micronor

FIBER OPTIC SIGNALING

MR382-2 U-Beam Sensor

Questions?
Call 805.389.6600

MR380 SERIES

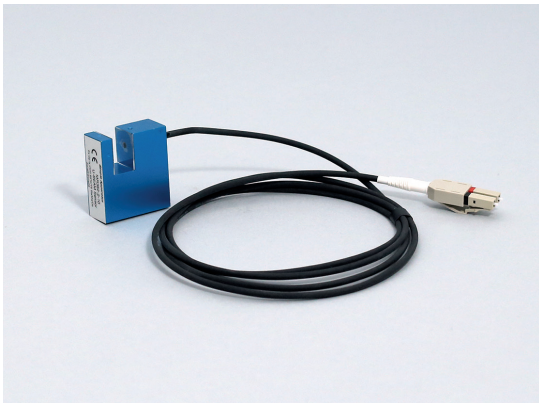
The MR382 series Fiber Optic U-Beam Sensor is an innovative photo interruption/slot sensor solution that can be deployed in challenging environments, including mines, oil & gas, refining, medical, electromagetic and high voltage. The U-Beam sensor is a turn-key optical solution for implementing a gear tooth speed sensor, an edge detector or proximity sensor. The optical sensor system operates over a duplex multimode 62.5/125µm optical link up to 1250 meters.

The MR382 Controller provides both +5V and +24V line driver outputs as well as a frequency to voltage analog output. For Functional Safety applications, the digital ouptuts implement a known default failure state.

ZAP FREE®

Ex

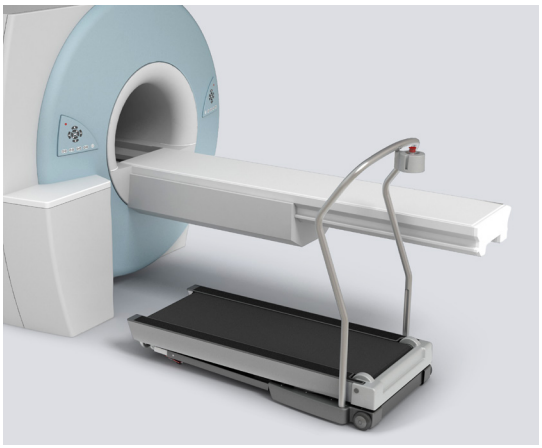
MR



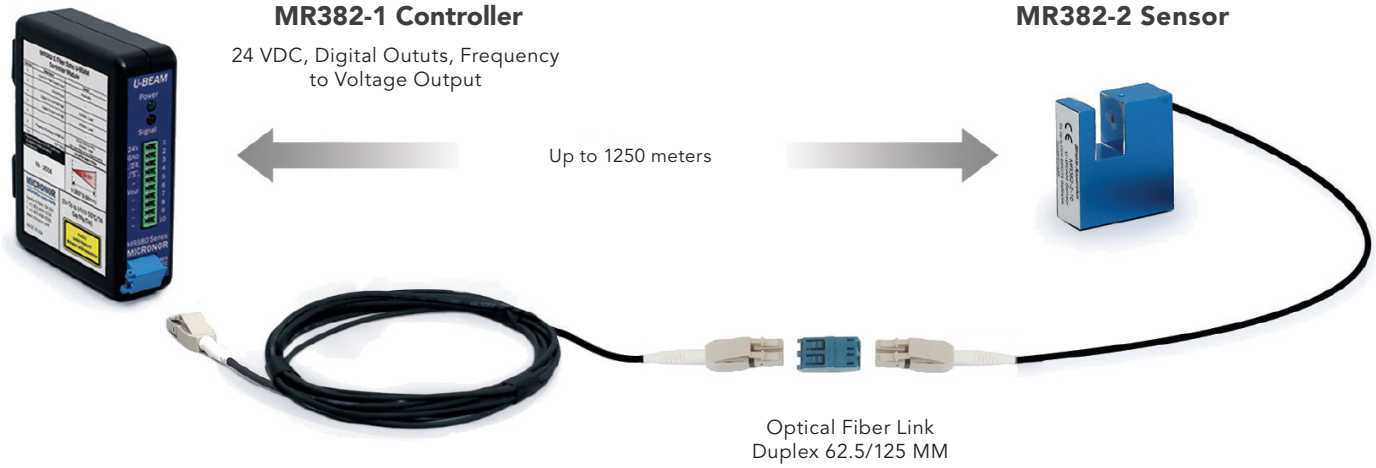
Inherently Safe, Simple Mechanical Device
EPL Mb/Gb/Gc/Db/Dc

Features

- Passive sensor is EX Classified as an "Inherently Safe, Simple Mechanical Device"
- Sensor can be operated in challenging environments - medical, industrial, mining, oil & gas, electromagnetic, high voltage, etc.
- Immune to EMI, RFI, lightning, high voltage and ground loops
- Controller provides digital and frequency-to-voltage outputs
- Operates over long distances - up to 1250 meters



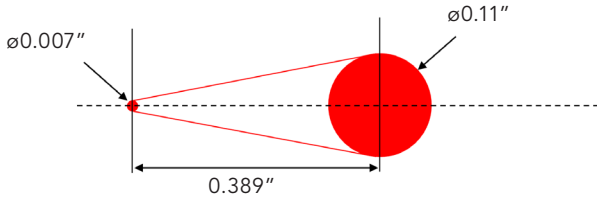
EXCMR® MRI Safe Treadmill uses MR382 U-Beam Sensor to monitor patient treadmill speed



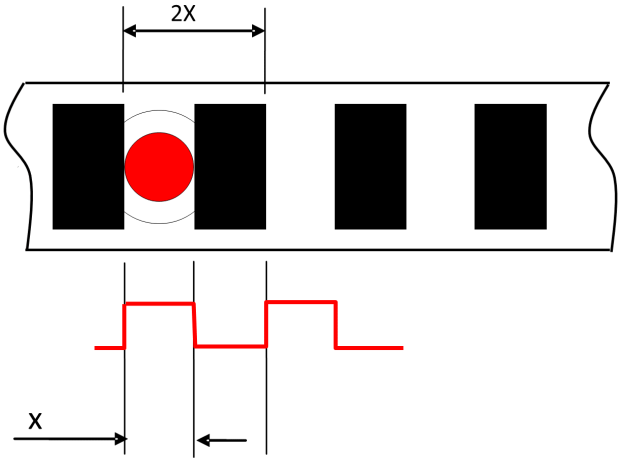
Optical Interruption Requirements

Consult Section 8.1 of the MR380 Instruction Manual for additional design details for the interrupting scheme.

The photo interrupter employs a Schmitt Trigger scheme of sensing logic high and logic low levels of light. The diagram below is an approximation of the light path and its conical shape.



The spacing of each interruption must be at least as wide as the cross sectional diameter X where the beam is interrupted. This is essential for tracking speed and a duty cycle of 40-60% is required for accuracy. Simple index and counting applications require only that the interrupt and non-interrupt durations exceed the beam diameter.



Specifications

Optical Interface	
Slot Interface	Consult MR382 Instruction Manual for beam profile and alignment information
Optical Interface	LC Duplex Plug, Duplex 62.5/125µm Graded Index Fiber, 0.275NA, Type OM-1
Insertion Loss	< 7.5 dB
MR Attributes	
Slot Interface	Reference: ACR Guidance Document for Safe MR Practices MR385 is MRI Safe for use in MR Zones I-III and MR Conditional in Zone IV
MR Classification	MR Conditional per ASTM F2503-13
Materials ertion Loss	Sensor body is aluminum (non-foerrous)
Explosive Atmospheres	**Inherently Safe, Simple Mechanical Device**
EX Classification	Inherently safe, simple mechanical device when used with MR382-1 Controller IECEx Test Report GB/CML/ExTR 16.0105.00/00
ATEX	CE EPL Mb/Gb/Gc/Db/Dc
IEC Ex	EPL Mb/Gb/Gc/Db/Dc
NEC	Exempt
Environmental Performance	
Temperature/Humidity	-40°C to +65°C (-40°F to +150°F), 0-95% RH, Non-Condensing
Ingress Protection	IP65
Physical Attributes	
Mounting	Consult Mechanical Reference Drawing
Housing	Consult Mechanical Reference Drawing
Weight	Sensor with 5 meter pigtail, 115 g (4.05 oz)

Specifications subject to change without notice

Ordering Info

M R 3 8 2 - 2 - 0 3

Fiber

2	62.5/125

Pigtail length

1R5	1.5m
03	3 m
05	5m
10	10m

Quick Ship Configurations:

MR382-2-03	U-Beam Sensor with 3m Pigtail
MR382-1-1	Controller

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