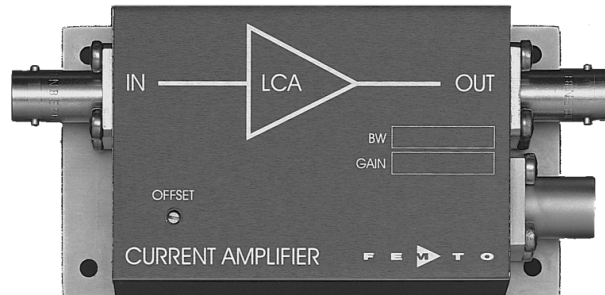




# Datasheet

# LCA-10K-500M

## 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, 10 fA/√Hz Equivalent Input Noise Current</b></li> <li>• <b>Bandwidth DC ... 10 kHz</b></li> <li>• <b>Transimpedance (Gain) 5 x 10<sup>8</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>V<sub>s</sub> = ± 15 V, T<sub>a</sub> = 25°C</i>
Gain	Transimpedance Accuracy	5 x 10 <sup>8</sup> V/A (>10 kΩ Load) ± 1%
Frequency Response	Lower Cut-Off Frequency Upper Cut-Off Frequency Rise- / Fall-Time Gain Flatness	DC 10 kHz (- 3 dB) 40 μs (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	10 fA/√Hz (@ 1 kHz) 5 nV/√Hz (@ 1 kHz) 2 pA typ. Factor 1.7 / 10 K ± 6 nA, Adjustable by Offset-Trimpot ± 20 nA (Linear Amplification) < 1 mV 50 Ω (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 ± 40 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
Absolute Maximum Ratings	Input Voltage Power Supply Voltage	± 5 V ± 22 V

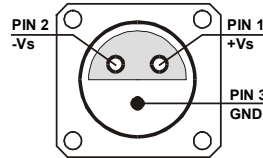
# Datasheet

# LCA-10K-500M

## 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.

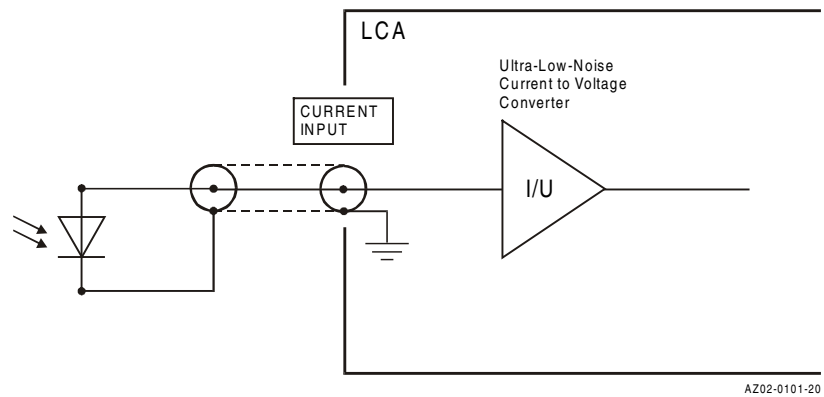
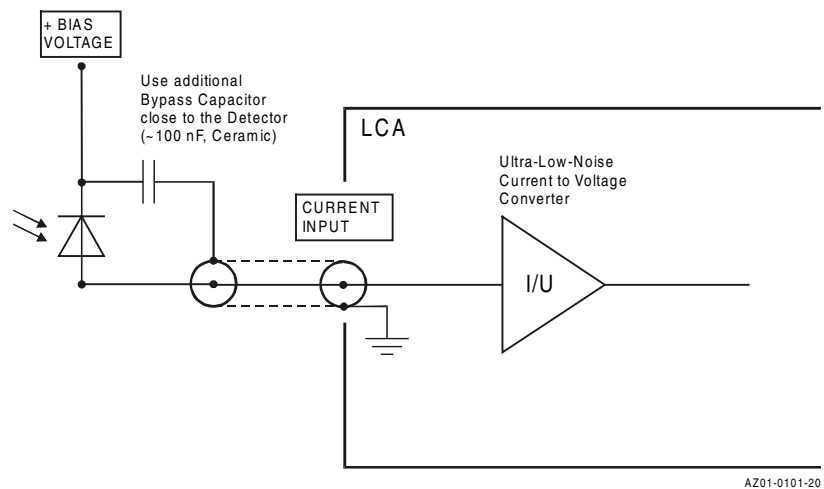


Photo Detector Biasing in Photoconductive Mode:  
 Use for Fast Applications and if More Dark Current is Tolerable.  
 Bias Voltage Decreases Detector Capacitance.

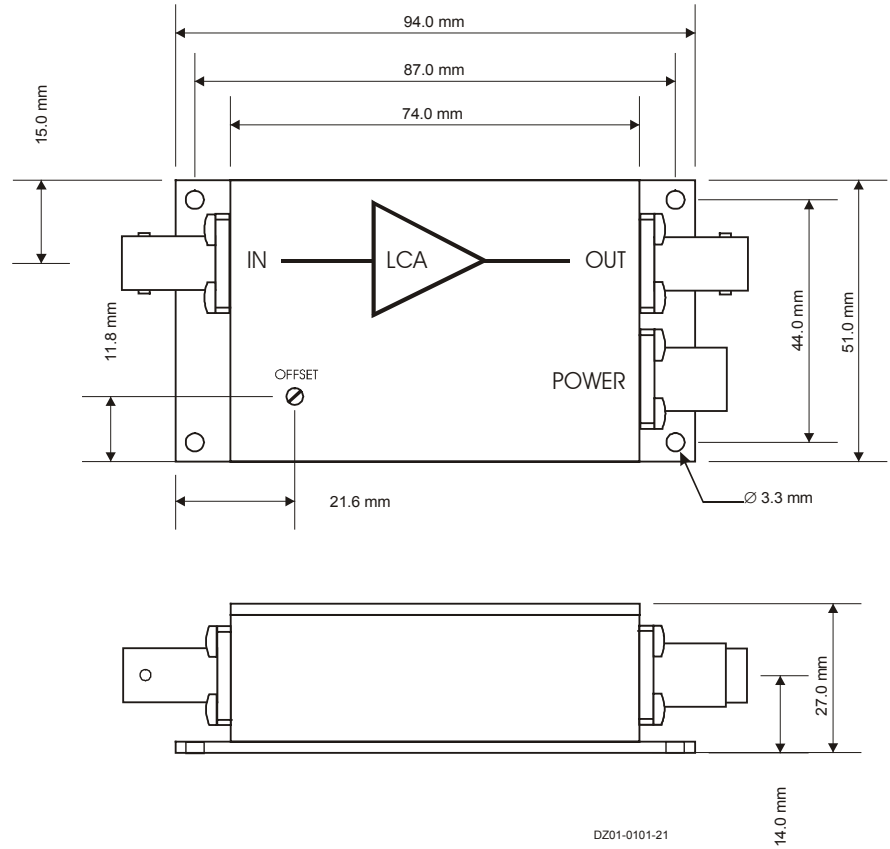


# Datasheet

# LCA-10K-500M

## Ultra-Low-Noise Current Amplifier

Dimensions



FEMTO Messtechnik GmbH  
 Paul-Lincke-Ufer 34  
 D-10999 Berlin · Germany  
 Tel.: +49 (0)30 – 4 46 93 86  
 Fax: +49 (0)30 – 4 46 93 88  
 e-mail: [info@femto.de](mailto:info@femto.de)  
<http://www.femto.de>

Specifications are subject to change without notice. Information furnished 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 granted by implication or otherwise under any 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