



Etherbus[®] ***(EB Series)***

**Industrial Ethernet IP67
Connectors and Accessories**

Installation Guide



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This manual applies to the following products:

- **EB-RJF-BLKHD-1** Etherbus IP67 bulk-head (pass-through) connector
- **EB-RJF-PLUG-1** Etherbus IP67 field-installable Ethernet plug
- **EB-RJF-CAP-1** Etherbus IP67 protective cap for bulk-head connector

RED LION Protected Technology Policy - RED LION protects your investment in RED LION systems with long-term planned technology and our unique Protected Technology Policy. We will continue to support the specified capabilities of standard RED LION products for at least five years (twenty years for Industrial Managed Switches). We plan each product improvement and new feature to be upward compatible with existing designs and installations. Our goals are to make each new software release bring new power to your RED LION systems and have every existing feature, applications program and data file continue to work. We protect your investment even further with a liberal five-year trade-in policy. Exchange standard products for upgraded versions of the same product to take advantage of new features and improvements at any time for five years. A prorated trade-in allowance will be given for your existing unit. RED LION protects your long-term productivity with state-of-the-art planned technology and continued support.

RED LION Statement of Limited Warranty - RED LION, manufacturer of RED LION products, warrants to Buyer that products, except software, manufactured by RED LION will be free from defects in material and workmanship. RED LION's obligation under this warranty will be limited to repairing or replacing, at RED LION's option, the defective parts within one year of the date of installation, or within 18 months of the date of shipment from the point of manufacture, whichever is sooner. Products may be returned by Buyer only after permission has been obtained from RED LION. Buyer will prepay all freight charges to return any products to the repair facility designated by RED LION. This limited warranty does not cover losses or damages which occur in shipment to or from Buyer or due to improper installation, maintenance, misuse, neglect or any cause other than ordinary commercial or industrial applications. In particular, RED LION makes no warranties whatsoever with respect to implied warranties of merchantability or fitness for any particular purpose. All such warranties are hereby expressly disclaimed. No oral or written information or advice given by RED LION or RED LION's representative shall create a warranty or in any way increase the scope of this warranty. This limited warranty is in lieu of all other warranties whether oral or written, expressed or implied. RED LION's liability shall not exceed the price of the individual units, which are the basis of the claim. In no event shall RED LION be liable for any loss of profits, loss of use of facilities or equipment, or other indirect, incidental or consequential damages.

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 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 (ZONE 2).

**WARNING
(EXPLOSION HAZARD)** WHEN IN HAZARDOUS LOCATIONS, DISCONNECT POWER BEFORE REPLACING OR WIRING UNITS.

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

AVERTISSEMENTS POUR INSTALLATIONS ET ZONES DANGEREUSES - 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 COMPOSANTS PEUT NUIRE À LA CONFORMITÉ DE CLASSE I, DIVISION 2 (ZONE 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 À ÉTÉ COUPÉ OU QUE L'ENVIRONNEMENT EST CONNU POUR ÊTRE NON DANGEREUX.

FCC Statement - This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna; Increase the separation between the equipment and receiver; Connect the equipment into an outlet on a circuit different from that to which the receiver is connected; Consult the dealer or an experienced radio/TV technician for help.

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Note: All information in this document is subject to change without notice.

Section 1

General Information

Accessory Overview

This manual will help you install and maintain the Etherbus IP67 industrial Ethernet connectors and accessories. These connectors and plugs are design to meet the same rugged requirements as other RED LION industrial Ethernet PoE products.

They utilize a Reverse Bayonet (1/4 turn) latching method which makes them quick and easy to install. The plugs are field-installable and don't require any special tools. They fit over most standard Ethernet cordsets.

These Etherbus connectors and accessories are IP67 rated meaning that they protect against water, dust, oil and other incursions. They are also highly shock and vibration resistant. They are constructed of durable plastic material making them corrosion proof as well.

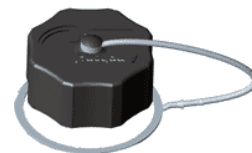
Etherbus (Reverse Bayonet) IP67 Waterproof Accessories



RJ45 Bulkhead



RJ45 Plug



Cap with Tether

Safety Notes

Here are some safety recommendations when installing and/or using these products.



Install these IP67 Industrial Ethernet accessories in accordance with local and national electrical codes.



Lightning Danger: Do not work on equipment during periods of lightning activity.

Do not connect a telephone line into an Ethernet RJ45 connectors.

Section 2

Application Ideas

Accessory Overview

Combine these Etherbus connectors and accessories with the Etherbus Kevlar-reinforced cable to make the toughest Ethernet connections. These products are equally suited for indoor (factory floor) or outdoor applications in the harshest environments. They are truly industrial rated to operate from -40 to 85°C.



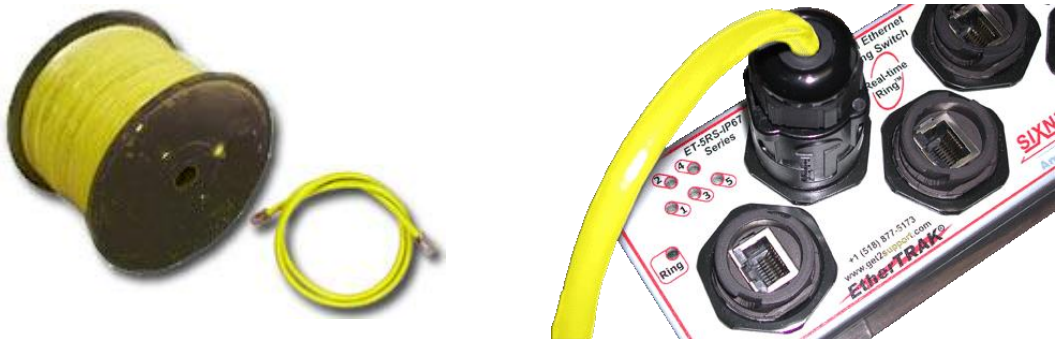
The Etherbus IP67 Plug fits perfectly over an Etherbus Cordset EB-CAT5E-#C



Make ultra-rugged connections without requiring conduit!



The Etherbus Kevlar-tough cable is available in bulk reels or pre-made cordsets.



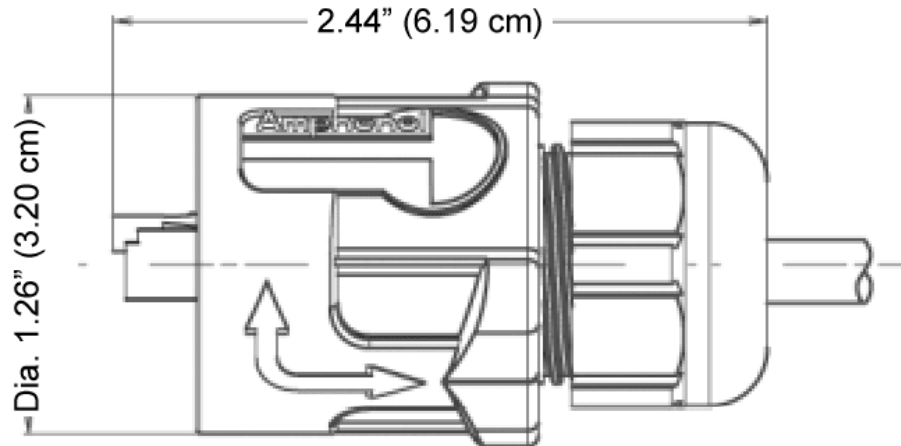
These connectors are compatible with the RED LION IP67 5-Port Switch

Go to www.redlion.net for more details.

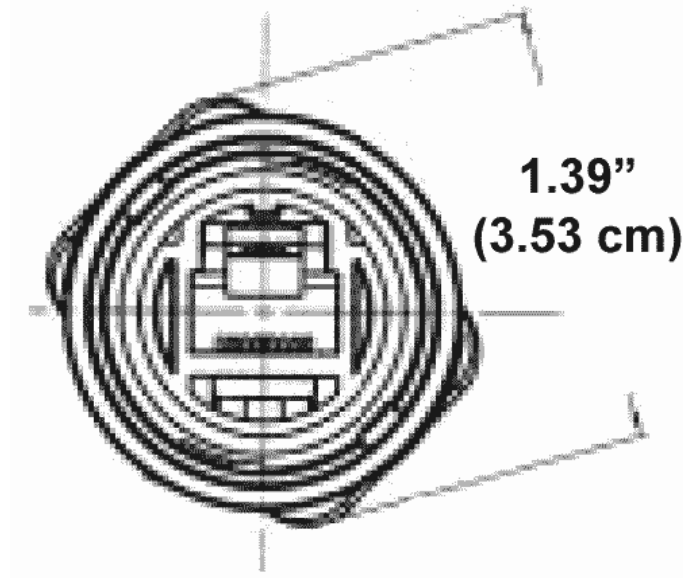
Section 3 Installation Instructions

RJ45 Plug Installation

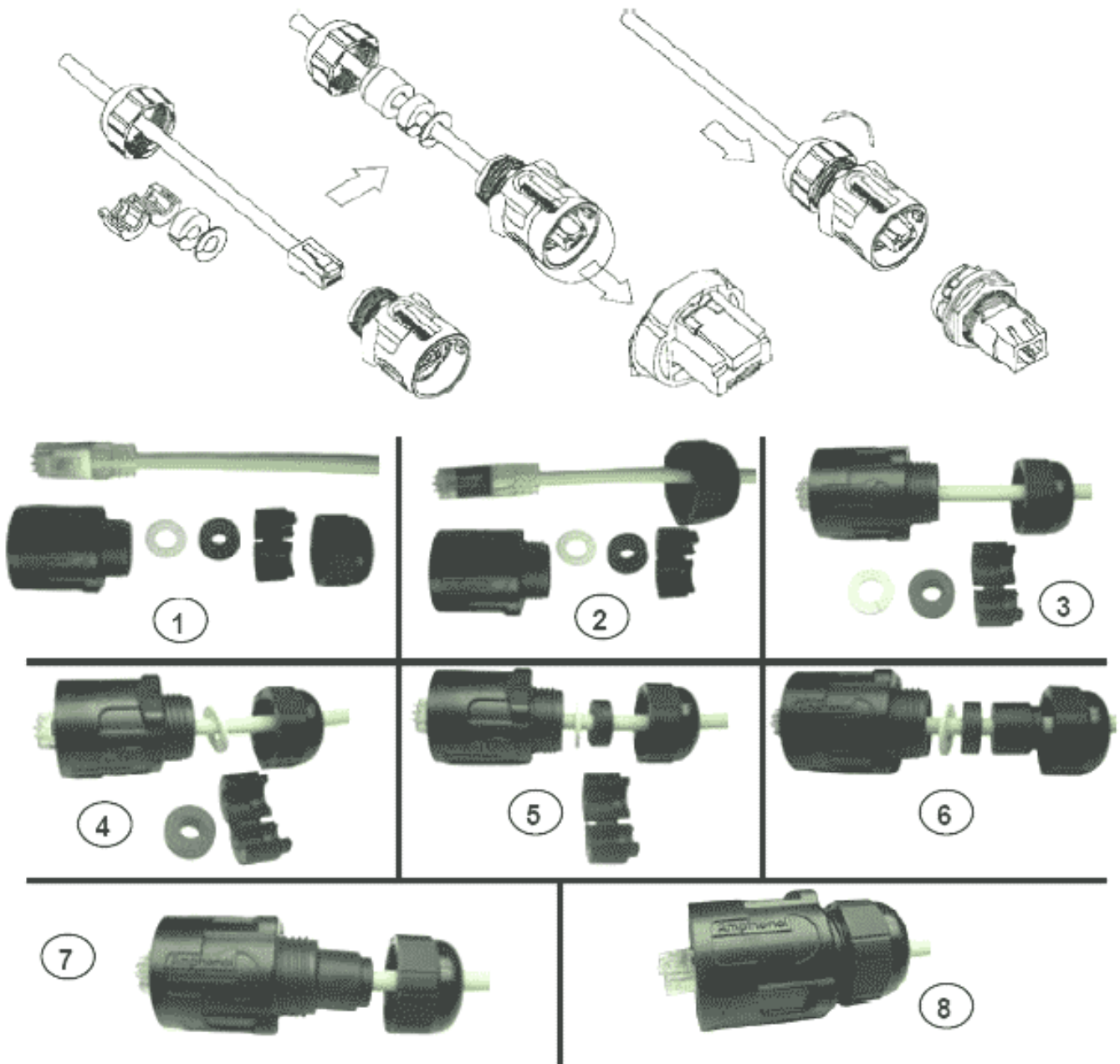
The IP67 rated RJ45 plug is field installable and does not require any special tools. It can be installed over most standard Ethernet patch cable (though you may have to remove the boot or latch cover if it has an over-molded boot). Refer to the diagrams below for mechanical details and assembly steps.



The recommended Ethernet cable diameter is 6 to 8 mm (0.23" – 0.31") for best performance.
The minimum cable diameter is 5 mm.
The maximum cable diameter is 10 mm.



RJ45 Plug Mechanical Dimensions



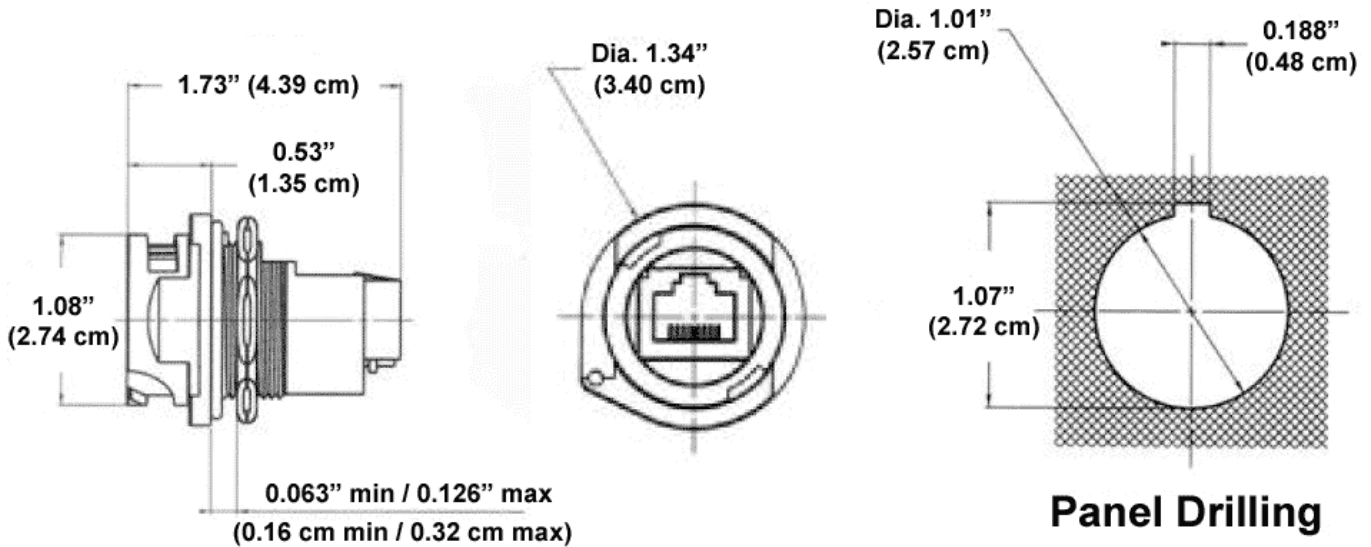
RJ45 Plug Assembly Steps

Important Note:
 For a water-tight seal make sure to follow these steps exactly and tighten the collar as much as possible.

Bulkhead Installation

The IP67 rated bulkhead connector allows you to make a water-tight Ethernet connection through any flat surface such as the side walls of an industrial enclosure.

The maximum wall thickness supported is 0.126" (3.2 mm) and the minimum recommended is 0.063" (1.6 mm).



Bulkhead Mechanical Dimensions

Important Note:

Make sure the o-ring gasket is on the outside of the enclosure. The jam nut goes on the inside.

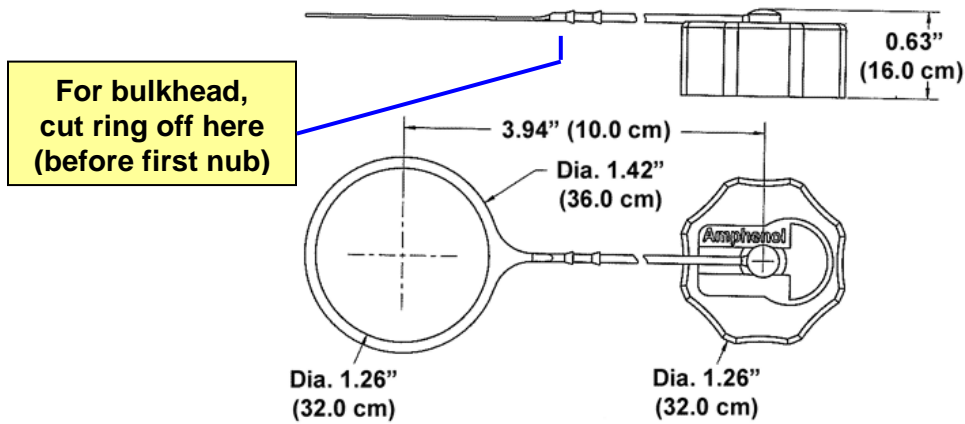
Cap Installation

The IP67 rated cap comes with a universal tether that can be used with either the RED LION ET-5ES/RS-IP67 IP67 switch or the Etherbus bulkhead connector.

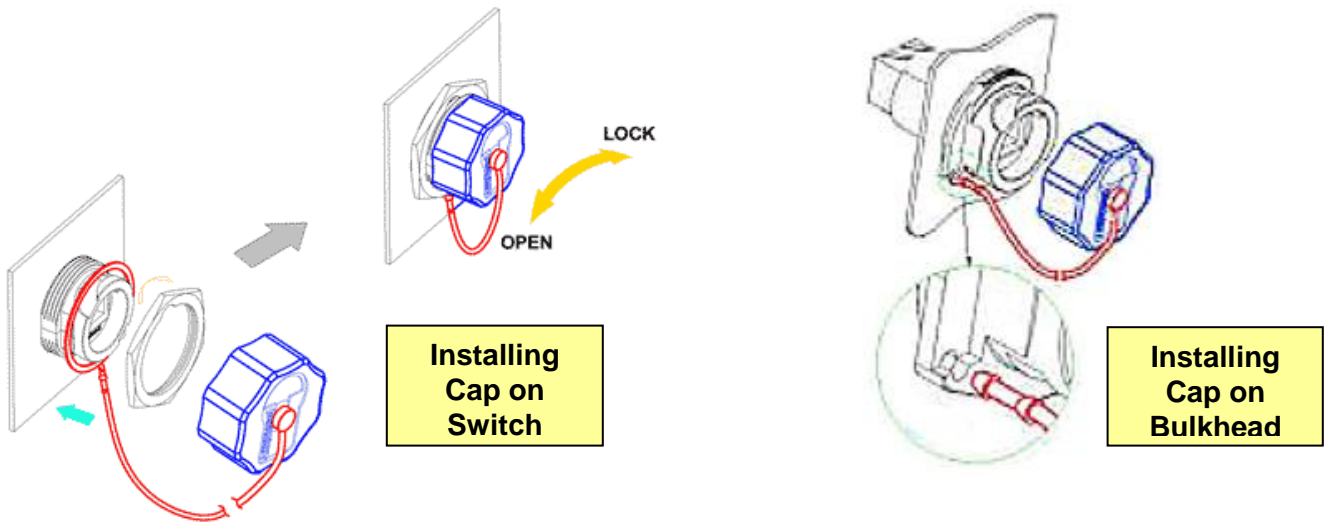
For use with the switch, simply remove the jam nut, put the ring of the tether over the connector and reinstall the jam nut.

For use with the bulkhead, simply cut off the ring part of the tether, and plug the tether line into the mating hole on the connector.

See diagrams below for details.



IP67 Cap Mechanical Dimensions



IP67 Cap Assembly

Section 4

Technical Specifications

Technical Specifications

Here are the technical specifications for the Etherbus accessories. Please contact RED LION for additional information.

IP67 RJ-Field RB Accessories Performance Specifications	
Electrical characteristics	
Ethernet data rates supported	10BaseT, 100BaseT, 1000BaseT
Cat 5E cable supported per	TIA/EIA 568B and ISO/IEC 11801, Class D
Cat 6 cable supported per	TIA/EIA 568B and ISO/IEC 11801, Class E
Mechanical characteristics	
Coupling (connection method)	Reverse bayonet – just a quarter turn and lock
RJ45 cordset retention	70 N in the axis
Mating cycles	500 minimum
Environmental protection	
Sealing protection	IP67 and NEMA 6 – dust, oil and water-proof to 1 meter for >30 min
Salt spray protection	1000 hours minimum
Fire retardant / low smoke	UL94 V0; NFF 16102, DIN 5510-2
Thermal shock	5 cycles @ -40°C to +100°C
Operating temperature	-40°C to +85°C

Specifications are subject to change. Consult factory for latest information.

Section 5

Service Information

Service Information

We sincerely hope that you never experience a problem with any **RED LION** product. If you do need service, call **RED LION** at (518) 877-5173 and ask for Applications Engineering. A trained specialist will help you to quickly determine the source of the problem. Many problems are easily resolved with a single phone call. If it is necessary to return a unit to us, an RMA (Return Material Authorization) number will be given to you.

RED LION tracks the flow of returned material with our RMA system to ensure speedy service. You must include this RMA number on the outside of the box so that your return can be processed immediately.

The applications engineer you are speaking with will fill out an RMA request for you. If the unit has a serial number, we will not need detailed financial information. Otherwise, be sure to have your original purchase order number and date purchased available.

We suggest that you give us a repair purchase order number in case the repair is not covered under our warranty. You will not be billed if the repair is covered under warranty.

Please supply us with as many details about the problem as you can. The information you supply will be written on the RMA form and supplied to the repair department before your unit arrives. This helps us to provide you with the best service, in the fastest manner. Normally, repairs are completed in two days. Sometimes difficult problems take a little longer to solve.

If you need a quicker turnaround, ship the unit to us by air freight. We give priority service to equipment that arrives by overnight delivery. Many repairs received by mid-morning (typical overnight delivery) can be finished the same day and returned immediately.

We apologize for any inconvenience that the need for repair may cause you. We hope that our rapid service meets your needs. If you have any suggestions to help us improve our service, please give us a call. We appreciate your ideas and will respond to them.

For Your Convenience:

Please fill in the following and keep this manual with your **RED LION** system for future reference:

P.O. #: _____ Date Purchased: _____

Purchased From: _____

Product Support

To obtain support for RED LION products:

Latest product info: www.redlion.net

Phone: 1-877-432-9908

Fax: +1 (518) 877-8346

E-mail: support@redlion.net

Shipping address:

Red Lion Controls, 20 Willow Springs Circle, York , PA 17406