2025 PRODUCT GUIDE

RLH Industries, Inc. 37 YEARS OF EXCELLENCE 1988 ~ 2025

The leader in rugged, fiber optic technology







Telecom
Data
Engineering & Design
High-Voltage Protection
Turn-Key Installations

RLH Industries, Inc.
Fiber Optic Link

www.fiberopticlink.com
1-866-DO-FIBER

Company Overview

Our Mission

> *To bring people and information together through the power of light.*
> J. Busby Harris, President/CEO

RLH Industries Inc. has been a leader in fiber optic isolation technology since 1988. Based in the heart of Southern California, we engineer products and solutions designed to meet the unique demands of our customers.

Our products are manufactured to exceptionally high performance requirements, meeting or exceeding industry standards. We stand with total confidence in the quality of our products.

Utilities, service providers, telco and networking contractors throughout North America utilize RLH products for their communication needs.

RLH Industries designs, engineers, and manufactures industrial-grade fiber optic communication equipment

Industry Solutions

- Telecommunications High Voltage Isolation
- Utilities, Power Transmission and Generation Facilities Lightning Protection
- Critical Communications Systems
- Automatic Meter Reading (AMR/AMI)
- Automation and Control
- Wide Area Networks & Local Area Networks Wireless/PCS Government/Military/Defense
- Educational Institutions
- Security and Monitoring

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Overview

RLH Industrial Media Converters are utility grade, temperature hardened, copper-to-fiber converters designed for harsh environments where performance is paramount. They are designed for stand alone, single or multiple line applications, providing electrical isolation and long distance extension of service over fiber optic cable.

Fiber Link DIN products are intended to be mounted on standard T35 DIN rails, and some models may also be wall or panel mounted with included wall mount hardware.

Please refer to the product data sheets obtainable from our web site, or contact one of our sales engineers for more detailed information.

Fiber Optic Converters

10/100 Enhanced Ethernet Media Converter

The RLH 10/100 Ethernet DIN Fiber Link system is a rugged, full featured media converter. It converts copper Ethernet to fiber, and may be used to extend a copper Ethernet network up to 74 miles (120km) over fiber optic cable. This system is designed to transport critical communications where reliability is paramount. It is environmentally hardened to operate in a wide temperature range and is standards compliant.

- Auto negotiate port speed and duplex settings
- User friendly switch to manually set copper & fiber port speed
- Link Fault Pass Through
- Features Pass-Through mode for low latency applications
- Auto MDI-X
- Made in USA

10/100 Slimline Ethernet Media Converter

The RLH 10/100 Ethernet DIN Fiber Link system is a rugged, full featured media converter. It converts copper Ethernet to fiber, and may be used to extend a copper Ethernet network up to 74 miles (120km) over fiber optic cable. The RLH Slimline DIN 10/100M Ethernet Over Fiber system is a multi-function converter that supports Ethernet communications over fiber optic cable.

- Compact, Slim, low cost Ethernet data over fiber solution
- Auto sensing for 10/100 Mbps speeds on copper Ethernet connections
- IEEE 802.3, IEEE 802.3x, IEEE 802.3u compliant
- IEEE802.3x compliant for full-duplex, back pressure flow control for half-duplex
- Provides 801.1q pass-thru

2+1 10/100 Ethernet Media Converter

The RLH EMC-21 series is an industrial Ethernet media converter that transmits data between two 10/100Base-T(X) copper ports, and through a single 100Base-FX fiber port. The rugged IP-30 housing is designed to be either T35 DIN Rail or wall mounted, and is engineered to operate over a wide temperature range of -40°C to +70°C. It offers dual power inputs for redundant powering and is available with Multimode or Singlemode optics.

- 2 ports 10/100Base-T(X)
- Auto-negotiation and auto -MDI/MID-X
- 2×10/100 Base-T(X) ports to save the usage of copper ports
- Rugged IP-30 housing design
- Hardened to operate in -40°F to +158°F (-40°C to +70°C)
- Dual 12~48VDC Power Input with redundant power terminals

Industrial Gigabit Ethernet Media Converter

The RLH Industrial Gigabit Ethernet media converter is a rugged, full featured media converter. It converts copper 10Base-T or 100/1000Base-T(X) Ethernet to fiber, and may be used to extend a copper Ethernet network up to 62 miles (100km) over fiber optic cable. This system is designed to transport critical communications where reliability is paramount.

- Auto negotiation for 10/100/1000 Mbps speeds on copper ethernet connections
- Link Fault Pass Through and Far End fault Detection supported
- Supports IEEE 802.1q VLAN traffic pass through
- IEEE802.3u 10/100/1000Base-Tx, 1000 Base-Fx compliant
- Built-in surge, static and circuit protection

Industrial Gigabit Ethernet SFP Media Converter

The RLH Industrial Gigabit Ethernet media converter is a rugged, full featured media converter. It converts copper 10Base-T or 100/1000Base-T(X) Ethernet to fiber through it's SFP slot, and may be used to extend a copper Ethernet network up to 62 miles (100km) over fiber optic cable. This system is designed to transport critical communications where reliability is paramount.

- Dual Rate SFP Slot Supports both Fast Ethernet and Gigabit
- Auto negotiation for 10/100/1000 Mbps speeds on copper Ethernet connections
- Link Fault Pass Through and Far End fault Detection supported
- Built-in surge, static and circuit protection

Industrial Gigabit PoE+ Media Converter

The RLH Industrial Gigabit PoE+ media converter is a rugged, full featured media converter. It converts copper 10Base-T or 100/1000Base-T(X) Ethernet to fiber through it's SFP slot, and may be used to extend a copper Ethernet network up to 62 miles (100km) over fiber optic cable. This model also supports PoE powering up to 30 Watts for convenient powering of remote devices. This system is designed to transport critical communications where reliability is paramount.

- Dual Rate SFP Slot Supports both Fast Ethernet and Gigabit
- Dual and single (Bi-directional) fiber SFPs available
- Supports IEEE 802.3af/at Power over Ethernet
- Auto negotiation for 10/100/1000 Mbps speeds on copper ethernet connections
- Built-in surge, static and circuit protection

Ultra PoE++ Ethernet Media Converter

The RLH Ultra PoE++ Ethernet Media Converter is a rugged, full featured media converter. It converts copper Ethernet to fiber, and may be used to extend a copper Ethernet network up to 62 miles (100km) over fiber optic cable. The integrated PoE++ power over Ethernet feature provides up to 90 Watts of power to a single end device and follows the IEEE 802.3bt standard.

- Dual Rate SFP Port – 100Mbps & 1Gbps
- Ultra PoE++ port with up to 90 Watts output
- IEEE 802.3bt standard
- IEEE 802.1q VLAN traffic pass through
- Link Fault Pass through
- PoE Remote Reset
- Redundant power inputs
- Rugged case rated to IP30

Contact Closure

This Contact Closure Fiber Link system provides transmission of the contact closure signal over one optical fiber. Applications include alarm event triggering, building automation, environmental control systems, fire & alarm systems, gate control, traffic signal control equipment, and more.

- Input will sense a dry contact closure
- Can be powered by 12~48VDC
- Pluggable terminal blocks
- Alarm contact for status monitoring
- Wide operating temp -40°F to +158°F (-40°C to +70°C)
- Limited Lifetime Warranty
- Made in USA

Bi-Directional Contact Closure

This Bi-Directional Contact Closure Fiber Link system provides two-way transmission of a contact closure signal over optical fiber. Applications include alarm event triggering, building automation, environmental control systems, fire & alarm systems, gate control, traffic signal control equipment, and more.

- Input will sense a dry contact closure
- Can be powered by 12~48VDC
- Pluggable terminal blocks
- Alarm contact for status monitoring
- Wide operating temp -40°F to +158°F (-40°C to +70°C)
- Limited Lifetime Warranty
- Made in USA

4 Channel Contact Closure

The RLH 4 Channel Contact Closure Fiber Optic Link system provides a transmission of up to four independent contact closure signals over one optical fiber. The system comprises a transmitter module and a receiver module, each in a compact DIN mount housing. The system requires a 22-56VDC local power source at end to provide power. The RX module includes a NC/NO alarm contact for system monitoring.

- Convenient LED status indicators
- Receiver includes alarm contact for status monitoring
- Input power is not polarity sensitive
- Available in Single or Multimode
- Available with ST or SC Connectors
- Convenient DIN Rail or Wall Mount
- Limited Lifetime Warranty
- Made in USA

8 Channel Contact Closure

The RLH 8 Channel Contact Closure DIN Fiber Link system provides a transmission of up to eight independent contact closure signals over one optical fiber. The system comprises a transmitter module and a receiver module, each in a compact DIN mount housing.

- DC power is not polarity sensitive
- Available with ST or SC connectors for single or multimode fiber
- Receiver includes alarm contact for status monitoring
- Critical, high voltage, remote or un-manned locations operating 24/7/365
- Limited Lifetime Warranty
- Made in USA

4 Channel Contact Closure SFP

The system provides transmission of four (4) independent input signals over fiber optic cable. Applications include alarm event triggering, building automation, environmental control systems, fire & alarm systems, gate control, traffic signal control equipment, and more. Fiber optic cable is immune to RF noise, EMI, high voltages, and may extend the signal up to 100km.

- Redundant power inputs with polarity reversal protection, 1.5kV isolation
- SFP transceiver interface
- Inputs can sense a Dry Contact closure
- Wet Inputs can accept a DC voltage On/Off Signal between 5~12 Volts or 24~48 Volts
- Limited Lifetime Warranty
- Made in USA

8 Channel Contact Closure SFP

The system provides transmission of eight (8) independent input signals over fiber optic cable. Applications include alarm event triggering, building automation, environmental control systems, fire & alarm systems, gate control, traffic signal control equipment, and more. Fiber optic cable is immune to RF noise, high voltages, and extends the signal transmission range up to 100km.

- Redundant power inputs with polarity reversal protection, 1.5kV isolation
- SFP transceiver interface
- Both sides include alarm contacts for status monitoring
- Critical, high voltage, remote or un-manned locations operating 24/7/365
- Limited Lifetime Warranty
- Made in USA

4 Channel Bi-Di Contact Closure SFP

The system provides transmission of four (4) independent input signals on each end over fiber optic cable in both directions. Applications include alarm event triggering, building automation, environmental control systems, fire & alarm systems, gate control, traffic signal control equipment, and more.

- Redundant power inputs with polarity reversal protection, 1.5kV isolation
- SFP transceiver interface
- Each output relay is rated for 60 Watts. (Available with NO or NC relays)
- Critical, high voltage, remote or un-manned locations operating 24/7/365
- Limited Lifetime Warranty
- Made in USA

Analog Signal 4~20mA Fiber Link System

The Analog Signal DIN Fiber Link system transmits a 4~20mA analog signal over one optical fiber. Offers a 12 bit signal resolution, and less than 0.1% source signal variance. Compatible with most PLC's, Sensors (2, 3, or 4 wire), and other types of equipment where a precise current measurement must be taken and transmitted over fiber.

- Transmit a 4~20mA signal over fiber
- Update rate: 1,300 samples a second
- 12 Bit signal resolution
- 99.9% accuracy or better
- Alarm contact for status monitoring
- Built-in surge, over current, and polarity reversal protection
- Limited Lifetime Warranty
- Made in USA

Analog Signal 0~10VDC Fiber Link System

The Analog Signal DIN Fiber Link system transmits a 0~10VDC analog signal over one optical fiber. Offers a 12 bit signal resolution, and less than 0.1% source signal variance. Compatible with most PLC's, Sensors (2, 3, or 4 wire), and other types of equipment where a precise current measurement must be taken and transmitted over fiber.

- Transmit four 0~10VDC signals over fiber
- Update rate: 1,300 samples a second
- 12 Bit signal resolution
- 99.9% accuracy or better
- Alarm contact for status monitoring
- Built-in surge, over current, and polarity reversal protection
- Limited Lifetime Warranty
- Made in USA

4 Channel 4~20mA Fiber Converter

This Fiber Optic Media converter transmits 4 Analog signals over fiber cable. Offers high end specifications: 78,000 samples a second, 16 bit signal resolution, and less than 0.1% source signal variance. Compatible with most PLC's, Sensors (2, 3, or 4 wire), and other types of equipment where a precise current or voltage measurement must be taken and transmitted over fiber.

- Update rate: 78,000 samples a second
- 16 Bit Signal Resolution
- 99.9% Accuracy or Better
- Alarm contact for status monitoring
- Redundant Power Inputs
- Built-in surge, over current, and polarity reversal protection
- Limited Lifetime Warranty
- Made in USA

4 Channel 0~10VDC Fiber Converter

This Fiber Optic Media converter transmits 4 Analog signals over fiber cable. Offers high end specifications: 78,000 samples a second, 16 bit signal resolution, and less than 0.1% source signal variance. Compatible with most PLC's, Sensors (2, 3, or 4 wire), and other types of equipment where a precise current or voltage measurement must be taken and transmitted over fiber.

- Update rate: 78,000 samples a second
- 16 Bit Signal Resolution
- 99.9% Accuracy or Better
- Alarm contact for status monitoring
- Redundant Power Inputs
- Built-in surge, over current, and polarity reversal protection
- Limited Lifetime Warranty
- Made in USA

4 Channel 4~20mA Fiber Converter with SFP

The RLH 4-20mA Fiber Optic Converter transmits 4 Analog signals over fiber cable and offers high performance with 500k samples per second, 16 bit signal resolution, and less than 0.1% source signal variance. It is compatible with most PLC's, Sensors (2, 3, or 4 wire), and other types of equipment where a precise current measurement must be taken and transmitted over fiber.

- Compatible with all MSA compliant Gigabit SFPs
- Update rate: 500K samples per second
- 16 Bit Signal Resolution
- 99.9% Accuracy or Better
- Alarm contact for system status monitoring
- Limited Lifetime Warranty
- Made in USA

4 Channel 0~10VDC Fiber Converter with SFP

The RLH 0~10VDC Fiber Optic Converter transmits 4 Analog signals over fiber cable while offering high performance with 500k samples per second, 16 bit signal resolution, and less than 0.1% source signal variance. It is compatible with most PLC's, Sensors (2, 3, or 4 wire), and other types of equipment where a precise voltage measurement must be taken and transmitted over fiber.

- Compatible with all MSA compliant Gigabit SFPs
- Update rate: 500K samples per second
- 16 Bit Signal Resolution
- 99.9% Accuracy or Better
- Alarm contact for system status monitoring
- Limited Lifetime Warranty
- Made in USA

4 Channel 4~20mA + 16 Channel Contact Closure ADIO

This Fiber Optic Media converter transmits 4 channels of 4-20mA analog signals and 16 bi-directional contact closure signals over fiber cable. Premium features include 60,000 samples a second, 16 bit signal resolution, and less than 0.1% source signal variance. Compatible with most PLC's, Sensors (2, 3, or 4 wire), and other types of equipment where precise current or voltage measurements must be taken and transmitted over fiber.

- Rugged design – Extreme operating temperature rating
- Convenient LEDs for power, fiber, and analog signals
- Update Rate: 78,000 Samples per Second
- 16 Bit Signal Resolution
- Limited Lifetime Warranty
- Made in USA

4 Channel 0~10VDC + 16 Channel Contact Closure ADIO

The Fiber Optic Media converter transmits 4 channels of 0~10VDC analog signals and 16 bi-directional contact closure signals over fiber cable. Premium high-speed features include 60,000 samples per second, 16 bit signal resolution, and less than 0.2% source signal variance. Compatible with most PLC's, Sensors (2, 3, or 4 wire), and other types of equipment where precise voltage signals must be taken and transmitted over fiber.

- ST or SC connectors, singlemode or multi-mode fiber
- 60,000 Samples per second, 16.6µs Update Rate
- 16 Bit Signal Resolution
- 99.8% Accuracy or Better
- Limited Lifetime Warranty
- Designed, Engineered and Assembled in the USA

4 Channel 4~20mA/0~10VDC + 32 Ch. Contact Closure ADMAX

This 32 Channel MAX System Fiber Optic Media converter transmits 4 channels of 4-20mA or 0~10VDC analog signals and 32 contact closure signals over fiber cable. Premium features include 60,000 samples a second, 16 bit signal resolution, and less than 0.1% source signal variance. Compatible with most PLC's, Sensors (2, 3, or 4 wire), and other types of equipment where precise current or voltage measurements must be taken and transmitted over fiber.

- Rugged design – Extreme operating temperature rating
- Convenient LEDs for power, fiber, and analog signals
- Update Rate: 78,000 Samples per Second
- 16 Bit Signal Resolution
- Limited Lifetime Warranty
- Made in USA

Industrial RS-232 Serial Data Fiber Converter

This Industrial Serial Data DIN Fiber Link system transports a full 9-PIN RS-232 copper signal over fiber optic cable. This is an ideal solution for extending serial data communications over long distances or near large electrical equipment. Fiber optics provide long distance communication up to 74 mi. (120km) and immunity to EMI/RFI and potential transient surges which can cause noise or damage equipment.

- 9-PIN RS-232 Signal – DCD, RXD, TXD, DTR, GND, DSR, RTS, CTS, RI
- Selectable DTE/DCE switch
- Each PIN is optically isolated
- Redundant Power Inputs
- Built-in surge, over current, and polarity reversal protection
- Limited Lifetime Warranty
- Made in USA

Serial Data RS-232 & RS-485/422

The RLH Serial Data DIN Fiber Link system transports two active channels of copper serial data over fiber optic cable, allowing for both RS-232 and RS-485/422 to be used at the same time. Fiber optics not only provide long distance communication up to 74 mi. (120km), but also provide immunity to EM/RFI and transient surges.

- Transparent RS-232 & RS-485/422 extension over fiber
- Supports 2 & 4 Wire RS-485 operation
- DC power alarm contact
- Dual redundant power inputs
- Protocols tested: DNP, Modbus, DF1
- Limited Lifetime Warranty
- Made in USA

Serial Data Fiber Optic Converter

The RLH Serial Data Fiber Optic Converter transmits RS-232/422/485 serial data over fiber optic cable. It transmits simultaneously to each serial port, providing the option to interface between one of three different serial data communication standards. Designed for operation in harsh environments, this fiber converter allows for long distance communication while providing immunity to EM/RFI and transient surges along the fiber path.

- Transparent RS-232/422/485 extension over fiber
- Compatible with all MSA Compliant Gigabit SFPs
- Supports RS-232 baud rates of 50 bps to 128 kbps
- Supports RS-422/485 baud rates of 50 bps to 2.5 Mbps
- Made in USA

Analog Phone (POTS) System

The RLH Plain Old Telephone Service (POTS) DIN Fiber Link system transports the analog phone line over fiber optic cable. The system will operate over a wide temperature range and has been designed to provide reliability in harsh environments. Common applications include extending analog phone (POTS) over fiber for the benefit of electrical isolation, to achieve long distances, or through noisy environments to reduce EMI.

- Supports Caller ID
- Supports Call-Forward Disconnect (Hook Flash)
- Supports Ringdown Function (FXS to FXS Hotline Phone)
- Standard 2 wire analog phone lines, dial-up modems, and fax machines
- Limited Lifetime Warranty
- Made in USA

2 Channel (POTS) System

The RLH 2 Channel Plain Old Telephone Service (POTS) DIN Fiber Link system transports two analog phone lines over fiber optic cable. The system will operate over a wide temperature range and has been designed to provide reliability in harsh environments. Common applications include extending analog lines over fiber for the benefit of electrical isolation, to achieve long distances, or through noisy environments to reduce EMI.

- Supports Caller ID
- Supports Call-Forward Disconnect (Hook Flash)
- Supports Ringdown Function (FXS to FXS Hotline Phone)
- Standard 2 wire analog phone lines, dial-up modems, and fax machines
- Limited Lifetime Warranty
- Made in USA

2 Channel (POTS) with I/O System

The RLH 2 Channel Plain Old Telephone Service (POTS) DIN Fiber Link system transports two analog phone lines over fiber optic cable. Each unit also features bi-directional contact closure for remote relay transportation. The system will operate over a wide temperature range and has been designed to provide reliability in harsh environments.

- Supports Caller ID
- Supports Call-Forward Disconnect (Hook Flash)
- Supports Ringdown Function (FXS to FXS Hotline Phone)
- Supports Bi-Directional Contact Closure transmission
- Limited Lifetime Warranty
- Made in USA

2 Channel (POTS) with Ethernet

The RLH 2 Channel Analog Phone DIN/wall mount Fiber Mux System provides a method of multiplexing 2 analog (POTS) channels over a single pair of multimode or singlemode fibers. This system solves the problem of limited available fiber, reduces equipment space and lowers overall equipment costs.In addition to two analog phone lines, the system provides two 10/100 Base-T Ethernet ports.

- 2 FXO ports for connection to PABX or PSTN
- 2 FXS ports for connection of individual analog phones or faxes
- Supports Ringdown when two FXS Units are used together
- 2 integrated 10/100 Base-T Ethernet ports for LAN interconnection or VOIP
- Limited Lifetime Warranty
- Made in USA

4 Line POTS Fiber Link System

The RLH 4 Line Plain Old Telephone Service (POTS) Fiber Link System transports four analog phone lines over fiber optic cable. This rugged system is designed to operate reliably in harsh environments over a wide temperature range. Common applications include connecting analog phone lines over fiber for the benefit of electrical isolation, extending service over long distances, or reducing EMI/RFI in electrically noisy environments.

- Supports Gigabit SFPs, MSA Compliant
- Supports Caller ID
- Supports Call-Forward Disconnect (Hook Flash)
- Supports Ringdown Function (FXS to FXS Hotline Phone)
- Standard 2-wire analog phone lines, dial-up modems, and fax machines
- Made in USA

4 Wire Data with E&M System

This industrial fiber optic media converter is designed to extend a 4 Wire Voice Frequency signal over fiber optic cable. By extending 4 Wire signals over fiber cable you gain the advantage of sending the signal long distances, up to 120km, as well as gain noise immunity to RF and Electromagnetic Interference. This system transports one circuit of 600 Ohm 4 Wire Data and supports E&M signaling.

- Transports voice frequency data 300Hz to 3,400Hz
- Supports 600 Ohm audio standard impedance
- Extend the signals long distances, up to 120km over fiber
- Supports E&M signaling
- Built-in alarm relay to indicate system health
- Limited Lifetime Warranty
- Made in USA

2 Channel 4 Wire Data with E&M System

This industrial fiber optic media converter is designed to extend two 4 Wire Voice Frequency Signals over fiber optic cable. By extending 4 Wire signals over fiber cable you gain the advantage of sending the signal long distances, up to 120km, as well as gain noise immunity to RF and Electromagnetic Interference. This system transports two circuits of 4 Wire Data and supports E&M signaling.

- Transports voice frequency data 300Hz to 3,400Hz
- Supports 600 Ohm audio standard impedance
- Extend the signals long distances, up to 120km over fiber
- Supports E&M signaling
- Limited Lifetime Warranty
- Made in USA

2 Channel 4 Wire Data with E&M and I/O System

This industrial fiber optic media converter is designed to extend two 4 Wire Voice Frequency Signals over fiber optic cable. This system also features bi-directional contact closure for remote relay or alarm status transportation. By extending 4 Wire signals over fiber cable you gain the advantage of sending the signal long distances, up to 120km, as well as gain noise immunity to RF and Electromagnetic Interference.

- Transports voice frequency data 300Hz to 3,400Hz
- Supports 600 Ohm audio standard impedance
- Extend the signals long distances, up to 120km over fiber
- Supports E&M signaling
- Limited Lifetime Warranty
- Made in USA

2 Channel T1 Fiber Mux

This 2 Channel T1 Din unit was design to meet NEBS Level 3 requirements and built to last in harsh environments. This product is unique in its ability to be line powered by a NIU. Line (also known as Span or Loop) powering removes the need for expensive powering arrangements when the unit is used in remote locations for High Voltage Isolation or T1 Demark Extensions.

- Applications for critical, high voltage, remote or unmanned locations that must remain operating 24/7/365
- Simplex 60mA line powered on the drop side from the T-1 span or HDSL NIU/RT unit, eliminating costly external power arrangements
- Limited Lifetime Warranty
- Made in USA

iMux Modular Multiplexer System

The iMux is a powerful fiber optic modular multiplexer capable of transmitting over fiber up to 16 channels of T1, RS232, 4 Wire Data, and POTS. Additional to the 16 channels every system includes a built-in 4 Port Gigabit Managed Ethernet switch. Each of these services are supplied by our communication modules, each module will transport up to 4 channels of the specified service and may be installed in any combination.

- Multiplexes up to 16 voice and data channels plus Gigabit Ethernet over a single fiber
- Up to 4 modules (each with 4 channels) may be used in any combination to mix and match services
- T1, RS232, POTS, & 4 Wire Data service modules
- 4 built-in Gigabit Ethernet ports

SFP Transceivers

RLH Industrial Small Form Factor Pluggable (SFP) Optical Transceivers comply with the Small Form Factor Pluggable MultiSourcing Agreement (MSA) and are certified for use in RLH SFP products.

These SFP transceivers are temperature hardened, available in dual fiber and single bi-directional configurations, and are ideal for use in all RLH SFP compatible devices.

155M SFP Transceiver

RLH Industrial Small Form Factor Pluggable (SFP) Optical Transceivers comply with the Small Form Factor Pluggable Multi-Sourcing Agreement (MSA) and are certified for use in RLH SFP products. These 155M SFP Transceivers are available in 2km, 20km, 60km, & 100km transmission ranges for a variety of applications.

- Hot-pluggable
- Uncooled laser transmitter
- Class 1 laser safety standards
- RoHS compliant SFP MSA(INF-8074i)
- SFF MSA (INF-8074i)
- IEEE802.3ah 100Base-LX10
- 155Mbps ITU-T G.957 STM-1
- 155Mbps SONET OC-3

1.25Gbit SFP Transceiver

RLH Industrial Small Form Factor Pluggable (SFP) Optical Transceivers are compatible with the Small Form Factor Pluggable Multi-Sourcing Agreement (MSA). These 1.25Gbit SFP Transceivers are available in transmission ranges from 300m to 60km for a variety of applications.

- Hot-pluggable
- Uncooled laser transmitter
- RoHS compliant
- SFF MSA (INF-8074i)
- IEEE 802.3/z/ah
- 1000Base-FX, -SX, -SX+, -LX, -ZX, -EZX, -BX20, -BX60

10Gbit SFP+ Transceiver

RLH Industrial Small Form Factor Pluggable (SFP) Optical Transceivers are compatible with the Small Form Factor Pluggable Multi-Sourcing Agreement (MSA).

- Class 1 Laser Safety Certified
- Hardened to Operate in -40°F to +185°F (-40°C to +85°C)
- Hot-Pluggable
- Uncooled Laser Transmitter
- RoHS Compliant

Mounting Accessories

The RLH DIN Rail Housing and bracket are ideal ways to mount DIN rail equipment in different types of environments. The RLH DIN Rail Housing not only accommodates our switches, media converters and power supplies, but most industrial electronic equipment that utilizes the standard T35 DIN Rail.

The RLH Rack Mount DIN Rail Bracket is an open bracket that allows for more room around equipment for fiber routing or cable, and is ideal for telecom open rack environments. All RLH DIN rail equipment is manufactured to the highest standards and are powder coated for durability.

Rack Mount DIN Rail Bracket

The RLH Rack Mount DIN Rail Bracket provides a sturdy and secure way to attach a T35 (35mm) DIN rail to a standard EIA 19/23 inch equipment rack. The bracket uses 2 rack spaces (2RU), and the DIN rail is recessed so that attached DIN devices are recessed from the front of the rack. Vented, welded steel construction provides strength to accept a variety of industrial DIN mount equipment. Rack mount hardware and cable management clips are included.

- Standard T-35 DIN Rail
- Removable DIN Rail
- Designed to fit standard EIA 19” Racks, optional 23” Rack Extension Kit
- Requires only 2RU rack space
- Heavy duty welded steel construction
- Recessed design provides added component protection
- Vented back and sides

DIN Rail Housing

The DIN Rail Housing is designed to safely and securely house DIN rail mounted equipment for wall and rack mount applications. The industrial housing is a steel, powder coated, enclosure with a hinged transparent door for quick assessment of the equipment status and configuration. Access to the inside is easy and secure with a quarter turn latch. An optional key locking latch is also available.

- EIA 19/23” rack or wall mount (hardware included)
- Durable powder coated steel construction
- Quarter turn access latch or key locking latch option
- Multiple cable entry and exit points for flexible routing
- Hinged door with acrylic window to monitor equipment

Overview

Our industrial switches robust features and construction meet the demands of a variety of applications, and are an ideal solution for a wide range of utility and automation environments.

All RLH industrial switches are environmentally hardened to operate over a wide temperature range, one of the essential attributes of RLH equipment.

Many of our switches are both DIN and wall mountable, which is ideal for many industrial environments. Our high fiber capacity switches are 1RU and 19 in. rack mountable.

Our line of switches includes PoE, Managed (Light Layer 3), Unmanaged, Fast Ethernet, Gigabit, DIN form factor, and rack mount.

Please refer to the product data sheets obtainable from our web site, or contact one of our sales engineers for more detailed information.

Industrial Ethernet Switches

5 Port 10/100 Switch

RLH industrial Ethernet switches are designed to deliver dependable network performance in the most challenging environments. The 5-port switch includes standard features such as redundant power inputs and a fault alarm. Built to withstand extreme conditions, it is engineered to operate across a broad temperature range, which is typical for RLH equipment.

- 5 ports of Fast Ethernet
- Supports Auto MDI/MDI-X Function
- Store-and-forward switching architecture
- 12~48VDC redundant power inputs with built-in alarm relay
- 2kV surge protection
- Meets NEMA TS2 Requirements for Traffic Control

4+1 Fiber 10/100 Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. The 4+1 Fiber switch provides both copper and fiber Ethernet access. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment.

- 1 Fiber 100BaseFX port
- Extend Ethernet over fiber, up to 74 miles (120km)
- 4 ports of Fast Ethernet
- Auto MDI/MDI-X
- Store-and-forward switching architecture
- Rugged case rated to IP-30
- UL Listed

4+2 Fiber 10/100 Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. The 4+2 Fiber switch provides both copper and fiber Ethernet access. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment.

- 2 Fiber 100BaseFX ports
- Extend Ethernet over fiber, up to 74 miles (120km)
- 4 ports of Fast Ethernet
- Auto MDI/MDI-X
- Store-and-forward switching architecture
- Rugged case rated to IP-30
- UL Listed

5 Port Gigabit Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. This gigabit switch comes standard with redundant power inputs and fault alarm. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment.

- 5 ports of Gigabit Ethernet
- Auto MDI/MDI-X
- Store-and-forward switching architecture
- Rugged case rated to IP-30
- 12~48VDC redundant power inputs with built-in alarm
- 2kV surge protection
- UL Listed

8 Port Gigabit Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. The ETH-8G-1 8 Port 10/100/1000 Gigabit Switch comes standard with redundant power inputs and a fault alarm. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment.

- 8 Ports of 10/100/1000 Gigabit Ethernet
- Wide operating temperature range -40°F to +167°F (-40°C to +75°C)
- 12-48VDC dual redundant power inputs
- Rugged IP-30 rated case
- Overcurrent and Polarity Protection
- UL Listed

4+2 Unmanaged 1G/10G SFP+ Switch

The RLH 4+2 Industrial Unmanaged 2.5G SFP+ Switch is a high-performance networking solution built to sustain critical communications in harsh environments. It is equipped with (4) 2.5G-rated copper Ethernet ports, and (2) dual-rated 1G/10G SFP+ Ethernet ports for accommodating all industrial and enterprise network bandwidth needs.

- 4 Copper Ports, 10/100/1000/2500Mbps Ethernet
- 2 SFP/SFP+ Ports, 1G/10G Ethernet
- Ethernet Flow Control (IEEE 802.3x)
- Rugged IP-40 housing design
- Hardened to operate in -40°F to +167°F (-40°C to +75°C)
- 12~48VDC dual redundant power inputs

5+2 Gigabit SFP Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. The 5+2 Gigabit SFP switch provides both copper and fiber Gigabit Ethernet access. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment.

- 2 Dual Rate SFP ports – 100Mbps & 1Gbps
- 5 Ports of Gigabit Ethernet
- 9.6Kb Jumbo Frame Support
- Auto MDI/MDI-X
- Store-and-forward switching architecture
- Rugged case rated to IP-30
- UL Listed

8+4 Gigabit SFP Switch

The 8+4 Gigabit SFP switch is an unmanaged switch that accepts both copper and fiber Gigabit Ethernet access. Dual rate industrial grade SFPs are recommended. It is environmentally hardened to operate over a wide temperature range, which makes it ideal for locations that are found in industrial locations, such as in factory, utility, equipment closets, and other uncontrolled environments.

- Hardened design has a wide operating temperature range -40°F to +167°F (-40°C to +75°C)
- 4 Dual Rate SFP ports – 100Mbps & 1Gbps
- 8 ports Gigabit Ethernet
- Supports Jumbo Frames
- 12-48VDC redundant power inputs with built-in alarm
- UL Listed

16+2 Gigabit SFP Switch

The 16+2 Gigabit SFP switch is an unmanaged switch that accepts both copper and fiber Gigabit Ethernet access. Dual rate industrial grade SFPs are recommended. It is environmentally hardened to operate over a wide temperature range, which makes it ideal for locations that are found in industrial locations, such as in factory, utility, equipment closets, and other uncontrolled environments.

- 2 Dual Rate SFP ports – 100Mbps & 1Gbps
- 16 ports Gigabit Ethernet
- Supports Jumbo Frames
- Auto MDI/MDI-X
- Store-and-forward switching architecture
- 12-48VDC redundant power inputs with built-in alarm

5+1 Managed Gigabit SFP Switch

RLH managed industrial switches are engineered to provide reliable network performance in harsh environments. The 5+1 Managed Gigabit SFP switch provides both copper and fiber Gigabit Ethernet access. his environmentally hardened Light Layer 3 switch is manageable and offers a wide array of configuration and monitoring options.

- Dual Rate SFP ports – 100Mbps & 1Gbps
- 5 Ports of Gigabit Ethernet
- 9.6K Bytes Jumbo Frame Support
- Auto MDI/MDI-X
- Store-and-forward switching architecture
- Redundant power inputs with built-in alarm
- Light Layer 3 Switch – Supports Static Routes, Inter-VLAN Routing, ACLs, IPv4/ IPv6, and DHCP Option 66/67/82

8+2 Managed Gigabit SFP Switch

RLH managed industrial switches are engineered to provide reliable network performance in harsh environments. The 8+2 Managed Gigabit SFP switch provides both copper and fiber Gigabit Ethernet access. This environmentally hardened Light Layer 3 switch is manageable and offers a wide array of configuration and monitoring options.

- 2 Dual Rate SFP ports – Fast Ethernet & Gigabit
- 9.6K Bytes Jumbo Frame Support
- Auto MDI/MDI-X
- Store-and-forward switching architecture
- Redundant power inputs with built-in alarm
- Light Layer 3 Switch – Supports Static Routes, Inter-VLAN Routing, ACLs, IPv4/ IPv6, and DHCP Option 66/67/82
- UL Listed

8+2 Managed Gigabit SFP+ Switch

RLH managed industrial switches are engineered to provide reliable network performance in harsh environments. The 8+2 Managed Gigabit SFP+ Switch provides both copper and fiber Gigabit Ethernet access, including two dual-rated SFP+ ports that also support 10G bandwidth. This environmentally hardened Light Layer 3 switch is fully manageable and offers a wide array of configuration and monitoring options.

- 2 Dual Rate SFP ports – 1G/10G
- 8 Copper Ports of Gigabit Ethernet
- 9.6K Bytes Jumbo Frame Support
- Auto MDI/MDI-X
- Store-and-forward switching architecture
- Redundant power inputs with built-in alarm
- 2kV surge protection
- UL Listed

8+4 Managed Gigabit SFP Switch

RLH managed industrial switches are engineered to provide reliable network performance in harsh environments. The 8+4 Managed Gigabit SFP switch provides both copper and fiber Gigabit Ethernet access. This environmentally hardened Light Layer 3 switch is manageable and offers a wide array of configuration and monitoring options.

- 4 Dual Rate SFP ports – 100Mbps & 1Gbps
- 9.6K Bytes Jumbo Frame Support
- Auto MDI/MDI-X
- Store-and-forward switching architecture
- Redundant power inputs with built-in alarm
- Light Layer 3 Switch – Supports Static Routes, Inter-VLAN Routing, ACLs, IPv4/ IPv6, and DHCP Option 66/67/82
- UL Listed

8+12 Managed Gigabit SFP Switch

The 8+12 Managed Gigabit SFP switch provides 8 copper Gigabit Ethernet ports and 12 fiber Gigabit Ethernet SFP ports for maximum connectivity in a compact form factor. A comprehensive set of management features provide a wide array of configuration and monitoring options required for various industrial applications.

- Hardened design has a wide operating temperature range -40°F to +167°F (-40°C to +75°C)
- 8 ports – 10/100/1000Base-T(X) Ethernet
- 12 ports – 100/1000Base-(F)X SFP slots
- Supports Jumbo Frames
- 12~48VDC redundant power inputs with built-in alarm relay
- Overload and reverse polarity protection

Industrial 5 Port PoE+ Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. This 5 port switch provides Ethernet access along with PoE+ powering. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment. The PoE+ ports provide up to 30 Watts of power to end devices following the IEEE 802.3af/at standard.

- Flex Power – Constant 48VDC PoE+ power (at low input voltages)
- Four PoE+ ports with up to 30 watts per port
- IEEE 802.3af/at Power over Ethernet
- PoE Mode A (End Span)
- Auto MDI/MDI-X
- Store-and-forward switching architecture
- UL Listed

Industrial 4+1 Fiber PoE+ Switch

RLH industrial switches are engineered to provide reliable network performance in demanding environments. The 4+1 Fiber PoE+ switch provides four Ethernet ports providing PoE+ power to networked equipment and one fiber port. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment. The PoE+ ports provide up to 30 Watts of power to end devices following the IEEE 802.3af/at standard.

- Flex Power – Constant 48VDC PoE+ power (at low input voltages)
- 1 Fiber 100BaseFX port
- Extend Ethernet over fiber, up to 74 miles (120km)
- 4 PoE+ ports with up to 30 watts per port
- IEEE 802.3af/at Power Over Ethernet
- Auto MDI/MDI-X
- UL Listed

Industrial 4+2 Fiber PoE+ Switch

RLH industrial switches are engineered to provide reliable network performance in demanding environments. The 4+2 Fiber PoE+ switch provides four Ethernet ports providing PoE+ power to networked equipment and two fiber ports. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment. The PoE+ ports provide up to 30 Watts of power to end devices following the IEEE 802.3af/at standard.

- 2 Fiber 100BaseFX ports
- Extend Ethernet over fiber, up to 74 miles (120km)
- 4 PoE+ ports with up to 30 watts per port
- IEEE 802.3af/at Power Over Ethernet
- PoE Mode A (End Span)
- Auto MDI/MDI-X
- UL Listed

Industrial 8+2 Combo SFP PoE+ Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. The 8+2 Combo SFP PoE+ switch provides both copper and fiber Ethernet access, along with PoE+ powering capabilities. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment. The PoE+ ports provide up to 30 Watts of power to end devices following the IEEE 802.3af/at standard.

- Flex Power – Constant 48VDC PoE+ power (at low input voltages)
- 2 Combo Ports – Either Gigabit RJ-45 or SFP Ports
- 8 PoE+ ports with up to 30 watts per port
- IEEE 802.3af/at Power over Ethernet
- PoE Mode A (End Span)
- Auto MDI/MDI-X
- UL Listed

Industrial 5 Port Gigabit PoE+ Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. The 5 Port Gigabit PoE+ switch provides Gigabit Ethernet access, along with PoE+ powering capabilities. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment. The PoE+ ports provide up to 30 Watts of power to end devices following the IEEE 802.3af/at standard.

- 5 Gigabit Ethernet Ports
- 4 PoE+ ports with up to 30 Watts per port
- Up to 120 Watts of PoE output power
- Redundant power inputs
- Integrated alarm relay
- IEEE 802.3af/at Power over Ethernet
- Rugged case rated to IP30
- UL Listed

Industrial 5 Port Gigabit Ultra PoE++ Switch

RLH hardened industrial Ethernet switches are engineered to provide reliable network performance in harsh environments. The Industrial 5 Port Gigabit Ultra PoE++ Switch provides Gigabit data transfer and can supply four Powered Devices (PDs) with up to PoE++-rated power. Four (4) of its five (5) copper Ethernet ports can supply PoE++.

- 4 Ports of Gigabit PoE++ (90W/Port), 1 Non-PoE Gigabit Port
- IEEE 802.3af/at/bt-compliant (Type 3 and Type 4 IEEE 802.3bt)
- Supports Mode A, Mode B, and 4-Pair Mode PoE power relaying
- PoE ON/OFF DIP switches for simplified PoE port control
- Status LEDs for input power, alarm relay, and PoE Load

Industrial 4+2 Gigabit SFP+ Ultra PoE++ Switch

The RLH 4+2 Industrial Unmanaged 2.5G SFP+ Ultra PoE++ Switch is a high-performance, high-powered networking solution built to sustain critical communications in harsh environments. It is equipped with (4) 2.5G-rated copper Ethernet ports, and (2) dual-rated 1G/10G SFP+ Ethernet ports for accommodating all industrial and enterprise network bandwidth needs.

- 4 Copper Ports, 10/100/1000/2500Mbps Ethernet
- 2 SFP/SFP+ Ports, 1G/10G Ethernet
- 4 Ports PoE++ (90W/Port), IEEE 802.3bt
- Hardened to operate in -40°F to +167°F (-40°C to +75°C)
- 52~57VDC redundant power inputs
- UL Listed

Industrial 5+2 Gigabit SFP PoE+ Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. The 5+2 Gigabit SFP PoE+ switch provides both copper and fiber Gigabit Ethernet access, along with PoE+ powering capabilities. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment. The PoE+ ports provide up to 30 Watts of power to end devices following the IEEE 802.3af/at standard.

- Flex Power – Constant 48VDC PoE+ power (at low input voltages)
- 2 Dual Rate SFP Ports – 100Mbps & 1Gbps
- 4 PoE+ ports with up to 30 watts per port
- IEEE 802.3af/at Power over Ethernet
- PoE Mode A (End Span)
- Auto MDI/MDI-X
- UL Listed

Industrial 8+2 Gigabit SFP PoE+ Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. The 8+2 Gigabit SFP PoE+ switch provides both copper and fiber Gigabit Ethernet access, along with PoE+ powering capabilities. It is environmentally hardened to operate in a wide temperature range, which is the standard for RLH equipment. The PoE+ ports provide up to 30 Watts of power to end devices following the IEEE 802.3af/at standard.

- 2 Dual Rate SFP Ports – 100Mbps & 1Gbps
- 8 PoE+ ports with up to 30 watts per port
- Up to 240 Watts of PoE output power
- Redundant power inputs
- Integrated alarm relay
- IEEE 802.3af/at Power over Ethernet
- Rugged case rated to IP30
- UL Listed

Industrial Gigabit Ultra PoE++ Injector

The RLH Industrial Gigabit Ultra PoE++ Injector simultaneously outputs power and Gigabit Ethernet data transmission to a connected Powered Device (PD). It can supply up to 90W of PoE in compliance with the IEEE 802.3bt standard's Type 4 PoE designation, supporting an extensive range of high-powered applications. A unique Flex Power feature enables this 90W PoE output to persist while the injector's power terminals receive an input voltage rated as low as 12VDC.

- Inject up to 90W of PoE (IEEE 802.3af/at/bt-compliant)
- Supports up to Gigabit Ethernet data transfer rates (10/100/1000Mbps)
- Flex Power – Constant 48VDC PoE++ output at low input voltages
- Power redundancy/failover and redundant power loss fault relay
- Supports Mode A, Mode B, and 4-Pair Mode PoE power relaying

Industrial 1-Port Gigabit PoE+ Splitter

The Industrial 1-Port Gigabit PoE+ Splitter is a high powered PoE splitter used in Power over Ethernet Systems to separate the Ethernet data and DC Power supplied by PoE. PoE inserted into its PoE IN port (Data + Power) is split between the Gigabit-rated DATA OUT port (Data only), and a DC Power terminal block (Power only) for outputting up to 24VDC/1.125A of power.

- Fully compliant with IEEE802.3at (PoE+) standard
- Supports 10/100/1000 Base-T(X)
- Power Isolation and Short Circuit Protection for Power Output
- Auto protection for Over Voltage Power Input
- Supports Power Output up to 24VDC/ 1.125A (27Watts)

Industrial 4+2 Managed Fiber PoE+ Switch

RLH industrial switches are engineered to provide reliable network performance in harsh environments. The 4+2 Managed Fiber PoE+ switch provides both copper and fiber Ethernet access, along with PoE+ powering capabilities. This environmentally hardened Light Layer 3 switch is manageable and offers a wide array of configuration and monitoring options. The PoE+ ports provide up to 30 Watts of power to end devices following the IEEE 802.3af/at standard.

- Flex Power – Constant 48VDC PoE+ power (at low input voltages)
- 2 Fiber 100BaseFX ports
- 4 PoE+ ports with up to 30 watts per port
- IEEE 802.3af/at Power Over Ethernet
- Light Layer 3 Switch – Supports Static Routes, Inter-VLAN Routing, ACLs, IPv4/IPv6, and DHCP Option 66/67/82
- UL Listed

Industrial 4+4 Managed Gigabit SFP PoE+ Switch

RLH managed industrial switches are engineered to provide reliable network performance in harsh environments. The 4+4 Managed Gigabit SFP PoE+ switch provides both copper and fiber Gigabit Ethernet access, along with PoE+ powering capabilities. This environmentally hardened Light Layer 3 switch is manageable and offers a wide array of configuration and monitoring options.

- 4 Dual Rate SFP ports – 100Mbps & 1Gbps
- 4 Ports of Gigabit Ethernet
- 9.6Kb Jumbo Frame Support
- PoE+ up to 30 watts per port
- Auto MDI/MDI-X
- Light Layer 3 Switch – Supports Static Routes, Inter-VLAN Routing, ACLs, IPv4/IPv6, and DHCP Option 66/67/82
- UL Listed

Industrial 5+2 Managed Gigabit SFP PoE++ Switch

The 5+2 Managed Gigabit SFP PoE++ switch provides both copper and fiber Gigabit Ethernet access, along with IEEE 802.3bt PoE++ powering capabilities. This environmentally hardened Light Layer 3 switch is manageable and offers a wide array of configuration and monitoring options. The (4) PoE++ ports provide up to 90 Watts of power to end devices with a maximum total power budget of 240W shared between all 4 ports.

- 4 Ports of Gigabit PoE++ (90W/Port), IEEE 802.3bt
- 2 Dual Rate SFP ports – 100Mbps & 1Gbps
- 1 Port 10/100/1000Base-T
- Hardened design has a wide operating temperature range -40°F to +167°F (-40°C to +75°C)
- UL Listed

Industrial 8+2 Managed Gigabit SFP PoE+ Switch

RLH managed industrial switches are engineered to provide reliable network performance in harsh environments. The 8+2 Managed Gigabit SFP PoE+ Switch provides both copper and fiber Gigabit Ethernet access, along with PoE+ powering capabilities. This environmentally hardened Light Layer 3 switch is manageable and offers a wide array of configuration and monitoring options.

- 8 Ports of 10/100/1000 PoE+ (30W/Port), IEEE 802.3af/at
- 2 Dual Rate SFP ports – 100Mbps & 1Gbps
- 12-55VDC dual redundant power inputs
- Wide operating temperature range -40°F to +167°F (-40°C to +75°C)
- UL Listed

4+8+16 Ethernet Fiber Switch

The RLH Industrial Managed Ethernet Switch offers 4 Gigabit SFP slots, 8 RJ-45 Fast Ethernet Ports, and 16 100Base-FX fiber ports. The high fiber port count makes this a great switch for aggregating remote locations to one central location. The switch operates at Layer 2 and offers a web-based management interface as well as support for IEEE802.1Q VLANs, broadcast storm control, RSTP, QOS, along with many other features.

- (4) Gigabit SFP Slots, (8) Fast Ethernet Copper Ports, (16) 100Base-FX Fiber Ports
- RJ-45 ports are auto MDI/MDIX, auto negotiating
- Embedded web management
- Supports Port-based VLAN, IEEE 802.1Q VLAN
- 19” 1RU rack mount form factor, steel enclosure

8+16+4 Gigabit Ethernet Fiber Switch

The RLH Industrial Managed Ethernet Switch offers 4 Gigabit fiber ports (SFP slots), 8 Gigabit Combo ports (SFP slots or RJ45), and 16 Gigabit copper ports for a total of 28 ports. This switch features a wide operating temperature and fanless design, and the high SFP port count makes it a great switch for aggregating remote locations to one central location.

- Up to 12 total SFP ports for fiber
- 4 Gigabit SFP ports
- 8 Gigabit SFP or RJ-45 combo ports
- 16 Gigabit RJ-45 ports
- Embedded web management
- Supports Static Routing
- Supports port-based VLANs, IEEE 802.1Q VLANs
- EIA 19” rack mountable, 1RU rack height

Overview

The Smart Series product family is rugged ethernet I/O that's packed with a variety of integration options including: SNMPv3, DNPv3 TCP, Modbus TCP, Email alerting. This allows for standalone operation or integration into network management or distributed control systems. These units can also be paired with one another to allow for point-to-point IO extension over Ethernet networks. They feature a convenient built in web interface for management and control, and are designed and built to operate in harsh environments.

The devices can be powered directly from substation 125VDC battery, 802.11af Power over Ethernet, or 24-48VDC. Sinking or Sourcing inputs are available which allow the device to act as the middleman providing the communication interface into a control system from the desired physical alarm end points. The outputs provided are either Normally Open or Normally Closed high capacity relays which can be remotely monitored and controlled.

Please refer to the product data sheets obtainable from our web site, or contact one of our sales engineers for more detailed information.

Ethernet IO

Smart 4 Input Sensor

The Smart Input Sensor is a Ethernet device with 4 digital inputs. The device allows for web based monitoring of the inputs and may be integrated into distributed control and network management systems to allow those systems to alarm and monitor field devices. Each of the Inputs can be individually configured to send customized emails and notifications when an event is recorded.

- Intuitive embedded web interface for configuration
- 4 inputs for multiple alarm monitoring
- Event log with time stamps
- Each digital input is optically isolated
- 10/100 Fast Ethernet Port
- Limited Lifetime Warranty
- Made in USA

Smart 4 Relay Output

The Smart Relay Output is an Ethernet device with 4 Integrated controllable relays. The device allows for web based control of the relays and may be integrated into distributed control and network management systems to allow those systems to controlled it's Relays. Each of the Relays can be individually configured to send customized emails and notifications when an event is triggered.

- Intuitive embedded web interface for configuration
- 4 Relay Outputs for initiating alarms or actions though one of it's integrated protocols
- Event log with time stamps
- 10/100 Fast Ethernet Port
- Limited Lifetime Warranty
- Made in USA

Smart Input Sensor

The Smart Input Sensor is an Ethernet device with 8 integrated digital inputs. The device allows for web based monitoring of the inputs and may be integrated into distributed control and network management systems to allow those systems to alarm and monitor field devices. Each of the Inputs can be individually configured to send customized emails and notifications when an event is recorded.

- Intuitive embedded web interface for configuration
- 8 Inputs for multiple alarm monitoring
- Event log with time stamps
- Each digital input is optically isolated
- 10/100 Fast Ethernet Port
- Limited Lifetime Warranty
- Made in USA

Smart Relay Output

The Smart Relay Output is an Ethernet device with 8 Integrated controllable relays. The device allows for web based control of the relays and may be integrated into distributed control and network management systems to allow those systems to control its Relays. Each of the Relays can be individually configured to send customized emails and notifications when an event is triggered.

- Intuitive embedded web interface for configuration
- 8 Relay Outputs for initiating alarms or actions though one of it's integrated protocols
- Event log with time stamps
- 10/100 Fast Ethernet Port
- Limited Lifetime Warranty
- Made in USA

Smart IO

This Smart IO device is an Ethernet device with 4 Integrated controllable relays and 4 integrated digital inputs. The device allows for web based control and monitoring of it's relays and inputs and may be integrated into distributed control and network management systems. Each of the Relays and inputs can be individually configured to send customized emails and notifications. The device supports a wide variety of protocols that it is compatible with over Ethernet.

- Intuitive embedded web interface for configuration
- 4 Inputs and 4 Relay Outputs for monitor and control applications
- Event log with time stamps
- Each digital input is optically isolated
- 10/100 Fast Ethernet Port
- Limited Lifetime Warranty
- Made in USA

Power Supplies Overview

Our compact, DIN mount switching power supplies are ideal for most industrial power needs, and available in wide variety of capacities. Our rack mount and dual output DC-DC converters provide regulated DC power used in many telco and utility applications. Battery charge controllers and UPS battery packs can provide backup power for enhanced reliability.

AC/DC Power Supplies

Overview

RLH AC/DC Power supplies are available in a wide selection of capacities, voltages and form factors to meet a variety of applications.

Mounting options include: Rack, Wall or DIN rail. Power capacities vary between 30 watts up to 500 Watts.

Rugged construction, wide operating temperature range, and excellent performance are common characteristics our AC/DC power products.

Industrial AC/DC + DC/DC Switching 48 Watt Power Supply

The 48 Watt compact industrial switching power supply series features a universal input of 100-240VAC or 120-370VDC. Offers a high power density in a small foot print. Designed for industrial use and is UL Listed, RoHS and CE compliant and operates over a wide temperature range.

- Input Range 100~240VAC/120~370VDC
- Short circuit, overload, over voltage and over temperature protection
- Low ripple and noise
- Easily accessible output trim adjustment ±10%
- Cooling by free air convection
- 100% full load tested

90W AC/DC 24V+12V Dual Output Power Supply

RLH Industries power supplies are commonly used in communications and industrial control environments. The dual output can provide reliable power to a wide range of industrial equipment. The RLH 90 Watt AC/DC 24V +12V Dual DC Output Power Supply features a universal input of 100-240VAC or 120-370VDC. Designed for industrial use and operates over a wide temperature range. Includes a powder coated steel housing that can be DIN or wall mounted.

- Dual Independent 24V and 12V DC Outputs
- Universal Input Range 100-240VAC/120-370VDC
- Wide operating temperature range, -40° to +158°F
- Short circuit, overload, and over voltage protection
- 100% full load burn in testing

Industrial AC/DC + DC/DC Switching 150 Watt Power Supply

The 150 Watt industrial switching power supply series features a universal input of 100-240VAC or 120-370VDC. Designed for industrial use and is UL Listed, RoHS and CE compliant and operates over a wide temperature range. Includes a powder coated steel housing that can be DIN or wall mounted. When used in combination with the optional battery charge controllers and battery packs, these power supplies make a compact and reliable UPS system.

- Input Range 100~240VAC/120~370VDC
- Short circuit, overload, over voltage and over temperature protection
- Low ripple and noise
- Easily accessible output trim adjustment ±10%
- Cooling by free air convection
- 100% full load tested

Industrial AC/DC + DC/DC Switching 240 Watt Power Supply

The 240 Watt industrial switching power supply series features a universal input of 100-240VAC or 120-370VDC. Designed for industrial use and is UL Listed, RoHS and CE compliant and operates over a wide temperature range. Includes a powder coated steel housing that can be DIN or wall mounted. When used in combination with the optional battery charge controllers and battery packs, these power supplies make a compact and reliable UPS system.

- Input Range 100~240VAC/120~370VDC
- Short circuit, overload, over voltage and over temperature protection
- Low ripple and noise
- Easily accessible output trim adjustment ±10%
- Cooling by free air convection
- 100% full load tested

500 Series AC/DC 2RU Rack Mount Power Supply

The RLH 500 Series AC/DC rack mount power supply is an isolated DC power source designed to provide constant power to telecom and industrial equipment. There are 24VDC and 48VDC output models available, rated up to 21A. They feature industrial grade recessed front panel input power circuit breakers and a digital ammeter for monitoring the output current.

- EIA 19” and 23” rack mount ears, 2 RU
- Heavy duty powder coated steel enclosure
- Dual, heavy duty, high cycle life, front mounted breakers
- 2000VAC I/O Isolation
- Built-in short circuit, overload, over-voltage and over-temperature protection
- Made in USA

Integrated 75W AC/DC UPS with Battery Backup

The RLH 75W AC/DC 24V power supply with integrated battery charger offers a complete power system designed for 24VDC UPS applications. The compact switching power supply has a built-in UPS charge controller, and optional DIN mount 24V 1.2AH battery pack. This system is designed to provide regulated 24V power for industrial equipment, while providing battery backup power in the event of a source power interruption.

- 75W 24V power supply accepts AC or DC input power
- Short circuit, overload, over voltage and over temperature protection
- Cooling by free air convection
- UPS and battery pack use standard DIN Rail T35 per IEC 60715
- Battery polarity protection
- Made in USA

Solo-24 Power Adapter

The Solo-24 Power Adapter is a compact, plug-and-play, wall mountable power supply that connects directly to a single RLH Fiber Link module without the need for any additional wiring. It has a standard 3 prong AC power input plug to connect to a mains outlet, and a DC power output connector that plugs into the module, resulting in a simple, user friendly power solution.

- Universal AC input, full range
- 24VDC output for use with a variety of RLH DIN mount equipment
- No load power consumption <0.3W
- High efficiency across full load range
- Overload, over voltage, and short-circuit protection
- Low ripple and noise
- Fully enclosed plastic case

DC/DC Converters

RLH DC/DC converters are designed to be used in industrial applications at power plants, sub-stations, telco facilities or other industrial locations where fluctuating DC power needs to be converted to a regulated DC output for use with RLH Fiber Optic Links or other industrial equipment.

Rugged construction, wide operating temperature range, and regulated outputs are common characteristics our DC/DC power products.

100W DC/DC Converter

The RLH DC/DC converter is a compact power supply designed to convert a DC Input voltage to a regulated and isolated DC output voltage. Able to power a wide range of industrial equipment this power supply offers a wide variety of conversion options to accommodate standard voltages found in substations, Telco, & automation and control environments.

- Models with 24V, 48V & 130V inputs and 12V, 24, & 48V outputs
- Supports 100 Watt load over entire operating temperature range
- Isolated DC Output with 10% +/- adjustment
- Bi-Color LED provide power status and alarm indication
- Made in USA

48VDC to 48V + 12V Dual Output DC/DC Converter

The RLH 48V Dual Output DC/DC DIN rail mount power supply is a compact power supply designed to convert 48VDC power (18~75VDC) to regulated 48VDC and 12VDC output to power a wide range of industrial equipment. Each internal regulated power supply section is separate and independent of the other power section, allowing for maximum efficiency and operation.

- 48VDC input with 48VDC & 12VDC output terminals
- Wide 36~72VDC input tolerance range
- Short circuit, overload, over voltage and over temperature protection
- Low ripple and noise
- ±10% output trim adjustment range on 48VDC output
- Made in USA

130VDC to 48V + 12V Dual Output DC/DC Converter

The RLH DC/DC 48~12VDC Dual Output DIN rail mount power supply is a compact power supply designed to convert 130VDC power (72~144VDC) to regulated 48VDC and 12VDC output to power a wide range of industrial equipment. Each internal regulated power supply section is separate and independent of the other power section, allowing for maximum efficiency and operation.

- 130VDC input with 48VDC & 12VDC output terminals
- Wide 72~144VDC input tolerance range
- Short circuit, overload, over voltage and over temperature protection
- Low ripple and noise
- ±10% output trim adjustment range on 48VDC output
- Made in USA

500W Rack Mount DC/DC Converter

The RLH 500 Series Rack Mount DC/DC Converter is an isolated DC power source designed to provide constant power to telecom and industrial equipment. There are several models available, rated up to 30A. They feature recessed front panel input power circuit breakers and a digital ammeter for monitoring the output current.

- EIA 19” and 23” rack mount ears, 2 RU
- Heavy duty powder coated steel enclosure
- Dual, heavy duty, high cycle life, front mounted breakers
- Breakers meet Mil-STD-202 for environmental durability
- 2000VAC I/O Isolation
- Made in USA

Charge Controllers

RLH Battery Charge Controllers are compact units designed to work with a DC power supply, such as RLH DIN rail power supplies, and a battery pack to provide uninterruptible power in the event of a power outage. They continuously maintain the correct charge level on the battery and ensure a seamless transition to battery power when needed, making a complete UPS power supply solution. Rugged construction, wide operating temperature range make these ideal for industrial use.

24VDC UPS Battery Charge Controller Module

RLH 24VDC DIN rail mount charge controllers are compact units designed to work with a DC power supply (such as the RLH DIN rail power supplies) and a backup battery to provide uninterruptible power in the event of a power outage. The charge controller continuously maintains the correct charge level on the battery and ensures a seamless power transition to battery power when needed for a complete UPS power supply solution.

- Parallel connection to DC bus
- Suitable for 24VDC systems up to 15A
- Cooling by free air convection
- Install on standard DIN Rail T35 per IEC 60715
- Battery polarity protection
- Made in USA

48VDC UPS Battery Charge Controller Module

RLH 48VDC DIN rail mount charge controllers are compact units designed to work with a DC power supply (such as the RLH DIN rail power supplies) and a backup battery to provide uninterruptible power in the event of a power outage. The charge controller continuously maintains the correct charge level on the battery and ensures a seamless power transition to battery power when needed for a complete UPS power supply solution.

- Parallel connection to DC bus
- Suitable for 48VDC systems up to 30A
- Cooling by free air convection
- Battery polarity protection
- Relay contact signal output and LED indicators for DC Bus OK, Battery Fail and Battery Discharge
- Convenient screw down terminals
- Made in USA

Battery Packs

RLH UPS Battery Packs are designed for use with our Power Supplies and Charge Controllers to provide reserve power to Fiber Optic Links or other industrial equipment.

Available in a variety of sizes, mounting options and capacities, these battery packs utilize industrial, sealed gel style batteries with high cycle service and wide operating temperatures.

24VDC 1.2Ah DIN Mount Battery Pack

This battery pack is designed to supply temporary power to industrial equipment in the event of a primary power loss. They are a great way to add backup battery power to RLH power supplies that have a compatible UPS battery charge controller. They mount quickly to standard T35 DIN rails, and come with a wall mount adapter plate for wall mounting.

- Ideally suited for 24VDC UPS applications
- Removable terminal block for easy disconnect
- Externally accessible and user replaceable fuse
- Sealed, no-spill lead acid battery design
- Up to 5 years of stand by service

24VDC 4.5Ah DIN Mount Battery Pack

The 4.5Ah 24VDC battery pack is an ideal battery solution suited for 24VDC UPS applications, or other industrial applications where battery reserve power is required. The aluminum powder coated housing includes a pluggable screw down terminal, and an externally accessible fuse for easy installation and maintenance. This battery pack mounts on standard T35 DIN rail and has dual clips for extra stability on the rail.

- Easy to access pluggable screw down terminal
- Ideal solution for 24VDC battery backup applications
- Externally accessible replaceable fuse
- Includes sealed, maintenance free, lead acid batteries with AGM technology
- Up to 5 years of standby service

24VDC 7.2Ah Wall Mount Battery Pack

The RLH 24V 7.2Ah battery pack consists of two 12 volt maintenance free sealed lead acid AGM batteries and is contained within a powder coated steel housing with a hinged door and thumb screws. These battery packs are commonly used with AC/DC power supplies and a charge controller to provide uninterrupted backup power in the event of a power outage.

- Includes sealed, maintenance free, lead acid batteries with AGM technology
- High cycle life, deep discharge capable
- Easy to access, pluggable, screw down terminals
- Ideally suited for 24VDC UPS applications
- Externally accessible and user replaceable fuse
- Up to 5 years of stand by service

24VDC 20Ah Wall Mount Battery Pack

The RLH 24V 20Ah battery pack consists of two 12 volt maintenance free sealed lead acid AGM batteries and is contained within a powder coated steel housing with a hinged door and thumb screws. These battery packs are commonly used with AC/DC power supplies and a charge controller to provide uninterrupted backup power in the event of a power outage.

- Includes sealed, maintenance free, lead acid batteries with AGM technology
- High cycle life, deep discharge capable
- Easy to access, pluggable, screw down terminals
- Ideally suited for 24VDC UPS applications
- Externally accessible and user replaceable fuse
- Up to 5 years of stand by service

24VDC 9.0Ah Wall Mount Li-Ion Battery Pack

The RLH 24V 9.0Ah battery pack contains two 12 volt lithium-ion (LiFePO4) batteries mounted inside a powder coated steel housing with a hinged door secured with thumb screws. These battery packs are commonly used with AC/DC power supplies and a charge controller to provide uninterrupted backup power in the event of a power outage.

- Ideally suited for industrial 24VDC UPS systems
- Safe & reliable lithium iron phosphate (LiFePO4) chemistry
- BMS protects batteries against over-charging, over-discharging
- Fast charging with low self-discharge
- Delivers twice the power of SLA batteries
- Up to 10 times more cycles than SLA batteries

48VDC 1.2Ah DIN Mount Battery Pack

The 1.2Ah 48VDC battery pack is an ideal battery solution suited for 48VDC UPS applications, or other industrial applications where battery reserve power is required. The aluminum powder coated housing includes a pluggable screw down terminal, and an externally accessible fuse for easy installation and maintenance. This battery pack mounts on standard T35 DIN rail and has dual clips for extra stability on the rail.

- Powder coated aluminum construction
- Easy to access pluggable screw down terminal
- Ideal solution for 48VDC battery backup applications
- Externally accessible replaceable fuse
- Includes sealed, maintenance free, lead acid batteries with AGM technology
- Up to 5 years of standby service

48VDC 7.2Ah Wall Mount Battery Pack

The RLH 48V 7.2Ah battery pack is designed to provide reliable UPS backup power for industrial equipment. Ideal for use with RLH UPS systems, battery packs are commonly used with AC/DC power supplies and a UPS battery charge controller to provide uninterrupted backup power in the event of a power outage. The battery pack is a durable, compression molded fiberglass housing with four 7.2Ah sealed type batteries mounted inside.

- Durable compression molded fiberglass with screw down cover plat
- Includes sealed, maintenance free, lead acid batteries with AGM technology
- High cycle life, deep discharge capable
- Ideally suited for 48VDC UPS applications
- Externally accessible and user replaceable fuse
- Up to 5 years of stand by service

Solar Power Supplies

The RLH Solar Power kits are complete power supply systems that include the solar panel with a regulated battery pack and charge controller. Ideal for remotely powering devices or lighting systems.

Standard options include outdoor-rated weatherproof battery pack with charge controller and user replaceable batteries.

OFF-GRID 60 Watt 24V Solar Power System

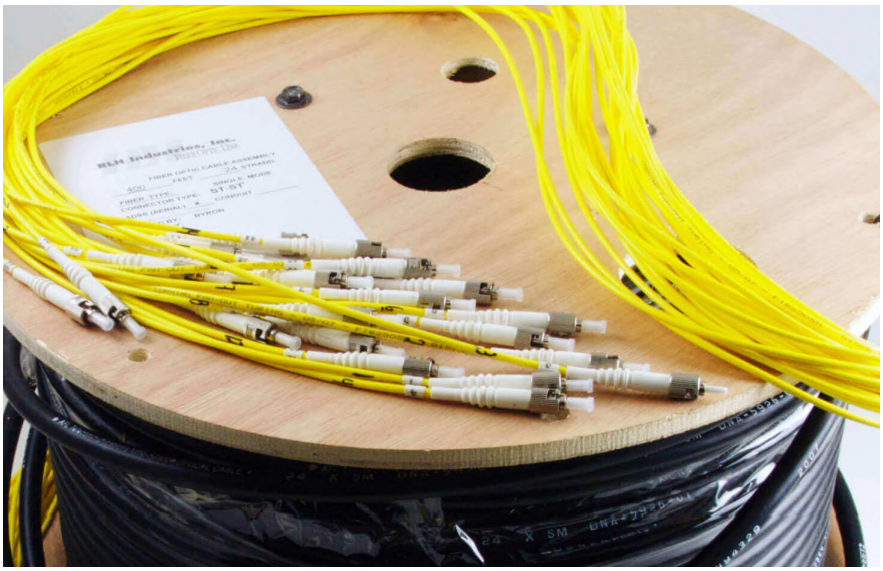
The RLH 60W 24V solar power system is a fully integrated solution that provides powering for remotely located equipment. This system comes complete with a solar panel, solar mounting bracket, battery enclosure, batteries, and interconnect cable ready for installation. It's designed to offer quick installation and reliable off-grid powering.

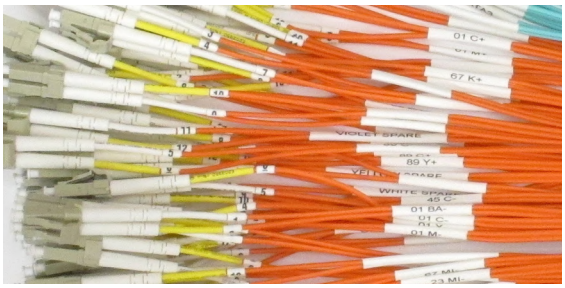
- Complete 24VDC OFF-GRID Solar Power System with additional space for electronics
- 24VDC 60 watt solar panel
- 24VDC 39Ah battery pack
- Integrated solar charge controller with low voltage disconnect
- Pole or wall mountable
- Prewired for rapid installation

OFF-GRID 120 Watt 24V Solar Power System

The RLH 120W 24V solar power system is a fully integrated solution that provides powering for remotely located equipment. This system comes complete with a solar panel, solar mounting bracket, battery enclosure, batteries, and interconnect cable ready for installation. It's designed to offer quick installation and reliable off-grid powering.

- Complete 24VDC OFF-GRID Solar Power System with additional space for electronics
- 24VDC 60 watt solar panel
- 24VDC 52Ah battery pack
- Integrated solar charge controller with low voltage disconnect
- Pole or wall mountable
- Prewired for rapid installation





Overview

We offer a wide variety of fiber optic cable, cable assemblies, patch cords, and other passive fiber optics accessories to meet the demands of a rapidly expanding fiber industry. We stock fiber cable and we manufacture many of our fiber distribution products right here in the USA.

Our Custom Fiber Cable Assemblies are built to your specifications at our production facility located in Orange County, California. We build the cable to your provided specifications and ship the cable on a spool, ready for installation at the job site.

The RLH fiber configuration tool and our standard ordering matrix are available to help guide you through the different selections we offer.

We take on jobs of any size, from low volume highly specialized cable designs requiring specialized CAD drawings to simple fiber cable assemblies. If you don't see your desired option in our configuration tool or product matrix, be sure to contact us. With over 30 years of experience working with fiber cable we're confident we can meet your needs.

Fiber Cable Assemblies

Outdoor & Indoor Fiber Cable Assemblies

RLH Custom Fiber Cable Assemblies are built to your specifications at our production facility located in Orange County, California. We will build the cable to your provided specifications and ship the cable on a spool, ready for installation at the job site. The RLH fiber configuration tool and our standard ordering matrix are available to help guide you through the different selections we offer.

- Stocked fiber cable for fast delivery times
- Wide range of Cable Types available: OutsidePlant, Outdoor, Indoor, Armored, ADSS, and more
- All Cables are thoroughly inspected and include dB Loss test results
- Made in USA

Bulk Fiber Cable

We stock various types of fiber cable at our production facilities, for stocked cable we can offer a fast turn around for getting the length of cable on a spool and out to the job site. The most common type of cable we carry are both Loose Tube and Tight Buffer, in Singlemode and Multimode with varying strand counts and jacket types including ADSS and Armored.

- RLH typically carries and distributes fiber cable the following manufacturers:
  - Corning AFL
  - Superior Essex
  - Prysmian
- Made in USA

Duplex Fiber Optic Patch Cords

RLH pre-made Fiber Optic jumpers are made with Corning® glass, are riser or plenum rated, and have a 2.0mm or 3.0mm thick color-coded jacket. Lengths typically stocked are 1, 2, 3, 5, and 10 Meters. Stocked jumpers are typically 1-2 days lead time and same day shipping is often available. Non-stock and custom jumper lead times are approximately 1 week.

- Available in several lengths up to 10 meters
- Low Loss Single-mode and Multimode OM1 - OM4 cables
- Measure less than >0.30 dB insertion loss per connector
- Made with Corning® glass
- Custom cables available

Splice on Fiber Pigtails

Our ready-to-splice, fiber optic pigtail packs are available in sets of 6 or 12 fibers. Each connector is color coded to TIA standards. Each connector end is factory polished and the typical insertion loss is less than .30 dB. They are available in Singlemode and Multimode (OM1, OM2, OM3, OM4) with ST, SC, LC, or FC connector types. Our standard pigtail packs are 3 meters long, but can be ordered in any length, each pigtail pack includes a spiral wrap making them easy to manage in the field.

- 6 & 12 strand color coded pigtail packs
- Standard Pigtail Packs are 3 Meters in Length
- Factory polished for low insertion loss
- Available in Singlemode APC and UPC
- Available in Multimode OM1, OM2, OM3, or OM4
- Available with ST, SC, LC, or FC connectors
- Include a Spiral Wrap for easy cable management during installation

Fiber Cable Accessories

Fiber optic cable markers and ADSS hardware is also available to help ensure that your cable installation has all the accessory fiber equipment on-hand to help you complete the installation with minimum down time and hassle.

We stock commonly used fiber markers, and cable installation hardware and can supply them with your cable orders. Please contact one of our sales professional for products not shown in this section.

24 Fiber OSP Splice Closure

RLH Industries Outside Plant Fiber Splice Closure provides reliable and flexible installation for outdoor applications. The compact size and high quality construction allow for installation in both underground and aerial environments.

- 24 fiber capacity (splice trays included)
- 4 cable entry ports
- Aerial or underground applications
- Waterproof seal (IP 66)
- Temperature and chemical resistant
- Includes accessory kit with splice sleeves and cable seals

48 Fiber In Line OSP Splice Closure

RLH Industries Outside Plant Fiber Splice Closure provides reliable and flexible installation for outdoor in-line and/or butt end applications. The compact size and high quality construction allows for installation in both underground and aerial environments.

- 48 fiber capacity (splice trays included)
- 4 cable entry ports
- Aerial or underground applications
- Waterproof seal (IP 66)
- Temperature and chemical resistant
- 304 stainless steel hardware

Fiber Markers

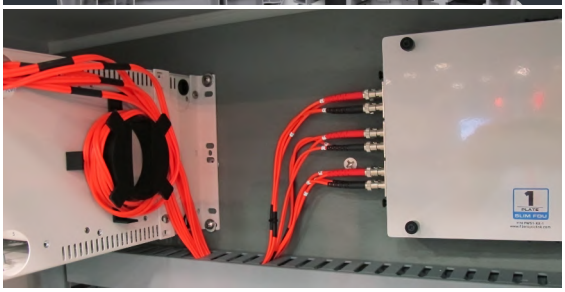
Fiber cable marker accessories for buried cable are essential. Since fiber optic cable isn't normally detectable by buried cable detectors, it's important to identify buried fiber to avoid accidental damage.

- Detectable and non-detectable versions available
- High-visibility orange
- Buried 12 to 24" below grade

Grade Level Pull Boxes

RLH High Density Polyethylene (HDPE) grade level pull boxes are ideal for storing and accessing fiber optic cable slack underground. Several sizes and ratings are available for both greenbelt and sidewalk applications. The covers are marked COMMUNICATIONS to differentiate these boxes from other utility boxes.

- High Load Capacity
- High Quality HDPE design
- Optional Polymer Concrete Covers
- Telcordia Compliant



Overview

We offer a wide variety of fiber patch panels and accessories to meet the demands of the rapidly expanding fiber industry. We carry patch panels and adapter plates designed to accommodate just about any size job, from our compact DIN rail and wall mountable SlimLine products, to high capacity rack mount models, and outdoor rated NEMA 4 patch enclosures.

To accommodate the variety of fiber connectors used with patch panels, we have a large selection of stocked fiber adapter plates available with ST, SC, LC, FC, MTRJ, or MTP adapters. We also offer options that include fiber pigtails ready to be spliced into your fiber cable infrastructure for ease of installation.

We manufacture and stock many of our fiber distribution products in the USA at our production facility located in Orange County, California.

If assistance is needed in selecting a solution right for your application, please contact our customer service team. Our product experts are ready to put together a solution based on the requirements of the job. With over 30 years of experience, we're confident we can meet your needs.

Fiber Patch Panels

2 Plate Wall Mount Fiber Patch Panel

The RLH 2 Plate Wall Mount Fiber patch panel is a flexible and easy to use housing for fiber optic patching and splicing. This wall mount design patch panel holds 2 LGX style adapter plates, and features a full width, wrap-around door which provides total interior access and is secured with flip latches. It includes 4 self sealing 1 ½" cable entry grommets on the top and bottom for safe entry and exit of fiber optic cable, a built-in strength member clamp, and anchor points for organizing cable routing.

- Holds 2 LGX® adapter plates, blank adapter plates included
- Full access, wrap around door with flip latches
- Small footprint, housing fully encloses distribution fiber
- Multiple built-in anchor points to secure fiber cable routing
- Durable steel construction

Scorpion 4 Plate Fiber Patch Panel

The RLH Scorpion 4 Plate Fiber Patch Panel is designed for fiber optic patching and splicing applications where wall or back board space is at a premium. It is designed to fit into small enclosures, the small footprint and door design allow the patch panel to be opened & closed without taking up additional backboard room for clearance.

- Holds 4 LGX® adapter plates, blank adapter plates included
- Small Footprint, fully encloses distribution fiber
- Self-sealing removable grommets (up to 1-1/4") on the top and bottom
- Hinged door with flip latches
- Made in USA

Slimline Nano Fiber Patch Panel

The Slimline Nano Fiber Patch Panel is designed to provide an ultra small foot print for fiber optic patching and splicing applications where a wall or DIN rail mounting is desired. The patch panel holds one fiber adapter plate which is available with ST, SC, FC, LC, MTRJ, UPC, and APC style adapters. The adapter plate, along with a fiber pigtail, can be ordered separately or preinstalled into the patch panel when ordered with an assembly code.

- Supports ST, SC, FC, LC, MTRJ, UPC, APC style adapters
- Steel enclosure, powder coated light grey
- Holds 1 adapter plate
- Hinged door with plunger latches
- Self-sealing removable grommets on the top and bottom

Slimline Fiber Patch Panel

The Slimline Fiber Patch Panel is designed to provide a small foot print for fiber optic patching and splicing applications where a wall or DIN rail mounting is desired. The patch panel holds one fiber adapter plate which is available with ST, SC, FC, LC, MTRJ, UPC, and APC style adapters. The adapter plate, along with a fiber pigtail, can be ordered separately or preinstalled into the patch panel when ordered with an assembly code.

- Supports ST, SC, FC, LC, MTRJ, UPC, APC style adapters
- Steel enclosure, powder coated light grey
- Holds 1 adapter plate
- Hinged door with plunger latches
- Self-sealing removable grommets on the top and bottom

Slimline 2 Plate Fiber Patch Panel

The Slimline 2 Plate Fiber Patch Panel is designed for fiber optic patching and splicing applications where a wall or DIN rail mounting is desired. The patch panel holds up to 2 fiber adapter plates which are available with ST, SC, FC, LC, MTRJ, UPC, and APC style adapters. Adapter plates, along with fiber pigtails, can be ordered separately or preinstalled into the patch panel when ordered with an assembly code.

- Supports ST, SC, FC, LC, MTRJ, UPC, APC style adapters
- Steel enclosure, powder coated light grey
- Holds 2 adapter plates
- Hinged door with plunger latches
- Self-sealing removable grommets on the top and bottom

Mini 2 Plate Wall Mount Fiber Patch Panel

The Mini 2 Plate Wall Mount Fiber Patch Panel provides a cost effective and versatile solution when patching fiber cables in indoor or outdoor environments. The weatherproof thermoplastic enclosure accepts two Fiber Adapter Plates (grey). RLH Fiber adapter plates or any LGX Foot print adapter plates are supported for your installation convenience.

- Self-sealing rubber grommets provide a firm seal for cable entry
- Pad lock hasp for securing the patch panel in outdoor or high traffic locations
- Fiber management clips for fiber storage
- Durable thermoplastic construction
- Mounting hardware included
- Made in USA

HIPPO 4 Plate Fiber Patch Panel

The RLH Hardened Infrastructure Patch Panel for Outside Plant (HIPPO) is an ideal solution for splicing and patching fiber optic cable where a weatherproof rating is desired. With substation, power plant, and extreme outdoor environments in mind, the HIPPO was designed to fit the needs of these demanding environments while at the same time being easy to install and modify.

- Holds up to 4 LGX® adapter plates, blank adapter plates included
- NEMA 4X, UL Listed Enclosure, ready for outdoor installation
- Ready to patch or splice with included accessories
- Order preconfigured with fiber pigtails installed
- Made in USA

HIPPO 12 Plate Fiber Patch Panel

The RLH Hardened Infrastructure Patch Panel for Outside Plant (HIPPO) is an ideal solution for splicing and patching fiber optic cable where a weatherproof rating is desired. With substation, power plant, and extreme outdoor environments in mind, the HIPPO was designed to fit the needs of these demanding environments while at the same time being easy to install and modify.

- Holds up to 12 LGX® adapter plates, blank adapter plates included
- NEMA 4X, UL Listed Enclosure, ready for outdoor installation
- Ready to patch or splice with included accessories
- Order preconfigured with fiber pigtails installed
- Made in USA

Toro Fiber Adapter Plate Bracket

The Toro Fiber Adapter Plate Bracket is a compact, cost effective way to breakout fiber in a wall mount or DIN rail environment where splicing is not necessary and space is at a premium. This heavy duty steel bracket holds two, LGX foot print, fiber adapter plates. Fiber Adapter Plates (grey) are ordered separately and are available with a wide range of connector options and fiber counts.

- Steel bracket, powder coated light grey
- Holds 2 fiber adapter plates
- Compatible with RLH fiber adapter plates and LGX footprint adapter plates
- Supports up to 48 fiber strands, when used with LC quad adapter plates
- Low profile less than 3 inches deep

Manta 1 RU Fiber Patch Panel

The Manta 1RU Fiber Patch Panel is designed to offer an easy to use easy to access solution for fiber patching and fiber optic splicing. This rack mount fiber patch panel will hold 2 LGX style adapter plates, includes multiple anchor points for securing internal cable routing, and features a slide out tray for easy access. The front features built-in connector protection keeping connectors safe from accidental bumps and swipes.

- Holds 2 LGX® adapter plates
- Built-in cable management hooks
- Built-in lip for bump protection
- Multiple built-in anchor points to secure fiber cable routing
- Includes 2 strength member clamps for securing entry cable
- Includes Velcro® straps for cable management

Manta 2RU Fiber Patch Panel

The Manta 2RU Fiber Patch Panel is designed to offer an easy to use easy to access solution for fiber patching and fiber optic splicing. This rack mount fiber patch panel will hold 4 LGX style adapter plates, includes multiple anchor points for securing internal cable routing, and features a slide out tray for easy access. The front features built-in connector protection keeping connectors safe from accidental bumps and swipes.

- Holds 4 LGX® adapter plates
- Built-in cable management hooks
- Built-in lip for bump protection
- Multiple built-in anchor points to secure fiber cable routing
- Includes 2 strength member clamps for securing entry cable
- Includes Velcro® straps for cable management

Optimum 2RU Fiber Patch Panel

The RLH Optimum 2RU fiber patch panel is part of a series of fully integrated fiber distribution systems. The user friendly design makes the Optimum series the superior solution for fiber patching and/or splicing optical fiber in a 19/23" rack. It holds up to 4 fiber adapter plates (up to 96-fibers), 4 splice trays, and is ideal for installation in a wide variety of environments including substations, equipment rooms, central offices, and outdoor enclosures.

- Installer friendly built-in cable management & splice tray storage
- Extra large rear cover allows unparalleled access to splice tray/cable area
- Holds 4 adapter plates, up to 96 fiber capacity
- EIA 19" or 23" rack front or mid/center mounting
- Made in USA

FiberLink 1 RU Rack Mount Fiber Patch Panel

The RLH FiberLink 1RU FiberLink patch panel is is designed to provide a user friendly solution for fiber optic patching in a 19" equipment rack. Occupying just 1RU of rack space, It holds up to 3 LGX compatible fiber adapter plates and 3 fiber splice trays for a complete patching/ splicing solution. It is ideal for use in a wide variety of environments including substations, equipment rooms, central offices, and outdoor enclosures.

- Hinged door with viewing window
- Large rear cover allows full access to cable storage area
- Removable sliding tray with multiple stops
- Installer-friendly built-in cable management & splice tray storage
- Holds 3 adapter plates
- Holds 3 fiber splice trays

FiberLink 2RU Rack Mount Fiber Patch Panel

The RLH FiberLink 2RU fiber patch panel is is designed to provide a user friendly solution for fiber optic patching in a 19” equipment rack. It holds up to 6 LGX compatible fiber adapter plates and 6 fiber splice trays for a complete patching/splicing solution. It is ideal for installation in a wide variety of environments including substations, equipment rooms, central offices, and outdoor enclosures.

- Hinged door with viewing window
- Extra large rear cover allows full access to cable storage area
- Removable sliding tray with multiple stops
- Installer friendly built-in cable management & splice tray storage
- Holds 6 adapter plates
- Holds 6 fiber splice trays

FiberLink 4RU Rack Mount Fiber Patch Panel

The RLH FiberLink 4U fiber patch panel is designed to provide a user friendly solution for fiber optic patching and/or splicing in a 19/23” rack. It holds up to 12 LGX compatible fiber adapter plates, fiber splice trays, and is ideal for installation in a wide variety of environments including substations, equipment rooms, central offices, and outdoor enclosures.

- Extra large rear cover allows full access to cable storage area
- Holds 12 adapter plates, up to 144 fiber capacity
- Adjustable 19/23” rack ears, for front or center mounting
- Hinged door with viewing window
- Brush style cable entry protection
- Removable sliding tray

High-Density 1 RU Fiber Patch Panel

The High-Density 1RU Fiber Patch Panel is used to house fiber terminations and accommodate patching of low and high density fiber cable breakouts while minimizing the space required in a rack. The slim 1RU enclosure can be installed into EIA 19” or 23” equipment racks, and is designed to occupy the minimum amount of rack space while offering a generous capacity up to 96 fibers. Patch panels come pre-loaded with your choice of adapters.

- Includes rubber fiber grommets
- Removable front and top panels
- Includes internal cable management spools
- Comes complete with 19” and 23” rack ears
- SC, ST, LC, MTRJ, or FC Adapters Available
- Made in USA

MAG-3 Fiber Adapter Plate Holder

The MAG-3 rack mount fiber adapter plate holder is a 1RU panel designed to hold 3 LGX style adapter plates or cassettes, and features a sturdy strain relief guide to support and organize fiber. The strain relief takes pressure off the fiber connectors on the back of the adapter plates or fiber cassettes, minimizing tight bends and leading to a more stable connection.

- Compatible with 19” EIA equipment racks
- Small foot print, occupies 1RU of rack space
- Durable steel construction
- Holds 3 LGX Form factor adapter plates or cassettes
- Rear strain relief with multiple slots for securing fiber cable
- Includes rack mounting hardware

Rack Mount Adapter Plate Holders

The RLH Rack Mount Adapter Plate Holders offer a compact, cost effective way to breakout fiber in a rack mount environment where splicing is not necessary. Durable, powder coated, steel construction (standard color black). The 1RU and 3RU rack mount models hold standard RLH Fiber Adapter Plates (black) available separately. The Adapter plate holders are also compatible with any LGX foot print adapter plates.

- EIA standard 19" rack mount compatible
- Compatible with RLH Fiber Adapter Plates and LGX Foot Print Adapter Plates
- 1RU Holds 3 RLH or LGX Foot Print Fiber Adapter Plates
- 3RU Holds 12 RLH or LGX Foot Print Fiber Adapter Plates
- Durable, powder coated, steel construction
- Made in USA

Fiber Adapter Panel

The RLH Rack Mount Fiber Adapter Panel is a compact, cost effective way to breakout high strand count terminated fiber cable in a 19" rack. It's made of durable black powder coated steel. The panel holds up to 24 fiber adapters. The two adapter types readily available are SC and LC. The SC panel uses 24 SC Duplex adapters which in turn supports up to 48 Fiber strands. The LC panel uses 24 Quad LC adapters, which support up to 96 fiber cable strands.

- EIA standard 19" rack mount compatible
- Consumes only 1RU of rack space
- Available with SC or LC Quad Connectors
- Durable, powder coated, steel construction
- Made in USA

Industrial MTP DIN Fiber Module

The RLH Industrial MTP DIN Fiber Module is designed to offer a quick and reliable solution for deploying fiber throughout industrial and commercial networks. These modules come preloaded with an MTP breakout cable and are terminated to ST, SC, or LC adapters. When ordered with the optional MTP interconnect cable, these modules combine to make a complete fiber extension system, allowing field devices to quickly connect and begin communicating.

- MTP to 12 fiber break out
- ST, SC, and LC modules available
- Supports singlemode and multimode fiber
- Compatible with both MTP & MPO connectors
- Compact foot print
- Factory polished and tested for a fast reliable installation
- Designed and assembled in USA

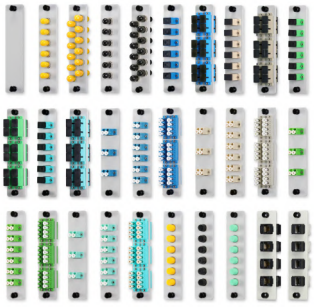
Fiber Adapter Plates

Fiber Adapter Plates can be ordered individually or preinstalled into select RLH fiber optic patch panels. RLH Adapter Plates utilize a common LGX foot print installation mounting format, and may be mixed and matched as needed in compatible patch panels. This provides maximum flexibility when populating a patch panel with fiber adapters. Our Fiber adapter plates are compatible with all RLH fiber patch panels except for the Optimum Series. They are also compatible with many other vendor's patch panels that support the common LGX foot print type adapter plate mounting.

Fiber Adapter Plates (grey)

Our grey Fiber Adapter Plates can be ordered individually or preinstalled into select RLH fiber optic patch panels. RLH Adapter plates utilize a common installation mounting format, typically referred to as a LGX foot print, so they may be mixed and matched as needed in compatible wall or rack mount patch panels. This provides maximum flexibility when populating a patch panel with fiber adapters.

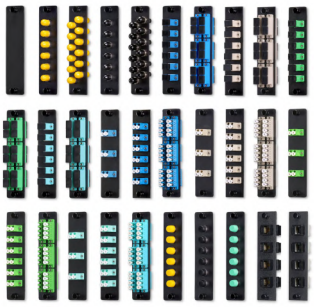
- Available with ST, SC, LC, and FC adapters
- Constructed out of lightweight aluminum
- Plate features common LGX foot print size
- Compatible with many fiber patch panels that support LGX Foot Print Adapter Plates



Fiber Adapter Plates (black)

Our black Fiber Adapter Plates can be ordered individually or preinstalled into select RLH fiber optic patch panels. RLH black Adapter plates utilize a common installation mounting format, typically referred to as a LGX foot print, so they may be mixed and matched as needed in compatible wall or rack mount patch panels. This provides maximum flexibility when populating a patch panel with fiber adapters.

- Available with ST, SC, LC, and FC adapters
- Constructed out of lightweight aluminum
- Plate features common LGX foot print size
- Compatible with many fiber patch panels that support LGX Foot Print Adapter Plates



Fiber Patch Panel Accessories

Couplers, splice trays and cable managers are just some of the fiber cable and patch panel accessories that will help ensure a complete installation with minimum down time and hassle.

We stock commonly used fiber adapters and can supply them preinstalled in our adapter plates or patch panels. Please contact one of our sales professional for products not listed here.

Fiber Splice Tray 12-Position Mini

Splice trays provide protection and organization of fiber splices and are typically used in fiber patch panels. Fiber sleeve holders are molded into the tray along with cable guides for easy fiber routing. All RLH Splice Trays accept 2.6mm diameter fusion splice protection sleeves. They vary in material and size for various patch panels. These trays are compatible with most RLH Fiber Patch Panels.

- Lightweight plastic-molded tray
- Ultra-compact size
- Snap-on, snap-off lid for stacking
- For use with 60mm splice sleeves
- Rounded ends for easy fiber routing
- Built-in, splice-sleeve holder

Fiber Splice Tray 12-Position Aluminum

Splice trays provide protection and organization of fiber splices and are typically used in fiber patch panels. Fiber splice chips are included with each tray where necessary. All RLH Splice Trays accept 2.6mm diameter fusion splice protection sleeves. They vary in material and size for various patch panels. These trays are compatible with most RLH Fiber Patch Panels.

- Lightweight aluminum base
- Compact size
- Clear plastic press-on cover
- For use with 60mm splice sleeves
- Tie-down holes for cable management
- Splice chips included

Fiber Splice Tray 24-Position Aluminum

Splice trays provide protection and organization of fiber optic splices and are typically used in fiber patch panels to stabilize and organize fiber splices for breakout, repair or patching. These slim, lightweight aluminum splice trays are the perfect size for splicing fiber and are typically used in fiber patch panels. These trays are compatible with most RLH Fiber Patch Panels.

- Lightweight aluminum base
- High Fiber Density
- Clear plastic snap-on cover
- For use with 40mm splice sleeves
- Tie-down holes for cable management
- Splice chips included

Fiber Splice Tray 24-Position Aluminum

Splice trays provide protection and organization of fiber splices and are typically used in fiber patch panels. Fiber splice chips are included with each tray where necessary. All RLH Splice Trays accept 2.6mm diameter fusion splice protection sleeves. They vary in material and size for various patch panels. These trays are compatible with most RLH Fiber Patch Panels.

- Lightweight aluminum base
- High fiber density
- Clear plastic press-on cover
- For use with 40mm splice sleeves
- Tie-down holes for cable management
- Splice chips included

Mini Fiber Splice Holder

Splice holders provide organization of fiber splices and are typically used in small fiber patch panels and compact spaces. Splice holders include a adhesive backing for easy and quick installation.

- Holds up to 12 fiber splice sleeves
- For use with 40mm length & 2.6mm diameter splice sleeves
- Fits 2 sleeves per slot
- Compact size
- Includes adhesive backing

Fusion Splice Protection Sleeves

RLH Fusion Splice protection sleeves offer durable and long lasting protection for single fiber splices. A stainless steel rod is included to help provide rigidity and stability to your fusion splice. A fiber splice sleeve is added prior to splicing a fiber. Once spliced a heater will shrink the diameter down to 2.6mm over the splice for long lasting protection.

- Slim diameter, 2.6mm
- Stainless steel rod for increased protection
- Fits RLH splice trays and holders
- Available in 40 & 60mm sizes

Fiber Adapters

Fiber Adapters also commonly called fiber couplers can be ordered individually. They are typically pre-installed in our adapter plates or patch panels. They provide a low loss connection between fiber cables where traditional patching solutions wont work due to space or other constraints. Hybrid adapters are also available they have two different types of adapters on each end and allow for patching together of two different types of fiber connectors.

- ST, SC, LC, & FC Fiber Couplers and Hybrid Fiber Adapters
- May be individually ordered
- Panel mountable and adapter plate compatible
- Simplex, Duplex, or Quad (depending on connection type)
- Singlemode or Multimode
- Low loss connection

LGX ELITE MTP® Fiber Cassette

RLH Elite MTP® Fiber Cassettes are specially designed to reduce installation time and cost for optical network infrastructure deployment. The Cassette is compact in size with SC or LC adaptors at the front and MTP adaptor(s) at the back. This system enables a 12 or 24 fiber MTP trunk cable connection to instantly break out SC or LC connector types for immediate use.

- Male (Pinned) 12 or 24 fiber USConec Elite® MTP® Connectors
- High quality Corning optical fiber Internal Breakout
- Singlemode and multimode fiber types available
- Durable steel construction
- LGX Form factor with Push/Pull latches
- Save installation time and labor

Overview

RLH manufactures and stocks metallic and fiberglass enclosures for a variety of applications. All enclosures feature plywood backboards treated with fire retardant paint for durability and easy field installation of varying telecommunications equipment.

Our rugged aluminum enclosures are built to NEMA standards with door seals and padlock rings. Fiberglass enclosures are all-dielectric and easily drilled or modified in the field.

We also offer several options including vents, heaters, thermostats and fans. We can also customize your enclosure with air conditioners, load centers, equipment racks and more. RLH welcomes custom enclosure design opportunities and our design team is eager to take on new challenges.

Enclosures

18" x 16" x 10" – Aluminum Enclosure

These commercial-grade, aluminum enclosures feature plywood backboards for easy field installation of communication devices and equipment in outdoor environments. Water and dust proof vents provide convection cooling to further protect installed equipment. Enclosures can be secured with a padlock, and include mounting feet for wall or strut mounting. A pole mount model is available with the bracket preinstalled and ready for deployment.

- Weatherproof design for outdoor use
- Heavy duty, precision welded, powder coated construction
- Fire treated and painted ¾" plywood backboard
- Neoprene weather-tight door seal
- Weatherproof side and bottom vents
- Quarter-turn latch with padlock ring
- Made in USA

24" x 24" x 16" – Aluminum Enclosure

These commercial grade aluminum enclosures feature plywood backboards for easy field installation of communication devices and equipment in outdoor environments. Water and dust proof vents provide convection cooling to further protect installed equipment. Enclosures can be secured with a padlock, and include mounting feet for wall or strut mounting. A pole mount model is available with the bracket preinstalled and ready for deployment.

- Weatherproof design for outdoor use
- Heavy duty, precision welded, powder coated construction
- Fire treated and painted ¾" plywood backboard
- Neoprene weather-tight door seal
- Weatherproof side and bottom vents
- Quarter-turn latch with padlock ring
- Made in USA

40" x 32" x 15" – Aluminum Enclosure

These commercial grade aluminum enclosures feature plywood backboards for easy field installation of communication devices and equipment in outdoor environments. Water and dust proof vents provide convection cooling to further protect installed equipment. Enclosures can be secured with a padlock, and include mounting feet for wall or strut mounting. A pole mount model is available with the bracket preinstalled and ready for deployment.

- Weatherproof design for outdoor use
- Heavy duty, precision welded, powder coated construction
- Fire treated and painted ¾" plywood backboard
- Neoprene weather-tight door seal
- Weatherproof side and bottom vents
- Quarter-turn latch with padlock ring
- Made in USA

CORE 36" x 30" x 20" Cabinet with 19" Equipment Rack

The RLH CORE (Communications Outdoor Rack Enclosure) series of cabinets offer full protection of critical equipment located in harsh outdoor environments.The CORE line of enclosures may be configured with factory options to meet the demands of almost any installation environment. They are made from high grade powder coated aluminum alloy and feature a swing open 19 inch equipment rack. Standard thermal control options include air conditioner, or vented exhaust fan.

- NEMA 4 weatherproof design for outdoor use
- Heavy duty, precision welded, powder coated construction
- Swing out 15 RU 19 inch rack
- 2000 BTU Air Conditioner
- NEMA 3R Vent Fan option
- Pole, wall or strut mountable
- Made in USA

16" x 14" x 8" – Fiberglass Enclosure

This NEMA 4X fiberglass reinforced polyester enclosure features a fire treated and painted plywood backboard for easy field installation of communication devices and equipment in indoor or outdoor environments. The enclosure is UL Listed, non-corrosive, non-conductive, light weight, and easy to modify. The added water and dust proof NEMA 4X vents provide convection cooling to further protect installed equipment.

- Weatherproof design for outdoor use
- Fire treated and painted ¾" plywood backboard
- Polyurethane gasket for weathertight door
- Weatherproof NEMA 4X side and bottom vents
- Two stainless steel pad lockable latches
- Made in USA

18" x 16" x 10" – Fiberglass Enclosure

This NEMA 4X fiberglass reinforced polyester enclosure features a fire treated and painted plywood backboard for easy field installation of communication devices and equipment in indoor or outdoor environments. The enclosure is UL Listed, non-corrosive, non-conductive, light weight, and easy to modify. The added water and dust proof NEMA 4X vents provide convection cooling to further protect installed equipment.

- Weatherproof design for outdoor use
- Heavy duty fiberglass enclosure
- Fire treated and painted ¾" plywood backboard
- Polyurethane gasket for weathertight door
- Weatherproof NEMA 4X side and bottom vents
- Two stainless steel pad lockable latches
- Made in USA

24" x 24" x 10" – Fiberglass Enclosure

This NEMA 4X fiberglass reinforced polyester enclosure features a fire treated and painted plywood backboard for easy field installation of communication devices and equipment in indoor or outdoor environments. The enclosure is UL Listed, non-corrosive, non-conductive, light weight, and easy to modify. The added water and dust proof NEMA 4X vents provide convection cooling to further protect installed equipment.

- Weatherproof design for outdoor use
- Heavy duty fiberglass enclosures
- Fire treated and painted ¾" plywood backboard
- Polyurethane gasket for weathertight door
- Weatherproof NEMA 4X side and bottom vents
- Pad lockable quarter turn latch
- Made in USA

36" x 30" x 16" – Fiberglass Enclosure

This NEMA 4X compression molded fiberglass enclosure features a fire treated and painted plywood backboard for easy field installation of communication devices and equipment in indoor or outdoor environments. The enclosure is UL Listed, non-corrosive, non-conductive, light weight, and easy to modify. The added water and dust proof NEMA 4X vents provide convection cooling to further protect installed equipment.

- Weatherproof design for outdoor use
- Heavy duty fiberglass enclosure
- Fire treated and painted ¾" plywood backboard
- Foam-in-place gasket for weathertight door
- Weatherproof NEMA 4X side and bottom vents
- Pad lockable quarter turn latch
- Made in USA

48" x 36" x 16" – Fiberglass Enclosure

This NEMA 4X compression molded fiberglass enclosure features a fire treated and painted plywood backboard for easy field installation of communication devices and equipment in indoor or outdoor environments. The enclosure is UL Listed, non-corrosive, non-conductive, light weight, and easy to modify. The added water and dust proof NEMA 4X vents provide convection cooling to further protect installed equipment.

- Weatherproof design for outdoor use
- Heavy duty fiberglass enclosure
- Fire treated and painted ¾" plywood backboard
- Foam-in-place gasket for weathertight door
- Weatherproof NEMA 4X side and bottom vents
- Pad lockable quarter turn latch
- Made in USA

Dual Access Galvanized Enclosure

These enclosures provide 2 separate, lockable enclosure sections in a single enclosure unit. This is an ideal solution for the Copper Fiber Junction (CFJ), or where controlling access to connected equipment is important. Manufactured to NEMA 4X standards from 14 gauge steel, powder coated light grey and highly resistant to corrosion, they are suitable for both indoor and extreme outdoor environments.

- Hinged door with hardened padlock locking rings
- Neoprene gasket seals
- Powder coated, 14 gauge galvanized steel construction
- Weatherproof vents
- Treated & painted ¾" plywood backboard
- Frame mounting feet and attaching hardware

Semi-Buried Pedestal (Type-02)

The RLH Type 02 semi-buried pedestal is a compact, all-dielectric enclosure with a small footprint designed for installation of fiber optic cable or other telecommunications equipment which requires a wooden backboard. It features a vented lift-off cover and corrugated channel base. The lift-off cover allows full access to internal working area, and has a self-latching lock that is accessed using a hex style Can Wrench.

- All-dielectric plastic construction
- Oversized, interlocking base for solid foundation
- Heat dissipation vents for sensitive equipment
- Slim, unobtrusive design has minimum visual impact
- Made in USA

Semi-Buried Pedestal (Type-03)

RLH Semi-Buried Pedestal enclosures, include plywood backboard, Lockable covers with hex head self-locking system with padlock hasp. The pedestal stands approx. 36" tall when the base is buried. No mounting stakes or platforms are required for installation. These Type-03 pedestals are larger versions of the popular Type-02 pedestals, with enough room to install a 12-card Fiber Optic Link housing. Pedestals are constructed of all-dielectric plastic with a steel support frame.

- All-dielectric plastic construction
- Internal metal frame with plywood backboard
- Available in 5-, 8- or 12-card configurations
- Available with gas tube terminal protection
- Made in USA

Semi-Buried Pedestal (Type-07)

RLH Type 07 Semi-Buried Pedestals are tough, outdoor rated all-dielectric equipment pedestals that include treated plywood backboard, lockable covers with hex head self-locking system, and padlock hasp. The pedestal stands approximately 36" tall when the base is buried. No mounting stakes or platforms are required for installation.

- All-dielectric GR-13 vented plastic pedestal housing
- Internal metal frame with treated plywood backboard
- Self-locking cover with hex head release
- Spring latch and padlock locking hasp
- May be customized with equipment preinstalled
- Made in USA

Enclosures Accessories

RLH enclosure and pedestal accessories are available as preinstalled options or add-on packages for specific applications. Heaters, ventilation fan kits and thermostats are common options to help manage the internal temperature of enclosures, extending the life of internal communications equipment or other electronics. For additional accessories tailored to specific installations, please contact one of our sales engineers.

Enclosure Fan & Heater Kits

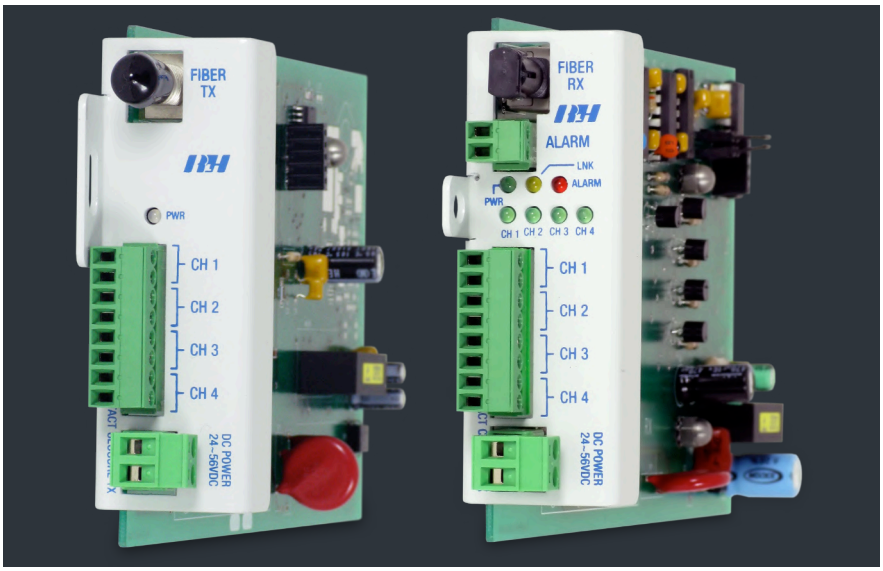
RLH Industries Heater & Fan Kits help meet the challenge of providing temperature control inside enclosures that host electronics or devices sensitive to extreme heat or cold. Most kits below can be preinstalled when ordering with an RLH enclosure. RLH also offers customized temperature control solutions the meet the specific needs of unique applications.

- Compatible with all RLH Enclosures
- Designed to replace passive vents
- Indoor or outdoor applications
- User adjustable thermostat
- 1 or 2 fan models available
- All attaching hardware and accessories are included

Dual Access Lock Assembly

The Dual-Access Lock Assembly provides a means of using two padlocks on a secured enclosure. Either pad lock can be removed enabling access. Locks plates are manufactured from 10 gauge steel with heavy duty steel center pin. Padlock holes are .38”(10mm) in diameter. Padlock is not included.

- Compatible with all RLH enclosures
- Provides telco/subscriber secured access
- 10-gauge steel construction



Overview

RLH Fiber Optic Isolation Systems are substation grade, hardened copper-to-fiber media converters, designed for harsh environments, outside plant and power station installations. They are designed to provide electrical isolation within environments susceptible to GPR events, EMI and lightning strikes.

Individual fiber optic link cards are installed into RLH wall or rack mount card housings, and several powering options are available.

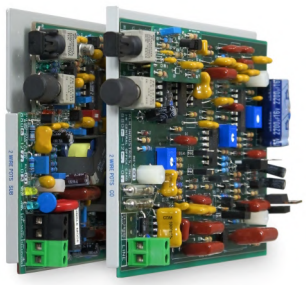
Please refer to the product documentation on our web site, or contact one of our sales engineers for more detailed information.

Fiber Optic Isolation - Cards

2 Wire POTS

The 2 Wire POTS (Plain Old Telephone Service) system provides transmission of standard analog phone, telemetering, or PBX loop start signals over two optical fibers. The system transmits signals in the voice-frequency or audio range (300Hz~3500Hz) while providing ringing and off-hook detection. Common applications include telephone, faxes, and dial-up modems.

- Compatible with all 2 Wire POTS systems
- CO side is loop powered
- Available in Single and Multimode
- Available with ST or SC Connectors
- Convenient sub card LED status indicators
- Limited Lifetime Warranty
- Made in USA



2 Channel POTS

The 2 Channel POTS (Plain Old Telephone Service) Fiber Link Cards are fully featured and hardened for substation and critical applications. These cards operate over a wide temperature range and have been designed to provide reliability in harsh environments. Common applications include extending analog lines over fiber for the benefit of electrical isolation, to achieve long distances, or through noisy environments to reduce EMI.

- 2 Channels of POTS over one fiber pair
- Extend telephone up to 120km over fiber
- Single or dual fiber models available
- Supports Caller ID
- Supports Call-Forward Disconnect
- Ringdown Function (FXS to FXS Hotline Phone)
- Limited Lifetime Warranty
- Made in USA

4 Channel POTS

The 4 Channel POTS (Plain Old Telephone Service) Fiber Link Cards are fully featured and hardened for substation and critical applications. These cards operate over a wide temperature range and have been designed to provide reliability in harsh environments. Common applications include extending analog lines over fiber for the benefit of electrical isolation, to achieve long distances, or through noisy environments to reduce EMI.

- 4 Channels of POTS over one fiber pair
- Extend telephone up to 120km over fiber
- Single or dual fiber models available
- Supports Caller ID
- Supports Call-Forward Disconnect
- Ringdown Function (FXS to FXS Hotline Phone)
- Limited Lifetime Warranty
- Made in USA

Single Channel T1

The Single Channel T1 Fiber Link Card converts electrical/copper T1(DS1) signals and transport them over optical fiber. The T1 card has the unique ability to operate from T1 span power (60mA) or local 24 or 48VDC power. It has LED status and alarm output indicators for system monitoring. The T1 Fiber Link Card is temperature hardened to work in extreme conditions.

- Singlemode (up to 60km/37mi.) or Multimode (2km/1.2mi.) fiber systems with either ST or SC fiber connector types
- Dual power capable, line or 24~56VDC
- Environmentally hardened to operate in -40°F to +158°F (-40°C to +70°C) environments
- Limited Lifetime Warranty
- Made in USA

2 Channel T1 Mux

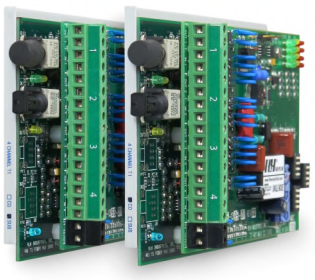
The 2 Channel T1 Mux Fiber Link system transports up to two T1 lines over two strands of fiber. It has B8ZS and AMI compatibility, with LED status indicators for system monitoring. It provides cost effective, high density regenerated T1 over fiber in a compact RLH Fiber Link card form factor, compatible with any of our Fiber Link Card Housings.

- Applications for critical, high voltage, remote or unmanned locations that must remain operating 24/7/365
- Simplex 60mA line powered on the drop side from the T1 span or HDSL NIU/RT unit, eliminating costly external power arrangements
- Limited Lifetime Warranty
- Made in USA

4 Channel T1 Mux

The 4 Channel T1 Mux fiber link card transports up to four T1 lines over two strands of fiber. Features include B8ZS and AMI compatibility, NEBS Level III approved, LED status indicators for convenient system monitoring, and the ability to power the CO side card from two T1 lines carrying span power. This 4 Channel Mux card is a cost effective solution for high capacity applications, and is available with optics to match your requirements.

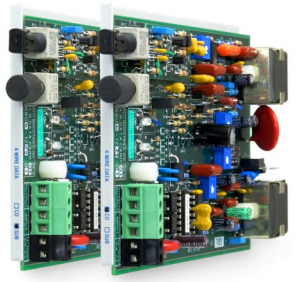
- High density, cost effective solution
- Four T1 lines over two strands of fiber
- 100 kHz to 10 MHz T1
- 1.544 Mbps or CCIT 2.084 Mbps
- Dual power capable, line or 24~48VDC
- NEBS Level III approved
- Limited Lifetime Warranty
- Made in USA



4 Wire Analog Data

The 4 Wire Analog Data fiber link card provides a transmission of 2/4-wire data signal over two optical fibers, and supports full duplex constant transmission up to 9600bps (9.6Kbps) in voice-frequency or audible tone range (300Hz-3.4KHz). 2-wire data is half duplex, and 4-wire data is full duplex. Common applications include SCADA and protective relay systems.

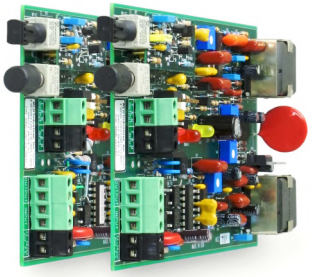
- 4 Wire analog audio-tone up to 9600 baud
- Dual power capable, line power or 24~56VDC
- Station side card option provides 18mA@24VDC output power for powering customer equipment
- Limited Lifetime Warranty
- Made in USA



4 Wire Data with E&M

The 4 wire data E&M system provides simultaneous transmission of 4-wire data and single or bidirectional E&M over two optical fibers, providing point-to-point isolation of Telco or 4-wire PABX trunk lines using E&M leads.The 4-wire data supports full duplex constant transmission up to 9600 bps in voice frequency range (300Hz-3.4KHz). 2-wire data is half duplex, and 4-wire data is full duplex.

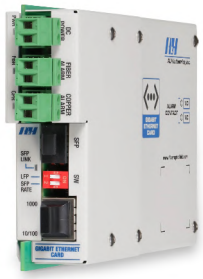
- 4 Wire data with E&M function
- Full duplex, constant transmission
- Dual power capable, line or 24~56VDC
- Available in Single or Multimode
- Available with ST or SC Connectors
- Limited Lifetime Warranty
- Made in USA



Gigabit Ethernet SFP

The Gigabit Ethernet with Alarms Fiber Link Cards extend Ethernet over fiber optic cable. They are hardened for utility use in substations and other critical applications. These cards operate over a wide temperature range and have been designed to provide reliability in harsh environments. Common applications include extending Ethernet over fiber for the benefit of electrical isolation, to achieve long distances, or to reduce EMI through noisy environments.

- Extends Ethernet both short and long distances with SFPs
- Dual Rate SFP Port – 100Mbps & 1Gbps
- Copper link state relay alarm
- Fiber link state relay alarm
- Uses 24~48VDC local power
- Limited Lifetime Warranty
- Made in USA



10/100/1000 Ethernet

The RLH 10/100/1000 Ethernet fiber link card converts a copper 10Base-T or 100/1000Base-TX to a 1000Base-SX/LX fiber optical signal for transmission over either multimode or singlemode fiber optic cable. The cards transmit the data signals over fiber optic cable which allow for network extension over long distances, and provide electrical isolation between both ends of the network.

- Provides Gigabit Ethernet over fiber
- Connects directly to RJ45 connector
- IEEE 10/100/1000BASE-T standards compliant
- Features Auto MDI-X crossover switching
- Extends network span up to 100km/62mi (singlemode)
- Limited Lifetime Warranty
- Made in USA

10/100 Ethernet

The RLH 10/100 Ethernet fiber link card converts a 10/100BaseT RJ45 port to an optical signal for transmission over either multimode or singlemode fiber optic cable. With half or full duplex operation, it also features Auto MDI/MDI-X so a straight through or crossover cable can be used regardless of end device. The card provides Link Loss Pass-through (LFP), and has an informative LED display for status monitoring.

- Provides 10/100 Ethernet over fiber
- Connects directly to RJ45 connector
- IEEE 10/100 standards compliant
- Auto MDI/MDI-X
- Extends network span up to 120km/74mi (singlemode)
- Limited Lifetime Warranty
- Made in USA

RS-232

The RS-232 Fiber Link Card system transports a full 9-Pin RS-232 copper signal over fiber optic cable. This fiber optic isolation system is an ideal solution for extending serial data communications over long distances or near large electrical equipment. Fiber optics provide long distance communication up to 74 mi. (120km) and immunity to EMI/RFI and potential transient surges which can cause noise or damage equipment.

- 9-PIN RS-232 Signal – DCD, RXD, TXD, DTR, GND, DSR, RTS, CTS, RI
- Selectable DTE/DCE switch
- Each PIN is optically isolated
- Optional Breakout Cable for 3 channels of RS-232 serial data
- Limited Lifetime Warranty
- Made in USA

RS-232 & 485/422

The Serial Data Fiber Link Card system transports two active channels of copper serial data over fiber optic cable, allowing for both RS-232 and RS-485/422 to be used at the same time. Fiber optics not only provide long distance communication up to 74 mi. (120km), but also provide immunity to EMI/RFI and transient surges.

- 24~48VDC powering required
- Supports baud rates of 50 bps to 921.6 Kbps baud
- Supports 2 & 4 Wire RS-485 operation
- Critical, high voltage, remote or un-manned locations operating 24/7/365
- Limited Lifetime Warranty
- Made in USA

4 Channel Contact Closure

The RLH 4 Channel Contact Closure fiber link system provides a transmission of up to four independent contact closure signals over one optical fiber. The system comprises two 4 channel cards, a transmitter card and a receiver card. The transmitter card provides the electrical-to-optical interface between dry contact closure relay input and a fiber strand.

- RX side includes alarm contact for status monitoring
- Alarm contact may be set to Normally Open or Normally Closed
- DC power is not polarity sensitive, simplifying wiring duties
- Limited Lifetime Warranty
- Made in USA

8 Channel Contact Closure

The RLH 8 Channel Contact Closure fiber link card provides a transmission of up to eight independent contact closure signals over one optical fiber. The transmitter card provides the electrical-to-optical interface between dry contact closure relay input and a fiber strand. The receiver card provides the optical-to-electrical interface between a fiber strand and normally-open relay contact output.

- RX side includes alarm contact for status monitoring
- Alarm contact may be set to Normally Open or Normally Closed
- DC power is not polarity sensitive, simplifying wiring duties
- Limited Lifetime Warranty
- Made in USA

Fiber Optic Isolation - Housings

RLH fiber optic isolation cards are designed to be installed into card housings that provide protection and allow for system mounting in a variety locations. They are sized to hold from 1 to 12 cards, depending on mounting style, powering options, and accessories.

Housings are available in wall, DIN rail or rack mount configurations, with models designed both for outdoor or indoor use.

Fiber Link Card Housings - NEBS Level 3

RLH Fiber Link Card Housings feature a powder coated steel housing with card guides designed for housing Fiber Optic Link cards of any combination, which are secured by quick release retainer clips. A steel framed door with acrylic window allows you to view the cards at a glance without having to open it. The housings occupy rack spaces (4RU) in an equipment rack, and come complete with mounting brackets and hardware for enclosure or wall mounting.

- NEBS Level 3 certified
- Power terminals accept one or two 24~56VDC inputs, and includes up to 12 outputs
- Alarm contacts for power supply failure
- EIA 19/23” Rack or wall mount
- Available in 5, 8, or 12 card capacities
- Limited Lifetime Warranty
- Made in USA

1 RU Slimline Rack Mount Housing

The RLH Slim Line Rack Mount Housing is a single space (1RU) unit for use in telco, 2-post relay racks, or standard front rail 19 or 23 inch equipment racks. It is designed to hold two Fiber Optic Links Cards (see compatibility list below), or one Fiber Optic Link Card with a 48VDC power supply. The power adapter can accept either AC or DC power.

- Powder coated steel construction with plastic viewing window
- Slide-out, front access to cards and fiber
- Cable management hardware included
- Single rack space (1RU) 19” or 23” rack profile
- Limited Lifetime Warranty
- Made in USA

2RU Rack Mount Housing

The RLH 2/4 Card Standard Rack Mount Housing is a two space (2RU) rack mount unit for use in telco, 2-post relay racks, or standard front rail EIA 19 or 23 inch equipment racks. The standard version without a power supply holds up to 4 Fiber Optic Link cards stacked in retainer rails. The housing may also be configured with a 48VDC power supply that can accept either AC or DC power. This option limits the capacity to 2 Fiber Optic Link cards.

- Steel construction with plastic viewing window
- Sliding tray access to cards and fiber
- Cable management hardware included
- Available with a built-in 48VDC power supply
- Two rack space (2RU) 19” rack profile
- Limited Lifetime Warranty
- Made in USA

Single Fiber Link Card Housing

The RLH DIN Rail Fiber Link Card Housing is a single card unit for use with DIN rail or wall mounting. It is designed to hold a single Fiber Optic Link Card.The housing is constructed of powder coated 16-gauge steel, and includes wall mount brackets for flexible mounting options. It features a latching, slide out rail mount for easy access to equipment from the front of the housing.

- Slide-out, front access to cards and fiber
- Adjustable mounting ears
- Includes DIN rail clip
- Limited Lifetime Warranty
- Made in USA

Dual Card Indoor/Outdoor Housing

The RLH dual card indoor/outdoor housing provides a mounting for two Fiber Optic Link cards. The dual card housing is a durable plastic enclosure that may be mounted to a wall or pole. The Fiber Cards are installed into guide rails and retainer clips. The standard housing is vented and allows for storage of fiber slack. The hinged door closes securely with 2 snap latches, and may be secured with the 3/8” hex bolt.

- Vented weatherproof plastic construction
- Available with built-in 48VDC power supply
- 2 Locking Card Slots
- Sturdy door hinge
- Wall or pole mount design
- Fiber Optic Link card attaching hardware provided
- Limited Lifetime Warranty
- Made in USA

Fiber Optic Isolation - Power Solutions

RLH Fiber Optic Isolation Systems may be powered several different ways depending on the product requirements, either with line (span) power or local DC power. DC/DC converter cards and couplers are compact card style solutions designed to fit card housings. The Power over Fiber system can transmit power using fiber optic cable and is ideal for high voltage isolation applications. RLH Solar Power Supplies are complete power supply systems that include a high efficiency solar panel with solar charge controller and battery pack.

Power Over Fiber System (PoF)

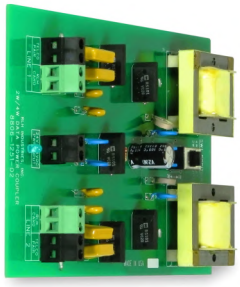
Our patented Power Over Fiber (PoF) system provides power transmission over three multimode (62.5/125) optical fibers. The PoF system is able to provide true isolated power to a remote location utilizing Laser Light at the transmitter and a photovoltaic power converter at the remote location. The remote location device utilizes super capacitors to ensure a smooth and constant voltage is supplied to the remotely powered devices.

- Provides true isolated power
- Eliminates copper wire running into a High Voltage Environments and Lightning prone locations
- Delivers constant power with Built-In Super Capacitors
- Provides up to 1 Watt of 24 Volts DC per system
- Made in USA

2 Wire / 4 Wire Data Power Coupler

The 2-Wire / 4-Wire Power Coupler inserts DC power onto “dry” pairs used in SCADA service and Audio Tone Protective Relaying lines in order to power (1 or 2) 2-Wire Data CO Cards or (1) 4-Wire Data CO Card via a 24-56VDC supply.

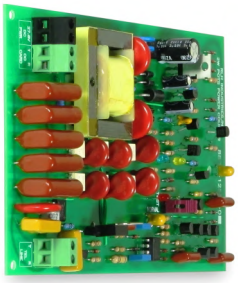
- Provides Line Power to RLH 2 Wire and 4 Wire Data Fiber Link Cards
- Operates on 24~56VDC power
- Made in USA



2 Wire POTS Power Coupler

The 2 Wire POTS Power Coupler uses a local 24V DC supply to power (1) Fiber Optic Link 2-Wire POTS CO card while isolating the 2-Wire line from the 24V or 48V supply. This is used in cases when line power is insufficient for fiber card to operate.

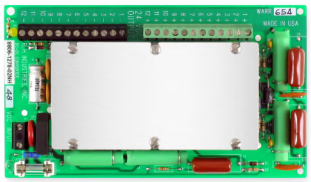
- Powers one RLH POTS CO Card
- Convenient status indicators
- 24V or 48V models
- Features Ring Detect Mode
- Made in USA

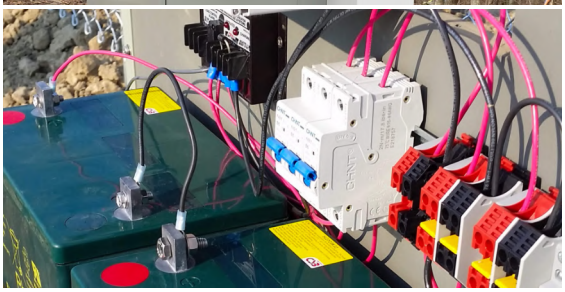


DC/DC Converter Card

The RLH DC/DC Converter card provides an isolated 48VDC output designed to power up to 12 Fiber Optic Link cards. Engineered for industrial telecom applications, this converter provides an isolated and regulated DC output from station batteries or other widely fluctuating DC sources. The RLH DC/DC Converter card is designed to fit into any RLH Fiber Optic Link card housing or shelf, and can be combined with additional converters for a high-density DC power solution.

- High Quality DC/DC converter with isolated and regulated output
- Fits all RLH 4RU card housings
- Convenient status LEDs
- Power up to 12 RLH Fiber Link Cards
- Wide Operating Temperature -20°C to +70°C (-4°F to +158°F) Rating
- Made in USA





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