2.85” Diameter Electrical Slip Ring with Fiber Optic Rotary Joint

Model 180 with FORJ

Focal Technologies Corporation, a Moog Inc. company, has over 30 years of expertise in supplying standard and custom marine products for harsh environments and is a leading manufacturer of high performance and high quality electrical slip rings. Contact Focal for assistance in selecting the best solution for your requirement.

Focal electrical optical swivels have served the marine industry for over 20 years.

The ESR portion is comprised of electrical power and signal passes. Ideal for small systems, it is a compact, rugged unit designed for harsh operating conditions. For the hazardous area environment, there is an option for a fully certified, flameproof enclosure. When underwater operational capability is required, it can also be configured for use as a fluid-filled, pressure compensated unit.

The fiber joint portion can be configured with many of Moog’s single channel or multi-channel singlemode or multimode catalog fiber joints. Our FORJs are capable of working with all fiber types, sizes and wavelengths and meet insertion loss performance typical of customer requirements. In addition to FORJs operating at standard wavelengths for data communication, FORJ versions have been developed to work with optical sensors with enhanced optical loss and return loss over a broader range of wavelengths. Moog has been the leading supplier of FORJ products to the marine industry for over 20 years with many thousands of products delivered to the oil and gas markets. For the oilfield market, products are designed to be robust and weatherproof with all models being shock and vibration tested and options for operating fluid-filled and pressure compensated.

Features

- Electrical passes rated to 1000 V / 7 A
- Hazardous area certification available
- Pigtail exits are capable of being sealed to IP66 standards
- Can accommodate a variety of wire and cable types
- Rugged design intended for harsh environments
- Reliable operation under shock and vibration
- Combined with Fluid Rotary Unions (FRU), see Model 200

Benefits

- Compliance with the highest quality standards for design, manufacture and test
- Maintenance free operation
- More than 20 years of proven field performance
- Integration with FORJ and FRU to provide a complete rotating interface solution

Applications

- Remotely Operated Vehicles (ROVs)
- Winch and TMS applications
- Industrial machinery
- Seismic surveying

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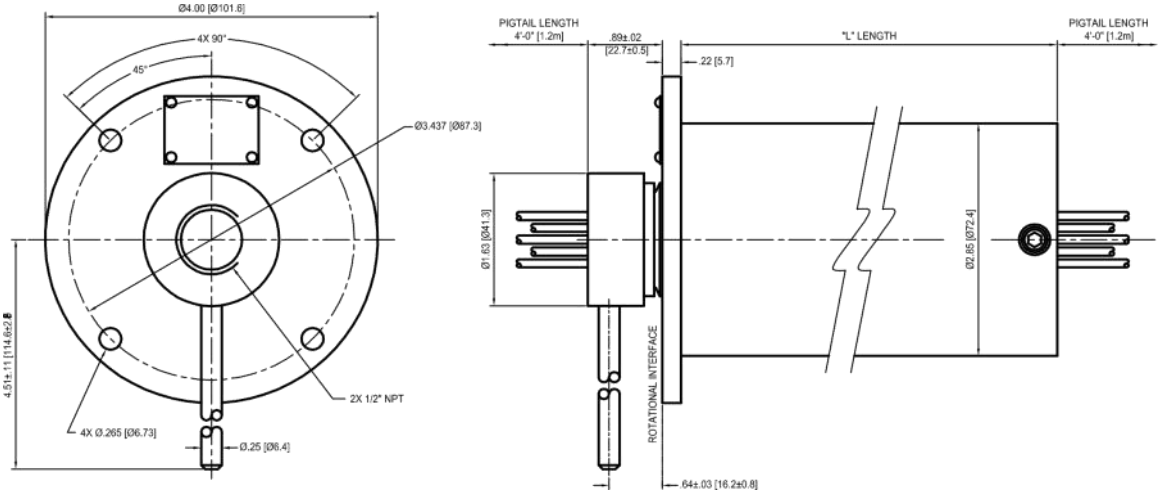
Specifications

Electrical	
Voltage	Maximum 1000 VAC
Current	Maximum 7 A per pass Maximum 100 A total current
Electrical Performance	
Contact Resistance	20 mΩ nominal
Insulation Resistance	Minimum 500 MΩ @ 1 kVDC
Signal Types	Analog Video, CanBus, Profibus, Device Net, 10 Base-T Ethernet, SHDSL, RS-485, 1000 Base-T Ethernet
Mechanical	
Rotation Speed	Maximum 100 rpm
Ingress Protection	Sealed to IP66, except for pigtail exits
Operating Temperature	-20°C to +55°C [1]
Housing	Stainless steel (304)
Insertion Length "L" (see drawing below)	Varies with number of electrical passes
Environment Test	
Temperature	Tested to MIL-STD-810F Methods 501.4 and 502.4
Vibration	Tested to MIL-STD-167-1
Shock	Tested to MIL-STD-810D, method 516.3
Humidity	Tested to MIL-STD-810F, method 507.4

[1] -20°C to +40°C for a hazardous area certified Model 180-X under Canadian jurisdiction

Hazardous Area Option: Model 180-X		
Certifications	US:	Class I, Division 1, Group C & D, T5 Class I, Zone 1, AEx d IIB T5 ETL ATM 4007859
	CAN:	Class I, Division 1, Group C & D, T5 Class I, Zone 1, Ex d IIB T5 ETL ATM 4007859
	ATEX:	CE 0334 II 2 G Ex db IIB T5 Gb KEMA 04ATEX2084X
	IECEx:	Ex db IIb T5 Gb ETL 13.0013X
Terminations		
Standard		Wire pigtails, 4 ft [1.2 m], exiting via 1/2" or 3/4" NPT female ports
Special		Supply and installation of connectors, terminals, conduit, cable, glands, junction boxes, sealed pigtail exits
Additional Options		
Optics		Fiber Optic Rotary Joint (FORJ) or optical converter
Design Classification		ABS, DNV, BV, LRS
Submersed Applications		Fluid fill fittings or fluid filled/ pressure compensated at factory
Other Devices		RF Rotary Joint, shaft encoder, sensors, Fluid Rotary Union, customer supplied product
Ingress Protection		IP 67 or IP 68
Housing Material		316 stainless steel



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

Dimensions in inches [mm].

Specifications

Model Number Reference	Optical Channels	Fiber Type	Insertion Loss (dB)	FORJ Selection Notes. See individual datasheets for more details
FO197	1	MMF	≤ 2.5	Industry standard MMF FORJ for marine winch applications
FO206	1	SMF	≤ 3.5	Industry standard SMF FORJ for marine winch applications
FO292	2	MMF/SMF	≤ 6.0	2 channels MMF **or** 1 ch MMF/1 ch SMF
FO291	2-9 Note 5	SMF	≤ 6.0	Industry standard multichannel SMF FORJ for marine winch applications. Can be supplied with 1 channel as MMF.
FO300A	2-17 Note 5	MMF/SMF	≤ 4.0	Provides a mix of multiple MMF/SMF channels

Notes:

1 SMF = Singlemode fiber | MMF = Multimode fiber.

2 Pigtail lengths as defined by customer.

3 Standard connector options include ST, FC, SC, LC. Contact factory for others.

4 Optical values shown for MMF FORJs based on use with sources defined per IEC 61280-4-1.

5 Junction boxes, fiber and electrical wire size, and the number of electrical wires may limit number of possible optical channels. Please contact factory for higher channel count requirements to discuss options.

MOOG

Manufactured in an ISO 9001:2008 registered facility.

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Please contact the factory for the latest updates.

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