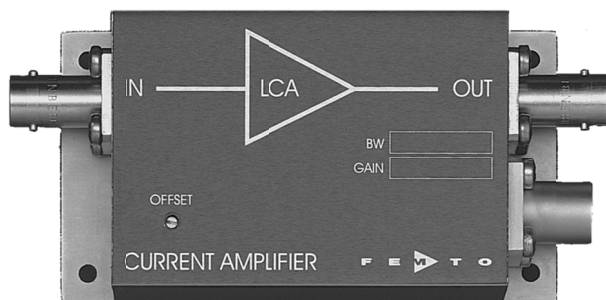


## Ultra-Low-Noise Current Amplifier



<p>Features</p>	<ul style="list-style-type: none"> <li>• <b>Bandwidth and Frequency Response Independent of Detector-Capacitance (up to 10 nF)</b></li> <li>• <b>Extremely Low Noise, 0.5 fA/√Hz Equivalent Input Noise Current</b></li> <li>• <b>Bandwidth DC ... 30 Hz</b></li> <li>• <b>Transimpedance (Gain) 2 x 10<sup>11</sup> V/A</b></li> </ul>																									
<p>Applications</p>	<ul style="list-style-type: none"> <li>• <b>Photodiode- and Photomultiplier-Amplifier</b></li> <li>• <b>Spectroscopy</b></li> <li>• <b>Charge-Amplifier</b></li> <li>• <b>Ionisation Detectors</b></li> <li>• <b>Preamplifier for Lock-Ins, A/D-Converters, etc.</b></li> </ul>																									
<p>Specifications</p>	<table border="0"> <tr> <td></td> <td><i>Test Conditions</i></td> <td><i>V<sub>s</sub> = ± 15 V, T<sub>a</sub> = 25°C Warm-up 20 minutes (min. 10 minutes recommended)</i></td> </tr> <tr> <td>Gain</td> <td>Transimpedance Accuracy</td> <td>2 x 10<sup>11</sup> V/A (&gt;10 kΩ Load) ± 1%</td> </tr> <tr> <td>Frequency Response</td> <td>Lower Cut-Off Frequency Upper Cut-Off Frequency Rise- / Fall-Time Gain Flatness</td> <td>DC 30 Hz (- 3 dB) 12 ms (10% - 90%) ± 0.1 dB</td> </tr> <tr> <td>Input</td> <td>Equ. Input Noise Current Equ. Input Noise Voltage Input Bias Current Input Bias Current Drift Offset Current Compensation Max. Input Current Input Offset Voltage DC Input Impedance</td> <td>0.5 fA/√Hz (@ 10 Hz) 90 nV/√Hz (@ 10 Hz) 20 fA typ. / 30 fA max. Factor 2 / 10 K ± 15 pA, Adjustable by Offset-Trimpot ± 50 pA (Linear Amplification) &lt; 0.5 mV 1 kΩ (Virtual) // 5 pF</td> </tr> <tr> <td>Output</td> <td>Output Voltage Output Impedance Max. Output Current</td> <td>± 10 V (&gt;10 kΩ Load) 50 Ω (Terminate with &gt;10 kΩ for best Performance) ± 10 mA (Linear Amplification)</td> </tr> <tr> <td>Power Supply</td> <td>Supply Voltage Supply Current</td> <td>± 15 V ± 15 mA typ.</td> </tr> <tr> <td>Case</td> <td>Weight Material</td> <td>210 gr. (0.5 lbs) AlMg4.5Mn, nickel-plated</td> </tr> <tr> <td>Temperature Range</td> <td>Storage Temperature Operating Temperature</td> <td>-40 ... +100 °C 0 ... +60 °C</td> </tr> </table>			<i>Test Conditions</i>	<i>V<sub>s</sub> = ± 15 V, T<sub>a</sub> = 25°C Warm-up 20 minutes (min. 10 minutes recommended)</i>	Gain	Transimpedance Accuracy	2 x 10 <sup>11</sup> V/A (>10 kΩ Load) ± 1%	Frequency Response	Lower Cut-Off Frequency Upper Cut-Off Frequency Rise- / Fall-Time Gain Flatness	DC 30 Hz (- 3 dB) 12 ms (10% - 90%) ± 0.1 dB	Input	Equ. Input Noise Current Equ. Input Noise Voltage Input Bias Current Input Bias Current Drift Offset Current Compensation Max. Input Current Input Offset Voltage DC Input Impedance	0.5 fA/√Hz (@ 10 Hz) 90 nV/√Hz (@ 10 Hz) 20 fA typ. / 30 fA max. Factor 2 / 10 K ± 15 pA, Adjustable by Offset-Trimpot ± 50 pA (Linear Amplification) < 0.5 mV 1 kΩ (Virtual) // 5 pF	Output	Output Voltage Output Impedance Max. Output Current	± 10 V (>10 kΩ Load) 50 Ω (Terminate with >10 kΩ for best Performance) ± 10 mA (Linear Amplification)	Power Supply	Supply Voltage Supply Current	± 15 V ± 15 mA typ.	Case	Weight Material	210 gr. (0.5 lbs) AlMg4.5Mn, nickel-plated	Temperature Range	Storage Temperature Operating Temperature	-40 ... +100 °C 0 ... +60 °C
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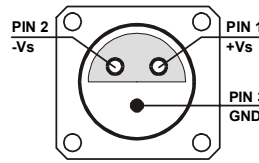
## Ultra-Low-Noise Current Amplifier

Absolute Maximum Ratings

Input Voltage	$\pm 10$ V
Power Supply Voltage	$\pm 22$ V

Connectors

Input	BNC
Output	BNC
Power Supply	LEMO Series 1S, 3-pin Fixed Socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND



Application Diagrams

Photo Detector Biasing in Photovoltaic Mode:  
Use for Low Speed Applications and Minimum Dark Current.

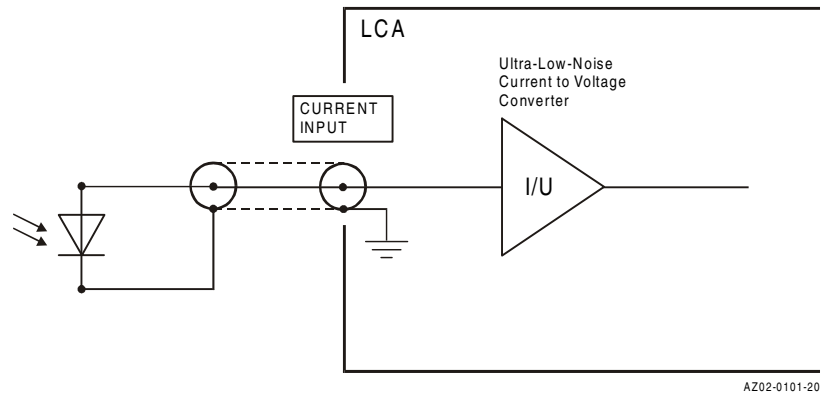
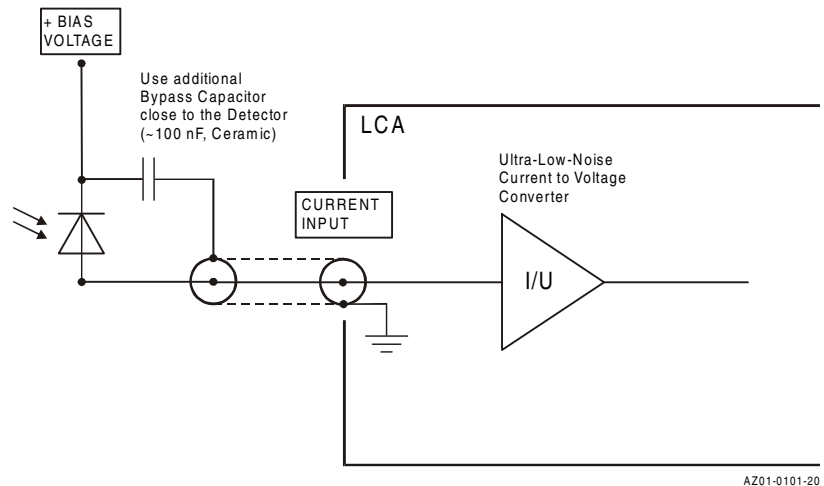
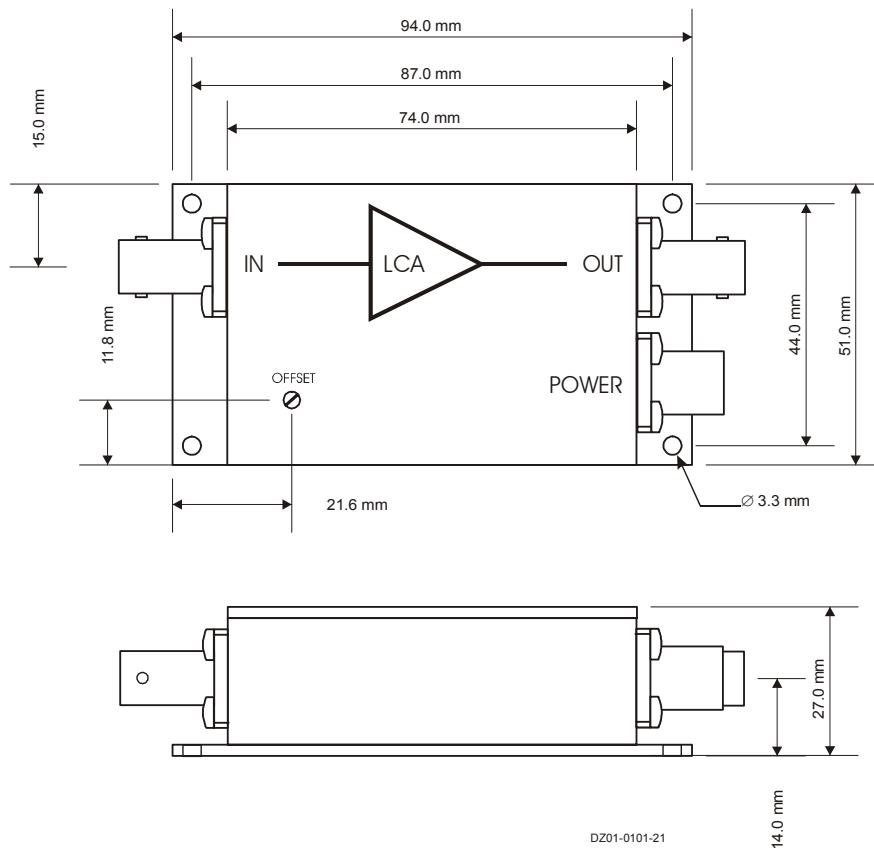


Photo Detector Biasing in Photoconductive Mode:  
Use for Fast Applications and if More Dark Current is Tolerable.  
Bias Voltage Decreases Detector Capacitance.



Ultra-Low-Noise Current Amplifier

Dimensions



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