

# Optical Wavelength Converter (OWC)

Model 416

## Description

For fiber systems that require a fiber optic rotary joint having more than 52 fibers, an Optical Wavelength Converter (OWC) may be a practical alternative solution. Since optical fibers can carry multiple wavelengths simultaneously, this feature can be used to increase system data capacity and reduce the number of fibers required in a FORJ or umbilical cable, particularly when existing systems are upgraded or new systems require capacity for future expansion. Most optical data links use only 1 or 2 common wavelengths, so by using optical wavelength conversion, many independent links can be combined on a single fiber, freeing up fibers for additional channels.

The Model 416 OWC is a 3U Eurocard rack with dual redundant power supplies and up to 12 separate wavelength converter cards, also known as optical-electrical converters (OEO). Each OEO card provides 8 wavelength converters to combine 8 fibers (4 in each direction) onto a single fiber, thus reducing the number of fibers required in a FORJ or umbilical by a factor of 8 to 1. A corresponding OEC rack on the other side of the FORJ converts the wavelengths back to their original optical format and number of fibers. Typical optical links, such as Ethernet, use one fiber for transit and one for receive, so each OEO card pair supports four such bidirectional Ethernet ports. The OWC also functions as a repeater, providing boosted optical outputs that effectively negate the optical loss of the FORJ.

OEO converters are configured with transceivers to support a range of data formats, data rates, wavelengths, and optical power levels that are compatible with the external devices. Each card can be factory configured to match the types of optical signal inputs/outputs required, e.g. Fast Ethernet, Gigabit Ethernet, ATM, HD-SDI, etc. Cards are available for both multimode and singlemode inputs, and since the OEO cards are unpluggable, they are easily replaced in the field to support changes to the system requirements. The modules are housed in either a flameproof enclosure

(Ex d) for use in a hazardous area or in a stainless steel junction box for use in a safe area. Ingress protection is IP66.

## Features

- Hazardous area certified / marine classification
- IP66
- Temperature: -20 °C to +70 °C

## Options

- Temperature sensor / Heater
- Redundant power supply
- Extended temperature range
- IP68-20 m



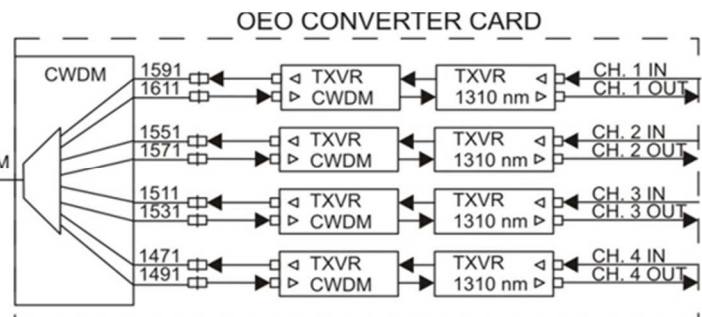
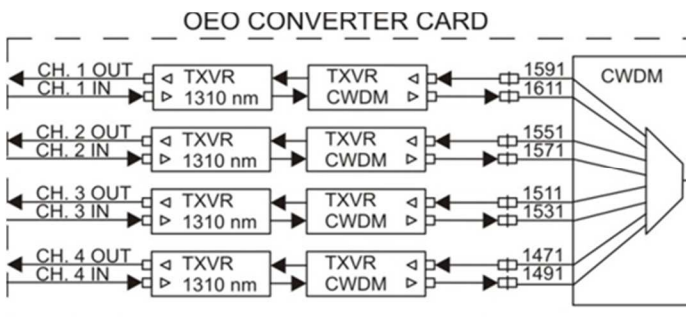
All products can be modified to meet specific requirements. Please contact the factory to assist with configuration of OEO converters to match your optical signals. Installation, commissioning and service is available. Contact the factory for details.

# Specifications

Optical, User	
Wavelengths	1310 nm
Format	Digital, 125-155 Mbps
Output Power	-5 dBm min. (Tx)
Minimum Input Power	-34 dBm (Rx sensitivity)
Maximum Input Power	-8 dBm (Rx saturation)
Loss Budget	29 dB min.
Options: Other wavelengths (850, 1550 nm) and data rates (up to 3.125 Gbps) can be supported. This will affect the optical parameters. Contact the factory for details.	
Optical, CWDM	
Wavelengths	1471, 1491, 1511, 1531, 1551, 1571, 1591 and 1611 nm
Format	Digital, 125-155 Mbps
Output Power	0 dBm min. (Tx)
Minimum Input Power	-34 dBm (Rx sensitivity)
Maximum Input Power	-8 dBm (Rx saturation)
Loss Budget	34 dB min.
Options: Other wavelengths data rates (up to 3.125 Gbps) can be supported. This will affect the optical parameters. Contact the factory for details.	
Electrical	
Voltage	100-240 V, 50-60 Hz
Current	0.2 A @ 240 V typical
Power Dissipation	50 W (plus optional heater)
Grounding / Bonding	Internal ground bar for cable screens External ground connection
Options	
Heater	Self-regulating heater 120 V or 220 V, 100 W Other wattages available
Temperature Sensor	PT100 typical with transmitter for 4-20 mA output
Ingress Protection	IP66

Interface	
Mounting	Four tabs top and bottom, two slotted
Door	Hinged, with door clamps Lockable
Cable Entry	Cable glands
Certifications	
Marine <sup>1)</sup>	DNV GL, ABS, LRS or BV
Hazardous Area <sup>1)</sup>	Ex d IIB T5 Gb ATEX, IECEx, AEx, CSA, IEC
Environmental	
Temperature	-20 °C to +70 °C (operating) -20 °C to +85 °C (storage)
Humidity	95% relative, non-condensing
Ship Motion	1 g in any direction
Physical	
Height	Ex – 19" [480 mm] Safe – 20" [510 mm]
Width	Ex – 27" [690 mm] Safe – 20" [510 mm]
Depth	Ex – 14" [360 mm] Safe – 13" [330 mm]
Weight	Ex – 420 lbs [191 kg] Safe – 80 lbs [36 kg]
All dimensions depend on the configuration	
Material	316 / 316L stainless steel Option: Ex enclosure – Powder coated
Drawing	416-XXXX-00

1. Available on request.



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