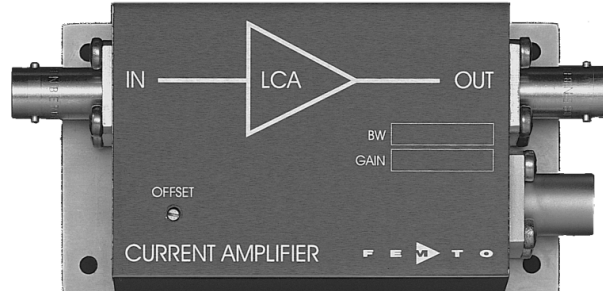




**Datasheet**

**LCA-30-1T**

**Ultra-Low-Noise Current Amplifier**



Features	<ul style="list-style-type: none"> <li>• <b>Bandwidth and Frequency Response Independent of Detector-Capacitance (up to 10 nF)</b></li> <li>• <b>Extremely Low Noise, 0.5 fA/√Hz Equivalent Input Noise Current</b></li> <li>• <b>Bandwidth DC ... 30 Hz</b></li> <li>• <b>Transimpedance (Gain) 1 x 10<sup>12</sup> V/A</b></li> </ul>	
Applications	<ul style="list-style-type: none"> <li>• <b>Photodiode- and Photomultiplier-Amplifier</b></li> <li>• <b>Spectroscopy</b></li> <li>• <b>Charge-Amplifier</b></li> <li>• <b>Ionisation Detectors</b></li> <li>• <b>Preamplifier for Lock-Ins, A/D-Converters, etc.</b></li> </ul>	
Specifications	<i>Test Conditions</i>	<i>Vs = ± 15 V, Ta = 25°C</i>
Gain	Transimpedance Accuracy	1 x 10 <sup>12</sup> V/A (>10 kΩ Load) ± 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%) ± 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	0.5 fA/√Hz (@ 10 Hz) 90 nV/√Hz (@ 10 Hz) 10 fA typ. Factor 2 / 10 K ± 3 pA, Adjustable by Offset-Trimpot ± 10 pA (Linear Amplification) < 0.5 mV 1 kΩ (Virtual) // 5 pF
Output	Output Voltage Output Impedance Max. Output Current	± 10 V (>10 kΩ Load) 50 Ω (Terminate with >10 kΩ 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 °C 0 ... +60 °C

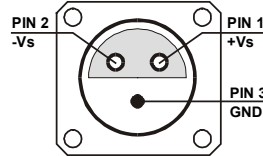
# Datasheet

# LCA-30-1T

## Ultra-Low-Noise Current Amplifier

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.

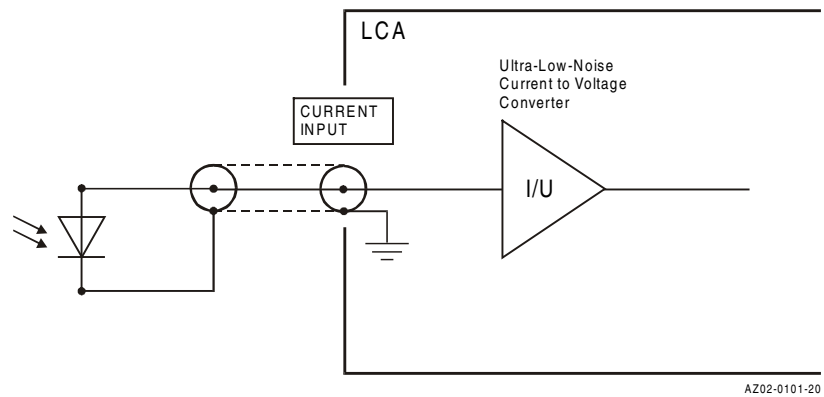
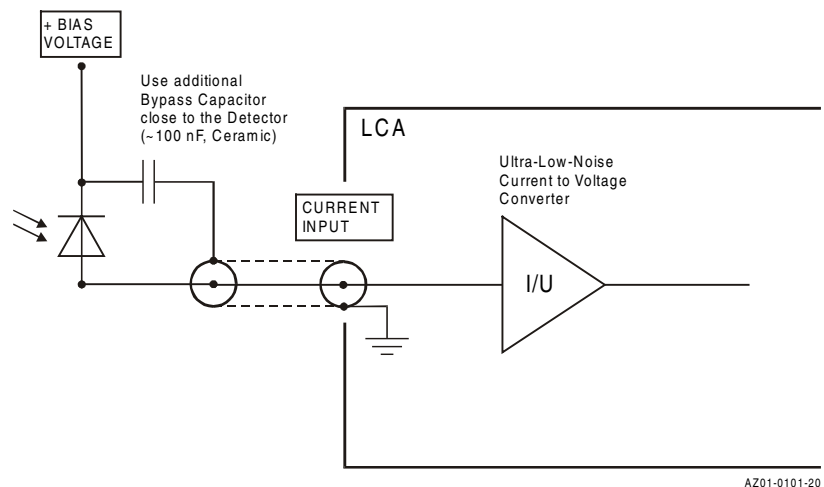


Photo Detector Biasing in Photoconductive Mode:  
 Use for Fast Applications and if More Dark Current is Tolerable.  
 Bias Voltage Decreases Detector Capacitance.

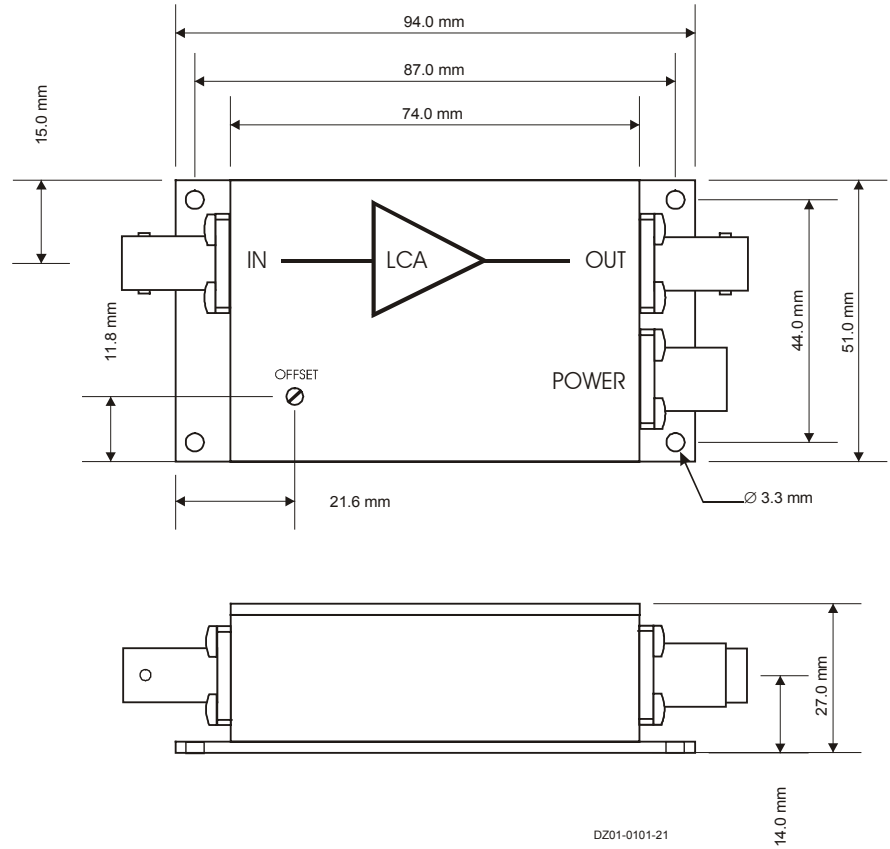


# Datasheet

# LCA-30-1T

## Ultra-Low-Noise Current Amplifier

Dimensions



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