LPFO Fiber Optic Rotary Joints

Electrical & Electronics		Mechanical		Environmental	
Channels	1~50 (optional)	Maximum speed	2000rpm or more	Working temperature	Industrial: -20℃~+70℃
Wavelength range	650-1650nm (customized)	Tensile load	10N		Military: -55℃~+85℃
Insertion loss	Single-Channel < 2dB multi-channel < 5dB	Package style	Pigtails/Interfaces		
Insertion loss ripple	Single-Channel < 0.5dB multi-channel < 2dB	Connector types	ST/FC/SC/LC,etc.	Storage temperature	-55 ~ +85℃
Return Loss	> 40dB	Jacket types	0.9/2/3mm (TPU or Armor)		
Crosstalk	> 45dB	Vibration	MIL-STD-167-1A	IP rating	IP68 (Maximum)
Maximum optical power	23dBm (High power customized)	Mechanical shock	MIL-STD-810G		

Brief Introduction

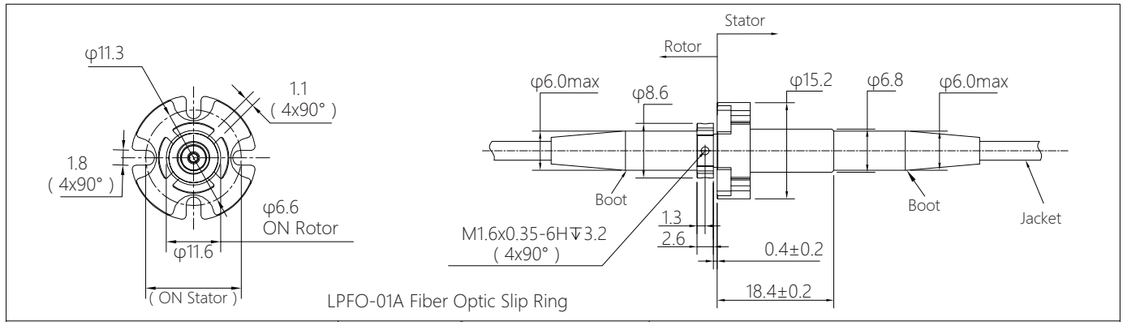
Fiber Optic Rotary Joint adopts fiber optic as media, providing the best technical solution for the transmission of data. It is especially suitable for equipments that require unlimited, continuous or intermittent rotation, transmitting large capacity of data and signals from the stationary position to the rotary position. It can improve mechanical performance, simplify system operation, and avoid damage to fiber optic due to the rotation of moving joints. The fiber optic rotary joint can be used together with a traditional electric slip ring, so as to make a photoelectric hybrid slip ring for the transmission of power and high speed data.

Advantages :
- ◎No contact and friction, long life, up to 10 million rpm (more than 100 million rpm for signal channel)
- ◎Can combine with multiple signals such as video, series, and Ethernet signal, etc.
- ◎Use optical fiber to transmit information, no leakage, no electromagnetic interference; can transmit tens of hundreds of kilometers of networking applications over long distances
- ◎The transmission bandwidth is much larger than the electrical connector, and it can be used to double the bandwidth with the wavelength division multiplexer.
- ◎Small in volume and light in weight that is easy to integrate with electric slip ring, and system is easy to upgrade and change
- ◎Providing the world's smallest single-channel fiber optic rotary joint, as well as double-channels, four-channels, ten-channel or even more channel for your option
- ◎Providing photoelectric integrated rotary joint

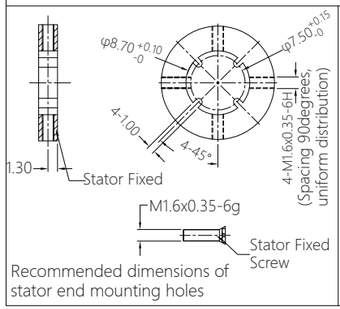
Options
- ◎Fiber optic transmission type is optional, circuits of current and signal are optional.
- ◎Single mode or multi mode, single channel or multiple channel
- ◎Shape can be customized, housing material and driving connector are optional as well

Typical Application
- ◎Robotics
- ◎Material conveying system
- ◎Rotating turret on the vehicle
- ◎Remote control system
- ◎Radar system
- ◎Offshore and marine system
- ◎High speed video, digital, analog signal transmission and control of optic fiber sensor revolving table
- ◎Medical system
- ◎Video surveillance system
- ◎National or international security systems
- ◎Subsea operating systems

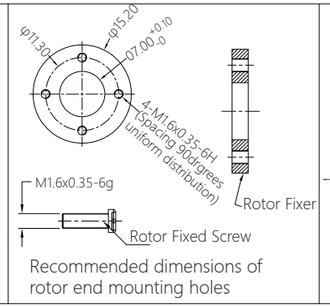
Installation Instructions



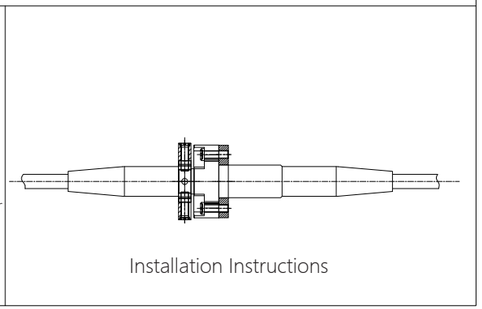
LPFO-01A Fiber Optic Slip Ring



Recommended dimensions of stator end mounting holes

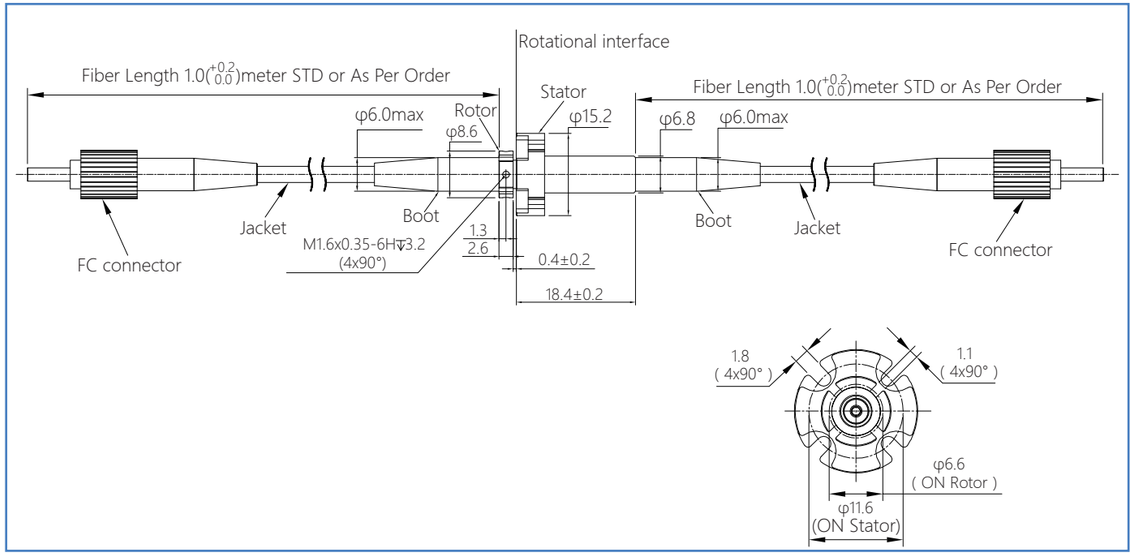


Recommended dimensions of rotor end mounting holes



Installation Instructions

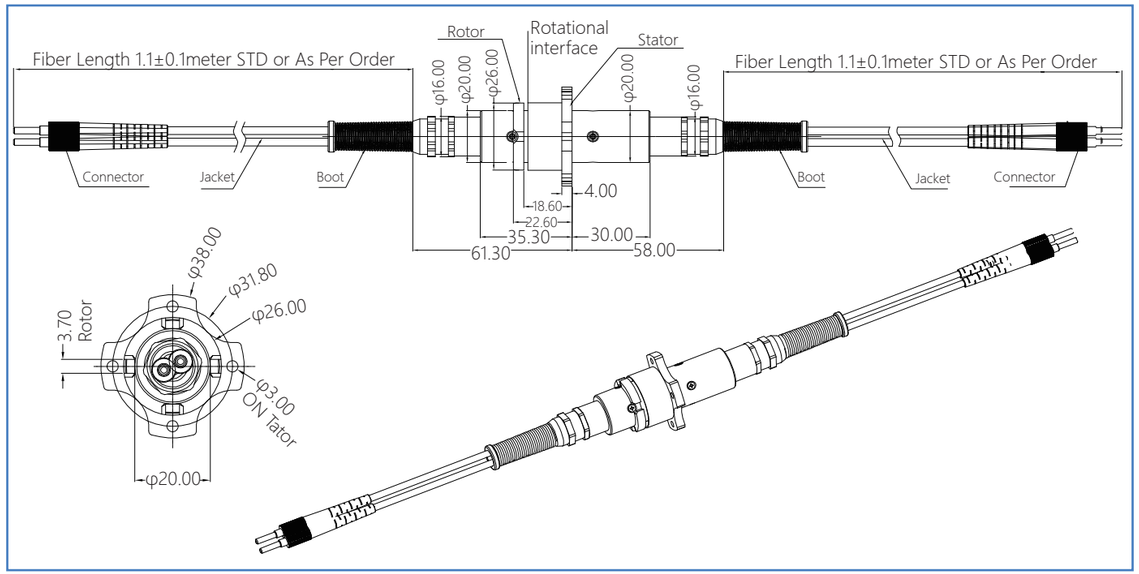
LPFO-01A Outline Drawing



Specoifications

Fiber types	SM or MM	Connector types	FC/SC/ST/LC(PC or APC)
Channel number	1	Estimated life cycle	200-400 millionrevolutions
Wavelength range	650-1650nm	Vibration	MIL-STD-167-1A
Insertion loss	<2dB	Mechanical shock	MIL-STD-810G
Insertion loss ripple	<0.5dB	IP rating	IP65 or IP68
Return loss	≥40dB	Storage temperature	-50~+85°C
Max Optical power	23dBm	Package style	Pigtails on both ends
Maximum speed	2000rpm	Jacket types	0.9/2/3mm(PVC or Kevlar)
Working temperature	-45~85°C	Weight approx	10g(No tail cable and connection included)

LPFO-04N Outline Drawing



Specoifications

Fiber types	SM or MM	Connector types	FC/SC/ST/LC(PC or APC)
Channel number	4	Estimated life cycle	200 million revolutions
Wavelength range	850-1550nm	Vibration	MIL-STD-167-1A
Insertion loss	<4dB	Mechanical shock	MIL-STD-810G
Insertion loss ripple	<2dB	IP rating	IP65 or IP67
Return loss	≥40dB	Storage temperature	-50~+85°C
Max Optical power	23dBm	Package style	Pigtails on both ends
Maximum speed	300rpm	Jacket types	2.0mm(PVC or Kevlar)
Working temperature	Industrial: -20~+70°C	Crosstalk	≥50dB
	Military: -55~+85°C	Weight approx	200g (No tail cable andconnection included)

Features

Independent Research and Development

Key Challenges

- Fiber collimator optical machine coaxial adjustment
- Optical machine coaxial test system
- Fiber contactless coupling
- High coaxial array collimator
- Precision 2:1 transmission structure design
- Design and precision adjustment of the derotating prism

Core Technology

- Fiber non-contact rotary coupling technology
- High-speed single-channel fiber slip ring technology
- Compact multi-channel fiber optic slip ring design
- Visible band optical fiber slip ring technology
- High power fiber slip ring design

Slip Ring Performance and Quality

- Slip ring life is not lower than similar products
- Multi-channel slip ring insertion loss index is better than similar products
- Multi-channel slip ring size is smaller than similar products

Product Delivery

- Significantly shorten the delivery period compared to imported products; General single-channel products are delivered for 1-2 weeks, multi-channel products are delivered for 2-4 weeks

Cost Performance

- Cost-effective compared to similar imported products

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	Model	Fiber Optic Channel	Fiber Type	Wavelength (nm)	Insertion Loss (dB)	Insertion loss ripple (dB)
Single-Channel	LPFO-01A	1	SM&MM	650-1650	< 2dB	< 0.5dB
	LPFO-01B	1	SM&MM	650-1650	< 2dB	< 0.5dB
	LPFO-01C	1	SM&MM	650-1650	< 3dB	< 0.5dB
	LPFO-01D	1	SM&MM	650-1650	< 2dB	< 0.5dB
	LPFO-01E	1	SM&MM	850-1650	< 2dB	< 0.5dB
	LPFO-01F	1	SM&MM	650-1650	< 3dB	< 0.5dB
	LPFO-01H	1	SM&MM	650-1650	< 2dB	< 0.5dB
	LPFO-01N-A	1	SM&MM	850-1650	< 2dB	< 0.5dB
	LPFO-01N-B	1	SM&MM	650-1650	< 3dB	< 0.5dB
	LPFO-01N-C	1	SM&MM	650-1650	< 3dB	< 0.5dB
	LPFO-01N-D	1	SM&MM	650-1650	< 3dB	< 0.5dB
	LPFO-01N-E	1	SM&MM	850-1650	< 2dB	< 0.5dB
Multi-channel	LPFO-02A	2	SM&MM	850-1550	< 5dB	< 2dB
	LPFO-02B	2	SM&MM	850-1550	< 5dB	< 2dB
	LPFO-02N-A	2	SM&MM	850-1550	< 4dB	< 2dB
	LPFO-03A	3	SM&MM	850-1550	< 5dB	< 2dB
	LPFO-03B	4	SM&MM	850-1550	< 5dB	< 2dB
	LPFO-03N-A	3	SM&MM	850-1550	< 4dB	< 2dB
	LPFO-04N-A	4	SM&MM	850-1550	< 4dB	< 2dB
	LPFO-05N-A	5	SM&MM	850-1550	< 4dB	< 2dB
	LPFO-06N-A	6	SM&MM	850-1550	< 4dB	< 2dB
	LPFO-07N-A	7	SM&MM	850-1550	< 4dB	< 2dB
	LPFO-07A	4~7	SM&MM	850-1550	< 5dB	< 2dB
	LPFO-07B	4~7	SM&MM	850-1550	< 5dB	< 2dB
	LFPO-08N-A	8	SM&MM	850-1550	< 4dB	< 2dB
	LFPO-08N-B	8	SM&MM	850-1550	< 4dB	< 2dB
	LPFO-19A	8-19	SM&MM	850-1550	< 5dB	< 2dB
Photoel ctric Integrated	LPC-1F1202	1	SM&MM	650-1650	< 2dB	< 0.5dB
	LPC-1F2402	1	SM&MM	650-1650	< 2dB	< 0.5dB

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	Return Loss (dB)	Crosstalk (dB)	Speed,max (rpm)	Connector Type	Sizes (mm)
Single-Channel	> 40	/	2000	ST/FC/SC/LC,etc.	Φ6.8/Φ15.2*28
	> 40	/	2000	ST/FC/SC/LC,etc.	Φ6.8/Φ10*28
	> 30	/	2000	FC Jack	Φ8.5*40
	> 40	/	2000	ST/FC/SC/LC,etc.	Φ17/Φ26*27.5
	> 40	/	2000	ST/FC/SC/LC,etc.	Φ10/Φ24*18
	> 30	/	2000	ST Jack	Φ17/Φ26*26.3
	> 40	/	2000	ST/FC/SC/LC,etc.	Φ17/Φ26*46.2
	> 40	/	2000	ST/FC/SC/LC,etc.	Φ12.5/Φ26*36.6
	> 30	/	2000	FC Jack	Φ8/Φ15.2*52.6
	> 30	/	2000	Pigtail/ST Jack	Φ6.8/Φ15.2*51.1
	> 30	/	2000	ST Jack/Pigtail	Φ8/Φ15.2*41.9
	> 40	/	2000	ST/FC/SC/LC,etc.	Φ10/Φ20*37
Multi-channel	> 45	> 50	300	ST/FC/SC/LC,etc.	Φ44*111
	> 45	> 50	300	ST/FC/SC/LC,etc.	Φ38*78.5
	> 40	> 45	300	ST/FC/SC/LC,etc.	Φ26/Φ38*119
	> 45	> 50	300	ST/FC/SC/LC,etc.	Φ44*111
	> 45	> 50	300	ST/FC/SC/LC,etc.	Φ67*122
	> 40	> 45	300	ST/FC/SC/LC,etc.	Φ26/Φ38*119
	> 40	> 45	300	ST/FC/SC/LC,etc.	Φ26/Φ38*119
	> 40	> 45	300	ST/FC/SC/LC,etc.	Φ26/Φ38*119
	> 40	> 45	300	ST/FC/SC/LC,etc.	Φ26/Φ38*119
	> 40	> 45	300	ST/FC/SC/LC,etc.	Φ26/Φ38*119
	> 45	> 50	300	ST/FC/SC/LC,etc.	Φ44*144.2
	> 45	> 50	300	ST/FC/SC/LC,etc.	Φ67*122
	> 40	> 45	300	ST/FC/SC/LC,etc.	Φ67*123
	> 40	> 45	300	ST/FC/SC/LC,etc.	Φ38*152
	> 40	> 50	200	ST/FC/SC/LC,etc.	Φ67*168
Photoel ctric Integrated	> 40	/	300	ST/FC/SC/LC,etc.	Φ24.8*39.8
	> 40	/	300	ST/FC/SC/LC,etc.	Φ24.8*54.8