

# FIBER OPTIC INCREMENTAL ENCODER

## MR346 ZapFREE® Size 90mm Fiber Optic Incremental Encoder

The MR346 ZapFREE® Fiber Optic Incremental Sensor is purposely designed for the most challenging environments where electronics-based encoders and resolvers cannot perform. The all-optical, passive sensor provides immunity to EMI, RFI, lightning, high voltage and ground loops. The sensor's inherently safe design allows safe use in all manner of hazardous locations.



U.S. Patent 7,196,320  
Inherently Safe, Simple Mechanical Device  
EPL Mb/Gb/Gc/Db/Dc

Robust IP66 construction together with the optical and mechanical simplicity of the sensor's design offers exceptional reliability in the most physical demanding indoor and out door applications, including cable cars, electric trains, steel mills, bridges, oil rigs, and mines.

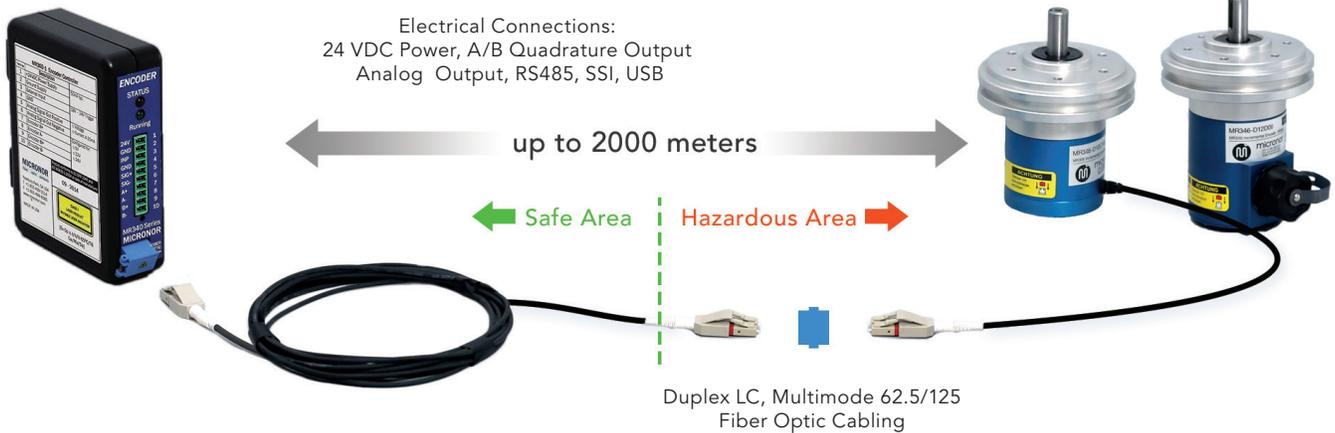
### MR340-1 Controller

Inherently Safe, Optical Radiation

### MR346 Sensor

Simple Mechanical Device

Electrical Connections:  
24 VDC Power, A/B Quadrature Output  
Analog Output, RS485, SSI, USB



## Features

- 100% passive, all-optical sensing design
- IP66 ingress protection - dust sealed and temporary submersion
- Sensor can be installed in all manner of hazardous locations and explosive atmospheres - gas, dust and mines
- Immune to EMI and RFI for safe use in and around medical equipment and "noisy" industrial environments
- Immune to lightning and high voltage that "zap" conventional electronics-based encoders
- Interference-free transmission up to 2000 meters
- Standard temperature range -40°C to +80°C
- Extended Temperature option: -60°C to +125°C
- Special versions can be engineered for radiation and thermal-vac environments
- DIN Rail Mount and OEM PCB controllers available



# Specifications

Measurement Parameters	
Resolution	256 and 360ppr (Consult Micronor for special requirements)
Max Speed	8,000 RPM continuous Note: De-rate maximum speed by 100 RPM per degree Celsius when operating above 60°C for maintaining shaft seal integrity..
Mechanical Parameters	
Moment of Inertia	2.5095E-6 kg*mm <sup>2</sup>
Starting Torque	3.0E-2 N*m
Max Shaft Loads	Radial = 140 N (31 lbf), Axial = 70 N (15 lbf)
System MTBF	L10 Bearing life calculated at 50% of max radial and axial load at 2500 RPM: 8.96E+05 hours (102.3 years)
Optical Interface	
Optical Interface	LC Duplex Pigtail or ODVA IP-LC Connector Receptacle 62.5/125µm Graded Index Fiber, 0.275NA, Type OM1
Link Length	Up to 2000m (6560 ft) with MR340 Controller
Explosive Atmospheres	Inherently Safe, Simple Mechanical Device
EX Classification	Inherently safe, simple mechanical device when used with MR340 Controller IECEX Test Report (ExTR) TBD
ATEX	EPL Mb/Gb/Gc/Db/Dc
IEC Ex	EPL Mb/Gb/Gc/Db/Dc
Environmental Attributes	
Temperature/Humidity	Standard: -40°C to +80°C, 0%-95% RH (non-condensing) Extended: -60°C to +125°C, 0%-95% RH (non-condensing)
Ingress Protection	IP66 (strong water jets and temporary immersion)
Physical Attributes	
Housing Dimension	Ø90 mm x 82.5 mm
Unit Weight	615 g (21.5 oz)
Materials	Body: Anodized Aluminum, Shaft and Bearings: Stainless Steel

Specifications subject to change without notice

## Ordering Info

**M R 3 4 6 - D 1 2 C 0 3**

**Resolution Options**

**C** 256ppr  
**D** 360ppr

**Shaft Size**

**12** 12mm OD

**Termination Option**

**C1R5** Duplex LC Pigtail, 1.5m  
**C03** Duplex LC Pigtail, 3m  
**D00** ODVA IP-LC receptacle

**Temperature Range**

**Blank** Standard  
**E** Extended (Not available with D00)

### Quick Ship Configurations:

**MR346-D12C03** Sensor, 360ppr, 12mm Shaft, Duplex LC Pigtail 3m  
**MR346-D12D00** Sensor, 360ppr, 12mm Shaft, ODVA IP-LC Connector Receptacle  
  
**MR340-0** OEM Controller  
**MR340-1** DIN Rail Mount Controller

MICRONOR INC, 900 Calle Plano, Suite K,  
Camarillo, CA 93012 USA  
T +1 805 389 6600 F +1 805 389 6605  
sales@micronor.com www.micronor.com

MICRONOR AG, Pumpwerkstrasse 32,  
CH-8105 Regensdorf, Switzerland  
T: +41 44 843 4020 F: +41 44 843 4039  
sales@micronor.ch www.micronor.com