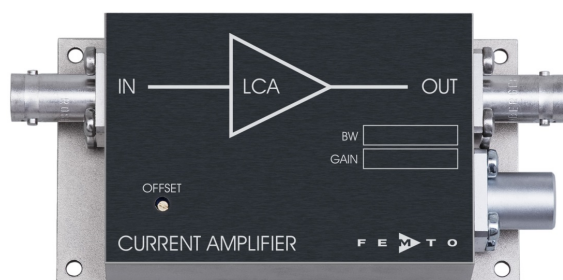


Ultra-Low-Noise Current Amplifier



<p>Features</p>	<ul style="list-style-type: none"> • Bandwidth and Frequency Response Independent of Detector-Capacitance (up to 10 nF) • Extremely Low Noise, 14 fA/√Hz Equivalent Input Noise Current • Bandwidth DC ... 20 kHz • Transimpedance (Gain) 2×10^8 V/A 																																																	
<p>Applications</p>	<ul style="list-style-type: none"> • Photodiode- and Photomultiplier-Amplifier • Spectroscopy • Charge-Amplifier • Ionisation Detectors • Preamplifier for Lock-Ins, A/D-Converters, etc. 																																																	
<p>Specifications</p>	<table border="0"> <tr> <td>Test Conditions</td> <td>$V_s = \pm 15$ V, $T_a = 25^\circ\text{C}$</td> </tr> <tr> <td>Gain</td> <td>Transimpedance 2×10^8 V/A (>10 kΩ Load)</td> </tr> <tr> <td></td> <td>Accuracy $\pm 1\%$</td> </tr> <tr> <td>Frequency Response</td> <td>Lower Cut-Off Frequency DC</td> </tr> <tr> <td></td> <td>Upper Cut-Off Frequency 20 kHz (- 3 dB)</td> </tr> <tr> <td></td> <td>Rise- / Fall-Time 20 μs (10% - 90%)</td> </tr> <tr> <td></td> <td>Gain Flatness ± 0.1 dB</td> </tr> <tr> <td>Input</td> <td>Equ. Input Noise Current 14 fA/√Hz (@ 10 kHz)</td> </tr> <tr> <td></td> <td>Equ. Input Noise Voltage 5 nV/√Hz (@ 10 kHz)</td> </tr> <tr> <td></td> <td>Input Bias Current 2 pA typ.</td> </tr> <tr> <td></td> <td>Input Bias Current Drift Factor 1.7 / 10 K</td> </tr> <tr> <td></td> <td>Offset Current Compensation ± 15 nA, Adjustable by Offset-Trimpot</td> </tr> <tr> <td></td> <td>Max. Input Current ± 50 nA (Linear Amplification)</td> </tr> <tr> <td></td> <td>Input Offset Voltage < 1 mV</td> </tr> <tr> <td></td> <td>DC Input Impedance 50 Ω (Virtual) // 5 pF</td> </tr> <tr> <td>Output</td> <td>Output Voltage ± 10 V (>10 kΩ Load)</td> </tr> <tr> <td></td> <td>Output Impedance 50 Ω (Terminate with >10 kΩ for best Performance)</td> </tr> <tr> <td></td> <td>Max. Output Current ± 10 mA (Linear Amplification)</td> </tr> <tr> <td>Power Supply</td> <td>Supply Voltage ± 15 V</td> </tr> <tr> <td></td> <td>Supply Current ± 40 mA typ.</td> </tr> <tr> <td>Case</td> <td>Weight 210 gr. (0.5 lbs)</td> </tr> <tr> <td></td> <td>Material AlMg4.5Mn, nickel-plated</td> </tr> <tr> <td>Temperature Range</td> <td>Storage Temperature $-40 \dots +100$ °C</td> </tr> <tr> <td></td> <td>Operating Temperature $0 \dots +60$ °C</td> </tr> </table>		Test Conditions	$V_s = \pm 15$ V, $T_a = 25^\circ\text{C}$	Gain	Transimpedance 2×10^8 V/A (>10 k Ω Load)		Accuracy $\pm 1\%$	Frequency Response	Lower Cut-Off Frequency DC		Upper Cut-Off Frequency 20 kHz (- 3 dB)		Rise- / Fall-Time 20 μs (10% - 90%)		Gain Flatness ± 0.1 dB	Input	Equ. Input Noise Current 14 fA/√Hz (@ 10 kHz)		Equ. Input Noise Voltage 5 nV/√Hz (@ 10 kHz)		Input Bias Current 2 pA typ.		Input Bias Current Drift Factor 1.7 / 10 K		Offset Current Compensation ± 15 nA, Adjustable by Offset-Trimpot		Max. Input Current ± 50 nA (Linear Amplification)		Input Offset Voltage < 1 mV		DC Input Impedance 50 Ω (Virtual) // 5 pF	Output	Output Voltage ± 10 V (>10 k Ω Load)		Output Impedance 50 Ω (Terminate with >10 k Ω for best Performance)		Max. Output Current ± 10 mA (Linear Amplification)	Power Supply	Supply Voltage ± 15 V		Supply Current ± 40 mA typ.	Case	Weight 210 gr. (0.5 lbs)		Material AlMg4.5Mn, nickel-plated	Temperature Range	Storage Temperature $-40 \dots +100$ °C		Operating Temperature $0 \dots +60$ °C
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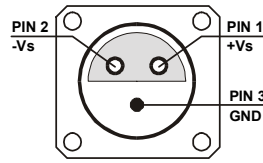
Ultra-Low-Noise Current Amplifier

Absolute Maximum Ratings

Input Voltage $\pm 5\text{ V}$
 Power Supply Voltage $\pm 22\text{ V}$

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 Photo voltaic Mode:
 Use for Low Speed Applications and Minimum Dark Current.

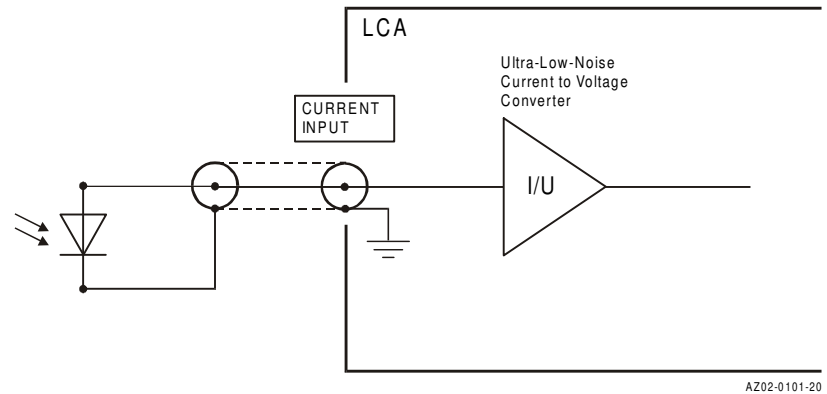
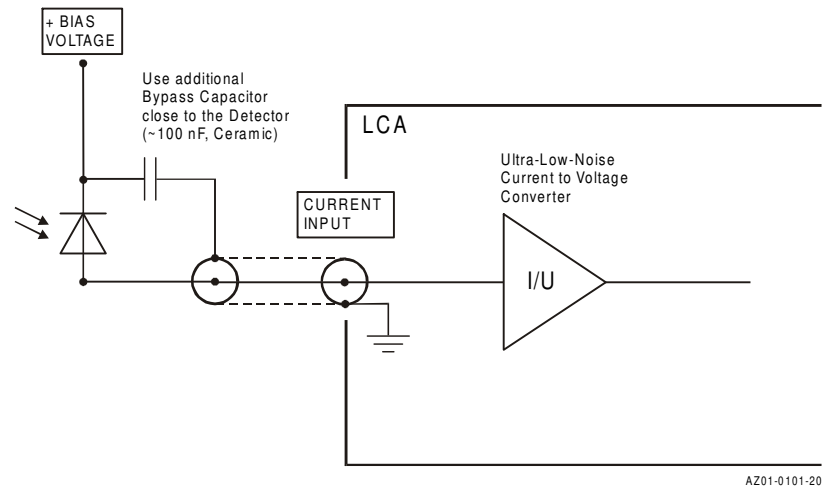
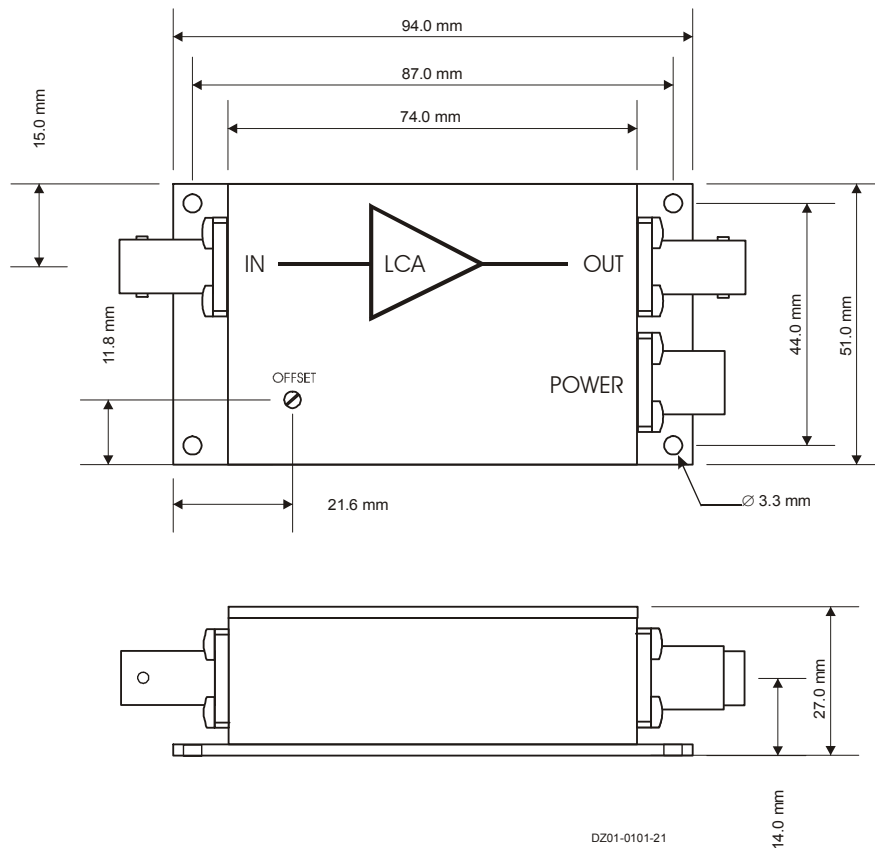


Photo Detector Biasing in Photoconductive Mode:
 Use for Fast Applications and if More Dark Current is Tolerable.
 Bias Voltage Decreases Detector Capacitance.



Ultra-Low-Noise Current Amplifier

Dimensions



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