



Industrial Solutions

FIBERFOX

Fiber optic connection system



**TRUST
THE
ORIGINAL**

NEUTRIK®

A brand of the Neutrik Group

FIBERFOX

Fiber optic connection system



EXPANDED BEAM SOLUTIONS



FIBERFOX Expanded Beam Fiber Optic solutions are designed to operate in extremely harsh environments, they use non-physical contact fiber optic termini that are behind an anti-reflective coated ball lens. This lens expands the beam to many times its original size aiding optical alignment and minimizing the effects of dust, debris and other environmental conditions.

With this technology it is possible to regularly disconnect and reconnect outdoor fiber optic connection, with a significantly lower risk of contaminating the sensitive fiber end surface. It is also possible to transmit signals over 360° rotating systems.

FIBERFOX expanded beam solutions make reliable optical connections possible in a variety of heavy-duty areas, like:

- Mining, above or below ground
- Tunnel boring
- Industrial plants in outdoor areas
- Inter-carriage in railroad applications
- Optical connections in docking systems
- Wind turbines in the renewable Energy sector
- Robotics with 360° rotation

Mining



Tunneling



Railway



Wind Energy



Robotics



CORE TECHNOLOGY EXPANDED BEAM

Expanded beam fiber optic connectors utilize a lens to expand and collimate the light emitting from an optical fiber. This collimated light beam is transmitted through an air gap to a mating connector, where the light is collected and focussed by a second lens into a second optical fiber to complete the connection. Like shown below.

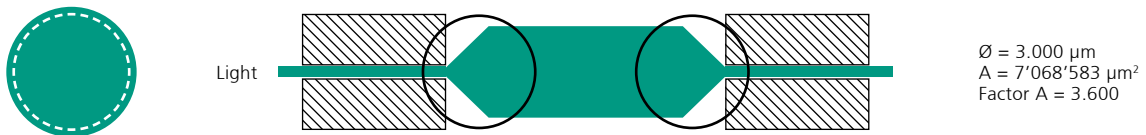
With 50/125 multimode fiber, the expanded and collimated light beam has an active area

of around 3.600 times larger than the original 50 μm multimode fiber core.

The effect of collimating and greatly increasing the beam diameter, means that the connector is less sensitive to small particles of dust or other contamination which could completely obscure transmission in physical contact type connectors.

NEUTRIK FIBERFOX SOLUTION

Multimode



The following diagram is a scale representation of physical contact and expanded beam diameters showing typical contaminant sizes:

Clean Surface	Contaminated	Result
		Dust Particle of $\text{Ø} = 100 \mu\text{m}$ can cover the full transmission core of the fiber and cleaning is mandatory.
		Dust Particle of $\text{Ø} = 100 \mu\text{m}$ covers 3.33 % of the lens surface and 90 % of the transmission power is still given.

● Dust Particle $\text{Ø} = 100 \mu\text{m}$

foxBRID 2CH

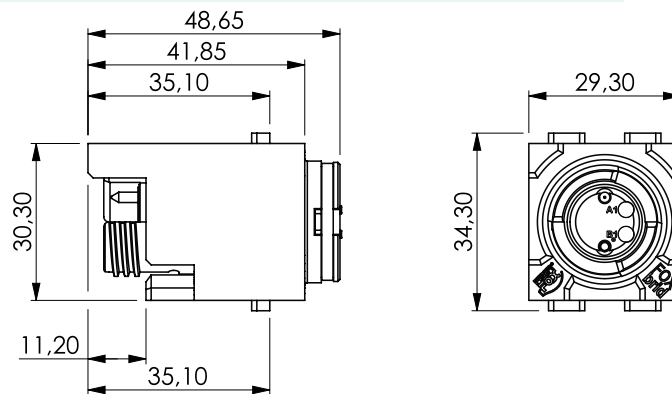
- Very rugged plug face
- Insensitive to electromagnetic influences
- No splicer, no expertise required for Installation
- Very compact design - fits into industrial modular connectors
- Easy patching with common LC patch Cords
- Extremely service-friendly and reliable



NO2M4RW-FX

Technical Information

Gender	Hermaphroditic
Channel	2
Insertion Loss	Typical 0.9 dB / connection
	Maximum 1.45 dB / connection
Return Loss	N/A
Wavelengths	850 nm / 1300 nm
Lifetime	> 10'000 mating cycles
Locking device	Screwed & Dependent to Modular locking device
Vibrational resistance	Acc. to IEC 61300-2-1 & 61373, Category 1 – Class B
Shock resistance	Acc. to IEC 61373, Category 1 – Class B
Compatibility	MIL-DTL-83526
Flammability	UL94 V-0
Protection class	- front side IP68
	- rear side IP20
Temperature Range	-40° C to +85° C



foxBRID 4CH

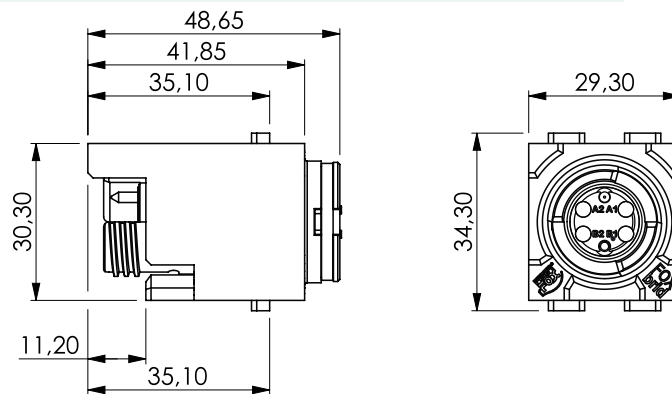
- Very rugged plug face
- Insensitive to electromagnetic influences
- No splicer, no expertise required for Installation
- Very compact design - fits into industrial modular connectors
- Easy patching with common LC patch Cords
- Extremely service-friendly and reliable



NO4M4RW-FX

Technical Information

Gender	Hermaphroditic
Channel	4
Insertion Loss	Typical 0.9 dB / connection
	Maximum 1.45 dB / connection
Return Loss	N/A
Wavelengths	850 nm / 1300 nm
Lifetime	> 10'000 mating cycles
Locking device	Screwed & Dependent to Modular locking device
Vibrational resistance	Acc. to IEC 61300-2-1 & 61373, Category 1 – Class B
Shock resistance	Acc. to IEC 61373, Category 1 – Class B
Compatibility	MIL-DTL-83526
Flammability	UL94 V-0
Protection class	- front side IP68
	- rear side IP20
Temperature Range	-40° C to +85° C



Rotary Joint

- Rotor supported by double deep groove ball bearings
- Extremely long service life with 500 million revolutions
- Easy integration with common ST patch Cords
- Robust and compact design with stainless steel parts
- IP56 protection - two hermetically dust-tight chambers sealed by shaft seals
- Extremely service-friendly and easy greasing replacement for double service life
- Reflective coated optics for wavelengths from 850nm to 1300nm



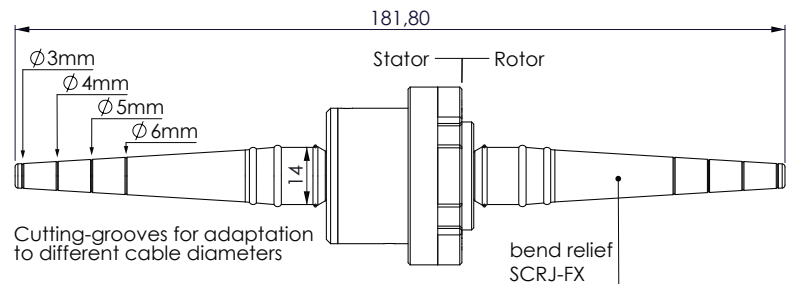
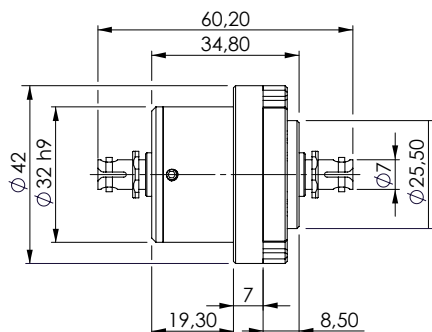
NORJ50M3-FX

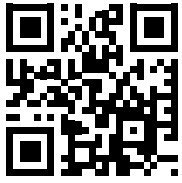
Technical Information

Rotation Speed	Max. 5.500 rpm
Lifetime	500 Mio. revolutions
Outer Diameter	Ø 42 mm
Stator Outer Diameter	Ø 32 mm
Rotor Diameter	Ø 25.5 mm
Total length	60.2 mm
Weight	230 g
Insertion Loss - regular	Typical 1.0 dB / connection Maximum 1.5 dB / connection
Insertion Loss - @ 30 rpm	≤ 1.0 dB / connection
Return Loss	N/A
Wavelengths	850 nm / 1300nm
Protection class	IP56
Temperature Range	-40° C to +75° C
Optical connector	ST
Shell material	Stainless Steel



SCRJ-FX





LIECHTENSTEIN (HEADQUARTERS)

Neutrik AG, Im alten Riet 143,
9494 Schaan, Liechtenstein
T +423 237 24 24, F +423 232 53 93, neutrik@neutrikgroup.com

GERMANY / NETHERLANDS / DENMARK / AUSTRIA

Neutrik Vertriebs GmbH, Felix-Wankel-Straße 1,
85221 Dachau, Germany
T +49 8131 28 08 90, neutrik@neutrikgroup.de

GREAT BRITAIN

Neutrik (UK) Ltd., Westridge Business Park, Cothey Way Ryde,
Isle of Wight PO33 1 QT
T +44 1983 811 441, sales@neutrikgroup.co.uk

FRANCE

Neutrik® France, 52 Rue d'aguessseau,
92100 Boulogne
T +33 1 41 31 67 50, info@neutrikgroup.fr

USA

Neutrik Americas., 4115 Taggart Creek Road,
Charlotte, North Carolina, 28208
T +1 704 972 3050, info@neutrikusa.com

JAPAN

Neutrik Limited, Yusen-Higashinibashi-Ekimaie Bldg., 3-7-19
Higashinibashi, Chuo-ku, Tokyo 103
T +81 3 3663 47 33, mail@neutrik.co.jp

HONG KONG

Neutrik Hong Kong LTD., Suite 18,
7th Floor Shatin Galleria Fotan, Shatin
T +852 2687 6055, sales@neutrik.com.hk

CHINA

Ningbo Neutrik Trading Co., Ltd., Shiqi Street, Yinxian Road West
Fengjia Village, Hai Shu District, Ningbo, Zhejiang, 315153
T +86 574 88250833, sales@neutrik.com.cn

ASSOCIATED COMPANIES

Contrik AG, Steinackerstrasse 35,
8902 Urdorf, Switzerland
T +41 44 736 50 10, contrik@contrik.ch

H. Adam GmbH, Felix-Wankel-Straße 1,
85221 Dachau, Germany
T +49 08131 28 08-0, anfrage@adam-gmbh.de