



Amphenol

Fiber Optic Solutions

CTOS-CTOL

Fiber Optic Field Connectors

expanded beam connectors
harsh environment

Introduction



CTOS and CTOL series are robust optical connectors for rapid deployment of high-speed transmission links under harsh environments. The hermaphroditic mating makes it possible to "daisy chain" cable assemblies without using any interconnect adapters. The specific lens design guarantees a large beam diameter and a low loss connection, less sensitive to dirt and dust. A specific front design and ergonomic keys ensure blind mating. The flat protective window mounted on shock absorbers provides an easy to clean surface for improved performances and protection. CTOS and CTOL harnesses are easily and cost effective field maintainable with the FTOS splice kit.

Amphenol unique CTOS and CTOL design have already gained worldwide acceptance in the military. CTOS has been qualified by NATO according to STANAG 4290 requirements. These products are also widely used in geophysical, civil safety, railway, broadcast and industrial markets.

In the CTOS, 1, 2 or 4 channels are inserted in a small size design (o.d. 38mm). CTOL is a CTOS larger version up to 8 channels (o.d. 52mm). CTOL is intermateable with CTO, the first expanded beam connectors version.

- Hermaphroditic interface with rapid ramp coupling
- Design for gloved handling and blind mating in difficult conditions
- Large expanded beam
- Anti-reflective protective window easily reached and cleaned
- The rubber ergonomic shell allows an easy handling with or without gloves and ensures a high protection against shocks
- Up to 8 channels
- Cost effective field repairs
- Wavelength 850 - 1300 nm (Z version); 1300 nm (Y version)
- Multimode (for single mode, consult us)

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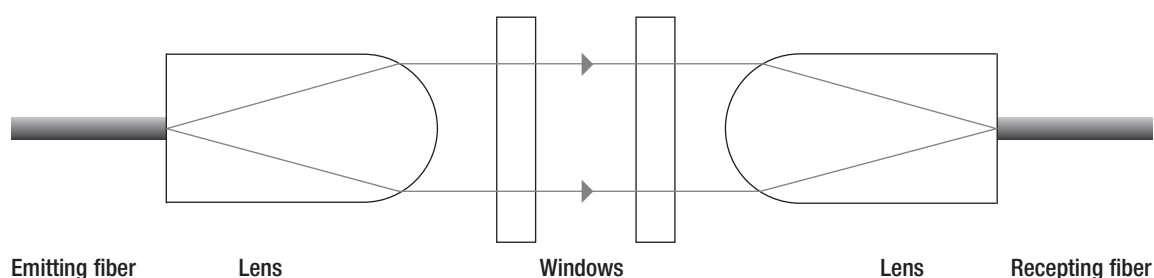
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Expanded Beam

CTOS AND CTOL EXPANDED BEAM TECHNOLOGY ASSETS

With AMPHENOL expanded beam technology, fibers are not in physical contact. The beam is expanded through the first lens and refocused through the second lens then into the fiber. By increasing the light beam surface (680 times for multimode technology), the connector becomes highly resistant to vibrations, shocks, small debris contamination and optical misalignment. A coated protective window makes the connectors easy to clean and easily field maintainable should any damage occurs.



TECHNICAL SPECIFICATIONS

- Plugs and Receptacles (straight and 90°), Tactical Harnesses and Test caps for maintenance
- Hermaphroditic interface with rapid ramp coupling
- Large expanded beams with protective windows
- Stainless steel body with ergonomic rubber shell
- Termination and Maintenance FTOS tool kits available
- Tactical drums and accessories available

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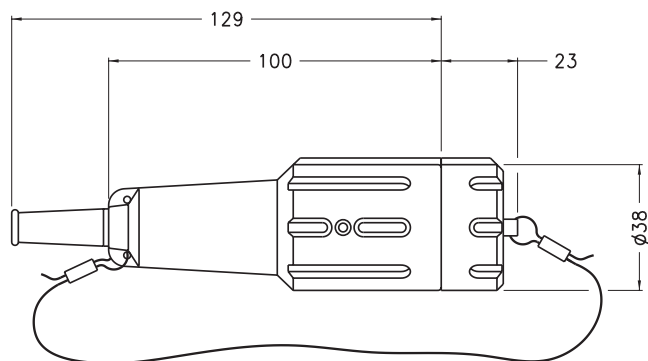
	CTOS	CTOL	STANDARD
Number of channel	1, 2 or 4	2, 4, 6 or 8	
Insertion loss	Multimode 50/125 @ 1300 nm		
(per mated pair of plug)	DEL source : 1.5dB typical ; 2dB max		
	Single mode LASER source: 0.8dB typ ; 1.2dB max		
Durability	10000 mating min		MIL-STD-810E
Operating temperature	-40°C, + 85°C		MIL-STD-810D
Vibrations	10 to 2000Hz, 10g, 1.5 mm p/p, 3 directions		MIL-STD-810E
Bump resistance	4000 Bumps, 40g, 6ms, 6 directions		
Mechanical shock	50g, 1/2 sinus, 3 shocks by direction, 3 axes		MIL-STD-810E
Mud resistance	Compliant		MIL-C-83526 13
Free drops	26 drops 1.2m on concrete (plugs)		MIL-STD-810D
Water immersion	> 5m depth		
Salt frog	500 hours		MIL-STD-810D
Low pressure	85 mbars 48 hours		NFC 20706
Storage temperature	-55°C, +85°C		MIL-STD-810E
Crush resistance	1 tonne, 10sec		NF 93810
Tensile load	Short time: 2200 N		DOD-STD-1678
(cable dependant)	Permanent: 1300 N		
Decontamination Fluid Resistance	Compliant		DOD-STD-1678



CTOS: XXXXXXXXXX SMALL OPTICAL FIELD CONNECTOR

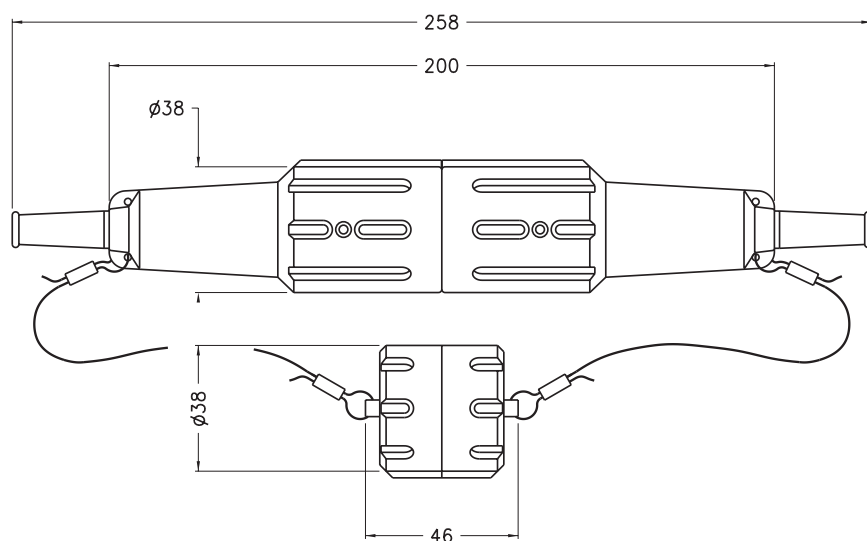


■ CTOS PLUG WITH PROTECTIVE CAP (06M) - CTOS 06M



The CTOS plug provides hermaphroditic optical links between two points. This plug is designed to be used in harsh environment applications. It can be terminated by a 1, 2, 4 fibers tactical cable.

The tensile strength between plug and cable can reach 200 daN (depending on cable performance)



Channel arrangements :



1 Channel



2 Channels



4 Channels



■ HOW TO ORDER CTOS PLUG PIECE PARTS

	Example: CTOS	06	M	2	01	Z	55	X	BPF
Small Optical Field Connector	_____								
Plug	_____								
Tactical cable termination	_____								
Number of channel: 1, 2, 4	_____								
50 / 125 μ m fiber diameter: 01	_____								
62,5 / 125 μ m fiber diameter: 02	_____								
Compatible wavelength 1300 nm: Y	_____								
Compatible wavelength 840 - 1300 nm: Z	_____								
Cable diameter from 3,4 to 7 mm max (see cable catalog)	_____								
Ex: 5,5 mm → 55	_____								
Cable supplier (see cable catalog)	_____								
Plug Protective cap	_____								

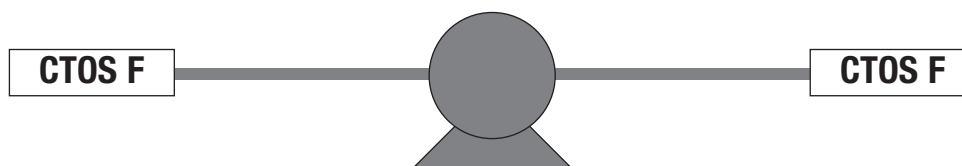
■ HOW TO ORDER PLUG TO PLUG PATCHCORD

CTOS F **CTOS F**

	Example: CTOS	FF	4	02	Y	0200	55	X	BPF
Small Optical Field Connector	_____								
Plug to plug	_____								
Number of channel : 1, 2, 4	_____								
50 / 125 μ m fiber diameter: 01	_____								
62,5 / 125 μ m fiber diameter: 02	_____								
Compatible wavelength 1300 nm: Y	_____								
Compatible wavelength 840 - 1300 nm: Z	_____								
Cable length in meter (if L<10 m: x.xx)	_____								
Cable diameter from 3,4 to 7 mm max (see cable catalog)	_____								
Ex: 3,4 → 34	_____								
Cable supplier (see cable catalog)	_____								
Plug Protective cap	_____								

■ HOW TO ORDER PLUG TO PLUG PATCHCORD REELED ON A DRUM WITH OR WITHOUT ACCESSORIES

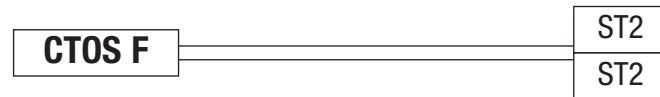
See tactical and economical drum description on to the crums catalog



Example:		CTOS	T01	FF	4	02	Y	0200	55	X	BPF	Sup+Poi+Man
Small Optical Field Connector												
Tactical drums												
T06: 100 m												
T05: 250 m												
T01: 350 m												
T03: 500 m												
T04: 1000 m												
T07: 2000 m												
Economical drum (drum and frame integrated)												
L1:												
L2:												
L3:												
L345:												
L36:												
Economical drum (with hand holder)												
D												
Patchcord definition (see above):												
Drum accessories:												
Frame: Sup (for T01 to T07)												
Handle: Poi (for T01 to T07)												
Cranking tool: Man (for T01 to T07)												
Back Pack: BP												
Front pack (for 100 and 200 m tactical drums): SV (consult us)												



■ CTOS PLUG - CTOS F (TERMINATED)



How to order plug patchcord

	Example: CTOS	F	2	01	Y	2.50	28	X	BPF	ST2
Small Optical Field Connector										
Plug terminated										
Channel number : 1, 2, 4										
50 / 125 μ m fiber fiber: 01										
62,5 / 125 μ m fiber fiber: 02										
Compatible wavelength 1300 nm: Y										
Compatible wavelength 840 - 1300 nm: Z										
Cable length in meter (if L<10 m: x.xx)										
Cable diameter from 2,8 to 7 mm max (see cable catalog)										
Ex: 2,8 mm → 28										
Others: consult us.										
Cable supplier (see cable catalog)										
Jam nut receptacle protective cap										
Patchcord other end connectors										
STA, TVOP, AXOS, CTOS, ST, SC,FC, SC duplex										
Others consult us										

■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)

The jam nut receptacle has to be mounted on the vehicle or on a box , it provides the link between the inside electro optic device and the outside optical link.

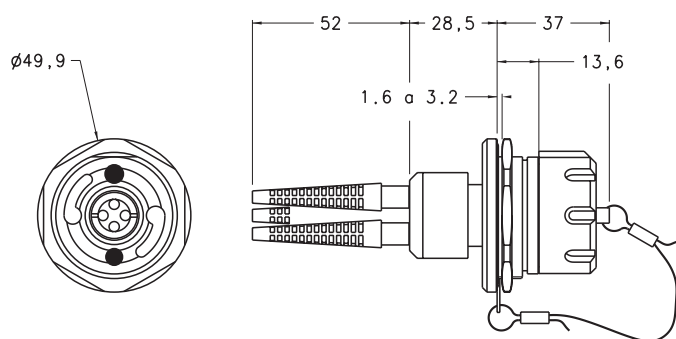
The jam nut receptacle is mated with the first CTOS plug of the outer link patchcord.

Fixed by means of an hexagonal nut with possibility to be stopped using a brake wire.

Front sealing ensured by an “O” ring.

Electrical contact between panel receptacle and protective cap (for EMI,CEM protection when cap is on). Protective cap attached to the receptacle by a stainless steel rope and ring.

■ CTOS 77P: STRAIGHT BACKSHELL RECEPTACLE FOR PIGTAIL



Backshell main use:

To be used inside a vehicle or on a box to connect CTOS receptacle to the electro-optic transceivers, in a protected area.

This rear part provides an easy cross connect output.

Straight rear part to be used with 1, 2, 4 pig-tails (2.8 mm single cable or duplex cable 2 x 3 , 2x 1.6). Each pigtail can be terminated with ST, SC, FC, duplex SC, duplex LC, MTRJ connectors.

Pigtails tensile strength: 10 daN. (depending on cable performance).

How to order CTOS receptacle piece parts

Example: CTOS 77 P 2 01 Z 28 X BPE

Small Optical Field Connector:	_____							
Jam nut receptacle:	_____							
Pig tails termination:	_____							
Number of channel : 1, 2, 4	_____							
50 / 125 µm fiber diameter: 01	_____							
62,5 / 125 µm fiber diameter: 02	_____							
Compatible wavelength 1300 nm: Y	_____							
Compatible wavelength 840 - 1300 nm: Z	_____							
Cable diameter from 1,5 to 3 mm (see cable catalog)	_____							
Ex : 2,8 mm → 28								
Others: consult us.	_____							
Cable supplier (see cable catalog)	_____							
Jam nut receptacle protective cap	_____							



■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77) - CTOS 77P

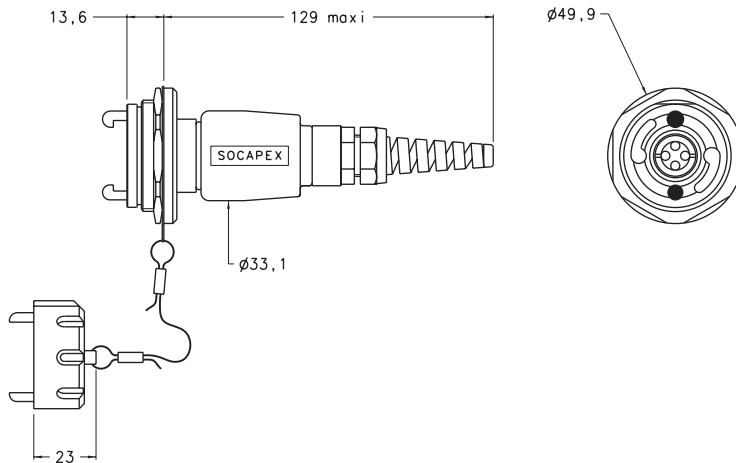
How to order CTOS receptacle patchcord

CTOS 77P	ST2
	ST2

	Example: CTOS 77 P 4 01 Y 2.50 230 X BPE ST2
Small Optical Field Connector	ST2
Jam nut receptacle	77
Pig tails termination	P
Number of chanel : 1, 2, 4	4
50 / 125 µm fiber diameter : 01	01
62,5 / 125 µm fiber diameter : 02	02
Compatible wavelength 1300 nm: Y	Y
Compatible wavelength 840 - 1300 nm: Z	Z
Cable length in meter (if L<10 m: x.xx)	2.50
Cable diameter from 1,5 to 3 mm max (see cable catalog)	230
Ex: 1,5 mm → 15	
Others: consult us.	
Cable supplier (see cable catalog)	X
Jam nut receptacle protective cap	BPE
Patchcord other end connectors	ST2
ST2, SC, FC, LC, duplex SC, duplex LC, MTRJ	
Others consult us	

■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)

CTOS 77C00: straight backshell receptacle for tactical cable



Backshell main use:

To be used inside a vehicle or on a box to connect CTOS receptacle to the electro-optic transceivers, in a non protected area.

Unsealed straight backshell to be used with 1 or 2 tactical cables (1,2 or 4 number of channels) inside a vehicle.

The rear part is made of 2 half shells molded in aluminum alloy.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 100 daN (depending on cable performance).

How to order CTOS receptacle piece parts

	Example: CTOS	77	C	00	2	01	Z	55	X	BPE
Small Optical Field connector										
Jam nut receptacle										
Two half shells rear part for tactical cable										
Straight backshell										
Number of channel : 1, 2, 4										
50 / 125 µm fiber diameter : 01										
62,5 / 125 µm fiber diameter : 02										
Compatible wavelength 1300 nm : Y										
Compatible wavelength 840 - 1300 nm : Z										
Cable diameter from 3,4 to 7 mm (see cable catalog)										
Ex: 5,5 mm → 55										
Cable supplier (see cable catalog)										
Jam nut receptacle protective cap										



■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77) - CTOS 77C00

How to order receptacle patchcord

CTOS 77C00

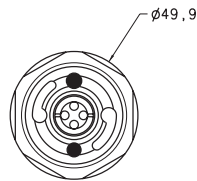
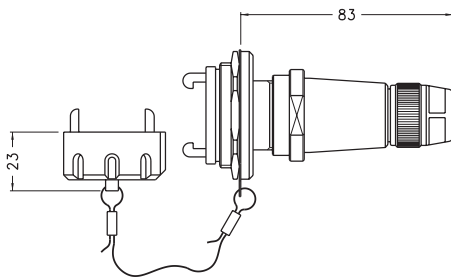
TVOP

	Example: CTOS	77	C	00	2	01	Z	0015	70	X	BPE	TVOP
Small Optical Field Connector												
Jam nut receptacle												
Two half shells rear part for tactical cable												
Straight backshell												
Number of channel: 1, 2, 4												
50 / 125 µm fiber diameter: 01												
62,5 / 125 µm fiber diameter: 02												
Compatible wavelength 1300 nm: Y												
Compatible wavelength 840 - 1300 nm: Z												
Cable length in meter (if L<10 m: x.xx)												
Cable diameter from 3,4 to 7 mm (see cable catalog)												
Ex: 7 mm → 70												
Cable supplier (see cable catalog)												
Jam nut receptacle protective cap												
Patchcord other end plug connectors												
STA, TVOP, AXOS, CTOS, ST, SC,FC, duplex SC												
Others consult us												

For other configurations consult us.

■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)

CTOS 77M00: sealed straight backshell receptacle for tactical cable



Backshell main use:

To be used inside and outside a vehicle to connect CTOS receptacle to the electro-optic transceivers, in a non protected and humid area.

Straight backshell to be used with a 1, 2, 4 fibers tactical cables inside or outside a vehicle.

The rear part is made of an aluminum alloy shell with a cable retention clamp.

Complete front and rear sealing.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 100 daN (depending on cable performance).

How to order CTOS receptacle piece parts

	Example: CTOS	77	M	00	2	01	Z	55	X	BPE
Small Optical Field Connector	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Tactical cable sealed termination	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Straight backshell	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Number of channel: 1, 2, 4	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
50 / 125 µm fiber diameter: 01	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
62,5 / 125 µm fiber diameter: 02	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 1300 nm: Y	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Compatible wavelength 840 - 1300 nm: Z	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Ex: 5,5 mm → 55	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Cable supplier (see cable catalog)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jam nut receptacle protective cap	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____



■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77) - CTOS 77M00

How to order receptacle patchcord

CTOS 77M00

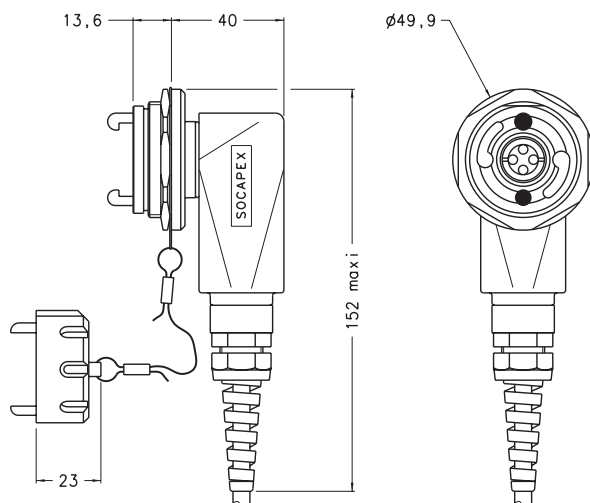
TVOP

	Example: CTOS	77	M	00	2	01	Z	0015	70	X	BPE	TVOP
Small Optical Field Connector												
Jam nut receptacle												
Tactical cable sealed termination												
Straight backshell												
Number of channel: 1, 2, 4												
50 / 125 µm fiber diameter: 01												
62,5 / 125 µm fiber diameter: 02												
Compatible wavelength 1300 nm: Y												
Compatible wavelength 840 - 1300 nm: Z												
Cable length in meter (if L<10 m: x.xx)												
Cable diameter from 3,4 to 7 mm (see cable catalog)												
Ex: 5,5 mm → 55												
Cable supplier (see cable cable)												
Jam nut receptacle protective cap												
Patchcord other end plug connectors												
STA, TVOP, AXOS, CTOS, ST, SC, FC, duplex SC												
Others consult us												

For other configurations consult us.

■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)

CTOS 77C90: 90° backshell receptacle for tactical cable



Backshell main use:

To be used inside a vehicle or on a box to connect CTOS receptacle to the electro-optic transceivers, in non protected area, or when the rear space is too narrow.

90° backshell not sealed to be used with a 1, 2, 4 fiber tactical cable inside a vehicle.

The rear part is made of 2 half shells molded in aluminum alloy.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 50 daN (depending on cable performance).

How to order CTOS receptacle piece parts

Example: CTOS 77 C 90 2 01 Z 55 X BPE

Small Optical Field Connector	CTOS	77	C	90	2	01	Z	55	X	BPE
Jam nut receptacle										
Two half shell rear part for tactical cable										
90° backshell										
Number of channel: 1, 2, 4										
50 / 125 µm fiber diameter: 01										
62,5 / 125 µm fiber diameter: 02										
Compatible wavelength 1300 nm: Y										
Compatible wavelength 840 - 1300 nm: Z										
Cable diameter from 3,4 to 7 mm (see cable catalog)										
Ex: 5,5 mm → 55										
Cable supplier (see cable catalog)										
Jam nut receptacle protective cap										



■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77) - CTOS 77C90

How to order receptacle patchcord

CTOS 77C90

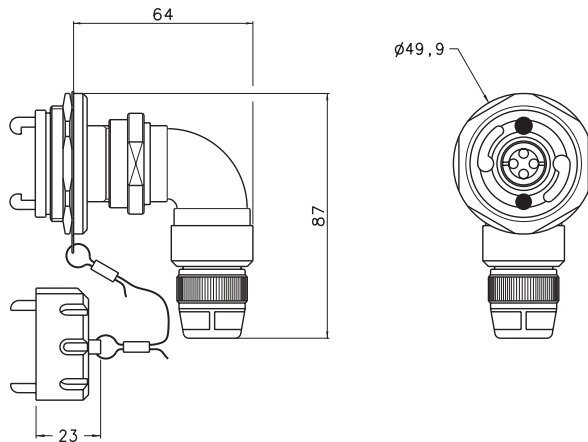
STA

	Example: CTOS	77	C	90	2	02	Y	1.50	70	X	BPE	STA
Small Optical Field Connector												
Jam nut receptacle												
Two half shells rear part for tactical cable												
90° backshell												
Number of channel: 1, 2, 4												
50 / 125 μm fiber diameter: 01												
62,5 / 125 μm fiber diameter: 02												
Compatible wavelength 1300 nm: Y												
Compatible wavelength 840 - 1300 nm: Z												
Cable length in meter (if L<10 m: x.xx)												
Cable diameter from 3,4 to 7 mm (see cable catalog)												
Ex: 5 mm → 50												
Cable supplier (see cable catalog)												
Jam nut receptacle protective cap												
Patch cord other end plug connectors												
STA, TVOP, AXOS, CTOS, ST, SC,FC, duplex SC												
Others consult us												

For other configurations consult us.

■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)

CTOS 77M90: sealed 90° backshell receptacle for tactical cable



Backshell main use:

To be used inside and outside a vehicle to connect CTOS receptacle to the electro-optic transceivers, in a non protected or humid area, or when the rear space is too narrow. 90° backshell to be used with a 2 or 4 fibers tactical cable outside a vehicle.

Complete front and rear sealing.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 50 daN (depending on cable performance).

How to order CTOS receptacle piece parts

	Example: CTOS	77	M	90	2	01	Z	55	X	BPE
Small Optical Field Connector										
Jam nut receptacle										
Tactical cable sealed termination										
90° backshell										
Number of channel: 1, 2, 4										
50 / 125 µm fiber diameter: 01										
62,5 / 125 µm fiber diameter: 02										
Compatible wavelength 1300 nm: Y										
Compatible wavelength 840 - 1300 nm: Z										
Cable diameter from 3,4 to 7 mm (see cable catalog)										
Ex: 5,5 mm → 55										
Cable supplier (see cable catalog)										
Jam nut receptacle protective cap										



■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77) - CTOS 77M90

How to order receptacle patchcord

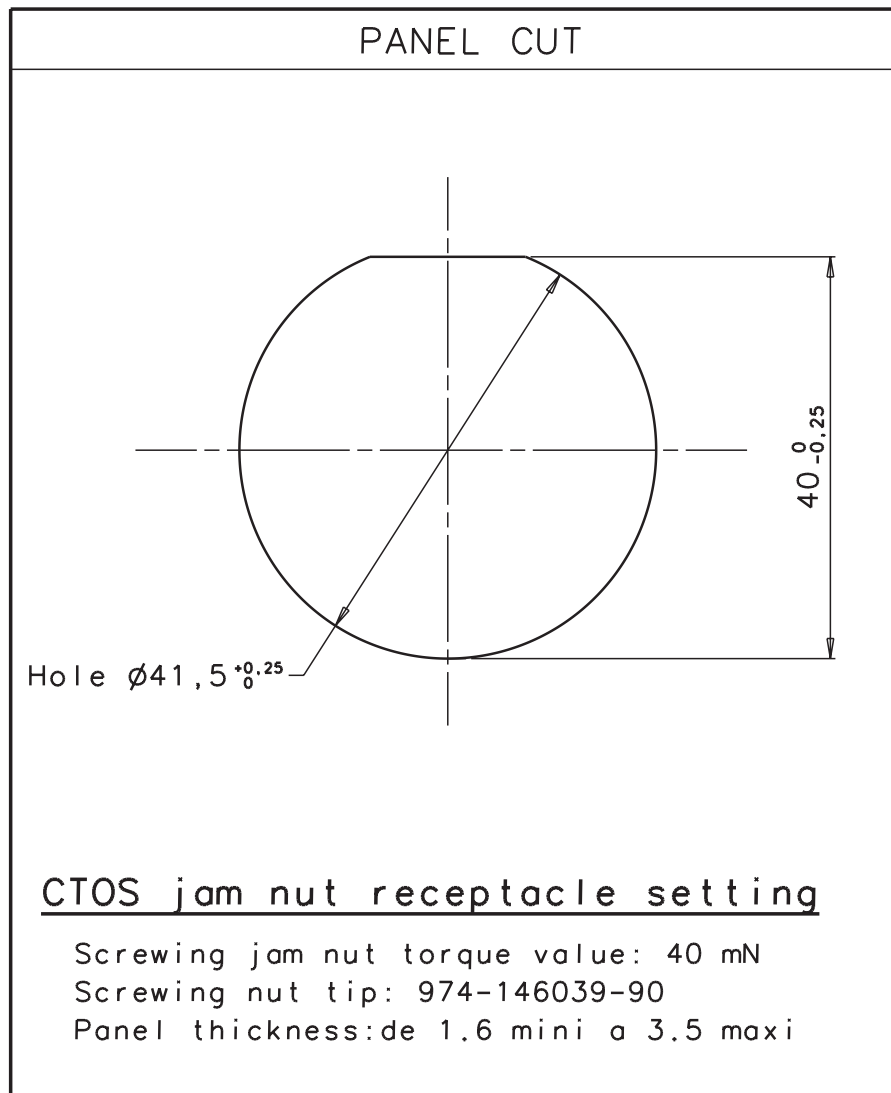
CTOS 77M90

TVOP

	Example: CTOS	77	M	90	2	02	Y	1.50	55	X	BPE	TVOP
Small Optical Field Connector												
Jam nut receptacle												
Tactical cable sealed termination												
90° backshell												
Number of channel: 1, 2, 4												
50 / 125 µm fiber diameter: 01												
62,5 / 125 µm fiber diameter: 02												
Compatible wavelength 1300 nm: Y												
Compatible wavelength 840 - 1300 nm: Z												
Cable length in meter (if L<10 m: x.xx)												
Cable diameter from 3,4 to 7 mm (see cable catalog)												
Ex: 5,5 mm → 55												
Cable supplier (see cable catalog)												
Jam nut receptacle protective cap												
Patch cord other end plug connectors												
STA, TVOP, AXOS, CTOS, ST, SC,FC, duplex SC												
Others consult us												

For other configurations consult us.

■ CTOS “JAM NUT” RECEPTACLE – REAR MOUNT (77)





■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

The square flange receptacle has to be mounted on to the vehicle panel. It provides the link between the inside electro-optic device and the outside optical link.

The square flange receptacle receives the first CTOS plug of the outer link patchcord.

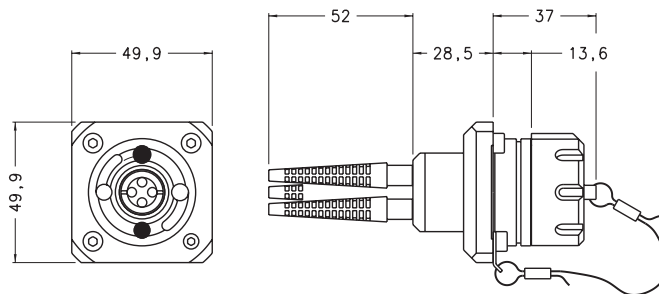
The square flange type makes it possible to have a high density of receptacles on a panel.

Easy panel cut off of 5 round holes.

Fixation by 4 screws. - Front sealing ensured by a flat gasket.

Electrical contact between panel receptacle and protective cap (EMI,CEM protection when cap is on). Protective cap attached to the panel or to the receptacle by a stainless steel rope.

■ CTOS 00P: STRAIGHT BACKSHELL RECEPTACLE FOR PIG TAIL



Backshell main use:

To be used inside a vehicle or on a box to connect CTOS receptacle to the electro-optic transceivers, in a protected area.

This rear part makes possible an easy cross connect output.

Straight rear part to be used with 1, 2, 4, pig-tails (2.8 mm single cable or duplex cable 2 x 3, 2x 1.6). Each pigtail can be terminated with ST,SC,FC, duplex SC and MTRJ connectors.

Pig tails tensile strength: 10 daN.

(depending on cable performance)

How to order CTOS receptacle piece parts

	Example: CTOS	00	P	2	01	Z	28	X	BPP
Small Optical Field Connector: _____									
Square flange receptacle: _____									
Pig tails termination: _____									
Number of channel : 1, 2, 4 _____									
50 / 125 µm fiber diameter: 01 _____									
62,5 / 125 µm fiber diameter: 02 _____									
Compatible wavelength 1300 nm: Y _____									
Compatible wavelength 840 - 1300 nm: Z _____									
Cable diameter from 1,5 to 3 mm (see cable catalog) _____									
Ex : 2,8 mm → 28									
Others: consult us. _____									
Cable supplier (see cable catalog) _____									
Jam nut receptacle protective cap _____									

■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOS 00P

How to order CTOS receptacle patchcord

CTOS 00P

SC

SC

Example: CTOS 00 P 4 01 Y 2.50 230 X BPP ST2

Small Optical Field Connector _____

Square receptacle _____

Pig tails termination _____

Number of channel : 1, 2, 4 _____

50 / 125 µm fiber diameter: 01 _____

62,5 / 125 µm fiber diameter: 02 _____

Compatible wavelength 1300 nm: Y _____

Compatible wavelength 840 - 1300 nm: Z _____

Cable length in meter (if L<10 m: x.xx) _____

Cable diameter from 1,5 to 3 mm max (see cable catalog) _____

Ex: 1,5 mm → 15

Others: consult us. _____

Cable supplier (see cable catalog) _____

Jam nut receptacle protective cap _____

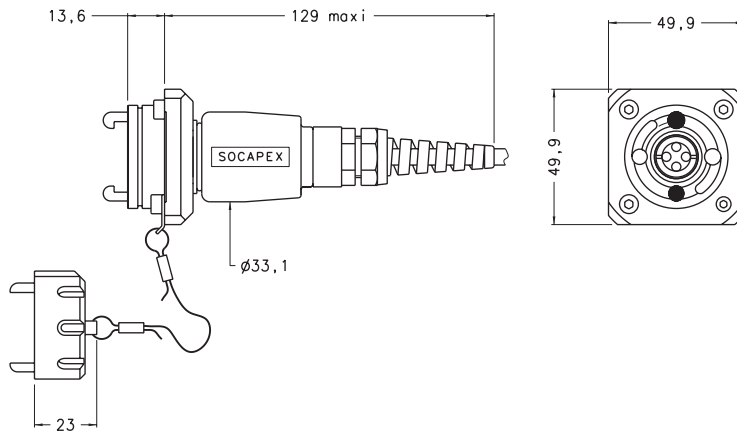
Patchcord other end connectors _____

ST2, SC, FC, LC,duplex SC, LC duplex, MTRJ

Others consult us _____

■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

CTOS 00C00: straight backshell receptacle for tactical cable



Backshell main use:

To be used inside a vehicle or on a box to connect CTOS receptacle to the electro-optic transceivers, in non protected area.

Unsealed straight backshell to be used with 1 or 2 tactical cables (1,2 or 4 number of channels) inside a vehicle.

The rear part is made of 2 half shells molded in aluminum alloy.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 100 daN (depending on cable performances).

How to order CTOS receptacle piece parts

	Example: CTOS	00	C	00	2	01	Z	55	X	BPP
Small Optical Field connector										
Square flange receptacle										
Two half shell rear part for tactical cable										
Straight backshell										
Number of channel: 1, 2, 4										
50 / 125 µm fiber diameter: 01										
62,5 / 125 µm fiber diameter: 02										
Compatible wavelength 1300 nm: Y										
Compatible wavelength 840 - 1300 nm: Z										
Cable diameter from 3,4 to 7 mm (see cable catalog)										
Ex: 5,5 mm → 55										
Cable supplier (see cable catalog)										
Jam nut receptacle protective cap										

■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOS 00C00

How to order CTOS receptacle patchcord

CTOS 00C00

TVOP

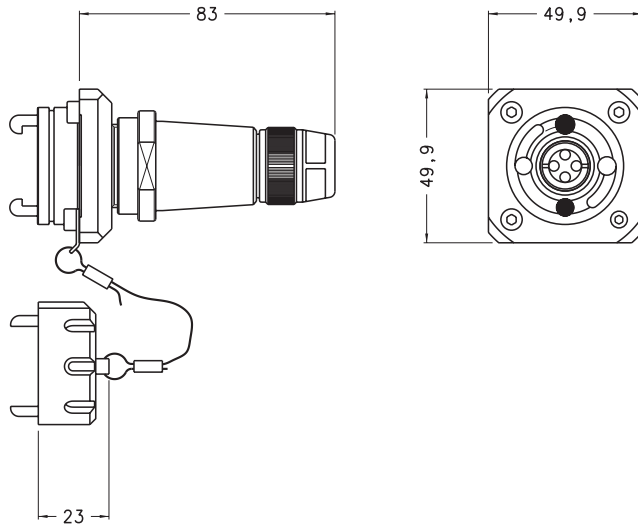
Example: CTOS 00 C 00 2 01 Z 0015 70 X BPP TVOP

Small Optical Field Connector	_____	00	C	00	2	01	Z	0015	70	X	BPP	TVOP
Square flange receptacle	_____											
Two half shell rear part for tactical cable	_____											
Straight backshell	_____											
Number of channel: 1, 2, 4	_____											
50 / 125 µm fiber diameter: 01	_____											
62,5 / 125 µm fiber diameter: 02	_____											
Compatible wavelength 1300 nm: Y	_____											
Compatible wavelength 840 - 1300 nm: Z	_____											
Cable length in meter (if L<10 m: x.xx)	_____											
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____											
Ex: 7 mm → 70	_____											
Cable supplier (see cable catalog)	_____											
Jam nut receptacle protective cap	_____											
Patchcord other end plug connectors	_____											
STA, TVOP, AXOS, CTOS, ST, SC,FC, duplex SC	_____											
Others consult us	_____											

For other configurations consult us.

■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

CTOS 00M00: sealed straight backshell receptacle for tactical cable



Backshell main use:

To be used inside and outside of a vehicle to connect CTOS receptacle to the electro-optic transceivers, in a non protected or humid area. Straight backshell to be used with a 1,2, 4 fibers tactical cable inside or outside a vehicle.

The rear part is made of an aluminum alloy shell with bit of cable retention gland.

Complete front and rear sealing.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 100 daN (depending on cable performance).

How to order CTOS receptacle piece parts

	Example: CTOS	00	M	00	2	01	Z	55	X	BPP
Small Optical Field Connector										
Square flange receptacle										
Tactical cable sealed termination										
Straight backshell										
Number of channel: 1, 2, 4										
50 / 125 μ m fiber diameter: 01										
62,5 / 125 μ m fiber diameter: 02										
Compatible wavelength 1300 nm: Y										
Compatible wavelength 840 - 1300 nm: Z										
Cable diameter from 3,4 to 7 mm (see cable catalog)										
Ex: 5,5 mm → 55										
Cable supplier (see cable catalog)										
Jam nut receptacle protective cap										

■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOS 00M00

How to order receptacle patchcord

CTOS 00M00

AXOS

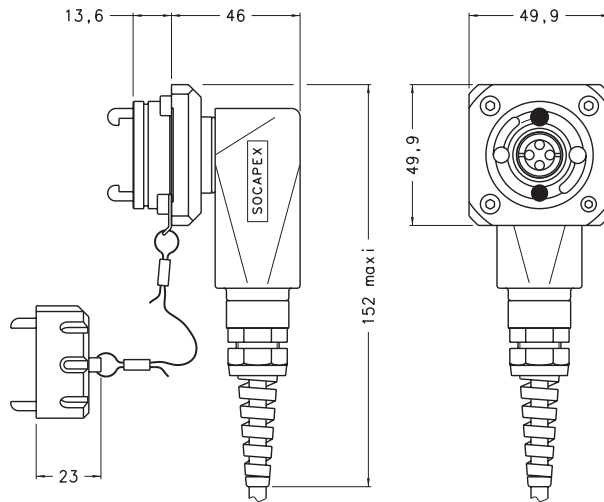
Example: CTOS 00 M 00 2 01 Z 0015 55 X BPP TVOP

Small Optical Field Connector	_____	00	M	00	2	01	Z	0015	55	X	BPP	TVOP
Square flange receptacle	_____											
Tactical cable sealed termination	_____											
Straight backshell	_____											
Number of channel: 1, 2, 4	_____											
50 / 125 µm fiber diameter: 01	_____											
62,5 / 125 µm fiber diameter: 02	_____											
Compatible wavelength 1300 nm: Y	_____											
Compatible wavelength 840 - 1300 nm: Z	_____											
Cable length in meter (if L<10 m: x.xx)	_____											
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____											
Ex: 5,5 mm → 55	_____											
Cable supplier (see cable cable)	_____											
Jam nut receptacle protective cap	_____											
Patchcord other end plug connectors	_____											
STA, TVOP, AXOS, CTOS, ST, SC,FC, duplex SC	_____											
Others consult us	_____											

For other configurations consult us.

■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

CTOS 00C90: 90° backshell receptacle for tactical cable



Backshell main use:

To be used inside a vehicle or on a box to connect CTOL receptacle to the electro-optic transceivers, in a non protected area, or when the rear space is too narrow.

Unsealed 90° backshell to be used with a 1, 2, 4, fibers tactical cable inside a vehicle.

The rear part is made of 2 half shells molded in aluminum alloy.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 50 daN (depending on cable performance).

How to order CTOS receptacle piece parts

	Example: CTOS	00	C	90	2	01	Z	55	X	BPP
Small Optical Field Connector										
Square flange receptacle										
Two half shell rear part for tactical cable										
90° backshell										
Number of channel: 1, 2, 4										
50 / 125 µm fiber diameter: 01										
62,5 / 125 µm fiber diameter: 02										
Compatible wavelength 1300 nm: Y										
Compatible wavelength 840 - 1300 nm: Z										
Cable diameter from 3,4 to 7 mm (see cable catalog)										
Ex: 5,5 mm → 55										
Cable supplier (see cable catalog)										
Jam nut receptacle protective cap										

■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOS 00C90

How to order receptacle patchcord

CTOS 77M90

STA

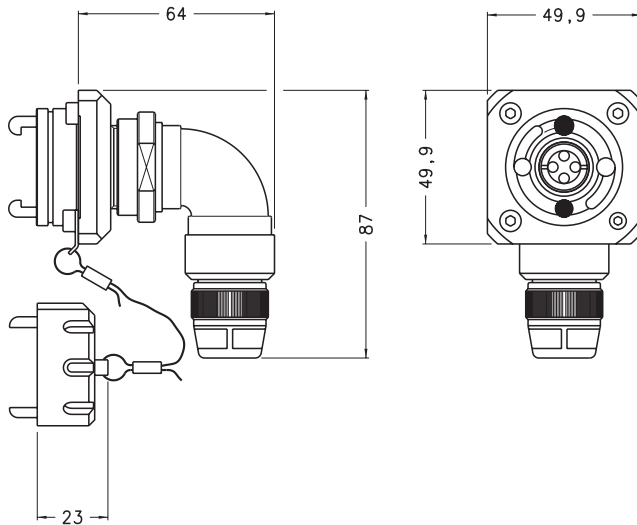
Example: CTOS 00 C 90 2 02 Y 1.50 50 X BPP STA

Small Optical Field Connector	_____	00	C	90	2	02	Y	1.50	50	X	BPP	STA
Square flange receptacle	_____											
Two half shell rear part for tactical cable	_____											
90° backshell	_____											
Number of channel: 1, 2, 4	_____											
50 / 125 µm fiber diameter: 01	_____											
62,5 / 125 µm fiber diameter: 02	_____											
Compatible wavelength 1300 nm: Y	_____											
Compatible wavelength 840 - 1300 nm: Z	_____											
Cable length in meter (if L<10 m: x.xx)	_____											
Cable diameter from 3,4 to 7 mm (see cable catalog)	_____											
Ex: 5 mm → 50	_____											
Cable supplier (see cable catalog)	_____											
Jam nut receptacle protective cap	_____											
Patchcord other end plug connectors	_____											
STA, TVOP, AXOS, CTOS, ST, SC,FC, duplex SC	_____											
Others consult us	_____											

For other configurations consult us.

■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

CTOS 00M90: sealed 90° backshell receptacle for tactical cable



Backshell main use:

To be used inside and outside a vehicle to connect CTOS receptacle to the electro-optic transceivers, in a non protected or humid area, or when the rear space is too narrow.

90° backshell to be used with a 1, 2, 4 fibers tactical cable inside or outside a vehicle.

Complete front and rear sealing.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other cable end.

Cable/receptacle tensile strength: 50 daN (depending on cable performance).

How to order CTOS receptacle piece parts

	Example: CTOS	00	M	90	2	01	Z	55	X	BPP
Small Optical Field Connector										
Square flange receptacle										
Tactical cable sealed termination										
90° backshell										
Number of channel: 1, 2, 4										
50 / 125 µm fiber diameter: 01										
62,5 / 125 µm fiber diameter: 02										
Compatible wavelength 1300 nm: Y										
Compatible wavelength 840 - 1300 nm: Z										
Cable diameter from 3,4 to 7 mm (see cable catalog)										
Ex: 5,5 mm → 55										
Cable supplier (see cable catalog)										
Jam nut receptacle protective cap										

■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOS 00M90

How to order receptacle patchcord

CTOS 00M90

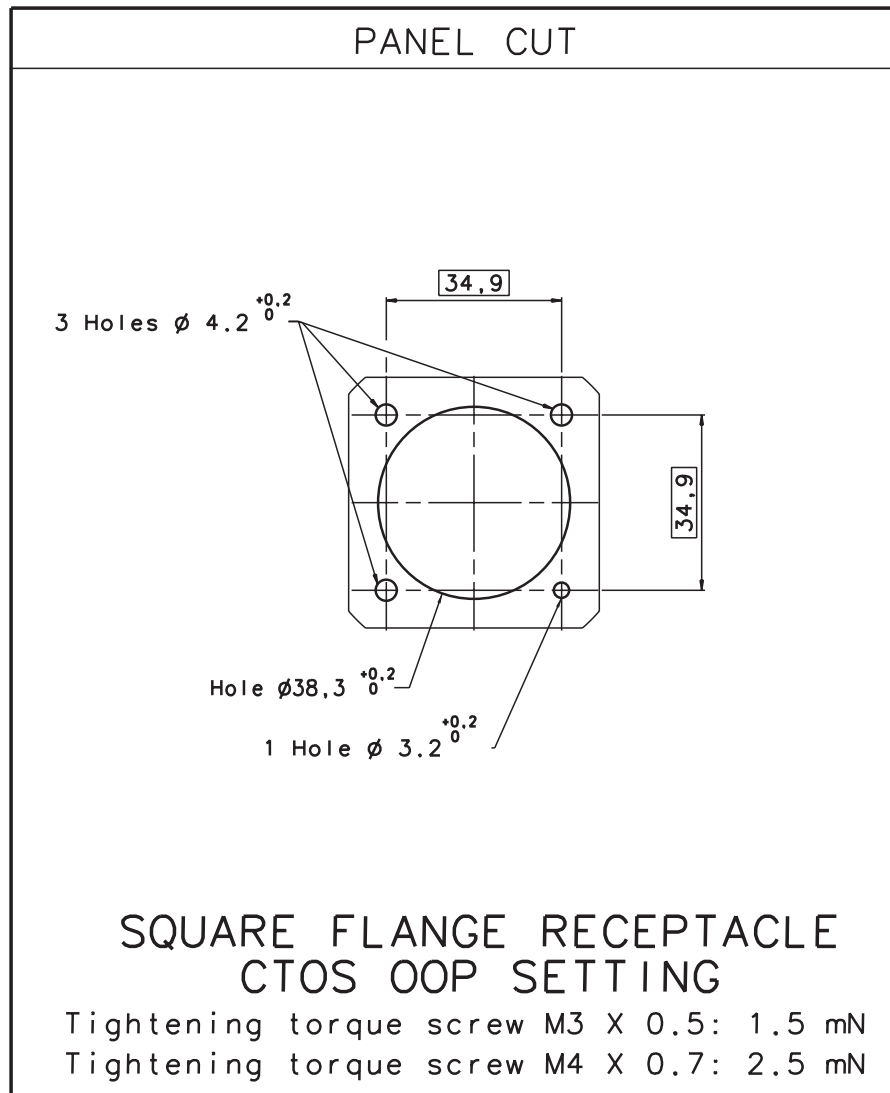
TVOP

Example: CTOS 00 M 90 2 02 Y 1.50 55 X BPP TVOP

Small Optical Field Connector	CTOS	00	M	90	2	02	Y	1.50	55	X	BPP	TVOP
Square flange receptacle												
Tactical cable sealed termination												
90° backshell												
Number of channel: 1, 2, 4												
50 / 125 μm fiber diameter: 01												
62,5 / 125 μm fiber diameter: 02												
Compatible wavelength 1300 nm: Y												
Compatible wavelength 840 - 1300 nm: Z												
Cable length in meter (if L<10 m: x.xx)												
Cable diameter from 3,4 to 7 mm (see cable catalog)												
Ex: 5,5 mm → 55												
Cable supplier (see cable catalog)												
Jam nut receptacle protective cap												
Patchcord other end plug connectors												
STA, TVOP, AXOS, CTOS, ST, SC,FC, duplex SC												
Others consult us												

For other configurations consult us.

■ CTOS “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

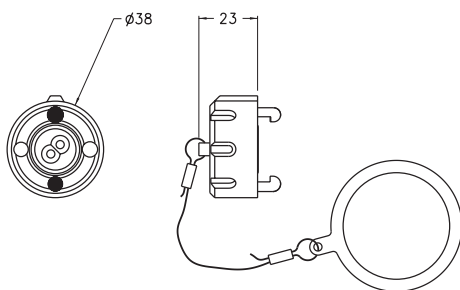


■ CTOS SHUNT CAPS

This device is designed to test the electronic emitter and receiver as well as the optical receptacle and the link before the optical link deployment in the field.

The loop back is done by channel pairs: channel 1 with channel 2, channel 3 with channel 4.

CTOS receptacle protective shunt cap (BPPSA/BPESA)



BPESA shunt cap

The receptacle protective shunt cap is used to test the emitter, the receiver and the CTOS receptacle on a vehicle before using the link. This shunt cap introduces a large insertion loss which is optical power budget dependent and has to be defined with the customer (generally 20 dB max).

The BPESA is dedicated to test the jam nut receptacle. It is delivered with a rope and a ring to be fixed under the hexagonal nut in order to replace the receptacle protective cap (see the drawing).

The BPPSA is dedicated to test square flange receptacle. It is delivered with a panel attachment cord and can replace the receptacle protective cap.

The BPBSA itself is equipped with a protective cap.

How to order CTOS receptacle protective shunt cap

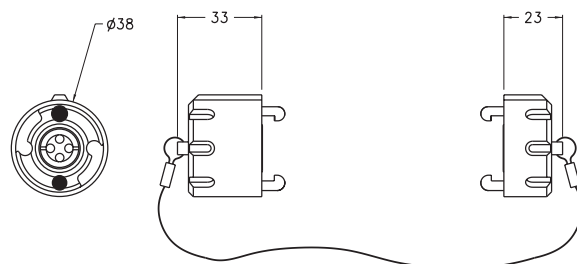
	CTOS	BPPSA	20
Small Optical Field Connector			
Protective shunt attenuating cap for jam nut receptacle: BPESA			
Protective shunt attenuating cap for square flange receptacle: BPPSA			
Protective shunt attenuating cap for receptacle equipped with a protective cap: BPBSA			
Insertion loss in dB:			

■ CTOS BSA

The BSA is a plug shunt cap with a low insertion loss, to test the plug to plug CTOS patchcord on a reel before the optical link is deployed.

The maximum insertion loss is fixed at 4 dB.

The BSA is equipped with a protective cap.



How to order CTOS receptacle protective shunt cap

	CTOS	BSA	4
Small Optical Field Connector			
Attenuating shunt cap for plug equipped with a protective cap:			
Insertion loss maximum in dB:			



CTOL: XXXXXXXXXX LARGE OPTICAL FIELD CONNECTOR



■ CTOL PLUG WITH PROTECTIVE CAP 06M

The plug allows to do hermaphroditic field optical daisy chain link between two points, with large possibility of channels redundancy or large bandwidth in multimode fiber.

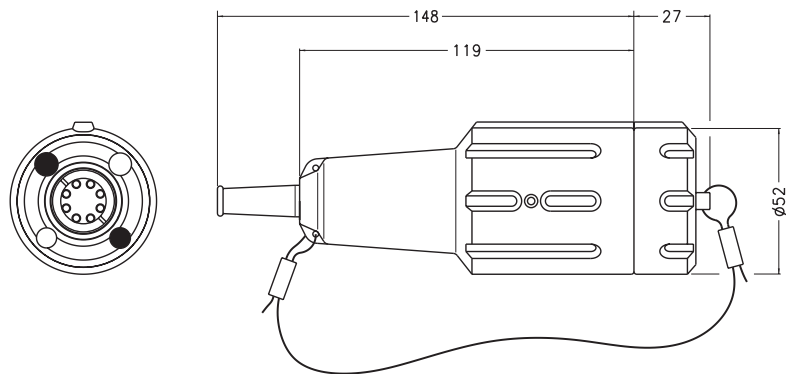
This plug can be used as a concentrator of 2 and 4 channels CTOS links.

This plug is design to be use in harsh environment.

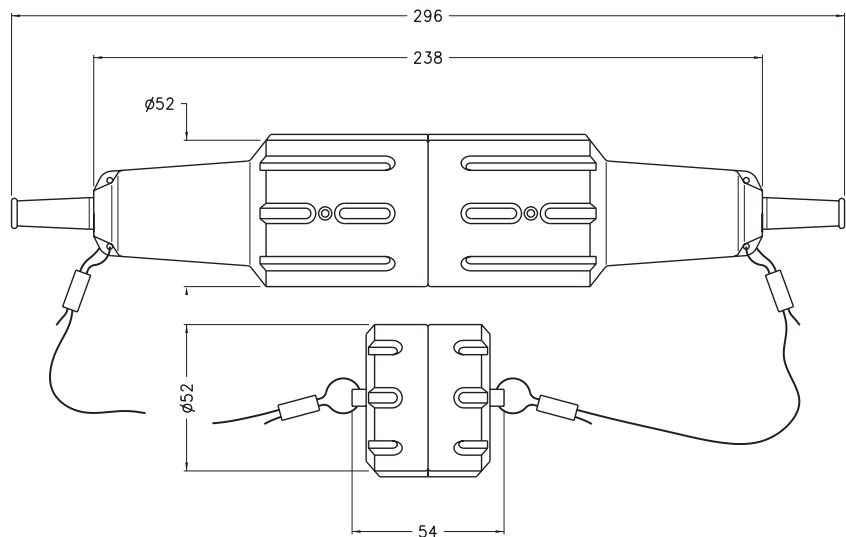
It can be terminated on 2, 4, 6, 8 fibers tactical cable.

The tensile strength between plug and cable can reach 200 daN (cable dependent).

Special arrangements of 2 and 4 channels plug are designed to be mated with the first CTO connector version (2S and 4S arrangement versions).



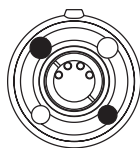
Two plugs mated together



Channel arrangements :



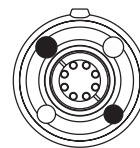
2 Channel



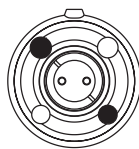
4 Channels



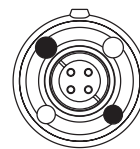
6 Channels



8 Channels



2S Channels



4S Channels



■ HOW TO ORDER CTOL PLUG PIECE PARTS

	Example: CTOS	06	M	8	01	Z	65	X	BPF
Large Optical field Connector	_____								
Plug	_____								
Tactical cable termination	_____								
Number of channel : 2, 4, 6, 8, 2S, 4S	_____								
50 / 125 µm fiber diameter: 01	_____								
62,5 / 125 µm fiber diameter: 02	_____								
Compatible wavelength 1300 nm: Y	_____								
Compatible wavelength 840 - 1300 nm: Z	_____								
Cable diameter From 5 to 7 mm (see cable catalog)	_____								
Ex: 6,5 mm → 65	_____								
Cable supplier (see cable catalog)	_____								
Plug Protective cap	_____								

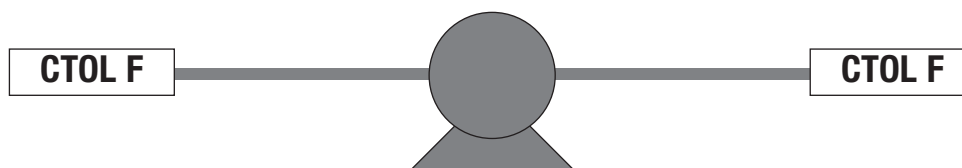
■ HOW TO ORDER PLUG TO PLUG PATCH CORD

CTOL F **CTOL F**

	Example: CTOS	FF	6	02	Y	0200	63	X	BPF
Large Optical field Connector	_____								
Plug to plug	_____								
Number of channel : 2, 4, 6, 8, 2S, 4S	_____								
50 / 125 µm fiber diameter: 01	_____								
62,5 / 125 µm fiber diameter: 02	_____								
Compatible wavelength 1300 nm: Y	_____								
Compatible wavelength 840 - 1300 nm: Z	_____								
Cable length in meter (if L<10 m: x.xx)	_____								
Cable diameter from 5 to 7 mm (see cable catalog)	_____								
Ex: 6,3 mm → 63	_____								
Cable supplier (see cable catalog)	_____								
Plug Protective cap	_____								

■ HOW TO ORDER PLUG TO PLUG PATCHCORD REELED ON A DRUM WITH OR WITHOUT ACCESSORIES

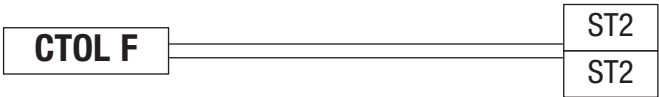
See tactical and economical drum description on to the drums catalog



Example:		CTOL	T01	FF	8	02	Y	0200	64	X	BPF	Sup+Poi+Man
Small Optical Field Connector												
Tactical drums												
T06: 100 m												
T05: 250 m												
T01: 350 m												
T03: 500 m												
T04: 1000 m												
T07: 2000 m												
Economical drum (drum and frame integrated)												
L1:												
L2:												
L3:												
L345:												
L36:												
Economical drum (with hand holder)												
D												
Patchcord definition (see above):												
Drum accessories:												
Frame: Sup (from T01 to T07)												
Handle: Poi (from T01 to T07)												
Cranking tool: Man (from T01 to T07)												
Back Pack: BP												
Front pack (for 100 and 200 m tactical drums): SV (consult us)												



■ CTOL PLUG - CTOL F (TERMINATED)



How to order plug patchcord

Example: CTOL F 2S 01 Y 2.50 28 X BPF ST2

Large Optical Field Connector _____

Plug terminated _____

Channel number : 2, 4, 6, 8, 2S, 4S _____

50 / 125 µm Ø de fiber: 01 _____

62,5 / 125 µm Ø de fiber: 02 _____

Compatible wavelength 1300 nm: Y _____

Compatible wavelength 840 - 1300 nm: Z _____

Cable length in meter (if L<10 m: x.xx) _____

Cable diameter from 2,8 to 7 mm max (see cable catalog) _____

Ex: 2,8 mm → 28 _____

Others: consult us. _____

Cable supplier (see cable catalog) _____

Jam nut receptacle protective cap _____

Patchcord other end connectors _____

STA, TVOP, AXOS, CTOS, ST, SC,FC, SC duplex _____

Others consult us _____

■ CTOL “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)

The square flange type allows to have a high density of receptacles on to a panel.

Easy panel cut off of 5 round holes.

Fixation by 4 screws.

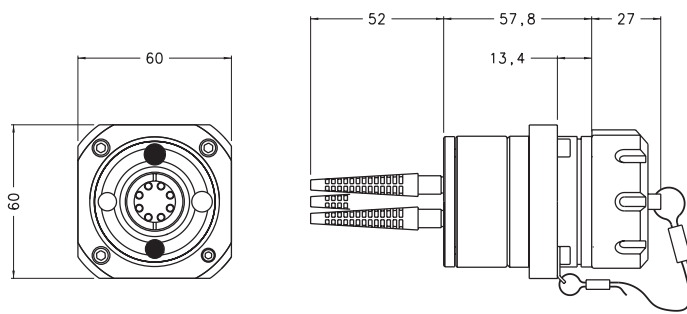
Front sealing ensured by a flat gasket.

The same coupling nut on the receptacle than on the plug, ensure a very good mating (the rear part rotates, of approx. 20°).

Electrical contact Panel/ receptacle: protective cap. (EMI,CEM protection when cap is on)

Protective cap attached to the panel or to the receptacle by a stainless steel rope.

■ CTOL 00P: STRAIGHT BACKSHELL RECEPTACLE FOR PIG TAIL



Backshell main use:

To be used inside a vehicle or on a box to connect CTOL receptacle to the electro-optic transceivers, in a protected area.

This rear part allows an easy cross connect output.

Straight rear part to be used with 2, 4, 6, 8 pigtails (2.8 mm single cable or duplex cable 2 x 3, 2x 1.6). Each pigtail can be terminated with ST, SC, FC, duplex SC, MTRJ.

Pig tails tensile strength: 10 daN.

(depending on cable performance).

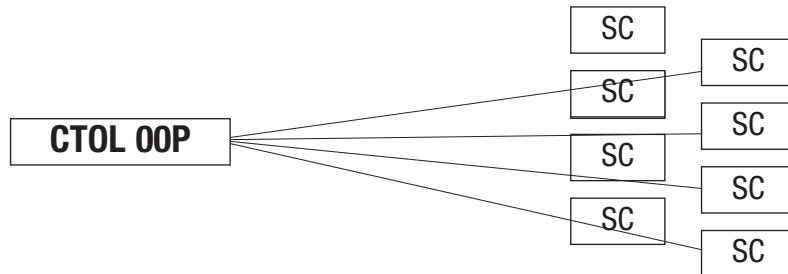
How to order CTOL receptacle piece parts

[illegible]



■ CTOL “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00) - CTOL 00P

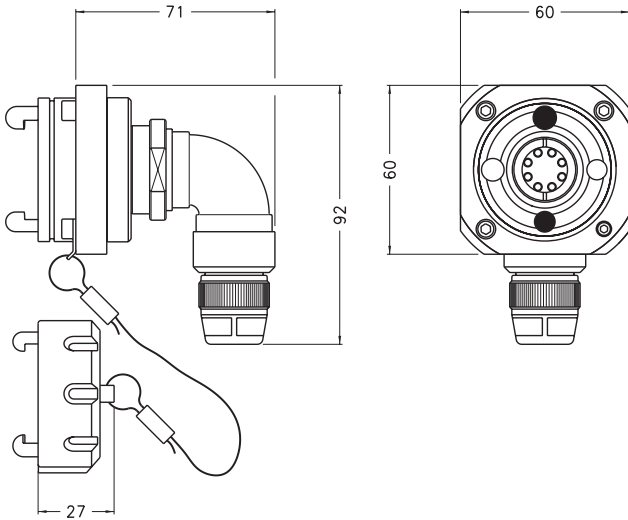
How to order receptacle patchcord



	Example: CTOL	00	P	6	01	Y	2.50	230	X	BPP	SC
Large Optical field Connector											
Square flange receptacle											
Pig tails termination											
Number of channel : 2, 4, 6, 8, 2S, 4S											
50 / 125 µm fiber diameter: 01											
62,5 / 125 µm fiber diameter: 02											
Compatible wavelength 1300 nm: Y											
Compatible wavelength 840 - 1300 nm: Z											
Cable length in meter (if L<10 m: x.xx)											
Cable diameter from 1,5 to 3 mm (see cable catalog)											
Ex: 3 mm duplex → 30											
Others: consult us											
Cable supplier (see cable catalog)											
Square flange receptacle protective cap											
Patchcord other end connectors											
ST2, SC, FC, LC,duplex SC, LC duplex, MTRJ											
Others consult us											

■ CTOL "SQUARE FLANGE" RECEPTACLE - REAR MOUNT (00)

CTOL 00M90: 90° SEALED BACKSHELL RECEPTACLE FOR TACTICAL CABLE



Backshell main use:

To be used inside and outside a vehicle to connect CTOL receptacle to the electro-optic transceivers, in a non protected or humid area, or when the rear space is too narrow.

90° backshell to be used with a 2, 4, 6, 8 fibers tactical cable inside or outside of a vehicle.

Complete front and rear sealing.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other end of cable.

Cable / receptacle tensile strength: 50 daN
(depending on cable performance).

How to order CTOL receptacle piece parts

Example: CTOL 00 M 90 6 01 Z 63 X BPP

Large Optical field Connector _____

Square flange receptacle _____

Tactical cable sealed termination _____

90° backshell _____

Number of channel: 2, 4, 6, 8, 2S, 4S _____

50 / 125 μm fiber diameter: 0162,5 / 125 μm fiber diameter: 02

Compatible wavelength 1300 nm: Y _____

Compatible wavelength 840 - 1300 nm: Z ———

Cable diameter from 3,8 to 7 mm (see cable catalog) _____

Ex: 6,3 mm $\rightarrow$ 63

Cable supplier (see cable catalog) _____

Square flange receptacle protective cap _____



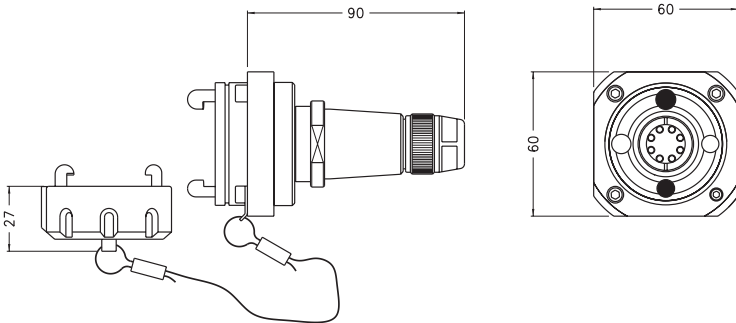
■ CTOL “SQUARE FLANGE” RECEPTACLE - REAR MOUNT (00) - CTOL 00C00

How to order receptacle patchcord

	CTOL 00C00	TVOP
	Example: CTOL 00 C 00 6 01 Z 0015 63 X BPP TVOP	
Large Optical field Connector		
Square flange receptacle		
Two half shell rear part for tactical cable		
Straight backshell		
Number of channel: 1, 2, 4		
50 / 125 µm fiber diameter: 01		
62,5 / 125 µm fiber diameter: 02		
Compatible wavelength 1300 nm: Y		
Compatible wavelength 840 - 1300 nm: Z		
Cable length in meter (if L<10 m: x.xx)		
Cable diameter from 3,8 to 7 mm (see cable catalog)		
Ex: 6,3 mm → 63		
Cable supplier (see cable catalog)		
Jam nut receptacle protective cap		
Patchcord other end plug connectors		
STA, TVOP, AXOS, CTOS, ST2, SC, FC, LC, duplex SC		
Others consult us		

For other configurations consult us.

CTOL 00M00: STRAIGHT BACKSHELL RECEPTACLE FOR SEALED TACTICAL CABLE



Backshell main use:

To be used inside and outside a vehicle to connect CTOL receptacle to the electro-optic transceivers, in a non protected or humid area.

Straight backshell to be used with a 2, 4, 6, 8 fibers tactical cable.

The rear part is made of a shell in aluminum alloy with cable retention sealing gland.

Complete front and rear sealing.

Possibility to add a multi channel connector at the other end of cable.

Cable/receptacle tensile strength: 100 daN
(depending on cable performance).

How to order CTOL receptacle piece parts

Example: CTOL 00 M 00 8 01 Z 65 X BPP

[illegible][illegible]

Tactical cable sealed termination								
-----------------------------------	--	--	--	--	--	--	--	--

Straight backshell						
--------------------	--	--	--	--	--	--

Number of channel: 2, 4, 6, 8, 2S, 4S					
---------------------------------------	--	--	--	--	--

50 / 125 μm fiber diameter: 01

[illegible]

Compatible wavelength 1300 nm: Y

Compatible wavelength 840 - 1300 nm: Z ————

Cable diameter from 3,8 to 7 mm (see cable catalog) _____

Ex: 6,5 mm → 65

Cable supplier (see cable catalog) _____

Square flange receptacle protective cap _____



■ CTOL “SQUARE FLANGE” RECEPTACLE - REAR MOUNT (00) - CTOL 00M00

How to order receptacle patchcord

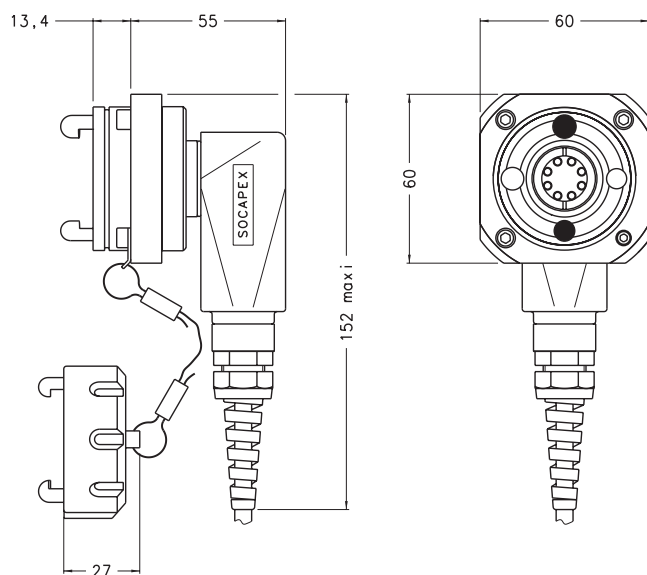
CTOL 00M00

TVOP

	Example: CTOL	00	M	00	8	01	Z	0015	65	X	BPP	TVOP
Large Optical field Connector												
Square flange receptacle												
Tactical cable sealed termination												
Straight backshell												
Number of channel: 2, 4, 6, 8, 2S, 4S												
50 / 125 µm fiber diameter: 01												
62,5 / 125 µm fiber diameter: 02												
Compatible wavelength 1300 nm: Y												
Compatible wavelength 840 - 1300 nm: Z												
Cable length in meter (if L<10 m: x.xx)												
Cable diameter from 3,8 to 7 mm (see cable catalog)												
Ex: 6,5 mm → 65												
Cable supplier (see cable catalog)												
Square flange receptacle protective cap												
Patchcord other end plug connectors												
STA, TVOP, AXOS, CTOS, ST2, SC, FC, LC, duplex SC												
Others consult us												

For other configurations consult us.

■ CTOL “SQUARE FLANGE” RECEPTACLE - REAR MOUNT (00)
CTOL 00C90: 90° BACKSHELL RECEPTACLE FOR A TACTICAL CABLE



Backshell main use:

To be used inside a vehicle or on a box to connect CTOL receptacle to the electro-optic transceivers, in a non protected area, or when the rear space is too narrow.

Unsealed 90° backshell to be used with a 2, 4, 6, 8 fibers tactical cable inside a vehicle.

The rear part is made of 2 half shells molded in aluminum alloy.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other end of cable.

Cable / receptacle tensile strength: 50 daN
(depending on cable performance).

How to order CTOL receptacle piece parts

[illegible]



■ CTOL “SQUARE FLANGE” RECEPTACLE - REAR MOUNT (00) - CTOL 00C90

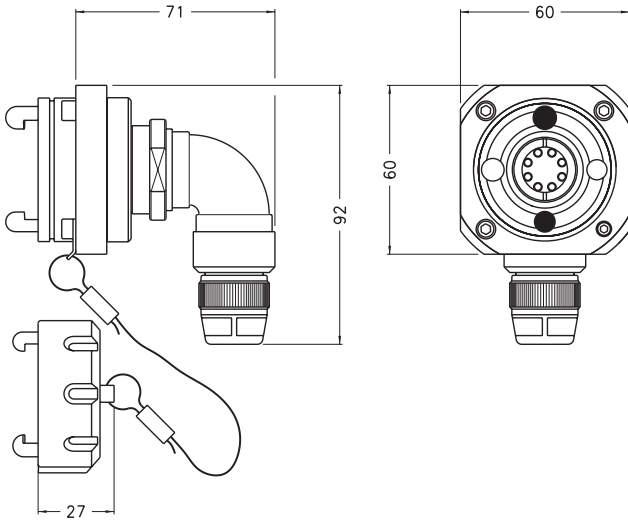
How to order receptacle patchcord

	CTOL 00C90	STA
	Example: CTOL 00 C 90 8 02 Y 1,50 65 X BPP STA	
Large Optical field Connector		
Square flange receptacle		
Two half shell rear part for tactical cable		
90° backshell		
Number of channel: 2, 4, 6, 8, 2S, 4S		
50 / 125 µm fiber diameter: 01		
62,5 / 125 µm fiber diameter: 02		
Compatible wavelength 1300 nm: Y		
Compatible wavelength 840 - 1300 nm: Z		
Cable length in meter (if L<10 m: x.xx)		
Cable diameter From 3,8 to 7 mm (see cable catalog)		
Ex: 6,5 mm → 65		
Cable supplier (see cable catalog)		
Square flange receptacle protective cap		
Patch cord other end plug connectors		
STA, TVOP, AXOS, CTOS, ST2, SC, FC, LC, duplex SC		
Others consult us		

For other configurations consult us.

■ CTOL "SQUARE FLANGE" RECEPTACLE - REAR MOUNT (00)

CTOL 00M90: 90° SEALED BACKSHELL RECEPTACLE FOR TACTICAL CABLE



Backshell main use:

To be used inside and outside a vehicle to connect CTOL receptacle to the electro-optic transceivers, in a non protected or humid area, or when the rear space is too narrow.

90° backshell to be used with a 2, 4, 6, 8 fibers tactical cable inside or outside of a vehicle.

Complete front and rear sealing.

Backshell with reduced overall dimensions.

Possibility to add a multi channel connector at the other end of cable.

Cable / receptacle tensile strength: 50 daN
(depending on cable performance).

How to order CTOL receptacle piece parts

Example: CTOL 00 M 90 6 01 Z 63 X BPP

[illegible][illegible][illegible][illegible]

Number of channel: 2, 4, 6, 8, 2S, 4S					
---------------------------------------	--	--	--	--	--

50 / 125 μm fiber diameter: 01

62,5 / 125 µm fiber diameter: 02 _____

Compatible wavelength 1300 nm: Y			
----------------------------------	--	--	--

Compatible wavelength 840 - 1300 nm: Z —

Cable diameter from 3,8 to 7 mm (see cable catalog) _____

Ex: 6,3 mm → 63 _____

Cable supplier (see cable catalog) _____

Square flange receptacle protective cap _____



■ CTOL “SQUARE FLANGE” RECEPTACLE - REAR MOUNT (00) - CTOL 00M90

How to order receptacle patchcord

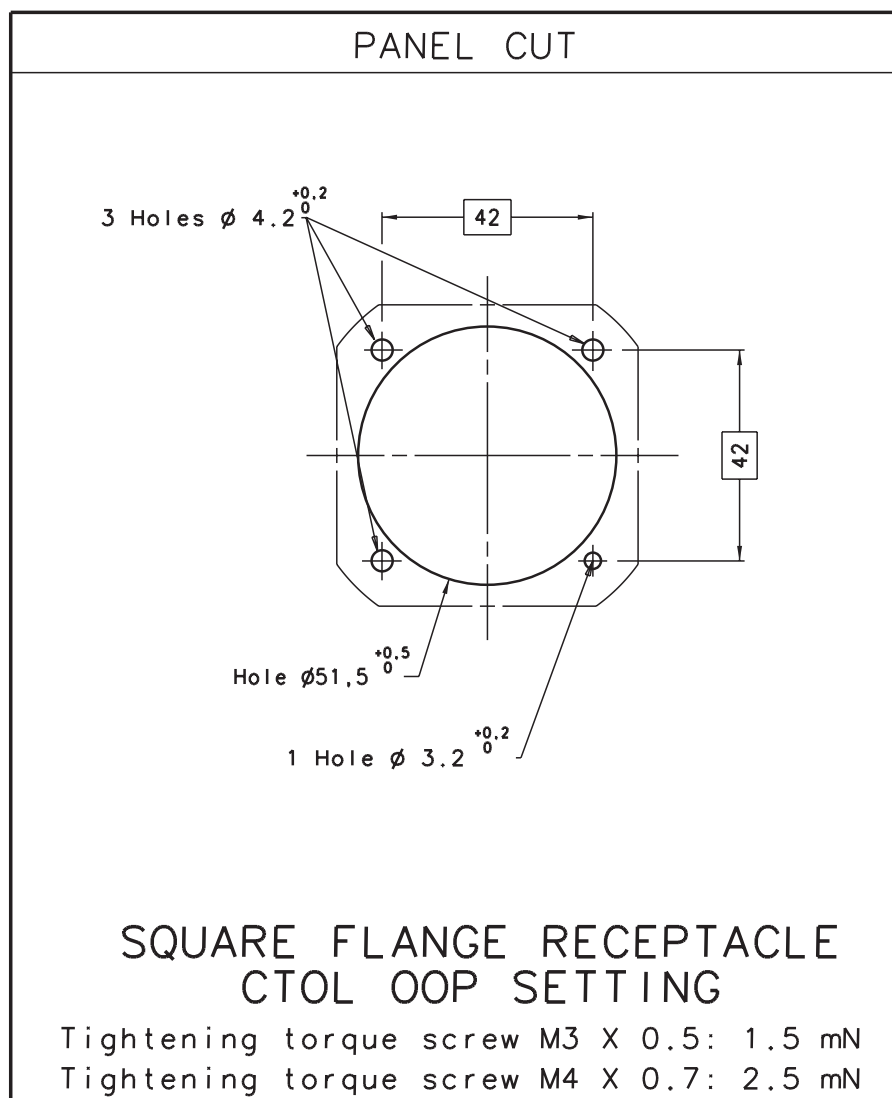
CTOL 00M90

TVOP

	Example: CTOL	00	M	90	8	02	Y	1,50	65	X	BPP	TVOP
Large Optical field Connector												
Square flange receptacle												
Tactical cable sealed termination												
90° backshell												
Number of channel: 1, 2, 4												
50 / 125 µm fiber diameter: 01												
62,5 / 125 µm fiber diameter: 02												
Compatible wavelength 1300 nm: Y												
Compatible wavelength 840 - 1300 nm: Z												
Cable length in meter (if L<10 m: x.xx)												
Cable diameter from 3,8 to 7 mm (see cable catalog)												
Ex 6,5 mm → 65												
Cable supplier (see cable catalog)												
Square flange receptacle protective cap												
Patch cord other end plug connectors												
STA, TVOP, AXOS, CTOS, ST2, SC, FC, LC, duplex SC												
Others consult us												

For other configurations consult us.

■ CTOL “SQUARE FLANGE” RECEPTACLE – REAR MOUNT (00)



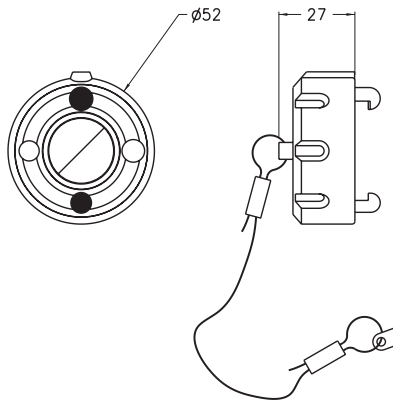


■ CTOL SHUNT CAPS

This device makes it possible to test the electronic emitter and receiver as well as the optic receptacle and the link before the optical link deployment in the field.

The loop back is done by channel pairs: channel 1 with channel 2, channel 8 with channel 3, channel 7 with channel 4, channel 6 with channel 5.

CTOL receptacle protective shunt cap (BPPSA)



The BPPSA is a shunt protective cap for the square flange receptacle used to test the emitter, the receiver and the CTOL receptacle on a vehicle before using the link.

This shunt cap introduces a large insertion loss which is optical power budget dependent and has to be evaluated with the customer (generally 20 dB max).

The BPPSA is delivered with a panel attachment cord and can replace the receptacle protective cap.

The BPBSA is the same as BPPSA but equipped with a protective cap.

How to order CTOL receptacle protective shunt cap

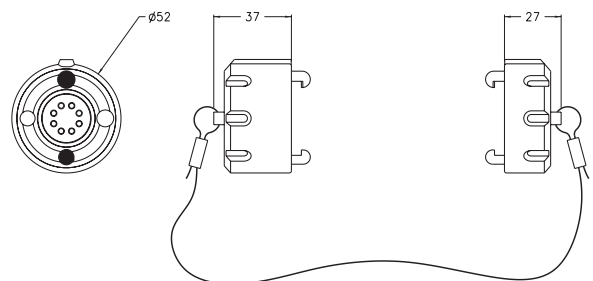
	CTOL	BPPSA	20
Large Optical field Connector	_____	_____	_____
Protective shunt attenuating cap panel mounting for square flange: BPPSA	_____	_____	_____
Protective shunt attenuating cap for receptacle equipped with a protective cap: BPBSA	_____	_____	_____
Insertion loss in dB:	_____	_____	_____

■ CTOL BSA

The BSA is a plug shunt cap with a low insertion loss, used to test the plug to plug CTOS patchcord on a reel before the optical link is deployed.

The maximum insertion loss is fixed at 4 dB.

The BSA is equipped with a protective cap.



How to order CTOL plug shunt cap

	CTOL	BSA	4
Large Optical field Connector	_____	_____	_____
Attenuating shunt cap for plug equipped with a protective cap:	_____	_____	_____
Insertion loss maximum in dB:	_____	_____	_____

Fiber optic cable catalogue

Every “How to order” related to plug, patchcord and receptacles requires fiber optic cables informations as below:

Example: CTOS FF 4 02 Y 0200 55 X BPF

Number of channel : 1, 2, 4 _____

50 / 125 µm fiber diameter: 01 _____

62,5 / 125 µm fiber diameter: 02 _____

Compatible wavelength 1300 nm: Y _____

Compatible wavelength 840 - 1300 nm: Z _____

Cable length in meter (if L<10 m: x.xx) _____

Cable diameter from 3,4 to 7 mm max (see below) _____

Ex: 3,4 → 34 _____

Cable supplier (see below) _____

Cable diameter & supplier:

Cable diameter and supplier have to be indicated in the « How to order » document. They are describe as below under « Specifications to write down ».

Cable diameter (mm)	1.5	1.6	2.8 mono	3 duplex	3 scindex	3.8	5.5	6	6.6	7	7.5
Specifications to write down on the how to order	15	16	28	230	231	38	55	60	65	70	75

Cable suppliers	Specifications to write down on the how to order
NEXANS	A
SPECTRA	S
PIRELLI	P
NOKIA	N
BOSH	B
DRAKA	D
BRUGG	G
No customer requirements	X

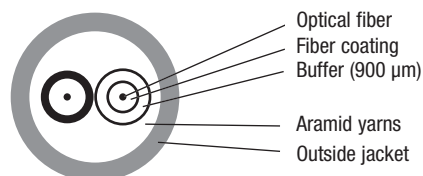
Tactical cables technical information



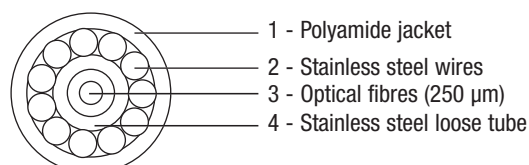
Company		OCC				NEXANS				SPECTRA STRIP	BRUGG		
Number of fibers		2	4	6	8	1	2-4	6	8	1 - 2 - 4 - 6 - 8	1	2	4
Cable diameter mm (in)		5 (0,2)	5,5 (0,22)	6.0 (0,24)	6,5 (0,26)	6 (0,24)	5,4 (0,21)	6,1 (0,24)	6,3 (0,25)	5,5 (0,22)	3,4 (0,13)	3,8 (0,15)	3,8 (0,15)
Cable weight kg/km (lb/1,000ft)		23 (15)	28 (19)	28 (19)	38 (26)	26 (18)	25 (17)	32 (22)	35 (24)	(2-4 core typically) (17) 25	18 (12)	25 (17)	26 (17)
Reinforcing protection		aramid yarns				aramid yarns				aramid yarns	stainless-steel wires		
Outside jacket		polyurethan				polyurethan				spectraloy	polyamid		
Fiber minimum bandwidth	Multimode 850nm (MHz/km)	200 (62,5/125)				500 (50/125) 200 (62,5/125)				200 (50/125) 400 (62,5/125)	500		
	Multimode 1300nm (MHz/km)	500 (62,5/125)				800 (50/125) 500 (62,5/125)				400 (50/125) 600 (62,5/125)	800		
	Single mode 1310nm (GHz/km)	-				-				3,5	3,5		
	Single mode 1550nm (GHz/km)	-				-				18	18		
Fiber maximal attenuation	Multimode 850nm (dB/km)	3 (62,5/125)				3,5				3,5	2,7		
	Multimode 1300nm (dB/km)	1 (62,5/125)				1,5				1,5	0,8		
	Single mode 1310nm (dB/km)	-				0,42				0,45	0,36		
	Single mode 1550nm (dB/km)	-				0,28				0,3	0,25		
Temperature range	Storage	-70 °C / +85 °C (-94 °F / +185 °F)				-40 °C / +70 °C (-40 °F / +158 °F)				-60 °C / +85 °C (-76 °F / +185 °F)	-60 °C / +85 °C (-76 °F / +185 °F)		
	Operating	-55 °C / +85 °C (-67 °F / +185 °F)				-40 °C / +70 °C (-40 °F / +158 °F)				-55 °C / +85 °C (-67 °F / +185 °F)	-55 °C / +85 °C (-67 °F / +185 °F)		
Minimum bending radius mm (in)		8 X OD cable				60 (2,36)	50 (1,97)			10 X OD cable	30 (1,18)	35 (1,38)	35 (1,38)
Maximum tensile strength	Short term N (lbs.f)	1800 (405)	1800 (405)	1800 (405)	1800 (405)	(IEC 794 1E1) 2200 (495)				(2-4 core typically) (60- 1 part.3 cl.15.1) 2000 (450)	1000 (225)	2500 (562)	1600 (360)
	Operating N (lbs.f)	600 (135)	600 (135)	600 (135)	600 (135)	1300 (292)				(2-4 core typically) 2600	750 (169)	1800 (405)	1100 (247)
Crush resistance N/cm (lbs/in)		(EIA 455 41) 440 (251)				(IEC 794 1E3) 300 (171)				(2-4 core typically) (IEC 60794-1-1 &2) 1200 (685)	2500 (1428)	1200 (685)	1000 (571)
Impact resistance (1J impact)		(EIA 455 25) 200				(IEC 794 1E4) 100				100 min	100 min		
Torsion/torque		(TIA/EIA-455-104) 2000 cycles				(IEC 794 1E8) 30000 cycles				(2-4 core typically) (IEC 60794-1-1) 1000 cycles	10000 min	7000 min	7000 min

Technical information given by the supplier

Tactical cables with aramid yarn reinforcing protection



Tactical cable with stainless steel wires reinforcing protection



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AMPHENOL EUROPEAN

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Amphenol
Fiber Optic Solutions

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