

Piezo Driver MTAD1030



Instruction Manual

1 Overview

Piezo Driver MTAD1030 amplifier is specially designed for pulse drive. It is capable to drive piezoelectric actuators at high speed by amplifying input waveform applied on the piezoelectric actuator, flowing a large peak current corresponding to the steep waveform of the rising edge and the falling edge.

It runs on a 100V AC power supply and is stored in a portable storage case that can be carried around. Piezo Driver MTAD1030 is designed to be easily operated.

2 Structure

This device contains the following parts.

2.1 MTAD1030	-----1
2.2 Claw lug for terminal block connection	-----1
2.3 Power cord (with claw lug)	-----1
2.4 Instruction manual	-----1

3 Specifications

- 3.1 Output voltage range: 0-150V
- 3.2 Output current: Average output current 100mA
- 3.3 Input signal: 0-5V Arbitrary waveform
- 3.4 Bias voltage range: 0-150V (semi-fixed setting)
- 3.5 Amplification range: 0-30 times (semi-fixed setting)
- 3.6 Power bandwidth: DC~50kHz
- 3.7 Output stability: $\pm 1 \times 10^{-4}$ (AC100V $\pm 10\%$)
- 3.8 Ripple noise: below 20mVp-p
- 3.9 Pulse response: within 20 μ S (Load capacity 5 μ F output range 0~100V)
- 3.10 Monitor output: 1/10 of output Impedance 10K Ω
- 3.11 Protection circuit: Operates above average current of 110mA
- 3.12 Power supply required: AC100V 50/60Hz
- 3.13 External Dimension: 120(H)x 50(W) x210(D) mm

4 Operating Method

4.1 The following are the operational parts on the front panel.

[POWER ON]: Connection switch of the AC100V power supply.

[OVER L]: When the overcurrent protection circuit is activated, light indication will occur.

[RESET]: Push button switch to restore/reset when the overcurrent protection circuit light indicator is on.

The following are the operational parts on the back panel.

[AC 100V]: Connection outlet of 100V power supply.

[OUTPUT]: Output plug

[R]: Terminal that connects the resistor(4Ω) in series

[GND]: To ground the case and internal circuit of the instrument with the ground terminal

[MONITOR]: 1/10 level of the monitor plug output

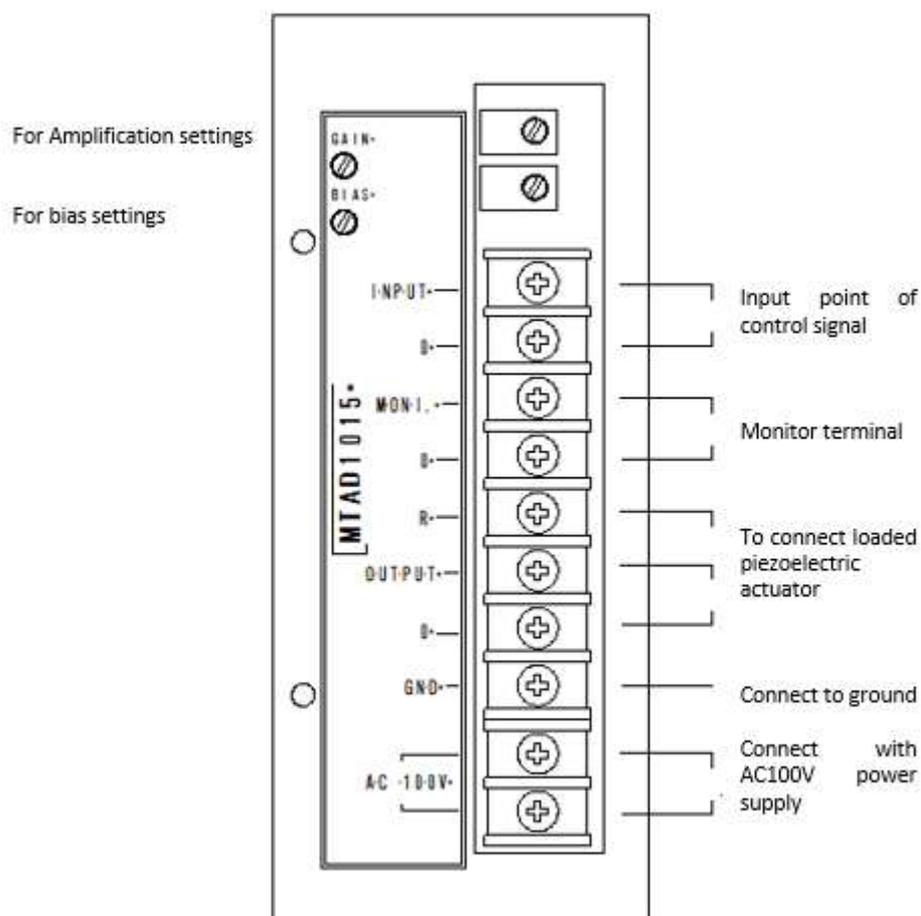
[INPUT]: Signal input connection terminal

[BIAS]: Semi-fixed regulator for operational settings

[GAIN]: Semi-fixed regulator for amplification degree settings.

4.2 Operating method

Back panel terminal connection



Precautions

There is a 1.5Ω resistor internally at the Output terminal [OUTPUT].

When the capacitance of the piezoelectric actuator is small, and low applied voltage is used, there

are possibilities of achieving high speed drive.

For resistant of $1\mu\text{F}$ above, [R] terminal (4Ω connected in series internally) is recommended.

Operation method

1) Voltage output is being supplied to the load when the [POWER ON] switch on the front panel is on.

2) The [INPUT] terminal at the back panel is set to connect the control signal in order to achieve output with gradually increasing amplitude.

3)

【Regarding the overcurrent protection circuit】

There is a protection circuit in the power supply part of this MTAD1030. The following settings were done to avoid short circuit caused by overload or malfunction due to operation miss.

Average current $\cong 120\text{mA}$

Peak current $\cong 25\text{A}$

When protection circuit is triggered, press the button after resolving the cause.

The protector may become faulty if the activation and resume is continuously repeated.

5 Operating precautions

This MTAD1030 may raise the drive frequency utilizing maximum amplitude until the average current protection circuit is activated, but it will generate heat at the same time. It is recommended that a fan or any ventilation device is being used to reduce heat. Please be noted that significant heat generation occurs under normal operation. Please use MTAD1030 with proper ventilation.

Please contact us (info@mechano-transformer.com) if any unexpected situation occurs regardless of the above.

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