Fiber Optic Rotary Joint

Model 310

Focal Technologies Corporation, a Moog Inc. company, has over 30 years of expertise in supplying standard and custom marine products for harsh environment applications and is a leading manufacturer of high performance and high quality fiber optic rotary joints. Contact Focal for any assistance in selecting the best solution for your requirements.

The FO310 is a sealed single-channel fiber optic rotary joint (FORJ) which is factory configured to transfer optical signals over either singlemode or multimode fiber. The FO310 supports both analog and digital optical signals, and is especially suited for sensitive single-pass optical sensing applications where optical insertion loss and back reflection must be minimized.

The FO310 FORJ has a stainless steel housing and is environmentally sealed to an ingress protection rating of IP67. It can be combined with Moog electrical and / or fluid slip rings, providing a single, complete package for optical signals, electrical power, and fluid transfer over a rotating interface.

This FORJ is assembled with either bulkhead connectors or fiber pigtails and connectors to suit the application. Housing, mounting flange, and drive features can be customized to meet specific customer requirements.

Features

- Passive bidirectional optical transmission
- Low optical insertion loss for common sensor wavelengths
- High return loss (i.e. low back reflection) available
- Provides rotary coupling for either a singlemode or multimode fiber link with the same footprint
- Can be combined with Moog electrical slip rings and fluid unions
- Can be integrated into existing slip ring designs
- Rugged design with IP 67 rating, MIL-STD-167-1 Ships vibration and MIL-STD-810 functional shock (40g)
- Bulkhead connector and Pigtailed versions available

Benefits

- Low back reflection and insertion losses allow for FORJ integration with very sensitive optical sensor measurement systems
- Environmentally sealed design allows for long-life in rugged installations and reduces maintenance costs
- Supports either singlemode or multimode fiber, allowing future upgrade without modifying the surrounding mechanical infrastructure

Applications

- Winches and cable reels for optical sensor systems
  - Distributed Temperature Sensing (DTS)
  - Temperature Point Sensor Arrays (TPSA) using Fiber Bragg Gratings (FBG)
- Distributed Acoustic Sensing (DAS)
- Pitch control data and / or fiber-optic blade sensing for wind turbines
- Sensor systems for helicopter rotor blades
- Optical Coherence Tomography (OCT)

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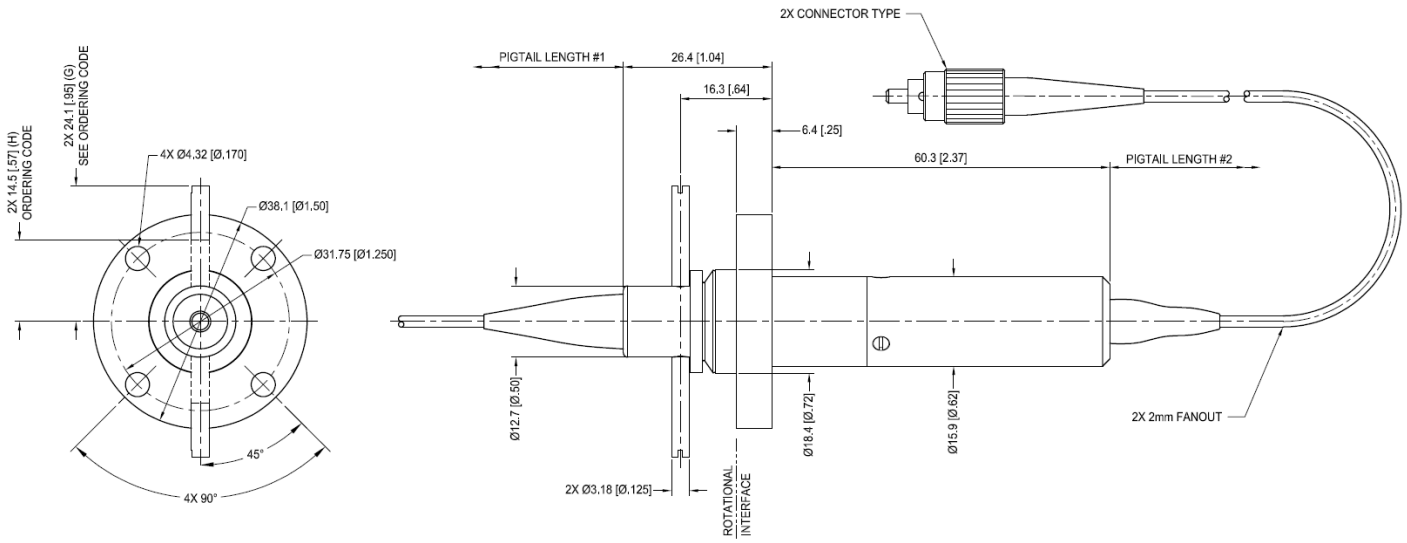
Specifications

FO310 Specifications		
	Singlemode	**Multimode**
Fiber Size (Microns)	9 / 125 Singlemode	50 / 125 or 62.5 / 125 Multimode
Insertion Loss	Typical < 1.0 dB, Maximum < 1.5 dB	Typical < 1.0 dB, Maximum <1.5 dB
Rotation Variation	Typical < 0.5 dB, Maximum < 1.0 dB	Typical < 0.5 dB, Maximum < 1.0 dB
Back Reflection	Minimum 55 dB	Minimum 30 dB (Typical 32 dB)
Wavelengths	Suitable for operation over full CWDM band (18 wavelengths from 1271nm to 1611nm in 20nm increments), tested at 1310nm and/or 1550nm. Consult factory for other wavelengths such as 900-1100nm band (tested at 1060nm)	Suitable for operation in 850nm and 1300nm multimode bands or 1300nm and 1550nm multimode bands. Consult factory for other wavelengths such as 900-1100nm band (tested at 1060nm)
Rotational Speeds	To 100 rpm. For other requirements contact factory	
Temperature	-40°C to +85°C	
Exterior Surfaces	Stainless Steel	
Ingress Protection	IP67	
Vibration	Per MIL-STD-167-1A	
Shock	40 g / 11 ms sawtooth per MIL-STD-810 Method 516	
Terminations	Bulkhead or Pigtailed with ST, FC / PC, or FC / APC connectors to meet customer requirements. FC / APC required to achieve extended back reflection specifications	
Pigtail Length	Up to 3 meters standard. Consult factory for longer lengths	



All specifications and information are subject to change without notice. Please contact Focal for the latest updates.

Dimensions in inches [mm]