



# JINPAT Electronics

PROVIDING FREE CUSTOM SLIP RING SOLUTIONS TO SET THE RIGHT  
IMPULSES FOR THE FUTURE OF YOUR TECHNOLOGY

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# JINPAT

## Business Philosophy

Business Philosophy

People-Oriented

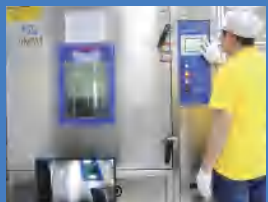
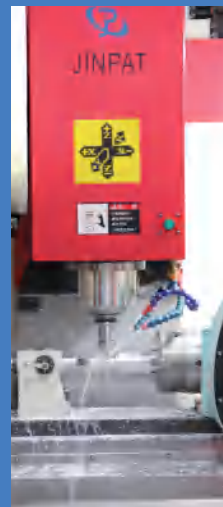
Creating Value

Full Participation

Profit Sharing

Sustainable Management

Become a Solver for High-Precision Slip Rings



# DIRECTORY

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# Company Introduction

JINPAT Electronics entered into slip ring field in 1996. It is a national high-tech enterprise specializing in the research and development, manufacturing, and sales of slip rings. JINPAT has a senior R&D team that consists of numerous engineers who have ever worked in multinational companies or famous insititutes, which are committed to the development and manufacturing of high-quality slip rings that improve system performance and prevent damage to the wires as they rotate.

JINPAT Electronics has passed the ISO9001 quality management system certification, the ISO14001 environmental management system certification, the UL, FCC, CE, RoHS, REACH, BV classification society's certification, the explosion-proof certification, and it has obtained 55 national patents. Keeping improving and innovating, JINPAT slip rings are not only reliable in performnace, long in lifespan, free in maintenance, but also with the features of high protection grade, anti-explosion, anti-quake, anti-impact, high and low temperature resistance, high perssure resistance, low electrical noise and low loss of signal transmission.

JINPAT slip rings have been widely used in the navy, army, air force and police force. Our products are also used in the security, industrial automation, power, instrumentation, aviation, transportation, construction, wind power, robotics, medical and other cutting-edge fields.

JINPAT Electronics has a long-term relationship with many domestic and foreign industrial technology giants such as GE, Honeywell, CNOOC, BYD, Sany Heavy Industry, Zoomlion, SUZLON, AVIC, CASC, CASIC, CETC, CSIC, and South Surveying & Mapping. JINPAT is committed to a win-win outcome with its customers by providing quality products and services.



# Qualification Certificates



# LPC Capsule Slip Rings



Electrical & Electronics		Mechanical		Environmental	
Number of Circuits	1-125 or more	Rotating Speed	0-300rpm or higher	Temperature	Industrial: -20°C~+60°C Military: -50°C~+80°C
Current	≥2A each circuit	Contact Material	Gold-to-gold	Humidity	60%RH or higher
Voltage	240VAC/DC	Housing Material	Engineering Plastics/ Metals (optional)	Protection Grade	IP40
Dielectric Strength	≥500VAC@50Hz	Torque	≤0.88 g.m ( for reference )	Others	
Insulation Resistance	≥100MΩ@500VDC	Wire Type	AWG28#Teflon or others		
Dynamic Contact Resistance	1mΩ min.	Wire Length	250mm ( optional )	Life Span	Customizable

## Brief Introduction

Standard middle-sized Capsule Slip Ring is able to integrate over 125 circuits, with optional outer diameter from 22mm~54mm. This series adopts advanced military-standard surface processing techniques, and is highly precise, compact and easy to assemble. Gold-to-gold contact ensures low resistance and super long service life. It is able to integrate various signals: Ethernet, USB, RS, LVDS, CAN bus, Fire Wire, SDI and HDMI, etc.

### Features:

- Military standard surface processing /Precise/Gold-to-gold contact/Low resistance/Long service life

### Options:

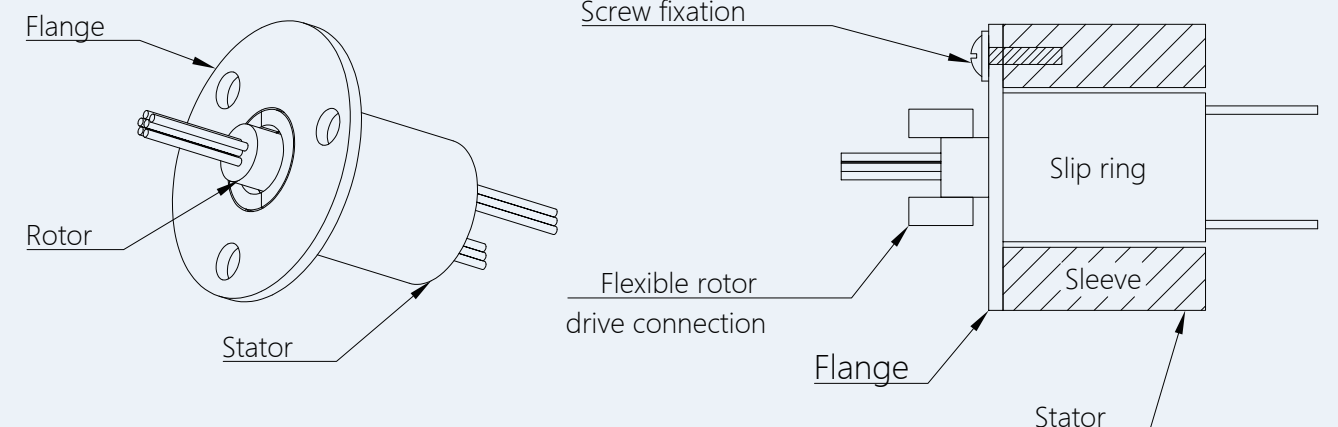
- Rotating speed/Life span/Protection grade/Number of circuits/Current capacity/Size/Housing material/Mass production

### Main applications:

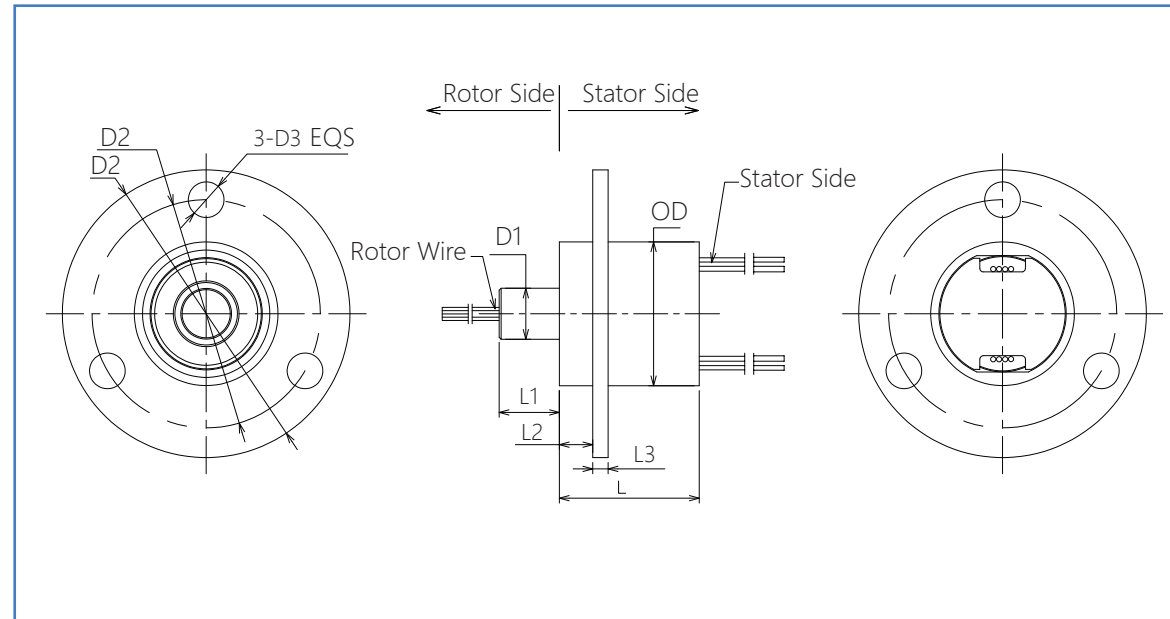
- High speed dome/Camera platform/Electrical testing equipment/Rotary table /Manufacturing and control equipment

## Installation Specifications

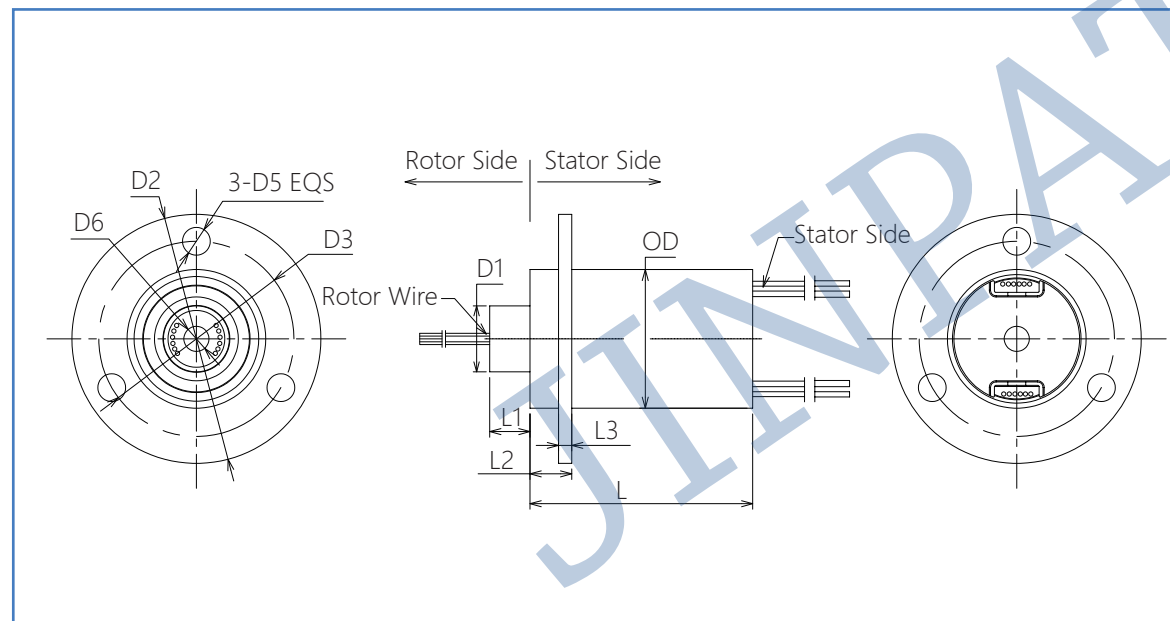
1. This series of slip ring has integrated flange on the stator side, can be mounted directly to the application or bracket to stabilize the stator.
2. Rotor should be mounted on the center axis of the application to ensure concentric drive. Rotor leads are not recommended to be used for drive purpose; otherwise, customers should carry out a close evaluation of their applications beforehand.
3. As demonstrated above, apply screw washers when installing the slip rings to avoid over-fastening of the flange and screws.
4. The slip ring is not designed to bear the weight of the equipment to which it is connected. Rotating equipment should be secured so that no axial or radial load is applied to the slip ring rotor.
5. The slip ring should be protected from dust and moisture. If applied outdoors, protection measures must be taken (except for Specific Custom Slip Rings).
6. Secure all leads so that they do not suffer friction and damage. Care should be taken when routing and securing the leads so that no side loading of the slip ring occurs.
7. Be careful not to damage the shield when stripping the wire ends.



## LPC Capsule Slip Ring Outline Drawing



## LPC-T Capsule Slip Rings with Through Hole



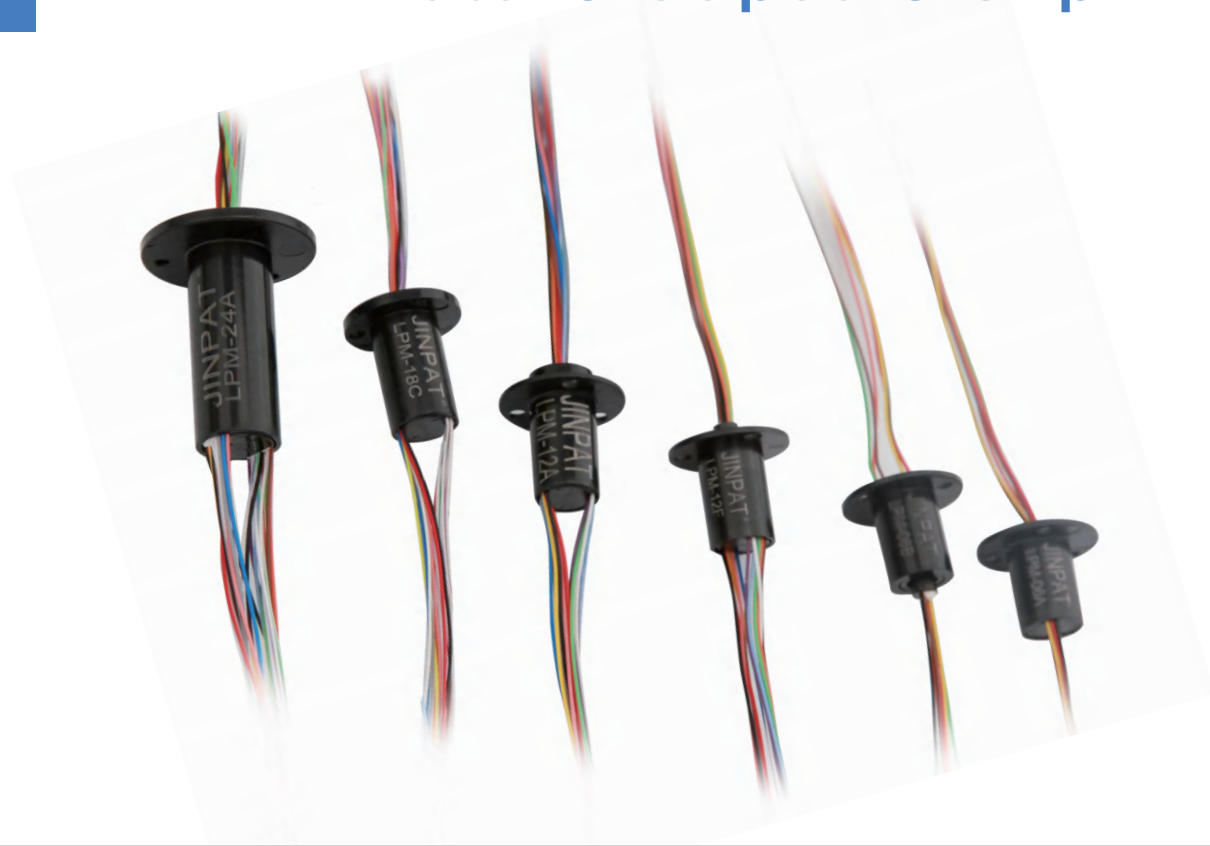
## Wire Color Code

Wire Size	Ring	Color	Ring	Color	Ring	Color	Ring	Color
AWG28# Silver-Plated Teflon UL	#1	BLK	#2	BRN	#3	RED	#4	ORN
	#5	YEL	#6	GRN	#7	DK BLU	#8	PPL
	#9	GRY	#10	WHT	#11	PNK	#12	LT BLU
	#13	WHT/BLK	#14	WHT/BRN	#15	WHT/RED	#16	WHT/ORN
	#17	WHT/YEL	#18	WHT/GRN	#19	WHT/BLU	#20	WHT/PPL
	#21	WHT/GRY	#22	CLR	#23	BLK/RED	#24	BLK/TAN

LPC Capsule Slip Ring												
Model	Number of Circuits	OD * Length (mm)	Voltage (AC/DC)	Current (A)	Rotor Outer Diameter (D1)	Flange Outer Diameter (D2)	Flange Mounting Hole Position (D3)	Flange Mounting Hole Inner Diameter (D4)	Via Diameter (D5)	Rotor Exposed Length (L1)	Flange Position (L2)	Flange Thickness (L3)
LPC-03P	3	φ22*42.3	240V	10A	φ7.6	φ44.5	φ34.9	φ5.4	φ0	9.3	4.8	2.35
LPC-06A	6	φ22*19.2	240V	2A	φ7.8	φ44.5	φ34.9	φ5.2	φ0	9.2	5.1	2.4
LPC-06B	6	φ22*19.2	240V	2A	φ0	φ44.5	φ34.9	φ5.2	φ0	0	5.1	2.4
LPC-08A	8	φ22*21.4	240V	2A	φ7.8	φ44	φ34.9	φ5.5	φ0	9.3	5.1	2.4
LPC-12A	12	φ22*26.4	240V	2A	φ7.8	φ44.5	φ34.9	φ5.2	φ0	9.4	5.1	2.4
LPC-12B	12	φ22*26.4	240V	2A	φ0	φ44.5	φ34.9	φ5.2	φ0	0	5.1	2.4
LPC-18A-01	18	φ22*32.9	240V	2A	φ8	φ44.5	φ34.9	φ5.4	φ0	10	5.1	2.5
LPC-24A	24	φ22*42.3	240V	2A	φ7.6	φ44.5	φ34.9	φ5.4	φ0	9.3	4.8	2.4
LPC-30A	30	φ22*49.8	240V	2A	φ7.6	φ44.5	φ35	φ5.5	φ0	9.3	5	2.4
LPC-36A	36	φ22*57.3	240V	2A	φ7.8	φ44.5	φ35	φ5.5	φ0	9.3	5.1	2.4
LPC-56A	56	φ25*85.7	240V	2A	φ10	φ45	φ35	φ5	φ0	9.5	5	2.5
LPC063-56A	56	φ25*63	240V	2A	φ10	φ40	φ32	φ3.2	φ0	5	5	5
LPC-76A	76	φ35.5*105.7	240V	2A	φ15	φ55	φ46	φ5.4	φ0	12.4	6.2	2.5
LPC-125	125	φ54*286	240V	2A	φ22.8	φ80	φ69.5	φ5.5	φ0	16	10	5
LPC-06T	6	φ22*32.5	240V	2A	φ11.8	φ44.5	φ34.9	φ5	φ6.4	6.7	5.1	2.4
LPC-12T	12	φ24.8*39.8	240V	2A	φ11.8	φ44.5	φ35	φ5	φ6.4	7.15	5.1	2.35
LPC-12T-A	12	φ22*39.8	240V	2A	φ11.8	φ44.5	φ34.9	φ5	φ6.4	7.2	5.1	2.4
LPC-12T-B	12	φ22*28	240V	2A	φ9.9	φ42	φ32	φ5	φ4.5	5.6	3.7	2.3
LPC-24T	24	φ24.8*54.8	240V	2A	φ11.8	φ44.5	φ34.9	φ5	φ6.4	7.2	5.1	2.4
LPC-30T	30	φ24.8*62.3	240V	2A	φ11.8	φ44.5	φ34.9	φ5	φ6	7.2	5.1	2.4
LPC-36T	36	φ24.8*68.5	240V	2A	φ11.8	φ44.5	φ34.9	φ5	φ5.5	7.2	5.1	2.4



# LPM Miniature Capsule Slip Rings



Electrical & Electronics		Mechanical		Enviromental	
Number of Circuits	1-30 or more	Rotating Speed	0-300rpm or higher	Temperature	Industrial: -20°C~+60°C Military: -50°C~+80°C
Current	1-2A or higher	Contact Material	Gold-to-gold	Humidity	60%RH or higher
Voltage	0-110VAC/DC	Housing Material	Engineering Plastics/ Metals (optional)	Protection Grade	IP40
Dielectric Strength	≥200VAC@50Hz	Torque	≤0.88 g.m ( for reference )	Others	
Insulation Resistance	≥50MΩ@200VDC	Wire Type	AWG30# Teflon or others		
Dynamic Contact Resistance	1mΩ min.	Wire Length	250mm ( optional )	Life Span	Customizable

## Brief Introduction

LPM Miniature Capsule Slip Ring is able to integrate 30 or more circuits, with optional outer diameter from 12.5mm~16mm. This series adopts advanced military-standard surface processing techniques, and is highly precise, compacter and easy to assemble. Gold-to-gold contact ensures low resistance and super long service life. Representative models: LPM-04A/06A/12F/18C/24A/30A,etc. It is able to integrate various signals: Ethernet, USB, RS, LVDS, CAN bus, Fire Wire, SDI and HDMI, etc.

### Features:

- Compact size/Gold-to-gold contact/Low resistance/Long service life/Integrate multifarious signals

### Options:

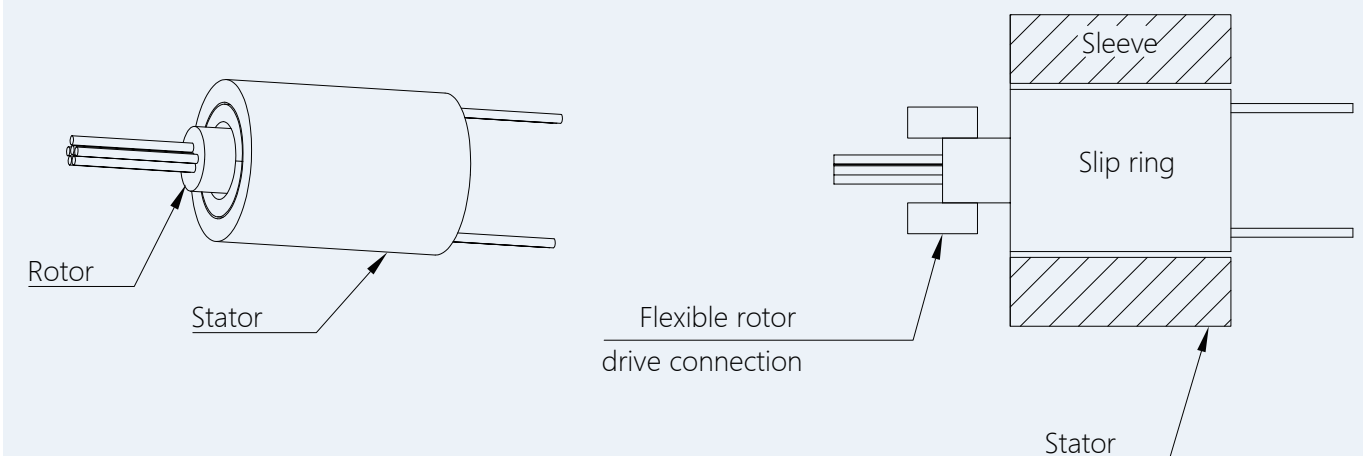
- Rotating speed/Life span/Protection grade/Number of circuits/Current capacity/Size/Housing material/Mass production

### Main Applications:

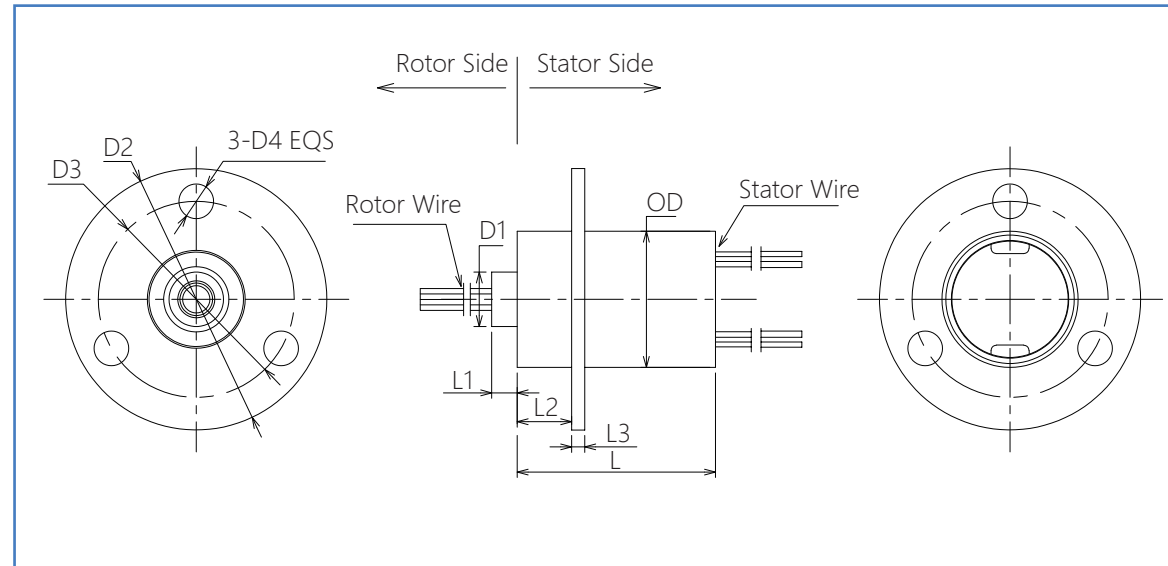
- Robot vacuum/Rocker camera/Petrol and mine platforms/Testing equipment/Electrical testing equipment/Medical instruments

## Installation Specifications

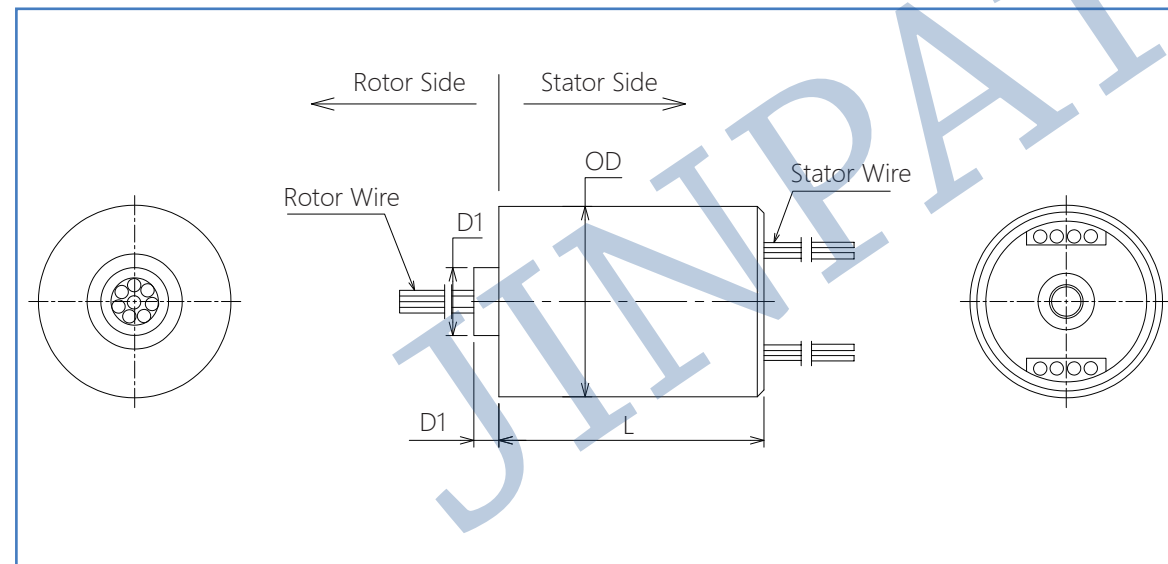
1. The slip ring is designed to be mounted in the fixing part for the stator with no flange.
2. The fixing part for the rotor should be connected well to guarantee a concentric drive of the slip ring. If the rotor lead wires are used as the drive by customers, it should be evaluated according to the usage of the product.
3. The slip ring cannot bear the weight of its connected equipment, of which the rotary parts should be fixed tightly to avoid its weight from being added to the rotor part of the slip ring.
4. The slip ring should be protected from dust and moist. If it is used outdoors, a protection cover should be considered. (Custom slip rings are not included)
5. Protect all wire skins from being damaged during the rotation of the equipment. The end of all wires should not bear weight, withstand force, or be pulled in wires arrangement.
6. Do not damage the outer skin of wires' other parts during the operation of wire stripping.



## The Outline Drawing of LPM Miniature Slip Ring (with Flange)



## The Outline Drawing of LPM Miniature Slip Ring (without Flange)



## Wire Color Code

Wire Size	Ring	Color	Ring	Color	Ring	Color	Ring	Color
AWG28# Silver-Plated Teflon UL	#1	BLK	#2	BRN	#3	RED	#4	ORN
	#5	YEL	#6	GRN	#7	DK BLU	#8	PPL
	#9	GRY	#10	WHT	#11	PNK	#12	LT BLU
	#13	WHT/BLK	#14	WHT/BRN	#15	WHT/RED	#16	WHT/ORN
	#17	WHT/YEL	#18	WHT/GRN	#19	WHT/BLU	#20	WHT/PPL
	#21	WHT/GRY	#22	CLR	#23	BLK/RED	#24	BLK/TAN

## LPM Miniature Capsule Slip Rings

Model	Number of Circuits	OD*Length (mm)	Voltage (AC/DC)	Current (A)	Rotor Outer Diameter (D1)	Flange Outer Diameter (D2)	Flange Mounting Hole Position (D3)	Flange Mounting Hole Inner Diameter (D4)	Rotor Exposed Length (L1)	Flange Position (L2)	Flange Thickness (L3)
LPM-04A	4	φ12.5*15.6	110V	1-2A	φ5	φ24	φ18	φ2.4	2.5	1.7	1.5
LPM-06A	6	φ12.5*18.2	110V	1-2A	φ5	φ24	φ18	φ3.2	2.3	0	1.2
LPM-06B	6	φ12.5*18.2	110V	1-2A	φ5	φ24	φ18	φ3.2	2.3	17	1.2
LPM-08A	8	φ12.5*25.3	110V	1-2A	φ5	φ24	φ18	φ3.2	2.2	19.3	1
LPM-12A	12	φ12.5*25.2	110V	1-2A	φ5	φ24	φ18	φ3.2	2.2	5	1
LPM-12B	12	φ12.5*25.5	110V	1-2A	φ5	φ29	φ22	φ4	2.3	0	2.3
LPM-12U	12	φ12.5*25.5	110V	1-2A	φ5	φ0	φ0	φ0	2.4	0	0
LPM-18A	18	φ15.5*40	110V	1-2A	φ7	φ32	φ25	φ3.5	6	0	2
LPM-18C	18	φ12.8*23.5	110V	1-2A	φ5	φ22.3	φ17.5	φ3.2	4	0	2.2
LPM-20B	20	φ15.5*35	110V	1-2A	φ7	φ32	φ25	φ3.5	6	0	2
LPM-24A	24	φ15.5*39.7	110V	1-2A	φ7	φ32	φ25	φ2.8	6	0	2.2
LPM-30A	30	φ16*37	110V	1-2A	φ13	φ0	φ0	φ0	2.5	0	2
LPM-30B	30	φ16*37	110V	1-2A	φ7	φ32	φ25	φ2.8	7	0	2.2

# LPMS Super Miniature Capsule Slip Rings



## Brief Introduction

LPMS Super Miniature Capsule Slip Ring is able to integrate 12 or more circuits, with optional outer diameter from 5.5mm~11.1mm. This series is super mini size, with precise design using military-standard material. It can adapt to both high and low ambient temperature with a low resistance and small torque. These characteristics guarantee smooth and reliable operation of the slip rings and thus able to fit in high precision equipment or other applications with limited space and harsh conditions. Representative models: LPMS-05D/08A/08B/08C/08D/12U, etc. It is able to integrate various signals: Ethernet, USB, RS, LVDS, CAN bus, Fire Wire, SDI and HDMI, etc.

### Features:

- Ultra compact size/Precise design/Military-standard material /Low resistance

### Options:

- Rotating speed/Number of circuits/Housing material/Protection grade/Length of leads and /Leads exit/Integrate power transmission

### Main Applications:

- Intelligent Robots/Commercial UAV/Manual stabilizer/VR devices

## Wire Color Code

Wire Size	Ring	Color	Ring	Color	Ring	Color	Ring	Color
AWG30#/ AWG32# Silver-Plated Teflon UL	#1	BLK	#2	BRN	#3	RED	#4	ORN
	#5	YEL	#6	GRN	#7	DK BLU	#8	PPL
	#9	GRY	#10	WHT	#11	PNK	#12	LT BLU

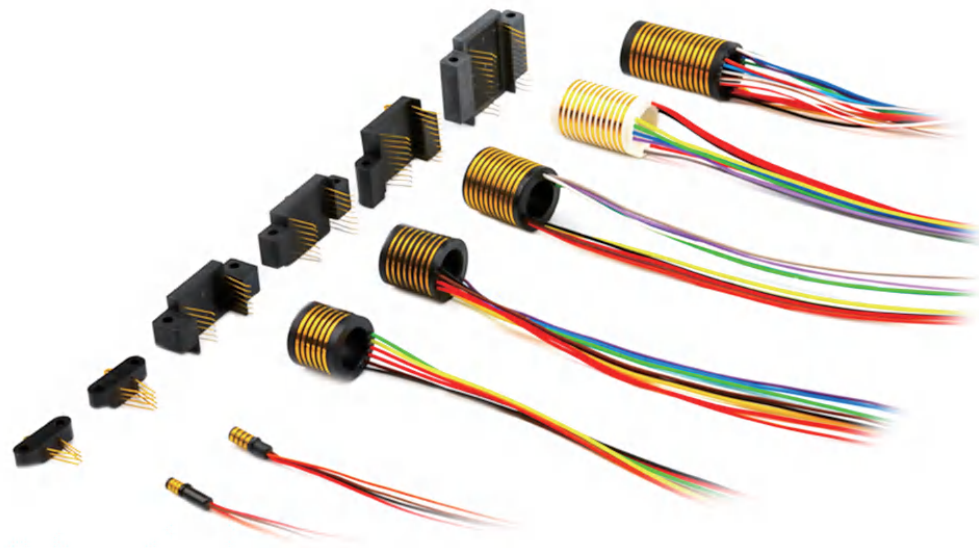
Electrical & Electronics		Mechanical		Environmental	
Number of Circuits	1-12 or more	Rotating Speed	0-300rpm or higher	Temperature	Industrial: -20°C~+60°C Military: -50°C~+80°C
Current	1A or higher	Contact Material	Gold-to-gold	Humidity	60%RH or higher
Voltage	0-48VAC/DC	Housing Material	Engineering Plastics / Metals (optional)	Protection Grade	IP50
Dielectric Strength	≥100VAC@50Hz	Torque	≤0.88 g.m ( for reference )	Others	
Insulation Resistance	≥50MΩ@100VDC	Wire Type	AWG32/30# Teflon or others	Life Span	Customizable
Dynamic Contact Resistance	1mΩ min.	Wire Length	250mm ( optional )		

## LPMS Super Miniature Capsule Slip Rings

Model	Number of Circuits	Voltage ( AC/DC )	Current (A)	OD*Length ( mm )	Rotor Exposed Length (L1)	Rotor Outer Diameter (D1)
LPMS-04A	4	48V	1A	φ7.9*10.8	5	φ4
LPMS-04C	4	48V	1A	φ8.5*10.8	3	φ2.5
LPMS-05D	5	48V	1A	φ5.5*9.6	1	φ2
LPMS-06A	6	48V	1A	φ7.9*11.2	3	φ3
LPMS-06B	6	48V	1A	φ8.5*11.2	3	φ3
LPMS-08A	8	48V	1A	φ8.4*11.7	1.1	φ3
LPMS-08C	8	48V	1A	φ6.5*11.8	2	φ2.4
LPMS-08D	8	48V	1A	φ5.5*13.5	1	φ2
LPMS-10A	10	48V	1A	φ10*13.6	6	φ6.3
LPMS-10B	10	48V	1A	φ10.5*13.6	4.2	φ5
LPMS-10C	10	48V	1A	φ7.4*13.5	2.1	φ2.4
LPMS-12A	12	48V	1A	φ11.1*24	2	φ5
LPMS-12U	12	48V	1A	φ6.5*17.4	2	φ2.3



# LPS Separate Slip Rings



## Brief Introduction

Our separate slip ring consists of a rotor and a brush stator. With a through hole in the rotor, this slip ring model is compatible with hydraulic channel, pneumatic channel and transmission shaft. Because of its separate design, separate slip ring is able to meet harsh requirements demanded by limited space and special installation in the customer's application. Pin contact is alternative for wire contact.

### Features:

- Separated stator and rotor/Transmit power and/or signal/ Low contact resistance/Easy to install/Fit in limited space

### Options:

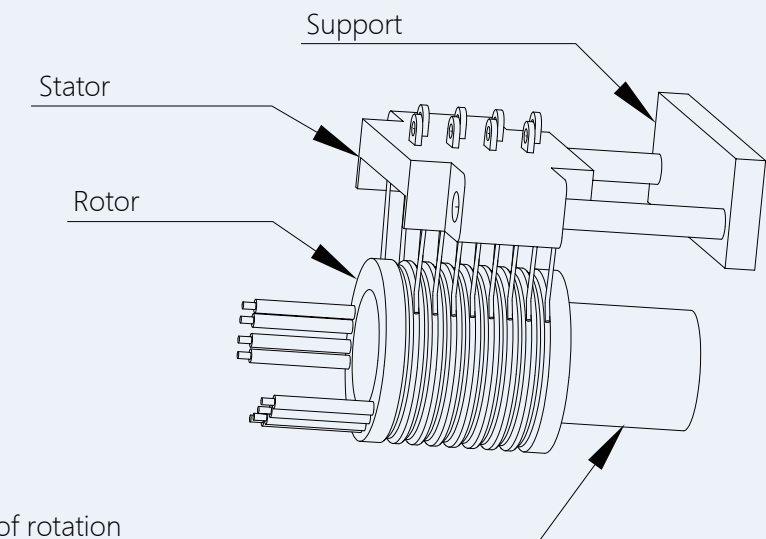
- Working Speed/Number of Circuits/Current/Wire Length

### Main Applications:

- Instruments, meters and measurement equipment
- Aviation, military and medical instruments
- Aerial camera platform, military/private UAV

## Installation Specifications

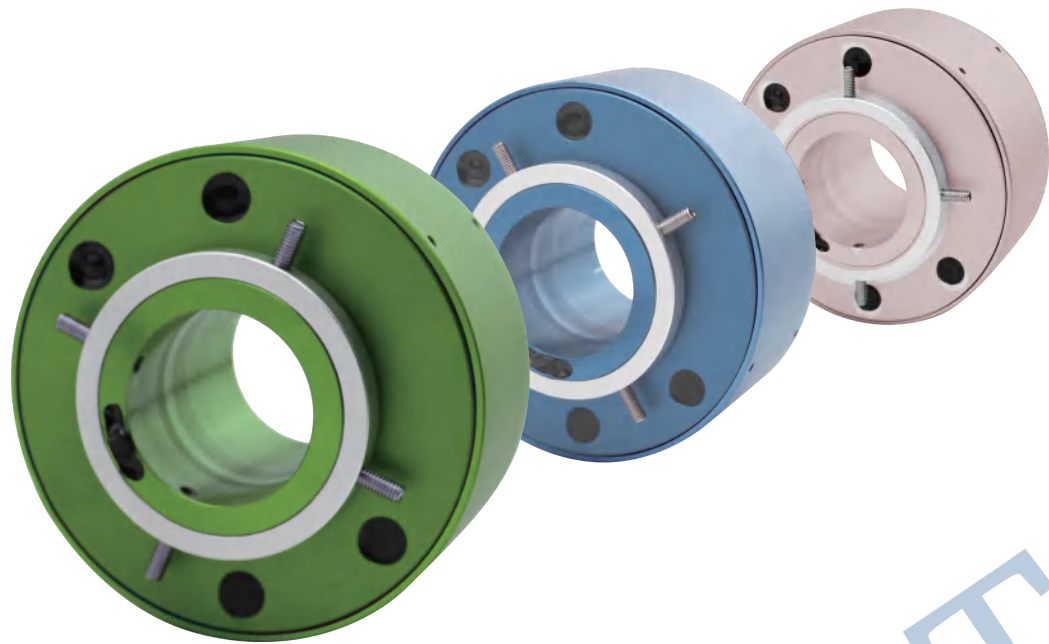
- The slip ring is designed to be mounted in a separate way, in which the rotor and stator is separately fixed.
- Align the grooves of rings and brush wires and match well in case of deviation from rings after the rotor of the slip ring is fixed on the spindle.
- The slip ring should be protected from dust and moist. If it is used outdoors, a protection cover should be considered. (Custom slip rings are not included)
- Protect all wire skins from being damaged during the rotation of the equipment. The end of all wires should not bear weight, withstand force, or be pulled in wires arrangement.
- Use an exclusive tool while operating wire stripping, and do not damage the wire core.
- Weld wires to the wire terminals with careful amount of soldering tin in stator wire connection, avoiding electric performance weakening between rings due to excessive soldering tin.



Electrical & Electronics		Mechanical		Enviromental	
Number of Circuits	1-15 or more	Rotating Speed	0-100rpm or higher	Industrial: -20°C~+60°C	
Current	1-3A per circuit	Contact Material	Gold-to-gold	Temperature	Military: -50°C~+80°C
Voltage	0-24VAC/DC			Humidity	60%RH or higher
Dielectric Strength	≥500VAC@50Hz	Wire Type	AWG28#/AWG32# Teflon or others	Others	
Insulation Resistance	≥100MΩ@500VDC			Life Span	Customizable
Dynamic Contact Resistance	1mΩ min.	Wire Length	250mm ( optional )		



# LPT Through-bore Slip Rings



## Brief Introduction

LPT series are through-bore slip rings (the center hole can pass through the drive shaft, gas-liquid passage; it can also integrate high frequency, fiber, encoder, waveguide, gas and liquid and other joints). The use of advanced fiber brush ensures reliable contact under extremely low friction. The center hole is available from 0 to 1000mm. The current is from mA to 5000 amps. The voltage can be up to 10000 volts, which can fully meet different needs of transmission.

### Features:

- ⊙ Transmit analog and digital signal
- ⊙ The power and signal are mixed transmitted, and the signal categories are as follows:
  - ⊙ Ethernet: Rate (10Mbps/100Mbps/1000Mbps)
  - ⊙ Industrial Ethernet: EtherNet , EtherCAT ,ProfiNet, Powerlink , SercosIII/IP, etc.
  - ⊙ HD video: SDI, LVDS, etc.
  - ⊙ Serial communication: RS232, RS485, RS422, etc.
  - ⊙ Universal Serial Bus: USB2.0
  - ⊙ Industrial Fieldbus: CANBus,ProfiBus, InterBus, CC-Link, DeviceNet, etc.
  - ⊙ Sensor signal: thermal resistance, thermocouple, strain gauge, etc.
- ⊙ Long service life, maintenance-free
- ⊙ Easy to install

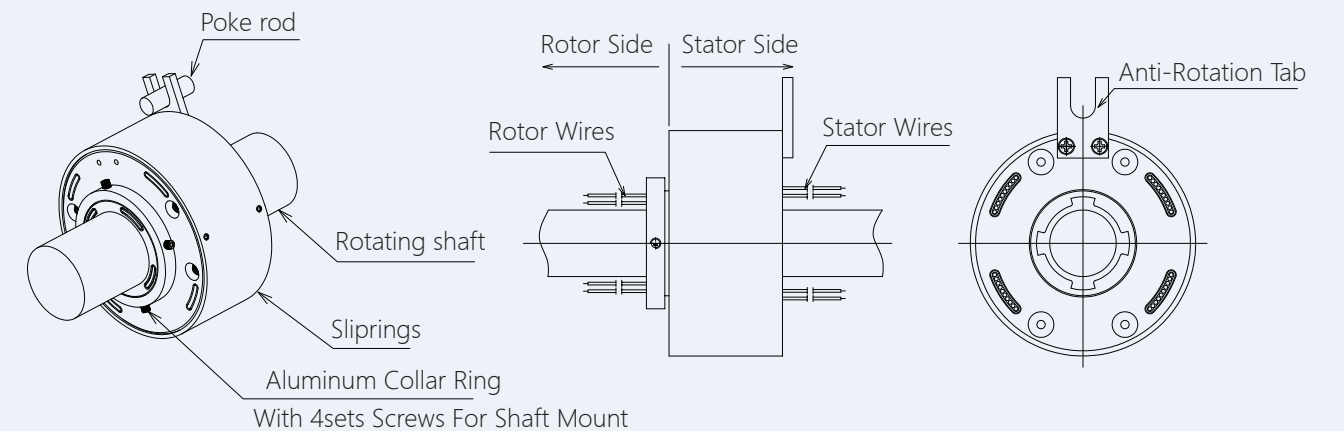
### Main Applications:

- ⊙ Industrial automation equipment/Medical equipment/Wind power equipment/Test equipment/Exhibition / display equipment/Robots/Turntable equipment/Amusement equipment/High-speed railway equipment/Packaging machinery/Ship offshore equipment/Construction machinery

Electrical & Electronics		Mechanical		Enviromental	
Number of Circuits	06/12/18/24	Rotating Speed	0~300rpm	Temperature	Industrial: -20°C~+60°C Military: -55°C~+80°C
Current	5A(Signal)/10A/15A	Contact Material	Engineering plastic	Humidity	95%,100%RH or higher
Voltage	240VAC/DC	Housing Material	Aluminum	Protection Grade	IP50
Dielectric Strength	1000VAC@50Hz	Torque	≤0.1N.m/6 circuits , +0.03N.m/6 circuits	<b>Others</b>	
Insulation Resistance	≥500MΩ@500VDC	Wire Type	Teflon or others	Life Span	10 million (customizable)
Dynamic Contact Resistance	Min 1mΩ	Wire Length	rotor/stator : 300mm		

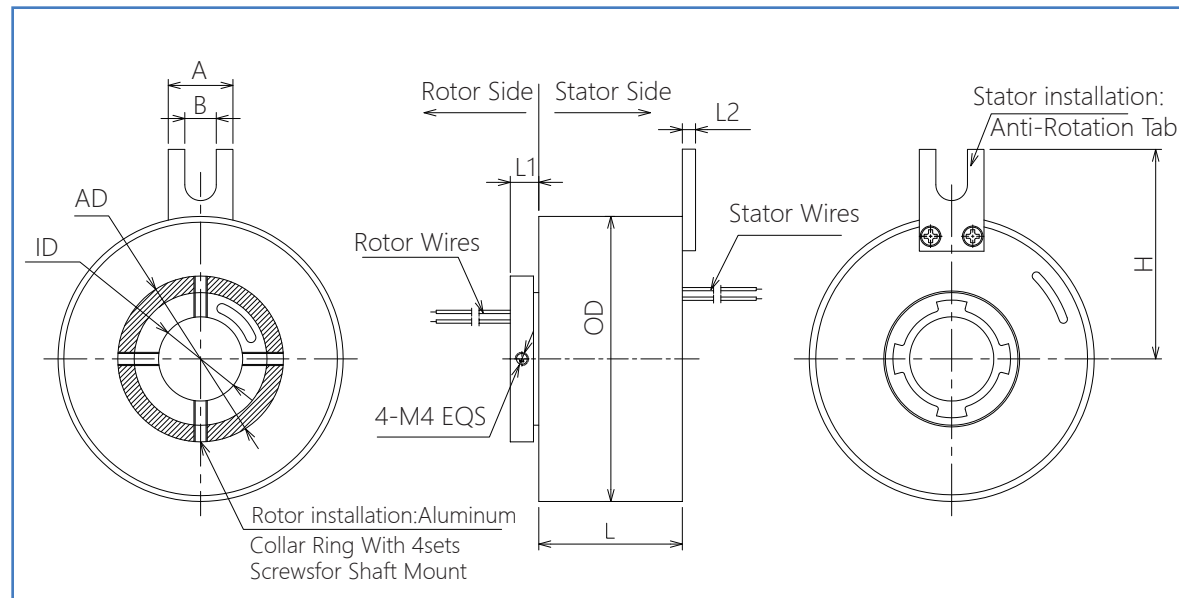
## Installation Specifications

1. The slip ring is not designed to bear the weight of the equipment to which it is connected. Also, the wires are vulnerable to pull and drag.
2. "Hard mounting" of both ends (rotor and stator) of the slip ring is forbidden. We suggest stabilizing the slip ring on the shaft with 4 screws, then plant the anti-rotation tab. Meantime, secure all wires to avoid interference and damage.
3. Slip rings are precise electronic components. Take protection measures in case of harsh environment or apply slip rings with higher protection level.





## LPT Through-bore Slip Rings Outline Drawing



## Wire Color Code

Wire Size	Ring#	Color	Ring#	Color	Ring#	Color	Ring#	Color
AWG22# Teflon UL(5A)	#1	BLK	#2	RED	#3	YEL	#4	GRE
	#5	BLU	#6	WIT	#7	BRN	#8	ORG
	#9	GRAY	#10	CLAR	#11	WIT/RED	#12	WIT/BLU
AWG17# Teflon UL(10A)	#13	WIT/YEL	#14	WIT/GRE	#15	WIT/BLK	#16	WIT/BRN
	#17	WIT/ORG	#18	WIT/GRAY	#19	BLK/RED	#20	BLK/YEL
	#21	BLK/GRE	#22	BLK/BLU	#23	BLK/BRN	#24	BLK/GRAY
1、AWG22#、AWG17# Teflon wire, 24 colors for a circle 2、"#1" from rotor side (The color of the wire can be changed)								
AWG14# Teflon UL(15A)	#1	BLK	#2	RED	#3	YEL	#4	GRE
	#5	BLU	#6	WIT	#7	BRN	#8	ORG
	#9	GRAY	#10	CLAR	#11	WIT/RED	#12	WIT/BLU
1、AWG14# Teflon wire, 12 colors for a circle 2、#1 from rotor side (The color of the wire can be changed)								

## LPT Through-bore Slip Rings

Model	ID (mm)	OD (mm)	Voltage	Current	Length ( mm )				Rotating Speed (rpm)	Aluminum Ring Diameter ( mm )	Rotor Exposed Length (L1)	Width of Anti-rotation Tab ( A )	Groove Width of Anti-rotation Tab ( B )	Height of Anti-rotation Tab ( H )	Thickness of Anti-rotation Tab ( L2 )
					6 Circuits	12 Circuits	18 Circuits	24 Circuits							
LPT012	Φ12.7	Φ53	240VAC/DC	5A/Signal	34.8	48.6	62.4	76.2	300	Φ30	5.5	12	6	32	2
				5A/Signal	34	47.8	61.6	75.4							
				10A	37	53.8	70.6	87.4							
LPT025	Φ25.4	Φ86	240VAC/DC	5A/Signal	43.3	62.5	81.7	100.9	300	Φ50	8.6	19.5	9.5	52.5	4
			380VAC/DC	10A	47.5	70.9	94.3	117.7							
			15A	52.3	80.5	108.7	136.9								
LPT038	Φ38.1	Φ99	240VAC/DC	5A/Signal	43.6	63.4	83.2	103	300	Φ60	8.7	19.5	9.5	56.5	4
			380VAC/DC	10A	47.8	71.8	95.8	119.8							
			15A	52.6	81.4	110.2	139								
LPT050	Φ50	Φ119	240VAC/DC	5A/Signal	50	69.8	89.6	109.4	300	Φ75	8.5	19.5	9.5	67.5	4
				10A	54.2	78.2	102.2	126.2							
				15A	59	87.8	116.6	145.4							
LPT060/070	Φ60 / 70	Φ135	240VAC/DC	5A/Signal	52.5	70.5	88.5	106.5	300	Φ95	8.7	19.5	9.5	74.3	4
				10A	56.7	78.9	101.1	123.3							
				15A	61.5	88.5	115.5	142.5							
LPT080	Φ80	Φ160	240VAC/DC	5A/Signal	61.6	85.6	109.6	133.6	300	Φ120	13	19.5	9.5	86.5	4
				10A	64.6	91.6	118.6	145.6							
				15A	67.6	97.6	127.6	157.6							
LPT096	Φ96	Φ185	240VAC/DC	5A/Signal	69	96	123	150	300	Φ140	14	35	15	103	5
				10A	69	96	123	150							
				15A	72	102	132	162							
LPT120	Φ120	Φ207	240VAC/DC	5A/Signal	81	108	135	162	300	Φ165	14	35	15	118	5
				10A	81	108	135	162							
				15A	84	114	144	174							
LPT150	Φ150	Φ250	240VAC/DC	5A/Signal	98	131	164	197	300	Φ182	14	35	15	140	5
				10A	98	131	164	197							
				15A	101	137	173	209							
LPT180	Φ180	Φ298	240VAC/DC	5A/Signal	104	137	170	203	300	Φ216	15	35	15	164	8
				10A	104	137	170	203							
				15A	107	143	179	215							

## LPT Long Life Slip Rings



## LPR Pin Slip Rings



### LPT Long Life Slip Rings

Model	ID(mm)	OD(mm)	Length(mm)	Voltage	Current	Rotating Speed(rmp)	Application	Lifespan (turns)
LPT009-0204-05S	Φ9.55	Φ35	26.6	240VAC/DC	2x4A+5 *common signal	300 or higher	Drone	50millions
LPT009-1802-HS	Φ9.5	Φ31.8	43	240V	2A/Signal	500 or higher	Turntable Equipment	50millions
LPT010-0602	Φ10	Φ36	24.6	240V	2A/Signal	300 or higher	Radar Equipment	50millions
LPT012A-1202	Φ12.7	Φ35	34.4	240VAC/DC	2A/Signal	300 or higher	Cable Reel Equipment	50millions
LPT012B-0602	Φ12.7	Φ35.1	29.6	240VAC/DC	2A/Signal	300 or higher	Test Equipment	50millions
LPT012B-0602-HS-HT	Φ12.7	Φ35.1	29.6	240VAC/DC	2A/Signal	2000 or higher	High-Speed Railway Equipment	200million
LPT012-3002-HS	Φ12.7	Φ36	66	240V	2A/Signal	500 or higher	Turntable Equipment	50millions
LPT032-0802-HS-HT	Φ32	Φ61	41.9	220V	2A/Signal	400	High-Speed Railway Equipment	50millions
SPT050-104-0610	Φ50	Φ104	58.8	500V	10A	400	Packaging Equipment	50millions
SPT050-104-1210	Φ50	Φ104	82.8	500V	10A	400	Packaging Equipment	50millions
SPT050-104-1810	Φ50	Φ104	106.8	500V	10A	400	Packaging Equipment	50millions
SPT050-104-2410	Φ50	Φ104	130.8	500V	10A	400	Packaging Equipment	50millions

Electrical & Electronics		Mechanical		Environmental	
Number of Circuits	2/4/6/8	Rotating Speed	0-300rpm or higher	Temperature	Industrial: -40°C~+80°C Military: -50°C~+80°C
Current	2A/5A/14A/ 15A/20A/25A	Contact Material	Precious gold	Humidity	60%RH or higher
Voltage	0-240VAC/DC	Housing Material	Engineering plastics / Metals (optional)	Protection Grade	IP40 or higher
Dielectric Strength	≥500VAC@50Hz	Torque	≤0.88 g.m	Others	
Insulation Resistance	≥500MΩ@500VDC	Connection Method	Gold plated pin	Life Span	Customizable
Dynamic Contact Resistance	1mΩ min.				

## Brief Introduction

LPR Pin Slip Ring adopts exquisite and innovative design, and replaces wires with pins. This model complies with the RoHS standards, and is widely used in wind generators, production line equipment, rotating platform, cable reel and hot roller.

### Features:

- Pin contact instead of wire contact
- Transmit power and signal
- Smooth function
- Low contact resistance
- Easy to install

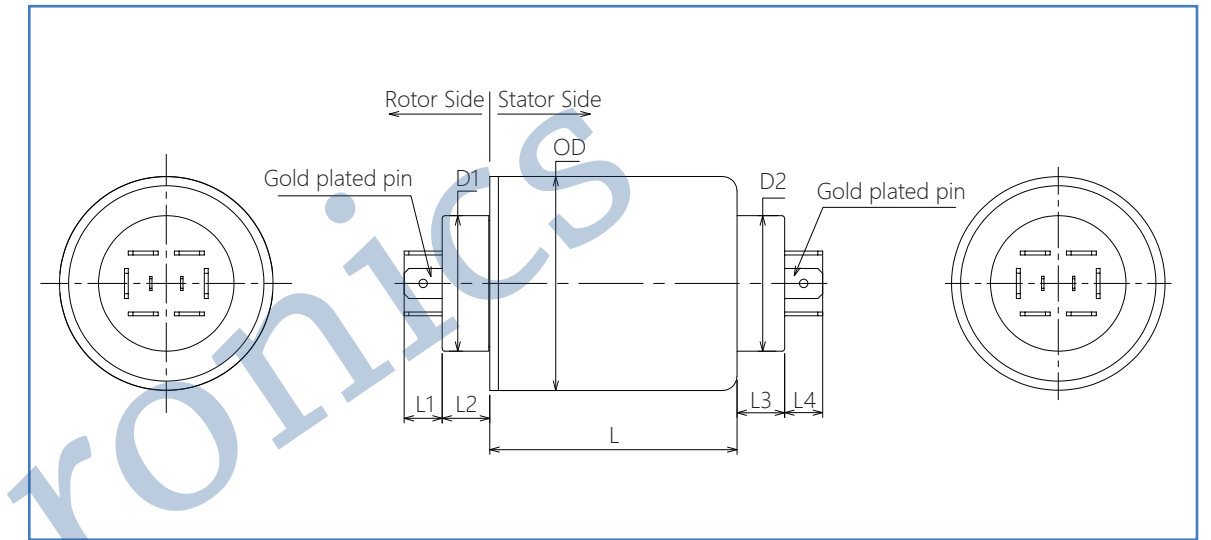
### Option:

- Rotating speed
- Number of circuits
- Current capacity
- Housing material

### Application:

- Wind generators
- Rotating platform
- Cable reel and hot roller
- Production line equipment

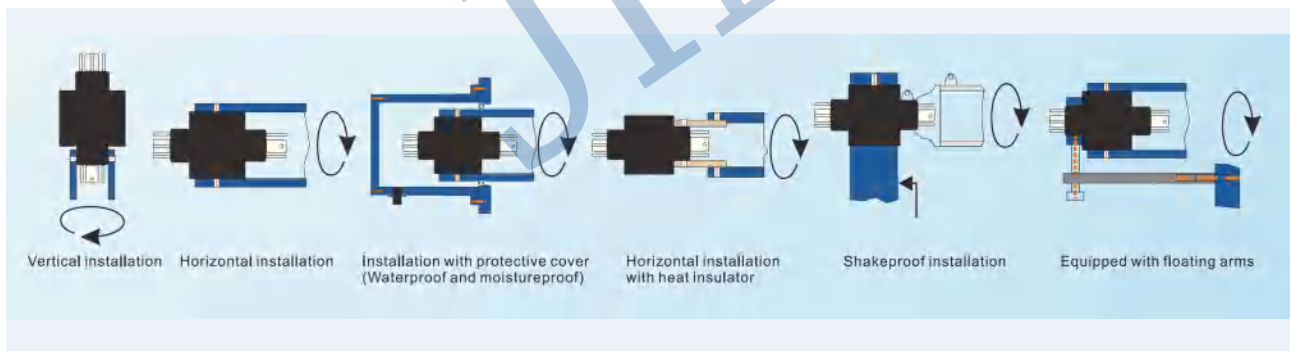
## LPR Pin Slip Rings Outline Drawing



## Product Advantages

- Strong current carrying capacity
- Can transmit 100bit high speed data signals, control signals, etc.
- Advanced fiber brush technology to ensure low friction, low contact resistance, no friction debris
- Long Lifespan

## Installation Diagram



## LPR Pin Slip Rings

Model	Number of Circuits	Voltage (AC/DC)	Current (A)	OD*Length (mm)	Rotor Outer Diameter (D1)	Pin Base Outer Diameter (D2)	Rotor Pin Length (L1)	Rotor Exposed Length (L2)	Stator Base Length (L3)	Stator Pin Length (L4)
LPR-2H	2	240	2circuits* 25A	φ40*37	φ13	φ13	8	12	12	8
LPR-2S	2	240	2circuits*1~5A	φ40*37	φ13	φ13	8	12	12	8
LPR-4H(A)	4	240	2circuits*5A /2circuits*15A	φ32.9*28.6	φ15.5	φ15.5	8	9	9	8
LPR-4H(B)	4	240	2circuits*5A /2circuits*15A	φ32.9*28.6	φ15.5	φ15.5	8	9	9	8
LPR-4S	4	240	2circuits*5A /2circuits*2A	φ32.9*28.6	φ15.5	φ15.5	8	9	9	8
LPR-6H	6	240	2circuits*5A /4circuits*15A	φ33*36.5	φ22.1	φ22.1	8	5.1	5.1	8
LPR-8H	8	240	2circuits*5A /6circuits*15A	φ45*52	φ28.5	φ28.5	8	10	10	8



# LPKS Pancake Slip Rings



Electrical & Electronics		Mechanical		Enviromental	
Number of Circuits	1~10 circuits	Working Speed	0~100rpm	Temperature	Industrial: -20°C~+60°C
Current	5A/Signal	Contact Material	Precious metal/ Gold to gold		Military: -55°C~+80°C
Voltage	240VAC/DC	Housing Material	FR-4	Humidity	Below 60%RH
Dielectric Strength	500VAC@50Hz (power) 300VAC@50Hz (signal)	Torque	0.1N.m(Reference)	Others	
Insulation Resistance	≥500MΩ@500VDC	Wire Type	AWG20# Teflon®UL		
Electrical Noise	≤20MΩ (At the speed of 50rpm)	Wire Length	Stator : 300mm Rotor : 300mm	Life Span	10Mio

## Brief Introduction

This series is divided into an integrated pancake slip ring and a separate pancake slip ring. The integrated pancake slip rings provide vias of different size; the separate pancake slip ring consists of a separate rotor and a stator to meet more stringent height requirements, and can be installed by the customer according to the application environment.

Features:  
Minimum thickness up to 5.4m  
Transmit analog and digital signal

The power and signal are mixed transmitted, and the signal categories are as follows:

- ⊙Ethernet: Rate (10Mbps/100Mbps/1000Mbps)
- ⊙Industrial Ethernet: ProfiNet, Powerlink, SercosIII, EtherCAT, EtherNet/IP, etc.
- ⊙HD video: SDI, LVDS, etc.
- ⊙Serial communication: RS232, RS485, RS422, etc.
- ⊙Universal Serial Bus: USB2.0
- ⊙Industrial Fieldbus: CANBus, CC-Link, InterBus, DeviceNet, ProfiBus, etc.
- ⊙Sensor signal: thermal resistance, thermocouple, strain gauge, etc.
- ⊙Shock-resistant, maintenance-free

Optional:

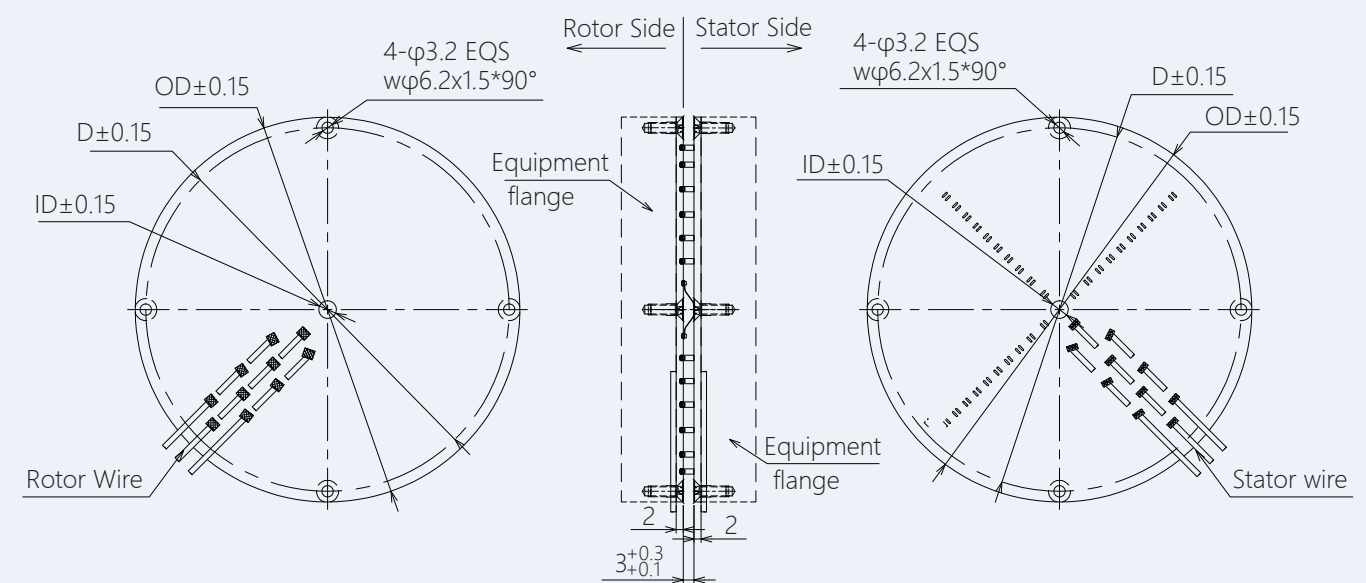
- ⊙Inner diameter & Outer diameter/Number of circuits/Current & Voltage/Wire length/Housing material and color/Protection level/Signal and power can be transmitted separately or in combination

Main Applications:

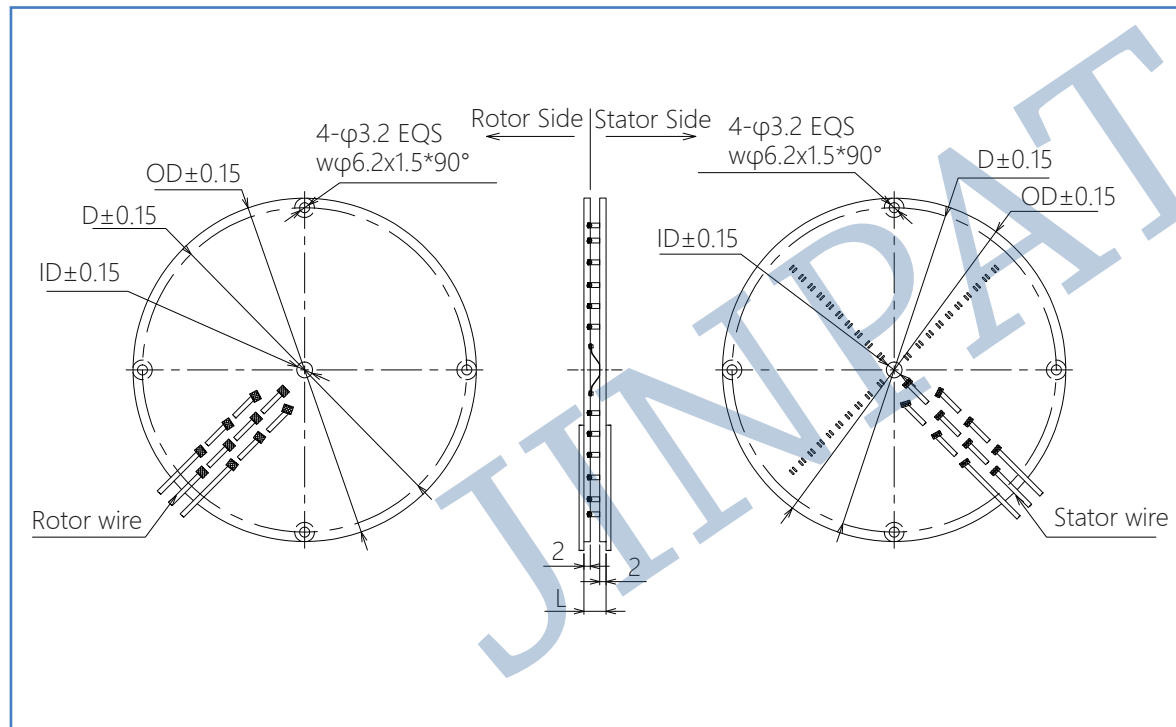
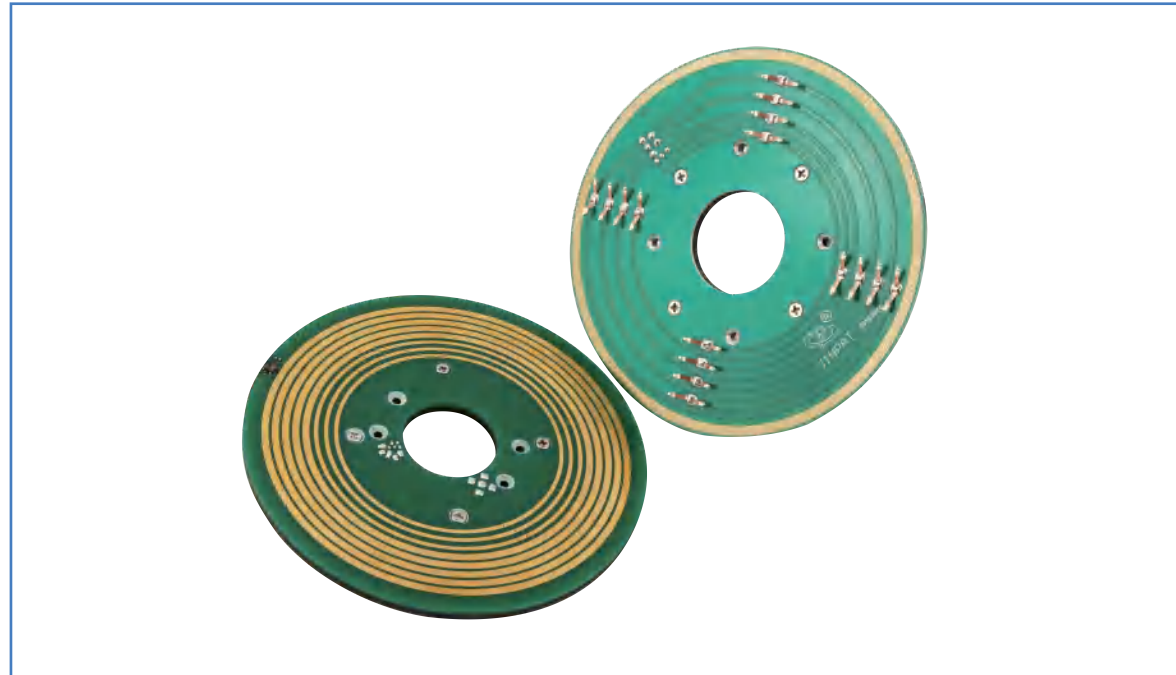
- ⊙ Military Equipments
- ⊙ Medical Equipments
- ⊙ Wind Turbine
- ⊙ Test Equipment
- ⊙ Revolving Door
- ⊙ Robot

## Installation Instructions of Separate Pancake Slip Ring

1. First install the rotor side. Fix the rotor PCB board to the flange of the device with the corresponding screws;
2. Then install the stator side. Fix the stator PCB board to the flange of the device with the corresponding screws;
3. Debug the coaxiality of the slip ring. The brush shrapnel contacts on the stator side must be adjusted to the center of the rotor side ring to ensure the coaxiality between the slip ring and the device;
4. Debug the distance between the two PCB boards. The distance between the stator side PCB board and the rotor side PCB board is L (+0.1/+0.3) mm.



## LPKS Pancake Slip Rings Outline Drawing



## LPKS Pancake Slip Rings

Model	Number of Circuits	Voltage ( AC/DC )	Current (A)	OD*Length (L) ( mm )	(ID) ( mm )	Reference Circle (D) ( mm )
LPKS005-0105	1	240V	5	Φ34×7	5	30
LPKS005-0205	2	240V	5	Φ42×7	5	38
LPKS005-0305	3	240V	5	Φ52×7	5	46
LPKS005-0405	4	240V	5	Φ60×7	5	54
LPKS005-0505	5	240V	5	Φ68×7	5	62
LPKS005-0605	6	240V	5	Φ76×7	5	70
LPKS005-0705	7	240V	5	Φ84×7	5	78
LPKS005-0805	8	240V	5	Φ92×7	5	86
LPKS005-0905	9	240V	5	Φ100×7	5	94
LPKS005-1005	10	240V	5	Φ108×7	5	102
LPKS019-0905	9	240V	5	Φ108×7	19	102
LPKS028-0805	8	240V	5	Φ108×7	28	102
LPKS036-0705	7	240V	5	Φ108×7	36	102
LPKS045-0605	6	240V	5	Φ108×7	45	102
LPKS053-0505	5	240V	5	Φ108×7	53	102
LPKS061-0405	4	240V	5	Φ108×7	61	102
LPKS069-0305	3	240V	5	Φ108×7	69	102
LPKS076-0205	2	240V	5	Φ108×7	76	102
LPKS084-0105	1	240V	5	Φ108×7	84	102

# LPHF Rotary Joints



## Features:

- Up to 4 circuits (model with more circuits is customizable)
- Frequency up to 50GHz
- Compact structure with low interference
- Transmit multifarious signals simultaneously
- Ultra low insertion loss and transmission fluctuation
- Long service life and maintenance-free

## Options:

- Number of circuits
- High frequency range
- Voltage and current
- Integrated transmission of high frequency signal and power signal or other signals

## Applications:

- Radar antenna, military system devices
- HD network video surveillance system
- Satellite communication system
- Medical treatment instrument
- Air traffic control and missile defense system

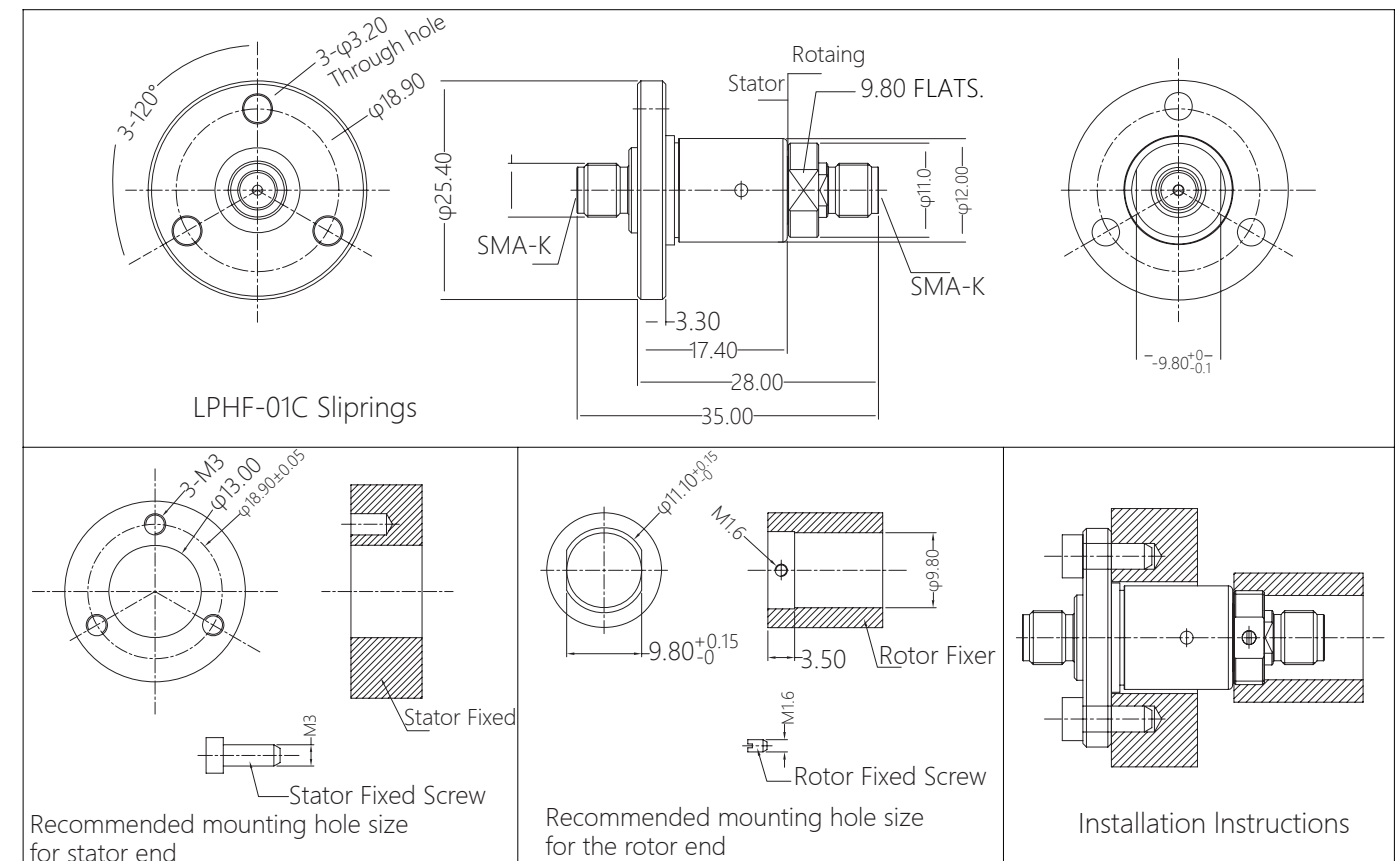
Electrical & Electronics		Mechanical		Environmental	
Channels	1/2/3/4(optiongal)	Rotating speed	0-500rpm	Working temperature	Industrial: -40°C~+75°C
Frequency range	1CH:≤50GHz 2CH:≤18GHz	Lifetime	10million revolutions		Military: -55°C~+85°C
Inserfaces	SMA/N/3.5/2.92/2.4/F	Interface loads ,max	±5N(axial) ±5N(radial)	Storage ambient temperature	-50~85°C
VSWR,max	1.2(Minimum)	Torque during rotation	1N.cm(Minimum)	Relative humidity	≤95% (condensation not allowed)
Insertion loss,max	0.25dB(Minimum)	Contact material	Precious metal		IP protection level
Peak power,max	10KW(Maximum)	Case material	Aluminum alloy/ stainless steel/brass	Surface material	
Isolation,min	50dB				

## Brief Introduction

High Frequency Rotary Joint is applied in constant rotating devices. It transmits high frequency signal and high speed signal from stationary part to rotary part. This rotary joint is able to transfer analog signals and high-speed digital signals with frequencies up to 500MHz-50GHz. It is compact in structure, stable in performance with good shielding effect, and low interference. Besides, high frequency slip ring can be easily installed in other applications.

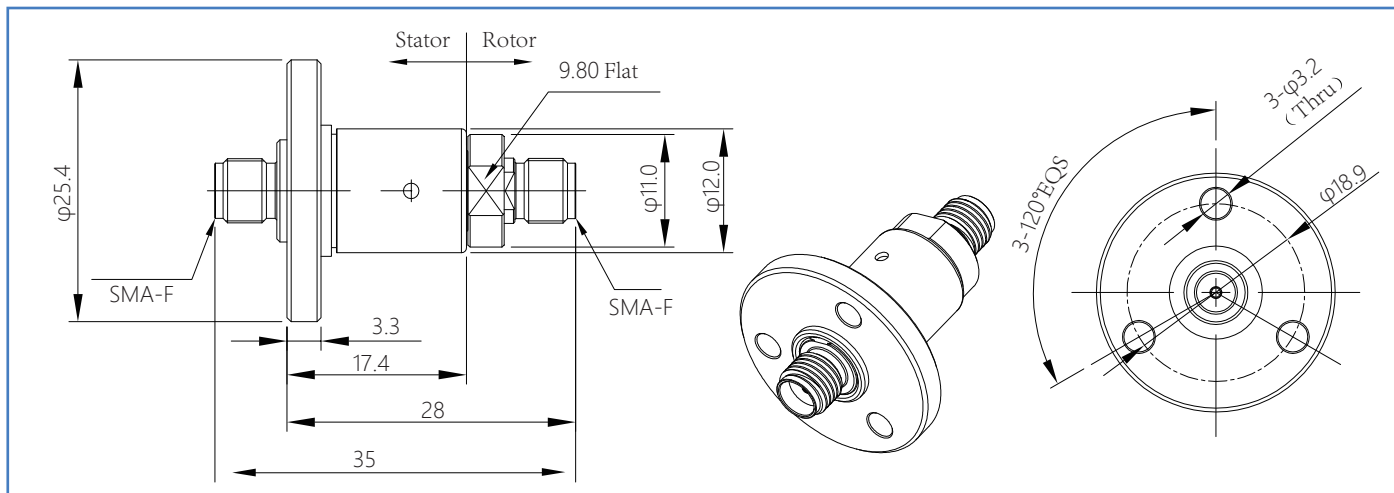
This series consists of high frequency slip ring and high frequency electric hybrid slip ring

## Installation Instructions





## LPHF-01C Outline drawing



### Specifications

Interface Type	SMA-F(50 $\Omega$ )	Axial load on Interface, Max	$\pm 2$ N
Frequency Range	DC-18GHz	Radial Load on Interface, Max	$\pm 2$ N
VSWR, Max	1.3@DC-12GHz 1.4@12-18GHz	Body Material	Stainless Steel
VSWR WOW	0.05	Insulator Material	PTFE
Insertion loss, Max.	0.3dB@DC-12GHz 0.4dB@12-18GHz	Marking	Laser marking
Insertion loss WOW	0.05dB	Weight	25.4g
Peak Power, Max.	3KW	IP Protection Level	IP40
Maximum speed	2000rpm	Operation Temperature	-45~+80°C
Average Power, Max	200W@1GHz/30W@18GHz	Storage Temperature	-55~+85°C
Phase WOW, Max	1°	Rotating Speed, Max.	300rpm
Humidity (Operation)	95%	Humidity (Storage)	95%
Life Time, Min.	10 Million Revolutions	Starting Torque	2Ncm Max
Continuous Rotational Torque		2Ncm Max	

## Features

### Independent Research and Development

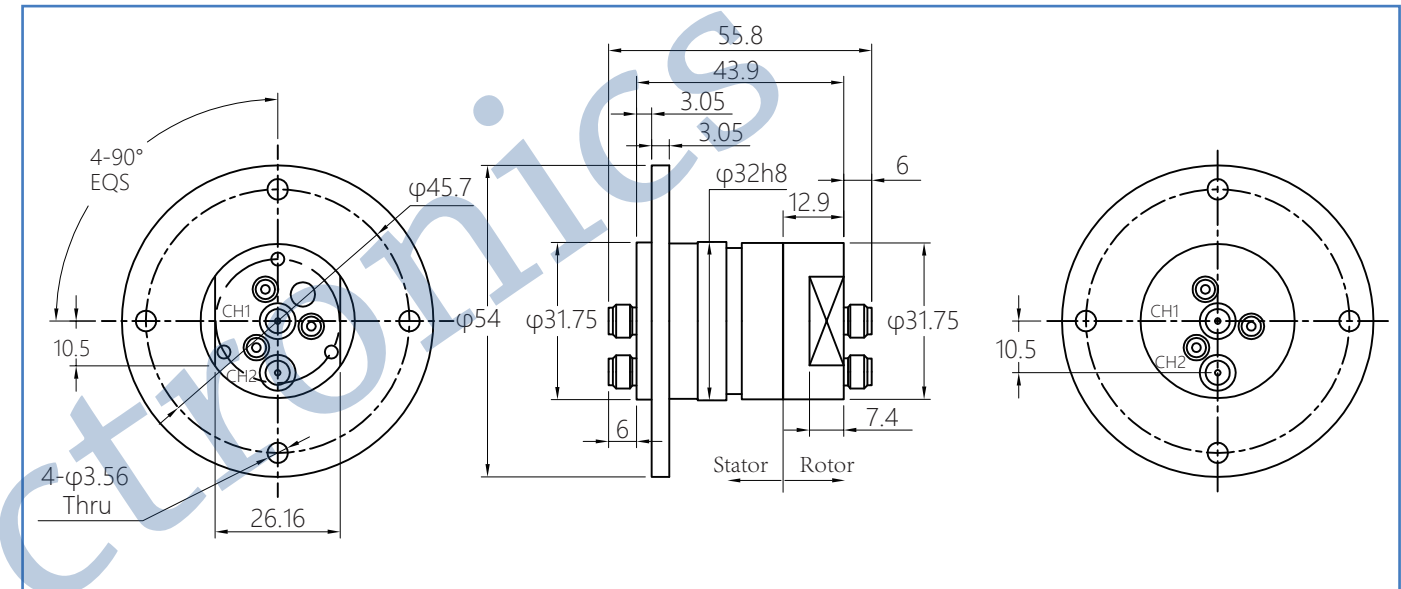
#### Key Challenges

- ▶ Characteristic impedance transition matching design
- ▶ Contact material wear resistance technology
- ▶ Precision machining and assembly of miniature parts
- ▶ Off-axis channel RF rotation coupling technology
- ▶ Blind operation low temperature welding process
- ▶ High isolation design

#### Core Technology

- ▶ RF simulation optimization technology
- ▶ Self-lubricating contact material and lubricant process
- ▶ Multi-channel RF slip ring design ideas
- ▶ High power slip ring design technology

## LPHF-02A Outline drawing



### Specifications

Chana1	Chana1 1	Chana1 2	Starting Torque	5Ncm@ room temperature
Interface Type	SMA-F(50ohm)	SMA-F(50ohm)	Continuous Rotational Torque	5Ncm@ room temperature
Type	I	I	Rotating Speed, Max.	60rpm
Frequency Range	DC-4.5GHz	DC-4.5GHz	Life Time, Min	10 million Revolutions
Peak Power, Max.	1000W	1000W	Body Material	Aluminum alloy
Average Power, Max	60W@4.5GHz	10W	Case surface finish	Chromate conversion coat
VSWR, Max	1.2	1.5	Weight	0.13Kg
VSWR, WOW	0.05	0.2	IP Protection Level	IP60
Insertion Loss, Max.	0.25dB	0.3dB	Operation Temperature	-45~+80°C
Insertion Loss, WOW	0.05dB	0.15dB	Storage Temperature	-55~+85°C
DC capability, max (one channel only)	0.5A, 48VDC@full RF avg.power	0.5A, 24VDC@full RF avg.power	Humidity(Operation)	95%
Phase WOW	0.5deg	4.0deg	Humidity(Storage)	95%
Isolation, min		50dB	/	

### 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

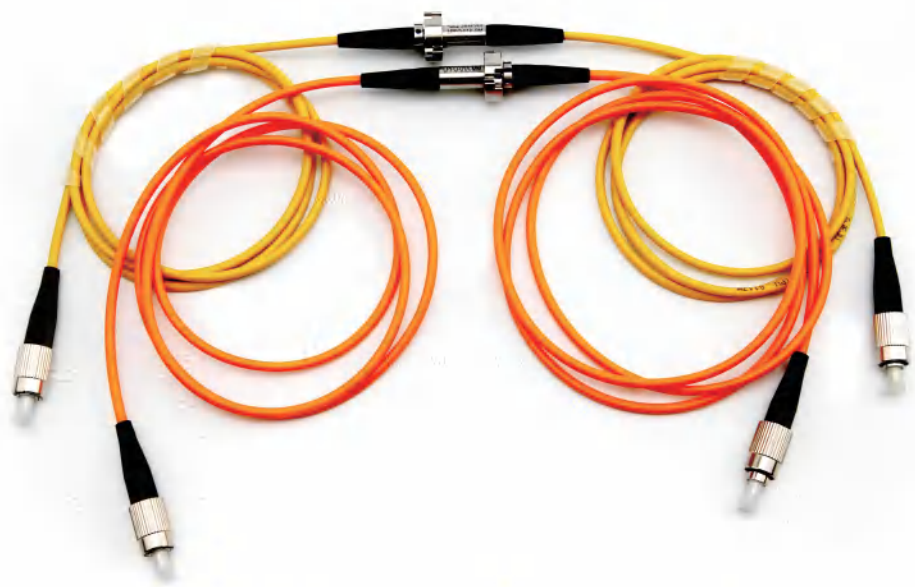
## LPHF Rotary Joints

	Model	Channel	Interface	Frequency range	Peak power, max	Average power, max	VSWR, max	Insertion loss, max	Isolation, min	
Single-Channel	LPCC-01A	1	Optional	DC-3GHz	1000W	20W@3GHz	1.5@0-3GHz	1.2dB@3GHz ( 250mm/250mm )	/	
	LPCC-02A	1	Optional	DC-3GHz	1000W	20W@3GHz	1.6@0-3GHz	1.2dB@3GHz ( 250mm/250mm )	/	
	LPCC-01B	1	Optional	DC-6GHz	800W	10W@6GHz	1.5@6GHz	1.8dB@0-6G ( 250mm/250mm )	/	
	LPHF-01A	1	SMA-f(50Ω)	DC-18GHz	1500W	200W@1GHz 30W@18GHz	1.20@0-6GHz 1.25@6-12GHz 1.35@12-18GHz	0.25dB@0-6GHz 0.3dB@6-12GHz 0.5dB@12-18GHz	/	
	LPHF-01C	1	SMA-f(50Ω)	DC-18GHz	3000W	200W@1GHz 30W@18GHz	1.2@0-6GHz 1.3@6-12GHz 1.4@12-18GHz	0.25dB@0-6GHz 0.3dB@6-12GHz 0.4dB@12-18GHz	/	
	LPHF-01E	1	3.5mm-f(50Ω)	DC-26.5GHz	3000W	200W@1GHz 50W@18GHz 30W@26.5GHz	1.30@0-12GHz 1.35@12-18GHz 1.7@18-26.5GHz	0.3dB@0-12GHz 0.35dB@12-18GHz 0.7dB@18-26.5GHz	/	
	LPHF-01F	1	2.92mm-f(50Ω)	DC-40GHz	500W	50W@2GHz 2W@18GHz 1W@40GHz	1.4@0-18GHz 1.7@18-26.5GHz 2.0@26.5-40GHz	0.5dB@0-18GHz 1.0dB@18-26.5GHz 1.2dB@26.5-40GHz	/	
	LPHF-01G	1	2.4mm-f(50Ω)	DC-50GHz	1000W	50W@1GHz 15W@10GHz 3W@50GHz	1.3@0-10GHz 1.4@10-26.5GHz 1.7@26.5-50GHz	0.3dB@0-10GHz 0.5dB@10-26.5GHz 0.9dB@26.5-50GHz	/	
	LPHF-01H	1	N-f(50Ω)	DC-18GHz	10000W	200W@1GHz 100W@8GHz 70W@18GHz	1.2@0-10GHz 1.3@10-18GHz	0.2dB@0-10GHz 0.3dB@10-18GHz	/	
	LPHF-01L	1	2.92mm-f(50Ω)	DC-40GHz	500W	50W@2GHz 2W@18GHz 1W@40GHz	1.4@0-18GHz 1.7@18-26.5GHz 2.0@26.5-40GHz	0.5dB@0-18GHz 1.0dB@18-26.5GHz 1.2dB@26.5-40GHz	/	
	LPHF-01M	1	SMA-f(50Ω)	DC-18GHz	3000W	200W@1GHz	1.35@0-10GHz 1.5@10-18GHz	0.3dB@0-10GHz 0.4dB@10-18GHz	/	
	Multi-Channel	LPHF-02A	2	SMA-f(50Ω)	DC-4.5GHz	1000W	60W@4.5GHz	1.2	0.25dB	50dB
				SMA-f(50Ω)	DC-4.5GHz	1000W	10W	1.5	0.3dB	
		LPHF-02B	2	SMA-f(50Ω)	DC-18GHz	1000W	200W@1GHz	1.3@0-8GHz 1.5@4-18GHz	0.4dB@0-4GHz 0.9dB@4-18GHz	50dB
SMA-f(50Ω)				DC-4GHz	1000W	200W@1GHz	1.5	0.5dB		
LPHF-02C		2	SMA-f(50Ω)	DC-18GHz	1000W	100W@2GHz 60W@8GHz 10W@18GHz	1.35@0-8GHz 1.5@8-18GHz	0.4dB@0-8GHz 0.9dB@8-18GHz	50dB	
			SMA-f(50Ω)	DC-13GHz	1000W	10W	1.6@0-4GHz 1.8@4-8GHz 2.0@8-13GHz	0.5dB@0-4GHz 0.7dB@4-8GHz 1.0dB@8-13GHz		
LPHF-02D		2	2.92-f(50Ω)	DC-18GHz	1000W	100W@2GHz 35W@8GHz 10W@18GHz	1.35@0-8GHz 1.5@8-18GHz	0.4dB@0-8GHz 1.0dB@8-18GHz	50dB	
	2.92-f(50Ω)		DC-18GHz	1000W	10W	2.0@0-4GHz 2.5@4-8GHz 3.5@8-12GHz 4.5@12-18GHz	0.5dB@0-4GHz 1.0dB@4-8GHz 2.0dB@8-12GHz 3.5dB@12-18GHz			
LPHF-02E	2	SMA-f(50Ω)	DC-5GHz	1000W	60W@5GHz	1.2	0.25dB	50dB		
		SMA-f(50Ω)	DC-5GHz	1000W	10W	1.5	0.45dB			

## LPHF Rotary Joints

	Model	Channel	Interface	Frequency range	Peak power, max	Average power, max	VSWR, max	Insertion loss, max	Isolation, min.
Multi-Channel	LPHF-02F	2	SMA-f(50Ω)	DC-18GHz	1000W	100W@2GHz 35W@8GHz 10W@18GHz	1.35@0-8GHz 1.5@8-18GHz	0.5dB@0-8GHz 1.0dB@8-18GHz	50dB
			SMA-f(50Ω)	DC-13GHz	1000W	10W	1.6@0-5GHz 2.0@5-13GHz	0.6dB@0-5GHz 1.2dB@5-13GHz	
	LPHF-02G	2	SMA-f(50Ω)	DC-8GHz	1000W	200W@1GHz	1.2@0-4GHz 1.3@4-8GHz	0.2dB@0-4GHz 0.4dB@4-8GHz	50dB
			SMA-f(50Ω)	DC-8GHz	1000W	10W	1.8@0-4GHz 2.2@4-8GHz	0.5dB@0-4GHz 0.8dB@4-8GHz	
	LPHF-03A	3	SMA-f(50Ω)	DC-3GHz	1000W	10W	1.3	0.4dB	60dB
			SMA-f(50Ω)	DC-3GHz	1000W	50W@1GHz	2.0	0.7dB	
			SMA-f(50Ω)	DC-3GHz	1000W	50W@1GHz	2.0	0.4dB	
	LPHF-03B	3	TNC(50Ω)	DC-3GHz	3000W	100W	1.7	0.75dB	60dB
			TNC(50Ω)	DC-3GHz	3000W	30W	1.7	0.75dB	
			TNC(50Ω)	DC-3GHz	3000W	30W	1.3	0.75dB	
	LPHF-04A	4	SMA-f(50Ω)	DC-4GHz	1000W	50W	1.3	1.0dB	55dB
			SMA-f(50Ω)	DC-4GHz	1000W	10W	1.5	1.0dB	
			SMA-f(50Ω)	DC-4GHz	1000W	10W	1.5	1.0dB	
			SMA-f(50Ω)	DC-4GHz	1000W	10W	1.5	1.0dB	
Integrated	LPC-1C1202	1	Optional	DC-3GHz	1000W	20W@3GHz	1.6@0-3GHz	1.2dB@3GHz ( 250mm/250mm )	/
	LPC-1C2402	1	Optional	DC-3GHz	1000W	20W@3GHz	1.6@0-3GHz	1.2dB@3GHz ( 250mm/250mm )	/
	LPC-1C3002	1	Optional	DC-3GHz	1000W	20W@3GHz	1.6@0-3GHz	1.2dB@3GHz ( 250mm/250mm )	/
	LPC-1C3602	1	Optional	DC-3GHz	1000W	20W@3GHz	1.6@0-3GHz	1.2dB@3GHz ( 250mm/250mm )	/

# LPFO Fiber Optic Rotary Joints



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

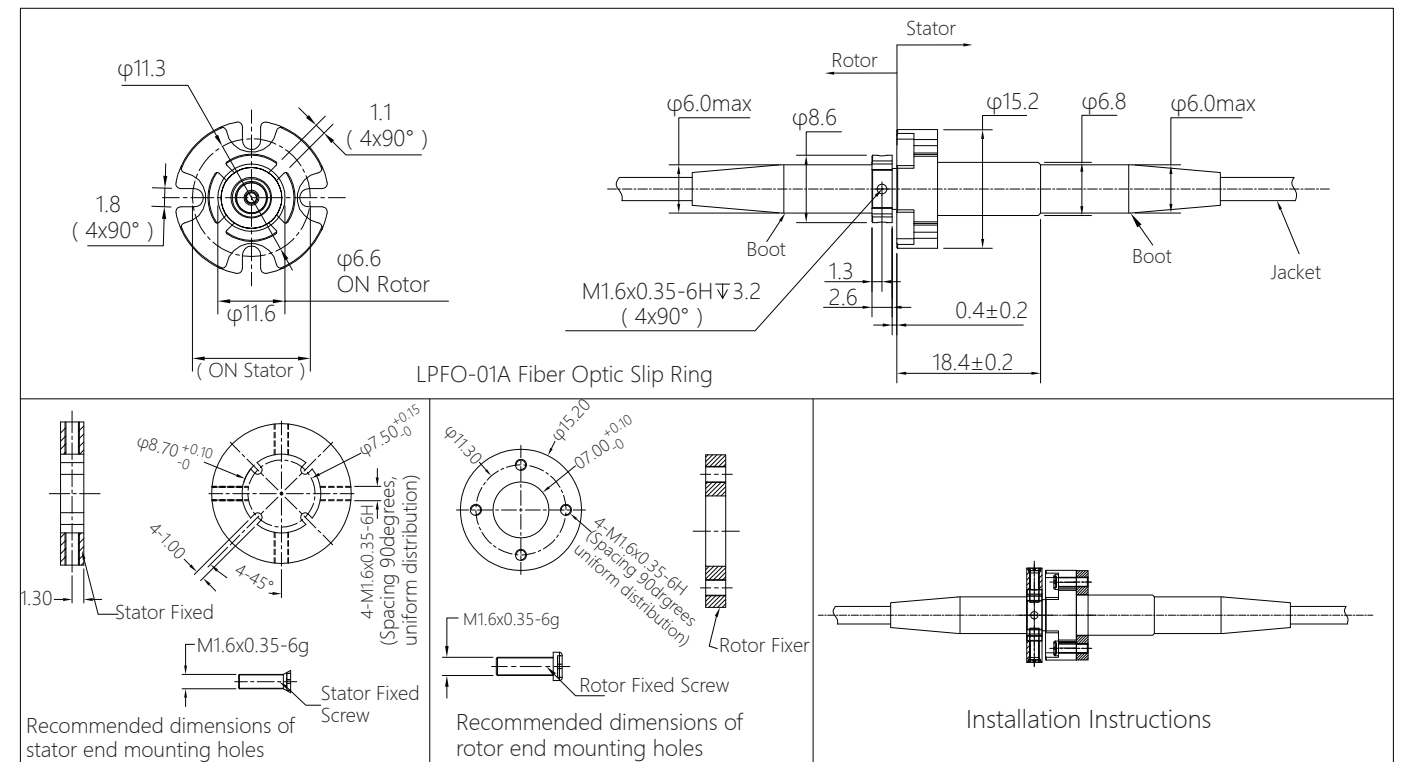
### Options

- 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

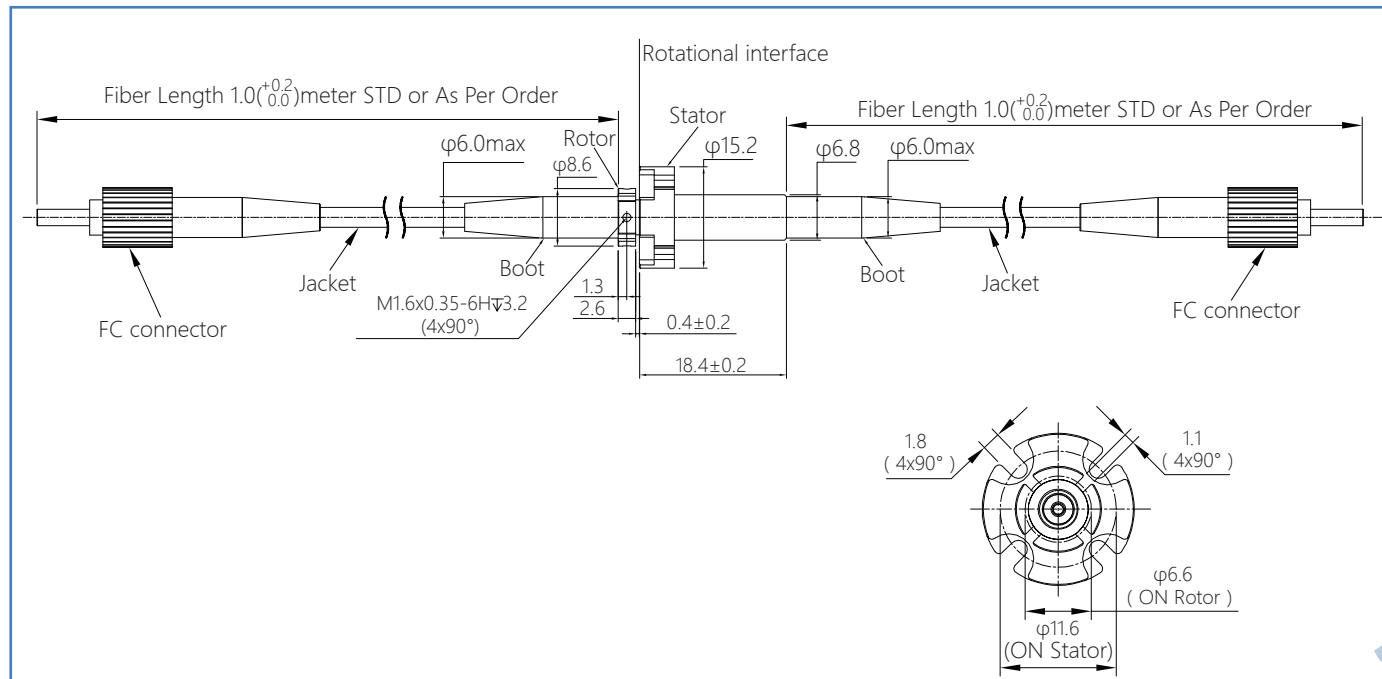
- Robotics
- Material conveying system
- Rotating turret on the vehicle
- Remote control system
- Radar system
- Offshore and marine system
- High speed video, digital, analog signal transmission and control of optic fiber sensor revolving table
- Medical system
- Video surveillance system
- National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

## Installation Instructions





## LPFO-01A Outline Drawing



### Specifications

Fiber types	SM or MM	Connector types	FC/SC/ST/LC(PC or APC)
Channel number	1	Estimated life cycle	200-400 million revolutions
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)

## Features

### Independent Research and Development

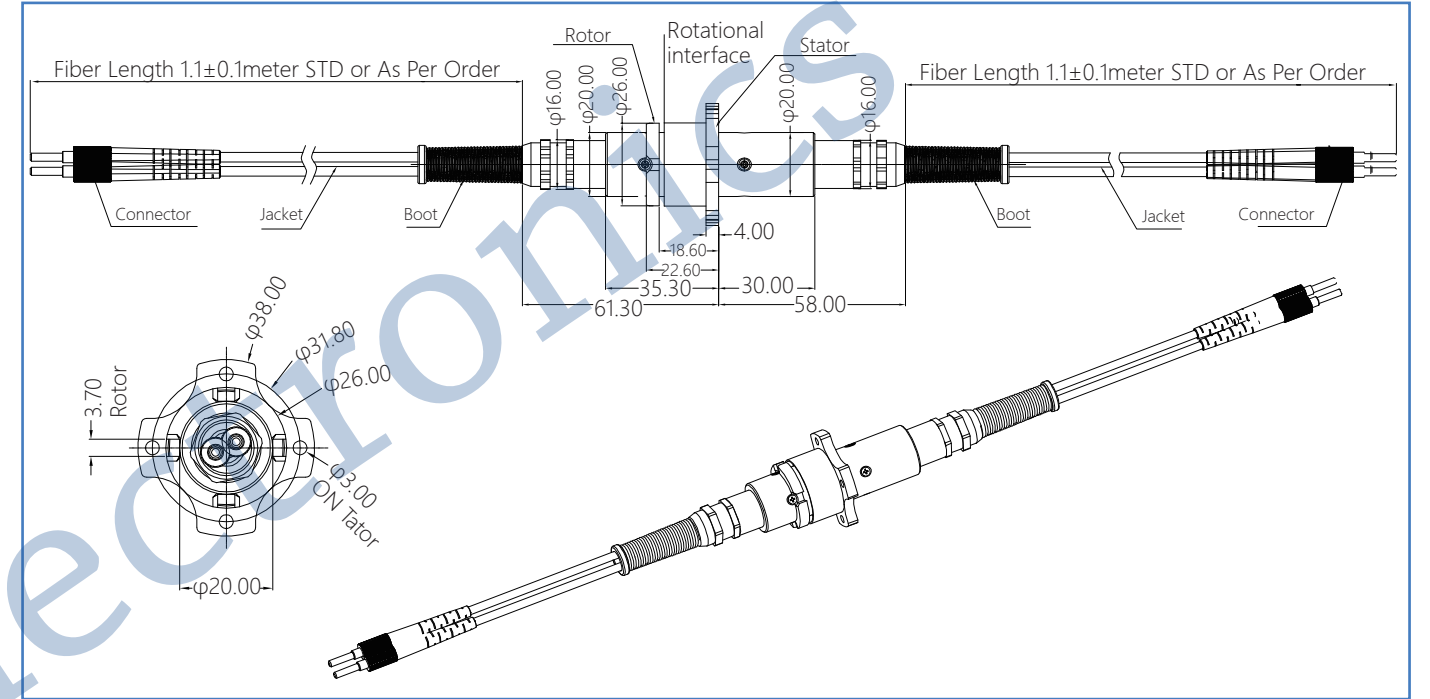
#### Key Challenges

- ▶ 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

## LPFO-04N Outline Drawing



### Specifications

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 and connection included)

### 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

## LPFO Fiber Optic Rotary Joints

	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	
LPFO-08N-A		8	SM&MM	850-1550	< 4dB	< 2dB	
LPFO-08N-B		8	SM&MM	850-1550	< 4dB	< 2dB	
LPFO-19A		8-19	SM&MM	850-1550	< 5dB	< 2dB	
Photoelectric Integrated	LPC-1F1202	1	SM&MM	650-1650	< 2dB	< 0.5dB	
	LPC-1F2402	1	SM&MM	650-1650	< 2dB	< 0.5dB	

## LPFO Fiber Optic Rotary Joints

	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	
Photoelectric Integrated	> 40	/	300	ST/FC/SC/LC,etc.	Φ24.8*39.8	
	> 40	/	300	ST/FC/SC/LC,etc.	Φ24.8*54.8	