

Multichannel Fiber Optic Rotary Joint (FORJ)

Model 300

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 to your requirement.



The FO300 is a prism based multichannel fiber-optic rotary joint (FORJ). It is a passive and bidirectional device which can be used as a standalone device or easily integrated into a rotary assembly, enabling transfer of high data rate optical signals across a rotating interface.

The FO300 has three versions optimized to fit customer requirements in cost effective & compact package sizes:

- Version A to support up to 17 channels
- Version B to 31 channels
- Version C to 52 channels.

Features & Benefits

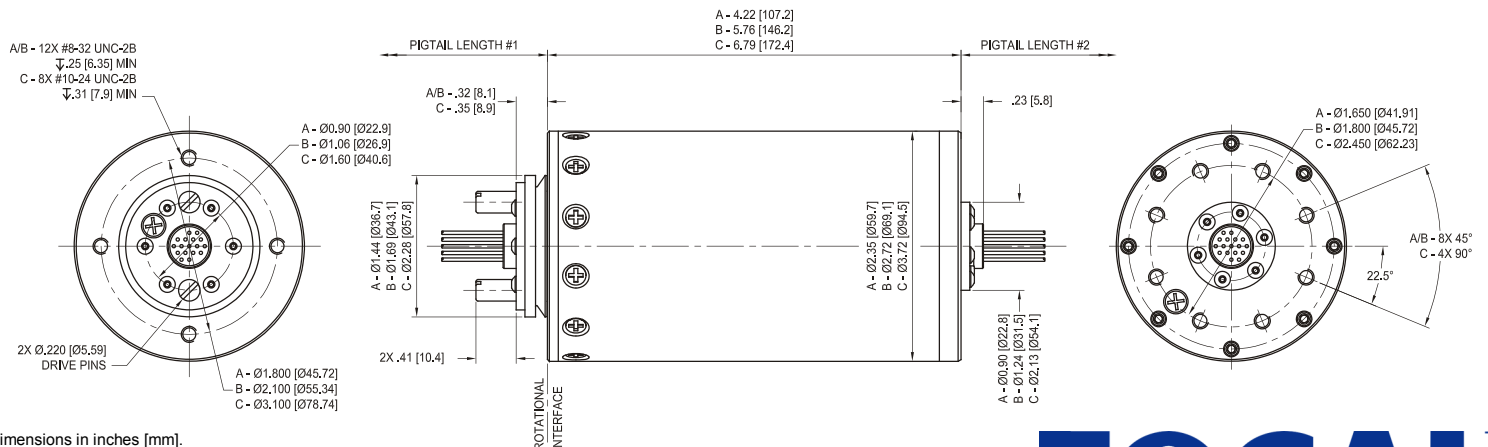
- Compact package sizes optimized to reduce size and weight
- Stainless steel construction and ruggedized field-proven design
- Multimode and singlemode channels can be combined in one unit
- Long-life high channel-count device

Applications

- Turrets and rotating pedestals
- Ground, air and naval radar
- High-bandwidth cable reels
- Floating Production System (FPS) turrets
- Remotely Operated Vehicles (ROV) and other marine equipment winches

Options

- Fluid-filled 10,000 PSI pressure compensated versions for subsea use
- Integrated with fluid rotary unions, electrical slip rings, and/or IP-rated housings
- Fiber pigtailed ordered to custom specifications including connectors or integrated junction boxes
- Standard and military grade connector options
- High performance insertion loss, rotational variation and return loss
- Extended temperature range and environmental qualification
- Various mounting and drive-coupling options



Specifications

MM = 50/125 μm (OM2) or 62.5/125 μm (OM1), OM3/OM4 optional SM = 9/125 μm (SMF-28 equivalent)		Version A Up to 17 Channels		Version B Up to 31 Channels		Version C Up to 52 Channels
		MM	SM	MM	SM	SM
Standard Connectors		LC, ST, FC; PC, UPC, or APC polish; consult factory for others				
Approximate Mass (at maximum channel count)		1.8 kg		3.5 kg		7.4 kg
Key Dimensions (see DWG)	Length DIM '2' inches[mm]	4.22 [107.2]		5.76 [146.2]		6.79 [172.5]
	Diameter DIM '1' inches[mm]	\varnothing 2.35 [59.7]		\varnothing 2.72 [69.1]		\varnothing 3.72 [94.5]
OPTICAL PERFORMANCE						
Multimode 62.5/125 μm (OM1) or 50/125 μm (OM2, OM3/OM4 optional)						
Wavelength Range		850/1300nm				
Maximum Insertion Loss over Full Rotation (Includes Rotational Variation)	Optimized and Tested at 850nm And/Or 1310nm	≤ 4.0 dB		≤ 5.0 dB		N/A
Insertion Loss Variation over Rotation		≤ 1.5 dB		≤ 1.5 dB		
Singlemode 9/125 μm SMF-28 equivalent						
Wavelength Range		1270-1625nm				
Maximum Insertion Loss over Full Rotation (Includes Rotational Variation)	Optimized and Tested at 1310nm Or 1550nm	≤ 4.0 dB		≤ 4.5 dB		≤ 5.0 dB
	Optimized and Tested at 1310nm And 1550nm	≤ 4.0 dB		≤ 4.5 dB		≤ 5.0 dB
Insertion Loss Variation over Rotation	Optimized and Tested at 1310nm Or 1550nm	≤ 1.5 dB		≤ 1.5 dB		≤ 2.0 dB
	Optimized and Tested at 1310nm And 1550nm	≤ 2.5 dB		≤ 2.5 dB		≤ 3.0 dB
Crosstalk		> 50 dB				
Maximum Power		+23 dBm				
Return Loss		≥ 18 dB standard, consult factory for extended				
MECHANICAL						
Rotational Speed		100 rpm standard, consult factory for extended				
Service Life		> 100 Million revolutions				
Fiber Jacket and Bend Radius		900 μm (20 mm bend radius) or 2 mm (25 mm bend radius) standard				
Pigtail Length		Up to 3 meters standard. Consult factory for longer lengths				
ENVIRONMENTAL						
Operating Temperature		-40 $^{\circ}\text{C}$ to +60 $^{\circ}\text{C}$ standard, consult factory for extended				
Shock		40 g / 11 ms sawtooth per MIL-STD-810 Method 516				
Vibration		Per MIL-STD-167-1A, and 7.7 g_{rms} , 20 to 2000 Hz per MIL-STD-810 Method 514 E-1				
IP Rating		Up to IP65 and subsea versions available				