# ACT Motor GmbH

DM

Stepper Motor Driver

**DM430-IO**

Speed setting: 40~900 DC : 12~36V

## Products Image

## 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.

## Features

| | |
|---|---|
| Input voltage | 12~36VDC |
| 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 |

## 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 + | +12~36V |

## DIP switch setting

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

## Speed 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 corresponds to each switch position, different models of drivers The corresponding output 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 |

## 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

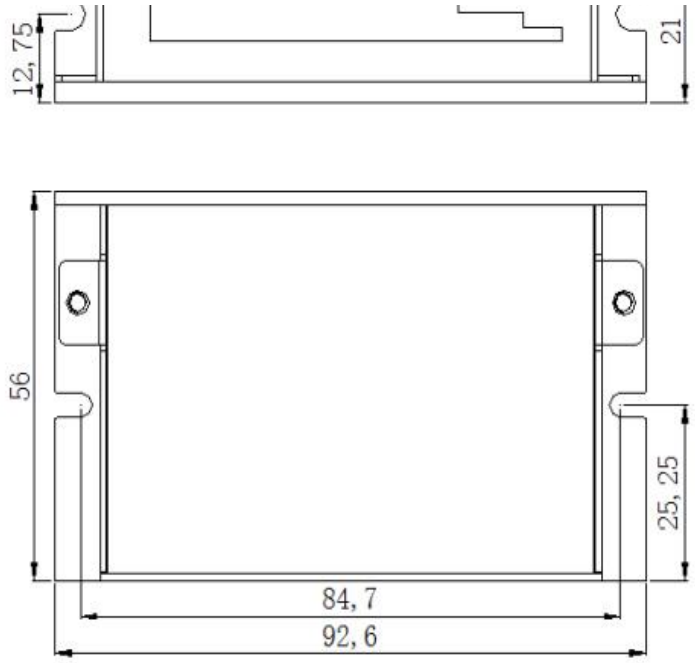
| | | | | | |
|---|---|---|---|---|---|
| default(40) | ON | ON | ON | ON | When SW5, SW6, SW7, SW8 are all on, the subdivision of the drive adopts the internal default subdivision number of the drive: the user can set the subdivision number through the PC software ProTuner or STU debugger, the minimum value is 1, the resolution is 1. The maximum value is 51200 |
| 50 | OFF | ON | ON | ON | |
| 60 | ON | OFF | ON | ON | |
| 70 | OFF | OFF | ON | ON | |
| 80 | ON | ON | OFF | ON | |
| 90 | OFF | ON | OFF | ON | |
| 100 | ON | OFF | OFF | ON | |
| 150 | OFF | OFF | OFF | ON | |
| 200 | ON | ON | ON | OFF | |
| 250 | OFF | ON | ON | OFF | |
| 350 | ON | OFF | ON | OFF | |
| 450 | OFF | OFF | ON | OFF | |
| 550 | ON | ON | OFF | OFF | |
| 650 | OFF | ON | OFF | OFF | |
| 750 | ON | OFF | OFF | OFF | |
| 900 | OFF | OFF | OFF | OFF | |

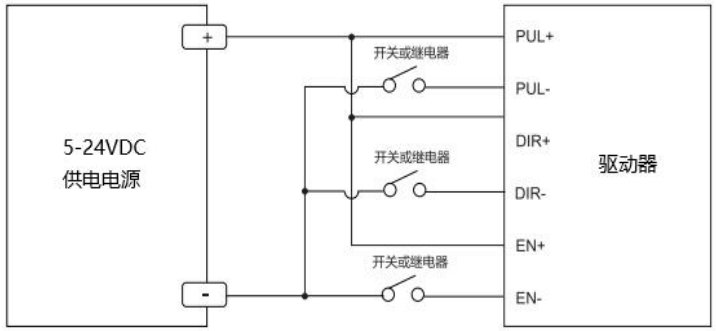
## Alarm indication

| 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)

## Control signal connection




| 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 |