

FIBER OPTIC ABSOLUTE ENCODER

MR332 ZapFREE® Fiber Optic Absolute Position Sensor

The MR332 Series ZapFREE® Fiber Optic Absolute Position Sensor measures absolute angular position from 0° to 360° with 0.025° resolution.



This innovative sensor system outdistances conventional absolute encoders and resolvers – transmitting interference-free up to 300 meters! The system consists of a passive optical sensor and active controller linked via industry standard 62.5/125µm multimode fiber. Interconnect options include commercial Duplex LC or industrial grade ODVA IP-LC Duplex.



U.S. Patent 8,461,514 B1
Inherently Safe, Simple Mechanical Device
EPL Mb/Gb/Gc/Db/Dc

MR330 Controller



24 VDC, SSI, RS485, Modbus,
USB, Analog, Digital

← up to 300 meters →

← Non-Hazardous Location → Hazardous Location →



Duplex LC, Multimode 62.5/125
Fiber Optic Cabling

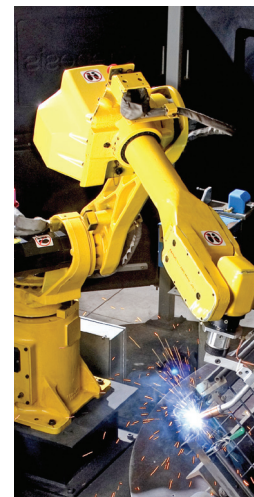
MR332
With Duplex
LC Pigtail

MR332
With ODVA IP-LC
Interface



Features

- 100% passive sensing design - no electronics whatsoever
- Absolute 0.025° (14-bit) single-turn resolution
- Controller can also track up to 4096 (12-bit) turns
- EX Classified "Inherently Safe, Simple Mechanical Device", i.e. sensor can be installed in all manner of hazardous location or explosive atmospheres: mines, gas or dust
- Immune to EMI and RFI for safe use in and around medical equipment and "noisy" industrial environments
- Immune to lightning and high voltages
- Outdistances copper, link lengths to 300 meters
- Standard model operates over -40°C to +80 °C
- Special versions can be engineered for radiation and thermal-vac environments



Sensor Specifications

Measurement Parameters	
Measurement Range	0° to 360° (continuous)
Resolution	13 bits (8192), 14 bits (13950)
Maximum RPM	Maximum 2,500 rpm for position reading; Mechanical limit is 6,500 rpm
Mechanical Performance	
Moment of Inertia	2.88E-06 kg*m ² (4.08E-04 oz*in*s ²)
Starting Torque	< 0.02 N*m with Shaft Seal
Max Shaft Loads	Axial 40 N (9 lbf), Radial 80 N (18 lbf)
System MTBF (ISO Method)	L10 bearing life at 100% of max radial/axial load at 2500 rpm: 4.650E+04 hours L10 bearing life at 10% of max radial/axial load at 2500 rpm: 1.988E+06 hours
Optical Interface	
Optical Interface	LC Duplex, 62.5/125µm Graded Index Fiber, 0.275NA, Type OM1
Link Length	Up to 300 meters with MR330 Controller
Explosive Atmospheres	
Inherently Safe, Simple Mechanical Device	
Ex Classification	Inherently safe, simple mechanical device when used with MR330 Controller IECEX Test Report (IECEXTR) GB/CML/ExTR 16.0070/00
ATEX	EPL Mb/Gb/Gc/Db/Dc
IEC Ex	EPL Mb/Gb/Gc/Db/Dc
NEC	Exempt
Environmental Performance	
Temperature/Humidity	Operating: -40° C to +80° C, Storage: -40° C to +80° C; 0%-95% RH (non-condensing)
Ingress Protection	Shaft Seal Option Y With D00 Industrial LC Connector Option = IP66/IP67 Shaft Seal Option Y With CXX Duplex LC Pigtail Option = IP65 Shaft Seal Option N = IP40
Physical Attributes	
Housing Dimension	Ø 58mm x 80mm L (industry standard 58mm servo mount housing)
Unit Weight	500g (18 oz)
Materials	Body: Anodized Aluminum; Shaft and Bearings: Stainless Steel

Specifications subject to change without notice

Ordering Info

MR332 - Y 10 C03

Sensor Seal Options

Y Seal

N Shield only

Note: Shaft seal recommended for most applications. Most common exception is where a very low starting torque is required.

Shaft Siz

06 6 mm

95 3/8" or 0.375" (9.52 mm)

10 10 mm)

Quick Ship Configurations

MR332-Y10C03 Ø10mm shaft with seal, Duplex LC optical pigtail=3m

MR332-Y10D00 Ø10mm shaft with seal, ODVA IP-LC connector receptacle

MR330-1 Controller

Temperature Range

Blank Standard Range, -40°C to +80°C

Termination Option

C1R5 Duplex LC pigtail with 1.5m length

C03 Duplex LC pigtail with 3m length

C05 Duplex LC pigtail with 5m length

D00 ODVA IP-LC connector receptacle

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