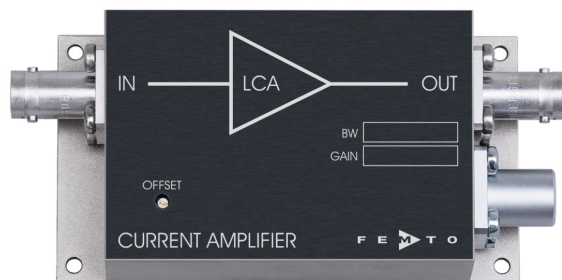


Ultra-Low-Noise Current Amplifier



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) 1×10^{12} 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	$1 \times 10^{12} \text{ V/A}$ ($>10 \text{ k}\Omega$ 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 $\pm 3 \text{ pA}$, Adjustable by Offset-Trimpot $\pm 10 \text{ pA}$ (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	$-40 \dots +100^\circ\text{C}$ $0 \dots +60^\circ\text{C}$

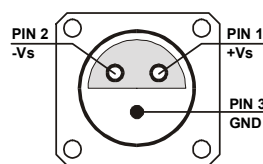
Ultra-Low-Noise Current Amplifier

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.

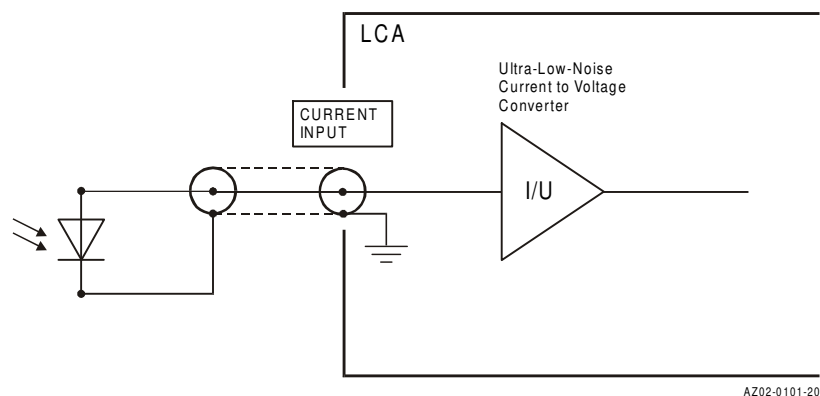
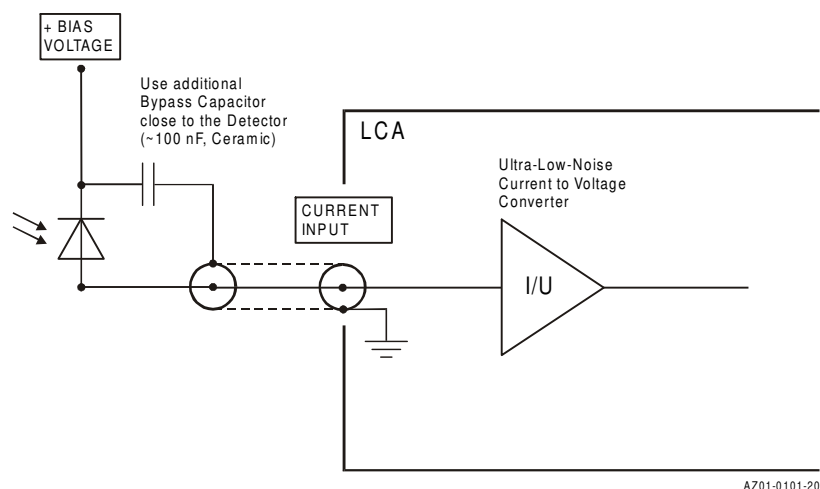
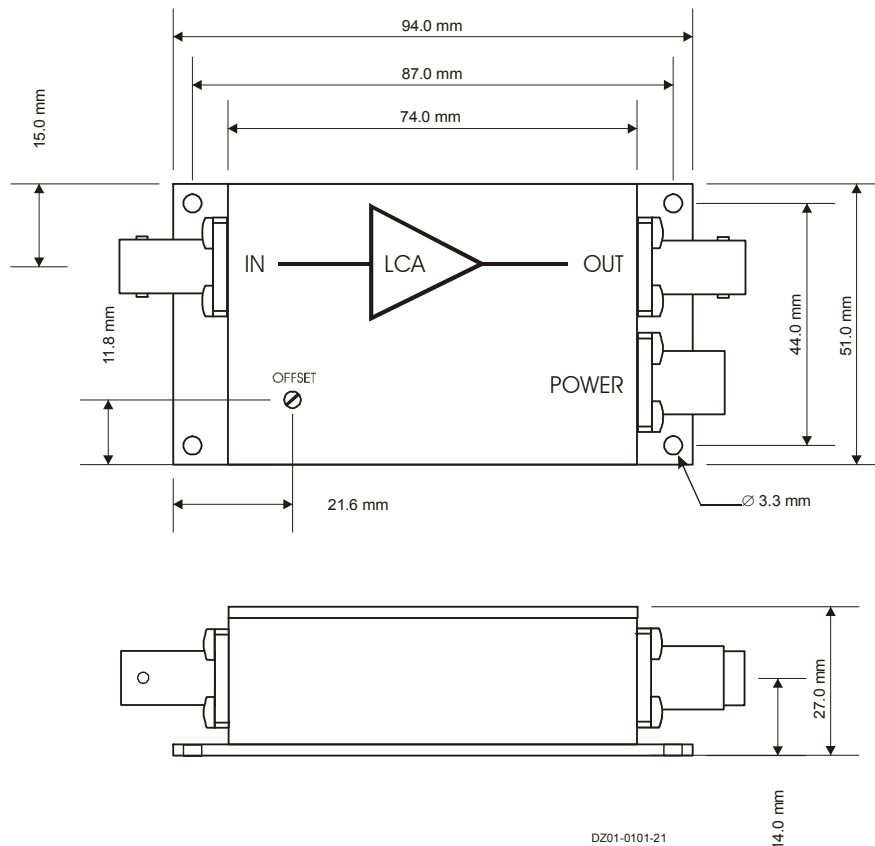


Photo Detector Biasing in Photoconductive Mode:
Use for Fast Applications and if More Dark Current is Tolerable.
Bias Voltage Decreases Detector Capacitance.



Ultra-Low-Noise Current Amplifier

Dimensions



FEMTO Messtechnik GmbH
Klosterstr. 64
10179 Berlin · Germany
Phone: +49 30 280 4711-0
Fax: +49 30 280 4711-11
Email: info@femto.de
www.femto.de

Specifications are subject to change without notice. Information provided herein is believed to be accurate and reliable. However, no responsibility is assumed by FEMTO Messtechnik GmbH for its use, nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of FEMTO Messtechnik GmbH. Product names mentioned may also be trademarks used here for identification purposes only.

© by FEMTO Messtechnik GmbH · Printed in Germany