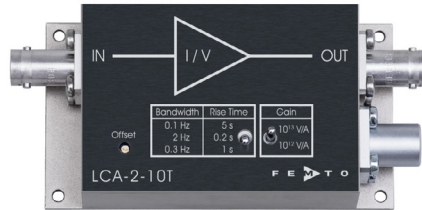


Datasheet

LCA-2-10T

Ultra-Low-Noise Current Amplifier



Features

- **Switchable transimpedance (gain) 1×10^{12} V/A and 1×10^{13} V/A**
- **Extremely low input noise current of $0.18 \text{ fA}/\sqrt{\text{Hz}}$**
- **Rise time 0.2 s**
- **Switchable low pass filter 2 Hz , 0.3 Hz and 0.1 Hz**
- **Protection against $\pm 2 \text{ kV}$ transients**

Applications

- **Very sensitive current and charge measurements**
- **Spectroscopy**
- **Photodiode amplifier**
- **Conductive atomic force microscopy (CAFM)**
- **Amplifier for ionization and charge detectors**
- **Characterization of active electronic components**
- **Preamplifier for oscilloscopes, A/D converters, digital voltmeter etc.**

Specifications

	Test Conditions	$V_E = \pm 15 \text{ V}$, $T_A = 25^\circ\text{C}$ Warm-up 20 minutes (min. 10 minutes recommended)
Gain	Transimpedance Accuracy	1×10^{12} V/A and 1×10^{13} V/A (@ $\geq 1 \text{ M}\Omega$ load) $\pm 2 \%$
Frequency Response	Lower cut-off frequency Upper cut-off frequency (-3 dB) Rise- / Fall-Time (10 % - 90%)	DC 2 Hz, 0.3 Hz and 0.1 Hz 0.2 s, 1 s and 5 s
Input	Equ. input noise current Integrated input noise Input bias current Input bias current drift Offset compensation range Max. input current Input offset voltage DC input impedance	$0.18 \text{ fA}/\sqrt{\text{Hz}}$ (@ 0.2 Hz) 0.3 fA peak-peak (@ 0.1 Hz bandwidth setting) 0.6 fA peak-peak (@ 0.3 Hz bandwidth setting) 2 fA peak-peak (@ 2 Hz bandwidth setting) 20 fA typ. / 30 fA max. factor 2 / 10°C $\pm 50 \text{ fA}$, adjustable by offset trimpot $\pm 10 \text{ pA}$ (for linear amplification @ 1×10^{12} V/A gain) $\pm 1 \text{ pA}$ (for linear amplification @ 1×10^{13} V/A gain) $< 0.5 \text{ mV}$ $1 \text{ k}\Omega$ (virtual) // 5 pF
Output	Output voltage Output impedance Max. output current	$\pm 10 \text{ V}$ (@ $\geq 1 \text{ M}\Omega$ load) 50Ω (terminate with $\geq 1 \text{ M}\Omega$ load for best performance) $\pm 10 \text{ mA}$ (for linear amplification)
Power Supply	Supply voltage Supply current	$\pm 15 \text{ V}$ $\pm 15 \text{ mA}$ typ. (depends on operating conditions, recommended power supply capability minimum $\pm 50 \text{ mA}$)

SOPHISTICATED TOOLS FOR SIGNAL RECOVERY



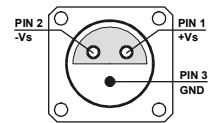
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Datasheet

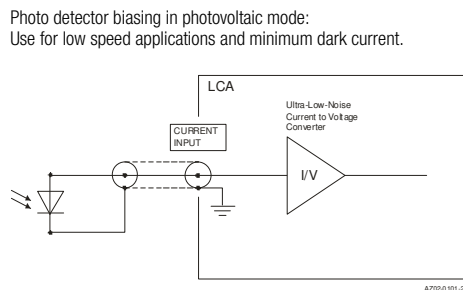
LCA-2-10T

Ultra-Low-Noise Current Amplifier

Specifications (continued)		
Case	Weight Material	210 g (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 Transient input voltage	±10 V ±20 V ±2 kV human body model (HBM)
Connectors	Input Output Power supply	BNC BNC Lemo® series 1S, 3-pin fixed socket (mating plug type: FFA.1S.303.CLAC52) Pin 1: +15V Pin 2: -15V Pin 3: GND



Application Diagrams



SOPHISTICATED TOOLS FOR SIGNAL RECOVERY

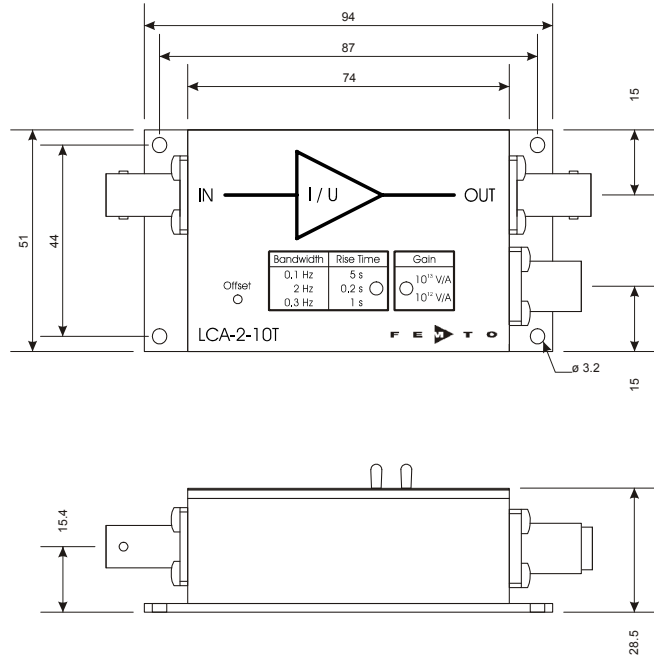


Datasheet

LCA-2-10T

Ultra-Low-Noise Current Amplifier

Dimensions



all measures in mm unless otherwise noted

DZ-LCA-2-10T_R3

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SOPHISTICATED TOOLS FOR SIGNAL RECOVERY

