

# Piezo Driver

## For micropositioning



### Features

Piezo Driver is a driver (amplifier) for piezoelectric actuators with high stability and low noise and performs 10 nm positioning. The Driver is equipped with protection circuits specifically designed for piezoelectric actuators to prevent damage from occurring to both Piezo Driver and actuators.

### Stability

The variance of output for 24 hours after 30 minutes from switch-on is highly stable at less than 0.01%.

### Temperature characteristics

The drift caused by change in temperature is less than 10 mV/C.

### Output noise

Superb low output noise performance of less than 10 mV.

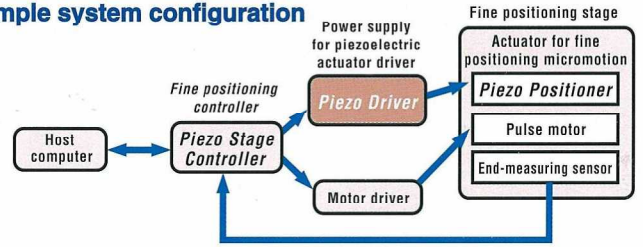
### Protection circuits

Overcurrent protection circuit  
Slow start-up circuit  
High-speed cutoff protection circuit

### Applications

Piezoelectric actuator amplifier for optical device positioning stages  
Piezoelectric actuator amplifier for semiconductor related manufacturing devices  
Piezoelectric actuator amplifier for high-precision processing machines

### Sample system configuration



\* It is recommended that genuine Taiheyo Cement products be used for the Piezo Stage Controller, Piezo driver and Piezo Positioner.

### Specifications

	PM-1200 (Module)	PD-1300
Rate output current	200mA	2A
Peak output current	200mA	20A
Output voltage range	-10~150V	
Input voltage range	-0.5~7.5V	
Offset range	0~150V (* when factory shipped)	
Amplification factor	X20	
Frequency bandwidth (0.1 μF loaded)	6KHz	60KHz
Output impedance	5 Ω	1 Ω
Output stability	<0.01% (for 24 hours after 30 minutes from switch-on)	
Output noise	<0.01% (while AC power source voltage varying within ±10%)	
Temperature drift (5~40°C)	<10mVpp	
I/O linearity	<0.1%	
Protection circuit	Current control protection circuit (Output is cut off after 10 seconds)	High-speed cutoff protection circuit (<10 μs)
Start-up protection circuit	Slow start-up circuit (approx. 2 sec.)	

Standard specifications	PD 1230	PD 1301
Equipped module	PM-1200	—
Equipped no. of channels	1~3	1
Type	Desktop	Desktop
Dimensions [Wmm]	287mm	287mm
[H mm]	157mm	157mm
[D mm]	295mm	295mm
Max. weight	7.0kg	11.0kg
Operating environment	Temp: 0~40°C; Humidity: 30~80% RH	
AC supply power	AC100V, 1 φ, 50/60Hz	
Max. demand	170VA	570VA

## Multi-purpose



### Features

Two types of drivers for piezoelectric actuators have been newly added to the lineup for use in dusty environments and for trapezoidal wave drive control. As with the conventional series, the PD series is also equipped with an overcurrent protection circuit (average current, peak current).

### For dusty environments (PD-2000 series)

Can also be used in a environment with dust or oil mist.

### Oscillator equipped type also available.

### For trapezoidal wave drive control (PD-3000 series)

Converts rectangle input signals to trapezoidal waves for output. trapezoidal wave slopes can be adjusted.

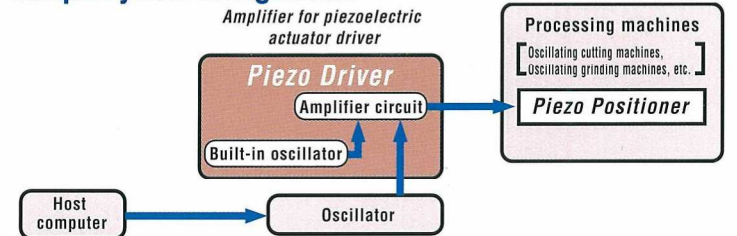
### Protection circuits (PD-2000 and PD-3000 series)

Overcurrent protection circuit (average current, peak current)  
Slow start-up circuit

### Applications

Piezoelectric actuator amplifier for dusty environments such as sites for grinding, cutting, etc. (PD-2000 series)  
Piezoelectric actuator amplifier for sine-wave oscillation processing (PD-2000 series)  
Piezoelectric actuator amplifier for trapezoidal wave drive control (PD-3000 series)  
Piezoelectric actuator amplifier for positioning stages (PD-3000 series)

### Sample system configuration



\* It is recommended that genuine Taiheyo Cement products be used for the Piezo driver and Piezo Positioner.

### Specifications

	PD-2000	PM-3000 (Module)
Rated output current	(DC) 1.0A (AC) 2.0Arms	5mA
Peak output current	±15A	±30mA
Output voltage range	0~150V	
Input voltage range	0~7.5V	
Offset range	0~150V	N/A
Amplification factor	X20	
Frequency bandwidth	10kHz (10 Vpp, 0.7 μF loaded)	3kHz (10 Vpp, 0.1 μF loaded)
Output impedance	Less than 5 Ω	Less than 100 Ω
Output noise (4 μF loaded)	Less than 10 mVpp	
Stability	Less than 10mV/C	
Protection circuit	Overcurrent detection, peak current detection/instantaneous shutoff	

Standard specifications	PD-2660	PD-3140
Equipped module	—	PM-3000
Equipped no. of channels	1	1~4
Dimensions [Wmm]	350mm	167mm
[H mm]	150mm	157mm
[D mm]	270mm	295mm
Max. weight	13.0kg	4.1kg
Operating environment	Temp: 0~40°C; Humidity: 30~80% (no condensation)	
AC supply power	AC100V, 1 φ, 50/60Hz	
Max. demand	280VA	15VA

### Oscillator specifications (for PD-2611)

Oscillation frequency range	10~500Hz
Output voltage range	0~7.5V
Output impedance	Less than 10 Ω
Output waveform	Sine waves
Distortion rate	Less than 2.0%
Frequency stability	Less than 0.2%/C