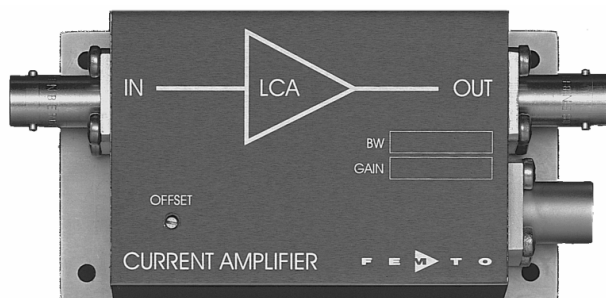
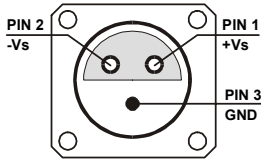


Ultra-Low-Noise Current Amplifier



<p>Features</p>	<ul style="list-style-type: none"> • Bandwidth and Frequency Response Independent of Detector-Capacitance (up to 10 nF) • Extremely Low Noise, 40 fA/√Hz Equivalent Input Noise Current • Bandwidth DC ... 200 kHz • Transimpedance (Gain) 2×10^7 V/A 																																																									
<p>Applications</p>	<ul style="list-style-type: none"> • Photodiode- and Photomultiplier-Amplifier • Spectroscopy • Charge-Amplifier • Ionisation Detectors • Preamplifier for Lock-Ins, A/D-Converters, etc. 																																																									
<p>Specifications</p>	<table border="0"> <tr> <td></td> <td><i>Test Conditions</i></td> <td><i>Vs = ± 15 V, Ta = 25°C</i></td> </tr> <tr> <td rowspan="2">Gain</td> <td>Transimpedance</td> <td>2×10^7 V/A (>10 kΩ Load)</td> </tr> <tr> <td>Accuracy</td> <td>± 1%</td> </tr> <tr> <td rowspan="4">Frequency Response</td> <td>Lower Cut-Off Frequency</td> <td>DC</td> </tr> <tr> <td>Upper Cut-Off Frequency</td> <td>200 kHz (- 3 dB)</td> </tr> <tr> <td>Rise- / Fall-Time</td> <td>2 μs (10% - 90%)</td> </tr> <tr> <td>Gain Flatness</td> <td>± 0.1 dB</td> </tr> <tr> <td rowspan="8">Input</td> <td>Equ. Input Noise Current</td> <td>40 fA/√Hz (@ 10 kHz)</td> </tr> <tr> <td>Equ. Input Noise Voltage</td> <td>5 nV/√Hz (@ 10 kHz)</td> </tr> <tr> <td>Input Bias Current</td> <td>2 pA typ.</td> </tr> <tr> <td>Input Bias Current Drift</td> <td>Factor 1.7 / 10 K</td> </tr> <tr> <td>Offset Current Compensation</td> <td>± 150 nA, Adjustable by Offset-Trimpot</td> </tr> <tr> <td>Max. Input Current</td> <td>± 500 nA (Linear Amplification)</td> </tr> <tr> <td>Input Offset Voltage</td> <td>< 1 mV</td> </tr> <tr> <td>DC Input Impedance</td> <td>50 Ω (Virtual) // 5 pF</td> </tr> <tr> <td rowspan="3">Output</td> <td>Output Voltage</td> <td>± 10 V (>10 kΩ Load)</td> </tr> <tr> <td>Output Impedance</td> <td>50 Ω (Terminate with >10 kΩ for best Performance)</td> </tr> <tr> <td>Max. Output Current</td> <td>± 10 mA (Linear Amplification)</td> </tr> <tr> <td rowspan="2">Power Supply</td> <td>Supply Voltage</td> <td>± 15 V</td> </tr> <tr> <td>Supply Current</td> <td>± 40 mA typ.</td> </tr> <tr> <td rowspan="2">Case</td> <td>Weight</td> <td>210 gr. (0.5 lbs)</td> </tr> <tr> <td>Material</td> <td>AlMg4.5Mn, nickel-plated</td> </tr> <tr> <td rowspan="2">Temperature Range</td> <td>Storage Temperature</td> <td>-40 ... +100 °C</td> </tr> <tr> <td>Operating Temperature</td> <td>0 ... +60 °C</td> </tr> </table>			<i>Test Conditions</i>	<i>Vs = ± 15 V, Ta = 25°C</i>	Gain	Transimpedance	2×10^7 V/A (>10 kΩ Load)	Accuracy	± 1%	Frequency Response	Lower Cut-Off Frequency	DC	Upper Cut-Off Frequency	200 kHz (- 3 dB)	Rise- / Fall-Time	2 μs (10% - 90%)	Gain Flatness	± 0.1 dB	Input	Equ. Input Noise Current	40 fA/√Hz (@ 10 kHz)	Equ. Input Noise Voltage	5 nV/√Hz (@ 10 kHz)	Input Bias Current	2 pA typ.	Input Bias Current Drift	Factor 1.7 / 10 K	Offset Current Compensation	± 150 nA, Adjustable by Offset-Trimpot	Max. Input Current	± 500 nA (Linear Amplification)	Input Offset Voltage	< 1 mV	DC Input Impedance	50 Ω (Virtual) // 5 pF	Output	Output Voltage	± 10 V (>10 kΩ Load)	Output Impedance	50 Ω (Terminate with >10 kΩ for best Performance)	Max. Output Current	± 10 mA (Linear Amplification)	Power Supply	Supply Voltage	± 15 V	Supply Current	± 40 mA typ.	Case	Weight	210 gr. (0.5 lbs)	Material	AlMg4.5Mn, nickel-plated	Temperature Range	Storage Temperature	-40 ... +100 °C	Operating Temperature	0 ... +60 °C
	<i>Test Conditions</i>	<i>Vs = ± 15 V, Ta = 25°C</i>																																																								
Gain	Transimpedance	2×10^7 V/A (>10 kΩ Load)																																																								
	Accuracy	± 1%																																																								
Frequency Response	Lower Cut-Off Frequency	DC																																																								
	Upper Cut-Off Frequency	200 kHz (- 3 dB)																																																								
	Rise- / Fall-Time	2 μs (10% - 90%)																																																								
	Gain Flatness	± 0.1 dB																																																								
Input	Equ. Input Noise Current	40 fA/√Hz (@ 10 kHz)																																																								
	Equ. Input Noise Voltage	5 nV/√Hz (@ 10 kHz)																																																								
	Input Bias Current	2 pA typ.																																																								
	Input Bias Current Drift	Factor 1.7 / 10 K																																																								
	Offset Current Compensation	± 150 nA, Adjustable by Offset-Trimpot																																																								
	Max. Input Current	± 500 nA (Linear Amplification)																																																								
	Input Offset Voltage	< 1 mV																																																								
	DC Input Impedance	50 Ω (Virtual) // 5 pF																																																								
Output	Output Voltage	± 10 V (>10 kΩ Load)																																																								
	Output Impedance	50 Ω (Terminate with >10 kΩ for best Performance)																																																								
	Max. Output Current	± 10 mA (Linear Amplification)																																																								
Power Supply	Supply Voltage	± 15 V																																																								
	Supply Current	± 40 mA typ.																																																								
Case	Weight	210 gr. (0.5 lbs)																																																								
	Material	AlMg4.5Mn, nickel-plated																																																								
Temperature Range	Storage Temperature	-40 ... +100 °C																																																								
	Operating Temperature	0 ... +60 °C																																																								

Ultra-Low-Noise Current Amplifier

<p>Absolute Maximum Ratings</p>	<p>Input Voltage $\pm 5\text{ V}$ Power Supply Voltage $\pm 22\text{ V}$</p>	
<p>Connectors</p>	<p>Input BNC Output BNC Power Supply LEMO Series 1S, 3-pin Fixed Socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND</p>	

Application Diagrams

Photo Detector Biasing in Photovoltaic Mode:
 Use for Low Speed Applications and Minimum Dark Current.

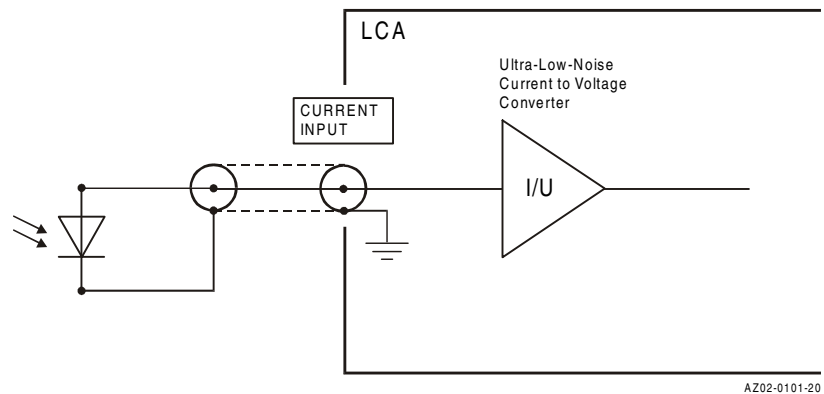
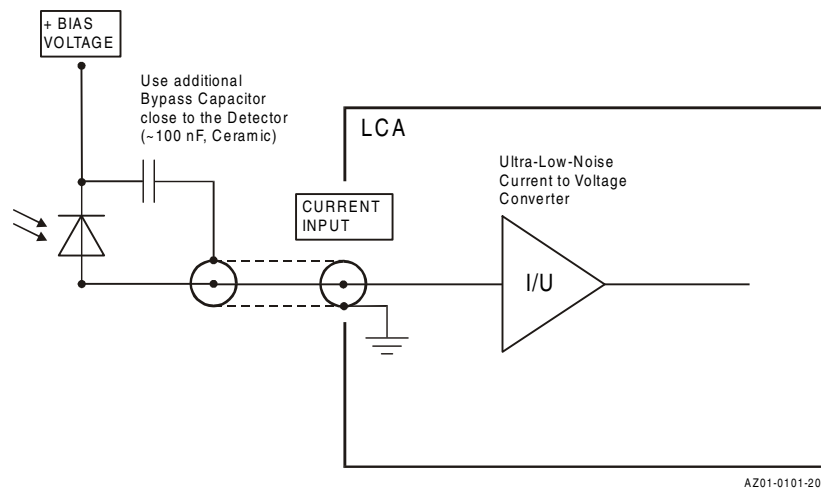
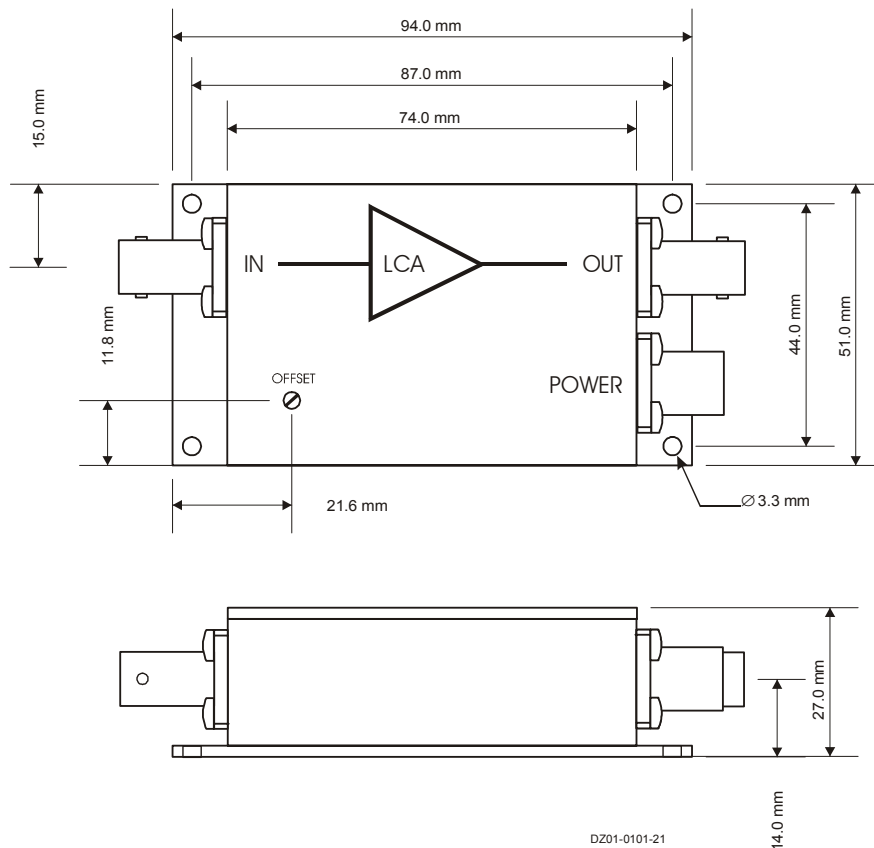


Photo Detector Biasing in Photoconductive Mode:
 Use for Fast Applications and if More Dark Current is Tolerable.
 Bias Voltage Decreases Detector Capacitance.



Ultra-Low-Noise Current Amplifier

Dimensions



FEMTO Messtechnik GmbH
 Klosterstr. 64
 D-10179 Berlin • Germany
 Tel.: +49-(0)30-280 4711-0
 Fax: +49-(0)30-280 4711-11
 e-mail: 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