

200 MHz Photoreceiver with InGaAs PIN Photodiode



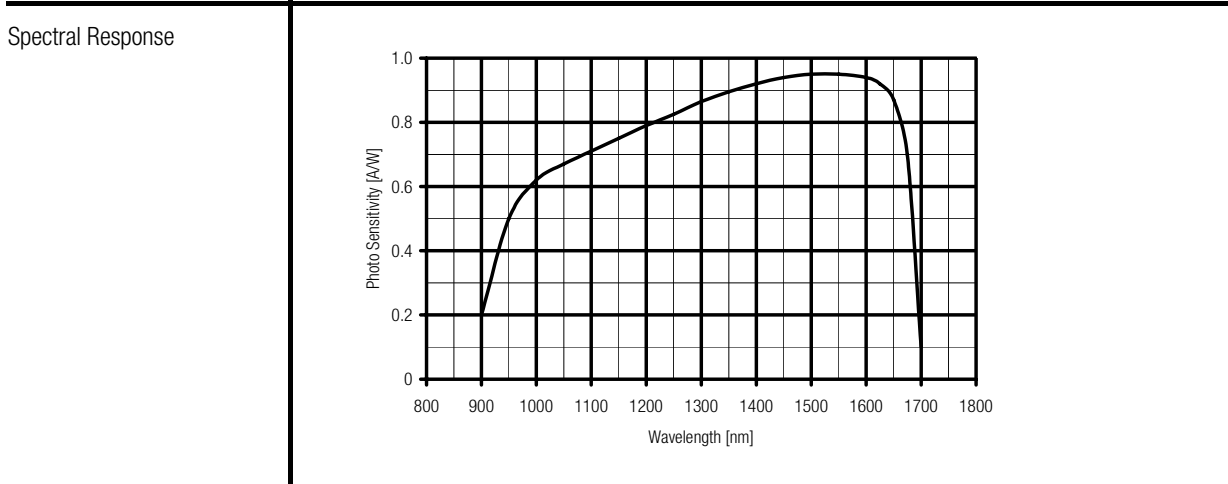
The picture shows the HCA-S-200M-IN-FS with free space input. The photoreceiver will be delivered without post holder and post.

Features	<ul style="list-style-type: none"> • InGaAs PIN Detector, 0.3 mm Active Diameter • Spectral Range 900 ... 1700 nm • Bandwidth DC ... 200 MHz • Amplifier Transimpedance (Gain) 2.0×10^4 V/A • Max. Conversion Gain 1.9×10^4 V/W @ 1550 nm 																															
Applications	<ul style="list-style-type: none"> • Spectroscopy • Fast Pulse and Transient Measurements • Optical Triggering • Optical Front-End for Oscilloscopes, A/D Converters and HF Lock-In Amplifiers 																															
Specifications	<table border="0"> <tr> <td colspan="2"><i>Test Conditions</i></td> <td>$V_s = \pm 15$ V, $T_a = 25^\circ$C</td> </tr> <tr> <td rowspan="2">Gain</td> <td>Transimpedance</td> <td>2.0×10^4 V/A (@ 50 Ω load)</td> </tr> <tr> <td>Max. Conversion Gain</td> <td>1.9×10^4 V/W (@ 1550 nm)</td> </tr> <tr> <td rowspan="4">Frequency Response</td> <td>Lower Cut-Off Frequency</td> <td>DC</td> </tr> <tr> <td>Upper Cut-Off Frequency (- 3 dB)</td> <td>200 MHz (± 10 %)</td> </tr> <tr> <td>Rise/Fall Time (10% - 90%)</td> <td>1.8 ns</td> </tr> <tr> <td>Gain Flatness</td> <td>± 1 dB</td> </tr> <tr> <td rowspan="3">Detector</td> <td>Detector Material</td> <td>InGaAs PIN photodiode</td> </tr> <tr> <td>Active Area</td> <td>\varnothing 0.3 mm</td> </tr> <tr> <td>Spectral Response</td> <td>900 ... 1700 nm</td> </tr> <tr> <td rowspan="3">Input</td> <td>Input Offset Compensation Range</td> <td>± 100 μA adjustable by offset trimpot</td> </tr> <tr> <td>Optical Saturation Power</td> <td>60 μW (for linear amplification, @ 1550 nm)</td> </tr> <tr> <td>Min. NEP</td> <td>4.9 pW/\sqrtHz (@ 1550 nm, 10 MHz)</td> </tr> </table>	<i>Test Conditions</i>		$V_s = \pm 15$ V, $T_a = 25^\circ$ C	Gain	Transimpedance	2.0×10^4 V/A (@ 50 Ω load)	Max. Conversion Gain	1.9×10^4 V/W (@ 1550 nm)	Frequency Response	Lower Cut-Off Frequency	DC	Upper Cut-Off Frequency (- 3 dB)	200 MHz (± 10 %)	Rise/Fall Time (10% - 90%)	1.8 ns	Gain Flatness	± 1 dB	Detector	Detector Material	InGaAs PIN photodiode	Active Area	\varnothing 0.3 mm	Spectral Response	900 ... 1700 nm	Input	Input Offset Compensation Range	± 100 μ A adjustable by offset trimpot	Optical Saturation Power	60 μ W (for linear amplification, @ 1550 nm)	Min. NEP	4.9 pW/ \sqrt Hz (@ 1550 nm, 10 MHz)
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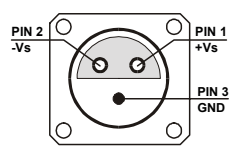
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Specifications (continued)	
Output	Output Voltage Range $\pm 1.2\text{ V}$ (@ 50 Ω load) for linear operation and low harmonic distortion Max. Output Voltage Range $\pm 1.7\text{ V}$ (@ 50 Ω load) Output Impedance 50 Ω (designed for 50 Ω load) Output Noise ca. 20 mV peak-peak or 3 mV rms (@ 50 Ω load, no signal on detector)
Power Supply	Supply Voltage $\pm 15\text{ V}$ Supply Current $\pm 60\text{ mA typ.}$ (depends on operating conditions, recommended power supply capability minimum $\pm 150\text{ mA}$)
Case	Weight 210 g (0.5 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 $\pm 22\text{ V}$
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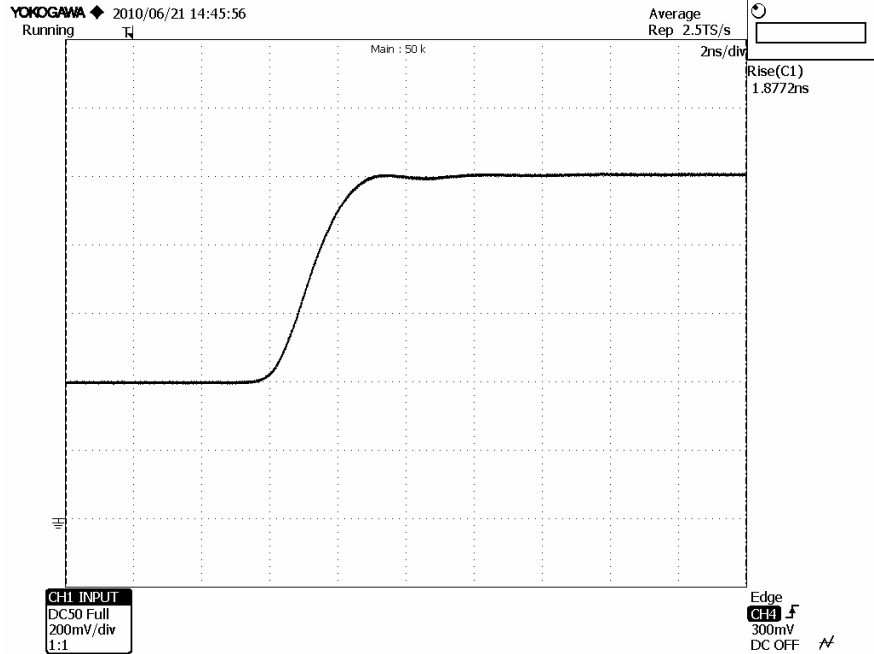
Connectors	Input HCA-S-200M-IN-FS 25 mm round flange for free space applications HCA-S-200M-IN-FC FC fiber optic receptacle Output BNC Power Supply LEMO series 1S, 3-pin fixed socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND
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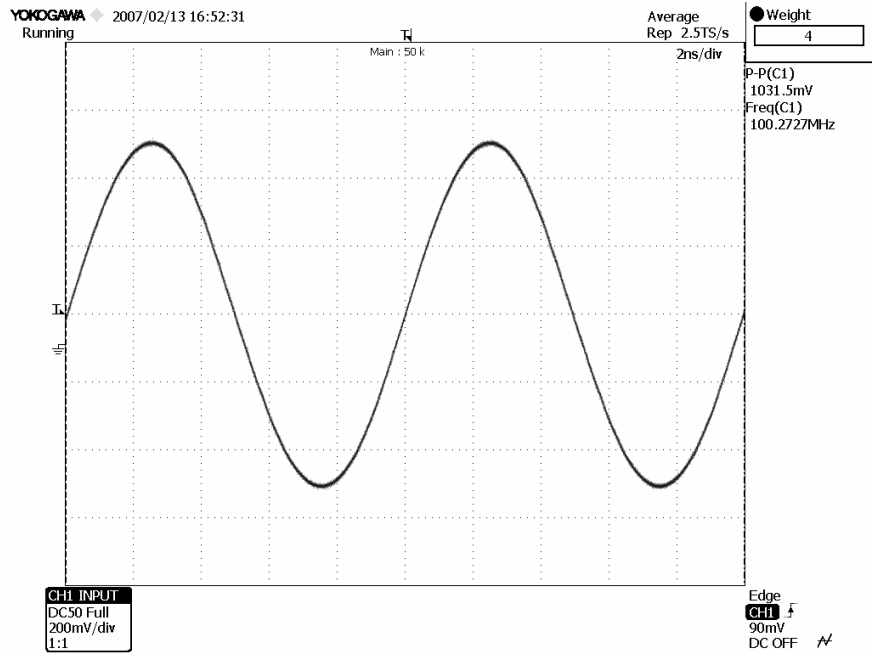
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Typical Performance Characteristics (continued)

Pulse Response to Square Wave Input Signal (with 16 times averaging)



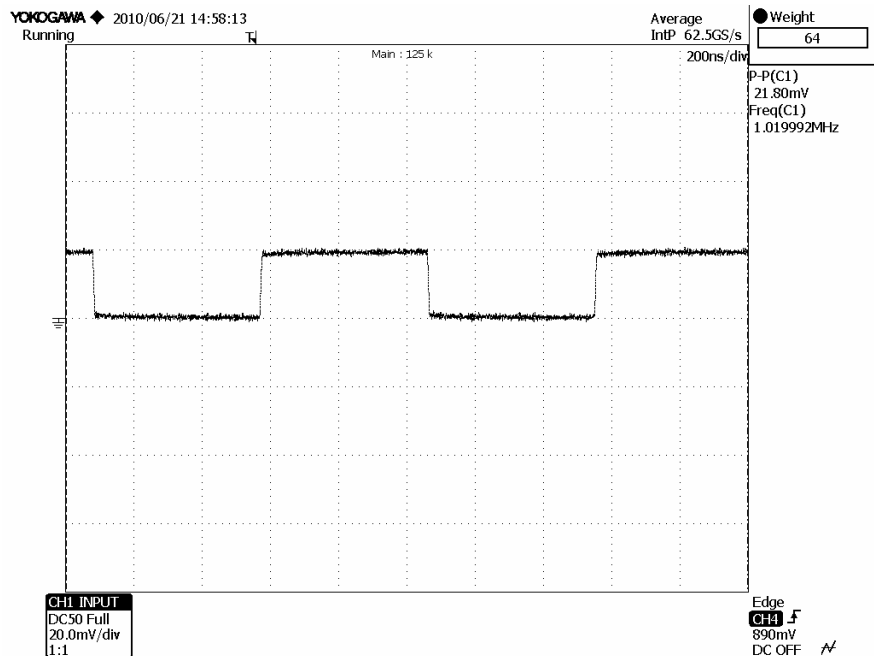
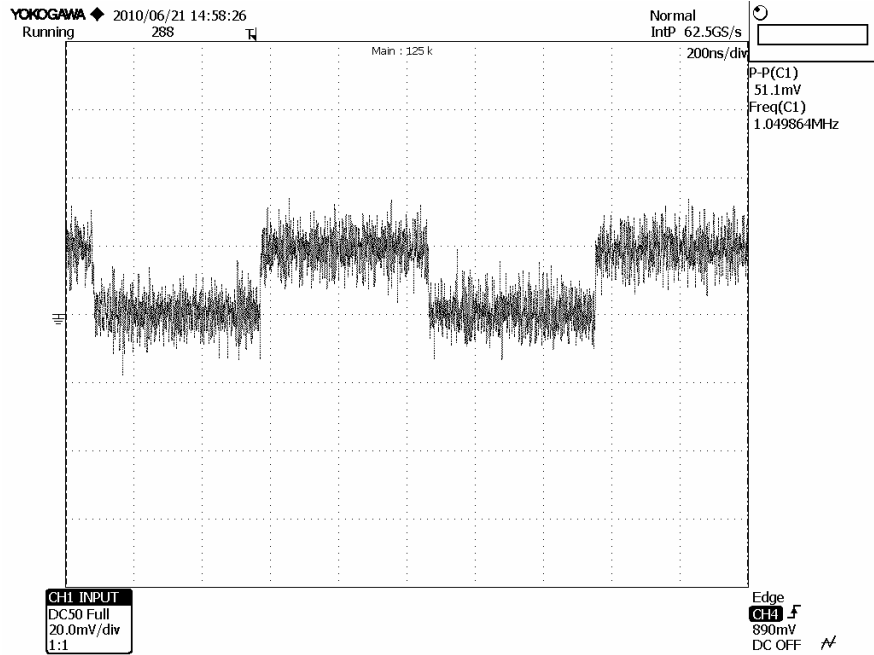
Large Signal Response
output signal for 100 MHz, 55 μ W modulated optical input signal (with 4 times averaging)



200 MHz Photoreceiver with InGaAs PIN Photodiode

Typical Performance Characteristics (continued)

Small Signal Response
output signal for 1.2 μW modulated optical input signal, 1 MHz square wave (without (top) and with 64 times averaging (bottom))



Available Models

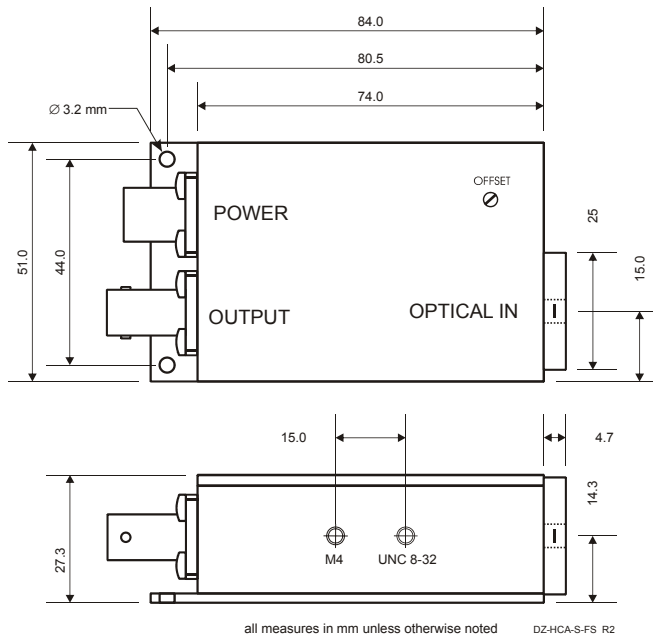
HCA-S-200M-IN-FS
HCA-S-200M-IN-FC
HCA-S

free space input
FC fiber optic receptacle
customized versions available on request

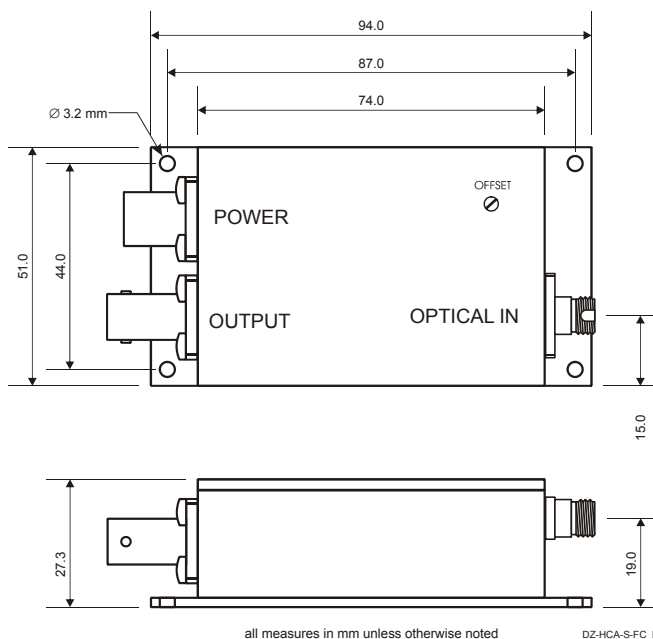
200 MHz Photoreceiver with InGaAs PIN Photodiode

Dimensions

HCA-S-200M-IN-FS



HCA-S-200M-IN-FC



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