

Red Lion
Introducing

FLEXEDGE™

With Crimson
3.2

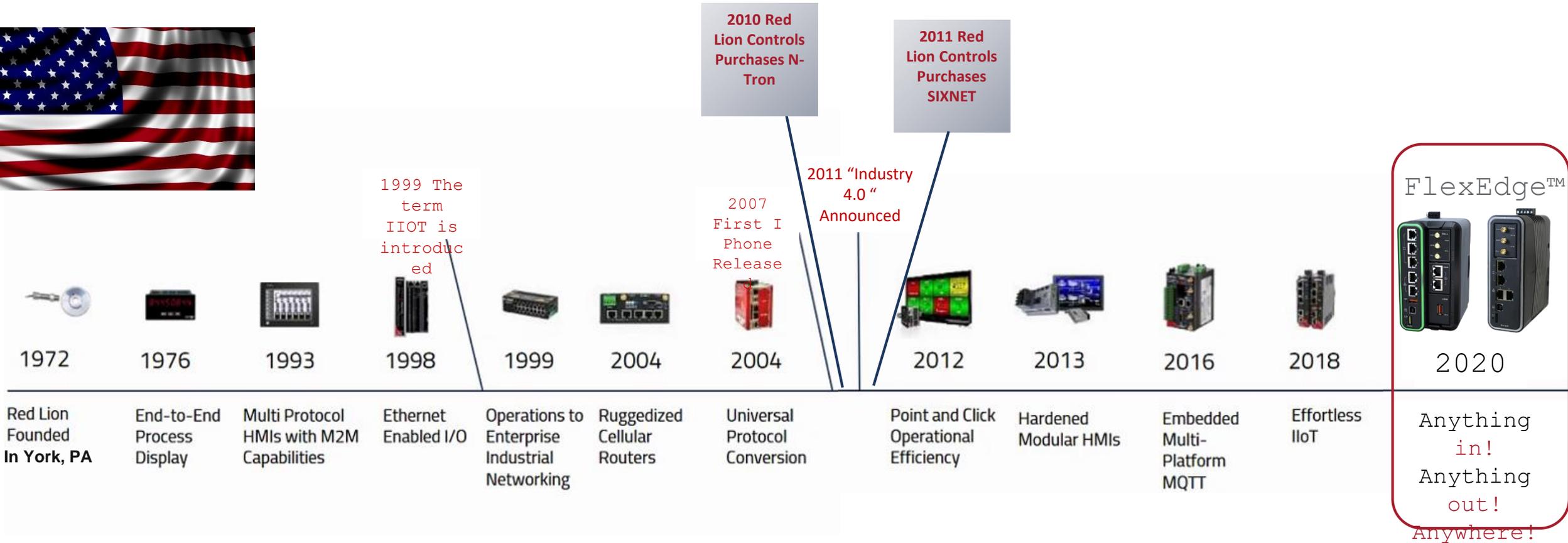
Excellence. Redefined.



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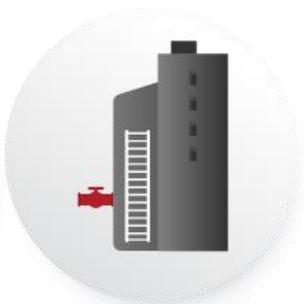
RL
RED LION™
a spectris company

Red Lion Controls Overview Time Line



FlexEdge: The Next Step in a History of Red Lion Innovation





The Challenges of Modern Industry

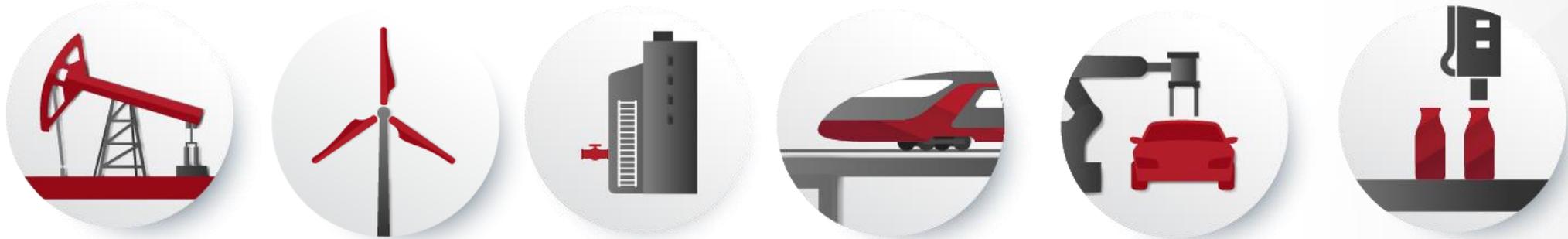
Improving Network Uptime



How do I improve uptime when installing or maintaining equipment?

Even a well-designed network, built to be fault-tolerant, will experience problems that threaten uptime. While the most frustrating issues for plant networks are the intermittent problems that can occur, adding new devices can also cause reductions in overall equipment effectiveness.

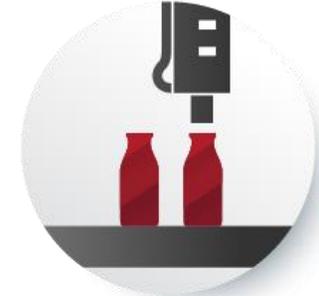
Optimizing Capital Investment



How can I cost effectively plan for future reconfiguration or feature upgrades *without* scrapping existing equipment?

In a market of ever-changing customer requirements and increasing rates of innovation, the need for production equipment that can adapt to meet these needs is important.

Managing Remote Assets

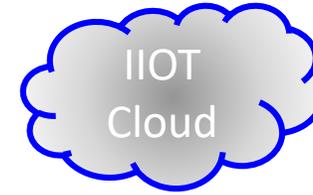


How can I cost-effectively adapt my IIoT strategy as our needs shift?

As users' needs change, so too will cloud platform and security requirements. In addition, carrier availability may dictate that a company's remote monitoring deployments are serviced by multiple cellular providers. It's important to have a flexible, scalable solution capable of adapting to changing needs.



Enterprise Systems



Gateway for today, **FleX**ible for tomorrow

Router

- Multiple Software packages
- Annual Software Licensing Fees

FLEXEDGE™

PLC

Protocol Converter



Wi-Fi Radio

 CRIMSON® 3.2

Cellular Modem

I/O

Switch

Combining Automation and Networking

Bridging the IT/OT divide by providing both what they need

Industrial Automation

- User Interface Creation
- Protocol Conversion
- Industrial Communication
- Data Acquisition
- Remote Access
- Data Logging
- Sensor I/O and Control
- Alarming
- Enterprise Communication
 - IIOT/Cloud
 - SCADA
 - Historian

 CRIMSON® 3.2



FLEXEDGE™

Future-proof, scalable communication

Networking

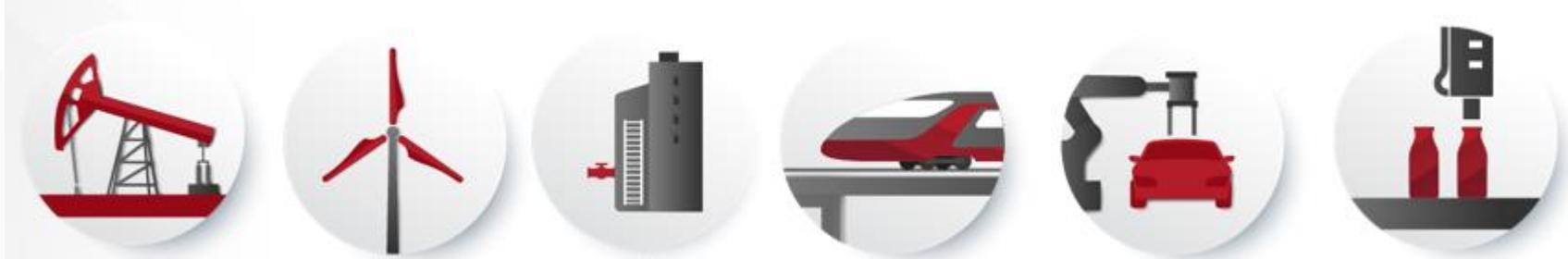
- Layer 3 routing
- Firewall
- RADIUS Authentication
- SNMP Agent
- NAT
- DHCP
- IP Fallback and Failover
- Secure access
 - VPN Client/Server
 - IPsec
 - Certificates

Why FlexEdge and Crimson 3.2?

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FlexEdge: Improving Network Uptime

- Fewer devices mean less complexity and maintenance
 - Flexedge combines functionality that previously required multiple devices
- Locally store and buffer data when network issues occur
- Onboard diagnostics tools to help troubleshoot
- Rugged, reliable solution with wide environmental range
- Configurable through web interface, similar to typical IT



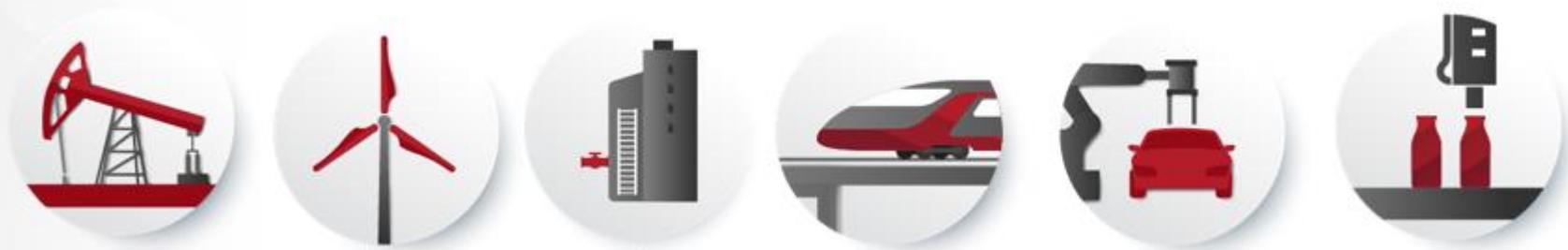
FlexEdge: Optimizing Capital Investment

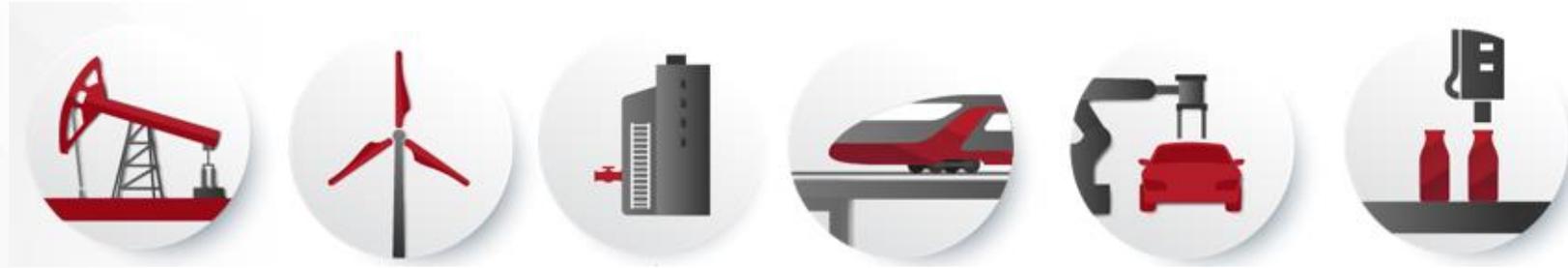
- Protocol conversion allows old and new equipment to speak to each other
- RS232 and 485 comms sleds provide additional capability for older, serial protocols
- Communication to modern data analytics infrastructure for predictive maintenance



FlexEdge: Managing Remote Assets

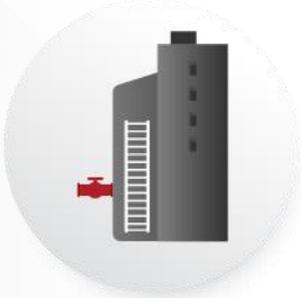
- IP failover, and IP fallback provide cellular and network redundancy
 - Dual SIM cards, dual wireless and wired connections
- Built in I/O and Crimson Control replaces simple PLC functionality
- Sixview Manager and Crimson 3.2 personalities allow easy management of your FlexEdge fleet





Common Applications

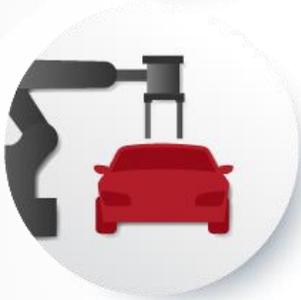
Common Applications



Wastewater Lift Station Remote Access



Oil Well Pad Data Acquisition



Centralizing Factory Communication



Wastewater Lift Station Remote Access

Requirements

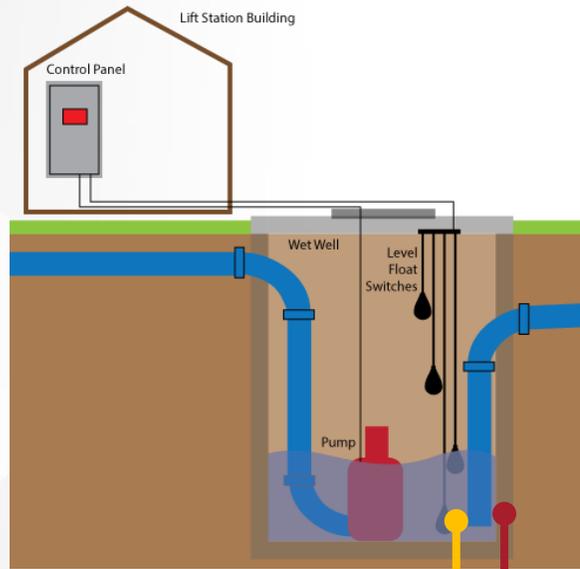
- ▲ Secure, remote access
- ▲ Easily view remotely what is happening onsite
- ▲ Acquire flow sensor, level sensor, and pump status inputs
- ▲ Must communicate reliably over cellular 4G network since 3G support is ending

Solution: DA70A FlexEdge

- ▲ OpenVPN encrypted tunnels
- ▲ Virtual HMI through the FlexEdge web server allows easy UI creation and data visualization
- ▲ Crimson Control with Analog and Digital I/O modules
- ▲ Cellular 4G sled with dual SIMs and failover. Future communications sleds become available as new communications standards are adopted



Wastewater Lift Station Remote Access



Lift Station



Digital control I/O

Analog Sensor Inputs

2nd Carrier with Failover

4G VPN Connection



Virtual HMI via Web Server



Oil Well Pad Data Acquisition

Requirements

- ▲ Connect to existing microwave radio network WAN, local LAN, and local WLAN
- ▲ Have Cellular connectivity as a back-up
- ▲ Communicate to Google Cloud for company's business intelligence and tracking organization, and SCADA
- ▲ Data integrity is essential for government auditing and record tracking

Solution: DA70A FlexEdge

- ▲ Multiple Ethernet NICs, and Wifi Access Point/Client
- ▲ Cellular sled with IP fallback
- ▲ Google cloud connector in Crimson, and OPC-UA, or many other protocols for connecting to SCADA. Can connect to both IT and OT networks
- ▲ Local data buffering and datalogging in case comms fail



Oil Well Pad Data Acquisition

FLEXEDGE™



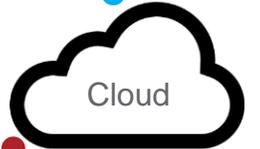
Onsite Personnel



WLAN for local onsite access

Cellular Fallback for redundant comms

Cell Tower



Cloud



RS485 Modbus RTU: Oil & water Valves

RS232 Modbus ASCII: Tank Monitor

Modbus TCP: Salt water disposal

Ethernet I/P: Water Allocation Skid

Emerson ROC over TCP: Custody Transfer

RS485 DF1: Gas Separator



Local Datalogging

Microwave Ethernet Radio

MQTT to Cloud

OPC UA to SCADA



SCADA

x10+

All in one device!





Centralizing Factory Communication

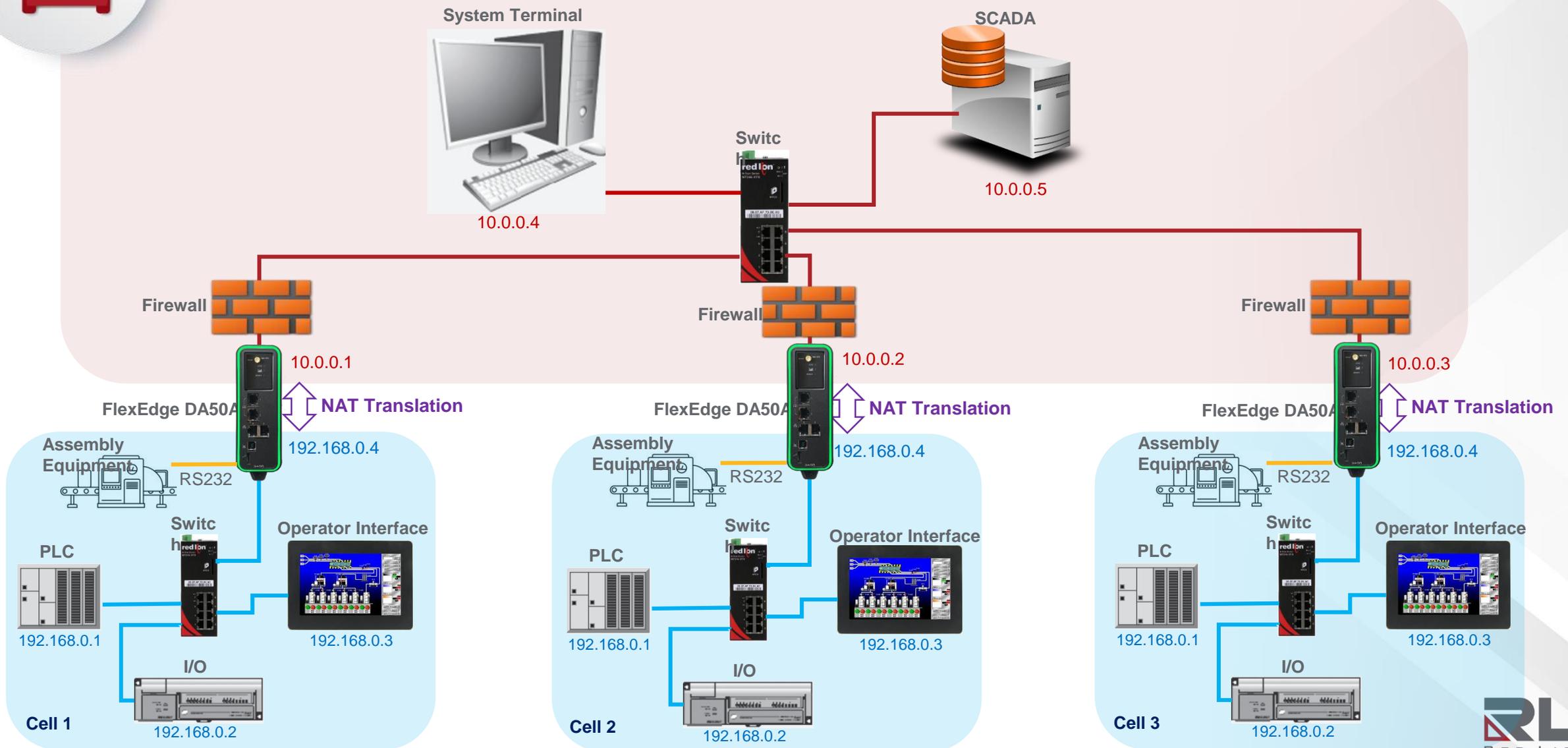
Requirements

- ▲ Old factory equipment currently stand alone. Want to be connected to central control room SCADA
- ▲ Want maintenance personnel to easily interact with individual, identical manufacturing cells
- ▲ Security of factory network is a major concern

Solution: DA50A FlexEdge

- ▲ RS232 sleds can communicate very old protocols, even through raw serial communication. Can also talk newer SCADA protocols (Sparkplug MQTT, Modbus TCP, etc)
- ▲ NAT can allow all equipment in cells to have same IP address within cell's LAN, simplifying maintenance. Then they can all talk to factory WAN
- ▲ Can create Firewall rules that isolate each factory cell from WAN

Centralizing Factory Communication



FLEXEDGE™

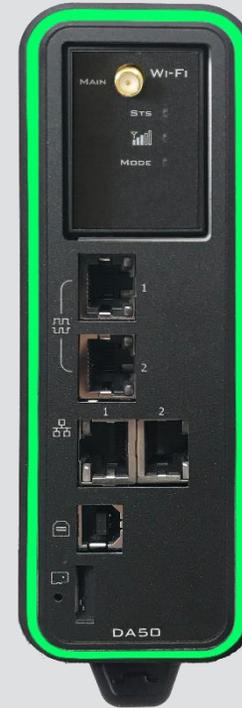
 **CRIMSON® 3.2**

FlexEdge Hardware

FlexEdge Platform

Primary Components

- Base Controller
 - Linux® OS with Crimson®
 - Field-Upgradable Software
- Future-Proof, Scalable Communications
- Available I/O and PID Control Modules



DA50A

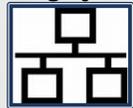


DA70A

FLEXEDGE™ Glossary

Hardware Features

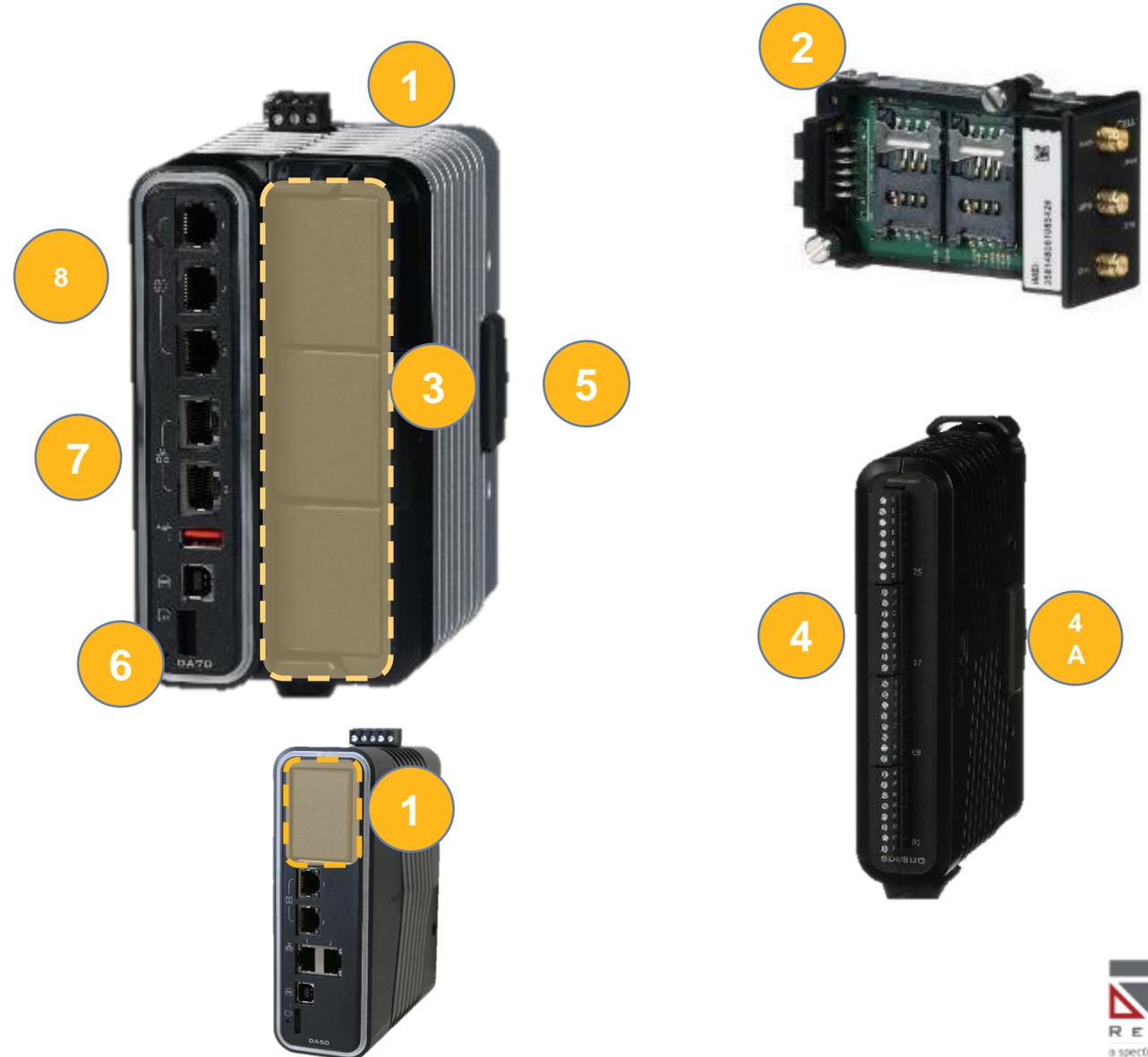
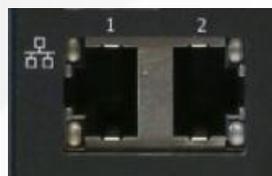
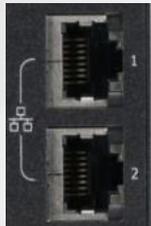
1. DA70A and DA50A
2. Field-installable Sled
3. **Sled Carriage**
4. I/O **Module**
 - A. Connect up to 10
5. I/O **Module** Port
6. **Micro** SD card slot
7. Ethernet Port (separate NICs)
8. Serial Ports (RS485 and RS232)



=Ethernet



=Serial



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FlexEdge Controller

Hardware Features

	DA50A	DA70A
10/100 Ethernet	2	2
Isolated Serial Ports	2	3
<i>Available Port Configurations</i>	1 RS-232, 1 RS-485	2 RS-232, 1 RS-485 (0F) 1 RS-232, 2 RS-485 (0G)
USB 2.0 Full Speed Host	-	1
USB 2.0 Full Speed Device	1	1
Comms Sled Support	1	3
I/O Support	1AI/DI, 1DO (On-Board)	Up to 10 I/O Modules
Memory		
<i>On Board Flash</i>	1 GB	
<i>Expansion (micro SD)</i>	Up to 256 GB	
Temp Range C	-40 to 75	
Power Input VDC	12-24 ± 15% (10.2 – 27.6)	
Power Consumption W	2.5 W - 5.6 W	4W - 59 W



FlexEdge Hardware Certifications

UL Class 1, Div 2

ATEX and IECEx

ABS and DNV

Model-Specific Certifications

Planned



Communications Sleds

Easily Adapt as Standards Change

- Field installable
- Adapt to changing requirements
- Future-proof communications
- Hazardous Location Approved
 - UL Class 1, Division II
 - ATEX and IECEx



Communication Sleds

Future-Proof Your Applications

DA50A/DA70A
Controller



Cellular

- 4G LTE, CAT 4 (CAT 1 for Australia)
- Dual SIM Card Slots
- Built-in GPS

SIM Select, SIM Failover/Fallback, Router and, Multi-Radio Support



Wi-Fi

- 802.11 b/g/n
- Up to 4 Simultaneous Clients in Access Point Mode

Client or Access Point



Serial (3 Options)

- 2x RS232 (RJ12 ports)
- 2x RS485 (RJ45 ports)
- Mixed 1x RS-232, 1x RS-485 (RJ12, RJ45)

Crimson Support



USB Host

- USB 2.0 Compliant*

Crimson Support, Data Logging, Configuration Upload/Download

* Note only compatible with certain USB Storage drives

I/O and PID Modules

Expand Application Possibilities

9

variants

DI/DO, Universal Input,
Analog Output, Relay
Output, PID, Heater
Current Monitor (HCM)



10

Install up to 10
modules per DA70A
controller

I/O Modules Available Now

- 8 Digital Input (DI), 8 Digital Output (DO)
- 8 DI, 8 Relay Output (RO)
- 6 Universal Inputs
- 8 Analog Output (AO)

PID Control Modules Available Now

- PID, RO, AO
- PID, SSR, AO
- Dual PID, RO
- Dual PID, SSR
- Dual PID, SSR, HCM



Crimson 3.2 Software

Crimson® 3.2

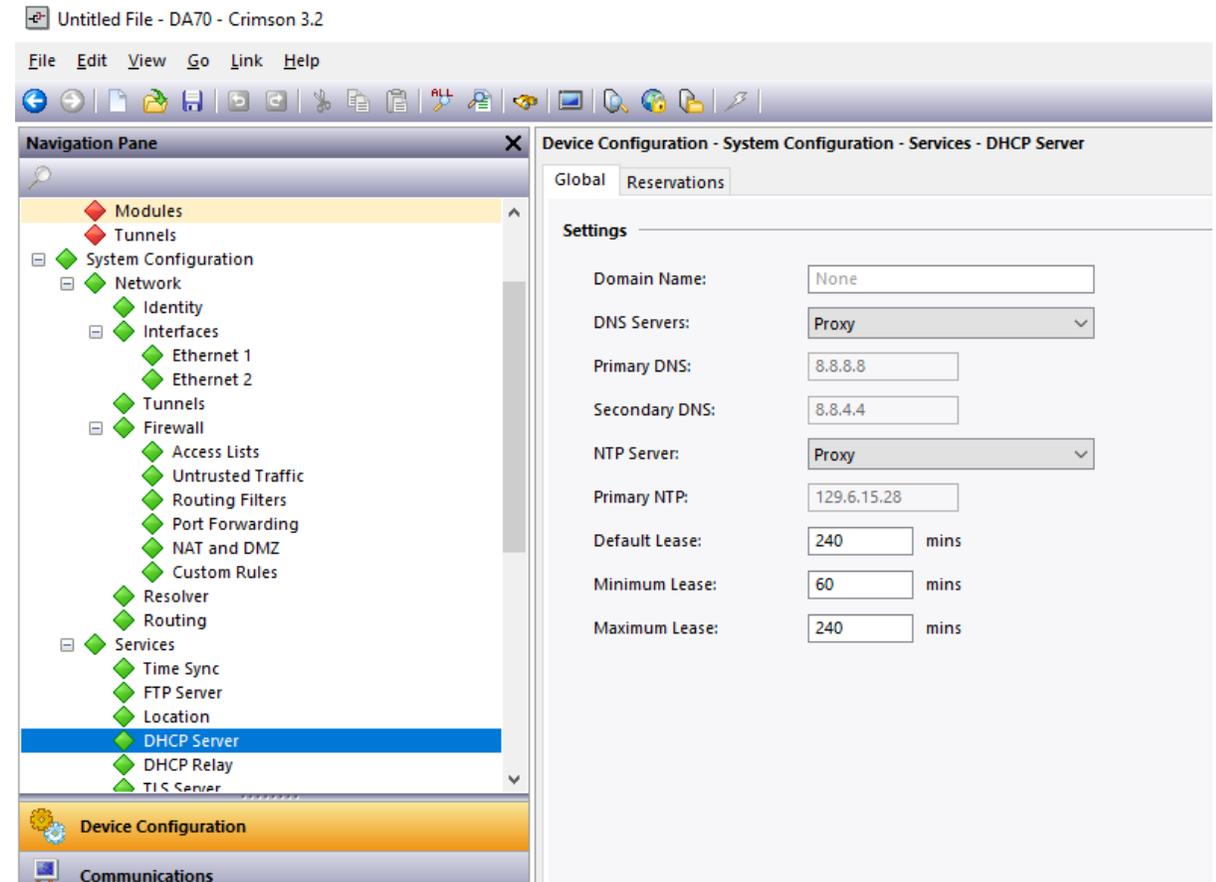


- Crimson® is a device configuration and application design tool
- Previously only automation focused (protocols, data tags, data visualization)
- Now combines advanced networking and security capabilities
 - Addresses OT/IT needs with web interface and Crimson to configure
 - Network security with routing, NAT, VPN, and certificates
 - Automation with 300+ drivers, data logging, visualization, and IEC61131 control
 - Device Personalities allow easier management of a fleet of FlexEdge devices

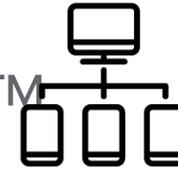


Crimson 3.2 Capabilities

- Layer 3 routing capabilities
 - Secure access (VPN, IPsec, certificates, etc)
 - Firewall
 - NAT
 - Routing
 - DHCP
- Updated Linux-based operating system provides more flexibility
- Everything in Crimson 3.1 too:
 - User Interface Creation
 - Protocol Conversion
 - Communication
 - Remote Access
 - Data Acquisition
 - Data Logging
 - Simple Control
 - Alarming
 - Enterprise System Communication



Crimson® 3.2 Enabled FlexEdge™



Upgradable Capabilities

- Controllers can be ordered with different capabilities
- Controllers can be upgraded if application changes
 - No need to physically replace controllers
- Crimson® is to be complimentary, controllers can be upgraded via one—time software licenses

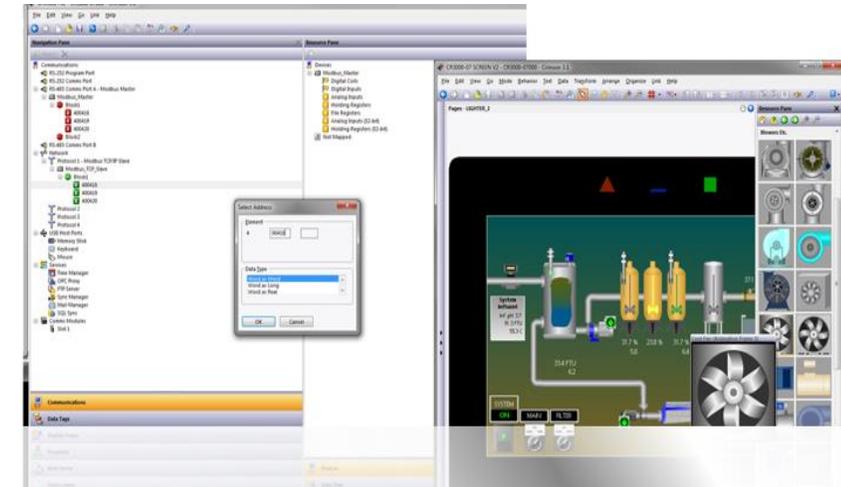
	Networking Gateway	Protocol Gateway	Advanced IIoT Gateway	Advanced Automation Controller
Configuration				
Web GUI	✓	✓	✓	✓
Crimson	✓	✓	✓	✓
Networking				
Firewall	✓	✓	✓	✓
RADIUS Auth.	✓	✓	✓	✓
Routing	✓	✓	✓	✓
NAT	✓	✓	✓	✓
IP Fallback	✓	✓	✓	✓
VPN Client/Server	✓	✓	✓	✓
Automation				
300+ Drivers		✓	✓	✓
IIoT Connectors		✓	✓	✓
OPC UA		✓	✓	✓
SQL Sync			✓	✓
Data Logging			✓	✓
Virtual HMI			✓	✓
Advanced Web Server			✓	✓
IEC Control				
Crimson Control				✓



What about Crimson 3.1?

Crimson 3.1

- Crimson 3.1 is still supported for HMIs, DA10/30, Graphite Edge Controller, and E3 I/O
- Crimson 3.1 Capabilities:
 - User Interface Creation
 - Protocol Conversion
 - Communication
 - Remote Access
 - Data Acquisition
 - Data Logging
 - Simple Control
 - Alarming
 - Enterprise System Communication
 - Cloud Connectors using MQTT
 - OPC UA
 - SQL Server



Where do I go from here?

Where do I go from here?

- Ask the question: how can gathering data about my plant or process help?
 - How Can FlexEdge help?
 - Flexible communications hardware
 - Industrial automation and Networking built-in one box
 - Remote Access
 - Industry-standard security capabilities
 - Built in I/O
 - Etc
- Talk to us!

FlexEdge Builder Web Tool

Step 1 - Select Controller

FlexEdge™ Builder

Select DA50 or DA70:



DA50

- 1 Comm. Sled
- 2 Serial Ports
- 2 Ethernet Ports
- USB Device



DA70

- 3 Comm. Sleds
- 3 Serial Ports
- 2 Ethernet Ports
- USB Host
- USB Device

Step 2 - Select Options

FlexEdge™ Builder

Select DA50 or DA70:

How will it be used?

Select built-in serial port options

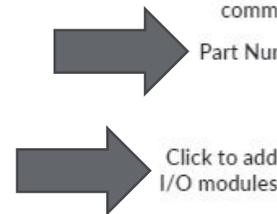
Choose additional communications options:

Choose additional communications options:

Choose additional communications options:

Orderable part number for controller shipped with communications sleds pre-installed:

Part Number: DA70D0G1N4BNN000



Click to add I/O modules



[Request Pricing and Availability](#)



Also sold separately:

- Controller: DA70D0GNNNNNN000
- Sled 1: DAS00CL9C4SAM000
- Sled 2: DAS00WF10N0AM000
- Sled 3: ???

Data Sheet



Start Small. Think Big.

Start with the Controller and Add Sleds as You Need Them.



VS.

Adapt as you Grow.

Get Started with a Pre-Assembled Solution Today That Adapts as Applications Needs Change.



FLEXEDGE™

Intelligent Edge Automation Platform



Q&A

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Thank you!

FOR MORE INFORMATION

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