



OPTRAL

HIGH PERFORMANCE
OPTICAL CABLES

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OPTRAL

HIGH PERFORMANCE
OPTICAL CABLES

Military Tactical
Cables

Special for aggressive environments





Military Tactical Cables *Special for harsh environments*

OPTRAL designs and manufactures special Optic Fibre Cables for harsh environments. These cables are very resistant and appropriate to be used in military applications and, particularly, under very adverse environmental and mechanical conditions, since they can be used on any kind of terrain.

This family of Optical Cables called M-Tac have been designed and manufactured to cover the most demanding requirements of the market. Their construction provides direct connectorization and their use is particularly indicated for point to point connections. The materials used make the cable very flexible and at the same time they provide great fatigue resistance even in the most adverse environmental conditions.

The precise design of the M-Tac cables provides them with excellent torsion, flexion, crushing and impact resistance characteristics. The materials used in the M-Tac provide great resistance to chemical products such as oils, hydrocarbons and even to oil spill (MUD).

The design of the M-Tac cables is ideal for deployable reels without it affecting the lifetime of the optic fibre.

In addition to applications in military tactical fields, this Optic Fibre Cable family are also appropriate for those connections that require resistant, light and durable cabling.

The proven experience of OPTRAL in tight-buffer cables has allowed us to use the best material composition for the manufacture of this kind of cables: 900µm secondary coating, aramid yarns reinforcements and a thermoplastic outer jacket resistant to cuts and abrasion.

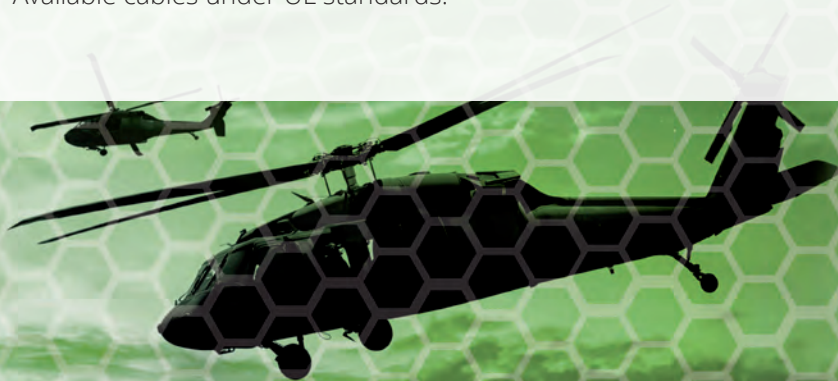


Solutions and advantages of the Fibre Optic Cable M-Tac in Military applications:

- Ideal for field tactical operations, applications in which a temporary deployment and cable rewinding are required.
- The combination of thermoplastic material in the jacket, 900µm tight buffered fibres and a great volume of aramid makes it possible for the cable to recover its optical transmission characteristics after being used in extreme conditions.
- Resistant to water, moisture and ultraviolet (UV) radiation.
- Fit for hostile environments with extreme temperature ranges and aggressive terrains.
- Flexible and light cables compact in weight and reduced size that make their transportation and deployment easier.
- Completely dielectric cables which provides electromagnetic immunity and electric isolation between electronic equipment.
- Indicated to be used in petrochemical facilities, industry in general and in the mining industry in particular.
- Ideal for terrains with dense vegetation, humid, arid, marshy and rocky.
- The crushing of the cable due to the circulation of heavy vehicles, tanks and other vehicles does not alter the optical transmission characteristics.

Regulations

- Based on the IEC international and military standards (MIL-C-85045).
- Available cables under UL standards.



M-Tac

Ruggedized Tactical Cable



HALOGEN FREE



MOISTURE PROTECTED



ULTRAVIOLET RESISTANCE



RESISTENTE A ACEITES



OIL RESISTANT



HIGH FLEXIBILITY

Cable Description

Tight Buffer Fibre (0.9 mm)
Strength Members
Outer Jacket

Applications

Pre-terminated Broadcast solutions
Broadcast and Mil Tactical use
Deployable Cable

Options

Outer Jacket PUR-Smooth Black

Features

Resistance to moisture, sunlight
Compact
Flexible
Excellent mechanical resistance
Totally dielectric
Direct connectorization

SPECIFICATIONS

Fibre Count	2	4	6	8	12
Fibre Type	SM (G.657.A) / MM (OM1 / OM2 / OM3 / OM4)				
Strength Members	Aramid Yarns				
Outer Sheath	PUR-FR – Matt Black				
Weight (Kg/Km)	22	27	30	33	39
Outer ø (mm)	5.0 ± 0.3	5.8 ± 0.3	6.0 ± 0.3	6.5 ± 0.3	8.2 ± 0.3
Max. Tensile Load Operating / Install. (N)	600 / 1100				700 / 1250
Max. Crush (N/10cm)	4400				
Impact (J)	5J				
Temperature Range	-40°C~+85°C (Operation) / -10°C~+85°C ((Installation) / -40°C~+85°C ((Storage)				
Min. Bending Radius (mm)	10 x Outer ø				

Standars: Thermal and mechanical tests: EN187000, IEC60794-1-2.

Fibres colour code (TIA-598): Blue – Orange – Green – Brown – Grey – White – Red – Black – Yellow – Violet – Pink – Turquoise.

CDI-PUR

Frexible Distribution Cable



TOTALLY DIELECTRIC



MOISTURE PROTECTED



HIGH FLEXIBILITY



ULTRAVIOLET RESISTANCE

Descripción cable

Cable Description
Tight Buffer Fibre (0.9 mm)
Aramid
Outer Jacket
Ripcords

Norms / Approvals

Based on military norm MIL-C-85045

Options

Easy-Strip Buffer
PU-LSZH Jacket

Advantages

Compact
Lightweight
Flexible
Easy to strip (gel free)
Totally dielectric
Reduced diameter
Direct connectorization
Based on military norm

SPECIFICATIONS

Fibres	2	4	6	8	12
Strength Members	Aramid Yarns				
Outer jacket	Polyurethane				
Colour	Black				
Weight (Kg/Km)	23	27	29	36	43
Outer ø (mm)	5.3 ± 0.3	5.8 ± 0.3	6.5 ± 0.3	7.0 ± 0.3	8.2 ± 0.3
Tensile Load Perm / Inst (N)	600 / 1100				700 / 1250
Crush (N)	2000				
Temperature Range	-40°C to +70°C				
Min. Bending Radius	20 x Outer ø				
Maximum Length	4200 m				

Fibres colour: Blue – Orange – Green – Brown – Grey – White – Red – Black – Yellow – Violet – Pink – Turquoise

CDIR-M Military Breakout Cable



TOTALLY
DIELECTRIC

MOISTURE
PROTECTED

HIGH
FLEXIBILITY

ULTRAVIOLET
RESISTANCE

Cable Description

Tight Buffer Fibre (0.9 mm)
Aramid
Individual Jacket (ø 2.5 mm)
Aramid
Ripcord
Outer Jacket

Norms / Approvals

Based on military norm
MIL-C-85045

Options

Easy-Strip Buffer
PU-LSZH Jacket

Advantages

Compact
Resilient
Tough
Excellent mechanical resistance
Easy to strip (gel free)
Totally dielectric
Direct connectorization
Based on military norm

SPECIFICATIONS

Fibres	2	4	6	8	12
Subcables strength members	Aramid Yarns				
Subcables ø (mm)	2.5				
Subcables jacket	Thermoplastic LSZH ¹				
Identification	Colours ²				
Outer jacket Polyurethane	Polyurethane				
Colour Black	Black				
Weight (Kg/Km)	63	63	87	124	202
Outer ø (mm)	9.0 ± 0.3	9.0 ± 0.3	10.5 ± 0.3	12.2 ± 0.3	15.5 ± 0.3
Tensile Load Perm / Inst (N)	900 / 1600	1200 / 2150	1500 / 2700	1900 / 3400	2500 / 3500
Crush (N)	2000				
Temperature Range	-40°C to +70°C				
Min. Bending Radius	20 x Outer ø				
Max. Length	3200 m				

¹ LSZH - Halogen free, low smoke and flame retardant thermoplastic compound.

² Colour Fibres: Blue - Orange - Green - Brown - Grey - White - Red - Black - Yellow - Violet - Pink - Turquoise.

M-Tac Xtreme Dielectric-Armouring Ruggedized Tactical Cable



HALOGEN
FREE

MOISTURE
PROTECTED

ULTRAVIOLET
RESISTANCE

RESISTENTE
A ACETES

OIL
RESISTANT

HIGH
FLEXIBILITY

Cable Description

Tight Buffer Fibre (0.9 mm)
Strength Members
Inner Jacket
Dielectric Armour
Outer Jacket

Applications

Pre-terminated Broadcast solutions
Broadcast and Mil Tactical use
Deployable Cable

Options

Outer Jacket PUR-Smooth Black

Features

Resistance to moisture, sunlight
Compact
High tensile strength
Excellent mechanical resistance
Totally dielectric
Direct connectorization

SPECIFICATIONS

Fibre Count	2	4	6	8	12
Fibre Type	SM (G.657.A) / MM (OM1 / OM2 / OM3 / OM4)				
Strength Members	Aramid Yarns				
Inner Jacket	PUR-FR - Black				
Inner Jacket Æ (mm)	7.0 ± 0.3	5.8 ± 0.3	6.0 ± 0.3	6.5 ± 0.3	8.2 ± 0.3
Armour	Aramid Braid				
Outer Sheath	PUR-FR - Matt Black				
Weight (Kg/Km)	61	88	91	98	113
Outer Æ (mm)	7.7 ± 0.3	8.5 ± 0.3	8.7 ± 0.3	9.2 ± 0.3	10.9 ± 0.3
Max. Tensile Load Operating / Install. (N)	1000 / 1800				1100 / 2000
Max. Crush (N/10cm)	4400				
Impact (J)	5J				
Temperature Range	-40°C~+85°C (Operation) / -10°C~+85°C (Installation) / -40°C~+85°C (Storage)				
Min. Bending Radius (mm)	10 x Outer ø				

Thermal and mechanical tests: EN187000, IEC60794-1-2.

Fibres colour code (TIA-598): Blue - Orange - Green - Brown - Grey - White - Red - Black - Yellow - Violet - Pink - Turquoise.

Assembled Reel

Solutions and advantages of the Optical Cables assembled in portable format:

- Robust storage system, in applications in which a temporary deployment and cable rewinding are required.
- Easy to install without need for tools and specialized technicians, allowing the personnel to carry out a quick and smooth deployment.
- Fully reusable.
- Easy deployment method.
- Reduced installation time.
- Makes the retrieval and reparation of optical cables and connectors easier.
- Possibility of compact connectorization for multi-fibre cable.
- Available in several connector protection systems.
- High IP degree protection (IEC 60529).



IP TABLE (IEC 60529)

		Protection against water								
		0	1	2	3	4	5	6	7	8
Protection against touch and foreign bodies (dust, sand, etc.)		No particular protection	Protection against dripping water	Protection against vertically dripping water. There must be no harmful effect on materials tipped (in a container) up to 15° from its normal position	Protection against fine water spray	Protection against water spray	Protection against water jet	Protection against strong water spray jet	Protection against water, when the material is immersed in water	The material is suitable for continuous submersion in water
No particular protection	0	IP00	IP01	IP02						
Diameter over 50 mm	1	IP10	IP11	IP12	IP13					
Diameter over 15,5 mm	2	IP20	IP21	IP22	IP23					
Diameter over 2,5 mm	3	IP30	IP31	IP32	IP33	IP34				
Diameter over 1 mm	4	IP40	IP41	IP42	IP43	IP44	IP45	IP46		
Dust protected	6					IP54	IP55	IP56		
Dust-proof	7						IP65	IP66	IP67	IP68

References

