7211 Dynamic Strain Gage Signal Conditioning Amplifier

Features:

- Differential signal amplifier with high bandwidth up to 1MHz
- Gain Accuracy ± 0.1%
- Fully adjustable calibrated gain from 1 to 10,000\\
- 4 digital LED display for output voltage or gain setting
- Accepts foil type strain gage, piezoresistive, potentiometers, etc.
- Selectable bridge Constant-voltage excitation: 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 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 and wide-band
- Others filter type and cut-off frequency is possible
- Front-panel monitoring: Automatic balance status

Applications:

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.

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 piezoresistive strain gage types; DCDT displacement transducers; P otentiometers

- 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, 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 με 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 με (0.50 mV/V) 350 Ω bridge; 874.8k, 200 με (0.10 mV/V) 350 Ω bridge; 59.94k, 1000 με (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)
  - 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 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
  - 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, 2 A

- Size & 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)

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