

Electrical Optical Flying Lead

Fully qualified, wet mateable electrical Ethernet to optical flying lead – An Active Flying Lead Product

Traditionally, flying leads have been considered a passive element in subsea infrastructure, meaning that power and data move through the system without interference or modification. Teledyne Oil & Gas has developed a technology platform to evolve the role of the flying lead. The Active Flying Lead product family will allow for the use of electronics integrated into a connector or inline with the jumper, transforming the Flying Lead into an active component in a subsea data transmission system.



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The Electrical Optical Flying Lead (EOFL), the newest entrant to the Active Flying Lead product line, features a Nautilus Rolling Seal Hybrid connector on one side, and a 7- or 12- way Nautilus electrical connector on the other, with a qualified integrated electrical/optical converter within the pressure balanced, oil-filled hose (PBOF). The electro-optical components are housed in a 1 ATM enclosure and protected on one side by glass to metal seal penetrators, and a hermetic fiber penetrator on the other.

Suited for connectivity on subsea control modules, data transmission systems, umbilical terminations, electrical junction boxes and other subsea structures, the EOFL converts an electrical signal to a fiber optic signal, currently allowing up to 100 Mbit/sec data speed over 2 twisted pairs to be converted to one single fiber. The EOFL will be able to run 1 Gigabit/sec over 4 twisted pairs if needed.

The EOFL is designed with a modular power converter, which allows for different power inputs to be used without redesign, increasing flexibility in project requirements and reducing development time and costs. The use of Small Form-factor Pluggable transceivers (SFP's) allows several jumper configurations to be possible.

Including the EOFL into the layout allows for greater field architecture flexibility, while at the same time increasing reliability.

PRODUCT FEATURES

- Max one TX and RX optical conversion
- 6,000 psi, 4000 m
- 30 Year Design Life
- Can be powered from electrical side where 4 power circuits are available
- Two dedicated electrical circuits can be used to pass power through the jumper



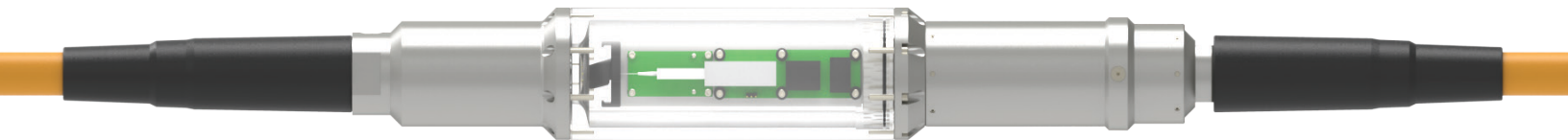
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TECHNICAL SPECIFICATIONS

GENERAL SPECIFICATIONS	
Max Operational Depth Pressure Balanced	4000 m (6,000 psi)
Operational Temperature	Seawater -5°C to +40°C (23°F to 104°F) Air -5°C to +40°C (23°F to 104°F)
Storage Temperature	-30°C to +60° C (-22°F to 140°F)
Housing Material	Titanium
Design Life	30 Years (Assuming Operational Temperature of 4°C)
Communications Test	RFC-2544 error rate < 1%
Ethernet Speed	10/100 Mbit/sec
Power Wires (Pass Through)	Max Operational Current per Circuit 3 A Max Operational Voltage 620 VAC Phase to Ground Insulation Resistance ≥ 10 GΩ @ 1 KVDC
Power Wires (Required to run Converter)	Operating Power 5 watts Standard Operating Voltages 24 Volts +12/-6 Volts * Max In Rush Power 10 watts Additional Input Voltages Supported** 400 VDC, 600 VAC
Max Length (With Oil-Filled Hose)	Electrical Side 90 meters Total Length 300 meters

**Voltage transformation performed through converter. Other voltages may be allowed, but require discussion with Teledyne.



EOFL Media Converter Housing



Standard EOFL Configuration