Advanced Energy

TREK PD07016

High voltage power amplifier featuring an all-solid-state design for wide bandwidth, high slew rate, and low-noise operation for load current monitoring.

The Trek® PD07016 is a DC-stable, high voltage power amplifier that is configured as noninverting with a fixed gain of 1000 V/V and is protected against over-voltage and over-correct conditions that may be generated by active loads or by output short circuits to ground. Precision voltage and current monitors provide low-voltage representations of the high voltage output and load current for monitoring purposes or for use as feedback signals in a closed-loop system. The 4-quadrant, active output stage sinks or sources current to reactive or resistive loads throughout the output voltage range. This is essential to achieve the accurate output response and high slew rates demanded by reactive loads.

PRODUCT HIGHLIGHTS

- 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

TYPICAL APPLICATIONS

- Automated or computer controlled systems
- Providing feedback signals in closed-loop systems

AT A GLANCE

Output Voltage Range

0 to ±10 kV DC or peak AC

Output Current Range

0 to ±60 mA DC,0 to ±300 mA peak capability for 20 µs

Slew Rate

Greater than 1000 V/µs

Large Signal Bandwidth (3%)

DC to greater than 10 kHz

DC Voltage Gain

1000 V/V

TREK PD07016 HIGH VOLTAGE POWER AMPLIFIER

TECHNICAL DATA

Performance Specifications		
Output Voltage Range	0 to ±10 kV DC or peak AC	
Output Current Range	0 to ±60 mA DC, 0 to 300 mA peak capability for 20 µs	
Input Voltage Range	0 to ±10 V DC or peak AC	
Input Impedance	25 kΩ, nominal (inverting/differential option 50 kΩ, nominal)	
DC Voltage Gain	1000 V/V	
DC Voltage Gain Accuracy	Better than 0.1% of full scale	
DC Offset Voltage	Less than ±4 V	
Output Noise	Less than 5 V rms[1]	
Slew Rate	Greater than 1000 V/µs (10% to 90%, typical)	
Large Signal Bandwidth	DC to greater than 10 kHz (2% Distortion)	
Small Signal Bandwidth	DC to greater than 20 kHz (-3dB)	
Stability	Drift with Time: Less than 50 ppm/hr, noncumulative	Drift with Temp: Less than 100 ppm/°C

Voltage Monitor Specifications	
Ratio	1 V / 1000 V
DC Accuracy	Better than 0.1% of full scale
DC Offset Voltage	Less than ±5 mV
Output Noise	Less than 20 mV rms[1]
Output Impedance	47 Ω

Current Monitor Specifications	
Ratio	30 V/mA
DC Accuracy	Better than 2% of full scale
Offset Voltage	Less than ±10 mV
Output Noise	Less than 30 mV rms[1]
Bandwidth	DC to greater than 5 Hz (-3 dB)
Output Impedance	47 Ω

Mechanical Specifications	
Dimensions (H x W x D)	91.4 x 43 x 87 cm (36 x 17 x 34 in)
Weight	73 kg (160 lb)
HV Connector	Caton High Voltage Connector
BNC Connectors	Amplifier Input, Voltage Monitor, Current Monitor, Remote High Voltage ON/OFF, Out of Regulation Status, Fault/ Trip 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 with integral fuse holder
Power Consumption	1800 VA, maximum

[1] Measured using the true rms feature of the HP Model 34401A digital multimeter

TECHNICAL DATA

Environmental Specifications	
Temperature	0 to 40°C (32 to 104°F)
Relative Humidity	To 75%, noncondensing
Altitude	To 1524 meters (5000 ft.)

Features		
Settling Time (to 1%)	Less than 200 µs for a 0 to 10 kV step	
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 0 to ±60 mA	
Out of Regulation Status Indicator and Connector	Illuminates and TTL low is provided when unit fails to produce required HV output such as during current limit.	
Limit/Trip Status Indicator and Connector	Illuminates and a TTL low is provided when HV is disabled or when amplifier is out of regulation for more than 500 ms	
High Voltage On/Off	Local: Individual push-button switches	Remote: TTL compatible input. TTL high (or open) turns off high voltage output. TTL low turns on high voltage output.

REFERENCE NUMBERS

Included Accessories	
PN	**Description**
23383	Operator's Manual
B3060	Shorting BNC Cap
43466	HV Output Cable
Varies	Line Cord, Spare Fuses, selected per geographic region

Other Accessories	
PN	**Description**
1K042	Locking Wheel Kit

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

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