



## LCA-460 Strain Amplifier Signal Conditioner Modules for Strain Gages, Load Cells, and Transducers

2-2

Signal Conditioning Amplifier



### Applications:

- Load Cell Signal Conditioning
- Foil Strain Gage Signal Conditioning
- Semiconductor Strain Gage Signal Conditioning
- Dynamic Material Test
- Strain/Stress Analysis
- Dynamic Material Elasticity Testing

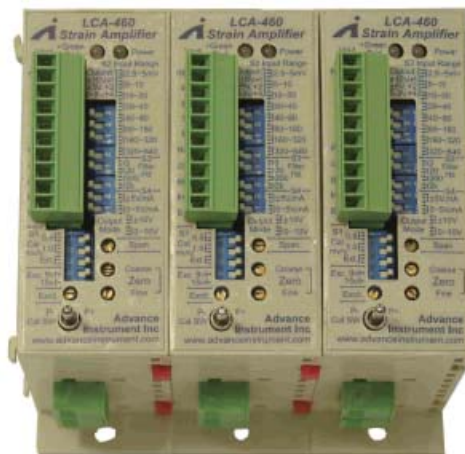
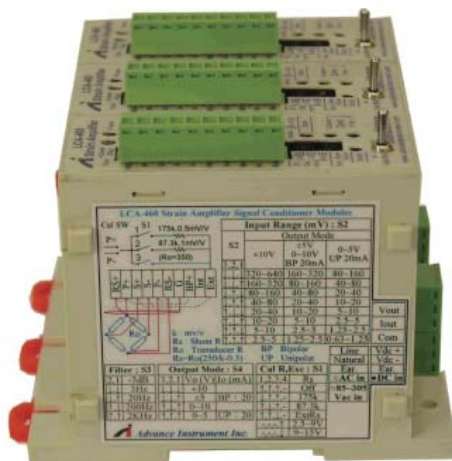
### Features:

- Precision internal mV/V calibrator 0.625 ~ 15mV , accuracy 0.1%
- Single channel signal conditioner
- Highly accurate bridge excitation 2.5Vdc~15Vdc, 150mA
- Precision four wire bridge excitation remote sense function
- Input range 0.625mV~640mV
- Provides high level voltage or 20mA signal output
- Output Mode:  $\pm 10V$ ,  $\pm 5V$ , 0~10V, 0~5V, 0~20mA, 4~20mA
- Four to eight transducer wiring Precision internal mV/V calibration
- Internally adjustable fine gain(AV)
- Precision low noise differential amplifier
- Maximum frequency response: 2 kHz
- Selectable low-pass active 4-pole Butterworth filter 3, 20, 200, 2k Hz standard
- Balance  $\pm 100\%$
- Internal and external bridge shunt-calibration resistor function
- DIN Rail or Screw fixed
- Power option: 85~305 VAC, or 1600 Volts Isolation Between Input, Output and Power Supply on DC-Powered Models

### Description:

LCA-460 strain amplifier signal conditioner is ideal for applications wherein high performance signal conditioning is needed, and critical space limitation is also to be considered. LCA-460 is designed for high accuracy strain measurement. Each module is designed with maximum frequency response at 2 kHz.

The application examples for the measuring strain gage type transducer are for the temperature, accelerator, load cell, micro-displacement, torque and pressure transducers.





## LCA-460 Strain Amplifier Signal Conditioner Modules for Strain Gages, Load Cells, and Transducers

### Specification:

- Input
  - Input Impedance: 10 G  $\Omega$  , 2 PF
  - Input Current: 2 nA
- Excitation
  - Mode : Constance Voltage 2.5~15 VDC, max 150mA
  - Precision four wire bridge excitation remote sense function
  - Noise: 100  $\mu$  V  $\pm$  0.002% Vpp
  - Load Regulation:  $\pm$  200  $\mu$  V,  $\pm$  0.01%
- Amplifier
  - Eight Input range from 0.625 to 640 mV selectable by dip switch
  - Fine Input range regulation via potentiometer
  - Frequency Response
    - DC to 2 kHz; -3 (  $\pm$  0.2 dB ) at all gain settings
  - Noise: 350  $\Omega$  source impedance, DC coupled
  - Referred-to-Input ( RTI ):
    - 10 Hz 5  $\mu$  V-pp
    - 100 Hz 22 nV
    - 1 kHz 18 nV
  - CMR ( Common-Mode Rejection ):
    - Ration DC to 60 Hz
- Balance Range
  - Coarse balance:  $\pm$  100% adjust via potentiometer
  - Fine balance:  $\pm$  2% adjust via potentiometer
- Output Mode:
  - $\pm$  10V,  $\pm$  5V, 0~10V, 0~5V, Uni-polar to 20mA, Bi-polar to 20mA selection by dip switch
- Output
  - Output load: 2 k  $\Omega$  minimum resistance
  - Wide Bandwidth: DC to 2 kHz, - 3 dB nominal
  - Output noise : Less than 400  $\mu$  VRMS at 400  $\mu$  V/  $\mu$ ε output level
- Calibration
  - Internal bi-polar shunt calibration resistors (175k as 0.5mV/V @Ro=350, 87.3k /1.0mV/V @Ro=350) are provided across switch
  - Precision internal mV/V calibrator 0.625~15mV , accuracy 0.1%
  - Other ranges are available for ordering
  - External bi-polar shunt calibration resistors are provided across switch
- Filter
  - Low-pass active 4-pole Butterworth filter 3, 20, 200, 2k Hz standard
  - Selectable by Dip-switch
- Size & Weight
  - Whole unit case 70 X 35 X 32 mm , 150g
- Operational Environment
  - Operation temperature: -10° C ~ 60° C
  - Storage temperature: -20° C ~ 70° C
  - Humidity: Below 95% RH, non-condensing
- Order Code:
  - LCA-460-AC 85~305VAC, 47 ~ 63Hz, Powered
  - LCA-460-DC5 5 VDC Powered, 5V (4.5~9V)
  - LCA-460-DC12 12 VDC Powered, 12V (9~18V)
  - LCA-460-DC24 24 VDC Powered, 24V (18~36V)
  - LCA-460-DC48 48 VDC Powered, 48V (36~75V)

Drawing:

