

Pressure Tolerant Electronics, Fiber Optic Transceivers, and Optical Couplers

Moog Focal has been providing pressure tolerant electronics, fiber optic transceivers and optical multiplexers since 2007, with hundreds of systems installed in the field. Standard depth ratings to 4000 m, with optional 5000 m or deeper. Every product shipped undergoes a pressure test including cycling and soak at maximum pressure.

Moog Focal offers standard pressure tolerant electronics, optical couplers and fiber optic transceivers (SFPs) for demanding subsea applications. These devices can withstand the extreme ocean depths when installed in a pressure balanced, oil filled (PBOF) enclosure with a standard depth rating up to 4000 m. Using PBOF technologies can increase available space for connectors and reduce or eliminate costs of large one atmosphere housings.

Moog Focal has been providing pressure tolerant products since 2007 with thousands of components in the field. Pressure tolerant solutions exist for HD video, Gigabit Ethernet, analog video, serial data, optical couplers (WDM, CWDM, splitter) and fiber optic transceivers (SFP up to 4.25 Gbps, CWDM and bidirectional versions).

Rigorous design testing is conducted on all new products to ensure optical and electrical performance at rated pressure and during rapid pressure cycling. Qualification and design tests are redone with any significant changes in the build process or component structures.

Pressure tolerant products need to be enclosed in a subsea junction box or enclosure filled with oil. Focal has tested compatibility with many typical oils used in the marine industry and continues to validate additional fluids as new applications emerge.

Features

- Standard rating to 4000 m, optional for 5000 m or deeper
- SFP optical transceivers up to 4.25 Gbps data rate
- CWDM and BIDI SFP optical transceivers
- Electronics and optical multiplexers available
- Fully qualified for pressure and fluid compatibility
- Each production unit screened with rapid pressure cycles and long term soak

Applications

- Remotely Operated Vehicle (ROV)
- Subsea Controls (BOP, Drilling, Processing)



Pressure Test Station

Available Products	
Product Name	Depth Rating
907Plus Video and Data Multiplexer	4000 m (6,000 psi / 413 bar)
907V Video Multiplexer	4000 m (6,000 psi / 413 bar)
907-GEM Gigabit Ethernet Multiplexer	4000 m (6,000 psi / 413 bar)
907-GBE Gigabit Ethernet Media Converter	4000 m (6,000 psi / 413 bar)
907-GBE2 Dual Gigabit Ethernet Media Converter	4000 m (6,000 psi / 413 bar)
907-GBES 4-Port Gigabit Ethernet Switch	4000 m (6,000 psi / 413 bar)
907-232 RS-232 Serial Expansion Card	4000 m (6,000 psi / 413 bar)
907-485 RS-485 Serial Expansion Card	4000 m (6,000 psi / 413 bar)
907-SER Serial Expansion Card	4000 m (6,000 psi / 413 bar)
907-CIB Control Interface Expansion Card	4000 m (6,000 psi / 413 bar)
907-ADC Analog Expansion Card	4000 m (6,000 psi / 413 bar)
907-HDV HD-Video Media Converter	4000 m (6,000 psi / 413 bar)
907-AIB Dual Socket AIB Adapter Card	4000 m (6,000 psi / 413 bar)
AIB-HYDRO Hydrophone Plug-in Module	4000 m (6,000 psi / 413 bar)
AIB-ARCNET Arcnet Plug-in Module	4000 m (6,000 psi / 413 bar)
AIB-TRIG Trigger / Responder Plug-in Module	4000 m (6,000 psi / 413 bar)
AIB-485 RS-485 Plug-in Module	4000 m (6,000 psi / 413 bar)
AIB-232 RS-232 Plug-in Module	4000 m (6,000 psi / 413 bar)
907-DC-24V 24V DC-DC Converter	4000 m (6,000 psi / 413 bar)
907-CWDM-SM4 4-Channel CWDM Optics Card	4000 m (6,000 psi / 413 bar)
907-CWDM-SM8 8-Channel CWDM Optics Card	4000 m (6,000 psi / 413 bar)
907-WDM WDM Optics Card	4000 m (6,000 psi / 413 bar)
907-SPLIT Splitter Optics Card	4000 m (6,000 psi / 413 bar)
914-HDE HD Video, Ethernet and Serial Data Multiplexer	4000 m (6,000 psi / 413 bar)
914-GBE Gigabit Ethernet Media Converter	4000 m (6,000 psi / 413 bar)
914-R/V Video and Serial Data Multiplexer	2000 m (3,000 psi / 207 bar)
CWDM SFP, 4.25 Gbps (1271 nm to 1611 nm)	4000 m (6,000 psi / 413 bar)
BIDI SFP, 4.25 Gbps (1310 nm & 1550 nm)	2000 m (3,000 psi / 207 bar)

Focal has tested material compatibility with many oil types, including the following:

Tellus 32, NUTO H 32, Irving D & E 32, Faxam 32, Panolin 32, Mobil D.T.E. 24, VoltEsso