



## 7000 Series Amplifiers



### Features:

- Plug-in amplifier
- Accepts foil type strain gage, piezoresistive, 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  $\Omega$  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:

### Description:

7000 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.

7000 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.





# 7000 Series Amplifiers

## Specification:

- **Input**
  - Strain gages: 1/4, 1/2 or full bridge (50 to 1000 Ω)
  - Built-in 120Ω and 350Ω dummy gages; 1000Ω 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 ± 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 ( 350Ω 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 ): ± 13000µε 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, 1000µε ( 0.50mV/V ) 350Ω bridge;
    - 874.8k, 200µε ( 0.10mV/V ) 350Ω bridge; 59.94k, 1000µε ( 0.50mV/V ) 120Ω 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
- **7011 Dimensions & Weight**
  - Panel: 1.3" × 5.2" ( 33.4 × 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**