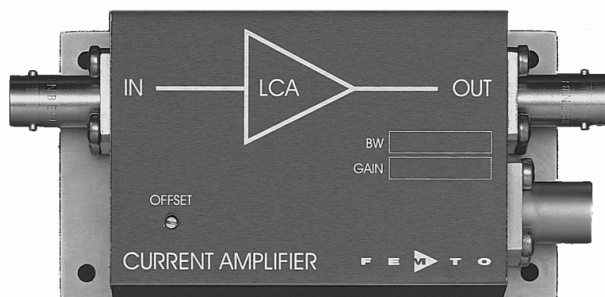




Datasheet

LCA-1K-5G

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, 3 fA/√Hz Equivalent Input Noise Current • Bandwidth DC ... 1 kHz • Transimpedance (Gain) 5 x 10⁹ 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></p> <p>Gain</p> <p>Frequency Response</p> <p>Input</p> <p>Output</p> <p>Power Supply</p> <p>Case</p> <p>Temperature Range</p>	<p><i>Vs = ± 15 V, Ta = 25°C</i></p> <p>Transimpedance 5 x 10⁹ V/A (>10 kΩ Load)</p> <p>Accuracy ± 1%</p> <p>Lower Cut-Off Frequency DC</p> <p>Upper Cut-Off Frequency 1 kHz (- 3 dB)</p> <p>Rise- / Fall-Time 400 μs (10% - 90%)</p> <p>Gain Flatness ± 0.1 dB</p> <p>Equ. Input Noise Current 3 fA/√Hz (@ 300 Hz)</p> <p>Equ. Input Noise Voltage 8 nV/√Hz (@ 300 Hz)</p> <p>Input Bias Current 2 pA typ.</p> <p>Input Bias Current Drift Factor 2.3 / 10 K</p> <p>Offset Current Compensation ± 600 pA, Adjustable by Offset-Trimpot</p> <p>Max. Input Current ± 2 nA (Linear Amplification)</p> <p>Input Offset Voltage < 1 mV</p> <p>DC Input Impedance 50 Ω (Virtual) // 5 pF</p> <p>Output Voltage ± 10 V (>10 kΩ Load)</p> <p>Output Impedance 50 Ω (Terminate with >10 kΩ for best Performance)</p> <p>Max. Output Current ± 10 mA (Linear Amplification)</p> <p>Supply Voltage ± 15 V</p> <p>Supply Current ± 45 mA typ.</p> <p>Weight 210 gr. (0.5 lbs)</p> <p>Material AlMg4.5Mn, nickel-plated</p> <p>Storage Temperature -40 ... +100 °C</p> <p>Operating Temperature 0 ... +60 °C</p>

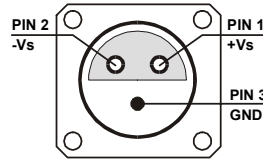
Ultra-Low-Noise Current Amplifier

Absolute Maximum Ratings

Input Voltage	$\pm 7\text{ V}$
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 Photovoltaic Mode:
Use for Low Speed Applications and Minimum Dark Current.

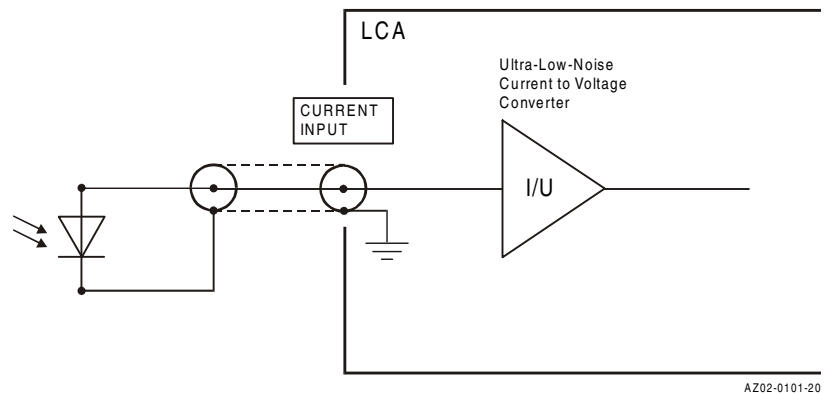
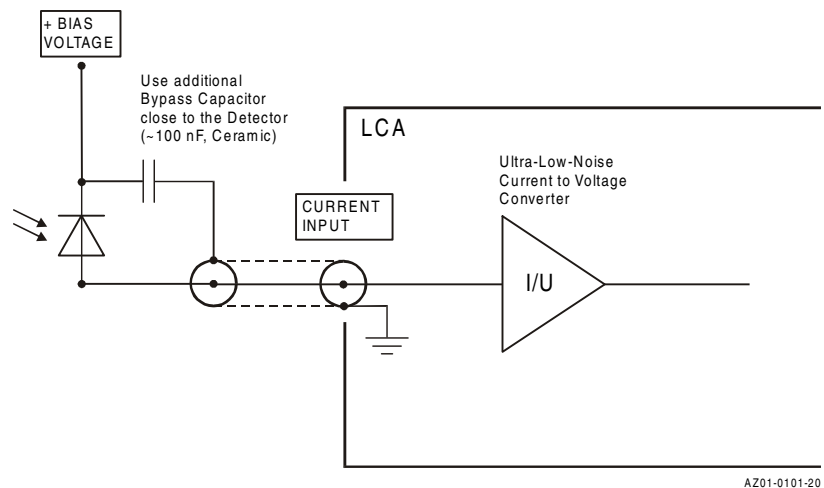
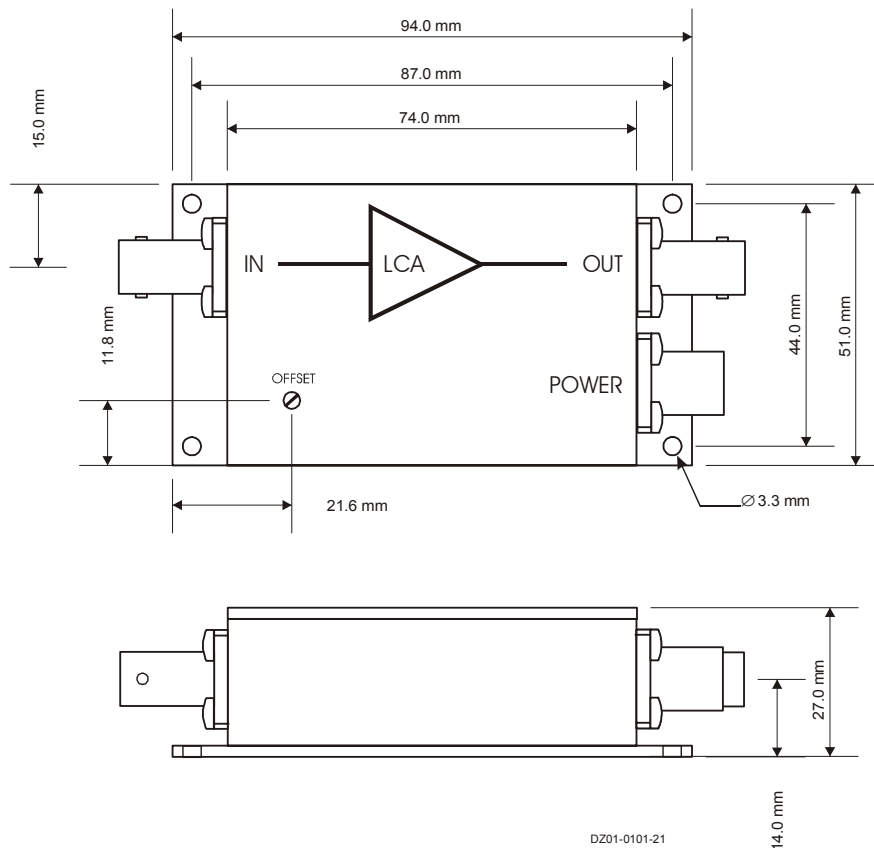


Photo Detector Biasing in Photoconductive Mode:
Use for Fast Applications and if More Dark Current is Tolerable.
Bias Voltage Decreases Detector Capacitance.



Ultra-Low-Noise Current Amplifier

Dimensions



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