Advanced Energy

TREK 10/10B-HS

High voltage power amplifier capable of precise control of output voltages with an all-solid-state design for high slew rate, wide bandwidth, and low-noise operation.

The Trek® 10/10B-HS is a DC stable high-speed, high voltage power amplifier capable of precise control of output voltages. It features an all-solid-state design for high slew rate, wide bandwidth and low-noise operation. The four-quadrant, active output stage sinks or sources current into reactive or resistive loads throughout the output voltage range. This is essential for monitoring the accurate output response and high slew rates when driving 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

- AC or DC biasing
- Atmospheric plasma
- Dielectric barrier discharge
- Electroactive polymers (EAP)
- Electrophoresis, electrophotography
- Electrorheological fluids
- Electrostatic deflection
- Electro-optic modulation
- Ferroelectric material characterization
- Ion beam steering
- Mass spectrometers
- Material poling and particle accelerators

AT A GLANCE

Output Voltage Range

0 to ±10 kVDC or peak AC

Output Current Range

0 to ±10 mADC or 40 mA peak AC for 1 ms

Slew Rate

Greater than 700 V/µs

Large Signal Bandwidth

DC to greater than 19.5 kHz

DC Voltage Gain

Fixed at 1000 V/V

TECHNICAL DATA

Performance Specifications		
Output Voltage Range	0 to ±10 k VDC or peak AC	
Output Current Range	0 to ±10 mA DC or ±40 mA peak for 1 ms	
Input Voltage Range	0 to ±10 VDC or peak AC	
Input Impedance	20 kΩ, nominal	
DC Voltage Gain	1000 V/V	
DC Voltage Gain Accuracy	Better than 0.1% of full scale	
DC Offset Voltage	Less than ±2 V	
Output Noise	Less than 0.5 V rms[1]	
Slew Rate	Greater than 700 V/µs (10% to 90%, typical)	
Small Signal Bandwidth	DC to greater 60 kHz (-3dB)	
Large Signal Bandwidth	DC to greater than 19.5 kHz (-3dB)	DC to greater than 9.5 kHz (1% distortion)
Stability	Drift with Time: Less than 100 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 ±3 mV
Output Noise	Less than 20 mV rms[1]
Output Impedance	47 Ω

Current Monitor Specifications	
Ratio	1 V/4 mA
DC Accuracy	Greater than 1% of full scale
Offset Voltage	Less than ±10 mV
Output Noise	Less than 50 mV rms[1]
Bandwidth (-3dB)	DC to greater than 10 kHz
Output Impedance	47 Ω

Mechanical Specifications	
Dimensions (H x W x D)	190 x 432 x 417 mm (7.5 x 17 x 16.4 in)
Weight	14.9 kg (31 lb)
HV Connector	Alden 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: 90 to 127 VAC or 180 to 250 VAC, either at 48 to 63 Hz
AC Line Receptacle	Standard 3-prong with integral fuse holder
Power Consumption	680 VA, maximum

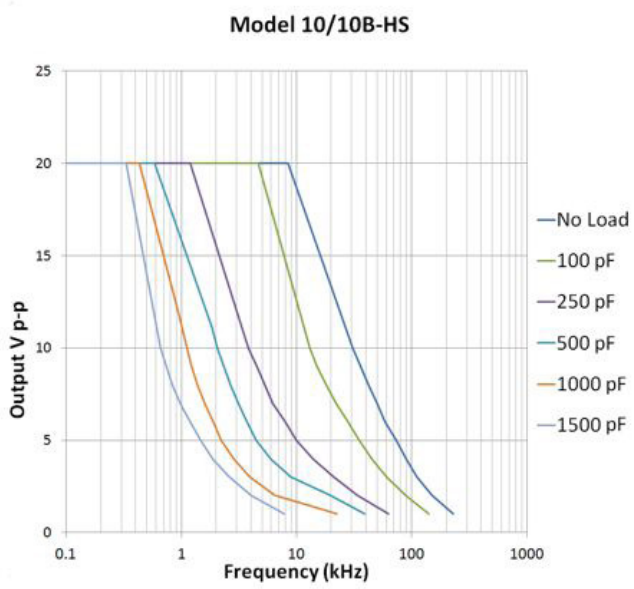
[1] Measured using the true rms feature of the HP Model 34401A digital multimeter

TECHNICAL DATA

Environmental Specifications	
Temperature	0 to 40°C (32 to 104°F)
Relative Humidity	To 85%, noncondensing
Altitude	To 2000 meters (6561.68 ft)

Features		
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.
Dynamic Adjustment	Graduated one-turn panel potentiometer is used to optimize the AC response for various load parameters.	
Current Limit/Trip	Switch selectable for limit or trip. Graduated one-turn panel potentiometer is used to adjust limit or trip level from 0 to ±10 mA.	
Out of Regulation Status Indicator and Connnector	Illuminates and TTL low is provided when unit fails to produce required HV output such as during current limit	
Fault/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 (in this instance, HV output is not disabled).	

MODEL 10 / 10B-HS



REFERENCE NUMBERS

Included Accessories	
PN	**Description**
23442	Operator's Manual
43406	HV Output Cable
Varies	Line Cord, Spare Fuses (selected per geographic destination)

Other Accessories	
PN	**Description**
43421	HV Output Cable (5 m)
43422	HV Output Cable (10 m)
43423	HV Output Cable (20 m)
608RA	19" Rack Mount Kit (with EIA hole spacing)
608RAJ	19" Rack Mount Kit (with JIS hole spacing)

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