Trek Model PZD350A

Piezo Driver/Power Amplifier

The Trek Model PZD350A is a high-voltage DC-stable piezo driver/amplifier designed to provide precise control of output voltages in bipolar or unipolar ranges that are customer specified within a range of available settings. It is configured as a noninverting amplifier with a variable DC gain. An inverting amplifier configuration is also available.

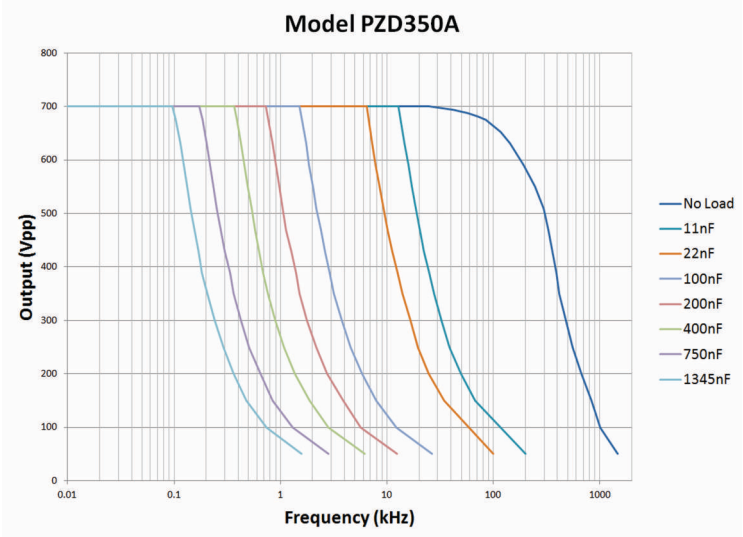
The unit features an all-solid-state design, a high slew rate and a four-quadrant active output stage which sinks or sources current into reactive or resistive loads throughout the output voltage range. This capability is essential for achieving the accurate output responses and high slew rates demanded by reactive loads.

Key Specifications

Output Voltage Range	Bipolar:	0 to ±350 V DC or peak AC
	Unipolar:	0 to +700 V DC or peak AC or 0 to -700 VDC or peak AC
Output Current Range	Bipolar:	0 to ±200 mA
	Unipolar:	0 to ±100 mA
Slew Rate	Bipolar:	Greater than 550 V/µs
	Unipolar:	Greater than 440 V/µs
Large Signal Bandwidth	Bipolar:	DC to greater than 250 kHz (-3 dB); DC to greater than 90 kHz (1% distortion)
	Unipolar:	DC to greater than 200 kHz (-3 dB); DC to greater than 70 kHz (1% distortion)
Small Signal Bandwidth	Bipolar:	DC to greater than 350 kHz (-3 dB)
	Unipolar:	DC to greater than 250 kHz (-3 dB)
DC Voltage Gain:		0 to 150 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 PZD350A M/S is also available with twice the current capability of the Model PZD350A
- NIST-traceable Certificate of Calibration provided with each unit
- CE compliant

Trek Has Joined Advanced Energy

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Model PZD350A Specifications

Performance

Output Voltage Bipolar Range	0 to ±350 V DC or peak AC
Output Voltage Unipolar Range	0 to +700 V DC or 0 to -700 V DC or peak AC
Output Current Bipolar Range	0 to ±200 mA
Output Current Unipolar Range	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 150 V/V
DC Voltage Gain Accuracy	Better than 0.1% for factory set gain of 100 V/V (input to output)
Offset Voltage	Less than ±500 mV
Output Noise (all ranges)*	Less than 100 mV rms to 20 kHz w/100 pF load Less than 150 mV rms to 20 kHz with no load
Slew Rate (10% to 90%, typical)	Bipolar: Greater than 550 V/µs Unipolar: Greater than 440 v/µs
Large Signal Bandwidth (-3 dB)	Bipolar: DC to greater than 250 kHz Unipolar: DC to greater than 200 kHz
Large Signal Bandwidth (1% distortion)	Bipolar: DC to greater than 90 kHz Unipolar: DC to greater than 70 kHz
Small Signal Bandwidth (-3dB)	Bipolar: DC to greater than 350 kHz Unipolar: DC to greater than 250 kHz
Settling Time to 1%	Less than 30 µs when critically damped
Stability	With a set gain of 100 V/V
Drift with Time	Less than 50 ppm/hr, noncumulative
Drift with Temp	Less than 100 ppm/°C

Voltage Monitor

Ratio	1/100th 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 PZD350A is adjustable to 150 V/V

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

Features (cont.)

Dynamic Adjustment	A graduated 1-turn front panel potentiometer is used to optimize the AC response of the output signal for various load configurations
Input Configuration	The input is configured as a noninverting amplifier. An inverting amplifier is also available
Limit Indicator	An amber indicator warns when the PZD350A fails to produce the required HV output
Automatic Power Limit	Automatically limits the internal power dissipation to protect the PZD350A from overheating

Mechanical

Dimension - Single Channel Dual Channel	110 mm H x 220 mm W x 445 mm D (4.3" H x 8.7" W x 17.5" D) 110 mm H x 432 mm W 445 mm D (4.3" H x 17" W x 17.5" D)
Weight - Single Dual	5 kg (11 lb) 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

Supplied Accessories

HV Cable	2 m, 30.8pf/ft @ 1kHz, nominal.
Operators' Manual	PN: 23432
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 PZD350A-1-L (single unit)
90 to 127 V AC	Model PZD350A-2-L (dual unit)
180 to 250 V AC	Model PZD350A-1-H (single unit)
180 to 250 V AC	Model PZD350A-2-H (dual unit)

Notes

The Model PZD350A comes from the factory with settings for an output voltage of ±350 V DC or peak AC, a voltage gain ratio of 100 V/V, with a noninverting input. Please specify voltage range (±350 V, +700 V, or -700 V) and input configuration (inverting or noninverting) when ordering.
Also available is the Model PZD350A M/S with twice the current capability of the standard PZD350A.