

# WE'RE WELL CONNECTED

## MULTIPLE FIBER

**Multiple Fiber System (MFS)**  
A very compact connector developed by Diamond based on MT ferrule technology. Available in 4-, 8- and 12-channels, as simplex or backplane (up to 48-channels), MM/SM, PC/APC.

**Multiple Fiber Push-On (MPO)**  
A multifiber connector that complies with worldwide standards based on the MT ferrule. Available in 4-, 8- and 12-channels, as simplex, MM/SM, PC/APC.

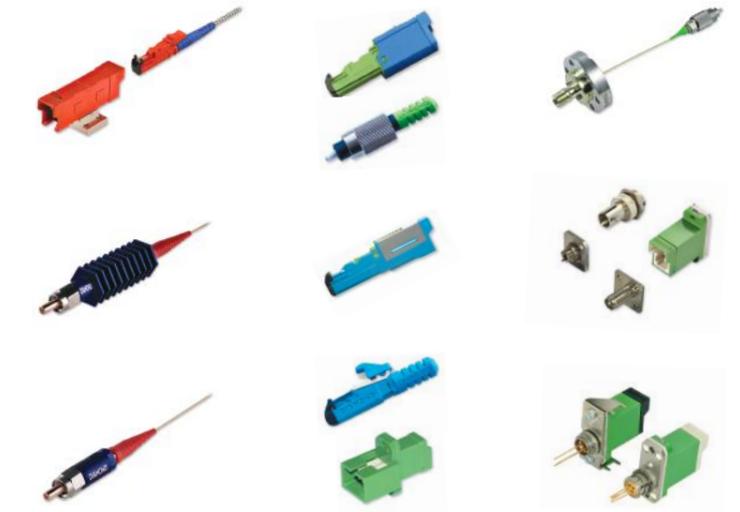
**Fan-Out**  
Efficient cable installation by means of pre-assembled cables and connectors. Characterized by excellent mechanical and thermal properties. Available in different lengths and connector types.

## MULTI FIBER CONNECTORS

## CUSTOMIZED SOLUTIONS



Many applications require complex, customized solutions. The highly qualified research and development team at Diamond will partner with you to develop the best mechanical and optical solution for your specific project. The technical team has in-depth experience in many different technologies. Diamond offers many years of experience in designing, manufacturing and testing high quality fiber optic components.



## POWER SOLUTIONS

**Power Solution Multimode (PSm)**  
Designed to handle all optical fibers in higher power applications. The optical interface can transmit 100W optical power on a 105µm core. Available with E-2000™ and Micro AVIM™ connectors.

**F-SMA Power Solution Injection (PSI) mode stripper**  
Removes unwanted cladding modes from the fiber and is used when emphasis is made on the preservation of the beam parameter product (small spot diameter and low numerical aperture). Available with the F-SMA connector for MM fibers from 100µm to 1000µm.

**F-SMA Power Solution Injection (PSI) mode guider**  
Allows all modes, including cladding modes, to be transmitted with minimum attenuation, resulting in less heat and more power available at the cable output. Available with the F-SMA connector for MM fibers from 100µm to 1000µm.

## ACCESSORIES

**Optical Transmission Adapters (UGT) and Sacrificial Interfaces (SI)**  
UGT are in-line adapters for PC to APC or reverse transition. SI are in-line components used to protect front panel connectors from damage due to repeated matings.

**Terminators**  
High attenuation of return loss. Used for open output signals.

**In-line attenuators**  
Used to adapt the transmitted light power to the characteristics of the receiver.

**Optical Gold Reflectors (OGR)**  
Used as a fiber termination with the highest possible reflection.

**Hybrid Mating Adapters**  
Used for connection of different types of connectors.

## CUSTOM PRODUCTS

**Vacuum Feedthrough**  
Obtained feedthrough benefits from a very low leak rate. It can be ordered for many types of fiber, including SM, MM, PM, PS, large core MM or others. Multichannel systems are also available.

**Interface Module (IMOD)**  
The IMOD is a half adapter used for free space applications of optical connectors. Available in different accuracy variants.

**Laser and LED transmitter modules (MAT) / photodiode receiver modules (MAR)**  
They are transceiver modules with an E-2000™ interface. Both types are designed to minimize light coupling losses and provide high optical stability in a wide variety of environmental conditions.



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## DIAMOND SA



Diamond SA is headquartered in Losone TI, Switzerland. Our operation is focused on the manufacture and assembly of high performance fiber optic interconnect solutions. Diamond's production facility employs state-of-the-art methods and techniques, enabling connector termination of singlemode, multimode and polarization maintaining assemblies, using a variety of fibers.



## FIELD EQUIPMENT

**ZEUS D50 HE**  
The Fusion Splice Kit is designed to assemble or repair fiber optic connections in the field. The kit contains everything needed to prepare, handle and splice fibers and robust outdoor/military and industrial cables and connectors.

**Splice-on connectors (SOC)**  
Fast, easy and reliable field installation of factory-quality terminations. Available connectors: E-2000™, F-3000™, SC, ST™ and FC.

**Splice Repair Kit**  
Innovative fiber/cable repair option requires minimal strip lengths and no bulky splice sleeves.



## CLEANING & INSPECTION

**Cleaning Kit**  
The kit contains a hand microscope for connector end-face inspection and all necessary tools for cleaning, including in-adapter cleaners.

**Video Microscope Kit**  
The kit contains all necessary tools for inspection and cleaning of a connector end-face. The new Video inspection Microscope OLP-82P with 3.5-inch display and a built-in power-meter meets today's requirements for safety, reliability and quality. The P5000i digital inspection probe allows mated connectors to be inspected. The probe may be connected to a laptop. A variety of inspection tips and adapters are available for both kits.

**Inspection Adapter**  
A variety of inspection tips and adapters are available for the video and handheld microscope to inspect all Diamond connectors.



## MEASUREMENT

**Reference patch cord**  
In order to limit the variability of attenuation measurement using reference connectors, Diamond uses selected single mode fiber with restricted tolerances on the mode field diameter (MFD) as specified within the IEC 61755-2-4/-2-5 standard. Available connectors: E-2000™, F-3000™, SC, FC.

**Launch fiber box**  
Suitable for characterization of fiber optic networks using an optical time domain reflectometer (OTDR) measurement device. Available with standard telecom connectors or harsh environment revos E-2000™ and HE-2000™ connectors.

**Optical Attenuating Fiber (OAF)**  
The OAF-Patch is a product family of wavelength independent fixed attenuation patchcords suitable for each connector type. Offering a large choice of nominal attenuation from 2dB to 30 dB on fiber type 9/125 µm.



## SERVICES

**Training**  
Diamond has more than 30 years experience in Fiber Optics. We offer several different training courses, both standard and customized meet your needs.

**Test and Calibration Lab**  
Accredited by the Swiss Accreditation Service SAS as testing laboratory for fibre optic components and as calibration laboratory for fibre optic measurement instruments in accordance with the standard ISO/IEC 17025:2005.

**Cleanroom**  
ISO 7 clean room (class 10,000 according to FED STD 209E) to supply products, such as pigtailed, patch cords, adapters and mechanical parts that have to be packed in a controlled environment.



## SERVICES, NETWORK & FIELD PRODUCTS



<p><b>E-2000™</b></p> <p>Unique connector with spring cap that provides outstanding optical performance, along with excellent handling characteristics.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ 0.1dB class</li> <li>▶ SX, DX, Compact DX, Low profile DX</li> <li>▶ Backplane (2-6 channels)</li> <li>▶ Fusion</li> <li>▶ IP65</li> <li>▶ Non-magnetic</li> <li>▶ Interlock</li> <li>▶ PM, PS, PSm</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ Color- and mechanical coding</li> <li>▶ Interchangeable fixing clips</li> <li>▶ Sterilizable</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ IEC 61754-15 LSH</li> </ul>	<p><b>F-3000™</b></p> <p>The F-3000™ connector family is designed according to international standards and is LC compatible.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ Simplex</li> <li>▶ Duplex</li> <li>▶ Junior Duplex</li> <li>▶ Backplane (2-4 channels)</li> <li>▶ Fusion</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ Small-Form-Factor (SFF)</li> <li>▶ Interchangeable fixing clips</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ IEC 61754-28 LF3</li> </ul> <p>The F-3000™s connector is provided less protective cap and thumb latch button. It has been specifically developed for use with active network devices (e.g. SFP).</p>	<p><b>DiaLink</b></p> <p>A round, slim connector well-suited for use in medical, sensing and in-building cabling applications. The pull cap feature enables easy installation into conduit pipes.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ DiaLink-Saver</li> <li>▶ DiaLink male</li> <li>▶ DiaLink female</li> <li>▶ Threaded version</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ Compact design</li> <li>▶ High packing density</li> <li>▶ Sterilizable</li> <li>▶ Non-magnetic version</li> <li>▶ Pull cap for max. 300N</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ IEC 61754-32 DiaLink</li> </ul>	<p><b>SC</b></p> <p>A push-pull connector ideal for industrial, medical, sensing applications and telecom measurement. SC connectors are available as terminated connectors, Splice-On Connectors (SOC), and a connector set that can be terminated with Diamond equipment.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ Simplex</li> <li>▶ Duplex</li> <li>▶ Fusion</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ Push-pull mechanism</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ IEC 61754-4 SC</li> </ul>	<p><b>FC</b></p> <p>A metal connector used for industrial, medical, sensing applications and telecom measurement.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ Standard</li> <li>▶ Mini</li> <li>▶ Fusion</li> <li>▶ Alberino (plastic)</li> <li>▶ PM, PSm</li> <li>▶ Mating adapter with square, hexagonal or round flange</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ High precision anti-rotation keys</li> <li>▶ Nickel-plated brass housing</li> <li>▶ Compatible with TIA-604-4B, IEC 61754-13, EN50377-1-2</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ IEC 61754-13 FC PC wk</li> <li>▶ TIA-604-4B FC PC and APC</li> <li>▶ EN50377-1-2 FC APC nk</li> </ul>	<p><b>ST™</b></p> <p>A bayonet style connector often used in industrial, medical, sensing applications, telecom and LAN applications.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ Standard</li> <li>▶ Fusion</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ Spring loaded (10 N)</li> <li>▶ Bayonet locking mechanism</li> </ul> <p>ST is a registered trademark of AT&amp;T</p> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ IEC 61754-2 BFOC/2.5</li> </ul>	<p><b>AVIM™</b></p> <p>Developed in the mid-90s, the AVIM was designed for vibration resistance in avionics, space and mobile platforms.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ SM, MM, PM</li> <li>▶ Harsh environment qualified</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ High vibration resistance (35 gRMS)</li> <li>▶ High Shock resistance (500g)</li> <li>▶ Space flight experience</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ ESCC 3420/002</li> </ul>	<p><b>Midi AVIM™ / Mini-AVIM™</b></p> <p>Designed for compactness and ruggedness in dynamic small environments such as space, avionics and mobile platforms.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ SM, MM, PM and PZ</li> <li>▶ PS, PSm, PM-PS (Mini AVIM™ only)</li> <li>▶ Space Qualified (ESCC certificate 355)</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ High vibration resistance (35 gRMS)</li> <li>▶ High Shock resistance (500g)</li> <li>▶ Titanium design</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ ESCC 3420/001 Mini AVIM™</li> </ul>	<p><b>Micro AVIM™ / DMI</b></p> <p>The Micro AVIM or Diamond Micro Interface (DMI) connector requires minimal space making it ideal for use on Printed Circuit Boards.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ PM, PM-PS and PZ</li> <li>▶ PS, PSm</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ Very compact (4.5mm x 21mm)</li> <li>▶ Standard Clip System</li> <li>▶ Tested successfully up to 35 gRMS</li> <li>▶ Very high precision anti-rotation keys</li> <li>▶ Titanium design (Micro AVIM™)</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ Diamond</li> </ul>	<p><b>F-SMA</b></p> <p>Designed for use with multimode fiber, including large core multimode fiber for higher power levels.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ MM Standard</li> <li>▶ MM Large core</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ External parts: Inox</li> <li>▶ Ferrule ø 3,175 mm</li> <li>▶ MM, PC</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ IEC 61754-22</li> </ul>	<p><b>HE-2000™</b></p> <p>A rugged and reliable harsh environment push-pull connector with superior optical and mechanical performance.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ 4 optical/electrical channels</li> <li>▶ Automatic protection shutter</li> <li>▶ Protection IP67</li> <li>▶ Push-Pull</li> <li>▶ Field repairable</li> <li>▶ Vibration resistant</li> <li>▶ Allows mixing of fiber types</li> </ul> <p><b>Standards:</b></p> <ul style="list-style-type: none"> <li>▶ IEC 61754-35</li> </ul>	<p><b>MIL-38999 DM</b></p> <p>The well-known MIL style connector with superior optical and mechanical properties. The Diamond DM insert allows the combination of different fiber types in one connector.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ Connector and bulkhead assembled with cable, tubes or fibers. The ferrule front face can be PC, APC or APC4° polished for MM, SM, PM, PS, large core or small core fibers.</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ 4 optical/electrical channels</li> <li>▶ Automatic protection shutter</li> <li>▶ Protection IP67</li> <li>▶ Push-Pull</li> <li>▶ Field repairable</li> <li>▶ Vibration resistant</li> <li>▶ Allows mixing of fiber types</li> </ul>	<p><b>MIL-83526 DM</b></p> <p>A ruggedized housing allows for easy handling in industrial environments. The Diamond DM insert allows the combination of different fiber types in one connector.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ Connector and bulkhead assembled with cable, tubes or fibers. The ferrule front face can be PC, APC or APC4° polished for MM, SM, PM, PS, large core or small core fibers.</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ 4 optical/electrical channels</li> <li>▶ Resistant metal shell</li> <li>▶ Protection IP68</li> <li>▶ Field repairable</li> <li>▶ Vibration resistant</li> <li>▶ Allows mixing of fiber types</li> </ul>	<p><b>X-BEAM</b></p> <p>This lensed connector ensures the data connection will be maintained even in heavily polluted and other harsh environments.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ Connector and bulkhead assembled with cable or tubes. The ferrule front face can be PC or APC polished for MM and SM fibers.</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ 4 optical channels</li> <li>▶ Resistant metal shell</li> <li>▶ Protection IP68</li> <li>▶ Fiber types mix (keep consistent)</li> <li>▶ Field repairable</li> <li>▶ Vibration resistant</li> </ul>	<p><b>revos E-2000</b></p> <p>A rugged design makes this connector particularly suitable for industrial applications requiring long transmission distances and high data rates.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ Connector and bulkhead assembled with cable or tubes. The ferrule front face can be PC, APC or APC4° polished for MM and SM fibers.</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ 2 optical channels</li> <li>▶ Robust IP65-rated enclosure</li> <li>▶ Integrated caps and shutters</li> <li>▶ E-2000™ connector with ACA</li> <li>▶ Easy lever locking</li> <li>▶ Automatic protection shutter</li> </ul>	<p><b>DiaFlex</b></p> <p>A multifiber connector system based on the MT ferrule and a mechanical design that provides excellent optical properties.</p> <p><b>Available versions:</b></p> <ul style="list-style-type: none"> <li>▶ Male and female connectors are assembled with cable or fan outs. The ferrule front face can be PC or APC polished for MM and SM fibers.</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▶ 8-24 optical channels</li> <li>▶ Resistant metal shell</li> <li>▶ Protection IP68</li> <li>▶ Easy locking system</li> <li>▶ Protective cap with feed-in eye</li> <li>▶ Small external diameter</li> </ul>
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\* The pictures of the connectors are not scaled true to the original

**SINGLE FIBER CONNECTORS** | **MULTI FIBER CONNECTORS**

**TECHNOLOGIES**

**Crimping**

**Active Core Alignment (ACA)**

The goal of ACA is to achieve the best Insertion Loss values by minimizing the fiber eccentricity to the ferrule outer diameter, as well as, achieving a perfectly aligned exit angle. As part of the ACA process, the metallic end-face of the two component ferrule is shaped so that one side of the material deformation causes the fiber core to align to the middle of the central axis of the ferrule in a controlled manner.

**Available connectors:** All connector types.

**Fiber core centered**

**High Power**

Diamond Power Solution (PS) connections utilize various beam expansion methods (Expanded Beam (EB), short EB), which can vary greatly depending on the scope of the application. The different PS types available are as follows: PS Collimated (contact), PM-PS (contact), PSm (contact), PSi (free standing), PSc (collimator), PSF Free Space (diverging), PSB Ball Lens (expanded beam), PSi Lensed (focused).

**Available connectors:** E-2000™, F-3000™, Mini AVIM™, DMI, FC, X-Beam and more upon request.

**PSm Power solution multimode**

**PSi Free standing**

**Polarization Maintaining**

Diamond Polarization Maintaining (PM) connectors are renowned for their exceptional performance. The Active Core Alignment (ACA) process minimizes core offset to ensure low insertion loss. Active Polarization Orientation (APO) guarantees optimal alignment of polarization axes for high extinction ratio on PM and polarizing (PZ) fibers.

**Available connectors:** E-2000™, F-3000™, LSA (DIN), FC, SC, DMI, AVIM™ family and others upon request.

**PM-PS collimated polarization maintaining**

**High Temperature**

Diamond offers High Temperature (HT) fiber optic metal assemblies developed specifically to withstand operating temperatures beyond the range of conventional plastic connectors over extended periods of time. The HT assemblies rely upon a combination of specialized assembly techniques and materials, together with special fibers with appropriate coatings suitable for deployment in harsh

**High temperature endurance 150°C/2000 h**

The graph shows that diamond high temperature connectors maintain a variation of IL (dB) near 0.00 over 2000 hours at 150°C, while standard connectors show a significant increase in IL (dB) over time.