

# Femtowatt Photoreceiver with Si Photodiode



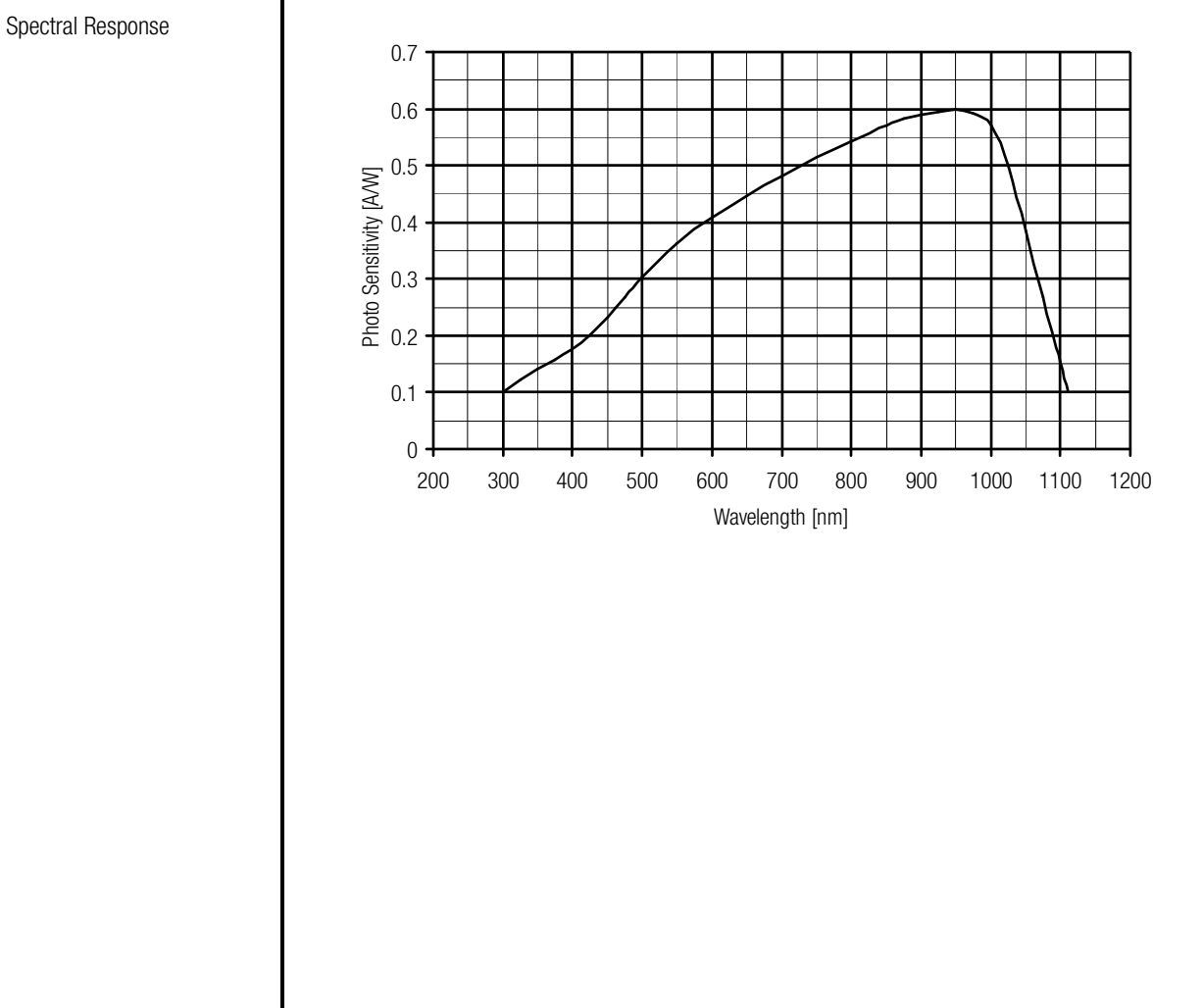
The photoreceiver will be delivered without post holder and post.

<p>Features</p>	<ul style="list-style-type: none"> <li>• <b>Si Photodiode, 1.1 x 1.1 mm<sup>2</sup> Active Area</b></li> <li>• <b>Ultra Low Noise, Minimum NEP 0.7 fW/√Hz</b></li> <li>• <b>Amplifier Transimpedance Gain 1 x 10<sup>12</sup> V/A</b></li> <li>• <b>Max. Conversion Gain 0.6 x 10<sup>12</sup> V/W @ 960 nm</b></li> <li>• <b>Wavelength Range 320 ... 1100 nm</b></li> </ul>																																										
<p>Applications</p>	<ul style="list-style-type: none"> <li>• <b>Fluorescence Measurements</b></li> <li>• <b>Spectroscopy</b></li> <li>• <b>Electrophoresis</b></li> <li>• <b>Replacement for Photomultiplier Tubes (PMTs) and Avalanche Photodiodes (APDs)</b></li> </ul>																																										
<p>Specifications</p>	<p><i>Test Conditions</i> <span style="float: right;"><i>V<sub>s</sub> = ± 15 V, T<sub>a</sub> = 25°C</i></span>  <span style="float: right;"><i>Warm-up 20 minutes (min. 10 minutes recommended)</i></span></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Gain</td> <td style="width: 30%;">Transimpedance</td> <td style="width: 20%;">1.0 x 10<sup>12</sup> V/A</td> <td style="width: 30%;">(@ ≥ 1 MΩ load)</td> </tr> <tr> <td></td> <td>Max. Conversion Gain</td> <td>0.6 x 10<sup>12</sup> V/W</td> <td>(@ 960 nm)</td> </tr> <tr> <td>Frequency Response</td> <td>Lower Cut-Off Frequency</td> <td>DC</td> <td></td> </tr> <tr> <td></td> <td>Upper Cut-Off Frequency (- 3 dB)</td> <td>20 Hz</td> <td></td> </tr> <tr> <td></td> <td>Rise/Fall Time (10% - 90%)</td> <td>18 ms</td> <td></td> </tr> <tr> <td>Detector</td> <td>Detector Material</td> <td>Si photodiode</td> <td></td> </tr> <tr> <td></td> <td>Active Area</td> <td>1.1 x 1.1 mm<sup>2</sup></td> <td></td> </tr> <tr> <td></td> <td>Spectral Response</td> <td>320 ... 1100 nm</td> <td></td> </tr> <tr> <td>Input</td> <td>Optical Saturation Power</td> <td>18 pW (for linear amplification, @ 960 nm)</td> <td></td> </tr> <tr> <td></td> <td>Min. NEP</td> <td>0.7 fW/√Hz</td> <td>(@ 960 nm, 1 Hz)</td> </tr> </table>			Gain	Transimpedance	1.0 x 10 <sup>12</sup> V/A	(@ ≥ 1 MΩ load)		Max. Conversion Gain	0.6 x 10 <sup>12</sup> V/W	(@ 960 nm)	Frequency Response	Lower Cut-Off Frequency	DC			Upper Cut-Off Frequency (- 3 dB)	20 Hz			Rise/Fall Time (10% - 90%)	18 ms		Detector	Detector Material	Si photodiode			Active Area	1.1 x 1.1 mm <sup>2</sup>			Spectral Response	320 ... 1100 nm		Input	Optical Saturation Power	18 pW (for linear amplification, @ 960 nm)			Min. NEP	0.7 fW/√Hz	(@ 960 nm, 1 Hz)
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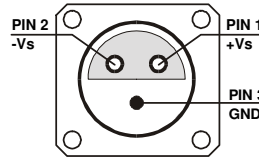
Specifications (continued)	
Output	Output Voltage Range $\pm 10\text{ V}$ ( $@ \geq 1\text{ M}\Omega$ load) Output Impedance $50\ \Omega$ (designed for $\geq 1\text{ M}\Omega$ load) Offset Voltage $0\text{ V}$ , adjustable by offset trimpot within $\pm 1.6\text{ V}$ Max. Output Current $\pm 25\text{ mA}$ Output Noise                        ca. $40\text{ mV}$ peak-peak or $6\text{ mV rms}$ ( $@ \geq 1\text{ M}\Omega$ 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 minimum $\pm 50\text{ mA}$ )
Case	Weight $190\text{ g}$ ( $0.42\text{ lbs}$ ) Material                                AlMg4.5Mn, 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 $10\text{ mW}$ Power Supply Voltage $\pm 22\text{ V}$
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## Femtowatt Photoreceiver with Si Photodiode

Connectors	Input	25 mm round flange for free space applications (fiber optic input available as customized unit)
	Output	BNC
	Power Supply	LEMO series 1S, 3-pin fixed socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND



Available Models	FWPR-20-SI-FS FWPR-S	free space input customized version available on request
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Dimensions	<p style="text-align: center;">all measures in mm unless otherwise noted      DZ-HCA-S-FS_R2</p>	
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