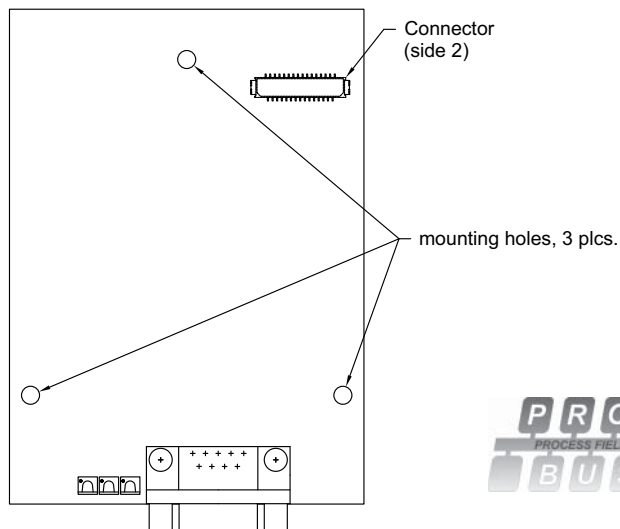


## MODEL G3PB - PROFIBUS OPTION CARD FOR G3 OPERATOR INTERFACE TERMINALS



- ADDS PROFIBUS DP CONNECTIVITY TO ANY G3 OPERATOR INTERFACE
- POWERED BY THE G3 OPERATOR INTERFACE
- 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 bandwidth channel has significantly greater throughput when compared to the traditional (external) serial gateway approach.

The G3PB option card adds PROFIBUS DP connectivity to any G3 series HMI. This allows a high speed exchange of blocks of data, at data rates up to 12 MBaud, between the hosting G3 and a Master PLC on a PROFIBUS network. The DP suffix refers to “Decentralized Periphery”, which is used to describe distributed I/O devices connected via a fast serial data link with a central controller.

The 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.

### 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.



### CONTENTS OF PACKAGE

- G3PB Option Card with pluggable DB9F connector
- Cable already attached to G3PB option card
- Hardware pack consisting of three screws
- This hardware bulletin

### GSD FILE

The GSD file and associated bitmap are part of the Crimson 2.0 installation. Both files can be found on your PC's hard drive at C:\Program Files\Crimson 2.0, or on our website at <http://www.redlion.net>

### ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBER
G3PB	PROFIBUS option card for G3 operator interfaces	G3PBDP00
SFCRM2	Crimson 2.0 <sup>1</sup>	SFCRM200

<sup>1</sup> Use this part number to purchase Crimson® software on CD with a printed manual, USB cable, and RS-232 cable. Otherwise, download from [www.redlion.net/g3](http://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:

**PROFIBUS Port:** FIELDBUS TYPE : PROFIBUS-DP EN 50 170, I. The PROFIBUS port has a format and baud rates that are software programmable up to 12M baud and are digitally isolated.

## 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 G3PB Option Card" for more details.

# INSTALLING THE G3PB 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 G3PB option card comes with 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.

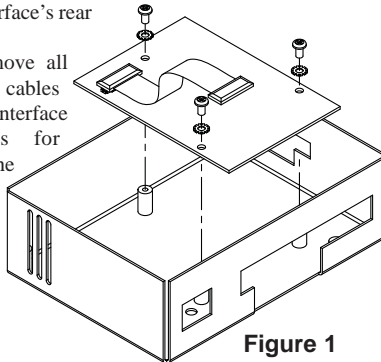


Figure 1

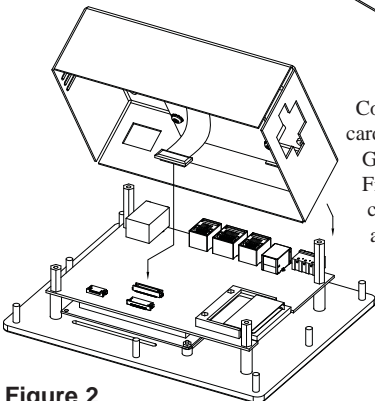


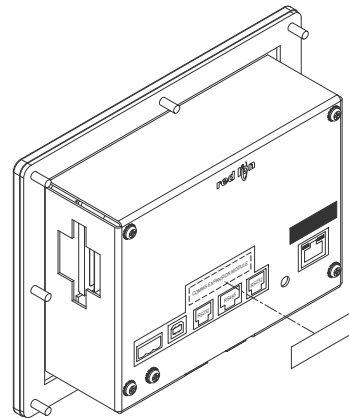
Figure 2

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.

## 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 G3PB 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 G3PB OPTION CARD

## CONFIGURING A G3PB OPTION CARD

The G3PB is configured using Crimson® software. Crimson is available as a free download from [www.redlion.net/g3](http://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 G3PB 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 G3PB card 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 also in the Crimson user manual.

To enable the option card, click on the left hand pane of the Communications window and highlight the G3 icon. In the right pane, click the Option Card Selection Edit button to show the selection dialog and select the PROFIBUS Option Card from the list. The PROFIBUS Option Card will then appear in the left hand pane, installed in the tree of available ports.

## CONFIGURING THE DRIVER

To select a driver, click on the left hand pane of the Communications window and highlight the PROFIBUS Interface icon. In the right hand pane, click the Driver Selection Edit button to show the Driver Selection dialog and select the PROFIBUS DP driver from the list.

- The Station Address of the PROFIBUS node is the only property that needs to be configured. This should be a unique address on the PROFIBUS Network in the range 1..125.

## CONFIGURING THE DATA TAGS

A PROFIBUS master exchanges data with slaves as separate input and output blocks. Data transfer direction is described with respect to the PROFIBUS Network such that input data is transferred to the network, or written by the G3 and output data is transferred from the network or read by the G3. This is important when it comes to configuring the data access for each tag mapped to a PROFIBUS data block.

## MAPPING TAGS TO A DATA BLOCK

PROFIBUS data blocks have no concept or knowledge of data type or structure – they are described by a size in bytes. Crimson’s Tag based approach to data allows for data of mixed type, bytes, 16-bit words and 32-bit words to be mapped into a single data block.

To map a data tag to a PROFIBUS Data block, click in the left hand pane of the Data Tags window, highlight the required Data Tag icon. In the right hand pane click the Data Mapping button and select the PROFIBUS device to show the Select Address for PROFIBUS DP dialog.

- The Block Type defines whether the tag will be read from (Output Block) or written to (Input Block) the PROFIBUS network
- The Data Offset is the byte address of the Data Tag within the Data Block
- The Data Type is the actual size in bytes of the data that will be mapped into the Data Block.

## CONFIGURING DATA ACCESS

As described above, Data Tags are mapped to either an Input Block and are Write only, or an Output Block and are Read Only. The Access must be selected to reflect this.

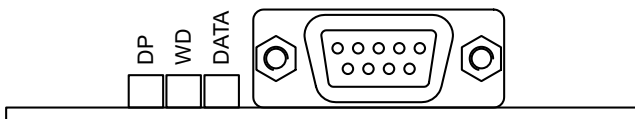
# SOFTWARE/UNIT OPERATION

## LEDS

The card has 3 LEDs visible through the Expansion Card slot that give state information, described in Table 1.

DATA (Red)	WD (Green)	DP (Red)	DESCRIPTION
OFF	SLOW ALTERNATING FLASH	SLOW ALTERNATING FLASH	Baud Search
OFF	OFF	ON	Baud Control
OFF	SLOW FLASH	FAST FLASH	Waiting for Parameter Telegram
OFF	FAST FLASH	SLOW FLASH	Waiting for Configuration Telegram
ON	OFF	OFF	Data Exchange

Table 1



## CRIMSON® SOFTWARE

Crimson® 2.0 software is available as a free download from [www.redlion.net](http://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 G3PB OPTION CARD

If for any reason you have trouble operating, connecting, or simply have questions concerning your new G3PB 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](mailto:techsupport@redlion.net)  
 Web Site: <http://www.redlion.net>

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Red Lion Controls  
Headquarters  
20 Willow Springs Circle  
York PA 17406  
Tel +1 (717) 767-6511  
Fax +1 (717) 764-0839

Red Lion Controls  
Europe  
Printerweg 10  
NL - 3821 AD Amersfoort  
Tel +31 (0) 334 723 225  
Fax +31 (0) 334 893 793

Red Lion Controls  
India  
54, Vishvas Tenement  
GST Road, New Ranip,  
Ahmedabad-382480 Gujarat, India  
Tel +91 987 954 0503  
Fax +91 79 275 31 350

Red Lion Controls  
China  
Unit 101, XinAn Plaza  
Building 13, No.99 Tianzhou Road  
ShangHai, P.R. China 200223  
Tel +86 21 6113-3688  
Fax +86 21 6113-3683