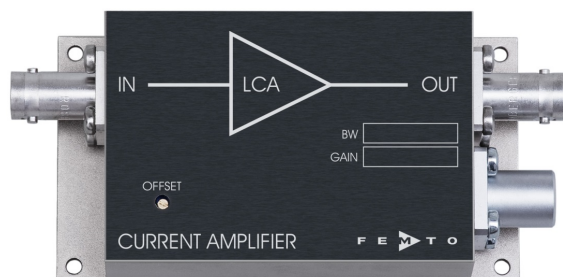


Ultra-Low-Noise Current Amplifier



Features	• Bandwidth and Frequency Response Independent of Detector-Capacitance (up to 10 nF) • Extremely Low Noise, 4.5 fA/√Hz Equivalent Input Noise Current • Bandwidth DC ... 2 kHz • Transimpedance (Gain) 2×10^9 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, $T_a = 25^\circ\text{C}$
Gain	Transimpedance	2×10^9 V/A (>10 k Ω Load)
	Accuracy	$\pm 1\%$
Frequency Response	Lower Cut-Off Frequency	DC
	Upper Cut-Off Frequency	2 kHz (- 3 dB)
	Rise- / Fall-Time	200 μs (10% - 90%)
	Gain Flatness	± 0.1 dB
Input	Equ. Input Noise Current	4.5 fA/√Hz (@ 300 Hz)
	Equ. Input Noise Voltage	8 nV/√Hz (@ 300 Hz)
	Input Bias Current	2 pA typ.
	Input Bias Current Drift	Factor 2.3 / 10 K
	Offset Current Compensation	± 1.5 nA, Adjustable by Offset-Trimpot
	Max. Input Current	± 5 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	± 45 mA typ.
Case	Weight	210 gr. (0.5 lbs)
	Material	AlMg4.5Mn, nickel-plated
Temperature Range	Storage Temperature	$-40 \dots +100^\circ\text{C}$
	Operating Temperature	$0 \dots +60^\circ\text{C}$

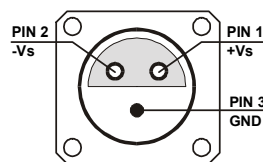
Ultra-Low-Noise Current Amplifier

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.

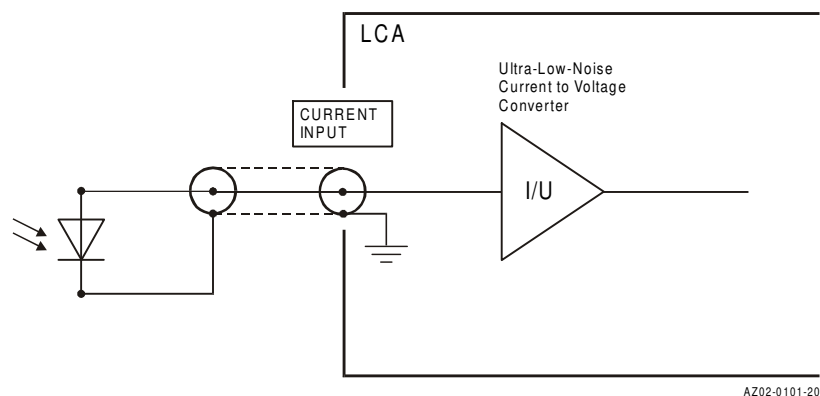
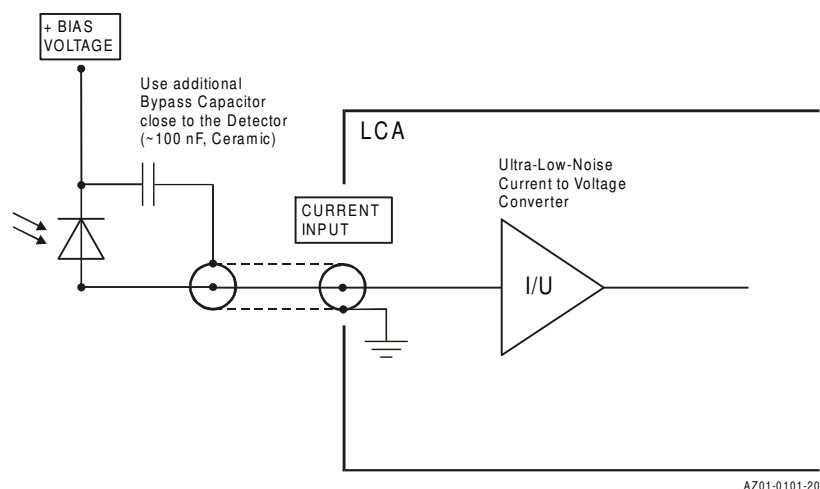
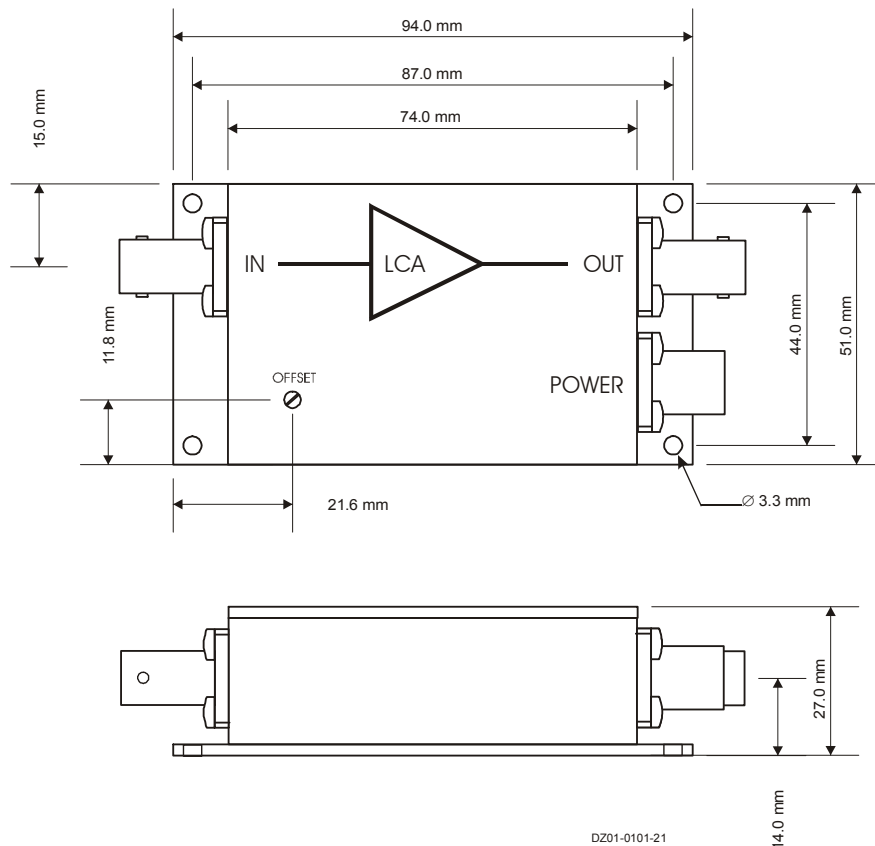


Photo Detector Biasing in Photoconductive Mode:
Use for Fast Applications and if More Dark Current is Tolerable.
Bias Voltage Decreases Detector Capacitance.



Ultra-Low-Noise Current Amplifier

Dimensions



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