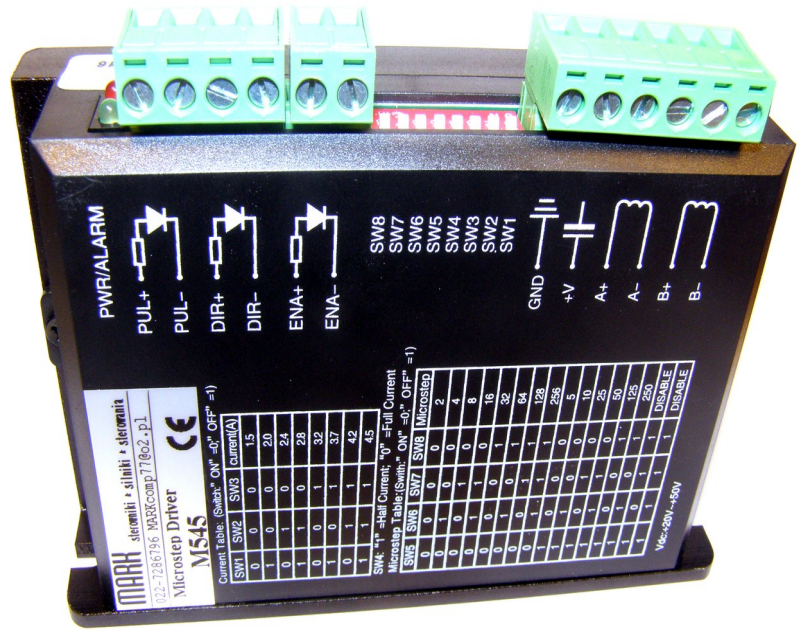# M545

MICROSTEPPING DRIVER

- Supply voltage up to +50VDC
- Peak current up to 4.5A
- Mircostepping: 1 - 256
- Automatic idle-current reduction
- Optically isolated input signals
- Current setting with 8 different values
- Overheated protect, lock automatic half current ,error connect protect
- Size (118x75.5x34mm)
- Weight：<300g.

M545 is an economical high performance microstepping driver based on one of the most advanced technologies in the world today. It is suitable for driving any 2-phase and 4-phase hybrid stepping motors. By using advanced bipolar constant-current chopping technique, it can output more speed and power from the same motor, compared with traditional technologies such as L/R drivers. Its 3-state current control technology allows coil currents to be well controlled, with relatively small current ripple and therefore less motor heating.

Applications

Suitable for a wide range of stepping motors of Nema 17 and 23, and usable for various kinds of machines, such as X-Y tables, labeling machines, laser cutters, engraving machines, and pick-place devices. Extremely suitable for applications expected to be low vibration, high speed and high precision.
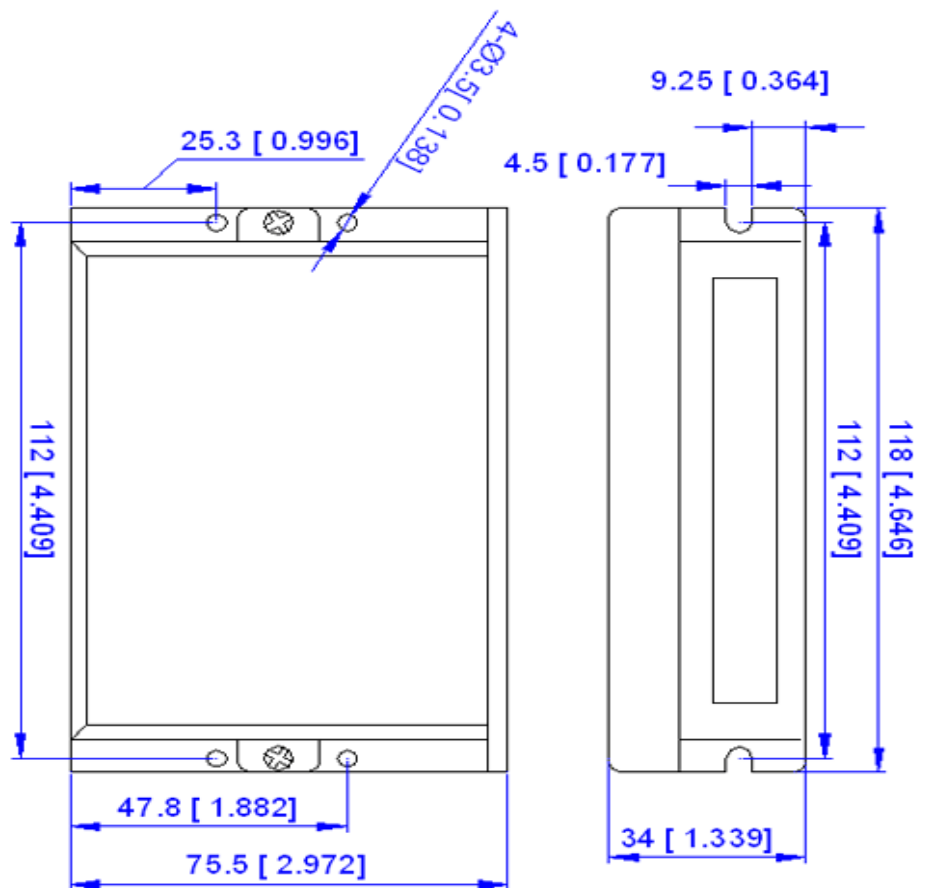
Pin Assignment and Description

parameters	M545		
	Min	typical	Max.
Output current	1.5A	-	4.5A
Supply voltage	20V	36V	50V
Logic signal current	7mA	10mA	16mA
Pulse input frequency	0	-	300KHz
Isolation resistance	500Mohms	-	-

Control Signal Connector P1 pins

Pin Function	Details
PUL+ PUL-	Pulse signal: In single pulse (pulse/direction) mode, this input represents pulse signal, each rising or falling edge active (set by inside jumper J1); 4-5V when PUL-HIGH, 0-0.5V when PUL-LOW. In double pulse mode (pulse/pulse) , this input represents clockwise (CW) pulse,active at high level or low level (set by inside jumper J1, J2). For reliable response, pulse width should be longer than 1.5µs. Series connect resistors for current-limiting when +12V or +24V used. The same as DIR and ENA signals.
DIR+ DIR-	DIR signal: In single-pulse mode, this signal has low/high voltage levels, representing two directions of motor rotation; in double-pulse mode (set by inside jumper J3), this signal is counter-clock (CCW) pulse,active at high level or low level (set by inside jumper J1, J2). For reliable motion response, DIR signal should be ahead of PUL signal by 5µs at least. 4-5V when DIR-HIGH, 0-0.5V when DIR-LOW. Please note that rotation direction is also related to motor-drive wiring match. Exchanging the connection of two wires for a coil to the drive will reverse motion direction.
ENA+ ENA-	Enable signal: This signal is used for enabling/disabling the drive. High level (NPN control signal, PNP and Differential control signals are on the contrary, namely Low level for enabling.) for enabling the drive and low level for disabling the drive. Usually left **UNCONNECTED (ENABLED)**.

Power connector P2 pins

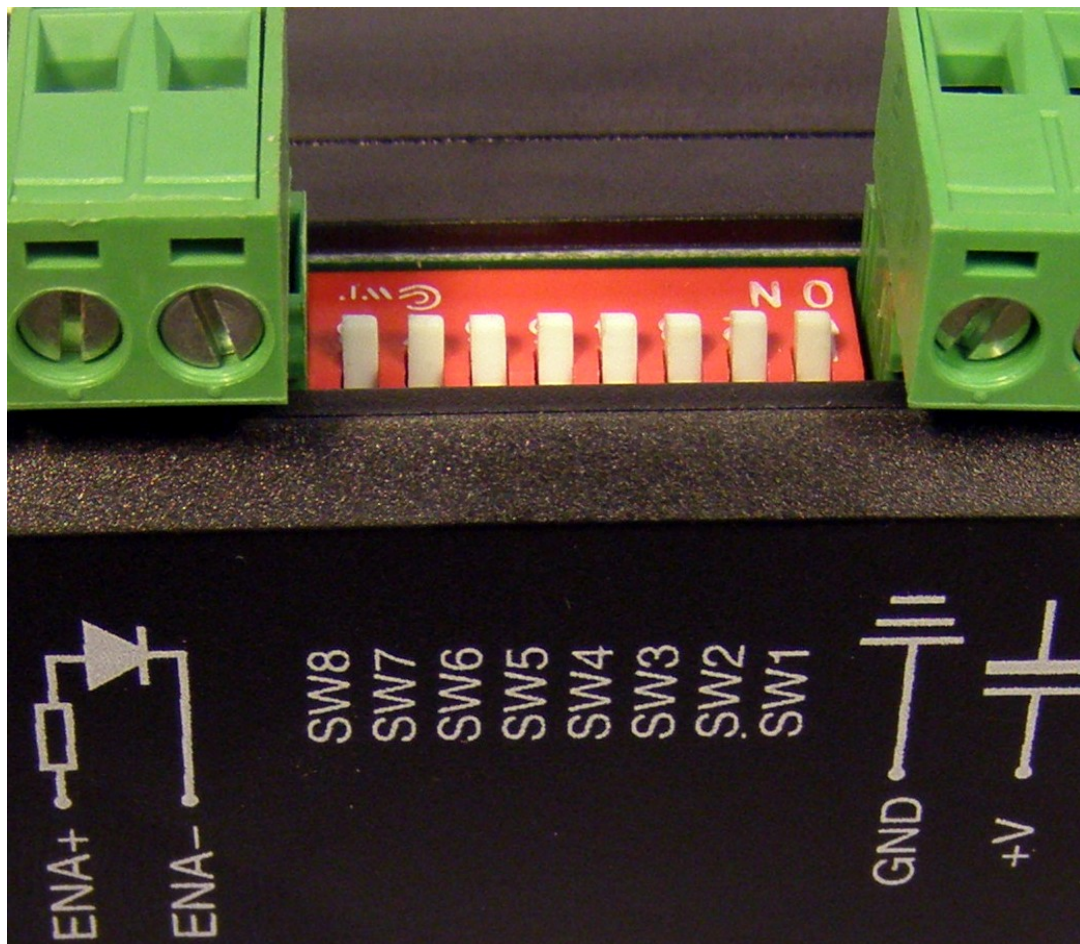| Pin Function	Details
+V	Power supply, 20~50 VDC, Including voltage fluctuation and EMF voltage.
GND	Power Ground.
A+, A-	Motor Phase A
B+, B-	Motor Phase B

Microstep Resolution Selection

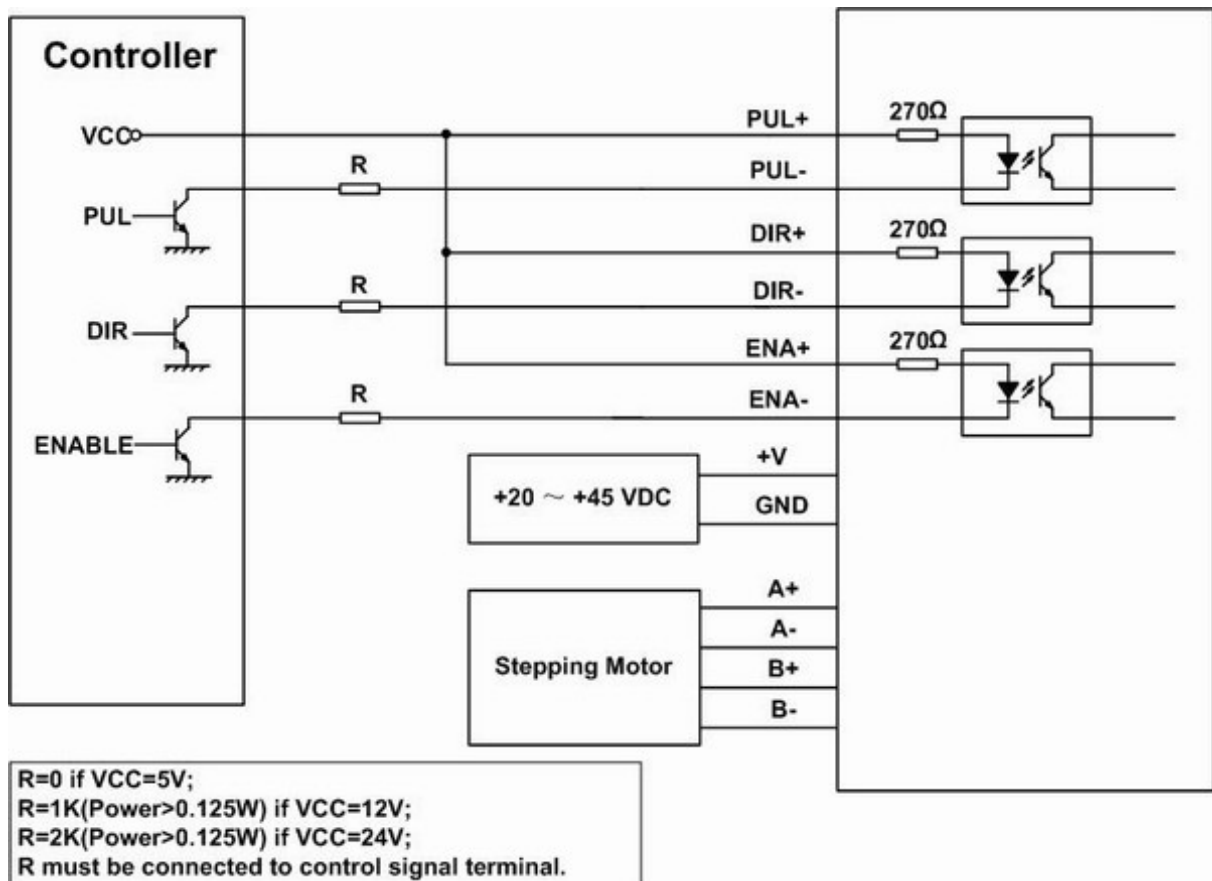Microstep resolution is specified by 5, 6, 7,8 DIP switches as shown in the following table:

SW5	0	0	0	0	0	0	0	0	1	1	1	1	1	1
SW6	0	1	0	1	0	1	0	1	0	1	0	1	0	1
SW7	0	0	1	1	0	0	1	1	0	0	1	1	0	0
SW8	0	0	0	0	1	1	1	1	0	0	0	0	1	1
Micro	1/2	1/4	1/8	1/16	1/32	1/64	1/128	1/256	1/5	1/10	1/25	1/50	1/125	1/250

Current Setting

SW1	0	1	0	1	0	1	0	1
SW2	0	0	1	1	0	0	1	1
SW3	0	0	0	0	1	1	1	1
Current（A）	1.5	2.0	2.4	2.8	3.2	3.7	4.2	4.5

Typical Connections

Controller

VCC○

PUL

DIR

ENABLE

PUL+   270Ω
PUL-
DIR+   270Ω
DIR-
ENA+   270Ω
ENA-

+20 ~ +45 VDC

+V
GND

Stepping Motor

A+
A-
B+
B-

R=0 if VCC=5V;
R=1K(Power>0.125W) if VCC=12V;
R=2K(Power>0.125W) if VCC=24V;
R must be connected to control signal terminal.