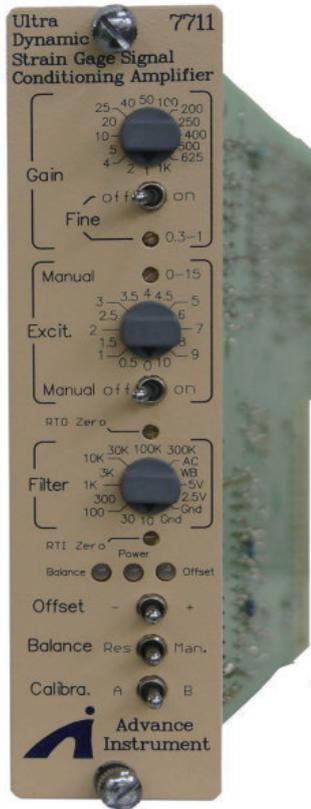




## 7711 Ultra Dynamic Strain Gage Signal Conditioning Amplifier



### Features:

- Differential signal amplifier with high bandwidth up to 3MHz
- Gain Accuracy  $\pm 0.1\%$
- 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  $\pm 300V$
- 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  $\Omega$  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 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

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Signal Conditioning Amplifier

## Specification:

- Input
  - Strain gages: Quarter, half or full bridge ( 50 to 1000  $\Omega$  )
  - Built-in 120  $\Omega$  and 350  $\Omega$  dummy gages; 1000  $\Omega$  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  $\pm$  3 mV
  - B: Manual adjust settings: adjust via 10 turns potentiometers, 0~15VDC
  - Current: 100 mA, min
  - Regulation ( 0-100 mA  $\pm$  10% line change )  $\pm$  0.05 mV  $\pm$  0.004 %, max measured at remote sense points. ( Local sense: -5 mV, typical, 100 mA, measured at plug. )
  - Remote sense error: 0.0005% per  $\Omega$  of lead resistance ( 350  $\Omega$  load )
  - Noise and ripple: 0.005% Vp-p, max ( dc to 10 kHz )
  - Stability:  $\pm$  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 ) :  $\pm$  13000  $\mu\epsilon$  Resolution 2.5  $\mu$  ( 0.0012 mV/V )
  - Balance time: 8 seconds
  - Manual vernier balance range: 0.1 V/Step, Max  $\pm$  5 V
- Calibration
  - Four internal shunt calibration resistors,  $\pm$  0.1% tolerance
  - 174.8k, 1000  $\mu\epsilon$  ( 0.50 mV/V ) 350  $\Omega$  bridge; 874.8k, 200  $\mu\epsilon$  ( 0.10 mV/V ) 350  $\Omega$  bridge; 59.94k, 1000  $\mu\epsilon$  ( 0.50 mV/V ) 120  $\Omega$  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  $\Omega$
  - Input Common Voltage :  $\pm$  300Vpp
  - Gain Step : 1 to 1,000 Direct setting, Accuracy  $\pm$  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 <0.1 $\mu$ sec
- Stability ( gain over X 100 )
- RTI Zero: Adjust via 10 turns potentiometers
- RTO Zero: Adjust via 10 turns potentiometers
  - $\pm$  2  $\mu$ V/° C, max, RTI ( referred to input )
- Noise (gain over X 100, all outputs)
  - 0.01 to 10 Hz: 1 $\mu$ Vp-p RTI
  - 0.5 to 125 kHz: 6  $\mu$ VRMS, Max, RTI
- Filter
  - Characteristics
    - Low-pass active four-pole Butterworth standard
    - Frequencies ( -3  $\pm$  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  $\Omega$
  - 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  $\pm$  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