



EXPANDED BEAM CONNECTOR

INNOVATIVE SOLUTIONS

FIBERFOX

Fiber optic connection system



NEUTRIK®

FIBERFOX



EXPANDED BEAM CONNECTOR

FIBERFOX Expanded Beam Fiber Optic Connectors are designed to meet the requirements of MIL-DTL-83526 Military Specifications. Expanded Beam fiber optic connectors are designed to operate in harsh environments, they use non-physical contact fiber optic termini that are IP68 sealed 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. Because there is no wear on the optical surfaces / end faces of the termini during use, the FIBERFOX connector has excellent durability, in excess of 5'000 mating cycles, providing a long service life interconnect

solution. FIBERFOX is a hermaphroditic connector allowing multiple plug-to-plug cable assemblies to be combined to extend the length of the system. These connectors are available with two or four channels multimode lenses.

In addition to the standard plugs, FIBERFOX bridgE receptacles are suitable with standard LC Patch Cables and acts as a unique LC to Expanded Beam converter.

FIBERFOX Connectors are used in Lighting, Network, PA, Video, Broadcast, Defense & Government, Railway and Oil & Gas for Communications, Audio / Video, and Sensing Applications.

Lighting & Network



PA Market



Video



Broadcast



Defense & Government



Railway



Oil & Gas Station



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 $\text{Ø} = 100 \mu\text{m}$

FIBERFOX 2CH

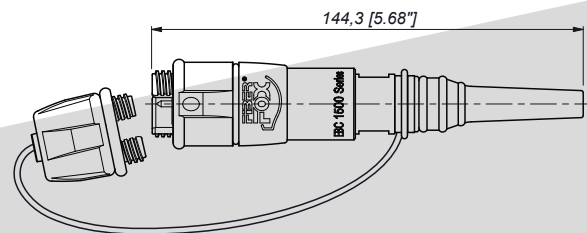
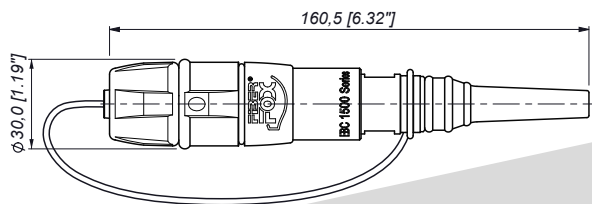
- Ø = 5 mm, PUR flame-retardant, halogen-free, bent tolerant Cable
- Heavy-duty, connectors IP68 (even unprotected)
- Cables are direct prolongable, no couplers required
- Wear-free connectors, > 5'000 mating cycles without any maintenance
- No special cleaning or measurement tools required
- Compatible with 4CH FIBERFOX System and all MIL-DTL-83526 Systems



NKO2M3-FX*

SPECIFICATIONS – 2CH

Gender	Hermaphroditic
Channel	2
Fiber Type	Multimode
Insertion Loss	Typical 0.7 dB / Connector Maximum 1.0 dB / Connector
Return Loss	N/A
Wavelengths	850 nm / 1300 nm
Lifetime	>5'000 mating cycles
Tensile Strength	1'800 N
Compressive load	50'000 N
IP Rating	IP68 (mated and unmated)
Free fall Resistance	500 falls onto concrete from 1.2 M height
Bump Resistance	4000 bumps @ 40 g acceleration
Vibrational Sinusoidal	10 - 500 Hz, 0.75 amplitude @ 10 g acceleration
Compatibility	MIL-DTL-83526
Flammability	UL94 V-0
Temperature Range	-40° C to +70° C



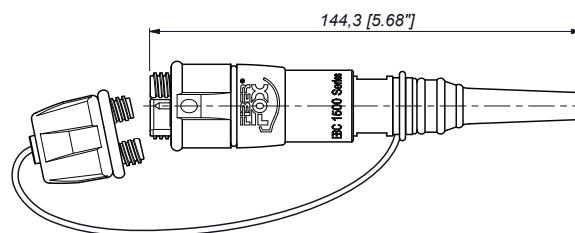
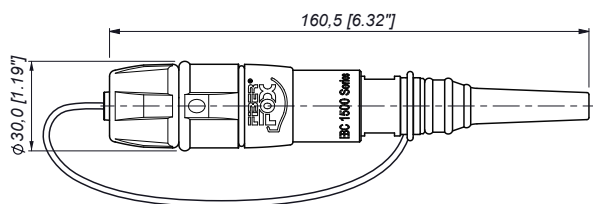
FIBERFOX 4CH

- Ø = 5.5 mm, PUR flame-retardant, halogen-free, bent tolerant Cable
- Heavy-duty, connectors IP68 (even unprotected)
- Cables are direct prolongable, no couplers required
- Wear-free connectors, > 5'000 mating cycles without any maintenance
- No special cleaning or measurement tools required
- Compatible with 2CH FIBERFOX System and all MIL-DTL-83526 Systems



SPECIFICATIONS – 4CH

Gender	Hermaphroditic
Channel	4
Fiber Type	Multimode
Insertion Loss	Typical 0.7 dB / Connector Maximum 1.0 dB / Connector
Return Loss	N/A
Wavelengths	850 nm / 1300 nm
Lifetime	>5'000 mating cycles
Tensile Strength	1'800 N
Compressive load	50'000 N
IP Rating	IP68 (mated and unmated)
Free fall Resistance	500 falls onto concrete from 1.2 M height
Bump Resistance	4000 bumps @ 40 g acceleration
Vibrational Sinusoidal	10 - 500 Hz, 0.75 amplitude @ 10 g acceleration
Compatibility	MIL-DTL-83526
Flammability	UL94 V-0
Temperature Range	-40° C to +70° C



FIBERFOX

bridge



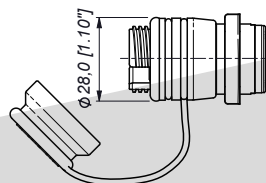
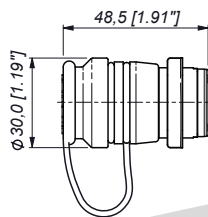
NO2M4DW-FX



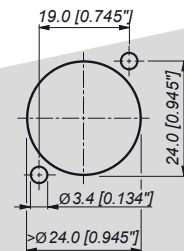
NO4M4DW-FX

SPECIFICATIONS – 2CH & 4CH

Gender	Hermaphroditic
Mounting Direction	Front & Rear Mounting
Chassis Shape	D-shape
Locking device	Screwed
Fiber Type	Multimode
Insertion Loss	Typical 0.9 dB / Connect Maximum 1.45 dB / Connect
Return Loss	N/A
Wavelengths	850 nm / 1300 nm
Lifetime	> 5'000 mating cycles
Tensile Strength	1'800 N
Compressive load	50'000 N
IP Rating	IP68 (mated and unmated)
Free fall Resistance	500 falls onto concrete from 1.2 M height
Bump Resistance	4000 bumps @ 40 g acceleration
Vibrational Sinusoidal	10-500 Hz, 0.75 amplitude @ 10 g acceleration
Compatibility	MIL-DTL-83526
Flammability	UL94 V-0
Temperature Range	-40° C to +70° C



Panel Cutout (rear side)





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