Model CR3000 - Industrial Operator Interface With TFT Display

- CONFIGURED USING CRIMSON® 3.1 SOFTWARE
- THREE OR FOUR ISOLATED SERIAL COMMUNICATION PORTS, (2 RS-232 and 1 or 2 RS-422/485) - MODEL DEPENDENT
- ONE OR TWO 10 BASE T/100 BASE-TX ETHERNET PORTS COMMUNICATE WITH UP TO TEN PROTOCOLS SIMULTANEOUSLY
- ACCEPTS ONE EXPANSION COMMUNICATION MODULE TO ADD CANOPEN, J1939, PROFIBUS, DEVICENET AND MORE
- ONE USB DEVICE PORT TO LOAD THE UNIT'S CONFIGURATION OR TRANSFER DATA TO AND FROM A PC
- SD CARD SOCKET FOR LOADING DATABASE IN THE FIELD
- INDUSTRIAL TFT LCD COLOR DISPLAY
- NEMA 4X/IP66 FRONT PANEL
- THREE FRONT PANEL LED INDICATORS
- POWER UNIT FROM 10-30 VDC SUPPLY
- RESISTIVE ANALOG TOUCHSCREEN

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E317425

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

CE

GENERAL DESCRIPTION

The CR3000 is the perfect solution for applications that require the operator to monitor and control more than just a single device. With up to four serial ports and two Ethernet ports, these HMI displays can connect to multiple serial and Ethernet devices simultaneously, including PLCs, variable frequency drives, bar code scanners, etc.

The CR3000 performs the functions of a multiple protocol converter, using up to four high-speed serial communications ports and one or two 10/100 Base-TX Ethernet ports. Ethernet port(s) support up to ten protocols simultaneously, allowing dissimilar Ethernet based products to communicate with one another. The SD card slot can be used to collect your trending and datalogging information as well as load the unit's configuration file, allowing configuration changes to be made and saved to the card for later transfer.

The CR3000 range of HMIs is programmed with Red Lion's Crimson 3.1 software. Crimson offers easy to use drag and drop communications configuration, while the embedded image library allows the programmer to create intuitive screens and prompts for the operator. The Crimson software is available as a no charge download from Red Lion's website.

CONTENTS OF PACKAGE

- CR3000 Operator Interface
- Hardware packet and plate for mounting unit into panel
- Terminal block for connecting power
- Panel gasket

SAFETY SUMMARY

All safety related regulations, local codes and instructions that appear in the manual 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 unit 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 unit.

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.

SPECIFICATIONS

1. **POWER REQUIREMENTS**:
   Must use a Class 2 circuit according to National Electrical Code (NEC), NFPA-70 or Canadian Electrical Code (CEC), Part I, C22.1 or a Limited Power Supply (LPS) according to IEC 60950-1 or Limited-energy circuit according to IEC 61010-1.
   Power connection via removable three position terminal block.
   Supply Voltage: 10 to 30 VDC, Class 2 source

MODEL	4.3-INCH				7-INCH			
Input Voltage (Volts)	10V	12V	24V	30V	10V	12V	24V	30V
Typ. Power HMI only (Watts)	5.5	6.0	6.0	6.0	9.0	9.0	9.0	9.0
Max Power HMI only (Watts)	7.0	7.5	7.5	7.5	12.5	12.0	12.5	12.5
Max Power HMI w/Module (W)	12.0	13.0	13.0	13.0	17.5	17.5	18.0	18.0

MODEL	10.4-INCH				15-INCH			
Input Voltage (Volts)	10V	12V	24V	30V	10V	12V	24V	30V
Typ. Power HMI only (Watts)	12.5	12.0	12.0	12.5	18.0	17.5	17.5	17.5
Max Power HMI only (Watts)	16.5	16.0	16.0	16.5	23.0	22.0	21.5	22.0
Max Power HMI w/Module (W)	21.0	21.0	21.5	22.0	28.0	27.5	27.0	27.5

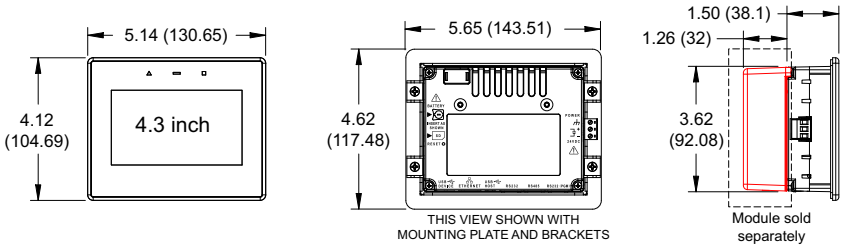
2. **BATTERY**: Lithium coin cell. Typical lifetime of 5 years, nominal.
   To maintain UL rating, replacement battery must be: Red Lion CRA000 BT3V0 00000, Rayovac BR1225X-BA or Panasonic BR1225A/BN.
3. **LCD DISPLAY**:

MODEL	4.3-INCH	7-INCH	10.4-INCH	15-INCH
Type	TFT	TFT	TFT	TFT
Colors	16M	16M	16M	16M
Pixels	480 x 272	800 X 480	800 X 600	1024 X 768
Brightness	500 cd/m^2	430 cd/m^2	400 cd/m^2	350 cd/m^2
Backlight Type	LED	LED	LED	LED
Backlight Life	30K HR TYP.	50K HR TYP.	50K HR TYP.	50K HR TYP.

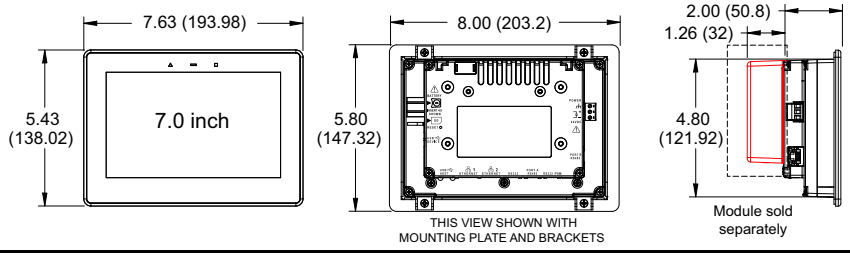
4. **TOUCHSCREEN**: Four-wire resistive analog
5. **MEMORY**:
   On Board User Memory: 512 MB of non-volatile Flash memory.
   Memory Card: SD slot accepts standard capacity cards.
6. **COMMUNICATION CAPABILITIES**:
   USB Device Port: Isolated and adheres to USB specification 2.0 (high speed, full speed) only using Type B connection. **USB DEVICE PORT IS FOR SYSTEM SET-UP AND DIAGNOSTICS AND IS NOT INTENDED FOR PERMANENT CONNECTION.**
   USB Host Ports: Comply with Universal Serial Bus Specification Rev 2.0. Support data transfers at (high speed, full speed). Hardware over current protected (0.5 A max per port).
   Serial Ports: Ports are individually isolated. Format and Baud Rates for each port are individually software programmable up to 115,200 baud.
   Port to Port Isolation: 1500 Vrms for 1 minute.
   Signal Isolation: 500 V.
   Ethernet Ports: 10 BASE-T / 100 BASE-TX
   RJ45 jacks are wired as a NIC (Network Interface Card).
   Isolation from Ethernet network to operator interface: 1500 Vrms
7. **ENVIRONMENTAL CONDITIONS**:
   Operating Temperature Range: -10 to 50 °C.
   CR3000 15": Max operating temperature -10 to 45 °C when using Cellular Modem Module (CRM000CMCMOD0000) or equivalent.
   Storage Temperature Range: -20 to 70 °C
   Vibration to IEC 68-2-6: Operational 5-500 Hz, 2 g
   Shock to IEC 68-2-27: Operational 30 g
   Operating and Storage Humidity: 0 to 85% max. RH non-condensing
   Altitude: Up to 2000 meters
   Installation Category II, Pollution Degree 2 as defined in IEC/EN 60664-1.
8. **CERTIFICATIONS AND COMPLIANCES**:
   CE Approved
   EN 61326-1 Immunity to Industrial Locations
   Emission CISPR 11 Class A
   IEC/EN 61010-1
   RoHS Compliant
   UL Hazardous: File #E317425
   Type 4X Indoor / IP66 Enclosure rating (Face only)
9. **CONNECTIONS**: High compression cage-clamp terminal block
   Wire Strip Length: 0.3" (7.5 mm)
   Wire Gage Capacity: 12 to 24 AWG (3.31 to 0.20 mm^2) copper wire
   Torque: 4.4-5.3 inch-lbs (0.5-0.6 N-m)
10. **CONSTRUCTION**: Polycarbonate enclosure with Type 4X/IP66 rating when correctly fitted per the mounting instructions provided.
    Protection against mechanical impact up to 5 Joule, IK08 per IEC 62262.
11. **MOUNTING REQUIREMENTS**: Maximum panel thickness is 0.25" (6.35 mm) with included stiffener plate, or 0.375" (9.53 mm) without plate. For NEMA 4X / IP66 sealing, the stiffener plate and a panel with a minimum thickness of 0.06" (1.52 mm) is recommended.
    Mounting Screw Torque: **CAUTION: DO NOT OVERTIGHTEN CLAMPS**
    4", 7" and 10": 4.0 lbf-in (0.45 Nm).
    15": 2.0 lbf-in (0.23 Nm).
12. **WEIGHT**: Unit weight with stiffener plate and clips
    CR3000 04: 1.00 lb (454 g)
    CR3000 07: 2.01 lb (913 g)
    CR3000 10: 3.16 lb (1.435 Kg)
    CR3000 15: 5.84 lb (2.649 Kg)

DIMENSIONS In inches (mm)

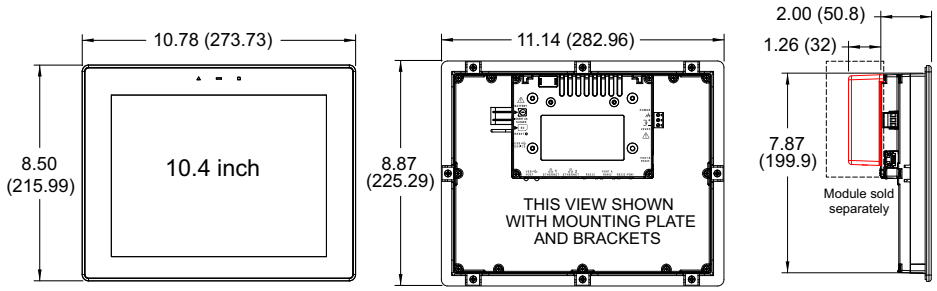
CR3000 04



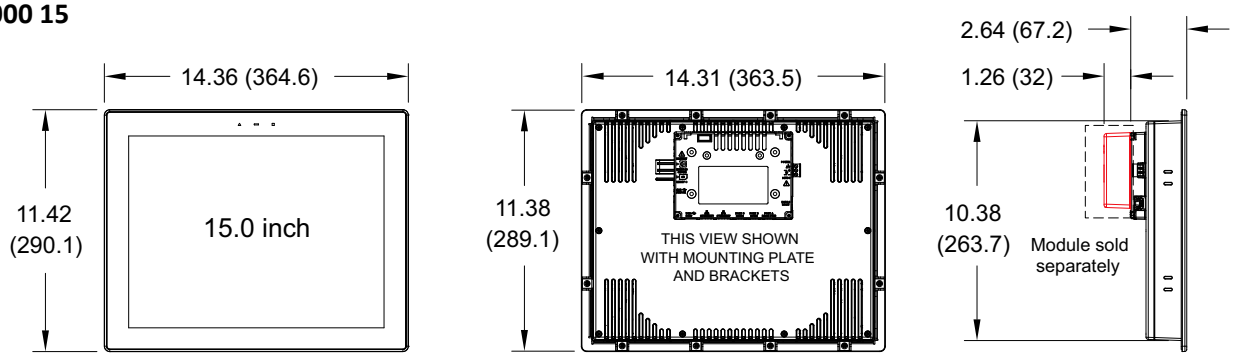
CR3000 07



CR3000 10



CR3000 15



INSTALLING AND POWERING THE CR3000

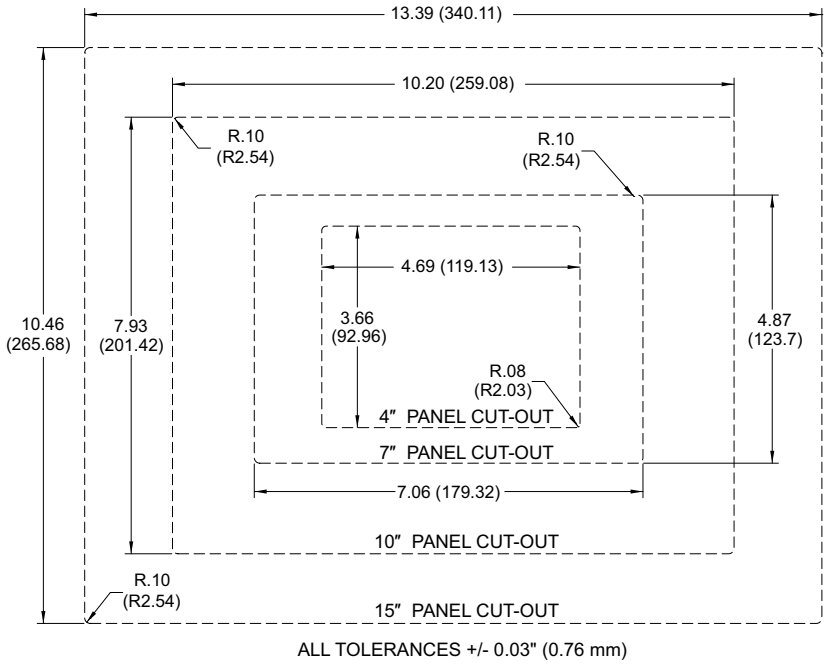
MOUNTING INSTRUCTIONS

This operator interface is designed for through-panel mounting. The 7, 10 and 15 inch HMIs can be VESA mounted with the addition of a VESA mount adapter plate. This plate allows mounting to a standard 75 x 75 mm VESA bracket. The mounting surface should have a minimum thickness of 0.06" (1.53 mm) and maximum thickness of 0.375" (9.53 mm). Cut the mounting hole per the dimensions shown in the diagram. Care should be taken to remove any loose material from the mounting cut-out to prevent that material from falling into the operator interface during installation.

Caution: Only the screws provided with the VESA adapter plate should be used to mount the CR3000. Unit cannot be VESA mounted if an expansion module will be used.

For hazardous location installation the following shall be taken into consideration:

- This device is open-type and must be mounted in a suitable dust-tight end-enclosure in accordance with articles 500 and 502 of the NEC and positioned so only the face of the display is exposed.
- Must be wired using Division 2 wiring methods as specified in article 501-4(b), 502-4(b), and 503-3(b) of the National Electric Code, NFPA 70 for installation within the United States, or as specified in section 19-152 of Canadian Electrical Code for installation in Canada.
- Combinations of equipment in your system are subject to investigation by the local Authority having jurisdiction at the time of installation.



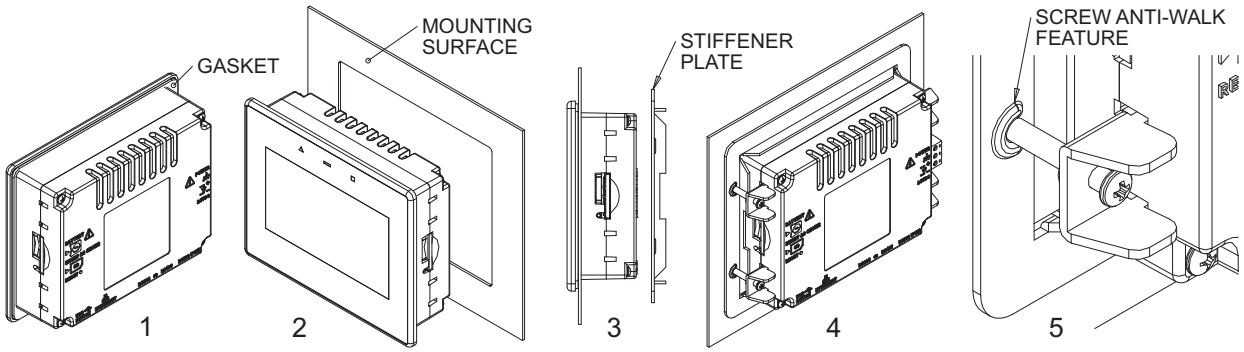
ALL TOLERANCES +/- 0.03" (0.76 mm)

Must meet hole tolerance specification for full NEMA4 and IP66 ingress protection.

Follow these steps to install the unit.

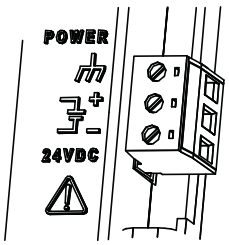
1. Make sure the bezel gasket is properly in place.
2. Place the unit into the front of the panel cutout.
3. Install stiffener plate over unit on the inside of the panel. This ensures the mounting surface is stiff enough for a proper seal. The plate is required to meet NEMA 4X and IP66.
4. Insert clamps into the slots provided on the sides, top and/or bottom of the unit.
5. Make sure the clamp's screw sits in the "U" shaped feature. This will prevent the screw from "walking". Tighten the clamping screws in an even pattern until the unit is secured in the panel. To seal to Type 4X/IP66 specifications, all supplied mounting clamps must be used and be torqued as follows:
   4, 7, and 10 inch: 4.0 lbf-in (0.45 Nm)
   15 inch: 2.0 lbf-in (0.23 Nm)

CAUTION: DO NOT OVERTIGHTEN THE CLAMPS. The panel must not flex more than 0.010" for proper sealing. The safety of any system incorporating the equipment is the responsibility of the assembler of the system.



CONNECTING POWER

The CR3000 requires a 10-30 VDC power supply. A pluggable power block is provided to connect the 24 VDC. There are three screw terminals. Strip and connect the wire according to the terminal block specifications on Page 2. Connect the positive lead to the plus (+) screw and the negative lead to the minus (-) screw.



Please take care to observe the following points:

– Mount the power supply close to the unit, with usually not more than 6 feet (1.8 m) of cable between the supply and the operator interface. Ideally, the shortest length possible should be used.
– The wire used to connect the operator interface's power supply should be at least 22-gage wire suitably rated for the temperatures of the environment to which it is being installed. If a longer cable run is used, a heavier gage wire should be used. The routing of the cable should be kept away from large contactors, inverters, and other devices which may generate significant electrical noise.
– A power supply with an NEC Class 2 or Limited Power Source (LPS) and SELV rating is to be used. This type of power supply provides isolation to accessible circuits from hazardous voltage levels generated by a mains power supply due to single faults. SELV is an acronym for "safety extra-low voltage." Safety extra-low voltage circuits shall exhibit voltages safe to touch both under normal operating conditions and after a single fault, such as a breakdown of a layer of basic insulation or after the failure of a single component has occurred. A suitable disconnect device shall be provided by the end user.

CONNECTING TO EARTH GROUND

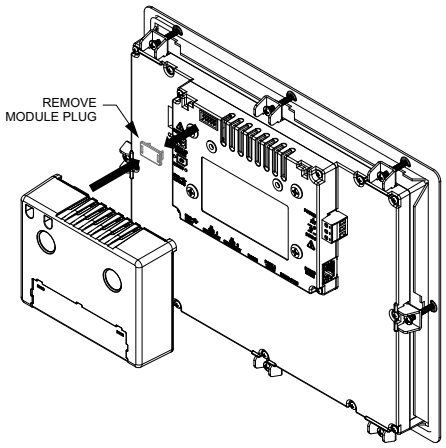
Each operator panel has a chassis ground terminal on the back of the unit. Your unit should be connected to earth ground. Steps should be taken beyond connecting to earth ground to eliminate the buildup of electrostatic charges.

The chassis ground is not connected to signal common of the unit. Maintaining isolation between earth ground and signal common is not required to operate your unit. But, other equipment connected to this unit may require isolation between signal common and earth ground. *To maintain isolation between signal common and earth ground care must be taken when connections are made to the unit.* For example, a power supply with isolation between its signal common and earth ground must be used. Also, plugging in a USB cable may connect signal common and earth ground.[1]

[1] USB's shield may be connected to earth ground at the host. USB's shield in turn may also be connected to signal common.

MODULE INSTALLATION

Remove module plug and attach module to CR3000. 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.

EMC INSTALLATION GUIDELINES

Although Red Lion Controls products are designed with a high degree of immunity to Electromagnetic Interference (EMI), proper installation and wiring methods must be followed to ensure compatibility in each application. The type of the electrical noise, source or coupling method into a unit may be different for various installations. Cable length, routing, and shield termination are very important and can mean the difference between a successful or troublesome installation. Listed are some EMI guidelines for a successful installation in an industrial environment.

1. A unit should be mounted in a metal enclosure, which is properly connected to protective earth.
2. Use shielded cables for all Signal and Control inputs. The shield connection should be made as short as possible. The connection point for the shield depends somewhat upon the application. Listed below are the recommended methods of connecting the shield, in order of their effectiveness.
   a. Connect the shield to earth ground (protective earth) at one end where the unit is mounted.
   b. Connect the shield to earth ground at both ends of the cable, usually when the noise source frequency is over 1 MHz.
3. Never run Signal or Control cables in the same conduit or raceway with AC power lines, conductors, feeding motors, solenoids, SCR controls, and heaters, etc. The cables should be run through metal conduit that is properly grounded. This is especially useful in applications where cable runs are long and portable two-way radios are used in close proximity or if the installation is near a commercial radio transmitter. Also, Signal or Control cables within an enclosure should be routed as far away as possible from contactors, control relays, transformers, and other noisy components.
4. Long cable runs are more susceptible to EMI pickup than short cable runs.
5. In extremely high EMI environments, the use of external EMI suppression devices such as Ferrite Suppression Cores for signal and control cables is effective. The following EMI suppression devices (or equivalent) are recommended:
   Fair-Rite part number 0443167251 (Red Lion Controls #FCOR0000)
   Line Filters for input power cables:
   Schaffner # FN2010-1/07 (Red Lion Controls #LFIL0000)
6. To protect relay contacts that control inductive loads and to minimize radiated and conducted noise (EMI), some type of contact protection network is normally installed across the load, the contacts or both. The most effective location is across the load.
   a. Using a snubber, which is a resistor-capacitor (RC) network or metal oxide varistor (MOV) across an AC inductive load is very effective at reducing EMI and increasing relay contact life.
   b. If a DC inductive load (such as a DC relay coil) is controlled by a transistor switch, care must be taken not to exceed the breakdown voltage of the transistor when the load is switched. One of the most effective ways is to place a diode across the inductive load. Most Red Lion products with solid state outputs have internal zener diode protection. However external diode protection at the load is always a good design practice to limit EMI. Although the use of a snubber or varistor could be used.
   Red Lion part numbers: Snubber: SNUB0000
   Varistor: ILS11500 or ILS23000
7. Care should be taken when connecting input and output devices to the instrument. When a separate input and output common is provided, they should not be mixed. Therefore a sensor common should NOT be connected to an output common. This would cause EMI on the sensitive input common, which could affect the instrument's operation.

Visit www.redlion.net/emi for more information on EMI guidelines, Safety and CE issues as they relate to Red Lion products.

COMMUNICATING WITH THE CR3000

CONFIGURING A CR3000

The CR3000 is configured using Crimson® 3.1 software. Crimson is available as a no charge download from Red Lion's website. Crimson updates for new features and drivers are posted on the website as they become available. By configuring the CR3000 using the latest Crimson version, you are assured that your unit has the most up to date feature set. Crimson software can configure the CR3000 through the RS232 PGM port, USB device port, Ethernet port or SD card.

The CR3000 has three or four serial ports, a USB device port, one or two USB Host ports, and an Ethernet port as shown below.

The serial ports are available via RJ connectors. There are two RS232 ports. The port labeled RS232 (PGM) can be used as a Programming Port or you can assign a protocol to it. The RS485 ports can be used for both RS485 or 422 communications. All of the serial ports are isolated.

Note: If you assign a protocol to the Programming Port, you will no longer be able to download to that port. You should create a means to call the StopSystem() function from the HMI touchscreen, such that the Programming Port activity can be halted on command. Alternatively, the HMI's memory can be cleared to restore download functionality.

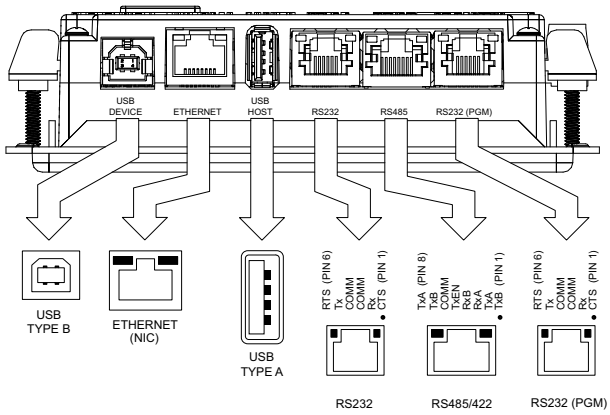
Ethernet port(s) can be programmed to communicate via ten protocols simultaneously. For more information on protocol support, please refer to the Crimson 3.1 programming software.

The USB device port is a standard device port with a Type B connector, and is used as the programming port. The driver needed to use the USB port will be installed with Crimson.

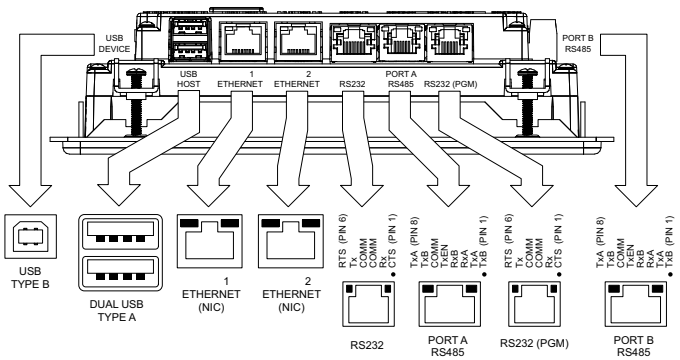
The USB host port(s) are standard host ports with Type A connector(s) and can be used to interface to USB enabled peripherals. These ports supply 5 V power per the USB standard.

The SD card can be used to program a CR3000 by placing an image file on the SD card. The card is then inserted into the target CR3000 and powered. Refer to the Crimson 3.1 User Manual for more information on the proper names and locations of this file.

CR3000 04 PORT PIN OUTS



CR3000 07/10/15 PORT PIN OUTS



USB, DATA TRANSFERS FROM THE SD CARD

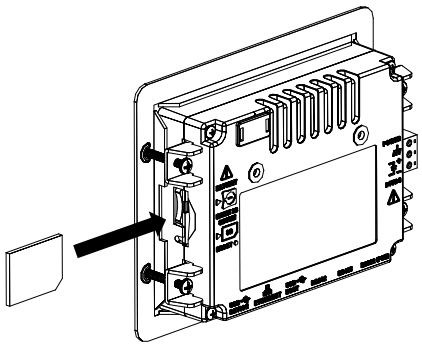
WARNING - DO NOT CONNECT OR DISCONNECT CABLES WHILE POWER IS APPLIED UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS. USB DEVICE PORT IS FOR SYSTEM SET-UP AND DIAGNOSTICS AND IS NOT INTENDED FOR PERMANENT CONNECTION.

In order to transfer data from the SD card via the USB device port, a driver must be installed on your computer. This driver is installed with Crimson and is located in the folder C:\Program Files\Red Lion Controls\Crimson 3.1\Device\ after Crimson is installed. This may have already been accomplished if your CR3000 was configured using the USB port.

Once the driver is installed, connect the CR3000 to your PC with a USB cable, and refer to the “Mounting the Card” section in the Crimson 3.1 User Manual.

INSERTION/REMOVAL OF THE SD CARD

Insert the SD card into the slot provided with the card oriented as shown. The card is inserted properly when the end of the card is flush with the CR3000 case. To remove the SD card, push in slightly on the card.



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 Red Lion’s website. New cables and drivers are added on a regular basis. If making your own cable, refer to the “Port Pin Outs” that corresponds to your specific model for wiring information.

ETHERNET COMMUNICATIONS

Ethernet communications can be established at either 10 BASE-T or 100 BASE-TX. The unit’s RJ45 jack is wired as a NIC (Network Interface Card). It auto-detects remote transmit and receive pairs and correctly assigns the transmit and receive pairs. This feature enables the user to use whichever type of cable (cross-over or straight) is available.

The Ethernet connector contains two LEDs that represent the following statuses:

LED COLOR	DESCRIPTION
YELLOW solid	Link established.
YELLOW flashing	Data being transferred.
GREEN (OFF)	10 BASE-T Communications
GREEN (ON)	100 BASE-TX Communications

On the rear of each unit is a unique 12-digit MAC address. Refer to the Crimson manual and Red Lion’s website for additional information on Ethernet communications.

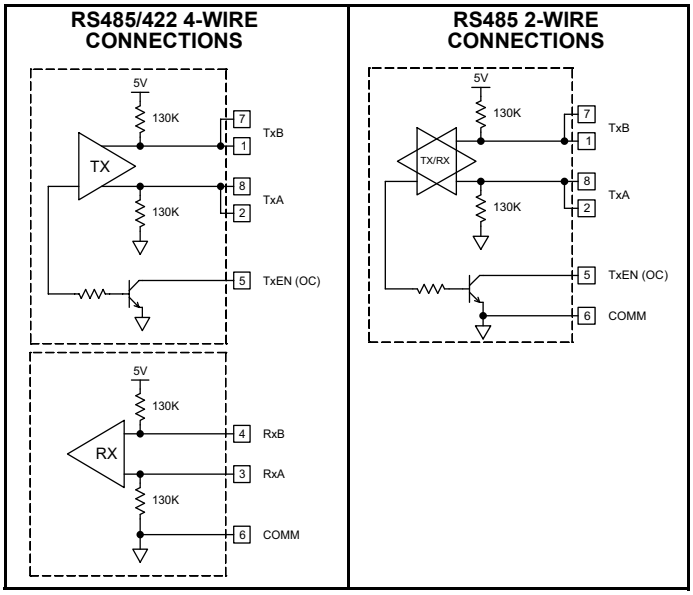
RS232 PORTS

The CR3000 has two RS232 serial ports. Although only one of these ports can be used for programming, both ports can be used for communications with a PLC. The serial ports can be used for either master or slave protocols with any CR3000 configuration. Each serial port has a pair of LEDs to indicate transmit and receive activity. The pinouts are shown to the right.

CR3000 RS232 TO A PC			
HMI: RJ12	Name	PC: DB9	Name
4	COMM	1	DCD
5	Tx	2	Rx
2	Rx	3	Tx
	N/C	4	DTR
3	COMM	5	GND
	N/C	6	DSR
1	CTS	7	RTS
6	RTS	8	CTS
	N/C	9	RI

RS485/422 COMMS PORT

The RS485 port(s) of the CR3000 can be used for RS485 or RS422 communication. There is a separate RJ connector for each option. Each serial port has a pair of LEDs to indicate transmit and receive activity.



Note: All Red Lion devices connect A to A and B to B. Refer to www.redlion.net for additional information.

Examples of RS485 2-Wire Connections

CR3000 TO RED LION RJ11			
HMI:RJ45	Name	RLC:RJ11	Name
5	TxEN	2	TxEN
6	COMM	3	COMM
1	TxB	5	B-
2	TxA	4	A+

CR3000 TO MODULAR CONTROLLER			
HMI	Name	Modular Controller	Name
1,4	TxB	1,4	TxB
4,1	RxB	4,1	RxB
2,3	TxA	2,3	TxA
3,2	RxA	3,2	RxA
5	TxEN	5	TxEN
6	COMM	6	COM M
7	TxB	7	TxB
8	TxA	8	TxA

DH485 COMMUNICATIONS

The CR3000’s RS485/422 COMMS port can also be used for Allen Bradley DH485 communications.

WARNING: **DO NOT** use a standard DH485 cable to connect this port to Allen Bradley equipment. A cable and wiring diagram are available from Red Lion at www.redlion.net/cables-drivers.

SOFTWARE/UNIT OPERATION

CRIMSON® SOFTWARE

Crimson software is available as a no charge download from Red Lion's website. The latest version of the software is always available from the website, and updating your copy is free.

DISPLAY

This operator interface uses a liquid crystal display (LCD) for displaying text and graphics. The display utilizes an LED backlight for lighting the display. The backlight can be dimmed for low light conditions.

The LED backlight has a limited lifetime. Backlight lifetime is based upon the amount of time the display is turned on at full intensity. Turning the backlight off when the display is not in use can extend the lifetime of your backlight. This can be accomplished through the Crimson software when configuring your unit.

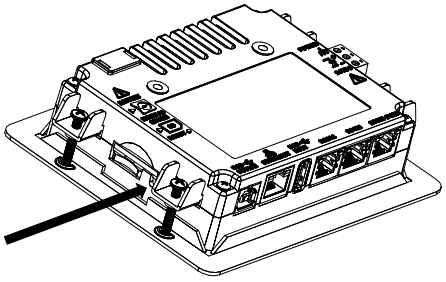
FRONT PANEL LEDS

There are three front panel LEDs that can be configured using Crimson. Shown below is the default status of the LEDs.

LED	INDICATION
GREEN (▲)	
STEADY	Unit is powered.
BLUE (—)	
FLASHING	Unit is in the boot loader
OFF	No SD card is present.
STEADY	Valid SD card present.
FLASHING RAPIDLY	SD card being checked.
FLICKERING	SD card accessed.
FLASHING SLOWLY	Incorrectly formatted SD card present.
RED (■)	
FLASHING	Data tag is in an alarm active state.
STEADY	Data tag is in an alarm accepted state.

FACTORY RESET BUTTON

The factory reset button located in the lower right area of the rear panel can be used to access the system menu. Refer to Crimson 3.1 System Menu Technical Note at www.redlion.net/TNIA37 for access procedure and available options.



TOUCHSCREEN

This operator interface utilizes a resistive analog touchscreen for user input. The unit will only produce an audible tone (beep) when a touch on an active touchscreen cell is sensed. The touchscreen is fully functional as soon as the operator interface is initialized, and can be operated with gloved hands.

TROUBLESHOOTING YOUR CR3000

If for any reason you have trouble operating, connecting, or simply have questions concerning your new CR3000 unit, contact Red Lion's technical support.

Email: support@redlion.net
Website: www.redlion.net
Inside US: +1 (877) 432-9908
Outside US: +1 (717) 767-6511

BATTERY & TIME KEEPING

WARNING - EXPLOSION HAZARD - DISCONNECT POWER AND ENSURE THE AREAS IS KNOWN TO BE NON-HAZARDOUS BEFORE SERVICING/REPLACING THE UNIT AND BEFORE INSTALLING OR REMOVING I/O WIRING AND BATTERY.

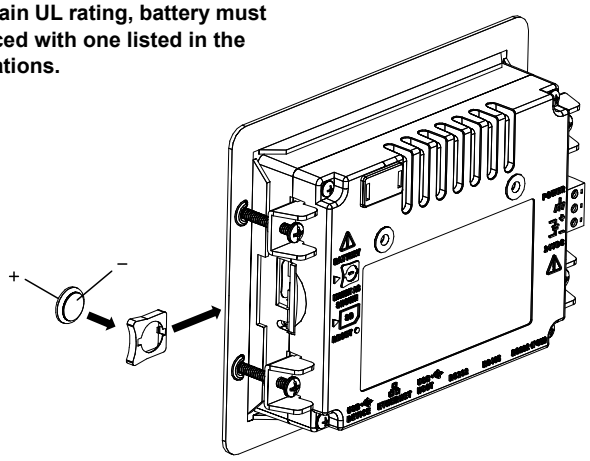
A battery is used to keep time when the unit is without power. The battery of a CR3000 unit does not affect the unit's memory, all configurations and data is stored in non-volatile memory.

Changing the Battery

To change the battery of a CR3000, first remove power to the unit. Remove the SD card if one is installed. Insert a small screwdriver into the slot provided on the battery holder and pry the battery holder with battery out of the unit. Remove the old battery from the plastic holder and replace it with a new battery. Make sure the orientation of the battery is correct and as shown in the diagram.

Re-install the battery holder with battery into the CR3000 unit. Using Crimson or the unit's keypad, enter the correct time and date.

To maintain UL rating, battery must be replaced with one listed in the Specifications.



CAUTION: Lithium battery. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

Please note that the old battery must be disposed of in a manner that complies with your local waste regulations. The battery must not be disposed of in fire, or in a manner whereby it may be damaged and its contents could come into contact with human skin.

TRADEMARK ACKNOWLEDGMENTS

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All other company and product names are trademarks of their respective owners.

ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBER
CR3000	4.3" HMI with 3 Serial, 1 Ethernet, and 1 USB Host Ports	CR3000 04000 00310
	7.0" HMI with 4 Serial, 2 Ethernet, and 2 USB Host Ports	CR3000 07000 00420
	10.4" HMI with 4 Serial, 2 Ethernet, and 2 USB Host Ports	CR3000 10000 00420
	15.0" HMI with 4 Serial, 2 Ethernet, and 2 USB Host Ports	CR3000 15000 00420
CRM000	Expansion Modules [1]	CRM0000 xxxxx xxxxx
SD	SD Card [1]	SDxxxxxx
CBL	Communications Cables and Adapter [1]	CBLxxxxx
FILM	Protective Film for CR3000 04xxx xxxxx	G3FILM4K
	Protective Film for CR3000 07xxx xxxxx	G0FILM07
	Protective Film for CR3000 10xxx xxxxx	G0FILM10
	Protective Film for CR3000 15xxx xxxxx	G0FILM15
CRA000	Adapter Plate - Kadet 7 to CRx000 07	CRA000 AD070 70000
	Adapter Plate - G306 to CRx000 07	CRA000 AD060 70000
	Adapter Plate - G308 to CRx000 07	CRA000 AD080 70000
	Adapter Plate - G310 to CRx000 10	CRA000 AD101 00000
	Adapter Plate - G315 to CRx000 15	G3AD1515
	VESA Mount Adapter Plate (Not for use with 4.3" HMI)	CRA000 ADVESA 0000
	Replacement Battery	CRA000 BT3V0 00000

[1] Contact your Red Lion distributor or visit our website for selection of Expansion modules, SD cards, adapters and cables.

LIMITED WARRANTY

(a) Red Lion Controls Inc., (the "Company") warrants that all Products shall be free from defects in material and workmanship under normal use for the period of time provided in "Statement of Warranty Periods" (available at www.redlion.net) current at the time of shipment of the Products (the "Warranty Period"). **EXCEPT FOR THE ABOVE-STATED WARRANTY, COMPANY MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO THE PRODUCTS, INCLUDING ANY (A) WARRANTY OF MERCHANTABILITY; (B) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; OR (C) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.** Customer shall be responsible for determining that a Product is suitable for Customer's use and that such use complies with any applicable local, state or federal law.

(b) The Company shall not be liable for a breach of the warranty set forth in paragraph (a) if (i) the defect is a result of Customer's failure to store, install, commission or maintain the Product according to specifications; (ii) Customer alters or repairs such Product without the prior written consent of Company.

(c) Subject to paragraph (b), with respect to any such Product during the Warranty Period, Company shall, in its sole discretion, either (i) repair or replace the Product; or (ii) credit or refund the price of Product provided that, if Company so requests, Customer shall, at Company's expense, return such Product to Company.

(d) **THE REMEDIES SET FORTH IN PARAGRAPH (c) SHALL BE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDY AND COMPANY'S ENTIRE LIABILITY FOR ANY BREACH OF THE LIMITED WARRANTY SET FORTH IN PARAGRAPH (a).**