte    | Read/Write | No. of Good Input Cycles to Recover after Fault [5].   |
| 129 | Byte    | Read/Write | Display Fault Message if a position switch is cleared.   |
| 130 | Word    | Read/Write | Fraction of Stroke from Top Of Stroke.   |
| 131 | Command | Read/Write | Reset RPC for Reverse Rotation.  |
| 132 | Word    | Read Only  | Last Position Switch Filtered Interval.  |
| 134 | Byte    | Read/Write | Position Switch Opening Debounce Interval [120].   |
| 135 | Byte    | Read/Write | Use Position Switch Closing.   |
| 136 | Byte    | Read/Write | Minimum Allowable Percent Cycle Time Deviation [80].   |
| 137 | Byte    | Read/Write | Maximum Allowable Percent Cycle Time Deviation [125].  |
| 138 | Byte    | Read Only  | Good Intervals Cycle Counter.  |
| 139 | Word    | Read Only  | Time Interval for Last Stroke.   |
| 140 | Word    | Read Only  | Filtered Time Interval for Last Stroke.  |
| 141 | Word    | Read Only  | Last Position Switch Interval SPM.   |
| 142 | Word    | Read Only  | Last Filtered Stroke Interval SPM.   |
| 143 | Byte    | Read Only  | Bottom of Stroke (BOS) Counter.  |
| 144 | Byte    | Read Only  | Current Position Switch.   |
| 145 | Word    | Read Only  | Last Debounce Closed Interval.   |
| 146 | Word    | Read Only  | Position Switch Closing Counter (Ticks / Seconds).   |
| 147 | Word    | Read Only  | Debounced Switches Since Last Turn Off/On.   |
| 148 | Byte    | Read Only  | BOS with No Position Switch Faults.  |
| 149 | Command | Read/Write | Reset all Well Cycle (SPM) Info.   |
| 150 | Byte    | Read/Write | AC Power Frequency [60].   |
| 151 | Byte    | Read Only  | Power-Up Frequency.  |
| 152 | Long    | Read Only  | Present Frequency.   |
| 153 | Long    | Read Only  | Lowest Frequency.  |
| 154 | Long    | Read Only  | Highest Frequency.   |
| 155 | Long    | Read Only  | Average Frequency.   |
| 156 | Long    | Read Only  | Lowest Averaged Frequency.   |
| 157 | Long    | Read Only  | Highest Averaged Frequency.  |
| 158 | Command | Read/Write | Reset Frequency Displays.  |
| 159 | Byte    | Read/Write | Frequency Averaging Period.  |
| 160 | Word    | Read Only  | AI1 Raw A/D Channel Value.   |
| 161 | Word    | Read Only  | AI1 Current Input Value.   |
| 162 | Word    | Read Only  | AI1 Lowest Recorded Input Value.   |
| 163 | Word    | Read Only  | AI1 Highest Recorded Input Value.  |
| 164 | Word    | Read Only  | AI1 Input Value Averaged over Cycle.   |

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|-----|---------|------------|--|
| 165 | Word    | Read Only  | AI1 Lowest Averaged Input Value.   |
| 166 | Word    | Read Only  | AI1 Highest Averaged input Value.  |
| 167 | Command | Read/Write | Reset AI1 Highs and Lows.  |
| 168 | Word    | Read/Write | Latching AI Alarms:<br><br>Analog Latch [0] bit corresponding to analog number can be set to latch on alarm.   |
| 170 | Word    | Read/Write | DO 1 on Timer.   |
| 171 | Word    | Read/Write | DO 2 on Timer or P178 & P179 (Both DO 1 & 2).  |
| 172 | Byte    | Read/Write | DO 1 on Flag.  |
| 173 | Byte    | Read/Write | DO 2 on Flag Command (Both DO 1 & 2).  |
| 178 | Word    | Read/Write | DO 1 Pulsed No. of Ticks.<br><br>Number of ticks equal to pulse duration required (Tick = 1/120).  |
| 179 | Word    | Read/Write | DO 2 Pulsed No. of Ticks.  |
| 180 | Word    | Read Only  | DI Octal Value Summation:<br><br>Octal Value / Description<br>000001 = DI1 Selected<br>000002 = DI2 Selected<br>000004 = DI3 Selected<br>000010 = DI4 Selected<br>000020 = DI5 Selected<br>000040 = DI6 Selected<br>000100 = DI7 Selected<br>000200 = DI8 Selected |
| 181 | Word    | Read/Write | DI 1 Low Accumulator.  |
| 182 | Word    | Read/Write | DI 1 High Accumulator.   |
| 183 | Word    | Read/Write | DI 2 Low Accumulator.  |
| 184 | Word    | Read/Write | DI 2 High Accumulator.   |
| 185 | Word    | Read/Write | DI 3 Low Accumulator.  |
| 186 | Word    | Read/Write | DI 3 High Accumulator.   |
| 187 | Word    | Read/Write | DI 4 Low Accumulator.  |
| 188 | Word    | Read/Write | DI 4 High Accumulator.   |
| 189 | Word    | Read/Write | DI 5 Low Accumulator.  |
| 190 | Word    | Read/Write | DI 5 High Accumulator.   |
| 191 | Word    | Read/Write | DI 6 Low Accumulator.  |
| 192 | Word    | Read/Write | DI 6 High Accumulator.   |
| 193 | Word    | Read Only  | AI as DI Octal Value Summation:<br><br>Octal Value / Description<br>000004 = AI1 Selected<br>000010 = AI2 Selected   |
| 194 | Word    | Read/Write | AI 1 Low Accumulator.  |
| 195 | Word    | Read/Write | AI 1 High Accumulator.   |
| 196 | Word    | Read/Write | AI 2 Low Accumulator.  |
| 197 | Word    | Read/Write | AI 2 High Accumulator.   |
| 198 | Word    | Read/Write | AI 3 Low Accumulator.  |
| 199 | Word    | Read/Write | AI 3 High Accumulator.   |
| 200 | Byte    | Read/Write | Sensor Failure Action [1].   |
| 204 | Byte    | Read/Write | Number of cycles used to set run time average [6].   |
| 205 | Time    | Read Only  | "Run Time" Determined from Number of Cycles.   |
| 206 | Time    | Read/Write | Manual Software Run Time (hh:mm:ss).   |
| 207 | Time    | Read Only  | Latest Averaged Run Time since Power Up.   |
| 210 | Word    | Read/Write | Lower Load Limit.  |
| 211 | Word    | Read/Write | Upper Load Limit.  |
| 212 | Word    | Read/Write | Lowest Allowed Average Load.   |

|     |      |            |  |
|-----|------|------------|--|
| 213 | Byte | Read/Write | Required Consecutive Load Violations.  |
| 214 | Byte | Read/Write | Load Violation Action [3].   |
| 215 | Byte | Read/Write | Entry Deglitch Time in Readings [2].   |
| 216 | Byte | Read/Write | Exit Deglitch Time in Readings [3].  |
| 217 | Word | Read/Write | Deadband [1000].   |
| 218 | Word | Read/Write | Immediate Upper Load Limit.  |
| 219 | Byte | Read/Write | Action for P218 Limit Violation.   |
| 220 | Byte | Read/Write | Power Fail "Off Time Multiplier" (0.1 units). This disables low load span and cycle run time for a set period, and is determined by actual power off interval times. |
| 221 | Time | Read/Write | Multiplied Power Fail Maximum Time Limit [72:00:00]:<br><br>hh:mm:ss - 72:00:00 = 3 Days.  |
| 222 | Byte | Read/Write | Number of Low Load Span Violations before Action [10].   |
| 223 | Word | Read/Write | Valid Minimum Load Span.   |
| 225 | Byte | Read/Write | Low Load Span Action [3].  |
| 226 | Time | Read/Write | Well Off Timer.  |
| 227 | Time | Read/Write | Well On Timer.   |
| 228 | Byte | Read/Write | # of pump offs required before P227 will be cleared.   |
| 230 | Byte | Read/Write | Number of Consecutive "Immediate" [3].   |
| 231 | Byte | Read/Write | Immediate Pump-Off Action Run Times.   |
| 232 | Time | Read/Write | Minimum Cycle Run Time Allowable [00:00:00].<br><br>hh:mm:ss - Set to zero to disable.   |
| 233 | Byte | Read/Write | Number of Consecutive Min run Times Violations before Action [2].  |
| 234 | Byte | Read/Write | Minimum Cycle Run Time Violation.  |
| 235 | Time | Read/Write | Maximum Cycle Run Time Allowable.<br><br>hh:mm:ss - Set to zero to disable.  |
| 236 | Byte | Read/Write | Maximum Cycle Run Time Violation.<br><br>hh:mm:ss - Fault Message "MAX CYCLE Action ON TIME".  |
| 237 | Time | Read/Write | Maximum Daily Run Time<br><br>hh:mm:ss - Not used if set to 00:00:00.  |
| 238 | Byte | Read/Write | Maximum Daily Run Time Action.   |
| 239 | Time | Read/Write | Well Off Timer.  |
| 240 | Time | Read/Write | Well On Time.  |
| 241 | Byte | Read/Write | Pump-off(s) to clear P240.   |
| 242 | Time | Read Only  | Qualified Cycle On Timer.  |
| 243 | Time | Read Only  | Qualified Daily On Timer.  |
| 245 | Byte | Read/Write | Dummy Parameter.   |
| 246 | Byte | Read/Write | Dummy Parameter.   |
| 247 | Byte | Read/Write | Dummy Parameter.   |
| 248 | Byte | Read/Write | Dummy Parameter.   |
| 249 | Byte | Read/Write | AI1 Low Action [7].  |
| 250 | Byte | Read/Write | AI1 High Action [7].   |
| 251 | Byte | Read/Write | AI2 Low Action [7].  |
| 252 | Byte | Read/Write | AI2 High Action [7].   |
| 253 | Byte | Read/Write | AI3 Low Action [7].  |
| 254 | Byte | Read/Write | AI3 High Action [7].   |
| 260 | Byte | Read/Write | Control Failure Action [2].  |
| 261 | Time | Read/Write | Control Failure Timeout [00:04:00].<br><br>Must be set to at least 30 seconds less than P20. Delay (Sec) before expected.  |
| 262 | Byte | Read/Write | Pump-On Sensing Delay.   |

|     |         |            |   |
|-----|---------|------------|---|
|     |         |            | Delay (Sec) before expected running after start-up. Delay (Sec) before expected stop.   |
| 263 | Byte    | Read/Write | Pump-Turn Off Sensing Delay [30].<br>Delay (Sec) before expected stop after turned off. |
| 270 | Word    | Read/Write | Minimum Allowable Span.   |
| 271 | Word    | Read/Write | Minimum Allowable Input Signal.   |
| 272 | Word    | Read/Write | Maximum Allowable Input Signal.   |
| 273 | Byte    | Read/Write | Position Signal Fault Period.   |
| 280 | Word    | Read Only  | Raw A/D Channel Value.  |
| 281 | Word    | Read Only  | Input Value - Offset Volts.   |
| 282 | Word    | Read Only  | Input Value - EGU.  |
| 283 | Byte    | Read/Write | AI1 Type.   |
| 284 | Byte    | Read/Write | AI1 Decimal Places [3].   |
| 285 | Byte    | Read/Write | AI1 EGU Label [9].  |
| 286 | Word    | Read/Write | Low Value Scaling.  |
| 287 | Word    | Read/Write | High Value Scaling.   |
| 288 | Word    | Read/Write | Lower Alarm Limit.  |
| 289 | Byte    | Read/Write | Lower Alarm Action 1.   |
| 290 | Byte    | Read/Write | Lower Alarm Action 2.   |
| 291 | Word    | Read/Write | Upper Alarm Limit.  |
| 292 | Byte    | Read/Write | Upper Alarm Action 1.   |
| 293 | Byte    | Read/Write | Upper Alarm Action 2.   |
| 294 | Word    | Read/Write | Upper Alarm Limit.  |
| 295 | Word    | Read Only  | Lowest Recorded Input Value.  |
| 296 | Word    | Read Only  | Highest Recorded Input Value.   |
| 297 | Word    | Read Only  | Input Value Averaged Over Cycle.  |
| 298 | Word    | Read Only  | Lowest Averaged Input Value.  |
| 299 | Word    | Read Only  | Highest Averaged Input Value.   |
| 300 | Command | Read/Write | Reset AI1 Highs and Lows.   |

### Parameters 309-600

| Parameter | Data Type | Access     | Description   |
|-----------|-----------|------------|---|
| 309       | Word      | Read Write | Extra Analogs - Status Bits:<br><br>Octal Value / Description<br>000001 = Extra Channel 1 Low Alarm<br>000002 = Extra Channel 2 Low Alarm<br>000004 = Extra Channel 1 High Alarm<br>000010 = Extra Channel 2 High Alarm |
| 310       | Word      | Read Only  | Raw A/D Channel Value.  |
| 311       | Word      | Read Only  | Input Value.  |
| 312       | Word      | Read Only  | Input Value - EGU.  |
| 313       | Byte      | Read Write | AI2 Analog Input Type.  |
| 314       | Byte      | Read Write | AI2 Decimal Places [3].   |
| 315       | Byte      | Read Write | AI2 EGU Label [9].  |
| 316       | Word      | Read Write | Low Value Scaling.  |
| 317       | Word      | Read Write | High Value Scaling.   |
| 318       | Word      | Read Write | Lower Alarm Limit.  |
| 319       | Byte      | Read Write | Lower Alarm Action 1.   |
| 320       | Byte      | Read Write | Lower Alarm Action 2.   |
| 321       | Word      | Read Write | Upper Alarm Limit.  |
| 322       | Byte      | Read Write | Upper Alarm Action 1.   |
| 323       | Byte      | Read Write | Upper Alarm Action 2.   |



|     |         |            |  |
|-----|---------|------------|--|
| 324 | Word    | Read Write | Upper Alarm Limit.                             |
| 325 | Word    | Read Only  | Lowest Recorded Input Value.                   |
| 326 | Word    | Read Only  | Highest Recorded Input Value.                  |
| 329 | Command | Read Write | Reset AI2 Highs and Lows.                      |
| 330 | Word    | Read Only  | Raw A/D Channel Value.                         |
| 331 | Word    | Read Only  | Input Value.                                   |
| 332 | Word    | Read Only  | Scaled EGU Input Value.                        |
| 333 | Byte    | Read Write | AI3 Analog Input Type.                         |
| 334 | Byte    | Read Write | AI3 Decimal Places [3].                        |
| 335 | Byte    | Read Write | AI3 EGU Label [9].                             |
| 336 | Word    | Read Write | Scaling Low Value.                             |
| 337 | Word    | Read Write | Scaling High Value.                            |
| 338 | Word    | Read Write | Lower Alarm Limit.                             |
| 339 | Byte    | Read Write | Lower Alarm Action 1.                          |
| 340 | Byte    | Read Write | Lower Alarm Action 2.                          |
| 341 | Word    | Read Write | Upper Alarm Limit.                             |
| 342 | Byte    | Read Write | Upper Alarm Action 1.                          |
| 343 | Byte    | Read Write | Upper Alarm Action 2.                          |
| 344 | Word    | Read Write | Alarms Deadband.                               |
| 345 | Word    | Read Only  | Lowest Recorded Input Value.                   |
| 346 | Word    | Read Only  | Highest Recorded Input Value.                  |
| 349 | Command | Read Write | Reset AI3 Highs and Lows.                      |
| 350 | Command | Read Write | Turn Fault Lamp on for 15 Second Test.         |
| 351 | Command | Read Write | Force Controller Software Reset.               |
| 352 | Command | Read Write | Output Last Rolling Display.                   |
| 355 | Byte    | Read Write | Minimum Number to Reserve for Faults [2].      |
| 356 | Byte    | Read Write | Minimum Number to Reserve for Alarms [2].      |
| 357 | Word    | Read Write | Alarm Enable Bits 0 - 15.                      |
| 358 | Word    | Read Write | Alarm Enable Bits 16 - 31.                     |
| 359 | Word    | Read Write | Alarm Enable Bits 32 - 47.                     |
| 360 | Word    | Read Write | Alarm Enable Bits 48 - 63.                     |
| 361 | Word    | Read Write | Alarm Enable Bits 64 - 79.                     |
| 362 | Word    | Read Write | Alarm Enable Bits 80 - 82.                     |
| 365 | Command | Read Write | Create Event Command.                          |
| 366 | Command | Read Write | Clear Event Buffer.                            |
| 370 | Display | Read Only  | Pump-Off Position referenced to Setpoint Load. |
| 371 | Display | Read Only  | Pump-Off Load referenced to Setpoint Position. |
| 372 | Display | Read Only  | Display of P370 or P371.                       |
| 373 | Word    | Read Only  | Estimated Position Value for Pump-Off.         |
| 375 | Word    | Read Only  | Estimated Load Value for Pump-Off.             |
| 376 | Word    | Read Only  | Load Value at Pump-Off Point/Area.             |
| 390 | Time    | Read Only  | Time of Last Fatal Error or AC Power Fail.     |
| 391 | Date    | Read Only  | Date of Last Fatal Error or AC Power Fail.     |
| 392 | Time    | Read Only  | Time of Last Complete Initialization.          |
| 393 | Date    | Read Only  | Date of Last Complete Initialization.          |
| 394 | Time    | Read Only  | Interval of Last Fatal Error or Power Fail.    |
| 395 | Long    | Read Only  | Last fatal error address.                      |
| 396 | Time    | Read Only  | Time of Last Control State Change.             |
| 397 | Date    | Read Only  | Date of Last Control State Change.             |
| 398 | Word    | Read Only  | Days Counter.                                  |
| 399 | Time    | Read Only  | Rollover Counter.                              |
| 400 | Time    | Read Only  | Current Run Time Interval Counter.             |
| 401 | Time    | Read Only  | Last Run Time Interval.                        |
| 402 | Time    | Read Only  | Run Time Interval two Cycles back.             |
| 403 | Time    | Read Only  | Run Time Interval three Cycles back.           |

|     |      |            |   |
|-----|------|------------|---|
| 404 | Time | Read Only  | Run Time Interval four Cycles back.   |
| 405 | Time | Read Only  | Run Time Interval five Cycles back.   |
| 406 | Time | Read Only  | Run Time Interval six Cycles back.  |
| 407 | Time | Read Only  | Run Time Interval seven Cycles back.  |
| 408 | Time | Read Only  | Run Time Interval eight Cycles back.  |
| 409 | Time | Read Only  | Run Time Interval nine Cycles back.   |
| 410 | Time | Read Only  | Run Time Interval ten Cycles back.  |
| 411 | Time | Read Only  | Run Time Interval eleven Cycles back.   |
| 412 | Time | Read Only  | Run Time Interval twelve Cycles back.   |
| 413 | Time | Read Only  | Run Time Interval thirteen Cycles back.   |
| 414 | Time | Read Only  | Run Time Interval fourteen Cycles back.   |
| 415 | Time | Read Only  | Run Time Interval fifteen Cycles back.  |
| 416 | Time | Read Only  | Run Time Interval sixteen Cycles back.  |
| 417 | Time | Read Only  | Run Time Interval seventeen Cycles back.  |
| 418 | Byte | Read Only  | Number of Previous Normal Pump-Off Cycles.  |
| 419 | Time | Read Only  | Latest Pump-Off Time Interval Counter.  |
| 420 | Time | Read Only  | Today's Accumulated Run Time.   |
| 421 | Time | Read Only  | Yesterdays Total Accumulated Run Time.  |
| 422 | Time | Read Only  | Run Time Two Days Ago.  |
| 423 | Time | Read Only  | Run Time Three Days Ago.  |
| 424 | Time | Read Only  | Run Time Four Days Ago.   |
| 425 | Time | Read Only  | Run Time Five Days Ago.   |
| 426 | Time | Read Only  | Run Time Six Days Ago.  |
| 427 | Time | Read Only  | Run Time Seven Days Ago Gauge Times.  |
| 429 | Time | Read Write | Gauge Period, Daily Start Time.   |
| 430 | Word | Read Only  | Present Undisturbed Pump-Off(s) in Gauge Time.  |
| 431 | Word | Read Only  | Previous Gauge Time Undisturbed Pump-Off(s).  |
| 432 | Time | Read Only  | Present Undisturbed On-Time (Average).  |
| 433 | Time | Read Only  | Previous Gauge Time Undisturbed On-Time.  |
| 434 | Time | Read Only  | Time Remaining Until Next Gauge Time.   |
| 439 | Time | Read Only  | Present Undisturbed On-Time.  |
| 440 | Byte | Read Only  | Run Times Circular Buffer Pointer.  |
| 441 | Date | Read Only  | Present Gauge Period Starting Date.   |
| 442 | Time | Read Only  | Run Times Circular Buffer.  |
| 443 | Time | Read Only  | Run Times Circular Buffer.  |
| 444 | Time | Read Only  | Run Times Circular Buffer.  |
| 445 | Time | Read Only  | Run Times Circular Buffer.  |
| 446 | Time | Read Only  | Run Times Circular Buffer.  |
| 447 | Time | Read Only  | Run Times Circular Buffer.  |
| 448 | Time | Read Only  | Run Times Circular Buffer.  |
| 449 | Time | Read Only  | Run Times Circular Buffer.  |
| 450 | Word | Read Only  | Zero Channel Raw Input.   |
| 451 | Word | Read Only  | Zero Channel Filtered Input.  |
| 452 | Word | Read Only  | 5 Volts Channel Raw Input.  |
| 453 | Word | Read Only  | 5 Volts Channel Filtered Input.   |
| 454 | Word | Read Only  | Filtered Span.  |
| 455 | Byte | Read Only  | Channel:<br><br>Value / Description<br>0 = Zero Volts Calibration<br>1 = Full Scale Calibration<br>2 = Load Input<br>3 = Position Input 4 = First Extra |
| 456 | Word | Read Only  | Lowest Allowed Value.   |
| 457 | Word | Read Only  | Highest Allowed Value.  |
| 458 | Word | Read Only  | Actual Value.   |

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|-----|---------|------------|--|
| 459 | Command | Read Write | Clear Maximums of Parameters 460 - 461.  |
| 460 | Display | Read Only  | Background Timing: Max BACKGR Calls.   |
| 461 | Display | Read Only  | Processor Profiling with Format = xx/yy/zz;<br><br>xx = System Overhead Percent<br>yy = Percent Idle<br>zz = Percent Useful Work   |
| 471 | Byte    | Read Only  | Software Debug Display Attributes (Reserved).  |
| 472 | Command | Read Write | Initialize EEPROM to CAC Factory Setting.  |
| 473 | Word    | Read Write | Service Password.  |
| 478 | Byte    | Read Only  | Major Version Number.  |
| 479 | Byte    | Read Only  | Minor Version Number.  |
| 480 | Word    | Read Only  | EEPROM Initialized Value.  |
| 481 | Word    | Read Only  | EEPROM Used [Bytes].   |
| 482 | Word    | Read Only  | Shadow RAM Remain [Bytes].   |
| 483 | Word    | Read Only  | EEPROM Size [Bytes].   |
| 484 | Byte    | Read Only  | Firmware Version when EEPROM Initialized.  |
| 485 | Byte    | Read Only  | Firmware Sub-version when EEPROM.  |
| 486 | Word    | Read Only  | Bad Parameter Information.   |
| 489 | Byte    | Read Only  | Configuration Change.  |
| 490 | Byte    | Read Only  | SCADA Firmware Compatibility Main Version.   |
| 491 | Byte    | Read Only  | SCADA Firmware Compatibility Sub-Version.  |
| 492 | Word    | Read Only  | Hardware Option Bits 1:<br><br>Octal Value / Description<br>000004 = Memory<br>000010 = Memory Expansion<br>000020 = Indication Bit<br>000040 = Memory Bank Expansion<br>000100 = Control PIO<br>000200 = UART<br>000400 = Radio ID  |
| 493 | Word    | Read Only  | Hardware Option Bits 2 Display:<br><br>Octal Value / Description<br>000001 = Larger EEPROM<br>000002 = CPI Type LCD Display<br>000004 = Keypad (Detected when pressed)<br>000008 = Battery Backup<br>000010 = Densitron Type LCD Display<br>000040 = Enhanced Graphics Display |
| 495 | Byte    | Read Only  | Communication Board(s):<br><br>Value / Description<br>0 = No Comm Boards<br>1 = Unknown or Bad Comm Board<br>2 = UART Board<br>3 = UART Board with Expanded Memory<br>4 = Radio Modem Board<br>5 = Hardwired Modem Board   |
| 496 | Word    | Read Write | Analog Input Usage Configuration.  |
| 497 | Word    | Read Write | Digital Input Usage Configuration:<br><br>Octal Value / Description<br>000001 = DI1 Selected<br>000002 = DI2 Selected<br>000004 = DI3 Selected<br>000010 = DI4 Selected<br>000020 = DI5 Selected<br>000040 = DI6 Selected<br>000100 = DI7 Selected<br>000200 = DI8 Selected    |

|     |         |            |   |
|-----|---------|------------|---|
| 498 | Word    | Read Only  | Highest Parameter Number Available.   |
| 499 | Byte    | Read Write | Not functional in Version 2.00 or higher.   |
| 500 | Word    | Read Write | Master Password entered here .  |
| 501 | Byte    | Read Write | Password Timeout Interval.  |
| 506 | Byte    | Read Write | Not functional in Version 2.00 or higher.   |
| 507 | Byte    | Read Only  | Not functional in Version 2.00 or higher.   |
| 508 | Byte    | Read Write | Display Update Rate [1].  |
| 509 | Byte    | Read Write | Message Rolls per Second.   |
| 510 | Word    | Read Only  | Not functional in Version 2.00 or higher.   |
| 511 | Word    | Read Only  | Not functional in Version 2.00 or higher.   |
| 512 | Word    | Read Only  | Not functional in Version 2.00 or higher.   |
| 513 | Word    | Read Only  | Not functional in Version 2.00 or higher.   |
| 514 | Byte    | Read Write | Enable/Disable Expanded Pound Card :<br><br>0 = Disable (Sequence from % card to normal card back to % card)<br>1 = Enable (Sequence from % card to expanded pound card to normal card back to % card)  |
| 515 | Word    | Read Only  | Automatic Set-up.   |
| 516 | Word    | Read Only  | Communication Pump On.  |
| 517 | Word    | Read Only  | Communication Present.  |
| 518 | Word    | Read Only  | Communication Pump Off.   |
| 519 | Word    | Read Only  | Communication Frozen.   |
| 520 | Word    | Read Only  | Internal Status Variables:<br><br>Octal Value / Description<br>000001 = Well Officially "on"<br>000002 = Sensors Report Well "on"<br>000004 = Pending Position Problem<br>000010 = Power up Low Load Span<br>000020 = Full Card Marked<br>000040 = EPROM Initialized<br>000100 = EPROM Expanded<br>000200 = Last Load Span Good<br>000400 = Peak Hours / Pump forced "off"<br>001000 = Peak Hours Delay Start Timer is Active |
| 521 | Word    | Read Only  | Octal and Hex Status Bits 2:<br><br>Octal Value / Description<br>000002 = Unofficial Version  |
| 522 | Word    | Read Only  | Status Bits 3.  |
| 523 | Command | Read Write | Clear Errors.   |
| 524 | Command | Read Write | Pump On.  |
| 525 | Command | Read Write | Idle Time.  |
| 526 | Byte    | Read Only  | Controller Error Status:<br><br>Value/Description<br>0 = Normal or Lamp Only Error<br>1 = Software Timer<br>2 = Control Transferred via Watchdog Relay<br>3 = Off Until Reset by Operator   |
| 527 | Word    | Read Only  | Accumulated Error Code Bits - Word 1:<br><br>Octal Value / Description<br>000001 = Control Failure<br>000002 = Low Load Violation<br>000004 = High Load Violation<br>000010 = Low Average Load<br>000020 = Position Switch Failure<br>000040 = Multiple Position Switch   |

|     |      |           |  |
|-----|------|-----------|--|
|     |      |           | <p>000100 = Cleared Position Switch Error<br/> 000200 = Cleared Multiple Position Switch Errors<br/> 000400 = Low Load Span<br/> 001000 = Load Sensor Failure<br/> 002000 = Continuous Position Fault<br/> 004000 = Cleared Continuous Position Fault<br/> 010000 = Bad Software Timer Value<br/> 020000 = A/D Failure<br/> 040000 = Manual Off Command<br/> 100000 = Pump-Off Override Timer Active</p>   |
| 528 | Word | Read Only | <p>Accumulated Error Code Bits - Word 2:</p> <p>Octal Value / Description<br/> 000001 = Immediate Pump Off(s)<br/> 000002 = Minimum Cycle Run Time(s)<br/> 000004 = Maximum Cycle Run Time(s)<br/> 000010 = Maximum Daily Run Time<br/> 000020 = EEPROM Initialized<br/> 000040 = EEPROM Expanded<br/> 000100 = Parameters Restored from EEPROM<br/> 000200 = EEPROM Going Bad (1/3)<br/> 000400 = EEPROM Going Bad (2/3 or 3/3)<br/> 001000 = Bad Error Status at Power Up<br/> 002000 = Bad Error Code Bits at Power Up<br/> 004000 = Questionable Time and Date<br/> 010000 = Bad Real Time Clock Chip<br/> 020000 = Wrong Startup Line Frequency<br/> 040000 = Manual Control Transfer<br/> 100000 = Manual Software Timer</p>                   |
| 529 | Word | Read Only | <p>Accumulated Error Code Bits - Word 3:</p> <p>Octal Value / Description<br/> 000001 = CPU Fell Behind<br/> 000002 = Cleared RTC Error<br/> 000004 = Motor Off Too Long<br/> 000010 = Digital Input 1 Low Alarm<br/> 000020 = Digital Input 1 High Alarm<br/> 000040 = Digital Input 2 Low Alarm<br/> 000100 = Digital Input 2 High Alarm<br/> 000200 = Analog Input 1 as DI Low Alarm<br/> 000400 = Analog Input 1 as DI High Alarm<br/> 001000 = Analog Input 2 as DI Low Alarm<br/> 002000 = Analog Input 2 as DI High Alarm<br/> 004000 = Analog Input 3 as DI Low Alarm<br/> 010000 = Analog Input 3 as DI High Alarm<br/> 020000 = Immediate Upper Load Violation<br/> 040000 = Reverse Pump Off<br/> 100000 = Air Balance Amps Too Large</p> |
| 530 | Word | Read Only | <p>Accumulated Error Code Bits - Word 4:</p> <p>Octal Value / Description<br/> 000001 = Digital Input 3 Low Alarm<br/> 000002 = Digital Input 3 High Alarm<br/> 000004 = Digital Input 4 Low Alarm<br/> 000010 = Digital Input 4 High Alarm<br/> 000020 = Digital Input 5 Low Alarm<br/> 000040 = Digital Input 5 High Alarm<br/> 000100 = Digital Input 6 Low Alarm<br/> 000200 = Digital Input 6 High Alarm<br/> 000400 = Analog Input 1 Below Low Limit<br/> 001000 = Analog Input 1 Above Upper Limit<br/> 002000 = Analog Input 2 Below Low Limit<br/> 004000 = Analog Input 2 Above Upper Limit<br/> 010000 = Analog Input 3 Below Low Limit<br/> 020000 = Analog Input 3 Above Upper Limit</p>  |

|     |      |           |  |
|-----|------|-----------|--|
|     |      |           | 040000 = Air Balance Add Air Forced Open<br>100000 = Air Balance Release Air Forced Open   |
| 531 | Word | Read Only | Accumulated Error Code Bits - Word 5:<br><br>Octal Value / Description<br>000001 = Digital Input 7 Low Alarm<br>000002 = Digital Input 7 High Alarm<br>000004 = Digital Input 8 Low Alarm<br>000010 = Digital Input 8 High Alarm<br>000020 = Program Error<br>000040 = Bad Shutdown<br>000100 = Analog Input 4 Low Alarm<br>000200 = Analog Input 4 High Alarm<br>000400 = Analog Input 5 Low Alarm<br>001000 = Analog Input 5 High Alarm<br>002000 = Analog Input 6 Low Alarm<br>004000 = Analog Input 6 High Alarm<br>010000 = Analog Input 7 Low Alarm<br>020000 = Analog Input 7 High Alarm<br>040000 = Analog Input 8 Low Alarm<br>100000 = Analog Input 8 High Alarm |
| 532 | Word | Read Only | Running Performance Status:<br><br>Octal Value / Description<br>000001 = Run Under 50%<br>000002 = Divide by zero<br>000004 = Fluid calculation alarm<br>000010 = Alarm low load cell  |
| 535 | Word | Read Only | Non-Clearable Hardware Error Code Bits:<br><br>Octal Value / Description<br>000001 = Bad Communications Card<br>000002 = Constant UART Interrupt<br>000004 = Bad Power Supply Card<br>000010 = AC Failure<br>000020 = Battery Low  |
| 536 | Word | Read Only | Non-Clearable Pump-Off Setup Error Bits 2:<br><br>Octal Value / Description<br>000001 = Missing Parameter 130<br>000010 = Missing Parameter 21<br>000020 = Reserved for Missing Parameter 22<br>000040 = Missing Parameter 23<br>000100 = Missing Parameter 24<br>000200 = Missing Parameter 20<br>002000 = Missing Position Memory  |
| 537 | Word | Read Only | Non-Clearable Miscellaneous Error Bits 3:<br><br>Octal Value / Description<br>000002 = Event Buffer<br>000020 = Temporary control failure<br>000200 = Bad fluid parameter<br>000400 = Communications Test<br>001000 = I/O ID Fail<br>002000 = Unsupported I/O<br>004000 = Missing I/O  |
| 540 | Byte | Read Only | Worst Case Controller Error Status Since Power Up:<br><br>Value / Description<br>0 = Normal or Lamp Only if error(s)<br>1 = Software Timer<br>2 = Control Transferred by Watchdog Relay<br>3 = Off Until Reset by Operator   |

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|-----|------|-----------|--|
| 541 | Word | Read Only | <p>Accumulated Error Code Since Power up - Word 1:</p> <p>Octal Value / Description</p> <p>000001 = Control Failure</p> <p>000002 = Low Load Violation</p> <p>000004 = High Load Violation</p> <p>000010 = Low Average Load</p> <p>000020 = Position Switch Failure</p> <p>000040 = Multiple Position Switch</p> <p>000100 = Cleared Position Switch Error</p> <p>000200 = Cleared Multiple Position Switch Errors</p> <p>000400 = Low Load Span</p> <p>001000 = Load Sensor Failure</p> <p>002000 = Continuous Position Fault</p> <p>004000 = Cleared Continuous Position Fault</p> <p>010000 = Bad Software Timer Value</p> <p>020000 = A/D Failure</p> <p>040000 = Manual Off Command</p> <p>100000 = Pump-Off Override Timer Active</p>  |
| 542 | Word | Read Only | <p>Accumulated Error Code Since Power up - Word 2:</p> <p>Octal Value / Description</p> <p>000001 = Immediate Pump Off(s)</p> <p>000002 = Minimum Cycle Run Time(s)</p> <p>000004 = Maximum Cycle Run Time(s)</p> <p>000010 = Maximum Daily Run Time</p> <p>000020 = EEPROM Initialized</p> <p>000040 = EEPROM Expanded</p> <p>000100 = Parameters Restored from EEPROM</p> <p>000200 = EEPROM Going Bad (1/3)</p> <p>000400 = EEPROM Going Bad (2/3 or 3/3)</p> <p>001000 = Bad Error Status at Power Up)</p> <p>002000 = Bad Error Code Bits at Power Up</p> <p>004000 = Questionable Time and Date</p> <p>010000 = Bad Real Time Clock Chip</p> <p>020000 = Wrong Startup Line Frequency</p> <p>040000 = Manual Control Transfer</p> <p>100000 = Manual Software Timer</p>                |
| 543 | Word | Read Only | <p>Accumulated Error Code Since Power up - Word 3:</p> <p>Octal Value / Description</p> <p>000001 = CPU Fell Behind</p> <p>000002 = Cleared RTC Error</p> <p>000004 = Motor Off Too Long</p> <p>000010 = Digital Input 1 Low Alarm</p> <p>000020 = Digital Input 1 High Alarm</p> <p>000040 = Digital Input 2 Low Alarm</p> <p>000100 = Digital Input 2 High Alarm</p> <p>000200 = Analog Input 1 as DI Low Alarm</p> <p>000400 = Analog Input 1 as DI High Alarm</p> <p>001000 = Analog Input 2 as DI Low Alarm</p> <p>002000 = Analog Input 2 as DI High Alarm</p> <p>004000 = Analog Input 3 as DI Low Alarm</p> <p>010000 = Analog Input 3 as DI High Alarm</p> <p>020000 = Immediate Upper Load Violation</p> <p>040000 = Reverse Pump Off</p> <p>100000 = Air Balance Amps Too Low</p> |
| 544 | Word | Read Only | <p>Accumulated Error Code Since Power up - Word 4:</p> <p>Octal Value / Description</p> <p>000001 = Digital Input 3 Low Alarm</p> <p>000002 = Digital Input 3 High Alarm</p> <p>000004 = Digital Input 4 Low Alarm</p> <p>000010 = Digital Input 4 High Alarm</p>  |

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|-----|---------|------------|--|
|     |         |            | 000020 = Digital Input 5 Low Alarm<br>000040 = Digital Input 5 High Alarm<br>000100 = Digital Input 6 Low Alarm<br>000200 = Digital Input 6 High Alarm<br>000400 = Analog Input 1 Below Low Limit<br>001000 = Analog Input 1 Above Upper Limit<br>002000 = Analog Input 2 Below Low Limit<br>004000 = Analog Input 2 Above Upper Limit<br>010000 = Analog Input 3 Below Low Limit<br>020000 = Analog Input 3 Above Upper Limit<br>040000 = Air Balance Add Air Forced Open<br>100000 = Air Balance Release Air Forced Open |
| 545 | Word    | Read Only  | Accumulated Error Code Since Power up - Word 5:<br><br>Octal Value / Description<br>000001 = Digital Input 7 Low Alarm<br>000002 = Digital Input 7 High Alarm<br>000004 = Digital Input 8 Low Alarm<br>000010 = Digital Input 8 High Alarm<br>000020 = Program Error<br>000040 = Bad Shutdown  |
| 549 | Display | Read Only  | Firmware Part Number.  |
| 550 | Display | Read Only  | Firmware Complete ID.  |
| 551 | Display | Read Only  | Date of Firmware Compile.  |
| 552 | Display | Read Only  | Time of Firmware Compile.  |
| 555 | Display | Read Only  | Controller ID Message.   |
| 556 | Command | Read Write | Output Rolling Unit.   |
| 557 | Word    | Read Only  | Number of Characters Used in EEPROM.   |
| 558 | Word    | Read Only  | Number of Characters Left in EEPROM.   |
| 560 | Byte    | Read Write | DI 1 Closed Action [7].  |
| 561 | Byte    | Read Write | DI 1 Open Action [7].  |
| 562 | Byte    | Read Write | DI 2 Closed Action [7].  |
| 563 | Byte    | Read Write | DI 2 Open Action [7].  |
| 564 | Byte    | Read Write | DI 3 Closed Action [7].  |
| 565 | Byte    | Read Write | DI 3 Open Action [7].  |
| 566 | Byte    | Read Write | DI 4 Closed Action [7].  |
| 567 | Byte    | Read Write | DI 4 Open Action [7].  |
| 568 | Byte    | Read Write | DI 5 Closed Action [7].  |
| 569 | Byte    | Read Write | DI 5 Open Action [7].  |
| 570 | Byte    | Read Write | DI 6 Closed Action [7].  |
| 571 | Byte    | Read Write | DI 6 Open Action [7].  |
| 572 | Byte    | Read Write | DI 7 Closed Action [7].  |
| 573 | Byte    | Read Write | DI 7 Open Action [7].  |
| 574 | Byte    | Read Write | DI 8 Closed Action [7].  |
| 575 | Byte    | Read Write | DI 8 Open Action [7].  |
| 578 | Word    | Read Write | Low Order Accumulator.   |
| 579 | Word    | Read Write | High Order Accumulator.  |
| 580 | Word    | Read Write | DO 1 on Timer.   |
| 581 | Word    | Read Write | DO 2 on Timer.   |
| 582 | Word    | Read Write | DO 3 on Timer.   |
| 583 | Word    | Read Write | DO 4 on Timer.   |
| 584 | Word    | Read Write | DO 5 on Timer.   |
| 585 | Word    | Read Write | DO 6 on Timer.   |
| 586 | Word    | Read Write | DO 7 on Timer.   |
| 587 | Word    | Read Write | DO 8 on Timer.   |
| 590 | Word    | Read Write | DIO 1 as an Output Action.   |
| 591 | Word    | Read Write | DIO 2 as an Output Action.   |
| 592 | Word    | Read Write | DIO 3 as an Output Action.   |



|     |      |            |  |
|-----|------|------------|--|
| 593 | Word | Read Write | DIO 4 as an Output Action.   |
| 594 | Word | Read Write | DIO 5 as an Output Action.   |
| 595 | Word | Read Write | DIO 6 as an Output Action.   |
| 596 | Word | Read Write | DIO 7 as an Output Action.   |
| 597 | Word | Read Write | DIO 8 as an Output Action.   |
| 598 | Word | Read Write | Digital Outputs on Flags:<br><br>Octal Value / Description<br>000001 = DIO1 on Flag<br>000002 = DIO2 on Flag<br>000004 = DIO3 on Flag<br>000010 = DIO4 on Flag<br>000020 = DIO5 on Flag<br>000040 = DIO6 on Flag<br>000100 = DIO7 on Flag<br>000200 = DIO8 on Flag |
| 599 | Word | Read Only  | Digital Output Status:<br><br>Octal Value / Description<br>000001 = DIO1 Closed<br>000002 = DIO2 Closed<br>000004 = DIO3 Closed<br>000010 = DIO4 Closed<br>000020 = DIO5 Closed<br>000040 = DIO6 Closed<br>000100 = DIO7 Closed<br>000200 = DIO8 Closed            |
| 600 | Time | Read Write | Remote Mode on Local Port.   |

## Parameters 601-862

| Parameter | Data Type | Access     | Description  |
|-----------|-----------|------------|--|
| 601       | Byte      | Read/Write | Remote Data and Stop Bits.   |
| 602       | Byte      | Read/Write | Remote Baud Rate [7].  |
| 603       | Word      | Read Only  | Communication Status Bits:<br><br>Octal Value / Description<br>000001 = CRC Security<br>000002 = Large Receive Buffer<br>000004 = Large Transmit Buffer<br>000010 = Using Modem<br>000020 = Communication Out Test |
| 604       | Byte      | Read/Write | Analyzer Port Data / Stop Bits.  |
| 605       | Byte      | Read/Write | Analyzer Port Baud Rate.   |
| 606       | Byte      | Read/Write | Carrier Detect On Delay [6].   |
| 607       | Byte      | Read/Write | Carrier Detect Off Delay [1].  |
| 608       | Byte      | Read/Write | Message End Until Carrier Lost Limit [60].   |
| 609       | Byte      | Read/Write | Radio Pre-Key [30].  |
| 610       | Byte      | Read/Write | Radio Post-Key [12].   |
| 611       | Byte      | Read/Write | Maximum Radio Key [30].  |
| 612       | Byte      | Read/Write | Receive Timeout [120].   |
| 613       | Byte      | Read/Write | SCADA Port Protocol Type:<br><br>Value / Description<br>0 = 8500 (Remote)<br>1 = 8550 (Local)<br>2 = MODBUS ASCII<br>3 = MODBUS RTU  |
| 614       | Byte      | Read/Write | Dynamometer Card Type:   |

|     |         |            |   |
|-----|---------|------------|---|
|     |         |            | Value / Description<br>0 = Start-up<br>1 = Live Action<br>2 = Shutdown  |
| 615 | Byte    | Read/Write | Dynamometer Card Options:<br><br>Value / Description<br>0 = Pound<br>1 = Percent  |
| 616 | Byte    | Read/Write | Dynamometer Card Number:<br><br>Value / Description<br>0 = Card 1<br>1 = Card 2<br>2 = Card 3<br>3 = Card 4<br>4 = Card 5 |
| 617 | Byte    | Read/Write | Position Type:<br><br>Value / Description<br>0 = Synthesized Fraction<br>1 = Fractional Actual<br>2 = Voltage             |
| 619 | Byte    | Read/Write | Actual position data available from RPC for analysis programs:<br><br>0 = POS Switch<br>1 = Continuous Position           |
| 620 | Word    | Read/Write | Communication Group Address [4093].   |
| 621 | Word    | Read Only  | Maximum Radio "On Time".  |
| 622 | Word    | Read Only  | Maximum Transmit Message Time.  |
| 623 | Word    | Read Only  | Maximum Transmit Message in Characters.   |
| 624 | Word    | Read Only  | Actual Transmit Buffer Size in Characters.  |
| 625 | Display | Read Only  | Maximum Transmit Buffer Size in Characters.   |
| 626 | Word    | Read Only  | Maximum Transmit Message Time.  |
| 627 | Word    | Read Only  | Maximum Radio On Time.  |
| 628 | Byte    | Read/Write | All Address Response Test Override Timer.   |
| 629 | Command | Read/Write | Clear P630 through P642.  |
| 630 | Display | Read Only  | Last Characters Received as ASCII.  |
| 631 | Word    | Read/Write | Character Errors (Framing, Parity, Overrun Errors).   |
| 632 | Word    | Read/Write | Characters Received.  |
| 633 | Word    | Read/Write | Header Characters Received.   |
| 634 | Word    | Read/Write | Trailer Characters Received.  |
| 635 | Word    | Read/Write | Framed Messages Received.   |
| 636 | Word    | Read/Write | Framed Messages Received with Correct CRC / Checksum.   |
| 637 | Word    | Read/Write | Messages Processed.   |
| 638 | Word    | Read/Write | Commands Processed.   |
| 639 | Word    | Read/Write | Responses Transmitted.  |
| 640 | Word    | Read/Write | Characters Transmitted.   |
| 641 | Word    | Read/Write | Maximum Time Messages Received to Response Started.   |
| 642 | Word    | Read/Write | Max. Time Messages Received to Response Sent.   |
| 644 | Byte    | Read/Write | Output Test Spacing Delay.  |
| 645 | Byte    | Read Only  | Last Character Received.  |
| 646 | Byte    | Read/Write | Output Test Data / Stop Bits.   |
| 647 | Byte    | Read/Write | Output Test Character [U].  |
| 648 | Byte    | Read/Write | Output Test Time.   |
| 649 | Word    | Read Only  | Internal Status Bits.   |
| 660 | Byte    | Read/Write | Cursor Location.  |
| 661 | Byte    | Read/Write | Timer.  |

|     |      |            |  |
|-----|------|------------|--|
| 662 | Long | Read Only  | Not functional in Version 2.00 and higher.   |
| 663 | Word | Read/Write | Not functional in Version 2.00 and higher.   |
| 664 | Word | Read/Write | Not functional in Version 2.00 and higher.   |
| 665 | Byte | Read Only  | Good Operation Timer.  |
| 666 | Byte | Read/Write | Required Good Operation Time [15].   |
| 667 | Byte | Read/Write | Log Clear Errors Flag.   |
| 668 | Byte | Read Only  | Error Code:<br><br>Value / Description<br>0 = No Error<br>1 = Bad Second Interval<br>2 = Read All 1's<br>3 = Write Confirm<br>4 = Cannot Read Same Twice |
| 669 | Time | Read Only  | Seconds Value for RTC Chip (0 to 9).   |
| 670 | Time | Read Only  | Today's Accumulated Run Time.  |
| 671 | Time | Read Only  | Yesterday's Total Accumulated Run Time.  |
| 672 | Time | Read Only  | Run Time Two Days Ago.   |
| 673 | Time | Read Only  | Run Time Three Days Ago.   |
| 674 | Time | Read Only  | Run Time Four Days Ago.  |
| 675 | Time | Read Only  | Run Time Five Days Ago.  |
| 676 | Time | Read Only  | Run Time Six Days Ago.   |
| 677 | Time | Read Only  | Run Time Seven Days Ago.   |
| 678 | Time | Read Only  | Run Time Eight Days Ago.   |
| 679 | Time | Read Only  | Run Time Nine Days Ago.  |
| 680 | Time | Read Only  | Run Time Ten Days Ago.   |
| 681 | Time | Read Only  | Run Time Eleven Days Ago.  |
| 682 | Time | Read Only  | Run Time Twelve Days Ago.  |
| 683 | Time | Read Only  | Run Time Thirteen Days Ago.  |
| 684 | Time | Read Only  | Run Time Fourteen Days Ago.  |
| 685 | Time | Read Only  | Run Time Fifteen Days Ago.   |
| 686 | Time | Read Only  | Run Time Sixteen Days Ago.   |
| 687 | Time | Read Only  | Run Time Seventeen Days Ago.   |
| 688 | Time | Read Only  | Run Time Eighteen Days Ago.  |
| 689 | Time | Read Only  | Run Time Nineteen Days Ago.  |
| 690 | Time | Read Only  | Run Time Twenty Days Ago.  |
| 691 | Time | Read Only  | Run Time Twenty-one Days Ago.  |
| 692 | Time | Read Only  | Run Time Twenty-two Days Ago.  |
| 693 | Time | Read Only  | Run Time Twenty-three Days Ago.  |
| 694 | Time | Read Only  | Run Time Twenty-four Days Ago.   |
| 695 | Time | Read Only  | Run Time Twenty-five Days Ago.   |
| 696 | Time | Read Only  | Run Time Twenty-six Days Ago.  |
| 697 | Time | Read Only  | Run Time Twenty-seven Days Ago.  |
| 698 | Time | Read Only  | Run Time Twenty-eight Days Ago.  |
| 699 | Time | Read Only  | Run Time Twenty-nine Days Ago.   |
| 700 | Word | Read Only  | Raw A/D Channel Value.   |
| 701 | Word | Read Only  | Current Input Value.   |
| 702 | Word | Read Only  | Input Value - EGU.   |
| 703 | Byte | Read/Write | AI4 Type.  |
| 704 | Byte | Read/Write | AI4 Decimal Places [3].  |
| 705 | Byte | Read/Write | AI4 EGU Label [9].   |
| 706 | Word | Read/Write | Low Value Scaling.   |
| 707 | Word | Read/Write | High Value Scaling.  |
| 708 | Word | Read/Write | Lower Alarm Limit.   |
| 709 | Byte | Read/Write | Lower Alarm Action 1.  |
| 710 | Byte | Read/Write | Lower Alarm Action 2.  |

|     |         |            |                               |
|-----|---------|------------|-------------------------------|
| 711 | Word    | Read/Write | Upper Alarm Limit.            |
| 712 | Byte    | Read/Write | Upper Alarm Action 1.         |
| 713 | Byte    | Read/Write | Upper Alarm Action 2.         |
| 714 | Word    | Read/Write | Alarm Deadband.               |
| 715 | Word    | Read Only  | Lowest Recorded Input Value.  |
| 716 | Word    | Read Only  | Highest Recorded Input Value. |
| 719 | Command | Read/Write | Reset AI4 Highs and Lows.     |
| 720 | Word    | Read Only  | Raw A/D Channel Value.        |
| 721 | Word    | Read Only  | Current Input Value.          |
| 722 | Word    | Read Only  | Input Value - EGU.            |
| 723 | Byte    | Read/Write | AI5 Type.                     |
| 724 | Byte    | Read/Write | AI5 Decimal Places [3].       |
| 725 | Byte    | Read/Write | AI5 EGU Label [9].            |
| 726 | Word    | Read/Write | Low Value Scaling.            |
| 727 | Word    | Read/Write | High Value Scaling.           |
| 728 | Word    | Read/Write | Lower Alarm Limit.            |
| 729 | Byte    | Read/Write | Lower Alarm Action 1.         |
| 730 | Byte    | Read/Write | Lower Alarm Action 2.         |
| 731 | Word    | Read/Write | Upper Alarm Limit.            |
| 732 | Byte    | Read/Write | Upper Alarm Action 1.         |
| 733 | Byte    | Read/Write | Upper Alarm Action 2.         |
| 734 | Word    | Read/Write | Alarms Deadband.              |
| 735 | Word    | Read Only  | Lowest Recorded Input Value.  |
| 736 | Word    | Read Only  | Highest Recorded Input Value. |
| 739 | Command | Read/Write | Reset AI5 Highs and Lows.     |
| 740 | Word    | Read Only  | Raw A/D Channel Value.        |
| 741 | Word    | Read Only  | Current Input Value.          |
| 742 | Word    | Read Only  | Input Value - EGU.            |
| 743 | Byte    | Read/Write | AI6 Type.                     |
| 744 | Byte    | Read/Write | AI6 Decimal Places [3].       |
| 745 | Byte    | Read/Write | AI6 EGU Label [9].            |
| 746 | Word    | Read/Write | Low Value Scaling.            |
| 747 | Word    | Read/Write | High Value Scaling.           |
| 748 | Word    | Read/Write | Lower Alarm Limit.            |
| 749 | Byte    | Read/Write | Lower Alarm Action 1.         |
| 750 | Byte    | Read/Write | Lower Alarm Action 2.         |
| 751 | Word    | Read/Write | Upper Alarm Limit.            |
| 752 | Byte    | Read/Write | Upper Alarm Action 1.         |
| 753 | Byte    | Read/Write | Upper Alarm Action 2.         |
| 754 | Word    | Read/Write | Alarms Deadband.              |
| 755 | Word    | Read Only  | Lowest Averaged Input Value.  |
| 756 | Word    | Read Only  | Highest Averaged Input Value. |
| 759 | Command | Read/Write | Reset AI6 Highs and Lows.     |
| 760 | Word    | Read Only  | Raw A/D Channel Value.        |
| 761 | Word    | Read Only  | Current Input Value.          |
| 762 | Word    | Read Only  | Input Value - EGU.            |
| 763 | Byte    | Read/Write | AI7 Type.                     |
| 764 | Byte    | Read/Write | AI7 Decimal Places [3].       |
| 765 | Byte    | Read/Write | AI7 EGU Label [9].            |
| 766 | Word    | Read/Write | Low Value Scaling.            |
| 767 | Word    | Read/Write | High Value Scaling.           |
| 768 | Word    | Read/Write | Lower Alarm Limit.            |
| 769 | Byte    | Read/Write | Lower Alarm Action 1.         |
| 770 | Byte    | Read/Write | Lower Alarm Action 2.         |
| 771 | Word    | Read/Write | Upper Alarm Limit.            |

|     |         |            |  |
|-----|---------|------------|--|
| 772 | Byte    | Read/Write | Upper Alarm Action 1.  |
| 773 | Byte    | Read/Write | Upper Alarm Action 2.  |
| 774 | Word    | Read/Write | Alarms Deadband.   |
| 775 | Word    | Read Only  | Lowest Recorded Input Value.   |
| 776 | Word    | Read Only  | Highest Recorded Input Value.  |
| 779 | Command | Read/Write | Reset AI7 Highs and Lows.  |
| 780 | Word    | Read Only  | Raw A/D Channel Value.   |
| 781 | Word    | Read Only  | Current Input Value.   |
| 782 | Word    | Read Only  | Input Value - EGU.   |
| 783 | Byte    | Read/Write | AI8 Type.  |
| 784 | Byte    | Read/Write | AI8 Decimal Places [3].  |
| 785 | Byte    | Read/Write | AI8 EGU Label [9].   |
| 786 | Word    | Read/Write | Low Value Scaling.   |
| 787 | Word    | Read/Write | High Value Scaling.  |
| 788 | Word    | Read/Write | Lower Alarm Limit.   |
| 789 | Byte    | Read/Write | Lower Alarm Action 1.  |
| 790 | Byte    | Read/Write | Lower Alarm Action 2.  |
| 791 | Word    | Read/Write | Upper Alarm Limit.   |
| 792 | Byte    | Read/Write | Upper Alarm Action 1.  |
| 793 | Byte    | Read/Write | Upper Alarm Action 2.  |
| 794 | Word    | Read/Write | Alarms Deadband.   |
| 795 | Word    | Read Only  | Lowest Recorded Input Value.   |
| 796 | Word    | Read Only  | Highest Recorded Input Value.  |
| 799 | Command | Read/Write | Reset AI8 Highs and Lows.  |
| 800 | Byte    | Read/Write | X1 Point from Host.  |
| 801 | Byte    | Read/Write | X2 Point from Host.  |
| 802 | Byte    | Read/Write | Y1 Point from Host.  |
| 803 | Byte    | Read/Write | Y2 Point from Host.  |
| 804 | Word    | Read Only  | Calculated Fluid Stroke Length.  |
| 805 | Byte    | Read/Write | Enable Fluid Stroke Calculation [0]:<br><br>Value / Description<br>0 = Off<br>1 = On |
| 806 | Word    | Read/Write | Surface Stroke Length.   |
| 807 | Word    | Read/Write | Pump Bore Diameter.  |
| 808 | Word    | Read Only  | Avg. Surface Stroke Length.  |
| 809 | Word    | Read Only  | Avg. Daily Fluid Stroke Length.  |
| 810 | Word    | Read Only  | Average Pump Rate SPM.   |
| 811 | Word    | Read Only  | Today's Fluid Production.  |
| 812 | Word    | Read Only  | Yesterday's Fluid Production.  |
| 813 | Word    | Read Only  | Fluid Production - 2 Days ago.   |
| 814 | Word    | Read Only  | Fluid Production - 3 Days ago.   |
| 815 | Word    | Read Only  | Fluid Production - 4 Days ago.   |
| 816 | Word    | Read Only  | Fluid Production - 5 Days ago.   |
| 817 | Word    | Read Only  | Fluid Production - 6 Days ago.   |
| 818 | Word    | Read Only  | Fluid Production - 7 Days ago.   |
| 819 | Word    | Read Only  | Fluid Production - 8 Days ago.   |
| 820 | Word    | Read Only  | Fluid Production - 9 Days ago.   |
| 821 | Word    | Read Only  | Fluid Production - 10 Days ago.  |
| 822 | Word    | Read Only  | Fluid Production - 11 Days ago.  |
| 823 | Word    | Read Only  | Fluid Production - 12 Days ago.  |
| 824 | Word    | Read Only  | Fluid Production - 13 Days ago.  |
| 825 | Word    | Read Only  | Fluid Production - 14 Days ago.  |
| 826 | Word    | Read Only  | Fluid Production - 15 Days ago.  |
| 827 | Word    | Read Only  | Fluid Production - 16 Days ago.  |

|     |      |            |   |
|-----|------|------------|---|
| 828 | Word | Read Only  | Fluid Production - 17 Days ago.   |
| 829 | Word | Read Only  | Fluid Production - 18 Days ago.   |
| 830 | Word | Read Only  | Fluid Production - 19 Days ago.   |
| 831 | Word | Read Only  | Fluid Production - 20 Days ago.   |
| 832 | Word | Read Only  | Fluid Production - 21 Days ago.   |
| 833 | Word | Read Only  | Fluid Production - 22 Days ago.   |
| 834 | Word | Read Only  | Fluid Production - 23 Days ago.   |
| 835 | Word | Read Only  | Fluid Production - 24 Days ago.   |
| 836 | Word | Read Only  | Fluid Production - 25 Days ago.   |
| 837 | Word | Read Only  | Fluid Production - 26 Days ago.   |
| 838 | Word | Read Only  | Fluid Production - 27 Days ago.   |
| 839 | Word | Read Only  | Fluid Production - 28 Days ago.   |
| 840 | Word | Read Only  | Fluid Production - 29 Days ago.   |
| 841 | Byte | Read/Write | Lower Band Size.  |
| 842 | Word | Read Only  | Error flags for programmer debugging.   |
| 843 | Word | Read Only  | Amount of time required for the fluid calculation.  |
| 844 | Byte | Read Only  | Current Run Mode.   |
| 845 | Byte | Read Only  | Calculated Value X1.  |
| 846 | Byte | Read Only  | Calculated Value X2.  |
| 847 | Byte | Read Only  | Calculated Value Y1.  |
| 848 | Byte | Read Only  | Calculated Value Y2.  |
| 849 | Word | Read Only  | Number of strokes calculated:<br><br>Modes<br>0 = Continuous. Unit does not detect pump-off, thereby running all the time.<br>1 = Pump-Off. Detects Pump-Off condition.<br>2 = On/Off. Well runs according to programmed run time and turns off. The unit will wait until parameter 20 (Idle Time) expires and then begin a new pumping cycle.<br>3 = Shutdown. Well is not running |
| 850 | Time | Read/Write | Time to start in mode specified in P851.  |
| 851 | Byte | Read/Write | Mode to run in at time specified in P850.   |
| 852 | Time | Read/Write | Run Time for run started at time specified in P850. This is only required in On/Off mode.   |
| 853 | Time | Read/Write | Time to start in mode specified in P854.  |
| 854 | Byte | Read/Write | Mode to run in at time specified in P853.   |
| 855 | Time | Read/Write | Run Time for run started at time specified in P853. This is only required in On/Off mode.   |
| 856 | Time | Read/Write | Time to start in mode specified in P857.  |
| 857 | Byte | Read/Write | Mode to run in at time specified in P856.   |
| 858 | Time | Read/Write | Run Time for run started at time specified in P856. This is only required in On/Off mode.   |
| 859 | Time | Read/Write | Time to start in mode specified in P860.  |
| 860 | Byte | Read/Write | Mode to run in at time specified in P859.   |
| 861 | Time | Read/Write | Run Time for run started at time specified in P859. This is only required in On/Off mode.   |
| 862 | Byte | Read/Write | Enable/Disable Timing Control [0]:<br><br>0 = Disable<br>1 = Enable   |

## 8800 Parameter Listings

For information on a specific range of parameters, select a link from the list below.

[Parameter Listings 1-300](#)

[Parameter Listings 301-600](#)

[Parameter Listings 601-862](#)

**Important:** For additional parameter details, refer to the device's User Manual.

### Parameters 1-300

| Parameter | Data Type | Access     | Description  |
|-----------|-----------|------------|--|
| 1         | Word      | Read/Write | Password - Operator Entry.   |
| 2         | Word      | Read/Write | Device Address [4094].   |
| 3         | Time      | Read/Write | Time of Day.   |
| 4         | Date      | Read/Write | Current Date.  |
| 5         | Byte      | Read/Write | Current Day of Week.   |
| 6         | Command   | Read/Write | Mark Top Of Stroke Manually.<br><br>Locates position switch in reference to TOS.                           |
| 7         | Command   | Read/Write | Mark Top of Stroke (TOS).<br><br>Automatic using continuous position signal input (Position Pot Sensor).   |
| 8         | Display   | Read Only  | Position switch location after TOS fraction in counts where position switch closes after TOS.              |
| 14        | Byte      | Read/Write | Load Engineering Units:<br><br>Value / Description<br>0 = Pounds<br>1 = Kg. Metric                         |
| 15        | Byte      | Read/Write | Month Format:<br><br>Value / Description<br>0 = Numeric<br>1 = Alphabetic                                  |
| 16        | Byte      | Read/Write | Time Format:<br><br>Value / Description<br>0 = Military<br>1 = AM/PM                                       |
| 17        | Byte      | Read/Write | Run Time Format:<br><br>Value / Description<br>0 = Hours only<br>1 = Days / Hours                          |
| 18        | Byte      | Read/Write | Clock Source AC Power [1].   |
| 19        | Byte      | Read/Write | Clock Source on Battery Backup [1]:<br><br>Value / Description<br>1 = Real-time Clock                      |
| 20        | Time      | Read/Write | Idle Time [00:05:00]<br><br>hh:mm:ss<br>Set by operator based on well conditions.                          |
| 21        | Byte      | Read/Write | POC Position Limit Line Percent:<br><br>Value / Description<br>0 = Bottom of Stroke<br>100 = Top of Stroke |

|    |         |            |   |
|----|---------|------------|---|
| 23 | Byte    | Read/Write | POC Load Limit Line Percentage:<br><br>Value / Description<br>0 = Min. Load during stroke<br>100 = Max Load during stroke   |
| 24 | Byte    | Read/Write | Maximum consecutive pump-off strokes allowed before going to idle time [2].   |
| 25 | Time    | Read/Write | Pump Up Delay Time [00:00:30].  |
| 26 | Byte    | Read/Write | POC Method:<br><br>Value / Description<br>0 = Quadrant Method – Lower RH<br>1 = Point Method – Along Base Line<br>2 = Reverse POC using Method 0<br>3 = Reverse POC using Method 1<br>4 = ESP Only (Disables POC for RPC use)<br>8 = Quadrant Method – Upper LH<br>9 = Point Method – Upper (100%) Line<br>10 = Reverse POC using Method 8<br>11 = Reverse POC using Method 9 |
| 27 | Time    | Read/Write | POC Override Timer:<br><br>hh:mm:ss<br>Operator set no POC until timer de-crements to zero.   |
| 28 | Byte    | Read/Write | Override Timer Power-up Clear Flag [1]:<br><br>Value / Description<br>0 = No<br>1 = Yes   |
| 29 | Byte    | Read/Write | Timer Status:<br><br>Value / Description<br>0 = No<br>1 = Yes   |
| 30 | Byte    | Read/Write | Command ACF Status:<br><br>Value / Description<br>0 = Not on<br>1 = Yes it is on  |
| 31 | Command | Read/Write | Force Off Until Reset.  |
| 32 | Command | Read/Write | Force Control Transfer.   |
| 33 | Command | Read/Write | Force Software Timer.   |
| 34 | Byte    | Read/Write | POC Position Sensor Type:<br><br>0 = Position Switch<br>1 = Continuous Position   |
| 35 | Byte    | Read/Write | Load Sensor Type:<br><br>0 = Load Cell<br>1 = Strain Gauge  |
| 36 | Time    | Read/Write | Target Cycle Time:<br><br>hh:mm:ss<br>00 -- 99:59:59. Set to 00:00:00 to disable automatic idle time.   |
| 37 | Byte    | Read/Write | Cycle Time Adjust [2]:<br><br>Value / Description<br>0 = Disable with No Fault Lamp<br>1 = Disable with Fault Lamp<br>2 = Enable with No Fault Lamp<br>3 = Enable with Fault Lamp   |



|    |         |            |  |
|----|---------|------------|--|
| 38 | Time    | Read/Write | Motor Off Time Limit:<br>hh:mm:ss<br>Max. allowed off time and restart automatically.  |
| 39 | Byte    | Read/Write | Enable/Disable Restart Protection:<br><br>Value / Description<br>0 = Disable<br>1 = Enable<br><br>Off Until Reset is action when enabled.  |
| 40 | Byte    | Read/Write | Air Balance Control Goal Percentage Value.   |
| 41 | Byte    | Read/Write | ABC Deadband Percentage Value.   |
| 42 | Word    | Read Only  | Upstroke Peak Value.   |
| 43 | Word    | Read Only  | Downstroke Peak Value.   |
| 44 | Word    | Read Only  | Air Balance Peak Difference.<br><br>Positive value means upstroke peak value was higher than down-stroke peak value.   |
| 45 | Word    | Read Only  | Air Balance Peak Difference.<br><br>Same as Parameter 44 except in %. This is not used in control and will show a slightly lower value than the selected % control values. This is actually the more accurate. |
| 46 | Word    | Read/Write | ABC Purge Enable Time.<br><br>Time auto purge opens valve to purge air cylinder. Range is 0 – 65535 (546.1 Seconds in a 60Hz system).  |
| 50 | Byte    | Read/Write | Peak Energy Control Enable Flag:<br><br>Value / Description<br>0 = Disabled<br>1 = Enabled   |
| 51 | Time    | Read/Write | Begin Run Inhibit Time.  |
| 52 | Time    | Read/Write | End Run Inhibit Time.  |
| 53 | Time    | Read/Write | AC Power Fail Restart.   |
| 63 | Byte    | Read/Write | Dynamometer Reference Point (Target Type):<br><br>Value / Description<br>0 = Cycle minimum<br>1 = Cycle average<br>2 = Cycle maximum   |
| 64 | Byte    | Read/Write | Conditions Required for Auto-Self:<br><br>Value / Description<br>0 = If running tracking with valid load span (P223)<br>1 = If unit running<br>2 = At all times  |
| 65 | Word    | Read/Write | Cycle Minimum Load "Target".   |
| 66 | Word    | Read/Write | Cycle Average Load "Target".   |
| 67 | Word    | Read/Write | Cycle Maximum Load "Target".   |
| 68 | Word    | Read/Write | Reference Adjust Limit.  |
| 69 | Word    | Read Only  | Tracking Step Limit.   |
| 70 | Command | Read/Write | Load Sensor "Zero Set" Command.<br><br><b>Note:</b> Only do this with no load on the load cell.  |
| 71 | Word    | Read/Write | Load Sensor Offset.  |
| 72 | Display | Read Only  | Load Sensor Offset.  |
| 73 | Word    | Read/Write | Dead Weight Load Value.  |
| 74 | Word    | Read/Write | Load Sensor Gain [1500].   |

|     |         |            |  |
|-----|---------|------------|--|
| 75  | Display | Read Only  | Display of Load Cell Gain.   |
| 76  | Word    | Read Only  | Current Load Sensor Input.   |
| 77  | Word    | Read Only  | Current Load Sensor Input.   |
| 78  | Word    | Read Only  | Current Load Sensor Input.   |
| 79  | Word    | Read Only  | Load Min. Over Last Cycle.   |
| 80  | Word    | Read Only  | Load Max. Over Last Cycle.   |
| 83  | Word    | Read Only  | Load Minimum Since Last Pump Start.  |
| 84  | Word    | Read Only  | Load Maximum Since Last Pump Start.  |
| 85  | Word    | Read Only  | Load Minimum Since Power Up.   |
| 86  | Word    | Read Only  | Load Maximum Since Power Up.   |
| 87  | Word    | Read Only  | Load Span Over Last Cycle.   |
| 88  | Word    | Read Only  | Lowest Since Power Up.   |
| 89  | Word    | Read Only  | Load Avg. Over Last Cycle.   |
| 90  | Word    | Read Only  | Lowest Load Average Since Power Up.  |
| 91  | Word    | Read Only  | Highest Load Average Since Power Up.   |
| 92  | Word    | Read Only  | Load Min. Since Power Up.  |
| 93  | Word    | Read Only  | Load Max. Since Power Up.  |
| 94  | Command | Read/Write | Reset Minimum / Maximum Load Values.   |
| 95  | Word    | Read Only  | Failure A/D Channel.   |
| 96  | Word    | Read Only  | Failure Value.   |
| 97  | Word    | Read Only  | Lower Limit to Scaled Values.  |
| 98  | Word    | Read Only  | Lower Limit to Scaled Values.  |
| 102 | Word    | Read Only  | Position Sensor Input.   |
| 103 | Word    | Read Only  | Current Position Sensor Input.   |
| 104 | Word    | Read Only  | Position Sensor Minimum Input over Cycle.  |
| 105 | Word    | Read Only  | Position Sensor Maximum Input over Cycle.  |
| 106 | Word    | Read Only  | Input Signal Span over Cycle.  |
| 107 | Word    | Read Only  | Filtered Input Cycle Span.   |
| 108 | Word    | Read/Write | Debounce Time in Ticks.  |
| 109 | Byte    | Read Only  | Bottoms with No Continuous Position Faults.  |
| 110 | Word    | Read/Write | Time (Ticks / Seconds) from BOS to Well Bottom Call.   |
| 111 | Word    | Read/Write | Minimum Time (Ticks / Sec.) to Well Bottom Call.   |
| 112 | Word    | Read/Write | Maximum Time (Ticks / Sec.) to Well Bottom Call.   |
| 113 | Word    | Read/Write | This parameter defines the percentage of the amplitude of the cosine of the second harmonic of the stroke frequency to subtract from the synthesized position which effectively speeds up the down stroke. The range of acceptable values is from 0 to 24%. The value should be 0% for a conventional unit. A value of 20% is recommended for a large MarkII unit. |
| 114 | Word    | Read/Write | Load Signal Delay (For use when using DPS with MarkII units):<br><br>0 = 0 mSec<br>1 = 50 mSec<br>2 = 100 mSec<br>3 = 150 mSec<br>4 = 200 mSec<br>5 = 250 mSec<br>6 = 300 mSec<br>7 = 350 mSec   |
| 115 | Byte    | Read/Write | Number of cycles if P225 = "Go to idle" for stage 1 [0].   |
| 116 | Byte    | Read/Write | Low load span counter.   |
| 117 | Byte    | Read/Write | Number of cycles allowed before "Off before reset" for stage 2 [0].  |
| 120 | Word    | Read/Write | Scratch Pad Word 1.  |
| 121 | Word    | Read/Write | Scratch Pad Word 2.  |
| 122 | Word    | Read/Write | Scratch Pad Word 3.  |

|     |         |            |  |
|-----|---------|------------|--|
| 123 | Word    | Read/Write | Scratch Pad Word 4.  |
| 124 | Word    | Read/Write | Scratch Pad Word 5.  |
| 125 | Byte    | Read/Write | Good Cycle Intervals Required [10].  |
| 128 | Byte    | Read/Write | No. of Good Input Cycles to Recover after Fault [5].   |
| 129 | Byte    | Read/Write | Display Fault Message if a position switch is cleared.   |
| 130 | Word    | Read/Write | Fraction of Stroke from Top Of Stroke.   |
| 131 | Command | Read/Write | Reset RPC for Reverse Rotation.  |
| 132 | Word    | Read Only  | Last Position Switch Filtered Interval.  |
| 134 | Byte    | Read/Write | Position Switch Opening Debounce Interval [120].   |
| 135 | Byte    | Read/Write | Use Position Switch Opening or Closing..   |
| 136 | Byte    | Read/Write | Minimum Allowable Percent Cycle Time Deviation [80]  |
| 137 | Byte    | Read/Write | Maximum Allowable Percent Cycle Time Deviation [125].  |
| 138 | Byte    | Read Only  | Good Intervals Cycle Counter.  |
| 139 | Word    | Read Only  | Time Interval for Last Stroke.   |
| 140 | Word    | Read Only  | Filtered Time Interval for Last Stroke.  |
| 141 | Word    | Read Only  | Last Position Switch Interval SPM.   |
| 142 | Word    | Read Only  | Last Filtered Stroke Interval SPM.   |
| 143 | Byte    | Read Only  | Bottom of Stroke (BOS) Counter.  |
| 144 | Byte    | Read Only  | Current Position Switch.   |
| 145 | Word    | Read Only  | Last Debounce Closed Interval.   |
| 146 | Word    | Read Only  | Position Switch Closing Counter (Ticks / Seconds).   |
| 147 | Word    | Read Only  | Debounced Switches Since Last Turn Off/On.   |
| 148 | Byte    | Read Only  | BOS with No Position Switch Faults.  |
| 149 | Command | Read/Write | Clear and Reset all Well Cycle (SPM) Information.  |
| 150 | Byte    | Read/Write | AC Power Frequency [60].   |
| 151 | Byte    | Read Only  | Power-Up Frequency.  |
| 152 | Long    | Read Only  | Present Frequency.   |
| 153 | Long    | Read Only  | Lowest Frequency.  |
| 154 | Long    | Read Only  | Highest Frequency.   |
| 155 | Long    | Read Only  | Average Frequency.   |
| 156 | Long    | Read Only  | Lowest Averaged Frequency.   |
| 157 | Long    | Read Only  | Highest Averaged Frequency.  |
| 158 | Command | Read/Write | Reset Frequency Displays.  |
| 159 | Byte    | Read/Write | Frequency Averaging Period.  |
| 160 | Word    | Read Only  | AI1 Raw A/D Channel Value.   |
| 161 | Word    | Read Only  | AI1 Current Input Value.   |
| 162 | Word    | Read Only  | AI1 Lowest Recorded Input Value.   |
| 163 | Word    | Read Only  | AI1 Highest Recorded Input Value.  |
| 164 | Word    | Read Only  | AI1 Input Value Averaged over Cycle.   |
| 165 | Word    | Read Only  | AI1 Lowest Averaged Input Value.   |
| 166 | Word    | Read Only  | AI1 Highest Averaged input Value.  |
| 167 | Command | Read/Write | Reset AI1 Highs and Lows.  |
| 168 | Word    | Read/Write | Analog Latch [0] bit corresponding to analog number can be set to latch on alarm.  |
| 170 | Word    | Read/Write | DO 1 on Timer.   |
| 171 | Word    | Read/Write | DO 2 on Timer or P178 & P179 (Both DO 1 & 2).  |
| 172 | Byte    | Read/Write | DO 1 on Flag.  |
| 173 | Byte    | Read/Write | DO 2 on Flag Command (Both DO 1 & 2).  |
| 178 | Word    | Read/Write | DO 1 Pulsed No. of Ticks.  |
| 179 | Word    | Read/Write | DO 2 Pulsed No. of Ticks.  |
| 180 | Word    | Read Only  | DI Octal Value Summation:<br><br>Octal Value / Description<br>000001 = DI1 Selected<br>000002 = DI2 Selected<br>000004 = DI3 Selected<br>000010 = DI4 Selected |

|     |      |            |  |
|-----|------|------------|--|
|     |      |            | 000020 = DI5 Selected<br>000040 = DI6 Selected<br>000100 = DI7 Selected<br>000200 = DI8 Selected   |
| 181 | Word | Read/Write | DI 1 Low Accumulator.  |
| 182 | Word | Read/Write | DI 1 High Accumulator.   |
| 183 | Word | Read/Write | DI 2 Low Accumulator.  |
| 184 | Word | Read/Write | DI 2 High Accumulator.   |
| 185 | Word | Read/Write | DI 3 Low Accumulator.  |
| 186 | Word | Read/Write | DI 3 High Accumulator.   |
| 187 | Word | Read/Write | DI 4 Low Accumulator.  |
| 188 | Word | Read/Write | DI 4 High Accumulator.   |
| 189 | Word | Read/Write | DI 5 Low Accumulator.  |
| 190 | Word | Read/Write | DI 5 High Accumulator.   |
| 191 | Word | Read/Write | DI 6 Low Accumulator.  |
| 192 | Word | Read/Write | DI 6 High Accumulator.   |
| 193 | Word | Read Only  | AI as DI Octal Value Summation:<br><br>Octal Value / Description<br>000004 = AI1 Selected<br>000010 = AI2 Selected   |
| 194 | Word | Read/Write | AI 1 Low Accumulator.  |
| 195 | Word | Read/Write | AI 1 High Accumulator.   |
| 196 | Word | Read/Write | AI 2 Low Accumulator.  |
| 197 | Word | Read/Write | AI 2 High Accumulator.   |
| 198 | Word | Read/Write | AI 3 Low Accumulator.  |
| 199 | Word | Read/Write | AI 3 High Accumulator.   |
| 200 | Byte | Read/Write | Sensor Failure Action [1].   |
| 204 | Byte | Read/Write | Number of cycles used to set run time average [6].   |
| 205 | Time | Read Only  | "Run Time" Determined from Number of Cycles.   |
| 206 | Time | Read/Write | Manual Software Run Time.  |
| 207 | Time | Read Only  | Latest Averaged Run Time since Power Up.   |
| 210 | Word | Read/Write | Lower Load Limit (Pounds). Not used if set to zero.  |
| 211 | Word | Read/Write | Upper Load Limit (Pounds). Not used if set to zero.  |
| 212 | Word | Read/Write | Lowest Allowed Average Load (Pounds). Use only if low load goes below zero load (shallow well) and low load limit cannot be used.                                |
| 213 | Byte | Read/Write | Required Consecutive Load Violation Cycles.  |
| 214 | Byte | Read/Write | Load Violation Action [3].   |
| 215 | Byte | Read/Write | Entry Deglitch Time in Readings [2].   |
| 216 | Byte | Read/Write | Exit Deglitch Time in Readings [3].  |
| 217 | Word | Read/Write | Deadband [1000].   |
| 218 | Word | Read/Write | Immediate Upper Load Limit.  |
| 219 | Byte | Read/Write | Action for P218 Limit Violation  |
| 220 | Byte | Read/Write | Power Fail "Off Time Multiplier" (0.1 units). It disables low load span and cycle run time for set period, and is determined by actual power off interval times. |
| 221 | Time | Read/Write | Multiplied Power Fail Maximum Time Limit [72:00:00]:<br><br>hh:mm:ss 72:00:00 = 3 Days   |
| 222 | Byte | Read/Write | Number of Low Load Span Violations before Action [10].   |
| 223 | Word | Read/Write | Valid Minimum Load Span [1000].  |
| 225 | Byte | Read/Write | Low Load Span Action [3].  |
| 226 | Time | Read/Write | Well Off Timer.  |
| 227 | Time | Read/Write | Well On Timer.   |
| 228 | Byte | Read/Write | # of pump offs required before P227 will be cleared.   |
| 230 | Byte | Read/Write | Number of Consecutive "Immediate" [3].   |

|     |         |            |   |
|-----|---------|------------|---|
| 231 | Byte    | Read/Write | Immediate Pump-Off Action.  |
| 232 | Time    | Read/Write | Minimum Cycle Run Time Allowable. [00:00:00].                               |
| 233 | Byte    | Read/Write | Number of Consecutive Minimum Cycle run Times Violations before Action [2]. |
| 234 | Byte    | Read/Write | Minimum Cycle Run Time Violation.   |
| 235 | Time    | Read/Write | Maximum Cycle Run Time Allowable. [00:00:00].                               |
| 236 | Byte    | Read/Write | Maximum Cycle Run Time Violation.   |
| 237 | Time    | Read/Write | Maximum Daily Run Time [00:00:00].  |
| 238 | Byte    | Read/Write | Maximum Daily Run Time Action.  |
| 239 | Time    | Read/Write | Well Off Timer.   |
| 240 | Time    | Read/Write | Well On Time.   |
| 241 | Byte    | Read/Write | Pump-off(s) to clear P240.  |
| 242 | Time    | Read Only  | Qualified Cycle On Timer.   |
| 243 | Time    | Read Only  | Qualified Daily On Timer.   |
| 245 | Byte    | Read/Write | Dummy Parameter.  |
| 246 | Byte    | Read/Write | Dummy Parameter.  |
| 247 | Byte    | Read/Write | Dummy Parameter.  |
| 248 | Byte    | Read/Write | Dummy Parameter.  |
| 249 | Byte    | Read/Write | AI1 Low Action [7].   |
| 250 | Byte    | Read/Write | AI1 High Action [7].  |
| 251 | Byte    | Read/Write | AI2 Low Action [7].   |
| 252 | Byte    | Read/Write | AI2 High Action [7].  |
| 253 | Byte    | Read/Write | AI3 Low Action [7].   |
| 254 | Byte    | Read/Write | AI3 High Action [7].  |
| 260 | Byte    | Read/Write | Action after Control Failure Timeout: [2].                                  |
| 261 | Time    | Read/Write | Control Failure Timeout Before Action [00:04:00].                           |
| 262 | Byte    | Read/Write | Pump-On Sensing Delay [15].   |
| 263 | Byte    | Read/Write | Pump-Turn Off Sensing Delay [30].   |
| 270 | Word    | Read/Write | Minimum Allowable Span [250].   |
| 271 | Word    | Read/Write | Minimum Allowable Input Signal [2125].                                      |
| 272 | Word    | Read/Write | Maximum Allowable Input Signal [6000].                                      |
| 273 | Byte    | Read/Write | Position Signal Fault Period [5].   |
| 280 | Word    | Read Only  | Raw A/D Channel Value.  |
| 281 | Word    | Read Only  | Input Value.  |
| 282 | Word    | Read Only  | Input Value - EGU.  |
| 283 | Byte    | Read/Write | AI1 Type.   |
| 284 | Byte    | Read/Write | AI1 Decimal Places [3].   |
| 285 | Byte    | Read/Write | AI1 EGU Label [9].  |
| 286 | Word    | Read/Write | Low Value Scaling.  |
| 287 | Word    | Read/Write | High Value Scaling.   |
| 288 | Word    | Read/Write | Lower Alarm Limit.  |
| 289 | Byte    | Read/Write | Lower Alarm Action 1.   |
| 290 | Byte    | Read/Write | Lower Alarm Action 2.   |
| 291 | Word    | Read/Write | Upper Alarm Limit.  |
| 292 | Byte    | Read/Write | Upper Alarm Action 1.   |
| 293 | Byte    | Read/Write | Upper Alarm Action 2.   |
| 294 | Word    | Read/Write | Upper Alarm Limit.  |
| 295 | Word    | Read Only  | Lowest Recorded Input Value.  |
| 296 | Word    | Read Only  | Highest Recorded Input Value.   |
| 297 | Word    | Read Only  | Input Value Averaged Over Cycle.  |
| 298 | Word    | Read Only  | Lowest Averaged Input Value.  |
| 299 | Word    | Read Only  | Highest Averaged Input Value.   |
| 300 | Command | Read/Write | Reset AI1 Highs and Lows.   |

## Parameters 301-600

| Parameter | Data Type | Access     | Description   |
|-----------|-----------|------------|---|
| 309       | Word      | Read/Write | Extra Analogs - Status Bits:<br><br>Octal Value / Description<br>000001 = Extra Channel 1 Low Alarm<br>000002 = Extra Channel 2 Low Alarm<br>000004 = Extra Channel 1 High Alarm<br>000010 = Extra Channel 2 High Alarm |
| 310       | Word      | Read Only  | Raw A/D Channel Value.  |
| 311       | Word      | Read Only  | Input Value.  |
| 312       | Word      | Read Only  | Input Value - EGU.  |
| 313       | Byte      | Read/Write | AI2 Analog Input Type.  |
| 314       | Byte      | Read/Write | AI2 Decimal Places [3].   |
| 315       | Byte      | Read/Write | AI2 EGU Label [9].  |
| 316       | Word      | Read/Write | Low Value Scaling.  |
| 317       | Word      | Read/Write | High Value Scaling.   |
| 318       | Word      | Read/Write | Lower Alarm Limit.  |
| 319       | Byte      | Read/Write | Lower Alarm Action 1.   |
| 320       | Byte      | Read/Write | Lower Alarm Action 2.   |
| 321       | Word      | Read/Write | Upper Alarm Limit.  |
| 322       | Byte      | Read/Write | Upper Alarm Action 1.   |
| 323       | Byte      | Read/Write | Upper Alarm Action 2.   |
| 324       | Word      | Read/Write | Upper Alarm Limit.  |
| 325       | Word      | Read Only  | Lowest Recorded Input Value.  |
| 326       | Word      | Read Only  | Highest Recorded Input Value.   |
| 329       | Command   | Read/Write | Reset AI2 Highs and Lows.   |
| 330       | Word      | Read Only  | Raw A/D Channel Value.  |
| 331       | Word      | Read Only  | Input Value.  |
| 332       | Word      | Read Only  | Scaled EGU Input Value.   |
| 333       | Byte      | Read/Write | AI3 Analog Input Type.  |
| 334       | Byte      | Read/Write | AI3 Decimal Places [3].   |
| 335       | Byte      | Read/Write | AI3 EGU Label [9].  |
| 336       | Word      | Read/Write | Scaling Low Value.  |
| 337       | Word      | Read/Write | Scaling High Value.   |
| 338       | Word      | Read/Write | Lower Alarm Limit.  |
| 339       | Byte      | Read/Write | Lower Alarm Action 1.   |
| 340       | Byte      | Read/Write | Lower Alarm Action 2.   |
| 341       | Word      | Read/Write | Upper Alarm Limit.  |
| 342       | Byte      | Read/Write | Upper Alarm Action 1.   |
| 343       | Byte      | Read/Write | Upper Alarm Action 2.   |
| 344       | Word      | Read/Write | Alarms Deadband.  |
| 345       | Word      | Read Only  | Lowest Recorded Input Value.  |
| 346       | Word      | Read Only  | Highest Recorded Input Value.   |
| 349       | Command   | Read/Write | Reset AI3 Highs and Lows.   |
| 350       | Command   | Read/Write | Turn Fault Lamp on for 15 Second Test.  |
| 351       | Command   | Read/Write | Force Controller Software Reset.  |
| 352       | Command   | Read/Write | Output Last Rolling Display.  |
| 355       | Byte      | Read/Write | Minimum Number to Reserve for Faults [2].   |
| 356       | Byte      | Read/Write | Minimum Number to Reserve for Alarms [2].   |
| 357       | Word      | Read/Write | Alarm Enable Bits 0 - 15.   |
| 358       | Word      | Read/Write | Alarm Enable Bits 16 - 31.  |
| 359       | Word      | Read/Write | Alarm Enable Bits 32 - 47.  |
| 360       | Word      | Read/Write | Alarm Enable Bits 48 - 63.  |
| 361       | Word      | Read/Write | Alarm Enable Bits 64 - 79.  |
| 362       | Word      | Read/Write | Alarm Enable Bits 80 - 82.  |
| 365       | Command   | Read/Write | Create Event Command.   |

|     |         |            |  |
|-----|---------|------------|--|
| 366 | Command | Read/Write | Clear Event Buffer.                            |
| 370 | Display | Read Only  | Pump-Off Position referenced to Setpoint Load. |
| 371 | Display | Read Only  | Pump-Off Load referenced to Setpoint Position. |
| 372 | Display | Read Only  | Display of P370 or P371.                       |
| 373 | Word    | Read Only  | Estimated Position Value for Pump-Off.         |
| 375 | Word    | Read Only  | Estimated Load Value for Pump-Off.             |
| 376 | Word    | Read Only  | Load Value at Pump-Off Point/Area.             |
| 390 | Time    | Read Only  | Time of Last Fatal Error or AC Power Fail.     |
| 391 | Date    | Read Only  | Date of Last Fatal Error or AC Power Fail.     |
| 392 | Time    | Read Only  | Time of Last Complete Initialization.          |
| 393 | Date    | Read Only  | Date of Last Complete Initialization.          |
| 394 | Time    | Read Only  | Interval of Last Fatal Error or Power Fail.    |
| 395 | Long    | Read Only  | Last fatal error address.                      |
| 396 | Time    | Read Only  | Time of Last Control State Change.             |
| 397 | Date    | Read Only  | Date of Last Control State Change.             |
| 398 | Word    | Read Only  | Days Counter.                                  |
| 399 | Time    | Read Only  | Rollover Counter.                              |
| 400 | Time    | Read Only  | Current Run Time Interval Counter.             |
| 401 | Time    | Read Only  | Last Run Time Interval.                        |
| 402 | Time    | Read Only  | Run Time Interval two Cycles back.             |
| 403 | Time    | Read Only  | Run Time Interval three Cycles back.           |
| 404 | Time    | Read Only  | Run Time Interval four Cycles back.            |
| 405 | Time    | Read Only  | Run Time Interval five Cycles back.            |
| 406 | Time    | Read Only  | Run Time Interval six Cycles back.             |
| 407 | Time    | Read Only  | Run Time Interval seven Cycles back.           |
| 408 | Time    | Read Only  | Run Time Interval eight Cycles back.           |
| 409 | Time    | Read Only  | Run Time Interval nine Cycles back.            |
| 410 | Time    | Read Only  | Run Time Interval ten Cycles back.             |
| 411 | Time    | Read Only  | Run Time Interval eleven Cycles back.          |
| 412 | Time    | Read Only  | Run Time Interval twelve Cycles back.          |
| 413 | Time    | Read Only  | Run Time Interval thirteen Cycles back.        |
| 414 | Time    | Read Only  | Run Time Interval fourteen Cycles back.        |
| 415 | Time    | Read Only  | Run Time Interval fifteen Cycles back.         |
| 416 | Time    | Read Only  | Run Time Interval sixteen Cycles back.         |
| 417 | Time    | Read Only  | Run Time Interval seventeen Cycles back.       |
| 418 | Byte    | Read Only  | Number of Previous Normal Pump-Off Cycles.     |
| 419 | Time    | Read Only  | Latest Pump-Off Time Interval Counter.         |
| 420 | Time    | Read Only  | Today's Accumulated Run Time.                  |
| 421 | Time    | Read Only  | Yesterdays Total Accumulated Run Time.         |
| 422 | Time    | Read Only  | Run Time Two Days Ago.                         |
| 423 | Time    | Read Only  | Run Time Three Days Ago.                       |
| 424 | Time    | Read Only  | Run Time Four Days Ago.                        |
| 425 | Time    | Read Only  | Run Time Five Days Ago.                        |
| 426 | Time    | Read Only  | Run Time Six Days Ago.                         |
| 427 | Time    | Read Only  | Run Time Seven Days Ago.                       |
| 429 | Time    | Read/Write | Gauge Period, Daily Start Time.                |
| 430 | Word    | Read Only  | Present Undisturbed Pump-Off(s) in Gauge Time. |
| 431 | Word    | Read Only  | Previous Gauge Time Undisturbed Pump-Off(s).   |
| 432 | Time    | Read Only  | Present Undisturbed On-Time (Average).         |
| 433 | Time    | Read Only  | Previous Gauge Time Undisturbed On-Time.       |
| 434 | Time    | Read Only  | Time Remaining Until Next Gauge Time.          |
| 439 | Time    | Read Only  | Present Undisturbed On-Time.                   |
| 440 | Byte    | Read Only  | Run Times Circular Buffer Pointer.             |
| 441 | Date    | Read Only  | Present Gauge Period Starting Date.            |
| 442 | Time    | Read Only  | Run Times Circular Buffer.                     |

|     |         |            |   |
|-----|---------|------------|---|
| 443 | Time    | Read Only  | Run Times Circular Buffer.  |
| 444 | Time    | Read Only  | Run Times Circular Buffer.  |
| 445 | Time    | Read Only  | Run Times Circular Buffer.  |
| 446 | Time    | Read Only  | Run Times Circular Buffer.  |
| 447 | Time    | Read Only  | Run Times Circular Buffer.  |
| 448 | Time    | Read Only  | Run Times Circular Buffer.  |
| 449 | Time    | Read Only  | Run Times Circular Buffer.  |
| 450 | Word    | Read Only  | Zero Channel Raw Input.   |
| 451 | Word    | Read Only  | Zero Channel Filtered Input.  |
| 452 | Word    | Read Only  | 5 Volts Channel Raw Input.  |
| 453 | Word    | Read Only  | 5 Volts Channel Filtered Input.   |
| 454 | Word    | Read Only  | Filtered Span.  |
| 455 | Byte    | Read Only  | Channel:<br><br>Value / Description<br>0 = Zero Volts Calibration<br>1 = Full Scale Calibration<br>2 = Load Input<br>3 = Position Input<br>4 = First Extra  |
| 456 | Word    | Read Only  | Lowest Allowed Value.   |
| 457 | Word    | Read Only  | Highest Allowed Value.  |
| 458 | Word    | Read Only  | Actual Value.   |
| 459 | Command | Read/Write | Clear Maximums of Parameters 460 – 461.   |
| 460 | Display | Read Only  | Background Timing: Max. BACKGR Calls.   |
| 461 | Display | Read Only  | Processor Profiling with Format = xx/yy/zz:<br><br>xx = System Overhead Percent<br>yy = Percent Idle<br>zz = Percent Useful Work  |
| 471 | Byte    | Read Only  | Software Debug Display Attributes (Reserved).   |
| 472 | Command | Read/Write | Initialize EEPROM to CAC Factory Setting.<br><br><b>Note:</b> All field set parameters are lost if this action taken.<br>Enter CAC Service Password in P473 first.  |
| 473 | Word    | Read/Write | Service Password<br><br><b>Note:</b> User Password (8500) allows edits to RO parameters such as run time data. Master Service Password = 5500. This parameter should only be used by CAC service personnel. |
| 478 | Byte    | Read Only  | Major Version Number.   |
| 479 | Byte    | Read Only  | Minor Version Number.   |
| 480 | Word    | Read Only  | EEPROM Initialized Value.   |
| 481 | Word    | Read Only  | EEPROM Used [Bytes].  |
| 482 | Word    | Read Only  | Shadow RAM Remain [Bytes].  |
| 483 | Word    | Read Only  | EEPROM Size [Bytes].  |
| 484 | Byte    | Read Only  | Firmware Version when EEPROM Initialized.   |
| 485 | Byte    | Read Only  | Firmware Sub-version when EEPROM.   |
| 486 | Long    | Read Only  | Bad Parameter Information.  |
| 487 | Long    | Read Only  | Bad Parameter Information.  |
| 488 | Long    | Read Only  | Bad Parameter Information.  |
| 489 | Byte    | Read Only  | Set to "1" whenever a volatile parameter is changed.  |
| 490 | Byte    | Read Only  | SCADA Firmware Compatibility Main Version.  |
| 491 | Byte    | Read Only  | SCADA Firmware Compatibility Sub-Version.   |
| 492 | Word    | Read Only  | Hardware Option Bits 1:<br><br>Octal Value / Description<br>000004 = Memory   |



|     |      |            |  |
|-----|------|------------|--|
|     |      |            | 000010 = Memory Expansion<br>000020 = Indication Bit<br>000040 = Memory Bank Expansion<br>000100 = Control PIO<br>000200 = UART<br>000400 = Radio ID   |
| 493 | Word | Read Only  | Hardware Option Bits 2 Display:<br><br>Octal Value / Description<br>000001 = Larger EEPROM<br>000002 = CPI Type LCD Display<br>000004 = Keypad (Detected when pressed)<br>000008 = Battery Backup<br>000010 = Densitron Type LCD Display<br>000040 = Enhanced Graphics Display |
| 495 | Byte | Read Only  | Communication Board(s):<br><br>Value / Description<br>0 = No Comm Boards<br>1 = Unknown or Bad Comm Board<br>2 = UART Board<br>3 = UART Board with Expanded Memory<br>4 = Radio Modem Board<br>5 = Hardwired Modem Board   |
| 496 | Word | Read/Write | Analog Input Usage Configuration.  |
| 497 | Word | Read/Write | Digital Input Usage Configuration:<br><br>Octal Value / Description<br>000001 = DI1 Selected<br>000002 = DI2 Selected<br>000004 = DI3 Selected<br>000010 = DI4 Selected<br>000020 = DI5 Selected<br>000040 = DI6 Selected<br>000100 = DI7 Selected<br>000200 = DI8 Selected    |
| 498 | Word | Read Only  | Highest Parameter Number Available.  |
| 499 | Byte | Read/Write | Not functional in Version 2.00 or higher.  |
| 500 | Word | Read/Write | Master Password entered here.  |
| 501 | Byte | Read/Write | Password Timeout Interval [5].   |
| 506 | Byte | Read/Write | Not functional in Version 2.00 or higher.  |
| 507 | Byte | Read Only  | Not functional in Version 2.00 or higher.  |
| 508 | Byte | Read/Write | Display Update Rate [1].   |
| 509 | Byte | Read/Write | Message Rolls per Second [4].  |
| 510 | Word | Read Only  | Not functional in Version 2.00 or higher.  |
| 511 | Word | Read Only  | Not functional in Version 2.00 or higher.  |
| 512 | Word | Read Only  | Not functional in Version 2.00 or higher.  |
| 513 | Word | Read Only  | Not functional in Version 2.00 or higher.  |
| 514 | Byte | Read/Write | Enable/Disable Expanded Pound Card:<br><br>0 = Disable (Sequence from % card to normal card back to % card)<br>1 = Enable (Sequence from % card to expanded pound card to normal card back to % card)  |
| 515 | Word | Read Only  | Automatic Set-up.  |
| 516 | Word | Read Only  | Communication Pump On.   |
| 517 | Word | Read Only  | Communication Present.   |
| 518 | Word | Read Only  | Communication Pump Off.  |
| 519 | Word | Read Only  | Communication Frozen.  |
| 520 | Word | Read Only  | Internal Status Variables:   |

|     |         |            |   |
|-----|---------|------------|---|
|     |         |            | <p>Octal Value / Description</p> <p>000001 = Well Officially "on"</p> <p>000002 = Sensors Report Well "on"</p> <p>000004 = Pending Position Problem</p> <p>000010 = Power up Low Load Span</p> <p>000020 = Full Card Marked</p> <p>000040 = EPROM Initialized</p> <p>000100 = EPROM Expanded</p> <p>000200 = Last Load Span Good</p> <p>000400 = Peak Hours / Pump forced "off"</p> <p>001000 = Peak Hours Delay Start Timer is Active</p>  |
| 521 | Word    | Read Only  | <p>Octal and Hex Status Bits 2:</p> <p>Octal Value / Description</p> <p>000002 = Unofficial Version</p>   |
| 522 | Word    | Read Only  | Status Bits 3.  |
| 523 | Command | Read/Write | Clear Errors.   |
| 524 | Command | Read/Write | Pump On.  |
| 525 | Command | Read/Write | Idle Time.  |
| 526 | Byte    | Read Only  | <p>Controller Error Status:</p> <p>Value / Description</p> <p>0 = Normal or Lamp Only Error</p> <p>1 = Software Timer</p> <p>2 = Control Transferred via Watchdog Relay</p> <p>3 = Off Until Reset by Operator</p>  |
| 527 | Word    | Read Only  | <p>Accumulated Error Code Bits - Word 1:</p> <p>Octal Value / Description</p> <p>000001 = Control Failure</p> <p>000002 = Low Load Violation</p> <p>000004 = High Load Violation</p> <p>000010 = Low Average Load</p> <p>000020 = Position Switch Failure</p> <p>000040 = Multiple Position Switch</p> <p>000100 = Cleared Position Switch Error</p> <p>000200 = Cleared Multiple Position Switch Errors</p> <p>000400 = Low Load Span</p> <p>001000 = Load Sensor Failure</p> <p>002000 = Continuous Position Fault</p> <p>004000 = Cleared Continuous Position Fault</p> <p>010000 = Bad Software Timer Value</p> <p>020000 = A/D Failure</p> <p>040000 = Manual Off Command</p> <p>100000 = Pump-Off Override Timer Active</p> |

|     |      |           |   |
|-----|------|-----------|---|
| 528 | Word | Read Only | <p>Accumulated Error Code Bits - Word 2:</p> <p>Octal Value / Description</p> <p>000001 = Immediate Pump Off(s)</p> <p>000002 = Minimum Cycle Run Time(s)</p> <p>000004 = Maximum Cycle Run Time(s)</p> <p>000010 = Maximum Daily Run Time</p> <p>000020 = EEPROM Initialized</p> <p>000040 = EEPROM Expanded</p> <p>000100 = Parameters Restored from EEPROM</p> <p>000200 = EEPROM Going Bad (1/3)</p> <p>000400 = EEPROM Going Bad (2/3 or 3/3)</p> <p>001000 = Bad Error Status at Power Up</p> <p>002000 = Bad Error Code Bits at Power Up</p> <p>004000 = Questionable Time and Date</p> <p>010000 = Bad Real Time Clock Chip</p> <p>020000 = Wrong Startup Line Frequency</p> <p>040000 = Manual Control Transfer</p> <p>100000 = Manual Software Timer</p>  |
| 529 | Word | Read Only | <p>Accumulated Error Code Bits - Word 3:</p> <p>Octal Value / Description</p> <p>000001 = CPU Fell Behind</p> <p>000002 = Cleared RTC Error</p> <p>000004 = Motor Off Too Long</p> <p>000010 = Digital Input 1 Low Alarm</p> <p>000020 = Digital Input 1 High Alarm</p> <p>000040 = Digital Input 2 Low Alarm</p> <p>000100 = Digital Input 2 High Alarm</p> <p>000200 = Analog Input 1 as DI Low Alarm</p> <p>000400 = Analog Input 1 as DI High Alarm</p> <p>001000 = Analog Input 2 as DI Low Alarm</p> <p>002000 = Analog Input 2 as DI High Alarm</p> <p>004000 = Analog Input 3 as DI Low Alarm</p> <p>010000 = Analog Input 3 as DI High Alarm</p> <p>020000 = Immediate Upper Load Violation</p> <p>040000 = Reverse Pump Off</p> <p>100000 = Air Balance Amps Too Large</p>  |
| 530 | Word | Read Only | <p>Accumulated Error Code Bits - Word 4:</p> <p>Octal Value / Description</p> <p>000001 = Digital Input 3 Low Alarm</p> <p>000002 = Digital Input 3 High Alarm</p> <p>000004 = Digital Input 4 Low Alarm</p> <p>000010 = Digital Input 4 High Alarm</p> <p>000020 = Digital Input 5 Low Alarm</p> <p>000040 = Digital Input 5 High Alarm</p> <p>000100 = Digital Input 6 Low Alarm</p> <p>000200 = Digital Input 6 High Alarm</p> <p>000400 = Analog Input 1 Below Low Limit</p> <p>001000 = Analog Input 1 Above Upper Limit</p> <p>002000 = Analog Input 2 Below Low Limit</p> <p>004000 = Analog Input 2 Above Upper Limit</p> <p>010000 = Analog Input 3 Below Low Limit</p> <p>020000 = Analog Input 3 Above Upper Limit</p> <p>040000 = Air Balance Add Air Forced Open</p> <p>100000 = Air Balance Release Air Forced Open</p> |
| 531 | Word | Read Only | <p>Accumulated Error Code Bits - Word 5:</p> <p>Octal Value / Description</p> <p>000001 = Digital Input 7 Low Alarm</p> <p>000002 = Digital Input 7 High Alarm</p> <p>000004 = Digital Input 8 Low Alarm</p> <p>000010 = Digital Input 8 High Alarm</p>   |

|     |      |           |   |
|-----|------|-----------|---|
|     |      |           | <p>000020 = Program Error<br/> 000040 = Bad Shutdown<br/> 000100 = Analog Input 4 Low Alarm<br/> 000200 = Analog Input 4 High Alarm<br/> 000400 = Analog Input 5 Low Alarm<br/> 001000 = Analog Input 5 High Alarm<br/> 002000 = Analog Input 6 Low Alarm<br/> 004000 = Analog Input 6 High Alarm<br/> 010000 = Analog Input 7 Low Alarm<br/> 020000 = Analog Input 7 High Alarm<br/> 040000 = Analog Input 8 Low Alarm<br/> 100000 = Analog Input 8 High Alarm</p> |
| 532 | Word | Read Only | <p>Running Performance Status:</p> <p>Octal Value / Description<br/> 000001 = Run Under 50%<br/> 000002 = Divide by zero<br/> 000004 = Fluid calculation alarm<br/> 000010 = Alarm low load cell</p>  |
| 535 | Word | Read Only | <p>Non-Clearable Hardware Error Code Bits:</p> <p>Octal Value / Description<br/> 000001 = Bad Communications Card<br/> 000002 = Constant UART Interrupt<br/> 000004 = Bad Power Supply Card<br/> 000010 = AC Failure<br/> 000020 = Battery Low</p>  |
| 536 | Word | Read Only | <p>Non-Clearable Pump-Off Setup Error Bits 2:</p> <p>Octal Value / Description<br/> 000001 = Missing Parameter 130<br/> 000010 = Missing Parameter 21<br/> 000020 = Reserved for Missing P22<br/> 000040 = Missing Parameter 23<br/> 000100 = Missing Parameter 24<br/> 000200 = Missing Parameter 20<br/> 002000 = Missing Position Memory</p>   |
| 537 | Word | Read Only | <p>Non-Clearable Miscellaneous Error Bits 3:</p> <p>Octal Value / Description<br/> 000002 = Event Buffer<br/> 000020 = Temporary control failure<br/> 000200 = Bad fluid parameter<br/> 000400 = Communications Test<br/> 001000 = I/O ID Fail<br/> 002000 = Unsupported I/O<br/> 004000 = Missing I/O</p>  |
| 540 | Byte | Read Only | <p>Worst Case Controller Error Status Since Power Up:</p> <p>Value / Description<br/> 0 = Normal or Lamp Only if error(s)<br/> 1 = Software Timer<br/> 2 = Control Transferred by Watchdog Relay<br/> 3 = Off Until Reset by Operator</p>   |
| 541 | Word | Read Only | <p>Accumulated Error Code Since Power up - Word 1:</p> <p>Octal Value / Description<br/> 000001 = Control Failure<br/> 000002 = Low Load Violation<br/> 000004 = High Load Violation<br/> 000010 = Low Average Load<br/> 000020 = Position Switch Failure<br/> 000040 = Multiple Position Switch<br/> 000100 = Cleared Position Switch Error</p>  |

|     |      |           |   |
|-----|------|-----------|---|
|     |      |           | <p>000200 = Cleared Multiple Position Switch Errors<br/> 000400 = Low Load Span<br/> 001000 = Load Sensor Failure<br/> 002000 = Continuous Position Fault<br/> 004000 = Cleared Continuous Position Fault<br/> 010000 = Bad Software Timer Value<br/> 020000 = A/D Failure<br/> 040000 = Manual Off Command<br/> 100000 = Pump-Off Override Timer Active</p>  |
| 542 | Word | Read Only | <p>Accumulated Error Code Since Power up - Word 2:</p> <p>Octal Value / Description<br/> 000001 = Immediate Pump Off(s)<br/> 000002 = Minimum Cycle Run Time(s)<br/> 000004 = Maximum Cycle Run Time(s)<br/> 000010 = Maximum Daily Run Time<br/> 000020 = EEPROM Initialized<br/> 000040 = EEPROM Expanded<br/> 000100 = Parameters Restored from EEPROM<br/> 000200 = EEPROM Going Bad (1/3)<br/> 000400 = EEPROM Going Bad (2/3 or 3/3)<br/> 001000 = Bad Error Status at Power Up<br/> 002000 = Bad Error Code Bits at Power Up<br/> 004000 = Questionable Time and Date<br/> 010000 = Bad Real Time Clock Chip<br/> 020000 = Wrong Startup Line Frequency<br/> 040000 = Manual Control Transfer<br/> 100000 = Manual Software Timer</p>                  |
| 543 | Word | Read Only | <p>Accumulated Error Code Since Power up - Word 3:</p> <p>Octal Value / Description<br/> 000001 = CPU Fell Behind<br/> 000002 = Cleared RTC Error<br/> 000004 = Motor Off Too Long<br/> 000010 = Digital Input 1 Low Alarm<br/> 000020 = Digital Input 1 High Alarm<br/> 000040 = Digital Input 2 Low Alarm<br/> 000100 = Digital Input 2 High Alarm<br/> 000200 = Analog Input 1 as DI Low Alarm<br/> 000400 = Analog Input 1 as DI High Alarm<br/> 001000 = Analog Input 2 as DI Low Alarm<br/> 002000 = Analog Input 2 as DI High Alarm<br/> 004000 = Analog Input 3 as DI Low Alarm<br/> 010000 = Analog Input 3 as DI High Alarm<br/> 020000 = Immediate Upper Load Violation<br/> 040000 = Reverse Pump Off<br/> 100000 = Air Balance Amps Too Low</p>  |
| 544 | Word | Read Only | <p>Accumulated Error Code Since Power up - Word 4:</p> <p>Octal Value / Description<br/> 000001 = Digital Input 3 Low Alarm<br/> 000002 = Digital Input 3 High Alarm<br/> 000004 = Digital Input 4 Low Alarm<br/> 000010 = Digital Input 4 High Alarm<br/> 000020 = Digital Input 5 Low Alarm<br/> 000040 = Digital Input 5 High Alarm<br/> 000100 = Digital Input 6 Low Alarm<br/> 000200 = Digital Input 6 High Alarm<br/> 000400 = Analog Input 1 Below Low Limit<br/> 001000 = Analog Input 1 Above Upper Limit<br/> 002000 = Analog Input 2 Below Low Limit<br/> 004000 = Analog Input 2 Above Upper Limit<br/> 010000 = Analog Input 3 Below Low Limit<br/> 020000 = Analog Input 3 Above Upper Limit<br/> 040000 = Air Balance Add Air Forced Open</p> |

|     |         |            |   |
|-----|---------|------------|---|
|     |         |            | 100000 = Air Balance Release Air Forced Open  |
| 545 | Word    | Read Only  | Accumulated Error Code Since Power up - Word 5:<br><br>Octal Value / Description<br>000001 = Digital Input 7 Low Alarm<br>000002 = Digital Input 7 High Alarm<br>000004 = Digital Input 8 Low Alarm<br>000010 = Digital Input 8 High Alarm<br>000020 = Program Error<br>000040 = Bad Shutdown |
| 549 | Display | Read Only  | Firmware Part Number.   |
| 550 | Display | Read Only  | Firmware Complete ID.   |
| 551 | Display | Read Only  | Date of Firmware Compile.   |
| 552 | Display | Read Only  | Time of Firmware Compile.   |
| 555 | Display | Read Only  | Controller ID Message.  |
| 556 | Command | Read/Write | Output Rolling Unit Identification Message.   |
| 557 | Word    | Read Only  | Number of Characters Used in EEPROM.  |
| 558 | Word    | Read Only  | Number of Characters Left in EEPROM.  |
| 560 | Byte    | Read/Write | DI 1 Closed Action [7].   |
| 561 | Byte    | Read/Write | DI 1 Open Action [7].   |
| 562 | Byte    | Read/Write | DI 2 Closed Action [7].   |
| 563 | Byte    | Read/Write | DI 2 Open Action [7].   |
| 564 | Byte    | Read/Write | DI 3 Closed Action [7].   |
| 565 | Byte    | Read/Write | DI 3 Open Action [7].   |
| 566 | Byte    | Read/Write | DI 4 Closed Action [7].   |
| 567 | Byte    | Read/Write | DI 4 Open Action [7].   |
| 568 | Byte    | Read/Write | DI 5 Closed Action [7].   |
| 569 | Byte    | Read/Write | DI 5 Open Action [7].   |
| 570 | Byte    | Read/Write | DI 6 Closed Action [7].   |
| 571 | Byte    | Read/Write | DI 6 Open Action [7].   |
| 572 | Byte    | Read/Write | DI 7 Closed Action [7].   |
| 573 | Byte    | Read/Write | DI 7 Open Action [7].   |
| 574 | Byte    | Read/Write | DI 8 Closed Action [7].   |
| 575 | Byte    | Read/Write | DI 8 Open Action [7].   |
| 578 | Word    | Read/Write | Low Order Accumulator.  |
| 579 | Word    | Read/Write | High Order Accumulator.   |
| 580 | Word    | Read/Write | DO 1 on Timer.  |
| 581 | Word    | Read/Write | DO 2 on Timer.  |
| 582 | Word    | Read/Write | DO 3 on Timer.  |
| 583 | Word    | Read/Write | DO 4 on Timer.  |
| 584 | Word    | Read/Write | DO 5 on Timer.  |
| 585 | Word    | Read/Write | DO 6 on Timer.  |
| 586 | Word    | Read/Write | DO 7 on Timer.  |
| 587 | Word    | Read/Write | DO 8 on Timer.  |
| 590 | Word    | Read/Write | DIO 1 as an Output Action.  |
| 591 | Word    | Read/Write | DIO 2 as an Output Action.  |
| 592 | Word    | Read/Write | DIO 3 as an Output Action.  |
| 593 | Word    | Read/Write | DIO 4 as an Output Action.  |
| 594 | Word    | Read/Write | DIO 5 as an Output Action.  |
| 595 | Word    | Read/Write | DIO 6 as an Output Action.  |
| 596 | Word    | Read/Write | DIO 7 as an Output Action.  |
| 597 | Word    | Read/Write | DIO 8 as an Output Action.  |
| 598 | Word    | Read/Write | Digital Outputs on Flags:<br><br>Octal Value / Description<br>000001 = DIO1 on Flag<br>000002 = DIO2 on Flag<br>000004 = DIO3 on Flag   |

|     |      |            |   |
|-----|------|------------|---|
|     |      |            | 000010 = DIO4 on Flag<br>000020 = DIO5 on Flag<br>000040 = DIO6 on Flag<br>000100 = DIO7 on Flag<br>000200 = DIO8 on Flag   |
| 599 | Word | Read Only  | Digital Output Status. Flag or pulse :<br><br>Octal Value / Description<br>000001 = DIO1 Closed<br>000002 = DIO2 Closed<br>000004 = DIO3 Closed<br>000010 = DIO4 Closed<br>000020 = DIO5 Closed<br>000040 = DIO6 Closed<br>000100 = DIO7 Closed<br>000200 = DIO8 Closed |
| 600 | Time | Read/Write | Serial Port with CRC, Enable Timer.   |

### Parameters 601-862

| Parameter | Data Type | Access     | Description  |
|-----------|-----------|------------|--|
| 601       | Byte      | Read/Write | Remote Data and Stop Bits.   |
| 602       | Byte      | Read/Write | Remote Baud Rate [7].  |
| 603       | Word      | Read Only  | Communication Status Bits:<br><br>Octal Value / Description<br>000001 = CRC Security<br>000002 = Large Receive Buffer<br>000004 = Large Transmit Buffer<br>000010 = Using Modem<br>000020 = Communication Out Test |
| 604       | Byte      | Read/Write | Analyzer Port Data / Stop Bits.  |
| 605       | Byte      | Read/Write | Analyzer Port Baud Rate.   |
| 606       | Byte      | Read/Write | Carrier Detect On Delay [6].   |
| 607       | Byte      | Read/Write | Carrier Detect Off Delay [1].  |
| 608       | Byte      | Read/Write | Message End Until Carrier Lost Limit [60].   |
| 609       | Byte      | Read/Write | Radio Pre-Key [30]:<br><br>30 = 0.25 seconds in ticks  |
| 610       | Byte      | Read/Write | Radio Post-Key [12]<br><br>12 = 0.1 seconds in ticks   |
| 611       | Byte      | Read/Write | Maximum Radio Key [30].  |
| 612       | Byte      | Read/Write | Receive Timeout [120].   |
| 613       | Byte      | Read/Write | SCADA Port Protocol Type:<br><br>Value / Description<br>0 = 8500 (Remote)<br>1 = 8550 (Local)<br>2 = MODBUS ASCII<br>3 = MODBUS RTU  |
| 614       | Byte      | Read/Write | Dynamometer Card Type:<br><br>Value / Description<br>0 = Start-up<br>1 = Live Action<br>2 = Shutdown   |
| 615       | Byte      | Read/Write | Dynamometer Card Options:<br><br>Value / Description<br>0 = Pound  |

|     |         |            |  |
|-----|---------|------------|--|
|     |         |            | 1 = Percent  |
| 616 | Byte    | Read/Write | Dynamometer Card Number:<br><br>Value / Description<br>0 = Card 1<br>1 = Card 2<br>2 = Card 3<br>3 = Card 4<br>4 = Card 5  |
| 617 | Byte    | Read/Write | Position Type:<br><br>Value / Description<br>0 = Synthesized Fraction<br>1 = Fractional Actual<br>2 = Voltage  |
| 619 | Byte    | Read/Write | Actual position data available from RPC for analysis programs Operator must enter proper value to provide controller compatibility with host software. Enter value in P619 as follows:<br><br>0 - When no continuous position data is available to the controller.<br><br><b>Note:</b> To be used when continuous position input data is available to the controller and 8500 protocol used. |
| 620 | Word    | Read/Write | Communication Group Address [4093].  |
| 621 | Word    | Read Only  | Maximum Radio "On Time".   |
| 622 | Word    | Read Only  | Maximum Transmit Message Time.   |
| 623 | Word    | Read Only  | Maximum Transmit Message in Characters.  |
| 624 | Word    | Read Only  | Actual Transmit Buffer Size in Characters.   |
| 625 | Long    | Read Only  | Maximum Transmit Buffer Size in Characters.  |
| 626 | Word    | Read Only  | Maximum Transmit Message Time using value in P625.   |
| 627 | Word    | Read Only  | Maximum Radio On Time using value in P625.   |
| 628 | Byte    | Read/Write | All Address Response Test Override Timer (Seconds).  |
| 629 | Command | Read/Write | Clear P630 through P642.   |
| 630 | Display | Read Only  | Last Characters Received as ASCII.   |
| 631 | Word    | Read/Write | Character Errors (Framing, Parity, Overrun Errors).  |
| 632 | Word    | Read/Write | Characters Received.   |
| 633 | Word    | Read/Write | Header Characters Received.  |
| 634 | Word    | Read/Write | Trailer Characters Received.   |
| 635 | Word    | Read/Write | Framed Messages Received.  |
| 636 | Word    | Read/Write | Framed Messages Received with Correct CRC / Checksum.  |
| 637 | Word    | Read/Write | Messages Processed.  |
| 638 | Word    | Read/Write | Commands Processed.  |
| 639 | Word    | Read/Write | Responses Transmitted.   |
| 640 | Word    | Read/Write | Characters Transmitted.  |
| 641 | Word    | Read/Write | Maximum Time Messages Received to Response Started.  |
| 642 | Word    | Read/Write | Max. Time Messages Received to Response Sent.  |
| 644 | Byte    | Read/Write | Output Test Spacing Delay.   |
| 645 | Byte    | Read Only  | Last Character Received.   |
| 646 | Byte    | Read/Write | Output Test Data / Stop Bits [2].  |
| 647 | Byte    | Read/Write | Output Test Character [U].   |
| 648 | Byte    | Read/Write | Output Test Time.  |
| 649 | Word    | Read Only  | Internal Status Bits.  |
| 660 | Byte    | Read/Write | Cursor Location.   |
| 661 | Byte    | Read/Write | Timer.   |
| 662 | Long    | Read Only  | Not functional in Version 2.00 and higher.   |
| 663 | Word    | Read/Write | Not functional in Version 2.00 and higher.   |



|     |      |            |  |
|-----|------|------------|--|
| 664 | Word | Read/Write | Not functional in Version 2.00 and higher.   |
| 665 | Byte | Read Only  | Good Operation Timer.  |
| 666 | Byte | Read/Write | Required Good Operation Time [15].   |
| 667 | Byte | Read/Write | Log Clear Errors Flag.   |
| 668 | Byte | Read Only  | Error Code:<br><br>Value / Description<br>0 = No Error<br>1 = Bad Second Interval<br>2 = Read All 1's<br>3 = Write Confirm<br>4 = Cannot Read Same Twice |
| 669 | Time | Read Only  | Seconds Value for RTC Chip (0 to 9).   |
| 670 | Time | Read Only  | Today's Accumulated Run Time.  |
| 671 | Time | Read Only  | Yesterday's Total Accumulated Run Time.  |
| 672 | Time | Read Only  | Run Time Two Days Ago.   |
| 673 | Time | Read Only  | Run Time Three Days Ago.   |
| 674 | Time | Read Only  | Run Time Four Days Ago.  |
| 675 | Time | Read Only  | Run Time Five Days Ago.  |
| 676 | Time | Read Only  | Run Time Six Days Ago.   |
| 677 | Time | Read Only  | Run Time Seven Days Ago.   |
| 678 | Time | Read Only  | Run Time Eight Days Ago.   |
| 679 | Time | Read Only  | Run Time Nine Days Ago.  |
| 680 | Time | Read Only  | Run Time Ten Days Ago.   |
| 681 | Time | Read Only  | Run Time Eleven Days Ago.  |
| 682 | Time | Read Only  | Run Time Twelve Days Ago.  |
| 683 | Time | Read Only  | Run Time Thirteen Days Ago.  |
| 684 | Time | Read Only  | Run Time Fourteen Days Ago.  |
| 685 | Time | Read Only  | Run Time Fifteen Days Ago.   |
| 686 | Time | Read Only  | Run Time Sixteen Days Ago.   |
| 687 | Time | Read Only  | Run Time Seventeen Days Ago.   |
| 688 | Time | Read Only  | Run Time Eighteen Days Ago.  |
| 689 | Time | Read Only  | Run Time Nineteen Days Ago.  |
| 690 | Time | Read Only  | Run Time Twenty Days Ago.  |
| 691 | Time | Read Only  | Run Time Twenty-one Days Ago.  |
| 692 | Time | Read Only  | Run Time Twenty-two Days Ago.  |
| 693 | Time | Read Only  | Run Time Twenty-three Days Ago.  |
| 694 | Time | Read Only  | Run Time Twenty-four Days Ago.   |
| 695 | Time | Read Only  | Run Time Twenty-five Days Ago.   |
| 696 | Time | Read Only  | Run Time Twenty-six Days Ago.  |
| 697 | Time | Read Only  | Run Time Twenty-seven Days Ago.  |
| 698 | Time | Read Only  | Run Time Twenty-eight Days Ago.  |
| 699 | Time | Read Only  | Run Time Twenty-nine Days Ago.   |
| 700 | Word | Read Only  | Raw A/D Channel Value.   |
| 701 | Word | Read Only  | Current Input Value.   |
| 702 | Word | Read Only  | Input Value - EGU.   |
| 703 | Byte | Read/Write | AI4 Type.  |
| 704 | Byte | Read/Write | AI4 Decimal Places [3].  |
| 705 | Byte | Read/Write | AI4 EGU Label [9].   |
| 706 | Word | Read/Write | Low Value Scaling.   |
| 707 | Word | Read/Write | High Value Scaling.  |
| 708 | Word | Read/Write | Lower Alarm Limit.   |
| 709 | Byte | Read/Write | Lower Alarm Action 1.  |
| 710 | Byte | Read/Write | Lower Alarm Action 2.  |
| 711 | Word | Read/Write | Upper Alarm Limit.   |
| 712 | Byte | Read/Write | Upper Alarm Action 1.  |

|     |         |            |                               |
|-----|---------|------------|-------------------------------|
| 713 | Byte    | Read/Write | Upper Alarm Action 2.         |
| 714 | Word    | Read/Write | Alarm Deadband.               |
| 715 | Word    | Read Only  | Lowest Recorded Input Value.  |
| 716 | Word    | Read Only  | Highest Recorded Input Value. |
| 719 | Command | Read/Write | Reset AI4 Highs and Lows.     |
| 720 | Word    | Read Only  | Raw A/D Channel Value.        |
| 721 | Word    | Read Only  | Current Input Value.          |
| 722 | Word    | Read Only  | Input Value - EGU.            |
| 723 | Byte    | Read/Write | AI5 Type.                     |
| 724 | Byte    | Read/Write | AI5 Decimal Places [3].       |
| 725 | Byte    | Read/Write | AI5 EGU Label [9].            |
| 726 | Word    | Read/Write | Low Value Scaling.            |
| 727 | Word    | Read/Write | High Value Scaling.           |
| 728 | Word    | Read/Write | Lower Alarm Limit.            |
| 729 | Byte    | Read/Write | Lower Alarm Action 1.         |
| 730 | Byte    | Read/Write | Lower Alarm Action 2.         |
| 731 | Word    | Read/Write | Upper Alarm Limit.            |
| 732 | Byte    | Read/Write | Upper Alarm Action 1.         |
| 733 | Byte    | Read/Write | Upper Alarm Action 2.         |
| 734 | Word    | Read/Write | Alarms Deadband.              |
| 735 | Word    | Read Only  | Lowest Recorded Input Value.  |
| 736 | Word    | Read Only  | Highest Recorded Input Value. |
| 739 | Command | Read/Write | Reset AI5 Highs and Lows.     |
| 740 | Word    | Read Only  | Raw A/D Channel Value.        |
| 741 | Word    | Read Only  | Current Input Value.          |
| 742 | Word    | Read Only  | Input Value - EGU.            |
| 743 | Byte    | Read/Write | AI6 Type.                     |
| 744 | Byte    | Read/Write | AI6 Decimal Places [3].       |
| 745 | Byte    | Read/Write | AI6 EGU Label [9].            |
| 746 | Word    | Read/Write | Low Value Scaling.            |
| 747 | Word    | Read/Write | High Value Scaling.           |
| 748 | Word    | Read/Write | Lower Alarm Limit.            |
| 749 | Byte    | Read/Write | Lower Alarm Action 1.         |
| 750 | Byte    | Read/Write | Lower Alarm Action 2.         |
| 751 | Word    | Read/Write | Upper Alarm Limit.            |
| 752 | Byte    | Read/Write | Upper Alarm Action 1.         |
| 753 | Byte    | Read/Write | Upper Alarm Action 2.         |
| 754 | Word    | Read/Write | Alarms Deadband.              |
| 755 | Word    | Read Only  | Lowest Averaged Input Value.  |
| 756 | Word    | Read Only  | Highest Averaged Input Value. |
| 759 | Command | Read/Write | Reset AI6 Highs and Lows.     |
| 760 | Word    | Read Only  | Raw A/D Channel Value.        |
| 761 | Word    | Read Only  | Current Input Value.          |
| 762 | Word    | Read Only  | Input Value - EGU.            |
| 763 | Byte    | Read/Write | AI7 Type.                     |
| 764 | Byte    | Read/Write | AI7 Decimal Places [3].       |
| 765 | Byte    | Read/Write | AI7 EGU Label [9].            |
| 766 | Word    | Read/Write | Low Value Scaling.            |
| 767 | Word    | Read/Write | High Value Scaling.           |
| 768 | Word    | Read/Write | Lower Alarm Limit.            |
| 769 | Byte    | Read/Write | Lower Alarm Action 1.         |
| 770 | Byte    | Read/Write | Lower Alarm Action 2.         |
| 771 | Word    | Read/Write | Upper Alarm Limit.            |
| 772 | Byte    | Read/Write | Upper Alarm Action 1.         |
| 773 | Byte    | Read/Write | Upper Alarm Action 2.         |

|     |         |            |  |
|-----|---------|------------|--|
| 774 | Word    | Read/Write | Alarms Deadband.   |
| 775 | Word    | Read Only  | Lowest Recorded Input Value.   |
| 776 | Word    | Read Only  | Highest Recorded Input Value.  |
| 779 | Command | Read/Write | Reset AI7 Highs and Lows.  |
| 780 | Word    | Read Only  | Raw A/D Channel Value.   |
| 781 | Word    | Read Only  | Current Input Value.   |
| 782 | Word    | Read Only  | Input Value - EGU.   |
| 783 | Byte    | Read/Write | AI8 Type.  |
| 784 | Byte    | Read/Write | AI8 Decimal Places [3].  |
| 785 | Byte    | Read/Write | AI8 EGU Label [9].   |
| 786 | Word    | Read/Write | Low Value Scaling.   |
| 787 | Word    | Read/Write | High Value Scaling.  |
| 788 | Word    | Read/Write | Lower Alarm Limit.   |
| 789 | Byte    | Read/Write | Lower Alarm Action 1.  |
| 790 | Byte    | Read/Write | Lower Alarm Action 2.  |
| 791 | Word    | Read/Write | Upper Alarm Limit.   |
| 792 | Byte    | Read/Write | Upper Alarm Action 1.  |
| 793 | Byte    | Read/Write | Upper Alarm Action 2.  |
| 794 | Word    | Read/Write | Alarms Deadband.   |
| 795 | Word    | Read Only  | Lowest Recorded Input Value.   |
| 796 | Word    | Read Only  | Highest Recorded Input Value.  |
| 799 | Command | Read/Write | Reset AI8 Highs and Lows.  |
| 800 | Byte    | Read/Write | X1 Point from Host.  |
| 801 | Byte    | Read/Write | X2 Point from Host.  |
| 802 | Byte    | Read/Write | Y1 Point from Host.  |
| 803 | Byte    | Read/Write | Y2 Point from Host.  |
| 804 | Word    | Read Only  | Calculated Fluid Stroke Length.  |
| 805 | Byte    | Read/Write | Enable Fluid Stroke Calculation [0]:<br><br>Value / Description<br>0 = Off<br>1 = On |
| 806 | Word    | Read/Write | Surface Stroke Length.   |
| 807 | Word    | Read/Write | Pump Bore Diameter.  |
| 808 | Word    | Read Only  | Avg. Surface Stroke Length.  |
| 809 | Word    | Read Only  | Avg. Daily Fluid Stroke Length.  |
| 810 | Word    | Read Only  | Average Pump Rate SPM.   |
| 811 | Word    | Read Only  | Today's Fluid Production.  |
| 812 | Word    | Read Only  | Yesterday's Fluid Production.  |
| 813 | Word    | Read Only  | Fluid Production - 2 Days ago.   |
| 814 | Word    | Read Only  | Fluid Production - 3 Days ago.   |
| 815 | Word    | Read Only  | Fluid Production - 4 Days ago.   |
| 816 | Word    | Read Only  | Fluid Production - 5 Days ago.   |
| 817 | Word    | Read Only  | Fluid Production - 6 Days ago.   |
| 818 | Word    | Read Only  | Fluid Production - 7 Days ago.   |
| 819 | Word    | Read Only  | Fluid Production - 8 Days ago.   |
| 820 | Word    | Read Only  | Fluid Production - 9 Days ago.   |
| 821 | Word    | Read Only  | Fluid Production - 10 Days ago.  |
| 822 | Word    | Read Only  | Fluid Production - 11 Days ago.  |
| 823 | Word    | Read Only  | Fluid Production - 12 Days ago.  |
| 824 | Word    | Read Only  | Fluid Production - 13 Days ago.  |
| 825 | Word    | Read Only  | Fluid Production - 14 Days ago.  |
| 826 | Word    | Read Only  | Fluid Production - 15 Days ago.  |
| 827 | Word    | Read Only  | Fluid Production - 16 Days ago.  |
| 828 | Word    | Read Only  | Fluid Production - 17 Days ago.  |
| 829 | Word    | Read Only  | Fluid Production - 18 Days ago.  |

|     |      |            |   |
|-----|------|------------|---|
| 830 | Word | Read Only  | Fluid Production - 19 Days ago.   |
| 831 | Word | Read Only  | Fluid Production - 20 Days ago.   |
| 832 | Word | Read Only  | Fluid Production - 21 Days ago.   |
| 833 | Word | Read Only  | Fluid Production - 22 Days ago.   |
| 834 | Word | Read Only  | Fluid Production - 23 Days ago.   |
| 835 | Word | Read Only  | Fluid Production - 24 Days ago.   |
| 836 | Word | Read Only  | Fluid Production - 25 Days ago.   |
| 837 | Word | Read Only  | Fluid Production - 26 Days ago.   |
| 838 | Word | Read Only  | Fluid Production - 27 Days ago.   |
| 839 | Word | Read Only  | Fluid Production - 28 Days ago.   |
| 840 | Word | Read Only  | Fluid Production - 29 Days ago.   |
| 841 | Byte | Read/Write | Lower Band Size.  |
| 842 | Word | Read Only  | Error flags for programmer debugging.   |
| 843 | Word | Read Only  | Amount of time required for the fluid calculation.  |
| 844 | Byte | Read Only  | Current Run Mode.   |
| 845 | Byte | Read Only  | Calculated Value X1.  |
| 846 | Byte | Read Only  | Calculated Value X2.  |
| 847 | Byte | Read Only  | Calculated Value Y1.  |
| 848 | Byte | Read Only  | Calculated Value Y2.  |
| 849 | Word | Read Only  | <p>Number of strokes calculated:</p> <p>Modes</p> <p>0 = Continuous: Unit does not detect pump-off, thereby running all the time.</p> <p>1 = Pump-Off: Detects Pump-Off condition.</p> <p>2 = On/Off: Well runs according to programmed run time and turns off.</p> <p>The unit will wait until parameter 20 (Idle Time) expires and then begin a new pumping cycle.</p> <p>3 = Shutdown: Well is not running</p> |
| 850 | Time | Read/Write | Time to start in mode specified in P851.  |
| 851 | Byte | Read/Write | Mode to run in at time specified in P850.   |
| 852 | Time | Read/Write | Run Time for run started at time specified in P850. This is only required in On/Off mode.   |
| 853 | Time | Read/Write | Time to start in mode specified in P854.  |
| 854 | Byte | Read/Write | Mode to run in at time specified in P853.   |
| 855 | Time | Read/Write | Run Time for run started at time specified in P853. This is only required in On/Off mode.   |
| 856 | Time | Read/Write | Time to start in mode specified in P857.  |
| 857 | Byte | Read/Write | Mode to run in at time specified in P856.   |
| 858 | Time | Read/Write | Run Time for run started at time specified in P856. This is only required in On/Off mode.   |
| 859 | Time | Read/Write | Time to start in mode specified in P860.  |
| 860 | Byte | Read/Write | Mode to run in at time specified in P859.   |
| 861 | Time | Read/Write | Run Time for run started at time specified in P859. This is only required in On/Off mode.   |
| 862 | Byte | Read/Write | <p>Enable/Disable Timing Control [0]:</p> <p>0 = Disable</p> <p>1 = Enable</p>  |

## 8750 and 8500/8650 Parameter Listings

For information on a specific range of parameters, select a link from the list below.

[Parameter Listings 1-300](#)

[Parameter Listings 309-600](#)

[Parameter Listings 601- 669](#)

**Important:** For additional parameter details, refer to the device's User Manual.

### Parameters 1-300

| Parameter | Data Type | Access     | Description  |
|-----------|-----------|------------|--|
| 1         | Word      | Read/Write | Operator Password Entry.   |
| 2         | Word      | Read/Write | Communication Address [4094].<br><br>Controller I.D. Address (1 to 4092).  |
| 3         | Time      | Read/Write | Time of Day.   |
| 4         | Date      | Read/Write | Current Date.  |
| 5         | Byte      | Read/Write | Current Day of Week:<br><br>0 = Sun<br>1 = Mon<br>...<br>6 = Sat   |
| 6         | Command   | Read/Write | Manual Top Of Stroke (TOS).  |
| 7         | Command   | Read/Write | Automatically Set TOS.   |
| 8         | Display   | Read Only  | Position Switch location after TOS.  |
| 15        | Byte      | Read/Write | Month Format [0]:<br><br>0 = Numeric<br>1 = Alphabetic   |
| 16        | Byte      | Read/Write | Time Format [0]:<br><br>0 = Military<br>1 = AM/PM  |
| 17        | Byte      | Read/Write | Run Time Format [0]:<br><br>0= Hours Only<br>1= Hours/Days   |
| 18        | Byte      | Read/Write | Clock Source with AC Power [0]:<br><br>0 = AC<br>1 = Clock Xtal.<br><br>Use "1" when connected to a generator or unstable power.   |
| 19        | Byte      | Read/Write | Clock Source on Battery Backup [1]:<br><br>0 = CPU Xtal<br>1 = Clock Xtal  |
| 20        | Time      | Read/Write | Idle Time [00:05:00].  |
| 21        | Byte      | Read/Write | POC Position %.  |
| 23        | Byte      | Read/Write | POC Load %.  |
| 24        | Byte      | Read/Write | Consecutive Pump Off Strokes.  |
| 25        | Time      | Read/Write | Pump Up Delay Time [00:00:30].   |
| 26        | Byte      | Read/Write | Pump Off Control (POC) Method [0]:<br><br>0 = Quadrant Method - Lower RH<br>1 = Point Method - Along Base Line<br>2 = Reverse POC using Method 0<br>3 = Reverse POC using Method 1 |

|    |         |            |   |
|----|---------|------------|---|
|    |         |            | <p>4 = ESP Control Only (For RTU Use).<br/>       8 = Quadrant Method - Upper LH<br/>       9 = Point Method - Upper (100%) Line<br/>       10 = Reverse POC using Method 8<br/>       11 = Reverse POC using Method 9</p>                |
| 27 | Time    | Read/Write | POC "Override" Timer (HH:MM:SS). Operator Set. POC ignores pump off processing until Timer goes to zero.  |
| 28 | Byte    | Read/Write | <p>Override Timer Power-Up Clear Flag [1]:</p> <p>0 = No<br/>       1 = Yes</p>   |
| 29 | Byte    | Read/Write | <p>AC Fail - Pump On after Idle Time [0]:</p> <p>0 = No<br/>       1 = Yes</p>  |
| 30 | Byte    | Read/Write | <p>AC Fail - Pump On when Commanded [1]:</p> <p>0 = No<br/>       1 = Yes</p>   |
| 31 | Command | Read/Write | Force "Off Until Reset".  |
| 32 | Command | Read/Write | Force "Control Transfer".   |
| 33 | Command | Read/Write | Force "Software Timer".   |
| 34 | Byte    | Read/Write | Position Sensor Type for POC [0].   |
| 35 | Byte    | Read/Write | <p>Load Sensor Type [0]:</p> <p>0 = Polish Rod Load Cell<br/>       1 = Strain Gauge Auto Self Tracking</p>   |
| 38 | Time    | Read/Write | Motor "Off Time Limit".   |
| 39 | Byte    | Read/Write | <p>"Off Until Reset" Enable [0]:</p> <p>0 = Disabled<br/>       1 = Enabled</p>   |
| 40 | Byte    | Read/Write | Air Balance Control Goal %.   |
| 41 | Byte    | Read/Write | Dead Band Value %.  |
| 42 | Word    | Read Only  | Peak Measured Value on the Upstroke.  |
| 43 | Word    | Read Only  | Peak Measured Value on the Downstroke.  |
| 44 | Word    | Read Only  | Air Balance Peak Differences.   |
| 45 | Word    | Read Only  | Air Balance Peak Differences.   |
| 46 | Word    | Read/Write | <p>Purge Enable Time.</p> <p>This is the "Tick Count" of how long the Automatic Purge is to open the Valve when it is time to purge the Air Cylinder. Valid values are 0 through 65535 (0 to 546.1 Seconds in a 60Hz Powered System).</p> |
| 50 | Byte    | Read/Write | <p>Control Enable Flag [0]:</p> <p>0 = Disabled<br/>       1 = Enabled</p>  |
| 51 | Time    | Read/Write | Begin "Run Inhibit Time".   |
| 52 | Time    | Read/Write | End "Run Inhibit Time".   |
| 63 | Byte    | Read/Write | <p>Dynamometer Reference Point (Target Type) [0]:</p> <p>0 = Cycle Minimum<br/>       1 = Cycle Average<br/>       2 = Cycle Maximum</p>  |
| 64 | Byte    | Read/Write | <p>Conditions Required for Auto-Self Tracking [0]:</p> <p>0 = Only if Pumping Unit Running with Valid Load Span (P223)<br/>       1 = Only if Pumping Unit Running<br/>       2 = At All Times</p>  |

|     |         |            |   |
|-----|---------|------------|---|
| 65  | Word    | Read/Write | Cycle Minimum Load "Target".  |
| 66  | Word    | Read/Write | Cycle Average Load "Target".  |
| 67  | Word    | Read/Write | Cycle Maximum Load "Target".  |
| 68  | Word    | Read/Write | Reference Adjust Limit in Microvolts.   |
| 69  | Word    | Read Only  | Tracking Step Limit in Microvolts.  |
| 70  | Command | Read/Write | Load Sensor "Zero Set" Command.<br><br><b>Note:</b> This should only be done with No Load on the Load Cell. |
| 71  | Word    | Read/Write | Load Sensor Offset.   |
| 72  | Word    | D I        | Display of Load Sensor Offset   |
| 73  | Word    | Read/Write | Dead Weight Load Value.   |
| 74  | Word    | Read/Write | Load Sensor Gain [1500].  |
| 75  | Display | Read Only  | Display of Load Cell Gain.  |
| 76  | Word    | Read Only  | Current Load Sensor Input.  |
| 77  | Word    | Read Only  | Current Load Sensor Input.  |
| 78  | Word    | Read Only  | Current Load Sensor Input.  |
| 79  | Word    | Read Only  | Min Load Last Stroke.   |
| 80  | Word    | Read Only  | Max Load Last Stroke.   |
| 83  | Word    | Read Only  | Min Load Last Since Pump Start.   |
| 84  | Word    | Read Only  | Max Load Last Since Pump Start.   |
| 85  | Word    | Read Only  | Min Load Since Power Up.  |
| 86  | Word    | Read Only  | Max Load Since Power Up.  |
| 87  | Word    | Read Only  | Load Span Last Cycle.   |
| 88  | Word    | Read Only  | Lowest Load Span Since Power Up.  |
| 89  | Word    | Read Only  | Load Average Last Stroke.   |
| 90  | Word    | Read Only  | Lowest Load Since Power Up.   |
| 91  | Word    | Read Only  | Highest Load Since Power Up.  |
| 92  | Word    | Read Only  | Minimum Load Since Power Up.  |
| 93  | Word    | Read Only  | Maximum Load Since Power Up.  |
| 94  | Command | Read/Write | RESET Min/Max Load Values.  |
| 95  | Word    | Read Only  | Load Fail Input in Counts and V.  |
| 96  | Word    | Read Only  | Load Fail Input in mV.  |
| 97  | Word    | Read Only  | Lowest Load Reading Possible.   |
| 98  | Word    | Read Only  | Highest Load Reading Possible.  |
| 102 | Word    | Read Only  | Position Sensor Input.  |
| 103 | Word    | Read Only  | Current Position Sensor Input.  |
| 104 | Word    | Read Only  | Position Sensor Minimum Last Stroke.  |
| 105 | Word    | Read Only  | Position Sensor Maximum Last Stroke.  |
| 106 | Word    | Read Only  | Position Span Last Stroke.  |
| 107 | Word    | Read Only  | Filtered Position Span.   |
| 108 | Word    | Read/Write | Direction Debounce.   |
| 109 | Byte    | Read Only  | Bottom of Stroke(BOS) Counter.  |
| 110 | Word    | Read/Write | Time from Bottom to Welbot Call.  |
| 111 | Word    | Read/Write | Min Time from Bottom to Wellbot Call.   |
| 112 | Word    | Read/Write | Max Time from Bottom to Welbot Call.  |
| 120 | Word    | Read/Write | Scratch Pad Word 1.   |
| 121 | Word    | Read/Write | Scratch Pad Word 2.   |
| 122 | Word    | Read/Write | Scratch Pad Word 3.   |
| 123 | Word    | Read/Write | Scratch Pad Word 4.   |
| 124 | Word    | Read/Write | Scratch Pad Word 5.   |
| 125 | Byte    | Read/Write | Good Cycle Intervals Required.  |
| 128 | Byte    | Read/Write | Good Input Cycles to Recover after Fault.   |
| 129 | Byte    | Read/Write | Log cleared PSW error.  |
| 130 | Word    | Read/Write | TOS to PSW stroke fract.  |
| 131 | Command | Read/Write | Reverse PSW Setting.  |

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|-----|---------|------------|--|
| 132 | Word    | Read Only  | Last Position Switch Filtered Interval.  |
| 133 | Byte    | Read/Write | Position Switch Closing Debounce interval.   |
| 134 | Byte    | Read/Write | Pos. Switch Opening Debounce interval.   |
| 135 | Byte    | Read/Write | Use Position Switch Opening or Closing.  |
| 136 | Byte    | Read/Write | Minimum Allowable % Cycle Time Deviation.  |
| 137 | Byte    | Read/Write | Maximum Allowable % Cycle Time Deviation.  |
| 138 | Byte    | Read Only  | Good Intervals Cycle Counter.  |
| 139 | Word    | Read Only  | Time Interval for Last Stroke.   |
| 140 | Word    | Read Only  | Filtered Time Interval for Last Stroke.  |
| 141 | Word    | Read Only  | Last Position Switch Interval.   |
| 142 | Word    | Read Only  | Last Filtered Stroke Interval.   |
| 143 | Byte    | Read Only  | Bottom of Stroke (BOS) Counter.  |
| 144 | Byte    | Read Only  | Current Position Switch Status.  |
| 145 | Word    | Read Only  | Last Debounced Closed Interval.  |
| 146 | Word    | Read Only  | Position Switch Closing Counter.   |
| 147 | Byte    | Read Only  | Debounced Switches Since Last Turn Off/On.   |
| 148 | Byte    | Read Only  | BOS Counter.   |
| 149 | Command | Read/Write | Clear All Cycle Interval Info.   |
| 150 | Byte    | Read/Write | AC Power, 50 or 60 Hz Selection [60].  |
| 151 | Byte    | Read Only  | Line Frequency at Power Up.  |
| 152 | Display | Read Only  | Current Line Frequency.  |
| 153 | Display | Read Only  | Lowest Line Frequency Recorded.  |
| 154 | Display | Read Only  | Highest Line Frequency Recorded.   |
| 155 | Display | Read Only  | Averaged Line Frequency.   |
| 156 | Display | Read Only  | Lowest Averaged Line Frequency.  |
| 157 | Display | Read Only  | Highest Averaged Line Frequency.   |
| 158 | Command | Read/Write | Reset Frequency Displays.  |
| 159 | Byte    | Read/Write | Period for Line Frequency Averaging in Seconds.  |
| 160 | N/A.    | Read Only  | AI1 Current Value.   |
| 161 | N/A.    | Read Only  | Current Input Value.   |
| 162 | N/A.    | Read Only  | Lowest Recorded Input Value.   |
| 163 | N/A.    | Read Only  | Highest Recorded Input Value.  |
| 164 | N/A.    | Read Only  | Input Value Averaged over Cycle.   |
| 165 | N/A.    | Read Only  | Lowest Averaged Input Value.   |
| 166 | N/A.    | Read Only  | Highest Averaged input Value.  |
| 167 | N/A.    | Read Only  | Reset AI 1 Highs and Lows.   |
| 170 | Word    | Read/Write | DO 1 on Timer.   |
| 171 | Word    | Read/Write | DO 2 on Timer.   |
| 172 | Byte    | Read/Write | DO 1 on Flag. This remains in the "Set Condition" until Reset Manually or by Action Code.            |
| 173 | Byte    | Read/Write | DO 2 on Flag.  |
| 178 | Word    | Read/Write | DO 1 Pulsed No. of Ticks.<br><br>Input No. of Ticks Equal to Pulse Duration Required - Tick = 1/120. |
| 179 | Word    | Read/Write | DO 2 Pulsed No. of Ticks.  |
| 180 | Byte    | Read Only  | DI Octal Value Summation.  |
| 181 | Word    | Read/Write | DI1 Low Accumulator.<br><br>0 to 65,536 Counts & then automatically resets to zero (0).              |
| 182 | Word    | Read/Write | DI 1 High Accumulator.   |
| 183 | Word    | Read/Write | DI 2 Low Accumulator.  |
| 184 | Word    | Read/Write | DI 2 High Accumulator.   |
| 185 | Word    | Read/Write | DI 3 Low Accumulator.  |
| 186 | Word    | Read/Write | DI 3 High Accumulator.   |
| 187 | Word    | Read/Write | DI 4 Low Accumulator.  |



|     |      |            |  |
|-----|------|------------|--|
| 188 | Word | Read/Write | DI4 High Accumulator.  |
| 189 | Word | Read/Write | DI 5 Low Accumulator.  |
| 190 | Word | Read/Write | DI 5 High Accumulator.   |
| 191 | Word | Read/Write | DI 6 Low Accumulator.  |
| 192 | Word | Read/Write | DI 6 High Accumulator.   |
| 193 | Word | Read Only  | AI as DI Octal Value Summation.  |
| 194 | Word | Read/Write | AI 1 Low Accumulator.  |
| 195 | Word | Read/Write | AI 1 High Accumulator.   |
| 196 | Word | Read/Write | AI 2 Low Accumulator.  |
| 197 | Word | Read/Write | AI 2 High Accumulator.   |
| 198 | Word | Read/Write | AI 3 Low Accumulator.  |
| 199 | Word | Read/Write | AI 3 High Accumulator.   |
| 200 | Byte | Read/Write | Sensor Failure Action.   |
| 204 | Byte | Read/Write | On Times Averaged for STAT.  |
| 205 | Time | Read Only  | Controller Averaged Software On Time.  |
| 206 | Time | Read/Write | Manually Set "Software Run Time".  |
| 207 | Time | Read Only  | Latest Averaged Run Time since Power Up.   |
| 210 | Word | Read/Write | Lower Load Limit.  |
| 211 | Word | Read/Write | Upper Load Limit.  |
| 212 | Word | Read/Write | Lowest Allowed Average Load.   |
| 213 | Byte | Read/Write | Req'd Consecutive Load Violations.   |
| 214 | Byte | Read/Write | Load Violation Action.   |
| 215 | Byte | Read/Write | Entry Deglitch Time.   |
| 216 | Byte | Read/Write | Exit Deglitch Time.  |
| 217 | Word | Read/Write | Deadband in Pounds.  |
| 218 | Word | Read/Write | Immediate Upper Load Limit.  |
| 219 | Byte | Read/Write | Action for P218 Limit Violation.   |
| 220 | Byte | Read/Write | Power Fail "Off Time Multiplier" (in .1 units).<br><br>[15 = 1.5 Multiplier] Disables Low Load Span and Cycle Run Time for the Time Period determined by the actual Power Off Interval times this Parameter. |
| 221 | Time | Read/Write | Multiplied Power Fail Maximum Time Limit.  |
| 222 | Byte | Read/Write | Number of Low Load Span Violations before Action.  |
| 223 | Word | Read/Write | Valid Min. Load Span.  |
| 225 | Byte | Read/Write | Low Load Span Action.  |
| 226 | Time | Read/Write | Low Ld Span Well Off Timer. This is the amount of time that the well was off (including power failures). This time is multiplied by Parameter 220 to get the multiplied time for recovery period.            |
| 227 | Time | Read/Write | Low Ld Span Well On Timer. This is the amount of time left before the multiplied power fail recovery time period is timed out.   |
| 230 | Byte | Read/Write | Number of Consecutive "Immediate" Pump Offs Allowed.   |
| 231 | Byte | Read/Write | Immediate Pump-Off Action [0].   |
| 232 | Time | Read/Write | Minimum Cycle Run Time Allowable [00:00:00].   |
| 233 | Byte | Read/Write | Number of Consecutive Minimum Cycle Run Times Violations before Action [2].  |
| 234 | Byte | Read/Write | Minimum Cycle Run Time Violation Action [0].   |
| 235 | Time | Read/Write | Maximum Cycle Run Time Allowable [00:00:00].   |
| 236 | Byte | Read/Write | Maximum Cycle Run Time Violation Action [0].   |
| 237 | Time | Read/Write | Maximum Daily Run Time [00:00:00].   |
| 238 | Byte | Read/Write | Maximum Daily Run Time Action [0].   |
| 239 | Time | Read/Write | MRTN Well Off Timer. This is the amount of time that the well was without power multiplied by Parameter 220 to get the calculated "Recovery Period".   |

|     |         |            |   |
|-----|---------|------------|---|
| 240 | Time    | Read/Write | MRTN Well On Timer. This is the amount of time left before the Power Fail Recovery Period is timed out. |
| 241 | Byte    | Read/Write | Pump-Offs Required to Clear Maximum Run Time On Timer [2].  |
| 242 | Time    | Read/Write | Qualified Cycle on Timer.   |
| 243 | Time    | Read/Write | Qualified Daily on Timer.   |
| 249 | Byte    | Read/Write | AI 1 Low Action.  |
| 250 | Byte    | Read/Write | AI 1 High Action.   |
| 251 | Byte    | Read/Write | AI 2 Low Action.  |
| 252 | Byte    | Read/Write | AI 2 High Action.   |
| 253 | Byte    | Read/Write | AI 3 Low Action.  |
| 254 | Byte    | Read/Write | AI 3 High Action.   |
| 260 | Byte    | Read/Write | Control Failure Action.   |
| 261 | Time    | Read/Write | Control Failure Timeout Before Action.  |
| 262 | Byte    | Read/Write | Pump-On Sensing Delay [6].  |
| 263 | Byte    | Read/Write | Pump-Turn Off Sensing Delay [30].   |
| 270 | Word    | Read/Write | Minimum Allowable Span [500].   |
| 271 | Word    | Read/Write | Minimum Allowable Input Signal [2250].  |
| 272 | Word    | Read/Write | Maximum Allowable Input Signal [9000].  |
| 273 | Byte    | Read/Write | Position Signal Fault Period [5].   |
| 280 | Word    | Read Only  | Input Value - Counts.   |
| 281 | Word    | Read Only  | Input Value - mV.   |
| 282 | Word    | Read Only  | Input Value - EGU.  |
| 283 | Byte    | Read/Write | AI Type [0]:<br><br>0 = 0 - 5V<br>1 = 1- 5V<br>2 = 4- 20mA  |
| 284 | Byte    | Read/Write | Scaled EGU Decimal Places.  |
| 285 | Byte    | Read/Write | EGU Label.  |
| 286 | Word    | Read/Write | Low Value Scaling.  |
| 287 | Word    | Read/Write | High Value Scaling.   |
| 288 | Word    | Read/Write | Lower Alarm Limit.  |
| 289 | Byte    | Read/Write | Lower Alarm Action 1.   |
| 290 | Byte    | Read/Write | Lower Alarm Action 2.   |
| 291 | Word    | Read/Write | Upper Alarm Limit.  |
| 292 | Byte    | Read/Write | Upper Alarm Action 1.   |
| 293 | Byte    | Read/Write | Upper Alarm Action 2.   |
| 295 | Word    | Read Only  | Lowest Recorded Input Value.  |
| 296 | Word    | Read Only  | Highest Recorded Input Value.   |
| 297 | Word    | Read Only  | Input Value Averaged Over a Cycle.  |
| 298 | Word    | Read Only  | Lowest Averaged Input Value.  |
| 299 | Word    | Read Only  | Highest Averaged Input Value.   |
| 300 | Command | Read/Write | Reset Lows and Highs.   |

### Parameters 309-600

| Parameter | Data Type | Access     | Description  |
|-----------|-----------|------------|--|
| 309       | Word      | Read/Write | Extra Analog Status Bits:<br><br>000001 - Extra channel 1 low alarm<br>000002 - Extra channel 1 high alarm<br>000004 - Extra channel 2 low alarm<br>000010 - Extra channel 2 high alarm<br>000020 - Extra channel 3 low alarm<br>000040 - Extra channel 3 high alarm |
| 310       | Word      | Read Only  | AI 2 Value.  |

|     |         |            |  |
|-----|---------|------------|--|
| 311 | Word    | Read Only  | Input Value - Volts.   |
| 312 | Word    | Read Only  | Input Value - EGU.   |
| 313 | Byte    | Read/Write | Analog Input Type.   |
| 314 | Byte    | Read/Write | Scaled EGU Decimal Places.   |
| 315 | Byte    | Read/Write | EGU Label [9].   |
| 316 | Word    | Read/Write | Low Value Scaling.   |
| 317 | Word    | Read/Write | High Value Scaling.  |
| 318 | Word    | Read/Write | Lower Alarm Limit.   |
| 319 | v       | Read/Write | Lower Alarm Action 1.  |
| 320 | v       | Read/Write | Lower Alarm Action 2.  |
| 321 | Word    | Read/Write | Upper Alarm Limit.   |
| 322 | Byte    | Read/Write | Upper Alarm Action 1.  |
| 323 | Byte    | Read/Write | Upper Alarm Action 2.  |
| 325 | Word    | Read Only  | Lowest Recorded Input Value.   |
| 326 | Word    | Read Only  | Highest Recorded Input Value.  |
| 329 | Command | Read/Write | Rest Highs and Lows.   |
| 330 | Word    | Read Only  | Input Value.   |
| 331 | Word    | Read Only  | Input Value - Volts.   |
| 332 | Word    | Read Only  | Input Value - EGU.   |
| 333 | Byte    | Read/Write | Analog Input Type:<br>0 = 0 - 5V<br>1 = 1-5V<br>2 = 4-20mA   |
| 334 | Byte    | Read/Write | Scaled EGU Decimal Places.   |
| 335 | Byte    | Read/Write | EGU Label [9].   |
| 336 | Word    | Read/Write | Low Value Scaling.   |
| 337 | Word    | Read/Write | High Value Scaling.  |
| 338 | Word    | Read/Write | Lower Alarm Limit.   |
| 339 | Byte    | Read/Write | Lower Alarm Action 1.  |
| 340 | Byte    | Read/Write | Lower Alarm Action 2.  |
| 341 | Word    | Read/Write | Upper Alarm Limit.   |
| 342 | Byte    | Read/Write | Upper Alarm Action 1.  |
| 343 | Byte    | Read/Write | Upper Alarm Action 2.  |
| 345 | Word    | Read Only  | Lowest Recorded Input Value.   |
| 346 | Word    | Read Only  | Highest Recorded Input Value.  |
| 349 | Command | Read/Write | Reset Lows and Highs.  |
| 350 | Command | Read/Write | Command turns Fault Lamp on for 15 Second Test.  |
| 351 | Command | Read/Write | Force a Controller Software Reset.   |
| 352 | Command | Read/Write | Output Last Rolling Display.   |
| 370 | Display | Read Only  | Pump-Off Position referenced to Setpoint Load.   |
| 371 | Display | Read Only  | Pump-Off Load referenced to Setpoint Position.   |
| 372 | Display | Read Only  | Display of Parameter 370 or 371. This depends on Parameter 26 (POC Method) and is displayed when the "POC DSPLY" Key is pressed on the controller. |
| 373 | Word    | Read Only  | Estimated Position Value for Pump-Off.   |
| 375 | Word    | Read Only  | Estimated Load Value for Pump-Off.   |
| 376 | Word    | Read Only  | Load Value at Pump-Off Point/Area.   |
| 390 | Time    | Read Only  | Time of Last Fatal Error or AC Power Fail.   |
| 391 | Date    | Read Only  | Date of Last Fatal Error or AC Power Fail.   |
| 392 | Time    | Read Only  | Time of Last Complete Initialization.  |
| 393 | Date    | Read Only  | Date of Last Complete Initialization.  |
| 394 | Time    | Read Only  | Interval of Last Fatal Error or Power Fail.  |
| 395 | Word    | Read Only  | Last Fatal Error Address.  |
| 396 | Time    | Read Only  | Time of Last Control State Change.   |
| 397 | Date    | Read Only  | Date of Last Control State Change.   |

|         |         |            |   |
|---------|---------|------------|---|
| 398     | Word    | Read Only  | Days Counter.   |
| 399     | Time    | Read Only  | Rollover Counter.   |
| 400     | Time    | Read Only  | Current Run Time.   |
| 401     | Time    | Read Only  | Previous Interval (1).  |
| 402     | Time    | Read Only  | Previous Interval (2).  |
| 403     | Time    | Read Only  | Previous Interval (3).  |
| 404     | Time    | Read Only  | Previous Interval (4).  |
| 405     | Time    | Read Only  | Previous Interval (5).  |
| 406     | Time    | Read Only  | Previous Interval (6).  |
| 407     | Time    | Read Only  | Previous Interval (7).  |
| 408     | Time    | Read Only  | Previous Interval (8).  |
| 409     | Time    | Read Only  | Previous Interval (9).  |
| 410     | Time    | Read Only  | Previous Interval (10).   |
| 411     | Time    | Read Only  | Previous Interval (11).   |
| 412     | Time    | Read Only  | Previous Interval (12).   |
| 413     | Time    | Read Only  | Previous Interval (13).   |
| 414     | Time    | Read Only  | Previous Interval (14).   |
| 415     | Time    | Read Only  | Previous Interval (15).   |
| 416     | Time    | Read Only  | Previous Interval (16).   |
| 417     | Time    | Read Only  | Previous Interval (17).   |
| 418     | Byte    | Read Only  | Undisturbed Pump Cycles.  |
| 419     | Time    | Read Only  | Present Pump-Off Time.  |
| 420     | Time    | Read Only  | Run Time Accumulation Today.  |
| 421     | Time    | Read Only  | Yesterdays Run Time.  |
| 422     | Time    | Read Only  | Run Time Two Days Ago.  |
| 423     | Time    | Read Only  | Run Time Three Days Ago.  |
| 424     | Time    | Read Only  | Run Time Four Days Ago.   |
| 425     | Time    | Read Only  | Run Time Five Days Ago.   |
| 426     | Time    | Read Only  | Run Time Six Days Ago.  |
| 427     | Time    | Read Only  | Run Time Seven Days Ago.  |
| 429     | Time    | Read/Write | Gauge Period, Daily Start Time.   |
| 430     | Word    | Read Only  | Present Undisturbed Pump-Offs in GaugeTime.   |
| 431     | Word    | Read Only  | Previous Gauge Time Undisturbed Pump-Offs.  |
| 432     | Time    | Read Only  | Present Undisturbed On-Time Average.  |
| 433     | Time    | Read Only  | Previous Gauge Time Undisturbed On-Time Average.  |
| 439     | Time    | Read Only  | Present Undisturbed On-Time Total.  |
| 441     | Date    | Read Only  | Present gauge period starting date.   |
| 442-449 | Time    | Read Only  | run time circular buffer.   |
| 450     | Word    | Read Only  | Zero channel raw input in counts.   |
| 451     | Word    | Read Only  | Zero channel filtered input in counts.  |
| 452     | Word    | Read Only  | 5 volt channel raw input.   |
| 453     | Word    | Read Only  | 5 volt channel filtered input.  |
| 454     | Word    | Read Only  | Filtered span in counts.  |
| 455     | Byte    | Read Only  | Channel:<br><br>0 = Zero Volts Calibration<br>1 = Full Scale Calibration<br>2 = Load Input<br>3 = Position Input<br>4 = First Extra |
| 456     | Word    | Read Only  | Lowest Allowed Value.   |
| 457     | Word    | Read Only  | Highest Allowed Value.  |
| 458     | Word    | Read Only  | Actual Value.   |
| 459     | Command | Read/Write | Clear P460-461.   |
| 460     | Display | Read Only  | Background timing.  |
| 461     | Display | Read Only  | Process queue.  |

|         |         |            |  |
|---------|---------|------------|--|
| 472     | Command | Read/Write | Initialize EEPROM to Factory Setting.<br><br><b>Note:</b> All Field Set Parameters are lost when EEPROM is initialized. Users must enter the BAKER Service Password in Parameter 473 first.  |
| 473     | Word    | Read/Write | SERVICE PASSWORD.<br><br>User Password =8500 and allows changing.<br><br>Master Service Password= 5500. This should only be used by Service Personnel and allows RPC to be initialized using Parameter 472g of RO Parameters such as Run Time Data.  |
| 480     | Word    | Read Only  | EEPROM initial variable.   |
| 481     | Word    | Read Only  | EEPROM bytes used.   |
| 482     | Word    | Read Only  | Shadow RAM left in bytes.  |
| 483     | Word    | Read Only  | EEPROM size in bytes.  |
| 484     | Byte    | Read Only  | Software version.  |
| 485     | Byte    | Read Only  | Software sub-version.  |
| 486-488 | Display | Read Only  | Bad parameters info.   |
| 490     | Byte    | Read Only  | Present Software Main Version.   |
| 491     | Byte    | Read Only  | Present Software Sub-Version.  |
| 495     | Byte    | Read Only  | Communication Board(s):<br><br>0 - No Comm Boards<br>1 - Unknown or Bad Comm Board<br>2 - UART Board<br>3 - UART Board with Expanded Memory<br>4 - Radio Modem Board<br>5 - Hardwired Modem Board  |
| 496     | Word    | Read/Write | Analog Input Usage Configuration.  |
| 497     | Word    | Read/Write | Digital Input Usage Configuration:<br><br>Octal Hex - Description Source<br>000001 0001 - DI 1 Selected 325-6(1), 350(1J)<br>000002 0002 - DI 2 Selected 325-6(2), 350(2J)<br>000004 0004 - DI 3 Selected 350(1)<br>000010 0008 - DI 4 Selected 350(2)<br>000020 0010 - DI 5 Selected 350(3)<br>000040 0020 - DI 6 Selected 350(4) |
| 500     | Word    | Read/Write | Keypad Password.   |
| 501     | Byte    | Read/Write | Password Timeout Interval [5]:<br><br>(Minutes) Password at Parameter<br>Every 1 to 5 seconds  |
| 508     | Byte    | Read/Write | Display Update Rate [1].   |
| 509     | Byte    | Read/Write | Message Rolls per Second [4]. This is from 2 to 15 Rolls / Second.   |
| 515     | Word    | Read Only  | Auto Setup.  |
| 516     | Word    | Read Only  | Communication pumpon.  |
| 517     | Word    | Read Only  | Communication present.   |
| 518     | Word    | Read Only  | Communication pumpoff/error.   |
| 519     | Word    | Read Only  | Communication frozen (function 16).  |
| 520     | Word    | Read Only  | Internal Status Variables:<br><br>Octal Hex Status<br>000001 0001 - Well Officially On<br>000002 0002 - Sensors say " Well On"<br>000004 0004 - Pending Position Problem<br>000010 0008 - Powerup Low Load Span<br>000020 0010 - Full Card Marked<br>000040 0020 - EPROM Initiated   |

|     |      |           |  |
|-----|------|-----------|--|
|     |      |           | 000100 0040 - EPROM Expanded<br>000200 0080 - Last Load Span Good<br>000400 0100 - Peak Hours - Pump Forced Off<br>001000 0200 - Peak Hours Delayed Start Timer Active - Pump Forced Off   |
| 521 | Word | Read Only | Status Bits 2.   |
| 522 | Word | Read Only | Status Bits 3.   |
| 526 | Byte | Read Only | Controller Error Status:<br><br>0 = Normal or Lamp Only Error<br>1 = Software Timer<br>2 = Control Transferred via Watchdog Relay<br>3 = Off Until Reset by Operator   |
| 527 | Word | Read Only | Accumulated Error Code Bits - Word 1:<br><br>Octal Hex - Description<br>000001 0001 - Control Failure<br>000002 0002 - Low Load Violation<br>000004 0004 - High Load Violation<br>000010 0008 - Low Average Load<br>000020 0010 - Position Switch Failure<br>000040 0020 - Multiple Position Switch<br>000100 0040 - Cleared Position Sw Error<br>000200 0080 - Cleared Multiple Pos. Sw.<br>000400 0100 - Low Load Span<br>001000 0200 - Load Sensor Failure<br>002000 0400 - Continuous Position Fault<br>004000 0800 - Cleared Cont. Pos. Fault<br>010000 1000 - Bad Software Timer Value<br>020000 2000 - A/D Failure<br>040000 4000 - Manual Off Command<br>100000 8000 - Pump-Off Override Timer Active                      |
| 528 | Word | Read Only | Accumulated Error Code Bits - Word 2:<br><br>Octal Hex - Description<br>000001 0001 - Immediate Pump-Off(s)<br>000002 0002 - Min. Cycle Run Time(s)<br>000004 0004 - Max. Cycle Run Time(s)<br>000010 0008 - Max. Daily nRun Time<br>000020 0010 - EEPROM Initialized<br>000040 0020 - EEPROM Expanded<br>000100 0040 - Bad EEPROM Param. Data<br>000200 0080 - EEPROM Going Bad (1/3)<br>000400 0100 - EEPROM Bad (2 or 3/3)<br>001000 0200 - Bad Error Status @ Powerup<br>002000 0400 - Bad Error Code Bits " " "<br>004000 0800 - Questionable Time & Date<br>010000 1000 - Bad Real Time Clock Chip<br>020000 2000 - Wrong Startup Line Freq.<br>040000 4000 - Manual Control Transfer<br>100000 8000 - Manual Software Timer |
| 529 | Word | Read Only | Accumulated Error Code Bits - Word3:<br><br>Octal Hex - Description<br>000001 0001 - CPU Fell Behind<br>000002 0002 - Cleared RTC Error<br>000004 0004 - Motor Off Too Long<br>000010 0008 - DI 1 Low Alarm<br>000020 0010 - DI 1 High Alarm<br>000040 0020 - DI 2 Low Alarm<br>000100 0040 - DI 2 High Alarm<br>000200 0080 - AI 1 as DI Low Alarm<br>000400 0100 - AI 1 as DI High Alarm<br>001000 0200 - AI 2 as DI Low Alarm   |

|     |      |           |   |
|-----|------|-----------|---|
|     |      |           | 002000 0400 - AI 2 as DI High Alarm<br>004000 0800 - AI 3 as DI Low Alarm<br>010000 1000 - AI 3 as DI High Alarm<br>020000 2000 - Immediate Upper Load Violation.<br>040000 4000 - Reverse Pump Off<br>100000 8000 - Air Balance Amps Too Low   |
| 530 | Word | Read Only | Accumulated Error Code Bits - Word 4:<br><br>Octal Hex - Description<br>000001 0001 - DI 3 Low Alarm<br>000002 0002 - DI 3 High Alarm<br>000004 0004 - DI 4 Low Alarm<br>000010 0008 - DI 4 High Alarm<br>000020 0010 - DI 5 Low Alarm<br>000040 0020 - DI 5 High Alarm<br>000100 0040 - DI 6 Low Alarm<br>000200 0080 - DI 6 High Alarm  |
| 535 | Word | Read Only | Non-Clearable Hardware Error Code Bits:<br><br>Octal Hex - Description<br>000002 0002 - Bad Commun. Board<br>000004 0004 - Constant UART Interrupt<br>000400 0100 - Bad Power Supply Board<br>001000 0200 - AC Failure<br>002000 0400 - Battery Low   |
| 536 | Word | Read Only | Non-Clearable Pump-Off Setup Error Bits:<br><br>Octal Hex - Description<br>000001 0001 - Missing Parameter 130<br>000010 0008 - Missing Parameter 21<br>000020 0010 - Reserved for Missing Parameter 22<br>000040 0020 - Missing Parameter 23<br>000100 0040 - Missing Parameter 24<br>002000 0400 - Missing Parameter 20<br>020000 2000 - Missing Position Memory  |
| 537 | Word | Read Only | Non-Clearable Miscellaneous Error Bits:<br><br>Octal Hex - Description<br>000020 0010 - Temporary Control Failure<br>000400 0100 - Communication Output Test  |
| 540 | Byte | Read Only | Worst Case Controller Error Status Since Powerup:<br><br>0 = Normal or Lamp Only if Error(s)<br>1 = Software Timer<br>2 = Control Transferred by the Watchdog Relay<br>3 = Off Until Reset by Operator  |
| 541 | Word | Read Only | Accumulated Error Code Bits Since Powerup - Word 1:<br><br>Octal Hex - Description<br>000001 0001 - Control Failure<br>000002 0002 - Low Load Violation<br>000004 0004 - High Load Violation<br>000010 0008 - Low Average Load<br>000020 0010 - Position Switch Failure<br>000040 0020 - Multiple Position Switch<br>000100 0040 - Cleared Pos. Switch Failure<br>000200 0080 - Cleared Multiple Pos. Sw.<br>000400 0100 - Low Load Span<br>001000 0200 - Load Sensor Failure<br>002000 0400 - Continuous Position Fault<br>004000 0800 - Cleared Cont. Pos. Fault<br>010000 1000 - Bad Software Timer Value<br>020000 2000 - A/D Failure<br>040000 4000 - Manual Off Command |

|     |         |            |   |
|-----|---------|------------|---|
|     |         |            | 100000 8000 - Pump-Off Override Timer Active  |
| 542 | Word    | Read Only  | <p>Accumulated Error Code Bits Since Powerup - Word 2:</p> <p>Octal Hex - Description</p> <p>000001 0001 - Immediate Pump-Off</p> <p>000002 0002 - Min. Cycle Run Time</p> <p>000004 0004 - Max. Cycle Run Time</p> <p>000010 0008 - Max. Daily Run Time</p> <p>000020 0010 - EEPROM Initialized</p> <p>000040 0020 - EEPROM Expanded</p> <p>000100 0040 - Bad EEPROM Param. Data</p> <p>000200 0080 - EEPROM Going Bad (1/3)</p> <p>000400 0100 - EEPROM Bad (2 or 3/3)</p> <p>001000 0200 - Bad Error Status @ Powerup</p> <p>002000 0400 - Bad Error Code Bits " " "</p> <p>004000 0800 - Questionable Time &amp; Date</p> <p>010000 1000 - Bad Real Time Clock Chip</p> <p>020000 2000 - Wrong Startup Line Freq.</p> <p>040000 4000 - Manual Control Transfer</p> <p>100000 8000 - Manual Software Timer</p> |
| 543 | Word    | Read Only  | <p>Accumulated Error Code Bits Since Powerup - Word3:</p> <p>Octal Hex - Description</p> <p>000001 0001 - CPU Fell Behind</p> <p>000002 0002 - Cleared RTC Error</p> <p>000004 0004 - Motor Off Too Long</p> <p>000010 0008 - DI 1 Low Alarm</p> <p>000020 0010 - DI 1 High Alarm</p> <p>000040 0020 - DI 2 Low Alarm</p> <p>000100 0040 - DI 2 High Alarm</p> <p>000200 0080 - AI 1 as DI Low Alarm</p> <p>000400 0100 - AI 1 as DI High Alarm</p> <p>001000 0200 - AI 2 as DI Low Alarm</p> <p>002000 0400 - AI 2 as DI High Alarm</p> <p>004000 0800 - AI 3 as DI Low Alarm</p> <p>010000 1000 - AI 3 as DI High Alarm</p> <p>020000 2000 - Immediate Upper Load Violation</p> <p>040000 4000 - Reverse Pump Off</p> <p>100000 8000 - Air Balance Amps Too Low</p>   |
| 544 | Word    | Read Only  | <p>Accumulated Error Bits 4:</p> <p>Octal Hex - Description</p> <p>000001 0001 - DI 3 Low Alarm</p> <p>000002 0002 - DI 3 High Alarm</p> <p>000004 0004 - DI 4 Low Alarm</p> <p>000010 0008 - DI 4 High Alarm</p> <p>000020 0010 - DI 5 Low Alarm</p> <p>000040 0020 - DI 5 High Alarm</p> <p>000080 0040 - DI 6 Low Alarm</p> <p>000100 0080 - DI 6 High Alarm</p>   |
| 550 | Display | Read Only  | Firmware Identification - Complete I.D.   |
| 555 | Display | Read Only  | Controller Identification Message.  |
| 556 | Command | Read/Write | Output Rolling Unit Identification Message.   |
| 557 | Word    | Read Only  | Num bytes used in EPROMs.   |
| 558 | Word    | Read Only  | Num bytes left in EPROMs.   |
| 560 | Byte    | Read/Write | DI 1 Closed Action [7].   |
| 561 | Byte    | Read/Write | DI 1 Open Action [7].   |
| 562 | Byte    | Read/Write | DI 2 Closed Action [7].   |
| 563 | Byte    | Read/Write | DI 2 Open Action [7].   |
| 564 | Byte    | Read/Write | DI 3 Closed Action [7].   |
| 565 | Byte    | Read/Write | DI 3 Open Action [7].   |
| 566 | Byte    | Read/Write | DI 4 Closed Action [7].   |



|     |      |            |                                     |
|-----|------|------------|-------------------------------------|
| 567 | Byte | Read/Write | DI 4 Open Action [7].               |
| 568 | Byte | Read/Write | DI 5 Closed Action [7].             |
| 569 | Byte | Read/Write | DI 5 Open Action [7].               |
| 570 | Byte | Read/Write | DI 6 Closed Action [7].             |
| 571 | Byte | Read/Write | DI 6 Open Action [7].               |
| 600 | Time | Read/Write | Serial Port with CRC, Enable Timer. |

## Parameters 601-669

| Parameter | Data Type | Access     | Description   |
|-----------|-----------|------------|---|
| 601       | Byte      | Read/Write | Remote Data and Stop Bits[0].   |
| 602       | Byte      | Read/Write | Remote Baud Rate [7].   |
| 603       | Word      | Read Only  | Communication Status Bits:<br><br>Octal Hex - Description<br>000001 0001 - CRC Security<br>000002 0002 - Using Large Rec Buffer<br>000004 0004 - Using Large Xmit Buffer<br>000010 0008 - Using Modem<br>000020 0010 - Comm Output Test   |
| 604       | Byte      | Read Only  | Present Data and Stop Bits used.  |
| 605       | Byte      | Read Only  | Present Baud Rate.  |
| 606       | Byte      | Read/Write | Carrier Detect On Delay [6].  |
| 607       | Byte      | Read/Write | Carrier Detect Off Delay [1].   |
| 608       | Byte      | Read/Write | Msg End Until Carrier Loss Limit [60].  |
| 609       | Byte      | Read/Write | Radio Pre-Key [30].   |
| 610       | Byte      | Read/Write | Radio Post-Key [12].  |
| 611       | Byte      | Read/Write | Maximum Radio Key [30].   |
| 612       | Byte      | Read/Write | Receive Timeout [120].  |
| 619       | Byte      | Read/Write | Actual Position Data Available From Controller for Analysis Programs. The operator must enter the proper value to provide Controller compatibility with the CMCS Software being used. Enter the value as follows:<br><br>0 - When no Continuous Position Input is available to Controller.<br>1 - To be used when Continuous Position Input Data is available to the Controller AND New CMCS Software is Installed at Central that is compatible with Version 5.00/5.01 Controller Firmware.<br>2 - When Continuous Position Input is available to the Controller (Position Potentiometer Installed), and older CMCS Software Installed at Central. |
| 620       | Word      | Read/Write | Communication Group Address [4093].   |
| 621       | Word      | Read Only  | Maximum Radio "On Time".  |
| 622       | Word      | Read Only  | Maximum Transmit Message Time.  |
| 623       | Word      | Read Only  | Maximum Transmit Message in Characters.   |
| 624       | Word      | Read Only  | Actual Transmit Buffer Size in Characters.  |
| 625       | Word      | Read Only  | Maximum Transmit Buffer Size in Characters.   |
| 626       | Word      | Read Only  | Maximum Transmit Message Time.  |
| 627       | Word      | Read Only  | Maximum Radio On Time.  |
| 628       | Byte      | Read/Write | All Address Response Test Timer (Seconds). This allows the controller to respond to all CMCS Inquiries regardless of Transmit Address.  |
| 629       | Command   | Read/Write | Clear Parameters 630 through 642.   |
| 630       | Display   | Read Only  | Last Characters Received as ASCII.  |
| 631       | Word      | Read/Write | Character Errors (Framing, Parity, or Overrun Errors).  |
| 632       | Word      | Read/Write | Characters Received.  |

|     |      |            |   |
|-----|------|------------|---|
| 633 | Word | Read/Write | Header Characters Received.   |
| 634 | Word | Read/Write | Trailer Characters Received.  |
| 635 | Word | Read/Write | Framed Messages Received.   |
| 636 | Word | Read/Write | Framed Messages with Correct CRC / Checksum Received.   |
| 637 | Word | Read/Write | Messages Processed.   |
| 638 | Word | Read/Write | Commands Processed.   |
| 639 | Word | Read/Write | Responses Transmitted.  |
| 640 | Word | Read/Write | Characters Transmitted.   |
| 641 | Word | Read/Write | Max Messages Rec'd to Start Response Time.  |
| 642 | Word | Read/Write | Max Messages Rec'd to Response Sent Time.   |
| 644 | Byte | Read/Write | Output Test Spacing Delay.  |
| 645 | Byte | Read Only  | Last Character Received.  |
| 646 | Byte | Read/Write | Output Test Data and Stop Bits [2]:<br>2 = 8 Data, 1 Stop   |
| 647 | Byte | Read/Write | Output Test Character [U].  |
| 648 | Byte | Read/Write | Output Test Time in Seconds.  |
| 649 | Word | Read Only  | Internal Status Bits:<br><br>Octal Hex - Description<br>000001 0001 - Raw Carrier, Detect<br>000002 0002 - Debounced Carrier Detect<br>000004 0004 - Fork Processing<br>000010 0008 - Fork Done |
| 660 | Byte | Read/Write | Cursor Location.  |
| 661 | Byte | Read/Write | Timer.  |
| 665 | Byte | Read Only  | Good Operation Timer  |
| 666 | Byte | Read/Write | Required "Good Operation Time" [15].  |
| 667 | Byte | Read/Write | Log Clear Errors Flag [0]:<br><br>0 = Don't Flag<br>1 = Log   |
| 668 | Byte | Read Only  | Error Code:<br><br>0 = No Error<br>1 = Bad Second Interval<br>2 = Read All 1's<br>3 = Write Confirm<br>4 = Can't Read Same Twice  |
| 669 | Byte | Read Only  | Seconds Value for RTC Chip.   |

### Recommended Function, Buffer, and Command Items Usage

Function, Buffer, and Command Items operate using a three step process that consists of writing input items, executing a function item, and then reading output items. For more information, refer to the topics below.

#### Function Items

1. To start, perform a write to the Function.Parameters item to configure an input.
2. Next, perform a write to the Function.Code item to execute the desired function. An asynchronous write is recommended, because some function codes can take a considerable amount of time to execute.
3. Perform a read of the output items Function.Result and Function.ResultData to obtain results of the previous executing function.

#### Buffer Items

1. To start, perform a write to the desired buffer input items to configure an input. The buffer input items are as follows:

- Identifier
  - LoadType
  - FormattedLoadPrecision
  - PositionInclusionAndType
  - FormattedPositionPrecision
  - NumberOfCycles
  - CycleMarkingCharacter
  - OverlapFlag
  - MaxMsgDatapoints
2. Next, perform a write to the Buffer.Trigger item to execute a Dynagraph function. An asynchronous write is recommended, because Dynagraph acquisitions can take a considerable amount of time to execute.
  3. Perform a read of the output items Buffer.Load, Buffer.Position, and Buffer.Result to obtain results of the previous executing Dynagraph function.

### Command Items

Command Items do not have input items.

1. To start, perform a write to the Command.Value item to execute the desired command parameter.
2. Next, perform a read of the output items Command.Result and Command.ResultData to obtain results of the previous executing command parameter.

## Error Descriptions

---

The following error/warning messages may be generated. Click on the link for a description of the message.

### Address Validation

[Address '<address>' is out of range for the specified device or register](#)

[Array size is out of range for address '<address>'](#)

[Data type '<type>' is not valid for device address '<address>'](#)

[Device Address '<address>' contains a syntax error](#)

### Driver Error Messages

[Address in block \[Parameters: <parameter numbers list>\] on device '<device name>' responded with exception code '<code>'](#)

[Block address \[<start address> to <end address>\] on device '<device name>' responded with exception code '<code>'](#)

[Device '<device name>' is not responding](#)

[Unable to generate a tag database for device '<device name>'. Reason: Memory allocation error](#)

[Unable to load '<dll>'](#)

[Unable to read from address '<address>' on device '<device name>': Device responded with exception code '<code>'](#)

[Unable to write to address '<address>' on device '<device name>': Device responded with exception code '<code>'](#)

See Also: [Error Codes](#)

## Address Validation

---

The following error/warning messages may be generated. Click on the link for a description of the message.

### Address Validation

[Address '<address>' is out of range for the specified device or register](#)

[Array size is out of range for address '<address>'](#)

[Data type '<type>' is not valid for device address '<address>'](#)

[Device Address '<address>' contains a syntax error](#)

## Address '<address>' is out of range for the specified device or register

---

### Error Type:

Warning

### Possible Cause:

A tag address that has been specified dynamically references a location that is beyond the range of supported locations for this device.

### Solution:

Verify that the address is correct; if it is not, re-enter it in the client application.

## Array size is out of range for address '<address>'

---

### Error Type:

Warning

### Possible Cause:

A tag address that has been specified statically is requesting an array size that is too large.

### Solution:

Re-enter the address in the client application to specify a smaller value for the array or a different starting point.

## Data type '<type>' is not valid for device address '<address>'

---

### Error Type:

Warning

### Possible Cause:

A tag address that has been specified statically has been assigned an invalid data type.

**Solution:**

Modify the requested data type in the client application.

**Device Address '<address>' contains a syntax error**

---

**Error Type:**

Warning

**Possible Cause:**

A tag address that has been specified statically contains one or more of the following errors:

1. The address doesn't conform to the tag address naming conventions.
2. The address is invalid according to the address format and underlying Controller Tag data type.
3. A Program Tag was specified incorrectly.
4. The address used an invalid format.

**Solution:**

Re-enter the address in the client application.

**Driver Error Messages**

---

The following error/warning messages may be generated. Click on the link for a description of the message.

**Driver Error Messages**

[Address in block \[Parameters: <parameter numbers list>\] on device '<device name>' responded with exception code '<code>'](#)

[Block address \[<start address> to <end address>\] on device '<device name>' responded with exception code '<code>'](#)

[Device '<device name>' is not responding](#)

[Unable to generate a tag database for device '<device name>'. Reason: Memory allocation error](#)

[Unable to load '<dll>'](#)

[Unable to read from address '<address>' on device '<device name>': Device responded with exception code '<code>'](#)

[Unable to write to address '<address>' on device '<device name>': Device responded with exception code '<code>'](#)

**Device '<Device name>' is not responding**

---

**Error Type:**

Warning

**Result:**

1. If the tag was being read, then the Read operation will not be performed and the tag will be invalidated.
2. If the tag was being written, then the Write operation for the given tag will not occur.

**Possible Cause:**

1. The connection between the device and the Host PC is broken.
2. Device CPU work load is too high.
3. The response from the device took longer to receive than the amount of time specified in the "Request Timeout" device setting.

**Solution:**

1. Verify the cabling between the PC and the PLC device.
2. If this error occurs frequently, decrease the tag group scan rate to reduce the work load on the PLC CPU.
3. Increase the Request Timeout setting so that the entire response can be handled.

**Unable to generate a tag database for device '<device name>'. Reason: Memory allocation error**

---

**Error Type:**

Warning

**Possible Cause:**

The memory required for database generation could not be allocated. The process was aborted.

**Solution:**

Close any unused applications and/or increase the amount of virtual memory. Then, try again.

**Unable to load '<dll>'**

---

**Error Type:**

Serious

**Possible Cause:**

A software component necessary for communications cannot be loaded from '<dll>'.

**Solution:**

Re-install the server and then try again.

**Unable to read from address '<address>' on device '<device name>': Device responded with exception code '<code>'**

---

**Error Type:**

Warning

**Possible Cause:**

1. The address does not exist in the device.
2. The device could not perform the read operation.

**Solution:**

For more information, refer to [Exception Codes](#).

**Unable to write to address '<address>' on device '<device name>': Device responded with exception code '<code>'**

---

**Error Type:**

Warning

**Possible Cause:**

1. The address does not exist in the device.
2. The device could not perform the write operation.
3. The location is Read Only in the device.

**Solution:**

For more information, refer to [Exception Codes](#).

## Error Codes

---

For more information, select a link from the list below.

[Exception Codes](#)

[Frame Process Error Codes](#)

## Exception Codes

---

Exception Codes are the success/error indication from the slave. Taken as a two's complement 8 bit number, positive values mean success, 0 means pending or indeterminate, and negative values mean errors.

| Decimal | Hex | Description  |
|---------|-----|--|
| 0       | 0   | Pending or indeterminate.                            |
| 1       | 01  | Success.   |
| 2       | 02  | Function already done.                               |
| -1      | FF  | Invalid function code.                               |
| -2      | FE  | Improper data alignment.                             |
| -3      | FD  | Improper data format.                                |
| -4      | FC  | No data when data is required.                       |
| -6      | FA  | Improper data values.                                |
| -7      | F9  | Well data buffer index not initialized.              |
| -8      | F8  | Result is too long for remainder of response buffer. |
| -9      | F7  | Internal slave software error.                       |
| -11     | F5  | Non-clearable errors present.                        |
| -12     | F4  | RPC in shut-down mode.                               |
| -13     | F3  | RPC in control transfer mode.                        |
| -14     | F2  | Expanded uart board memory not present.              |
| -15     | F1  | Expanded bank type uart board memory not present.    |
| -16     | F0  | Bad Parameter ID.                                    |
| -17     | EF  | Parameter is not a data type parameter.              |
| -18     | EE  | Parameter is a Read Only parameter.                  |
| -19     | ED  | Parameter is not a command type parameter.           |
| -20     | EC  | Well problem prevents function execution2.           |
| -21     | EB  | Well state prevents function execution2.             |
| -22     | EA  | Unknown problem.                                     |
| -23     | E9  | Privilege violation.                                 |
| -24     | E8  | No copied well data.                                 |
| -25     | E7  | Not allowed in AC failure mode.                      |

## Frame Process Error Codes

---

Errors can result when processing a frame whose checksum was valid but whose contents were not. All error codes will result in the data's quality being set to "Bad" or a failure of the write. They will be displayed in the Event Log when they occur. For more information, refer to the table below.

| Error Code | Description  |
|------------|--|
| -114       | 1. Function Code 5, 6, or 7 response did not contain an Index.<br>2. The data length is incorrect.   |
| -115       | The block request done using Function Code 8 or 9 did not return the quantity of parameters that were requested.   |
| -116       | The length of data received in the Command Tag response exceeds the limit of 16 characters.  |
| -117       | The card header data count value exceeds the limit of 200.   |
| -118       | 1. The number of points in the frame exceeds the number that was requested to be returned with each frame.<br>2. The number of Surface or Downhole points received exceeds the number of points indicated in the initial response. |
| -119       | 1. The event or card header is not the length that is required.<br>2. The number of card headers found are not equal to the card count in the event header.  |
| -120       | 1. The event is not the length that is required.   |

|      |   |
|------|---|
|      | <ol style="list-style-type: none"><li>2. The number of events in the frame exceeds the number that was requested to be returned within each frame.</li><li>3. The end of the event's response contains data (but it should not).</li></ol>  |
| -121 | The XDynagraph10 extended record is not the length that is required.  |
| -123 | <ol style="list-style-type: none"><li>1. The number of points in the frame exceeds the number that was requested to be returned with each frame.</li><li>2. The number of Dynagraph points received exceeds the number of points indicated in the initial response.</li></ol>   |
| -124 | The length of data received in a Function Tag response was excessive.   |
| -126 | <ol style="list-style-type: none"><li>1. The successful parameter write includes data (but it should not).</li><li>2. The length of data received for the parameter write error response exceeds the limit of 3 characters.</li></ol>   |
| -127 | <ol style="list-style-type: none"><li>1. The length of data received for the array parameter exceeds the length of the parameter's data type multiplied by the array size. For example, this error will be generated if the request is for an array of 3 bytes and more than six characters are received.</li><li>2. The Parameter Array request did not return the quantity of parameters requested.</li></ol>   |
| -128 | <ol style="list-style-type: none"><li>1. The length of data received for the parameter exceeds 16 characters. When the display parameters that exceed 16 characters are found, they will be truncated.</li><li>2. The length of data received for the parameter exceeds the length allowed for its data type. For example, if the parameter's data type is Byte, then data length should be 2 Hex ASCII characters. This error will be generated if more than two are received.</li></ol> |



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