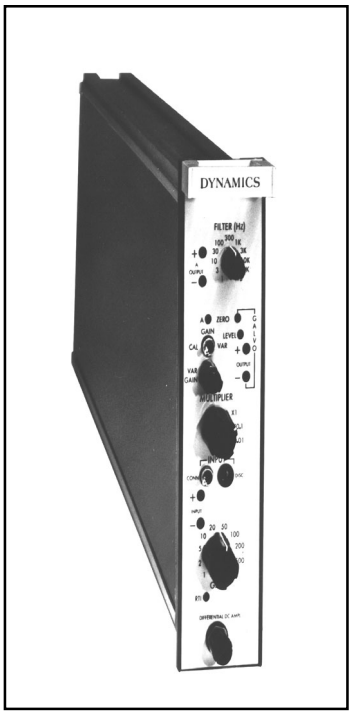
7526A

Differential DC Amplifier

Description

Dynamics Model 7526A Differential DC Amplifiers are designed to satisfy a broad range of operating requirements. Several options allow the user to configure the amplifier to his specific requirements. Ten amplifiers mount into a standard EIA rack adapter.

Integrated circuit sockets are used throughout to reduce service costs. Advanced feedback designs reject common-mode signals and provide excellent input-to-output isolation. The input circuit allows for inverting or non-inverting gain polarity.



Features

- Fast Overload Recovery
- Gains from 0.01 to 2500
- Gain Accuracy to 0.01%
- Self-Contained Power Supply
- Low Noise
- Output Short-Circuit Protected
- 11 Position Filter
- Voltage Substitution Calibration
- ±300V Common Mode
- Input Disconnect Switch
- DC to 100 kHz

Specifications

Input

Input Impedance	25 MΩ shunted by 500 pF for gains of 1 and above. 1 MΩ shunted by 500 pF for gains below 1.
Source Impedance	All specifications are met with up to 1 kΩ source impedance. 10 kΩ source impedance operation permitted without instability.
Over Scale Input	±30V DC or peak without damage. Up to ±300V DC or peak AC for gain multipliers of x0.1 and x0.01.
Input Bias Current	±2 nA at 25°C, less than ±0.2 nA per °C.
Input Disconnect Switch	Front panel two position switch disconnects the input signals and shorts the amplifier's input. A red front panel LED is lit to indicate when the switch is in the disconnect position.

Output

Output specifications apply for both outputs.

Output Capability	±10V at ±100 mA, limited to ±15V at ±150 mA. The output limits symmetrically and does not fold over.
Current Limiting	Adjustable with one solder-in resistor over a range of 20 mA to 120 mA.
Output Impedance	1.0Ω in series with 20 µH.
Capacitive Loading	Stable for all values of capacitance up to 1.0 µF.
Shorted Output Protections	A short of any duration will not damage the amplifier. A short on one output will not affect the operation of the other by more than 0.025%.
Output Phasing	Both outputs go positive when the + input is driven positive.

AC

All AC specifications are independent of gain steps.

Frequency Response	±1% to 10 kHz, ±1 dB to 50 kHz, -3 dB above 100 kHz.
Settling Time	50 µsec to 0.1% of final value.
Overload Recovery Time	Less than 50 µsec to recover within 5% of full scale for any overload signal up to 10 times full scale input not exceeding ±20V DC or peak AC.
Slewing Rate	3.77V/µsec; 20V p-p output to 60 kHz.

Noise

RTI	Bandwidth
30 µV p-p	0.1 Hz to 50 MHz
5.0 µV rms	0.1 Hz to 100 kHz
2.0 µV rms	0.1 Hz to 10 kHz
3.0 µV p-p	0.1 Hz to 100 Hz
2.0 µV p-p	0.1 Hz to 10 Hz
Plus 300 µV rms	RTO

Specifications continued on next page

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7526A (continued)

Differential DC Amplifier

Ten Channel Domestic Cabinet

Model Number	7914AR/NR
Cooling	Forced-air cooling using 47 to 63 Hz fan.
Connectors Input and Voltage Sub Output	MS3102A-10SL-3P. BNC.
Power Requirements	105 to 125V rms.
Weight	Approx. 19 lbs. (8.62 kg).

Ten Channel Export Cabinet

Model Number	7925AR/PE
Size, Connectors, and Cooling Power Requirements	Same as 7914AR/NR. 210V rms to 250V rms, 47 Hz to 63 Hz.

Cabinet Accessories

Blank Panel	Model 7920/KR.
Mating Connectors	086026
Bench Test Cable	7910A/PH

How to Order

7526A	-X	-X	-X	-X	-X	-X	-X	DC Differential Amplifier
	-0							No Galvo Output
	-1							Galvo Output
		-0						No Filter
		-1						11 Position, 2 Pole Filter
		-2						6 Position, 6 Pole Filter
		-3						High and Low Pass 2 Pole Filter
			-0					No Voltage Substitution Calibration
			-1					Voltage Substitution Calibration
				-1				±50V Common Mode
				-2				±300V Common Mode
					-0			No Input Multiplier
					-1			Input Multiplier x1, x0.1, x0.01
						-1		Gain Accuracy ±0.1%
						-2		Gain Accuracy ±0.01%
							-1	105V rms to 125V rms, 47 to 63 Hz
							-2	210V rms to 250V rms, 47 to 63 Hz

NOTES:

Model 7526A is mechanically and electrically interchangeable with the following models: 7526, 7521B and 7514B.

Specifications (cont'd)

DC

Zero Drift (Constant Temperature)	±2 µV, ±100 µV RTO.
Temperature Coefficient	±40 µV/°C RTI, ±100 µV/°C RTO.
Zero Adjustment	Recessed front panel RTI and RTO zero controls are provided.
Linearity	±0.005% of full scale at DC.
Gain Steps	Front panel switch provides gain steps of 1, 2, 5, 10, 20, 100, 200, 500, and 1000.
Variable Gain	Multi-turn front panel control multiplies gain steps from x1 to x2.5. Separate switch selects variable gain or calibrate position.
Gain Accuracy	±0.1% in calibrate position. (±0.01% available)
Gain Stability	±0.01%/°C and ±0.005%/200 hrs.

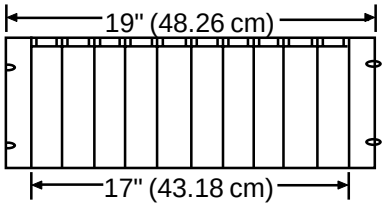
Common Mode

Common Mode Rejection	60 dB plus the gain in dB with up to 1 kΩ line unbalance from DC to 60 Hz. Common mode rejection decreases at a rate of 6 dB/octave above 60 Hz to a minimum of 60 dB up to 100 MHz. Measurement bandwidth limited to 100 kHz.
Common Mode Operating Level	±50V DC or peak AC from DC to 1 kHz. Common mode level decreases at a rate of 6 dB/octave above 1 kHz to 1V p-p up to 100 MHz.
Common Mode Overscale	±75V DC or peak AC without damage.
Common Mode Input Impedance	2000 mΩ shunted by 2 pF.

General

Isolation and Crosstalk	Fully insulated plug-in module provides 100 MΩ of isolation between the amplifier and AC power or power common (Earth). Crosstalk is below the amplifier noise level.
Temperature Range	0°C to 50°C operating, -20°C to +70°C storage.
Humidity	Up to 90% without condensation.
Dimensions	7"H x 1¾"W x 18"D.
Weight	4 lbs.

Outline Dimensions



Dynamics cabinets are constructed of 20-gauge cold-rolled steel. Multi-channel cabinets meet all standard EIA mounting requirements.

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