Established in 2008

Fiber Optics

OPTIMAL CONNECTIVITY

Connecting your Solutions

2024

برنامج المحتوى الوطني

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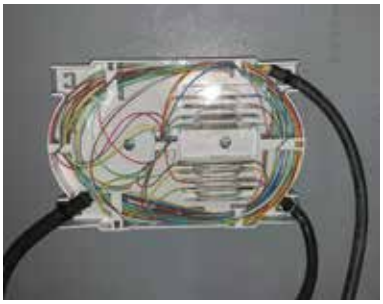
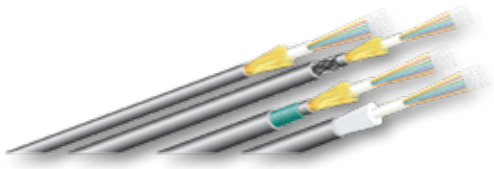
OPTIMAL CONNECTIVITY LLC

OPTIMAL CONNECTIVITY LLC is certified according to ISO 9001:2015, ISO 14000:2015 and ISO 45001:2018

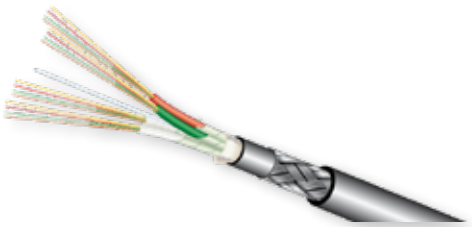
Fiber Optic Cables

The Fourth Industrial Revolution (4IR) or also called Industry 4.0, is reshaping industries and economies worldwide. Central to this revolution is the innovative and indispensable role of fiber optics. Fiber optics are enabling the seamless flow of information and driving innovation across various sectors.

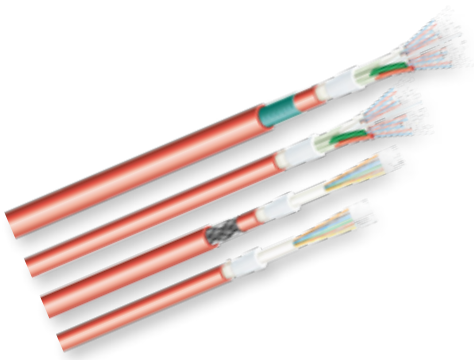


Fiber optic cables are the backbone of our communication infrastructure, offering unparalleled data transfer capabilities. Unlike traditional copper cables, fiber optics use light to transmit data, resulting in incredible speed and bandwidths, measured in Gbps and Tbps. This high-speed, low-latency connectivity forms the foundation for the exchange of data, which is crucial for the real-time decision-making and automation that defines 4IR technologies.

Application Areas



Internet of Things (IoT):
IoT relies heavily on fiber optics. Billions of interconnected devices and sensors require a robust and reliable network to transmit data. Fiber optic connections ensure that critical information from smart cities, factories, and homes is transmitted swiftly and securely.

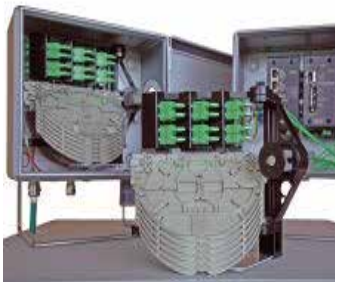


Big Data and Analytics:
In the 4IR data from of IoT devices, and digital platforms are creating massive amounts of data. Fiber optics enable the rapid transfer of this data to data centers and cloud computing resources. Multiplexing allows thousands of parallel data stream on the same fiber.

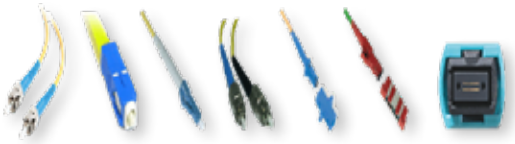
Distributed Sensing:
Fiber optics allow sensing of temperature changes, sound and vibration over long lengths. They are used inside electrical cables, tunnels, water reservoirs, pipelines, conveyor belts , power plants and factories. They enable constant monitoring over large distances at minimal cost.

Security and Resilience:
With increasing cyber threats, fiber optics provide enhanced security. Data transmitted via fiber optic cables are difficult to intercept, making it a safer choice for sensitive information. Additionally, fiber optic networks are less susceptible to electromagnetic interference and weather-related disruptions, ensuring the reliability of critical systems.

Sustainability and Efficiency:
Fiber optic technology is also environmentally friendly. It consumes less power than traditional copper cabling and has a longer lifespan, reducing the need for frequent replacements. This sustainability aligns with the broader goals of 4IR to create efficient, environmentally conscious systems.

Fiber Optic Connectors



OPTIMAL CONNECTIVITY uses all kinds of standard fiber optic connectors like LC, SC, ST, FSMA, TFOC, EB, MPO in simplex, duplex and multi-core configuration. As ferrule end phase we are offering PC, UPC and APC models. Our connectors are designed for minimal fiber loss and long operational lifetime.

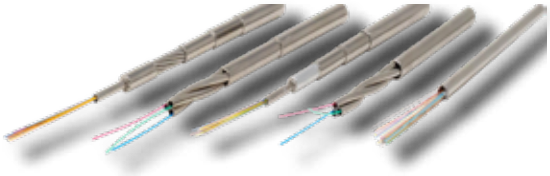
Fiber Optic Cable Assemblies

Manufacturing of custom-designed fiber optic cable assemblies requires fiber optic connectors and cables, OPTIMAL CONNECTIVITY has selected and qualified for use in the most challenging environments like in Data Center, Oil&Gas and Industrial markets.

We are addressing with our Solution Specific Product Designs the most typical requirements like resistance against heat, fire, mechanical stress, vibration, bending, water, humidity, oils and other fluids. Thanks to short manufacturing times and stock levels we can address request for assembly production within days.

OPTIMAL CONNECTIVITY has production and logistics sites in UAE for local manufacturing and storage which guarantees shortest delivery times and a minimum of logistic cost.

High Temperature Fiber Optic Cables



Our high temperature fiber optic products are designed to be dependable and require no maintenance. They work for a wide range of applications in data transmission, sensing, DTS, DAS, DVS and can be customized to fit project specific requirements.

The temperature sensors cables are covering a temperature range of up to 500 °C and provide the best measurement accuracy over the temperature range while maintaining their performance.

The sensing fiber cables are typically used with Raman, Brillouin, Stokes and Fiber Bragg Grating (FBG) measuring methods for Distributed Temperature Sensing (DTS) and Distributed Acoustic Sensing (DAS) and Distributed Vibration Sensing (DVS).



Fiber Optic Media Converters

The MiniFlex Fiber Interface extenders designed for high reliable data transmission over fiber. They support single and dual SFP modules and transfer Ethernet or Serial (RS-232/RS-485) data. MiniFlex Fiber can be used in point-to-point, star and ring networks.

Small size, hardened enclosure and wide input power range making MiniFlex Fiber Interface Extenders a perfect choice for mission-critical applications like Railway infrastructure, Smart Grid, Networks alongside Oil and Gas Pipelines as well as for Offshore communications.

SFPs

Optical transceivers are linking optical networks and data centers.
We provide all common form factors, such as SFP, SFP+, QSFP, QSFP+, QSFP28, QSFP56, QSFP112, QSFP-DD, CFP, CFP2 as well as CFP4.

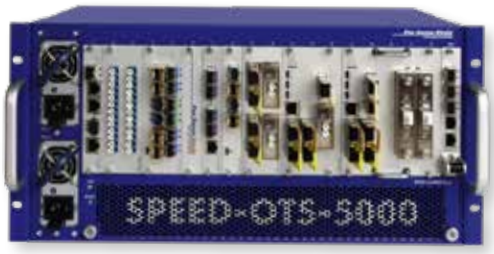
AOC and DAC

Direct Attach Cable (DAC) and Active Optical Cable (AOC) have both permanently installed transceiver modules at both ends.

Compared to DAC cables, AOC cables have a longer range and are more flexible and lighter than normal Cat.5/6 copper cables. Inside their plugs they operate E/O and O/E converter, which transmit data via the attached single-mode or multi-mode fibers up to 100m.

AOC cable for QSFP modules can have up to four lanes for full duplex. CXP modules can transmit and receive on 2x 12 channels through a single AOC cable. The cables are electrically compliant with InfiniBand FDR / QDR / DDR, Ethernet (10, 40, 56, 100 Gbps).

Fiber Optic Data Transmission DWDM CWDM



With Dense Wavelength Division Multiplexing up to 96 DWDM wavelengths over one pair of fiber DWDM are possible. A DWDM channel spacing 0.8 nm (100 GHz grid) or 0.4 nm (50 GHz grid) can be achieved for maximum use of the optical spectrum.
Distances over 1,000 km can be achieved with the use of optical amplifiers, FECs, and re-generators.

The functionality of DWDM (Dense Wavelength Division Multiplexing) is similar to CWDM, however the channel spacing in DWDM is 0.8/0.4 nm (100 GHz / 50 GHz grid).

This small channel spacing allows to transmit simultaneously more information. Currently, a restriction on wavelengths between 1530 nm and 1625 nm exists which corresponds to the C and L bands.



Splice and Patch Trays

We are offering modular fiber optic splice and patch trays with the following features:
All cassettes are accessible from front side with all its adapters are facing side-wise. Trays are coming with pull-out and hinge-down function for ease of installation and maintenance and patch cord support routing into the fiber management system.
Different connector types are supported e.g. 18x SC or 36x LC. All trays are supplied with central splice bridge for heat shrink and sandwich splice protectors for up to 36 fibers.


Fiber Optic Distribution and IT Cabinets

OPTIMAL CONNECTIVITY is offering standard fiber optic distribution cabinets in many different sizes, regarding width, depth and height.
Cabinets for passive components starting at a depth of only 300 mm and are completely front-accessible with quick release doors. The cabinets are light weight because the frame is made of aluminium profiles.

Heavy duty IT/Radio cabinets capable of carrying more load, are manufactured of power coated steel profiles and are available in many different sizes.

In case, non of our standard cabinets are meeting your requirements, we are manufacturing cabinets according your design in UAE.


Distribution Splice Boxes

Our fiber optical Distribution Boxes provide fiber optic cable management for the connection of distribution cables and drop cables at the user access point in fiber optic networks.

We provide IP65 Optical Distribution Boxes from 2 to 96 fibers. They are integrating fiber cable fixation, storage, splicing and distribution in outdoor, indoor, wall, pole mounting scenarios. Suitable for fusion splice or mechanical splice and for fiber optic splitter installation.

Fiber Optic Cable Ducting System

OPTIMAL CONNECTIVITY offers PC/ABS based Fiber Optic Cable Ducting System with excellent mechanical properties, heat & cold resistance, electrical insulation and having self-extinguishing properties without toxic gases. It is halogen-free.
Easy installation due to various form factors are available for on-site optimization or routing for installations above the cabinets and below inside the raised floor. Vertical drop-offs connect to the cabinets.

Tactical Fiber Optic Spools and Drums

OPTIMAL CONNECTIVITY manufactures tactical/harsh environment cable assemblies using connectors such as MIL-C-28876, MIL-C-38899 and other standard commercial connectors.

Our assemblies are designed for extreme environmental conditions like high and low temperatures, humidity, sand, sea, and fluid immersion. They allow the highest possible survivability at severe crush, impact, vehicle run-over, deployment and retrieval conditions.

Our high tensile load capability offers excellent termination strength with standard fiber optic and military tactical fiber optic connectors.

Different cable types with 2, 4, 8, 12 core are available in single mode, OM1, OM2, OM3 and OM4 fiber types, together with different types of drums.

Fiber Optic Cable & OTDR Testing

Our fiber optic cable testing is essential to ensure performance and includes: Visual Inspection, Continuity Test, Insertion Loss Test, Return Loss Test and OTDR (Optical Time-Domain Reflectometer).

Our Field Testing service helps to maintain optimal fiber optic network performance and it aids in troubleshooting if issues arise.

For analysis we are also using, laser power meter and microscope end phase quality inspection.

Fiber Optic Splicing

OPTIMAL CONNECTIVITY works with Fujikura fusion splicing machines as they has been the pioneer for fiber optic fusion splicer since 1978.

Through our extensive knowledge in both different fiber optic fiber specifics and fusion splicing as a technology, we have achieved a constant and repeatable quality of splices we can achieved because of the ruggedness and reliability of their tools.

Our offering is not only, to do the fusion splicing and test for our clients but also we are selling sell fusion splicer, cleaver, and accessories. We also provide training where we share our decade long expertise for our customers to achieve the same secured performance.



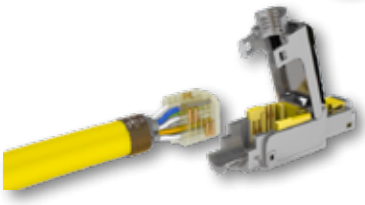

Signal & Data Connectors

OPTIMAL CONNECTIVITY and HARTING provide the system components for IP networks, consisting of routers, switches, access points, antennas, connectors and system cables.

Our solutions allow error-less data and signal transfer, EMC and EMI protection, easy and fast termination HARTING Ha-VIS preLink® for RJ45 and for M12 connectors are one of the key advantages of HARTING data connectors according to ISO/IEC 61918, with the advantages of generic cabling in accordance with ISO/IEC 24702 and EN50173-3.

The preLink® cabling system has been designed from performance level 100 Mbps Cat.5 for D-coded preLink® connectors up to 10 Gbps Cat.6A or Cat.7 is applicable for all Ethernet-based applications.

M12 PushPull connectors are also available in A, D, and X-coded versions and suitable for up to 10 GB for the X-coded version. M12 PushPull are featuring 360° shielding.



OPTIMAL CONNECTIVITY provides standard lengths cable assemblies, we also offer manufacturing of customized cabling solutions for applications in rugged environment, power distribution, control rooms etc. using also Ethernet Cat.6 or Cat.7 data cable with RJ45, M8, M12, M23 and other Han® connectors.

Power Distribution Connectors Han® ORV3

For Data Centers the Han® ORV3, comes as an OCP-compliant AC connector. Power Shelf v3 rack assemblies are helping to save energy by having a minimal connector loss. Shallower rack systems enable a more compact design for the entire infrastructure.

As a result, data centers can significantly improve their productivity within a given footprint. HARTING's solution thus supports the Open Compute Project's goal of optimizing efficiency in the construction and scaling of data centers.

The Han-Eco® is an electrical connector that makes installation quick and easy and ensures power supply to data systems. Han-Eco® system features a plastic hood and housing and either power inserts with a built-in earthing for safety or modular inserts that allow mixing of signal, power, and data in a single connector.

Han-Eco® integrates into power distribution units of the future, ensuring safer power connection points, space savings with modularity, and decreased downtimes to install or to replace.

How to find our office:

GPS coordinates: N 25° 10′ 53.00″ E 55° 22′ 46.00″ Makani Code: 40R CN 36679 86045

أوبتيمال كانكتيفيتي ش.ذ.م.م.
OPTIMAL CONNECTIVITY LLC

برنامج المحتوى الوطني

Ras Al Khor Industrial 3
Toufiq A2, WH5
P.O. Box 75843
Dubai
United Arab Emirates

Phone +971 4 286 3450
Email info.me@oc2me.com
Web **www.oc2me.com**

Edition 2024
Design: www.oc2me.com