Datasheet LCA-2-10T

Ultra Low Noise Current Amplifier



Features	 Switchable transimpedance (gain) 1 x 10¹² V/A and 1 x 10¹³ V/A Extremely low input noise current of 0.18 fA/√Hz Rise time 0.2 s Switchable low pass filter 2 Hz, 0.3 Hz and 0.1 Hz Protection against ±2 kV transients 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. 	
Applications		
Specifications	Test Conditions	$V_s = \pm 15 \text{ V}, T_A = 25 ^{\circ}\text{C}$ Warm-up 20 minutes (min. 10 minutes recommended)
Gain	Transimpedance Accuracy	1 x 10 ¹² V/A and 1 x 10 ¹³ V/A (@ \geq 1 M Ω 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 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 ± 50 fA, adjustable by offset trimpot ± 10 pA (for linear amplification @ 1 x 10 ¹² V/A gain) ± 1 pA (for linear amplification @ 1 x 10 ¹³ V/A gain) <0.5 mV 1 k Ω (virtual) // 5 pF
Output	Output voltage Output impedance Max. output current	± 10 V (@ ≥ 1 M Ω load) 50 Ω (terminate with ≥ 1 M Ω load for best performance) ± 10 mA (for linear amplification)
Power Supply	Supply voltage Supply current	± 15 V ± 15 mA typ. (depends on operating conditions, recommended power supply capability minimum ± 50 mA)

SOPHISTICATED TOOLS FOR SIGNAL RECOVERY

П 0

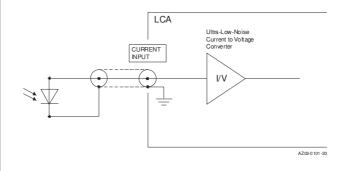
DE-LCA-2-10T_R5/MG,JM/26MAY2016 Page 1 of 3

LCA-2-10T Datasheet

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 Lemo® series 1S, 3-pin fixed socket (mating plug type: FFA.1S.303.CLAC52) Pin 1: +15V Pin 2: -15V Pin 3: GND PIN 2 PIN 2 PIN 3 GND
Application Diagrams	Photo detector biasing in photovoltaic mode: Use for low speed applications and minimum dark current.	

Use for low speed applications and minimum dark current.

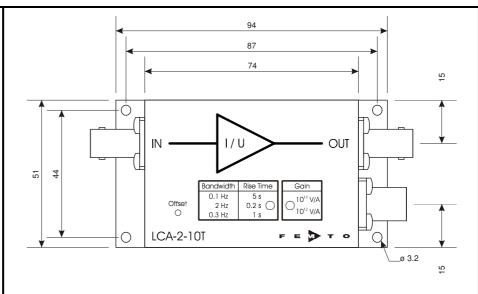


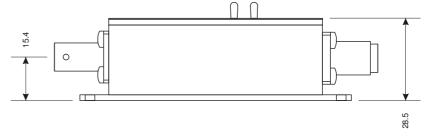
0

Datasheet LCA-2-10T

Ultra Low Noise Current Amplifier

Dimensions





all measures in mm unless otherwise noted

DZ-LCA-2-10T_R3

FEMTO Messtechnik GmbH Klosterstr. 64 10179 Berlin · Germany Phone: +49 30 280 4711-0 Fax: +49 30 280 4711-11 Email: info@femto.de www.femto.de Specifications are subject to change without notice. Information provided 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 of third parties which may result from its use. No license is granted by implication or otherwise under any patent or 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

F E T O