

FE116 GSR Amp

Signal Conditioner Series

Description

The FE116 GSR Amp is a galvanically isolated, skin conductance response amplifier with low constant-voltage AC excitation and automatic zeroing. The low level AC excitation reduces electrode polarization artifacts found in DC systems. The GSR Amp is galvanically isolated for subject safety and approved to the IEC601-1 standard for human connection as a body protected (BF rated) instrument. It is supplied with a pair of MLT116F finger electrodes with Velcro™ attachment straps.



Compatibility

The GSR Amp is compatible with all PowerLab and MacLab models and requires the following ADInstruments software versions or later: LabChart v6, Chart v4 or Scope v3.5.

Visit www.adinstruments.com/downloads/ for Windows and Mac operating system compatibility. For more information please contact your ADInstruments representative.

Operation

The 75 Hz oscillator supplies a near square wave, low-impedance, low-voltage ($22 \text{ mV}_{\text{rms}}$) signal to an electrode on one finger of the subject. If the skin has a measurable conductance, current flows from the electrode on the other finger back into the very low impedance input of the transimpedance amplifier. The current is then converted to a voltage signal. The current will change as the autonomic reflexes change the skin's conductivity.

- Do not use recording gel with the electrodes. This will tend to give higher basal readings as skin resistance is lowered by gel.
- Avoid measuring skin conductance if the subject is perspiring excessively at rest.

Applications

The FE116 GSR Amp is used to measure the Féré effect, a general measurement of autonomic nervous system activity. It can be used to analyze the startle response to visual, auditory or somatosensory stimuli.

Specifications

Input

Connection type:	2 × 4 mm shrouded sockets. Custom cable with two dry, bright-plated, bipolar electrodes with Velcro™ attachment strap suitable for adult fingers.
Excitation:	Constant-voltage AC excitation (22 mV _{rms} @75 Hz)
Current density:	≤0.5 μA cm ⁻²
Safety:	Approved to IEC601-1 BF (body protection) standard



Configuration:	Transformer isolation (AC bridge operation)
Isolation rating:	4000 V AC _{rms} for 1 minute
Input ranges:	1 to 40 μS full scale in 6 steps (combined PowerLab and GSR Amp) 0 to 40 μS 0 to 20 μS 0 to 10 μS 0 to 4 μS 0 to 2 μS 0 to 1 μS
Frequency response:	-3 dB at 1 Hz
Accuracy:	±5 %
Input leakage current:	<3 μA _{rms} at 240V, 50 Hz <2 μA _{rms} at 120V, 60 Hz
Zeroing and offset:	Automatic software-controlled fast zeroing, controlled by internal 12-bit DAC; resolution = ±0.2 μS

Output

Analog signal: ± 2 V full scale

Control Port

I2C port: Provides control and power. Interface communications rate of ~ 50 Kbits/s.

Physical Configuration

Dimensions (h \times w \times d): 55 mm \times 120 mm \times 260 mm

Weight: 1.2 kg

Power requirements: 2.5 W maximum

Operating temperature range: 0 to 35 $^{\circ}$ C, 0 to 90% humidity (non-condensing)

ADIstruments reserves the right to alter these specifications at any time.

Front and Back Panels



Caution

Read “Statement of Intended Use” on our website or in “Getting Started with PowerLab” before use.

Ordering Information:

FE116 GSR Amp

Includes:

I²C Cable (9-pin plug to 9-pin receptacle)

BNC to BNC Cable

GSR Amp Owner's Guide

MLT116F GSR Finger Electrodes

Also available:

MLT117F GSR Finger Electrodes (MR Safe)



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ISO 9001:2008 Certified Quality Management System

WARRANTY: ADInstruments PowerLab data acquisition units (Product Number Prefix: PL), Front-end Signal Conditioners (Product Number Prefix: FE) are warranted against defects in materials and workmanship for a period of 5 years from the date of purchase. Other PowerLab data acquisition units and ADInstruments manufactured Front-end and Pod Signal Conditioners, and Instruments are warranted of a period of 3 years from the date of purchase. Third party products are covered by the manufacturer's warranty. Warranties are void if the product has been damaged due to negligence. Consumables and electrodes are not covered by a warranty. All questions regarding service and warranty should be directed to your nearest ADInstruments representative.