



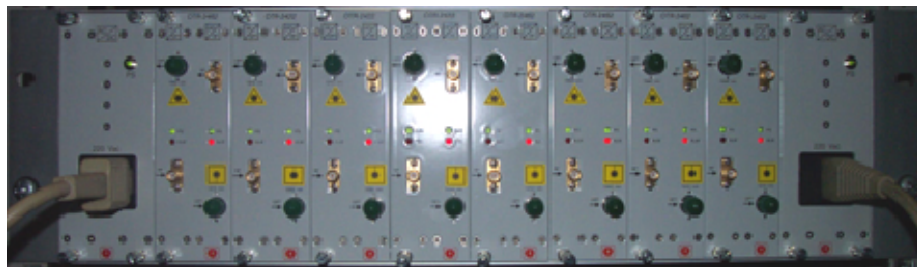
**OPTEL**  
OPTOELETTRONICA  
TELECOMUNICAZIONI

**OTR-2421-2-E**  
**OTR-2461-2-E**

## 150–2400 MHZ ANALOG WIDEBAND FIBEROPTIC TRANSCEIVERS

### FEATURES

- 0.15 - 2.4 GHz BW (0.04 - 2.4 GHz w/ No Data)
- 1310 and 1550 nm wavelength versions
- Very low noise and very low distortion
- High operating optical range (0 to -10 dBm)
- EUROCARD package for rack mount
- Built-in FSK DC-19.2 Kbps Data Modem
- RS232, RS422, RS485 Data Interfaces
- MTBF > 1.1 Million hours at Ta = 40 °C
- -20 to +60 °C operating Temp. range
- From 20 to 72 V DC direct supply voltage
- Very low power consumption



### APPLICATIONS

- VHF and UHF Fiber Optic RF transmission systems
- 450 MHz, 900 MHz, 1800 MHz, 2400 MHz CELLULAR RADIO Remotization Systems
- Any Radio Frequency signal within the BW from 40 to 2400 MHz

### PRODUCT DESCRIPTION

The OTR-2421-2-E and OTR-2461-2-E are the EUROCARD package versions of an Analog Fiberoptic Transceiver Module, designed and developed by OPTEL, suitable to be used in Radio Frequency transmission systems.

The Modules provide OEMs an excellent solution to link bidirectionally on one single mono-mode fiber with WDM two RF communication stations, for any kind of signal operating in the frequency spectrum range of 40 to 2400 MHz.

The high performance of the Modules is very attractive for CELLULAR RADIO Fiberoptic remotization systems.

### MAIN PRODUCT VERSIONS

The OTR family include the following versions:

	TX (nm)	RX (nm)	Data Modem
OTR-2421	1310	1310-1550	No
OTR-2422	1310	1310-1550	Yes
OTR-2461	1550	1310-1550	No
OTR-2462	1550	1310-1550	Yes

## OTR-24xx TECHNICAL SPECIFICATIONS (Typical)

### OPTICAL SPECIFICATIONS

	OTR-2421	OTR-2422	OTR-2461	OTR-2462
OPTICAL SOURCE (Type/wavelength)	LD-DFB/1310nm	LD-DFB/1310nm	LD-DFB/1550nm	LD-DFB/1550nm
LASER RIN (dBm/Hz)		> 150		
DETECTOR PHOTODIODE(Type/wavelength)	PIN/1310-1550nm	PIN/1310-1550nm	PIN/1310-1550nm	PIN/1310-1550nm
OUTPUT POWER (dBm)		+4		
MAX / MIN RECEIVED OPTICAL POWER (dBm)		0 / -10		
OPTICAL CONNECTORS		FC-APC		
CONNECTOR RETURN LOSS (dB)		>60		

### RF-RF SPECIFICATIONS

FREQUENCY BANDWIDTH (GHz)	0.04 - 2.4 (0.15 - 2.4 w/ Data Modem)
FREQ. RESP. FLATNESS (dB)	+/- 1
RF LINK GAIN (f=1GHz)(dB)	0 (Popt = 0dBm)
RF CONNECTORS	SMA
IMPEDANCE (Ohm)	50
RETURN LOSS (dB)	> 10
IP3 (dBm)	> +30

### ALARMS

LOCAL ALARMS	(APOT) LASER out of power tracking (APOR) Receiver Input power < -10 dBm (APS) No power supply
FRONT PANEL LEDs	APOT+APOR = RED-ON when alarm APS = GREEN-OFF when no power
REMOTE ALARM	APOT+APOR+APS Dry contact open when alarm

### MONITORING

LASER OPTICAL POWER	MPOR ( 1V  = Nominal power) (+/- 5%)
LASER BIAS CURRENT	MCPL (10 mV = 1 mA) (+/- 5%)
INPUT OPTICAL POWER	MPOR  1V  = 1 mW (+/- 5%)

### POWER SUPPLY

VOLTAGE	20 - 72 Volt
CONSUMPTION	3,2 Watt

### ENVIRONMENTAL

OPERATING TEMPERATURE	-20 to +60 °C
STORAGE TEMPERATURE	-40 to +70 °C

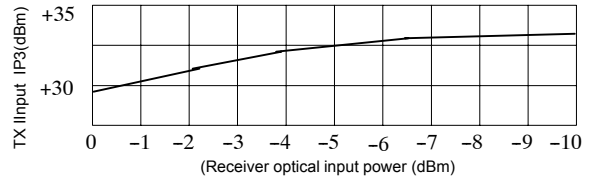
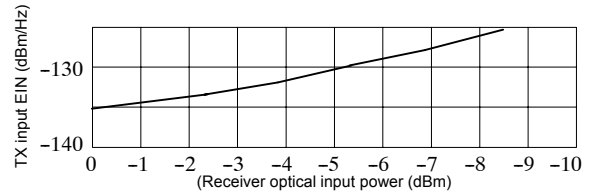
### DATA MODEM

MODULATION TYPE	FSK
DATA RATE (KBAUD)	DC - 19.2
DATA FORMAT	Asynchronous NRZ
DATA INTERFACE (Opt.)	RS 232 (RS 422, RS 485 Optional)
CONNECTOR	DIN 32 contacts

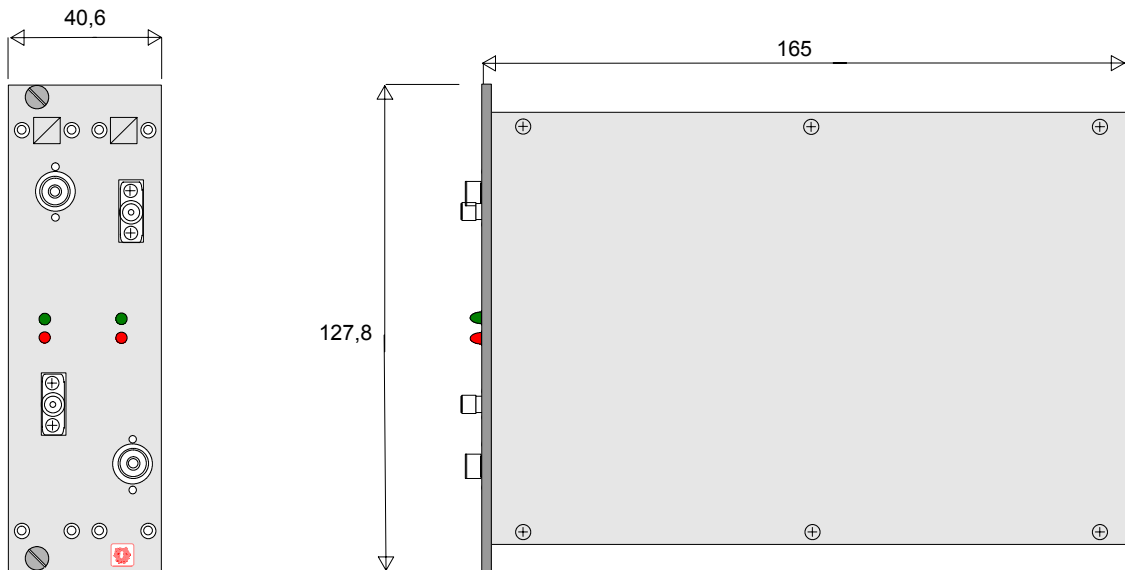
### MECHANICS

HOUSING	Double Shielded Boxes
EUROCARD (Size, mm)	100x160x40 (19" 3U Subrack plug-in)

### LINK PERFORMANCE (typ)



## MECHANICAL DRAWING AND INTERFACES



EUROCARD



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