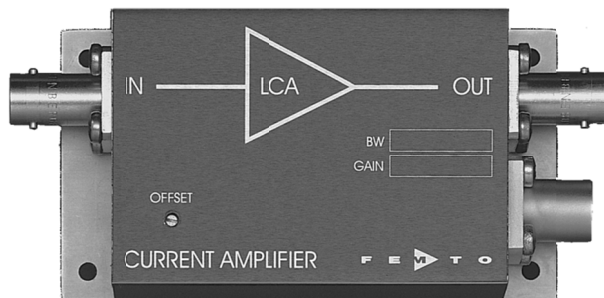


Ultra-Low-Noise Current Amplifier



Features	<ul style="list-style-type: none"> • Bandwidth and Frequency Response Independent of Detector-Capacitance (up to 10 nF) • Extremely Low Noise, 0.5 fA/√Hz Equivalent Input Noise Current • Bandwidth DC ... 30 Hz • Transimpedance (Gain) 1 x 10¹² V/A 																						
Applications	<ul style="list-style-type: none"> • Photodiode- and Photomultiplier-Amplifier • Spectroscopy • Charge-Amplifier • Ionisation Detectors • Preamplifier for Lock-Ins, A/D-Converters, etc. 																						
Specifications	<p><i>Test Conditions</i> <i>V_s = ± 15 V, T_a = 25°C</i> <i>Warm-up 20 minutes (min. 10 minutes recommended)</i></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 20%; vertical-align: top;">Gain</td> <td style="width: 50%;">Transimpedance Accuracy</td> <td style="width: 30%;">1 x 10¹² V/A (>10 kΩ Load) ± 1%</td> </tr> <tr> <td style="vertical-align: top;">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 style="vertical-align: top;">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 ± 3 pA, Adjustable by Offset-Trimpot ± 10 pA (Linear Amplification) < 0.5 mV 1 kΩ (Virtual) // 5 pF</td> </tr> <tr> <td style="vertical-align: top;">Output</td> <td>Output Voltage Output Impedance Max. Output Current</td> <td>± 10 V (>10 kΩ Load) 50 Ω (Terminate with >10 kΩ for best Performance) ± 10 mA (Linear Amplification)</td> </tr> <tr> <td style="vertical-align: top;">Power Supply</td> <td>Supply Voltage Supply Current</td> <td>± 15 V ± 15 mA typ.</td> </tr> <tr> <td style="vertical-align: top;">Case</td> <td>Weight Material</td> <td>210 gr. (0.5 lbs) AlMg4.5Mn, nickel-plated</td> </tr> <tr> <td style="vertical-align: top;">Temperature Range</td> <td>Storage Temperature Operating Temperature</td> <td>-40 ... +100 °C 0 ... +60 °C</td> </tr> </table>		Gain	Transimpedance Accuracy	1 x 10 ¹² 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 ± 3 pA, Adjustable by Offset-Trimpot ± 10 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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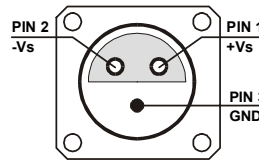
Ultra-Low-Noise Current Amplifier

Absolute Maximum Ratings

Input Voltage	± 10 V
Power Supply Voltage	± 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.

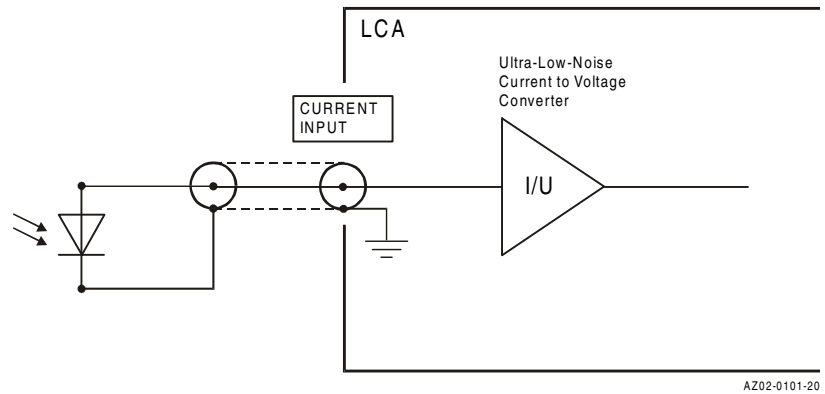
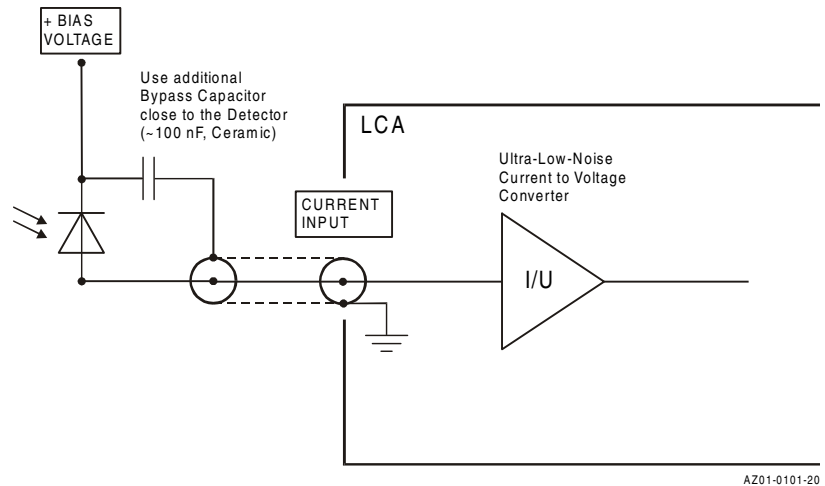
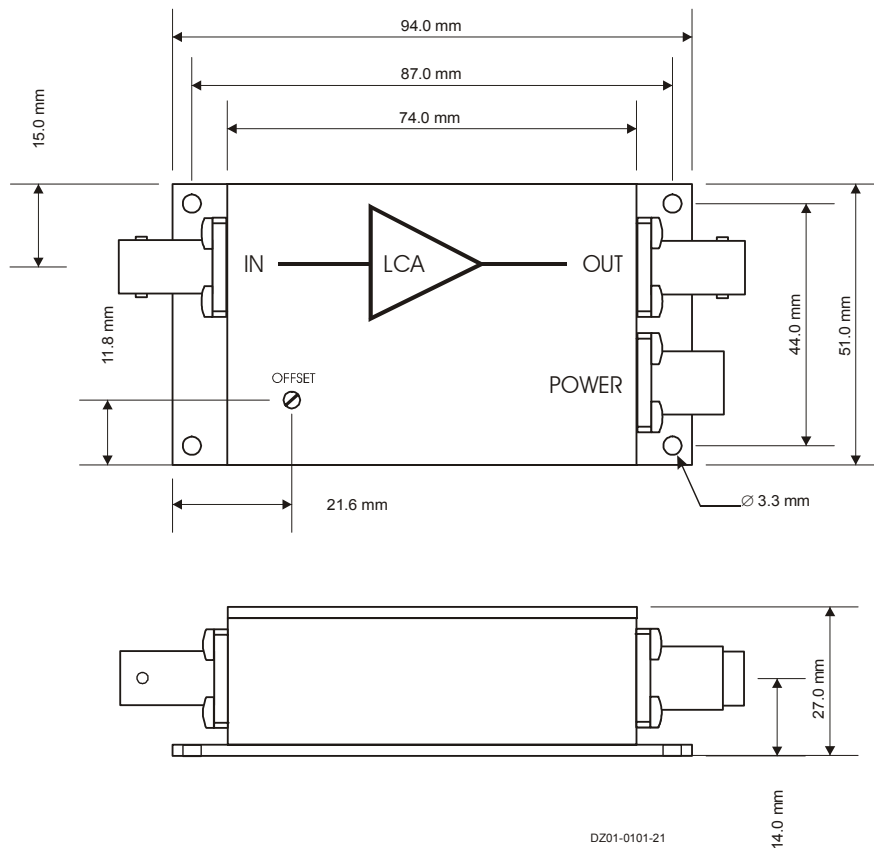


Photo Detector Biasing in Photoconductive Mode:
Use for Fast Applications and if More Dark Current is Tolerable.
Bias Voltage Decreases Detector Capacitance.



Ultra-Low-Noise Current Amplifier

Dimensions



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