



# Graphite® Control Platform

October 2016

# Graphite® Control Platform

- Introduction
- Features & Benefits
  - Hardware
  - Software
- Model Numbers
- Where to Sell?



# Graphite® Control Platform

- **What:** new automation offerings

- Graphite Core Controllers
- Graphite Crimson Control Module (for use with Graphite HMIs)
- Graphite Expansion Racks

- **When:** October 18, 2016

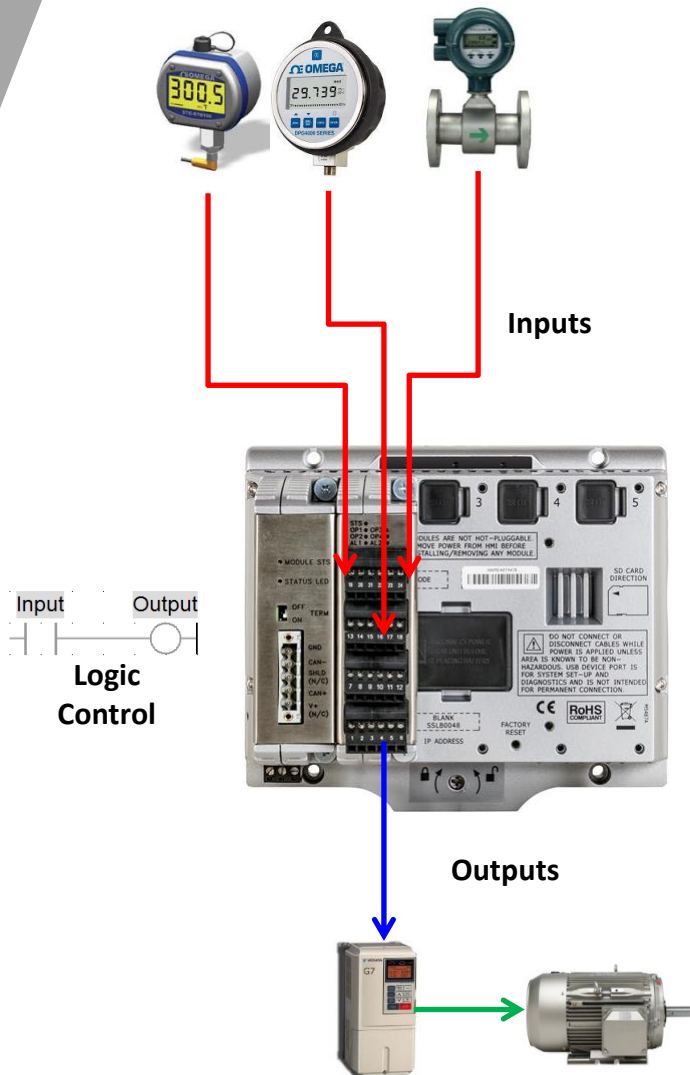
- **Why:** adding a control engine to the Graphite platform can help reduce costs and complexity for customer applications that require rugged industrial controllers with or without a display



*Graphite Control Offerings Launch Tuesday, October 18, 2016*



# Graphite® Control Platform



- Rugged industrial controller or Graphite HMI running an industry-standard IEC 61131 control engine for doing logic control like PLCs or RTUs
- Offers all the networking, protocol conversion, industrial drivers, data logging and web server just like other Red Lion automation products





## Features & Benefits

# Graphite® Core Controller



- Rugged controller with built-in Crimson® Control engine
- Configured using Crimson 3.0 software with Crimson Control functionality
- Works with all existing Graphite I/O and communications plug-in modules
- -40° to 70°C wide operating temperature
- Communicates with over 300 industrial protocols
- Built-in data logging and webserver
- CE, UL and cUL

*All-in-one logic control and networking for harsh environments*



# Graphite® Core Controller

3 Programmable  
LED Indicators

Lithium  
Battery  
(Covered)

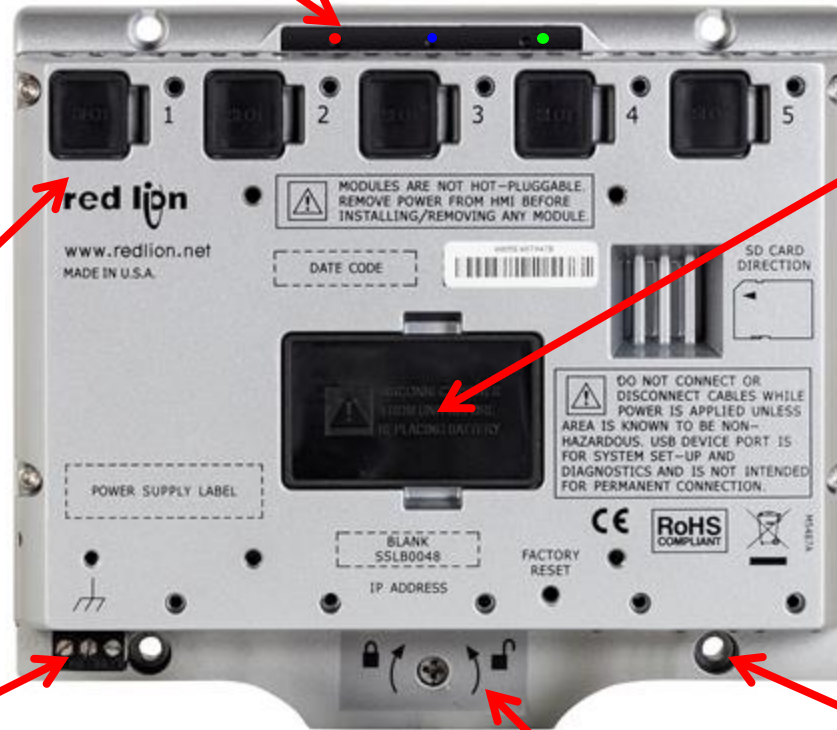
5 Slots for  
Graphite  
Modules

SD Card  
Slot

10-30VDC  
Power

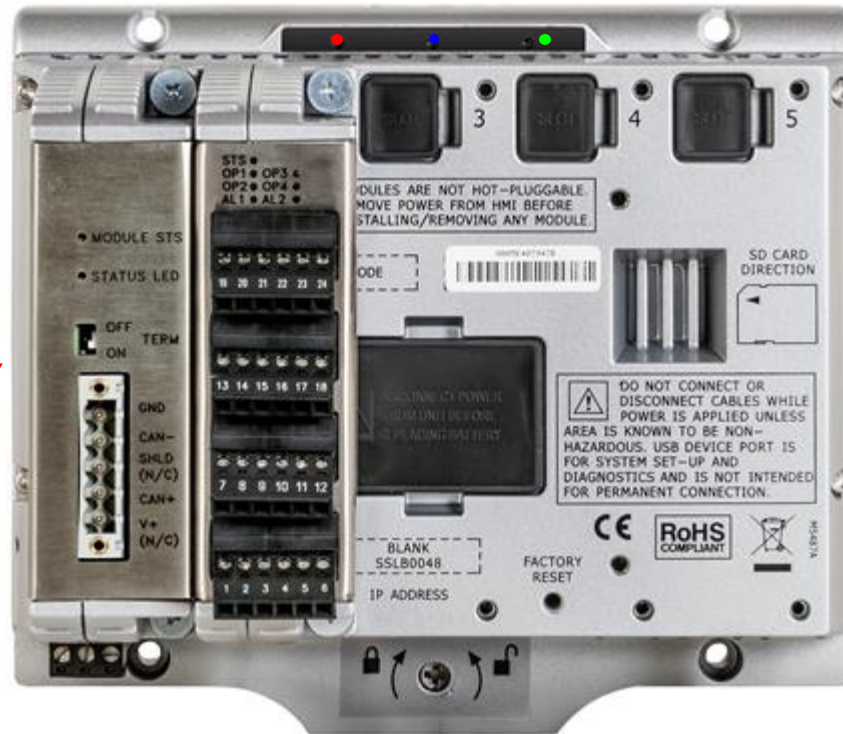
Easy DIN Rail mounting  
and removal

Mounting  
Hole



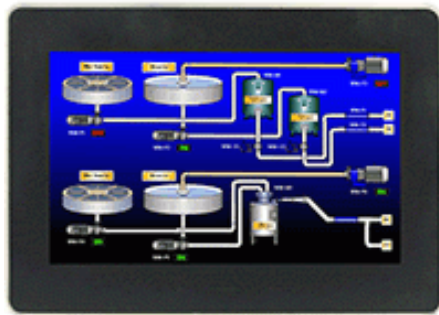
# Graphite® Core Controller

Mix and match  
Graphite modules  
as needed





# Graphite® Crimson® Control Module



- **Seamlessly turn any new or existing Graphite HMI into a controller with add on Crimson Control Module**
- **Develop IEC 61131 control programs within existing or create all new databases with Crimson software**
- **Easily mounts to the back of the Graphite HMI or in an Expansion Rack**
- **Use Crimson software to identify which slot module occupies – no other configuration is required**

# Graphite® Expansion Racks



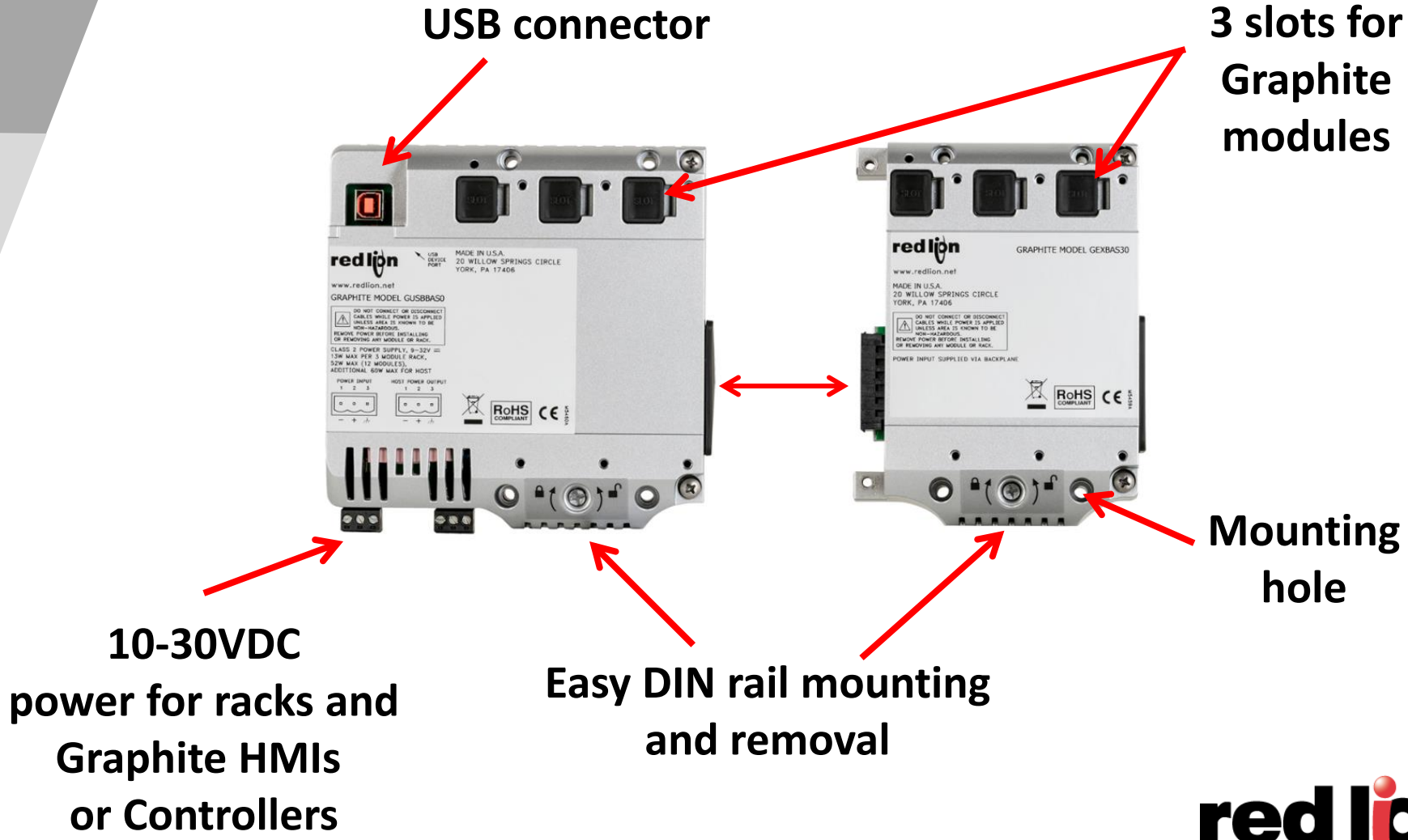
Wide Rack



Standard Rack

- Easily expands the number of Graphite modules on HMIs or Core Controller without the need for other types of remote I/O products
- Simplifies wiring by panel mounting all Graphite modules
- Supports -40° to 75°C wide operating temperature range
- Requires wide rack and up to three standard racks
- Connects using USB cable

# Graphite® Expansion Racks



# Graphite<sup>®</sup> Expansion Racks



USB Connector



Remote mount up to 12 modules



# Graphite® Expansion Racks



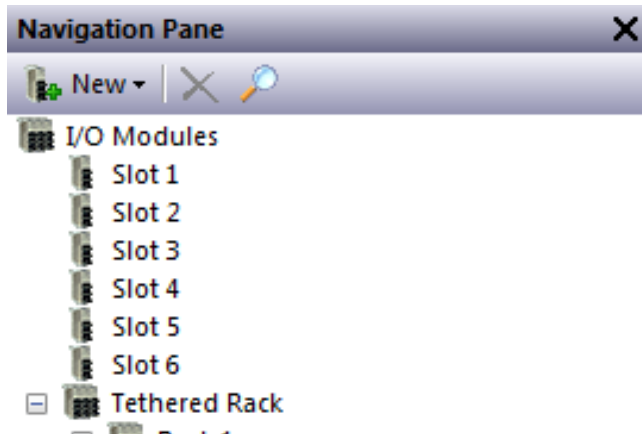
USB  
Connector



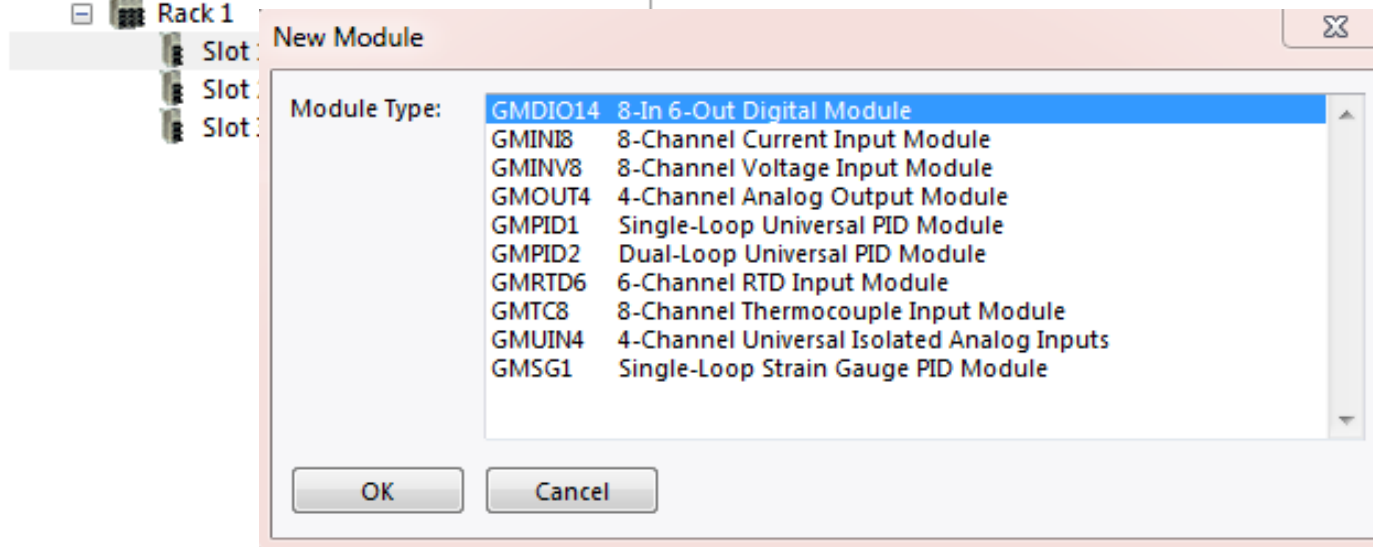
Expand up to an additional 12 modules



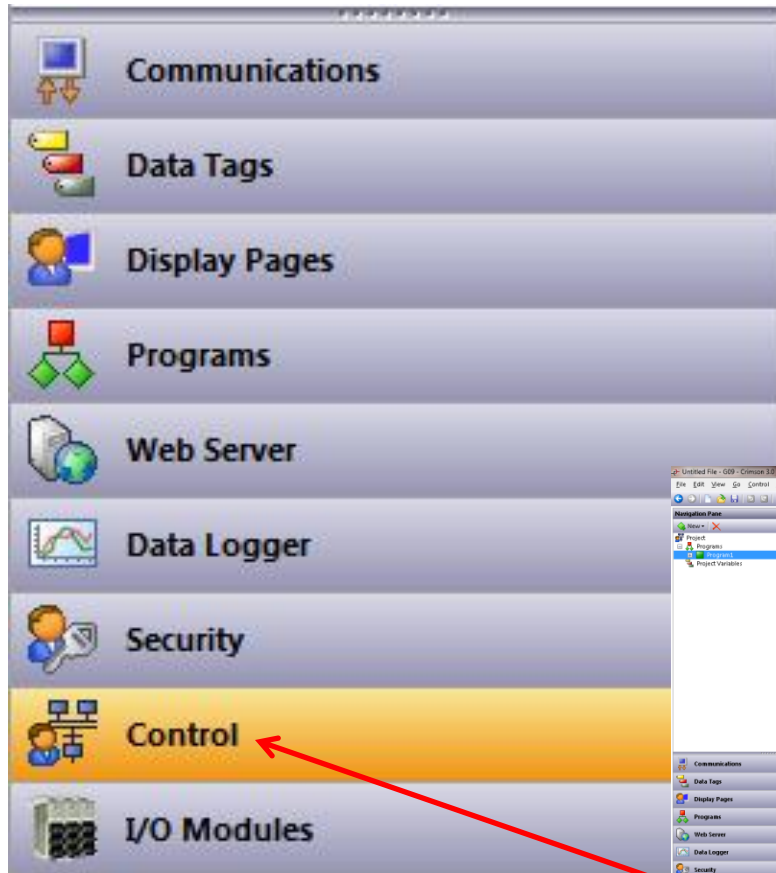
# Expansion Rack Configuration



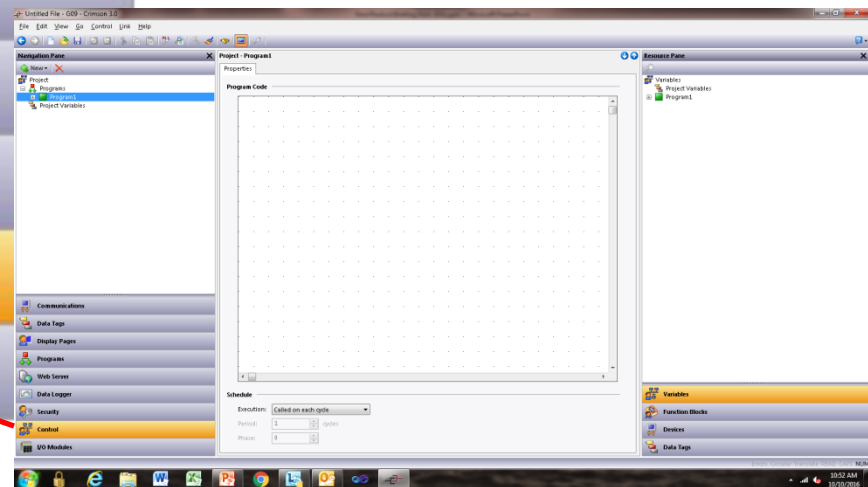
- Expansion Racks are tethered to Graphite® HMI or Graphite Core Controller
- Add rack in Crimson Navigation Pane and pick appropriate Graphite module



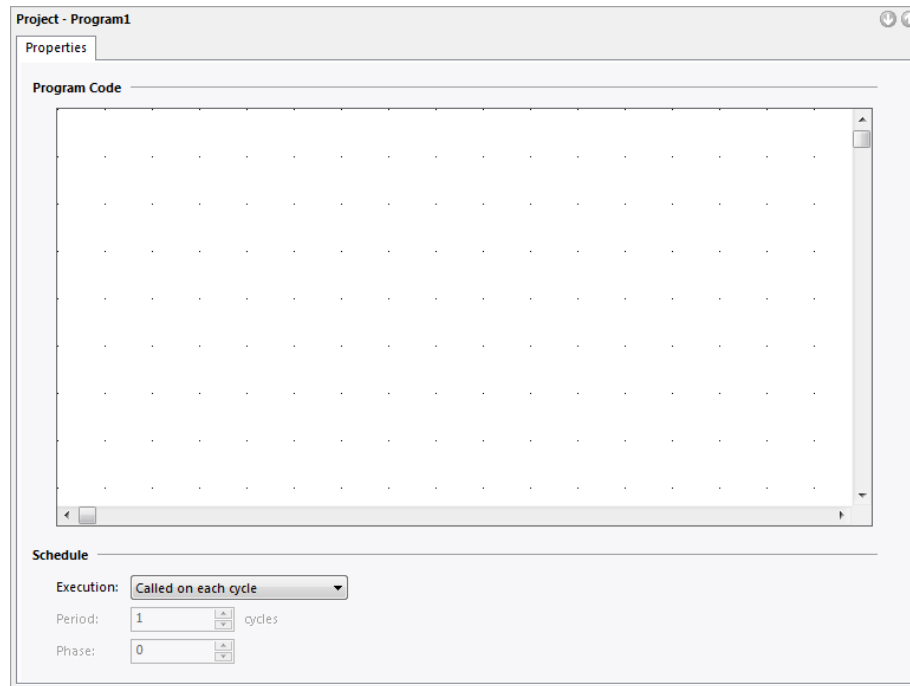
# Crimson® Control



- **New Crimson Navigation Pane category – Control**
- **Is shown when choosing a Graphite Core Controller or any Graphite HMI**



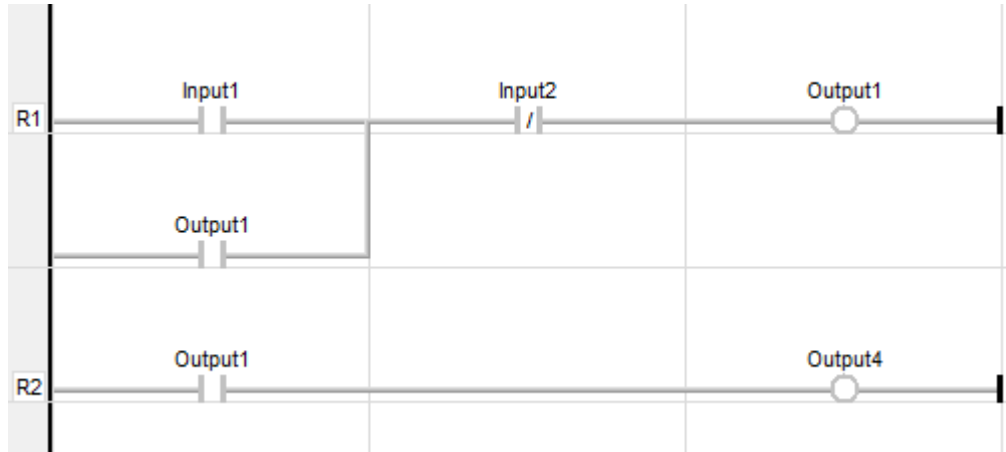
# Crimson® Control



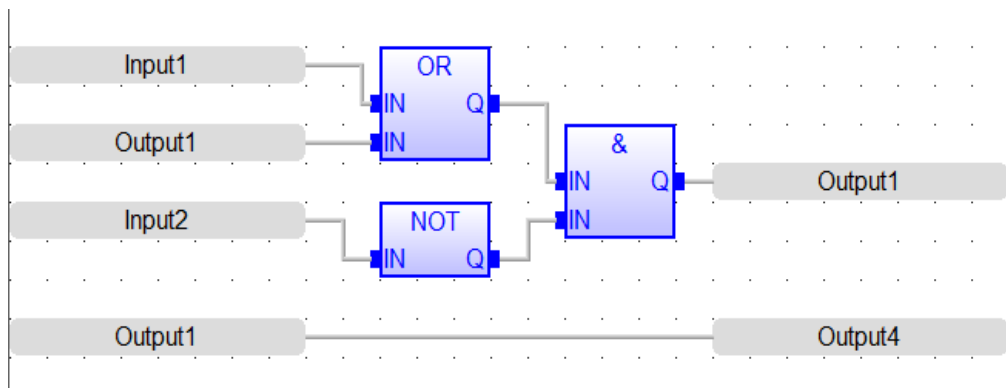
- **Program Code Editing Pane opens in central portion of the window after clicking on Control bar**
- **Program Code Editing Pane is used to develop logic control code using any one of four IEC 61131 programming languages**
- **Simply download database to target device**



# IEC 61131 Programming Languages



■ Ladder Logic



■ Function Block

# IEC 61131 Programming Languages

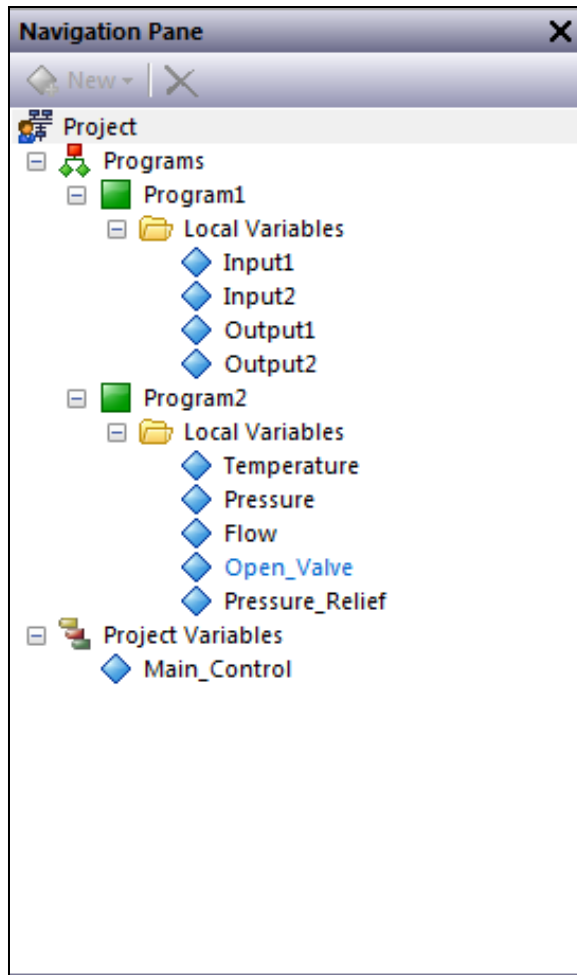
```
1 Output1 := ( ( Input1 OR Output1 ) & NOT Input2 );  
2 Output4 := Output1;
```

- Structured Text

```
1 BEGIN_IL  
2   LD     Input1  
3   OR     Output1  
4   &N     Input2  
5   ST     Output1  
6   LD     Output1  
7   ST     Output4  
8 END_IL
```

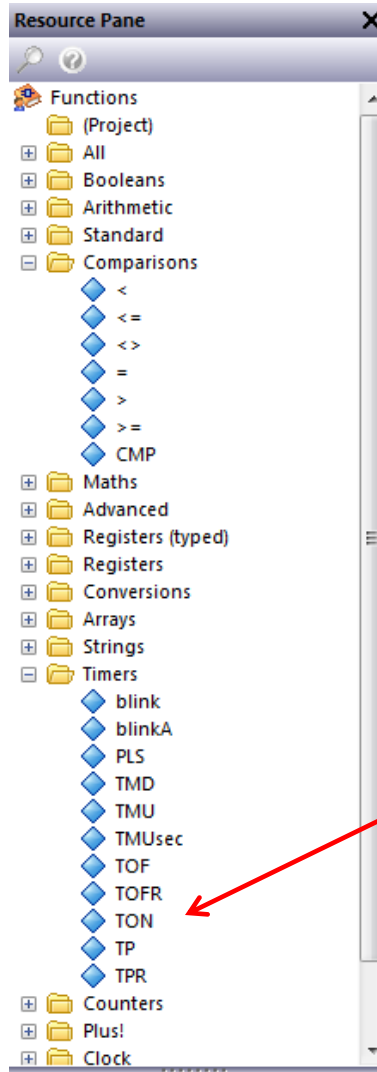
- Instruction List

# Crimson® Control



- Top section of Navigation Pane for Control category shows how control projects are developed
- Projects can contain multiple programs as needed for each application
- Each program can be any one of four IEC 61131 language types
- Projects and programs have control variables that are mapped to real or virtual I/O, system variables or Crimson Data Tags

# Crimson® Control



- Top section of Resource Pane for Control category shows the list of function blocks available
- Show function block help info by simply right clicking mouse on any item in the tree

## TON

Function Block - On timer.

### INPUTS

IN : BOOL Timer command.  
PT : TIME Programmed time.

### OUTPUTS

Q : BOOL Timer elapsed output signal.  
ET : TIME Elapsed time.

### TIME DIAGRAM

# Crimson® Control

ADLD0100

## **CRIMSON 3 CONTROL REFERENCE MANUAL**

**red lion**

- **Crimson Control Reference Manual added to Crimson 3.0 software**
- **Details on how to use each function block in the four IEC 61131 programming languages**

**red lion**®

# Crimson® Control

- **Integrated into Crimson® 3.0 Software**
  - No need for add-on or special extra software reduces complexity
- **Available for download from the Red Lion website**
  - Start developing projects today
- **Industry-standard IEC 61131 programming languages**
  - No need to learn special programming languages which can lead to faster project development
- **All-in-one solution for control, networking and data visualization**
  - Combines industry-standard control with Red Lion's protocol conversion support for over 300 industrial drivers, data logging and web server with and without display





# Model Numbers

# Model Numbers

MODEL NUMBER	DESCRIPTION
GRAC00C5	Graphite Core Controller, 5 Port Self-contained Rack

## CRIMSON CONTROL MODULE

MODEL NUMBER	DESCRIPTION
GMCC0000	Graphite Module, enables IEC 61131 control capabilities via Crimson Control

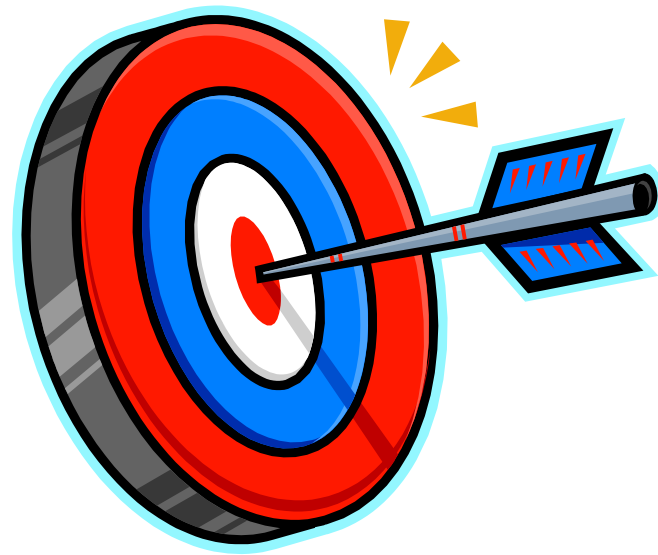
## EXPANSION RACKS

MODEL NUMBER	DESCRIPTION
GEXRACK1	Graphite Wide Expansion Rack for Modules
GEXRACK2	Graphite Standard Expansion Rack for Modules
CBLUSBM0	USB Tethering Cable, 0.5 M Metal Jacketed
CBLUSBM1	USB Tethering Cable, 1 M Metal Jacketed
CBLUSBM2	USB Tethering Cable, 2 M Metal Jacketed



# Where to Sell?

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# Where to Sell?

- **Graphite<sup>®</sup> HMI customers that use a third-party controllers**
  - Already know Crimson software
  - Only one software package reduces cost and complexity
  - Easily deploy Crimson software on as many computers as needed without costly licenses
  - One stop for technical support for control, networking and data visualization
- **Applications in harsh environments**
  - Graphite Core Controller has wide temperature specs that may support unventilated or smaller enclosures, resulting in cost savings



# Where to Sell?

- **Customers looking for industry-standard IEC 61131 programming languages**
  - Eliminates the need to learn special codes and addressing schemes
- **Available as an all-in-one package**
  - Combines control, HMI and protocol conversion functionality into one all-in-one package
  - Reduces wiring complexity and eliminates multiple programming or configuration and costly gateways

# Where to Sell?

- **Application Examples:**

- **Factory Automation:** mixers, ovens, dryers, boilers, plastics and test equipment
- **Oil & Gas:** tank batteries, salt water disposal, separators and pipeline monitoring
- **Power & Utilities:** solar or wind farm balance of plant, gas compressors and sub-station monitoring
- **Water/Waste Water:** lift stations, pump controls and aeration tanks
- **Industrial Internet of Things (IIoT):** remote monitoring of pressures, flows and temperatures with edge control

# Launch Information – October 18, 2016

## ■ Promotional Materials [www.redlion.net/Graphite](http://www.redlion.net/Graphite)

- Press Release
- Data Sheets
- Launch Email

## ■ Distributor Portal

- Sales Primer
- Product Briefing
- High-Res images

## ■ Events

- IAS Shanghai
- PACK Expo in US
- SPS in Germany

**Press Release** 

**Red Lion Adds Innovative Control and Expansion Options to Rugged Graphite Platform**  
New Offerings Combine Communication and Control Capabilities to Reduce Cost and Complexity

York, Pa. – October 18, 2016 – Red Lion Controls, the global experts in communication, monitoring and control for **industrial automation and networking**, today announces its rugged **Graphite®** platform has been expanded to include a new Graphite Core Controller and Graphite Crimson® Control Module that combine communication and control capabilities to reduce cost and ease operations. Both hardware offerings leverage an enhanced version of Red Lion's powerful Crimson 3.0 software with added Crimson Control functionality to provide a single programming solution for control, networking and data visualization.


Crimson Control enables customers to use IEC 61131 programming languages – such as Ladder Logic, Function Block, Structured Text and Instruction List – to solve specific application needs by developing logic control much like a Programmable Logic Controller (PLC) or Remote Terminal Unit (RTU) without the added expense. This control functionality is now available as part of:

- **Graphite Core Controller:** rugged standalone industrial controller that features all-metal construction and works with a variety of I/O modules to combine IEC 61131 control capabilities with networking and data visualization alongside the core functionality – protocol conversion, data logging and web serving – of a Graphite device. Each unit mounts the graphical display.
- **Graphite Crimson Control Module:** control module that plugs into Graphite HMI to form an all-in-one industrial solution that adds IEC 61131 control functionality without requiring additional panel space or a separate programming package.

"Adding control and expansion options to our Graphite platform enables organizations to take communication and control capabilities even further to enhance factory automation and process control applications," said Paul Bunnett, director of product management at Red Lion Controls. "Customers can easily reduce equipment cost and complexity by using our new IEC 61131 control functionality to program logic control code without the need for additional software or hardware."


To support this extended functionality, Red Lion now offers rugged Graphite expansion racks that work with the Graphite platform to provide a scalable solution enabling organizations to remotely mount up to twelve plug-in modules to the back of a cabinet without extensive wiring. Each rack supports up to three plug-in modules and can be installed for a maximum of twenty modules per enhanced Graphite connection.

Red Lion's Graphite platform includes a built-in web server that enables users to monitor and control applications via PCs, tablets or smartphones. SMS text-messaging and email alerts provide early warning of process issues, which helps avoid costly downtime or site visits. In addition, protocol conversion lets customers select from more than 300 industrial protocols to seamlessly integrate disparate devices such as PLCs, drives, cameras, barcode readers and panel meters.

**Graphite® HMIs**  
Red Lion Automation Series 

**▶▶▶ Rugged Operator Panels with Modular I/O**


The Graphite® operator panels are the industry's first rugged HMI touchscreens to combine I/O modules with prot monitor.

**Graphite® Expansion Racks**  
Red Lion Automation Series 

**▶▶▶ Industrial Modularity for Graphite Platform**

**Easily panel communicate!**  
**Graphite® plug modular exp**

Rugged Graphite HMI mounting and tag editing writing. 3rd party protocols connect, monitor an

**Graphite® Core Controller**  
Red Lion Automation Series 

**▶▶▶ Rugged Standalone Industrial Controller**

The Graphite® Core Controller is a rugged all-in-one industrial solution that reduces cost and complexity by combining IEC 61131 control capabilities with networking and data visualization.

Integrating communication and control into factory automation and process control applications has never been easier. With all-metal construction, a built-in web server and Red Lion's Crimson 3.0 software with Crimson Control functionality, our rugged controller operates in the harshest environments to provide a single programming solution for control, networking and data visualization. Simply use visually-oriented IEC 61131 programming languages such as Ladder Logic, Function Block, Structured Text and Instruction List to develop logic code much like a Programmable Logic Controller (PLC) or Remote Terminal Unit (RTU) without the added expense. In addition, select from a variety of I/O, PID control and communication modules to connect, monitor and control a wide array of devices – regardless of location – to meet specific application requirements.

**INDUSTRY**

- > Factory Autom
- > Oil & Gas
- > Power & E
- > Maritime
- > Water/Wate
- > Plastics, Ed
- > Data Acq
- > Industrial I

**FEATURES**

- Sleek, Full 7" to 15"
- Outdoor
- Versatile I
- Choose optima
- Use On-logic co
- Connect
- Extens

**INDUSTRY APP**

- > Factory Autom
- > Oil & Gas
- > Power & Lib
- > Plastics, Extr
- > Data Acquisit
- > Water/Wastew
- > Industrial Intern

**FEATURES & B**

- > Remote Modu
- > Easy back
- > Ethernet I/O
- > Extens Graphi
- > Support for 2
- > Rugged Envi
- Wide 40" to
- High shock &
- CE, UL/UL

**INDUSTRY APPLICATIONS**

- > Factory Automation
- > Oil & Gas
- > Power & Utilities
- > Water/Wastewater
- > Transportation
- > Industrial Internet of Things (IIoT)

**PRODUCT HIGHLIGHTS**

- > Industry-Standard Crimson Control Engine
- > Protocol Conversion of over 200 Drives
- > Web Server for Data Visualization
- > Real-Time Data Logging to SD Card or via FTP
- > Rugged Construction for Extreme Protection
- > Wide Operating Temperature Range
- > Scalable Modules & Expansion Options

**FEATURES & BENEFITS**

- > Powerful Crimson 3.0 Software with Crimson Control
  - In-place drag-and-drop graphical software for easy setup
  - Use industry-standard IEC 61131 programming languages such as Ladder Logic, Function Block, Structured Text and Instruction List.
- > Map over 200 drives to other devices without the need for special gateways
- Easy single-solution configuration eliminates need for third-party software
- > Versatile I/O Module & Expansion Options
  - Choose from a mix of I/O, PID control or communication to populate up to 32x4 module slots
  - Connect Graphite Expansion Racks to easily scale
  - Extend even further with I3 I/O™ high-density modules

**Industry-Leading Protocol Conversion**



- Communicate with over 200 major industrial protocols
- Support up to 18 simultaneous protocols
- Convert between serial, USB and Ethernet devices
- Manage multi-vendor environments with ease

**Rugged Environmental Specifications**

- Wide 40" to 70" operating temperature
- High shock and vibration tolerance
- CE, UL/ULS and UL/ULS, Hazardous approvals

**Powerful Integration Functionality**

- Ethernet, USB and serial ports make communication simple
- Built-in data logging enhances troubleshooting and helps meet regulatory requirements
- Robust web server provides remote visualization, access and control to reduce costly site visits

**industrial automation**  



## Thank You. Questions?

For more information

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