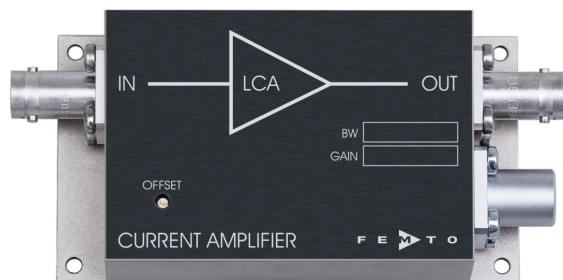


Ultra-Low-Noise Current Amplifier



Features	• Bandwidth and Frequency Response Independent of Detector-Capacitance (up to 10 nF) • Extremely Low Noise, 1.5 fA/√Hz Equivalent Input Noise Current • Bandwidth DC ... 200 Hz • Transimpedance (Gain) 1×10^{11} V/A	
Applications	• Photodiode- and Photomultiplier-Amplifier • Spectroscopy • Charge-Amplifier • Ionisation Detectors • Preamplifier for Lock-Ins, A/D-Converters, etc.	
Specifications	Test Conditions	$V_s = \pm 15$ V, $T_a = 25^\circ\text{C}$ Warm-up 20 minutes (min. 10 minutes recommended)
Gain	Transimpedance Accuracy	1×10^{11} V/A (>10 k Ω Load) $\pm 1\%$
Frequency Response	Lower Cut-Off Frequency Upper Cut-Off Frequency Rise- / Fall-Time Gain Flatness	DC 200 Hz (- 3 dB) 2 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	1.5 fA/√Hz (@ 10 Hz) 90 nV/√Hz (@ 10 Hz) 20 fA typ. / 30 fA max. Factor 2 / 10 K ± 30 pA, Adjustable by Offset-Trimpot ± 100 pA (Linear Amplification) < 0.5 mV 1 k Ω (Virtual) // 5 pF
Output	Output Voltage Output Impedance Max. Output Current	± 10 V (>10 k Ω Load) 50 Ω (Terminate with >10 k Ω 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 $^\circ\text{C}$ 0 ... +60 $^\circ\text{C}$

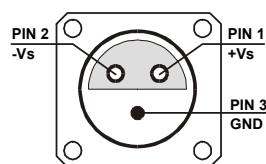
Ultra-Low-Noise Current Amplifier

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.

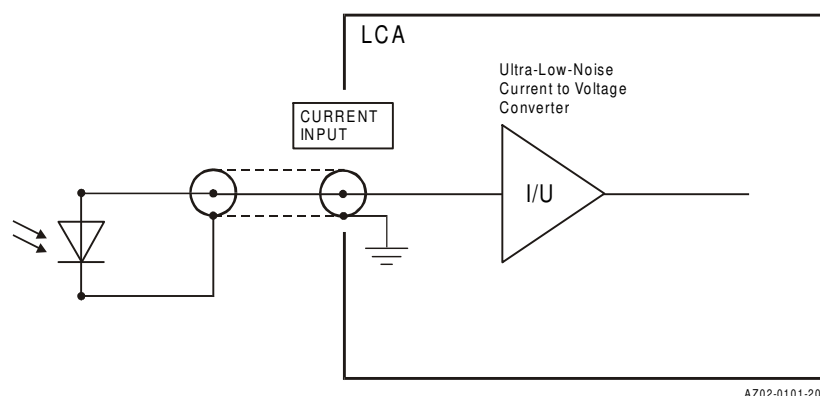
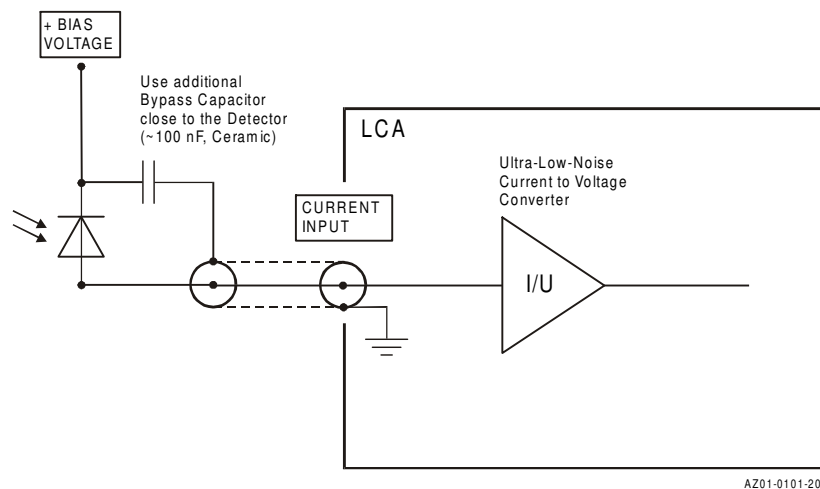
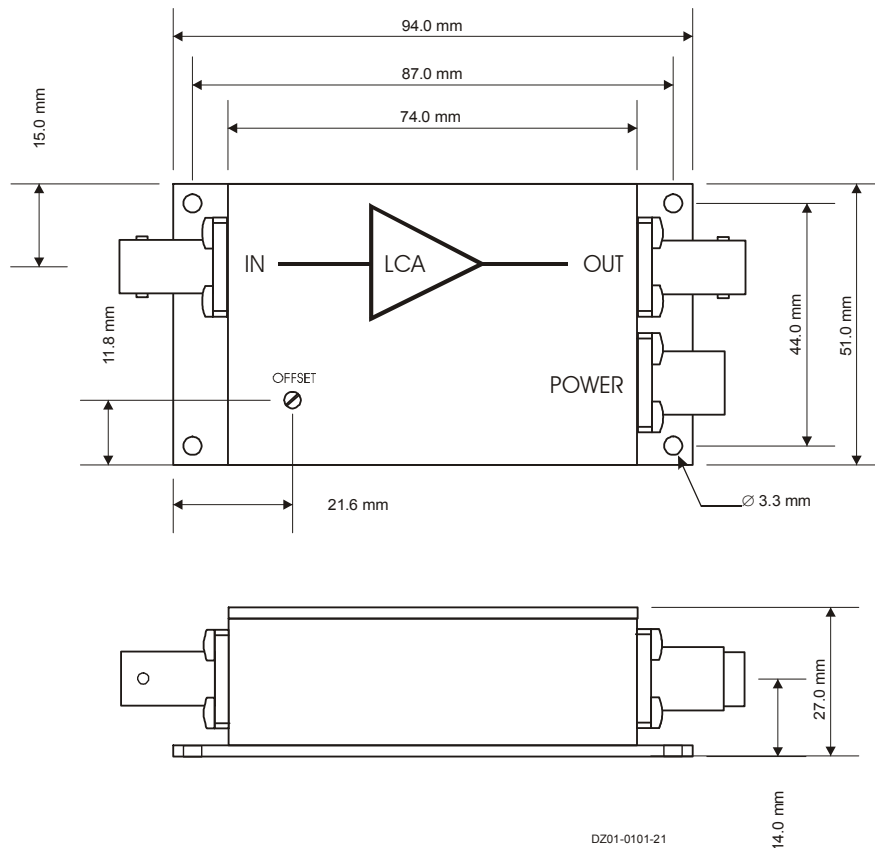


Photo Detector Biasing in Photoconductive Mode:
Use for Fast Applications and if More Dark Current is Tolerable.
Bias Voltage Decreases Detector Capacitance.



Ultra-Low-Noise Current Amplifier

Dimensions



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