

## MFO100 - MFO SERIES

## MFO100 (1 channel FORJ)

MFO100 slip rings are small and compact FORJ with OD 10.00mm \* L 36.700mm, standard, off-the-shelf. It could support 1 channel fiber optics(SM/MM) transmitting on 360° rotating. Single-channel (SM or MM) rotary joints(FORJ) are the most versatile designs the market has ever seen. The rugged body allows fiber pigtail on either the rotor side or the stator side. One can configure the package to fit his need exactly. features extremely low insertion loss and impressive return loss performance for both singlemode and multimode fibers. MFO100 are often used with electronic slirings, call optical-electrical hybrid slirping, transmit power and high speed data.

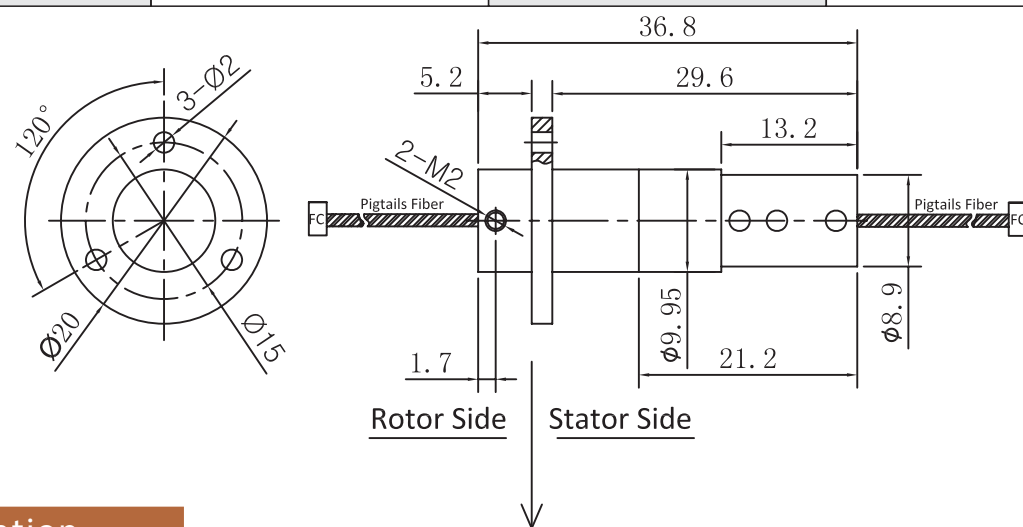


## Specifications

PART #	WAVELENGTH	CHANNEL	INSERTION LOSS	LEAD LENGTH	CONNECTORS
MFO100	650nm~1550nm	1 channel SM/MM	<2.0dB	1000mm	FC(ST,SC on request)

## MFO100(1channel FORJ) Specifications

Wavelength	650nm~1550nm	Insertion loss	<2.0dB (normal: <0.8dB)
Insertion loss ripple	<+/-0.25 dB	Return loss (SM/MM)	>40 dB
Maximum speed	2000 R	PM Pressure compensation	1000 psi
Pulling strength.	10N	Start up torque	0.01N/m
Estimated life cycle	300 million	Optical power handling	25 dBm
Working temperature	-40 to 85 °C	Storage temperature	-50 to 85 °C
Package style	Pigtail with FC	Housing materia	Stainless steel
Fiber types	Support both SM/MM	Connector	FC(ST,SC on request)
IP rating	IP 54	Weight	50g
Lead length	1000mm		



## Application

## Typical Application

- ▶ between in undersea robot and control ship.
- ▶ between in radar antenna and on-board signal processing system.
- ▶ with the chariot rotating tower car body console.
- ▶ between in welding robot and console.

## MFO102 (1 channel FORJ + Electrical)

MFO102 combine 1channel FORJ with max 12 wires signal,are standard, off-the-shelf.  
Has compact body only OD 25mm,Specially designed for CCTV.  
Use gold contacts at the rotary interface for signal rings, and 1 channel  
Fiber optic rotary joints for large amount data transmitting.



### Specifications

PART #	WAVELENGTH	CHANNEL	2A/SIGNAL	MAX SPEED	CONNECTORS
MFO102-12	650nm~1550nm	1 channel SM/MM	12	250RPM	FC
MFO102-24	650nm~1550nm	1 channel SM/MM	24	250RPM	FC

### Electric Specifications

Rating voltage	2 10 VDC / 240 VAC	Contact material	Precious Metal:Gold-Gold
Dielectric strength	600VDC@50Hz	Lead Wire	UL Teflon® Awg28
Insulation resistance	1000MΩ@500VDC	Lead Lengths	250mm
Operating Temp	-40°C to 80°C	Protection	IP51
Mechanical vibratio	MIL-SID-810E	Humidity	10% to 90% RH
Materials	Lead Free,RoHS compliant	CE Certified	YES

### (1 channel FORJ) Specifications

Wavelength	650nm~1550nm	Insertion loss	<2.5dB (normal: <0.8dB)
Insertion loss ripple	<+/-0.25 dB	Return loss (SM/MM)	>30 dB(RFC/RST)
Maximum speed	2000 RPM	Pressure compensation	1000 psi
Pulling strength.	10N	Start up torque	0.1N/m
Estimated life cycle	300 million	Optical power handling	23 dBm
Working temperature	-40 to 85 °C	Storage temperature	-50 to 85 °C
Package style	Pigtail or receptacles	Housing materia	Stainless steel
Fiber types	Support both SM/MM	Connector	FC
IP rating	IP 68	Weight	50g
Lead length	1000mm		

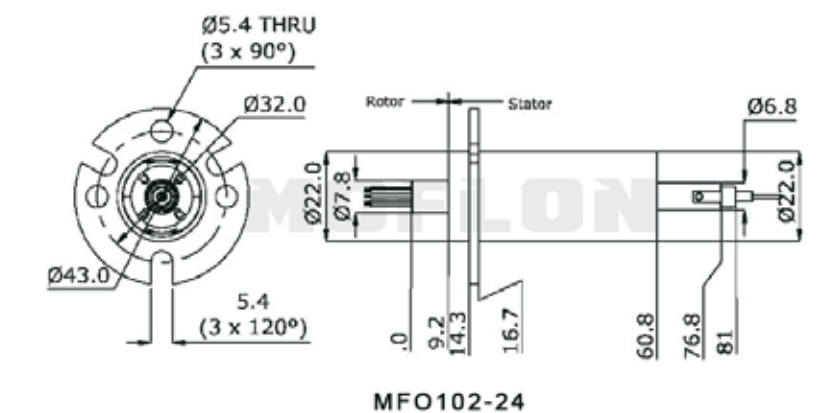
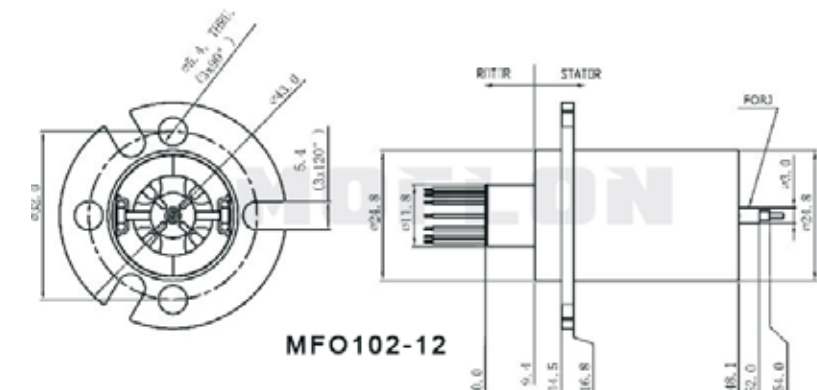
### Application

#### Typical Application

- ▶ between in undersea robot and control ship.
- ▶ between in radar antenna and on-board signal processing system.
- ▶ with the chariot rotating tower car body console.
- ▶ between in welding robot and console.

### Drawings

Standard drawings:



12 wires for one group color. from 13 ... 24, repeat the same color as 1 ... 12,indicated with number code pipe.

### Lead wire Color codes

Rings#	Color Code	Rings#	Color Code	Rings#	Color Code
1	BLK	5	YEL	9	GRY
2	BRN	6	GRN	10	WHT
3	RED	7	BLU	11	PINK
4	ORN	8	PURPLE	12	AZURY

## MFO108 (1 channel FORJ+ Electric)

MFO108 is 1 channel FORJ mixed with electric wires, max 72 wires, are standard, ready available slip ring solution.

Use gold contacts at the rotary interface for signal rings, and 1 channel Fiber optic rotary joints for large amount data transmitting.

can combine with Large current, Thermocouples, Ethernet, Coaxial(RF), USB on request.



### Specifications

PART #	WAVELENGTH	CHANNEL	2A/SIGNAL	10A	LENGTH
MFO108-06S	650nm~1550nm	1 channel SM/MM	6	0	51
MFO108-0610	650nm~1550nm	1 channel SM/MM	0	6	51
MFO108-12S	650nm~1550nm	1 channel SM/MM	12	0	75
MFO108-1210	650nm~1550nm	1 channel SM/MM	0	12	75
MFO108-0610-06S	650nm~1550nm	1 channel SM/MM	6	6	75
MFO108-18S	650nm~1550nm	1 channel SM/MM	18	0	99
MFO108-1810	650nm~1550nm	1 channel SM/MM	0	18	99
MFO108-24S	650nm~1550nm	1 channel SM/MM	24	0	123

### Electric Specifications

Rating voltage	2 10 VDC / 240 VAC	Contact material	Precious Metal:Gold-Gold
Dielectric strength	600VDC@50Hz	Lead Wire	UL Teflon® Awg28
Insulation resistance	1000MΩ@500VDC	Lead Lengths	250mm
Operating Temp	-40°C to 80°C	Protection	IP51
Mechanical vibratio	MIL-SID-810E	Humidity	10% to 90% RH
Materials	Lead Free, RoHS compliant	CE Certified	YES

### (1 channel FORJ) Specifications

Wavelength	650nm~1550nm	Insertion loss	<2dB (normal: <0.8dB)
Insertion loss ripple	<+/-0.25 dB	Return loss (SM/MM)	>40 dB(RFC/RST)
Maximum speed	2000 RPM	PMPressure compensation	1000 psi
Pulling strength.	10N	Start up torque	0.1N/m
Estimated life cycle	300 million	Optical power handling	23 dBm
Working temperature	-40 to 85 °C	Storage temperature	-50 to 85 °C
Package style	Pigtail or receptacles	Housing materia	Stainless steel
Fiber types	Support both SM/MM	Connector	FC
IP rating	IP 68	Weight	50g
Lead length	1000mm		

Notes:

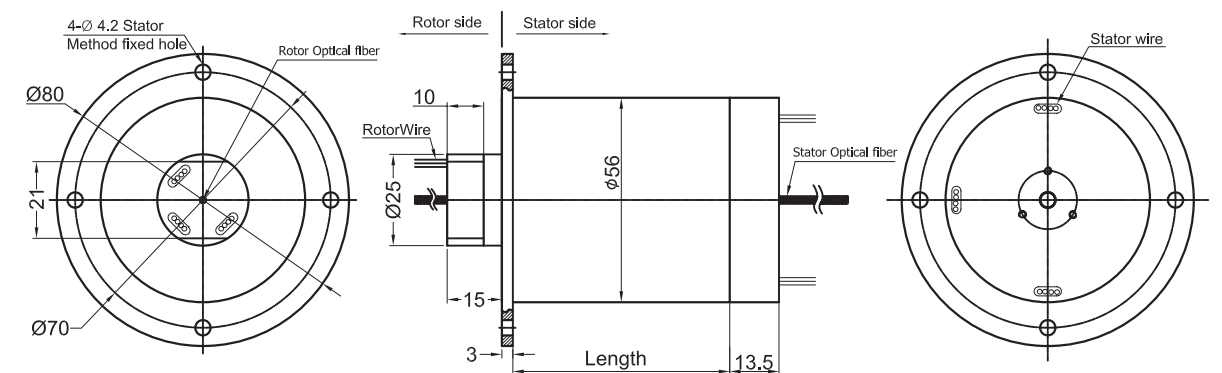
1)The operational life of the unit is dependent upon rotational speed, environment and temperature.

2)Lead Wire size: 2A/signal -> AWG22, 10A -> AWG16, 20A -> Awg14, colored code.

3)Electrical noise is dependent upon the rotating speed and current,voltage.

### Drawings

Standard drawings:



12 wires for one group color. from 13 ... 24, repeat the same color as 1 ... 12, indicated with number code pipe.

### Lead wire Color codes

Rings#	Color Code	Rings#	Color Code	Rings#	Color Code
1	BLK	5	YEL	9	GRY
2	BRN	6	GRN	10	WHT
3	RED	7	BLU	11	PINK
4	ORN	8	PURPLE	12	AZURY

### Options

- Optional flange mounting.
- Specified the wire exit direction.
- Can combine more electric wires:1-72Ring
- Specified connectors and Heat-shrink tube.
- Longer lead lengths available.
- Shielded cables
- Connectors
- Environmentally Sealed up to IP68@4Mpa
- Frequencies up to 500 MHz
- High-speed data transmission for fast Ethernet and EtherCat
- Signal, Coax, and Power combinations
- High Speed up to 20,000 rpm
- Thermocouples
- Shock, Vibration, and Temperature Qualified
- Pneumatic/Hydraulic Capability
- High temperature---up to 450 degree
- High Voltage & large Current(1000A)
- IP65,IP68 are available.
- Military Grade.





## MFO208 - MFO SERIES

## MFO208 - MFO SERIES

## MFO208 (2 channel FORJ+ Electric)

MFO208 is 2 channel FORJ mixed with electric wires, max 72 wires, are standard, ready available slip ring solution.

Use gold contacts at the rotary interface for signal rings, and 2 channel Fiber optic rotary joints for large amount data transmitting.

can combine with Large current, Thermocouples, Ethernet, Coaxial(RF), USB on request.



## Specifications

PART #	WAVELENGTH	CHANNEL	2A/SIGNAL	10A	LENGTH
MFO208-06S	650nm~1310nm	2 channel SM/MM	6	0	200
MFO208-0610	650nm~1310nm	2 channel SM/MM	0	6	200
MFO208-12S	650nm~1310nm	2 channel SM/MM	12	0	200
MFO208-1210	650nm~1310nm	2 channel SM/MM	0	12	200
MFO208-0610-06S	650nm~1310nm	2 channel SM/MM	6	6	200
MFO208-18S	650nm~1310nm	2 channel SM/MM	18	0	200
MFO208-1810	650nm~1310nm	2 channel SM/MM	0	18	200
MFO208-24S	650nm~1310nm	2 channel SM/MM	24	0	200

## Electric Specifications

Rating voltage	2 10 VDC / 240 VAC	Contact material	Precious Metal:Gold-Gold
Dielectric strength	600VDC@50Hz	Lead Wire	UL Teflon®
Insulation resistance	1000MΩ@500VDC	Lead Lengths	250mm
Operating Temp	-40°C to 80°C	Protection	IP51
Mechanical vibratio	MIL-SID-810E	Humidity	10% to 90% RH
Materials	Lead Free,RoHS compliant	CE Certified	YES

## MFO100(1channel FORJ) Specifications

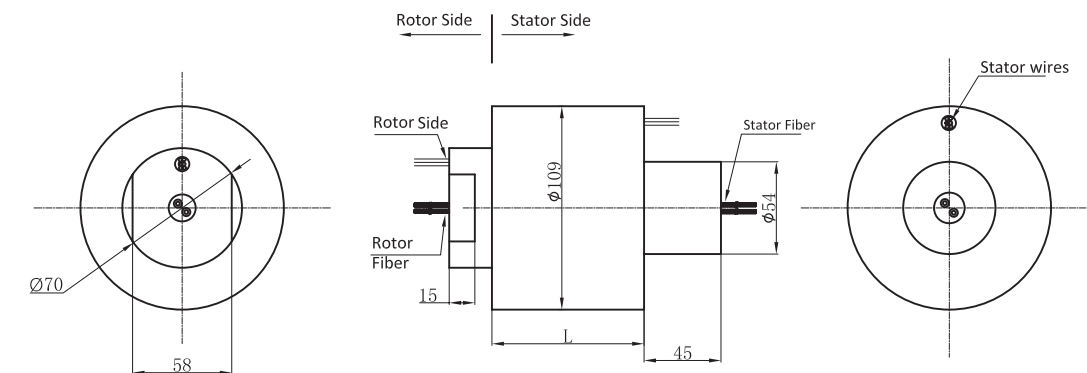
Wavelength	650nm~1310nm	Insertion loss	<2.5dB (normal: <0.8dB)
Insertion loss ripple	<+/-0.25 dB	Return loss (SM/MM)	>30 dB(RFC/RST)
Maximum speed	250 RPM	PMPressure compensation	1000 psi
Pulling strength.	10N	Start up torque	0.1N/m
Estimated life cycle	300 million	Optical power handling	23 dBm
Working temperature	-40 to 85 °C	Storage temperature	-50 to 85 °C
Package style	Pigtail with FC	Housing materia	Stainless steel
Fiber types	Support both SM/MM	Connector	FC
IP rating	IP 68	Weight	50g
Lead length	1000mm		

## Notes:

- 1)The operational life of the unit is dependent upon rotational speed, environment and temperature.
- 2)Lead Wire size: 2A/signal -> AWG22, 10A -> AWG16, 20A -> Awg14, colored code.
- 3)Electrical noise is dependent upon the rotating speed and current,voltage.

## Drawings

## Standard drawings:



12 wires for one group color. from 13 ... 24, repeat the same color as 1 ... 12, indicated with number code pipe.

## Lead wire Color codes

Rings#	Color Code	Rings#	Color Code	Rings#	Color Code
1	BLK	5	YEL	9	GRY
2	BRN	6	GRN	10	WHT
3	RED	7	BLU	11	PINK
4	ORN	8	PURPLE	12	AZURY

## Options

- Optional flange mounting.
- Specified the wire exit direction.
- Can combine more electric wires:1-72Ring
- Specified connectors and Heat-shrink tube.
- Longer lead lengths available.
- Shielded cables
- Connectors
- Environmentally Sealed up to IP68@4Mpa
- Frequencies up to 500 MHz
- High-speed data transmission for fast Ethernet and EtherCat
- Signal, Coax, and Power combinations
- High Speed up to 20,000 rpm
- Thermocouples
- Shock, Vibration, and Temperature Qualified
- Pneumatic/Hydraulic Capability
- High temperature---up to 450 degree
- High Voltage & large Current(1000A)
- IP65,IP68 are available.
- Military Grade.





## MFO408 (4 channel FORJ+ Electric)

MFO408 is 4 channel FORJ mixed with electric wires, max 72 wires, are standard, ready available slip ring solution.

Use gold contacts at the rotary interface for signal rings, and 4 channel Fiber optic rotary joints for large amount data transmitting.

can combine with Large current, Thermocouples, Ethernet, Coaxial(RF), USB on request.



### Specifications

PART #	WAVELENGTH	CHANNEL	2A/SIGNAL	10A	LENGTH
MFO408-06S	650nm~1310nm	4 channel SM/MM	6	0	51
MFO408-0610	650nm~1310nm	4 channel SM/MM	0	6	51
MFO408-12S	650nm~1310nm	4 channel SM/MM	12	0	75
MFO408-1210	650nm~1310nm	4 channel SM/MM	0	12	75
MFO408-0610-06S	650nm~1310nm	4 channel SM/MM	6	6	75
MFO408-18S	650nm~1310nm	4 channel SM/MM	18	0	99
MFO408-1810	650nm~1310nm	4 channel SM/MM	0	18	99
MFO408-24S	650nm~1310nm	4 channel SM/MM	24	0	123

### Electric Specifications

Rating voltage	2 10 VDC / 240 VAC	Contact material	Precious Metal:Gold-Gold
Dielectric strength	600VDC@50Hz	Lead Wire	UL Teflon®
Insulation resistance	1000MΩ@500VDC	Lead Lengths	250mm
Operating Temp	-40°C to 80°C	Protection	IP51
Mechanical vibratio	MIL-SID-810E	Humidity	10% to 90% RH
Materials	Lead Free, RoHS compliant	CE Certified	YES

### MFO100(1channel FORJ) Specifications

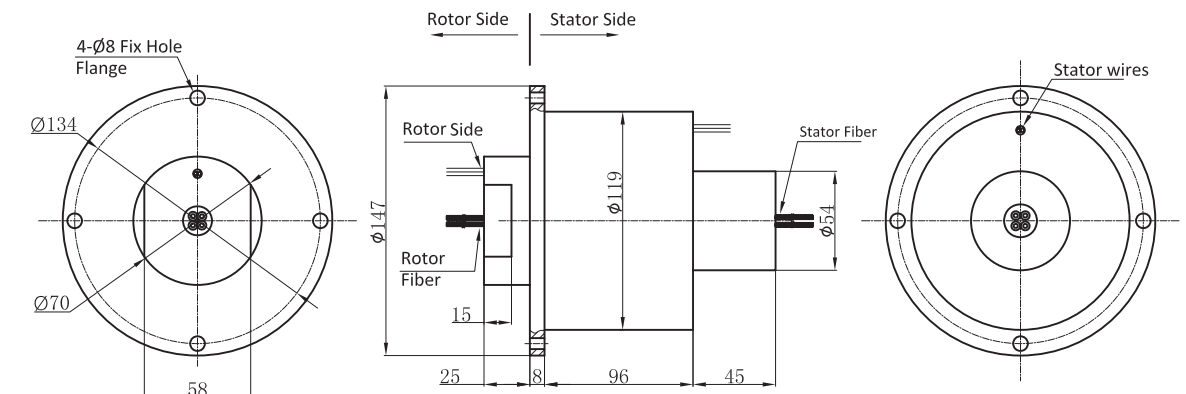
Wavelength	650nm~1310nm	Insertion loss	<2.5dB (normal: <0.8dB)
Insertion loss ripple	<+/-0.25 dB	Return loss (SM/MM)	>30 dB(RFC/RST)
Maximum speed	250 RPM	PMPressure compensation	1000 psi
Pulling strength.	10N	Start up torque	0.1N/m
Estimated life cycle	300 million	Optical power handling	23 dBm
Working temperature	-40 to 85 °C	Storage temperature	-50 to 85 °C
Package style	Pigtail with FC	Housing materia	Stainless steel
Fiber types	Support both SM/MM	Connector	FC
IP rating	IP 68	Weight	50g
Lead length	1000mm		

### Notes:

- 1)The operational life of the unit is dependent upon rotational speed, environment and temperature.
- 2)Lead Wire size: 2A/signal -> AWG22, 10A -> AWG16, 20A -> Awg14, colored code.
- 3)Electrical noise is dependent upon the rotating speed and current,voltage.

### Drawings

Standard drawings:



12 wires for one group color. from 13 ... 24, repeat the same color as 1 ... 12, indicated with number code pipe.

### Lead wire Color codes

Rings#	Color Code	Rings#	Color Code	Rings#	Color Code
1	BLK	5	YEL	9	GRY
2	BRN	6	GRN	10	WHT
3	RED	7	BLU	11	PINK
4	ORN	8	PURPLE	12	AZURY

### Options

- ▶ Optional flange mounting.
- ▶ Specified the wire exit direction.
- ▶ Can combine more electric wires:1-72Ring
- ▶ Specified connectors and Heat-shrink tube.
- ▶ Longer lead lengths available.
- ▶ Shielded cables
- ▶ Connectors
- ▶ Environmentally Sealed up to IP68@4Mpa
- ▶ Frequencies up to 500 MHz
- ▶ High-speed data transmission for fast Ethernet and EtherCat
- ▶ Signal, Coax, and Power combinations
- ▶ High Speed up to 20,000 rpm
- ▶ Thermocouples
- ▶ Shock, Vibration, and Temperature Qualified
- ▶ Pneumatic/Hydraulic Capability
- ▶ High temperature---up to 450 degree
- ▶ High Voltage & large Current(1000A)
- ▶ IP65,IP68 are avialable.
- ▶ Military Grade.

