Penny+Giles analogue and digital T-Bar controllers provide excellent performance and reliability for video switchers, mixers and effects generators.

Analogue T-Bars incorporate a conductive plastic track with an analogue output which offers excellent performance.

Digital T-Bar controllers incorporate a high quality optical incremental encoder, generating two channels of quadrature output at 256 cycles per channel. This data can then be decoded to provide directional indication and incremental position.

- analogue or digital output
- smooth precise control
- infinite resolution
- noise-free operation
- compact and rugged
- proven durability

www.pennyandgiles.com
PGF 5000
analogue T-Bar video controller

SELECT THE FADER OPTIONS YOU REQUIRE

<table>
<thead>
<tr>
<th>Resistance ±20%</th>
<th>5kΩ</th>
<th>2.5kΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linearity</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>End volts maximum</td>
<td>0.1%</td>
<td></td>
</tr>
<tr>
<td>Output law</td>
<td>Linear</td>
<td></td>
</tr>
</tbody>
</table>

DIMENSIONS
All dimensions shown in mm

- Minimum overtravel each end: 1°
- Insulation resistance: 20MΩ at 50Vdc
- Maximum wiper current: 10mA

CIRCUIT DIAGRAMS/TERMINATIONS
Track switch (2mA max) available to special order

SAFETY WARNING
50Vdc maximum voltage
The PG5000 is designed for operation at low voltages not exceeding 50Vdc

TO ORDER OR OBTAIN A QUOTATION PLEASE CONTACT YOUR NEAREST SALES OFFICE AND ADVISE:
The series number and description, resistance, linearity and end volts.
For example: • PGF5000 • 2.5kΩ • linearity 3% • end volts 0.1% Penny+Giles would code this fader as:

| Controller type | PGF5000 | G | 3 | X |
**DIMENSIONS**

All dimensions shown in mm

**CIRCUIT DIAGRAMS/TERMINATIONS**

<table>
<thead>
<tr>
<th>Pin output</th>
<th>Pin 1</th>
<th>Channel B output</th>
<th>Pin 2</th>
<th>Vcc</th>
<th>Pin 3</th>
<th>Channel A output</th>
<th>Pin 4</th>
<th>Not connected</th>
<th>Pin 5</th>
<th>Ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector details</td>
<td>AMP 103686-4 or 640445-5</td>
<td>DuPont HEDS-8902 with 4-wire leads</td>
<td>HP 65039-032 with 4825X-000</td>
<td>Molex 2695 series with 2759 series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ELECTRICAL SPECIFICATION**

- Supply voltage (pin 2): 4.5 to 5.5Vdc (Ripple<100mV p-p)
- Supply current (pin 2): 30mA minimum, 85mA maximum
- High level output voltage (pins 1 and 3): 2.4V minimum (IOH = -200µA maximum)
- Low level output voltage (pins 1 and 3): 0.4V maximum (IOL = 3.86mA)

To ensure reliable encoding performance, the encoder module requires 2.7kΩ (±10%) pull up resistors on output pins 1 and 3 as shown. These resistors should be located as close to the encoder as possible (within 1200mm). Each of the encoder outputs can drive a single TTL load in this configuration.

**QUADRATURE WAVEFORM**

<table>
<thead>
<tr>
<th>Cycles</th>
<th>1024 per revolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitional edges</td>
<td>4096 per revolution</td>
</tr>
<tr>
<td>Over 90° angular travel</td>
<td></td>
</tr>
<tr>
<td>Available cycles</td>
<td>256 per channel</td>
</tr>
<tr>
<td>Transitional edges</td>
<td>1024</td>
</tr>
<tr>
<td>Rise time</td>
<td>180nS typical (CL = 25pF RL=3.3kohms)</td>
</tr>
<tr>
<td>Fall time</td>
<td>40nS typical (CL = 25pF RL=3.3kohms)</td>
</tr>
<tr>
<td>Phase error</td>
<td>15° maximum</td>
</tr>
</tbody>
</table>

**TO ORDER OR OBTAIN A QUOTATION PLEASE CONTACT YOUR NEAREST SALES OFFICE AND ADVISE:**

The series number and description. Penny+Giles would code this fader as: **Controller type: D460332**
Innovation In Motion

www.pennyandgiles.com

Penny & Giles
Faders and controllers, position sensors, joysticks and solenoids for commercial and industrial applications.

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Quality Approvals

Penny+Giles are accredited to BS EN ISO 9001:2008
Quality is at the heart of all our systems ensuring the reliability of our products from initial design to final despatch.

The products detailed in this document are supplied as components for installation into an electrical apparatus or system. They are outside the scope of the EEC directive and will not be CE marked.

The information contained in this brochure on product applications should be used by customers for guidance only.
Penny+Giles Controls Ltd makes no warranty or representation in respect of product fitness or suitability for any particular design application, environment, or otherwise, except as may subsequently be agreed in a contract for the sale and purchase of products. Customer’s should therefore satisfy themselves of the actual performance requirements and subsequently the products suitability for any particular design application and the environment in which the product is to be used.

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