



Datasheet

FWPR-20-IN

Femtowatt Photoreceiver with InGaAs PIN Photodiode



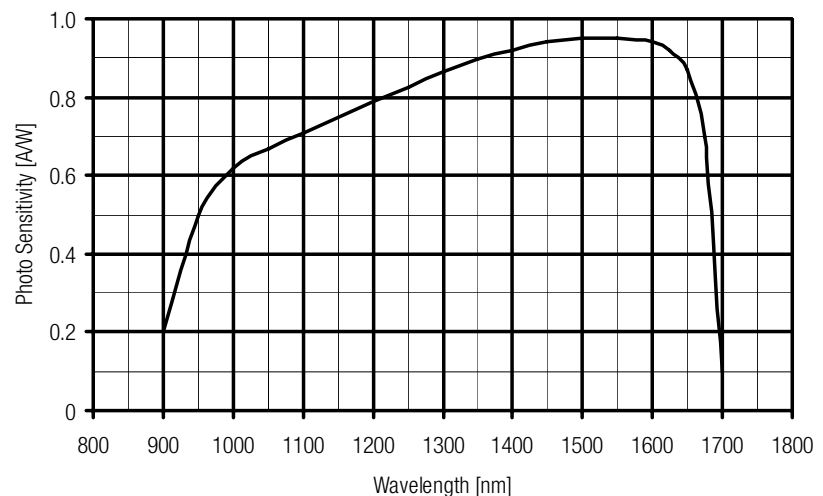
The photoreceiver will be delivered without post holder and post.

Features	<ul style="list-style-type: none"> • InGaAs PIN Photodiode, 0.5 mm Active Diameter • Ultra Low Noise, Minimum NEP 7.5 fW/√Hz • Amplifier Transimpedance Gain 1 x 10¹¹ V/A • Max. Conversion Gain 0.95 x 10¹¹ V/W @ 1550 nm • Wavelength Range 900 ... 1700 nm 																																				
Applications	<ul style="list-style-type: none"> • Fluorescence Measurements • NIR Spectroscopy • Electrophoresis • Replacement for (Liquid Nitrogen) Cooled Ge Photodiodes and Avalanche Photodiodes (APDs) 																																				
Specifications	<p><i>Test Conditions</i> <i>Vs = ± 15 V, Ta = 25°C</i></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 10¹¹ V/A</td> <td style="width: 30%;">(@ ≥ 1 MΩ load)</td> </tr> <tr> <td></td> <td>Max. Conversion Gain</td> <td>0.95 x 10¹¹ V/W</td> <td>(@ 1550 nm)</td> </tr> <tr> <td rowspan="3">Frequency Response</td> <td>Lower Cut-Off Frequency</td> <td>DC</td> <td></td> </tr> <tr> <td>Upper Cut-Off Frequency (- 3 dB)</td> <td>20 Hz</td> <td></td> </tr> <tr> <td>Rise/Fall Time (10% - 90%)</td> <td>18 ms</td> <td></td> </tr> <tr> <td rowspan="3">Detector</td> <td>Detector Material</td> <td colspan="2">InGaAs PIN Photodiode</td> </tr> <tr> <td>Active Area</td> <td colspan="2">∅ 0.5 mm</td> </tr> <tr> <td>Spectral Response</td> <td colspan="2">900 ... 1700 nm</td> </tr> <tr> <td rowspan="2">Input</td> <td>Optical Saturation Power</td> <td colspan="2">110 pW (for linear amplification, @ 1550 nm)</td> </tr> <tr> <td>Min. NEP</td> <td>7.5 fW/√Hz</td> <td>(@ 1550 nm, 1 Hz)</td> </tr> </table>		Gain	Transimpedance	1.0 x 10 ¹¹ V/A	(@ ≥ 1 MΩ 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		Rise/Fall Time (10% - 90%)	18 ms		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)		Min. NEP	7.5 fW/√Hz	(@ 1550 nm, 1 Hz)
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Specifications (continued)		
Output	Output Voltage Range	± 10 V (@ ≥ 1 M Ω load)
	Output Impedance	50 Ω (designed for ≥ 1 M Ω load)
	Offset Voltage	0 V, adjustable by offset trimpot within ± 1.6 V
	Max. Output Current	± 25 mA
	Output Noise	ca. 20 mV peak-peak or 3 mV rms (@ ≥ 1 M 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 minimum ± 50 mA)
Case	Weight	190 g (0.42 lbs)
	Material	AlMg4.5Mn, 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

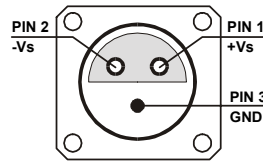


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Connectors	Input	25 mm round flange for free space applications (fiber optic input available as customized unit)
	Output	BNC
	Power Supply	LEMO series 1S, 3-pin fixed socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND



Available Models	FWPR-20-IN-FS FWPR-S	free space input customized version available on request
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Dimensions		
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