

Datasheet
FWPR-20-SI

Femtowatt Photoreceiver with Si Photodiode

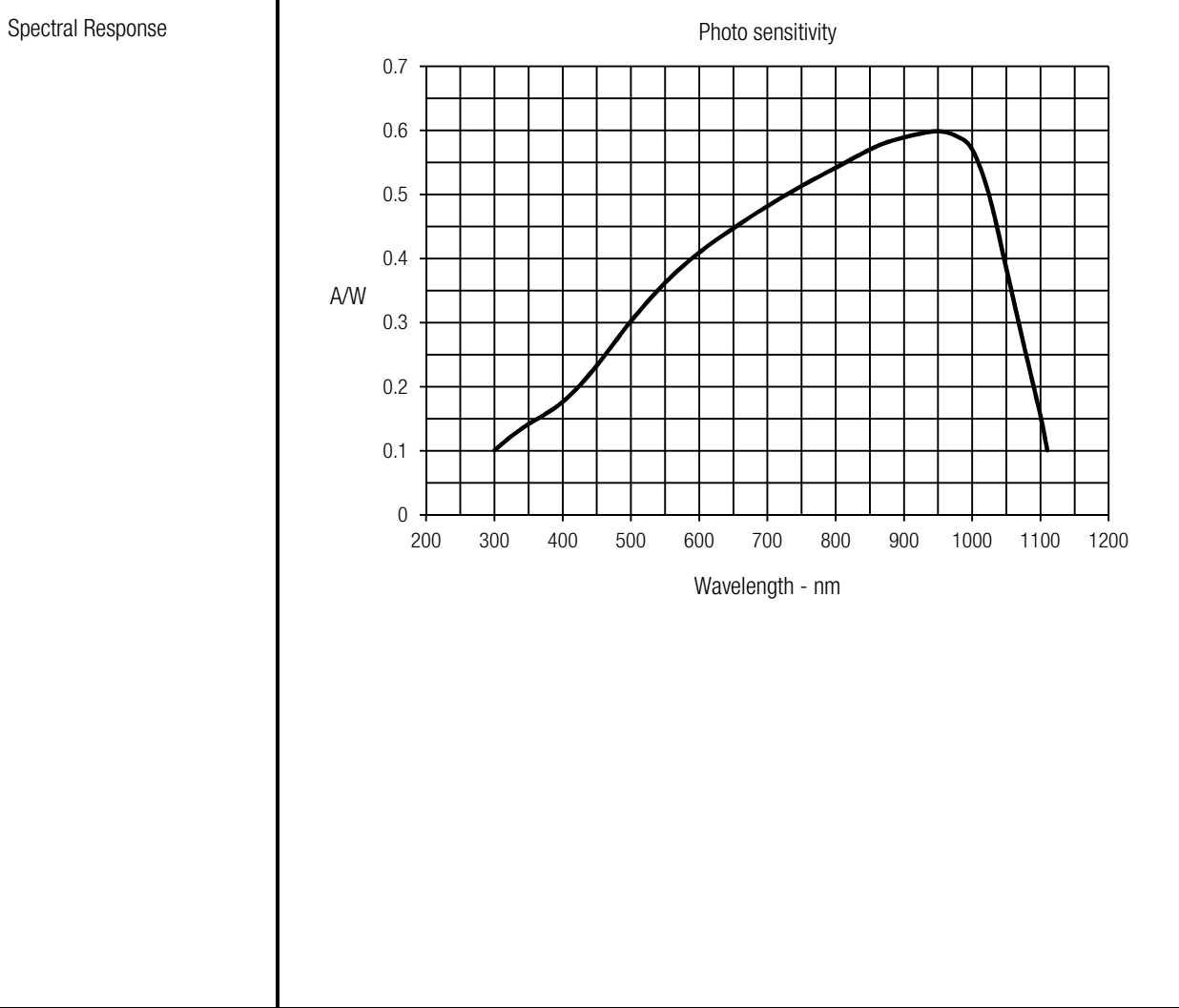


The photoreceiver will be delivered without post holder and post.

Features	<ul style="list-style-type: none"> • Si photodiode, 1.1 x 1.1 mm² active area • Ultra low noise, NEP 0.7 fW/√Hz • Amplifier transimpedance gain 1 x 10¹² V/A • Max. conversion gain 0.6 x 10¹² V/W @ 960 nm • Wavelength range 320 ... 1100 nm 		
Applications	<ul style="list-style-type: none"> • Fluorescence measurements • Spectroscopy • Electrophoresis • Replacement for photomultiplier tubes (PMTs) and avalanche photodiodes (APDs) 		
Specifications	Test conditions	$V_s = \pm 15 \text{ V}$, $T_A = 25^\circ\text{C}$ Warm-up 20 minutes (min. 10 minutes recommended)	
Gain	Amplifier transimpedance	1.0 x 10 ¹² V/A	(@ ≥ 100 kΩ load)
	Max. conversion gain	0.6 x 10 ¹² V/W	(@ 960 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	Si photodiode	
	Active area	1.1 x 1.1 mm ²	
	Spectral response	320 ... 1100 nm	
Input	Optical saturation power	18 pW (for linear amplification, @ 960 nm)	
	NEP	0.7 fW/√Hz (@ 960 nm, 1 Hz)	

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Specifications (continued)		
Output	Output voltage range	$\pm 10\text{ V}$ (@ $\geq 100\text{ k}\Omega$ load)
	Output impedance	$50\ \Omega$ (designed for $\geq 100\text{ k}\Omega$ load)
	Offset voltage	0 V, adjustable by offset potentiometer within $\pm 1.6\text{ V}$
	Max. output current	$\pm 25\text{ mA}$
	Output noise	ca. 40 mV_{pp} or 6 mV_{RMS} (@ $\geq 100\text{ k}\Omega$ load, no signal on detector)
Power Supply	Supply voltage	$\pm 15\text{ V}$
	Supply current	$\pm 15\text{ mA typ.}$ (depends on operating conditions, recommended power supply capability min. $\pm 50\text{ mA}$)
Case	Weight	190 g (0.42 lbs)
	Material	AlMg3/4.5Mn, nickel-plated
Temperature Range	Storage temperature	$-40 \dots +100\text{ }^\circ\text{C}$
	Operating temperature	$0 \dots +60\text{ }^\circ\text{C}$
Absolute Maximum Ratings	Optical input power	10 mW
	Power supply voltage	$\pm 22\text{ V}$



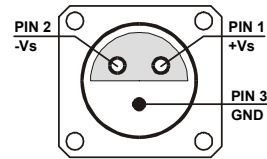
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Connectors

Input 25 mm round flange for free space applications
(fiber optic input available as customized unit)

Output BNC jack (female)

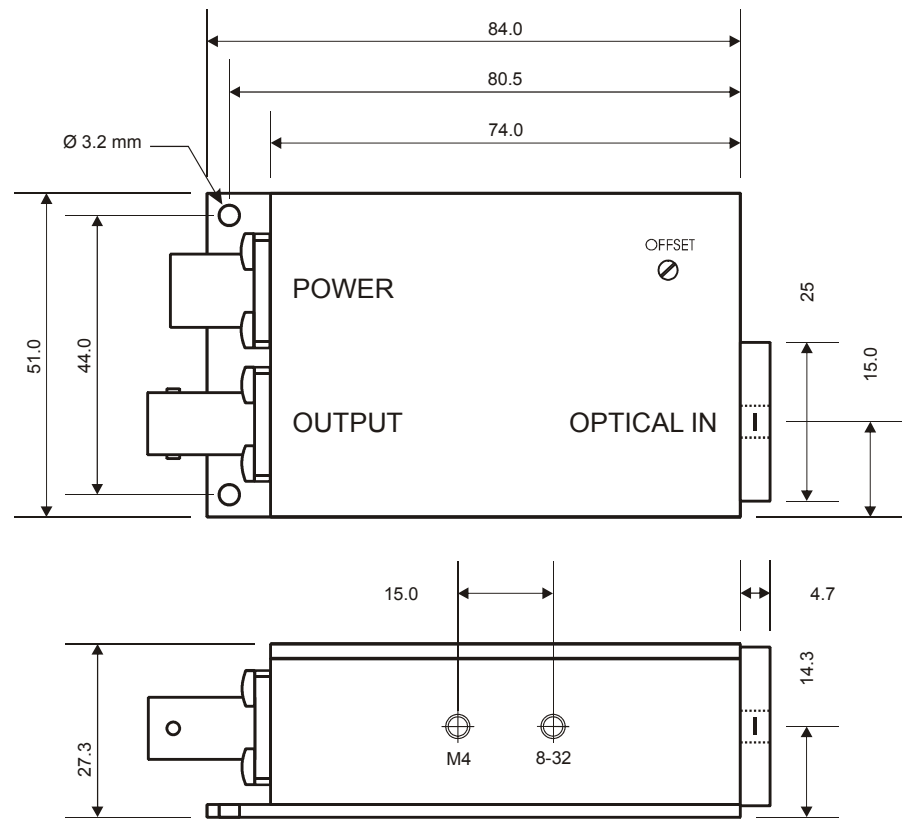
Power Supply Lemo® series 1S, 3-pin fixed socket
(Mating plug type: FFA.1S.303.CLAC52)
Pin 1: +15V
Pin 2: -15V
Pin 3: GND



Available Models

FWPR-20-SI-FS Free space input
FWPR-S Customized version available on request

Dimensions



all measures in mm unless otherwise noted