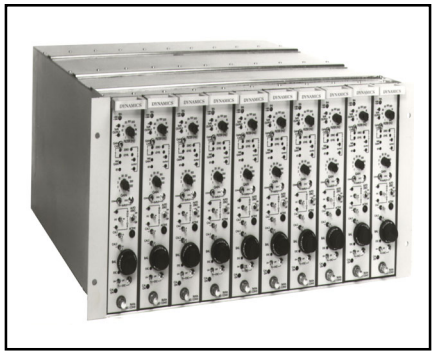
7600A

Transducer Signal Conditioner/Amplifier

Description

Dynamics Model 7600A Transducer Signal Conditioner/ Amplifiers are designed for users who require maximum flexibility without sacrificing system accuracy or isolation. The 7600A consists of a mainframe and a plug-in Bridge Completion Card. The mainframe provides the isolated power for the excitation supply (voltage or current) and the precision differential DC amplifier. The Bridge Completion Card allows the user to handle all types of resistance transducers including strain gages, RTDs, potentiometers, and sensors. Each conditioner configuration is fully guarded and isolated as required to maintain signal integrity.

The precision differential DC amplifier contained within the 7600A mainframe features low drift and high



common-mode rejection with excellent input-to-output isolation. Input impedance is greater than 25 MΩ. Bandwidth is 100 kHz. Output capability is ±10V at 100 mA.

The 7600A power supply uses a triple-shielded power transformer. This shielding provides maximum isolation for transducer excitation. The amplifier gain is adjustable from 1 to 2500 by front-panel controls.

Features

- **Isolated Excitation Power Supply**
- **Precision Differential DC Amplifier**
- **Tape and Galvo Outputs**
- **±50V Common-Mode Operating Levels (±300V optional)**
- **Plug-In Bridge Completion Card**
- **11 -Position Filter**
- **Voltage Substitution Calibration**
- **Multi-step Shunt or Double Shunt Calibration**
- **Automatic Bridge Balance**
- **100 kHz Bandwidth**
- **Output Zero Indicator**
- **Input Disconnect Switch**
- **Excitation Disconnect Switch**

Specifications

Input

Strain Gages	One-, two-, or three-arm; or full-bridge
Transducers	Foil or piezoresistive strain-gauge types, Potentiometer, RTD

Excitation

Voltage Range	0.1 to +15 VDC, continuously adjustable
Current Range	0-100 mA, continuously adjustable
Line Regulation	0.005% or 150mV, for 10% line variation
Load Regulation	150 mV +100 mV/W of lead resistance
Noise	150 mV p-p max (0.1 Hz - 20 kHz)
Stability	0.005%/°C or 100mV/°C max; 0.01% or 500 mV max per 8-hour period

Filter

Type	Two-pole active lowpass with damping factor of 0.7
Cut-Off Frequencies (-3dB)	11 -position front panel switch, 1, 3, 10,.... 30K and wideband sequence.

Amplifier

Gain	1 to 1,000 in 1, 2, 5, 10, sequence, 0.1% accuracy. Variable gain controls multiply gain setting by x1 to x2.5
Frequency Response (all gains)	DC to 10 kHz ±1%; DC to 50 kHz ±1dB; above 100 kHz -3dB
Input Impedance	25 MW shunted by 500 pF differential. 2,000 MW shunted by 1.5 pF common-mode
Source Impedance	0-1,000W, meets full specifications 0-10,000W permitted
Gain Stability	±0.005%/200 hr period, ±0.005%/°C
Common-Mode Voltage	±50 VDC or ±300 VDC optional
Common-Mode Rejection (gain 1,000)	126dB, DC - 60 Hz with 0W unbalance 126dB, DC - 60 Hz with 350W unbalance
Slew Rate	3.77V/ms, 20V p-p output up to 60 kHz
Noise	<5mV rms RTI plus 200 mVRTO at 100 kHz bandwidth at 100 kHz bandwidth

Specifications continued:

Telephone: (805) 685-7770 Fax: (805) 685-5853 E-mail: sales@rcelectronics.com Internet: http://www.rcelectronics.com

7600A

Transducer Signal Conditioner/Amplifier

Cabinets

TEN-CHANNEL	SINGLE-CHANNEL
Model Number	
7914AR/VX-2	7914AD/VX-2
Cooling	
Forced-air cooling using 47 to 63Hz fan	
Connectors	
Input:	
MS3102A-20-27S	MS3102A-20-27S
Output:	
BNC	BNC
Calibration:	
MS3102A-22-14P	MS3102A-20-7P
V. Sub:	
MS3102A-10SL-3P	MS3102A-10SL-3P
Power Requirements	
100 to 125 Vrms	100 to 125 Vrms
Weight	
Approx. 21 lbs (9.55 kg)	10 lbs (4.55 kg)

NOTE: Export cabinets for the Model 7600A, wired for 200-250 VAC are available

How to Order

7600A	-X	-X	-X	-X	-X	-X	-X	DC Differential Amplifier
	-0							No Galvo Output
	-1							Galvo Output
	-2							AC & DC Galvo
		-0						No Filter Output
		-1						11 Position Filter
		-2						6 Position 6 Pole Filter
			-0					No Voltage Substitution Calibration
			-1					Voltage Substitution Calibration
				-0				+15V Excitation
				-1				+30V Excitation
					-0			No Shunt Calibration
					-1			±2 Steps Shunt Calibration
					-2			±4 Steps Shunt Calibration
						-1		Manual T Balance
						-2		Manual Voltage Insertion Balance
						-3		Auto Voltage Insertion Balance
							-1	100 to 125 VAC Power
							-2	200 to 250 VAC Power

Automatic Bridge Balance

The Model 7600A offers an extremely convenient and accurate means for automatically balancing the input bridge circuit. The auto-zero is activated by a front panel switch or via a remote command. The process is completed in less than 10 seconds. An LED on the front panel illuminates while the auto-zero sequence is in progress.

Bridge Completion and Shunt Calibration

A versatile plug-in card is provided with the Model 7600A. The card allows users to complete up to two different bridges by installing jumpers which select various arms of the bridge.

Specifications (cont'd)

Amplifier Outputs

Tape Output	±10V @ 5 mA
Galvo Output	±10V @ 100 mA
Protection	Tape & Galvo outputs are individually short-circuit protected
Controls	Front panel zero & level controls provided
Linearity	±0.005% @ DC

Bridge Balance

Manual	T-Balance (standard) or Voltage Insertion (optional) via isolated voltage injected into the input of the amplifier.
Automatic	Optional feature, auto-balance resolution is one part in 500,000. Range ±15 mV/V of excitation. Front panel switch or remote signal activates auto-balance in less than 10 seconds.

Calibration

Shunt Calibration.	±4 steps of single or double shunt calibration capability. Plug-in cal. card provides space for up to 16 shunt calibration resistors.
Bridge Completion	Space provided for user to install up to 8 bridge completion resistors (e.g., all arms of a 350W and 120W bridge can be mounted and selected).

Power

100-125 VAC or 200-250 VAC, 47-63 Hz, 15 watts max

Size and Weight

8.75"Hx1.75"Wx18.2"D 7.2lbs

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