



SMA Miniature Strain Gage Conditioning Amplifier



Features:

- Single channel miniature amplifier
- Highly accurate bridge excitation
- Provides high level voltage signal output
- Internally adjustable gain
- Precision low noise differential amplifier
- Max frequency response: 10 kHz
- Low-pass active 4-pole Butterworth standard
- Balance $\pm 13,000 \mu\epsilon$
- Internal bridge completion and shunt-calibration resistor modules

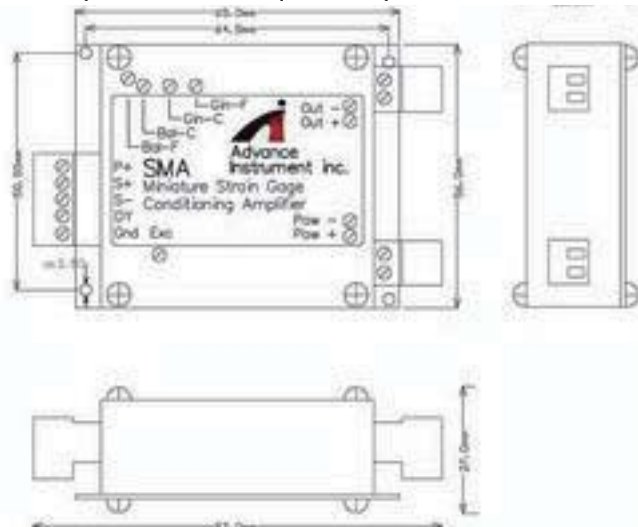
Applications:

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

Description:

SMA miniature strain gage conditioning amplifier is ideal for applications where signal conditioning is needed and space is limited. SMA is designed for the high accuracy strain measurement. Each module is designed with max frequency response is at 10 kHz.

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





SMA Miniature Strain Gage Conditioning Amplifier

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Signal Conditioning Amplifier

Specification:

- Input

- Input Impedance: 10 GW, 2 PF
- Input Current: 2 nA

Model	SMA-B10	SMA-B05
Output V	$\pm 10V$	$\pm 5V$
Excitation VDC	1.25~5	1.25~5
Excitation	80 mA	80 mA
Amplifier Gain	50 to 4,000	50 to 4,000
Power supply	13~24VDC	8~15VDC

Model	SMA-U05	SMA-U03
Output V	0.03~5V	0.03~3V
Excitation VDC	1.25~5	1.25~2.5
Excitation	70 mA	10 mA
Amplifier Gain	25 to 2,000	25 to 1,000
Power supply	8~15VDC	3.0~6VDC

- Excitation

- Mode : Constance Voltage VDC
- Noise: $100 \mu V \pm 0.002\% V_{pp}$
- Load Regulation: $\pm 200 \mu V, \pm 0.01\%$

- Amplifier

- Frequency Response
 - DC to 10 kHz; -3 (± 0.2 dB) at all gain settings
- Noise: 350 Ω source impedance, DC coupled
- Referred-to-Input (RTI):
 - 10 Hz $5 \mu V$ -pp
 - 100 Hz 22 nV
 - 1 kHz 18 nV
 - 5 kHz 16 nV
- CMR (Common-Mode Rejection):
 - Ration DC to 60 Hz

- Balance Range

- Coarse balance: $\pm 10,000 \mu\epsilon$
- Fine balance: $\pm 300 \mu\epsilon$

- Output

- Output load: 2 k Ω min. resistance
- Wide Bandwidth: DC to 10 kHz, - 3 dB nominal
- Filter or WB output by jump selected
- Output noise : Less than 400 μ VRMS at 400 μ V/ $\mu\epsilon$ output level

- Calibration

- Shunt calibration resistors are provided across switch

- Filter

- Low-pass active 4-pole Butterworth standard
- BW: 10, 100, 1 kHz (-3 ± 2 dB) by order code

- Size & Weight

- Whole unit case 2.21" X 3.43" X 1.044" (56 X 87 X 26.5 mm), 90g
- PCB only 2.17" X 2.17" X 0.59" (55 X 55 X 15 mm), 20g

- Bridge Completion and Shunt-calibration Resistor Modules

- Two 500 Ω half bridges. Internal dummy gages are provided, and a selection of 120 Ω or 350 Ω or 1000 Ω quarter bridges, 0.1% by order code
- Shunt calibration resistors are provided across internal simulator 1,000 $\mu\epsilon$

- Operational Environmental

- Operation temperature: -10° C ~ 60° C
- Storage temperature: -20° C ~ 70° C
- Humidity: Below 95% RH, non-condensing

Order Code:

SMA-xxx-yyy-zzz-vvv

xxx: Output voltage, see Model

yyy: lowpass filter frequency

"010" for 10 Hz

"100" for 100Hz

"01k" for 1kHz

zzz: Internal quarter bridge dummy 120 Ω or 350 Ω or 1000 Ω

"120" for 120 Ω

"350" for 350 Ω

"01k" for 1000 Ω

vvv: "STL" for Steel case

"PCB" for PCB Board only