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South Korea Official Branch

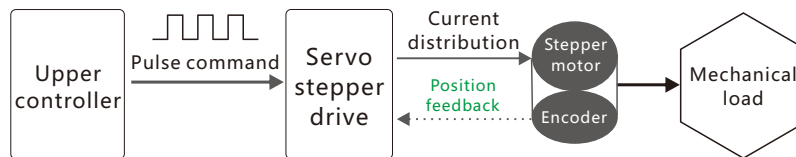
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Overview of Servo Stepper

Servo stepper is stepper motor with encoder feedback, which have high speed, high torque, high precision, low vibration, low heating and no loss of step. It is based on common open loop stepper motor in combination with position feedback and servo algorithm.

Block diagram of servo stepper system



Upper controller: output motion control signal in pulse or other forms.

Servo stepper drive: receive command from upper computer, and transfer it to big current to run stepper motor; and receive feedback from encoder to control the position of motor with no step loss.

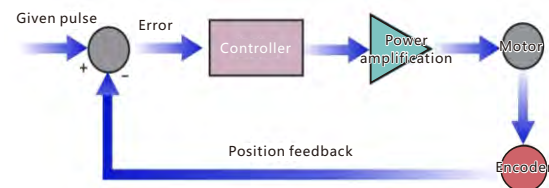
Servo stepper motor: switch motor current to fixed position by rotating and output position from encoder to stepper drive.

As shown in the figure above, we add a high precise encoder on motor shaft and feed back position of the motor to the drive, thus to form a closed loop control.

Features of servo stepper

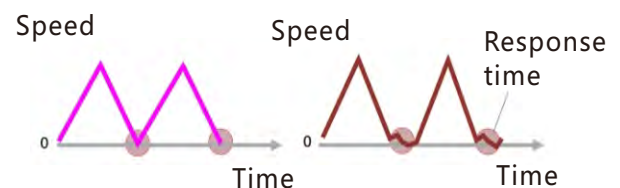
No loss of step

Photoelectric encoder feeds back the position of motor to form a closed loop stepper drive system, which acquires current position information every 50us and adjust the current to calibrate the position based on the position error information to prevent loss of steps.



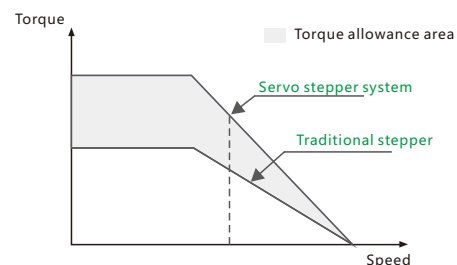
Fast response

Stepper motor features in the synchronization of rotator with given pulse to achieve fast positioning, which is applicable to short-range fast positioning. Traditional servo system acquires position information slowly and requires a long response time.



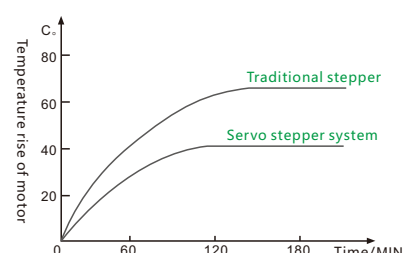
High torque

Traditional stepper usually requires reserve 30% torque as allowance to prevent loss of step. Closed loop stepper can use 100% of the motor torque to improve the efficiency. Closed loop stepper adjusts the size and phase of the current based on the motor position detected by encoder in the case of overload, thus to keep motor torque maximum.



Low heating

Traditional stepper drive system operates at a fixed current. The closed loop stepper drive system adjusts the current based on load fluctuation to reduce heating, thus to improve energy utilization.



Servo Stepper Drive

Based on the new 32-bit DSP platform, and adopting the Field Oriented Control (FOC) and field-weakening control algorithm design, We-iTech SDW/SDD series servo stepper drive surpasses the performance of common steppers comprehensively.

- PID parameter adjustment function, suitable for different types of load applications.
- Field-weakening control algorithm, enabling motor to keep a steady torque at high speed.
- Vector control technology, enabling motor current features similar as servo, low heating and low vibration.
- Feedback from encoder with 4000 pulse resolution, makes stepper motor run with high precision and no loss of step. The SDW/SDD series drive combined with servo algorithm, so it can enable the motor to perform better and replace servo applications of the same power. It's the most cost-effective option for automatic equipment.
- Application: engraving machine, screw machine, wire-stripping machine, marking machine, cutting machine, solid crystal machine, plotter, CNC machine, automatic assembly equipment etc.

Naming of servo stepper drive

SDW 60 P - □

① SDW: Servo stepper drive of We-iTech
SDD: Servo stepper drive with display

② 60: for 60mm motor
86: for 86mm motor

③ P: advanced version

④ Customized code

Description of drive functions

Function	Description of operations
Command pulse shape	The signal interface of standard SDW/SDD series drive is in the pulse mode and can receive 3 types of pulse command signals: 1. Pulse & direction (PUL + DIR); 2. Double pulse (CW + CCW); 3. orthogonal pulse (A/B orthogonal pulse)
Alarm output	The alarm (ALM) outputs the alarm status of the drive to external control circuit, which can be set as an in-place or brake control signal.
In-place output	The in-place (PEND) outputs the command in-place status of drive to external control circuit, which can be set as an alarm or brake control signal.
Brake control	The brake control signal (Break) controls the on/off status of the motor brake and it is set by ALM or PEND signal port.
Control algorithm	Vector servo control algorithm and leading angle control algorithm are optional for different applications.

Command smoothing The internal S shape pulse smoothing function is optional.

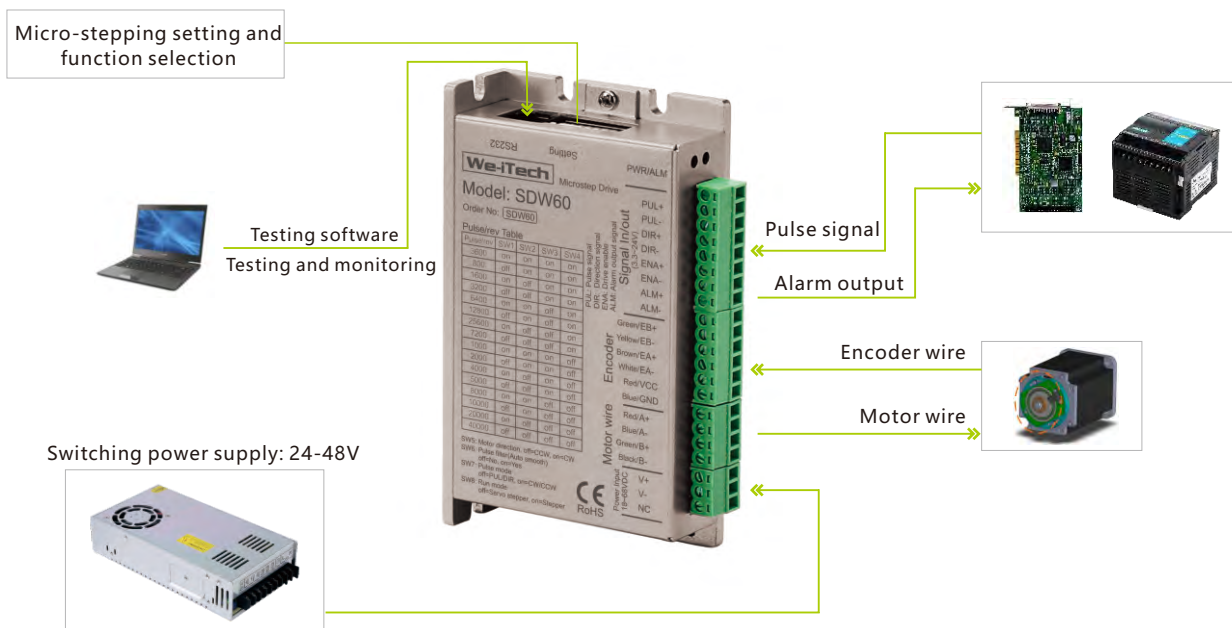
Technical specifications

Model	Peak current	Weight	Input voltage range	Limit pulse frequency	Output signal	Encoder feedback signal	Micro-stepping range	Pulse level	Operating ambient temperature	Humidity of operating environment
SDW60	6	220g	18-50VDC	1M	Alarm/in-place	AB differential input	200-51200	3.3-24V	0-50°C	40~90%RH
SDW86	8	600g	18-80VAC	1M	Alarm/in-place	AB differential input	200-51200	3.3-24V	0-50°C	40~90%RH

Drive working status LED indication

LED status	Drive status	Troubleshooting
● Green indicator is on for a long time	Drive not enabled	
●● Green indicator is flickering	Drive working normally	
●● One green and one red	Drive overcurrent	Check connection and repair the drive
●● One green and two red	Drive input power overvoltage	Check the voltage of input power
●● One green and three red	The internal voltage of the drive is wrong	Drive faults
●● One green and four red	Tracking error exceeds limits	Check the connection sequence, and confirm the load and speed
●● One green and five red	Encoder phase error	Check connection, and the encoder faults

Sketch diagram of the configuration of SDW series



List of model combination

Motor flange	Model	Rated torque (N.m)	Matching drive	Encoder cable	Power cable
42	ME242T003EC	0.3	SDW42	EC1-030	PC2-030
	ME242T008EC	0.8	SDW42	EC1-030	PC2-030
57	ME257T010EC	1.0	SDW60	EC1-030	PC2-030
	ME257T020EC	2.0	SDW60	EC1-030	PC2-030
	ME257T030EC	3.0	SDW60	EC1-030	PC2-030
60	ME260T016EC	1.6	SDW60	EC1-030	PC2-030
	ME260T030EC	3.0	SDW60	EC1-030	PC2-030
86	ME286T040EC	4.0	SDW86(SDD86)	EC1-030	PC2-030
	ME286T080EC	8.0	SDW86(SDD86)	EC1-030	PC2-030
	ME286T120EC	12	SDW86(SDD86)	EC1-030	PC2-030
	ME386T080EH	8	SDD110	EC1-030	PC2-030
	ME386T100EH	10	SDD110	EC1-030	PC2-030
110	ME3110T120EH	12	SDD110	EC1-030	PC2-030
	ME3110T200EH	20	SDD110	EC1-030	PC2-030

The 3m long wire is taken as an example, please specify the wire length needed when ordering.

SDW60 SDW42

Based on the 32-bit DSP platform, provided with vector control technology and servo demodulation function internally, in combination with feedback from the encoder of close loop motor, SDW60 servo stepper drive enables the servo stepper system to feature low noise, low heating, no loss of step and higher application speed, able to improve performance of the intelligent equipment system comprehensively.

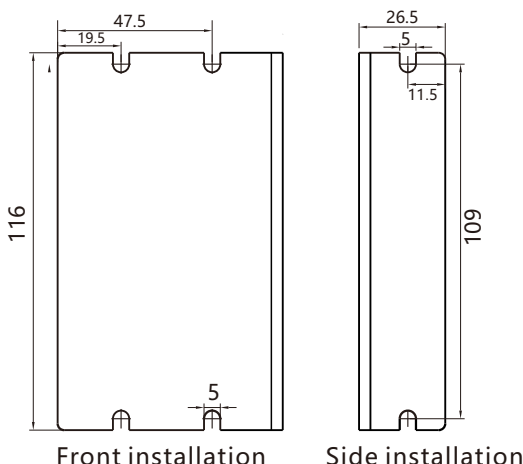
- Pulse mode: CW/CCW, PU+DR, orthogonal pulse.
- Signal level: 3.3-24V compatible; serial resistance not necessary for the application of PLC.
- Power voltage: 24-50V DC, and 36 or 48V recommended.
- Typical applications: Auto-screwdriving machine, servo dispenser, wire-stripping machine, labeling machine, medical detector, electronic assembly equipment etc.



Description of drive functions	
Function	Description of operations
Setting of microstep	SW1-SW4, the four DIP switches, are used for selection of the 16 micro-stepping levels in total. Please set the correct micro-stepping levels in reference to the description of drive panel; other micro-stepping levels can be modified via testing software after turning all SW1-SW4 on.
Setting of running direction	SW5 is used for selection of an initial running direction for the motor. The setting can become valid after the drive is powered off and restarted.
Selection of pulse smoothing	SW6 is used for selection of whether to enable the internal type S command smoothing function. On means that the function is enabled to make the input pulse signal of the drive smoother. The setting can become valid after the drive is powered off and restarted.
Pulse mode selection	SW7 is used for selection of the input pulse mode, with Off referring to the pulse & direction and on the double pulse. It can also be modified as the orthogonal pulse mode via the testing software. The setting can become valid after the drive is powered off and restarted.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; ENA+ and ENA- the positive and negative terminals of enable signal; and ALM+ and ALM- the positive and negative terminals of alarm output signal.
Encoder interface	EB+ and EB- are B-direction signal interfaces of the encoder, EA+ and EA- A-direction signal interfaces of the encoder; and VCC and GND power interfaces of the encoder.
Motor interface	A+, A-, B+ and B- are winding interfaces of the stepper servo motor, which shall be connected correspondingly according to the identification colors on the motor and cannot be exchanged.
Power interface	V+ and V- are positive and negative terminals of the input DC power respectively, with NC indicating null. SDW60 operates within a voltage range of 24-50VDC and has a power of over 150W.

Drive working status LED indication	
LED status	Drive status
Green indicator is on for a long time	Drive not enabled
Green indicator is flickering	Drive working normally
One green indicator and one red indicator	Drive overcurrent
One green indicator and two red indicators	Drive input power overvoltage
One green indicator and three red indicators	The internal voltage of the drive is wrong
One green indicator and four red indicators	Tracking error exceeds limits
One green indicator and five red indicators	Encoder phase error

Installation dimensions



Micro-stepping setting				
Steps/revolution	SW1	SW2	SW3	SW4
Default	on	on	on	on
800	off	on	on	on
1600	on	off	on	on
3200	off	off	on	on
6400	on	on	off	on
12800	off	on	off	on
25600	on	off	off	on
7200	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
40000	off	off	off	off

Function selection			
SW5	Running direction	on	Forward
		off	Backword
SW6	Command smoothing	on	Effective S type speed reduction
		off	Ineffective S type speed reduction
SW7	Pulse mode	on	Double-pulse CW/CCW
		off	Monopulse PUL&DIR
SW8	Open/closed loop	on	Open loop mode
		off	Closed loop mode

SDW86

Based on the 32-bit DSP platform, provided with vector control technology and servo demodulation function internally, in combination with feedback from the encoder of close loop motor, SDW86 servo stepper drive enables the servo stepper system to feature low noise, low heating, no loss of step and higher application speed, able to improve performance of the intelligent equipment system comprehensively.

- Pulse mode: CW/CCW, PU+DR, orthogonal pulse.
- Signal level: 3.3-24V compatible; serial resistance not necessary for the application of PLC.
- Power voltage: 24-100V DC or 18-80V AC, 48V AC recommended.
- Typical applications: welding machine, servo dispenser, wire-stripping machine, labeling machine, carving machine, electronic assembly equipment etc.



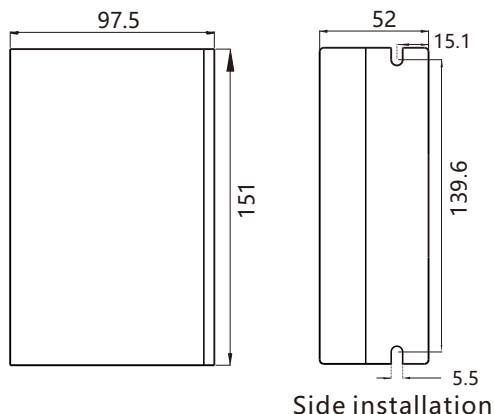
Description of drive functions

Function	Description of operations
Setting of microstep	SW1-SW4, the four DIP switches, are used for selection of the 16 micro-stepping levels in total. Please set the correct micro-stepping levels in reference to the description of drive panel; other micro-stepping levels can be modified via testing software after turning all SW1-SW4 on.
Setting of running direction	SW5 is used for selection of an initial running direction for the motor. The setting can become valid after the drive is powered off and restarted.
Selection of pulse smoothing	SW6 is used for selection of whether to enable the internal type S command smoothing function. On means that the function is enabled to make the input pulse signal of the drive smoother. The setting can become valid after the drive is powered off and restarted.
Pulse mode selection	SW7 is used for selection of the input pulse mode, with Off referring to the pulse & direction and on the double pulse. It can also be modified as the orthogonal pulse mode via the testing software. The setting can become valid after the drive is powered off and restarted.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; ENA+ and ENA- the positive and negative terminals of enable signal; ALM+ and ALM- the positive and negative terminals of alarm signal; and PEND+ and PEND- the positive and negative terminals of arrival output signal.
Encoder interface	EB+ and EB- are B-direction signal interfaces of the encoder, EA+ and EA- A-direction signal interfaces of the encoder; and VCC and GND power interfaces of the encoder.
Motor interface	A+, A-, B+ and B- are winding interfaces of the stepper servo motor, which shall be connected correspondingly according to the identification colors on the motor and cannot be exchanged.
Power interface	AC and AC are the universal inputs of both AC and DC power supply. SDW86 operates within a voltage range of 18-80VAC or 24-100VDC and has a power of over 200W.

Drive working status LED indication

LED status	Drive status
Green indicator is on for a long time	Drive not enabled
Green indicator is flickering	Drive working normally
One green indicator and one red indicator	Drive overcurrent
One green indicator and two red indicators	Drive input power overvoltage
One green indicator and three red indicators	The internal voltage of the drive is wrong
One green indicator and four red indicators	Tracking error exceeds limits
One green indicator and five red indicators	Encoder phase error

Installation dimensions



Micro-stepping setting

Steps/revolution	SW1	SW2	SW3	SW4
Default	on	on	on	on
800	off	on	on	on
1600	on	off	on	on
3200	off	off	on	on
6400	on	on	off	on
12800	off	on	off	on
25600	on	off	off	on
7200	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
40000	off	off	off	off

Function selection

SW5	Running direction	on	Forward
		off	Backward
SW6	Command smoothing	on	Effective S type speed reduction
		off	Ineffective S type speed reduction
SW7	Pulse mode	on	Double-pulse CW/CCW
		off	Monopulse PUL&DIR
SW8	Open/closed loop	on	Open loop mode
		off	Closed loop mode

SDD86

Based on the 32-bit DSP platform, provided with vector control technology and servo demodulation function internally, in combination with feedback from the encoder of close loop motor, SDD86 servo stepper drive enables the servo stepper system to feature low noise, low heating, no loss of step and higher application speed, able to improve performance of the intelligent equipment system comprehensively.

- Pulse mode: CW/CCW, PU+DR, orthogonal pulse.
- Signal level: 3.3-24V compatible; serial resistance not necessary for the application of PLC.
- Power voltage: 24-100V DC or 18-80V AC, 75V AC recommended.
- Typical applications: welding machine, wire-stripping machine, labeling machine, carving machine, electronic assembly equipment etc.



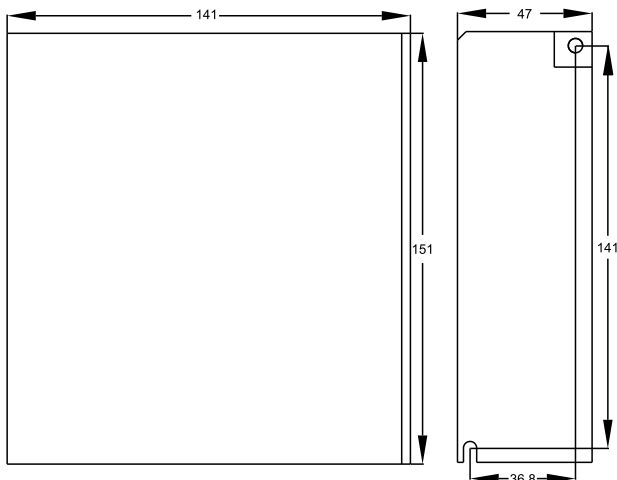
Description of driver functions

Function	Description of operations
Signal interface	Signal interface: PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- are the positive and negative terminals of direction signal; ENA is enable signal; COM+ is the positive of the common terminal, COM- is the negative of the common terminal; BRK- is the brake output signal, ALM- is the alarm output signal; PEND- is the arrival output signal.
Encoder interface	EB+ and EB- are B-direction signal interfaces of the encoder, EA+ and EA- are A-direction signal interfaces of the encoder; and VCC and GND are power interfaces of the encoder.
Motor interface	A+, A-, B+ and B- are winding interfaces of the stepper servo motor, which shall be connected correspondingly according to the identification colors on the motor and cannot be exchanged. PE is connected to the earth wire; NC is disconnected and ungrounded.
Power interface	AC and AC are the universal inputs of both AC and DC power supply. SDD86 operates within a voltage range of 18-80VAC or 24-100VDC and has a power of over 200W. PE is connected to the earth wire; NC is disconnected and ungrounded.

Driver working status LED indication

LED status	Driver status
● Green indicator is on for a long time	Driver not enabled
● Green indicator is flickering	Driver working normally
● One green indicator and one red indicator	Driver overcurrent
● One green indicator and two red indicators	Driver input power overvoltage
● One green indicator and three red indicators	The internal voltage of the driver is wrong
● One green indicator and four red indicators	Tracking error exceeds limits
● One green indicator and five red indicators	Encoder phase error

Installation dimensions



Parameter setting and instruction:

Parameter setting ways:

1. Connect PC and Driver communication with cable. Set parameter by configurator.
2. Set parameter by the SDD86 setting buttons.

Buttons	Instruction
Ⓜ	MOD : return to the previous menu, cancelation of operation
⬆	UP: menu selection, data setting
⬇	DOWN : menu selection, data setting
Ⓢ	SET : enter

Parameter setting

Drive parameters setting are PA-00 to PA-40

No.	Name	Range	Default	Description
00	Control mode	[0,2]	1	0: Open loop running; 1: Closed loop 1; 2: Closed loop 2
01	Micro-stepping	[200,65535]	1600	The pulse number that needed by motor running one round
02	Maximum current	[100,7000]	7000	Please check the maximum current to make sure it's suitable before connecting different motors.
03	Basic current percentage	[1,100]	50	
04	Encoder resolution	[500,65535]	4000	Resolution of 1000 leads encoder is 4000
05	Position error alarm threshold	[100,65535]	4000	Set alarm threshold of position error
06	Runing direction	[0,1]	0	0: Forward 1: Backward
07	Command filtering	[1,512]	128	Delay time= setting valueX50us
08	Pulse mode	[0,1]	0	0: Pulse + direction 1: Double pulse
09	Pulse effective edge	[1,512]	128	0: Up edge 1: Down edge
10	Enable level	[0,1]	0	0: Opening 1: Closing

SDD110

Based on the 32-bit DSP platform, provided with vector control technology and servo demodulation function internally, in combination with feedback from the encoder of close loop motor, SDD110 servo stepper drive enables the servo stepper system to feature low noise, low heating, no loss of step and higher application speed, able to improve performance of the intelligent equipment system comprehensively.

- Pulse mode: CW/CCW, PU+DR, orthogonal pulse.
- Signal level: 3.3-24V compatible; serial resistance not necessary for the application of PLC.
- Power voltage: 110-230V AC , 220V AC recommended.
- Typical applications: welding machine, wire-stripping machine, labeling machine, carving machine, electronic assembly equipment etc.



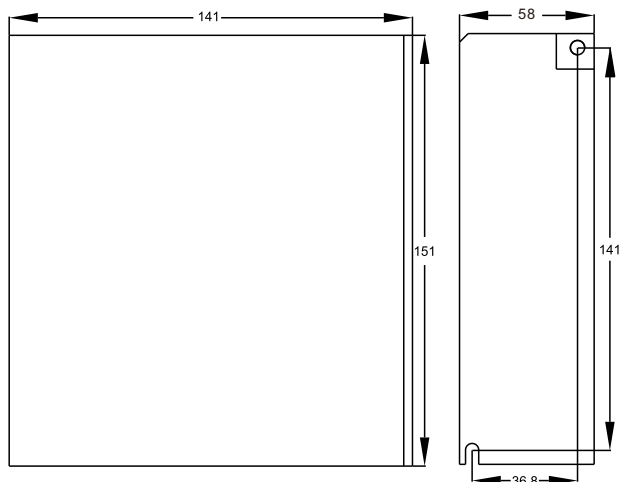
Description of drive functions

Function	Description of operations
Signal interface	Signal interface: PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- are the positive and negative terminals of direction signal; ENA is enable signal; COM+ is the positive of the common terminal, COM- is the negative of the common terminal; BRK- is the brake output signal, ALM- is the alarm output signal; PEND- is the arrival output signal.
Encoder interface	EB+ and EB- are B-direction signal interfaces of the encoder, EA+ and EA- are A-direction signal interfaces of the encoder; and VCC and GND are power interfaces of the encoder.
Motor interface	U, V and W correspond to the winding wires U, V and W of motor, which shall be connected according to the identification colors on the motor and cannot be exchanged.
Power interface	AC and AC are the AC power supply. SDD110 operates within a voltage range of 110-230VAC , it is recommended to add a EMI FILTER before the power supply circuit.

Driver working status LED indication

LED status	Driver status
● Green indicator is on for a long time	Driver not enabled
●● Green indicator is flickering	Driver working normally
●●● One green indicator and one red indicator	Driver overcurrent
●●● One green indicator and two red indicators	Driver input power overvoltage
●●● One green indicator and three red indicators	The internal voltage of the driver is wrong
●●● One green indicator and four red indicators	Tracking error exceeds limits
●●● One green indicator and five red indicators	Encoder phase error

Installation dimensions



Parameter setting and instruction:

Parameter setting ways:

1. Connect PC and Driver communication with cable. Set parameter by configurator.
2. Set parameter by the SDD86 setting buttons.

Buttons	Instruction
Ⓜ	MOD : return to the previous menu, cancelation of operation
⬆	UP: menu selection, data setting
⬇	DOWN : menu selection, data setting
Ⓢ	SET : enter

Parameter setting

Drive parameters setting are PA-00 to PA-40

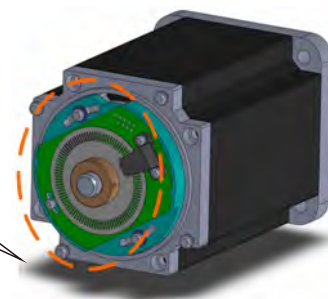
No.	Name	Range	Default	Description
00	Control mode	[0,2]	1	0: Open loop running; 1: Closed loop 1; 2: Closed loop 2
01	Micro-stepping	[200,65535]	1600	The pulse number that needed by motor running one round
02	Maximum current	[100,7000]	7000	Please check the maximum current to make sure it's suitable before connecting different motors.
03	Basic current percentage	[1,100]	50	
04	Encoder resolution	[500,65535]	4000	Resolution of 1000 leads encoder is 4000
05	Position error alarm threshold	[100,65535]	4000	Set alarm threshold of position error
06	Runing direction	[0,1]	0	0: Forward 1: Backward
07	Command filtering	[1,512]	128	Delay time= setting valueX50us
08	Pulse mode	[0,1]	0	0: Pulse + direction 1: Double pulse
09	Pulse effective edge	[1,512]	128	0: Up edge 1: Down edge
10	Enable level	[0,1]	0	0: Opening 1: Closing

Servo Stepper Motor

We-iTech ME series servo stepper motor is designed based on optimized magnetic circuit and adopts stator and rotator materials of high magnetic density, featuring high energy efficiency.

- A built-in high-resolution encoder.
- Light size design, reducing the motor installation space.
- Optional brake, to matched Z axis moves.

Position encoder for close loop control



Naming of servo stepper motor

ME 2 57 T010 E C - B

1 2 3 4 5 6 7

- | | |
|---|---|
| 1 ME: Motor with encoder | 5 Encoder resolution
E: 1000 lines; E2: 2500 lines; E17: 17-bits |
| 2 2: 2 phase, 3: 3 phase
2: 1.8° 3: 1.2° | 6 C: DC under 100V; H: AC 110~220V |
| 3 57: Motor frame size is 57mm | 7 Motor with brake |
| 4 T010: Holding torque is 1.0Nm | |

Motor wire



EC1-030



PC2-030

Description of wires

EC1 cable, as extension line of the encoder, is a 6-core highly flexible twisted-pair shielding cable and can be bent over 5 million times safely.

Definition of colors:

EB+	EB-	EA+	EA-	VCC	GND
Green	Yellow	Brown	White	Red	Blue

Notes:

The aviation plug of EC1 cable **cannot** be placed within the cable carrier!

PC2 cable, as power extension line of the motor, is a 4-core highly flexible cable and can be bent over 5 million times.

Definition of colors:

A+	A-	B+	B-
Red	Blue	Green	Black

Notes:

PC2 cable is optional. If it's required, please tell us when ordering. The aviation plug of PC2 cable **cannot** be placed within the cable carrier!

Photos



ME242T003EC
ME242T008EC



ME257T010EC
ME257T020EC



ME260T016EC
ME260T030EC

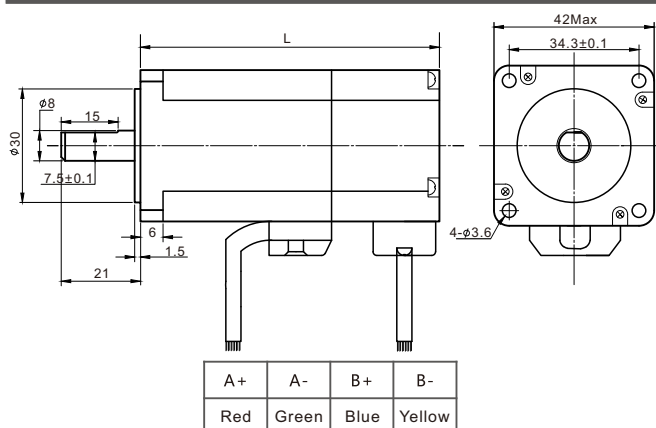


ME286T040EC
ME286T080EC

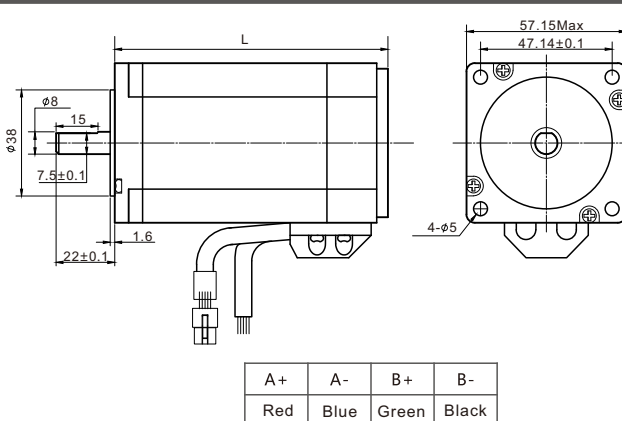
Technical specifications

Model	Phase number	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Body length with brake	Rotor inertia (g.cm²)	Shaft diameter mm	Encoder resolution	Motor body length mm
ME242T003EC	2	1.8	0.3	2.0	1.9	1.6	-	77	8	1000	69
ME242T008EC	2	1.8	0.8	2.8	2.3	2.7	-	115	8	1000	85
ME257T010EC	2	1.8	1.0	3.5	1.2	0.8	110	260	8	1000	73
ME257T020EC	2	1.8	2.0	4.0	1.8	0.8	134	460	8	1000	97
ME257T030EC	2	1.8	3.0	4.0	3.5	0.9	-	720	8	1000	119
ME260T016EC	2	1.8	1.6	4.2	1.5	0.4	-	380	8	1000	83
ME260T030EC	2	1.8	3.0	5.0	1.8	0.45	143	690	8	1000	108
ME286T040EC	2	1.8	4.0	6.0	3.5	0.8	-	1400	14	1000	98
ME286T080EC	2	1.8	8.0	6.0	5.2	0.95	173	2800	14	1000	136
ME286T120EC	2	1.8	12	6.0	8.6	0.73	210	4000	14	1000	172

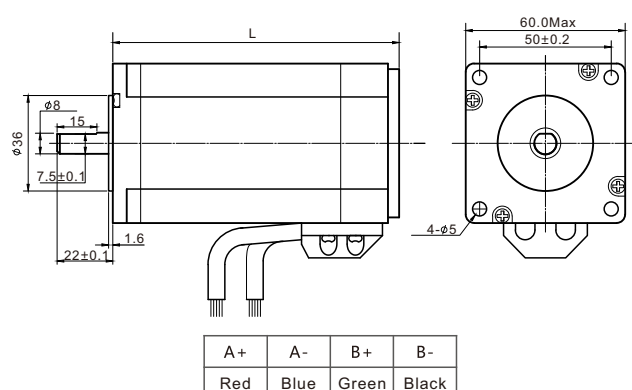
Dimensions of 42 series (mm)



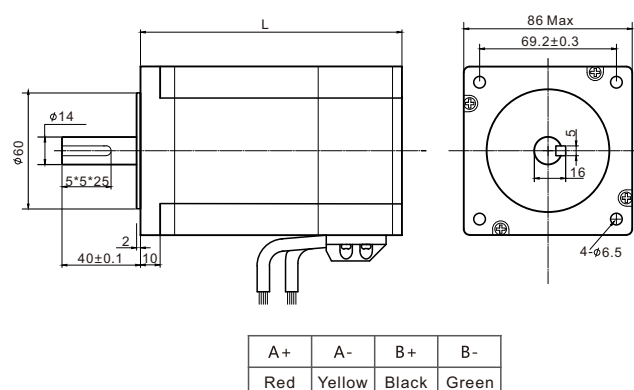
Dimensions of 57 series (mm)



Dimensions of 60 series (mm)



Dimensions of 86 series (mm)



High voltage servo stepper motor(matching driver: SDD110)

EB+	EB-	EA+	EA-	VCC	GND
Green	Yellow	Brown	White	Red	Blue



ME386T080EH
ME386T010EH

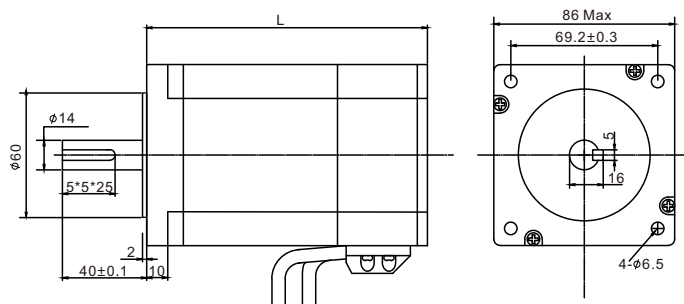


ME3110T120EH
ME3110T200EH

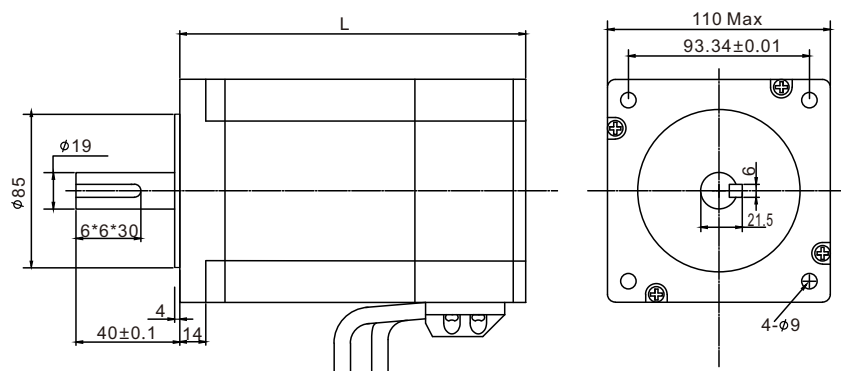
Technical specifications

Model	Phase number	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Body length with brake	Rotor inertia (g.cm ²)	Shaft diameter mm	Encoder resolution	Motor body length mm
ME386T080EH	3	1.2	8	6.0	17.4	2.6	195	2940	14	1000	158
ME386T100EH	3	1.2	10	6.0	18.9	2.7	221	4000	14	1000	184
ME3110T120EH	3	1.2	12	4.2	13	1.2	-	10800	8	1000	162
ME3110T200EH	3	1.2	20	5.2	18	1.9	-	17000	8	1000	244

High voltage 3-phase 86mm motor dimension



High voltage 3-phase 110mm motor dimension

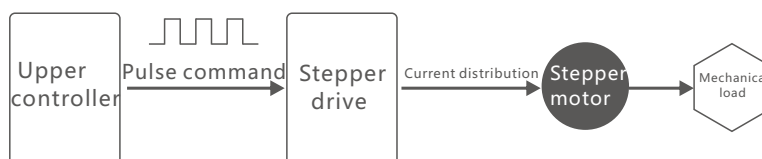


Overview of Stepper

Stepper motor is a control motor which operating speed and position can be determined. It operates step by step at a fixed angle (step angle) in rotation. Control the pace of the step angle of stepper motor to control its operating speed and position.

The stepper drive is used for switching the pace of step angle of the stepper motor according to the specified sequence.

Diagram of stepper



Upper controller: output motion control signal in pulse or other forms.

Stepper drive: receive the command from the upper computer to switch winding current for the stepper motor.

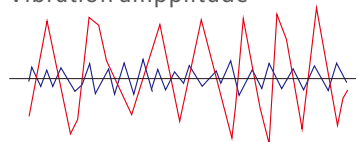
Stepper motor: switch motor current to achieve rotation at a fixed angle.

As shown in the figure above, sequential control, also called as open loop control, is performed from the controller to the drive and the stepper motor.

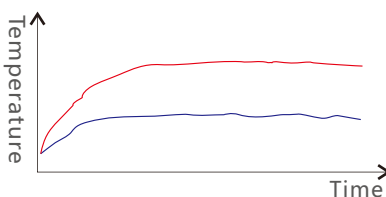
Characteristics of digital stepper

Low resonance	Low temperature rise	Low noise
Low speed anti-resonance algorithm, lowering down the vibration amplitude of low speed resonance area of the motor	With the same drive current, the digital drive features smoother current waveform, smaller current fluctuation and low temperature rise	Built-in S type speed reduction and low speed micro-stepping technologies, significantly lowering down the vibration amplitude of motor within each speed range

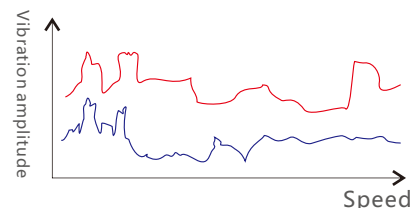
Vibration amplitude



Temperature



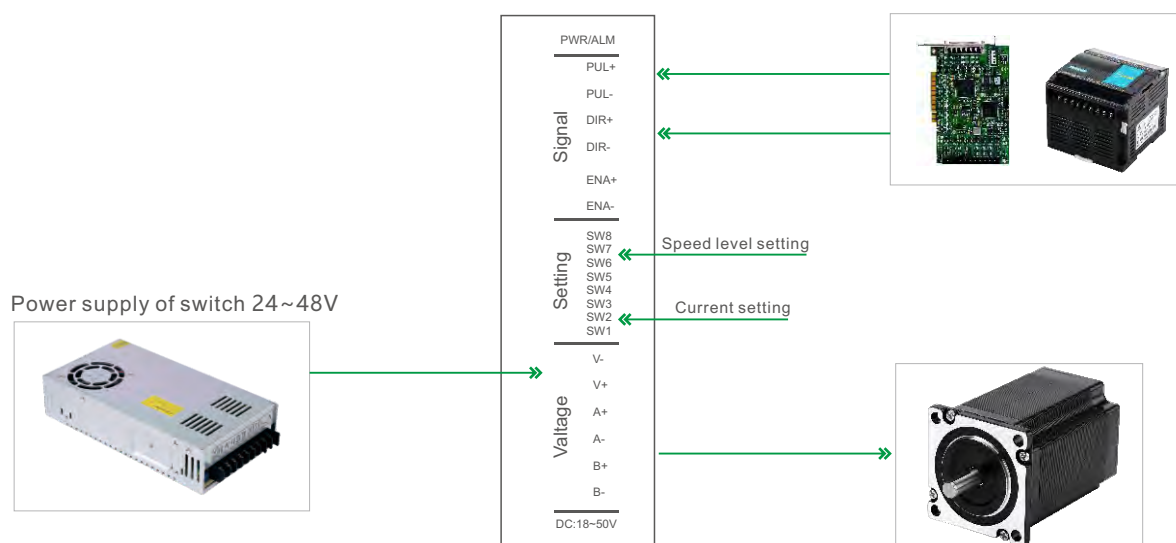
Vibration amplitude



— Traditional analog drive

— We-iTech digital drive

Connection diagram

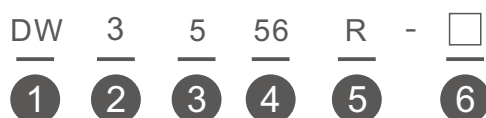


Stepper Drive

Based on the new 32-bit DSP platform and adopting the micro-stepping technology and PID current control algorithm design, We-iTech DW series stepper drive surpasses the performance of common analog stepper drive comprehensively.

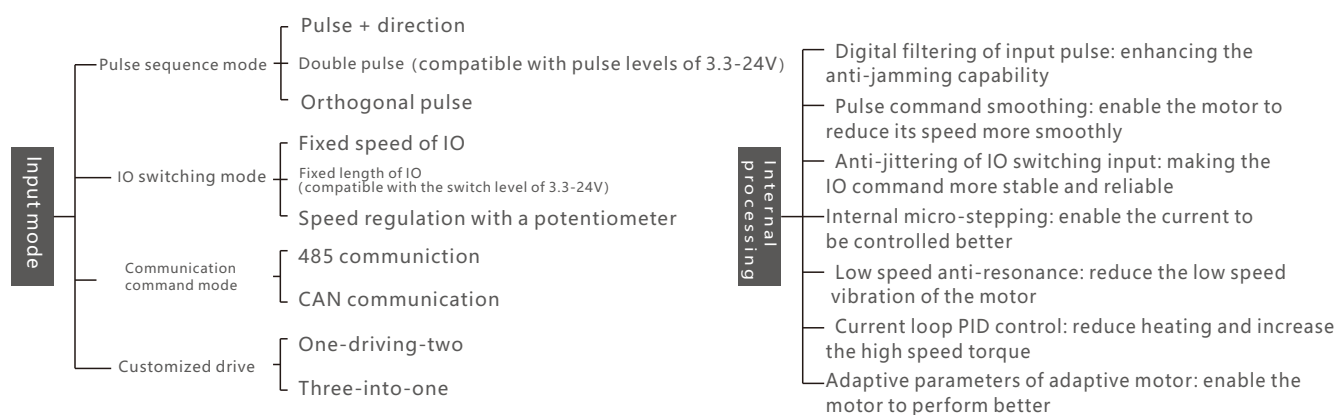
- PID parameter adjustment function, meeting different types of load applications better.
- Micro-stepping control algorithm, improving the stationarity of motor within each speed range.
- Command smoothing function, enabling the smoother speed reduction process of the motor.
- Low speed vibration control, lowering down the low speed vibration amplitude of the motor by 80%.
- Application areas: engraving machine, filature, wire-stripping machine, marking machine, cutting machine, die bonder, plotter, numerical control machine, automatic assembly equipment etc.

Naming of stepper drive



- 1 Digital stepper drive of We-iTech
- 2 (not shown) means 2 phase; 3 means 3 phase
- 3 5 means 50V, 8 means 80V, ect.
- 4 56 means 5.6A, 42 means 4.2A, ect.
- 5 R means ModBus, C means CANopen
- 6 Customized for special application

Description of DW series drive functions



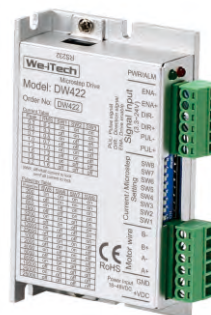
Technical specifications

Model	Peak current	Weight	Input voltage range	Dimension	Micro-stepping level number	Pulse level	Matching motor
DW422	2.2	106g	24-48VDC	92.6×56×21	200-25600	3.3-24V	20、28、35、39、42
DW556	5.6	278g	24-50VDC	118×76×33	200-25600	3.3-24V	57、60
DW872	7.2	580g	18-80VAC	151×97×52	400-51200	3.3-24V	86
DW2270	8.0	1345g	110-240VAC	203×147×78	400-60000	3.3-24V	110/130
DW3580	8.0	285g	24-50VDC	118×76×33	200-25600	3.3-24V	Three-phase 57 and 60
DW3880	8.0	586g	18-80VAC	151×97×52	400-51200	3.3-24V	Three-phase 86
DW32280	8.0	1345g	110-240VAC	203×147×78	400-60000	3.3-24V	Three-phase 110/130

DW422

The DW422 digital 2-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the auto tuning of power-up parameters. With the features of low noise, low vibration, low heating and high-speed high torque output, it is suitable for most stepper motors.

- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 3.3~24V compatible; series resistance not necessary for the application of PLC.
- Power voltage: 24-48V DC supply; 24 or 36V recommended.
- Typical application: marking machine, soldering tin machine, laser, 3D printing, visual localization, automatic assembly equipment.



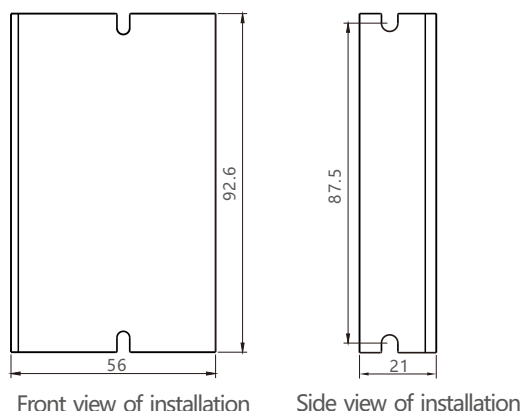
Description of drive functions

Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW3, the three DIP switches, are used to select the 8 output current levels in total. Please select correct current according to the drive panel and ensure that the drive does not act during the setting.
Auto semi-current	The user can set the function of auto semi-current of the drive via SW4. "off" represents that the idle current is set as the half of operating current, while "on" means that the idle current is equal to the operating current. For general purpose, SW4 shall be set as off for lower heating and higher reliability of motor and drive. The current reduces by half automatically about 0.4s after the pulse train stops.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; and ENA+ and ENA- the positive and negative terminals of enable signal.
Motor interface	A+ and A- are the positive and genitive terminals of phase-A winding of stepper motor; and B+ and B- the positive and genitive terminals of phase-B winding of stepper motor. The motor can run in the reverse direction when phase A and B windings are exchanged.
Power interface	DC power supply; 24-48VDC recommended for the operating voltage of DW422; and power greater than 100W.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Drive working status LED indication

LED status	Drive status
Green indicator is on for a long time	Drive not enabled
Green indicator is flickering	Drive working normally
One green indicator and one red indicator	Drive overcurrent
One green indicator and two red indicators	Drive input power overvoltage
One green indicator and three red indicators	The internal voltage of the drive is wrong

Installation dimensions



Setting of semi-/full current

	SW4
When the motor is not in operation, its current half of operating current	Semi-current off
When the motor is not in operation, its current equal to operating current	Full current on

Operating current setting

Output current peak	Output current RMS	SW1	SW2	SW3
0.3A	0.2A	on	on	on
0.5A	0.3A	off	on	on
0.7A	0.5A	on	off	on
1.0A	0.7A	off	off	on
1.3A	1.0A	on	on	off
1.6A	1.2A	off	on	off
1.9A	1.4A	on	off	off
2.2A	1.6A	off	off	off

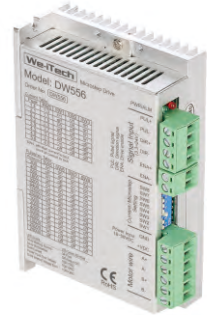
Micro-stepping level setting

Steps/revolution	SW5	SW6	SW7	SW8
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
6400	off	on	off	on
12800	on	off	off	on
25600	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
25000	off	off	off	off

DW556

DW556 digital 2-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the auto tuning of power-up parameters. With the features of low noise, low vibration, low heating and high-speed high torque output, it is suitable for most stepper motors.

- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 3.3~24V compatible; serial resistance not necessary for the application of PLC.
- Power voltage: 24-50V DC supply; 36 or 48V recommended.
- Typical application: carving machine, marking machine, cutting machine, plotter, laser, auto assembly equipment.



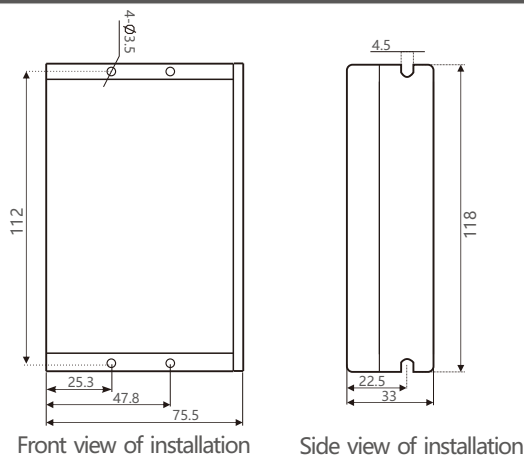
Description of drive functions

Function	Description of operations
Setting of micro-stepping level number	DC power supply; 24-50VDC recommended for the operating voltage of R60; and power greater than 100W. SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW3, the three DIP switches, are used to select the 8 output current levels in total. Please select correct current division according to the drive panel and ensure that the drive does not act during the setting.
Auto semi-current	The function of auto semi-current of drive can be set via SW4. "off" represents that the idle current is set as the half of operating current, while "on" means that the idle current is equal to the operating current. For general purpose, SW4 shall be set as off for lower heating and higher reliability of motor and drive. The current reduces by half automatically about 0.4s after the pulse train stops.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; and ENA+ and ENA- the positive and negative terminals of enable signal.
Motor interface	A+ and A- are the positive and genitive terminals of phase-A winding of stepper motor; and B+ and B- the positive and genitive terminals of phase-B winding of stepper motor. The motor can run in the reverse direction when phase A and B windings are exchanged.
Power interface	DC power supply; 24-50VDC of operating voltage recommended for DW556; and power greater than 150W.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Drive working status LED indication

LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●● One green indicator and one red indicator	Drive overcurrent
●● One green indicator and two red indicators	Drive input power overvoltage
●● One green indicator and three red indicators	The internal voltage of the drive is wrong

Installation dimensions



Setting of semi-/full current

	SW4
When the motor is not in operation, its current half of operating current	Semi-current off
When the motor is not in operation, its current equal to operating current	Full current on

Operating current setting

Output current peak	Output current RMS	SW1	SW2	SW3
1.4A	1.0A	on	on	on
2.1A	1.5A	off	on	on
2.7A	1.9A	on	off	on
3.2A	2.3A	off	off	on
3.8A	2.7A	on	on	off
4.3A	3.1A	off	on	off
4.9A	3.5A	on	off	off
5.6A	4.0A	off	off	off

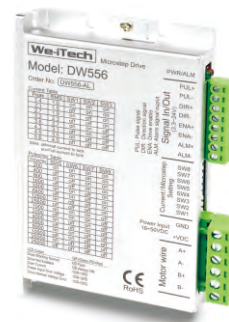
Micro-stepping level setting

Steps/revolution	SW5	SW6	SW7	SW8
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
6400	off	on	off	on
12800	on	off	off	on
25600	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
25000	off	off	off	off

DW556-AL

DW556-AL digital 2-phase stepper driver is based on 32-bit DSP platform. It has function with alarm output and modification of driver parameter via the data cable. With the features of low noise, low vibration, low heating and high-speed high torque output, it is suitable for most stepper motors.

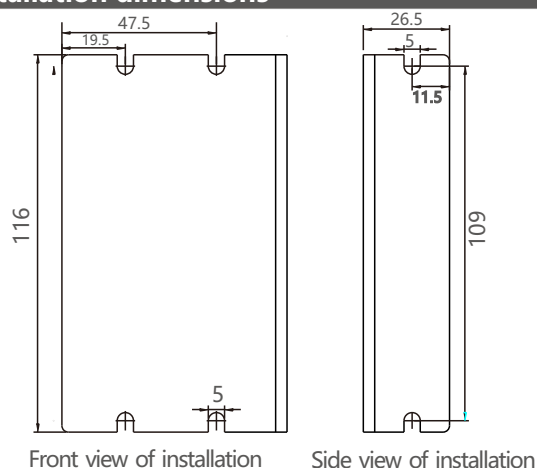
- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal Level: 5V (24V can be customized). 2k resistor is necessary to be connected in series for the application of PLC.
- Power voltage: 24-50V DC supply; 36 or 48V recommended.
- Added function: Use debugging software to change IO control. customize subdivision, modify output port definition etc.
- Typical application: carving machine, marking machine, cutting machine, plotter, laser, auto assembly equipment.



Description of drive functions	
Function	Description of operations
Setting of micro-stepping level number	DC power supply; 24-50VDC recommended for the operating voltage of R60-AL; and power greater than 100W. SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW3, the three DIP switches, are used to select the 8 output current levels in total. Please select correct current division according to the drive panel and ensure that the drive does not act during the setting.
Auto semi-current	The function of auto semi-current of drive can be set via SW4. "off" represents that the idle current is set as the half of operating current, while "on" means that the idle current is equal to the operating current. For general purpose, SW4 shall be set as off for lower heating and higher reliability of motor and drive. The current reduces by half automatically about 0.4s after the pulse train stops.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; and ENA+ and ENA- the positive and negative terminals of enable signal; ALM+ and ALM- the positive and negative terminals of alarm signal.
Motor interface	A+ and A- are the positive and genitive terminals of phase-A winding of stepper motor; and B+ and B- the positive and genitive terminals of phase-B winding of stepper motor. The motor can run in the reverse direction when phase A and B windings are exchanged.
Power interface	DC power supply; 24-50VDC of operating voltage recommended for DW556-AL; and power greater than 150W.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Drive working status LED indication	
LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●● One green indicator and one red indicator	Drive overcurrent
●● One green indicator and two red indicators	Drive input power overvoltage
●● One green indicator and three red indicators	The internal voltage of the drive is wrong
●● One green indicator and seven red indicators	Motor phase failure alarm

Installation dimensions



Setting of semi-/full current		SW4
When the motor is not in operation, its current half of operating current	Semi-current	off
When the motor is not in operation, its current equal to operating current	Full current	on

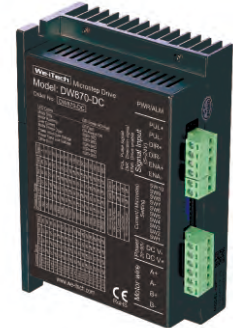
Operating current setting				
Output current peak	Output current RMS	SW1	SW2	SW3
1.4A	1.0A	on	on	on
2.1A	1.5A	off	on	on
2.7A	1.9A	on	off	on
3.2A	2.3A	off	off	on
3.8A	2.7A	on	on	off
4.3A	3.1A	off	on	off
4.9A	3.5A	on	off	off
5.6A	4.0A	off	off	off

Micro-stepping level setting				
Steps/revolution	SW5	SW6	SW7	SW8
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
6400	off	on	off	on
12800	on	off	off	on
25600	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
25000	off	off	off	off

DW870-DC

The DW870-DC digital 2-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the auto tuning of power-up parameters. With the features of low noise, low vibration, low heating and high-speed high torque output, it is suitable for most stepper motors.

- Pulse mode: CW+CCW, PU/DR.
- Signal level: 3.3~24V compatible; serial resistance not necessary for the application of PLC.
- Power voltage: 24~90V DC; 48V DC is typical.
- Typical application: carving machine, labeling machine, cutting machine, plotter, numerical control machine, laser, automatic assembly equipment.



Description of drive functions

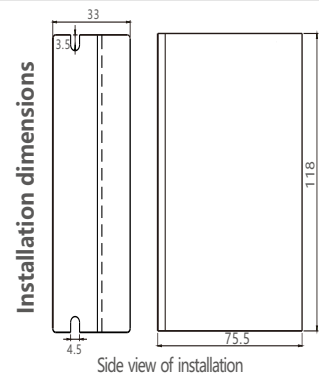
Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW4, the four DIP switches, is used to select the 16 output current levels in total. Please refer to the description of drive panel for specific output current setting.
Auto semi-current	The drive will reduce 50% current automatically after motor stop for 1 second.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; and ENA+ and ENA- the positive and negative terminals of enable signal.
Motor interface	A+ and A- are the positive and genitive terminals of phase-A winding of stepper motor; and B+ and B- the positive and genitive terminals of phase-B winding of stepper motor. The motor can run in the reverse direction when phase A and B windings are exchanged.
Power interface	Only DC supply can be employed. 24-90V DC is recommended for the operating voltage of DW870-DC. The power is greater than 200W.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Drive working status LED indication

LED status	Drive status
● Green indicator is on for a long time	Motor running
●● Green indicator is flickering	Motor stopped
●●● One green indicator and one red indicator	Drive overcurrent
●●● One green indicator and two red indicators	Motor open circuit
●●● One green indicator and three red indicators	Drive input power overvoltage
●●● One green indicator and four red indicators	Drive input power undervoltage
●●● One green indicator and five red indicators	Others

Pulse mode

	SW9	SW10
PU+DR (default)	off	off
CW+CCW	on	off
Controlled internal pulse	off	on
Internal pulse run	on	on



Operating current setting

Peak/RMS (A)	SW1	SW2	SW3	SW4
7.0/5.0	on	on	on	on
6.5/4.6	off	on	on	on
6.2/4.2	on	off	on	on
5.8/4.1	off	off	on	on
5.5/3.9	on	on	off	on
5.2/3.7	off	on	off	on
5.0/3.5	on	off	off	on
4.8/3.4	off	off	off	on
4.5/3.2	on	on	on	off
4.2/3.0	off	on	on	off
4.0/2.8	on	off	on	off
3.8/2.7	off	off	on	off
3.5/2.5	on	on	off	off
3.2/2.3	off	on	off	off
3.0/2.1	on	off	off	off
2.8/2.0	off	off	off	off

Micro-stepping level setting

Steps/revolution	SW5	SW6	SW7	SW8	Speed of Internal Run
200	on	on	on	on	on
400	off	on	on	on	on
800	on	off	on	on	on
1600	off	off	on	on	on
3200	on	on	off	on	on
6400	off	on	off	on	on
12800	on	off	off	on	on
25600	off	off	off	on	on
1000	on	on	on	off	off
2000	off	on	on	off	off
4000	on	off	on	off	off
5000	off	off	on	off	off
8000	on	on	off	off	off
10000	off	on	off	off	off
20000	on	off	off	off	off
25000	off	off	off	off	off

DW872

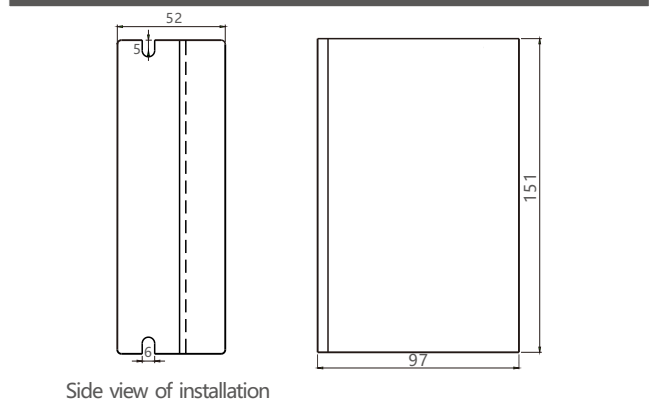
The DW872 digital 2-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the auto tuning of power-up parameters. With the features of low noise, low vibration, low heating and high-speed high torque output, it is suitable for most stepper motors.

- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 3.3~24V compatible; serial resistance not necessary for the application of PLC.
- Power voltage: 24~100V DC or 18~80V AC; 48V or 60V AC recommended.
- Typical application: carving machine, labeling machine, cutting machine, plotter, numerical control machine, laser, automatic assembly equipment.



Description of drive functions	
Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW3, the three DIP switches, is used to select the 8 output current levels in total. Please refer to the description of drive panel for specific output current setting.
Auto semi-current	The function of auto semi-current of drive can be set via SW4. "off" represents that the idle current is set as the half of operating current, while "on" means that the idle current is equal to the operating current. For general purpose, SW4 shall be set as off for lower heating and higher reliability of motor and drive. The current reduces by half automatically about 0.4s after the pulse train stops.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; and ENA+ and ENA- the positive and negative terminals of enable signal.
Motor interface	A+ and A- are the positive and genitive terminals of phase-A winding of stepper motor; and B+ and B- the positive and genitive terminals of phase-B winding of stepper motor. The motor can run in the reverse direction when phase A and B windings are exchanged.
Power interface	Both the DC and AC supply can be employed. 24-100V DC or 20-80V AC is recommended for the operating voltage of DW872. The power is greater than 200W.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Drive working status LED indication		
LED status	Drive status	
● Green indicator is on for a long time	Drive not enabled	
● Green indicator is flickering	Drive working normally	
● One green indicator and one red indicator	Drive overcurrent	
● One green indicator and two red indicators	Drive input power overvoltage	
● One green indicator and three red indicators	The internal voltage of the drive is wrong	



Setting of semi-/full current		
When the motor is not in operation, its current half of operating current	Semi-current	off
When the motor is not in operation, its current equal to operating current	Full current	on

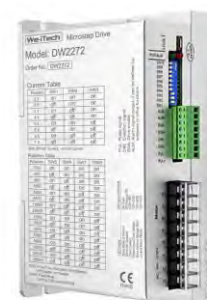
Operating current setting				
Output current peak	Output current RMS	SW1	SW2	SW3
2.40A	2.00A	on	on	on
3.08A	2.57A	off	on	on
3.77A	3.14A	on	off	on
4.45A	3.71A	off	off	on
5.14A	4.28A	on	on	off
5.83A	4.86A	off	on	off
6.52A	5.43A	on	off	off
7.20A	6.00A	off	off	off

Micro-stepping level setting				
Steps/revolution	SW5	SW6	SW7	SW8
400	on	on	on	on
800	off	on	on	on
1600	on	off	on	on
3200	off	off	on	on
6400	on	on	off	on
12800	off	on	off	on
25600	on	off	off	on
51200	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
40000	off	off	off	off

DW2272

The DW2272 digital 2-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the auto tuning of power-up parameters. With the features of low noise, low vibration, low heating and high-speed high torque output, it is suitable for most stepper motors.

- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 3.3~24V compatible; serial resistance not necessary for the application of PLC.
- Power supply: 110~230V AC.
- Typical application: carving machine, cutting machine, screen printing device, numerical control machine, automatic assembly equipment.



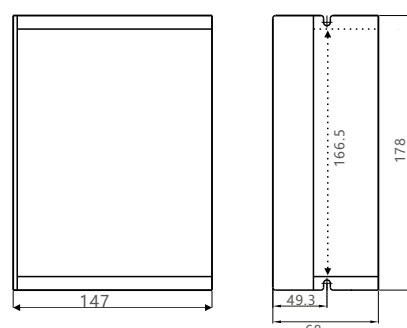
Description of drive functions	
Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW3, is used to select the 16 output current levels in total. Please select correct current division according to the drive panel and ensure that the drive does not act during the setting. SW4=on, 100% lock current; SW4=off, 50% lock current(to reduce motor heat)
Pulse smoothing and pulse type	The DIP switch SW9 is used to select the function of pulse smoothing of drive. "off" means this function is deactivated, while "on" means that it is activated. SW10=on, pulse mode is CW+CCW (double pulse mode); SW10=off, pulse mode is PUL+DIR(single pulse mode).
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; ENA+ and ENA- the positive and negative terminals of enable signal; ALM+ and ALM- the positive and negative terminals of alarm signal; and RDY+ and RDY- the positive and negative terminals of INPOS.
Motor interface	A+ and A- are the positive and genitive terminals of phase-A winding of stepper motor; and B+ and B- the positive and genitive terminals of phase-B winding of stepper motor. The motor can run in the reverse direction when phase A and B windings are exchanged.
Power interface	It is recommended to the operating voltage of DW2272 shall be 110-230V AC and filter (EMI FILTER) shall be provided before the power supply circuit.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Operating current setting				
Output current peak	Output current RMS	SW1	SW2	SW3
2.30A	1.63A	on	on	on
3.00A	2.12A	off	on	on
3.70A	2.62A	on	off	on
4.40A	3.11A	off	off	on
5.10A	3.61A	on	on	off
5.80A	4.10A	off	on	off
6.50A	4.60A	on	off	off
7.20A	5.10A	off	off	off

Micro-stepping level setting				
Steps/revolution	SW5	SW6	SW7	SW8
7200	on	on	on	on
400	off	on	on	on
800	on	off	on	on
1600	off	off	on	on
3200	on	on	off	on
6400	off	on	off	on
12800	on	off	off	on
25600	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
25000	off	off	off	off

Drive working status LED indication		
LED status	Drive status	
● Green indicator is on for a long time	Drive not enabled	
●● Green indicator is flickering	Drive working normally	
●●● One green indicator and one red indicator	Drive overcurrent	
●●●● One green indicator and two red indicators	Drive input power overvoltage	
●●●●● One green indicator and three red indicators	The internal voltage of the drive is wrong	
●●●●●● One green indicator and seven red indicators	Motor phase lagage	

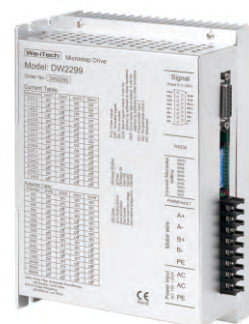
Installation dimensions



DW2299

The DW2299 digital 2-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the auto tuning of power-up parameters. With the features of low noise, low vibration, low heating and high-speed high torque output, it is suitable for most stepper motors.

- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 3.3~24V compatible; serial resistance not necessary for the application of PLC.
- Power supply: 110~230V AC.
- Typical application: carving machine, cutting machine, screen printing device, numerical control machine, automatic assembly equipment.



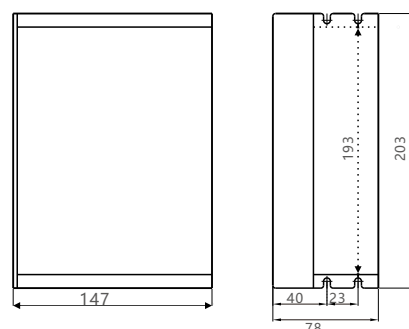
Description of drive functions	
Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW4, the three DIP switches, is used to select the 16 output current levels in total. Please select correct current division according to the drive panel and ensure that the drive does not act during the setting.
Pulse smoothing and bandwidth selection	The DIP switch SW9 is used to select the function of pulse smoothing of drive. "off" means this function is deactivated, while "on" means that it is activated. SW10 is used to select the bandwidth of drive. The maximum passing pulse frequency is 200KHZ when it is off and 1MHZ when it is on.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; ENA+ and ENA- the positive and negative terminals of enable signal; ALM+ and ALM- the positive and negative terminals of alarm signal; and RDY+ and RDY- the positive and negative terminals of INPOS.
Motor interface	A+ and A- are the positive and genitive terminals of phase-A winding of stepper motor; and B+ and B- the positive and genitive terminals of phase-B winding of stepper motor. The motor can run in the reverse direction when phase A and B windings are exchanged.
Power interface	It is recommended to the operating voltage of DW2299 shall be 110-230V AC and filter (EMI FILTER) shall be provided before the power supply circuit.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Operating current setting				
RMS/Peak(A)	SW1	SW2	SW3	SW4
0.7/1.0	on	on	on	on
1.1/1.6	off	on	on	on
1.6/2.3	on	off	on	on
2.0/2.8	off	off	on	on
2.4/3.4	on	on	off	on
2.8/4.0	off	on	off	on
3.2/4.5	on	off	off	on
3.6/5.1	off	off	off	on
4.0/5.7	on	on	on	off
4.5/6.4	off	on	on	off
5.0/7.1	on	off	on	off
5.4/7.6	off	off	on	off
5.8/8.2	on	on	off	off
6.2/8.8	off	on	off	off
6.6/9.3	on	off	off	off
7.0/9.9	off	off	off	off

Drive working status LED indication	
LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●● One green indicator and one red indicator	Drive overcurrent
●● One green indicator and two red indicators	Drive input power overvoltage
●● One green indicator and three red indicators	The internal voltage of the drive is wrong

Micro-stepping level setting				
Steps/revolution	SW5	SW6	SW7	SW8
400	on	on	on	on
500	off	on	on	on
600	on	off	on	on
800	off	off	on	on
1000	on	on	off	on
1200	off	on	off	on
2000	on	off	off	on
3000	off	off	off	on
4000	on	on	on	off
5000	off	on	on	off
6000	on	off	on	off
10000	off	off	on	off
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20000	off	on	off	off
30000	on	off	off	off
60000	off	off	off	off

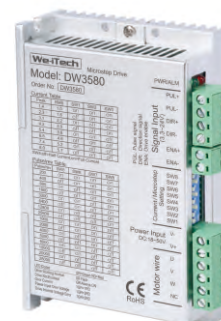
Installation dimensions



DW3580

The DW3580 digital 3-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the patented three-phase demodulation algorithm. It allows the 3-phase stepper motor's characteristics of low resonance at low speed and low torque ripple to be fully utilized.

- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 3.3~24V compatible; serial resistance not necessary for the application of PLC.
- Power supply: 24-50V DC; 36 or 48V recommended.
- Typical application: dispenser, soldering tin machine, carving machine, laser cutting machine, 3D printer.



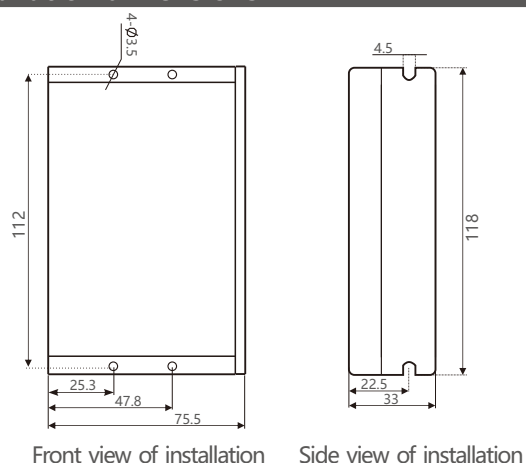
Description of drive functions

Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW3, the three DIP switches, are used to select the 8 output current levels in total. Please select correct current division according to the drive panel and ensure that the drive does not act during the setting.
Auto semi-current	The function of auto semi-current of drive can be set via SW4. "off" represents that the idle current is set as the half of operating current, while "on" means that the idle current is equal to the operating current. For general purpose, SW4 shall be set as off for lower heating and higher reliability of motor and drive. The current reduces by half automatically about 0.4s after the pulse train stops.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; and ENA+ and ENA- the positive and negative terminals of enable signal.
Motor interface	U, V and W correspond to the winding wires U, V and W of motor. The rotation direction of motor can be changed by exchanging any two of these winding wires. NC is disconnected and ungrounded, not required to be connected.
Power interface	DC power supply; 24-50VDC of operating voltage recommended for DW3580; and power greater than 150W.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Drive working status LED indication

LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●● One green indicator and one red indicator	Drive overcurrent
●● One green indicator and two red indicators	Drive input power overvoltage
●● One green indicator and three red indicators	The internal voltage of the drive is wrong

Installation dimensions



Front view of installation

Side view of installation

Setting of semi-/full current

	SW4
When the motor is not in operation, its current half of operating current	Semi-current off
When the motor is not in operation, its current equal to operating current	Full current on

Operating current setting

Output current peak	Output current RMS	SW1	SW2	SW3
1.4A	1.0A	on	on	on
2.3A	1.6A	off	on	on
3.1A	2.2A	on	off	on
4.2A	3.0A	off	off	on
5.4A	3.8A	on	on	off
6.5A	4.6A	off	on	off
7.4A	5.2A	on	off	off
8.0A	5.7A	off	off	off

Micro-stepping level setting

Steps/revolution	SW5	SW6	SW7	SW8
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
6400	off	on	off	on
12800	on	off	off	on
25600	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
25000	off	off	off	off

DW32250

The DW32250 digital 3-phase stepper drive is integrated with the micro-stepping technology and the patented three-phase demodulation algorithm. With the features of low noise, low vibration, low heating and high-speed high torque output, it allows the three-phase stepper motor itself to deliver full performance benefits.

- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 3.3~24V compatible; serial resistance not necessary for the application of PLC.
- Power supply: 110~230V AC, 220V recommended for superior high speed performance.
- Typical application: carving machine, labeling machine, cutting machine, plotter, numerical control machine, laser, automatic assembly equipment.



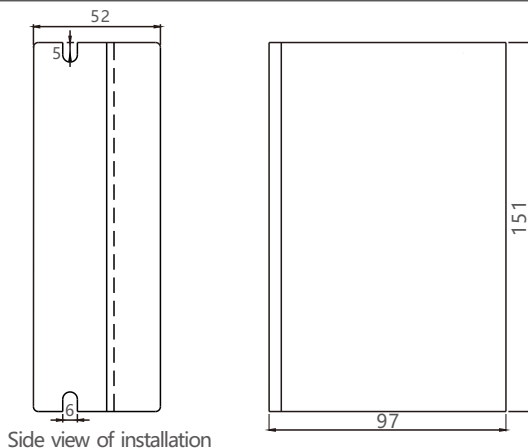
Description of drive functions

Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW3, the three DIP switches, are used to select the 8 output current levels in total. Please select correct current division according to the drive panel and ensure that the drive does not act during the setting.
Function DIP settings	The function of auto semi-current of drive can be set via SW4. "off" represents that the idle current is set as the half of operating current, while "on" means that the idle current is equal to the operating current. SW9 is used to select the pulse smoothing function of the drive. "off" means no pulse smoothing, "on" means pulse smoothing. SW10 is used to select the control mode, on = pulse + direction. Off=IO control mode.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; ENA+ and ENA- the positive and negative terminals of enable signal; ALM+ and ALM- the positive and negative terminals of the alarm output.
Motor interface	U, V and W correspond to the winding wires U, V and W of motor. The rotation direction of motor can be changed by exchanging any two of these winding wires. NC is disconnected and ungrounded, not required to be connected.
Power interface	Dw32250 power voltage: 110~230V AC, it is recommended to add a EMI FILTER before the power supply circuit.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Drive working status LED indication

LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●● One green indicator and one red indicator	Drive overcurrent
●● One green indicator and two red indicators	Drive input power overvoltage
●● One green indicator and three red indicators	The internal voltage of the drive is wrong

Installation dimensions



Side view of installation

Setting of semi-/full current

	SW4
When the motor is not in operation, its current half of operating current	Semi-current off
When the motor is not in operation, its current equal to operating current	Full current on

Operating current setting

Output current peak	Output current RMS	SW1	SW2	SW3
1.5A	1.1A	on	on	on
2.0A	1.4A	off	on	on
2.5A	1.7A	on	off	on
3.0A	2.1A	off	off	on
3.5A	2.5A	on	on	off
4.0A	2.8A	off	on	off
4.5A	3.2A	on	off	off
5.0A	3.5A	off	off	off

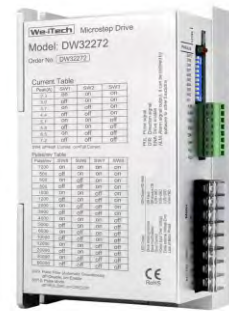
Micro-stepping level setting

Steps/revolution	SW5	SW6	SW7	SW8
3600	on	on	on	on
400	off	on	on	on
800	on	off	on	on
1600	off	off	on	on
3200	on	on	off	on
6400	off	on	off	on
12800	on	off	off	on
25600	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
18000	off	off	off	off

DW32272

The DW32272 digital 3-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the patented three-phase demodulation algorithm. With the features of low noise, low vibration, low heating and high-speed high torque output, it allows the three-phase stepper motor to deliver full performance benefits.

- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 3.3~24V compatible; serial resistance not necessary for the application of PLC.
- Power supply: 110~230V AC.
- Typical application: carving machine, cutting machine, screen printing device, numerical control machine, automatic assembly equipment.



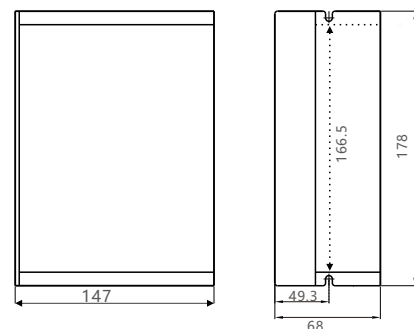
Description of drive functions	
Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW3, is used to select the 16 output current levels in total. Please select correct current division according to the drive panel and ensure that the drive does not act during the setting. SW4=on, 100% lock current; SW4=off, 50% lock current(to reduce motor heat)
Pulse smoothing and pulse type	The DIP switch SW9 is used to select the function of pulse smoothing of drive. "off" means this function is deactivated, while "on" means that it is activated. SW10=on, pulse mode is CW+CCW (double pulse mode); SW10=off, pulse mode is PUL+DIR(single pulse mode).
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; ENA+ and ENA- the positive and negative terminals of enable signal; ALM+ and ALM- the positive and negative terminals of alarm signal; and RDY+ and RDY- the positive and negative terminals of INPOS.
Motor interface	U, V and W correspond to the winding wires U, V and W of motor. The rotation direction of motor can be changed by exchanging any two of these winding wires. PE is connected to the earth wire.
Power interface	It is recommended to the operating voltage of DW32272 shall be 110-230V AC and filter (EMI FILTER) shall be provided before the power supply circuit.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Operating current setting				
Output current peak	Output current RMS	SW1	SW2	SW3
2.30A	1.63A	on	on	on
3.00A	2.12A	off	on	on
3.70A	2.62A	on	off	on
4.40A	3.11A	off	off	on
5.10A	3.61A	on	on	off
5.80A	4.10A	off	on	off
6.50A	4.60A	on	off	off
7.20A	5.10A	off	off	off

Micro-stepping level setting				
Steps/revolution	SW5	SW6	SW7	SW8
7200	on	on	on	on
500	off	on	on	on
600	on	off	on	on
800	off	off	on	on
1000	on	on	off	on
1200	off	on	off	on
2000	on	off	off	on
3000	off	off	off	on
4000	on	on	on	off
5000	off	on	on	off
6000	on	off	on	off
10000	off	off	on	off
12000	on	on	off	off
20000	off	on	off	off
30000	on	off	off	off
60000	off	off	off	off

Drive working status LED indication	
LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●● One green indicator and one red indicator	Drive overcurrent
●●● One green indicator and two red indicators	Drive input power overvoltage
●●● One green indicator and three red indicators	The internal voltage of the drive is wrong
●●●● One green indicator and seven red indicators	Motor phase lackage

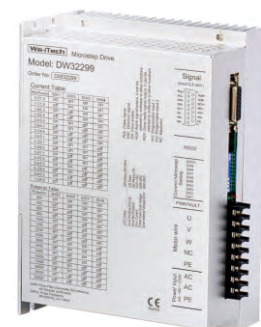
Installation dimensions



DW32299

The DW32290 digital 3-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the patented three-phase demodulation algorithm. With the features of low noise, low vibration, low heating and high-speed high torque output, it allows the three-phase stepper motor to deliver full performance benefits.

- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 3.3~24V compatible; serial resistance not necessary for the application of PLC.
- Power supply: 110~230V AC.
- Typical application: carving machine, cutting machine, screen printing device, numerical control machine, automatic assembly equipment.



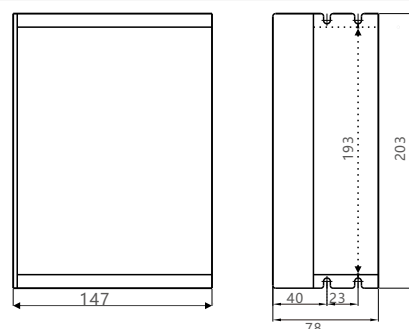
Description of drive functions	
Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW4, the three DIP switches, is used to select the 16 output current levels in total. Please select correct current division according to the drive panel and ensure that the drive does not act during the setting.
Pulse smoothing and bandwidth selection	The DIP switch SW9 is used to select the function of pulse smoothing of drive. "off" means this function is deactivated, while "on" means that it is activated. SW10 is used to select the bandwidth of drive. The maximum passing pulse frequency is 200KHZ when it is off and 1MHZ when it is on.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; ENA+ and ENA- the positive and negative terminals of enable signal; ALM+ and ALM- the positive and negative terminals of alarm signal; and RDY+ and RDY- the positive and negative terminals of INPOS.
Motor interface	U, V and W correspond to the winding wires U, V and W of motor. The rotation direction of motor can be changed by exchanging any two of these winding wires. PE is connected to the earth wire.
Power interface	It is recommended to the operating voltage of DW32290 shall be 110-230V AC and filter (EMI FILTER) shall be provided before the power supply circuit.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Operating current setting				
RMS/Peak(A)	SW1	SW2	SW3	SW4
0.7/1.0	on	on	on	on
1.1/1.6	off	on	on	on
1.6/2.3	on	off	on	on
2.0/2.8	off	off	on	on
2.4/3.4	on	on	off	on
2.8/4.0	off	on	off	on
3.2/4.5	on	off	off	on
3.6/5.1	off	off	off	on
4.0/5.7	on	on	on	off
4.5/6.4	off	on	on	off
5.0/7.1	on	off	on	off
5.4/7.6	off	off	on	off
5.8/8.2	on	on	off	off
6.2/8.8	off	on	off	off
6.6/9.3	on	off	off	off
7.0/9.9	off	off	off	off

Micro-stepping level setting				
Steps/revolution	SW5	SW6	SW7	SW8
400	on	on	on	on
500	off	on	on	on
600	on	off	on	on
800	off	off	on	on
1000	on	on	off	on
1200	off	on	off	on
2000	on	off	off	on
3000	off	off	off	on
4000	on	on	on	off
5000	off	on	on	off
6000	on	off	on	off
10000	off	off	on	off
12000	on	on	off	off
20000	off	on	off	off
30000	on	off	off	off
60000	off	off	off	off

Drive working status LED indication	
LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●● One green indicator and one red indicator	Drive overcurrent
●● One green indicator and two red indicators	Drive input power overvoltage
●● One green indicator and three red indicators	The internal voltage of the drive is wrong

Installation dimensions



DW5422

The DW5422 digital 5-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the patented five-phase demodulation algorithm. With the features of low resonance at low speed, small torque ripple and high precision, it allows the five-phase stepper motor to deliver full performance benefits.

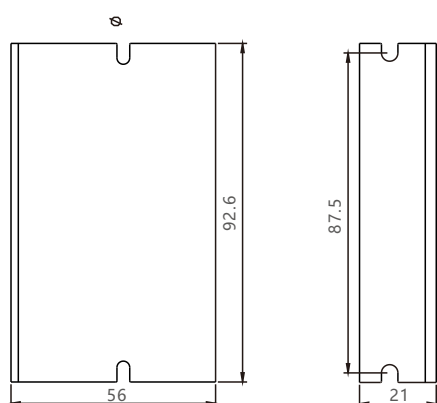
- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 5V level signal, PLC application requires string 2K resistor.
- Power voltage: 24-36V DC supply.
- Typical application: dispenser, wire cutting, engraving machine, laser cutting machine, peninsula equipment.



Description of drive functions	
Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW3, the three DIP switches, are used to select the 8 output current levels in total. Please select correct current division according to the drive panel and ensure that the drive does not act during the setting.
Function setting	The DIP switch SW4 is used to change the initial running direction of the motor.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; and ENA+ and ENA- the positive and negative terminals of enable signal, OUT+ and OUT- the A output signal.
Motor interface	A、B、C、D、E correspond to the 5-phase winding wire of the stepper motor; and connect to the ABCD of the motor.
Power interface	DC power supply; 24-36VDC of operating voltage recommended for DW5422; and power greater than 150W.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Drive working status LED indication	
LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●● One green indicator and one red indicator	Drive overcurrent
●● One green indicator and two red indicators	Drive input power overvoltage
●● One green indicator and three red indicators	The internal voltage of the drive is wrong

Installation dimensions



Front view of installation

Side view of installation

Setting of semi-/full current	SW4
When the motor is not in operation, its current half of operating current	Semi-current off
When the motor is not in operation, its current equal to operating current	Full current on

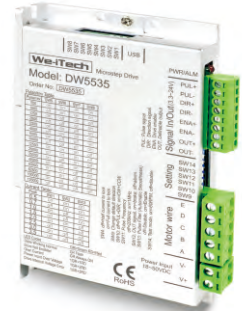
Operating current setting				
Output current peak	Output current RMS	SW1	SW2	SW3
0.3A	0.2A	on	on	on
0.5A	0.3A	off	on	on
0.7A	0.5A	on	off	on
1.0A	0.7A	off	off	on
1.3A	1.0A	on	on	off
1.6A	1.2A	off	on	off
1.9A	1.4A	on	off	off
2.2A	1.6A	off	off	off

Micro-stepping level setting				
Steps/revolution	SW5	SW6	SW7	SW8
500	on	on	on	on
1000	off	on	on	on
1250	on	off	on	on
2000	off	off	on	on
2500	on	on	off	on
4000	off	on	off	on
5000	on	off	off	on
10000	off	off	off	on
12500	on	on	on	off
20000	off	on	on	off
25000	on	off	on	off
40000	off	off	on	off
50000	on	on	off	off
62500	off	on	off	off
100000	on	off	off	off
125000	off	off	off	off

DW5535

The DW5535 digital 5-phase stepper drive is based on 32-bit DSP platform and integrated with the micro-stepping technology and the patented five-phase demodulation algorithm. With the features of low resonance at low speed, small torque ripple and high precision, it allows the five-phase stepper motor to deliver full performance benefits.

- Pulse mode: monopulse/double-pulse/orthogonal pulse.
- Signal level: 5V level signal, PLC application requires string 2K resistor.
- Power voltage: 24-50V DC supply; 36 or 48V recommended.
- Typical application: dispenser, wire cutting, engraving machine, laser cutting machine, peninsula equipment.



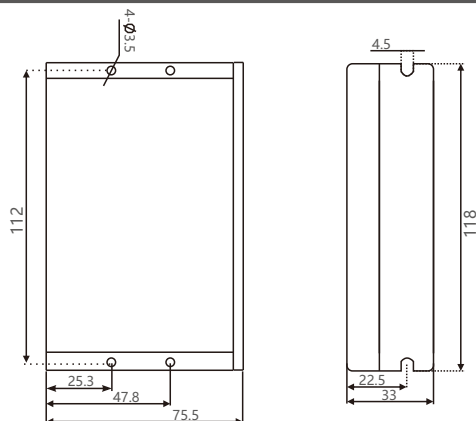
Description of drive functions

Function	Description of operations
Setting of micro-stepping level number	SW5-SW8, the four DIP switches, are used to select the 16 micro-stepping levels in total. Please select correct micro-stepping level according to the drive panel and ensure that the drive does not act during the setting.
Output current setting	SW1-SW3, the three DIP switches, are used to select the 8 output current levels in total. Please select correct current division according to the drive panel and ensure that the drive does not act during the setting.
Function setting	The function of auto semi-current of drive can be set via SW4. SW9 switches the motor direction, SW10 selects single and double pulse mode, SW11 selects the highest pulse frequency, SW12 output port function selection, SW13 filter selection, SW14 self test function switch. Please set each function according to the drive panel.
Signal interface	PUL+ and PUL- are the positive and negative terminals of control pulse signal respectively; DIR+ and DIR- the positive and negative terminals of direction signal; and ENA+ and ENA- the positive and negative terminals of enable signal, OUT+ and OUT- the A output signal.
Motor interface	A, B, C, D, E correspond to the 5-phase winding wire of the stepper motor; and connect to the ABCDE of the motor.
Power interface	DC power supply; 24-50VDC of operating voltage recommended for DW5535; and power greater than 150W.
Indicator	The drive has two indicators. The green one is power indicator, it will twinkle after the power up of drive. The red one is a fault indicator, it will twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.

Drive working status LED indication

LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●● One green indicator and one red indicator	Drive overcurrent
●● One green indicator and two red indicators	Drive input power overvoltage
●● One green indicator and three red indicators	The internal voltage of the drive is wrong

Installation dimensions



Front view of installation

Side view of installation

Setting of semi-/full current

	SW4
When the motor is not in operation, its current half of operating current	Semi-current off
When the motor is not in operation, its current equal to operating current	Full current on

Operating current setting

Output current peak	Output current RMS	SW1	SW2	SW3
0.5A	0.4A	on	on	on
0.7A	0.5A	off	on	on
1.0A	0.7A	on	off	on
1.5A	1.1A	off	off	on
2.0A	1.4A	on	on	off
2.5A	1.8A	off	on	off
3.0A	2.1A	on	off	off
3.5A	2.5A	off	off	off

Micro-stepping level setting

Steps/revolution	SW5	SW6	SW7	SW8
500	on	on	on	on
1000	off	on	on	on
1250	on	off	on	on
2000	off	off	on	on
2500	on	on	off	on
4000	off	on	off	on
5000	on	off	off	on
10000	off	off	off	on
12500	on	on	on	off
20000	off	on	on	off
25000	on	off	on	off
40000	off	off	on	off
50000	on	on	off	off
62500	off	on	off	off
100000	on	off	off	off
125000	off	off	off	off

DW556-IO

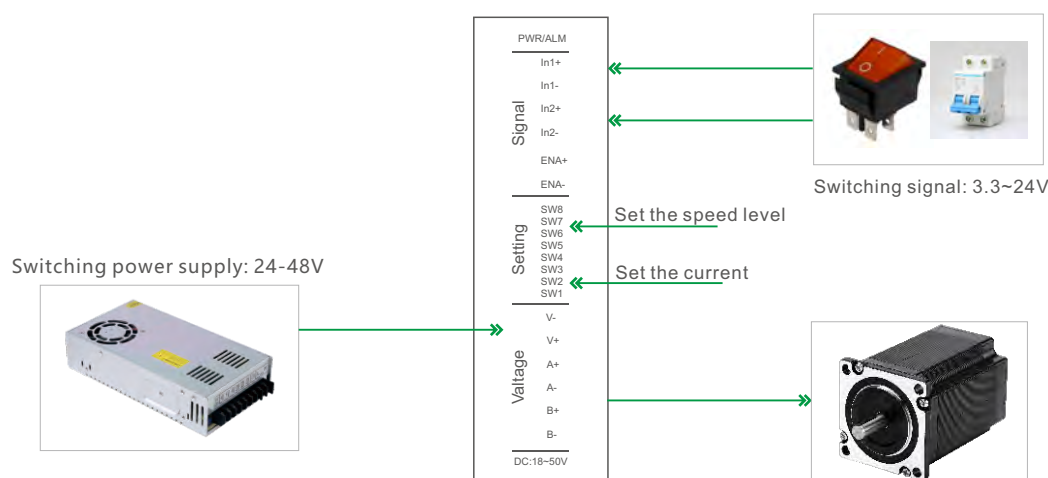
IO type switch stepper drive is provided with the pulse train with S-shape acceleration/deceleration, and triggers the motor start-stop only by normal switching value.

Compared with the speed-control motor, IO-type switch stepper motor is featured with stable start-stop and uniform speed, which can simplify the engineer' s electrical design.

- Control mode: start-stop and reversing controlled by IN1 and IN2.
- Speed level: set by the DIP switches SW5-SW8.
- Signal level: 3.3-24V compatible.
- Typical application: conveying equipment, inspection conveyor, PCB pallet conveyor.



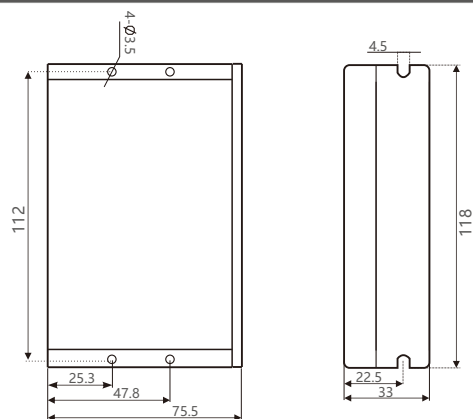
Schematic connection diagram



Drive working status LED indication

LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●●● One green indicator and one red indicator	Drive overcurrent
●●● One green indicator and two red indicators	Drive input power overvoltage
●●● One green indicator and three red indicators	The internal voltage of the drive is wrong

Installation dimensions



Front view of installation

Side view of installation

Acceleration level setting

Acceleration level	SW4
Acceleration level 1 Low acceleration/deceleration	off
Acceleration level 2 High acceleration/deceleration	on

Operating current setting

Output current peak	Output current RMS	SW1	SW2	SW3
1.4A	1.0A	on	on	on
2.1A	1.5A	off	on	on
2.7A	1.9A	on	off	on
3.2A	2.3A	off	off	on
3.8A	2.7A	on	on	off
4.3A	3.1A	off	on	off
4.9A	3.5A	on	off	off
5.6A	4.0A	off	off	off

Speed level setting

Speed level RPM	SW5	SW6	SW7	SW8
10	on	on	on	on
20	off	on	on	on
30	on	off	on	on
50	off	off	on	on
60	on	on	off	on
80	off	on	off	on
100	on	off	off	on
150	off	off	off	on
200	on	on	on	off
250	off	on	on	off
300	on	off	on	off
400	off	off	on	off
500	on	on	off	off
600	off	on	off	off
700	on	off	off	off
800	off	off	off	off

SWITCH-POTENTIOMETER SPEED-CONTROL

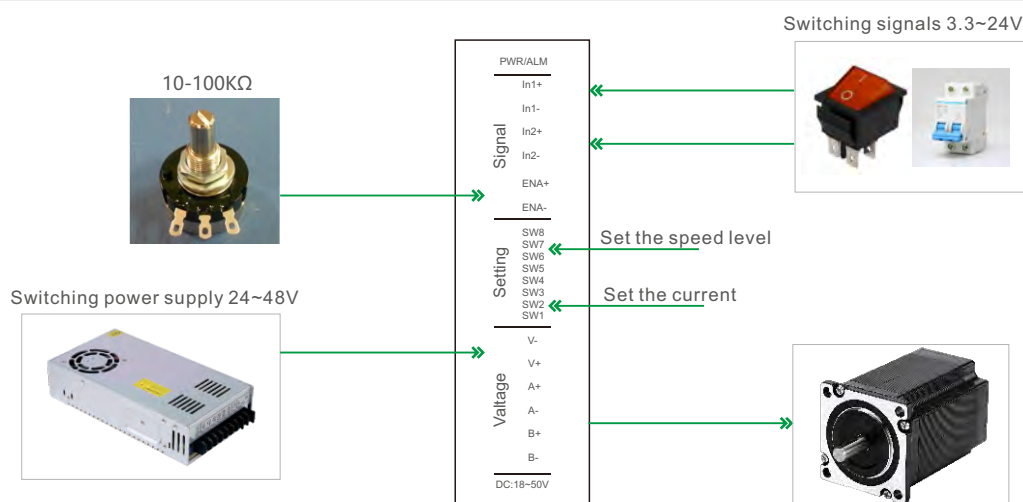
Model: DW556-IR

DW556-IR refers to the potentiometer speed-control switch drive

The potentiometer can regulate the rotation speed of the motor and switch speed at any time.

- Control mode: IN1 and IN2 are connected to the starting and reversing signals, ENA connected to the potentiometer speed controller.
- Signal level: The switch is 3.3-24V effective.
- Specification of potentiometer: 10-100KΩ.

Schematic connection diagram



SWITCH-SENSOR TRIGGERING

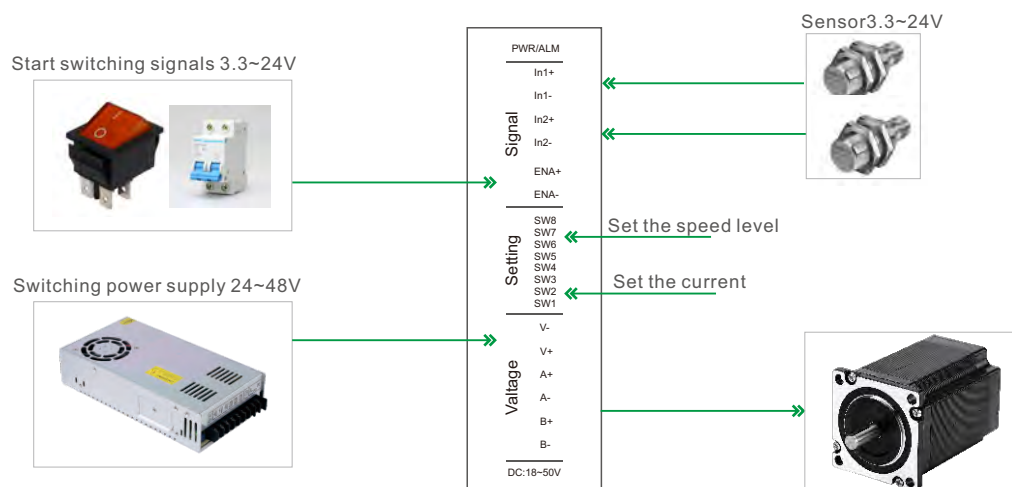
Model: DW556-IOB

DW556-IOB is the itinerant control drive between the left and right limit sensors

When the ENA is on state, the stepper motor moves to and fro between the two limits IN1 and IN2, which applies to glue spray, painting and so on.

- Control mode: IN1 and IN2 are connected to limit sensors, ENA connected to the start-stop control switch
- Signal level: 3.3-24V effective

Schematic connection diagram



ONE-DRIVE-TWO DW556-D

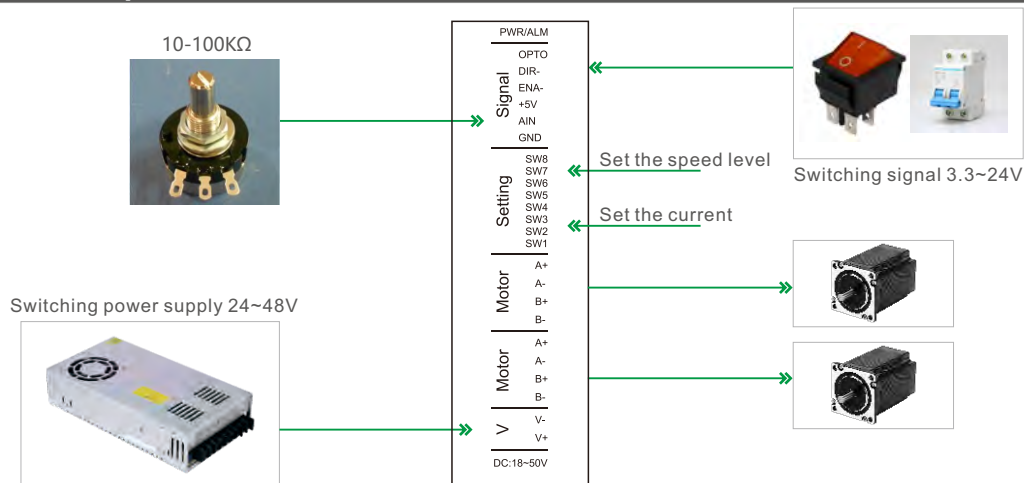
Two-axis synchronization application is often required on the conveying equipment. DW556-D is the two-axis synchronization specific drive.

Using the delicate dual-core DSP chip, DW556-D drives the two-axis motor independently to avoid the interference within the back electromotive force and achieve independent operation and synchronized movement.

- Speed control mode: ENA switching signal controls the start-stop, and potentiometer controls speed.
- Signal level: IO signals are connected to 24V externally, power supply inside potentiometer is 5V.
- Power supply voltage: 24-50V DC.
- Typical application: the conveying equipment, inspection conveyor, PCB pallet conveyor.



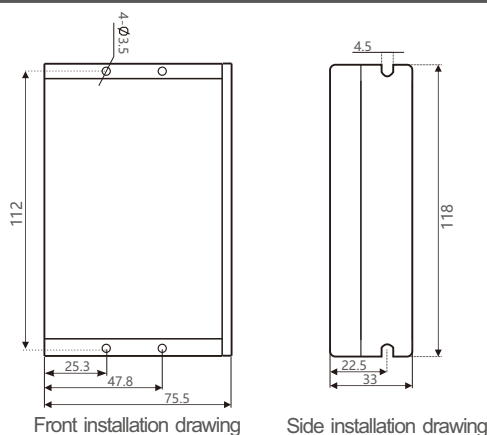
Connection Description of drive



Drive working status LED indication

LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●●● One green indicator and one red indicator	Drive overcurrent
●●● One green indicator and two red indicators	Drive input power overvoltage
●●● One green indicator and three red indicators	The internal voltage of the drive is wrong

Installation dimensions



Acceleration level setting

Acceleration level	Setting	SW5
Acceleration level 1	Low speed reduction	off
Acceleration level 2	High speed reduction	on

Speed level setting

Speed regulation range	SW6	SW7	SW8
0~100	on	on	on
0~150	off	on	on
0~200	on	off	on
0~250	off	off	on
0~300	on	on	off
0~350	off	on	off
0~400	on	off	off
0~450	off	off	off

Operating current setting (single motor current)

Peak	SW1	SW2	SW3	SW4
0.3	on	on	on	on
0.5	off	on	on	on
0.7	on	off	on	on
1.0	off	off	on	on
1.3	on	on	off	on
1.6	off	on	off	on
1.9	on	off	off	on
2.2	off	off	off	on
2.5	on	on	on	off
2.8	off	on	on	off
3.2	on	off	on	off
3.6	off	off	on	off
4.0	on	on	off	off
4.4	off	on	off	off
5.0	on	off	off	off
5.6	off	off	off	off

THREE-IN-ONE DW556-T DW3580-T

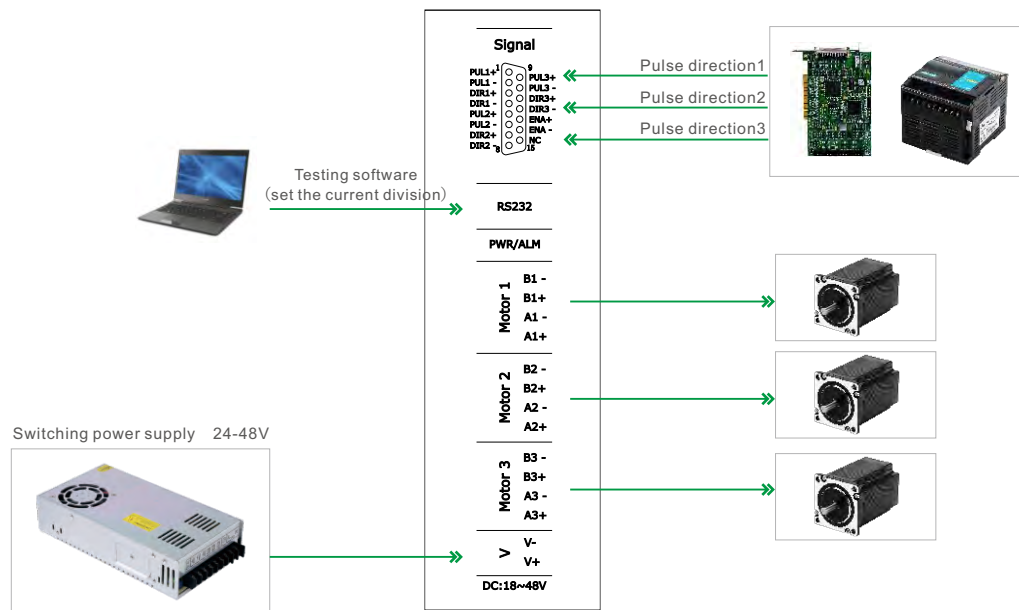
Three-axis platform equipment is often required to reduce space and save the cost. DW556-T/DW3580-T are the national first three-axis specific drive.

DW556-T/DW3580-T can drive independently three 2/3-phase stepper motors with frame below 60mm. The three-axis micro-stepping and the current are independently adjustable.



- Pulse mode: PUL&DIR.
- Signal level: 3.3~24V compatible; serial resistance not necessary for the application of PLC.
- Typical application: dispensing system, floating machine, carving machine and three-axis

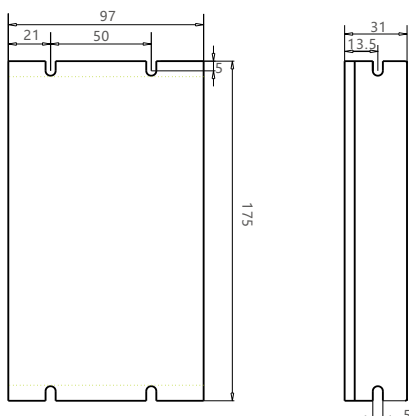
Connection Description of drive



Drive working status LED indication

LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
●● Green indicator is flickering	Drive working normally
●●● One green indicator and one red indicator	Drive overcurrent
●●● One green indicator and two red indicators	Drive input power overvoltage
●●● One green indicator and three red indicators	The internal voltage of the drive is wrong

Installation dimensions



Front installation drawing (recommended) Front installation drawing (recommended)

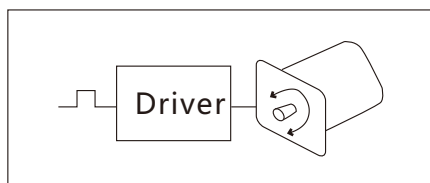
The testing interface of the drive parameters



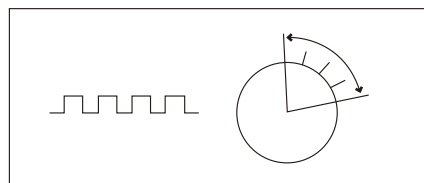
Stepper Motor

The stepper motor is a special motor specially designed for accurate control of position and speed. The biggest characteristic of stepper motor is "digital". For each pulse signal from the controller, the stepper motor driven by its drive runs at a fixed angle ("one step" for short), as shown in the following figure.

We-iTech M series step motor is designed based on the Cz optimized magnetic circuit and adopts stator and rotator materials of high magnetic density, featuring a high energy efficiency.



One pulse for one step



Number of Pulses equals to that of steps

The naming of stepper motors

M 2 86 8 T022 - 14 B

① ② ③ ④ ⑤ ⑥ ⑦

- | | |
|---|-------------------------------|
| ① Stepper motor | ⑤ Torque size, T022 is 0.22Nm |
| ② Phase number
Step angle 2:1.8° 3:1.2° 5:0.72° | ⑥ Shaft diameter is 14mm |
| ③ Motor frame size | ⑦ B for brake |
| ④ Number of wire leads
Leads have 3, 4, 5, 6, 8 and 10 | |

Usage precautions of stepper motor

- ① The maximum rotation speed of the stepper motor shall be 600 to 700rpm.
- ② The low speed resonance region of the stepper motor is close to 100rpm and 200rpm.
The first resonance region is about 100rpm
The second resonance region is about 200rpm
- ③ The 8-wire motor has two connection methods, series and parallel. Please connect according to the manual or the motor label.
Series connection is adopted in the low-speed low-torque application
Parallel connection is adopted in the high-speed application
- ④ If the motor shakes when running or waggles when stopped, there must be the inertia matching problem, reducer shall be considered.
- ⑤ If the stepper motor cannot start, please check the connection, the micro-stepping drive and the speed reduction setting of system.
- ⑥ For stepper motors with brakes, please note the impact of the brake heating on the system.

35/39 series 2-phase stepper motor

General specification

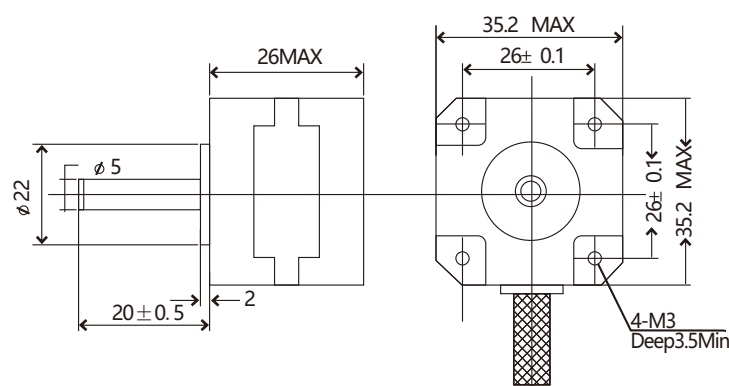
Step accuracy	±5%(synchronizing, no-load)
Temperature rise	80 °C Max
Ambient temperature	-10 °C — +50 °C
Insulation resistance	100MΩmin. 500VDC
Voltage resistance	500VAC for one minute
Radial runout	0.06 Max. (450g-load)
Axial runout	0.08 Max. (450g-load)



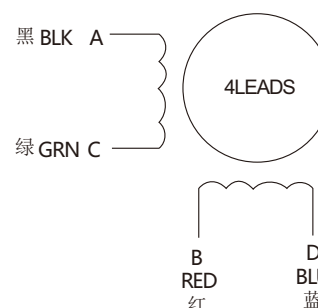
Technical specifications

Model	Phase number	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Number of lead	Rotor inertia (g.cm²)	Shaft diameter mm	Motor weight Kg	Motor body length mm
M2354T001-5	2	1.8	0.07	0.4	16	35	4	12	5	0.14	26
M2394T002-5	2	1.8	0.22	0.6	16	15	4	20	5	0.2	34

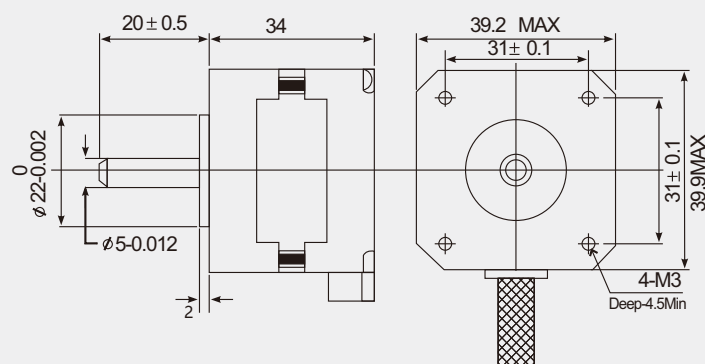
Overall dimensions of 35 series



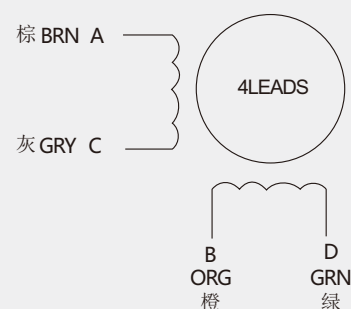
Connection diagram of 35 series



Overall dimensions of 39 series



Connection diagram of 39 series



42 series 2-phase stepper motor

General specification

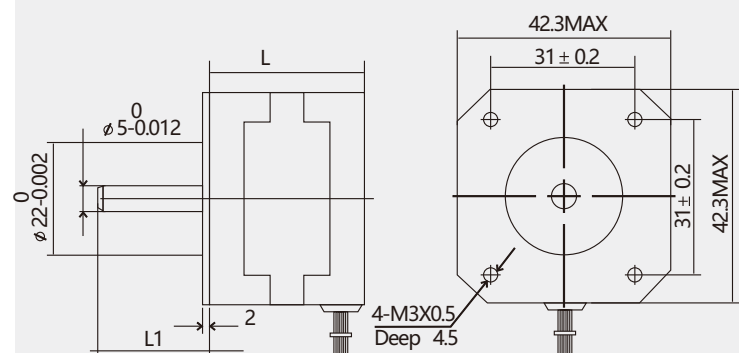
Step accuracy	±5%(synchronizing, no-load)
Temperature rise	80 °C Max
Ambient temperature	-10 °C — +50 °C
Insulation resistance	100MΩmin. 500VDC
Voltage resistance	500VAC for one minute
Radial runout	0.06 Max. (450g-load)
Axial runout	0.08 Max. (450g-load)



Technical specifications

Model	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Number of lead	Rotor inertia (g.cm²)	Shaft diameter mm	Motor weight Kg	Motor body Length L(mm)	Shaft length L1(mm)
M2424T002-5	1.8	0.22	1.2	5.5	2.5	4	57	5	0.24	40	24
M2424T003-5	1.8	0.34	1.5	5.0	2.6	4	82	5	0.34	48	24
M2424T007-5	1.8	0.71	1.8	4.8	2.0	4	114	5	0.5	60	24

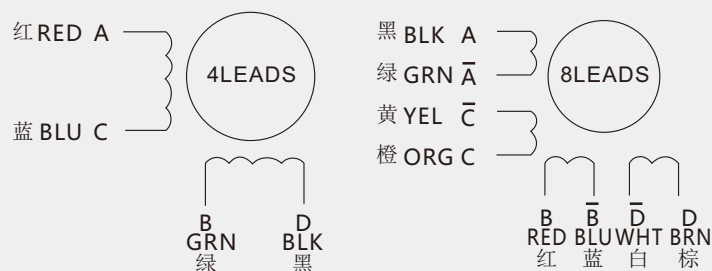
Overall dimensions (mm)



Lead connection method

Connection method	Drive connection	Corresponding motor lead	Occasions applicable
Series connection	A+	A	Low speed
	A-	C	
	B+	B	
	B-	D	
	Suspended	$\bar{A}\bar{C}$ (Connected)	
	Suspended	$\bar{B}\bar{D}$ (Connected)	
Parallel connection	A+	$A\bar{C}$	High speed
	A-	$\bar{A}C$	
	B+	$B\bar{D}$	
	B-	$\bar{B}D$	

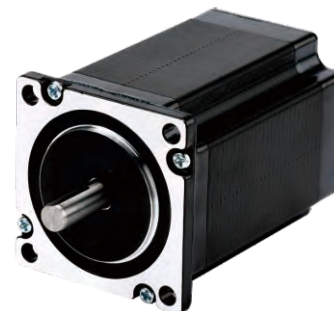
Connection diagram



57 series 2-phase stepper motor

General specification

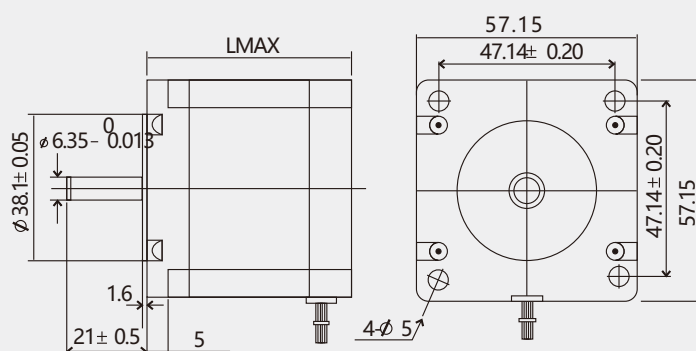
Step accuracy	±5%(synchronizing, no-load)
Temperature rise	80 °C Max
Ambient temperature	-10 °C — +50 °C
Insulation resistance	100MΩmin. 500VDC
Voltage resistance	500VAC for one minute
Radial runout	0.06 Max. (450g-load)
Axial runout	0.08 Max. (450g-load)



Technical specifications

Model	Phase number	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Number of lead	Rotor inertia (g.cm²)	Shaft diameter mm	Motor weight Kg	Motor body length mm
M2574T009-6.35	2	1.8	0.9	2.8	1.2	0.8	4	260	6.35	0.6	55
M2574T013-6.35	2	1.8	1.3	2.8	2.1	1.0	4	460	6.35	1.0	76
M2574T022-8	2	1.8	2.2	4.0	1.8	0.8	4	460	8	1.1	80
M2574T018-8B	2	1.8	1.8	4.0	1.8	0.8	4	460	8	1.5	120
M2574T030-8	2	1.8	3.0	4.0	3.2	0.9	4	720	8	1.4	100

Overall dimensions (mm)

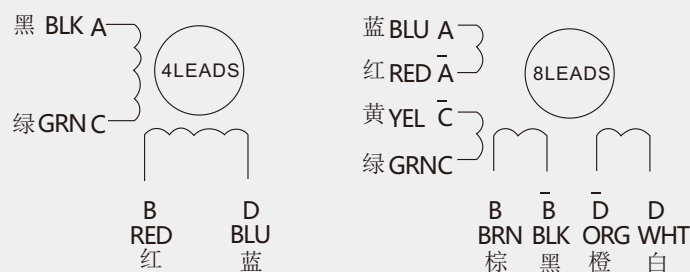


*Above is the representative product only. The shaft diameter of M2574T022-8 motor is 8mm, with platform

Lead connection method

Connection method	Drive connection	Corresponding motor lead	Occasions applicable
Series connection	A+	A	Low speed
	A-	C	
	B+	B	
	B-	D	
	Suspended	AC̄ (Connected)	
	Suspended	BD̄ (Connected)	
Parallel connection	A+	AC̄	High speed
	A-	AC̄	
	B+	BD̄	
	B-	BD̄	

Connection diagram



60 series 2-phase stepper motor

General specification

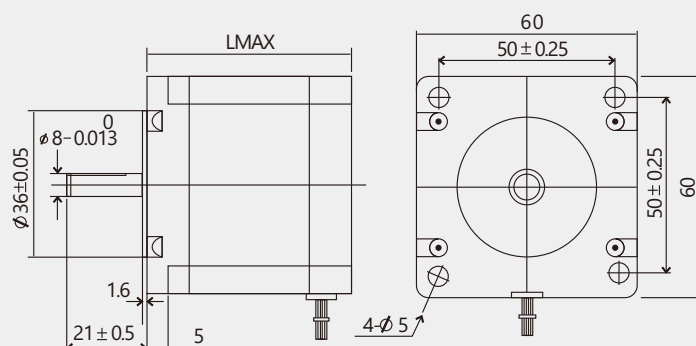
Step accuracy	±5%(synchronizing, no-load)
Temperature rise	80 °C Max
Ambient temperature	-10 °C — +50 °C
Insulation resistance	100MΩmin. 500VDC
Voltage resistance	500VAC for one minute
Radial runout	0.06 Max. (450g-load)
Axial runout	0.08 Max. (450g-load)



Technical specifications

Model	Phase number	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Number of lead	Rotor inertia (g.cm²)	Shaft diameter mm	Motor weight Kg	Motor body length mm
M2604T022-8	2	1.8	2.2	4.0	1.9	0.6	4	490	8	1.0	69
M2604T030-8	2	1.8	3.0	5.0	3.3	0.5	4	690	8	1.3	86

Overall dimensions (mm)

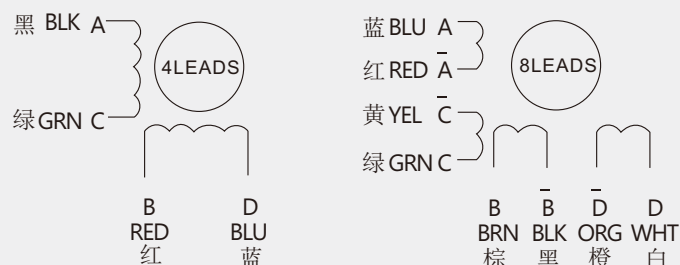


*The output shaft of the above motor is cut into a platform by default, with a length of 15mm and a platform thickness of 7.5mm.

Lead connection method

Connection method	Drive connection	Corresponding motor lead	Occasions applicable
Series connection	A+	A	Low speed
	A-	C	
	B+	B	
	B-	D	
	Suspended	$\bar{A}\bar{C}$ (Connected)	
	Suspended	$\bar{B}\bar{D}$ (Connected)	
Parallel connection	A+	$A\bar{C}$	High speed
	A-	$\bar{A}C$	
	B+	$B\bar{D}$	
	B-	$\bar{B}D$	

Connection diagram



86 series 2-phase stepper motor

General specification

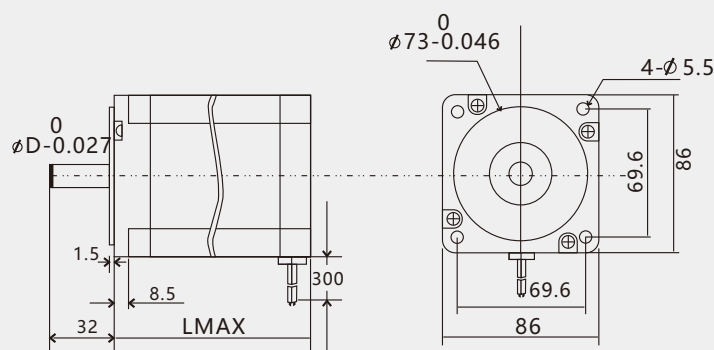
Step accuracy	±5%(synchronizing, no-load)
Temperature rise	80 °C Max
Ambient temperature	-10 °C — +50 °C
Insulation resistance	100MΩmin. 500VDC
Voltage resistance	500VAC for one minute
Radial runout	0.06 Max. (450g-load)
Axial runout	0.08 Max. (450g-load)



Technical specifications

Model	Phase number	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Number of lead	Rotor inertia (g.cm²)	Positioning torque kg.cm	Motor weight Kg	Motor body length mm
M2868T035-9.5	2	1.8	3.5	2.8	3.9	1.4	8	800	0.8	2	65
M2868T045-12.7	2	1.8	4.5	4.2	3.5	0.8	8	1400	1.3	2.3	80
M2868T085-12.7	2	1.8	8.5	4.9	5.2	0.95	8	2800	2.5	3.8	118
M2868T085-12.7B	2	1.8	8.5	4.9	5.2	0.95	8	2800	2.5	3.8	155
M2868T120-15.875	2	1.8	12	6.0	8.7	1.4	8	4000	3.8	5.4	156

Overall dimensions (mm)



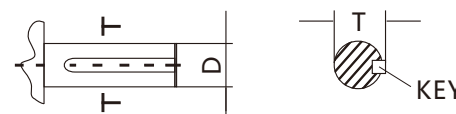
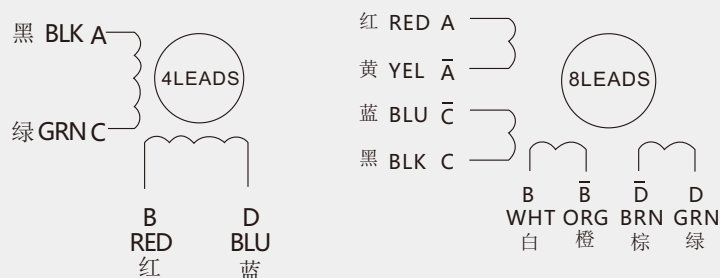
Lead connection method

Connection method	Drive connection	Corresponding motor lead	Occasions applicable
Series connection	A+	A	Low speed
	A-	C	
	B+	B	
	B-	D	
	Suspended	AC(Connected)	
Parallel connection	Suspended	BD(Connected)	High speed
	A+	AC	
	A-	AC	
	B+	BD	
	B-	BD	

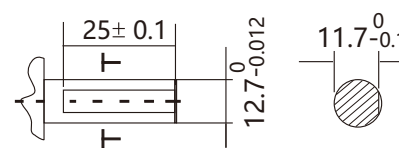
Detailed parameters of motor shaft

	T	KEY	D
M2868T035-9.5	/	/	9.5
M2868T045-12.7	/	/	12.7
M2868T085-12.7	14.7	5*5*25	12.7
M2868T120-15.875	17.875	5*5*25	15.875

Connection diagram



The diameter dimension of shaft with key



The diameter dimension of the 86A4 shaft

110/130 series 2-phase stepper motor

General specification

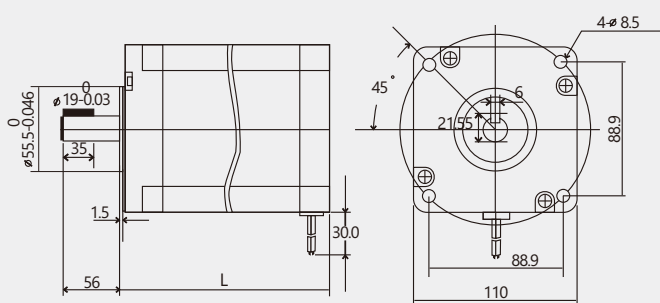
Step accuracy	±5%(synchronizing, no-load)
Temperature rise	80 °C Max
Ambient temperature	-10 °C — +50 °C
Insulation resistance	100MΩmin. 500VDC
Voltage resistance	500VAC for one minute
Radial runout	0.06 Max. (450g-load)
Axial runout	0.08 Max. (450g-load)



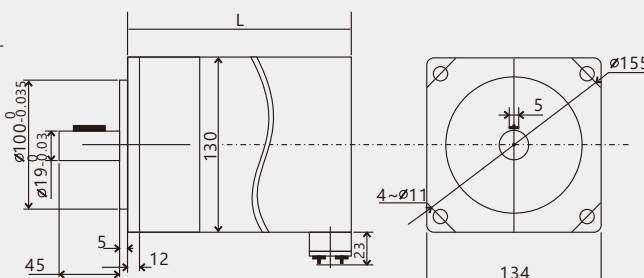
Technical specifications

Model	Phase number	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Number of lead	Rotor inertia (g.cm ²)	Shaft diameter mm	Motor weight Kg	Motor body length mm
M21104T120-19	2	1.8	12	6	4.9	0.37	4	7.2	19	6	115
M21104T200-19	2	1.8	20	6	15	0.8	4	11	19	8.4	150
M21104T280-19	2	1.8	28	6.5	22	1.2	4	16.2	19	11.7	201
M21304T270-19	2	1.8	27	6	13.8	0.65	4	35	19	13	227
M21304T450-19	2	1.8	45	7	9.5	0.9	4	48.4	19	19	283

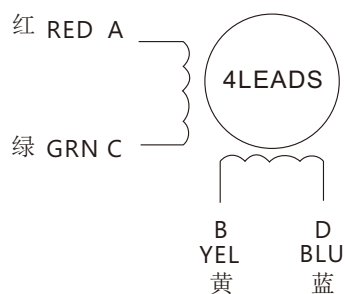
Overall dimensions of 110 (mm)



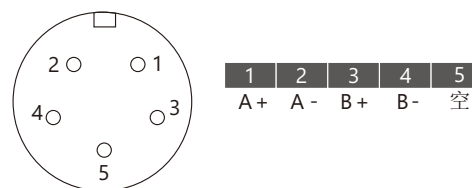
Overall dimensions of 130 (mm)



Connection diagram of 110



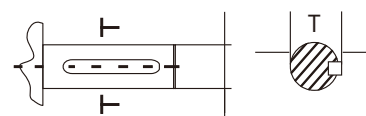
Connection diagram of 130



Lead connection method

Drive connection	Corresponding motor lead
A+	A
A-	C
B+	B
B-	D

Detailed parameters of 130 motor shaft



T = 21
KEY=5×5×30

57/86 series 3-phase stepper motor

General specification

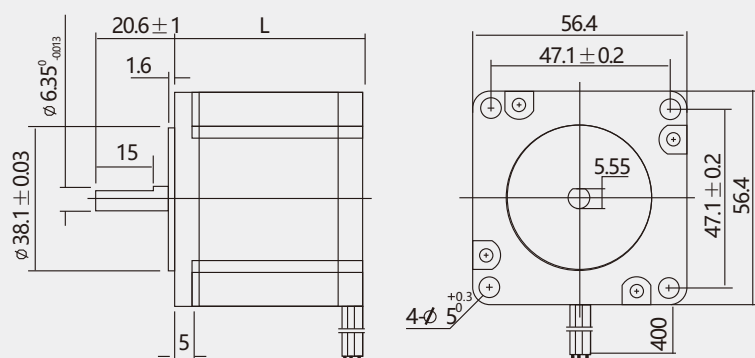
Step accuracy	±5%(synchronizing, no-load)
Temperature rise	80 °C Max
Ambient temperature	-10 °C — +50 °C
Insulation resistance	100MΩmin. 500VDC
Voltage resistance	500VAC for one minute
Radial runout	0.06 Max. (450g-load)
Axial runout	0.08 Max. (450g-load)



Technical specifications

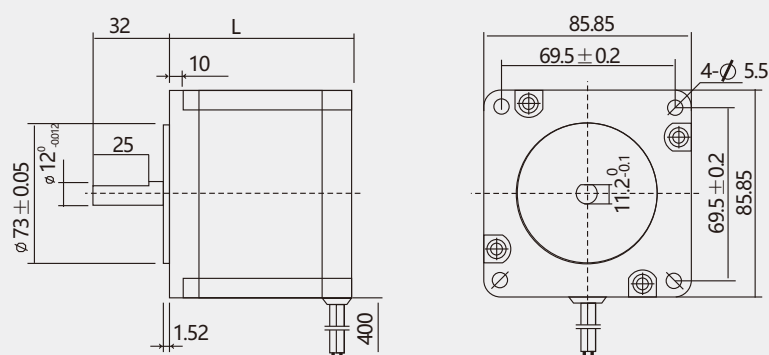
Model	Phase number	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Number of lead	Rotor inertia (g.cm²)	Shaft diameter mm	Motor weight Kg	Motor body length mm
M3576T009-6.35	3	1.2	0.9	3.5	1.7	0.8	6	300	6.35	0.75	56
M3576T015-8	3	1.2	1.5	5.2	1.35	0.9	6	480	8	1.1	79
M3866T023-12	3	1.2	2.3	5.0	2.4	1.0	6	1300	12	2.0	73
M3866T043-12	3	1.2	4.3	5.0	4.2	1.2	6	2500	12	3.2	105
M3866T068-14	3	1.2	6.8	4.3	25	6	6	3300	14	4.0	127

Overall dimensions of 57 (mm)

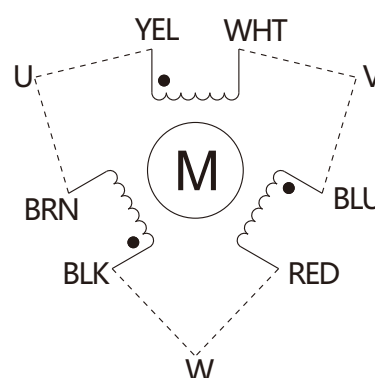


Note: The diameter dimension of the M3576T015-8 shaft is 8.

Overall dimensions of 86 (mm)



Note: The diameter of the M3866T068-14 shaft is 14mm, with the key 4X4X20mm.



110/130 series 3-phase stepper motor

General specification

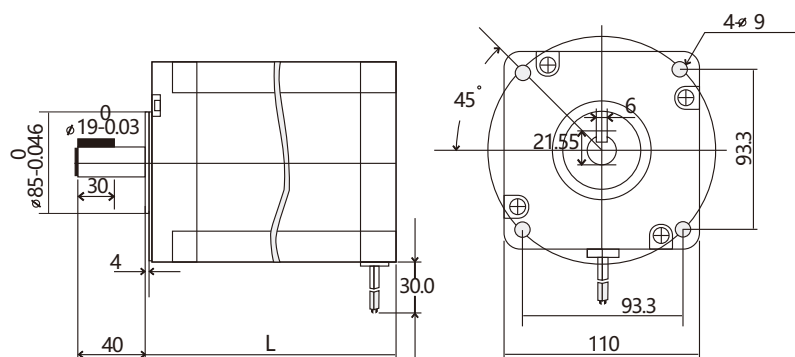
Step accuracy	±5%(synchronizing, no-load)
Temperature rise	80 °C Max
Ambient temperature	-10 °C — +50 °C
Insulation resistance	100MΩmin. 500VDC
Voltage resistance	500VAC for one minute
Radial runout	0.06 Max. (450g-load)
Axial runout	0.08 Max. (450g-load)



Technical specifications

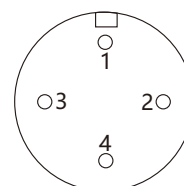
Model	Phase number	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Number of lead	Rotor inertia (g.cm ²)	Shaft diameter mm	Motor weight Kg	Motor body length mm
M31104T120-19	3	1.2	12	6	2.7	0.6	4	9.7	19	6.3	151
M31104T160-19	3	1.2	16	6.5	3.0	0.7	4	13.6	19	8.5	185
M31104T200-19	3	1.2	20	6.9	2.5	0.6	4	17.4	19	10.7	219
M31304T230-19	3	1.2	23	5.0	7.3	1.8	4	25.0	19	13.2	168
M31304T360-19	3	1.2	36	6.0	17.9	2.8	4	35.0	19	18.4	225
M31304T500-19	3	1.2	50	6.0	21.5	21.5	4	45.5	19	22.8	280

Overall dimensions of 110 (mm)

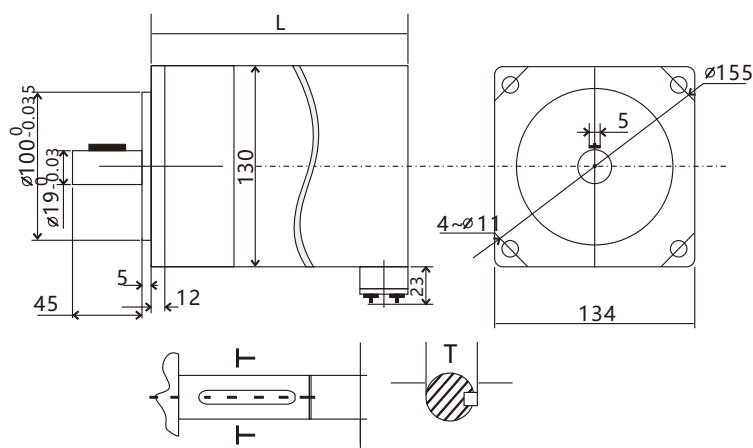


Connection diagram

Drive connection	Corresponding motor lead
U	1
V	2
W	3
PE	4



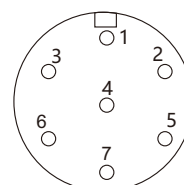
Overall dimensions of 130 (mm)



T = 21
KEY=5×5×30

Connection diagram

Drive connection	Corresponding motor lead
U	1
V	3
W	5
PE	7



5-phase stepper motor 42/60series

General specification

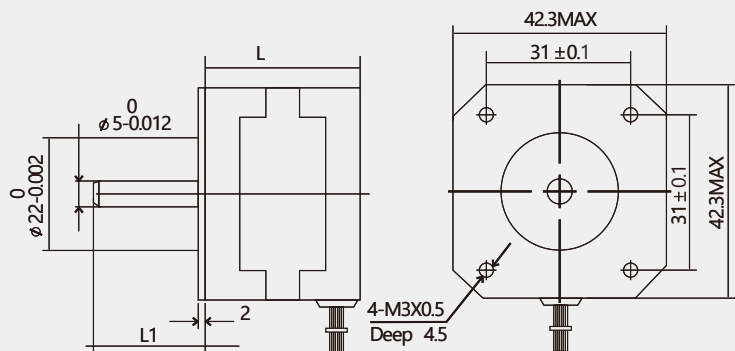
Step accuracy	±5%(synchronizing, no-load)
Temperature rise	80 °C Max
Ambient temperature	-10 °C — +50 °C
Insulation resistance	100MΩmin. 500VDC
Voltage resistance	500VAC for one minute
Radial runout	0.06 Max. (450g-load)
Axial runout	0.08 Max. (450g-load)



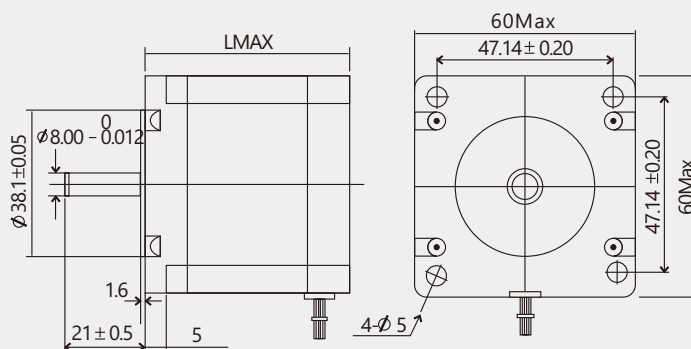
Technical specifications

Model	Step angle (°)	Holding torque N.M	Rated current A	Phase inductance mH	Phase resistance Ohm	Number of lead	Rotor inertia (g.cm²)	Shaft diameter mm	Motor weight Kg	Motor body Length L(mm)	Shaft length L1(mm)
M5425T002-5	0.72	0.24	0.75	2.7	2.6	5	68	5	0.35	48	24
M5605T010-8	0.72	1.00	1.5	1.2	0.5	5	380	8	0.85	64	21
M5605T013-8	0.72	1.30	0.75	13.5	5.0	5	550	8	1.15	76	21

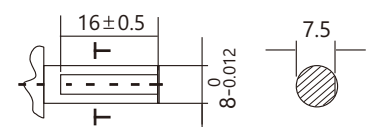
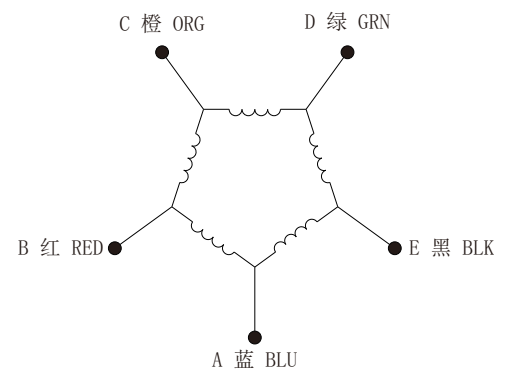
Overall dimensions of 42 (mm)



Overall dimensions of 60 (mm)



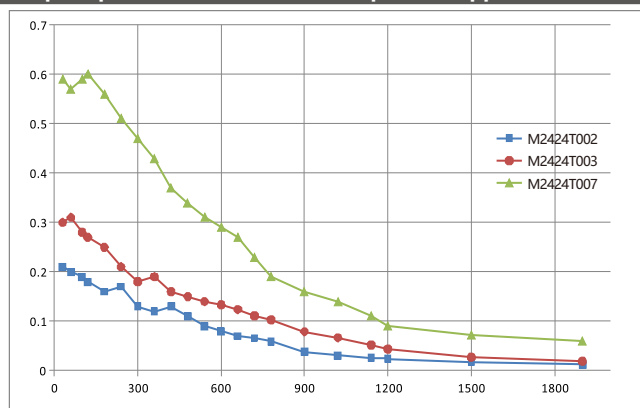
Wiring Diagram



60mm stepper shaft dimension

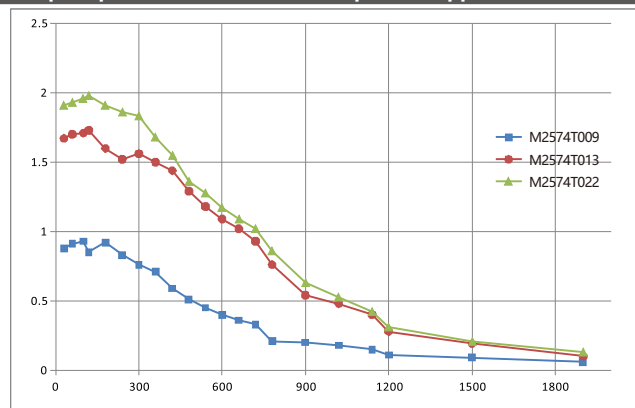
Torque-Speed Curve of Stepper Motor

Torque-Speed curve of Series 42 2-phase stepper motors



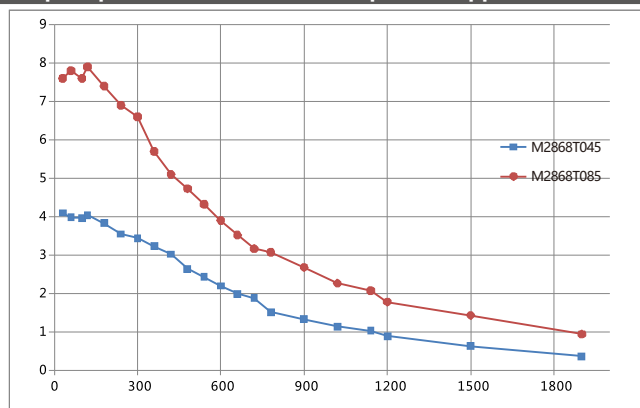
Drive: DW422
Voltage: 24V DC
Current: rated
micro-stepping: 1600

Torque-Speed curve of Series 57 2-phase stepper motors



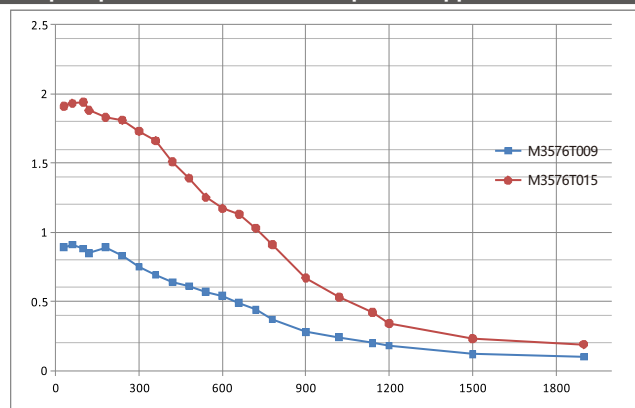
Drive: DW556
Voltage: 36V DC
Current: rated
micro-stepping: 1600

Torque-Speed curve of Series 86 2-phase stepper motors



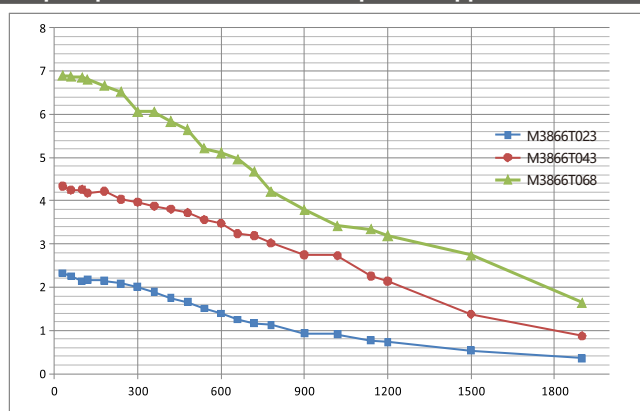
Drive: DW872
Voltage: 48V AC
Current: rated
micro-stepping: 1600

Torque-Speed curve of Series 57 3-phase stepper motors



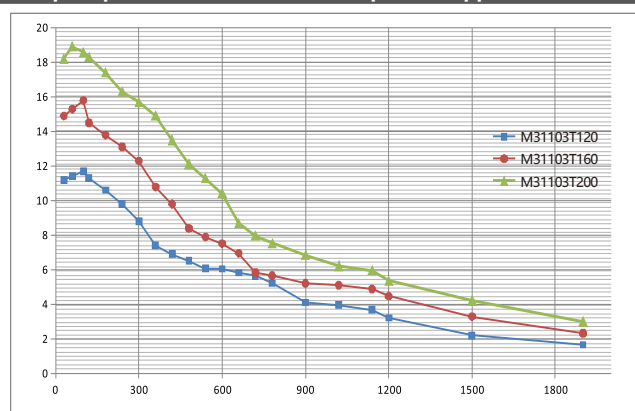
Drive: DW3580
Voltage: 36V DC
Current: rated
micro-stepping: 1600

Torque-Speed curve of Series 86 3-phase stepper motors



Drive: DW3880
Voltage: 48V AC
Current: rated
micro-stepping: 1600

Torque-Speed curve of Series 110 3-phase stepper motors

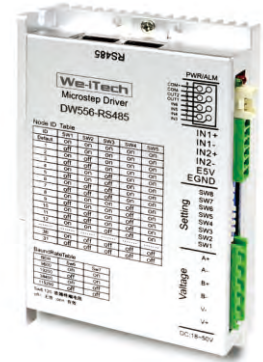


Drive: DW32270
Voltage: 220V AC
Current: rated
micro-stepping: 1600

DW556-RS485

DW556-RS485 is RS485 Modbus high-performance driver based on 32-bit DSP platform. DW556-RS485 integrates intelligent motion controlling function with build-in S-type motion profile. Acceleration and deceleration can be set separately. DW556-RS485 run Modbus/RTU protocol over RS485 network to control the driver and motor.

- Configurator Interface: USB to 485.
- Maximum Current: 5A.
- Power Voltage: 24-50V DC, 36V or 48V recommended.
- Typical Application: Production line, Li-on battery equipment, Solar energy equipment, 3C electrical equipment.



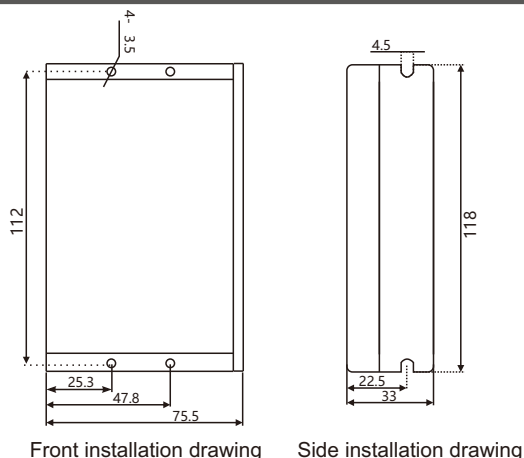
Description of drive functions

Function	Description of operations
Slave address setting	SW1-SW5, the 5 DIP switches, are used to set the 32 slave addresses. Please select the appropriate setting according to the description of drive panel.
Baud rate setting	SW6-SW7, the 2 DIP switches, are used to select the 4 baud rate. Master and slave must be set to the same baud rate. Please select the appropriate setting according to the description of drive panel.
Terminal matching resistance	SW8 is used to select the disable or enable for 120Ohm terminal resistance. "off" means disable, "on" means enable.
CN interface	4 input and 2 output. More details please see the following table.
Encoder interface	GND: Internal power supply output GND. +5V: Internal power supply output 5V. when running in closed loop mode, ports 11&14 provide 5V power supply to the encoder, the maximum current of this 5V signal should not exceed 150mA. IN2-, IN2+: Differential input signal interface, 5V ~ 24V compatible. In open-loop external pulse mode, it can receive pulses, double pulse signals. In closed loop mode, this port is used to receive quadrature encoder A-phase signals. IN1-, IN1+: Similar as IN2 port. This port is used to receive quadrature encoder B-phase signals.
Power and motor interface	V+, V- connect the drive to the DC power supply. Recommendation voltage is 24-50VDC, Power is over 150W. A+, A-, B+, and B- are used to connect with the A,B phase winding of 2-phase motor.
Indicator	The drive has two indicators: the green one, a power indicator and twinkle upon the power up of drive; the red one, a fault indicator and twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.
RJ45 interface	Internet communication interface, it also can be used to connect PC configurator.

Drive working status LED indication

LED status	Drive status
Green indicator is on for a long time	Drive not enabled
Green indicator is flickering	Drive working normally
One green indicator and one red indicator	Drive overcurrent
One green indicator and two red indicators	Drive input power overvoltage
One green indicator and three red indicators	The internal voltage of the drive is wrong
One green indicator and four red indicators	Tracking error exceeds limits
One green indicator and five red indicators	Encoder phase error
One green indicator and six red indicators	Parameter check error
One green indicator and seven red indicators	Motor phase failure alarm

Installation dimensions



The pin distribution of CN is as follows:

pin	name	directions
1	IN3	Universal input port 3, default receiving 24V/0V level signal
2	IN4	Universal input port 4, default receiving 24V/0V level signal
3	IN5	Universal input port 5, default receiving 24V/0V level signal
4	IN6	Universal input port 6, default receiving 24V/0V level signal
5	OUT1	General purpose output port 1, optocoupler isolation, open collector
6	OUT2	General purpose output port 2, optocoupler isolation, open collector
7	COM0V	External IO signal power supply negative
8	COM24V	External IO signal power supply positive

Slave address setting

Slave address: In the same network, each slave has a unique address, on=0, off=1
 Salve address= SW1+SW2 × 2+SW3 × 4 + SW4 × 8 + SW5 × 16

Slave ID	SW1	SW2	SW3	SW4	SW5
Default	on	on	on	on	on
1	off	on	on	on	on
2	on	off	on	on	on
.....					
30	on	off	off	off	off
31	off	off	off	off	off

Baud rate

Master and slave must be set to the same baud rate.

BDR	SW6	SW7
9600	on	on
19200	off	on
38400	on	off
115200	off	off

DW556-EP

EP series stepper motor driver is based on Ethernet technology. The driver adopt MODBUS/TCP protocol With standard ethernet interface, 10M/100M bps internet interface can be compatible. Compare with MODBUS/RTU products, the communication speed is greatly improved (highest speed of DW556-RS485 is 115200bps). With the standard Ethernet format compatible function, much cost can be saved.

- Configurator Interface: USB port.
- Maximum Current: 6A.
- Power Voltage: 24-50V DC, 36V or 48V recommended.
- Typical Application: Production line, Li-on battery equipment, Solar energy equipment, 3C electrical equipment.



Description of drive functions

Function	Description of operations
USB communication port	Used to connect PC configuration to set the parameter.
Indicator	The drive has two indicators: the green one, a power indicator and twinkle upon the power up of drive; the red one, a fault indicator and twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again.
Ethernet interface	Standard Ethernet interface.
S1, S2 potentiometer	Used to set IP address. 2 potentiometer can set total 255 addresses.
Input & output interface	EPR60 has 6 digital input ports and 2 digital output ports. There are 2 input ports can receive 5V-24V level differential signal. And 2 optocoupler. Isolation output. The highest withstand voltage is 30V, the highest sink current and source current is 100mA.
Power and motor interface	V+,V- connect the drive to the DC power supply. Recommendation voltage is 24-50VDC, Power is over 150W. A+, A-, B+, and B- are used to connect with the A,B phase winding of 2-phase motor.

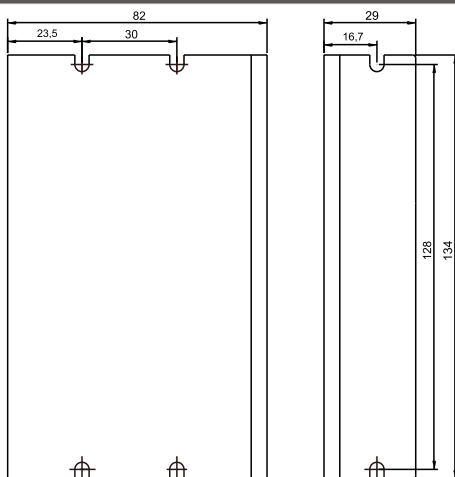
Drive working status LED indication

LED status	Drive status
● Green indicator is on for a long time	Drive not enabled
● Green indicator is flickering	Drive working normally
● One green indicator and one red indicator	Drive overcurrent
● One green indicator and two red indicators	Drive input power overvoltage
● One green indicator and three red indicators	The internal voltage of the drive is wrong
● One green indicator and four red indicators	Tracking error exceeds limits
● One green indicator and five red indicators	Encoder phase error
● One green indicator and six red indicators	Parameter check error
● One green indicator and seven red indicators	Motor phase failure alarm

Pin definition

pin	name	directions
1	EXT5V	Driver supply 5V power for the external signal. Highest current load is 150mA. Can offer power to photoelectric encoder.
2	EXTGND	
3	IN6+	Level differential signal, 5V-24V compatible. When it is open loop external pulse mode, can receive direction pulse signal. When it is closed loop, receive the quadrature encoder A-phase signal.
4	IN6-	Level differential signal, 5V-24V compatible. When it is open loop external pulse mode, can receive direction pulse signal. When it is closed loop, receive the quadrature encoder A-phase signal.
5	IN5+	
6	IN5-	
7	IN3	Universal input port 3, default receiving 24V/0V level signal
8	IN4	Universal input port 4, default receiving 24V/0V level signal
9	IN1	Universal input port 1, default receiving 24V/0V level signal
10	IN2	Universal input port 2, default receiving 24V/0V level signal
11	COM24V	External IO signal power supply 24V positive
12, 14	COM0V	Internal power supply GND
13	COM5V	External IO signal power supply 5V positive
15	OUT2	Output port 2, open collector. The ability of output current up to 30mA
16	OUT1	Output port 1, open collector. The ability of output current up to 30mA

Installation dimensions



Front installation drawing

Side installation drawing

Slave address setting

EP series drivers have two 16bits rotary switch group which used for setting IP address of IPADD3

IPADD3= (S1*16) +S2;

The factory default setting as shown in the table.

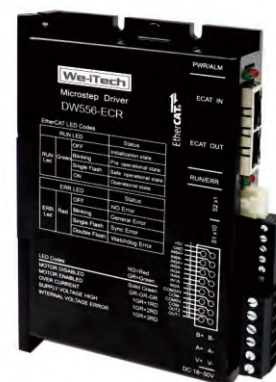
Dialing switch combination	IP address
0	10.10.10.10
1	192.168.0.1
2	192.168.0.2
3	192.168.0.3
.....	192.168.0. IPADD3
FF	192.168.0.255

DW556-EC

EtherCAT[®]

EC series is a high-speed Fieldbus type closed-loop stepper driver based on closed-loop stepper, combined with EtherCAT Fieldbus technology. It supports COE(CANopen over EtherCAT) protocol, conforms to CiA402 standard, and the Fieldbus transmission rate can reach 100Mb/s, which can realize closed loop. The real-time control and real-time data transmission of the stepping system has the advantages of high performance, high transmission speed and high reliability communication.

- Open loop and closed loop mode optional.
- Maximum Current: 6A.
- Power Voltage: 24-80V DC, 36V or 48V recommended.
- Typical Application: Production line, Li-on battery equipment, Solar energy equipment, 3C electrical equipment.



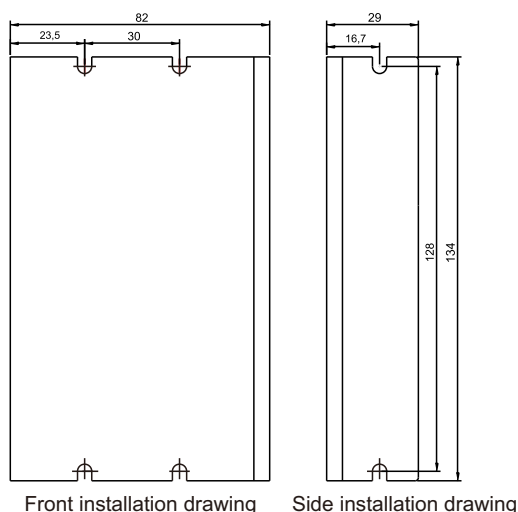
Description of drive functions

Function	Description of operations
Indicator	The green one, a power indicator and twinkle upon the power up of drive; the red one, a fault indicator and twinkle in case of overvoltage and overcurrent. The red indicator goes off only when the fault is removed. The fault of drive can only be removed when the drive is powered on and enabled again. More details see the following table.
EtherCAT indicator	This signal indicator shows the status of EtherCAT. The specific meaning of the driver panel is described in detail.
Ethernet interface	2 Standard Ethernet interfaces.
Cn interface	4 single input port, 2 output port. More details please see the following table.
Encoder interface	GND: Internal power supply output GND. +5V: Internal power supply output 5V. when running in closed loop mode, provide 5V power supply to the encoder, the maximum current of this 5V signal should not exceed 150mA. IN2-, IN2+: Differential input signal interface, 5V~24V compatible. In open-loop external pulse mode, it can receive pulses, double pulse signals. In closed loop mode, this port is used to receive quadrature encoder A-phase signals. IN1-, IN1+: Similar as IN2 port. This port is used to receive quadrature encoder B-phase signals.
Power and motor interface	V+, V- connect the drive to the DC power supply. Recommendation voltage is 24-80VDC, Power is over 150W. A+, A-, B+, and B- are used to connect with the A,B phase winding of 2-phase motor.

Drive working status LED indication

LED status	Drive status
Green indicator is on for a long time	Drive not enabled
Green indicator is flickering	Drive working normally
One green indicator and one red indicator	Drive overcurrent
One green indicator and two red indicators	Drive input power overvoltage
One green indicator and three red indicators	The internal voltage of the drive is wrong
One green indicator and four red indicators	Tracking error exceeds limits
One green indicator and five red indicators	Encoder phase error
One green indicator and six red indicators	Parameter check error
One green indicator and seven red indicators	Motor phase failure alarm

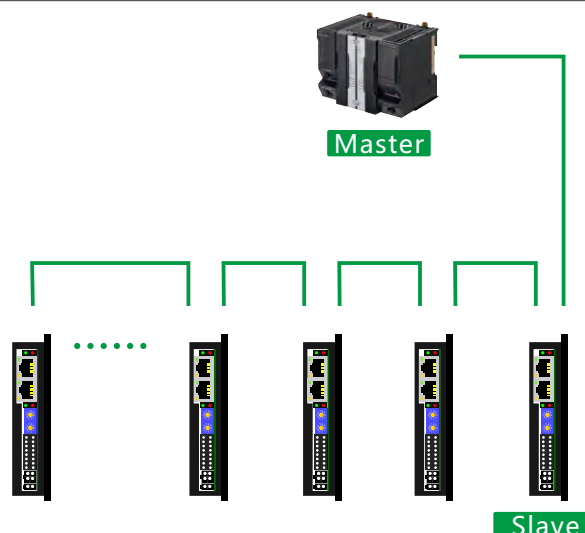
Installation dimensions



Pin definition

pin	name	directions
1	IN3	Universal input port 3, default receiving 24V/0V level signal
2	IN4	Universal input port 4, default receiving 24V/0V level signal
3	IN5	Universal input port 5, default receiving 24V/0V level signal
4	IN6	Universal input port 6, default receiving 24V/0V level signal
5	OUT1	General purpose output port 1, optocoupler isolation, open collector
6	OUT2	General purpose output port 2, optocoupler isolation, open collector
7	COM0V	External IO signal power supply negative
8	COM24V	External IO signal power supply positive

EtherCAT NET



Power Supply

We-iTech provides three kinds of stepper driver power supplies, the WS switching power supply series, the WL linear power supply series and the WT transformer series.

- The WS switch-mode power supply can output regulated voltage, and is known for the characteristic of voltage stabilization.
- The WL Series is a linear power supply built upon the WT transformer with attached rectifier filter; it is known for the characteristic of small voltage ripple and strong overload capacity.
- The WT Series transformer is applicable to stepper system of Series 86 and above; it outputs low voltage AC with low cost and long service life.

Electrical specifications of the WS switch-mode power supply series

Model	Voltage output	Average Current (A)	Power supply input	Dimensions (mm)	Weight (kg)
WS240-24	24	10	220VAC± 10%or110VAC± 10% (To be specified when ordering)	199*110*50	0.8
WS350-36	36	9		214.5*113.6*49.5	0.9
WS400-48	48	8		214.5*113.6*49.5	1.0

Electrical parameters of the WL linear power supply series

Model	Output voltage/current	Auxiliary voltage/current	Power (W)	Applicable drive	Size/weight
WL300-36-12	DC36V/8A	DC12V/1A	300	DW556	175*110*70mm/2Kg
WL500-36-5	DC36V/14A	DC5V/1A	500	DW556	210*120*70mm/3.2Kg

WT transformer series

Model	Output voltage/current	Auxiliary voltage/current	Power (W)	Applicable drive	Size/weight
WT300-48/60	AC48V/60V	6A/5A	300	DW872	100*70mm/3Kg
WT500-48/60	AC48V/60V	10A/8A	500	DW872	120*70mm/4.8Kg

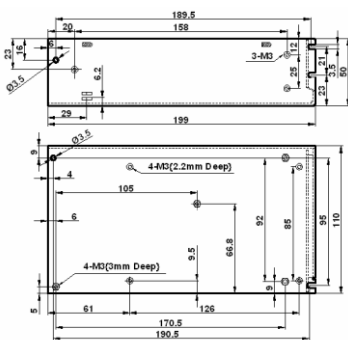
Switch-mode power supply

Linear power supply

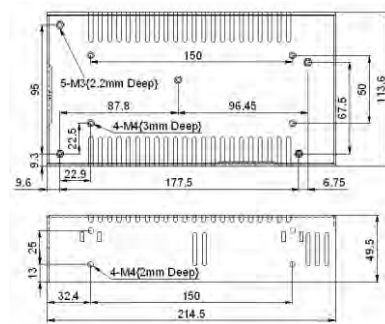
Transformers



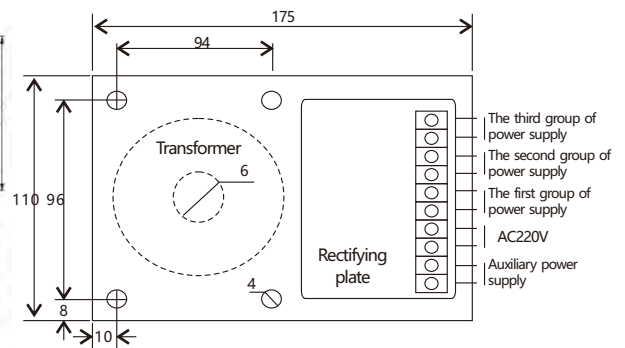
Outline dimensions (mm)



WS240-24



WS350-36/WS400-48



WL300-36