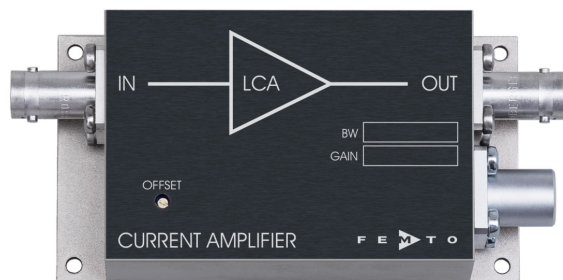


Ultra-Low-Noise Current Amplifier



Features	• Bandwidth and Frequency Response Independent of Detector-Capacitance (up to 10 nF) • Extremely Low Noise, 0.5 fA/$\sqrt{\text{Hz}}$ Equivalent Input Noise Current • Bandwidth DC ... 30 Hz • Transimpedance (Gain) 2×10^{11} V/A	
Applications	• Photodiode- and Photomultiplier-Amplifier • Spectroscopy • Charge-Amplifier • Ionisation Detectors • Preamplifier for Lock-Ins, A/D-Converters, etc.	
Specifications	Test Conditions	$V_s = \pm 15 \text{ V}$, $T_a = 25^\circ\text{C}$ Warm-up 20 minutes (min. 10 minutes recommended)
Gain	Transimpedance Accuracy	$2 \times 10^{11} \text{ V/A}$ ($>10 \text{ k}\Omega$ Load) $\pm 1\%$
Frequency Response	Lower Cut-Off Frequency Upper Cut-Off Frequency Rise- / Fall-Time Gain Flatness	DC 30 Hz (-3 dB) 12 ms (10% - 90%) $\pm 0.1 \text{ dB}$
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	$0.5 \text{ fA}/\sqrt{\text{Hz}}$ (@ 10 Hz) $90 \text{ nV}/\sqrt{\text{Hz}}$ (@ 10 Hz) 20 fA typ. / 30 fA max. Factor 2 / 10 K $\pm 15 \text{ pA}$, Adjustable by Offset-Trimpot $\pm 50 \text{ pA}$ (Linear Amplification) $< 0.5 \text{ mV}$ $1 \text{ k}\Omega$ (Virtual) // 5 pF
Output	Output Voltage Output Impedance Max. Output Current	$\pm 10 \text{ V}$ ($>10 \text{ k}\Omega$ Load) 50Ω (Terminate with $>10 \text{ k}\Omega$ for best Performance) $\pm 10 \text{ mA}$ (Linear Amplification)
Power Supply	Supply Voltage Supply Current	$\pm 15 \text{ V}$ $\pm 15 \text{ mA typ.}$
Case	Weight Material	210 gr. (0.5 lbs) AlMg4.5Mn, nickel-plated
Temperature Range	Storage Temperature Operating Temperature	$-40 \dots +100^\circ\text{C}$ $0 \dots +60^\circ\text{C}$

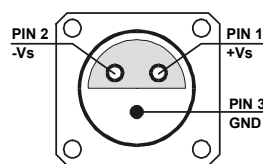
Ultra-Low-Noise Current Amplifier

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.

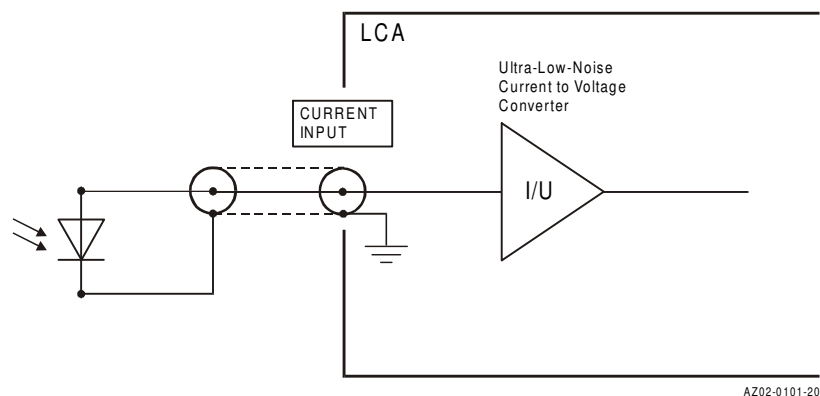
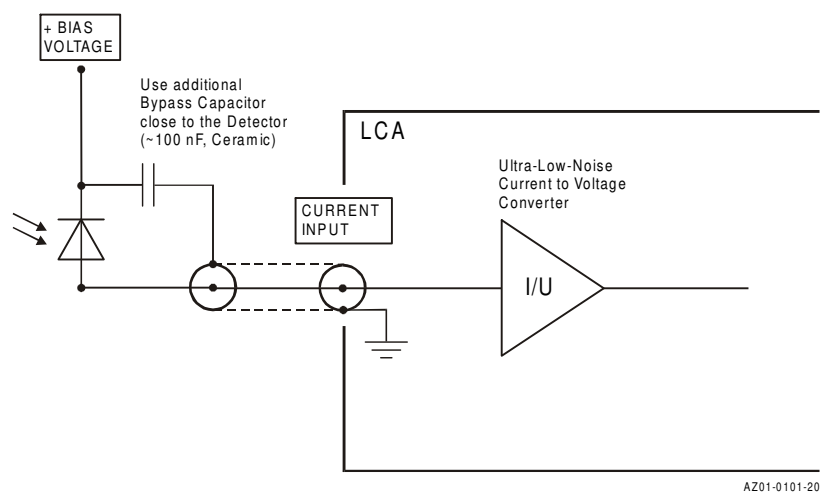
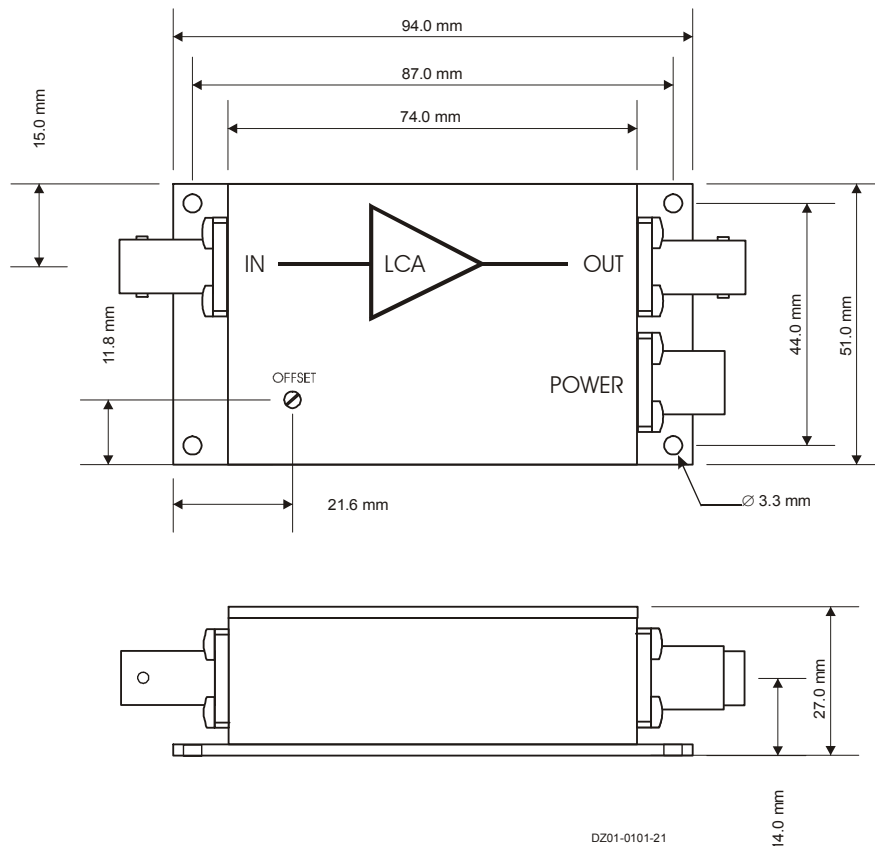


Photo Detector Biasing in Photoconductive Mode:
Use for Fast Applications and if More Dark Current is Tolerable.
Bias Voltage Decreases Detector Capacitance.



Ultra-Low-Noise Current Amplifier

Dimensions



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