Wonderware DAServer for Omron E5 Controllers User's Guide

Invensys Systems, Inc.

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Trademarks

Contents

Welcome

The Wonderware DAServer for Omron E5C Serial is a Microsoft Windows application that allows client applications access to Omron E5 Series temperature controllers.

Documentation Conventions

This documentation uses the following conventions:

Convention	Used for
Initial Capitals	Paths and filenames.
Bold	Menus, commands, dialog box names, and dialog box options.
`Monospace`	Code samples and display text.

Technical Support

Wonderware Technical Support offers a variety of support options to answer any questions on Wonderware products and their implementation.

Before you contact Technical Support, refer to the relevant section(s) in this documentation for a possible solution to any problem you have. If you need to contact technical support for help, have the following information ready:

- The type and version of the operating system you are using. For example, Microsoft Windows XP, SP1.
- Details of how to recreate the problem.
- The exact wording of the error messages you saw.
- Any relevant output listing from the Log Viewer or any other diagnostic applications.
- Details of what you did to try to solve the problem(s) and your results.

If known, the Wonderware Technical Support case number assigned to your problem, if this is an ongoing problem.

Chapter 1

Getting Started

The DAServer is one component of a software system that connects your software application with information on the factory floor.

This DAServer documentation covers only the information you need to configure and run the DAServer component. See the documentation that comes with the related components for details on their operation. You can find installation instructions in a help file on the distribution CD.

You use the DAServer Manager to configure, activate, and troubleshoot the DAServer. The DAServer Manager is located in the System Management Console (SMC). For more information, see Finding Your DAServer in the SMC on page 15.

This documentation describes some of the features of the DAServer Manager. See the *DAServer Manager User's Guide* to find more information on:

- Global parameters
- Configuration sets
- Time zone features
- Icon definitions
- Activation/deactivation
- Configuring as a service
- Importing/exporting device items
- Standard diagnostics

You can troubleshoot problems with the DAServer using the ArchestrA Log Viewer, a snap-in to the SMC. See the Log Viewer help file to find information on:

- Viewing error messages.
- Determining which messages are shown.
- Bookmarking error messages.

You may also be able to troubleshoot problems using your client application, such as the Wonderware InTouch HMI software. The client application can use system device items to determine the status of nodes and the values of some parameters. For more information on system items, see Standard System Items on page 49.

Before You Begin

Before configuring the DAServer, verify the following items:

- A PC is set up with the necessary network cards, and connected to the necessary networks.
- The Windows administration account is created or identified.
- The DAServer and any other Wonderware software such as the DAServer Manager is installed with the proper licenses. For more information, see the License Utility documentation on the distribution CD.
- The client software is installed.
- The device(s) is/are connected (networked) and, if necessary, programmed.

Before configuring the DAServer, you should know:

- The device network configuration and addresses.
- Which data items are needed for the client application.
- The device name/topic name/group name.
- The desired update intervals.

Supported Client Protocols

Client applications connect to the DAServer using OPC and DDE/SuiteLink. For more information, see the Protocols guide that is included with the distribution CD.

Supported Device Protocols

The DAServer can connect to Omron temperature controllers using the Sysway protocol.

Supported Devices

You can use the following Omron temperature controllers with this DAServer.

- E5AF-A
- E5AX-VAA
- E5AX-AH
- E5AJ-A
- E5EJ-A
- E5CN-TC [b]
- E5GN-TC [d]
- E5AX-A
- E5AF-AH
- E5AX-PRR
- E5AX_DAA
- E5CN-PT [a]
- E5GN-PT [c]

a. E5CN for platinum resistance thermometer. Actual model number can vary.

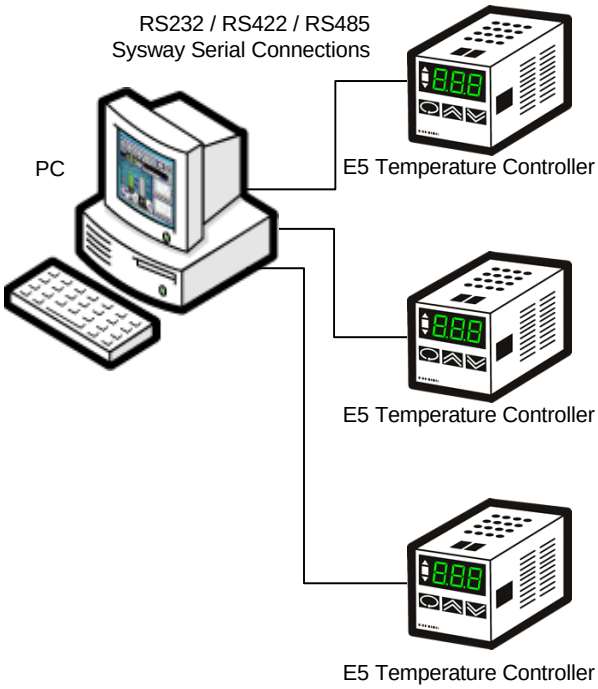
b. E5CN for thermocouple. Actual model number can vary.

c. E5GN for platinum resistance thermometer. Actual model number can vary.

d. E5GN for thermocouple. Actual model number can vary.

Supported Topologies

The DAServer communicates with Omron Temperature Controllers through a serial connection. Each Temperature Controller is directly connected to the computer running the DAServer.



Windows Firewall Considerations

If the DAServer runs on a computer with a firewall enabled, a list of application names or port numbers must be put in the firewall exception list so the DAServer can function correctly.

By default, the DAServer installation program makes the required entries in the firewall exception list. If you do not want the installation program to make entries in the firewall exception list, you must add the entries manually. For information on how make entries in the firewall exception list, see your firewall or Windows security documentation.

You must ensure the following applications are in the firewall exception list. The applications can be added automatically during installation, or you can add them manually on the computer running the DAServer:

- DASOME5C.exe
- aaLogger.exe
- DASAgent.exe
- dllhost.exe
- mmc.exe
- OPCEnum.exe
- Slssvc.exe

You must ensure the following port numbers are in the firewall exception list. The port numbers can be added automatically during installation, or you can add them manually on the computer running the DAServer:

- 5413 - TCP port for slssvc.exe
- 445 - TCP port for file and printer sharing
- 135 - TCP port for DCOM

Put the following applications in the firewall exception list on the computer where the DAServer Manager is installed:

- aaLogger.exe
- dllhost.exe
- mmc.exe

Put the following port numbers in the firewall exception list on the computer where the DAServer Manager is installed:

- 445 - TCP port for file and printer sharing
- 135 - TCP port for DCOM

Un-installing the DAServer does not remove the firewall exception list entries. You must delete the firewall exception list entries manually. For more information on how to do this, see your firewall or Windows security documentation.

Checklist for Setting up a DAServer

If you are setting up a DAServer for the first time, perform the following tasks in the order listed:

1. Review the items described in Before You Begin on page 10.
2. Locate the DAServer in the System Management Console (SMC). See Finding Your DAServer in the SMC on page 15.
3. Configure the global parameters. See the *DAServer Manager User's Guide*.
4. Add a channel. See Adding a Channel on page 18.
5. Set the channel parameters. See Setting the Communications Parameters on page 19.
6. Add a device. See Adding a Device on page 25.
7. Set the device communication parameters. See Setting the General Parameters on page 26.
8. Add one or more device groups. See Adding a Device Group on page 31.
9. Add device items. See Managing Device Items on page 35.
10. Activate the DAServer. See Activating/Deactivating the DAServer on page 44.
11. Access data from the client, including specifying device item references. See Accessing the Data in Your DAServer on page 47 and Setting the Item Reference on page 38.
12. Troubleshoot any problems. See Troubleshooting on page 117.

Finding Your DAServer in the SMC

Each DAServer is identified by a unique name. The name for the Wonderware DAServer for Omron E5C Serial is ArchestrA.DASOME5C.1. On the computer where the DAServer is installed, it can be found in the local node of the default group of the DAServer Manager.

You do not need to install the DAServer Manager on the same computer as the DAServer. When you access the DAServer remotely, you will not find the DAServer node under the local node. You must locate and identify the DAServer on a computer in one of the node groups.

To find the DAServer

1. On the **Start** menu, click **Programs.** Navigate to the Wonderware folder that contains the System Management Console and then click **System Management Console**.
2. In the **System Management Console**, expand **DAServer Manager**.
3. Locate the group with the node **ArchestrA.DASOME5C.1**

Chapter 2

Managing Channels

Channels are the communications link between the DAServer and devices. You must create a channel node before you can add device nodes.

Before you add a channel, you need to organize and define the topology of the devices being connected.

When you add a channel, the DAServer gives the channel a default name. You may change this name to a name that represents how the network is organized. Channel names cannot have spaces.

A channel has eight parameters. You use six of these parameters to specify how the DAServer transmits over the serial line. You use the seventh parameter to turn on and off reporting errors. The last parameter is the write/read duty cycle.

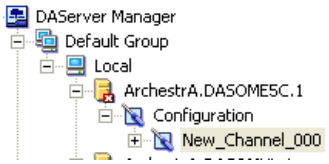
Adding a Channel

The first step in specifying the network between the DAServer and a device is to add a channel. After you add a channel to the hierarchy, you can add device nodes.

To add a channel

1. In the DAServer Manager, navigate to the **Configuration** node.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer.
2. Right- click **Configuration** and click **Add Channel Object**.

   The console tree shows a new node with a default channel name selected.



3. Type a new name and then press Enter.

Renaming a Channel

Changing the channel name prevents clients from registering data using the old name. Data for existing queries is set to bad quality. Try not to make changes to parameters like the channel name after you develop a large client application.

To change an existing channel name

1. In the DAServer Manager, navigate to the channel.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer and then expand **Configuration**.
2. Right-click the channel and click **Rename.**
3. Type the new name and press Enter.

Setting the Communications Parameters

The channel communication parameters are:

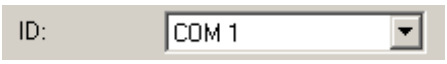
- ID
- baud rate
- data bits
- parity
- stop bits
- flow control
- report communication errors

Setting the ID

The ID parameter specifies the port on your computer that the DAServer is to use to communicate with a device. The default value is COM1.

To set the ID

1. In the DAServer Manager, navigate to the channel.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer and then expand **Configuration**.
2. Select the channel. The right pane shows the channel parameters.



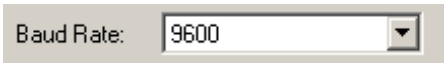
3. Select a COM port from the **ID** list.
4. Click the **Save** icon.

Setting the Baud Rate

The baud rate is the speed that characters are transmitted between the DAServer and the device.The DAServer supports baud rates of 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 56000, 57600, 115200, 128000, and 256000. The default value is 9600.

To set the baud rate

1. In the DAServer Manager, navigate to the channel.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer and then expand **Configuration**.
2. Select the channel. The right pane shows the channel parameters.



3. Select a baud rate from the **Baud Rate** list.
4. Click the **Save** icon.

Setting the Data Bits

The DAServer supports data bit values of 5, 6, 7 or 8. The default is 7 data bits.

To set the data bits

1. In the DAServer Manager, navigate to the channel.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer and then expand **Configuration**.
2. Select the channel. The right pane shows the channel parameters.

3. Select a data bit value from the **Data Bits** list.
4. Click the **Save** icon.

Setting the Parity

The DAServer supports parity values of none, even, or odd. The default parity is even.

To set the parity

1. In the DAServer Manager, navigate to the channel.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer and then expand **Configuration**.
2. Select the channel. The right pane shows the channel parameters.

3 Select a parity value from the **Parity** list.

4 Click the **Save** icon.

Setting the Stop Bits

The DAServer supports stop bit values of 1 or 2. The default is 2 stop bits.

To set the stop bits

1 In the DAServer Manager, navigate to the channel.

a Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.

b Expand the DAServer and then expand **Configuration**.

2 Select the channel. The right pane shows the channel parameters.

3 Select a Stop Bit value.

4 Click the **Save** icon.

Setting Flow Control

The flow control setting determines how the Request to Send (RTS) and Data Terminal Ready (DTR) control lines are used.

The flow control options are:

- None - no control lines are toggled or asserted.
- DTR - the DTR line is asserted continuously after the communications port is opened.
- RTS - specifies that the RTS line will be high if bytes are available for transmission. After all buffered bytes are sent, the RTS line will be low. Use this setting with RS232/RS485 converter hardware.
- RTS, DTR - combination of DTR and RTS as described above.
- RTS Always - the RTS line is asserted continuously after the communications port is opened.

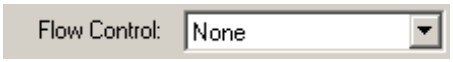
When an RS232/RS485 converter is placed between the DAServer and device, the type of flow control required depends upon the converter. See the converter documentation to determine the flow control requirements.

If you use a converter manufacturer's communication cable, you may need to select a flow control setting of RTS, or RTS Always.

The default flow control setting is None.

To set the flow control

1. In the DAServer Manager, navigate to the channel.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer and then expand **Configuration**.
2. Select the channel. The right pane shows the channel parameters.



3. Select a flow option from the **Flow Control** list.
4. Click the **Save** icon.

Setting Report Communication Errors

You can turn the reporting of low level communications errors on or off. If error reporting is enabled, low-level errors like parity, framing, and overrun are posted to the Logger. If error reporting is disabled, these errors are not posted.

The default is to report communication errors.

To set report communication errors

1. In the DAServer Manager, navigate to the channel.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer and then expand **Configuration**.
2. Select the channel. The right pane shows the channel parameters.
3. Select the **Report Comm. Errors** check box.
4. Click the **Save** icon.

Setting the Write/Read Duty Cycle

The duty cycle allows you to control the ratio of write operations to read operations. The ratio is always based on one read for every 1 to 10 writes. The default duty cycle is 10. This means 10 writes occur for each read operation.

If your application is doing a large number of continuous writes and you need to ensure that reads are processed in a timely fashion, you may want to reduce the duty cycle. If you set the duty cycle to 1, a single read operation occurs for every write operation. If there are no write operations to perform, reads are processed as needed.

This write/read duty cycle overrides the transaction to subscription ratio global parameter.

To set the write/read duty cycle

1. In the DAServer Manager, navigate to the channel.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer and then expand **Configuration**.
2. Select the channel. The right pane shows the channel parameters.
3. In the **Write/Read Duty Cycle** box, type or select a number.
4. Click the **Save** icon.

Deleting a Channel

If your computer hardware or the network connection between the computer and devices changes, you need to delete a channel.

When you delete a channel, all nodes below the channel are also deleted. If a client application requests new data from a deleted channel or from a node on a deleted channel, the request is rejected. Data for existing queries is set to bad quality.

To delete a channel

1. In the DAServer Manager, navigate to the channel.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer and then expand **Configuration**.
2. Right-click the channel and click **Delete**.

3 Read the warning and then click **Yes**. The channel node and all nodes (devices) below it in the hierarchy are deleted.

Chapter 3

Managing Devices

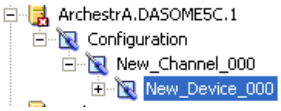
A device communicates with a DAServer and may connect to other devices or I/O points. You set the communication parameters the DAServer uses to communicate with a device.

Adding a Device

You must add a device to the hierarchy before creating device items. A device name cannot contain spaces.

To add a device

1. In the DAServer Manager, navigate to the channel node.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer and then expand **Configuration**.
2. Right-click the channel node and click **Add Device Object**. The console tree shows a new node with a default device name selected.



3. Type a name and press Enter.

Renaming a Device

You can change the device name while the DAServer is active. After the device name is changed, client applications using the old name cannot register data with the DAServer. Data for existing queries is set to bad quality. Try not to make changes to the device name after you develop a large client application.

The device name cannot contain spaces.

To change an existing device name

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Right-click the device whose name you want to change and then click **Rename**.
3. Type a name and press Enter.

Setting the General Parameters

You can set the general parameters by selecting the Controller model, setting the ID Parameter, and enabling data collection.

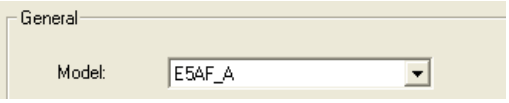
Selecting the Controller Model

Selecting the Controller Model assigns that model to your DAServer. You can select the controller model only after you add the channel and a new device.

To assign a controller model to a device

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, then the node group.
   b. Expand the **Local** or the remote computer name.
   c. Expand the DAServer, expand **Configuration**, and expand the channel.
2. Select a device.
3. Click the **Parameters** tab. The tab name includes the device name followed by the word “Parameters.”

4 Select a device model from the **Model** list.



5 Click the **Save** icon.

Setting the ID Parameter

The ID is the station number of the device. The ID can range from 0 to 99.

You can specify the format of the ID to be decimal, octal, or hex, depending upon the needs of the device or your client application.

To set the ID parameter

1 In the DAServer Manager, navigate to the device.

   a Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.

   b Expand the DAServer, expand **Configuration**, and then expand the channel.

2 Select the device.

3 Click the **Parameters** tab. The tab name includes the device name followed by the word "Parameters."

4 In the **ID** box, type or select a value.

5 Select the value format from the list to the right of the value list.

6 Click the **Save** icon.

Setting the Protocol Parameters

The device protocol parameters consist of the reply timeout and the fail after settings.

- The reply timeout is the time the DAServer waits on a response from the device before giving up and going on to the next request. Longer timeouts only affect performance if a device is not responding.
- The fail after parameter determines how many times the DAServer sends a communications request before the request fails and the device is in error. The valid range is 1 to 10 retries. The default is 3 retries.

To set the communication time out values

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Select the device.
3. Click the **Parameters** tab. The tab appears with the device name followed by the word "Parameters."
4. In the **Protocol** area, type or select values for the **Reply timeout** and **Fail after** boxes.
5. Click the **Save** icon.

Deleting a Device

Deleting a device removes the node and all device group and device item information. Deleting a device is not reversible. If you make a mistake, you must re-enter the device information.

New requests for data that use the deleted device name are rejected. Data for existing queries is set to bad quality.

To delete a device

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Right-click the device and then click **Delete**.

3 Read the warning and then click **Yes**.

Chapter 4

Managing Device Groups

Device groups are labels used by client applications when accessing the DAServer. The device group update interval determines how often the DAServer polls the device and sends data to the client application. If you configure multiple device groups with different update intervals, the client application can receive data at various intervals.

Small update intervals mean fast turnaround for data changes and a high overhead because a large amount of data is moving. Large update intervals mean slow turn around for data changes and a low overhead because not as much data is being passed to the client application.

For DDE/SuiteLink clients, the device group is the same as the DDE/SuiteLink topic. DDE/SuiteLink clients require that at least one device group be created for each device.

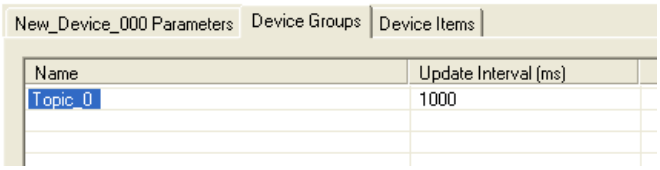
For OPC clients, the device group equals the OPC access path. The DAServer has a default device group for each device, and this device group cannot be deleted. If you are using OPC client applications, creating a device group is optional.

Adding a Device Group

Device groups allow you to specify an update interval for a set of device items. The device group does not contain any device items. The linkage is made when the client makes a request.

To add a device group

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Select the device.
3. In the right pane, click the **Device Groups** tab.
4. Right-click the column field, and click **Add**. A **Name** field appears with a default name.



5. Type a name and press Enter. The **Update Interval** field defaults to 1000. The unit is in milliseconds (ms). A device group is added.
6. Click the **Save** icon.

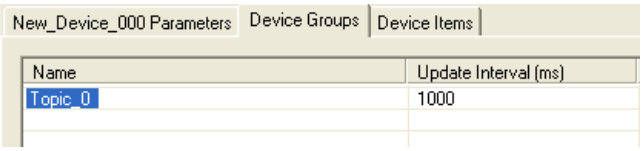
Renaming a Device Group

Changing the name of an existing device group requires that any client queries using the device group must be changed. Requests for data accepted by the DAServer before the change are not affected.

To change a device group name

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Select the device.
3. Click the **Device Groups** tab.
4. Move the pointer over the name or the box containing the name to be changed.

5 Right-click the name and then click **Rename**. The name is selected.



6 Type a name and press Enter.

7 Click the **Save** icon.

Setting Device Group Data

The device group data consists of one item, the update interval. The update interval specifies the time period in milliseconds between DAServer reads of the device memory. You can specify a number between 0 and 2147483646 (596.52 hours).

To set the update interval

1 In the DAServer Manager, navigate to the device.

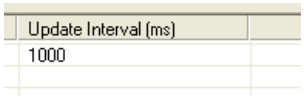
   a Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.

   b Expand the DAServer, expand **Configuration**, and then expand the channel.

2 Select the device.

3 In the right pane, click the **Device Groups** tab.

4 Right-click the interval and click **Modify Update Interval**. The current update interval is selected.



5 Type an interval and press Enter.

6 Click the **Save** icon.

Deleting a Device Group

When you delete a device group, the quality of items being accessed using the device group changes to BAD. The DAServer rejects new requests for data using the device group.

To delete a device group

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Select the device.
3. In the right pane, click the **Device Groups** tab.
4. Right-click the group to be deleted and click **Delete**.
5. Read the warning and then click **Yes**.
6. Click the **Save** icon.

Chapter 5

Managing Device Items

Defining device items provides a more user-friendly way to name data in the device. Defining device items is optional. Use device items to access data in the DAServer and devices connected to the DAServer. Device items consist of two pieces: a name and an item reference. You can specify either from your client.

The device item name is an alternative name for the item reference. It is an “alias” or a label for the data in the device. You can use this label instead of the item reference when you create the client application.

The item reference identifies data in the device. The item reference is a PLC memory reference. Each device’s memory reference can have a different format. For more information, see Item Reference Descriptions on page 49.

The actual item reference can be entered as the device item name. In this case, the item reference value can be left empty.

To provide diagnostic and operational information, the DAServer has several system items that do not access data in a device. They are grouped by function:

- Global system items
- Device-group-specific system items
- Device-specific system items

For more information, see Standard System Items on page 49.

Device item names defined in the DAServer show up as OPC browsable items.

You can add device items while the DAServer is active, and these new items are immediately available to client applications.

You can make changes to items while the DAServer is active. Changes take effect immediately. OPC clients that are already connected to the item are not affected until they release and re-acquire the item.

For detailed formats for specifying item references, see Item Reference Descriptions on page 49.

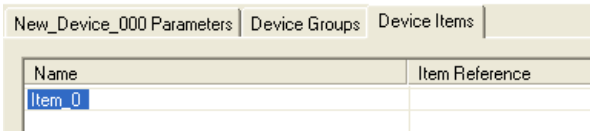
For information on how to subscribe to data items, see Accessing the Data in Your DAServer on page 47.

Creating Aliases for Item References

The device item name is an alias for the item reference. Device item names can be 256 characters long. Long names may be more explanatory, but your client application may have limited screen space.

To set a device item name

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Select the device.
3. In the right pane, click the **Device Items** tab.
4. Right-click the column and click **Add**. A **Name** field is selected with a default name.



5. Type the name and press Enter.
6. Click the **Save** icon.

Renaming a Device Item

Changing a device item name affects new client requests for data. Requests for data already accepted by the DAServer are not affected.

To change a device item name

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Select the device.
3. In the right pane, click the **Device Items** tab.
4. Right-click the device item name, and click **Rename**.
5. Type the new name and press Enter.
6. Click the **Save** icon.

Deleting a Device Item

Deleting a device item name affects new client requests for data. Requests for data already accepted by the DAServer are not affected.

To delete a device item name

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Select the device.
3. In the right pane, click the **Device Items** tab.
4. Right-click the item to be deleted and click **Delete**.
5. Read the warning and click **Yes**.
6. Click the **Save** icon.

Setting the Item Reference

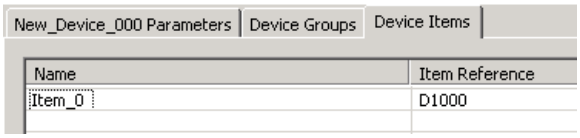
You must know which memory locations you need and the memory location attributes before entering item references in the DAServer.

For more information, see Format and Syntax on page 59.

For tables that list the options for each device type, see Item Reference Descriptions on page 49. In this case device type does not refer to the model of PLC.

To set an item reference

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Select the device.
3. Click the **Device Items** tab.
4. Right-click the **Item Reference** field to be set and click **Rename**.



5. Type the item reference and press Enter.
6. Click the **Save** icon.

Exporting and Importing CSV Files

To help you manage item references (tags) and device item names outside of the DAServer Manager, the DAServer supports importing and exporting device item data in a comma separated value (CSV) file. The CSV functions are only available when a device items tab is selected.

To export a device item list

1. In the DAServer Manager, navigate to the device.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer, expand **Configuration**, and then expand the channel.
2. Select the device.
3. In the right pane, click the **Device Items** tab.

4 Right-click the columns field and click **Export**.

5 In the **Save As** dialog box, type a file name, select a directory, and click **Save**.

To import a device item list

1 In the DAServer Manager, navigate to the device.

   a Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.

   b Expand the DAServer, expand **Configuration**, and then expand the channel.

2 Select the device.

3 In the right pane, click the **Device Items** tab.

4 Right-click the columns field and click **Import**.

5 In the **Open** dialog box, find the file containing the items to be imported, and press **Open**. Items contained in the file are now listed on the **Device Items** tab.

Clearing All Device Item Names

You can delete all device items for a device.

To clear all device item names

1 In the DAServer Manager, navigate to the device.

   a Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.

   b Expand the DAServer, expand **Configuration**, and then expand the channel.

2 Select the device.

3 In the right pane, click the **Device Items** tab.

4 Right-click the columns field and click **Clear All**.

5 Read the warning and click **Yes**.

6 Click the **Save** icon.

Chapter 6

Managing Your DAServer

After you configure the DAServer, there are two steps to take before you can access data with your client application.

The first step is to determine what kind of client applications are to be used with this DAServer. If any of your client applications use DDE/SuiteLink, you must configure the DAServer as a service. If only OPC client applications will be used, you can configure the DAServer as a service or as not a service.

The last step is to activate the DAServer. Some client applications can programatically activate the DAServer. If you configure the DAServer as an automatic service, the DAServer is started and activated when the computer on which the DAServer is installed starts up. If you configure the DAServer as a manual service, the DAServer is not started when the computer starts up. Instead, it is started upon the first connection from an OPC client or when activated from the DAServer Manager.

After a DAServer is running as an auto or manual service, it stays running until explicitly stopped in the DAServer Manager or the computer shuts down.

Configuring the DAServer as Service

To support DDE/SuiteLink clients, the DAServer must be configured as a service.

To configure the DAServer as a service

1. In the DAServer Manager, navigate to the DAServer.
   - Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
2. Right-click **ArchestrA.DASOME5C.1** and then click **Configure As Service**.
3. Click either **Auto Service** or **Manual Service**.
4. Read the warning message and click **Yes**.

Configuring the DAServer as Not a Service

The DAServer can only be set to run as not a service when the DAServer is in the deactivated state.

To configure the DAServer as not a service

1. In the DAServer Manager, navigate to the DAServer.
   - Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
2. Right-click **ArchestrA.DASOME5C.1** and then click **Configure As Service**.
3. Click **Not a Service**.
4. Read the warning message and click **Yes**.

Archiving Configuration Sets

A configuration set includes the DAServer's global parameters; each channel and its parameters; and each device and its parameters, device groups, and device items. It lets you manage the settings of different DAServer configurations.

The DAServer contains a default configuration set named DASOME5C. You cannot delete the default configuration set.

You can create multiple configuration sets and switch between them. Archiving, clearing, and switching configuration sets can only be done when the DAServer is deactivated.

Before you create a configuration set, verify that you have saved any changes you made to the global parameters. If you change a parameter and then immediately create a configuration set, the original parameter value is saved as part of the configuration set, not the changed value.

To save a global parameter, click the **Save** icon.

To archive a configuration set

1. In the DAServer Manager, navigate to the configuration node.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer.
2. Click **Configuration**.
3. Right-click and click **Archive Configuration Set**.
4. In the dialog box, type the configuration set name, and click **Archive**. All the current configuration values are saved to the set.

After you archive at least one configuration set, you can select it for use.

To select a configuration set

1. In the DAServer Manager, navigate to the configuration node.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer.
2. Click **Configuration**.
3. Right-click, point to **Use Another Configuration Set**, then click the desired name.

To change the parameter values saved in a configuration set, make sure the desired configuration set is shown, then follow this procedure.

To change the parameter values in a configuration set

1. In the DAServer Manager, navigate to the configuration node.
   a. Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
   b. Expand the DAServer.

2 Click **Configuration**.

3 Change the parameters that you want to change.

4 Click the **Save** icon.

Clearing a configuration set returns the parameters to their default values.

To clear a configuration set

1 In the DAServer Manager, navigate to the configuration node.

   a Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.

   b Expand the DAServer.

2 Click **Configuration**.

3 Right-click, move the mouse over **Clear Configuration Set**, then left click.

4 Read the warning message, then click **Yes**. The parameters are set to the default values.

To delete a configuration set

1 In the DAServer Manager, navigate to the configuration node.

   a Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.

   b Expand the DAServer.

2 Click **Configuration**.

3 Right-click **Configuration,** point to **Delete Configuration Set** and select the configuration set to delete.

4 Read the warning message, then click **Yes**.

Activating/Deactivating the DAServer

When you activate the DAServer, it starts communicating and accepting requests from client applications. If a DAServer is configured as an automatic service, the DAServer is started and activated when the computer starts up. Also, a DAServer can be activated by the an OPC client connection request.

To activate the DAServer

1. In the DAServer Manager, navigate to the DAServer.
   - Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
2. Right-click **ArchestrA.DASOME5C.1** and then click **Activate Server**.

Deactivating your DAServer stops it from communicating with client applications.

A DAServer with active OPC clients does not stop until the last OPC client shuts down.

To deactivate the DAServer

1. In the DAServer Manager, navigate to the DAServer.
   - Expand **DAServer Manager**, expand the node group, and then expand **Local** or the remote computer name.
2. Right-click **ArchestrA.DASOME5C.1** and then click **Deactivate Server**.
3. Read the warning message and click **Yes**.

In-Proc/Out-of-Proc

The DAServer can run as a stand-alone process (out-of-proc) or as part of the client process (in-proc).

When the DAServer is running out-of-proc, it supports requests from both DDE/SuiteLink and OPC client applications. When the DAServer is running in-proc, it only supports OPC client applications.

If the DAServer is running as a service, the icon on the DAServer node in the SMC is yellow. If the DAServer is running as not a service, the icon is white. For more information, see the *DAServer Manager User's Guide*.

Hot Configuration

The DAServer allows certain configuration parameters to be changed while the DAServer is active. See the sections about the specific parameters for limitations or constraints.

Demo Mode

You can install the DAServer without a license. The DAServer runs without a license in Demo mode for 120 minutes. While in demo mode the DAServer checks for a license every 30 seconds. When the 120 minutes expires:

- the DAServer stops updating items.
- all non-system items have a Bad quality status.
- new items are rejected.

After the 120 minutes the DAServer checks for a license every thirty seconds. If a license is not found, the DAServer logs a warning.

You can use the SYSLicensed system item to check the status of your license. This item returns true if the proper license is found or the DAServer is in demo mode (the 120 minutes), otherwise, it returns false.

After the DAServer finds a valid license, it logs a message, stops looking for a license, and begins running normally. For more information, see the *License Utility User Guide*.

Chapter 7

Accessing the Data in Your DAServer

Client applications read and write to data items that are internal to the DAServer, as well as to the items located in the devices. Client application communication with the DAServer is done using either the OPC, or DDE/SuiteLink protocols. The client application may or may not be on the same computer as the DAServer.

You do not need to create device items in the DAServer for your OPC client application.

For information on how to specify item references, see Format and Syntax on page 59. For information on specific address formats, see Address Descriptions on page 60.

Accessing Data Using OPC

To connect to the DAServer with an OPC client application, be aware of the following six parameters:

- **node name**: The computer name identifying the node where the DAServer is located. Only required for remote access.
- **program name**: ArchestrA.DASOME5C.1
- **group name**: An OPC group defined and created by the client. The DAServer device group is used as the OPC access path.
- **device group**: A device group as defined on the DAServer. If omitted, the default device group is assumed.
- **link name**: The hierarchy of nodes names, from the channel node to the device node, separated by delimiters.
- **item name**: The specific data element. This can be the device item name or the item reference.

The combination of the link name and item name form the OPC data path for any OPC client to access DAServer data.

If the item specified is not valid for the device location, the DAServer does not accept the item. The DAServer returns bad quality and generates an error message in the logger.

Accessing Data Using DDE/SuiteLink

The DDE/SuiteLink address has four fields:

- **node name**: The computer name identifying the node where the DAServer is located. Only required for remote access.
- **application name**: DASOME5C
- **topic name**: A device group defined for the device.
- **item name**: The specific data element. This can be the device item name or the item reference.

The DDE/SuiteLink topic is the equivalent to the device group.

Chapter 8

Item Reference Descriptions

You use item references to access system items and read and write data from devices.

Standard System Items

System items provide you easy access to DAServer status and diagnostics information. Client applications can read data from them just like ordinary items. However, in most cases the system item values are not directly acquired through the communications layer. System item values are usually generated through internal calculations, measurements, and tracking by the DAS Engine.

System items, like ordinary items, are defined by the following properties:

- **Group**: The client group/OPC group is an arbitrary collection of items, not correlated.
- **Hierarchical location**: The device attached to the item, indicated by link name/OPC path. The path contains the hierarchical node section of the fully qualified OPC item ID.
- **Device group**: A collection of items on the same physical location with the same protocol update rate. The device group is ndicated by OPC access path/topic.

For DDE/SuiteLink clients, SYSStatus always comes from the leaf level of a DAServer hierarchy branch, which is the destination PLC node. For OPC clients, SYSStatus can be accessed at all hierarchy levels. SYSStatus at the root level of the whole hierarchy tree is always good, as it represents the quality status of the local computer itself. For practical application, OPC clients should reference SYSStatus at any hierarchy levels other than the root.

All system items follow the same naming convention:

- All system items start with SYS.
- The DAS Engine scans and parses the name for system items.
- Parsing of the name is case-insensitive.

All system items can be accessed through subscriptions to a device group. However, while some system items return data for that device group, others are server-wide.

Global System Item

The following system item refers to specific information regarding a global condition of the DAServer.

System Item Name	Type/Access Rights	Description	Values
SYSLicensed	Boolean/Read	Binary status indication of the existence of a valid license for the DAServer. If FALSE, this item causes the DAServer to stop updating existing tags, to refuse activation of new tags, and to reject write requests in addition to setting quality for all items to BAD. If TRUE, the DAServer functions as configured. All instances have the same value.	RANGE: 0, 1 0: No valid license exists. 1: Valid license exists.

Device-Group-Specific System Items

The following system items refer to specific information regarding device groups that are configured in the DAServer.

System Item Name (Type)	Type/Access Rights	Description	Values
SYSUpdateInterval	DWord/Read Write	Accesses the currently set update interval. It is the current update interval of the device group in milliseconds. A client can poke new values into this item. The value of zero indicates that non-system items on that topic are not updated. Data for these items are not acquired from the device.	RANGE: 1…2147483647 0: Topic inactive, no items are updated. Data acquisition is stopped. >0: Expected updated interval for the set of all items in the device group.
SYSMaxInterval	DWord/Read	Not supported by this DAServer.	Always returns zero.

System Item Name (Type)	Type/Access Rights	Description	Values
SYSWriteComplete	Integer/Read Write	Accesses the state of pending write activities on the corresponding device group. On device group creation (adding items to an OPC group), the value of this system item is initially 1, indicating all write activities are complete – no pokes are pending. If values are poked into any items of the device group, the value of this item changes to 0, indicating write activity is currently in progress. If the server has completed all write activities, the value of this item changes to 1 if all pokes were successful or to -1 if at least one poke has failed. If the value of this item is not zero, you can poke 1 or -1 to it. Poke a 1 to clear errors, or a -1 to test a client reaction on write errors. If the value of this item is zero, it cannot be poked.	RANGE: -1, 0, 1 -1: Writes completed with errors. 0: Writes are pending. 1: Write complete. No writes are pending – initial state.

System Item Name (Type)	Type/Access Rights	Description	Values
SYSReadComplete	Integer/ ReadWrite	Accesses the state of initial reads on all items in the corresponding device group. The value is 1 if all active items in a device group have been read at least one time. If at least one item in the device group is activated, this item changes to 0. It changes to 1 if all items have been read successfully, or to -1 if at least one item has a non-good quality. Poking a 0 to this item resets the internal read states of all items in this device group. This resets this item to 0. If all items are read again after this poke, this item changes back to 1 or -1.	RANGE: -1, 0, 1 -1: All values were read but some have a non-good quality. 0: Not all values were read. 1: Read complete. All values were read.
SYSItemCount	DWord/Read	Accesses the number of items in the corresponding device group. This item is read-only.	RANGE: 0…2147483647 >=0: Number of items.
SYSActiveItemCount	DWord/Read	Accesses the number of active items in the corresponding device group. This item is read-only.	RANGE: 0…2147483647 >=0: Number of active items.

System Item Name (Type)	Type/Access Rights	Description	Values
SYSErrorCount	DWord/Read	Accesses the number of all active and inactive items that have non-good OPC quality errors in the corresponding topic. If the communications status of a device group is bad, all items have errors. This item is read-only.	RANGE: 0…2147483647 >=0: Number of all active and inactive items with errors.
SYSPollNow	Boolean/Read Write	Not supported by this DAServer.	

Device-Specific System Items

The following system items refer to specific information regarding the device(s) the DAServer is connected to.

System Item Name (Type)	Type/Access Rights	Description	Values
SYSStatus	Boolean/Read	Binary status indication of the connection state to the device (hierarchy level) the item is attached to. The device group (OPC access path/topic) does not affect the value. The status can be good even if individual items have errors. For DDE/SuiteLink clients, SYSStatus always comes from the leaf level of a DAServer hierarchy branch, which is the destination PLC node. For OPC clients, SYSStatus can be accessed at all hierarchy levels. SYSStatus at the root level of the whole hierarchy tree is always good, as it represents the quality status of the local computer itself. For practical application, OPC clients should reference SYSStatus at any hierarchy levels other than the root.	RANGE: 0, 1 0: Error communicating with the device. 1: DAServer connection to the device is intact.

System Item Name (Type)	Type/Access Rights	Description	Values
SYSErrorCode	Longint/Read	Detailed error code of the communications state to the device. The device group (OPC access path/topic) does not affect the value.	>= 0: Good status. 0 is the default state – connected. >0: Some device state like: connecting, initializing, and so on. <0: Error status. Value indicates the error.
SYSErrorText	String/Read	Detailed error string of the communications state of the device. The device group (OPC access path/topic) does not affect the value.	Descriptive text for the communications state corresponding to the error code.

System Item Name (Type)	Type/Access Rights	Description	Values
SYSStoreSettings	Integer/Read Write	Makes the temporary update interval changes via the SYSUpdateInterval item permanent. If the client pokes a value of 1 into this system item, the currently set update interval is written to the server's configuration file. The value of this system item clears to 0 after being set, if the configuration file write is successful. If the write fails, then the value is set to -1. If the update interval changes via the SYSUpdateInterval item and this item is not poked to 1, the DAServer uses the original update interval for that topic the next time it is started. Reading the item always provides 0. Read/Write values are persisted only if you set this system item. The values other than this persist only for the life of the DAServer.	RANGE: -1, 0, 1 -1: Error occurred while saving the configuration file. 0: Read value always if status is OK. 1: Persist settings. Cleared immediately.

Supported Data Types

The data type is specified as a suffix in the item syntax. The DAServer supports the following data types.

Data Type	Description
Boolean	Single bit
Word	Unsigned 16 bit value. Bit 0 is the low bit. Bit 15 is the high bit.
Short	Signed 16 bit value. Bit 0 is the low bit. Bit 14 is the high bit. Bit 15 is the sign bit.
DWord	Unsigned 32 bit value. Bit 0 is the low bit. Bit 31 is the high bit.
Long	Signed 32 bit value. Bit 0 is the low bit. Bit 30 is the high bit. Bit 31 is the sign bit
Float	32 bit floating point value.

Format and Syntax

Item references have four attributes:

- **Item Name** defines the syntax to be used by a client to access data in the Temperature Controller.
- **Range** defines the valid values supported by the device for the given item.
- **Data Type** defines which data type the client request can specify when accessing the memory location. Examples are Short and Word. For a complete list of valid data types, see Supported Data Types on page 58. The data type is often optional because most memory locations have a default data type.
- **Access** defines what the client can do. Some memory locations are read only or write only, others are read/write.

You can use optional item name suffixes to change the default server data format. The suffixes are listed in the **Supported Suffixes** columns of the Address Descriptions on page 60. The "@" character should be used with the suffix. For example, Alarm2@word.

Note Item name suffixes are case insensitive.

For tables showing allowable usage for each memory address, see Address Descriptions on page 60.

Address Descriptions

The address descriptions consist of the item name and the allowable range of values, the default data type, allowable suffixes, and allowable access methods.

The items FuzzyScale2 (FU-S-2), HEATERBURNOUT (HB), IN-S, Alarm1 (AL-1), and Alarm2 (AL-2) may not be scaled correctly by the OME5C DAServer for certain settings of INPUTTYPE (IN-T). Compare the value shown on the device and the value shown in the Client Application, then scale the value in the Client Application, if needed.

For some combinations of device models and INPUTTYPE (IN-T) settings, the value for the item INPUTTYPE (IN-T) appears with an offset by the OME5C DAServer. Compare the value shown on the device and the value shown in the Client Application, then add an offset to the value in the Client Application, if needed.

Model E5AF-A Address Descriptions

Model E5AF-A supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 2 set temperature	AL-2 or ALARM2	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Auto tuning in progress	AT or AUTOTUNING	Write TRUE to start, Write FALSE to stop	Boolean		Read/ Write
	AT or AUTOTUNING remains TRUE until device completes auto tuning procedure, or you terminate the auto tuning procedure. Driver accepts no write commands other than AT or AUTOTUNING=FALSE during auto tuning.				
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Fuzzy intensity	FU or FUZZY STRENGTH	0 to 99%	Short	Short, Word	Read/ Write
Fuzzy scale 1	FU-S-1 or FUZZYSCALE1	0.2 to 999.9 deg	Float	Float, Dword, Long	Read/ Write
Fuzzy scale 2	FU-S-2 or FUZZYSCALE2	0.2 to 99.9 deg	Float	Float, Dword, Long	Read/ Write
Reset time set value	I or INTEGRAL	0 to 3999 s	Short, Word	Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-999 to 9999 deg TC	Float	Float, Dword, Long	Read/ Write
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Input (sensor) type	IN-T or INPUTTYPE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Float, Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing BACKUP command.				
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point limit (low)	SL-L or LOLIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5AF-AH Address Descriptions

Model E5AF-AH supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-999 - 9999 deg TC or -99.9 - 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Alarm 2 set temperature	AL-2 or ALARM2	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Auto tuning in progress	AT or AUTOTUNING	Write TRUE to start, Write FALSE to stop	Boolean		Read/ Write
	AT or AUTOTUNING remains TRUE until device completes auto tuning procedure or you terminate the auto tuning procedure. Driver accepts no write commands other than AT or AUTOTUNING=FALSE during auto tuning.				
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Heater Current	CT or HEATER CURRENT	0.0 to 50A	Float	Float, Dword, Long	Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Fuzzy intensity	FU or FUZZY STRENGTH	0 to 99%	Short	Short, Word	Read/ Write
Fuzzy scale 1	FU-S-1 or FUZZYSCALE1	0.2 to 999.9 deg	Float	Float, Dword, Long	Read/ Write
Fuzzy scale 2	FU-S-2 or FUZZYSCALE2	0.2 to 99.9 deg	Float	Float, Dword, Long	Read/ Write
Heater burnout set temperature	HB or HEATERBURNOUT	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Input (sensor) type	IN-T or INPUTTYPE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 - 999.9 deg	Float	Float, Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing a BACKUP command.				
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point limit (low)	SL-L or LOLIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5AJ-A Address Descriptions

Model E5AJ-A supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Alarm 2 set temperature	AL-2 or ALARM2	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Heater Current	CT or HEATER CURRENT	0.0 to 50A	Float	Float, Dword, Long	Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Heater burnout set temperature	HB or HEATER BURNOUT	-1999 to 9999 deg TC, -199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Input (sensor) type	IN-T or INPUTTYPE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Float, Dword, Long	Read/ Write

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-1999 to 9999 deg TC -199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing a BACKUP command.				
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5AX-A Address Descriptions

Model E5AX-A supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Alarm 2 set temperature	AL-2 or ALARM2	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Auto tuning in progress	AT or AUTOTUNING	Write TRUE to start, Write FALSE to stop	Boolean		Read/ Write
	AT or AUTOTUNING remains TRUE until device completes auto tuning procedure, or you terminate the auto tuning procedure. Driver accepts no write commands other than AT or AUTOTUNING=FALSE during auto tuning.				
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-999 to 9999 deg TC	Float	Float, Dword, Long	Read/ Write
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Input (sensor) type	IN-T or INPUTTYPE	0 to 9	Short		Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, sLong	Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Float, Dword, Long	Read/ Write

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-999 to 9999 deg TC -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing a BACKUP command.				
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Set point limit (low)	SL-L or LOWLIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5AX-AH Address Descriptions

Model E5AX-AH supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Auto tuning in progress	AT or AUTOTUNING	Write TRUE to start, Write FALSE to stop	Boolean		Read/ Write
	AT or AUTOTUNING remains TRUE until device completes auto tuning procedure, or you terminate the auto tuning procedure. Driver accepts no write commands other than AT or AUTOTUNING=FALSE during auto tuning.				
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Heater Current	CT or HEATER CURRENT	0.0 to 50A	Float	Float, Dword, Long	Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Heater burnout set temperature	HB or HEATER BURNOUT	-999 to 9999 deg TC, -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-999 to 9999 deg TC, -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Input (sensor) type	IN-T or INPUTTYPE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Float, Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-999 to 9999 deg TC -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing a BACKUP command.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point limit (low)	SL-L or LOLIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5AX_DAA Address Descriptions

Model E5AX_DAA supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Alarm 2 set temperature	AL-2 or ALARM2	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Auto tuning in progress	AT or AUTOTUNING	Write TRUE to start, Write FALSE to stop	Boolean		Read/ Write
	AT or AUTOTUNING remains TRUE until device completes auto tuning procedure, or you terminate the auto tuning procedure. Driver accepts no write commands other than AT or AUTOTUNING=FALSE during auto tuning.				
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-999 to 9999 deg TC, -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Input (sensor) type	IN-T or INPUTTYPE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Float, Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-999 to 9999 deg TC -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing a BACKUP command.				
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point limit (low)	SL-L or LOLIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5AX-PRR Address Descriptions

Model E5AX-PRR supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Alarm 2 set temperature	AL-2 or ALARM2	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Auto tuning in progress	AT or AUTOTUNING	Write TRUE to start, Write FALSE to stop	Boolean		Read/ Write
	AT or AUTOTUNING remains TRUE until device completes auto tuning procedure, or you terminate the auto tuning procedure. Driver accepts no write commands other than AT or AUTOTUNING=FALSE during auto tuning.				
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-999 to 9999 deg TC, -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Input (sensor) type	IN-T or INUPUTTYPE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Output mode shift	O-MD-S	TRUE=Manual, FALSE= auto	Boolean		Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Float, Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-999 to 9999 deg TC -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing a BACKUP command.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point limit (low)	SL-L or LOLIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5AX-VAA Address Descriptions

Model E5AX-VAA supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-999 to 9999 deg TC or -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Auto tuning in progress	AT or AUTOTUNING	Write TRUE to start, Write FALSE to stop	Boolean		Read/ Write
	AT or AUTOTUNING remains TRUE until device completes auto tuning procedure, or you terminate the auto tuning procedure. Driver accepts no write commands other than AT or AUTOTUNING=FALSE during auto tuning.				
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Dead band set temperature	C-DB	-999 to 0000 deg TC, -99.9 to 999.9 Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				
Cooling coefficient	C-SC or COOLING	0.1 to 99.0	Float	Float, Dword, Long	Read/ Write
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-999 to 9999 deg TC, -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Input (sensor) type	IN-T or INPUTTYPE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Float, Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-999 to 9999 deg TC -99.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing a BACKUP command.				
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point limit (low)	SL-L or LOLIMIT	See device documentation for valid ranges	Float	Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5CN-PT Address Descriptions

E5CN indicates a platinum resistance thermometer, the actual model number will vary. Model E5CN-PT supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Alarm 2 set temperature	AL-2 or ALARM2	-199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Heater Current	CT or HEATER CURRENT	0.2 to 50.0A	Float	Float, Dword, Long	Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Heater burnout set temperature	HB or HEATER BURNOUT	-1999 to 9999 deg TC, -199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-1999 to 9999 deg TC, -199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Input (sensor) type	IN-T or INPUTTYPE	0 to 4	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Float, Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing a BACKUP command.				
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Set point limit (low)	SL-L or LOLIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5CN-TC Address Descriptions

E5CN indicates a thermocouple, actual model number will vary. Model E5CN-TC supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-1999 to 9999 deg TC	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 2 set temperature	AL-2 or ALARM2	-1999 to 9999 deg TC	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Heater Current	CT or HEATER CURRENT	0.2 to 50.0A	Float	Float, Dword, Long	Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Heater burnout set temperature	HB or HEATER BURNOUT	-1999 to 9999 deg TC	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-1999 to 9999 deg TC	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Input (sensor) type	IN-T or INPUTTYPE	0 to 16	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-1999 to 9999 deg TC	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing a BACKUP command.				
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point limit (low)	SL-L or LOLIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5EJ-A Address Descriptions

Model E5EJ-A supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-1999 to 9999 deg TC or -199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Alarm 2 set temperature	AL-2 or ALARM2	-1999 to 9999 deg TC or -199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Heater Current	CT or HEATER CURRENT	0.2 to 50.0 A	Float		Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit.	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Heater burnout set temperature	HB or HEATER BURNOUT	-1999 to 9999 deg TC, -199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Input (sensor) type	IN-T or INPUTTYPE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 - 999.9 deg	Float	Float, Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-1999 to 9999 deg TC -199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing a BACKUP command.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L to SL-H	Float	Float, Dword, Long	Read/ Write

Model E5GN-PT Address Descriptions

E5GN indicates a platinum resistance thermometer, the actual model number (PT) will vary. Model E5GN-PT supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 2 set temperature	AL-2 or ALARM2	-199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Heater Current	CT or HEATER CURRENT	0.2 to 50.0 A	Float	Float, Dword, Long	Read Only
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Heater burnout set temperature	HB or HEATER BURNOUT	-199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-199.9 to 999.9 deg Pt	Float	Float, Dword, Long	Read/ Write
	Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Input (sensor) type	IN-T or INPUTTYPE	0 to 4	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Float, Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-199.9 to 999.9 deg Pt	Float		Read Only
	Pt indicates temperature range for platinum resistance thermometer sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				
RAM mode enable	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing BACKUP command.				
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point limit (low)	SL-L or LOLIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Model E5GN-TC Address Descriptions

Model E5GN-TC supports the following Items.

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 1 set temperature	AL-1 or ALARM or ALARM1	-1999 to 9999 deg TC	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 1 mode of operation	AL-1-MD or ALARM1MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 1 output status	AL-1-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Alarm 2 set temperature	AL-2 or ALARM2	-1999 to 9999 deg TC	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Alarm 2 mode of operation	AL-2-MD or ALARM2MODE	0 to 9	Short	Short, Word	Read Only
	This is a hardware setting. See device documentation for details.				
Alarm 2 output status	AL-2-OUT	TRUE = alarm on, FALSE = alarm off	Boolean		Read Only
Backup RAM to non-volatile memory	BACKUP	Write: anything to initiate backup procedure Read: TRUE = non-volatile memory is not current FALSE = non-volatile memory is current	Boolean		Read/ Write
	Device is unresponsive for approximately 500 ms during backup.				
Heater burnout detected	BURNOUT	TRUE = heater burnout detected. FALSE = heater OK	Boolean		Read Only
Heater Current	CT or HEATER CURRENT	0.2 to 50.0A	Float	Float, Dword, Long	Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Control mode of operation	CTR-MD	TRUE = On/Off FALSE = 2-degree of freedom PID	Boolean		Read Only
	This is a hardware setting.				
Rate time set value	D or DERIVATIVE	0 to 3999 s	Short	Short, Word	Read/ Write
Display unit.	DSPL-UNIT	TRUE = degrees F FALSE = degrees C	Boolean		Read Only
	This is a hardware setting.				
Heater burnout set temperature	HB	-1999 to 9999 deg TC	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Reset time set value	I or INTEGRAL	0 to 3999 s	Short	Short, Word	Read/ Write
Input shift set value	IN-S or INPUTSHIFT	-1999 to 9999 deg TC	Float	Float, Dword, Long	Read/ Write
	TC indicates temperature range for thermocouple sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
Input shift display enable	IN-S-DSPL	TRUE = enabled, FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Input (sensor) type	IN-T or INPUTTYPE	0 to 16	Short	Short, Word	Read Only
	This is a hardware setting.				
Output value	O or OUTPUT	0.0 to 100.0%	Float	Float, Dword, Long	Read Only

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Output type	O-TYPE	TRUE = current FALSE = pulse	Boolean		Read Only
	This is a hardware setting.				
Output mode of operation	O-OP	TRUE = normal (cooling) FALSE = reverse (heating)	Boolean		Read Only
	This is a hardware setting.				
Proportional band set value	P or PROPORTIONAL	0.0 to 999.9 deg	Float	Float, Dword, Long	Read/ Write
PID display enable	PID-DSPL	TRUE = enabled FALSE = disabled	Boolean		Read Only
	This is a hardware setting.				
Process value (measured temperature)	PV or TEMPERATURE	-1999 to 9999 deg TC	Float	Float, Dword, Long	Read Only
	TC indicates temperature range for thermocouple sensor types. All stated temperature ranges are numerically equal for degrees F and C.				
	Monitor this memory location because hardware status information is passed back to the driver with the PV value. If a hardware failure, such as device failure, heater burnout, or sensor failure occurs, it is detected and reported by the driver only during a PV read operation.				
RAM mode enable.	RAM-MD	TRUE = RAM mode, FALSE = backup mode	Boolean		Read Only
	Driver automatically forces device into RAM mode to prevent wear on non-volatile memory. You can backup contents of RAM by issuing BACKUP command.				

Device Type	Item Name	Range	Data Type	Supported Suffixes	Access
Remote mode enable	REMOTE	TRUE = device in remote mode, FALSE = device in local mode	Boolean		Read Only
	Driver cannot write to the device unless remote mode is selected on the device front panel.				
Set point limit (high)	SL-H or HILIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point limit (low)	SL-L or LOLIMIT	See device documentation for valid ranges	Float	Float, Dword, Long	Read Only
	This value must be set on device front panel.				
Set point shift input state	SP-S-IN	TRUE = shift enabled, FALSE = shift disabled	Boolean		Read Only
	State is forced TRUE by shorting appropriate terminals on device.				
Set value temperature	SV or SETPOINT or SETPOINT1	setting range: SL-L - SL-H	Float	Float, Dword, Long	Read/ Write

Chapter 9

Troubleshooting

You can troubleshoot problems with the DAServer using the:

- Windows Task Manager
- Windows Performance and Alerts (PerfMon) application also called Performance Monitor
- DAServer Manager
- ArchestrA Log Flag Editor
- ArchestrA Log Viewer

Your client application may let you view error messages, monitor the status of requests, and allow you to request data on the status of the DAServer and connected devices. For more information, see your client application documentation.

Troubleshooting with Windows Tools

Windows has two tools that may be useful in troubleshooting performance problems.

You can find quick verification that the DAServer process is running by looking at the Windows Task Manager. It also provides information on the user, CPU, and memory usage of the processes.

If you need more information, or need to gather data while not logged in, you can use the Performance and Alerts application. For more information, see the Microsoft Management Console (MMC) help files on the Performance application. The Performance application is one of the administrative tools found in the Windows Control Panel.

Troubleshooting with the DAServer Manager

The DAServer Manager has information that may be useful in troubleshooting problems. When the DAServer is active, a diagnostic node is present below the configuration node in the console tree of the System Management Console.

Each diagnostic leaf contains information about DAServer activity. For more information, see the *DAServer Manager User Guide* or Help files.

Finding Version Information

If you contact Technical Support, you may need to supply version information.

To determine the DAServer Manager version

- In the DAServer Manager, right-click **DAServer Manager**, and then click **About DAServer Manager**. An **About** box appears showing the version and build date of the DAServer Manager.

To determine version information for DAServer components

- In the DAServer Manager, select the DAServer name in the console tree. The version information for each DAServer component is shown in the details pane.

Using the Wonderware Log Viewer

Error messages are created by the DAServer and logged by the Logger. You can view these messages with the Log Viewer. The Log Viewer help files explain how to view messages and how to filter which messages are shown.

Log Flags are categories of messages. The *Log Flag Editor User Guide* contains an explanation of the categories. Using the Log Flag Editor, you can specify which log flags the DAServer creates.

Note Generating large numbers of diagnostic messages can impact DAServer performance. You should not run in production with any more flags than those set when the DAServer is installed. To troubleshoot you can turn on more flags, but there is a performance impact. For more information, see the *Log Flag Editor User Guide*.

To open the Log Flag Editor

1. In the System Management Console, expand **Log Viewer** and then expand the log viewer group.
2. Select **Local**.
3. On the **Action** menu, click **Log Flags**.

In general, look at error and warning messages to determine if a problem exists. To determine whether the DAServer is communicating with a device, you can enable the DASSend and DASReceive log flags. From these you can determine whether or not the device is responding.

Basic Log Flags

The basic log flags for all ArchestrA components are:

- Error: A fatal error, the program cannot continue. By default set on by logger.
- Warning: The error is recoverable. A client called with a bad parameter, or the result of some operation was incorrect, but the program can continue. By default set on by logger.
- Start-Stop: Each main component logs a message to this category as it starts and stops.
- Info: General diagnostic messages.
- Ctor-Dtor: C++ classes of interest log messages to this category as they are constructed and destructed.
- Entry-Exit: Functions of interest log messages to this category as they are called and return.
- Thread Start-Stop: All threads should log messages to this category as they start and stop.

DAServer Log Flags

Messages created for these log flags are for DAServer common components and contain information about internal DAServer activities.

- DACmnProtFail: Some failure occurred in the common components while sending a message, updating an item, or otherwise moving data. Typically, this represents some unexpected behavior in the server-specific DLL.
- DACmnProtWarn: Some problem occurred that interfered with sending messages, updating items, or otherwise moving data. Common examples are slow poll, value limiting during type conversion, and transaction timeout messages.
- DACmnTrace: Normal processing of client program requests and data movement to and from the server-specific DLL are traced on this log flag. Use this in conjunction with DACmnVerbose to get the most information.
- DACmnVerbose: Many log flags used by the DAS common components are modified occasionally by DACmnVerbose. When DACmnVerbose is set, the logging of messages on other log flags includes more information.
- DACmnSend: Operations within the DAS Engine DLL that revolve around sending messages to the server-specific DLL.
- DACmnReceive: Events surrounding messages that are returned to the DAS Engine by the server-specific DLL, including the blocking and unblocking of hierarchies.

DAServer-Device Interface Log Flags

Messages created for the following log flags are specific to an individual DAServer and contain information about communications between the DAServer and device.

- DASProtFail: An error in the protocol occurred, for example, device disconnected. The program can continue, and, in fact, this category is expected during normal operation of the program. Must be set on by the generic DAS code when the DAServer starts.
- DASProtWarn: Something unexpected occurred in the protocol, for example, a requested item with an otherwise valid item name is not supported by this device. Must be set on by the generic DAS code when the DAServer starts.
- DASTrace: General diagnostic messages of a protocol-specific nature. For example, you can provide the number of items in a message for a specific protocol, then optimize based on the number.
- DASVerbose: Modifies all other DAS logging flags. When on, provides detailed messages.
- DASSend: Protocol messages sent to the device are logged to this category.
- DASReceive: Protocol messages received from the device are logged to this category.
- DASStateCat1, DASStateCat2, DASStateCat3, DASStateCat4: These are general categories for use by the server developer. As DeviceEngine-generated state machines are created by the DAServer, they can be told to log state machine messages to one of the following: DASStateCat1, DASStateCat2, DASStateCat3, or DASStateCat4. These messages indicate when a state is made the active state, when a state handler is run, when a state handler completes, and when a timeout occurs for a state machine.
- DASStateMachine: By default, DeviceEngine-generated state machines created by the DAServer log to this category unless specifically told to log to one of the DASStateCatN categories. In addition, general state machine messages are logged to this category. These messages indicate when a state machine is created and deleted.

Error Message Descriptions

These messages are specific to the Wonderware DAServer for Omron E5C Serial. When you enable the specified log flag, these messages are generated and logged.

Message	Log Flag	Possible Cause	Solution
Missing address	Warning	A tag address has no length.	Re-type the address in the client application.
Device address '<address>' contains a syntax error	Warning	A tag address contains one or more invalid characters.	Re-type the address in the client application.
Address '<address>' is out of range for the specified device or register.	Warning	A tag address references a location that is beyond the range of supported locations for the device.	Verify that the address is correct. If the address is incorrect, re-type the address in the client application.
Device address '<address>' is not supported by model '<model name>.'	Warning	A tag address references a location that is valid for the communications protocol but not supported by the target device.	Verify that the address is correct. If the address is incorrect, re-type it in the client application. Verify that the selected model name for the device is correct.
Data Type '<type>' is not valid for device address '<address>'	Warning	A tag address is assigned an invalid data type.	Modify the requested data type in the client application.
Device address '<address>' is read-only.	Warning	A tag address has a requested access mode that is not compatible with what the device supports for that address.	Change the access mode in the client application.
Array size is out of range for address '<address>'	Warning	A tag address is requesting an array size that is too large for the address type or block size of the driver.	Specify a smaller value or a different starting point for the array.

Message	Log Flag	Possible Cause	Solution
Array support is not available for the specified address: '<address>'	Warning	A tag address contains an array reference for an address type that doesn't support arrays.	Remove the array reference or correct the address type.
COMn does not exist.	Error	The specified COM port is not present on the target computer.	Verify that the proper COM port is selected in the channel properties.
Error opening COMn.	Error	The specified COM port cannot be opened due to an internal hardware or software problem on the target computer.	Verify that the COM port is functional and may be accessed by other Windows applications.
COMn is in use by another application.	Error	The serial port assigned to a channel is being used by another application.	1. Verify that you assigned the correct port to the channel. 2. Close the other application that is using the requested COM port.
Unable to set comm parameters on COMn	Error	The serial parameters for the specified COM port are not valid.	Verify the serial parameters and make any necessary changes.
Communications error on COMn [<error mask>]	Warning	1. The serial connection between the device and the host PC is bad. 2. The communication parameters for the serial connection are incorrect. 3. A noise source is disrupting communications somewhere in the cabling path between the PC and the device.	1. Verify the cabling between the PC and the device. 2. Verify that the specified communication parameters match those of the device. 3. Reroute cabling to avoid sources of electrical interference such as motors, generators or high voltage lines.

Message	Log Flag	Possible Cause	Solution
Device '<device name>' is not responding.	Error	1. The serial connection between the device and the host PC is broken. 2. The communication parameters for the serial connection are incorrect. 3. The named device is assigned an incorrect network ID.	1. Verify the cabling between the PC and the device. 2. Verify that the specified communication parameters match those of the device. 3. Verify that the network ID given to the named device matches that of the actual device.
Unable to write to '<address>' on device '<device name>.'	Error	1. The serial connection between the device and the host PC is broken. 2. The communication parameters for the serial connection are incorrect. 3. The named device is assigned an incorrect network ID.	1. Verify the cabling between the PC and the device. 2. Verify that the specified communication parameters match those of the device. 3. Verify that the network ID given to the named device matches that of the actual device.
Bad address in block [<start address> to <end address>] on device '<device name>.'	Error	An attempt was made to reference a nonexistent location in the specified device.	Verify that the tags assigned to addresses in the specified range on the device are valid. Eliminate tags that reference invalid locations.

Message	Log Flag	Possible Cause	Solution
COMMUNICATIONS ERROR (device in local mode or auto tuning) - <device name>.<address>	Warning	An attempt was made to write to the device while it is in local mode or auto tuning. The device does not allow this.	If the device is in local mode, switch it to remote mode from the front panel. If the device is auto tuning, wait for the procedure to complete automatically or terminate it. Auto tuning is terminated from the device front panel or remotely by issuing a write AT=FALSE command.
COMMUNICATIONS ERROR (parity) - <device name>.<address>	Warning	This warning is issued when the device receives a frame of information with an incorrect parity bit. Likely cause is noise in the cabling or faulty connections.	Make sure that cables are properly shielded and that maximum length is not exceeded (15 m for RS-232C, 500 m for RS-485). Make sure that cables and connectors are electrically sound.
COMMUNICATIONS ERROR (framing) - <device name>.<address>	Warning	This warning is issued when the device receives a frame of information with a stop bit of "0". Likely cause is noise in the cabling or faulty connections.	Make sure that cables are properly shielded and that maximum length is not exceeded (15 m for RS-232C, 500 m for RS-485). Make sure that cables and connectors are electrically sound.
COMMUNICATIONS ERROR (register overrun) - <device name>.<address>	Warning	This warning is issued when an attempt is made to send new data to the device when its receive data register is already full.	Reenter the data.

Message	Log Flag	Possible Cause	Solution
COMMUNICATIONS ERROR (check sum) - <device name>.<address>	Warning	This warning is issued when the frame check sequence is in error. Likely cause is noise in the cabling or faulty connections.	Make sure that cables are properly shielded and that maximum length is not exceeded (15 m for RS-232C, 500 m for RS-485). Make sure that cables and connectors are electrically sound.
COMMUNICATIONS ERROR (format) - <device name>.<address>	Warning	This warning is issued when the device receives a frame of information that is of the wrong length. Likely cause is noise in the cabling or faulty connections.	Make sure that cables are properly shielded and that maximum length is not exceeded (15 m for RS-232C, 500 m for RS-485). Make sure that cables and connectors are electrically sound.
COMMUNICATIONS ERROR (device rejected data) - <device name>.<address>	Warning	This warning is issued when invalid data is sent to the device. The device will reject all data it does not recognize as valid, leaving the contents of the memory location unchanged.	Make sure the value you are attempting to write makes sense for the memory location. Reenter correct value. For example, the device rejects a write request for SV=100 if SL-H=50 was previously set because SV must be less than SL-H.
DEVICE ERROR - Overflow error - <device name>.<address>	Warning	1. Sensor failure. 2. The temperature being measured is higher than the upper limit of the device, or its shifted value is beyond the range of the device display.	If the problem is persistent: 1. Check the sensor connection and replace the sensor if needed. 2. Consider changing the input shift value or using other hardware that is more suitable for the application.

Message	Log Flag	Possible Cause	Solution
DEVICE ERROR - Underflow error - <device name>.<address>	Warning	The temperature being measured is lower than the lower limit of the device, or its shifted value is beyond the range of the device display.	If the problem is persistent, consider changing the input shift value or using other hardware that is more suitable for the application.
DEVICE ERROR - No longer reading PV data due to device failure (RAM data error) - <device name>.<address>	Error	Possible Cause: This warning is issued when the device detects an error in writing to RAM.	Reenter the data. If problem persists, repair the device. The driver deactivates the associated PV tag when this error occurs.
DEVICE ERROR - No longer reading PV data due to device failure (A to D converter error) - <device name>.<address>	Error	The device detects an analog to digital converter failure.	Repair the device. The driver deactivates the associated PV tag when this error occurs.
DEVICE ERROR - No longer reading PV data due to device failure (sensor error detected) - <device name>.<address>	Error	The device detects a sensor failure.	Make sure the sensor is in working order and connected to the device properly. The driver deactivates the associated PV tag when this error occurs.

Index

Symbols

A

B

C

D

T

U

V

W