



RLH Industries, Inc.

USER GUIDE

The leader in
rugged fiber optic
technology.

✓ Unconditional
Lifetime Warranty

R2010A-1020

RLH 5 Port Hardened Ethernet Switch

SLIMLINE DIN MOUNT

Introduction

The RLH 5 Port SlimLine Ethernet switch is a hardened, DIN mountable switch that supports 10/100M Ethernet.

The switch is housed in a rugged aluminum alloy enclosure that requires only 32mm of rack space. The RLH 5 port Ethernet switch is an ideal solution for industrial Ethernet applications that require temperature hardened durability. It features convenient port status LEDs, auto negotiation and auto MDI/MDI-X.

Key Features

- Ideal for critical, high voltage, remote, or un-manned locations that must remain operating 24/7/365
- IEEE 802.3 10Base-T UTP and 100Base-TX
- RJ45 UTP ports with 10/100M auto-negotiation
- MDI-II/MDI-X auto detection
- Convenient port status LED indicators
- Environmentally hardened to operate in -40°F to +185°F (-40°C to +85°C) environments
- Uses a local 12~36VDC power source
- Standard 35mm DIN rail mount
- Covered by our Exclusive Unconditional Lifetime Warranty



RLH 5 Port SlimLine DIN Mount Ethernet Switch

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Specifications subject to change without notice.

General Safety Practices

Intended Audience

This guide is intended for use by knowledgeable telco/network installation, operation and repair personnel. Every effort has been made to ensure the accuracy of the information in this guide is accurate. However, due to constant product improvement, specifications and information contained in this document are subject to change without notice.

Conventions

Symbols for notes, attention, and caution are used throughout this manual to provide readers with additional information, advice when special attention is needed, and caution to prevent injury or equipment damage.

The equipment discussed in this document may require tools designed for the purpose being described. RLH recommends that service personnel be familiar with the correct handling and use of any installation equipment used, and follow all safety precautions including the use of protective personal equipment as required.

Caution - Severe Shock Hazard

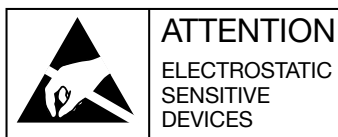
- Never install during a lightning storm or where unsafe high voltages are present.
- Copper network wires may carry high DC voltages. Use caution when handling copper wiring.

Warning

The intra-building port(s) of the equipment or subassembly is suitable for connection to intrabuilding or unexposed wiring or cabling only. The intra-building port(s) of the equipment **MUST NOT** be metallically connected to interfaces that connect to the OSP or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metallically to OSP wiring.

Special handling requirements

Be careful when handling electronic components



- This product contains static sensitive components.
- Do not open the enclosure, there are no user serviceable parts.
- Follow proper electrostatic discharge procedures.

This product utilizes circuitry that can be damaged by static electricity. Before installing, discharge static electricity on your body by physically making contact with earth ground. Failure to follow ESD precautions may cause damage to the unit and prevent proper operation.

Acronyms

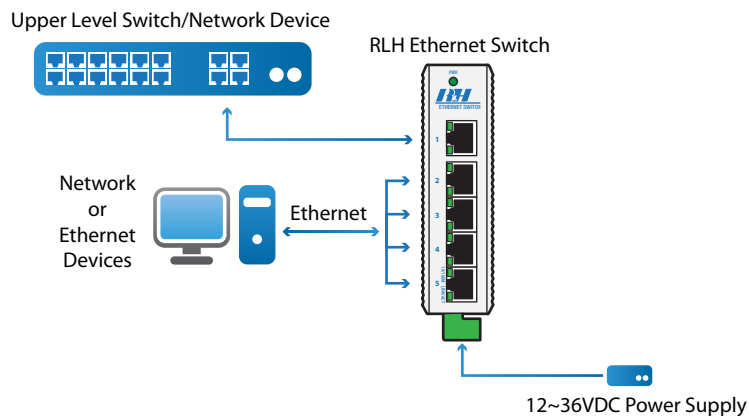
Commonly used acronyms and abbreviations

| Acronym/Abbreviation | Description |
|----------------------|--|
| UTP | Unshielded Twisted Pair (commonly used in Ethernet networks) |
| TP | Twisted Pair (same as UTP) |
| PWR | Power |
| LED | Light Emitting Diode |
| GRN | Green |

Applications

Network equipment used in critical applications demand rugged, reliable Ethernet switches for uninterrupted service. RLH hardened, industrial switches are ideal for small and medium enterprise, retail, commercial and telecommunications applications where reliability is a concern.

Commonly, switches are used to intelligently manage data packets between ports. A typical Ethernet switch installation diagram is shown below.



Typical Ethernet Switch Diagram

Installation

Prior to installation:

- Check for shipping damage
- Check the contents to ensure correct model and fiber type
- Have a clean, dry, DIN rail or wall mount installation environment ready

Required for installation:

- 12~36VDC local power source

Connect Ethernet cable

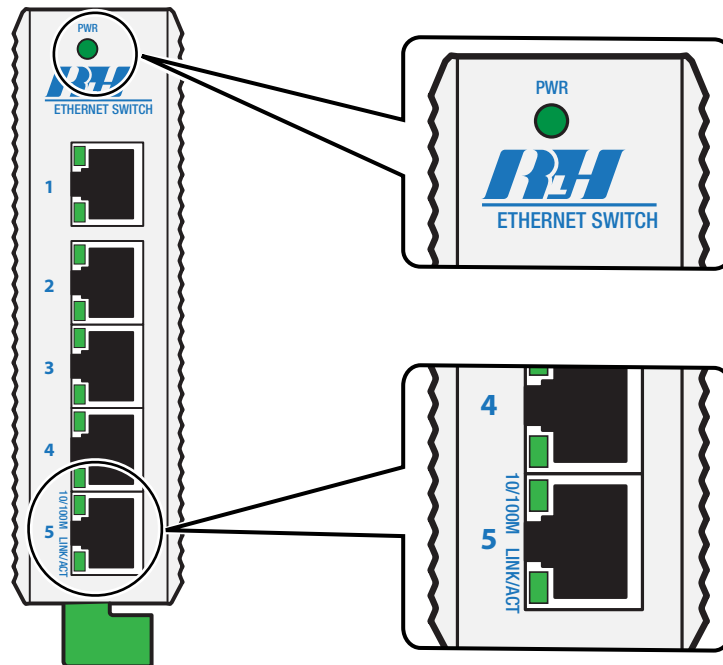
The 10/100/Base-T copper connection is made via the RJ45 ports. The TP ports are auto-negotiating and require no additional settings.

Connect Power

Attach a FG ground wire to the ground screw on the housing. Alternately, attach a ground wire to the FG terminal on the power connector. Connect a local 12~36VDC power supply to the power input terminals.

Note: The power terminals are polarity sensitive. Attach the Positive DC wire to the V+ terminal.

LED Indicators



| Indicator | Color | LED | Description |
|-----------|-------|----------|-----------------------------------|
| PWR | GRN | ON | System power is present |
| | | OFF | System power is disconnected |
| 10/100M | GRN | ON | TP port speed is 100M |
| | | OFF | TP port speed is 10M |
| LINK/ACT | GRN | ON | Established network connection |
| | | Blinking | TP port activity |
| | | OFF | No network connection established |

Troubleshooting

If trouble is encountered, verify all copper and fiber connections. Refer to the LED Indicators on of the unit. They show availability of power, modes of operation, and data being received by the fiber and TP ports.

If trouble persists, replace the unit and retest. If technical assistance is required, contact the RLH Industries, inc. technical support department:

800-877-1672 (6 am to 6 pm- PST),
or call our 24/7 Technical/Customer Service: (714) 366-2503 or (714) 457-5740

Ordering Information

RLH Ethernet PoE products are available directly through RLH Industries, Inc. or its distributors nationwide.

| RLH Part Number | Description | Powering Requirement |
|-----------------|--|----------------------|
| RLH-ES5U-I | RLH 5 Port DIN Mount 10/100M Ethernet Switch | 48VDC Local Power |

► Please contact your RLH sales representative for pricing and delivery information

General Specifications

| | | |
|------------------------------------|---|--|
| Protocols | 100BASE-TX, 10BASE-T | |
| Standards | IEEE802.3x, IEEE802.3, IEEE802.3U | |
| Processing Type | Store and Forward, with IEEE802.3x full duplex, non-blocking flow control | |
| Flow Control | IEEE802.3x flow control, back pressure flow control | |
| Mac Address | 8K | |
| Forward and Filtrate Rate | 14810pps | |
| System Exchange Bandwidth | 4.8G | |
| Copper Connector | RJ45 UTP, 10/100BaseT(X) auto negotiation speed, Full/half duplex mode, and auto MDI/MDI-X connection, 1000V protection isolation | |
| Copper distance | 100m / 328 feet | |
| LED Indicators | 100 | TP port speed - ON: 100m, OFF: 10M |
| | PWR | Power - ON: power applied, OFF: no power |
| Power Input | 24VDC (12~36VDC) 300mA | |
| Overload Current Protection | 1.1A | |
| Dimensions | W3.0" x H4.0" x D1.25" (78mm x 103mm x 32mm) | |
| Weight | 350g | |
| Housing | Aluminum alloy, IP30 protection | |
| Temperature | Operating | -40°F to +158°F (-40°C to +70°C) |
| | Storage | -40°F to +176°F (-40°C to +80°C) |
| Humidity | 5~95% non-condensing | |

Warranty

RLH is recognized throughout the world and offers the only **UNCONDITIONAL LIFETIME WARRANTY** in the industry. We are very proud of our warranty which simply states that the product is warranted to be free of defects in material and workmanship for the **LIFE OF THE PRODUCT**.

- We believe our customers shouldn't have to incur additional costs due to failure or damage
- We engineer our products with total confidence in our quality
- We understand how safety and reliability impact the total cost of ownership
- We know that customer support extends beyond the initial sale, so **we stand behind our products**

RLH will replace any product, or part thereof, that fails **FOR ANY REASON**, provided the defective part is returned to RLH Freight prepaid. This warranty is **UNCONDITIONAL** and valid even when RLH products have been abused or mishandled, or the product has been damaged as a result of a natural disaster. This warranty will reduce your costs and simplify your maintenance activities. Not all RLH products are covered by this warranty.

To make a warranty claim, or schedule repair or replacement of your RLH product, please contact us for an RMA number. You will be promptly assisted by one of our warranty specialists. All returns must have an RMA number before we can receive any items.

Technical Support

| | |
|--|--|
| Normal technical support hours (Mon - Fri 6am - 6pm PST) | Local (714) 532-1672 Toll Free (800) 877-1672 Toll Free (866) DO-FIBER |
| 24/7 Technical support | (714) 366-2503 (714) 457-5740 |

Contact Information

| | |
|-------------------------------|--|
| Corporate Headquarters | RLH Industries, Inc. 936 N. Main Street Orange, CA 92867 USA |
| Phone | Local (714) 532-1672 Toll Free (800) 877-1672 Toll Free (866) DO-FIBER |
| Fax | (714) 532-1885 |
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