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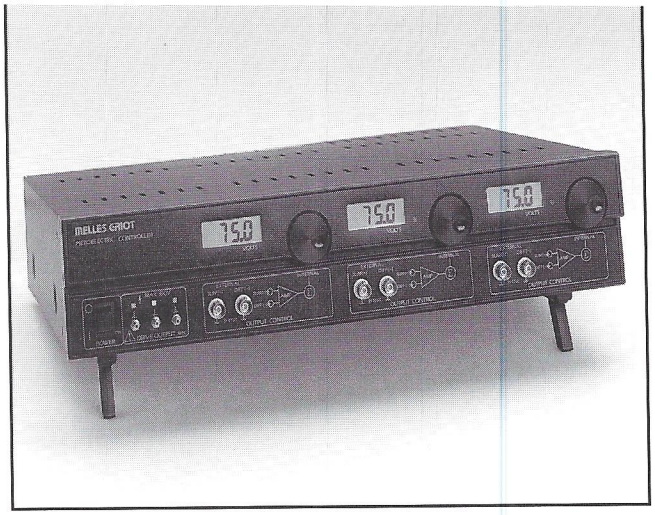
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Find the *Melles Griot 17PCW012* at our website: ***Click HERE***



Piezoelectric Controllers

PIEZOELECTRIC DRIVER

For piezoelectric actuators without active position feedback, Melles Griot offers two ranges of low-voltage controllers: the cost-effective 17 PCS 001 three-channel driver and the 17 PCW high-performance three-channel range, available with 75 or 500 mA drive current per channel.

The 17 PCS 001 driver allows simple yet precise ***hands-off*** adjustments to be made to piezoelectric positioners. Three independent, low noise outputs are provided, controlled by separate multi-turn potentiometers. Resolution is further increased by the provision of large, easy to use, control knobs. Three BNC rear-panel inputs are provided so that the output voltage can be remotely controlled, but these inputs have a limited bandwidth and are effectively dc controls. The voltages on the output channels are displayed simultaneously, with their respective channel reference, on the 2 × 24 digit display. The three SMC drive output sockets and control knobs are color coded, Red, Yellow, and Green to match the color coding on the positioners themselves. The three SMC drive outputs are color-coded, red, yellow, and green, to match similar coding on the push buttons and voltage-control knobs.



PIEZOELECTRIC DRIVER 17 PCS 001.

SPECIFICATIONS: PIEZOELECTRIC DRIVER

Output Voltage:

3 channels, 0–75 VDC, SMC screw connectors

Internal control with 10-turn front-panel potentiometers or external control with 0–10 VDC on 3 rear-panel BNC inputs

Noise: < 3 mV

Display: 2 × 24 digit LCD simultaneously showing the voltage output from all three channels.

Power Input

Voltage: 100–120 V and 220–240 V, rear-panel selector switch

Frequency: 50–60 Hz

Power: <10 W; fused 1 A anti-surge on real panel

Dimensions (W × H × D):

220 mm (8.7 in.) × 88 mm (3.5 in.) × 300 mm (11.8 in.)

Weight: 2.5 kg (5.5 lb)

Piezoelectric Driver

	PRODUCT NUMBER
3-channel driver	17 PCS 001

Piezoelectric actuators are ordered separately.

PIEZOELECTRIC CONTROLLERS

The 17 PCW series of high-performance piezoelectric controllers has been designed for operation of the 17 PAS standard piezoelectric actuators and actuators incorporated in the various precision nanopositioning assemblies. These are three-channel amplifier-controllers designed for static and dynamic applications when remote or programmed control is required with high stability and precision.

The Melles Griot piezoelectric actuators are capacitive in nature. Consequently, special design considerations are necessary to ensure high linearity, low noise, and high frequency response. Since these piezoelectrics present a wholly reactive load to the drivers, the factor limiting the frequency response is the available output current. The 17 PCW 002 has an output current of 500 mA per channel, allowing the maximum dynamic performance to be achieved for a wide range of actuators. The 17 PCW 001 has an

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output current of 75 mA per channel and is suitable for applications not requiring high dynamic performance.

Each amplifier channel has a choice of inverting (DIFFerence) and noninverting (SUM) inputs to allow for convenient inclusion into closed-loop control systems. The 0 to 10 VDC input signal drives the output from 0 to 75 VDC. Each channel has an independent summing dc offset with a manual front-panel potentiometer knob that is used to bias the output. If the sum of the bias voltage and the input exceeds 10 V the input is clipped to 10 VDC. Operating the piezos in a push-pull manner is achieved by offsetting the dc bias voltage to a midrange value and modulating the input voltage accordingly.

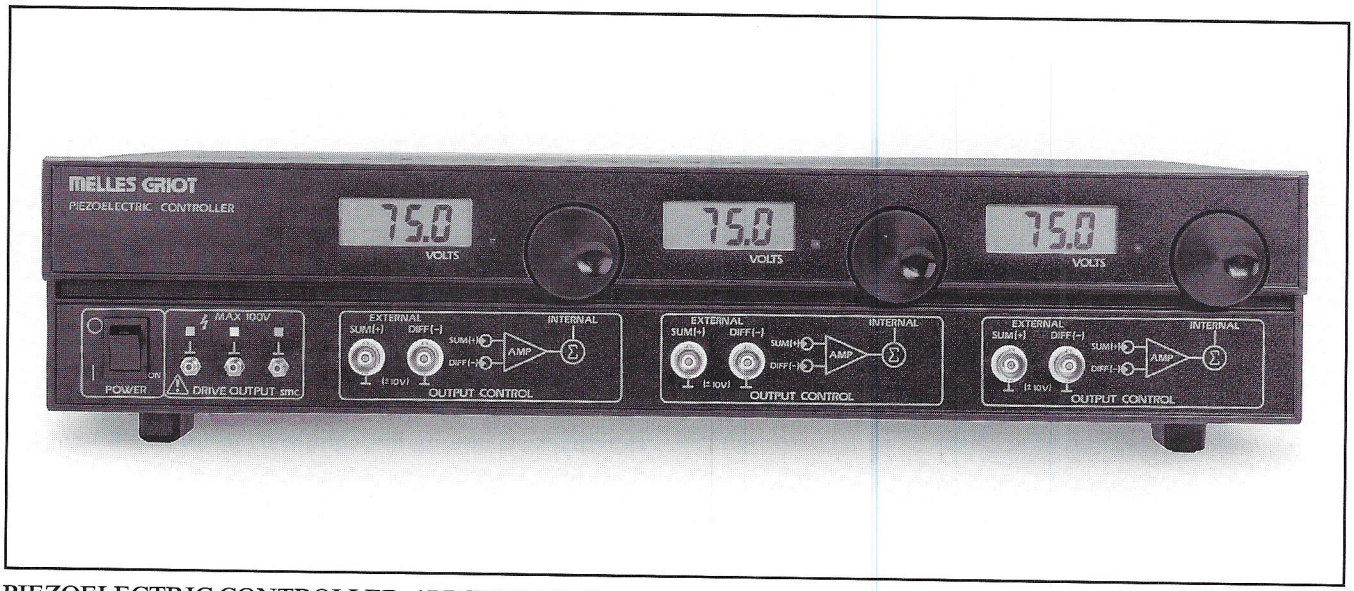
Users can continuously monitor the status of each of the three channels by viewing separate front-panel LCD displays. Additionally, 0 to 10 VDC analog outputs (representing the 0 to 75 VDC outputs) are available at three BNC sockets on the rear panel.

Positioning resolution is a direct function of the noise produced by the driver or controller. Careful design of these amplifiers to lower the noise levels has minimized the noise equivalent motions. Controller stability has also been enhanced by optimizing the open-loop bandwidth in the 0 to 10 kHz range, the electro-mechanical response region of the basic piezo stacks.

IEEE-488 COMPUTER INTERFACE

These two amplifiers are optionally available with an IEEE-488 computer interface as models 17 PCW 011 and 17 PCW 012. Each interface incorporates three 16-bit digital-to-analog converters, three 16-bit analog-to-digital converters, and a digital I/O port. The user can remotely select local or remote control, remotely set the outputs from 0 to 75 VDC in 1.14 mV increments, and also read the voltage from each channel. The various channels are multiplexed with an update time of 1 to 2 msec.

See Chapter 39 for more information on the NanoTrak™ Autoalignment system.



PIEZOELECTRIC CONTROLLER, 17 PCW SERIES.

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The controllers are provided with two folding front feet so that they may be operated in a horizontal position or tilted up at approximately 7°. An optional rack mounting kit is available. This consists of two corner brackets that are fitted with handles and screw holes for building the instrument into a 19-inch rack.

SPECIFICATIONS: PIEZOELECTRIC CONTROLLERS

Output Voltage:

3 channels, 0–75 VDC, SMC screw connectors

Each channel with two front-panel BNC 0–10 VDC inputs, SUMmed or DIFFerenced with output from 10-turn manual offsetting potentiometers.

Thermal trip output protection

Voltage Stability: 100 ppm over 24 hours

Noise: < 3 mV

Output Current

17 PCW 001 and 17 PCW 011: 0–75 mA per channel
17 PCW 002 and 17 PCW 012: 0–500 mA per channel

Bandwidth

17 PCW 001 and 17 PCW 011: dc –1 kHz
17 PCW 002 and 17 PCW 012: dc–10 kHz

Display: 3.5 digit LCD, each channel

Output Monitor: 0–10 VDC rear-panel BNC, each channel

Power Input

Voltage: 100–120 V and 220–240 V, rear-panel selector

Frequency: 50–60 Hz

Power: 17 PCW 001 and 17 PCW 011: 20 W
17 PCW 002 and 17 PCW 012: 200 W

Fuse: 5 A antisurge on rear panel

Dimensions (W × H × D):

431 mm (17 in.) × 88 mm (3.5 in.) × 379 mm (15 in.)

Weight: 11 kg (24 lb)

Piezoelectric Controllers

	PRODUCT NUMBER	
	Without IEEE-488	With IEEE-488
Piezoelectric controller 3 channels, 75 mA per channel	17 PCW 001	17 PCW 011
Piezoelectric controller 3 channels, 500 mA per channe	17 PCW 002	17 PCW 012
Rack Mounting Kit	17 PCA 003	

Piezoelectric actuators are ordered separately.

MELLES GRIOT MANUFACTURERS A COMPLETE FAMILY OF DIODE LASER DRIVERS AND CONTROLLERS

06 DLD 105	3 A current source with 32 W thermoelectric cooler controller.
06 DLD 103	500 mA current source with 16 W thermoelectric cooler controller.
06 DLD 203	300 mA current source with 16 W thermoelectric cooler controller.
06 DLD 201	200 mA current source.

Please see Section 7 for more information.

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