Trek Model 601C
High-Voltage Power Amplifier

The Model 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 Model 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.

Key Specifications

- 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% distortion): DC to 8 kHz
- DC Voltage Gain: 100 V/V (a gain of 50 V/V is available for the ±500 V range only)

Typical Applications Include

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

Features and Benefits

- 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 noninverting or inverting amplifier with a fixed gain
- Different output voltage ranges, input configurations and voltage gain ratios are available; please contact Trek, Inc. for more information
- NIST-traceable Certificate of Calibration provided with each unit
### Performance

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Voltage Range</td>
<td>0 to ±500 V, 0 to -1 kV, or 0 to +1 kV DC or peak AC</td>
</tr>
<tr>
<td>Output Current Range</td>
<td>0 to ±10 mA DC; 0 to ±20 mA peak AC</td>
</tr>
<tr>
<td>Input Voltage Range</td>
<td>0 to ±10 V DC or peak AC, noninverting</td>
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<tr>
<td>Input Impedance</td>
<td>25 kΩ, nominal</td>
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<tr>
<td>DC Voltage Gain Accuracy</td>
<td>Better than 0.1% of full scale</td>
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<tr>
<td>DC Offset Voltage</td>
<td>Less than 500 mV</td>
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<td>Output Noise</td>
<td>Less than 10 mV rms*</td>
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<tr>
<td>Slew Rate</td>
<td>Greater than 50 V/µs</td>
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<tr>
<td>Small Signal Bandwidth</td>
<td>DC to greater than 30 kHz</td>
</tr>
<tr>
<td>Large Signal Bandwidth</td>
<td>DC to greater than 8 kHz</td>
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### Mechanical

#### Dimensions

- **Single Channel Instrument:** 222.3 mm H x 108 mm W x 335 mm D (8.75” H x 4.25” W x 13.2” D)
- **Double Channel Instrument:** 433.8 mm H x 108 mm W x 335 mm D (17” H x 4.25” W x 13.2” D)

#### Weight

- **Single Channel:** 4.3 kg (9.4 lb)
- **Double Channel:** 8.6 kg (18.8 lb)

#### HV Connector

SHV High Voltage Connector

### Operating Conditions

- **Temperature:** 0°C to 40°C (32°F to 104°F)
- **Relative Humidity:** To 85%, noncondensing
- **Altitude:** To 2000 meters (6561.68 ft.)

### Electrical

- **Line Voltage:** Factory Set for one of two ranges: 90 to 127 V AC or 180 to 250 V AC, either at 48 to 63 Hz
- **Power Consumption:** 150 VA, maximum
- **HV Cable:** 2 m, 66 pF per foot

### Supplied Accessories

- **Operators’ Manual:** PN: 23146
- **HV Output Cable Assembly, 3 m:** PN: 43874R
- **Line Cord:** PN: N5002 (90 to 127 V AC)
  - Contact Factory: (80 to 250 V AC)

### Optional Accessories

- **HV Output Cable:** PN: 43874R (3 meters)
- **Rack Mount Kits:**
  - PN: C4036, 603RA Full Rack Mount Kit
  - PN: C4060, 603RA-2 Dual Instrument Rack Kit
  - PN: C4008, Half-Rack Mount Kit

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

**Please specify when ordering.

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