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Tel +1 (717) 767-6511
Fax +1 (717) 764-0839
www.redlion.net

MODEL G3RS - RS232/485 OPTION CARD FOR G3 OPERATOR INTERFACE TERMINALS

Connector (side 2)

mounting holes, 3 plcs.
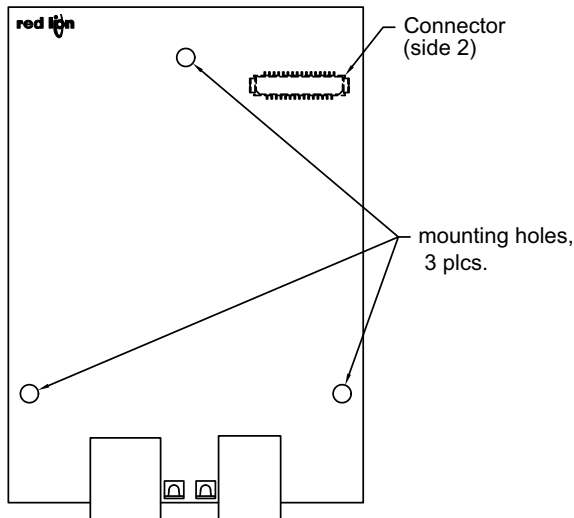
- CONFIGURED USING CRIMSON SOFTWARE (VERSION 2.0 OR LATER)
- ISOLATED RS232 AND RS485 MULTIPLEXED PORTS CAPABLE OF COMMUNICATING WITH RS232, RS422, RS485, AND DH485 DEVICES AT UP TO 115,200 BAUD.
- POWERED AND CONFIGURED FROM G3 OPERATOR INTERFACE TERMINAL
- INSTALLATION AND CONNECTION HARDWARE INCLUDED WITH CARD

GENERAL DESCRIPTION

The G3 proprietary expansion slot provides a high speed, parallel architecture that extends the functionality and flexibility of the G3 series HMI. This approach allows the G3 series to evolve concurrently with the latest advances in communications and standards, without sacrificing performance. This high bandwith channel has significantly greater throughput when compared to the traditional (external) serial gateway approach.

The G3RS option card is easily installed by removing the rear cover of your G3 operator interface, attaching the card using three screws and connecting a single cable. Adding this card gives the operator interface another RS232 port and RS422/485 port. It is built with isolation to protect equipment from potentially harmful ground loops, and provides high speed RS232, RS422, RS485, and DH485 communications for many different types of hardware.

SAFETY SUMMARY

All safety related regulations, local codes and instructions that appear in the literature or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Do not use the controller to directly command motors, valves, or other actuators not equipped with safeguards. To do so can be potentially harmful to persons or equipment in the event of a fault to the controller.

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

CONTENTS OF PACKAGE

- G3RS Option Card
- Cable already attached to G3RS option card
- Hardware pack consisting of three screws
- This hardware bulletin

ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBER
G3RS	RS232/485 option card for G3 operator interfaces with isolated high speed communications ports	G3RS0000
CBL	Communications Cables [1]	CBLxxxxx
DR	DIN Rail Mountable Adapter Products [2]	DRxxxxxx
SFCRM2	Crimson 2.0 [3]	SFCRM200

[1] Contact your Red Lion distributor or visit www.redlion.net/g3 for complete selection.

[2] Red Lion offers RJ modular jack adapters. Refer to the DR literature for complete details.

[3] Use this part number to purchase Crimson on CD with a printed manual, USB cable, and RS-232 cable. Otherwise, download from www.redlion.net/g3.

⚠ THIS EQUIPMENT IS SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C, D, HAZARDOUS LOCATIONS, OR NON-HAZARDOUS LOCATIONS ONLY

⚠ WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.

⚠ WARNING - EXPLOSION HAZARD - SUBSTITUTION OF ANY COMPONENT MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2

SPECIFICATIONS

1. **POWER REQUIREMENTS**:
   Power is supplied to the option card from the main board of your G3 operator interface.

2. **COMMUNICATIONS**:
   Serial Ports: Format and Baud Rates for each port are individually software programmable up to 115,200 baud and are isolated to help prevent ground loops. The RS422/485 and DH485 port via RJ45 and the RS232 port via RJ12 share the same hardware. The G3RS option card multiplexes the ports to communicate via two protocols. These ports may be used to configure different master protocols, but only one port may be used if configuring a slave protocol or AB DH485.

   DH485 TXEN: Transmit enable; open collector, V_{OH} = 15 VDC, V_{OL} = 0.5

   Isolation from G3RS Communication ports to G3 operator interface: 1000 VDC for 1 minute.

3. **CERTIFICATIONS AND COMPLIANCES**:
   ELECTROMAGNETIC COMPATIBILITY
   Emissions and Immunity to EN 61326: Electrical Equipment for Measurement, Control and Laboratory use.
   Immunity to Industrial Locations: Reference G3 unit for emissions and immunity specifications

4. **ENVIRONMENTAL CONDITIONS**:
   Operating Temperature Range: 0 to 50 °C
   **Storage Temperature Range**: -20 to 80 °C
   Operating and Storage Humidity: 80% maximum relative humidity (non-condensing) from 0 to 50 °C.
   Altitude: Up to 2000 meters.

5. **CONSTRUCTION**: Installation Category I, Pollution Degree 2.

6. **INSTALLATION REQUIREMENTS**: Card must be installed inside the rear cover of a G3 operator interface with the hardware provided. See "Installing the G3RS Option Card" for more details.

BLOCK DIAGRAM
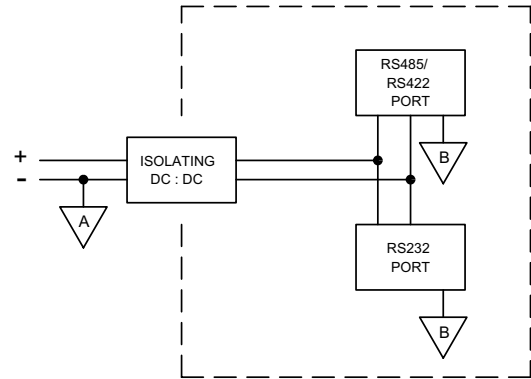
INSTALLING THE G3RS OPTION CARD

INSTALLATION INSTRUCTIONS

Caution: The option and main circuit boards contain static sensitive components. Before handling the cards, discharge static charges from your body by touching a grounded bare metal object. Ideally, handle the cards at a static controlled clean workstation. Also, handle the cards by the edges only. Dirt, oil, or other contaminants that may contact the cards can adversely affect circuit operation.

Warning: Depending upon the G3 operator interface, high voltage may be present inside the operator interface. Be sure to remove all power before removing the rear cover of the operator interface.

Each G3RS option card comes with a cable for communications and three screws for attaching the option card to the inside of the G3 operator interface's rear cover.

To install the option card remove all power and I/O communications cables from the unit. The G3 operator interface literature contains instructions for removing the rear cover, refer to the "Battery & Time Keeping" section.

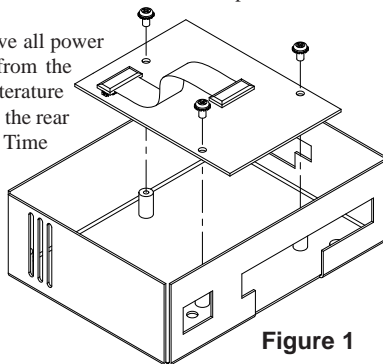Using the three screws provided connect the option card to the rear cover as shown in Figure 1.
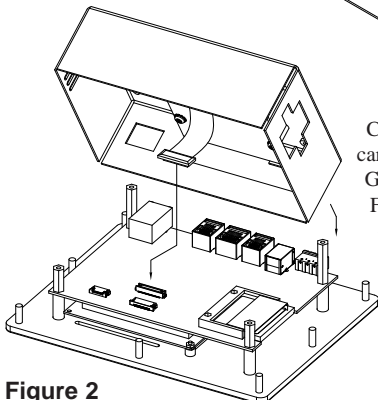

Figure 1

Connect the cable from the option card to CN11 on the main board of the G3 operator interface as shown in Figure 2. Be sure both ends of the cables are firmly seated into their appropriate connector housing.

Carefully replace the rear cover by reversing the instructions for removing the rear cover.

Figure 2

THE OPTION CARD LABEL

Place the option card label on your rear cover in the space indicated by the dashed lines and labeled "COMMS EXPANSION MODULE."
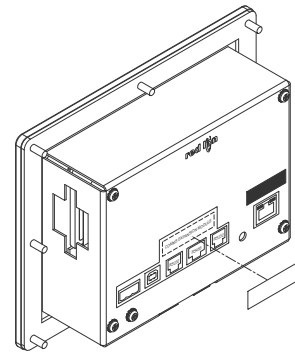
POWER SUPPLY REQUIREMENTS

NEW AND EXISTING INSTALLATIONS

The G3RS option card draws all of its power from the main board of your G3 operator interface. The specifications of your G3 operator interface account for the power needs of an option card.

COMMUNICATING WITH THE G3RS OPTION CARD
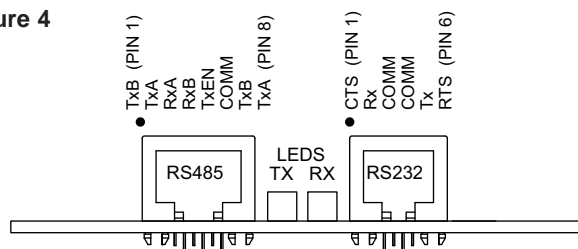
CONFIGURING A G3RS OPTION CARD

The G3RS is configured using Crimson software. Crimson is available as a free download from www.redlion.net/g3, or it can be ordered on CD. Updates to Crimson for new features and drivers are posted on the website as they become available. By configuring the G3RS using the latest version of Crimson, you are assured that your unit has the most up-to-date feature set. Crimson software can configure the G3RS through the RS232 PGM port, USB port, Ethernet port, or CompactFlash socket on your G3 operator interface. Additional information can be found in your G3 hardware bulletin and the Crimson user manual.

CABLES AND DRIVERS

Red Lion has a wide range of cables and drivers for use with many different communication types. A list of these drivers and cables along with pin outs is available from www.redlion.net/g3. New cables and drivers are added on a regular basis. If making your own cable, refer to the "G3RS Port Pin Outs" for wiring information.

### G3RS PORT PIN OUTS

Figure 4

RS232 PORTS

The G3RS option card has one RS232 port. The port can be used for either master or slave protocols with any G3 configuration. The RS232 port and RS422/485 port on the G3RS option card are multiplexed because they share the same hardware. Both ports can be used with master protocols. However, when the RS232 port is used with a slave protocol, the RS422/485 port is not available.

For examples of RS232 communications refer to your G3 operator interface literature.

RS422/485 COMMS PORT

The G3RS option card has one RS422/485 port. This port can be configured to act as either RS422 or RS485.

The RS422/485 port and RS232 port are multiplexed because they share the same hardware. Both ports can be used with master protocols. However, when the RS422/485 port is used with a slave protocol, the RS232 port is not available.
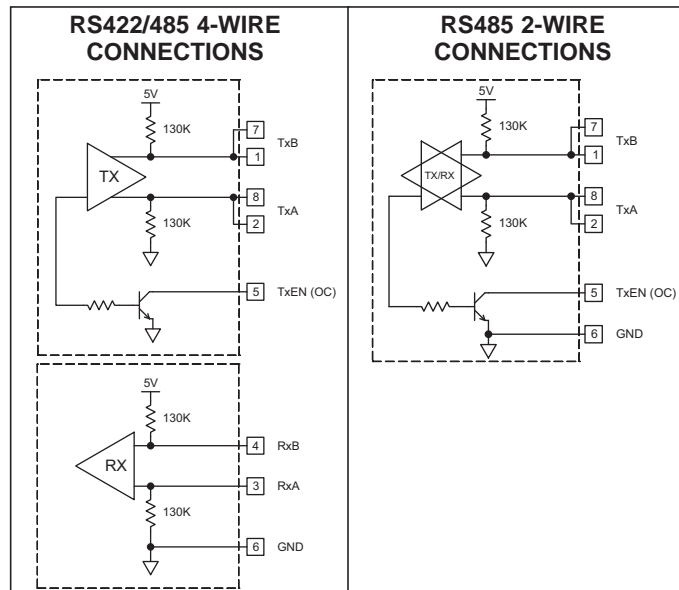
Note: All Red Lion devices connect A to A and B to B, except for Paradigm devices. Refer to www.redlion.net for additional information.

For examples of RS422/485 communications refer to your G3 operator interface literature.

DH485 COMMUNICATIONS

The G3RS option card's RS422/485 port can also be used for Allen Bradley DH485 communications. When this port is configured to communicate DH485, the RS232 port can not be used because the ports share the same hardware and the G3RS option card multiplexes the ports to communicate via two protocols.

WARNING: **DO NOT** use a standard DH485 cable to connect this port to Allen Bradley equipment doing so may cause irreparable damage to the equipment connected. A cable and wiring diagram are available from Red Lion.

G3 to AB SLC 500 (CBLAB003)

Connections			
RJ45: RLC	Name	RJ45: A-B	Name
1	TxB	1	A
2	TxA	2	B
3, 8	RxA	-	24V
4, 7	RxB	-	COMM
5	TxEN	5	TxEN
6	COMM	4	SHIELD
4, 7	TxB	-	COMM
3, 8	TxA	-	24V

SOFTWARE/UNIT OPERATION

LEDS

The transmit LED(TX) will flash when information is transmitted from the G3RS card. The receive LED(RX) will flash when information is received.

CRIMSON SOFTWARE

Crimson 2.0 software is available as a free download from www.redlion.net or it can be purchased on a CD, see "Ordering Information" for part number. The latest version of the software is always available from the web site, and updating your copy is free.

TROUBLESHOOTING YOUR G3RS OPTION CARD

If for any reason you have trouble operating, connecting, or simply have questions concerning your new G3RS option card, contact Red Lion's technical support. For contact information, refer to the back page of this bulletin for phone and fax numbers.

EMAIL: techsupport@redlion.net
Web Site: http://www.redlion.net

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