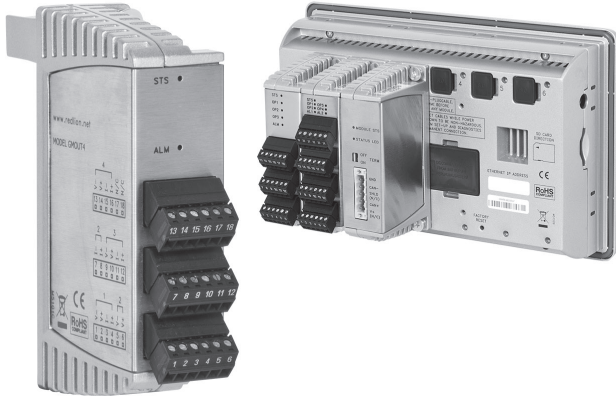


Model GMOUT - Graphite® 4-Channel Analog Output Module

Installation Guide



- High density analog output module for the Graphite products
- Available outputs include 0 to 5 VDC, 0 to 10 VDC, ±10 VDC, and 0/4-20 mA DC
- Outputs are isolated from each other and from the backplane
- Outputs are software configured and fully scalable

UL LISTED FOR USE IN HAZARDOUS LOCATIONS:
 Class I, Division 2, Groups A, B, C, and D
 T4
 IND. CONT. EQ.
 E317425

UL US LISTED
 IND. CONT. EQ.
 E302106



UK CA **CE** **Ex**

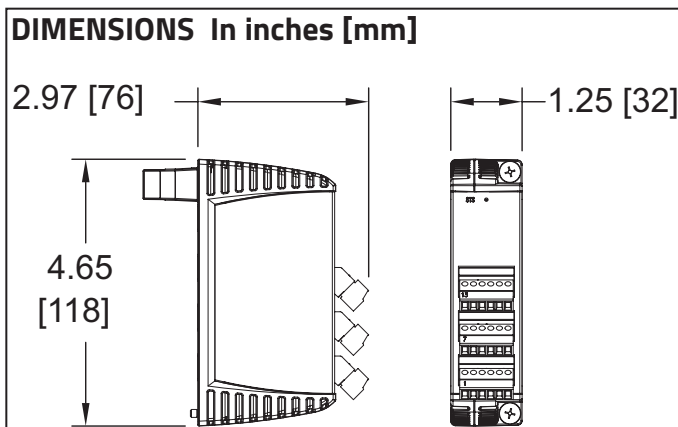
II 3 G Ex nA IIC T4 Gc
 -40°C ≤ T_{AMB} ≤ 75°C
 DEMKO 14 ATEX 1387X
 IECEx UL 15.0035X
 UL23UKEX2879X

GENERAL DESCRIPTION

The model GMOUT is an analog output module designed for use with the Graphite products. The module provides four isolated outputs that are independently programmable for output ranges of 0-5V, 0-10 V, +/-10 V, 0-20 mA, or 4-20 mA. Internal scaling is provided to accommodate virtually any application.

The modules connect and communicate via proprietary USB connection to the various Graphite devices. The Graphite devices, equipped with serial ports as well as an Ethernet port(s), allows the system to share data with PCs, PLCs, and SCADA systems. The maximum number of modules varies for each Graphite device, see specific models for details.

Once programmed, the module will continue to operate/control independent of the Graphite device as long as power is applied. Remove power from the host device before installing or replacing any modules.



CONFIGURATION

The Graphite is configured with Windows® compatible Crimson® software. The software is an easy to use, graphical interface which provides a means of configuration and commissioning of new systems, as well as routine module re-calibration.

SAFETY SUMMARY

All safety related regulations, local codes as well as instructions that appear in this document or on equipment must be observed to ensure personal safety and to prevent damage to either the device or equipment connected to it.

Do not use these products to replace proper safety interlocking. No software-based device (or any other solid-state device) should ever be designed to be responsible for the maintenance of personnel safety or consequential equipment not equipped with safeguards. Red Lion disclaims any responsibility for damages, either direct or consequential, that result from the use of this equipment in a manner not consistent with these specifications.

CAUTION: Risk of Danger.
 Read complete instructions prior to installation and operation of the unit.

WARNING - EXPLOSION HAZARD - Do not disconnect equipment unless power has been switched off or area is known to be non-hazardous.

WARNING - EXPLOSION HAZARD - Substitution of components may impair suitability for Class I, Division 2

ORDERING INFORMATION

DESCRIPTION	PART NUMBER
Graphite Module, 4 Analog Outputs	GMOUT400

A listing of the entire Graphite family of products and accessories can be found at www.redlion.net.

SPECIFICATIONS

1. POWER: Power will be supplied by the Graphite host device. Some modules, depending on usage may consume high levels of power. This may limit the total number of modules that can be installed on a single Graphite host. Check the Graphite module and Graphite host data sheets for specific usage and power requirements.

GMOUT4 Max Power: 4.3 W

2. LEDs:

STS - Status LED shows module condition.

ALM - Alarm LED is lit when an internal alarm condition exists.

3. MEMORY: Non-volatile memory retains all programmable parameters.

4. COMMUNICATIONS: Provided by the Graphite host device

5. OUTPUTS:

Channels: 4 independent outputs

Response Time: 25 msec max. to within 99% of final value

Output Range: software selectable

OUTPUT RANGE	ACCURACY * 18 TO 28 °C 10 TO 75% RH	ACCURACY * -40 TO 75 °C 0 TO 85% RH	COMPLIANCE	RESOLUTION
0 to 5 VDC	0.2% of span	0.4% of span	10K Ω min.	1/30,000
0 to 10 VDC	0.1% of span	0.2% of span	10K Ω min.	1/60,000
-10 to +10 VDC	0.1% of span	0.2% of span	10K Ω min.	1/60,000
0 to 20 mA	0.1% of span	0.2% of span	500 Ω max.	1/60,000
4 to 20 mA	0.1% of span	0.2% of span	500 Ω max.	1/48,000

* The accuracy is specified after 20 minutes warmup; in a non-condensing environment; and includes linearity errors.

6. ISOLATION LEVEL: The outputs are isolated from each other, and are isolated from the power supply. 500 V @ 50/60 Hz for 1 minute between any of the outputs and the Host power supply input.

7. ENVIRONMENTAL CONDITIONS:

Operating Temperature Range: -40 to 70 °C T_{AMB}, or lowest range among equipment used in your Graphite system.

Consult the user manual or www.redlion.net/OpTemp for further details.

Storage Temperature Range: -40 to +85 °C T_{AMB}

Operating and Storage Humidity: 0 to 85% max. Relative humidity, non-condensing

Altitude: Up to 2000 meters

8. CERTIFICATIONS AND COMPLIANCES:

CE Approved

EN 61326-1 Immunity to Industrial Locations

IEC/EN 61010-1

RoHS Compliant

ATEX/UKEX Approved

Ⓜ II 3 G Ex nA IIC T4 Gc

DEMKO 14 ATEX 1387X

EN 60079-0, -11, -15, -31

UL23UKEX2879X

IECEX Approved

Ex nA IIC T4 Gc

IECEX UL 15.0035X

IEC 60079-0, -11, -15, -31

India PESO Approved:

A/P/HQ/MH/104/7441 (P549599)

UL Listed: File #E302106

UL Hazardous: File #E317425

ABS Type Approval for Shipboard Applications

9. CONSTRUCTION: Case body is all metal construction.

10. CONNECTIONS: Removable wire clamp screw terminal blocks.

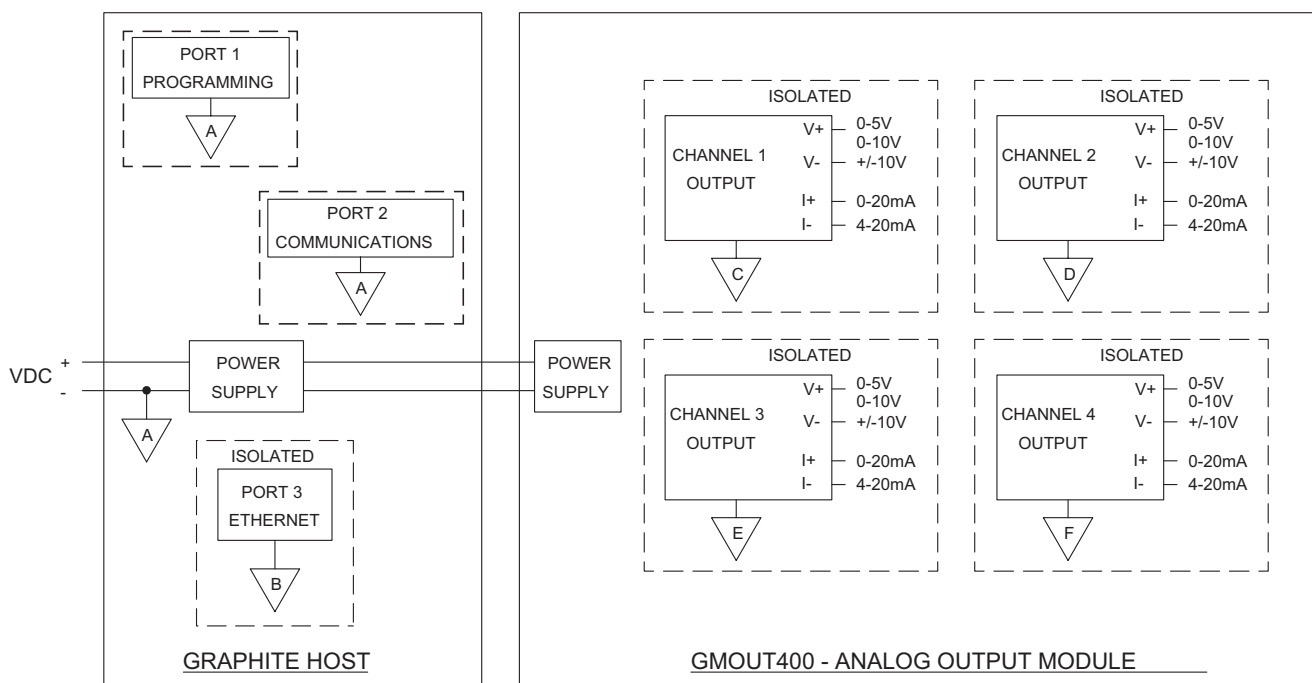
Wire Gage: 28-16 AWG (0.32 mm - 1.29 mm) terminal gage wire

Torque: 1.95-2.21 inch-lbs (0.22-0.25 N-m)

11. MOUNTING: Screws to host

12. WEIGHT: 8 oz (224 g)

Block Diagram for GMOUT

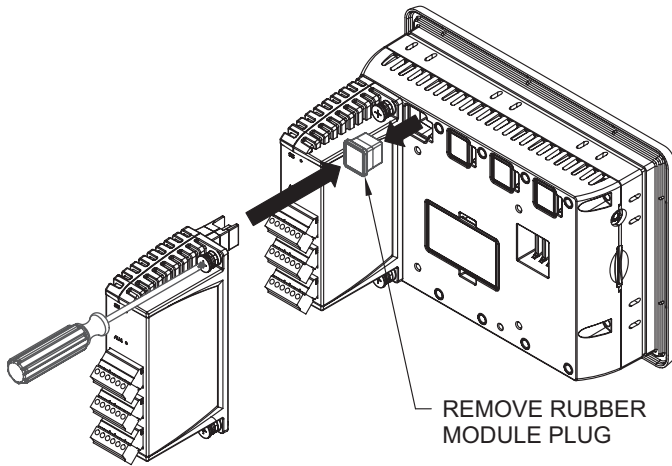


EMC INSTALLATION GUIDELINES

Visit <http://www.redlion.net/emi> for more information on EMI guidelines, Safety and CE issues as they relate to Red Lion products.

HARDWARE INSTALLATION

The physical order of all installed modules must match the modules order in Crimson. Torque screws to 6.0 pound-force inch [96 ounce-force inch] (0.68 Nm).



REMOVE RUBBER MODULE PLUG

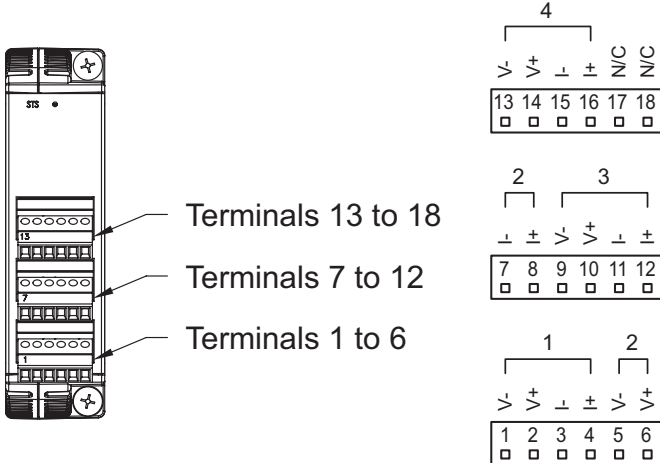
WARNING: Disconnect all power to the unit before installing or removing modules.

WIRING

WIRING CONNECTIONS

WARNING - EXPLOSION HAZARD - Do not connect or disconnect cables while power is applied unless area is known to be non-hazardous.

All conductors should meet voltage and current ratings for each terminal. Also, cabling should conform to appropriate standards of good installation, local codes and regulations and be suitably rated for the temperatures of the environment to which it is being installed. When wiring the module, use the numbers on the label to identify the position number with the proper function. Strip the wire, leaving approximately 1/4" (6 mm) of bare wire exposed. Insert the wire into the terminal, and tighten.



LEDs

STS - STATUS LED

The Status LED is a green LED that provides information regarding the state of the module. This includes indication of the various stages of the start-up routine (power-up), as well as any errors that may occur.

STARTUP ROUTINE

LED	INDICATION
Off	Module is currently running the boot loader and/or being flash upgraded by Crimson.
Flashing Green	Module switching to configuration.
Green	Module performing normally.

ERROR STATES

LED	INDICATION
Flashing Green	Module is controlling properly, but has lost communication with the Host.

ALM - ALARM LED

The Alarm LED indicates the presence of an input fault condition.

FIRMWARE UPGRADE

The module's firmware is stored in flash memory so that software/hardware conflicts are avoided, and so features can be added in the future.

During a download, Crimson compares its own library of firmware files with those stored in the module. If they do not match, Crimson will download the necessary firmware.

CONFIGURATION

Programming is done via Crimson® software, a Windows® compatible configuration interface. Please see the Crimson manual for more information.

RED LION CONTROLS TECHNICAL SUPPORT

If for any reason you have trouble operating, connecting, or simply have questions concerning your new product, contact Red Lion's technical support.

Support: support.redlion.net
 Website: www.redlion.net
 Inside US: +1 (877) 432-9908
 Outside US: +1 (717) 767-6511

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(a) Red Lion Controls Inc. (the "Company") warrants that all Products shall be free from defects in material and workmanship under normal use for the period of time provided in "Statement of Warranty Periods" (available at www.redlion.net) current at the time of shipment of the Products (the "Warranty Period"). **EXCEPT FOR THE ABOVE-STATED WARRANTY, COMPANY MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO THE PRODUCTS, INCLUDING ANY (A) WARRANTY OF MERCHANTABILITY; (B) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; OR (C) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.** Customer shall be responsible for determining that a Product is suitable for Customer's use and that such use complies with any applicable local, state or federal law.

(b) The Company shall not be liable for a breach of the warranty set forth in paragraph (a) if (i) the defect is a result of Customer's failure to store, install, commission or maintain the Product according to specifications; (ii) Customer alters or repairs such Product without the prior written consent of Company.

(c) Subject to paragraph (b), with respect to any such Product during the Warranty Period, Company shall, in its sole discretion, either (i) repair or replace the Product; or (ii) credit or refund the price of Product provided that, if Company so requests, Customer shall, at Company's expense, return such Product to Company.

(d) **THE REMEDIES SET FORTH IN PARAGRAPH (c) SHALL BE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDY AND COMPANY'S ENTIRE LIABILITY FOR ANY BREACH OF THE LIMITED WARRANTY SET FORTH IN PARAGRAPH (a).**

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