Trek Model PZD700A M/S

Piezo Driver/Power Amplifier

Trek's PZD700A M/S Piezo Driver/Amplifier system provides precise voltage control and delivers twice the current of our standard PZD700A. This high-voltage DC-powered amplifier offers voltages that can will be factory set to customer-specified ranges. It features an all-solid state design, impressive slew rates and superior bandwidth capabilities.

Other features include a four-quadrant active output stage that sinks or sources current into reactive or resistive loads throughout the output voltage range, precision voltage and current monitors, remote access and dynamic adjustment. The input is configured as non-inverting but an inverting amplifier configuration is available.

Key Specifications

• Output Voltage Range	Bipolar:	0 to ±700 V DC or peak AC
	Unipolar (Positive):	0 to +1400 V or peak AC
	and Unipolar (Negative):	0 to -1400 V or peak AC
• Output Current Range	Bipolar:	0 to ±200 mA
	Unipolar:	0 to ±100 mA
• Slew Rate	Bipolar:	Greater than 380 V/µs
	Unipolar:	Greater than 370 V/µs
• Large Signal Bandwidth	Bipolar:	DC to greater than 150 kHz (-3 dB)
	Unipolar:	DC to greater than 125 kHz (-3 dB)
• DC Voltage Gain:		0 to 300 V/V, adjustable using a front panel potentiometer

Typical Applications Include

- Piezoelectric driving/control
- Laser modulation
- MEMS
- Semiconductor research
- Piezoelectric vibration damping

Features and Benefits

- Four-quadrant output for driving capacitive loads
- Closed loop system for high accuracy
- Short-circuit protected for equipment protection
- All solid-state design for maintenance-free operation
- DC-stable for programmable supply applications
- Low output noise for ultra-accurate outputs
- NIST-traceable Certificate of Calibration provided with each unit
- CE compliant

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Model PZD700A M/S Specifications

Performance

Output Voltage Range	Bipolar: 0 to ±700 V DC or peak AC
Output Voltage Range	Unipolar Positive: 0 to +1400 V DC or peak AC
Output Voltage Range	Unipolar Negative: 0 to -1400 V DC or peak AC
Output Current Range	Bipolar: 0 to ±200 mA
Output Current Range	Unipolar: 0 to ±100 mA
Input Voltage Range	0 to ±10 V DC or peak AC
Input Impedance	90 kΩ, nominal (non-inverting) 1 MΩ nominal, (inverting)
DC Voltage Gain	0 to 300 V/V, adjustable using the front panel potentiometer
DC Voltage Gain Accuracy	Better than 0.1% for factory set gain of 200 V/V
Offset Voltage	Less than ±500 mV
Output Noise (all ranges)*	Less than 75 mV rms to 20 kHz for a 1 nF load. Less than 100 mV rms to 20 kHz with no load.
Slew Rate (10% to 90%, typical)	Bipolar: Greater than 380 V/µs Unipolar: Greater than 370 V/µs
Large Signal Bandwidth (-3 dB)	Bipolar: DC to greater than 150 kHz Unipolar: DC to greater than 125 kHz
Small Signal Bandwidth (-3dB)	DC to greater than 200 kHz
Settling Time	Less than 50 µs when critically damped
Stability	With a factory set gain of 200 V/V
Drift with Time	Less than 50 ppm/hr, noncumulative
Drift with Temp	Less than 100 ppm/°C

Voltage Monitor

Ratio	1 V/200 V of the high-voltage output

Current Monitor

Ratio	0.05 V/mA, ±1% of full scale

Features

Digital Enable	BNC connection for TTL compatible signal to turn ON/OFF the HV output for each channel.
Gain Control	The gain of the Model PZD700A M/S is adjustable from 0 to 300 V/V
Dynamics Adjustment	A graduated 1-turn front panel potentiometer is used to optimize the AC response of the output signal for various load configurations.

Features (cont.)

Input Configuration	The input is configured as a noninverting amplifier. An inverting amplifier is also available
Limit Indicator	An amber indicator warns when the unit fails to produce the required HV output.
Automatic Power Limit	Automatically limits the internal power dissipation to protect the PZD700A M/S from overheating.

Mechanical

Dimensions	110 mm H x 432 mm x W 445 mm D (4.3" H x 17" W x 17.5" D)
Weight	10 kg (22 lb)
HV Connector	SHV High Voltage Connector

Operating Conditions

Temperature	0°C to 40°C (32°F to 104°F)
Relative Humidity	To 85%, noncondensing
Altitude	To 2000 meters (6561.68 ft.)

Electrical

Line Voltage	Factory Set for one of two ranges: 90 to 127 V AC or 180 to 250 V AC, either at 48 to 63 Hz
AC Line Receptacle	Standard 3-prong with integral fuse holder
Power Consumption	90 VA, single channel 175 VA, dual channel
HV Cable	2 m, 66 pF per foot

Supplied Accessories

Operator's Manual	PN: 23456
HV Output Cable Assembly	PN: 43874R cable and SHV mating connector
Line Cord, Fuses	Selected per geographic destination

Optional Accessories

19-in Rack Mount Kit	Model 604RA (with EIA hole spacing)
19-in Rack Mount Kit	Model 604RAJ (with JIS hole spacing)

Ordering Information

90 to 127 V AC	Model PZD700A-L M/S CE
180 to 250 V AC	Model PZD700A-H M/S CE

Notes

The Model PZD700A M/S comes from the factory with settings for an output voltage of ±700 V DC or peak AC, a voltage gain ratio of 200 V/V, with a noninverting input. Please specify voltage range (±700 V, +1400 V, or -1400 V) and input configuration (inverting or noninverting) when ordering.

Also available is the Model PZD700A with half the current capability of the PZD700A M/S.

*Measured using the true rms feature of the HP Model 34401A digital multimeter)