

The MR380-0-1E Controller is intended for the OEM user in support of the MR380 series ZapFREE® Fiber Optic Signaling products. Fiber optic sensors outperform electromechanical and electronics-based sensors, where:

- Immunity to EMI, RFI and lightning is required
- High voltage isolation is needed
- Interference-free operation over long distances is vital
- Hazardous area mandates an inherently safe solution



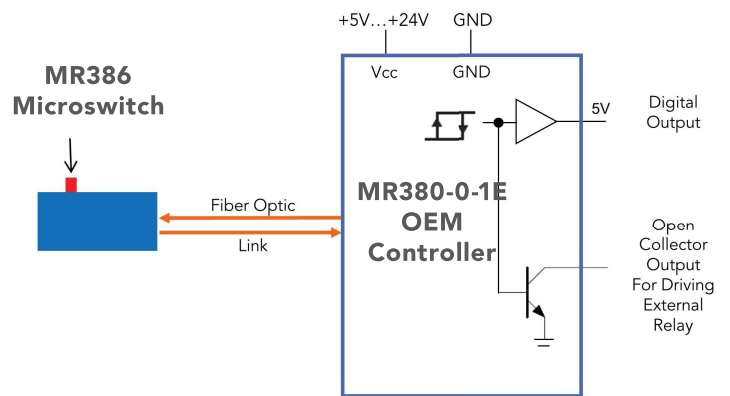
Inherently Safe, Optical Radiation  
EPL Mb/Gb/Gc/Db/Dc

### Applications

- Medical and MRI
- Transportation
- Oil, gas and mines
- Robotic systems
- Process industries and instrumentation
- Aerospace actuators

### Interfaces

- 50/125µm or 62.5/125µm multimode fiber
- Digital output
- Open-collector output for activating external relay
- Operates from +5V to +24V

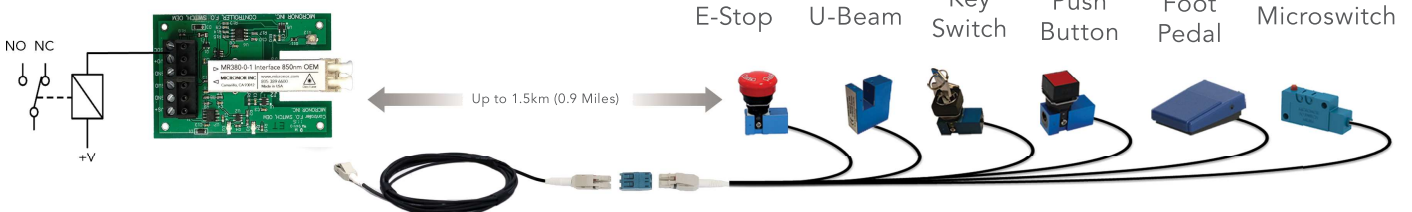


### System Planning

**MR380-0-1E OEM Controller**  
Inherently Safe, Optical Radiation

**MR38X Sensors**  
Simple Mechanical Device

5-24 VDC Operation, Digital Output, Open-Collector Output



Fiber Optic Cabling  
Duplex LC Connections  
Multimode 50/125 or 62.5/125 Fiber

1. Select cabling and junction boxes compatible with the operating environment.
2. Verify that the optical link loss is within the 850nm Controller's two-way loss margin.
3. Consult Application Note AN118 for more information, examples and guidance.

# Controller Specifications

<b>Functional States</b>		<b>Example: MR386 Series Fiber Optic Microswitch</b>
For Normally Open (NO) Sensors (Light interrupted)	Logic Output=LO, Logic Output=0V Open Collector Output =OFF	
For Normally Closed (NC) Sensors (Light throughput)	Logic Output=HI, Logic Output>4.5V Open Collector Output=ON	
<b>Electrical Interface</b>		<b>NOTE: Electrical connections shall not exceed 3 meters.</b>
Connector	CamdenBoss P/N CTB1301/6A (one included with Controller) 6C, Screw-Type Terminal Plug, 5mm contact spacing, 1.5mm cable entry	
Logic Output	High=4.5V min (2k $\Omega$ Load), Low=0.25V max	
Open Collector Output	Maximum Load Voltage=24 VDC Maximum Current 180mA, Protected by resetable fuse	
Power Supply	+5V to +24V DC maximum Current Consumption=8mA max at 5V DC, 12mA at +24V and R8 installed	
<b>Optical Interface</b>		
Connector	LC Duplex, PC Polish	
Fiber Types	62.5/125 $\mu$ m 0.275NA OM1 Multimode Fiber 50/125 $\mu$ m 0.22NA OM2/OM3 Multimode Fiber	
Optical Output Power	OM1=-9dBm (0.11mW) typical, OM3=-11dBm (0.080mW) typical	
Receiver Sensitivity	-25dBm	
Optical Dynamic Range	OM1=15dB, OM3=13dB	
Maximum Link Loss	Depends on the combined insertion loss of the sensor, fiber length(s), and all connectors and splices. Link lengths up to 1.5km are typically achievable.	
Operating Wavelength	850nm, VCSEL	
System Loss Budget	15 dB	
Laser Safety Classification	Class 1 per IEC 60825-1	
<b>Explosive Atmospheres</b>		<b>Inherently safe, optical radiation</b>
EX Classification	Controller shall be installed in non-hazardous location only NOTE: Power supply shall be limited to 200mA or less IECEX Test Report GB/CML/ExTR 16.0105.00/00	
ATEX	$\text{c}\epsilon$ EPL Mb/Gb/Gc/Db/Dc	
IEC Ex	EPL Mb/Gb/Gc/Db/Dc	
NEC	Exempt	
<b>Environmental Performance</b>		
Temperature/Humidity	-40°C to +70°C (-40°F to +158°F)	
Humidity	0%-85% RH, Non-Condensing	
Ingress Protection	IP00 (none)	
Vibration/Shock	Performance depends on mounting. Consult factory when designing for high shock and vibration environment.	
<b>Physical Attributes</b>		
Mounting	4x #2-56 or M2.5 screws, Mounting Pattern=1.60 x 2.60 inches	
Size	5.08 x 7.62 cm (2.00 x 3.00 inches)	
Weight	25 g (1 oz)	

Specifications subject to change without notice

## Ordering Info

**MR380 - 0 - 1 E**

**Product**

**0** PCB Controller

**Temperature Range**

**E** -40°C to +70°C

**Wavelength**

**1** Multimode 850nm, Short Haul

### Quick Ship Configurations:

**MR380-0-1E** Standard OEM Controller, 850nm, For Short Haul Multimode links

### Compatible Sensors:

- MR382** U-BEAM Slot Sensor. Contact Micronor for product information.
- MR383** KEY SWITCH Sensor. Contact Micronor for product information.
- MR384** PUSHBUTTON Sensor. Contact Micronor for product information.
- MR385** FOOT SWITCH Sensor. Contact Micronor for product information.
- MR386** MICROSWITCH Sensor. Consult separate MR386 data sheet.
- MR387** E-STOP Sensor. Consult separate MR387 data sheet.

### Replacement Part:

**50-CTB13016A/6A** CamdenBoss Terminal Plug

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