

# IQRX

## HIGH PERFORMANCE COHERENT OPTICAL RECEIVER

SPECIFICATION SHEET

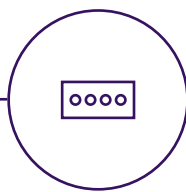
Gold standard coherent receiver for the measurement of coherent modulation formats such as QPSK, 64QAM and OFDM.

- Dual polarization
- Supports single and dual polarization PSK, QAM and custom formats
- Narrow linewidth internal laser
- Single ended RF outputs



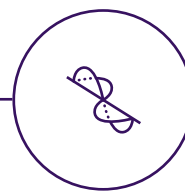
### High-performance, low-noise coherent receiver

IQRX is designed and built using the highest-performing discrete fiber optic components to provide superior fidelity measurement of coherently modulated signals. To minimize noise, IQRX does not use a transimpedance amplifier (TIA), a component often found in commercially available ICRs.



### Four single-ended outputs

Designed to be used with any real-time oscilloscopes with sufficient bandwidth and sampling rate, the single-ended outputs make it convenient to pair with the four input channels of most oscilloscopes. In high-bandwidth oscilloscope configurations where there are only two channels per unit, IQRX's slim profile and wide footprint enable it to be placed between multiple oscilloscope units.



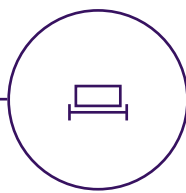
### Dual polarization measurement

IQRX houses polarization selective hardware to characterize polarization multiplexed signals. LO input, signal output and internal laser outputs all use polarization maintaining (PM) fiber for the highest versatility.



### Built-in narrow linewidth tunable laser

IQRX comes with a built-in narrow 25 KHz instantaneous linewidth laser, making it perfect for coherent modulation formats that require high phase stability.



### 19 inch rack mountable

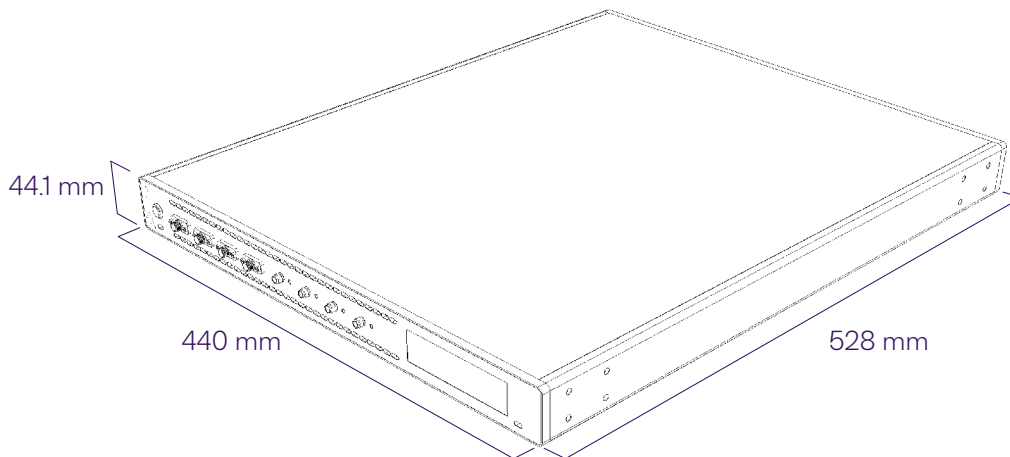
IQRX can be paired with the rack mount brackets for easy mounting in any 19 inch rack.

## IQRX INSTRUMENT AND DIMENSIONS



IQRX-1002-FC

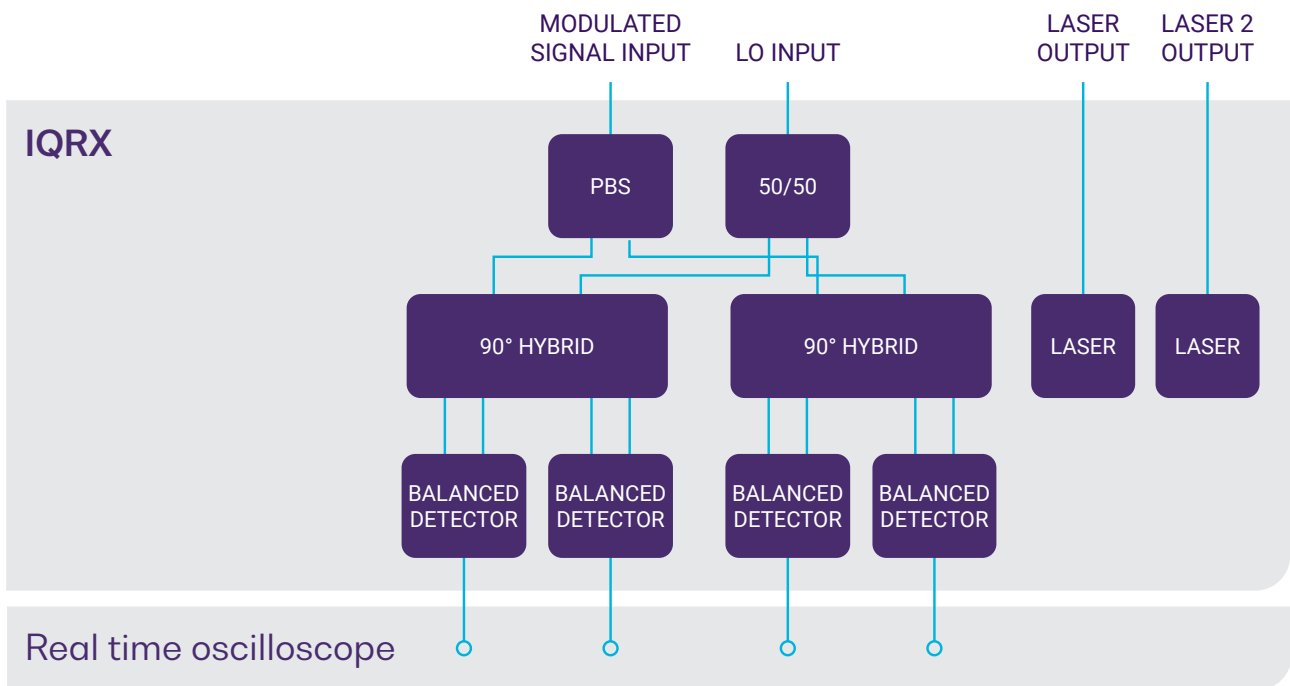
## Instrument dimensions



## TARGET APPLICATIONS

- Coherent DSP development
- Coherent transmitter testing
- Custom modulation format development
- Mil / Aero communications R&D

## IQRX schematic diagram



## IQRX TECHNICAL SPECIFICATIONS

General Specifications	IQRX
Dimensions (H x W x D)	97 x 440 x 390 mm   3.82 x 17.32 x 15.35 inch
Weight	~ 9.2 kg   ~ 20.3 lbs
Operating temperature range	5 °C to 45 °C   41 °F to 113 °F
Storage temperature range	-40 °C to 70 °C   -40 °F to 158 °F

Model Number	1002	1004
Operating wavelength range	1527 to 1630 nm	1527 to 1630 nm
Number of polarizations	2	2
RF outputs	4: Xi, Xq, Yi, Yq	4: Xi, Xq, Yi, Yq
RF connector type	2.4 mm female	1.85 mm female
System analog bandwidth (-3 dB) <sup>1</sup>	>35 GHz (Typical)	>50 GHz (Typical)
System analog bandwidth (-6 dB) <sup>1</sup>	>42 GHz (Typical)	>60 GHz (Typical)
Photodetector bandwidth (-3 dB) <sup>2</sup>	>45 GHz (Typical)	>70 GHz (Typical)
RF imbalance @ 2GHz	± 5% (Typical)   ± 12% (Max)	± 4% (Typical)   ± 12% (Max)
RF impedance	50 ohms	50 ohms
Low frequency cutoff	0 Hz	0 Hz
Conversion gain into 50 ohm load	11.25 V/W	11.25 V/W
Channel skew	± 4 ps (Typical)   ± 10 ps (Max)	± 4 ps (Typical)   ± 10 ps (Max)
Quadrature error	± 5 deg	± 5 deg
Damage level external LO input	+25 dBm	+25 dBm
Damage level signal input	+25 dBm	+25 dBm
Polarization extinction ratio LO input	20 dB	20 dB

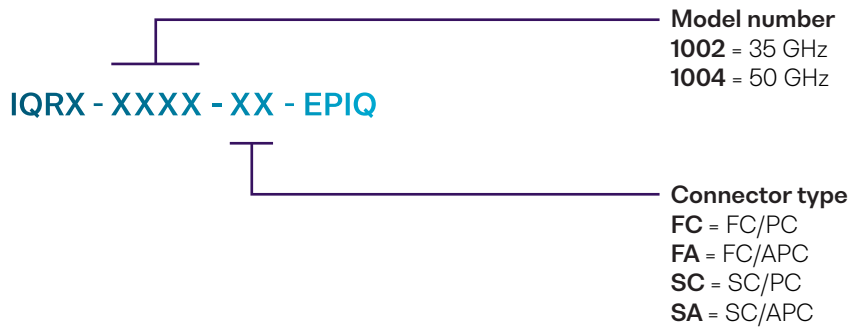
Local Oscillator	1002	1004
Maximum optical CW output power	15 dBm	15 dBm
Minimum optical CW output power	8 dBm	8 dBm
Wavelength range	1527.605 to 1567.132 nm	1527.605 to 1567.132 nm
Minimum wavelength step	~1 ppm	~1 ppm
Minimum frequency step	100 MHz	100 MHz
Tuning time/sweep speed	< 30 s	< 30 s
Absolute wavelength accuracy	10 ppm	10 ppm
Linewidth (short term)	< 100 kHz, 25 kHz (Typical)	< 100 kHz, 25 kHz (Typical)
Sidemode Suppression Ratio (SMSR)	55 dB (Typical)	55 dB (Typical)
Relative Intensity Noise (RIN)	-145 dB/Hz (10 MHz to 40 GHz)	-145 dB/Hz (10 MHz to 40 GHz)

### Notes

- Bandwidth of complete coherent receiver including standard cables without any digital compensation.
- Bandwidth of individual photodetectors in balanced pair.

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## ORDERING INFORMATION



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## WARRANTY INFORMATION

This product comes with a standard 1 year warranty.

Optional 3 or 5 year extended warranties are also available, please discuss with your sales representative at the time of purchase.

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