

# MR312

ZapFree™ FIBER OPTIC INCREMENTAL ROTARY ENCODER

**MICRONOR**

automation components

## Products

The MR312 ZapFree™ Rotary Encoder is an entirely passive, fiber optic incremental rotary encoder. There are no integral electronics within the encoder housing and the all-optical design requires just a single optical fiber connection – the utmost in simplicity, reliability and ease of installation. Downstream, the MR310 Remote Encoder Interface (REI) module converts the optical signals to both industry standard open collector or quadrature line driver outputs for ease of connection to any conventional counter, PLC or computer interface board. The MR312 encoder is available in a standard Size 58 (58mm OD) encoder package for ease of integration into existing systems; the MR310 REI is a DIN-rail mountable module using readily available 12-32 VDC/50mA power for operation. It doesn't get any simpler to design into your system.



## Features

- 100% passive sensing design
- Intrinsically safe and inert for use in hazardous and explosive atmospheres
- Insensitive to EMI and RFI for use in and around medical equipment and “noisy” industrial environments
- Immune to lightning and atmospheric static that would “zap” conventional encoders
- Outdistances copper with link lengths allowed to 1km
- 100 or 256 ppr models available
- Uses standard 62.5/125µm Multimode Fiber
- Standard model operates -40 °C to +80 °C; Extended option covers -60 °C to +150 °C
- Radiation hardened units are possible
- MR310 REI module outputs both standard A/B open collector and line driver quadrature signals
- MICRONOR supplies complete system and can support the entire installation

## Applications

- Aerial Tramways, Gondolas, Ski-Lifts – immune against lightning
- Petrochemical processing plants – inherently safe in hazardous and explosive atmospheres
- Medical imaging systems – immune to high magnetic fields
- Anti-Lock Break Systems (ABS) - rugged, passive design withstands high temperatures
- Long distance sensing and routing simpler with only one fiber to connect



# Specifications

## MR312 Encoder

Resolution	100, 256ppr
Max Speed	6000 rpm
Accuracy	360° 0.15 / Resolution
Temperature Range	-40°C to +80°C (Standard); 60°C to +150°C (Extended option)
Fiber Type	MM 62.5/125µm, Graded Index, 0.275NA
Fiber Range	Up to 1km

Shaft	Ø 6mm x 17mm L
Housing/Weight	Ø 58mm x 58mm (length); 210g (7.25oz)

## MR310 Remote Encoder Interface (REI)

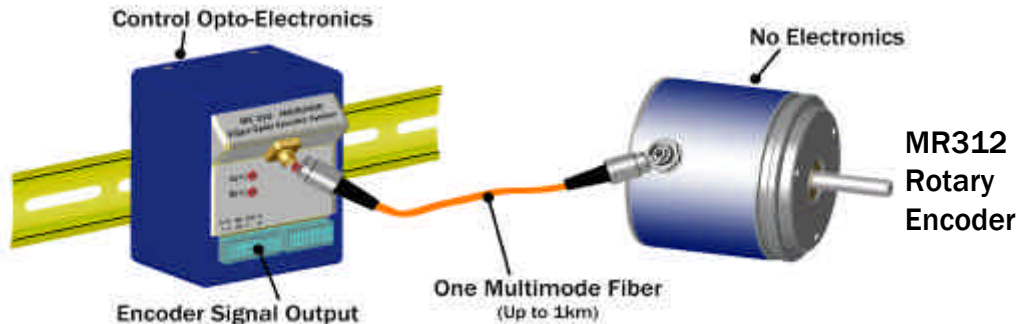
Power Supply	+12V to +32VDC / 50mA (maximum)
Quadrature Output Signals	A/B Open Collector and A/A'/B/B' Line Driver
Analog Output	4-20mA or 0-10V; speed or position (select one of each)
Serial Interface	RS422/RS485 or RS232 (select one)
Temperature Range	-5°C to +55°C

Mounting	35mm DIN rail
Housing/Weight	79mm W x 99mm H x 80mm D; 300g (10.5 oz)

MICRONOR provides full support for systems planning, cabling and installation. The MR312 encoder is installed similar to any other conventional encoder. Typically, the installation of a flexible coupling between the encoder and the shaft to be sensed is recommended. The fiber optic cable can be configured to almost any length and compatible with most any harsh environment. The MR310 REI module uses readily available 12V to 32V DC power at 50mA. The quadrature outputs, either open collector or line driver, can be connected to any counter, PLC, or other computer interface board. An analog output (4-20mA or 0-10V) option can represent either speed or position (option). A serial interface (RS422/RS485 or RS232 option) allows computer interrogation of the encoder status plus range control of the REI analog output.

# Installation

MR310 Remote Encoder Interface Module



# Ordering Info

MR312 - X X X Y Encoder

Pulses Per Revolution  
100  
256

Operating Range  
(Blank) Standard  
E Extended

MR310 - X Y REI Module

Serial Interface Option  
1 RS422/RS485  
2 RS232

Analog Output Option  
A Speed, 4-20mA  
B Speed, 0-10V

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