

# E-664

## NanoCube® Piezo Controller

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E-664 controller for P-611 NanoCube® XYZ NanoPositioning system

- 3 x 14 W Peak Power
- Position Servo-Control
- For P-611 NanoCube® NanoPositioning Systems

### Technical Data

<b>Models</b>	<b>E-664.S3</b>
Function	Power amplifier & sensor/position servo-control of P-611 NanoCube® NanoPositioning systems
Channels	3
<b>Amplifier</b>	
Maximum output power	14 W / channel (see page 6-52)
Average output power	6 W / channel
Peak output current <5 ms	140 mA / channel
Average output current >5 ms	60 mA / channel
Current limitation	Short-circuit proof
Voltage gain	10 ±0.1
Polarity	Positive
Control input voltage	-2 to +12 V
Output voltage	-20 to 120 V
DC offset setting	0 to 100 V with 10-turn pot.
Input impedance	100 kΩ
Display	3 x 3 1/2 -digit, LED
Control input sockets:	3 x BNC (rear)
PZT voltage output socket	25 pin sub-D on rear
Dimensions	236 x 88 x 273 mm + handles
Weight	3.0 kg
Operating voltage	90-120 / 220-240 VAC, 50-60 Hz (linear P/S)
<b>Position Servo-Control</b>	
Sensor type	Strain Gauge
Servo characteristics	P-I (analog) + notch filter
Sensor socket	25 pin sub-D on rear (same as PZT voltage)
Sensor monitor output socket	3 x BNC on rear
Additional I/O	14 pin connector on rear for On-Target and Overflow status and control in and sensor monitor out

The E-664 is a bench-top amplifier & position servo-controller that was especially designed for the P-611 NanoCube® XYZ NanoAlignment system (see page 2-74 and page 8-16). Each of the three integrated low-noise amplifiers can output and sink a peak current of 140 mA and an average current of 60 mA. The position servo-controllers work with strain gauge sensors. The E-664 can be operated in the following four ways:

#### I. Open-Loop Manual Control:

Output voltage can be set by a 10-turn, DC-offset potentiometer in the range of 0 to 100 V.

#### Ordering Information

**E-664.S3**  
NanoCube® Controller, Benchtop  
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#### II. Open-Loop External Control (amplifier mode):

Output voltage is controlled by an analog signal applied to the BNC input ranging from -2 to +12 V. Multiplying by the gain factor of 10, an output voltage range of -20 to +120 V results. The DC-offset potentiometer adds a DC bias to the input, allowing continuous shifting of the input voltage range between -2 V to +12 V and -12 V to +2 V (see page 6-52).

#### III. Closed-Loop Manual Control (position control mode):

Displacement of the PZTs can be set by a 10-turn, DC-offset potentiometer in the range of zero to nominal displacement.

#### IV. Closed-Loop External Control:

Displacement of the PZT is controlled by an analog signal in the range of 0 to +10 V applied to the BNC input. The controller is calibrated in such a way that 10 V corresponds to maximum nominal displacement and 0 V corresponds to 0 displacement. The DC-offset potentiometer can be used to add an offset voltage of 0 to 10 V to the input signal. On-Target and Overflow status for each channel are displayed by 6 LEDs and can be accessed through a 14-pin, rear-mount I/O connector that also provides analog control input and sensor monitor output lines.