REDLION®

Model GMDN - Graphite® DeviceNet® Module
Installation Guide

DeviceNet® CONFORMANCE TESTED

- Configured using Crimson® software (version 3.0 or later)
- Digitally isolated DeviceNet port capable of communicating with any DeviceNet protocol device
- Powered and configured from Graphite host device

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IND.CONT. EQ.
E302106
E317425

FOR USE IN HAZARDOUS LOCATIONS:
Class I, Division 2, Groups A, B, C, and D
T4

UKCA CE ⟨Ex⟩

II 3 G Ex nA IIC T4 Gc
-40°C≤T_{AMB}≤75°C
DEMKO 14 ATEX 1387X
IECEx UL 15.0035X
UL22UKEX2879X

GENERAL DESCRIPTION

The model GMDN is a DeviceNet module designed for use with the Graphite products. The module gives the Graphite host device a DeviceNet slave communications port. It is built with digital isolation to protect the Graphite host device from the DeviceNet bus and vice versa. It provides the ability to communicate to any high speed DeviceNet master. The connector is pluggable for easy removal of the GMDN module from the DeviceNet bus, without disturbing communications with other devices on the bus.

The modules connect and communicate via proprietary USB connection to the various Graphite devices. The Graphite devices, equipped with serial ports as well as 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 model for details. Remove power from the host device before installing or replacing any modules.
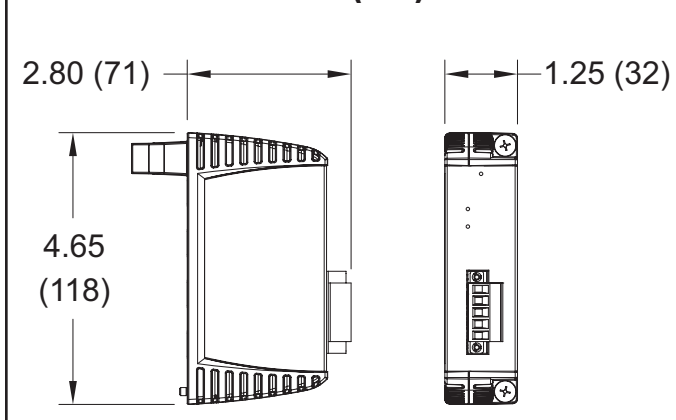
CONFIGURATION

The Graphite is configured with Windows® compatible Crimson 3 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 and 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 specified.

| ⚠ | **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 |

DIMENSIONS In inches (mm)

2.80 (71)   1.25 (32)

4.65 (118)

ORDERING INFORMATION

DESCRIPTION	PART NUMBER
Graphite Module, DeviceNet Interface	GMDN0000

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

SPECIFICATIONS

1. **POWER REQUIREMENTS**: 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 installation guides for specific usage and power requirements. **GMDN Max Power: 1.2 W**

2. **COMMUNICATIONS**:

   DeviceNet Port: The DeviceNet port has format and baud rates that are software programmable up to 500K baud and is digitally isolated. This port may be configured for various DeviceNets.

   Isolation from GMDN Communication ports to Graphite host device: 1000 VDC for 1 minute.

3. **ENVIRONMENTAL CONDITIONS**:

   Operating Temperature Range: -40 to 75 °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: 85% max relative humidity, non-condensing.

   Altitude: Up to 2000 meters

4. **CERTIFICATIONS AND COMPLIANCES**:

   CE Approved
   EN 61326-1 Immunity to Industrial Locations
   IEC/EN 61010-1
   RoHS Compliant

   ATEX/UKEX Approved
   ⟨Ex⟩ II 3 G Ex nA IIC T4 Gc
   DEMKO 14 ATEX 1387X
       EN 60079-0, -11, -15, -31
   UL22UKEX2879X

   IECEx Approved
   Ex nA IIC T4 Gc
   IECEx UL 15.0035X
       IEC 60079-0, -11, -15, -31
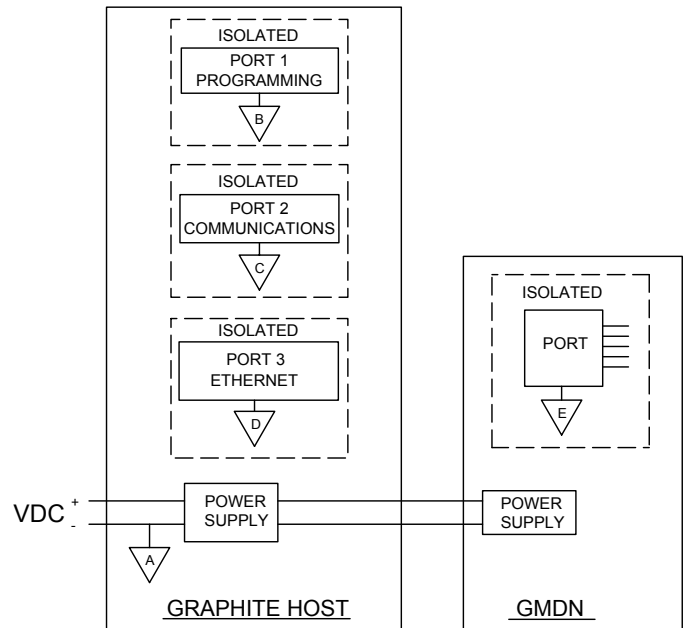
   India PESO Approved
   A/P/HQ/MH/104/7441 (P549599)

   UL Listed: File #E302106
   UL Hazardous: File #E317425
   ABS Type Approval for Shipboard Applications

5. **CONSTRUCTION**: Case body is all metal construction.

6. **CONNECTIONS**: Removable wire clamp screw terminal blocks.
   Wire Gage: 28-14 AWG (0.32 mm - 1.63 mm) terminal gage wire.
   Torque: 1.95-2.21 inch-lbs (0.22 - 0.25 N-m)

7. **MOUNTING**: Screws to host.
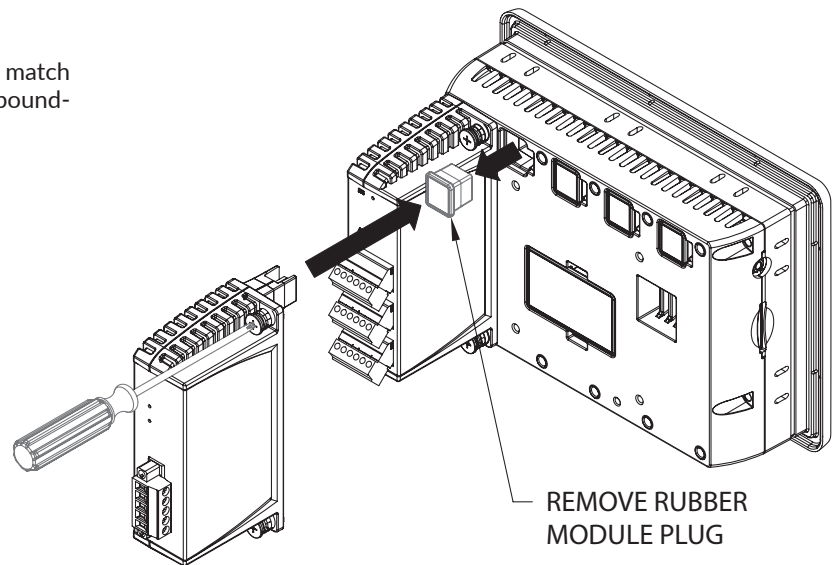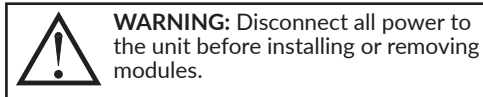
8. **WEIGHT**: 6.9 oz (196 g)

Block Diagram for GMDN

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).

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

REMOVE RUBBER
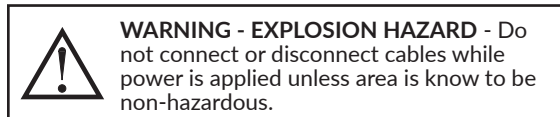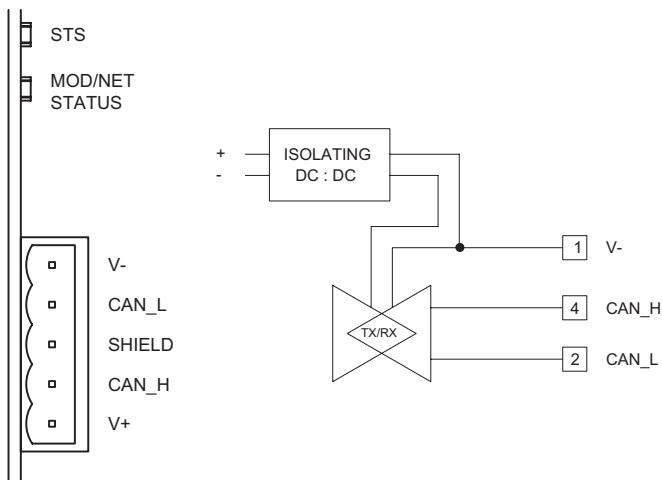MODULE PLUG

COMMUNICATING WITH THE GMDN MODULES

CONFIGURATION

Programming is done via Crimson 3 software, a Windows® compatible configuration interface. Please see the Crimson manual for more information.

DeviceNet PORT PROTOCOLS

The GMDN module has one DeviceNet port. This port may be configured for various DeviceNet protocols.

Figure 3. GMDN PORT PIN OUTS

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

V-

Position 1 of the pluggable connector provides a CAN ground connection. This terminal is isolated from the Graphite host device.

CAN_L

Position 2 of the pluggable connector provides the CAN_L bus line (active low). This terminal is isolated from the Graphite host device.

SHLD (CAN SHIELD)

Position 3 of the pluggable connector is provided for shield connections. This position is available to tie shield wires to earth ground. The SHLD position is internally tied to the Graphite Host device enclosure.

CAN_H

Position 4 of the pluggable connector provides the CAN_H bus line (active high). This terminal is isolated from the Graphite host device.

V+

Position 5 of the pluggable connector is V+ (Network Power). Network power is required for correct operation of the GMDN module as detailed in the DeviceNet specification. For example, baud rate changes are not effective until after a Network power cycle.

Note: DeviceNet network power does not power the Graphite host device.

DeviceNet® SPECIFICATIONS
NETWORK POWER SUPPLY
Source: Supplied by DeviceNet bus.
The bus does not power the module.
Voltage: 11 to 25 VDC.
Current: Nominal: 20 mA at 11 VDC; 40 mA at 25 VDC.

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LEDs

STS – Status LED

The Status LED is a green/red 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
Flashing Red	Module is currently running the boot loader and/or being flash upgraded by Crimson.
Green	Module performing normally.

Error States

LED	INDICATION
Flashing Green	Module has lost communication with the Host.

MOD/NET STATUS LED

LED	INDICATION
Off	The device is offline.
Flashing Green	The device is online and is waiting communications from other devices.
Green	The device is online and has established communications with another device.
Flashing Red	Communication timeout or network power not present.
Red	The device has detected an error that has rendered it incapable of communicating on the network (duplicate MAC ID or bus inactivity).

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.

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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