The Model PZD2000A is a wide bandwidth, high-voltage power amplifier used for precision high power applications. The amplifier incorporates an all-solid-state design for high reliability and low-noise operation. Its four-quadrant output stage sinks as well as sources load current throughout the output voltage range, thus achieving accurate output response and high slew rates, even into highly capacitive loads.

**Key Specifications**

- **Output Voltage Range:** 0 to ±2 kV DC or peak AC
- **Output Current Range:** 0 to ±200 mA DC or ±400 mA peak AC. Maximum duration for ±400 mA current pulse is 2 ms at 50% duty cycle using a square wave
- **Slew Rate:** Greater than 750 V/µs
- **Large Signal Bandwidth (3% distortion):** DC to greater than 60 kHz
- **DC Voltage Gain:** 200 V/V

**Typical Applications Include**

- Dielectric material characterization
- Polymer and ceramic corona poling
- Piezoelectric driving and control

**Features and Benefits**

- DC accuracy is better than 0.1% of full scale
- Precision voltage and current monitors provide buffered low-voltage representations of the high-voltage output and load current for monitoring purposes, or for use as feedback signals in closed-loop systems
- Remote high-voltage ON-OFF suitable for use with automated or computer controlled systems
- Output stage fully protected against over voltage and over current conditions that may be generate by active loads, overloads or arcing to ground
- Adjustable current limit or current trip level
- NIST-traceable Certificate of Certification provided with each unit shipped
- CE compliant
### Model PZD2000A Specifications

#### Performance
- **Output Voltage Range**: 0 to ±2 kV DC or peak AC
- **Output Current Range**: 0 to ±200 mA DC or ±400 mA peak AC. Maximum duration for ±400 mA current pulse is 2 ms at 50% duty cycle using a square wave.*
- **Maximum Power**: 500 W (real, apparent or reactive). Unit will trip off if internal power dissipation exceed 500 W
- **Input Voltage Range**: 0 to ±10 V DC or peak AC, noninverting
- **Input Impedance**: 25 kΩ, nominal
- **DC Voltage Gain**: 200 V/V
- **DC Voltage Gain Accuracy**: Better than 0.1% of full scale
- **DC Offset Voltage**: Less than ±2 V
- **Output Noise**: Less than 500 mV rms**
- **Slew Rate (10% to 90%, typical)**: Greater than 750 V/µs
- **Small Signal Bandwidth (-3dB)**: DC to greater than 100 kHz
- **Large Signal Bandwidth (3% distortion)**: DC to greater than 60 kHz
- **Settling Time to 1%**: Less than 50 µs for a 2 kV step
- **Stability**
  - **Drift with Time**: Less than 50 ppm/hr, noncumulative
  - **Drift with Temp**: Less than 100 ppm/°C
- **Auto Power Limit**: Limits internal power dissipation to protect from overheating

#### Voltage Monitor
- **Ratio**: 01/200th of the high voltage output
- **DC Accuracy**: Better than 0.1% of full scale
- **DC Offset Voltage**: Less than ±2 mV
- **Output Noise**: Less than 5 mV rms**
- **Output Impedance**: 47 Ω

#### Current Monitor
- **Ratio**: 0.025 V/mA
- **DC Accuracy**: Greater than 1% of full scale
- **Offset Voltage**: Less than ±10 mV
- **Output Noise**: Less than 10 mV rms**
- **Bandwidth (-3 dB)**: DC to greater than 5 kHz

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### Current Monitor (cont.)
- **Output Impedance**: 47 Ω

#### Features
- **High Voltage On-Off**: Switch selectable for local or remote. Local: Individual push-button switches; Remote: TTL compatible input. TTL High turns off high voltage. TTL low turns on high voltage.
- **Dynamic Adjustment**: Graduated 1-turn panel potentiometer is used to optimize the AC response for various load parameters.
- **Current Limit/Trip**: Switch selectable for either limit or trip. Graduated 1-turn potentiometer is used to adjust current limit or trip level from 10 to 200 mA
- **Out of Regulation Status**: Indicator illuminates and BNC provides a TTL low when required high voltage is not provided such as during a current limit
- **Trip Status**: Indicator illuminates and BNC provides a TTL low when high voltage output trips due to current trip, detection of fault or removal of cover
- **Fault Status**: BNC provides TTL low when out of regulation for greater than 500 ms

#### Mechanical
- **Dimensions**: 266 mm H x 482 mm W x 655 mm D (10.5" H x 19" W x 25.8" D)
- **Weight**: 24.9 kg (55 lb)
- **HV Connector**: Alden high voltage connector
- **BNC Connector**: Amplifier input, voltage monitor, current monitor, digital enable, fault/trip status, out of regulation status

#### Operating Conditions
- **Temperature**: 0°C to 40°C (32°F to 104°F)
- **Relative Humidity**: To 75%, noncondensing
- **Altitude**: To 2000 meters (6561.68 ft.)

#### Electrical
- **AC Line Receptacle**: Standard three-prong AC line connector
- **Line Voltage**: Factory set for one of two ranges: 104 to 126 V AC or 180 to 250 V AC, at 48 to 63 Hz
- **Power Consumption**: 1000 VA, maximum

#### Supplied Accessories
- **Operators’ Manual**: PN: 23271
- **HV Output Cable**: PN: 43406
- **Line Cord**: PN: N5011 (104 to 126 V AC)
  - Contact Factory: (180 to 250 V AC)

#### Optional Accessories
- **HV Output Cable**: PN: 43406

*See Automatic Power Limit feature for limitations

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

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