Trek Model PZD700A

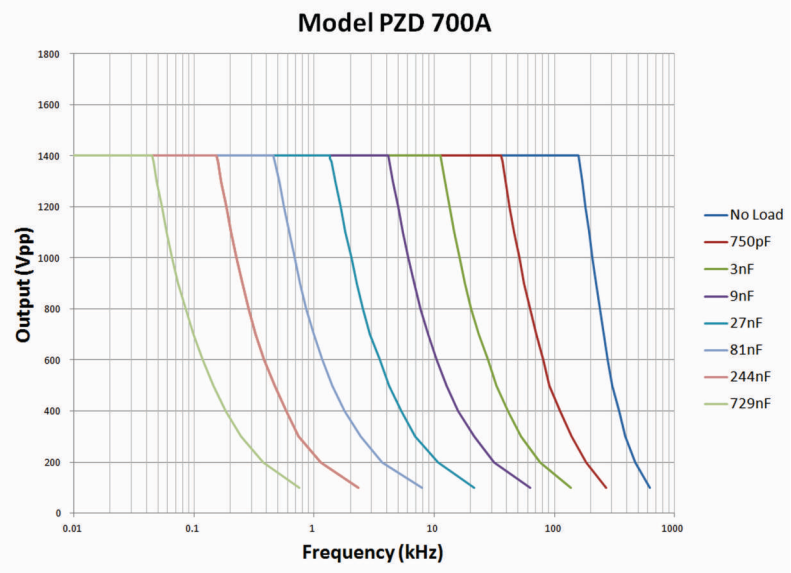
Piezo Driver/Power Amplifier

The Trek Model PZD700A is a high-voltage DC-stable piezo driver/amplifier designed to provide precise control of output voltages in bipolar or unipolar ranges which are customer specified within a range of available settings. The instrument achieves the accurate output responses and high slew rates demanded by reactive loads by utilizing a four-quadrant active output stage that sinks or sources current into reactive or resistive loads.

The Model PZD700A is configured as a non-inverting amplifier. An inverting configuration is available. Both configurations are available as either single or dual channel instruments. They are bench top operable or 19-in rack mountable.

Key Specifications

• Output Voltage Range	Bipolar:	0 to ±700 V DC or peak AC
	Unipolar:	0 to +1.4 kV DC or peak AC or 0 to -1.4 kV DC or peak AC
• Output Current Range	Bipolar:	0 to ±100 mA
	Unipolar:	0 to ±50 mA
• Slew Rate	Bipolar:	Greater than 380 V/µs
	Unipolar:	Greater than 370 V/µs
• Large Signal Bandwidth	Bipolar:	DC to greater than 125 kHz (-3 dB)
	Unipolar:	DC to greater than 120 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
- Model PZD700A M/S is also available with twice the current capability of the Model PZD700A
- NIST-traceable Certificate of Calibration provided with each unit
- CE compliant

TREK Has Joined Advanced Energy

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Model PZD700A Specifications

Performance

Output Voltage Bipolar Range	0 to ±700 V DC or peak AC
Output Voltage Unipolar Range	0 to +1.4 kV DC or 0 to -1.4 kV DC or peak AC
Output Current Bipolar Range	0 to ±100 mA
Output Current Unipolar Range	0 to ±50 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 50 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 125 kHz Unipolar: DC to greater than 120 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	1/200th of the high voltage output
DC Accuracy	Better than ±0.1% of full scale

Current Monitor

Ratio	0.1 V/mA, ±1% of full scale
DC Accuracy	Better than ±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 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 PZD700A fails to produce the required HV output.
Automatic Power Limit	Automatically limits the internal power dissipation to protect the PZD700A from overheating.

Mechanical

Dimensions (single channel instrument)	110 mm H x 220 mm x W 445 mm D (4.3" H x 8.7" W x 17.5" D)
Weight	5 kg (11 lb) (Single channel unit)
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, 30.8 pf/ft @ 1 kHz, Nominal

Supplied Accessories

Operators' Manual	PN: 23439
HV Output Cable Assembly	PN: 43874R cable and SHV mating connector
Line Cord, Fuses	Selected per geographic destination

Ordering Information

90 to 127 V AC	Model PZD700A-1-L (single unit)
90 to 127 V AC	Model PZD700A-2-L (dual unit)
180 to 250 V AC	Model PZD700A-1-H (single unit)
180 to 250 V AC	Model PZD700A-2-H (dual unit)

Note

The Model PZD700A 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, +1400V or -1400V) and input configuration (inverting or noninverting) when ordering.

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

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

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