

## MODEL XCRS - RS232/485 OPTION CARD FOR DATA STATION PLUS AND MODULAR CONTROLLER



- 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
- EASY INSTALLATION

### GENERAL DESCRIPTION

Both the Modular Controller Master (enhanced models) and Data Station Plus contain a proprietary expansion port which provides a high speed, parallel architecture that extends the functionality and flexibility of the platform. This approach allows these products 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 XCRS option card adds an additional RS232 and RS422/485 port to the series. This isolated card protects user equipment from potentially harmful ground loops while providing high-speed RS232, RS422, RS485, and DH485 communication options to the end user.

The XCRS communication card is easily installed by removing the blank expansion port cover of your Modular Controller or Data Station Plus, and plugging the XCRS card into the expansion port. Configuration is simple using Red Lion's free Crimson 2.0 software.

### 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.

	<p><b>CAUTION: Risk of Danger.</b>                  Read complete instructions prior to installation and operation of the unit.</p>
---	---

### CONTENTS OF PACKAGE

- XCRS option card
- This hardware bulletin

### ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBER
XCRS	RS232/485 option card for Modular Controller or Data Station Plus	XCRS0000
CBL	Communication Cables <sup>1</sup>	CBLxxxxx
DR	DIN Rail Mountable Adapter Products <sup>2</sup>	DRxxxxxx
SFCRM2	Crimson 2.0 with G3/Data Station Manual <sup>3</sup>	SFCRM200
SFCRM2	Crimson 2.0 with Modular Controller Manual <sup>3</sup>	SFCRM2MC

- <sup>1</sup> Contact your Red Lion distributor or visit [www.redlion.net](http://www.redlion.net) for complete selection.
- <sup>2</sup> Red Lion offers RJ modular jack adapters. Refer to DR literature for complete details.
- <sup>3</sup> Use these part numbers to purchase Crimson 2.0 on CD with a printed manual, USB cable and RS-232 cable. Otherwise, download free of charge from [www.redlion.net](http://www.redlion.net).

### SPECIFICATIONS

- POWER REQUIREMENTS:** Power is supplied to the option card from the main board of the Modular Controller Master or Data Station Plus.
- 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 XCRS 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,  $V_{OH} = 15 \text{ VDC}$ ,  $V_{OL} = 0.5 \text{ VDC}$
  - Isolation from XCRS Communication ports to the Modular Controller Master or Data Station Plus:** 1000 VDC for 1 minute.
- CERTIFICATIONS AND COMPLIANCES:**
  - Refer to main unit manual or "Agency Approvals" section of Red Lion's website for agency certifications.
  - ELECTROMAGNETIC COMPATIBILITY**
  - Emissions and Immunity to EN 61326: Electrical Equipment for Measurement, Control and Laboratory use.
  - Reference Modular Controller Master or Data Station Plus unit for EMC specifications

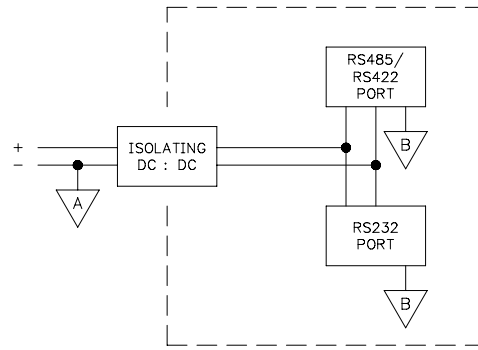
**4. ENVIRONMENTAL CONDITIONS:**

- 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:** See "Installing the XCRS Option card" for more details.

**BLOCK DIAGRAM**



**INSTALLING THE XCRS OPTION CARD**

1. Remove power from the unit
2. Insert a flat-bladed screwdriver into the slot at the top of the expansion port cover. Gently apply pressure on the screwdriver in an upward direction until the expansion port cover disengages from the unit as shown in Figure 1.
3. Verify that the option card knobs are in the "unlocked" position as shown in Figure 2.
4. Carefully insert the option card into the expansion port opening while aligning the card-edge connector on the option card with the main board's header, as shown in Figure 3. Once aligned, gently press on the front of the card until it is flush with the front of the case.
5. Turn the option card knobs to the locked position as shown in Figure 4.



**Caution:** The expansion 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: Risk of Danger:** Be sure to remove all power before removing the expansion port cover

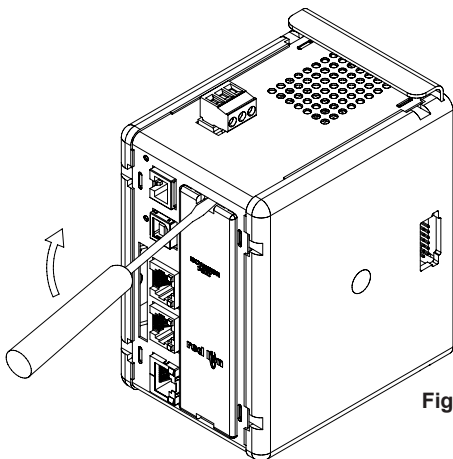


Figure 1

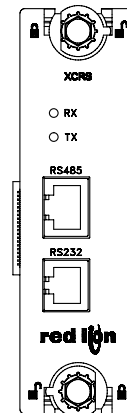


Figure 2

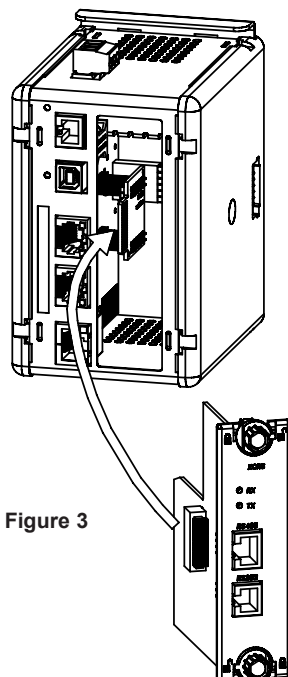


Figure 3

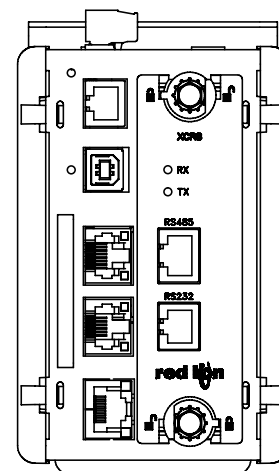


Figure 4

## POWER SUPPLY REQUIREMENTS NEW AND EXISTING INSTALLATIONS

The XCRS option card draws all of its power from the main board of the Modular Controller Master or Data Station Plus. The specifications of the Modular Controller Master or Data Station Plus account for the power needs of an option card.

## COMMUNICATING WITH THE XCRS OPTION CARD CONFIGURING A XCRS OPTION CARD

The XCRS is configured using Crimson software. Crimson is available as a free download from [www.redlion.net](http://www.redlion.net), 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 XCRS 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 XCRS through the RS232 PGM port, USB port, Ethernet port, or CompactFlash socket on your Modular Controller Master or Data Station Plus. Additional information can be found in your Modular Controller Master or Data Station Plus 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](http://www.redlion.net). New cables and drivers are added on a regular basis. If making your own cable, refer to the "XCRS Port Pin Outs" for wiring information.

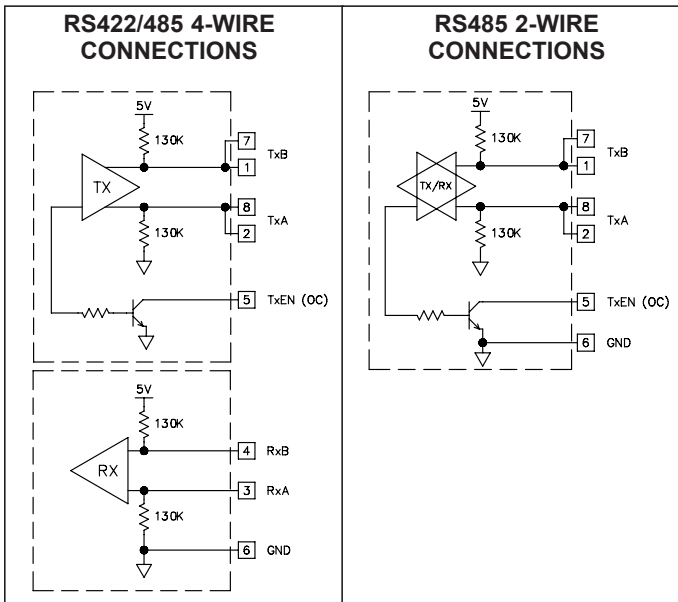
## RS232 PORTS

The XCRS option card has one RS232 port. The port can be used for either master or slave protocols with any Modular Controller Master or Data Station Plus configuration. The RS232 port and RS422/485 port on the XCRS 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 Modular Controller Master or Data Station Plus literature.

## RS422/485 COMMS PORT

The XCRS 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](http://www.redlion.net) for additional information.  
For examples of RS422/485 communications refer to your Modular Controller Master or Data Station Plus literature.

## DH485 COMMUNICATIONS

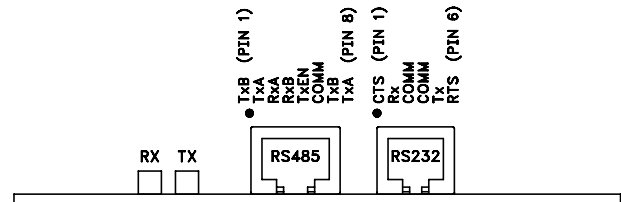
The XCRS option card's RS422/485 port can also be used for Allen Bradley DH485 communications. When this port is configured to communicate DH485, the RS232 port can not be used because the ports share the same hardware and the XCRS option card multiplexes the ports to communicate via two protocols.

**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.

## Modular Controller Master or Data Station Plus 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 OPERATIONS XCRS PORT PIN OUTS



## LEDS

The transmit LED(TX) will flash when information is transmitted from the XCRS 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](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 XCRS OPTION CARD

If for any reason you have trouble operating, connecting, or simply have questions concerning your new XCRS 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>

### **LIMITED WARRANTY**

The Company warrants the products it manufactures against defects in materials and workmanship for a period limited to two years from the date of shipment, provided the products have been stored, handled, installed, and used under proper conditions. The Company's liability under this limited warranty shall extend only to the repair or replacement of a defective product, at The Company's option. The Company disclaims all liability for any affirmation, promise or representation with respect to the products.

The customer agrees to hold Red Lion Controls harmless from, defend, and indemnify RLC against damages, claims, and expenses arising out of subsequent sales of RLC products or products containing components manufactured by RLC and based upon personal injuries, deaths, property damage, lost profits, and other matters which Buyer, its employees, or sub-contractors are or may be to any extent liable, including without limitation penalties imposed by the Consumer Product Safety Act (P.L. 92-573) and liability imposed upon any person pursuant to the Magnuson-Moss Warranty Act (P.L. 93-637), as now in effect or as amended hereafter.

No warranties expressed or implied are created with respect to The Company's products except those expressly contained herein. The Customer acknowledges the disclaimers and limitations contained herein and relies on no other warranties or affirmations.

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

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

Red Lion Controls AP  
31, Kaki Bukit Road 3,  
#06-04/05 TechLink  
Singapore 417818  
Tel +65 6744-6613  
Fax +65 6743-3360