Fiber Optic Incremental Encoder

MR 344 Hollow Shaft Incremental Encoder

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Features

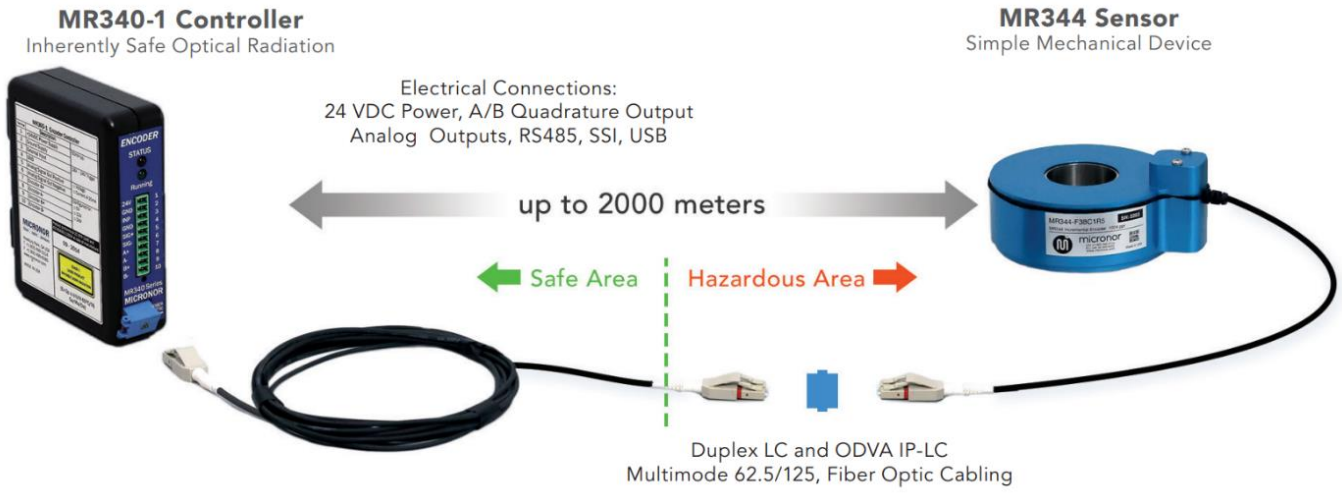
- 100% passive sensing design - no electronics
- Sensor can be installed in all manner of hazardous and potentially explosive atmospheres - mines, gas and dust
- Immune to EMI and RFI for safe use in and around medical equipment and “noisy” industrial environments
- Immune to high voltages
- Link lengths to 2000 meters

Product Description

The MR344 Heavy Duty Hollow Shaft Fiber Optic Incremental Sensor is an entirely passive, intrinsically safe, fiber optic incremental rotary encoder – ideal for a wide range of harsh and hazardous environmental applications. The passive, all-optical Sensor connects to the remote Controller via a standard duplex 62.5/125 multimode optical fiber link. ZapFREE® software is used for data acquisition.

The remote MR340 Controller Module transmits and converts optical signals to/from the Sensor. The Controller’s multiple built-in interfaces insure compatibility with industry standard motor drives, PLCs, quadrature counters and motion control systems.

System Planning



1. Verify cabling and junction boxes compatible with the operating environment.
2. Verify that the optical link loss is within Controller’s Maximum Loss Budget.
3. Consult Application Note AN118 for more information, examples, and guidance on loss budget.

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Specifications

Measurement Parameters	
Resolution	1024ppr
Max Speed	3,000 RPM continuous (MR340 Quadrature Outputs and Analog Outputs activated ONLY)[1,2] 3,600 RPM short term (< 1 minute)[2]
Mechanical Parameters	
Moment of Inertia	2.06E-4 kg*m² (Pocket Hole version), 2.09E-4 kg*m² (Through Hole version)
Starting Torque	3.53E-3 N*m (Pocket Hole Version)
System MTBF	L10 Bearing life calculated at 2500 RPM: 2.12E+07 hours (2411 years)
Optical Interface	
Optical Interface	LC Duplex, 62.5/125µm Graded Index Fiber, 0.275NA, Type OM1
Link Length	Up to 2000 meters (6560 ft) with MR340 Controller
Environmental Attributes	
Temperature/Humidity	Standard: -40°C to +80°C, 0%-95% RH (non-condensing)
	Extended: -60°C to +125C, 0%-95% RH (non-condensing)
Ingress Protection	Through Hole Version=IP54 (dust protected, protected against splashing water)
	Pocket Hole Version=IP66 (dust proof, protected against powerful water jets)
Physical Attributes	
Housing Dimension	Ø100mm x 49mm
Unit Weight	655 g (23 oz)
Materials	Body: Anodized Aluminum; Shaft Clamp and Bearings: Stainless Steel

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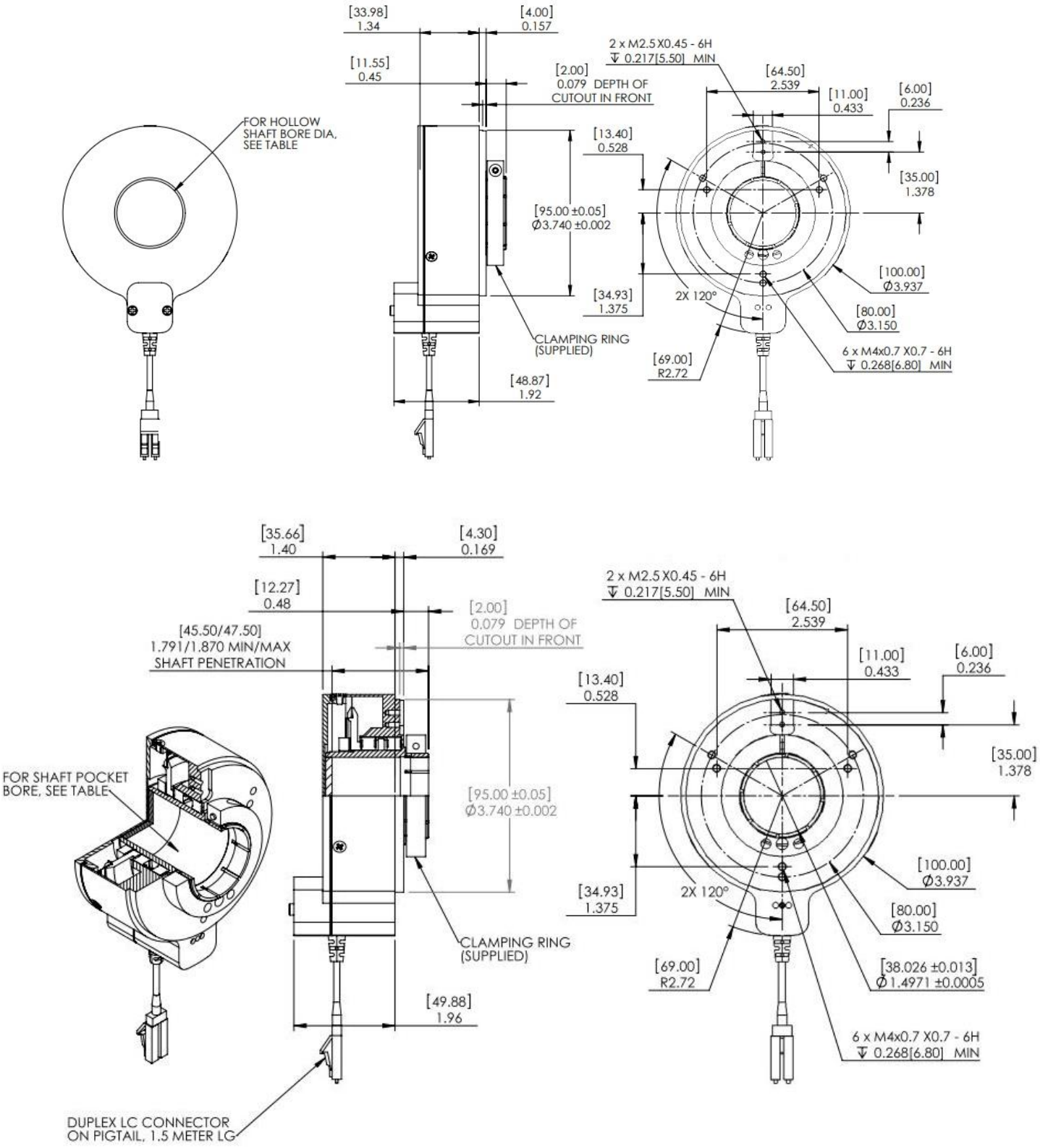
Drawing Inch [mm]



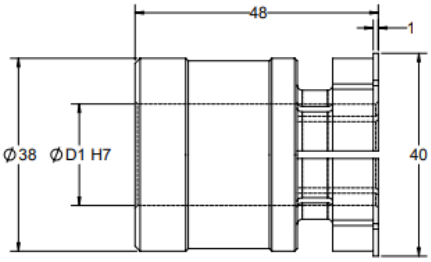
Subject to errors and changes Date: 21.04.2023

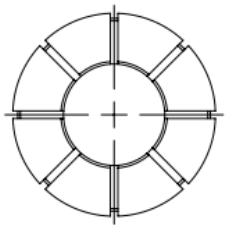
Accessories

MR314A Long Tether Arm Kit

Parameter	Description
Application	For applications with fastening points located on variable pitch circle diameters Prevents radial play of the encoder Necessary axial play remains intact In addition to the electrical isolation offered by the fiber optic encoder, the insulating washers further inhibit bearing currents which, without insulation, can shorten the service life of encoder bearings
Materials	Mounting bracket: Stainless Steel, Screws: Galvanized Steel, Shoulder washers: Plastic
Contents	Flexing spring device (tether arm), Qty 1 Screws, Qty 3 Insulating shoulder washer set, Qty 2

Shaft adapters





Parameter	Description
Application	Adapt smaller bores to MR344 38mm bore Provides thermally isolation as the plastic does not transfer the heat to the encoder. Temperature range -40°C to +115°C
Materials	Plastic
Contents	One shaft adapter as ordered

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Order Code

9700.01.040	MR344-F-38-C1R5	1.5m Duplex LC pigtail
9700.01.041	MR344-F-38-C03	3m Duplex LC pigtail
9700.01.042	MR344-F-38P-C1R5	1.5m Duplex LC pigtail
9700.01.043	MR344-F-38P-C03	3m Duplex LC pigtail
9700.01.044	MR344-F-38-C1R5-E	1.5m Duplex LC pigtail, extended Temperature
9700.01.045	MR344-F-38-C03-E	3m Duplex LC pigtail, extended Temperature
9700.01.046	MR344-F-38P-C1R5-E	1.5m Duplex LC pigtail, extended Temperature
9700.01.047	MR344-F-38P-C05-E	5m Duplex LC pigtail, extended Temperature
9700.01.048	MR344-F-38P-C03-E	3m Duplex LC pigtail, extended Temperature
9700.01.049	MR344-F-38-C05	5m Duplex LC pigtail
9700.01.051	MR344-F-38P-C05	5m Duplex LC pigtail
9700.01.052	MR344-F-38-C05-E	5m Duplex LC pigtail, extended Temperature

Accessories

9600.06.003	MR314A, Long Tether Mounting Kit for hollow shaft encoders
9700.01.140	MR344-99-01 - shaft adapter 8mm
9700.01.141	MR344-99-02 - shaft adapter 10mm
9700.01.142	MR344-99-03 - shaft adapter 12mm
9700.01.143	MR344-99-04 - shaft adapter 14mm
9700.01.144	MR344-99-05 - shaft adapter 15mm
9700.01.145	MR344-99-06 - shaft adapter 16mm
9700.01.146	MR344-99-07 - shaft adapter 18mm
9700.01.147	MR344-99-08 - shaft adapter 20mm
9700.01.148	MR344-99-09 - shaft adapter 25mm
9700.01.149	MR344-99-10 - shaft adapter 30mm
9700.01.150	MR344-99-11 - shaft adapter 32mm
9700.01.151	MR344-99-12 - shaft adapter 1/2"
9700.01.152	MR344-99-13 - shaft adapter 5/8"
9700.01.153	MR344-99-14 - shaft adapter 3/4"
9700.01.154	MR344-99-15 - shaft adapter 1"
9700.01.155	MR344-99-16 - shaft adapter 1 1/4"

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Related Products

MR340-1	Controller for Fiber Optic Incremental Encoder Series MR340
MR342	Rotary Encoder Ø58mm
MR343	Linear Encoder
MR346	Heavy Duty Rotary Encoder
MR348	MRI Safe Rotary Encoder Ø58mm Metalfree
972XX.XX.XXX	Fiberoptic Extension Cable
974XX.XX.XXX	Fiberoptic Extension Cable

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