

# MR318

MRI-COMPATIBLE NON-METALLIC FIBER OPTIC ENCODER

**MICRONOR**  
automation components

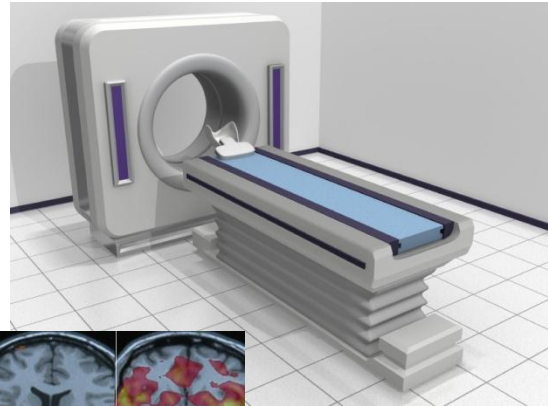
**Products** The MR318 ZapFree™ Fiber Optic Rotary Encoder is an entirely passive, intrinsically safe, non-metallic fiber optic rotary encoder – designed specifically for use in Magnetic Resonance Imaging (MRI) systems used in hospitals, medical research and industrial applications. It is a non-metallic version of the MR312 series.

Downstream, the MR310 Remote Encoder Interface (REI) module provides an array of interfaces and features:

- Direct A/B Pull-Up and A/A'/B/B' Line Driver quadrature outputs
- Multiplier/Divider function with separate A/A'/B/B' LD Outputs
- Fully programmable 4-20mA output (Speed or Position)
- Fully programmable  $\pm 10V$  analog output (Speed or Position)
- RS422/RS485 serial interface (RS232 adapter available)



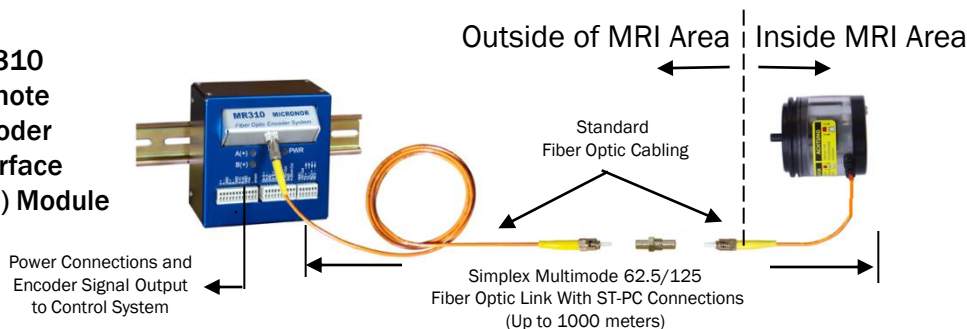
- Features**
- 100% passive sensing design
  - Constructed from non-metallic materials to be compatible with MRI systems
  - Insensitive to EMI and RFI for use in and around medical equipment and “noisy” industrial environments
  - Immune to electrical static that “zaps” conventional encoders
  - Outdistances copper, link lengths to 1000m
  - Standard model designed to operate in ambient laboratory environment
  - Higher resolution and other form factors can be engineered for special applications



Marquette University is using Micronor encoder for path finding fMRI studies

**Installation**

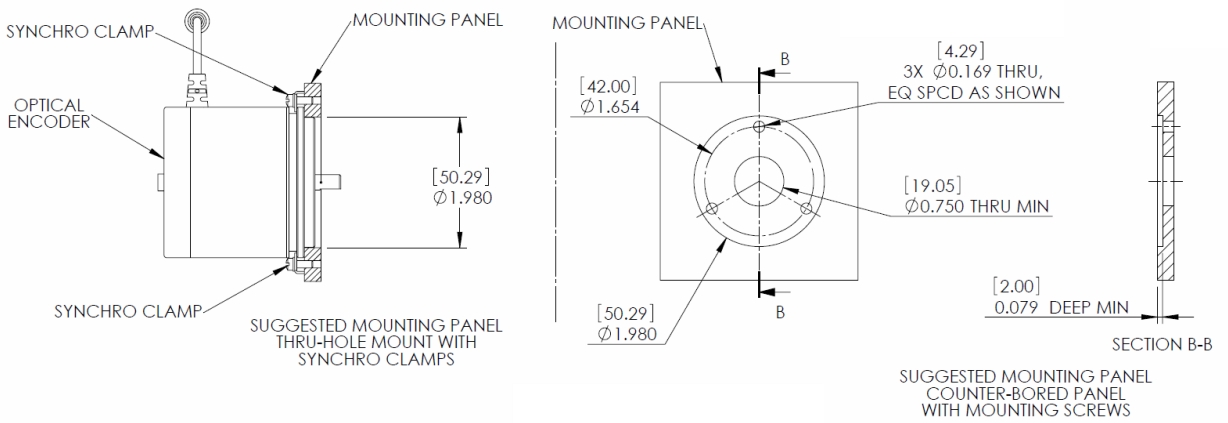
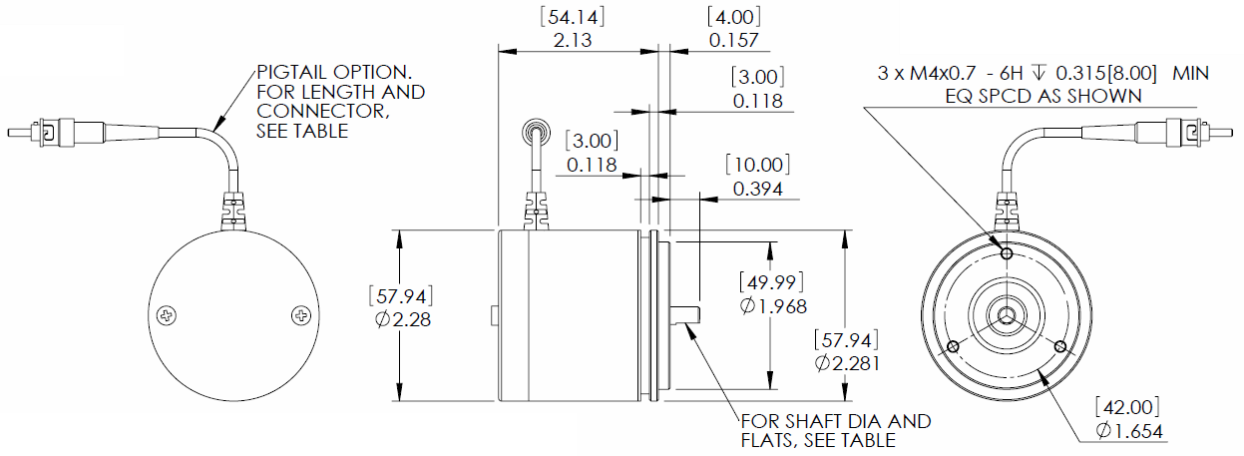
MR310 Remote Encoder Interface (REI) Module



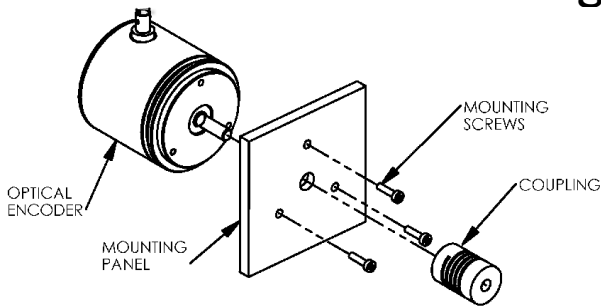
MR318 Non-Metallic Fiber Optic Rotary Encoder

1. Connect encoder to the equipment and route fiber optic pigtail so that metallic ST connector end is outside the MRI area.
2. Connect the ST plug to the optical input of the MR310 interface module.
3. Make MR310 electrical connections (power, ground, quadrature signals, serial interface, etc.) to the control system via WAGO Quick-Connect plugs (supplied with the MR310).
4. The Fiber Optic Encoder System is now ready to operate!

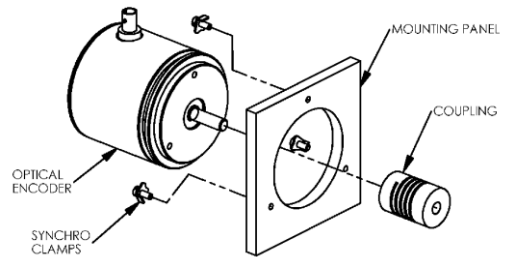
# Reference Drawing



## Mounting Options



Face Mounting to Panel



Thru-Hole Flange Mounting With Hold-Down Clamps

## MR318 Sensor Specifications

Consult MR310 Data Sheet for interface module specifications

<b>Resolution</b>	360ppr (Other options available upon request)
<b>Optical Interface</b>	ST-PC (for connection to MR310 REI Module)
<b>Fiber Type</b>	MM 62.5/125µm, Graded Index, 0.275NA
<b>Fiber Length (between MR310 and TD5207)</b>	Up to 1000m (3280 ft)
<b>Temperature/Humidity Range</b>	Ambient laboratory environment
<b>Weight (with 5m Materials)</b>	280 g (9.75oz)
<b>Materials</b>	All materials are non-metallic except ST connector on end of fiber optic pigtail
<b>ATEX Classification (Sensor Only)</b>	Simple Apparatus, Intrinsically/Inherently Safe Optical Radiation

*Specifications Subject To Change Without Notice*

## MR318 - D06T05

**Resolution**

Options

D 360ppr

Others on request

**Termination**

Option

T05 ST Pigtail, 5m

T10 ST Pigtail, 10m

**Shaft**

Size

06 6mm OD

Others on request

Related Items:

- MR232-1 RS-422-to-RS-232 Adapter Cable
- MR310 Remote Encoder Interface (REI) Module
- MR320-M06Lxx Fiber Optic Cable Assembly
- MR320A ST-to-ST Mating/Bulkhead Adapter

For additional technical information, contact Micronor and request:

- MR310 Remote Encoder Interface (REI) Module Data Sheet
- MR312 Solid Shaft Encoder Data Sheet
- MR314 High Resolution Hollow Shaft Encoder Data Sheet
- MR316 Heavy Duty Shafted Encoder Data Sheet
- MR320-M06Lxx Ruggedized Fiber Optic Cable Assembly Data Sheet
- MR3XX ZapFREE™ Encoder System User Guide
- MR3XX ATEX Declaration of Conformity Report
- MR310, MR312, MR314 and MR320 Mechanical Reference Drawings

MICRONOR\_DATA\_SHEET MR318 RevA2 110902

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