

## Constant Current Driver for Unipolar Stepper Motors



Nippon Pulse's AD1231 is a constant current driver board designed for 2-phase unipolar stepper motors.

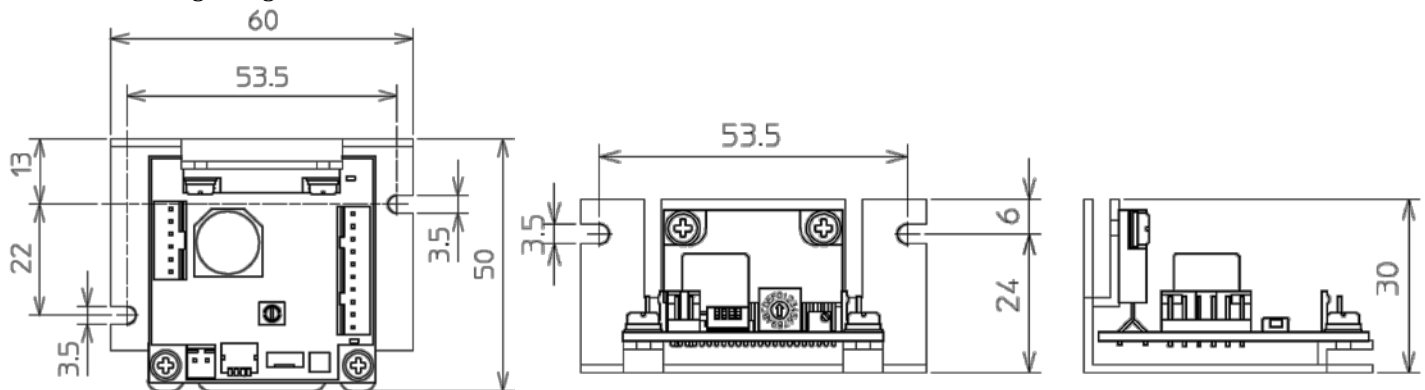
With its advanced features including 1/16 microstepping for vibration reduction, an auto-current down function to prevent excessive heating during motor stops, and opto-isolated inputs for advanced control, the AD1231 represents the cutting edge in bipolar chopper drive electronics.

### Features:

- Five excitation modes (Full, half, 1/4, 1/8, and 1/16) including microstepping
- Output current easily set by rotary switch
- Auto-current down function (25%, 50%, 75%) selectable by switch
- Heatsink
- RoHS compliance
- Switch-selectable two-pulse or one-pulse CW/CCW command signaling

### Applications:

- Experimentation/Evaluation
- CCTV, Security
- Office Automation
- ATM, Cash recycler, POS
- Lab Automation
- Medical
- Printer and Scanner
- Pumps and Valve



Electrical Specs	Input Voltage	Control power: DC12 to 24V±10% Capacity: 3[A], with fuse.
	Control Method	Unipolar constant current
	Excitation Method	2 phase (FULL), 1-2 phase (HALF), W1-2 phase (1/4), 2W1-2 phase (1/8), 4W1-2 phase (1/16)
	Output Current	0.13A (MIN) to 2.0A (MAX) / phase Selectable by the rotary switch.
	Auto Current Down Control (ACD)	Current down operation starts approximately 0.1s after pulse input stops and lowers the output current automatically. Selectable from 25%, 50% or 75% of the current by using switch.
	Input Interface	Pins 1 to 4 of CN2: Photocoupler (Toshiba TLP112 or equivalent) Built-in 330 ohm resistor Forward voltage 1.42V (TYP) Recommended forward current $I_F$ :11mA (Operation forward current $I_F$ :10 to 20mA) Maximum response frequency 160kpps (Input voltage 5V, duty rate 50%) Pins 5 to 8 of CN2: Photocoupler (Toshiba TLP281 or equivalent) Built-in 330 ohm resistor Forward voltage 1.15V (TYP) Recommended forward current $I_F$ :12mA (Operation forward current $I_F$ :5 to 50mA)
	Output Interface	Pins 9 to 10 of CN2: Photocoupler (Toshiba TLP281 or equivalent) Recommended collector current $I_C$ : 10mA (Saturation voltage between collector and emitter : 0.7V)
	CW/CCW Command Pulse	One of the following methods can be selected by the switch. 1. Two pulse method (CW/CCW) 2. One pulse method (CLK/DIR) Photocoupler ON: CCW Photocoupler OFF : CW
	MOT/OFF Signals	Motor excitation signal Photocoupler ON : Excitation OFF Photocoupler OFF : Excitation ON
	ACD/OFF Signals	Auto current down signal Photocoupler ON : ACD_OFF Photocoupler OFF : ACD_ON
EORG Output Signals	Display signal of 2 phase excitation condition Photocoupler ON : 2 phase excitation Photocoupler OFF: other than 2 phase excitation	
Environmental Conditions	Operating Temp. Range	0 to 50°C
	Operating Humidity Range	0 to 80%RH (No condensation)
	Storage Temp. Range	-10 to 60°C
Misc. Specs	Dimensions	60(W) x 50(D) x 30(H) [mm] (including heatsink)
	Weight	43g (including heatsink)
	Cooling System	Natural cooling