

# 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 32 channels
- *Version C* to 52 channels.

## Features & Benefits

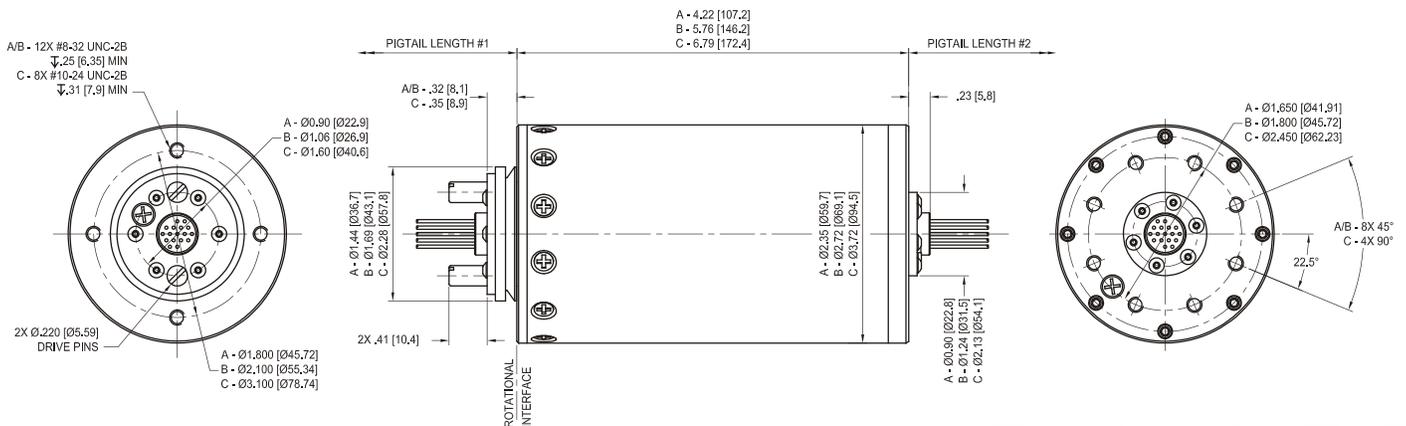
- Compact package sizes optimized to reduce size and weight
- Stainless steel construction and ruggedized field-proven design
- Multimode and singlemode channels can be combined in one unit
- Long-life high channel-count device

## 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



Dimensions in inches [mm].

# Specifications

<b>MM = 50/125 <math>\mu</math>m (OM2) or 62.5/125 <math>\mu</math>m (OM1), OM3/OM4 optional</b> <b>SM = 9/125 <math>\mu</math>m (SMF-28 equivalent)</b>		<b>Version A</b>		<b>Version B</b>		<b>Version C</b>
		<b>Up to 17 Channels</b>		<b>Up to 32 Channels</b>		<b>Up to 52 Channels</b>
		<b>MM</b>	<b>SM</b>	<b>MM</b>	<b>SM</b>	<b>SM</b>
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]
<b><u>OPTICAL PERFORMANCE</u></b>						
<b>Multimode 62.5/125 <math>\mu</math>m (OM1) or 50/125 <math>\mu</math>m (OM2, OM3/OM4 optional)</b>						
Wavelength Range		850/1300nm				
Maximum Insertion Loss over Full Rotation (Includes Rotational Variation)	Optimized and Tested at 850nm <b>And/Or</b> 1310nm	$\leq$ 4.0 dB		$\leq$ 5.0 dB		N/A
Insertion Loss Variation over Rotation		$\leq$ 1.5 dB		$\leq$ 1.5 dB		
<b>Singlemode 9/125 <math>\mu</math>m SMF-28 equivalent</b>						
Wavelength Range		1270-1625nm				
Maximum Insertion Loss over Full Rotation (Includes Rotational Variation)	Optimized and Tested at 1310nm <b>Or</b> 1550nm	$\leq$ 4.0 dB		$\leq$ 4.5 dB		$\leq$ 5.0 dB
	Optimized and Tested at 1310nm <b>And</b> 1550nm	$\leq$ 4.0 dB		$\leq$ 4.5 dB		$\leq$ 5.0 dB
Insertion Loss Variation over Rotation	Optimized and Tested at 1310nm <b>Or</b> 1550nm	$\leq$ 1.5 dB		$\leq$ 1.5 dB		$\leq$ 2.0 dB
	Optimized and Tested at 1310nm <b>And</b> 1550nm	$\leq$ 2.5 dB		$\leq$ 2.5 dB		$\leq$ 3.0 dB
Crosstalk		$>$ 50 dB				
Maximum Power		+23 dBm				
Return Loss		$\geq$ 18 dB standard, consult factory for extended				
<b><u>MECHANICAL</u></b>						
Rotational Speed		100 rpm standard, consult factory for extended				
Service Life		$>$ 100 Million revolutions				
Fiber Jacket and Bend Radius		900 $\mu$ m (20 mm bend radius) or 2 mm (25 mm bend radius) standard				
Pigtail Length		Up to 3 meters standard. Consult factory for longer lengths				
<b><u>ENVIRONMENTAL</u></b>						
Operating Temperature		-40 $^{\circ}$ C to +60 $^{\circ}$ 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				