



**OPTTEL**  
OPTOELETTRONICA  
TELECOMUNICAZIONI

**ORX - 2250**  
**ORX - 2252**  
**ORX - 2260**  
**ORX - 2262**

## 300–2200 MHZ ANALOG WIDEBAND FIBEROPTIC RECEIVERS

### FEATURES

- 0.3 - 2.2 GHz bandwidth
- Double windows (1310 - 1550 nm wavelength)
- Very low noise
- Very low distortion
- High operating optical range (+3 to -10 dBm)
- 30 dB (4 Bit dual 15 dB, 1dB step) RF gain adjust)
- On-board MICRO for Remote Control & Monitoring
- Built-in FSK DC-19.2 Kbps Data Demodulator
- Compact shielded BOX (140x92x24 mm)
- EUROCARD front panel for rack mount
- 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
- Compliancy with the normative EN 61000 6-3;  
EN 61000 6-4



### APPLICATIONS

- VHF, UHF, RF transmission systems
- 450 MHz, 900 MHz 1200 MHz, 1800 MHz  
2100 MHz CELLULAR RADIO Remotization  
Systems

### PRODUCT DESCRIPTION

The ORX-22xx series are the BOX (EURO-CARD front panel for rack mounting) package version of Analog Fiberoptic Receiver, designed and developed by OPTTEL, to be used with the OTX-22xx series Transmitters.

The units provide OEMs an excellent solution to link on a singlemode fiber two RF communication stations, for any kind of signal operating in the frequency spectrum range of 0.3 to 2.2 GHz.

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

### MAIN PRODUCT VERSIONS

The ORX-22xx family includes the following versions:

Model	Wavelength (nm)	Low Gain	High Gain
ORX-2250	1310 - 1550	X	
ORX-2252	1310 - 1550		X
ORX-2260	1310 - 1550	X	
ORX-2262	1310 - 1550		X

## ORX-225x / ORX-226x TECHNICAL SPECIFICATIONS (Typical at T=25 °C)

### OPTICAL SPECIFICATIONS

OPERATING WAVELENGTH (nm)	1310-1550
DETECTOR PHOTODIODE	PIN
OPTICAL RETURN LOSS (dB)	40
INPUT OPTICAL POWER RANGE (dBm)	+3 / -10
OPTICAL CONNECTOR (opt)	FC-APC (SC-APC)
CONNECTOR RETURN LOSS (dB)	>60

### OPT. LINK RF SPECIFICATIONS (Linked with OTX-22xx series) (At 0 dBm optical input power and 8dB inserted on the 1st step-attenuator)

FREQUENCY BANDWIDTH (GHz)	0.3-2.2
FREQ. RESP. FLATNESS (dB)	+/- 1.5
MAX LINK GAIN (dB) (OTX-ORX-2252)	0
MAX LINK GAIN (dB) (OTX-ORX-2262)	-3
RF GAIN RANGE ADJUST (dB)	0 - 30 dB (double 15dB 1db step)
RF ADJUST TYPE	Remote with MICRO
CONNECTOR	SMA
IMPEDANCE (Ohm)	50
RETURN LOSS (dB)	12
LINK output IP3 (dBm) (900 MHz)	> +28 (2252); > 30 (2262)
LINK output IP3 (dBm)(1800-2100 MHz)	> +26 (2252); > 28 (2262)
LINK output IP2 (dBm) (900 MHz)	> +44 (2262);

### MONITORING

INPUT OPTICAL POWER	1V  = 1 mW (+/- 5%)
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### ALARMS

LOCAL ALARMS	(APOR) Input power < -10 dBm (APS) No power supply
FRONT PANEL LEDs	APOR (RED-ON when alarm) APS = GREEN-OFF when no power
REMOTE ALARM	MICRO

### POWER SUPPLY

VOLTAGE	20 - 72 Volt
CONSUMPTION	3.5 Watt

### MECHANICS

HOUSING	Shielded Box
STAND-ALONE BOX (Size, mm)	140Lx92Wx24H
EUROCARD (Size, mm)	100x160x40 (19" 3U Subrack plug-in)

### DATA DEMODULATOR

MODULATION TYPE	FSK
DATA RATE (KBAUD)	DC - 19.2
DATA FORMAT	Asynchronous NRZ
DATA INTERFACE (Opt.)	MICRO 0 - 5 V
CONNECTOR	Subminiature DB-9

### REMOTE CONTROL & MONITORING

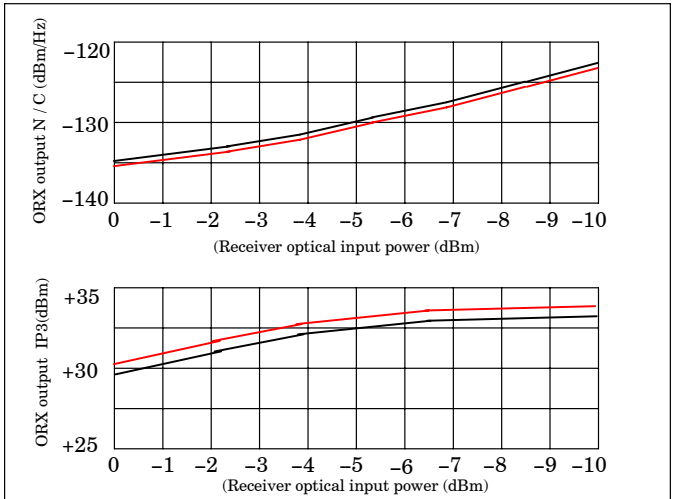
TYPE	MICRO on-board
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### ENVIRONMENTAL

OPERATING TEMPERATURE	-20 to +60 oC
STORAGE TEMPERATURE	-40 to +70 oC

### TYPICAL LINK PERFORMANCE N/C / IP3 versus P<sub>opt-in</sub>

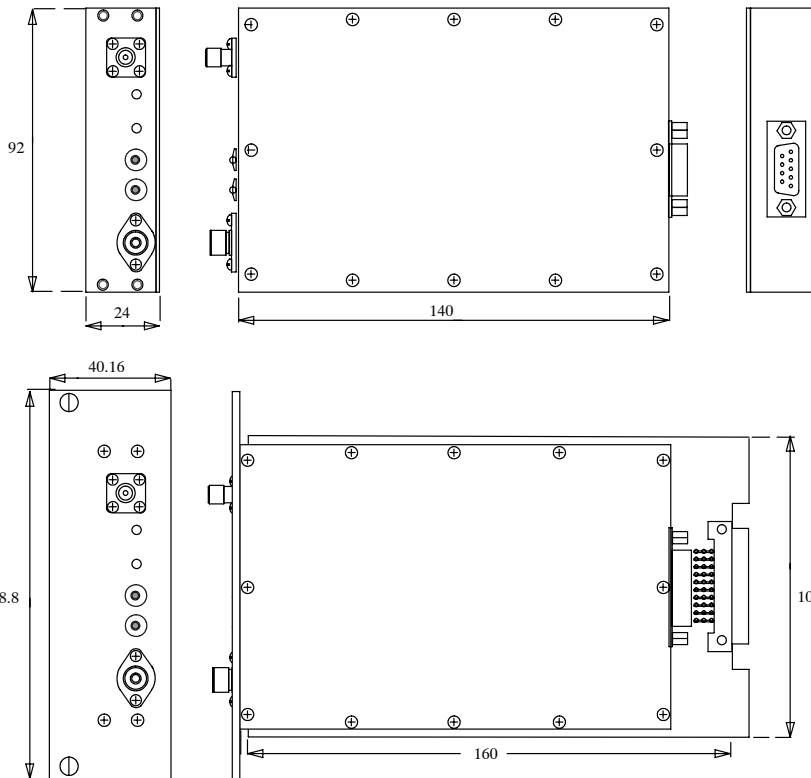
(Two carriers (C1+C2) at OTX input; C1 = 880 MHz and C2 = 920 MHz)



(Link OTX-ORX-2252; C1=C2=C at OTX input, -10 dBm each)

(Link OTX-ORX-2262; C1=C2=C at OTX input, 0 dBm each)

## MECHANICAL DRAWING AND INTERFACES



### DB-9 PIN ASSIGNMENT

PIN 1	(20-72) V +
PIN 2	Data output RS 232 / Micro 2
PIN 3	(20-72) V -
PIN 4	RF Link Gain Mon. / Micro 4
PIN 5	Opt. input power Mon. / Micro 5
PIN 6	GND
PIN 7	GND
PIN 8	Dry contact n. 1 / Micro 8
PIN 9	Dry contact n. 2 / Micro 9

(\*) - Without the MICRO on-board the data interface is RS 232 and the remote alarm are given by dry contacts.

### DIN 41612 B/2 PIN ASSIGNMENT

PIN 4	ab	(20-72) +
PIN 13	ab	(20-72) -
PIN 8	ab	Data input RS 232 / Micro 2
PIN 1-3	ab	GND
PIN 5	ab	RF Monitoring / Micro 4
PIN 7	ab	Opt. power Monitoring / Micro 5
PIN 6	ab	LASER Bias Monitoring / Micro 6
PIN 14-16	ab	GND
PIN 11	ab	Dry contact n. 1 / Micro 8
PIN 12	ab	Dry contact n. 2 / Micro 9
PIN 2-15	ab	NC