ACT Motor GmbH

DM — Stepper Motor Driver
DM430

MicroSteps Setting:200~12800   DC : 12~32V

Products Image

Features

Input voltage	12~32VDC
Output current	0.14A~3A (peak)
Input current	<2A
Humidity	Not condensation, no water droplets
Using environment	-5~ 50 ℃, avoid dust and corrosive gas
Storage environment	-50~+80℃
Weight	90g
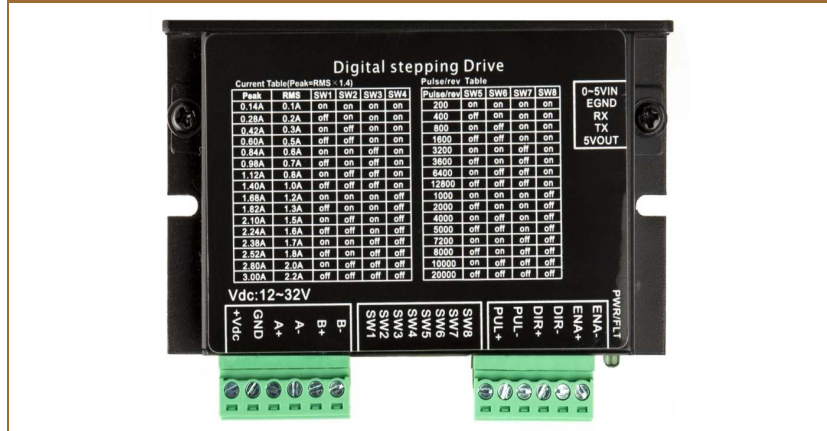
Overview

- Subdivision setting (within 200~12800)
- Current setting (within 0.1~3A), resolution: 1
- Can drive 4-wire, 6-wire and 8-wire motors
- With overvoltage, undervoltage, overcurrent, and phase-to-phase short circuit protection
- Signal input: single-ended pulse/direction
- Variable current control greatly reduces motor heating
- Impulse response frequency up to 500K (factory default 160KHz)
- Signal voltage 5~24V compatible

The connection between the driver and the two-phase hybrid stepping motor is four-wire. The motor windings are connected in parallel and in series, and the connection method is good. The high-speed performance is good, but the driver current is large (1.73 times the motor winding current). The drive current is equal to the motor winding current.

Control Signal

Symbol	Name
ENBL-	Offline enable signal input
ENBL+	Offline enable signal input
DIR-	Direction signal
DIR+	Direction signal
PUL-	Pulse signal
PUL+	Pulse signal

When the offline enable signal is active, the drive fault is reset, any valid pulses are disabled, the output power component of the drive is turned off, and the motor has no holding torque.

Motor and power

Symbol	Name	Remark
B-	Phase B-	
B+	Phase B+	
A-	Phase A-	
A+	Phase A+	
GND	Input Power-	0V
VCC	Input Power +	+12~32V

DIP switch setting

In order to drive stepping motors with different torques, the user can set

Subdivision setting

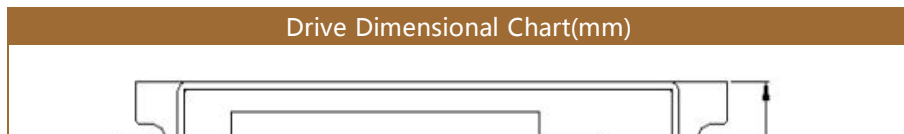|	SW5	SW6	SW7	SW8	Segment description

the output phase current (effective value) of the driver by the DIP switches SW1, SW2 , SW3 and SW4on the driver panel. The output current correspon to each switch position, different models of drivers The corresponding outpu current values are different. See the table below for details.

SW1	SW2	SW3	SW4	PEAK	RMS
ON	ON	ON	ON	0.14A	0.1A
OFF	ON	ON	ON	0.28A	0.2A
ON	OFF	ON	ON	0.42A	0.3A
OFF	OFF	ON	ON	0.60A	0.5A
ON	ON	OFF	ON	0.84A	0.6A
OFF	ON	OFF	ON	0.98A	0.7A
ON	OFF	OFF	ON	1.12A	0.8A
OFF	OFF	OFF	ON	1.40A	1.0A
ON	ON	ON	OFF	1.68A	1.2A
OFF	ON	ON	OFF	1.82A	1.3A
ON	OFF	ON	OFF	2.10A	1.5A
OFF	OFF	ON	OFF	2.24A	1.6A
ON	ON	OFF	OFF	2.38A	1.7A
OFF	ON	OFF	OFF	2.52A	1.8A
ON	OFF	OFF	OFF	2.80A	2.0A
OFF	OFF	OFF	OFF	3.00A	2.2A

	SW5	SW6	SW7	SW8
default(200)	ON	ON	ON	ON
400	OFF	ON	ON	ON
800	ON	OFF	ON	ON
1600	OFF	OFF	ON	ON
3200	ON	ON	OFF	ON
3600	OFF	ON	OFF	ON
6400	ON	OFF	OFF	ON
12800	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
7200	ON	ON	OFF	OFF
8000	OFF	ON	OFF	OFF
10000	ON	OFF	OFF	OFF
20000	OFF	OFF	OFF	OFF

When SW5, SW6, SW7, SW8 are all on, the subdivision of the drive adopts the internal default subdivision number of the drive: the user can set the subdivision number through the PC software ProTuner or STU debugger, the minimum value is 1, the resolution is 1. The maximum value is 51200.

| RS232 communication USB interface			
Terminal number	Symbol	Name	illustrate
1	+5V	5V power supply	Only for external STU
2	TXD	RS232 Sender	
3	RXD	RS232 receiver	
4	GND	GND	0V
5	NC	RS232 Sender	

Note: The cable connecting M430 and PC, text display or STU servo debugger must be a dedicated cable, please confirm before use to avoid

Alarm indication			
Serial number	Number of flashes	Name	illustrate
1	1		Overcurrent or phase-to-phase short circuit fault
2	2		Overpressure
3	3		Undefined
4	4		Undefined

Drive Dimensional Chart(mm)
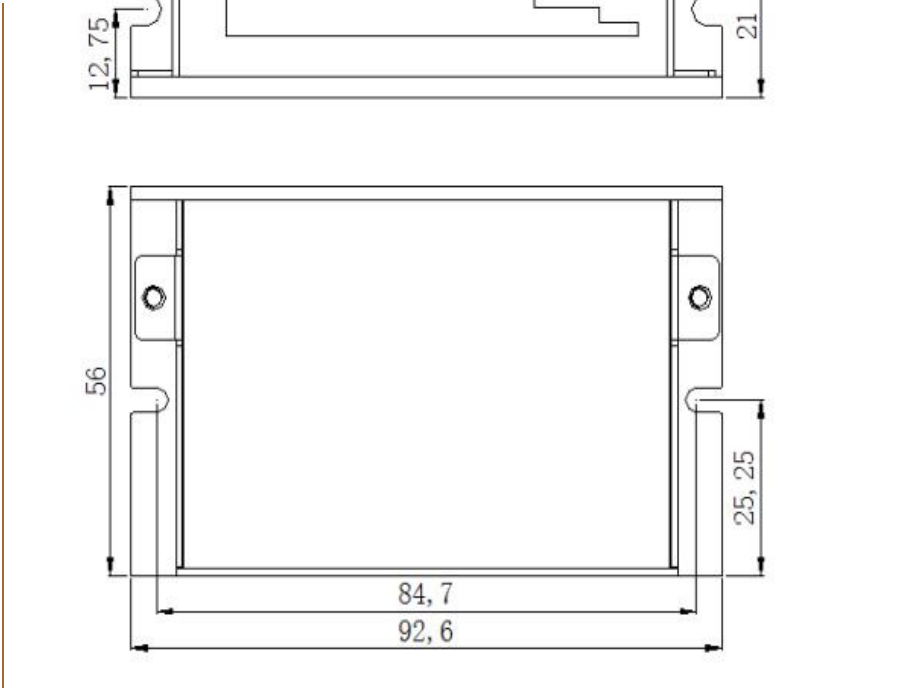
Attention:

There must be 20mm space around, can not be placed next to other heating equipment, to avoid dust, oil mist, corrosive gas, humidity and strong vibration.

Adjustment of troubleshooting		
Alarm indicator	Reasons	Measures
LED off turn	Wrong connection for power	Check wiring of power
	Low-voltages for power	Enlarge voltage of power
Motor doesn't run, without	Wrong connection of stepper motor	Correct its wiring

holding torque	RESET signal is effective when offline	Make RESET ineffective
Motor doesn't run, but maintains holding torque	Without input pulse signal	Adjust PMW & signal level
Motor runs wrong direction	Wrong wires' connection	Change connection for any of 2 wires
	Wrong input direction signal	Change direction setting
Motor's holding torque is too small	Too small relative to current setting	Correct rated current setting
	Acceleration is too fast	Reduce the acceleration
	Motor stalls	Rule out mechanical failure
	Driver does not match with the motor	Change a suitable driver