doric

1x2 Fiber-optic Rotary Joint

User Manual

Version 1.1.2

Contents

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Overview

1.1 1x2 Fiber-optic Rotary Joint

The Doric *1x2 Fiber-optic Rotary Joint* (Fig. 1.1a) allows free fiber-to-fiber rotation while maintaining light transmission. It consists of high-precision bearings and a lens system that allows sending half of the input light into each of the two output receptacles. This is particularly useful for bilateral stimulation experiments, where the illumination intensities must be the same in each channel. In addition, the rotary joint has a rotation-insensitive optical intensity transfer. It is composed of a **Stator**, which stays immobile, and a **Rotor** that moves (Fig. 1.1b).

(a) *1x2 Fiber-optic Rotary Joint*

(b) *1x2 Fiber-optic Rotary Joint Elements; Stator (Black) and Rotor (Yellow)*

Figure 1.1: *1x2 Fiber-optic Rotary Joint*

1.2 1x2 Fiber-optic Rotary Joint Holders

The standard *Holder_FRJ_large* (Fig. 1.2a) is included with the rotary joint. The gimbal mount holder *GH_FRJ* (Fig. 1.2b) can be purchased separately. It allows the rotary joint to be held while still allowing swivel movements on other axes of rotation.

(a) *Holder for FRJ*

(b) *Gimbal mount holder for FRJ*

Figure 1.2: *1x2 Fiber-optic Rotary Joint Holder*

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Operations Guide

2.1 Rotary Joints Holders

2.1.1 Holder_FRJ_large

If using the *Holder_FRJ_large* standard holder, thread the FRJ into position to secure it to the holder (Fig. 2.1). The holder can be mounted into an experimental set-up using 1/4 (or M6) screws.

Figure 2.1: *Installation of the Holder_FRJ_large*

Figure 2.2: *1x2 Fiber-optic Rotary Joint, Standard Holder*

2.1.2 Gimbal Holder

If using the *GH_FRJ* gimbal mount, thread the FRJ into position to secure it to the holder (Fig. 2.3). The holder can be mounted into an experimental set-up using #8-32 screws.

Figure 2.3: *1x2 Fiber-optic Rotary Joint, Gimbal Mount Holder*

2.2 Input and Output Patch Cords

Remove the protective caps and clean the connector end tips of the patch cords before connecting them to the rotary joint. Use isopropyl alcohol or a similar cleansing solution. When not in use, place the plastic caps on the connectors for protection and cleanliness. With an FC connector, the connector key must be oriented to enter within the receptacle slot to ensure good connection (Fig. 2.4).

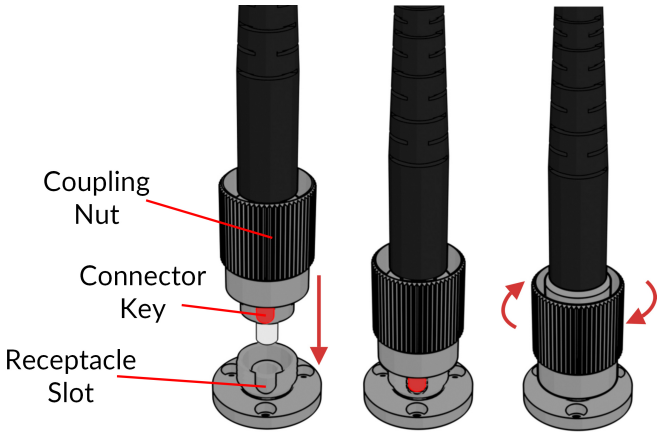

Figure 2.4: *FC Connector, Fiber Installation*

To reduce the risk of eye injury, it is sound practice to NOT CONNECT/DISCONNECT OPTICAL FIBERS when the light source is turned on

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Specifications

Table 3.1: *General Specifications*

SPECIFICATIONS	VALUE	NOTES
Transmission	>40% per channel	Tested with 200 µm core, NA 0.22 fiber
Wavelength Range	450-650 nm	Others available on request
Input NA	0.22	
Output NA	0.22	Output NA 0.5 on request
Power variation in rotation	± 3% of the mean	Tested with 200 µm core, NA 0.22 fiber
Fiber Type	core 200 to 600 µm, NA 0.22 to 0.37	Works with other fiber types, but transmission can be affected
Start Up Torque	30 µN·m	Typical Value
Outer diameter	31.0 mm	-
Length	53.0 mm	-
Mass	56.0 g	-

Table 3.2: *Recommended Environmental Specifications*

DESCRIPTION	OPERATION	STORAGE
Use	Indoor	Indoor
Temperature	0-40 ° C	0-40 ° C
Humidity	40-60% RH, non condensing	40-60% RH, non condensing

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Support

4.1 Maintenance

The product does not require any maintenance. Do not open the enclosure. Contact Doric Lenses for return instructions if the unit does not work properly and needs to be repaired.

4.2 Warranty

This product is under warranty for a period of 12 months. Contact Doric Lenses for return instructions. This warranty will not be applicable if the unit is damaged or needs to be repaired as a result of improper use or operation outside the conditions stated in this manual. For more information, see our Website.

4.3 Contact us

For any questions or comments, do not hesitate to contact us by:

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