

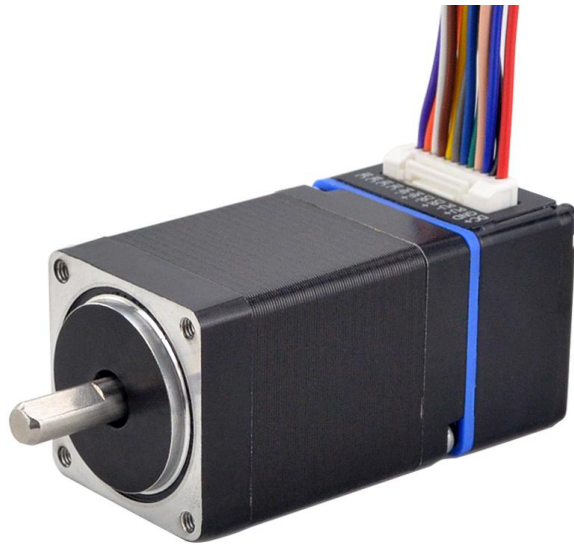
# User's Manual

For

## ESS11-01

Integrated Stepper Motor

©2020 All Rights Reserved Attention: Please read this manual  
carefully before using the Motor!



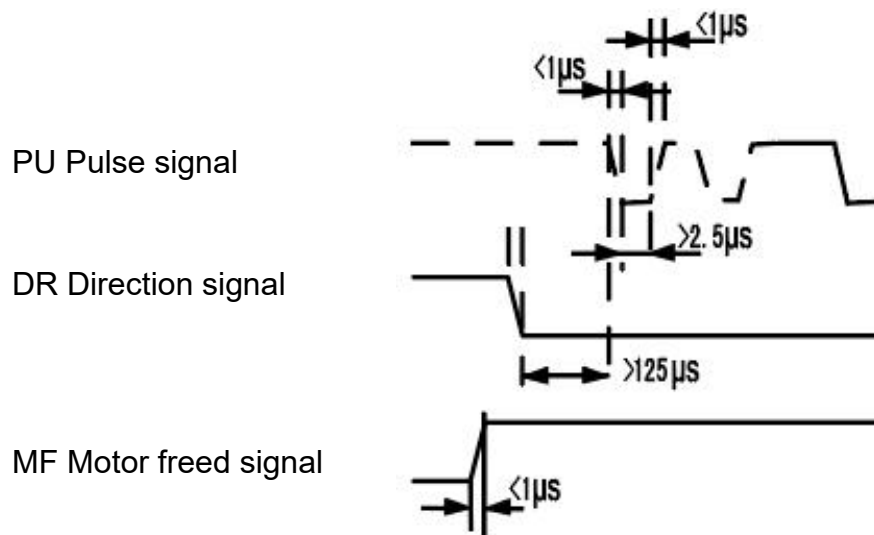
## ESS11-01

## Integrated Stepper Motor

### Features

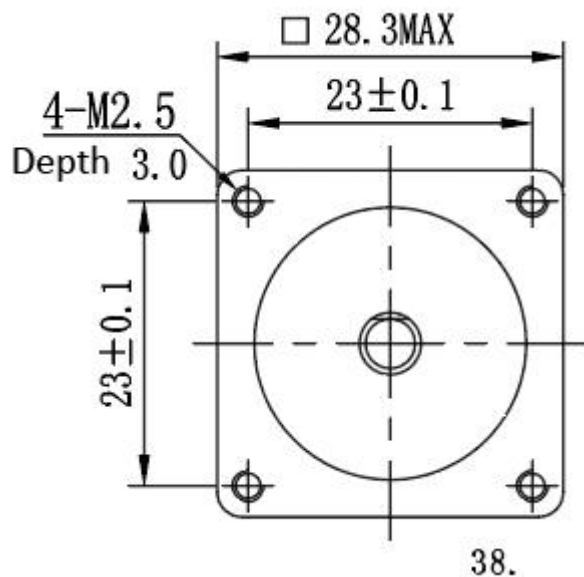
- Using a new 32-bit motor control, dedicated DSP chip
- Pulse input frequency up to 200 KHz
- Small torque attenuation, speed up to 3000 RPM
- Built-in alarm output, for monitoring and controlling
- Intelligently adjust current, reduce vibration, noise and this can increase efficiency by 35%
- Pulse/direction (PU / DR) control
- Default microstep resolution: 1000
- Voltage range: DC24V
- Over-voltage, under-voltage and over-current protection
- Excellent high speed performance and rigidity, combined with advantages of servo motor and stepper motor
- Drive and motor integrated, simple wiring

### Input signal waveform sequence diagram

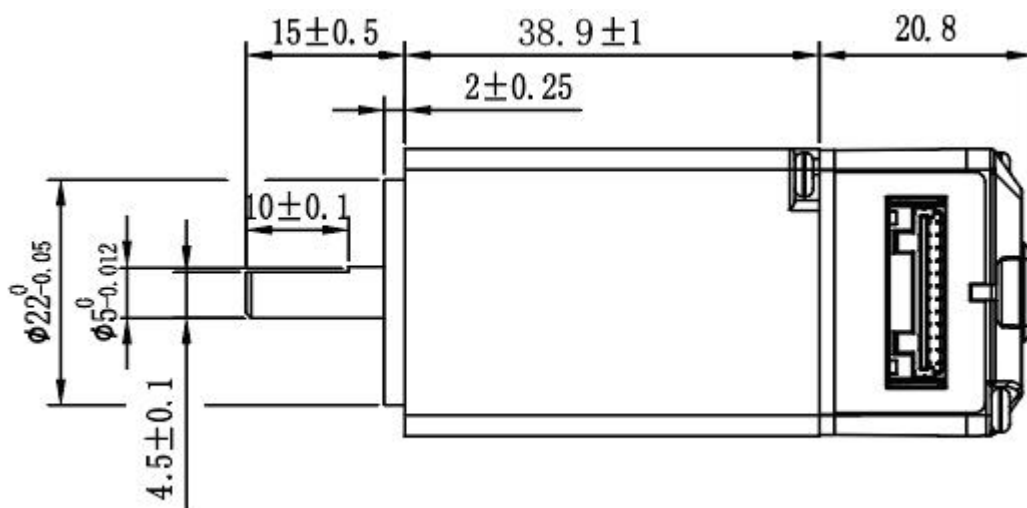


## Installation size (unit: mm)

### Front view



### Side view



## Indicator light description

| Color | Symbol    | Specification                                                                                                                                                                                                                                                                                                                       |
|-------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RED   | RUN / ALM | When the power is on, the indicator is always on;                                                                                                                                                                                                                                                                                   |
|       |           | In case of over-current, the indicator light flashes once and circulates;<br>In case of over-voltage, the indicator light flashes twice and circulates;<br>In case of under-voltage, the indicator light flashes three times and circulates;<br>In case of out of tolerance, the indicator light flashes five times and circulates; |

## Input/output ports

| Function | Specification           | Remark                                                                      |
|----------|-------------------------|-----------------------------------------------------------------------------|
| DC+      | Supply voltage          | DC: 24V                                                                     |
| GND      | Ground                  |                                                                             |
| PU+      | Pulse input signal+     | Signal power supply:<br>5V ~ 24V,<br>>5V, add a current-limiting resistance |
| PU-      | Pulse input signal-     |                                                                             |
| DR+      | Direction input signal+ |                                                                             |
| DR-      | Direction input signal+ |                                                                             |
| MF+      | Motor freed signal+     |                                                                             |
| MF-      | Motor freed signal-     |                                                                             |
| --       | NC                      | NC                                                                          |
| --       |                         |                                                                             |
| --       |                         |                                                                             |
| --       |                         |                                                                             |

## Electrical Specifications

| Parameters            | ESS11-01 |     |     |      |
|-----------------------|----------|-----|-----|------|
|                       | MIN      | TYP | MAX | UNIT |
| Output Current        | 0        | -   | 1.2 | A    |
| Input Voltage         | -        | 24  | -   | Vdc  |
| Logic Signal Current  | 7        | 10  | 16  | mA   |
| Logic Signal Voltage  | -        | 5   | 24  | V    |
| Pulse Input Frequency | 0        | -   | 200 | kHz  |
| Isolation Resistance  | 100      | -   | -   | MΩ   |

## Others Specifications

| Parameters            | UNIT              | ESS11-01 |
|-----------------------|-------------------|----------|
| NO. of Phase          | --                | 2        |
| Step Angle            | °                 | 1.8      |
| Motor length          | mm                | 38.9     |
| Holding Torque        | N.m               | 0.074    |
| Rated Current         | A                 | 1.0      |
| Rotor Inertia         | g.cm <sup>2</sup> | 10       |
| Insulation Class      | --                | B        |
| Operating Temperature | °c                | 0 ~ 55   |
| Weight                | Kg                | 0.18     |

## Fault diagnosis

| Fault code | Fault Information            | RUN/ALM Output                                                                     | Reset                      |
|------------|------------------------------|------------------------------------------------------------------------------------|----------------------------|
| Err1:0x01  | Over-current / short circuit |  | Power down reset           |
| Err2:0x02  | Over-voltage                 |  | Lock machine /auto recoery |
| Err3:0x03  | Under-voltage                |  | Lock machine /auto recoery |
| Err5:0x05  | position following error     |  | Power down reset           |

## Operating Environment

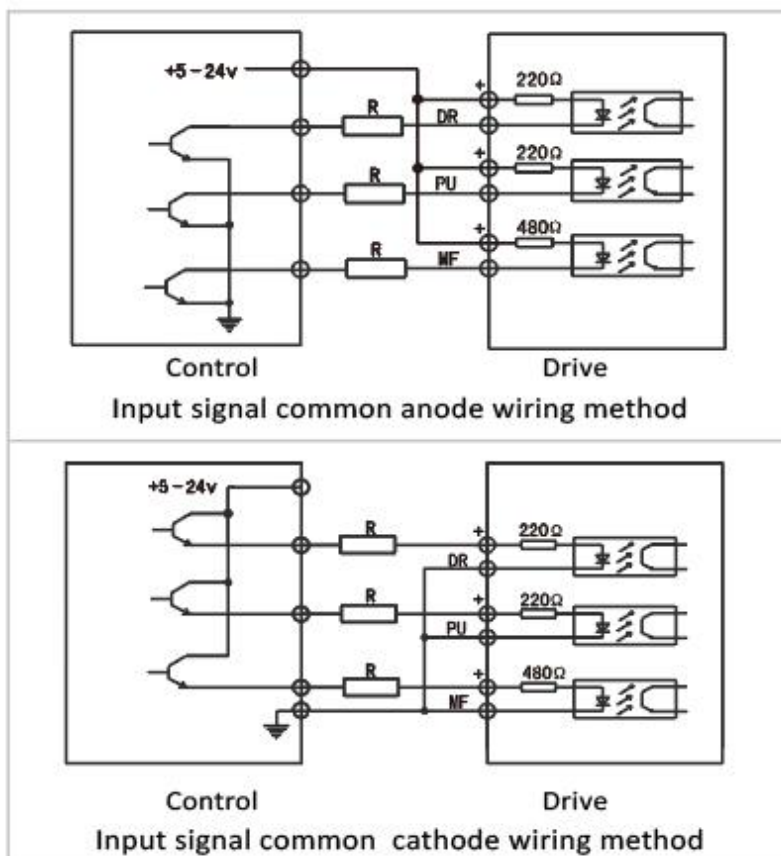
| Cooling                                                                                                                                                                                              | Fin cooling |                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------|
| Working Environment                                                                                                                                                                                  | Workplace   | Stay away from other heating sources,<br>Avoid dust, oil fog , corrosive and<br>combustible gases and Strong vibration site |
|                                                                                                                                                                                                      | Temperature | 0℃ ~ 50℃                                                                                                                    |
|                                                                                                                                                                                                      | Humidity    | 40-90%RH(no condensation, no frosting)                                                                                      |
|                                                                                                                                                                                                      | Vibration   | 10 ~ 55Hz/0.15mm                                                                                                            |
| Storage Temperature                                                                                                                                                                                  | -20℃ ~ +80℃ |                                                                                                                             |
| <div> Warning:</div> <div>Motor installation, do not knock motor back cover, so as to avoid damage encoder.</div> |             |                                                                                                                             |

## Control signal connection(Input singal)

**+5V: R1=0, R2=0**

**+12V: R1=510Ω, R2=820Ω**

**+24V:R1=1.2KΩ,R2=1.8KΩ**



## Control signal connection(Output singal)

