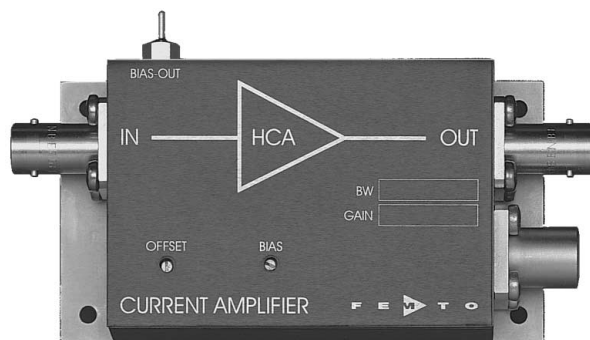


# High-Speed Current Amplifier



<p>Features</p>	<ul style="list-style-type: none"> <li>• <b>Bandwidth and Frequency Response independent of Detector-Capacitance (up to 50 pF)</b></li> <li>• <b>Low Noise, 3.5 pA/√Hz equivalent Input Noise Current</b></li> <li>• <b>Bandwidth DC ... 20 MHz</b></li> <li>• <b>Transimpedance (Gain) 1 x 10<sup>5</sup> V/A</b></li> <li>• <b>Protection against ± 3.5 kV Transients</b></li> </ul>																																																							
<p>Applications</p>	<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>																																																							
<p>Specifications</p>	<table border="0"> <tr> <td></td> <td><i>Test Conditions</i></td> <td><i>V<sub>s</sub> = ± 15 V, T<sub>a</sub> = 25°C</i></td> </tr> <tr> <td rowspan="2">Gain</td> <td>Transimpedance</td> <td>1 x 10<sup>5</sup> V/A (50 Ω Load)</td> </tr> <tr> <td>Gain 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>20 MHz (- 3 dB)</td> </tr> <tr> <td>Rise- / Fall-Time</td> <td>18 ns (10% - 90%)</td> </tr> <tr> <td>Gain Flatness</td> <td>± 0.3 dB</td> </tr> <tr> <td rowspan="8">Input</td> <td>Equ. Input Noise Current</td> <td>3.5 pA/√Hz (@ 100 kHz)</td> </tr> <tr> <td>Equ. Input Noise Voltage</td> <td>0.8 nV/√Hz (@ 100 kHz)</td> </tr> <tr> <td>Input Bias Current</td> <td>18 μA typ.</td> </tr> <tr> <td>Input Bias Current Drift</td> <td>0.8 nA / K</td> </tr> <tr> <td>Offset Current Compensation</td> <td>± 20 μA, adjustable by Offset-Trimpot</td> </tr> <tr> <td>Max. Input Current</td> <td>± 15 μA (linear Amplification)</td> </tr> <tr> <td>Input Offset Voltage</td> <td>&lt; 3 mV</td> </tr> <tr> <td>DC Input Impedance</td> <td>50 Ω (virtual) // 5 pF</td> </tr> <tr> <td rowspan="2">Output</td> <td>Output Voltage</td> <td>± 1.5 V (50 Ω Load)</td> </tr> <tr> <td>Output Impedance</td> <td>50 Ω</td> </tr> <tr> <td rowspan="2">Bias Output</td> <td>Bias Output Voltage Range</td> <td>± 12 V, adjustable by Bias-Trimpot</td> </tr> <tr> <td>Bias Output Impedance</td> <td>10 kΩ // 1 μF</td> </tr> <tr> <td rowspan="2">Power Supply</td> <td>Supply Voltage</td> <td>± 15 V</td> </tr> <tr> <td>Supply Current</td> <td>± 70 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> </table>			<i>Test Conditions</i>	<i>V<sub>s</sub> = ± 15 V, T<sub>a</sub> = 25°C</i>	Gain	Transimpedance	1 x 10 <sup>5</sup> V/A (50 Ω Load)	Gain Accuracy	± 1 %	Frequency Response	Lower Cut-Off Frequency	DC	Upper Cut-Off Frequency	20 MHz (- 3 dB)	Rise- / Fall-Time	18 ns (10% - 90%)	Gain Flatness	± 0.3 dB	Input	Equ. Input Noise Current	3.5 pA/√Hz (@ 100 kHz)	Equ. Input Noise Voltage	0.8 nV/√Hz (@ 100 kHz)	Input Bias Current	18 μA typ.	Input Bias Current Drift	0.8 nA / K	Offset Current Compensation	± 20 μA, adjustable by Offset-Trimpot	Max. Input Current	± 15 μA (linear Amplification)	Input Offset Voltage	< 3 mV	DC Input Impedance	50 Ω (virtual) // 5 pF	Output	Output Voltage	± 1.5 V (50 Ω Load)	Output Impedance	50 Ω	Bias Output	Bias Output Voltage Range	± 12 V, adjustable by Bias-Trimpot	Bias Output Impedance	10 kΩ // 1 μF	Power Supply	Supply Voltage	± 15 V	Supply Current	± 70 mA typ.	Case	Weight	210 gr. (0.5 lbs)	Material	AlMg4.5Mn, nickel-plated
	<i>Test Conditions</i>	<i>V<sub>s</sub> = ± 15 V, T<sub>a</sub> = 25°C</i>																																																						
Gain	Transimpedance	1 x 10 <sup>5</sup> V/A (50 Ω Load)																																																						
	Gain Accuracy	± 1 %																																																						
Frequency Response	Lower Cut-Off Frequency	DC																																																						
	Upper Cut-Off Frequency	20 MHz (- 3 dB)																																																						
	Rise- / Fall-Time	18 ns (10% - 90%)																																																						
	Gain Flatness	± 0.3 dB																																																						
Input	Equ. Input Noise Current	3.5 pA/√Hz (@ 100 kHz)																																																						
	Equ. Input Noise Voltage	0.8 nV/√Hz (@ 100 kHz)																																																						
	Input Bias Current	18 μA typ.																																																						
	Input Bias Current Drift	0.8 nA / K																																																						
	Offset Current Compensation	± 20 μA, adjustable by Offset-Trimpot																																																						
	Max. Input Current	± 15 μA (linear Amplification)																																																						
	Input Offset Voltage	< 3 mV																																																						
	DC Input Impedance	50 Ω (virtual) // 5 pF																																																						
Output	Output Voltage	± 1.5 V (50 Ω Load)																																																						
	Output Impedance	50 Ω																																																						
Bias Output	Bias Output Voltage Range	± 12 V, adjustable by Bias-Trimpot																																																						
	Bias Output Impedance	10 kΩ // 1 μF																																																						
Power Supply	Supply Voltage	± 15 V																																																						
	Supply Current	± 70 mA typ.																																																						
Case	Weight	210 gr. (0.5 lbs)																																																						
	Material	AlMg4.5Mn, nickel-plated																																																						

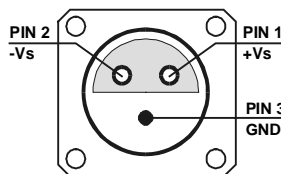
## High-Speed Current Amplifier

Specifications (continued)

Temperature Range	Storage Temperature	-40 ... +100 °C
	Operating Temperature	0 ... +60 °C

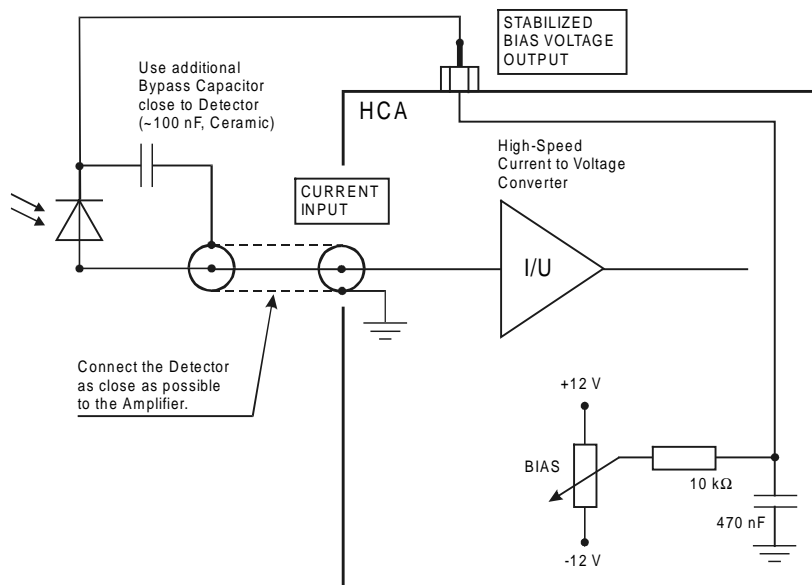
Absolute Maximum Ratings	Input Voltage	± 5 V
	Input Voltage Transient	± 3.5 kV (Pulsewidth 10 ns)
	Power Supply Voltage	± 22 V

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

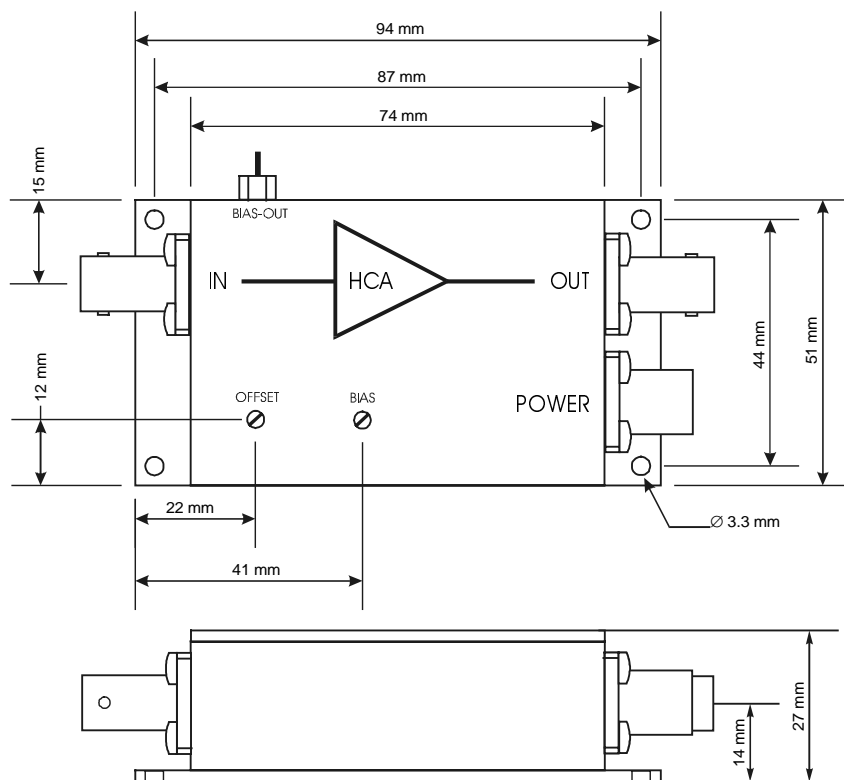
Photo Detector Biasing in Photoconductive Mode:  
Best Choice for High-Speed Applications and optimum Signal To Noise Performance.



AZ01-0201-20

High-Speed Current Amplifier

Dimensions



DZ01-0201-22

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  
 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