

USER GUIDE

8 Channel Contact Closure

Transmit 8 Contact Closures Over a Single Fiber

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.

The system requires a 24~56VDC local power source at each end to provide power. The RX module includes a NC/NO alarm contact for system monitoring. Fiber optic cable is immune to RF noise, high voltages, and provides a transmission range of up to 15km/ 9 miles.

The DIN mount is designed to be installed onto a standard T35 (35mm) DIN rail.

Transmitter Module

The Contact Closure Transmitter Unit provides the electrical/optical interface between the dry contact closure relay input and a fiber strand. The module is locally powered from a 24~56VDC source.

Note: In order to maintain high voltage isolation, Fiber Link transmitter and receiver modules must be powered from separate power sources.

Receiver Module

The receiver module is locally powered by a 24~56VDC source and provides LED indicators to display relay conditions, power, and fiber link.

Ordering Information

Transmitter/Receiver	Mode	Connector	Distance	Fibers	Part Number
Transmitter	Multimode	ST	2km/1.2 miles	Single Fiber	8CD-03-2
Receiver	Multimode	ST	2km/1.2 miles	Single Fiber	8CD-04-2
Transmitter	Singlemode	ST	15km/9 miles	Single Fiber	8CD-20-2
Receiver	Singlemode	ST	15km/9 miles	Single Fiber	8CD-22-2

- A complete system requires one Transmitter and one Receiver
- When a fiber splitter is used, multiple receivers can be paired with one transmitter



8 Channel Contact Closure (receiver shown)

Key Features

- Hardened to operate in -40°C to +70°C (-40°F to +158°F)
- Can be powered by 24~56VDC
- Convenient LED status indicators
- Receiver includes alarm contacts for status monitoring
- Input power is not polarity sensitive
- Convenient DIN Rail or Wall Mount
- Limited Lifetime Warranty
- Made in the USA

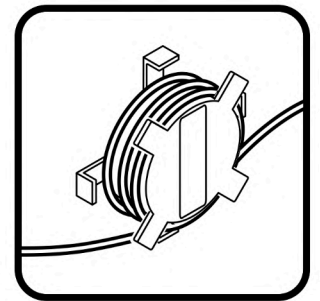
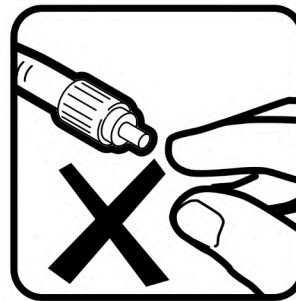
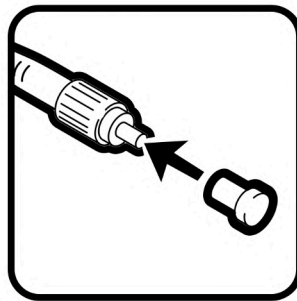
General Safety Practices

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

CAUTION - SEVERE SHOCK HAZZARD

- Never install during a lightning storm or where unsafe high voltages are present
- Use caution when handling copper wiring and follow appropriate safety regulations

Guidelines for Handling Terminated Fiber Cable



- Do not bend fiber cable sharply; use gradual and smooth bends to avoid damaging glass fiber
- Keep dust caps on fiber optic connectors at all times when disconnected
- Do not remove dust caps from unused fiber
- Keep fiber ends and fiber connectors clean and free from dust, dirt and debris; contamination will cause signal loss
- Do not touch fiber ends
- Store excess fiber on housing spools or fiber spools at site

Commonly Used Acronyms & Abbreviations

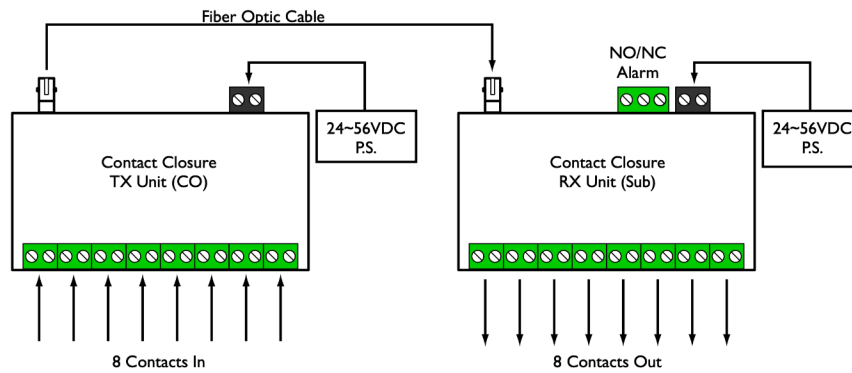
Name	Description
TX	Transmit
RX	Receive
PWR	Power
CH	Dry Contact Channel
NC	Normally Closed
NO	Normally Open
BLU	Blue
ORG	Orange
GRN	Green

Applications

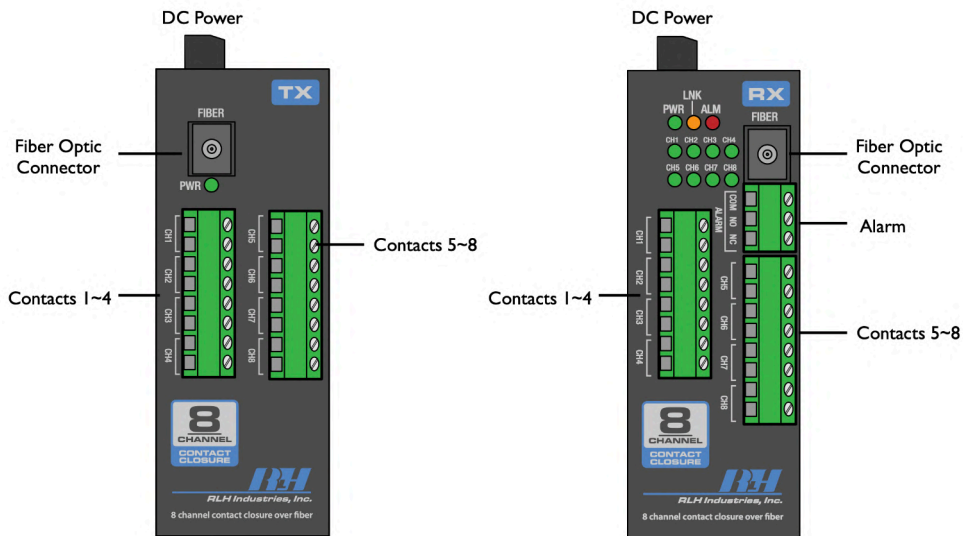
Network equipment in high voltage areas can be at risk due to Ground Potential Rise (GPR). A copper network cable referenced to a remote ground can become a path for high voltages during a ground fault. Placement of all-dielectric fiber optic cable (instead of copper) completely eliminates the presence of a remote ground, which dramatically increases safety of personnel and reliability of equipment.

By utilizing fiber optic cable, the Contact Closure DIN Fiber Link System provides absolute electrical isolation between both ends of the network. It is immune to EMI/RF interference, ground loops, and high voltage surges from lightning or ground faults, and is ideal in electrically noisy environments such as near large power sources, electrical motors, and radio communications equipment.

System Diagram



8 Channel Contact Closure System Diagram



8 Channel Contact Closure Connectors

Installation

Prior to installation:

- Check for shipping damage
- Check the contents to ensure correct model and fiber type
- Have a clean, dry installation environment ready
- Ensure that the fiber type at the site matches the system type

Required for installation:

- 24~56VDC (15mA@24VDC minimum) power source at the TX side
- 24~56VDC (65mA@24VDC minimum) power source at the RX side
- DIN rail for mounting
- Multimeter

Measure the DC voltage of the source power to ensure that it is 24~56VDC. All electrical and fiber optic connection are made directly onto the unit.

Connect Fiber Optic Cable

Connect fiber to the transmit and receive optical connectors on the top of the units. Fiber cable should always be routed loosely avoiding tight bends.

Connect Contact Wire Pairs

Connect the wire pair from each dry relay contact to the green screw-down terminals on the front of the units. The terminal blocks may be removed on the 4 channel system for ease of wiring by pulling the connector straight out. Be sure to fully seat the terminal block back into the connector when finished.

Refer to the connector diagram on the front of the unit for channel assignment. The channels are also identified on the connector blocks. Note which contact channel is being used.

Note: This system is dry contact only. Do not apply voltage to the contact terminals on the TX unit or the system may be damaged.

Connect alarm relay monitoring equipment wire pair to the alarm contact on the RX module. Use the NO or NC contact as required. To make wiring easier, the connector block may be removed by pulling straight up. Seat the connector fully into their sockets before operating the system.

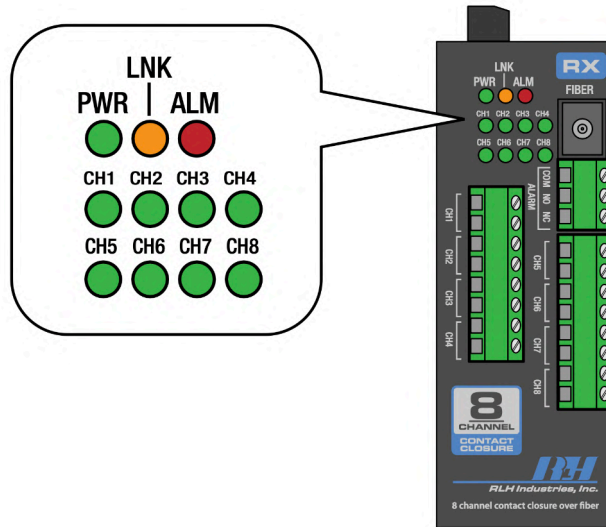
Connect Power

Connect a 24-56VDC power source wiring to the screw-down terminals indicated as DC POWER. The power input is not polarity sensitive. The terminal unplugs from the module to make wiring easier.

Note: Connect a chassis ground wire to the screw on the top or bottom of the module housing to reduce the chance of damage from lightning or other high voltage events.

Installation (cont'd)

LED Identification



RX Card LED indicators

Module	Indicator	Color	Status	Description
TX	Power	BLU	ON OFF	DC power is present at the power connector Power is disconnected
RX	Power	BLU	ON OFF	DC power is present at the power connector Power is disconnected
	LNK	ORG	ON OFF	Fiber optic signal is detected Fiber optic signal is not present
	Alarm	RED	ON OFF	Fiber optic signal is not present Fiber optic signal is detected
	CH1 ~ CH8	GRN	ON OFF	Channel relay is CLOSED Channel relay is OPEN

Troubleshooting

If trouble is encountered, verify all copper and fiber connections, signal and voltage levels. If the alarm is on, check the fiber cable and connections, or the other units power source and connections. If trouble persists, contact RLH Industries, Inc. technical support department*.

*Tech support contact info is at the end of this document

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Key Specifications

Transmission Method:	Amplitude modulated light via one optical fiber		
	Multimode:	850nm	
	Singlemode:	1310nm	
	Singlemode Long Haul:	1310nm	
Maximum Fiber Attenuation /Distance:	Multimode:	6dB / 2km/1.2 miles	
	Singlemode:	8dB / 15km/9 miles	
	Note: Distances equated using industry standard fiber and connector attenuation of 3dB/Km. Fiber condition, splices and connectors may affect actual range.		
Fiber Type:	ST connectors		
	Multimode:	62.5/125µm, 50/125µm	
	Single-mode:	8-9/125µm	
Wire Connector:	Screw clamp terminal block, 16~26 AWG		
Input 1~8 (TX Module):	Dry contact closure relay		
Output 1~8 (RX Module):	Normally Open Relay		
Alarm Output (RX Module):	Normally Open/Closed Relay		
Output Relay Contacts Maximum Rating:	115VAC	1.087A	125VA
	12VDC	3.000A	36 Watts
	24VDC	2.500A	60 Watts
	48VDC	1.250A	60 Watts
	130VDC	0.462A	60 Watts
	250VDC	0.240A	60 Watts
Response Time:	10ms		
Surge Protection:	PTC thermistors, zener diodes and varistors		
Mean Time Between Failures (MTBF):	175,200 Hours (20 Years)		
Power Requirements:	TX Module: 24~56VDC, 15mA minimum		
	RX Module: 24~56VDC, 60mA minimum		
Powering Method:	Local DC power source		
Operating Temperature:	-40°C to +70°C (-40°F to +158°F), 95% non-condensing		
Mounting:	T35 DIN Rail Mount (included)		
Dimensions:	1.9" (W) x 3.5" (D) x 5" (H), (49mm x 89mm x 127mm)		
	*Not including connectors		
Warranty:	Limited Lifetime		

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www.fiberopticlink.com

Contact

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