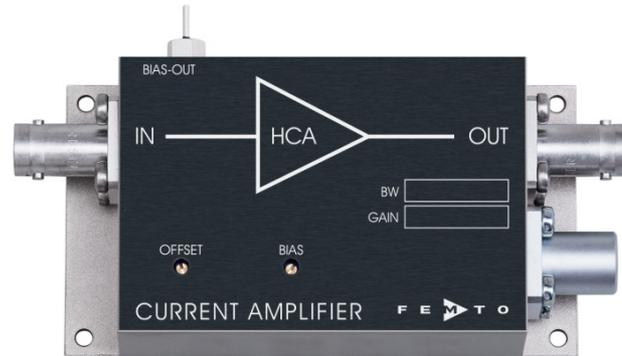



Datasheet
HCA-1M-1M
High-Speed Current Amplifier


Features	<ul style="list-style-type: none"> • Bandwidth and Frequency Response Independent of Detector Capacitance (up to 50 pF) • Low Noise 270 fA/√Hz Equivalent Input Noise Current • Bandwidth DC ... 1 MHz • Transimpedance (Gain) 1 x 10⁶ V/A • Protection against ± 3.5 kV Transients 	
Applications	<ul style="list-style-type: none"> • Photodiode and Photomultiplier Amplifier • Spectroscopy • Charge Amplifier • Ionisation Detectors • Preamplifier for Lock-Ins, A/D Converters, etc. 	
Specifications	Test Conditions	V _s = ± 15 V, T _a = 25°C
Gain	Transimpedance Gain Accuracy	1 x 10 ⁶ V/A (@ 50 Ω load) ± 1 %
Frequency Response	Lower Cut-Off Frequency Upper Cut-Off Frequency (- 3 dB) Rise / Fall Time (10 % - 90 %) Gain Flatness	DC 1 MHz 350 ns ± 0.3 dB
Input	Equ. Input Noise Current Equ. Input Noise Voltage Input Bias Current Input Bias Current Drift Offset Current Compensation Input Current Range Input Offset Voltage DC Input Impedance	270 fA/√Hz (@ 10 kHz) 6 nV/√Hz (@ 10 kHz) 5 pA typ. factor 1.7 / 10 K ± 2.7 μA adjustable by offset trimpot ± 1.5 μA (for linear amplification) 2 mV 50 Ω (virtual) // 5 pF
Output	Output Voltage Range Output Impedance	± 1.5 V (@ 50 Ω load) for linear operation and low harmonic distortion 50 Ω (terminate with 50 Ω load for best performance)
Bias Output	Bias Output Voltage Range Bias Output Impedance	± 12 V, adjustable by bias trimpot 10 kΩ // 1 μF

High-Speed Current Amplifier

Specifications (continued)

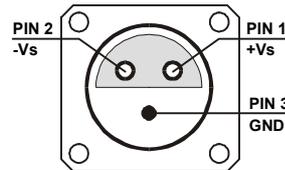
Power Supply	Supply Voltage	$\pm 15\text{ V}$
	Supply Current	$\pm 50\text{ mA typ.}$ (depends on operating conditions, recommended power supply capability minimum $\pm 150\text{ mA}$)
Case	Weight	210 g (0.5 lbs)
	Material	AlMg4.5Mn, nickel-plated
Temperature Range	Storage Temperature	$-40 \dots +100\text{ }^\circ\text{C}$
	Operating Temperature	$0 \dots +60\text{ }^\circ\text{C}$

Absolute Maximum Ratings

Input Voltage	$\pm 5\text{ V}$
Input Voltage Transient	$\pm 3.5\text{ kV}$ (pulsewidth 10 ns)
Power Supply Voltage	$\pm 22\text{ V}$

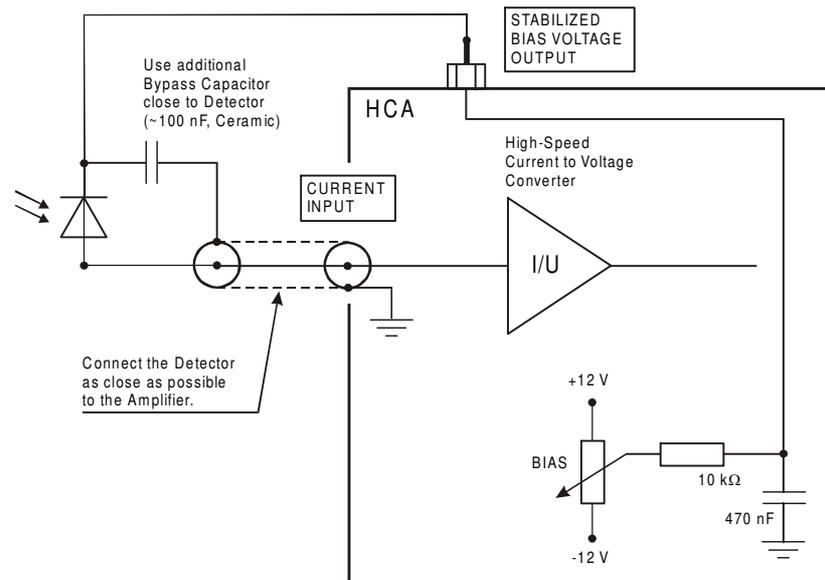
Connectors

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

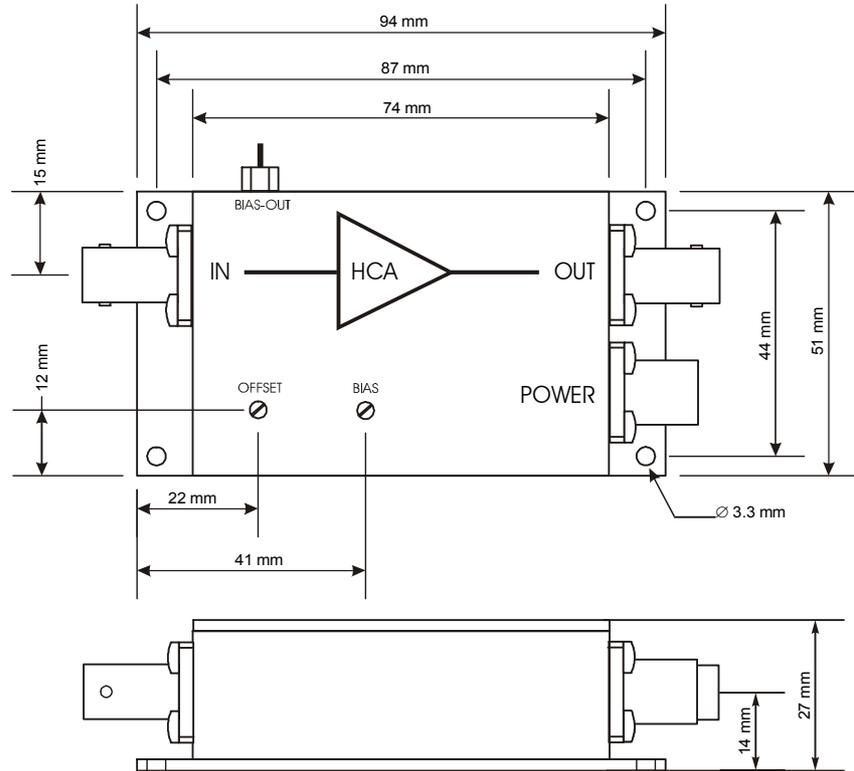


Datasheet

HCA-1M-1M

High-Speed Current Amplifier

Dimensions



DZ01-0201-22

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