

Femtowatt Photoreceiver with Si Photodiode



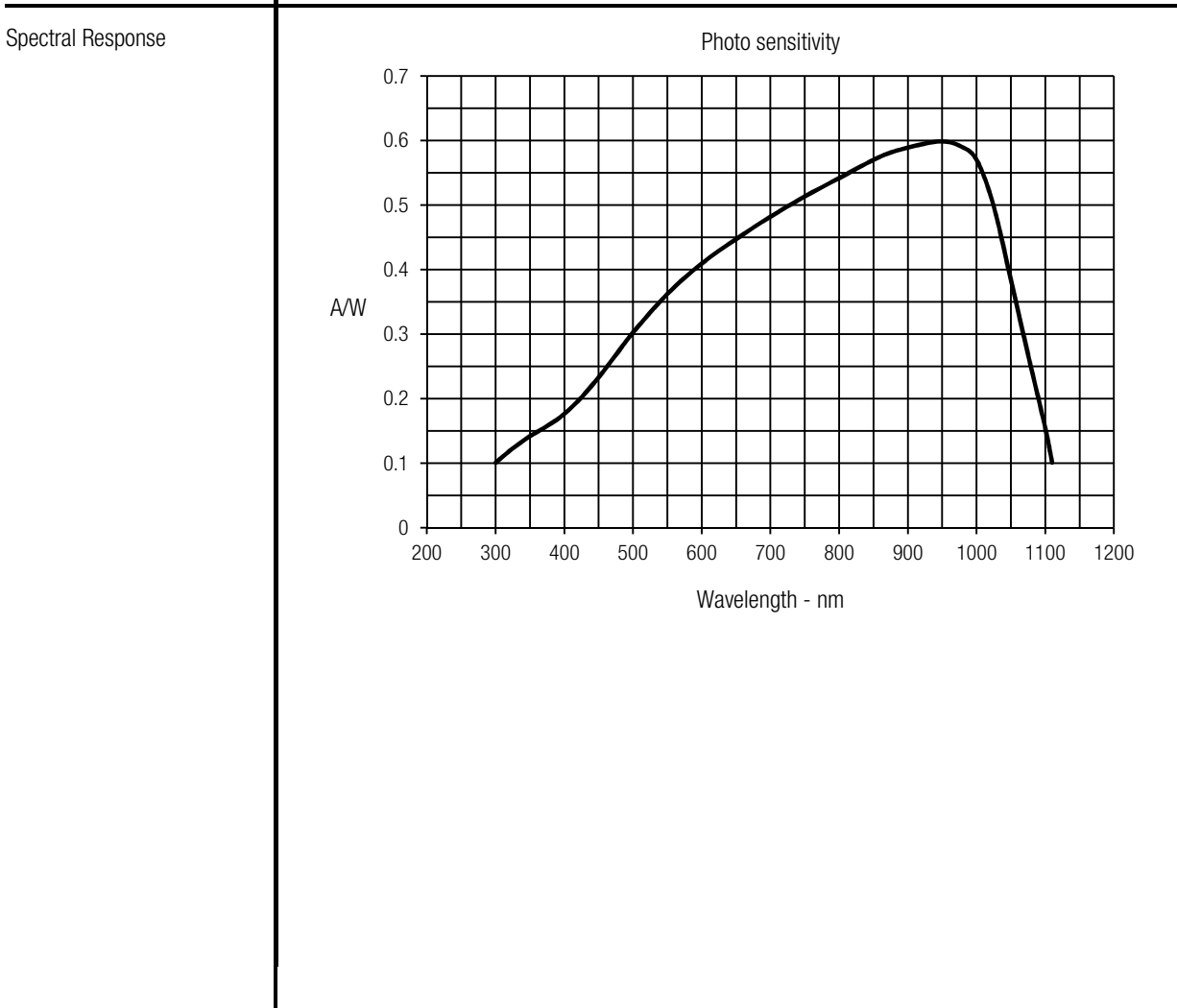
The photoreceiver will be delivered without post holder and post.

<p>Features</p>	<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 																											
<p>Applications</p>	<ul style="list-style-type: none"> • Fluorescence measurements • Spectroscopy • Electrophoresis • Replacement for photomultiplier tubes (PMTs) and avalanche photodiodes (APDs) 																											
<p>Specifications</p>	<table border="0"> <tr> <td>Test conditions</td> <td colspan="2">$V_s = \pm 15 \text{ V}$, $T_A = 25^\circ\text{C}$ Warm-up 20 minutes (min. 10 minutes recommended)</td> </tr> <tr> <td rowspan="2">Gain</td> <td>Amplifier transimpedance</td> <td>$1.0 \times 10^{12} \text{ V/A}$ (@ $\geq 100 \text{ k}\Omega$ load)</td> </tr> <tr> <td>Max. conversion gain</td> <td>$0.6 \times 10^{12} \text{ V/W}$ (@ 960 nm)</td> </tr> <tr> <td rowspan="3">Frequency Response</td> <td>Lower cut-off frequency</td> <td>DC</td> </tr> <tr> <td>Upper cut-off frequency (-3 dB)</td> <td>20 Hz ($\pm 20 \%$)</td> </tr> <tr> <td>Rise/fall time (10 % - 90 %)</td> <td>18 ms ($\pm 20 \%$)</td> </tr> <tr> <td rowspan="3">Detector</td> <td>Detector material</td> <td>Si photodiode</td> </tr> <tr> <td>Active area</td> <td>$1.1 \times 1.1 \text{ mm}^2$</td> </tr> <tr> <td>Spectral response</td> <td>320 ... 1100 nm</td> </tr> <tr> <td rowspan="2">Input</td> <td>Optical saturation power</td> <td>18 pW (for linear amplification, @ 960 nm)</td> </tr> <tr> <td>NEP</td> <td>0.7 fW/√Hz (@ 960 nm, 1 Hz)</td> </tr> </table>	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	$1.0 \times 10^{12} \text{ V/A}$ (@ $\geq 100 \text{ k}\Omega$ load)	Max. conversion gain	$0.6 \times 10^{12} \text{ V/W}$ (@ 960 nm)	Frequency Response	Lower cut-off frequency	DC	Upper cut-off frequency (-3 dB)	20 Hz ($\pm 20 \%$)	Rise/fall time (10 % - 90 %)	18 ms ($\pm 20 \%$)	Detector	Detector material	Si photodiode	Active area	$1.1 \times 1.1 \text{ mm}^2$	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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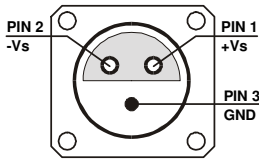
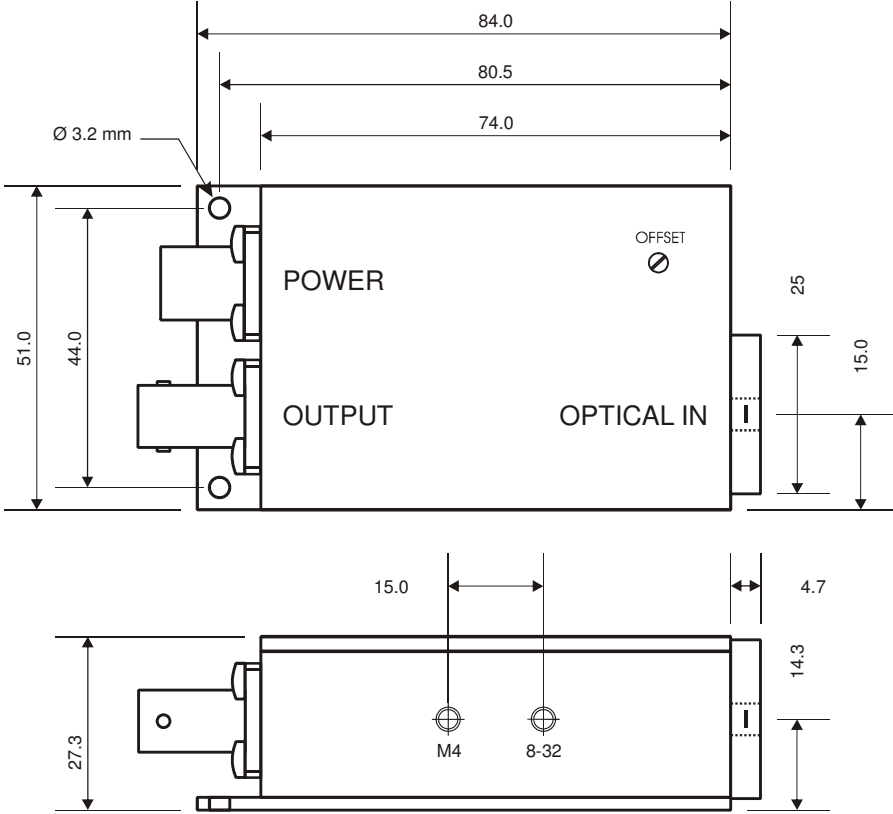
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Specifications (continued)	
Output	Output voltage range ± 10 V (@ ≥ 100 k Ω load) Output impedance 50 Ω (designed for ≥ 100 k Ω load) Offset voltage 0 V, adjustable by offset potentiometer within ± 1.6 V Max. output current ± 25 mA Output noise ca. 40 mV _{pp} or 6 mV _{RMS} (@ ≥ 100 k Ω 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 $-40 \dots +100$ $^{\circ}\text{C}$ Operating temperature $0 \dots +60$ $^{\circ}\text{C}$

Absolute Maximum Ratings	Optical input power 10 mW Power supply voltage ± 22 V
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<p>Connectors</p>	<p>Input 25 mm round flange for free space applications (fiber optic input available as customized unit)</p> <p>Output BNC jack (female)</p> <p>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</p> 
<p>Available Models</p>	<p>FWPR-20-SI-FS Free space input FWPR-S Customized version available on request</p>
<p>Dimensions</p>	 <p>all measures in mm unless otherwise noted</p>

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