Graphite® Control Platform

October 2016

Graphite® Control Platform

- **Introduction**

- **Features & Benefits**
  - Hardware
  - Software

- **Model Numbers**

- **Where to Sell?**

red lion®

Graphite® Control Platform

- **What:** new automation offerings
  - Graphite Core Controllers
  - Graphite Crimson Control Module (for use with Graphite HMIs)
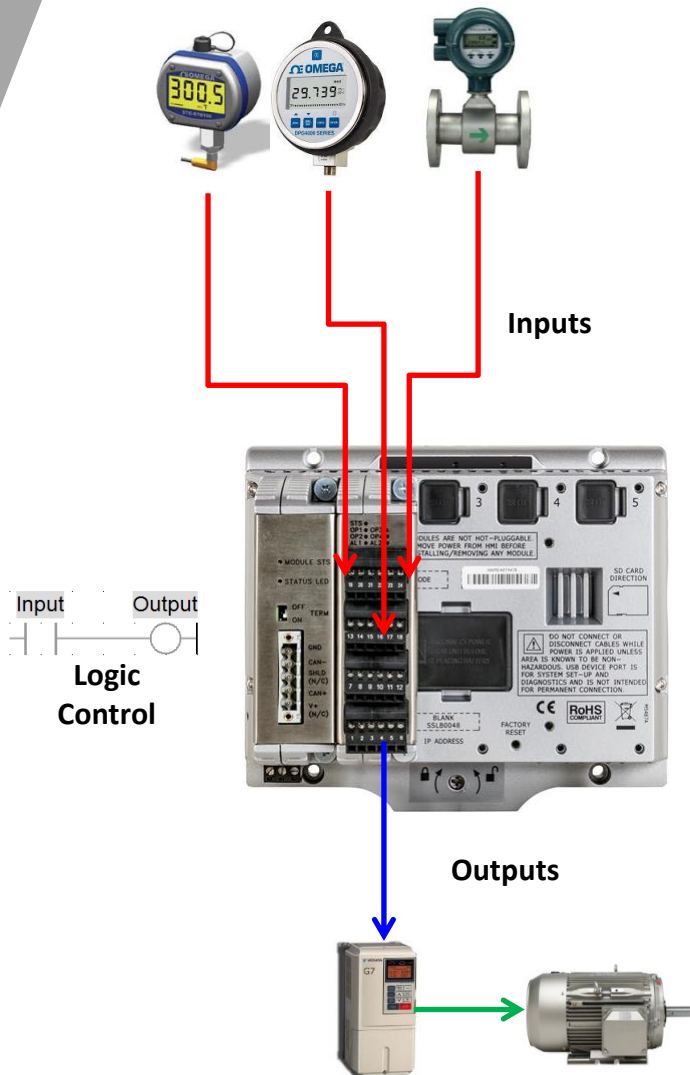 - Graphite Expansion Racks

- **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 Platform

Inputs

Input   Output

Logic
Control

Outputs

- **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 <u>built-in</u> 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

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
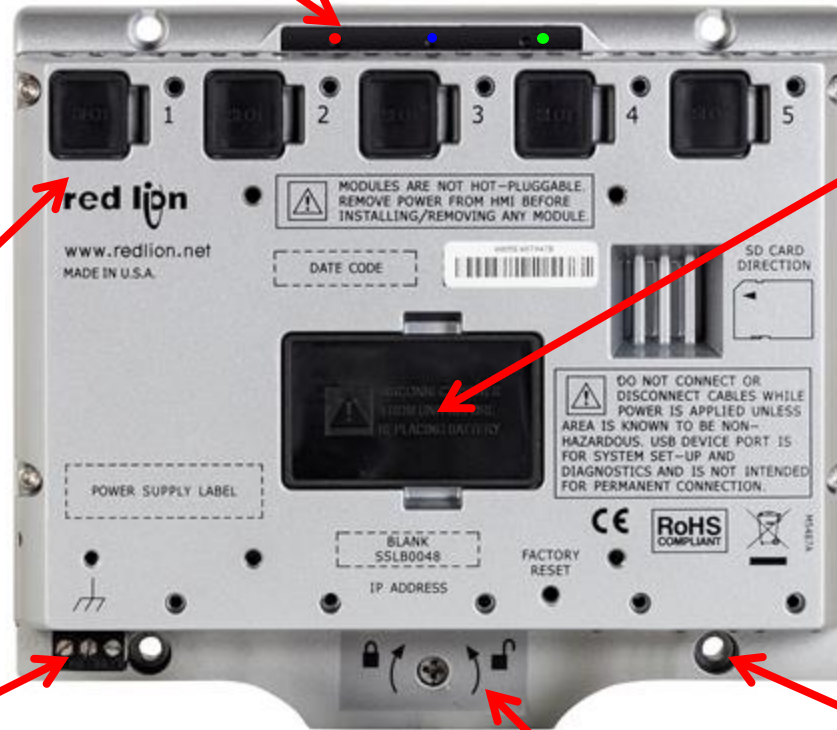
Mix and match Graphite modules as needed
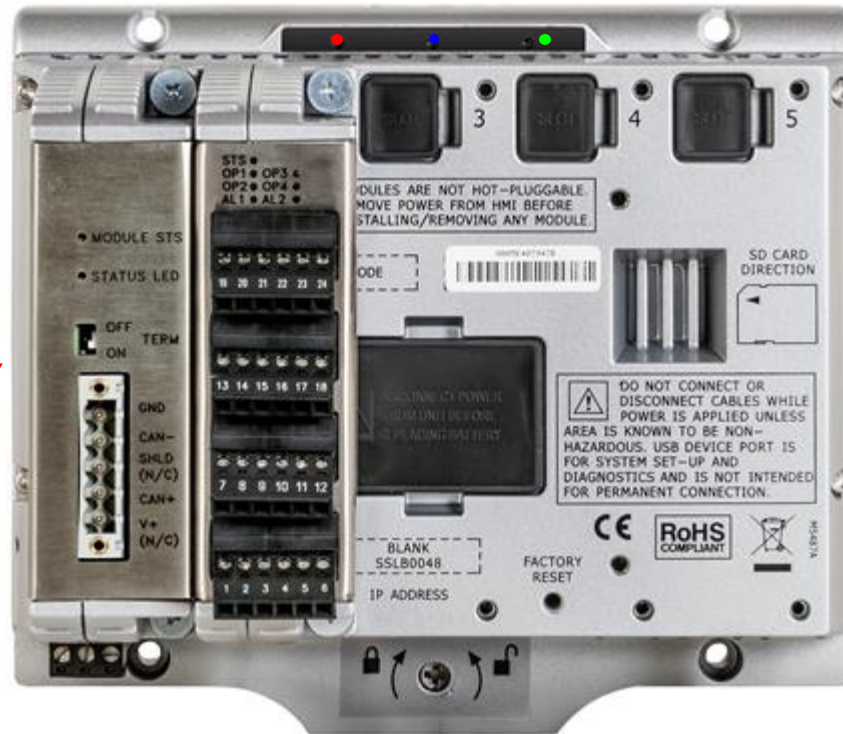
Graphite® Crimson® Control Module
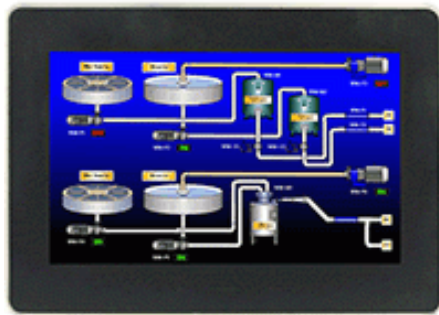
- **Seamlessly turn any new or existing Graphite HMI into a controller with add on Crimson Control Module**

- **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**

red lion®

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

USB connector

3 slots for Graphite modules

Mounting hole

10-30VDC power for racks and Graphite HMIs or Controllers

Easy DIN rail mounting and removal
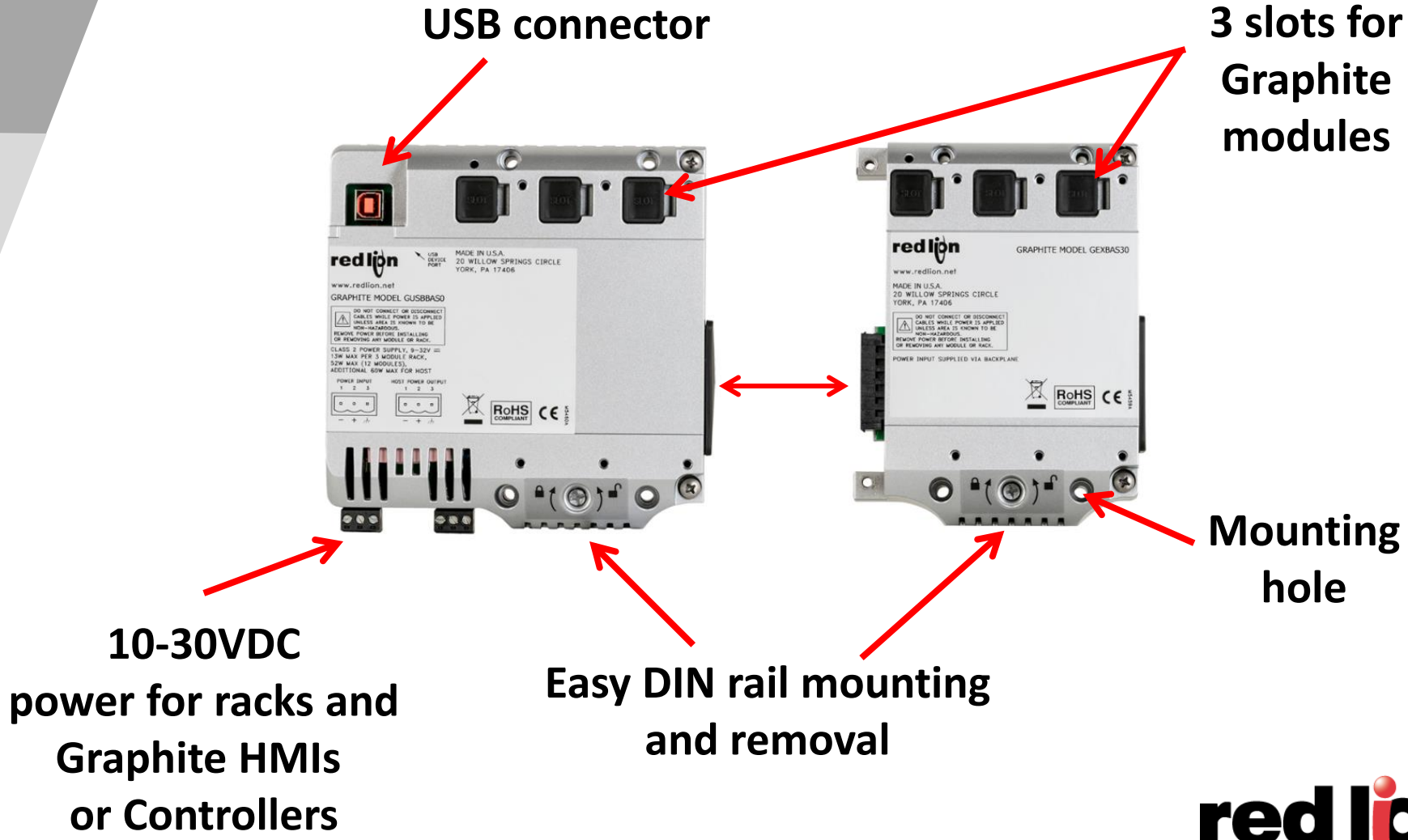
USB
Connector

Remote mount up to 12 modules

Graphite® Expansion Racks

USB
Connector

Expand up to an additional 12 modules

Expansion Rack Configuration
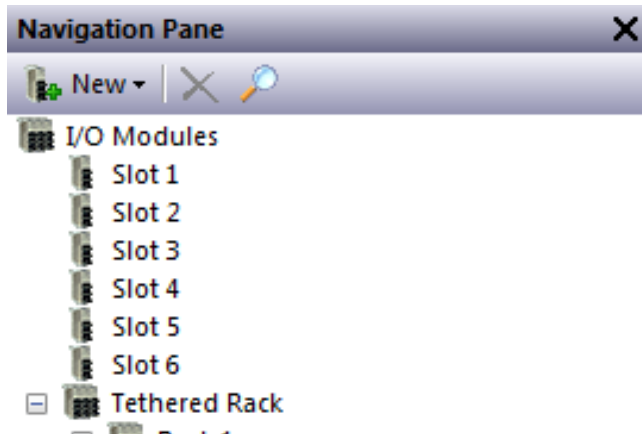
- **Expansion Racks are tethered to Graphite® HMI or Graphite Core Controller**

- **Add rack in Crimson Navigation Pane and pick appropriate Graphite module**
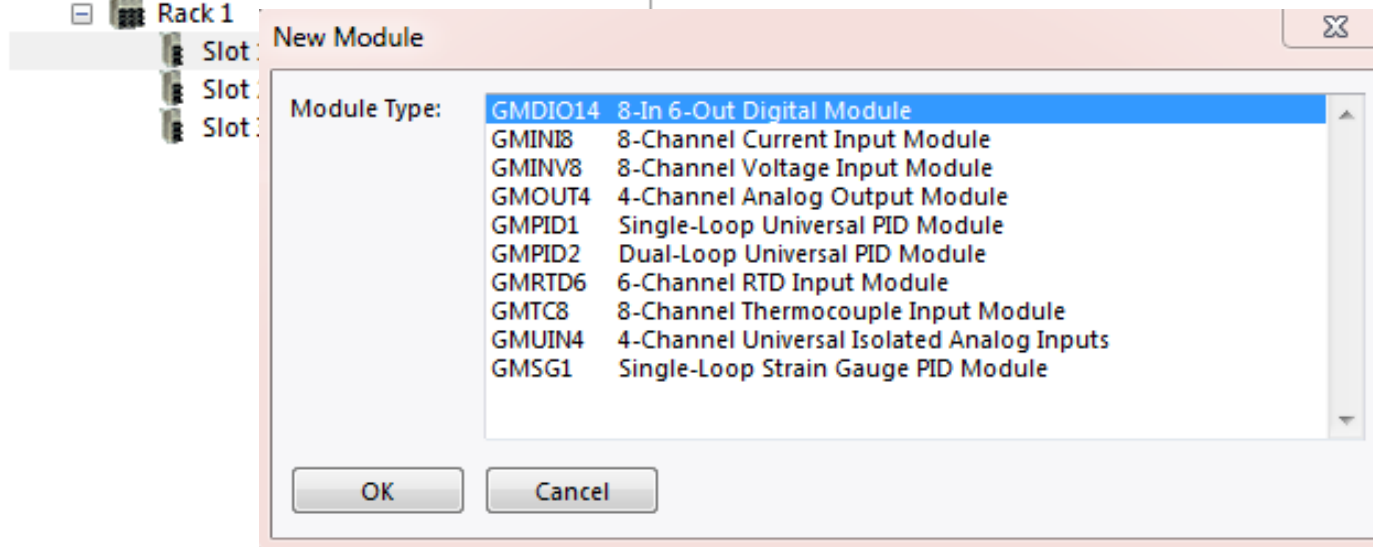
Crimson® Control
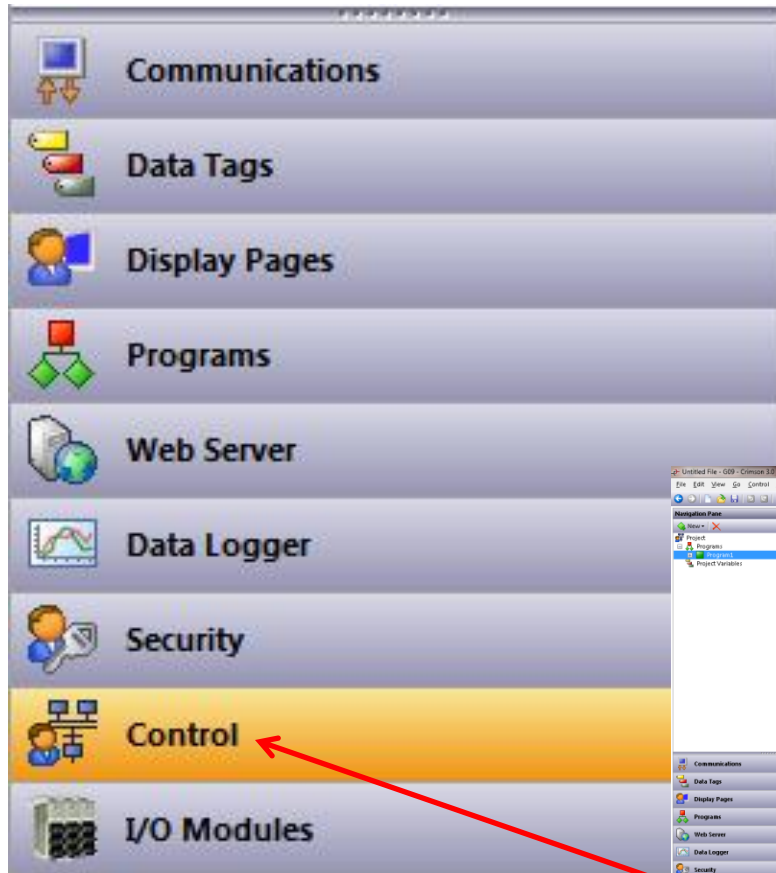
- **New Crimson Navigation Pane category – Control**

- **Is shown when choosing a Graphite Core Controller or any Graphite HMI**
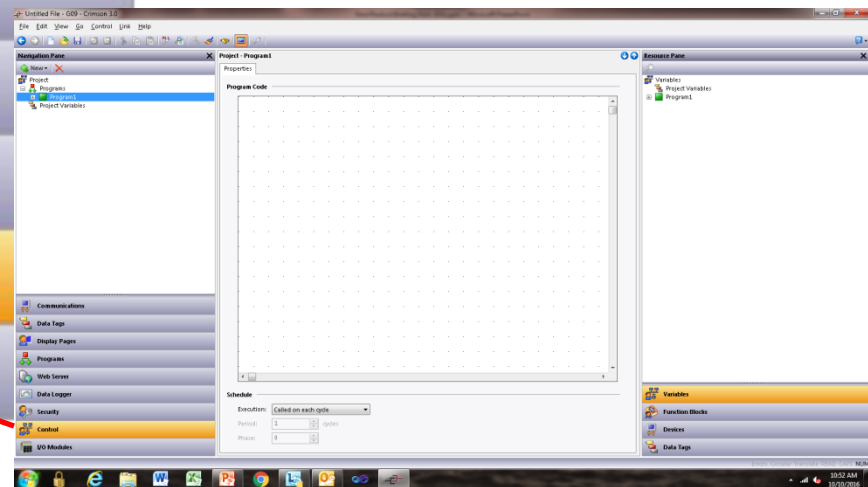
Crimson® Control
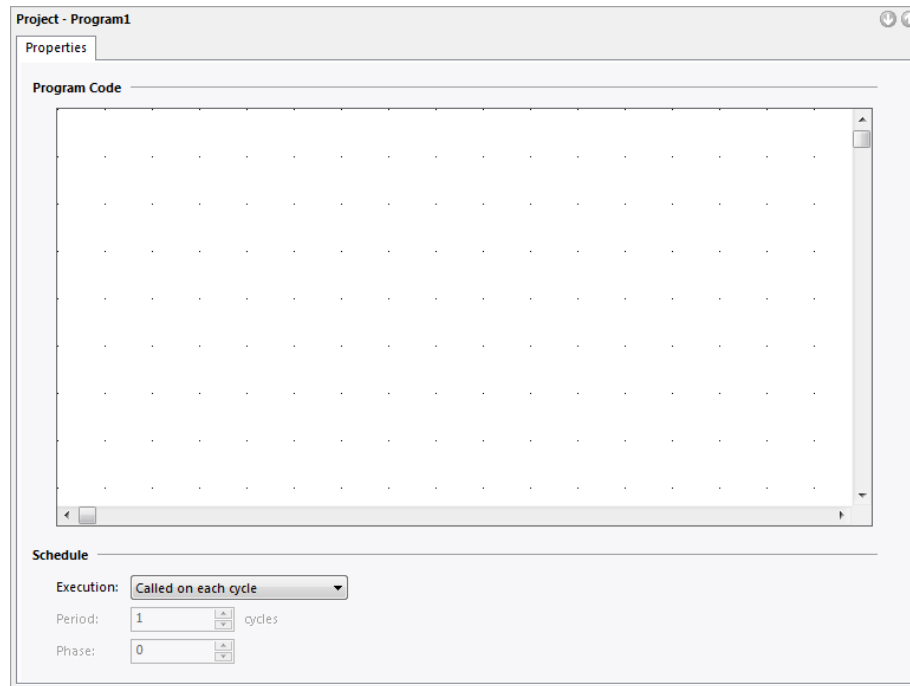
- **Program Code Editing Pane opens in central portion of the window after clicking on Control bar**

- **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
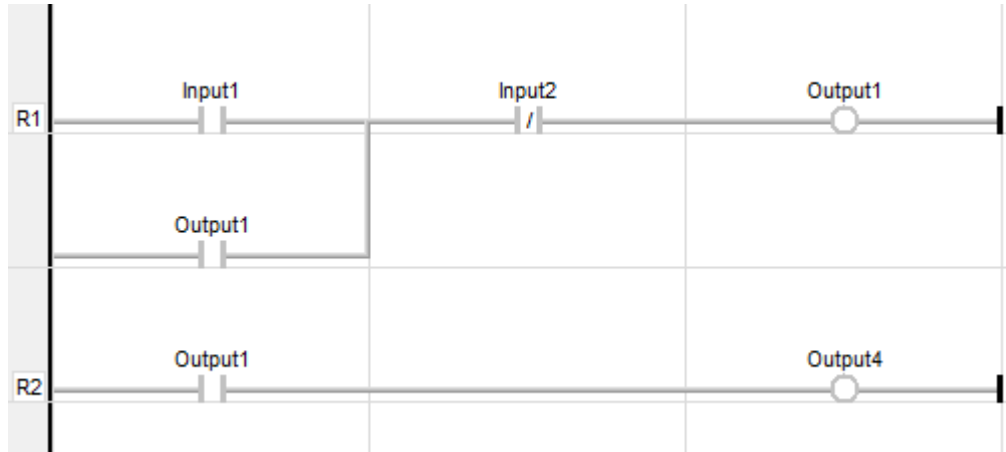
- **Ladder Logic**
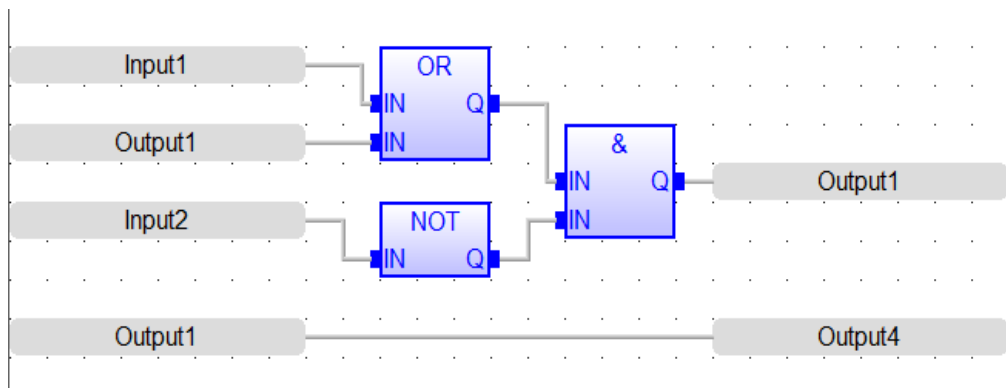
- **Function Block**

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
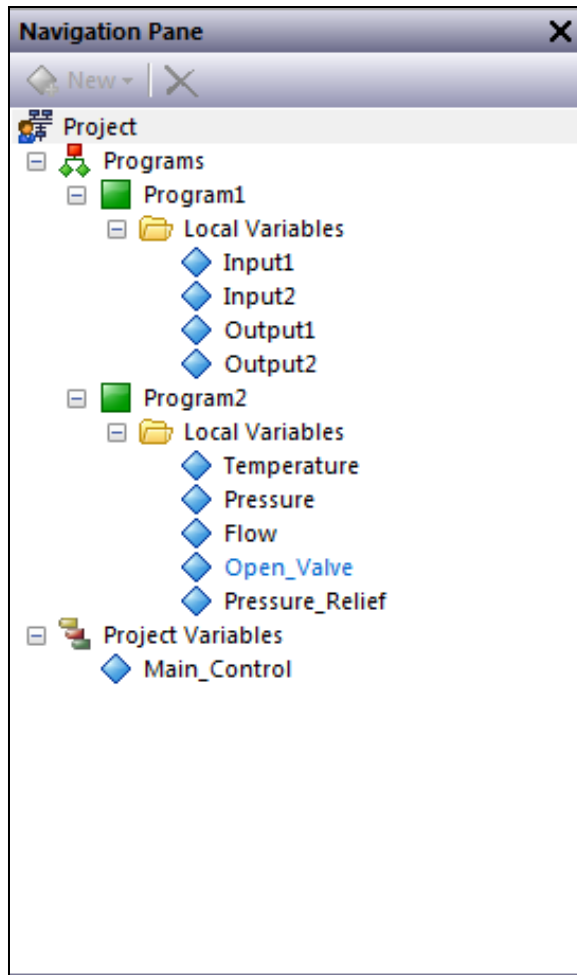
- **Top section of Navigation Pane for Control category shows how control projects are developed**

- **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
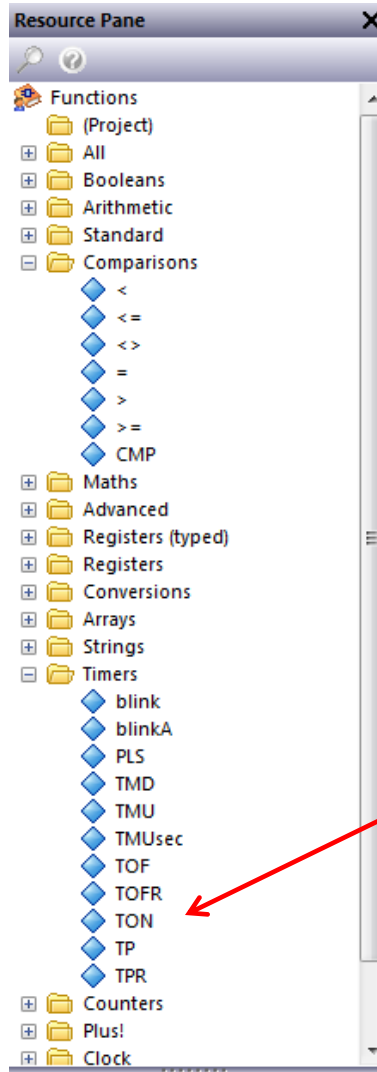
- **Top section of Resource Pane for Control category shows the list of function blocks available**

- **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 3
CONTROL
REFERENCE
MANUAL**

ADLD0100

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**

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

red lion®

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

red lion®
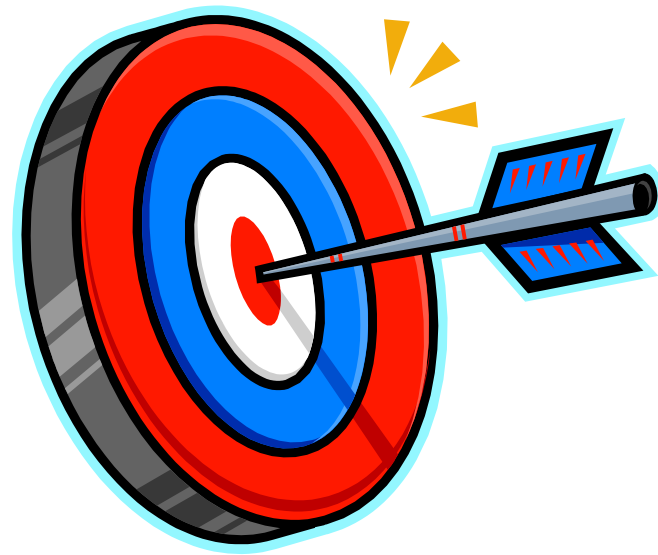
Where to Sell?

Where to Sell?

- **Graphite® 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

red lion®

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

- **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
  - 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

Thank You. Questions?

For more information

20 Willow Springs Circle | York, PA 17406 USA

+1 (717) 767-6511 | www.redlion.net | info@redlion.net