

FIBER OPTIC SIGNALING

MR380-1-3 DIN Rail Mount Universal SM/MM Controller

MR380 SERIES

MR38X series ZapFREE® Fiber Optic Signaling Sensors are used anywhere conventional electromechanical controls cannot be used, especially where EMI immunity is required and harsh environments. The MR380-1-3 Universal Controller is the active optical and electrical interface for the MR387 E-Stop, MR386 Microswitch, and other Signaling Sensor products.



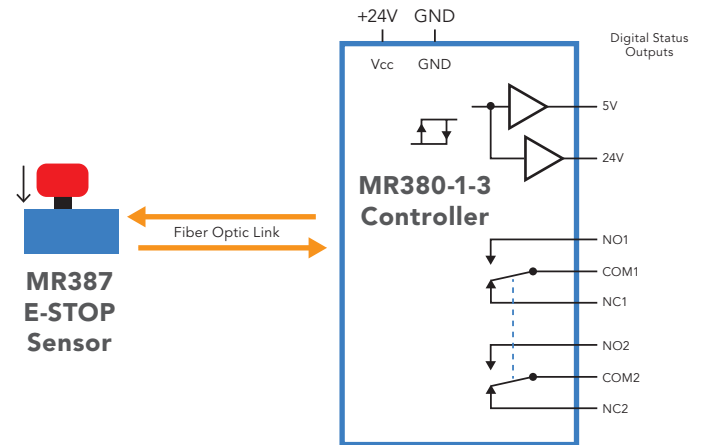
Inherently Safe Optical Radiation
For EPL Mb/Gb/Gc/Db/Dc

Features

- DIN rail mountable module
- Ex rated Inherently Safe Optical Radiation
- Controller is installed outside the hazardous area
- Compatible with multimode or single mode links
- Interference-free transmission up to 20km
- Multiple E-Stops can optically wired in series
- Can be used to extend reach of an existing electromechanical E-Stop

Interfaces

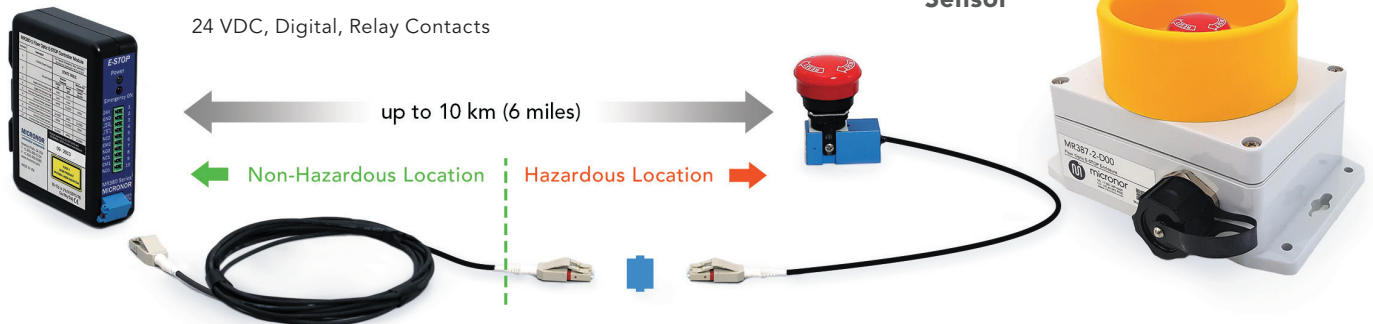
- DPDT relay contacts
- Digital status outputs, 5V and 24V
- Depending on sensor type, digital outputs and relay implement known default failure state



System Planning

MR380-1-3 Controller

MR387 E-STOP Sensor



Fiber Optic Cabling
Duplex LC or ODVA IP-LC Connections
Multimode 50/125 or 62.5/125 or Single Mode 9/125 Fiber

1. Verify cabling and junction boxes are compatible with the operating environment.
2. Verify that the optical link loss is within the Controller's Maximum Loss Budget.
3. Consult Application Note AN118 for more information, examples and guidance on loss budget.

Specifications

Functional States		As Applies to MR387 E-Stop Sensor
Normal RESET (Up Position)		Red LED is OFF Digital 5V and 24V Outputs=HI Relay NC contacts=Closed, NO contacts=Open
ACTIVATED (Down Position) Broken Fiber, Loss of Optical Signal, or Controller Failure		Red LED is ON Digital 5V and 24V Outputs=LOW Relay NC contacts=Open, NO contacts=Closed
Digital Outputs		
5V Logic		5 VDC/2k Ω Load Max
24V Logic		24 VDC/2k Ω Load Max
Relay Contacts		2x Form C (COM-NO-NC)
Switching Power Rating		60 W / 62.5 VA
Contact Material		AgNi, Gold Covered
DC Rating		75 V @ 0.75A; 24 V @ 2A
AC Rating		50 V @ 1A; 24 V @ 2A
Optical		Class I Eye Safe, 1310nm
Compatible Fibers		Multimode OM1 62.5/125 or OM2 50/125 Single Mode OS1/OS2 9/125 or SMF-28
System Loss Budget		Minimum 23dB, Typical 25dB
Maximum Optical Link Length		Distance is a function of user's system loss budget which is the total round-trip loss of all optical link components - sensor(s), connectors, splices and cable segments. Maximum link length with a direct run between E-Stop and Controller is 20km. Consult Application Note AN118 for more information. Contact Micronor for longer distance applications.
Interface		NOTE: Electrical connections shall not exceed 3 meters.
Electrical		10-pin Screw Terminal, 30-14 AWG (Phoenix Mating Plug 1803659)
Optical		LC-Duplex, 9/125 SM transmit fiber, 62.5/125 MM receive fiber
Power Supply		+24 VDC, <80 mA input
Functional Safety		For MR387 E-Stop Sensor + MR380-1-3 Universal Controller
ISO 13849		Category 2
MTTFd		4.14 E+06 hours (473.1 years)
Performance Level (PL)		PL=c
Safety Integrity Level (SIL)		SIL=1
Explosive Atmospheres		Inherently Safe Optical Radiation
Ex Classification		Controller shall be installed in non-hazardous location only Power supply to Controller shall be current limited to 200mA or less IECEX Test Report (ExTR) GB/CML/ExTR 16.0105/00 (Multimode Controllers)
ATEX		cE EPL Mb/Gb/Gc/Db/Dc
IEC Ex		EPL Mb/Gb/Gc/Db/Dc
NEC		Exempt
Environmental Performance		
Temperature/Humidity		-5°C to +55°C (23°F to +131°F), 0-95% RH, Non-Condensing
Ingress Protection		IP50
Physical Attributes		
Mounting		35mm DIN Rail
Housing		11.4 x 8.9 x 3.2 cm (4.5 x 3.5 x 1.25 inches)
Weight		230 g (8.1 oz)

Specifications subject to change without notice

Ordering Info

MR380 - 1 - 3

Product _____ **Fiber Type/Wavelength**
 1 DIN Controller 3 Universal Single Mode/Multimode

Quick Ship Controllers and Sensors:

MR380-1-3 DIN Rail Controller, For Single Mode and Multimode links

MR386-20-1R5 MICROSWITCH, MRI Safe-Non Metallic, NO, LC Duplex pigtail, 1.5m

MR386-24-1R5 MICROSWITCH, MRI Safe-Non-Metallic, NC, LC Duplex pigtail, 1.5m

MR386-21-1R5 MICROSWITCH, Industrial, NO, LC Duplex pigtail, 1.5m

MR386-25-1R5 MICROSWITCH, Industrial, NC, LC Duplex pigtail, 1.5m

MR387-2S-1R5 E-STOP, Ø30mm Button, OM1 62.5/125 MMF, Duplex-LC Pigtail Length=1.5m

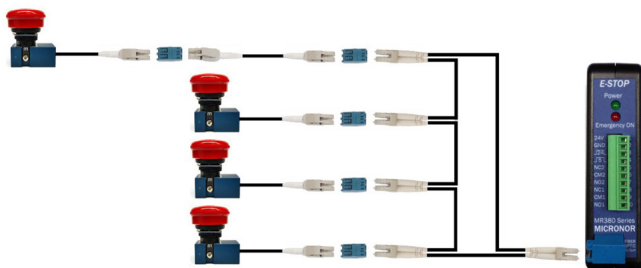
MR387-2S-D00 E-STOP in Housing, Ø30mm Button, OM1 62.5/125 MMF, ODVA IP-LC Interface

MR387-3S-1R5 E-STOP, Ø30mm Button, OS1 9/125 SMF, Duplex LC Pigtail Length=1.5m

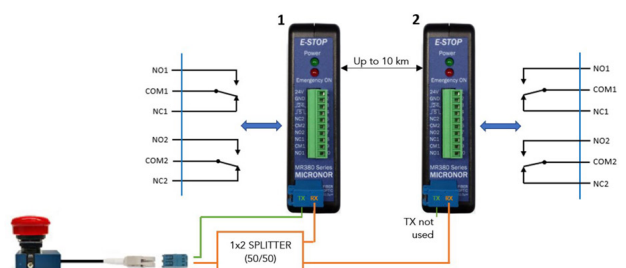
MR387-3S-D00 E-STOP in Housing, Ø30mm Button, OS1 9/125 SMF, ODVA IP-LC Interface

Innovative Ways To Deploy Fiber Optic E-Stops and Controllera

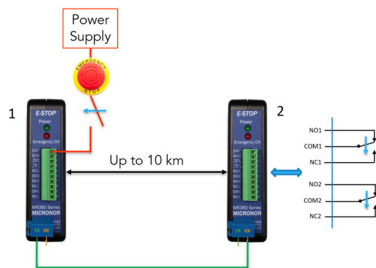
Connect Multiple E-Stops in Series



Extend Dry Contacts to Multiple Areas



Extend Reach of Existing Electromechanical E-Stop



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