opticalCON

NEUTRIK

Content

Introduction

Only a few years ago, the use of fiber optic cabling was limited to such special cases as HD broadcast cameras. Since then, the adoption of fiber optics has mushroomed. Today, fiber optic cables are widely used for digital signal transmission and network applications in the pro audio, broadcast, and touring / rental industries.

THE APPLICATIONS FOR FIBER ARE EXTENSIVE. SOME EXAMPLES ARE:
- Network (audio, data, or DMX) transmissions with >70m (mobile) or >100m (installation) lengths, connected to professional equipment (e.g. mixers) that uses fiber optic connectors or fiber optic switching
- Digital HD video transmissions >15m (e.g. DVI, HDMI, or KVM projection) using fiber optic media converters
- Future-proof installations designed to eliminate bandwidth limitations
- Noise and EMI protection on audio or video (LED wall) applications
- Increased bandwidth, especially for broadcast applications
- Minimized cabling by embedding multiple data signals

As pro audio and broadcast equipment has evolved from analog to digital data transmission, the industry has attempted to adapt connectors originally designed for the data communication and computer industries (e.g. RJ45 connectors). Today, that trend continues with fiber optic connectors. But this is problematic. Conventional data-communication fiber optic connectors (ST, SC, LC, etc.) are optimized for permanent, one-time connection. These connectors were never designed for, and cannot withstand, the rough handling of mobile applications or the high mating cycles required in the entertainment industry. Alternative connectors, originally developed for military applications, have not been cost effective and have been deficient either in regards to dust protection or attenuation and return loss.

Design Criteria
opticalCON

Neutrik solved the various problems associated with mobile fiber optic connectivity with the launch of the opticalCON DUO fiber optic connection system in 2005. opticalCON's reliable and simple concept, with ruggedness and low maintenance at its core, has gained wide acceptance in the pro audio and broadcast industries. Well-known professional equipment manufacturers as well as key users in broadcast and rental / touring trust in opticalCON. It is our goal to turn opticalCON into an industry standard comparable to the widely used etherCON series.

opticalCON is based on LC-Duplex connectors but eliminates their inherent weaknesses, guaranteeing a safe, dust protected, and ruggedized connection. opticalCON DUO's compatibility with conventional LC connectors at both the front and the rear of the chassis connectors offers users the choice of using cost effective LC cables or ruggedized opticalCON cabling, depending on the requirements at hand. This flexibility to choose cost-effective LC cabling for system integration or ruggedized opticalCON for mobile applications benefits both OEMs and system integrators.

opticalCON DUO is most typically used for equipment connections, including various audio, lighting, and video applications. Typical uses include audio and DMX network (ring switch) applications, video projection based on fiber optic DVI, HDMI, or KVM signal converters, mobile LED panels, and various broadcast applications.

Following on the success of opticalCON DUO, the newer opticalCON QUAD series doubles the fiber count to four per cable and is designed with point-to-point connections in mind. opticalCON QUAD has been successfully deployed in such applications as data routing for touring / rental events and, especially, OB outdoor broadcast applications.

For even more fiber connections, opticalCON TRIPLE-SPLIT cable offers twelve fiber channels, split out into three QUAD connectors on each side for easy connectivity and, if required, system redundancy.

The opticalCON line continues to grow in response to our users' requirements. The specially armored X-TREME cable, available for both opticalCON DUO and opticalCON QUAD, provides the highest possible reliability. A combined opticalCON / powerCON cable provides both multichannel fiber and power. A series of patch panels, couplers, breakout boxes, color-coded springs and gaskets, and on-air powerMONITOR products eases system integration and helps assure flawless operation.

Features & Benefits
opticalCON DUO   opticalCON QUAD

MOBILE USE – RUGGED – LOW MAINTENANCE

ruggedizzed
metal housing

spring loaded push
pull locking mechanism

sealing shutter

protection boot

ruggedizzed
metal housing

spring loaded push
pull locking mechanism

sealing shutter
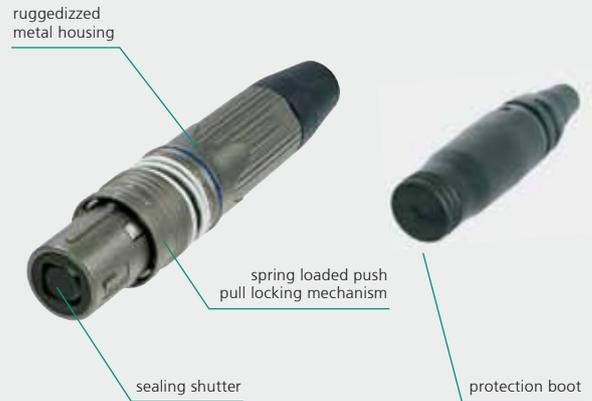
protection boot

SIMPLE INTEGRATION – COST EFFECTIVE

colored
sealing gasket

sealing shutter

big solder
cups (AWG 18)

Standard LC
connector compatibility

colored
sealing gasket

sealing shutter

Standard LC
connector compatibility

HYBRID   MULTICHANNEL

4 copper contacts

heavy duty
cable retention

2 fibers

4 fibers
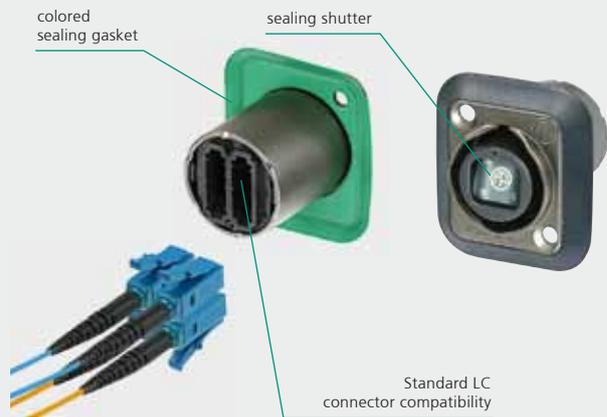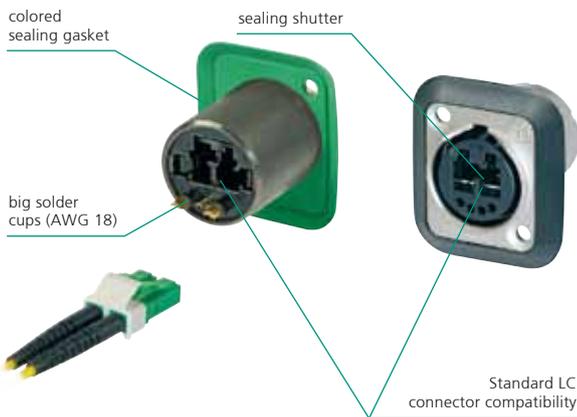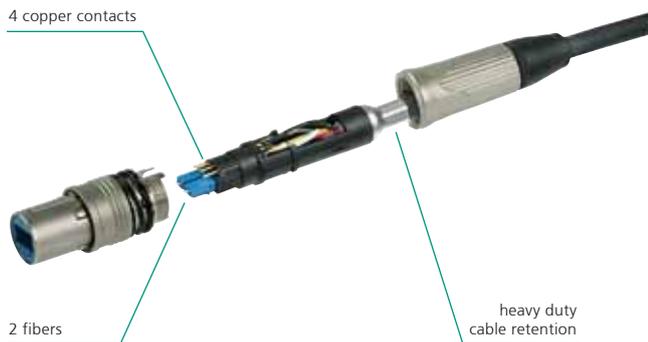
heavy duty
cable retention
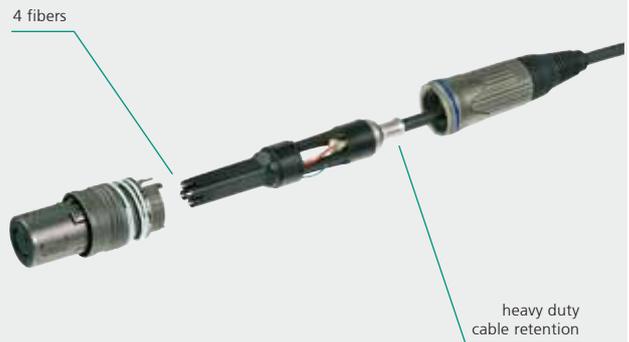
opticalCON DUO
Cable Connector Assembly
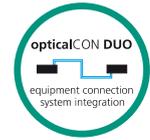
- Ruggedized and dirt-protected 2-channel fiber optic connection system
- Cable connector features rugged all-metal housing and heavy-duty cable retention
- Automatic sealing shutter with silicone gasket
- Dust and water resistant according to IP65 in mated condition
- Accommodates standard optical LC-Duplex connectors
- Field repairable
- Easy to clean, no tools required
- Reliable Push-Pull locking mechanism
- Color-coded cable connector comes pre-assembled with a choice of mobile field cables

NKO2*

NKO2M-2-150

Chassis Connector

- Ruggedized and dirt-protected 2-channel fiber optic connection system
- Shutter with silicon gasket protects optical connection from dust and dirt
- Suggested OEM equipment connectors due to LC front compatibility
- Accommodates standard LC connectors on the rear for simple installation
- Dust and water resistant according to IP65 in mated condition
- Connection on the front side either by rugged opticalCON or standard LC connector
- Rubber sealing gasket (black, blue, green to identify fiber mode)

NO2-4FDW

opticalCON QUAD
Cable Connector Assembly

- Ruggedized and dirt-protected 4-channel fiber optic connection system
- For POINT-TO-POINT multichannel routing
- Cable connector features rugged all-metal housing and heavy-duty cable retention
- Innovative spherical shutter guarantees low maintenance
- Dust and water resistant according to IP65 in mated condition
- Easy to clean, no tools required
- Reliable Push-Pull locking mechanism
- Color-coded cable connector comes pre-assembled with a choice of mobile field cables

NKO4S-0-5
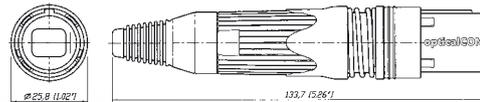
Chassis Connector

- Ruggedized and dirt-protected 4-channel fiber optic connection system
- For POINT-TO-POINT multichannel routing
- Laser protective metal shutter seals dust proof with two-component rubber gasket
- Dust and water resistant according to IP65 in mated condition
- Accommodates standard LC connectors on the rear for simple installation
- Rubber sealing gasket (black, blue, green to identify fiber mode)

NO4FDW-R
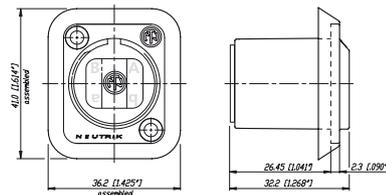
opticalCON DUO
Cables & Applications

opticalCON DUO
equipment connection
system integration

The opticalCON DUO is the ideal solution for equipment connections and system integration, offering LC compatibility on both the front and rear of the chassis connector. The wide range of hybrid cables covers the need for powered applications such as camera powering, SNG / ENG applications, etc.

opticalCON DUO

Rugged and lightweight 2 channel mobile field cable, excellent cable retention due to aramid yarn, black PUR outer jacket, available in multi- and single mode (PC or APC), military approved.

opticalCON DUO X-TREME

opticalCON DUO
X-TREME

2 channel X-TREME cable offering a cut-proof and rodent resistant double jacket glass yarn armoured cable construction, excellent cable retention due to aramid yarn, black PUR outer jacket.

opticalCON DUO MULTIMODE HYBRID

Extra rugged hybrid cable with 2 multimode channels and 4 x 0.75mm^2 copper conductors, GFK strengh member and aramid yarn as cable retention.

opticalCON DUO SMPTE

SMPTE cable with 2 single mode channels (PC or APC), 2 x AWG24 and 2 x AWG16 stranded copper conductors, overall copperbraided shield and stainless steel strengh member, 118 kg/km.

opticalCON DUO LOW VOLTAGE HYBRID

Ultra flexible, cost effective and lightweight (65 kg/km) low voltage camera / SM hybrid cable with 2 single mode channels and 2 x AWG16 copper conductors, aramid yarn cable retention.

NEW

opticalCON POWER SPLIT

Extra rugged hybrid cable with 2 single mode channels and 2 x 1.5 mm^2 copper conductors, 1.5 mm^2 shield, 1 opticalCON DUO cable connectors and 1 powerCON cable connector.

NEW

opticalCON POWER SPLIT

Extra rugged hybrid cable with 4 single mode channels and 2 x 1.5 mm^2 copper conductors, 1.5 mm^2 shield, 2 opticalCON DUO cable connectors and 1 powerCON cable connector.

BROADCAST

SYSTEM INTEGRATION (S.I.)

LIVE / RENTAL

INDUSTRIAL

photo: Swiss TV

opticalCON

opticalCON QUAD
Cables & Applications

opticalCON QUAD
point to point
mulitchannel routing
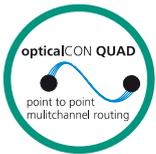
The opticalCON QUAD is preferably used for POINT-TO-POINT multichannel routing applications.
The TRIPLE-SPLIT 12 channel cable offers simple installation combined with a flexible connectivity system standardized on the opticalCON QUAD, while the X-TREME cable is custom designed for most demanding pro Audio live / rental applications.

BROADCAST
S.I.
LIVE / RENTAL
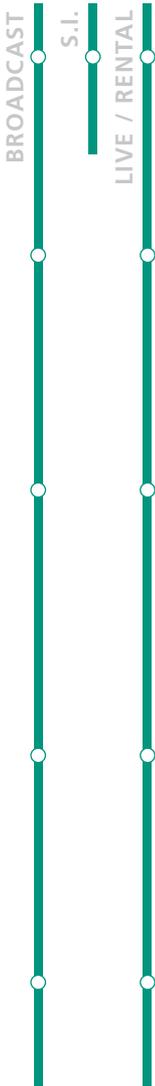
opticalCON QUAD

Rugged and lightweight 4 channel mobile field cable, excellent cable retention due to aramid yarn, black PUR outer jacket, available in multi- and single mode (PC or APC).

opticalCON QUAD X-TREME

opticalCON QUAD
X-TREME

4 channel X-TREME cable offering a cut-proof and rodent resistant double jacket glass yarn armoured cable construction, excellent cable retention due to aramid yarn, black PUR outer jacket.

opticalCON QUAD TRIPLE SPLIT

opticalCON QUAD
TRIPLE SPLIT

Multichannel (12 channel) cable solution, excellent cable retention due to aramid yarn, black PUR outer jacket.

NEW

opticalCON POWER SPLIT

Extra rugged hybrid cable with 8 single mode channels and 2 x 1.5 mm² copper conductors, 1.5 mm² shield, 2 opticalCON QUAD cable connectors and 1 powerCON cable connector.

powerCON

NEW

opticalCON POWER SPLIT

Extra rugged hybrid cable with 4 single mode channels and 2 x 1.5 mm² copper conductors, 1.5 mm² shield, 1 opticalCON QUAD cable connectors and 1 powerCON cable connector.

**powerCON**

photo: Swiss TV   photo: Jaro Hollan

opticalCON

9

Custom Entertainment Cables
X-TREME Cable

- opticalCON X-TREME cable for demanding applications like touring / rental or outdoor broadcast
- Offers a cut-proof and rodent-resistant double-jacket, glass-yarn armored cable construction
- Available for opticalCON DUO & QUAD

opticalCON
X-TREME

«The solution for live and rental applications»

NKOX4M-*

DUO

Coated glass yarn | Double jacket PUR

2 x Fiber | Strain relief (Aramid yarn)

QUAD

Coated glass yarn | Double jacket PUR

4 x Fiber | Strain relief (Aramid yarn)
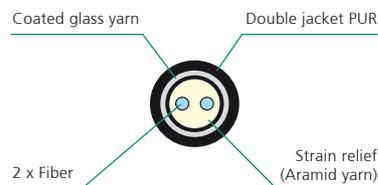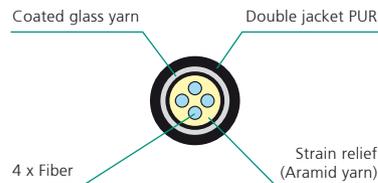
Hybrid DUO Cables

- Range of 3 hybrid cables for powered applications:
  - SMPTE cable for indoor HD camera routing applications [1]
  - Hybrid multimode cable
  - Low voltage camera / SM hybrid cable for ENG/SNG applications

NKO2S-S5-R*

[1] ... Not compatible to SMPTE 304M standard. Suitable for indoor (studio) camera links considering specific conditions acc. to IEC 60664-1 like pollution degree 1, overvoltage category 1 and rated voltage. For detailed information ask for the White Paper "opticalCON @ SMPTE Indoor Applications".

opticalCON

opticalCON Split Cables
TRIPLE SPLIT 12 Channel Cable

- opticalCON multichannel solution based on the opticalCON QUAD
- maximum flexibility, combining 4 and 12 channel cables
- 1m TRIPLE SPLIT: mechanically damaged connectors can be reassembled with a slightly shortened cable split
- Color coding for channel identification

opticalCON QUAD

TRIPLE SPLIT

1 m

NKO12*

«The solution for multichannel applications»

Heavy PUR jacket

12 x Fiber

Strain relief (Aramid yarn)
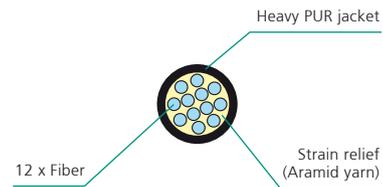
NEW   ## POWER SPLIT Cable

- Hybrid opticalCON / Power (240 V ac / 16A) solution
- 2, 4 and 8 channel assembly available
- Custom made cable, optimized for ENG / SNG applications

1 m

NKOP8M-R*

2 Fiber Type
Totally 2 x 1.5 mm² (L, N)

PUR jacket

PE as circum-ferential braid

Shield (1.5 mm²)

2 x Fiber

Strain relief (Aramid yarn)

4 Fiber Type
Totally 2 x 1.5 mm² (L, N)

PUR jacket

PE as circum-ferential braid

Shield (1.5 mm²)

4 x Fiber

Strain relief (Aramid yarn)

8 Fiber Type
Totally 2 x 1.5 mm² (L, N)

PUR jacket

PE as circum-ferential braid

Shield (1.5 mm²)

8 x Fiber

Strain relief (Aramid yarn)
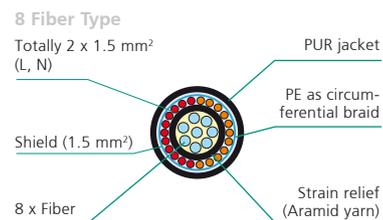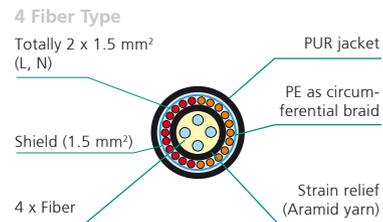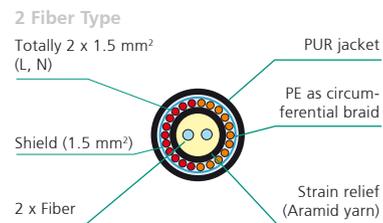
Breakout & Panel Solutions
Breakout Box

- The breakout boxes are used to split a 4-channel point-to-point opticalCON QUAD connection to either 2 dual channels or 4 single channels based on the opticalCON DUO
- Dust and waterproof according to IP65 in mated condition

NO4SABB1-4

19" Z-Panels & Plates

- Space saving design, ideal for cramped rack applications such as OB truck I/O panels
- Frame plate can be loaded with opticalCON DUO or QUAD and E2000 or ST or SC
- Frames can be equipped with frame plates (D-shape) or blind plates
- Best cable bend protection
- 1 RU or 3 RU frame

NZPF1RU

NZPF3RU
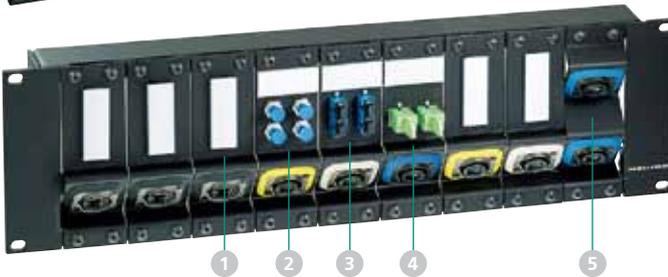
1 NZPFD

2 *NEW* NZPFD-4ST

3 *NEW* NZPFD-4SC

4 *NEW* NZPFD-4E

5 *NEW* NZPFD-2

6 *NEW* NZPFD-4SC-S

Application Example:

NO2-4FDW-R

2 x NOSPS-50LC-50LC

NO2-4FDW-R

NZPFD-2

NEW
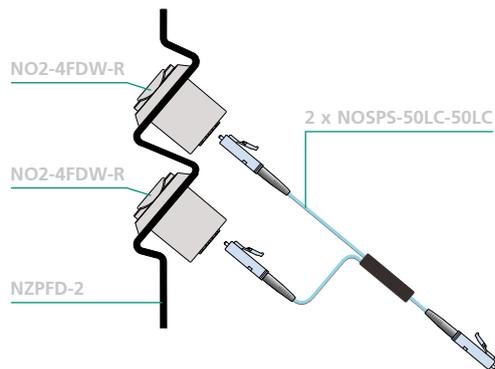
opticalCON powerMONITOR
On air monitoring of fiber optic transmission quality

The opticalCON powerMONITOR is a cost-saving, purpose-built measurement (monitoring) device for professional fiber optic broadcast, audio and video applications.

With simultaneous monitoring of attenuation for up to 4 transmission channels, powerMONITOR provides an immediate, "on air" view into fiber optic signal strength. Visual and audible alarms can be set individually for each fiber channel, based on each channel's power budget. powerMONITOR provides clear status information, delivers early warnings for potential problems, and assists with maintenance scheduling.

- On-air monitoring of fiber optic transmission quality
- Simultaneous power measurement (+0.0/-0.1dB measurement accuracy) of up to 4 channels
- Programmable threshold alarms
- Rack mount and mobile units
- Operates on rechargeable battery power or on mains power with fail-safe battery backup in case of unexpected mains power interruption
- Low loss (0.5dB maximum split loss)
- Wavelength selectable: multimode 850 nm or 1300 nm, single mode 1310 nm, 1550 nm or WDM (wave division multiplexing)

powerMONITOR

NO4S-4F-2R-PM

1 RU & 3 RU 19" Rack units

NO4S-4F-2R-PM (up to two power Monitors)

up to 9 power Monitors

Breakout Box

NO4SBB1-4-PM

Technical Data
Connectors

OPTICAL		opticalCON DUO Cable	opticalCON DUO Chassis	opticalCON QUAD Cable	opticalCON QUAD Chassis
Optical connector		LC-Duplex	LC-Duplex Feedthrough	PC	LC-Duplex (rear)
Fiber	Multi mode, Single mode PC / APC	●	●	●	●
Insertion loss	< 0.5 dB / connection	●	●	●	●
MECHANICAL					
Insertion / withdrawal force	< 45 N	●	●	●	●
Lifetime	> 5`000 cycles	●	●	●	●
Cable retention force Fiber only	> 500 N	●	-	●	-
Hybrid	> 500 N	●	-	-	-
SMPTE	> 350 N	●	-	-	-
ELECTRICAL					
Number of electrical contacts		4	4 (5)	-	-
Rated current	6 A NKO2M-4S75*	●	-	-	
	10 A (contact 1+4) NKO2S(A)-SMPTE*	●	-	-	
Contact resistance	< 7 mΩ	●	●	-	-
Insulation resistance - initial:	> 10 GΩ	●	●	-	-
- after damp heat test:	> 1 GΩ	●	●	-	-
Dielectric strength	1500 V dc	●	●	-	-
Rated voltage	50 V ac	●[1]	●[1]	-	-
MATERIAL					
Shell Zinc diecast (ZnAl4Cu1)	(hard Nickel / Ruthenium plating)	●	●	●	●
Insert / Insulation	Polyamid PA 6, PBT 30% GR, PBT 50% GR	●	●	●	●
Insert colour	MM: black, SM PC: blue, SM APC: green	●	●	●	●
Contacts - male:	Brass (CuZn39Pb3)	●	-	-	-
- female:	Bronze (CuSn6)	-	●	-	-
Contact surface	Gold (gal 0.2 μm Au over 2 μm Ni)	●	●	-	-
Strain relief	POM (brass)	●	-	●	-
Bushing	ZnAl4Cu1	●	-	●	-
Boot	EPDM, rubber boot	●	-	●	-
Slit sleeve	ceramics	-	●	-	●
ENVIRONMENTAL					
Operating temperature -25°C to +75°C	flammability UL94 HB	●	●	●	●
Solderability complies with IEC 68-2-20		●	●	-	-
Protection class in mated condition IP65		●	●	●	●

[1] ... Not compatible to SMPTE 304M standard. Suitable for indoor (studio) camera links considering specific conditions acc. to IEC 60664-1 like pollution degree 1, overvoltage category 1 and rated voltage. For detailed information ask for the White Paper "opticalCON @ SMPTE Indoor Applications".

opticalCON DUO Cables

Wiring

opticalCON DUO	MM	SMPTE	LOW VOLTAGE	X-TREME	POWER SPLIT DUO
2M / 2S / 2SA	2M-4S75	2S-S1 / 2SA-S1	2S-S5 / 2SA-S5	X2M / X2S / X2SA	P2MY / SY / SAY + P4MY / SY / SAY

Cable cross section

| 2M / 2S / 2SA | 2M-4S75 | 2S-S1 / 2SA-S1 | 2S-S5 / 2SA-S5 | X2M / X2S / X2SA | P2MY / SY / SAY | P4MY / SY / SAY |
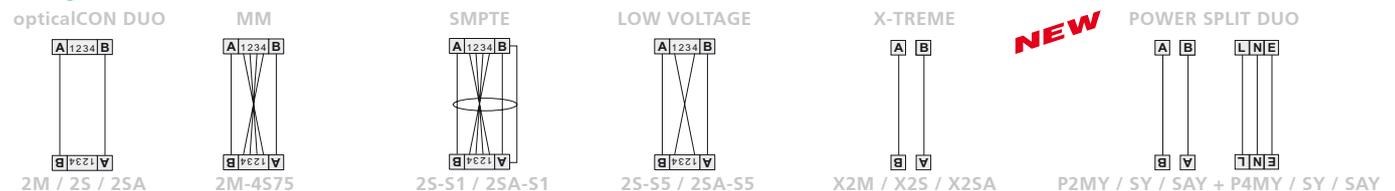
Mobile Field Cables

	Number of fibers	Multimode PC	Single mode PC/APC	50/125-OM3	9/125-G657A	Bend optimized fiber	Laser optimized fiber	AWG 16	AWG 18 (0.75 mm²)	AWG 24	Copperbraid	Coated glass yarn	GFK	Stainless Steel	Aramid yarn	Crimp type	Overall diameter (mm)	PUR black matte	LC-Duplex	LC based	Min. bending radius (cm)	Weight (kg/km)	Attenuation (dB/km)	Bandwidth (MHz-km)	Refraction index	Power solution 240 V ac / 16A
opticalCON DUO																										
DUO	2	•	-	•	-	•	•	-	-	-	-	-	-	-	•	-	5	•	•	-	5	21	@850 nm - 3.5 @1300 nm - 1.5	@850 nm >1500 @1300 nm >500	@850 nm - 1.483 @1300 nm - 1.479	-
DUO	2	-	•	-	•	•	•	N/A	-	-	-	-	-	-	•	-	5	•	•	-	5	23	@1310 nm - 0.5 @1550 nm - 0.5		@1310 nm - 1.458 @1550 nm - 1.458	-
DUO MM	2	•	-	OM2	-	-	-	-	4x	-	-	-	-	•	•	-	8.9	•	•	-	8.9	78	@850 nm - 2.5 @1300 nm - 0.7	@850 nm - 500 @1300 nm - 500	@850 nm - 1.482 @1300 nm - 1.477	-
DUO SMPTE	2	-	•	-	•	•	•	2x	-	2x	•	-	•	-	-	•	9.2	•	•	-	10	118	@1310 nm - 0.45 @1550 nm - 0.5		@1310 nm - 1.468 @1550 nm - 1.468	-
DUO LOW VOLTAGE HYBRID CABLE	2	-	•	-	•	•	•	2x	-	-	-	-	-	-	•	-	7.5	•	•	-	7.5	65	@1310 nm - 0.5 @1550 nm - 0.5		@1310 nm - 1.458 @1550 nm - 1.458	-
DUO X-TREME	2	•	-	•	-	•	•	-	-	-	-	•	-	-	•	-	8.5	•	•	-	8.5	79	@850 nm - 2.5 @1300 nm - 0.5	@850 nm >1500 @1300 nm >500	@850 nm - 1.482 @1300 nm - 1.477	-
DUO X-TREME	2	-	•	-	•	•	•	N/A	-	-	-	•	-	-	•	-	8.5	•	•	-	8.5	79	@1310 nm - 0.35 @1550 nm - 0.21		@1310 nm - 1.467 @1550 nm - 1.467	-
POWER SPLIT	4	•	-	•	-	•	•		3 x 1.5 mm²		•	-	-	-	•	-	11.7	•	-	•	16	121	@850 nm ≤ 2.3 @1300 nm ≤ 0.6	@850 nm ≥1500 @1300 nm ≥500	@850 nm - 1.482 @1300 nm - 1.477	•*
POWER SPLIT	4	-	•	-	•	•	•	N/A	3 x 1.5 mm²		•	-	-	-	•	-	11.7	•	-	•	16	121	@1310 nm ≤ 0.33 @1550 nm ≤ 0.19		@1310 nm - 1.467 @1550 nm - 1.467	•*
POWER SPLIT	2	•	-	•	-	•	•		3 x 1.5 mm²		•	-	-	-	•	-	11.7	•	-	•	16	121	@850 nm ≤ 2.3 @1300 nm ≤ 0.6	@850 nm ≥1500	@850 nm - 1.482 @1300 nm - 1.477	•*
POWER SPLIT	2	-	•	-	•	•	•	N/A	3 x 1.5 mm²		•	-	-	-	•	-	11.7	•	-	•	16	121	@1310 nm ≤ 0.33 @1550 nm ≤ 0.19		@1310 nm - 1.467 @1550 nm - 1.467	•*
opticalCON QUAD																										
QUAD	4	•	-	•	-	•	•	-	-	-	-	-	-	-	•	-	5.8	•	-	•	5.8	31	@850 nm - 2.5 @1300 nm - 0.5	@850 nm ≥1500 @1300 nm ≥500	@850 nm - 1.482 @1300 nm - 1.477	-
QUAD	4	-	•	-	•	•	•	N/A	-	-	-	-	-	-	•	-	5.8	•	-	•	5.8	31	@1310 nm - 0.35 @1550 nm - 0.21		@1310 nm - 1.467 @1550 nm - 1.467	-
QUAD X-TREME	4	•	-	•	-	•	•	-	-	-	-	•	-	-	•	-	8.5	•	-	•	8.5	79	@850 nm - 2.5 @1300 nm - 0.5	@850 nm ≥1500 @1300 nm ≥500	@850 nm - 1.482 @1300 nm - 1.477	-
QUAD X-TREME	4	-	•	-	•	•	•	N/A	-	-	-	•	-	-	•	-	8.5	•	-	•	8.5	79	@1310 nm - 0.35 @1550 nm - 0.21		@1310 nm - 1.467 @1550 nm - 1.467	-
QUAD TRIPLE SPLIT	12	•	-	•	-	•	•	-	-	-	-	-	-	-	•	-	8.2	•	-	•	8.2	76	@850 nm - 2.5 @1300 nm - 0.5	@850 nm ≥1500 @1300 nm ≥500	@850 nm - 1.482 @1300 nm - 1.477	-
QUAD TRIPLE SPLIT	12	-	•	-	•	•	•	N/A	-	-	-	-	-	-	•	-	8.2	•	-	•	8.2	76	@1310 nm - 0.5 @1550 nm - 0.3		@1310 nm - 1.467 @1550 nm - 1.467	-
POWER SPLIT	8	•	-	•	-	•	•	N/A	3 x 1.5 mm²		•	-	-	-	•	-	11.7	•	-	•	10.5	121	@850 nm ≤ 2.3 @1300 nm ≤ 0.6	@850 nm ≥1500 @1300 nm ≥500	@850 nm - 1.482 @1300 nm - 1.477	•*
POWER SPLIT	8	-	•	-	•	•	•		3 x 1.5 mm²		•	-	-	-	•	-	11.7	•	-	•	10.5	121	@1310 nm ≤ 0.33 @1550 nm ≤ 0.19		@1310 nm - 1.467 @1550 nm - 1.467	•*
POWER SPLIT	4	•	-	•	-	•	•	N/A	3 x 1.5 mm²		•	-	-	-	•	-	11.7	•	-	•	10.5	121	@850 nm ≤ 2.3 @1300 nm ≤ 0.6	@850 nm ≥1500 @1300 nm ≥500	@850 nm - 1.482 @1300 nm - 1.477	•*
POWER SPLIT	4	-	•	-	•	•	•		3 x 1.5 mm²		•	-	-	-	•	-	11.7	•	-	•	10.5	121	@1310 nm ≤ 0.33 @1550 nm ≤ 0.19		@1310 nm - 1.467 @1550 nm - 1.467	•*

* Cable must be unreeled completely before use!

opticalCON QUAD Cables

Wiring

opticalCON QUAD
A a b B / B b a A
4M / S / SA

X-TREME
A a b B / B b a A
X4M / X4S / X4SA

TRIPLE SPLIT
A a b B / B b a A
12M / S / SA

NEW POWER SPLIT QUAD
A a b B | L N E / B b a A | E N L
P4M / S / SA + P8M / S / SA

Cable cross section

opticalCON QUAD — 4M / S / SA
- PUR Jacket
- 4x Fiber
- Strain relief (Aramid yarn)

opticalCON QUAD X-TREME — X4M / X4S / X4SA
- Double Jacket PUR
- 4x Fiber
- Coated glass yarn
- Strain relief (Aramid yarn)

opticalCON QUAD TRIPLE SPLIT — 12M / S / SA
- PUR Jacket
- 12x Fiber
- Strain relief (Aramid yarn)

P4M / S / SA and **P8M / S / SA**
- Totally 2 x 1.5 mm² (L, N)
- PUR Jacket
- Shield 1.5 mm²
- PE as circumferential braid
- 4 x Fiber
- 8 x Fiber
- Strain relief (Aramid yarn)

Ordering Information
Mobile Cables

CODING OF MOBILE CABLES

Find a convenient opticalCON part number generator on www.neutrik.com

Example part number: **N K O 2 M - 4 S 7 5 - R 3 - 5 0** (Example)

- NEUTRIK opticalCON cable assembly
- no suffix Ni
- Plating
- Packaging
- Cable length [m]

opticalCON DUO

Cable	Code (PC)	Code (APC)	Plating: hard Nickel	Ruthenium	Pkg 0	Pkg 1	Pkg 2	Pkg 3	Pkg 4	Pkg 5	Len 0	Len 1	Len 2	Len 3	Len 4	Len 5
2-channel (PUR Jacket, 2x Fiber, Strain relief (Aramid yarn))	2M (PC)		●	●	●	●	●	●	●	●	<2000	<30	<200	<400	<1000	<500
	2S (PC)	2SA (APC)														
Multimode HYBRID (PUR Jacket, 2x Fiber, Strength member, 4x AWG 18, Strain relief (Aramid yarn))	2M-4S75 (PC)		●	●	●	●	-	●	●	●	<2000	<30	-	<125	<300	<150
SMPTE (2x AWG 24 (2+3), PUR Jacket, 2x Fiber, Strength member, 2x AWG 16 (1+4), Shield)	2S-S1 (PC)	2SA-S1 (APC)	●	●	●	●	-	●	●	●	<2000	<30	-	<100	<300	<150
Low Voltage Hybrid SM (2x AWG 16, PUR Jacket, 2x Fiber, Strain relief Aramid yarn)	2S-S5 (PC)	2SA-S5 (APC)	-	●	●	●	-	●	●	●	<2000	<30	-	<150	<500	<250
X-TREME (Double Jacket PUR, 2x Fiber, Coated glass yarn, Strain relief (Aramid yarn))	X2M (PC)		-	●	●	●	-	●	●	●	<2000	<30	-	<100	<300	<150
	X2S (PC)	X2SA (APC)														
POWER SPLIT (2 x 1.5 mm², PUR Jacket, 2x Fiber, Shield (1.5 mm²), Strain relief (Aramid yarn))	P2MY (PC)		-	●	●	-	-	●	●	●	<2000	-	-	<75	<200	<100
	P2SY (PC)	P2SAY (APC)														
(2 x 1.5 mm², PUR Jacket, 4x Fiber, Shield (1.5 mm²), Strain relief (Aramid yarn))	P4MY (PC)		-	●	●	-	-	●	●	●	<2000	-	-	<75	<200	<100
	P4SY (PC)	P4SAY (APC)														

opticalCON QUAD

Cable	Code (PC)	Code (APC)	Plating: hard Nickel	Ruthenium	Pkg 0	Pkg 1	Pkg 2	Pkg 3	Pkg 4	Pkg 5	Len 0	Len 1	Len 2	Len 3	Len 4	Len 5
4-channel (PUR Jacket, 4x Fiber, Strain relief (Aramid yarn))	4M (PC)		-	●	●	●	●	●	●	●	<2000	<30	<150	<300	<800	<400
	4S (PC)	4SA (APC)														
4-channel X-TREME (Double Jacket PUR, 4x Fiber, Coated glass yarn, Strain relief (Aramid yarn))	X4M (PC)		-	●	●	●	-	●	●	●	<2000	<30	-	<100	<300	<150
	X4S (PC)	X4SA (APC)														
12-channel (PUR Jacket, 12x Fiber, Strain relief (Aramid yarn), Triple-split)	12M (PC)		-	●	●	-	-	●	●	●	<2000	-	-	<125	<400	<200
	12S (PC)	12SA (APC)														
POWER SPLIT (3 x 1.5 mm², PUR Jacket, 8x Fiber, Shield, Strain relief (Aramid yarn))	P8M (PC)		-	●	●	-	-	●	●	●	<2000	-	-	<75	<200	<100
	P8S (PC)	P8SA (APC)														
(3 x 1.5 mm², PUR Jacket, 4x Fiber, Shield, Strain relief (Aramid yarn))	P4M (PC)		-	●	●	-	-	●	●	●	<2000	-	-	<75	<200	<100
	P4S (PC)	P4SA (APC)														

1) … Male-Female assembly on request;   PC … physical contact;   APC … angled physical contact;

opticalCON

NEW

| 0 ... Airspool | 1 ... opticalCON Case | 2 ... Drum Schill GT310 | 3 ... Drum Schill GT380 | 4 ... Drum Schill HT582 | 5 ... Drum Schill GT450 |

Custom Cable Assembly Attributes

NEW

Custom color coding

0	■	black (Standard color)
2	■	red
4	■	yellow
5	■	green
6	■	blue
9	■	white

C

CUSTOMER

T

F

X

Custom cable labeling

1 or 2 lines (max. 18 characters)

Crossed fiber wiring (A-A), B-B)

A ── B
B ── A

Neutrik standard: wiring acc. IEC 11801

A ── B
B ── A

Gray boot

Female assembly on cable drums

Cable extention solution eliminating the need for couplers.

Attributes

| X .... | Crossed fiber wiring A-A, B-B | T [L1, L2] .... | Custom cable labeling |
| F .... | Female drum assembly, only packaging -2 to -5 | C [ ] .... | Connector color coding |

Ordering Example

Attributes

N K O 2 M - 4 S 7 5 - R 3 - 1 5 0 **X F T C**   (Example, any conbination possible)

Crossed fiber wiring
Female drum assembly
Cable labeling [L1: "CUSTOMER BRAND",L2 "DESCRIPTION"]
Connector color coding [2]

Ordering Information
Mobile Cables

Custom Cable Assembly Attributes for Split Cables

NEW

Custom color coding

0	black
2	red
4	yellow
5	green
6	blue
9	white

Split text labeling
1 or 2 lines

STC*

STC*

Female assembly on cable drums
Cable extention solution eliminating the need for couplers.

F

T

Custom cable labeling
1 or 2 lines (max. 18 characters)

Custom split length
Standard: length 1 m

SL

min. 0.3 m / max. 2.0 m

SS

Stepped split assembly
Standard: equal split length

SP

Inverted powerCON on cable drum assembly
Standard:
powerCON type on long cable: BLUE

Crossed fiber wiring (A-A), B-B)

A — B
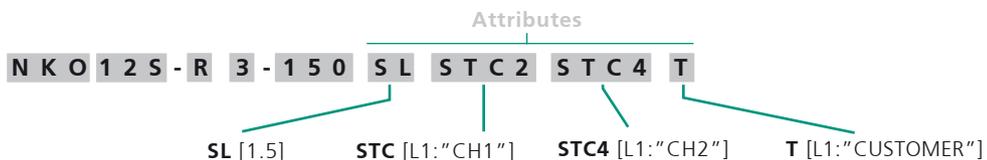B — A

Neutrik standard: wiring acc. IEC 11801

A — B
B — A

Gray boot

Power OUT

Power IN

1 m

0.85 m

0.7 m

Attributes for Split Cables

X	....	crossed wired fibers A-A, B-B	STC5 [L1" "; L2" "]	split text green
F	....	female drum assembly, only packaging -2 to -5	STC6 [L1" "; L2" "]	split text blues
T [L1, L2]	.....	custom cable labeling	STC9 [L1" "; L2" "]	split text white
STC0 [L1" "; L2" "]	.....	split text black	SS	stepped split assembly
STC2 [L1" "; L2" "]	....	split text red	SL [ ]	split length in meter
STC4 [L1" "; L2" "]	....	split text yellow	SP	inverted powerCON in/OUT, only packaging -2 to -5

Ordering Example

Attributes

N K O 1 2 S - R 3 - 1 5 0   S L   S T C 2   S T C 4   T

SL [1.5]   **STC** [L1:"CH1"]   **STC4** [L1:"CH2"]   **T** [L1:"CUSTOMER"]

opticalCON

Chassis Connectors & Breakout Solutions

CHASSIS & COUPLER

| NO2-4FDW-R | NO4FDW-R | NAO2S-4S75W | NAO4MW | NAO4MWX [2] |

	Type	Colour	Plating	Fiber	Solder contacts	Shell ground contact	Wiring
NO2-4FDW	Chassis	[1]	hard Nickel	2	4	-	-
NO2-4FDW-R	Chassis	[1]	Ruthenium	2	4	-	-
NO2-4FDW-1	Chassis	[1]	hard Nickel	2	4	1	-
NO2-4FDW-1-R	Chassis	[1]	Ruthenium	2	4	1	-
NO4FDW-R	Chassis	[1]	Ruthenium	4	-	-	-
NAO2M-4S75W [2]	Coupler	black	black	2 x LC-Duplex Multimode PC	4 x 0.75 mm²	-	
NAO2S-4S75W [2]	Coupler	blue	black	2 x LC-Duplex Single mode PC	4 x 0.75 mm²	-	
NAO2SA-4S75W [2]	Coupler	green	black	2 x LC-Duplex Single mode APC	4 x 0.75 mm²	-	
NAO4MW [2]	Coupler	black	black	4 x Multimode PC	-	-	
NAO4SW [2]	Coupler	blue	black	4 x Single mode PC	-	-	
NAO4SAW [2]	Coupler	green	black	4 x Single mode APC	-	-	

[1] ... Coloured labeling to indicate the fiber mode included (black: M, blue: SM PC, green: SM APC)

[2] ... add attribute X for crossed fiber wiring

MEASUREMENT / BREAKOUT SOLUTIONS

NKO2M - BOLC - R - 0 - 3   (Example)

NKO2S-BOSC-R-0-1

NEUTRIK opticalCON cable assembly

Plating Ruthenium

		Cable		Breakout Connector				Packaging [1]					Cable length [m]				
		fiber	copper	LC	SC	ST	FC	0	1	2	3	4	0	1	2	3	4
opticalCON DUO	2-channel	2M	-	•	•	•	•	•	•	-	-	-	<2000 [2]	<30	-	-	-
		2S	2SA	-														
	SMPTE	2S	2SA	- S1	•	•	•	•	•	•	-	-	-	<2000 [2]	<30	-	-	-
	Low Voltage Hybrid SM	2S	2SA	- S5	•	•	•	•	•	•	-	-	-	<2000 [2]	<30	-	-	-
QUAD	4-channel	4M	-	•	•	•	•	•	•	-	-	-	<2000 [2]	<30	-	-	-
		4S	4SA	-														

2-channel — PUR Jacket, 2x Fiber, Strain relief (Aramid yarn)

SMPTE — 2x AWG 24 (2+3), PUR Jacket, 2x Fiber, Strength member, 2x AWG 16 (1+4), Shield

Low Voltage Hybrid SM — 2x AWG 16, PUR Jacket, 2x Fiber, Strain relief Aramid yarn

4-channel — PUR Jacket, 4x Fiber, Strain relief (Aramid yarn)

Breakout solutions for further opticalCON cables than listed on request.   1) ... Packaging options see page 16;   2) ... short length only recommended

NAOBO – Breakout Adapter

NEW

NAOBO (KIT)

Application example

- Flexible chassis mounting solution
- Adaption solution to meet existing non-opticalCON fiber installation

Ordering Information
Chassis Connectors & Breakout Solutions

TRANSCEIVER ADAPTER

NAO2SA-SFP-LC

opticalCON with transceiver adapter and SFP tranceiver

NAO2M-SFP-LC	grey	MM Transceiver Adapter + opticalCON chassis (NO2-4FDWR) without copper contacts
NAO2S-SFP-LC	blue	SM Transceiver Adapter + opticalCON chassis (NO2-4FDWR) without copper contacts
NAO2SA-SFP-LC	green	SM APC Transceiver Adapter + opticalCON chassis (NO2-4FDWR) without copper contacts

ACCESSORIES

NDO   SCNKO   SCDP-*   NOR-*   SCDR   SCDX   NAO4ML-R

NDO	dummyPLUG for opticalCON chassis connector
SCNKO	Dirtprotection for opticalCON cable connector
SCDP-*	D-Size sealing gaskets for chassis color coding
NOR-*	Color coding ring for cable connector coding
*	*: 0- black, 2- red, 4- yellow, 5- green, 6- blue, 9- white

SCDR	Rear end protection cover for D-size chassis connectors
SCDX	Hinged cover seals D-size chassis connectors, IP42 rated
NAO4ML-R	opticalCON QUAD LOOP connector, multimode
NAO4SL-R	opticalCON QUAD LOOP connector, single mode

Fiber Optic Measurement & Cleaning Kit

CAS-FOCD   FOCD-CF   FOCD-DC125/250   CAS-FOMD   FOMD-TC-SM1550   FOMD-FM-MM

CAS-FOCD	Fiber Optic Cleaning Devices - CASE contains hand microscope, opticalCON measurement adapter, cleaning set
FOCD-CF [1]	Cleaning Fluid
FOCD-DC125 [1]	DRY Cleaner 1.25 mm
FOCD-DC250 [1]	DRY Cleaner 2.5 mm
FOCD-DW [1]	Lint-free dry wipes for fiber cleaning

[1] ... refill consumable, in CAS-FOCD included

CAS-FOMD		Fiber Optic Measurement Devices - CASE contains power source frame, 1.25 mm adapter and multi mode attenuator
FOMD-TC-MM850 [2]	Transceiver 850 nm multimode
FOMD-TC-SM1310 [2]	Transceiver 1310 nm single mode
FOMD-TC-SM1550 [2]	Transceiver 1550 nm single mode
FOMD-FM-MM [2]	Fiber meter multimode
FOMD-FM-SM [2]	Fiber meter single mode

[2] ... combine with CAS-FOMD

opticalCON Connector Field Assembly

- Neutrik opticalCON field assembly kit
- Based on Corning UniCam pre-polished LC connectors
- Requires completion of a certified Neutrik opticalCON field assembly training
- Find more details on www.neutrik.com

Corning UniCam

NEW

opticalCON connector Field assembly

powerMONITOR, Panels & Breakout Box

NEW

N O 2 S - 2 F - 2 R - P M [1)]

	Channel	Mode	Chassis Front	Chassis Rear	power MONITOR
Neutrik opticalCON	2	S	2F (DUO)	2R (DUO)	PM
		SA			
	4	M	4F (QUAD)	4R (QUAD)	

[1)] ... add attribute X for crossed fiber wiring

Front view: e.g. 4F (opticalCON QUAD)

Rear view: e.g. 2R (opticalCON DUO)

D-SHAPE Z-PANELS

Panel frame 1RU

NZPF1RU

NZPFBP
NZPFD
e.g. NO4FDW-R

Angled rack panel

NZP1RU-8

NEW

Panel frame 3RU

NZPF3RU   NZPFD   NZPFD-4ST   NZPFD-4E   NZPFD-2

e.g. NO2-4FDW-R   NZPFD-4SC   e.g. NO4FDW-R
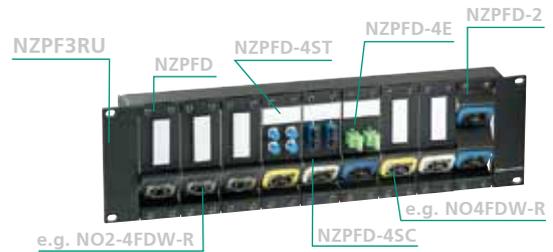
NZPF1RU	Panel frame 1RU opticalCON
NZPF3RU	Panel frame 3RU opticalCON
NZP1RU-8	Panel 1RU, 8 D size cutouts
NZPFD	Panel frame plate opticalCON
NZPFBP	Panel frame blind plate
NZPFD-2	Panel frame plate 2 D size cutouts
NZPFD-4E	Panel frame plate 1 D size cutout, 2 E2000 compact chassis cutouts
NZPFD-4SC	Panel frame plate 1 D size cutout, 2 SC compact chassis cutouts
NZPFD-4ST	Panel frame plate 1 D size cutout, 4 ST chassis cutouts
NZPFD-4CS-S	Panel frame plate 1 D size cutout, 4 SC simplex cutouts
NOSPM-LC50-LC50	Multimode 1 x 2 splitter LC*
NOSPS-LC50-LC50	Single mode PC 1 x 2 splitter LC*
* ... other connectors (SC, ST, E200) on request	

NOSPS-50LC-50LC

NEW

100 %   50 %   50 %

Ordering Information

BREAKOUT BOX

NEW

NO4SABB1-4   NO4SBB1-4-PM

NO4SBB1-2 [1]	1 x NO4FDW-R to 2 x NO2-4FDW-R, Single mode PC	
NO4SABB1-2 [1]	1 x NO4FDW-R to 2 x NO2-4FDW-R, Single mode APC	
NO4MBB1-2 [1]	1 x NO4FDW-R to 2 x NO2-4FDW-R, Multimode PC	
NO4SBB1-4	1 x NO4FDW-R to 4 x NO2-4FDW-R, Single mode PC	
NO4SABB1-4	1 x NO4FDW-R to 4 x NO2-4FDW-R, Single mode APC	
NO4MBB1-4	1 x NO4FDW-R to 4 x NO2-4FDW-R, Multimode PC	

Breakout Box with powerMONITOR

NO4*BB1-*-PM [1]	breakout box equipped with opticalCON powerMONITOR

[1] ... add attribute X for crossed fiber wiring

POWER SUPPLY FOR POWERMONITOR

NEW

NOPS-1RU-PM   NOPS-3RU-PM   NOPS-E-PM

NOPS-1RU-PM	opticalCON powerMONITOR 5W Power Supply, powers up to 2 power monitors, Intern. AC plugs included
NOPS-3RU-PM	opticalCON powerMONITOR 15W Power Supply, 1 + 3RU use, powers up to 9 power monitors, IEC power socket
NOPS-E-PM	opticalCON powerMONITOR, power supply extension cable to dasisy-chain power

Applications

Applications
Audio

CLAIR BROTHERS, USA

Clair Brothers uses the opticalCON fiber systems for audio signal transmission worldwide as the standard 100 meter runs on all of their high end digital mixing console systems. They also use opticalCON fiber systems under extremely harsh outdoor conditions to distribute digital audio between delay systems (loudspeaker delay) on their larger outdoor festival situations in the US and Europe.

The inherent bulk of the opticalCON system works far better for Clair than previous lightweight fiber systems as it lays flatter and is less susceptible to kinks and being caught up under chairs and stairways in typical arena situations.

Clair Brothers is the world's largest touring company specialized in sound and staging. Through the years Clair Brothers has handled shows for some of the biggest names in the music industry, with artists such as The Eagles, AC/DC, Jonas Brothers and Sir Elton John to name a few. In January of 2009, Clair Brothers was responsible for the post inauguration event for US President Obama, where many thousands of people gathered to hear him speak in a large outdoor event.

»THE CONNECTORS HAVE PROVEN TO BE VERY RELIABLE COMPARED TO PREVIOUS DESIGNS WE HAVE TRIED IN THE PAST. IN FACT ONE SYSTEM PERFECTLY SURVIVED A TORNADO IN ITALY AT AN OUT-DOOR SHOW.«

Howard Page, senior director of engineering, Clair Brothers

opticalCON DUO
equipment connection
system integration

Equipment connection
opticalCON DUO

opticalCON DUO
1 RU Panel + powerMONITOR

opticalCON QUAD
X-TREME

X-treme cable, ultra robust,
double jacket, cut proof

opticalCON QUAD
point to point
multichannel routing

opticalCON QUAD
Point-to-Point connection

Amp Rack

Sound Rack

opticalCON QUAD 3 RU Panel

FOH Sound system

Sound system

InterCom; Data

Video/Lighting

SOLOTECH, CANADA

Solotech uses the opticalCON connection system to transmit DVI video signals, ethernet control data (KVM), DMX networks as well as audio signals.

They work with the very latest lighting equipment and find as well innovative ways to use existing technology. The ideas of a creative team are turned into dazzling reality using articulated projectors, control boards, dimmers and an unparalleled array of cutting edge accessories. Color washes, re-imagined spaces, giant projections moving over any surface and 360° projections all spellbind audiences using the breathtaking world of visual effects.

30 years of providing lighting, video, sound and new media at both national and international levels makes Solotech known as an expert in video and lighting applications. Solotech has spent more than 10 years on tour with world stars like Celine Dion, André Rieu, the Cirque du Soleil and numerous other major artists.

»THIS SYSTEM IS FANTASTIC! NEVER HAD A FAILURE YET.«

Cyril Bême, Operations Director, Solotech

2 channel cable
opticalCON DUO
Equipment Connection

opticalCON breakout box
+ powerMONITOR
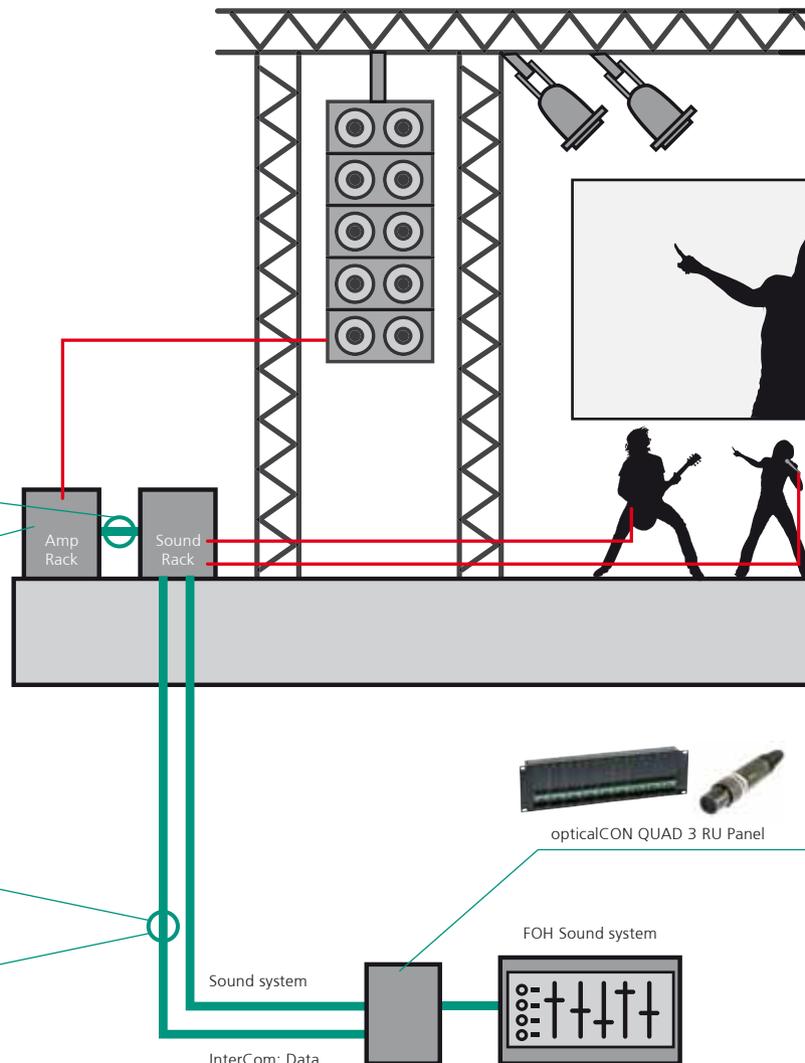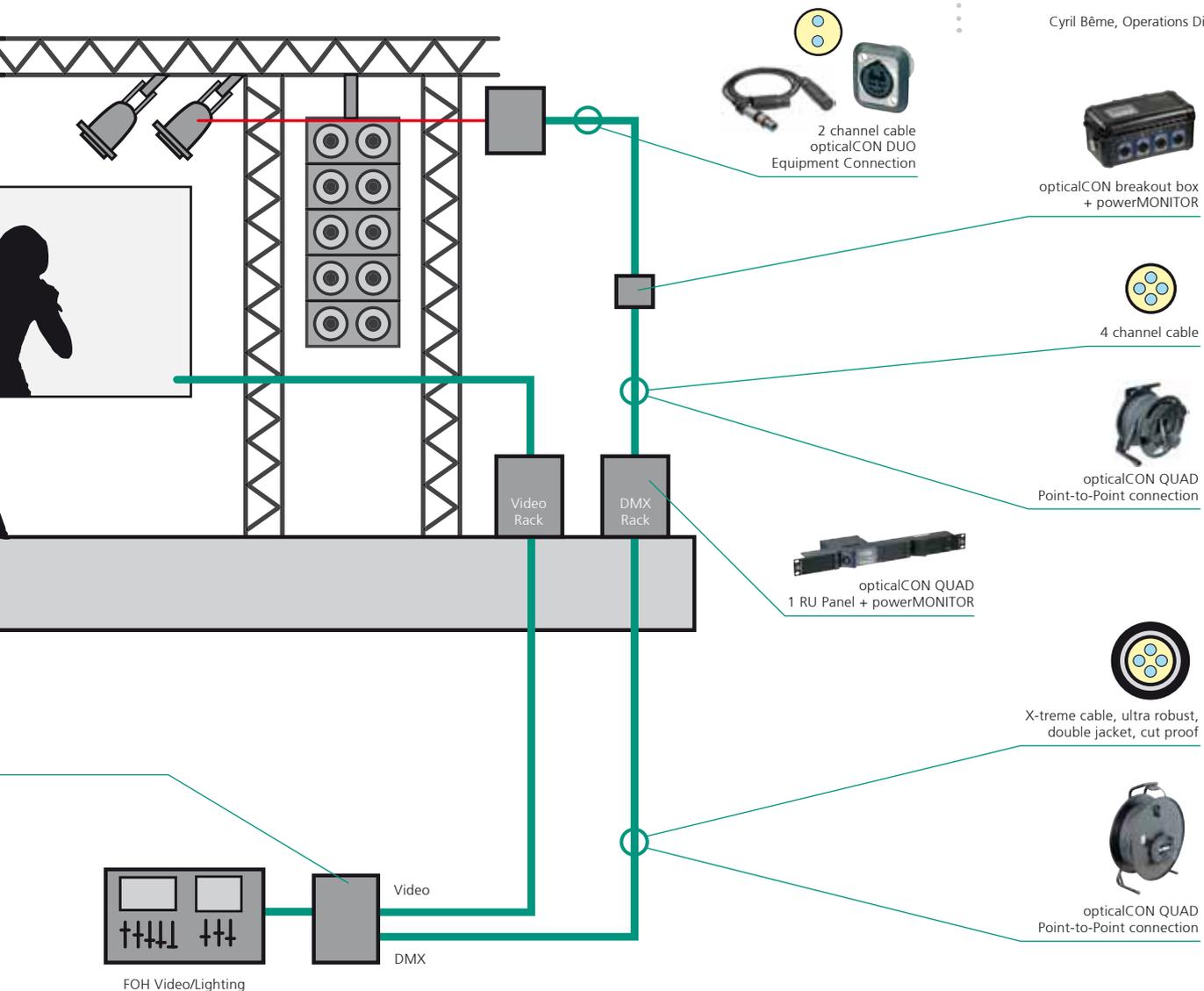
4 channel cable

opticalCON QUAD
Point-to-Point connection

opticalCON QUAD
1 RU Panel + powerMONITOR

X-treme cable, ultra robust,
double jacket, cut proof

opticalCON QUAD
Point-to-Point connection

Video
Rack

DMX
Rack

Video

DMX

FOH Video/Lighting
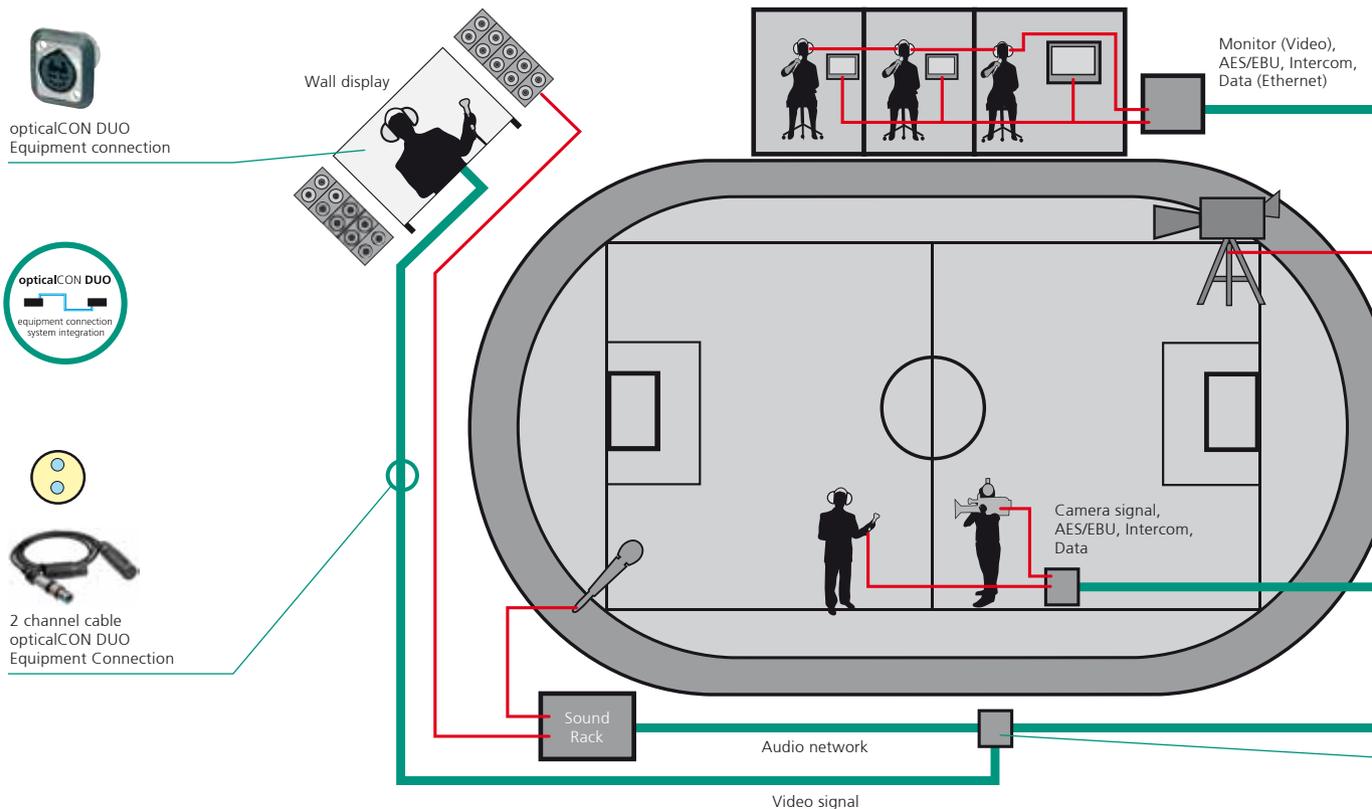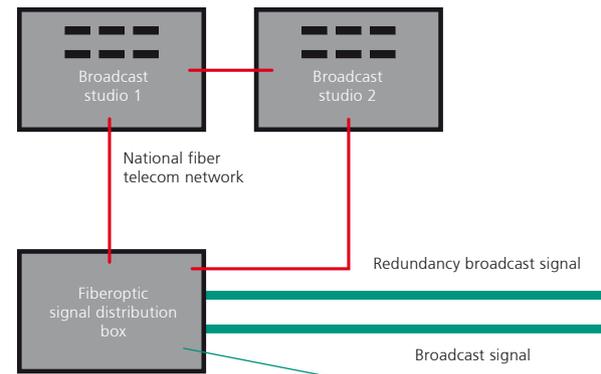
Applications
Broadcast - OB Truck

TPC, SWITZERLAND

The TPC (TV productioncenter zürich ag) has standardized the opticalCON QUAD for mobile outdoor fiber optic connectivity. The system has been applied for all fiber optic point-to point routing applications, no matter what type of signal is required.

The provided fiber services include:

- Camera signals
- Video signal (monitors, displays, wall-displays)
- Audio networking
- Intercom
- Data (Ethernet, RS422, RS232)
- Broadcast signal distribution

With the standardization of the opticalCON the fiber optic point-to-point connectivity is nationwide compatible on I/O panels of OB-trucks, SNG-trucks, stadiums or national broadcast signal distribution boxes.

Broadcast studio 1

Broadcast studio 2

National fiber telecom network

Redundancy broadcast signal

Fiberoptic signal distribution box

Broadcast signal

opticalCON DUO Equipment connection

Wall display

Monitor (Video), AES/EBU, Intercom, Data (Ethernet)

opticalCON **DUO**

equipment connection system integration

2 channel cable opticalCON DUO Equipment Connection

Camera signal, AES/EBU, Intercom, Data

Sound Rack

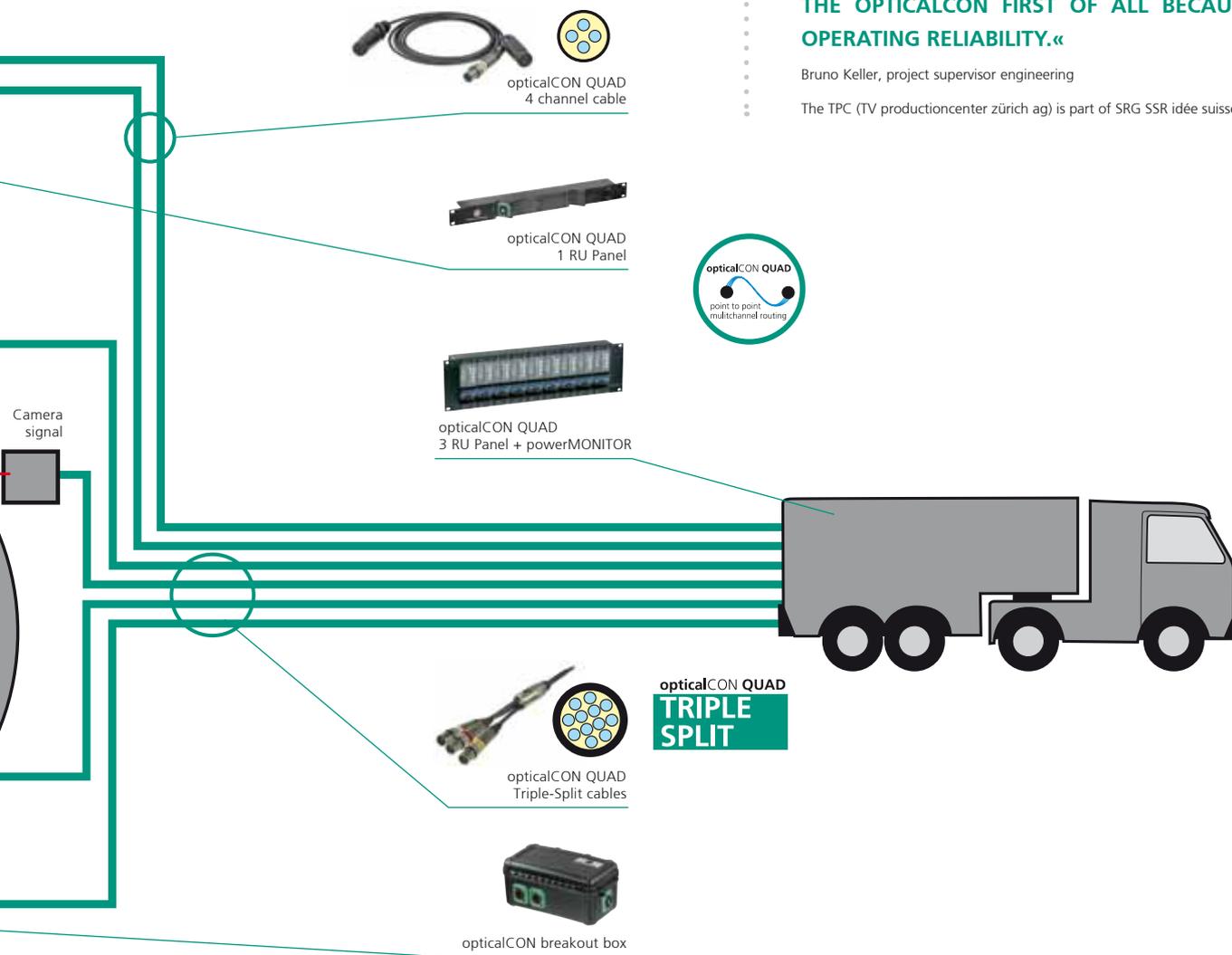Audio network

Video signal

opticalCON

Depending to the size of the required installation, the setup team has the choice between 12 or 4 channel cables which are both based on the opticalCON QUAD connection system. The same cable can be used no matter if big stadium events, outdoor events (e.g. ski races) or SNG/ENG applications are required. Each channel can be in-dividually patched to the required equipment for the specific job.

»NEW EQUIPMENT AND NEW TECHNOLOGIES LIKE FOR EXAMPLE HDTV, ASK FOR INCREASING DATA TRANSMISSION RATES, WHICH CAN HARDLY BE REALIZED WITH COPPER CABLES ANY MORE. IN THIS REGARD FIBER OPTICS CAN BE CLASSIFIED AS THE PERFECT SUITABLE AND UP TO DATE TRANSMITTING MEDIUM FOR NEW TECHNOLOGIES. THE CONSEQUENT USE OF FIBER OPTICS REQUIRES A RELIABLE CONNECTOR ACCORDINGLY. TPC (TV PRODUCTION CENTER ZURICH AG) HAS CHOSEN THE OPTICALCON FIRST OF ALL BECAUSE OF ITS OPERATING RELIABILITY.«

Bruno Keller, project supervisor engineering

The TPC (TV productioncenter zürich ag) is part of SRG SSR idée suisse.

opticalCON QUAD
4 channel cable

opticalCON QUAD
1 RU Panel

opticalCON **QUAD**
point to point
mulitchannel routing

opticalCON QUAD
3 RU Panel + powerMONITOR

Camera
signal

opticalCON **QUAD**
TRIPLE SPLIT

opticalCON QUAD
Triple-Split cables

opticalCON breakout box

Applications
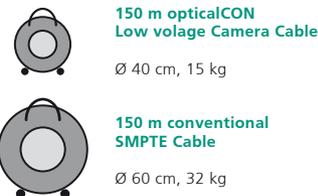## Broadcast - SNG/ENG

BORIS TV, UNITED KINGDOM

Boris TV uses Neutrik's opticalCON Low Voltage cable for series productions (e.g. at Twickenham Film Studios). The production requires frequent reconnection of links to cameras in a dusty environment, the shutters seal proved effective in preventing dust contamination of fibres.

The low voltage camera cable is a cost effective fiber optic hybrid cable solution and a great SMPTE cable alternative if only low voltage is required. The ultra flexible and lightweight (65 kg/km) design is optimized for camera link systems (e.g. for ENG / SNG[1]), camera adapter systems, camera cranes and powered drop down converter boxes for broadcast applications where only ELV[2] (< 50Vac) is required.
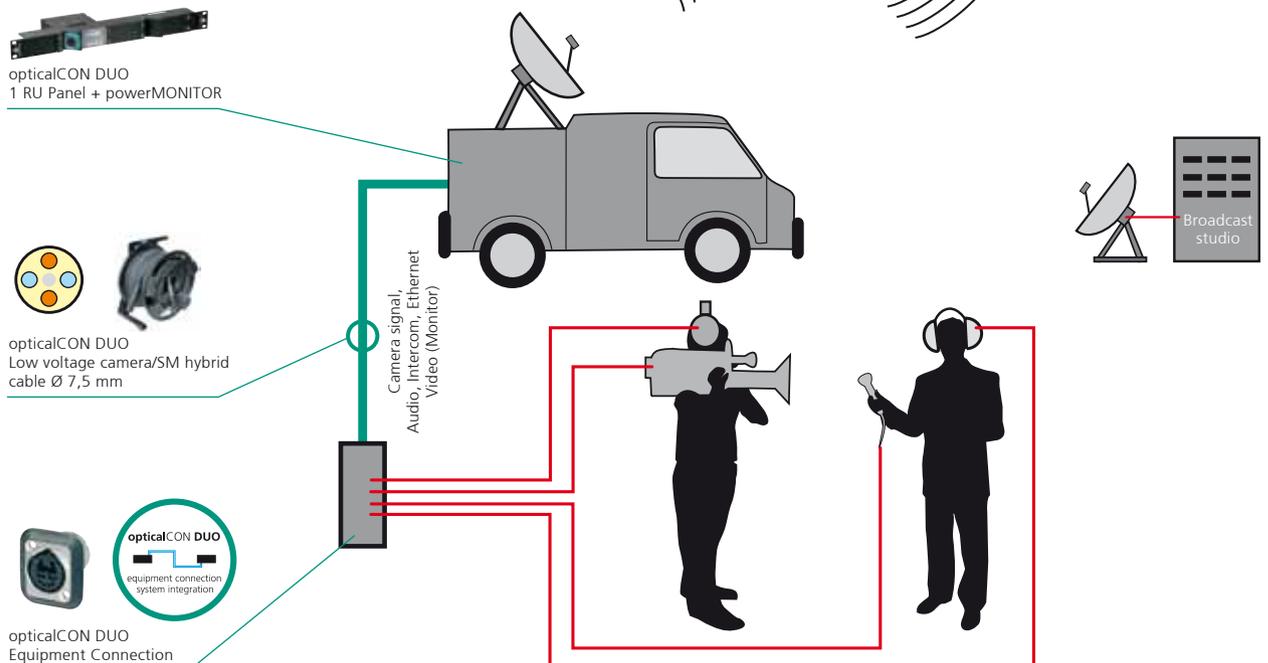
»A PARTICULAR BENEFIT TO BORIS TELEVISION LTD HAS BEEN THE ABILITY TO CARRY ENOUGH CABLE TO SUPPORT 8 CAMERAS WITH A RANGE OF 150 M EACH WITHOUT REQUIRING ADDITIONAL LOGISTICAL SUPPORT TO CARRY CABLE TO THE LOCATION, THE LIGHT WEIGHT BEING A FURTHER BENEFIT IN THE HEALTH AND SAFETY ASPECT OF CABLE HANDLING WHEN COMPARED WITH OTHER TRIAX OR SMPTE FIBRE SYSTEMS. THIS FEATURE HAS ALLOWED BORIS TV TO REDUCE ITS SET UP AND BREAKDOWN CREW REQUIREMENT.«

CJ Smith, Managing Director, Van Diemen Films Ltd

Boris TV is a multicamera OB and equipment hire business which is part of Van Diemen Films.

**150 m opticalCON
Low volage Camera Cable**

Ø 40 cm, 15 kg

**150 m conventional
SMPTE Cable**

Ø 60 cm, 32 kg

1) ... Electronic News Gathering / Satelite News Gathering
2) ... Extra Low Voltage

opticalCON DUO
1 RU Panel + powerMONITOR

opticalCON DUO
Low voltage camera/SM hybrid
cable Ø 7,5 mm

opticalCON DUO
equipment connection
system integration

opticalCON DUO
Equipment Connection

Camera signal,
Audio, Intercom, Ethernet
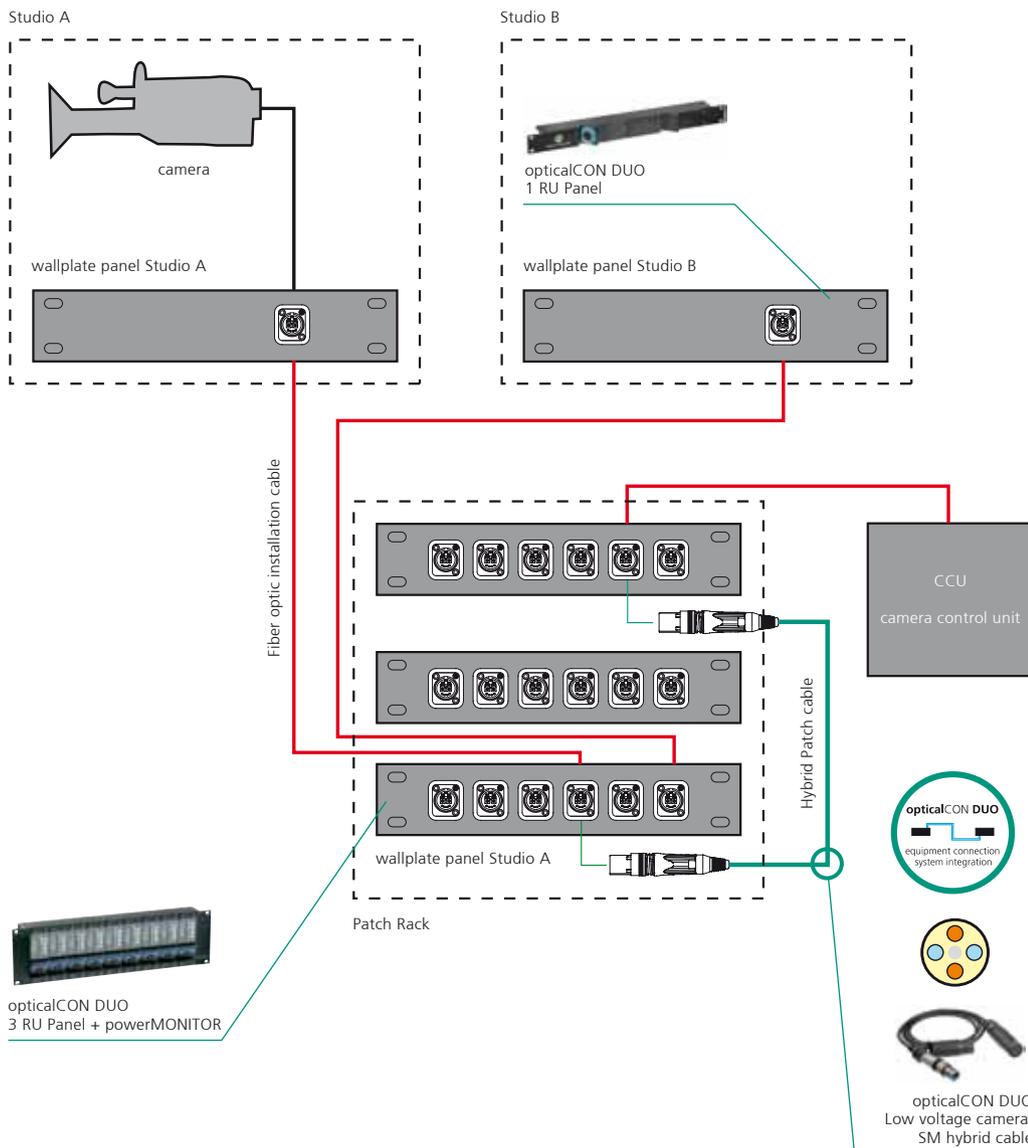Video (Monitor)

Broadcast
studio

Broadcast - Studio Routing

opticalCON is the ideal solution for studio / OB-van patch rack applications. The system's sealing shutters ensure high mating cycles and minimized maintenance.

Typically used in high quantities, opticalCON chassis connectors are simple to install and very cost effective compared to other robust fiber optic connection systems. In particular, the opticalCON DUO chassis connector is well suited for system integrations, as it offers LC compatibility on both front and rear. With its four copper contacts, opticalCON DUO can be used both with cost-effective permanent LC patch cables and also for hybrid powered connections to broadcast cameras.

Boris TV uses the opticalCON DUO system with Low Voltage cables (e.g. at Desmet Studios in Amsterdam) for its frequent reconfigurations of camera and cable setups between studios. The system has proven to be effective and reliable.

Studio A

camera

wallplate panel Studio A

Studio B

opticalCON DUO
1 RU Panel

wallplate panel Studio B

Fiber optic installation cable

CCU

camera control unit

Hybrid Patch cable

wallplate panel Studio A

Patch Rack

opticalCON DUO
3 RU Panel + powerMONITOR

opticalCON DUO
equipment connection
system integration

opticalCON DUO
Low voltage camera/
SM hybrid cable

Wiring And Hook Up Suggestion
opticalCON DUO Or QUAD?

The opticalCON connection system offers high flexibility. The front and rear LC compatibility of the 2-channel opticalCON DUO makes the system ideal for equipment connections and system integration. The 4-channel opticalCON QUAD is focused on mobile, multichannel point-to-point connections.
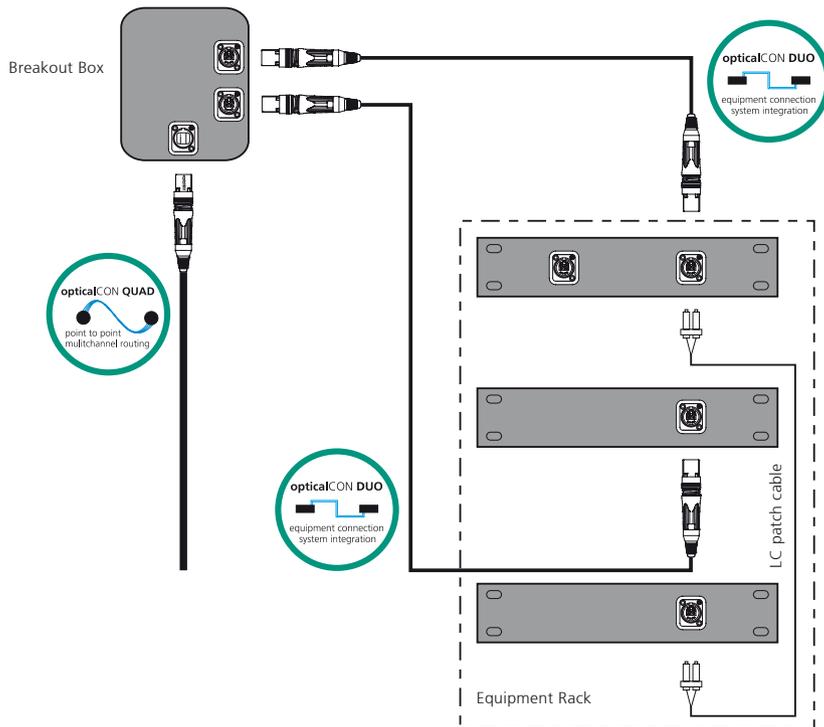

Cable Wiring

Fiber
In order to achieve uniform and compatible systems, Neutrik recommends following the wiring suggestions of the ISO / IEC 11801 which define channel A (right) as input and channel B (left) as output.

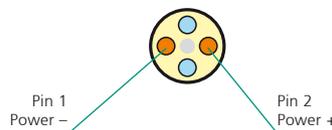### Copper

SMPTE WIRING
For studio camera wiring, Neutrik recommends following the SMPTE wiring suggestion:

Pin 3 (grey) Data −
Pin 1 (white) Power −
Pin 4 (black) Power +
Pin 2 (red) Data +
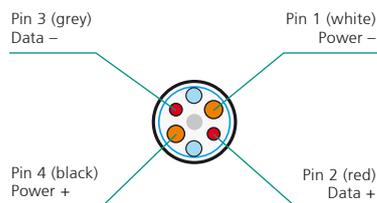
Low Voltage
For ELV (Extra Low Voltage) applications (< 50 V) Neutrik recommends the following wiring.

Pin 1 Power −
Pin 2 Power +

opticalCON

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