Advanced Energy

TREK PZD2000A

Wide bandwidth, high voltage power amplifier for precision high power applications featuring an all-solid-state design for high reliability and low-noise operation.

The Trek® 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.

PRODUCT HIGHLIGHTS

- 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

TYPICAL APPLICATIONS

- Dielectric charge material characterization
- Polymer and ceramic corona charging
- Piezoelectric driving and control

AT A GLANCE

Output Voltage Range

0 to ±2 kVDC or peak AC

Output Current Range

0 to ±200 mA DC or ±400 mA peak AC

Slew Rate

Greater than 750 V/µs

Large Signal Bandwidth (3%)

DC to greater than 60 kHz

DC Voltage Gain

200 V/V

TECHNICAL DATA

Performance Specifications		
Output Voltage Range	0 to ±2 kVDC 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.[1]	
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, non-inverting	
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[1]	
Slew Rate	Greater than 750 V/µs (10% to 90%, typical)	
Settling Time	Less than 50 µs for a 2 kV step	
Large Signal Bandwidth	DC to greater than 60 kHz (3% Distortion)	
Small Signal Bandwidth	DC to greater than 100 kHz (-3dB)	
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 Specifications	
Ratio	1/200th 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[2]
Output Impedance	47 Ω

Current Monitor Specifications	
Ratio	0.025 V/mA
DC Accuracy	Better than 1% of full scale
Offset Voltage	Less than ±10 mV
Output Noise	Less than 10 mV rms[1]
Bandwidth	DC to greater than 5 Hz (-3 dB)

Mechanical Specifications	
Dimensions (H x W x D)	266 x 482 x 655 mm (10.5 x 19 x 25.8 in)
Weight	24.9 kg (55 lb)
HV Connector	Alden High Voltage Connector
BNC Connectors	Amplifier input, voltage monitor, current monitor, digital enable, fault/trip status, out of regulation status

Electrical Specifications	
Line Voltage	Factory Set for one of two ranges: 104 to 127 VAC or 180 to 250 VAC, either at 48 to 63 Hz
AC Line Receptacle	Standard three-prong AC line connector

[1] See Automatic Power Limit feature for limitations
[2] Measured using the true rms feature of the HP Model 34401A digital multimeter

TECHNICAL DATA

Power Consumption	1000 VA, maximum

Environmental Specifications	
Temperature	0 to 40°C (32 to 104°F)
Relative Humidity	To 75%, noncondensing
Altitude	To 2000 meters (6561.68 ft.)

Features		
High-Voltage On/Off	Local: Individual push-button switch	Remote (TTL compatible input): TTL high (or open) turns off high voltage output. TTL low turns on high voltage output.
Dynamic Adjustment	Graduated one-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 one-turn panel potentiometer is used to adjust 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	

REFERENCE NUMBERS

Included Accessories	
PN	**Description**
23271	Operator's Manual
43406	HV Output Cable
N5011	Line Cord (104 to 126 VAC)
Contact Factory	Line Cord (180 to 250 VAC)

Other Accessories	
PN	**Description**
43406	HV Output Cable

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE

Advanced Energy

For international contact information, visit advancedenergy.com.

sales.support@aei.com
+1.970.221.0108