Trek's PZD350A M/S Piezo Driver/Amplifier system provides precise voltage control and delivers twice the current of our standard PZD350A. 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 is inverting but an inverting amplifier configuration is available.

**Key Specifications**

- **Output Voltage Range**
  - Bipolar: 0 to ±350 V DC or peak AC
  - Unipolar (Positive): 0 to +700 V or peak AC
  - Unipolar (Negative): 0 to -700 V or peak AC
- **Output Current Range**
  - Bipolar: 0 to ±400 mA
  - Unipolar: 0 to ±200 mA
- **Slew Rate**
  - Bipolar: Greater than 500 V/µs
  - Unipolar: Greater than 400 V/µs
- **Large Signal Bandwidth**
  - Bipolar: DC to greater than 250 kHz (-3 dB)
  - Unipolar: DC to greater than 200 kHz (-3 dB)
- **DC Voltage Gain**
  - Bipolar: 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
- NIST-traceable Certificate of Calibration provided with each unit
**Model PZD350A M/S Specifications**

### Performance

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Voltage Range</td>
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<tr>
<td>Output Voltage Range</td>
<td>Unipolar Positive: 0 to +700 V DC or peak AC</td>
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<td>Output Current Range</td>
<td>Unipolar: 0 to ±200 mA</td>
</tr>
<tr>
<td>Input Voltage Range</td>
<td>0 to ±10 V DC or peak AC</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>90 kΩ, nominal (non-inverting)</td>
</tr>
<tr>
<td></td>
<td>1 MΩ nominal, (inverting)</td>
</tr>
<tr>
<td>DC Voltage Gain</td>
<td>0 to 150 V/V, adjustable using the front panel</td>
</tr>
<tr>
<td>DC Voltage Gain Accuracy</td>
<td>Better than 0.1% for factory set gain of 100 V/V</td>
</tr>
<tr>
<td>Offset Voltage</td>
<td>Less than ±500 mV</td>
</tr>
<tr>
<td>Output Noise (all ranges)*</td>
<td>Less than 100 mV rms to 20 kHz for 100 pF load.</td>
</tr>
<tr>
<td></td>
<td>Less than 150 mV rms to 20 kHz with no load.</td>
</tr>
<tr>
<td>Slew Rate (10% to 90%, typical)</td>
<td>Bipolar: Greater than 500 V/µs</td>
</tr>
<tr>
<td></td>
<td>Unipolar: Greater than 400 V/µs</td>
</tr>
<tr>
<td>Large Signal Bandwidth (-3 dB)</td>
<td>Bipolar: DC to greater than 250 kHz</td>
</tr>
<tr>
<td></td>
<td>Unipolar: DC to greater than 200 kHz</td>
</tr>
<tr>
<td>Small Signal Bandwidth (-3dB)</td>
<td>Bipolar: DC to greater than 350 kHz</td>
</tr>
<tr>
<td></td>
<td>Unipolar: DC to greater than 250 kHz</td>
</tr>
<tr>
<td>Settling Time</td>
<td>Less than 30 µs when critically damped</td>
</tr>
<tr>
<td>Stability</td>
<td>With a factory set gain of 100 V/V</td>
</tr>
<tr>
<td>Drift with Time</td>
<td>Less than 50 ppm/hr, noncumulative</td>
</tr>
<tr>
<td>Drift with Temp</td>
<td>Less than 100 ppm/°C</td>
</tr>
</tbody>
</table>

### Voltage Monitor

- Ratio: 1 V/100 V ±0.1% of full scale

### Current Monitor

- Ratio: 0.025 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 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.

### 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.

### Mechanical

- Dimensions: 110 mm H x 432 mm W x 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.)

### Supplied Accessories

- Operator’s Manual: PN: 23434
- 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 PZD350A-L M/S CE
- 180 to 250 V AC: Model PZD350A-H M/S CE

### Notes

The Model PZD350A M/S 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 with half the current capability of the PZD350A M/S.