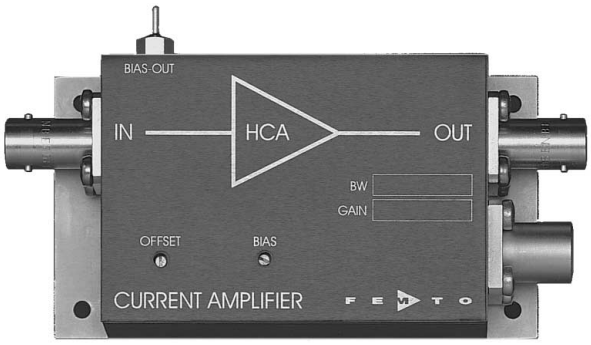
# Datasheet HCA-1M-1M-C

## High-Speed Current Amplifier




| | |
|---|---|
| Features | • **Bandwidth and Frequency Response independent of Detector-Capacitance (up to 2 nF)**<br>• **Low Noise, 3.5 pA/√Hz equivalent Input Noise Current**<br>• **Bandwidth DC ... 1 MHz**<br>• **Transimpedance (Gain) 1 x $10^6$ V/A**<br>• **Protection against ± 3.5 kV Transients** |
| Applications | • **Photodiode- and Photomultiplier-Amplifier**<br>• **Spectroscopy**<br>• **Charge-Amplifier**<br>• **Ionisation Detectors**<br>• **Preamplifier for Lock-Ins, A/D-Converters, etc.** |

| Specifications | *Test Conditions* | *Vs = ± 15 V, Ta = 25°C* |
|---|---|---|
| Gain | Transimpedance | 1 x $10^6$ V/A (50 Ω Load) |
| | Gain Accuracy | ± 1 % |
| Frequency Response | Lower Cut-Off Frequency | DC |
| | Upper Cut-Off Frequency | 1 MHz (- 3 dB) |
| | Rise- / Fall-Time | 350 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 | ± 6 µA, adjustable by Offset-Trimpot |
| | Max. Input Current | ± 1.5 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 | ± 50 mA typ. |
| Case | Weight | 210 gr. (0.5 lbs) |
| | Material | AlMg4.5Mn, nickel-plated |

# High-Speed Current Amplifier

## Specifications (continued)

### Temperature Range

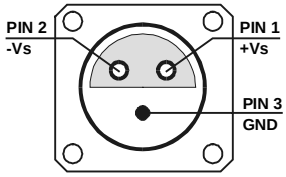
| | |
|---|---|
| Storage Temperature | -40 ... +100 °C |
| Operating Temperature | 0 ... +60 °C |

### Absolute Maximum Ratings

| | |
|---|---|
| Input Voltage | ± 5 V |
| Input Voltage Transient | ± 3.5 kV (Pulsewidth 10 ns) |
| Power Supply Voltage | ± 22 V |

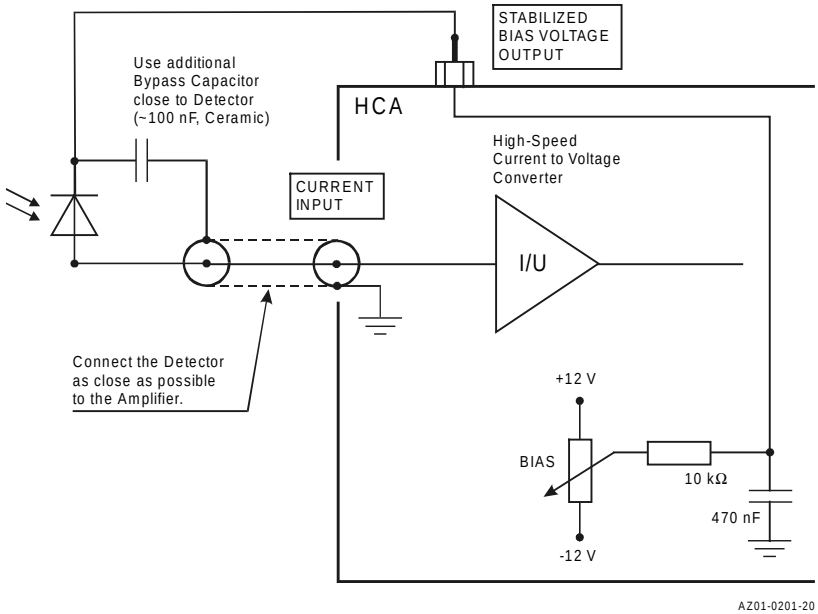
### Connectors

| | |
|---|---|
| Input | BNC |
| Output | BNC |
| Power Supply | LEMO Series 1S, 3-pin fixed Socket<br>Pin 1: + 15V<br>Pin 2: - 15V<br>Pin 3: GND |



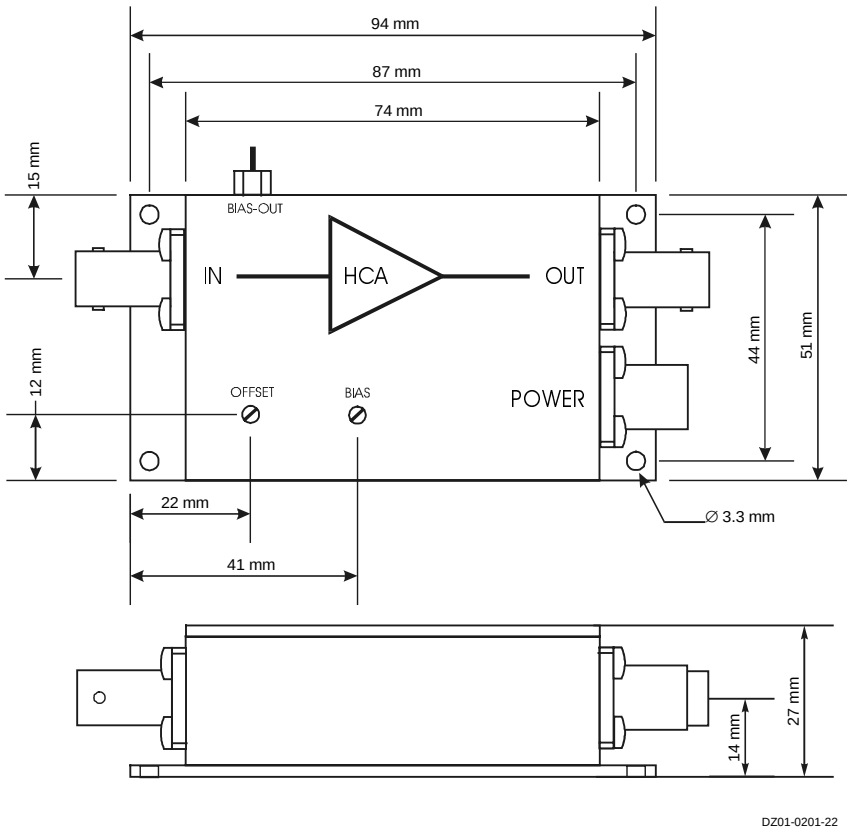

### Application Diagrams

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



# High-Speed 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
http://www.femto.de

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