Optical Monitoring System

Model 928-OMS

Focal Technologies Corporation, a Moog Inc. company, has over 30 years of expertise in supplying standard and custom marine products for harsh environment applications. Model 928-OMS is part of Focal's unified condition monitoring product line and provides continuous scanning and performance analysis of both live and spare optical fibers in critical telemetry and control systems, reducing down time and saving operating costs. Contact Focal for any assistance in selecting the best solution for your requirements.

Focal's Model 928-OMS is easily installed and configured in-line with existing cables for real-time monitoring of both live optical telemetry links and backup fibers. A built-in industrial computer and control software provide an intuitive, HMI-like graphical user interface (GUI), via an attached monitor, as well as front panel LEDs indicating status, active fiber, warnings, and triggered alarms. Readings and controls are accessible locally via the GUI or remotely via Ethernet, and powering down the OMS does not affect live data links.

Unlike standard telecom OTDRs, the OMS is designed specifically for use with ROVs, subsea controls, and other critical telemetry systems, avoiding the need for special operator training or requiring a system shutdown during measurements. Through continuous monitoring of multiple fibers, the OMS presents a dynamic picture of the entire optical system as a graphical chain of components, such as winches, tethers, and umbilicals. The GUI displays key details for each component, including fiber lengths, optical losses, and fault locations. User-configurable warnings and alarms quickly identify when and where specific system components deviate from operational norms. This allows users to detect anomalies, e.g. high losses or back reflections, and correct emerging optical problems well before they impact data links.

Features

- Simple set up and operation
- Real-time performance monitoring on live fibers
- Automatic and continuous monitoring of multiple fibers
- Software for configuring, monitoring, trending & logging
- Factory or user configured operating modes

Benefits

- Save time identifying and locating optical problems
- Save operating costs by avoiding unscheduled downtime
- Increase power margins of critical telemetry links
- Reduce training and technical support costs

Applications

- Remotely Operated Vehicles (ROV)
- Floating Production Systems (FPS) equipment
- Subsea production and drilling controls
- Testing systems and cable handling gear
- Live monitoring of critical optical data links

The OMS GUI includes key tools for plotting component-level performance, data logging, and statistical analysis to enable benchmarking of system performance during integration, commissioning, and operation. Subsequent data analytics can be used to identify trends and reduce operating costs through predictive and preventative maintenance. In addition to simply reducing costly downtime, correction of optical problems can also improve system performance and resilience to faults.

With logging and display of additional readings from Focal multiplexers and slip ring sensors, the OMS acts as a central hub for condition monitoring of the entire communication system, seamlessly integrating diagnostics and simplifying further analysis or data processing by external control systems.

Specifications

Optical	
Fiber Type	Singlemode (9/125 µm)
Monitoring Fibers	4, in-line
Operating Wavelength	1625 nm (nominal)
Distance Range	0.5 - 20 km (typical)
Output Power	Class 1M, IEC 60825-1
Insertion Loss	1 dB (typical)
Sampling Resolution	1 - 10 m
Distance Accuracy	± 1.5 m
Measurement Time	10 - 30 seconds per fiber scan
Measurements	Fiber lengths, component optical losses, fault locations, reflections, alarms/warnings
Options	8 monitoring fibers 1611 nm operating wavelength
Mechanical	
Dimensions	1U, 19” EIA rack enclosure
Options	Customization for OEM configurations
Power	
Consumption	10 W (max.)
Voltage	100 to 240 VAC, 50-60 Hz
Current	0.1 A (max.)

Connectors	
Optical	8 x ST/PC
Power	1 x IEC-320 C14 Jack
Display	1 x HDMI, 1 x VGA
Serial Diagnostics	1 x DB-9S for RS-232 (e.g. Model 903 diagnostics)
Slip Ring Diagnostics	1 x M12 For Model 923 access (RS-485 + 24 VDC)
Ethernet Diagnostics	2 x RJ-45 For Model 907 diagnostics and optional OMS remote diagnostics access
PC Access	4 x USB Type A For keyboard, mouse, and external storage
Options	Contact factory for other optical connectors
Environmental	
Temperature	0 °C to +40 °C (operation)
Humidity	5% to 85% RH, non-condensing
Software	
Notifications	User defined warning and alarm levels, historical statistics
Configuration	Presets of custom settings
Logging	OTDR traces and component measurements

All specifications and information are subject to change without notice. Please contact Focal for the latest updates.