P&G Fader families

See also Penny and Giles website at
http://www.pennyandgiles.com/f_products2.cfm?id=6

Linear faders

1100 Series (parts only)

- 2 large-diameter (3/16") rods
- Rectangular plastic end blocks
- L-shaped metal base plate
- Flat metal side cover plate
- Slider
  - Caution!! There are at least 3 different versions of slider assemblies in use. Please consult http://www.manquen.net/audio/index.php?page=34 for more details.
  - Brass tongue plate with knob tongue at top and switch actuator ramps at bottom
  - 2 bushings on top rod, held in place by tongue plate
  - 1 obround guide hole with no bushing on bottom rod
  - Mounting bar holding multiple sets of sliding contacts
    - Contact consists of 8 spring wires each .006" diameter
- Co-molded resistive track substrate screwed to base plate
- Optional switches mounted to base plate

1500 Series (parts only)
The 1500 Series added top sub-panels and fascias with scale markings to the 1100 Series fader mechanism. See the 1100 Series description above.

1900 Series (parts only)
The 1900 Series is the long-stroke version (126mm stroke) version of the 1100/1500 family.

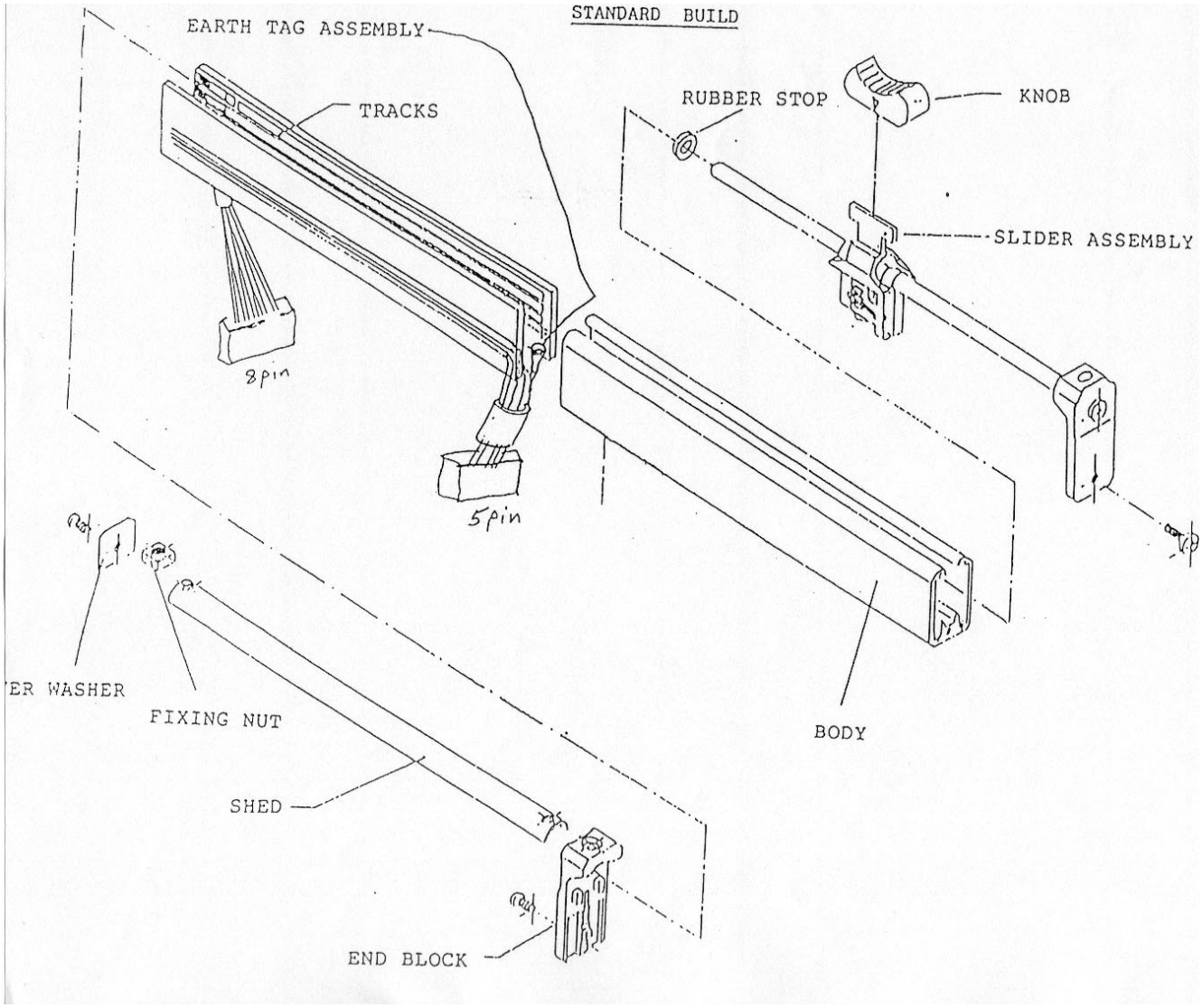
3000 Series (current product)
http://www.pennyandgiles.com/dsp_product_info.cfm?productid=43

The 3000 Series family offers six different length strokes, ranging from 45mm to 124mm:

45mm	34xx
65mm	30xx
70mm	35xx
83mm	36xx
104mm	32xx
124mm	37xx

The fader body consists of a U-shaped extruded aluminum shell that contains a guide slot along the inside bottom of the U. A single guide rod is supported above the extrusion by two plastic end blocks. The slider assembly consists of a metal yoke that holds two

plastic bushings that slide along the rod, and a molded plastic insert that holds the contact finger assemblies. The bottom of the slider insert has a tongue-like protrusion that slides in the bottom slot of the extrusion.



The long rectangular resistive tracks slide into slots along the inside of the extrusion. Simple mono faders utilize only one track, while more complicated faders such as stereo or motorized faders may contain tracks on both sides.

A curved hood, which is called a ‘shed’ by P&G, shields the guide rod and interior of the fader from dirt and liquids that might drop into the slot in the mounting panel.

Switch functions can be implemented by internal and external switches. The internal switches utilize extra sets of contact fingers to sense discontinuities in special tracks molded next to the resistive tracks. The external switches are ‘Microswitches’ activated by the bottom edge of the slider. An ‘overpress’ spring at the bottom end of the slider’s

travel is used in conjunction with a switch for specialized cueing or remote equipment starting.

Motorized 3000 versions, identified as PGFM in the part number, come in a number of varieties.
Motor variations include:

A large Portescap ironless-core motor mounted side-saddle at the middle of the fader,

A long, narrow Maxon ironless-core motor mounted at the end or underneath the fader, and

A small Canon motor with flattened sides mounted at the end.

Various string and toothed belt drives are used to couple the motor to the slider.
Motorized versions usually contain a linear track for position sensing for the motor servo system. This track is usually physically longer than the mechanical motion of the slider to assure a constantly changing control voltage even at the extremes of travel.
Servo systems also require a touch-sensing circuit so that the system can shift from Read mode to Write mode when the operator begins to manually move a fader with his finger. The touch sensing utilizes a conductive knob with metal plating and a special internal contact assembly that connects the knob and metal frame of the slider to a set of sliding contacts that ride along a special touch track.
http://www.pennyandgiles.com/dsp_product_info.cfm?productid=44

X3000 Crossfaders (current product)
The X3000 Series, identified by PGFX in the part number, is similar in construction to the 3000 Series fader except for a long, narrow tongue for knob attachment, which can be either rectangular or tapered. Single and dual-channel versions are available.
http://www.pennyandgiles.com/dsp_product_info.cfm?productid=60

4000 Series (parts only)
The 4000 Series was a dual-rod fader with sheetmetal side panels held on by screws to plastic end blocks. The fader is deeper than the 3000 Series, permitting a pair of stereo tracks on a single substrate or quad if both sides have substrates.

8000 Series (current product)
http://www.pennyandgiles.com/dsp_product_info.cfm?productid=45

2 rods .155” diameter
Slider
Plastic slider body with integral bearing surfaces
Steel tongue plate
Contact finger assemblies staked into the plastic of the body
Contacts consist of 5 spring wires each .006” diameter

Motorized
http://www.pennyandgiles.com/dsp_product_info.cfm?productid=46

The drive motor can be either a Canon iron-core motor with flattened sides or a long, slender Maxon ironless-core motor. The motor can be coupled to the slider assembly by various string and toothed belt arrangements. The motor and its mounting strip are fastened to the top of the fader by two ¼" threaded standoffs, requiring the use of a longer knob-attachment tongue.

Rotary faders

The RF11 and RF15 precision rotary faders are covered elsewhere on this site in the document 'Penny & Giles Rotary Faders for Professional Application'.
http://www.pennyandgiles.com/dsp_product_info.cfm?productid=41
http://www.pennyandgiles.com/dsp_product_info.cfm?productid=42

Joysticks

MJCP Motorized Joystick Controllers
http://www.pennyandgiles.com/dsp_product_info.cfm?productid=47

The two-axis motorized joystick controllers provide quick, repeatable control for audio, video and lighting applications. Co-molded conductive plastic position sensors provide smooth operation and long life.

T-bar controllers

5000 Analog http://www.pennyandgiles.com/dsp_product_info.cfm?productid=57

The analog T-bar controllers feature co-molded conductive plastic tracks and multiple wire contacts similar to the technology found in the linear and rotary audio products. The robust mechanical construction provides long life, and a special internal damper/brake provides smooth motion without any slippage or free play.

5000 Digital **http://www.pennyandgiles.com/dsp_product_info.cfm?productid=58**

The digital T-bar controller replaces the analog potentiometer with an optical encoder disc. A 2-phase readout provides direction information and increases the number of output pulses. The non-contacting operation of the optical system provides high reliability with low maintenance.

Endless Belt controllers – Series 7000
http://www.pennyandgiles.com/dsp_product_info.cfm?productid=48

Endless belt controllers provide intuitive control of relative levels for audio, video or lighting. A digital output provides reliable sensing. An LED level readout under the transparent belt provides operator feedback.