TREK 601C

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

The Trek® 601C is a DC-stable, high voltage power amplifier designed to provide precise control of output voltages. It features up to two independent amplifier channels in one enclosure and an all solid-state design for high slew rate, wide bandwidth and low-noise operation. The four-quadrant, active output design of the Trek 601C sinks or sources current into reactive or resistive loads. These features are essential for achieving the accurate output response and high slew rates demanded by reactive loads.

PRODUCT HIGHLIGHTS

- DC accuracy is better than 0.1% of full scale
- 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
- Remote high-voltage ON-OFF
- Operation as a non-inverting or inverting amplifier with a fixed gain
- Different output voltage ranges, input configurations and voltage gain ratios are available; please contact Advanced Energy for more information
- NIST-traceable Certificate of Calibration provided with each unit

TYPICAL APPLICATIONS

- Driving piezoelectric actuators
- Modulating electrooptics
- Electrostatically controlling ion beams
- Providing remote ON/OFF capabilities for automated or computer controlled systems

AT A GLANCE

Output Voltage Range

0 to ±500 V, 0 to -1 kV, or 0 to +1 kV DC or peak AC

Output Current Range

0 to ±10 mA DC or 0 to ±20 mA peak AC

Slew Rate

Greater than 50 V/µs

Large Signal Bandwidth (1%)

DC to 8 kHz

DC Voltage Gain

100 V/V (a gain of 50 V/V is available for the ±500 V range only)

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TECHNICAL DATA

Performance Specifications		
Output Voltage Range	0 to ±500 V, 0 to -1 kV, or 0 to +1 kVDC or peak AC	
Output Current Range	0 to ±10 mA DC; 0 to ±20 mA peak AC	
Input Voltage Range	0 to ±10 V DC or peak AC, non-inverting	
Input Impedance	25 kΩ, nominal	
DC Voltage Gain	100 V/V (50 V/V available for ±500 V range only)	
DC Voltage Gain Accuracy	Better than 0.1% of full scale	
DC Offset Voltage	Less than 500 mV	
Output Noise	Less than 10 V rms[1]	
Slew Rate	Greater than 50 V/µs (10% to 90%, typical)	
Small Signal Bandwidth	DC to greater 30 kHz (-3dB)	
Large Signal Bandwidth	DC to greater than 8 kHz, typical (1% distortion)	
Stability	Drift with Time: Less than 100 ppm/hr, noncumulative	Drift with Temp: Less than 50 ppm/°C

Voltage Monitor Specifications	
Ratio	1/100th of the high-voltage output
DC Accuracy	Better than 0.1% of full scale
DC Offset Voltage	Less than ±5 mV
Output Noise	Less than 10 mV rms[1]
Output Impedance	0.1 Ω

Current Monitor Specifications	
Ratio	0.5 V/mA
DC Accuracy	Better than 1% of full scale
Offset Voltage	Less than ±10 mV
Output Noise	Less than 20 mV rms[1]
Output Impedance	0.1 Ω

Mechanical Specifications		
Dimensions (H x W x D)	Single Channel Instrument	222.3 x 108 x 335 mm (8.75 x 4.25 x 13.2 in)
	Double Channel Instrument	433.8 x 108 x 335 mm (17 x 4.25 x 13.2 in)
Weight	Single Channel Instrument	4.3 kg (9.4 lb)
	Double Channel Instrument	8.6 kg (18.8 lb)
HV Connector	Caton High Voltage Connector	

Electrical Specifications	
Line Voltage	Factory set for one of two ranges: 104 to 127 VAC or 180 to 250 VAC at 48 to 63 Hz
Power Consumption	150 VA, maximum
HV Cable	2 m, 66 pF per foot

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

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

TECHNICAL DATA

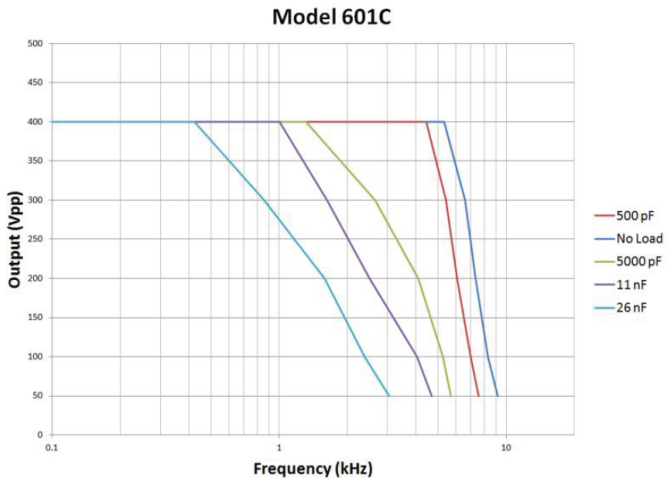
Features	
Output Voltage Configurations	Factory set for 0 to ±500 V DC or peak AC. Other available output voltage ranges are 0 to-1 kV or 0 to +1 kV DC or peak AC. This setting is customer specified.
Digital Enable	An input providing a connection for a TTL compatible signal to turn on and off the high voltage output.
Input Configuration	Factory set as a non-inverting amplifier, the Trek 601C can be configured as an inverting amplifier.
Dynamic Adjustment	Graduated one-turn panel potentiometer is used to optimize the AC response for various load parameters.

REFERENCE NUMBERS

Included Accessories	
PN	**Description**
23146	Operator's Manual
43874R	HV Output Cable Assembly, 3 m
N5002	Line Cord (90 to 127 VAC)
Contact Factory	Line Cord (80 to 250 VAC)

Optional Accessories	
PN	**Description**
43874R	HV Output Cable, 3 m
C4036	603RA Full Rack Mount Kit
C4060	603RA-2 Dual Instrument Rack Kit
C4008	Half-Rack Mount Kit

MODEL 601C



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.

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