micronor

NOT RECOMMENDED FOR NEW APPLICATIONS
Refer to MR340 Series and MR344 Encoder

FIBER OPTIC INCREMENTAL ENCODER

MR324 ZapFREE® Hollow Shaft Fiber Optic Incremental Encoder

Questions?
Call 805.389.6600

MR320 SERIES

The MR324 ZapFREE® 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.

The remote MR320 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.

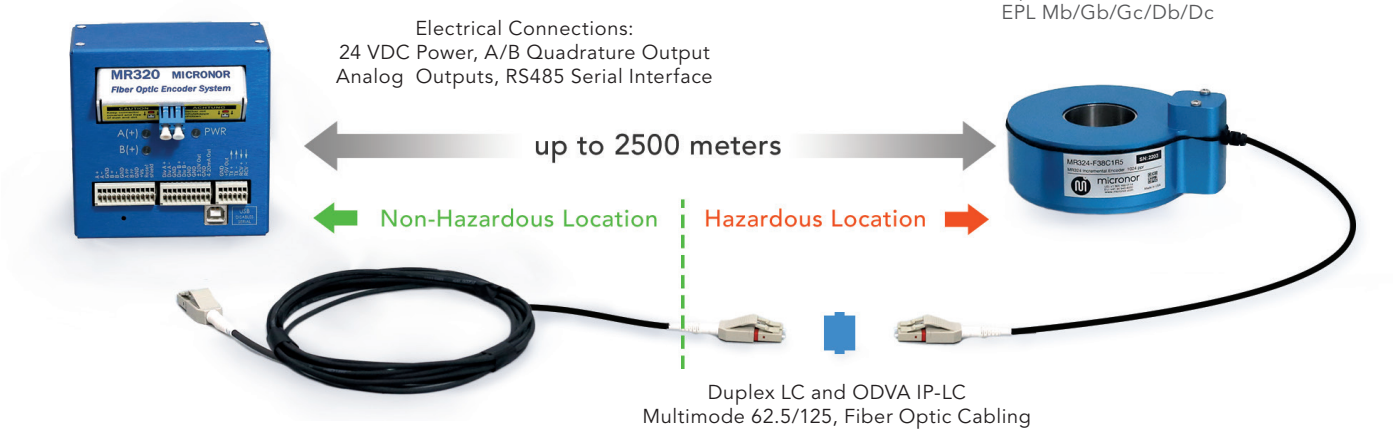
ZAP FREE®

Ex

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

MR320 Controller
Inherently Safe Optical Radiation

MR324 Sensor
Simple Mechanical Device
EPL Mb/Gb/Gc/Db/Dc

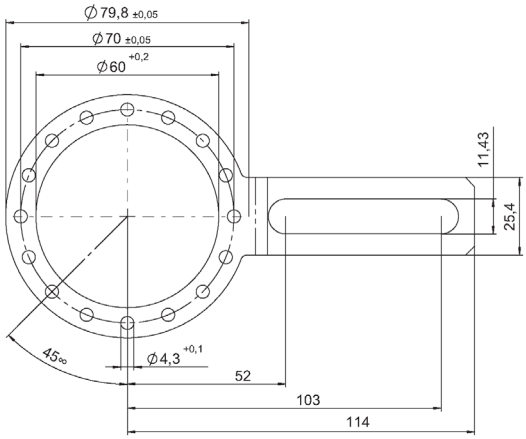


Features

- 100% passive sensing design - no electronics whatsoever
- 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, VFD drives and other "noisy" industrial environments
- Immune to lightning and high voltage which "zaps" electronics-based encoders
- Outdistances copper, link lengths to 2500m
- 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

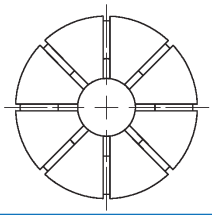
VFD Drive System

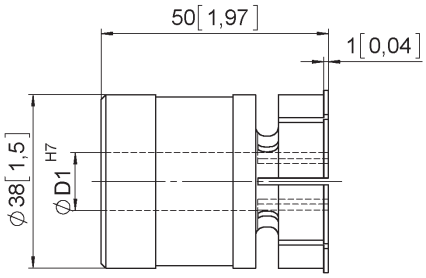
MR314A Long Tether Arm



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 (Qty 1), Screws (Qty 3), Insulating shoulder washer set (Qty 2)
Ordering Code	MR314A

Shaft Adapters





Parameter	Description	
Application	• Adapt smaller bores to MR324 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	
Ordering Codes	**Sizes**	**Part Numbers**
	12mm (0.47”)	8.0010.4091.0000
	14mm (0.55”)	8.0010.4027.0000
	15mm (0.59”)	8.0010.4038.0000
	16mm (0.63”)	8.0010.4019.0000
	18mm (0.71”)	8.0010.4080.0000
	20mm (0.79”)	8.0010.4011.0000
	25mm (0.98”)	8.0010.4012.0000
	30mm (1.18”)	8.0010.4016.0000
	32mm (1.26”)	8.0010.4015.0000
	1/2”	8.0010.4013.0000
	5/8”	8.0010.4070.0000
	3/4”	8.0010.4090.0000
	1”	8.0010.4050.0000
	1 1/4”	8.0010.4060.0000

Specifications

Measurement Parameters	
Resolution	1024ppr
Max Speed	2,500 RPM continuous (All MR320 functions activated) 3,000 RPM continuous (MR320 Quadrature Outputs and Analog Outputs activated ONLY)(1,2) 3,300 RPM short term (< 1 minute, MR320 Quadrature Outputs ONLY)(2) Notes: (1) At 3,000 RPM, MR324 housing temperature rises by 25°C above ambient due to bearing friction. Environmental temperature must be reduced accordingly. (2) MR320 Auxiliary modes are processor-dependent functions,; e.g. Divider, Multiplier, Position Counter, and Analog Outputs. Unused Auxiliary functions should be turned OFF. Contact Micronor for more information about speed versus operational trade-offs.
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 2500 meters with MR320 Controller
Explosive Atmospheres	**Inherently Safe, Simple Mechanical Device**
EX Classification	Inherently safe, simple mechanical device when used with MR320 Controller IECEx Test Report (ExTR) GB/CML/ExTR 16.0039/00
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	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	Ø 100mm x 49mm
Unit Weight	655 g (23 oz)
Materials	Body: Anodized Aluminum; Shaft Clamp and Bearings: Stainless Steel

Specifications subject to change without notice

Ordering Info

M R 3 2 4 - | F | 3 8 P | C 1 R 5 | |

Resolution Options
F 1024ppr

Hollow Shaft Bore Size
38 38mm ID, Through Hole, IP54
38P 38mm ID, Pocket Hole, IP66

Temperature Range
Blank Standard, -40°C to +80°C
E Extended, -60°C to +125°C

Termination Option
C1R5 1.5m Duplex LC Pigtail
C03 3m Duplex LC Pigtail

Quick Ship Configurations:
MR324-F38C1R5 Sensor, 1024ppr, Duplex LC Pigtail 1.5m
MR320 Controller
MR314A Tether Arm Kit

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