OVERVIEW

These modules provide simple and secure remote monitoring for sites located in harsh environments. Offering the low cost per I/O point and rugged environmental ratings, they are ideal for both control rooms and extreme locations across industries that include oil & gas, power & energy, transportation, mining, and water/wastewater.

This guide covers initial configuration for the E3 Modules.

FEATURES

- Flexible mix of I/O Channels support all instrumentation needs
- Dual independent Ethernet™ ports enable flexible networking
- Extensive health diagnostics and reporting reduce downtime
- Rugged design supports extreme temperatures and Class I, Div 2
- Marine and offshore tested and/or verified to meet standards such as ABS, DNV 2.4 and LLoyds.

DATA INTERFACES

Ethernet: Dual 10/100 Mbps Auto-sensing Female RJ45 port

USB: USB 2.0 Type B Female

GETTING STARTED

1. **Mount the Hardware**

   These I/O modules snap onto standard DIN-Rail in the typical fashion. Alternatively they can be mounted directly to any flat surface.

2. **Connect Power**

   Connect 10-30 VDC power to the power input screws. A Class 2 power source is recommended because it has built-in current limiting to protect against short circuits. However, it is not required.

3. **Connect I/O**

   Make your field wiring connections between the I/O module's screw terminals and your peripheral equipment. Refer to the module's I/O wiring guide and the remote equipment's user manuals for I/O connection details.

4. **Install Communication Wiring**

   Make the necessary Ethernet, USB, and/or RS485 communication connections between the I/O modules and other devices (such as a master I/O polling device).

5. **Set Configuration Jumpers**

   Remove the configuration door and move the Network Mode and DI COM jumpers to the desired settings. Note that the Network Mode jumper is found on the back of the configuration door and the DI COM jumper resides inside the module.

6. **Turn ON the Power**

   Turn on the 10-30 VDC power. Observe the status (OK) LED. Typically a solid ON indicates proper operation. A blinking LED may indicate that the unit needs to be configured. Please view the E3 I/O module manual for detailed information on the LED status lights.

7. **USB Driver Selecton**

   a. Install Crrimson 3.0 Gold Build 675 or later.

   b. Go to the Start-Programs-Red Lion Controls-Drivers to find the E3 USB Driver files.

   c. Click on the file that matches your Windows operating system architecture. Click E3 USB Driver (64-bit) for 64-bit versions of Windows® (this will apply for most) or E3 USB Driver (32-bit) for 32-bit versions of Windows®.
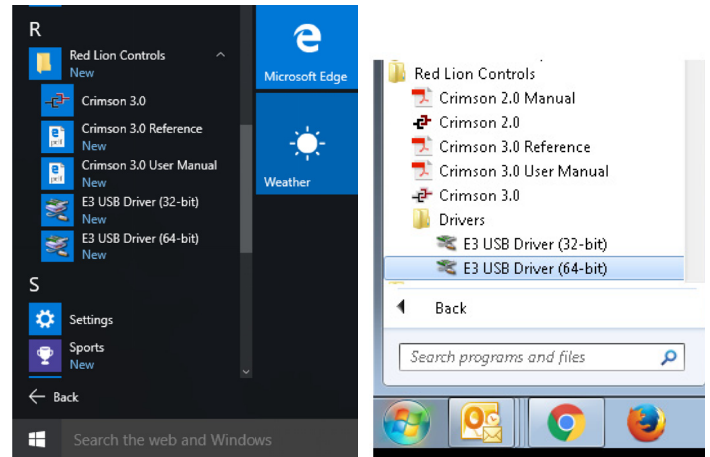

Driver Selection (Windows 10® and Windows 7®)

8. **USB Installation**

   a. When the windows security window asks "Would you like to install this device software?" click Install.

   b. Click Next when the device driver installation wizard starts.

   c. When complete the installation wizard will indicate that the USB Serial driver is ready to use.
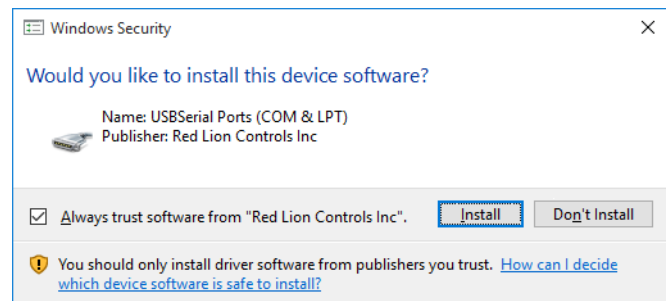
Windows Security Window

   d. Verify the USB Device Driver is completed.
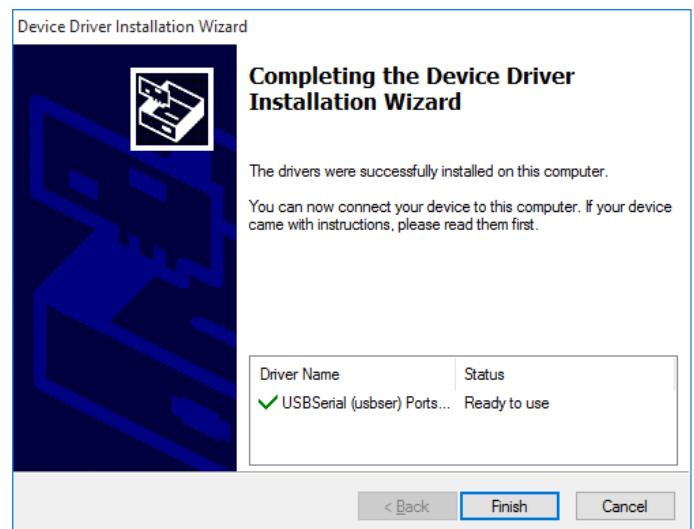
USB Driver Installation Complete

   e. Resume Installation as per the instructions in the Quick Start Guide.

9. **Configure Using the Web Server**

   Alternatively, the web server embedded with the I/O module may be used to make configuration changes in the I/O module. To access the web server first, open a web browser (Internet Explorer®, Chrome™ or Firefox® supported). Enter the I/O module's IP address into the web browser's address bar (default IP address from the factory is 192.168.1.21).

10. **Test the Hardware**

    Use the Test I/O feature in the web server or Crimson software to verify proper operation of all I/O modules in your system. Refer to the web server or Crimson on-line help system for further instructions.

11. **Configure your I/O Master**

    Refer to the user manual for your I/O master software or hardware on how to configure and run Modbus or Sixnet protocol polling of these I/O modules.
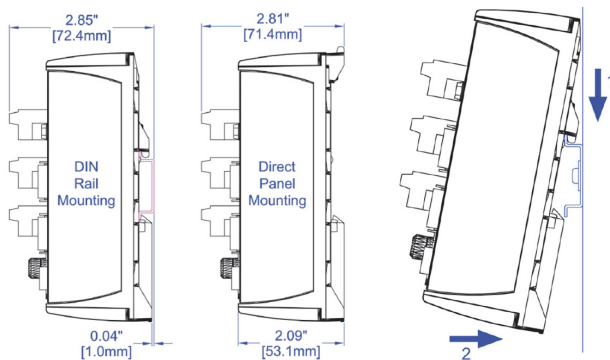
12. **Additional Information / Technical Support**

    Visit our support page at www.redlion.net to access the module's documentation, as well as configuration help, troubleshooting and firmware & software updates. Or contact Technical Support at 1-877-432-9908 (inside US) or +1(717)767-6511 (outside US), or support@redlion.net.

DIMENSIONS
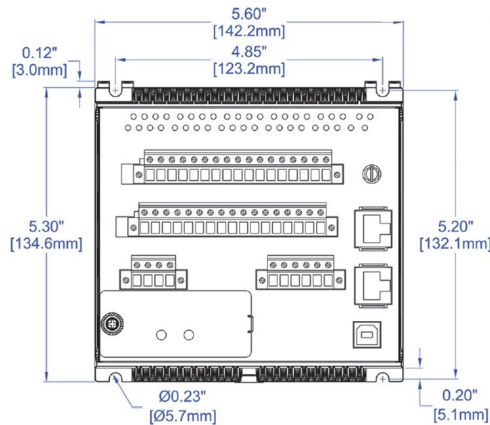
MOUNTING THE MODULE

SETUP IS COMPLETE

The E3 module should be ready for basic I/O gathering requirements. For more advanced configuration, consult the support section on our website: www.redlion.net

SPECIFICATIONS:

ENVIRONMENTAL

   Power Supply voltage: 10-30 VDC

   Input current requirement: 150-355mA @ 24 VDC typical with no loads (See Hardware Manual for more details)

   Operating Temperature: -40 to +75 ˚C (-40 to +85 ˚C Storage)

   Humidity: 5 to 95% RH (non-condensing)

STANDARDS COMPLIANCE

   ATEX/IECEx: EN/IEC 60079-0, -15 CE

   Electrical Safety: UL 508, CSA C22.2/142, IEC61010-1, CE

   EMI Emissions FCC part 15, ICES-003, Class A; EN-55022; EN6100-6-4; CE

   EMC Immunity IEC61000-6-2; (EN61000-4-2,3,4,5,6,8); CE

   Vibration: IEC60068-2-27

   Shock: IEC60068-2-6

   Hazardous locations:

   ATEX/IECEx Zone 2 (except E3-16DIAC-1 and E3-16DORLY-1)

   ANSI/ISA 12.12.01-2013 Edition (Class I, Div. 2, Groups A, B, C, and D), CSA C22.2/213

   EN 60079-0:2012+A11:2013

   EN 60079-15:2010

   IEC 60079-0 Ed. 6

   IEC 60079-15 Ed. 4

   Marine/Offshore: Tested and/or verified to meet standards such as ABS, DNV 2.4 and Lloyds

   Construction: Aluminum base and steel cover with zinc coating. Dimensions: 5.6" (144mm) x 5.3" (135mm) x 2.9" (74mm)

ETHERNET PORTS

   Dual 10/100BaseTX (auto-detecting)

   RJ45 (auto-crossover)

   1500 Volts RMS 1 minute (60 Hz)

   Less than 1 ms per message

   Solid indicates link but no activity; Blinking indicates link and activity

   Modes: Real-time Ring™ with recovery time of 5 ms per hop; Dual network, each with unique MAC and IP address; Pass-through for daisy-chaining the modules

RS485 SERIAL PORT

   2-wire half-duplex

   Up to 32 (full-load)

   Up to 0.5 miles (baud rate dependent)

   Protocols: Master and slave; Sixnet UDR and Modbus RTU / ASCII

USB PORT

   Type B device

Inputs and Outputs

   Varies by module. See hardware user manual for details.

CONDITIONS OF SAFE USE

The equipment shall only be used in an area of not more than pollution degree 2, as defined in EN/IEC 60664-1.

The equipment shall be installed in an enclosure that provides a degree of protection not less than IP 54 in accordance with IEC 60079-15.

Provision shall be made to prevent the rated voltage being exceeded by the transient disturbances of more than 140% of the peak rated voltage.

Certificate number: DEMKO 15 ATEX 1526X

Protection method and marking string: ⟨Ex⟩ II 3 G Ex nA IIC T4 Gc

IECEx Certificate number: IECEX UL 15.0079X

IECEx Protection Method and marking string: Ex nA IIC T4 Gc

INSTALLATION AND HAZARDOUS AREA WARNINGS

These products should not be used to replace proper safety interlocking. No software-based device (or any other solid-state device) should ever be designed to be responsible for the maintenance of consequential equipment or personnel safety. In particular, Red Lion Controls disclaims any responsibility for damages, either direct or consequential, that result from the use of this equipment in any application.

All power, input and output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods and in accordance with the authority having jurisdiction.

WARNING – EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS 1, DIVISION 2.

WARNING – EXPLOSION HAZARD – WHEN IN HAZARDOUS LOCATIONS, DISCONNECT POWER BEFORE REPLACING OR WIRING MODULES.

WARNING – EXPLOSION HAZARD – DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS.

These products are operator interface units to be used within control panels. These devices are intended for use in Class I, Division 2, Hazardous Locations, industrial control applications. The enclosure should all be suitable for the location.

AVERTISSEMENTS POUR INSTALLATION ET ENDROITS DANGEREUX

Ces produits ne doivent pas être utilisés pour remplacer le verrouillage de sécurité approprié. Aucun dispositif basé sur un logiciel (ou tout autre dispositif à l'état solide) devraient jamais être conçus pour être responsable de l'entretien de l'équipement consécutifs ou la sécurité du personnel. En particulier, Red Lion décline toute responsabilité pour les dommages, directs ou indirects, résultant de l'utilisation de cet équipement dans n'importe quelle application.

Tout courant, câblage entrée et sortie (I / O) doit être conforme aux méthodes de câblage à la Classe I, Division 2 et conformément à l'autorité compétente.

AVERTISSEMENT – RISQUE D'EXPLOSION – LA SUBSTITUTION DE TOUT COMPOSANT PEUT NUIRE À LA CONFORMITÉ DE CLASSE I, DIVISION 2.

AVERTISSEMENT – RISQUE D'EXPLOSION – LORSQUE DANS DES ENDROITS DANGEREUX, DÉBRANCHEZ LE CORDON D'ALIMENTATION AVANT DE REMPLACER OU DE BRANCHER LES MODULES.

AVERTISSEMENT – RISQUE D'EXPLOSION – NE DÉBRANCHEZ PAS L'ÉQUIPEMENT À MOINS QUE L'ALIMENTATION AIT ÉTÉ COUPÉE OU QUE L'ENVIRONNEMENT EST CONNU POUR ÊTRE NON DANGEREUX.

Ces produits sont des unités d'interface opérateur qui doivent être utilisés à l'intérieur des panneaux de commande. Ces appareils sont destinés à une utilisation en Classe I, Division 2, zones dangereuses, applications de contrôle industriel. L'enclos doit être adapté à l'environnement.

WARRANTY

Warranty statement can be found on our website www.redlion.net or in the Hardware Manual.

VOLTAGE AND CURRENT CHART

Models	Voltage Readings	Current Ratings
E3-MIX24880-1	12-24Vdc	150 mA, (0.6A per channel, 4.8A max.)*
E3-MIX24882-1	12-24Vdc	190 mA, (0.6A per channel, 4.8A max.)*
E3-MIX20884-1	12-24Vdc	190 mA, (0.6A per channel, 4.8A max.)*
E3-32DI24-1	12-24Vdc	150 mA*
E3-16DI24-1	12-24Vdc	150 mA*
E3-32DO24-1	12-24Vdc	160 mA, (0.5A per channel, 8A max.)*
E3-16DO24-1	12-24Vdc	150 mA, (0.5A per channel, 8A max.)*
E3-32AI20M-1	12-24Vdc	150 mA*
E3-32AI10V-1	12-24Vdc	150 mA*
E3-8AO20M-1	12-24Vdc	310 mA*
E3-16AI20M-1	12-24Vdc	150 mA*
E3-16AI8AO-1	12-24Vdc	310 mA*
E3-16ISOTC-1	12-24Vdc	150 mA*
E3-16ISO20M-1	12-24Vdc	150 mA*
E3-10RTD-1	12-24Vdc	150 mA*

* All current ratings were measured at 24VDC.