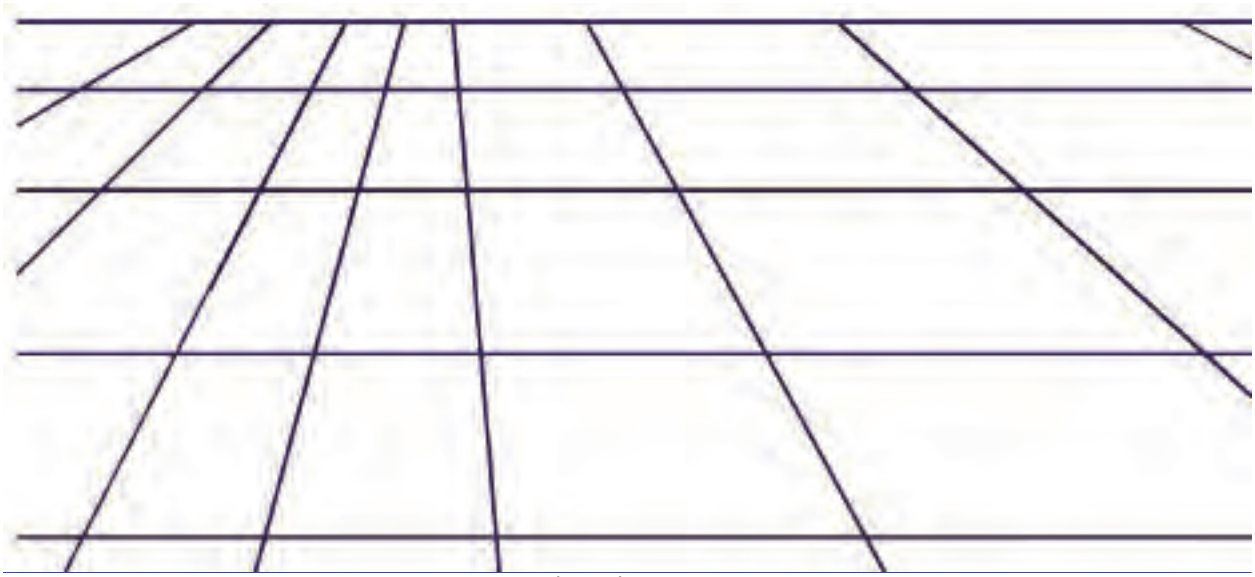
1.Strain Gage Instrumentation

- Strain Gage Indicator
- Strain Recorder
- Signal Conditioning Amplifier
- Special Purpose Strain Gage Instrument
- Displacement Transducers



ALW-220 Portable Strain Indicator

Features:

- One input channel
- Direct reading Analog Meter display
- Resolution ± 1%
- BNC Analog Output 2 Vdc, Nonlinearity 0.05%
- Full bridge circuits
- Quarter Bridge circuits Input Range 500~4000 με
- Full bridge circuits Input Range 0.25~2mv/V
- 0.2% Accuracy (0.25, 0.5, 1 mv/V) Internal Calibration
- Highly reliable TAJIMI circular connector
- 4 AA Battery Power for 80 hrs
- Battery Indicator 0~100%
- Low Battery LED
- Rugged, portable and lightweight
- Line-voltage power

Applications:

- Material Test
- Strain Indicator
- Stress Indicator
- Material Elasticity Indicator
- Load Cell Indicator
- Force Indicator
- Torque Indicator
- Pressure Indicator
- Acceleration Indicator
- Micro-Resistance Indicator
- Semiconductor Strain Gage Indicator
- Strain/Stress Analysis

Description:

ALW-220 Strain Gage Indicator is an economical instrument with high accuracy and multiple functions.

It is a Strain Gage Indicator and also function as a Strain Gage Transducer Indicator.

ALW-220 Portable Strain Indicator

Specification:

- Hardware Specifications
  All specifications nominal or typical at +23° C unless otherwise noted

- Inputs
  Highly reliable TAJIMI circular socket accept independent bridge inputs (PRC03-23A10-7F Bulkhead Mount Receptacle 7pin). Mating Plug is include (PRC03-32A10-7F5 Jack 7pin).
  Accommodates 10-36 AWG (3.0 to 0.127 mm dia.) wire.

- Number of Measuring Channels: 1 Channel

- Transducer in Use
  Applicable sensor Strain Gage Transducer
  Applicable bridge resistance: 60 to 1000 Ω

- Excitation Voltage : 2.5 VDC

- Input Resistance
  10 M Ω + 10 M Ω or more

- Span Adjustment
  Settable to F. S. when entering the following by span adjustment.
  × 2 range: 0.25 to 0.5 mV/V
  (500 × 10-6 to 1000 × 10-6 strain)
  × 1 range: 0.5 to 1.0 mV/V
  (1000 × 10-6 to 2000 × 10-6 strain)
  × 0.5 range: 1.0 to 2.0 mV/V
  (2000 × 10-6 to 4000 × 10-6 strain)

- Zero Adjustment Range
  ± 2.0 mV/V (± 4000 × 10-6 strain) or more

- Output Voltage
  Within 2 V ± 1% when indication is maximum.
  Frequency response: 0 to 1K Hz (Within -3 dB)

- Direct Reading Scale
  Full scale 0-100 equally divided into 100 (4000 × 10-6 strain)

- Nonlinearity
  Metter indication: Within ± 1%
  Output voltage: Within ± 0.1%

- Standard Equivalent Strain (CAL)
  Generates strain of 0.25 / 0.5 / 1.0 mV/V (500/1000/2000 × 10-6 strain) ± 0.2% by pressing CAL pushbutton switch

- Setting Sensitivity
  Indicator pointer deflection doubles by switching SENS switches x2, × 1 and × 0.5.

- Operating Temperature Range
  -10 to +50° C

- Gage Factor
  2.00 fixed.

- Zero Point Stability
  Within ± 0.03% F. S./° C
  Within ± 0.5% F. S./H
  Within ± 0.1% F. S./Power voltage 6 to 9 V

- Sensitivity Stability
  Within ± 0.03%/° C
  Within ± 0.2%/H
  Within ± 0.1% /Power voltage 6 to 9 V

- Power Supply
  6 to 9 VDC
  (Within operation current 40 mA: When 12 VDC is applied)
  - Continuous operation of approximately 80 hours for 8 months is available with size AA alkaline batteries.
  - Installed with DC connector

- Dimension & Weight
  - Max 215(W) × 185(H) × 185 (D) mm
  - Max 3.1 kg (With no dry batteries mounted)

- Operational Environment
  - Operating temperature: -10° C ~ 60° C
  - Storage temperature: -20° C ~ 70° C
  - Humidity: Below 95% RH, non-condensing
  - DC TO 120 kHz

P1000 Handy Strain Gage Indicator

Features:

- Strain gage or SG base transducer indicator
- ± 1 micro-strain resolution at Gage Factor = 2
- Quarter, half and full bridge circuitry
- Built-in bridge completion 120 Ω , 350 Ω dummy gages
- Automatic zero-balancing and calibration
- Actual load calibration or sensitivity registration calibration capability
- Gage resistance measuring for Quarter bridges connection
- Lead wire line resistance measuring for 3-wire Quarter bridges
- Enable reading in over 70 engineering unit
- Friendly intuitive, menu-driven operations
- Keypad operable
- Rugged, handy and lightweight
- Operates on 2 pieces of AA size dry cell or AC power adaptor
- Option 16-Bits analog output
- Option EIA-RS-232C or datum link

Applications:

- Material Test
- Strain Indicator
- Stress Indicator
- Material Elasticity Indicator
- Load Cell Indicator
- Force Indicator
- Torque Indicator
- Pressure Indicator
- Acceleration Indicator
- Micro-Resistance Indicator
- Semiconductor Strain Gage Indicator
- Strain/Stress Analysis

Description:

P1000 Strain Gage Indicator is an economical instrument with high accuracy and multiple functions.

It is a Strain Gage Indicator and also function as a Strain Gage Transducer Indicator.

As a Strain Gage Indicator, it can support 10 types of bridges and dummies. While if used as a Strain Gage Transducer Indicator, there are 24 bits A/D converts to make the measurement.

P1000 Data Logger RS-232

- Connect to maximum 8 units P1000.
- EIA-RS-232C datum link.
- Real Time Chart.
- Save Data File to Excel *.csv format.
- Free operating software.

P1000 Handy Strain Gage Indicator

Specification:

- Hardware Specifications
  All specifications nominal or typical at +23° C unless otherwise noted
  - Inputs
    Highly reliable terminal accept independent bridge inputs.
    Accommodates 16-30 AWG (1.5 to 0.14 mm diameter) wire.
    (Option) D-Sub 9-pin terminal accept independent bridge or transducer inputs.
  - Bridge Configurations
    Quarter-, half-, and full-bridge circuits.
    Internal bridge completion provided for 120 Ω and 350 Ω on quarter-bridges; 60 Ω to 2 k Ω on half- or full-bridge

- Display
  Full dot-matrix structure with 2 Row X 8 characters dots FSTN positive, gray translucence LCD with backlight.
  Display update is once per second.

- Data Conversion
  24-Bits high-resolution sigma-delta converter.
  60 Hz and 50 Hz noise rejection.

- Measurable Range
  ± 20,000 με (± 1 με resolution)
  at Gage Factor = 2.000

- Accuracy
  ± 0.1% of reading ± 3 counts. (Normal mode operation at Gage Factor = 2.000)

- Gage Factor Settings : Range 0.500 to 8.000

- mV/V Settings : Range 0.500 to 10.000

- Balance
  Single key operation to initiate automatic software balance

- Bridge Excitation : 1.25VDC ± 0.04%.

- Option Analog Output
  16-Bits DAC, Output 1.25 VDC ± 1.25V, Data rate 1 / 4.5 / 10 Hz.

- Option Communication Interface
  EIA-RS-232C Serial Bus with D-type connector.
  Used for data and firmware transferring.

- Calibration
  Shunt calibration across each dummy resistor to simulate 5000 με (± 0.1%).
  Remote calibration supported via accessible switch contacts at input female D-sub.
  Gage resistance measuring for Quarter bridges connection
  Lead wire line resistance measuring for 3-wire Quarter bridges

- Power Requirement
  AA size dry cell × 2 or Optional AC-Power Adaptor (PN: P1000-ADP).

- Dimension & Weight
  - 6.3" X 3.4" X 1.2" (160 mm X 85 mm X 30 mm)
  - 0.65 Lb (280g) without batteries.

- Operational Environment
  - Operating temperature:-10° C ~ 50° C.
  - Storage temperature: -15° C ~ 55° C.
  - Humidity: Below 95% RH, non-condensing

- Firmware Features
  - Display Update Rate: 1 readings per second.
  - Scaling
    Automatic scaling for micro-strain, based upon gage factor, with non-linearity correction based upon bridge type.
    Automatic calculation of mV/V.
    Linear scaling for other engineering units
    - Units
      Strain, Stress, Weight, Force, Pressure, Torque, Length, Accelerator, Angle, Temperature, Resistance
  - Bridge Types
    - Quarter-bridge
    - Half-bridge, adjacent arms, equal and opposite strains
    - Half-bridge, opposite arms equal strains
    - Shear bridge, 2 active arms
    - Poisson half-bridge
    - Full-bridge 4 fully active arms
    - Shear bridge, 4 active arms
    - Full-bridge, Poisson gages in opposite arms
    - Full-bridge, Poisson gages in adjacent arms
    - Undefined full-bridge
    - Undefined half-bridge; quarter-bridge

  - Bridge Balance
    - Automatic
    - Manual offset adjustment
    - Disabled

SR1 Strain Gage Indicator

Features:

- One input channel
- Direct reading LCD display
- ± 0.3 micro-strain resolution at Gage Factor = 2
- Quarter, half and full bridge circuits
- Built-in bridge completion
- 120 Ω , 350 Ω dummy gages
- Automatic zero-balancing and calibration
- Highly reliable gold plate binding post terminal
- 16-Bits analog output
- Friendly intuitive, menu-driven operations
- EIA-RS-232C datum link
- Keypad operable
- Rugged, portable and lightweight
- Line-voltage power

Applications:

- Material Test
- Strain Indicator
- Stress Indicator
- Material Elasticity Indicator
- Load Cell Indicator
- Force Indicator
- Torque Indicator
- Pressure Indicator
- Acceleration Indicator
- Micro-Resistance Indicator
- Semiconductor Strain Gage Indicator
- Strain/Stress Analysis

Description:

SR1 Strain Gage Indicator is an economical instrument with high accuracy and multiple functions.

It is a Strain Gage Indicator and also function as a Strain Gage Transducer Indicator.

As a Strain Gage Indicator, it can support 10 types of bridges and dummies. While if used as a Strain Gage Transducer Indicator, there are 24 bits A/D converts to make the measurement.

SR1 Data Logger RS-232

- Works up to 8 units SR1
- EIA-RS-232C datum link
- Real Time Chart
- Save Data File to Excel *.csv format
- Free

SR1 Strain Gage Indicator

Specification:

- Hardware Specifications
  All specifications nominal or typical at +23° C unless otherwise noted
  - Inputs
    Highly reliable gold plated binding post terminal accept independent bridge inputs.
    Accommodates 10-36 AWG (3.0 to 0.127 mm dia.) wire.
    D-Sub 9 pin terminal accept independent bridge or transducer inputs.
  - Bridge Configurations
    Quarter-, half-, and full-bridge circuits
    Internal bridge completion provided for 120 Ω and 350 Ω on quarter-bridges, 60 Ω to 2 k Ω half- or full-bridge

- Display
  Full dot-matrix structure with 2 Row × 8 Chars dots
  FSTN positive, gray translucence LCD with backlight.
  Display update is twice/second

- Data Conversion
  24 Bits High-resolution sigma-delta converter.
  60 Hz and 50 Hz noise rejection.

- Measurable Range
  ± 31,000 με (± 0.3 με resolution)
  at Gage Factor = 2.000

- Accuracy
  ± 0.1% of reading ± 3 counts. (Normal mode operation at Gage Factor = 2.000)

- Gage Factor Settings
  Range 0.500 to 10.000

- mV/V Settings
  Range 0.500 to 10.000

- Balance
  Single key operation to initiate automatic software balance

- Bridge Excitation
  2.5 VDC ± 1mv%

- Analog Output
  16-Bits DAC, Output 2.5 VDC ± 2V, Data rate 4.5 / 8.2 / 10 Hz

- Communication Interface
  EIA-RS-232C Serial Bus with type D connector.
  Used for transferring data and firmware.

- Calibration
  Shunt calibration across each dummy resistor to simulate 5000 με (± 0.1%). Remote calibration supported via accessible switch contacts at input female D-sub.

- Power Requirement
  110 or 220 VAC ± 10% by switch, 50 or 60 Hz, 0.5A

- Dimension & Weight
  - 6.3" × 6.3" × 2.4" (160 mm X 160 mm X 60 mm)
  - 2.6 Lb (1.2 Kg)

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

- Firmware Features
  - Display Update Rate
    - 2 readings per second
  - Scaling
    Automatic scaling for micro-strain, based upon gage factor, with non-linearity correction based upon bridge type. Automatic calculation of mV/V.
    Linear scaling for other engineering units
    - Units
      Strain, Stress, Weight, Force, Pressure, Torque, Length, Accelerator, Angle, Temperature, Resistance
  - Bridge Types
    - Quarter-bridge
    - Half-bridge, adjacent arms, equal and opposite strains
    - Half-bridge opposite arms equal strains
    - Shear bridge, 2 active arms
    - Poisson half-bridge
    - Full-bridge 4 fully active arms
    - Shear bridge, 4 active arms
    - Full-bridge, Poisson gages in opposite arms
    - Full-bridge, Poisson gages in adjacent arms
    - Undefined full-bridge
    - Undefined half-bridge; quarter-bridge
  - Bridge Balance
    - Automatic
    - Manual offset adjustment
    - Disabled

SR12 Twelve Channel Strain Gage Indicator

Features:

- 12 input channels
- Direct reading LCD display
- ± 1 micro-strain resolution at Gage Factor equal to 2
- Quarter, half and full bridge circuits
- Built-in bridge completion
- 120 Ω , 350 Ω dummy gages
- Automatic zero-balancing and calibration
- Highly reliable gold plate binding post terminal
- Friendly intuitive, menu-driven operations
- EIA-RS-232C datum link
- Keypad operable
- Rugged, portable and lightweight
- Line-voltage power

Applications:

- Material Test
- Strain Indicator
- Stress Indicator
- Material elasticity Indicator
- Load Cell Indicator
- Force Indicator
- Torque Indicator
- Pressure Indicator
- Acceleration Indicator
- Micro-Resistance Indicator
- Semiconductor Strain Gage Indicator
- Strain/Stress Analysis

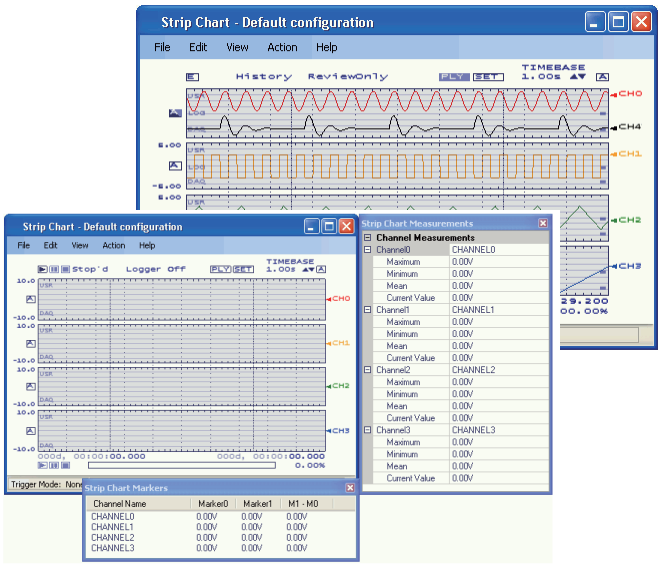
Description:

SR12 Twelve Channel Strain Gage Indicator is an economical instrument with high accuracy and multiple functions.

It is a Strain Gage Indicator and also function as a Strain Gage Transducer Indicator.

As a Strain Gage Indicator, it can support 10 types of bridges and dummies. While if it is used as a Strain Gage Transducer Indicator, there are 24 bits A/D converts to make the measurement.

- Bridge Types
  - Quarter-bridge
  - Half-bridge, adjacent arms, equal and opposite strains
  - Half-bridge opposite arms equal strains
  - Shear bridge, 2 active arms
  - Poisson half-bridge
  - Full-bridge 4 fully active arms
  - Shear bridge, 4 active arms
  - Full-bridge, Poisson gages in opposite arms
  - Full-bridge, Poisson gages in adjacent arms
  - Undefined full-bridge
  - Undefined half-bridge; quarter-bridge
- Bridge Balance
  - Automatic



SR12 Twelve Channel Strain Gage Indicator

Specification:

- Hardware Specifications
  All specifications nominal or typical at +23° C unless other noted

- Inputs
  - 12 Channels
  - Highly reliable gold plated binding post terminal accept independent bridge inputs.
  - Accommodates 10-36 AWG (3.0 to 0.127 mm dia.) wire.

- Bridge Configurations
  - Quarter-, half-, and full-bridge circuits
  - Internal bridge completion provided for 120 Ω and 350 Ω on quarter-bridges, 60 Ω to 2 k Ω half- or full-bridge

- Display
  Full dot-matrix structure with 4 Row × 40 Chars dots FSTN positive, gray translucence LCD with backlight.

- Data Conversion
  24 Bits High-resolution sigma-delta converter. 60 Hz and 50 Hz noise rejection.

- Measurable Range
  ± 31,000 με (± 1 με resolution)
  at Gage Factor = 2.000

- Accuracy
  ± 0.1% of reading ± 3 counts.
  (Normal mode operation at Gage Factor = 2.000)

- Gage Factor Settings
  Range 0.500 to 10.000

- mV/V Settings
  Range 0.500 to 10.000

- Balance
  Single key operation to initiate automatic software balance
- Bridge Excitation
  2.5 VDC ± 1mv%

- Communication Interface
  EIA-RS-232C Serial Bus with type D connector.
  Used for transferring data and firmware.
  Data rate 0.5 Hz

- Calibration
  - Shunt calibration across each dummy resistor to simulate 5,000 με (± 0.1%).
  - Remote calibration supported via accessible switch contacts at input female D-sub.
- Power Requirement
  110 or 220 VAC ± 10% by switch, 50 or 60 Hz, 3 A
- Dimension & Weight
  - 9.9" × 7.1" × 4.0" (250 mm X 180 mm X 100 mm)
  - 6.8 Lb (3 Kg)

- Operational Environment
  - Operating temperature: -10° C ~ 60° C
  - Storage temperature: -20° C ~ 70° C
  - Humidity: Below 95% RH, non-condensing
- Firmware Features
  - Scaling
    Automatic scaling for micro-strain, based upon gage factor. Automatic calculation of mV/V.
    Linear scaling for other engineering units
    • Units
    Strain, Stress, Weight, Force, Pressure, Torque, Length, Acceleration, Angle, Temperature, Resistance

- Model Option:
  SR12A Twelve Channel Strain Gage Indicator
  - Accuracy
    +/-0.25% of reading +/-6 counts.
  - Communication Interface
    USB Serial Bus with type D connector. Used for transferring data and firmware.
    22 Bits High-resolution sigma-delta converter.
    Data rate up to 20 Hz

*Note: All other specifications are the same as SR12.

- Model Option:
  SR12-PCBA Twelve Channel Strain Gage Indicator
  - Accuracy
    +/-0.25% of reading +/-6 counts.
  - Communication Interface
    USB Serial Bus with type D connector. Used for transferring data and firmware.
    16-bit SAR ADC, one per channel, simultaneous sample of all channels.
    Sample rate up to 5kHz / channel,
    Application for PCB assemble inspection base on IPC JEDEC-9704

*Note: All other specifications are the same as SR12.

SI4 Strain Indicator and Recorder

Features:

- Four Input Channels
- AC Power
- Auto Balance
- Analog output
- Excitation 2.5 VDC
- Auto Calibration
- Quarter, half and full bridge
- 120, 350, 1000 Ω dummy gages
- Three Grids 60° -Delta Strain Gage Rosettes Data Reduction
- Strain Gage Type Transducer
- Data Storage via USB Port
- Backlight LCD Display
- Communication Interface

Applications:

- Material Test
- Strain Indicator
- Stress Indicator
- Material elasticity Indicator
- Load Cell Indicator
- Force Indicator
- Torque Indicator
- Pressure Indicator
- Acceleration Indicator
- Micro-Resistance Indicator
- Semiconductor Strain Gage Indicator
- Strain/Stress Analysis
- Plane Shear Stress
- Strain Rosettes

Description:

As a strain gage indicator, SI4 has the excellent and stable performance in the strain measurement.

It supports the Strain Gage Rosettes Data Reduction including the Three Grids 60 ° -Delta Strain Gage Rosettes` operation.

It can process static measurements and storing data. These data can then be used in stress analysis and strain gage based on the transducers.

The liquid crystal display in SI4 is with the properties of high resolution, auto balance control and analog output with accurate / high sensitivity.

The bridge excitation is by means of the precisely regulated constant voltage.

Quarter	HB adj s:-s
HB opp s:-s	HB shear s:-s
HB adj s:vs	FB 4 active
FB shear	FB v opp
FB v adj	Undef FB
Undef HB/QB	

SI4 Strain Indicator and Recorder

Specification:

- Display
  - 128 × 64 Pixels LCD with backlight
- Input
  - 4 Channels
- Measurable Range
  - ± 10,000 με , at G. F. =2
- Transducer Range
  - 2.0~50 mV/V for full-scale indication
- Accuracy
  - ± 0.1% Reading ± 3 με for G. F. =2
- Auto Balance
  - Range : ± 16000 με
  - Resolution : 1 με
- Gage Factor
  - G. F. Range: 0.5~10
- Constant Voltage Excitation
  - 2.5 ± 0.1% VDC Ground balance driver, 30 mA. 50ppm
  - Noise : ≤ 2.5 μ Vp-p, 13.5 μ Vp-p/° C (0.00054)
- Amplifier
  - Temperature effect on zero: ± 1.0mV/° C RTI Max
  - Temperature effect on span: ± 0.002%/° C Max
  - Warm -up drift: Less than ± 3 counts at G. F. = 2 in ten minutes from turn-on
  - Random drift at constant ambient temperature: Less Than ± 3 με at G. F. = 2.0
  - Common-mode rejection: great than 90dB at 50~60 Hz
- Analog To Digital Conversion
  - Resolution 24 Bits
- Data Storage
  - USB -Disk
  - Recording: 1 ~ 999 Sec.
  - Auto / manual
- Strain Gage Rosettes Data Reduction
  - 45° / 60° - three grids auto operation
  - Strain p
  - Strain q
  - θ
- Analog Output:
  - Linear output : 0~5V Max
  - Any one duct of the four channels
- Shunt Calibration:
  Three internal shunt calibration resistors ± 0.1%.
  - 120 Ω Gages: 5,000 με
  - 350 Ω Gages: 5,000 με
  - 1,000 Ω Gages: 5,000 με
- Balance
  - Auto or Manual
- Input Circuit
  - Configuration 2 to 4 wires plus guard shield to accept quarter, half, full bridge strain gages or transducer
  - Internal half-bridge 120 Ω , 350 Ω ,1000 Ω completion gages
- Data Link
  - Serial Bus
- Power Requirement
  - Input: 110 or 220 VAC ± 10% by switch, 50 or 60 Hz, 1.5A
- Dimension & Weight
  - 7.9” × 3.7” × 10.6” (200 × 95 × 270 mm)
  - 6.6 Lb (3.0 Kg)
- Operational Environment
  - Operation temperature: -10° C ~ 60° C
  - Storage: -20° C ~ 70° C
  - Humidity: Below 95% RH, non-condensing

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 ± 13,000 με
- Internal bridge completion and shunt-calibration resistor modules

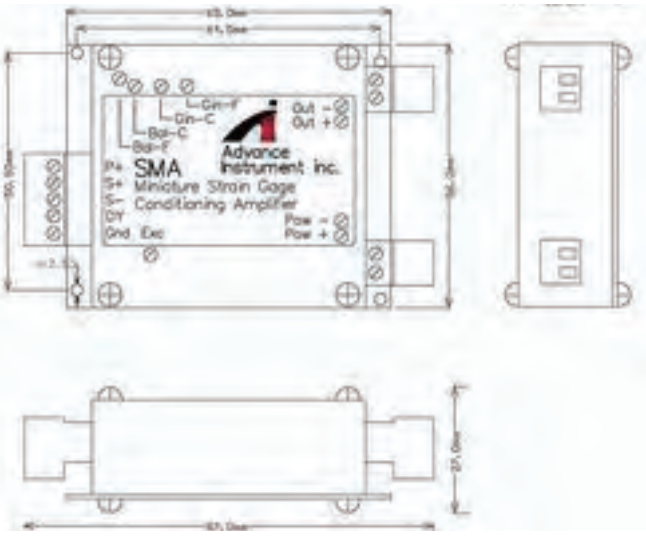
Applications:

- 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

Specification:

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

Model	SMA-B10	SMA-B05
Output V	±10V	±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 μ V ± 0.002% Vpp
  - Load Regulation: ± 200 μ V, ± 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 μ 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: ± 10,000 με
  - Fine balance: ± 300 με

- 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/ με 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 με

- 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

6411 Four Channels Strain Gage Conditioning Amplifier

Features:

- Differential signal amplifier with high bandwidth up to 10k Hz
- Gain Accuracy ± 0.1%,
- Gain Step : 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000 to 5000 by rotary switch
- Gain Linearity 0.01%
- Fully calibrated gain from 1 to 5,000
- 4 Channels per Module
- Accepts foil type strain gage, piezoresistive, potentiometers, etc.
- Selectable bridge step excitation (16bits): 0.5 to 10V
- Plug-in amplifier
- Automatic bridge balance, with EEROM to preserve balance without power
- Built-in with all bridge completion including 120 or 1000 and 350 Ω dummies.
- Built-in with shunt calibration circuits
- Built-in with four-pole Bessel low-pass filter with cutoff frequencies of 1 Hz, 3 Hz, 50 Hz, 100Hz, 300 Hz, 500Hz, 1k, 3k, 5k, 10kHz and wide-band
- Others filter type and cut-off frequency is possible
- Front-panel monitoring: Automatic balance status

Applications:

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

Description:

6411 Signal Conditioning System is designed with and incorporates all the features necessary for dynamic precise conditioning of strain gage and transducer inputs in the most severe operating environments.

6411 Signal Conditioning and amplifier's low-level signals to high-level outputs for multiple channels can be simultaneously and dynamically recorded and displayed on external devices.

6411 Four Channels Strain Gage Conditioning Amplifier

Specification:

- Input
  - Strain gages: Quarter, half or full bridge (50 to 1000 Ω)
  - Built-in 120 Ω and 350 Ω dummy gages; 1000 Ω dummy capability
  - Transducers: Foil or piezoresistive strain gage types DCDT displacement transducers; Potentiometers

- Excitation
  - Fixed settings: 0, 0.5, 1, 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 7, 8, 9, 10 VDC ± 3 mV
  - Current: 100 mA, max
    - Regulation (0-100 mA ± 10% line change) ± 0.05 mV ± 0.004 %, max measured at remote sense points.
      (Local sense: -5 mV, typical, 100 mA, measured at plug.)
  - Remote sense error: 0.0005% per Ω of lead resistance (350 Ω load)
  - Noise and ripple: 0.005% Vp-p, max (dc to 10 kHz)
  - Stability: ± 0.002%/° C
  - Level: Normally symmetrical about ground; Either side may be grounded with no effect on performance.

- Bridge Balance
  - Method: Automatic
  - Ranges (Auto ranging): ± 13000 μ εε Resolution 2.5 μ (0.0012 mV/V)
  - Balance time: 8 seconds
  - Manual vernier balance range: 0.1 V/Step, Max ± 5 V

- Calibration
  - Two internal shunt calibration resistors, ± 0.1% tolerance
    - 174.8k, 1000 μ ε (0.50 mV/V) 350 Ω bridge; 59.94k,1000 μ ε (0.50 mV/V) 120 Ω bridge.
    - Others range is possible
  - Internal selector switches for unipolar shunt calibration circuits

- Amplifier
  - Input Impedance : 100M Ω
  - Input Common Voltage : ± 30Vpp
  - Gain Step : 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000 to 5000 by rotary switch setting, Accuracy ± 0.1% Max
  - Gain Linearity : < 0.01% Max
  - Common mode rejection: @ Gain = 1,000
    - DC to 10 kHz, >100 dB
  - Frequency response versus all gain (1~1,000), 10kHz @ -3 dB
  - Rise Time <0.1μsec
  - Stability (gain over X 100)
    - ± 5 μV/° C, max, RTI (referred to input)
  - Noise (gain over X 100, all outputs)
    - 0.01 to 10 Hz: 25Vp-p RTI

- Filter
  - Characteristics
    - Low-pass active four-pole Butterworth standard
    - Frequencies (-3 ± 1dB): 1 Hz, 3 Hz, 50 Hz, 100Hz, 300 Hz, 500Hz, 1k, 3k, 5k, 10kHz and wide-band

- Input & Output
  - 4 Channels per Module
  - 8 pin terminal input connector for each sensor input
  - Output : Low impedance terminal analog output
  - Each Enclosure have IDC 50 pin box header, Centronic Connector and terminal board for output signal

- Remote Control
  - All Amplifier function can be remote control via RS-485 with AmpCon60 Windows software, max up to 1024 channels.

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

- Power Requirement
  - Input: 12 VDC ± 10% 15 A

- Dimensions & Weight
  - Panel: 1.3" X 5.2" (33.4 X 133.3 mm)
  - Amplifier depth behind panel: 10.6" (270 mm)
  - Weight: 1.32 Lb (0.6 Kg)

- Optional Accessories
  - 6001C. Single-Module enclosure with power supply.
  - 6002C. 2- Modules enclosure with power supply.
  - 6006C. 6- Modules enclosure with power supply.
  - 6012C. 12- Modules enclosure with power supply.

6411H Dynamic Four Channels Strain Gage Conditioning Amplifier

Features:

- Differential signal amplifier with high bandwidth up to 200k Hz
- Gain Accuracy ± 0.1%,
- Gain Step : 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000 to 5000 by rotary switch
- Gain Linearity 0.01%
- Fully calibrated gain from 1 to 5,000
- 4 Channels per Module
- Accepts foil type strain gage, piezoresistive, potentiometers, etc.
- Selectable bridge step excitation (16bits): 0.5 to 10V
- Plug-in amplifier
- Automatic bridge balance, with EEROM to preserve balance without power
- Built-in with all bridge completion including 120 Ω or 1000 Ω and 350 Ω dummies.
- Built-in with shunt calibration circuits
- Built-in with four-pole Bessel low-pass filter with cutoff frequencies of 10 Hz, 30 Hz, 50 Hz ~100k Hz and wide-band (14 position)
- Others filter type and cut-off frequency is possible
- Front-panel monitoring: Automatic balance status

Applications:

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

Description:

6411H Signal Conditioning System is designed with and incorporates all the features necessary for dynamic precise conditioning of strain gage and transducer inputs in the most severe operating environments.

6411H Signal Conditioning and amplifier's low-level signals to high-level outputs for multiple channels can be simultaneously and dynamically recorded and displayed on external devices.

6411H Dynamic Four Channels Strain Gage Conditioning Amplifier

Specification:

- Input
  - Strain gages: Quarter, half or full bridge (50 to 1000 Ω)
  - Built-in 120 Ω and 350 Ω dummy gages; 1000 Ω dummy capability
  - Transducers: Foil or piezoresistive strain gage types DCDT displacement transducers; Potentiometers

- Excitation
  - Fixed settings: 0, 0.5, 1, 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 7, 8, 9, 10 VDC ± 3 mV
  - Current: 100 mA, max
    - Regulation (0-100 mA ± 10% line change) ± 0.05 mV ± 0.004 %, max measured at remote sense points.
      (Local sense: -5 mV, typical, 100 mA, measured at plug.)
  - Remote sense error: 0.0005% per Ω of lead resistance (350 Ω load)
  - Noise and ripple: 0.005% Vp-p, max (dc to 10 kHz)
  - Stability: ± 0.002%/° C
  - Level: Normally symmetrical about ground; Either side may be grounded with no effect on performance.

- Bridge Balance
  - Method: Automatic
  - Ranges (Auto ranging): ± 13000 μ εε Resolution 2.5 μ (0.0012 mV/V)
  - Balance time: 8 seconds
  - Manual vernier balance range: 0.1 V/Step, Max ± 5 V

- Calibration
  - Two internal shunt calibration resistors, ± 0.1% tolerance
    - 174.8k, 1000 μ ε (0.50 mV/V) 350 Ω bridge; 59.94k,1000 μ ε (0.50 mV/V) 120 Ω bridge.
  - Others range is possible
  - Internal selector switches for unipolar shunt calibration circuits

- Amplifier
  - Input Impedance : 100M Ω
  - Input Common Voltage : ± 30Vpp
  - Gain Step : 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000 to 5000 by rotary switch setting, Accuracy ± 0.1% Max
  - Gain Linearity : < 0.01% Max
  - Common mode rejection: @ Gain = 1,000
    - DC to 10 kHz, >100 dB
  - Frequency response versus all gain (1~1,000), 230kHz @ -3 dB
  - Rise Time <0.02μsec
  - Stability (gain over X 100)
    - ± 5 μV/° C, max, RTI (referred to input)
  - Noise (gain over X 100, all outputs)
    - 0.01 to 10 Hz: 25Vp-p RTI

- Filter
  - Characteristics
    - Low-pass active four-pole Butterworth standard
    - Frequencies (-3 ± 1dB): 10 Hz, 30 Hz, 50 Hz, 100Hz, 300 Hz, 500Hz,1k, 3k, 5k,10k, 30k, 50k, 100kHz and wide-band

- Input & Output
  - 4 Channels per Module
  - 8 pin terminal input connector for each sensor input
  - Output : Low impedance terminal analog output
  - Each Enclosure have IDC 50 pin box header, Centronic Connector and terminal board for output signal

- Remote Control
  - All Amplifier function can be remote control via RS-485 with AmpCon60 Windows software, max up to 1024 channels.

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

- Power Requirement
  - Input: 12 VDC ± 10% 15 A

- Dimensions & Weight
  - Panel: 1.3" X 5.2" (33.4 X 133.3 mm)
  - Amplifier depth behind panel: 10.6" (270 mm)
  - Weight: 1.32 Lb (0.6 Kg)

- Optional Accessories
  - 6001C. Single-Module enclosure with power supply.
  - 6002C. 2- Modules enclosure with power supply.
  - 6006C. 6- Modules enclosure with power supply.
  - 6012C. 12- Modules enclosure with power supply.

7011 Strain Gage Signal Conditioning Amplifier

Features:

- Plug-in amplifier
- Maximum loading of 12-channel
- Accepts foil type strain gage, piezo resistive, potentiometers, etc.
- Selectable bridge Constant-voltage excitation: 0.5 to 10V
- Fully adjustable calibrated gain from 1 to 11,000
- Automatic bridge balance, with EEROM to preserve balance without power
- Built-in with all bridge completion including 120 or 1000 and 350 Ω dummies.
- Built-in with shunt calibration circuits
- Built-in with optically isolated shunt calibration relays
- Built-in with four-pole Bessel low-pass filter with cutoff frequencies of 1 Hz, 10 Hz, 100 Hz, 1 kHz and 10 kHz
- Front-panel monitoring: Automatic balance status

Applications:

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

Description:

7011 Signal Conditioning System is designed with and incorporates all the features necessary for precise conditioning of strain gage and transducer inputs in the most severe operating environments.

7011 Signal Conditioning and amplifier's low-level signals to high-level outputs for multiple channels can be simultaneously and dynamically recorded and displayed on external devices.

7011 Strain Gage Signal Conditioning Amplifier

Specification:

- Input
  - Strain gages: 1/4, 1/2 or full bridge (50 to 1000 Ω)
  - Built-in 120 Ω and 350 Ω dummy gages; 1000 Ω dummy capability
  - Transducers: foil or piezo resistive strain gage types; DCDT displacement transducers; potentiometers

- Excitation
  - Fixed settings: 0, 0.5, 1, 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 7, 8, 9, 10 VDC ± 3mV
  - Current: 100mA, min
  - Regulation (0-100mA ± 10% line change) ± 0.05 mV ± 0.004 %, max measured at remote sense points. (Local sense: -5mV, typical, 100mA, measured at plug.)
  - Remote sense error: 0.0005% per Ω of lead resistance (350 Ω load)
  - Noise and ripple: 0.005%Vp-p, max (dc to 10 kHz)
  - Stability: ± 0.002%/° C
  - Level: Normally symmetrical above ground; Either side may be grounded with no effect on performance.

- Bridge Balance
  - Method: Automatic
  - Ranges (Auto ranging): ± 13000μ ε Resolution 2.5μ (0.0012mV/V)
  - Balance time: 8 seconds
  - Manual vernier balance range: 0.1V/Step, Max ± 5V

- Calibration
  - Four internal shunt calibration resistors, ± 0.1% tolerance
    - 174.8k, 1000μ ε (0.50mV/V) 350 Ω bridge; 874.8k, 200μ ε (0.10mV/V) 350 Ω bridge; 59.94k, 1000μ ε (0.50mV/V) 120 Ω bridge.
  - Activated by front-panel switch, or by optically isolated remote contact closure or low TTL level
  - Internal selector switches for selection of two-point unipolar, bipolar, or two-point double shunt calibration circuits bipolar

- Amplifier
  - Gain: 1 to 11 000 continuously variable. Direct reading, ± 1% Max, 10-turn counting knob (× 1 to × 11) plus decade multiplier (× 1 to × 1000)
  - Frequency response, all gains full output
    - DC coupled: DC to 145 kHz, -3dB Max
    - DC to 60 kHz, -0.5dB Max
  - Frequency response versus gain, full output:

Gain	-0.5 dB	-3 dB
1-11	130 kHz	300 kHz
10-110	110 kHz	250 kHz
100-1100	80 kHz	160 kHz
400-4400	60 kHz	120 kHz

  - Stability (gain over × 100)
    - ± 2μV/° C, max, RTI (referred to input)
  - Noise (gain over X100, all outputs)
    - 0.01 to 10Hz: 1μVp-p RTI
    - 0.5 to 125 kHz: 6 μVRMS, Max, RTI

- Filter
  - Characteristics
    - Low-pass active four-pole Butterworth standard
    - Frequencies (-3 ± 1dB): 1, 10, 100, 1k and 10 kHz and wide-band

- Input & Output
  - D type 15 pin input connector for sensor input
  - BNC connector for each 7011 amplifier output
  - Each Enclosure have one D type 15 pin connector and terminal board for output signal

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

- Power Requirement
  - Input: 110 or 220 VAC ± 10% by switch, 50 or 60 Hz, 2A

- Dimensions & Weight
  - Module: 1.3” × 5.2” (33.4 × 133.3 mm)
  - Amplifier depth behind panel: 10.6” (270 mm)
  - Weight: 1.32 Lb (0.6 Kg)
  - Dimensions & Weight of 7001C, 7006C & 7012C

- Optional Accessories
  - 7001C. Single-Channel Enclosure with power supply
  - 7006C. 6-Channel Enclosure with power supply
  - 7012C. 12-Channel Enclosure with power supply
  - 7M04. 4-channels digital readout module
  - 7M10. 10-channels digital readout module

7211 Dynamic Strain Gage Signal Conditioning Amplifier

Applications:

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

Features:

- Differential signal amplifier with high bandwidth up to 1MHz
- Gain Accuracy ± 0.1%
- Fully adjustable calibrated programmable gain from 1 to 9,999
- Accepts foil type strain gage, piezo resistive, potentiometers, etc.
- Selectable bridge Constant-voltage excitation: 0 to 10V
- Plug-in amplifier
- Automatic bridge balance, with EEROM to preserve balance without power
- Built-in with all bridge completion including 120 or 1000 and 350 Ω dummies.
- Built-in with shunt calibration circuits
- Built-in with optically isolated shunt calibration relays
- Built-in five-pole Bessel low-pass filter
- 10 Selectable cutoff frequencies of 10 Hz to 100kHz and wide-band
- Possess other filter type and cut-off frequency
- Front-panel monitoring: Automatic balance status

Description:

7211 Signal Conditioning System is designed with and incorporates all the features necessary for dynamic precise conditioning of strain gage and transducer inputs in the most severe operating environments.

7211 Signal Conditioning and amplifier's low-level signals to high-level outputs for multiple channels can be simultaneously and dynamically recorded and displayed on external devices.

- Optional Accessories
  - 7001C Single-Channel Enclosure with power supply
  - 7002C 2-Channel Enclosure with power supply
  - 7006C 6-Channel Enclosure with power supply
  - 7012C 12-Channel Enclosure with power supply
  - 7012C-PT 12-Channel Enclosure with power supply for PT06A-14-15P(SR) input connector

7211 Dynamic Strain Gage Signal Conditioning Amplifier

Specification:

- Input
  - Strain gages: Quarter, half or full-bridge (50 to 1000 Ω)
  - Built-in 120 Ω and 350 Ω dummy gages; 1000 Ω dummy capability
  - Transducers: Foil or piezo resistive strain gage types; DCDT displacement transducers; Potentiometers
- Excitation
  - Fixed settings: 0,1, 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 7, 8, 9, 10 VDC ± 3 mV
  - Current: 100 mA, min
  - Regulation (0-100 mA ± 10% line change) ± 0.05 mV ± 0.004 %, max measured at remote sense points. (Local sense: -5 mV, typical, 100 mA, measured at plug.)
  - Remote sense error: 0.0005% per Ω of lead resistance (350 Ω load)
  - Noise and ripple: 0.005% Vp-p, max (dc to 10 kHz)
  - Stability: ± 0.002%/° C
  - Level: Normally symmetrical above ground; either side may be grounded with no effect on performance.
- Bridge Balance
  - Method: Automatic
  - Ranges (Auto ranging): ± 13000 μ ε Resolution 2.5 μV (0.0012 mV/V)
  - Balance time: 8 seconds
  - Manual vernier balance range: 0.1 V/Step, Max ± 5 V
- Calibration
  - Four internal shunt calibration resistors, ± 0.01% tolerance
    - 174.8k, 1000 μ ε (0.50 mV/V) 350 Ω bridge; 874.8k, 200 μ ε (0.10 mV/V) 350 Ω bridge; 59.94k, 1000 μ ε (0.50 mV/V) 120 Ω bridge.
  - Activated by front-panel switch, or by optically isolated remote contact closure or low TTL level
  - Internal selector switches for selection of two-point unipolar, bipolar, or two-point double shunt calibration circuits bipolar
- Amplifier
  - Gain: 1 to 10,000 continuously variable. Direct reading, Accuracy ± 0.1% Max, 4 digital Led (X 1 to X 9.999) plus decade multiplier (X 1 to X 1000)
  - Frequency response, all gains full output
    - DC coupled: DC to 1 MHz, -3 dB Max @ Vout < ± 600mV
    - DC to 60 kHz, -0.5 dB Max
  - Frequency response versus all gain (1~9,999), output:

Output	-0.5 dB	-3 dB
0.3 VPP	1.8 MHz	2 MHz
1. VPP	1 MHz	1.1 MHz
1.2 VPP	860 kHz	1 MHz
2 VPP	500 kHz	700 kHz
3 VPP	500 kHz	700 kHz
4 VPP	300 kHz	400 kHz
5 VPP	230 kHz	300 kHz

  - Stability (gain over X 100)
    - ± 2 μV/° C, max, RTI (referred to input)
  - Nonlinearity < 0.05% ▪ Nonlinearity < 0.05%
  - Noise (gain over X 100, all outputs)
    - 0.01 to 10 Hz: 1μVp-p RTI
    - 0.5 to 125 kHz: 6 μVRMS, Max, RTI
- Display
  - 4 digital LED display for amplifier output voltage
  - Fine gain setting from 1.000 to 9.999
- Filter
  - Characteristics
    - Low-pass active four-pole linearity Butterworth standard
    - Frequencies (-3 ± 1dB): 10 Hz, 30 Hz, 100 Hz, 300Hz, 1k, 3k, 10k, 30k, 100kHz and wide-band
- Input & Output
  - D type 15 pin input connector for sensor input
  - Optional PT06A-14-15P(SR) 15 pin input connector for sensor input
  - Enclosure to sensor input impedance > 1 G Ω
  - BNC connector for each 7211 amplifier output, ± 10 V
  - Each enclosure have one D type 15 pin connector and terminal board for output signal
  - 4 Digital DVM, resolution 1mV
- Operational Environment
  - Operation temperature: -10° C ~ 60° C
  - Storage: -20° C ~ 70° C
  - Humidity: Below 95% RH, non-condensing
- Power Requirement
  - Input: 110 or 220 VAC ± 10% by switch, 50 or 60 Hz, 2 A
- Dimensions & Weight
  - Panel: 1.3” X 5.2” (33.4 X 133.3 mm)
  - Amplifier depth behind panel: 10.6” (270 mm)
  - Weight: 1.32 Lb (0.6 Kg)
- Order code
  - 7211 : D type 15 pin input connector for sensor input
  - 7211-PT : PT06A-14-15P(SR) 15 pin input connector for sensor input

7612 IEPE Voltage Signal Conditioning Amplifier

Features:

- Dual channel per module
- Differential signal amplifier with high bandwidth up to 200kHz
- Gain accuracy at ± 0.1%
- Gain linearity at 0.01%
- Fully calibrated gain from 1to 1,000 by 1 / 2 / 5..
- Accepts quartz type sensors.
- Selectable step excitation : 2 to 20mA
- Plug-in amplifier
- Front-panel monitors : transducer bias voltage
- Front-panel monitors : short or open circuit in the cable

Applications:

- Quartz Accelerometer
- Pressure transducer
- Force transducer
- Strain transducer
- Vibration test …etc.

Description:

7612 Voltage signal conditioning system is designed with and incorporates all the features necessary for dynamic precise conditioning of quartz transducer inputs in the most severe operating environments.

7612 can simultaneously signal condition and amplifies low-level signals to high-level outputs on multiple channels. It is also capable of dynamically recording and displaying on external devices.

Use for powering ADI low impedance quartz transducers and amplifying the signal in multi-channel systems for laboratory, field or factory applications.

These dual channel amplifying power units provide adjustable 2 to 20 mA constant current excitation to the transducer and gain adjustment from 0 to 1,000 by 1 / 2 / 5 step gain switch.

High-level excitation current is particularly useful when driving long cables at high frequencies in field or factory applications.

Buffer amplifier output maintains the time constant independent of the load impedance.

The self-test circuit monitors the transducer bias voltage and indicates normal or faulty operations such as a short or open circuit in the cable.

Microdot SMA input and BNC output connectors are isolated from chassis ground.

7612 IEPE Voltage Signal Conditioning Amplifier

Specification:

- Number of Channels : 2 channels per module

- Input
  - Transducers: Piezo-resistive types transducers

- Excitation
  - Fixed settings: 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20 mA ± 0.1%
  - Noise and ripple: 0.05% Vp-p, max (dc to 10 kHz)
  - Stability: ± 0.02%/° C

- Amplifier
  - Input Impedance : >1M Ω
  - Input Common Voltage : ± 30Vpp ε
  - Gain Step : 1 to 1,000 Direct setting.
    Accuracy : ± 0.1% Max
  - Gain Linearity : < 0.01% Max
  - Common mode rejection: @ Gain = 1,000
    - DC to 100 kHz, >121 dB
    - 100 kHz to 1M Hz, >102 dB
  - Frequency response versus all gain (1~1,000), 200kHz @ -3 dB
  - Rise Time < 2μsec
  - Stability (gain over X 100)
  - Noise (gain over X 100, all outputs)
    - 0.01 to 10 Hz: 1μVp-p RTI
    - 0.5 to 125 kHz: 6 μVRMS, Max, RTI

- Monitor:
  - transducer bias voltage
  - short or open circuit in the cable

- Input & Output
  - Two Microdot SMA input connector for sensor input
  - Output : Two BNC connector for each channel amplifier output.
  - Output impedance <10 Ω .

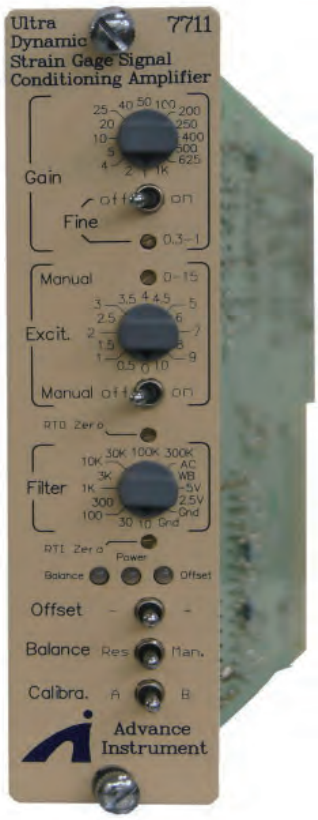
- Operational Environment
  - Operating temperature: -10° C ~ 60° C
  - Storage temperature: -20° C ~ 70° C
    - Humidity: Below 95% RH, non-condensing

- Power Requirement
  - Input: 110 or 220 VAC ± 10% by switch, 50 or 60 Hz, 2 A

- Dimensions & Weight
  - Panel: 1.3” X 5.2” (33.4 X 133.3 mm)
  - Amplifier depth behind panel: 10.6” (270 mm)
  - Weight: 1.32 Lb (0.6 Kg)

- Optional Accessories
  - 7001C. Single-Channel Enclosure with power supply
  - 7002C. 2-channels Enclosure with power supply.
  - 7006C. 6-channels Enclosure with power supply.
  - 7012C. 12-channels Enclosure with power supply.

7711 Ultra Dynamic Strain Gage Signal Conditioning Amplifier



Features:

- Differential signal amplifier with high bandwidth up to 3MHz
- Gain Accuracy ± 0.1%
- Gain Linearity 0.01%
- Fully adjustable calibrated gain from 0.3 to 1,000
- Accepts foil type strain gage, piezoresistive, potentiometers, etc.
- Selectable bridge step excitation (16bits): 0.5 to 10V
- Manual bridge Constant-voltage adjust excitation: 0 to 15V
- High common mod voltage ± 300V
- Plug-in amplifier
- Automatic bridge balance, with EEROM to preserve balance without power
- Built-in with all bridge completion including 120 or 1000 and 350 Ω dummies.
- Built-in with shunt calibration circuits
- Built-in with optically isolated shunt calibration relays
- Built-in with four-pole Bessel low-pass filter with cutoff frequencies of 10 Hz, 30 Hz, 100 Hz, 300Hz, 1k, 3k, 10k, 30k, 100kHz, 300 kHz and wide-band
- Others filter type and cut-off frequency is possible
- Front-panel monitoring: Automatic balance status

Applications:

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

Description:

7711 Signal Conditioning System is designed with and incorporates all the features necessary for dynamic precise conditioning of strain gage and transducer inputs in the most severe operating environments.

7711 Signal Conditioning and amplifier's low-level signals to high-level outputs for multiple channels can be simultaneously and dynamically recorded and displayed on external devices.

Factory reserves the right to change specifications with or without knowledge to customer.

7711 Ultra Dynamic Strain Gage Signal Conditioning Amplifier

Specification:

- Input
  - Strain gages: Quarter, half or full bridge (50 to 1000 Ω)
  - Built-in 120 Ω and 350 Ω dummy gages; 1000 Ω dummy capability
  - Transducers: Foil or piezoresistive strain gage types; DCDT displacement transducers; Potentiometers

- Excitation
  - A: Fixed settings: 0, 0.5, 1, 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 7, 8, 9, 10 VDC ± 3 mV
  - B: Manual adjust settings: adjust via 10 turns potentiometers, 0~15VDC
  - Current: 100 mA, min
  - Regulation (0-100 mA ± 10% line change) ± 0.05 mV ± 0.004 %, max measured at remote sense points. (Local sense: -5 mV, typical, 100 mA, measured at plug.)
  - Remote sense error: 0.0005% per Ω of lead resistance (350 Ω load)
  - Noise and ripple: 0.005% Vp-p, max (dc to 10 kHz)
  - Stability: ± 0.002%/° C
  - Level: Normally symmetrical about ground; Either side may be grounded with no effect on performance.

- Bridge Balance
  - Method: Automatic
  - Ranges (Auto ranging): ± 13000 μ ε Resolution 2.5 μ (0.0012 mV/V)
  - Balance time: 8 seconds
  - Manual vernier balance range: 0.1 V/Step, Max ± 5 V

- Calibration
  - Four internal shunt calibration resistors, ± 0.1% tolerance
    - 174.8k, 1000 μ ε (0.50 mV/V) 350 Ω bridge; 874.8k, 200 μ ε (0.10 mV/V) 350 Ω bridge; 59.94k, 1000 μ ε (0.50 mV/V) 120 Ω bridge.
  - Activated by front-panel switch, or by optically isolated remote contact closure or low TTL level
  - Internal selector switches for selection of two-point unipolar, bipolar, or two-point double shunt calibration circuits bipolar

- Amplifier
  - Input Impedance : 1M Ω
  - Input Common Voltage : ± 300Vpp
  - Gain Step : 1 to 1,000 Direct setting, Accuracy ± 0.1% Max
  - Vernier Gain : 0.3~1 via 10 turns potentiometers,
  - Gain Linearity : < 0.01% Max
  - Common mode rejection: @ Gain = 1,000
    - DC to 100 kHz, >121 dB
    - 100 kHz to 1M Hz, >102 dB
    - 1M Hz to 5M Hz, >82 dB
    - 5M Hz to 10 MHz, >60 dB
  - Frequency response versus all gain (1~1,000), 3MHz @ -3 dB
  - Rise Time <0.1μsec
  - Stability (gain over X 100)
  - RTI Zero: Adjust via 10 turns potentiometers
  - RTO Zero: Adjust via 10 turns potentiometers
    - ± 2 μV/° C, max, RTI (referred to input)
  - Noise (gain over X 100, all outputs)
    - 0.01 to 10 Hz: 1μVp-p RTI
    - 0.5 to 125 kHz: 6 μVRMS, Max, RTI

- Filter
  - Characteristics
    - Low-pass active four-pole Butterworth standard
    - Frequencies (-3 ± 1dB): 10 Hz, 30 Hz, 100 Hz, 300Hz, 1k, 3k, 10k, 30k, 100kHz, 300KHz and wide-band

- Input & Output
  - D type 15 pin input connector for sensor input
  - Output 1: BNC connector for each 7711 amplifier output, Output impedance 50 Ω
  - Output 2: Low impedance terminal analog output
  - Each Enclosure have one D type 15 pin connector and terminal board for output signal

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

- Power Requirement
  - Input: 110 or 220 VAC ± 10% by switch, 50 or 60 Hz, 2 A
- Dimensions & Weight
  - Panel: 1.3" X 5.2" (33.4 X 133.3 mm)
  - Amplifier depth behind panel: 10.6" (270 mm)
  - Weight: 1.32 Lb (0.6 Kg)

- Optional Accessories
  - Model 7006C 6-Channel Enclosure
  - Model 7012C 12-Channel Enclosure

7310 Dynamic Strain Gage Signal Conditioning Amplifier

Features:

- Differential signal amplifier with high bandwidth up to 800 kHz
- Gain Accuracy ± 0.1%
- Fully adjustable calibrated programmable gain from 1 to 9,999
- 4 digital LED display for gain, filter, excitation setting or output voltage
- Accepts foil type strain gage, piezo resistive, potentiometers, etc.
- Programmable or Selectable bridge Constant-voltage excitation: 0 to 15V
- Plug-in amplifier
- Automatic bridge balance, with EEROM to preserve balance without power
- Built-in with all bridge completion including 120 or 1000 and 350 Ω dummies.
- Built-in with shunt calibration circuits
- Built-in with optically isolated shunt calibration relays
- Built-in with programmable or selectable four-pole Bessel low-pass filter
- 10 Selectable cutoff frequencies of 10 Hz to 100kHz and wide-band
- Front-panel monitoring: Vin, Vout and Excitation

Applications:

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

Description:

7310 Signal Conditioning System is designed with and incorporates all the features necessary for dynamic precise conditioning of strain gage and transducer inputs in the most severe operating environments.

7310 Signal Conditioning and amplifier's low-level signals to high-level outputs for multiple channels can be simultaneously and dynamically recorded and displayed on external devices.

7310 Dynamic Strain Gage Signal Conditioning Amplifier

Specification:

- Input
  - Strain gages: Quarter, half or full-bridge (50 to 1000 Ω)
  - Built-in 120 Ω and 350 Ω dummy gages; 1000 Ω dummy capability
  - Transducers: Foil or piezo resistive strain gage types; DCDT displacement transducers Potentiometers
- Excitation
  - Fixed settings: 0, 0.5, 1, 2, 2.5, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15 VDC ± 4.5 mV
  - Current: 100 mA, min
  - Regulation (0-100 mA ± 10% line change) ± 0.05 mV ± 0.004 %, max measured at remote sense points.
  (Local sense: -5 mV, typical, 100 mA, measured at plug.)
  - Remote sense error: 0.0005% per Ω of lead resistance (350 Ω load)
  - Noise and ripple: 0.005% Vp-p, max (dc to 10 kHz)
  - Stability: ± 0.002%/° C
  - Level: Normally symmetrical above ground; either side may be grounded with no effect on performance.
- Bridge Balance
  - Method: Automatic
  - Ranges (Auto ranging): ± 13000 μ ε Resolution 2.5 μV (0.0012 mV/V)
  - Balance time: 8 seconds
  - Manual vernier balance range: ± 300 μ ε
- Calibration
  - Four internal shunt calibration resistors, ± 0.01% tolerance
  - 174.8k, 1000 μ ε (0.50 mV/V) 350 Ω bridge;
  - 874.8k, 200 μ ε (0.10 mV/V) 350 Ω bridge;
  - 59.94k, 1000 μ ε (0.50 mV/V) 120 Ω bridge.
  - 599.88k, 100 μ ε (0.05 mV/V) 120 Ω bridge.
  - Activated by front-panel switch, or by optically isolated remote contact closure or low TTL level
  - Internal selector switches for selection of two-point unipolar, bipolar, or two-point double shunt calibration circuits bipolar
- Amplifier
  - Gain: 1 to 9,999 continuously variable.
    Direct reading, Accuracy ± 0.1% Max,
    4 digital Led (X 1 to X 9.999)
    plus decade multiplier (X 1 to X 1000)
  - Frequency response, all gains full output
  - DC coupled: DC to 800 kHz, -3 dB Max @ Vout < ± 5000mV
  - DC to 60 kHz, -0.5 dB Max
  - Stability (gain over X 100)
  - ± 2 μV/° C, max, RTI (referred to input)
  - Nonlinearity < 0.05% ▪ Nonlinearity < 0.05%
  - Noise (gain over X 100, all outputs)
  - 0.01 to 10 Hz: 1μVp-p RTI
  - 0.5 to 125 kHz: 6 μVRMS, Max, RTI
- Display
  - 4 digital LED display for amplifier output voltage
  - Fine gain setting from 1.000 to 9.999
- Filter
  - Characteristics
    - Low-pass active four-pole linearity Butterworth standard
  - Frequencies (-3 ± 1dB): 10 Hz, 30 Hz, 100 Hz, 300Hz, 1k, 3k, 10k, 30k, 100kHz and wide-band
  - Programmable settings: 0.001 ~ 50.00 kHz, 1Hz/step or 10Hz/step, 2~10 kHz phase matching < 0.3 deg
- Input & Output
  - PT06A-14-15P(SR) 15 pin input connector for sensor input
  - Enclosure to sensor input impedance > 1 G Ω
  - BNC connector for each 7310 amplifier output, ± 10 V
  - Each enclosure have one D type 15 pin connector and terminal board for output signal
  - 4 Digital DVM, resolution 1mV
- Operational Environment
  - Operation temperature: -10° C ~ 60° C
  - Storage: -20° C ~ 70° C
  - Humidity: Below 95% RH, non-condensing
- Power Requirement
  - Input: 110 or 220 VAC ± 10% by switch, 50 or 60 Hz, 2 A
- Dimensions & Weight
  - Panel: 1.3" X 5.2" (33.4 X 133.3 mm)
  - Amplifier depth behind panel: 10.6" (270 mm)
  - Weight: 1.32 Lb (0.6 Kg)
- Order code
  - 7310 : PT06A-14-15P(SR) 15 pin input connector for sensor input
- Optional Accessories
  - 7001CPT Single-Channel Enclosure with power supply for PT06A-14-15P(SR) input connector
  - 7002CPT 2-Channel Enclosure with power supply for PT06A-14-15P(SR) input connector
  - 7006CPT 6-Channel Enclosure with power supply for PT06A-14-15P(SR) input connector
  - 7012CPT 12-Channel Enclosure with with power supply for PT06A-14-15P(SR) input connecto

AB Series Strain Indicator Calibrator

Features:

- True Wheatstone bridge circuitry
- Independent model AB-120 for 120 Ω , and model AB-350 for 350 Ω
- Simulates quarter, half, and full-bridge
- 12 position preset range
- Quarter-bridge strain range direct reading: ± 200 to ± 100 000 με .
- Half and Full-bridge strain range direct reading: ± 200 to ± 100 000 με
- Transducer range: ± 0.2 mV/V to ± 100 mV/V
- Reversing switch for plus and minus calibration
- High precision resistors used throughout to ensure excellent stability
- Accuracy 0.02 percent

Applications:

- Strain Indicator Calibrator
- Stress Indicator Calibrator
- Material elasticity Indicator Calibrator
- Load Cell Indicator Calibrator
- Micro-Resistance Indicator Calibrator
- Load Cell Signal Conditioning Calibrator
- Foil Strain Gage Signal Conditioning Calibrator
- Semiconductor Strain Gage Signal Conditioning Calibrator

Description:

The Model AB calibrator is a Wheatstone bridge and generates a true change of resistance in one arms of the bridge.

It simulates the actual behavior of a strain gage in negative strain calibrator based on the Wheatstone bridge principle requires stable components.

Multiple ultra-stable and hi-stable precision resistors are used in the Model AB calibrator to provide the stability, repeatability and accuracy required in a laboratory strain gages instrument.

AB Series Strain Indicator Calibrator

Specification:

- Accuracy
  - 0.02% of setting ± 0.2 με (0.0001 mV/V), full bridge
  - 0.02% of setting ± 1.0 με (0.0001 mV/V), quarter bridge and half bridge
- Repeatability
  - ± 1 με (0.0001 mV/V), maximum
- Stability
  - (0.02% of setting ± 0.2 με) /° C, maximum
- Thermal EMF
  - 1.0 μ V/V of excitation, maximum
- Bridge Resistances
  - Model AB-120 for 120 Ω
  - Model AB-350 for 350 Ω
- Output Resistance
  - ± 0.02%, maximum, from nominal at “0” με ± 10.0% at ± 100,000 με (Quarter Bridge)
- Circuit
  - True ±Δ R in two adjacent arms , plus two fixed arms for bridge completion
- Simulation
  - Quarter bridge, one active arm
  - Half bridge, two active arm
  - Full bridge, two active arm
- Range
  - Two Active Arm 0 to ± 100000 με
  - Quarter, Half and Full bridge, two Active Arm: 0, ± 200, ± 500, ± 1,000, ± 2,000, ± 3,000, ± 4,000, ± 5,000, ± 10,000, ± 20,000, ± 50,000, ± 100,000 με @ G. F. = 2.000/ Active Arm
  - Half and Full bridge: transducer 0.000, ± 0.200, ± 0.500, ± 1.000, ± 2.000, ± 3.000, ± 4.000, ± 5.000, ± 10.000, ± 20.000, ± 50.000, ± 100.00 mV/V
- Excitation
  - To Meet Accuracy and Repeatability Specifications
    - 120 Ω : up to 7 VDC
    - 350 Ω : up to 10 VDC
  - Maximum Permissible
    - 120 Ω : 10V AC or DC
    - 350 Ω : 17V AC or DC
- Output @ 0
  - 150 με (0.075 mV/V), maximum in full-bridge mode
- Environment
  - Temperature
    - +10° C to +38° C (+50° F to +100° F)
  - Humidity
    - Up to 70% RH, non-condensing
- Dimension
  - Aluminum case
  - 170 × 94 × 115 mm (6.7 L x 3.7 W x 4.6 H in)
- Weight
  - < 0.7 kg (< 1.6 LB)
  - All specifications are nominal or typical at +23° C unless noted.
- Model Options
  - AB-120 for 120 Ω
  - AB-350 for 350 Ω

AE Series Strain Indicator Calibrator

Features:

- True Wheatstone bridge circuitry
- Independent model AE-120 for 120 Ω , and model AE-350 for 350 Ω
- Simulates quarter, half, and full-bridge
- 12 position preset range
- Quarter-bridge strain range direct reading: -100 to -100 000 με .
- Half and Full-bridge strain range direct reading: ± 100 to ± 100 000 με .
- Transducer range: ± 0.5 mV/V to ± 50 mV/V
- Reversing switch for plus and minus calibration
- High precision resistors used throughout to ensure excellent stability
- Accuracy 0.3 percent

Applications:

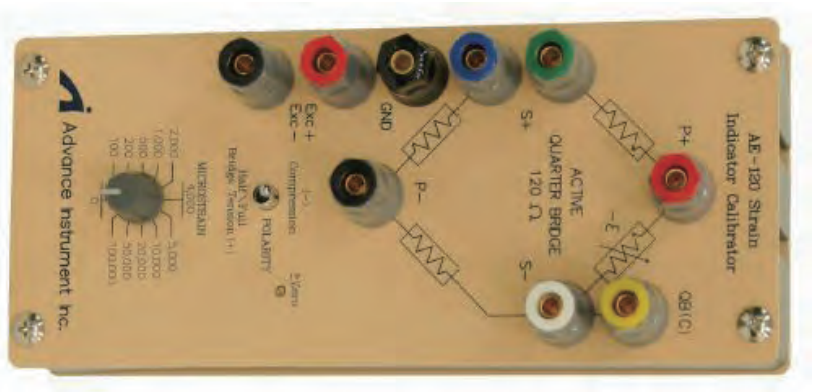
- Strain Indicator Calibrator
- Stress Indicator Calibrator
- Material elasticity Indicator Calibrator
- Load Cell Indicator Calibrator
- Micro-Resistance Indicator Calibrator
- Load Cell Signal Conditioning Calibrator
- Foil Strain Gage Signal Conditioning Calibrator
- Semiconductor Strain Gage Signal Conditioning Calibrator

Description:

The Model AE calibrator is a Wheatstone bridge and generates a true change of resistance in one arms of the bridge.

It simulates the actual behavior of a strain gage in negative strain calibrator based on the Wheatstone bridge principle requires stable components.

Multiple ultra-stable and hi-stable precision resistors are used in the Model AE calibrator to provide the stability, repeatability and accuracy required in a laboratory strain gages instrument.



AE Series Strain Indicator Calibrator

Specification:

- Accuracy
  - 0.3% of setting ± 3 με (0.0015 mV/V), maximum
- Repeatability
  - ± 3 με (0.0015 mV/V), maximum
- Stability
  - (0.3% of setting ± 3 με) /° C, maximum
- Thermal EMF
  - 1.0 μ V/V of excitation, maximum
- Bridge Resistances
  - Model AE-120 for 120 Ω
  - Model AE-350 for 350 Ω
- Output Resistance
  - ± 0.05%, maximum, from nominal at “0” με
    -20.0% at -100000 με (Quarter Bridge)
- Circuit
  - True - Δ R in one adjacent arms , plus three fixed arms for bridge completion
- Simulation
  - Quarter bridge, one active arm
  - Half bridge, one active arm
  - Full bridge, one active arm
- Range
  - One Active Arms 0 to -100000 με
  - Quarter bridge:
    0, -100, -200, -500, -1000, -2000, -4,000, -5,000, -10,000, -20,000, -50,000, -100,000 με @ G. F. = 2.000
  - Half and Full bridge:
    0, ± 100, ± 200, ± 500, ± 1000, ± 2000, ± 4,000, ± 5,000, ± 10,000, ± 20,000, ± 50,000, ± 100,000 με @ G. F. = 2.000
  - Half and Full bridge: transducer
    0 to ± 50 mV/V
- Excitation
  - To Meet Accuracy and Repeatability Specifications
    - 120 Ω : up to 7 VDC
    - 350 Ω : up to 10 VDC
  - Maximum Permissible
    - 120 Ω : 10V AC or DC
    - 350 Ω : 17V AC or DC
- Output @ 0
  - 50 με (0.025 mV/V), maximum in full-bridge mode
- Environment
  - Temperature
    - +50° F to +100° F (+10° C to +38° C)
  - Humidity
    - Up to 70% RH, non-condensing
- Dimension
  - Aluminum case (separable lid)
  - 202 × 87 × 60 mm (8 L x 3.5 W x 2.4 H in)
- Weight
  - < 1.3 kg (< 2.9 LB)
  - All specifications are nominal or typical at +23° C unless noted.
- Model Options
  - AE-120 for 120 Ω
  - AE-350 for 350 Ω

GT2 Gage Installation Tester

Features:

- A compact instrument to verify the electrical quality of a strain gage installation before it is placed in service
- To read insulation resistance (leakage) to 20,000 M Ω with 15 VDC
- To measure the deviation of installed gage resistance from precise standard to a resolution of 0.0001%
- Ohmmeter scale to diagnose and solve questionable installations
- To verify the complete gage circuit including lead-wires

Applications:

Description:

After installing strain gage, the main quality verification and examination test are the isolation impedance and resistance shift.

The strain gage is made by foil alloy. Its isolation impedance after installing is more than 20 GΩ.

Use room-temperature curing adhesive, the gage resistance shift value must be less than 0.5%.

Use bake curing adhesive, the gage resistance shift value must be less than 2%.

When G. F. is 2, the resolution of GT2, being a strain indicator, is 2 με .

GT2 Gage Installation Tester

Specification:

- Input Circuits
  - Gages: Three-wire quarter bridge (120 Ω and 350 Ω) and half bridge. Other value quarter bridges using customer's reference, at readily accessible panel terminals
  - As ohmmeter: Two leads (500 Ω and 500 M Ω midscale)

- Input Leads
  - 4 ft (1.2 m) 4-conductor AWG #26 (0.4 mm diameter) twisted Teflon®-insulation cable (with ground clip and three tinned leads)

- Mode Switch
  - Three section rotor switch: ± 10% deviation, gage resistance (Ω), and insulation resistance (M Ω)

- Accuracy
  - 10% range: 0.001% Δ R (2 meter graduations)
  - Excitation
    - 1.25VDC per gage

- Insulation Resistance Mode
  - Test Voltage: 15VDC open circuit
  - Ohm Mode
    Graduated 5 Ω to 20 k Ω (500 Ω mid-scale)
  - Test Voltage: 2 VDC open circuit
    (0.4 VDC, 120 Ω)

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

- Dimension & Weight
  - Aluminum case: 8.0" X 3.4" X 2.4"
    (202 X 87 X 60 mm)
  - 3.5 Lb (1.6 Kg) with Adaptor

- Power Requirement
  - 110~220 VAC ± 10%, 50 or 60 Hz

PTDT Potentiometer-Type Displacement Transducers

Features:

- Full-scale ranges from 250mm to 4000mm
- Rugged, low profile design
- Wheatstone bridge output circuits
- Compatible with all strain gage signal instrumentation.
- Measurement possible with strain amplifier
- Compact, lightweight, and easy to install
- Low measuring force of the wire
- Stainless steel wire is used (SUS 304)
- Standard cable or optional connections.
- Easy to install and use.

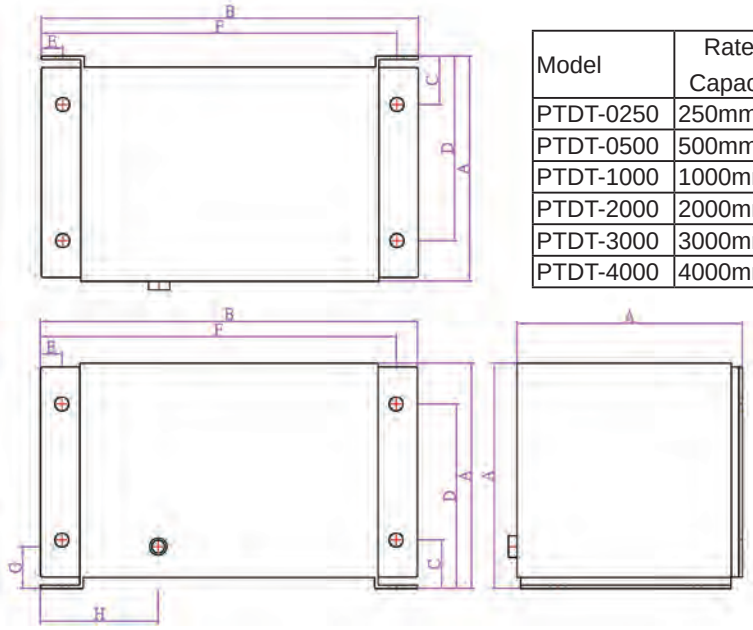
Applications:

- Automotive
- Strain/Stress Analysis
- Material Elasticity Measuring
- Material Test
- Actuator Stroke Measuring
- Automation

Description:

PTDT Displacement Transducers are designed to measure displacement by converting expansion / contraction of a sensing wire to electric signal by potentiometer with bridge circuit. Those models are available with rated capacity 250 mm to 4000 mm, all providing a high rated output of 5 mV/V. In addition, measuring force of the wire is constant, thereby making these transducers easy to use.

The PTDT Displacement Transducers provides a voltage signal linearly proportional to the extension of a retractable stainless steel cable. Used for indicating the displacement of the test structure, member or part to which the cable is attached, installation is quick and easy. Simply attach the base of the sensor to a reference surface, the cable to the component being displaced, and the electrical leads to any instrument accepting strain-gage signal inputs. With the certified calibration data and wiring instructions provided with each sensor, you will be making displacement measurements in minutes.



Model	Rated Capacity	A	B	C	D	E	F	G	H
PTDT-0250	250mm	84	118	22.5	65	10	108	19.5	43
PTDT-0500	500mm	84	118	22.5	65	10	108	19.5	43
PTDT-1000	1000mm	105	176	22.5	86	10	166	19.5	55
PTDT-2000	2000mm	105	176	22.5	86	10	166	19.5	55
PTDT-3000	3000mm	105	176	22.5	86	10	166	19.5	55
PTDT-4000	4000mm	105	176	22.5	86	10	166	19.5	55

PTDT Potentiometer-Type Displacement Transducers

Specification:

MODEL		PTDT-0250	PTDT-0500	PTDT-1000	PTDT-2000	PTDT-3000	PTDT-4000
Measurement Range	mm	250 mm	500 mm	1000 mm	2000 mm	3000 mm	4000 mm
Accuracy	% FS	0.25	0.15	0.10	0.10	0.10	0.10
Resolution		Analog, infinite, limited only by instrumentation)					
Repeatability		Greater of ± 0.025 mm or 0.02% FS					
Cable Retraction Force (min)	N	1.0	2.3	2.3	1.8	1.1	1.0
Cable Extension Force (max)	N	1.8	4.3	4.3	3.3	2.2	1.8
Cable Acceleration	g	3	11	11	5	4	3
Vibration	g, Hz	Up to 10, 0 - 2000					
Shock	g, mS	100, 0.1					
Sensor		Plastic-hybrid precision potentiometer					
Bridge Resistance	ohms	350					
Maximum Supply Voltage - Bridge	V	20					
Output - Bridge	mV/V FS	5.0 typical					
Case		Powder-painted aluminum alloy					
Cable		4-Conductor (0.08mm2) shield cable, 4 mm diameter by 3m long					
Electrical Connector		Optional :Highly reliable TAJIMI circular socket accept independent bridge inputs (PRC03-23A10-7F Bulkhead Mount Receptacle 7pin). Mating Plug is include (PRC03-32A10-7F5 Jack 7pin).					
Weight	kg	1.1 kg			1.8 kg		
Dimension	mm	81x81x112			102x102x178		
Operating Temperature	° C	- 40 to 93					
TC of Sensor	ppm/° C	157					
Humidity	% RH	100 at 32 ° C					

Level: Normally symmetrical about ground; Either side may be grounded with no effect on performance.

PTDT Potentiometer-Type Displacement Transducers

- Model and optional :

PTDT-xxxx	Measurement Range xxxx mm
Model PTDT-xxxx	Standard: Cable Length, 3 meter long
Model PTDT-xxxx-Cyy	Optional: Customer Cable yy meter long
Model PTDT-xxxx-Cyy-PT1	Optional: Cable Length, yy meter long with TAJIMI circular Mating Plug
Model PTDT-xxxx-ST1	Optional: TAJIMI circular socket
Model PTDT-xxxx-ST1-PT	Optional: TAJIMI circular socket with Mating Plug
Model PTDT-xxxx-Sx-Px	Optional: Customer socket with Customer Mating Plug, Please description.