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Bulletin No. XCDN-X
Drawing No. LP0668
Effective 7/07

MODEL XCDN - DeviceNet OPTION CARD FOR DATA STATION PLUS AND MODULAR CONTROLLER

- *CONFIGURED USING CRIMSON SOFTWARE (VERSION 2.0 OR LATER)*
- *DIGITALLY ISOLATED DeviceNet PORT CAPABLE OF COMMUNICATING WITH ANY DeviceNet MASTER*
- *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 XCDN option card adds a DeviceNet slave communication port to the series. This isolated card protects user equipment from potentially harmful ground loops while providing the ability to communicate to any high speed DeviceNet master. Additionally, the XCDN connector is pluggable for easy removal of the Modular Controller Master or Data Station Plus from the DeviceNet bus without disturbing communications with other devices on the bus.

The XCDN communication card is easily installed by removing the blank expansion port cover of your Modular Controller or Data Station Plus, and plugging the XCDN 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.

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

ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBER
XCDN	DeviceNet option card for Modular Controller or Data Station Plus	XCDN0000
SFCRM2	Crimson 2.0 with G3/Data Station Manual [1]	SFCRM200
SFCRM2	Crimson 2.0 with Modular Controller Manual [1]	SFCRM2MC

[1] 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.

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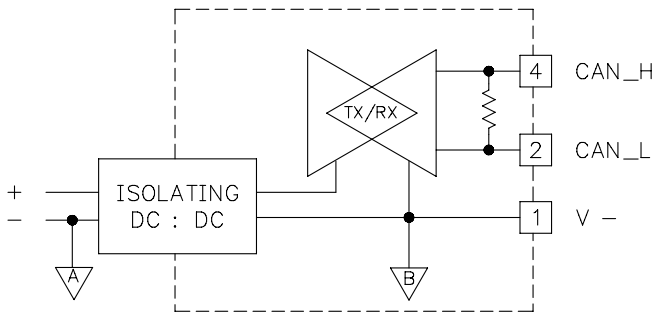
- This hardware bulletin

SPECIFICATIONS

1. **POWER REQUIREMENTS:** Power is supplied to the option card from the main board of the Modular Controller Master or Data Station Plus.
2. **COMMUNICATIONS:**
   DeviceNet Port: The DeviceNet port has format and baud rates that are software programmable up to 500K baud and are digitally isolated. This port may be configured for various DeviceNet protocols. Check www.redlion.net for currently supported protocols.
   Isolation from XCDN Communication ports Modular Controller Master or Data Station Plus: 1000 VDC for 1 minute.
3. **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 XCDN Option card" for more details.

BLOCK DIAGRAM



INSTALLING THE XCDN 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

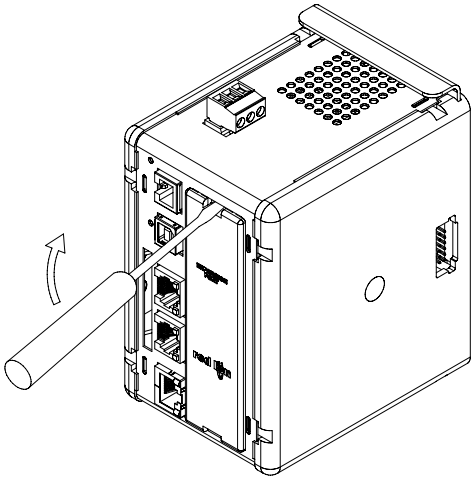


Figure 1

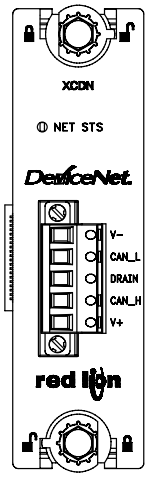


Figure 2

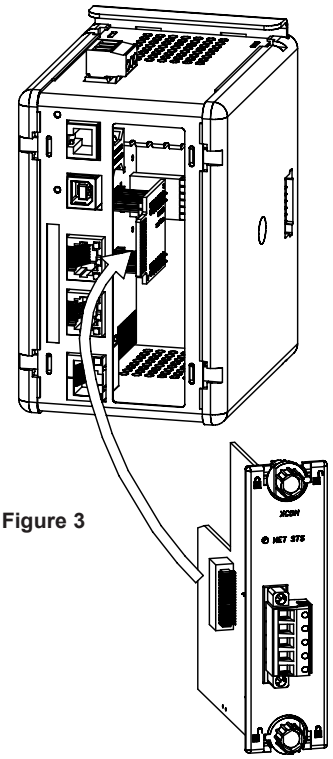


Figure 3

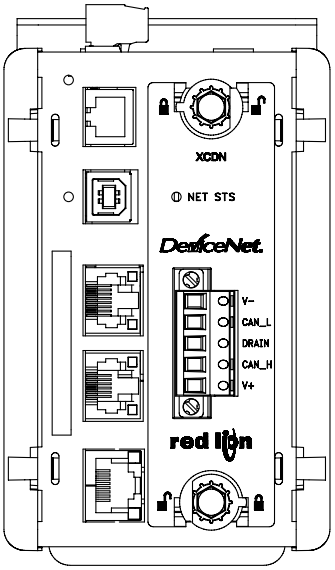


Figure 4

POWER SUPPLY REQUIREMENTS
NEW AND EXISTING INSTALLATIONS

The XCDN 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.

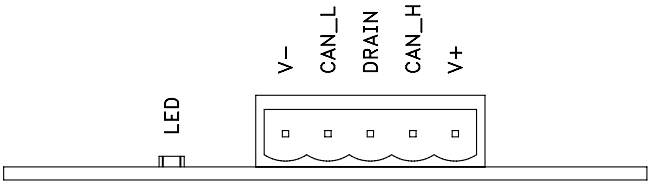
COMMUNICATING WITH THE XCDN OPTION CARD
CONFIGURING A XCDN OPTION CARD

The XCDN is configured using Crimson software. Crimson is available as a free download from 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 XCDN 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 XCDN 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.

DeviceNet PORT PROTOCOLS

The XCDN option card has one DeviceNet port. This port may be configured for various DeviceNet protocols. Check www.redlion.net for currently supported protocols.

XCDN PORT PIN OUTS



V-

Position 1 of the pluggable connector provides a CAN ground connection. This terminal is isolated from the Modular Controller Master and Data Station Plus.

CAN_L

Position 2 of the pluggable connector provides the CAN_L bus line (active low). This terminal is isolated from the Modular Controller Master and Data Station Plus.

DRAIN (OPTIONAL)

Position 3 of the pluggable connector is provided for optional drain connections. This position is available only to tie drain wires together or to earth ground. There is no internal connection to earth ground. The DRAIN position is not connected to any circuitry internal to the XCDN option card or Modular Controller Master and Data Station Plus.

CAN_H

Position 4 of the pluggable connector provides the CAN_H bus line (active high). This terminal is isolated from the Modular Controller Master and Data Station Plus.

V+ (OPTIONAL 24 VDC)

Position 5 of the pluggable connector is provided for optional 24 VDC connections. This position is available only to tie 24 VDC wires together. The XCDN card neither provides 24 VDC power nor uses 24 VDC power through this connection. The V+ position is not connected to any circuitry internal to the XCDN option card or Modular Controller Master and Data Station Plus.

SOFTWARE/UNIT OPERATIONS
LED

LED STATE	XCDN CARD INDICATION
OFF	Initializing
FLASHING GREEN	The device is online and is waiting on communications from other devices
GREEN	The device is online and has established communications with another device
FLASHING RED	One or more established communications have timed out
RED	The device has detected an error that has rendered it incapable of communicating on the network (duplicate MAC ID or bus activity).

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 XCDN OPTION CARD

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

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.

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