Femtowatt Photoreceiver with InGaAs PIN Photodiode

The photoreceiver will be delivered without post holder and post.

Features

- **InGaAs PIN photodiode, 0.5 mm active diameter**
- **Ultra low noise, NEP 7.5 fW/√Hz**
- **Amplifier transimpedance gain 1 x 10^{11} V/A**
- **Max. conversion gain 0.95 x 10^{11} V/W @ 1550 nm**
- **Wavelength range 900 … 1700 nm**

Applications

- **Fluorescence measurements**
- **NIR spectroscopy**
- **Electrophoresis**
- **Replacement for (liquid nitrogen) cooled Ge photodiodes and avalanche photodiodes (APDs)**

Specifications

Test conditions		$V_S = \pm 15$ V, $T_A = 25$°C Warm-up 20 minutes (min. 10 minutes recommended)	
Gain	Amplifier transimpedance	1.0 x 10^{11} V/A	(@ ≥ 100 kΩ load)
	Max. conversion gain	0.95 x 10^{11} V/W	(@ 1550 nm)
Frequency Response	Lower cut-off frequency	DC	
	Upper cut-off frequency (–3 dB)	20 Hz	(±20 %)
	Rise/fall time (10 % - 90 %)	18 ms	(±20 %)
Detector	Detector material	InGaAs PIN photodiode	
	Active area	∅ 0.5 mm	
	Spectral response	900 … 1700 nm	
Input	Optical saturation power	110 pW	(for linear amplification, @ 1550 nm)
	NEP	7.5 fW/√Hz	(@ 1550 nm, 1 Hz)

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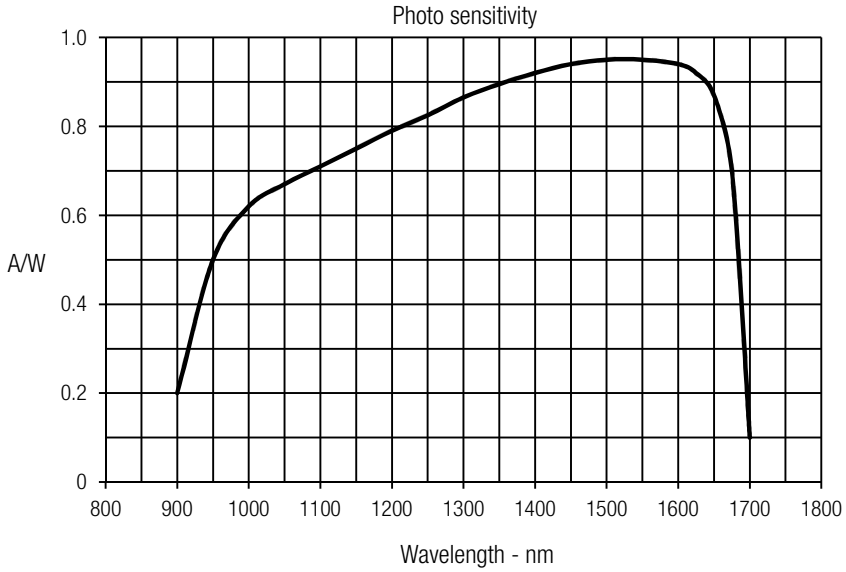
Specifications (continued)

Output	Output voltage range	±10 V (@ ≥ 100 kΩ load)
	Output impedance	50 Ω (designed for ≥ 100 kΩ load)
	Offset voltage	0 V, adjustable by offset potentiometer within ±1.6 V
	Max. output current	±25 mA
	Output noise	ca. 20 mV_{PP} or 3 mV_{RMS} (@ ≥ 100 kΩ load, no signal on detector)
Power Supply	Supply voltage	±15 V
	Supply current	±15 mA typ. (depends on operating conditions, recommended power supply capability min. ±50 mA)
Case	Weight	190 g (0.42 lbs)
	Material	AlMg3/4.5Mn, nickel-plated
Temperature Range	Storage temperature	–40 … +100 °C
	Operating temperature	0 … +60 °C

Absolute Maximum Ratings	Optical input power	10 mW
	Power supply voltage	±22 V

Spectral Response



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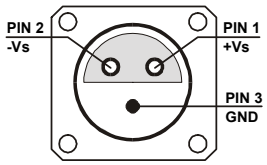
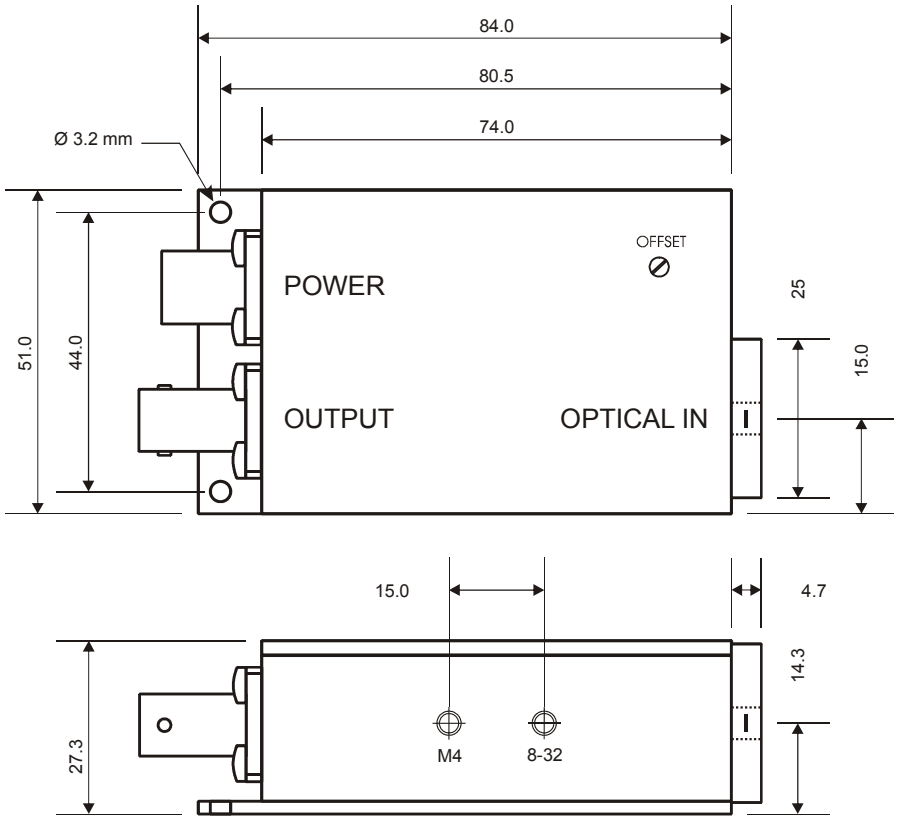
Connectors	Input	25 mm round flange for free space applications (fiber optic input available as customized unit)
	Output	BNC jack (female)
	Power supply	Lemo® series 1S, 3-pin fixed socket (Mating plug type: FFA.1S.303.CLAC52) Pin 1: +15V Pin 2: –15V Pin 3: GND



Available Models	FWPR-20-IN-FS	Free space input
	FWPR-S	Customized version available on request

Dimensions



all measures in mm unless otherwise noted

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