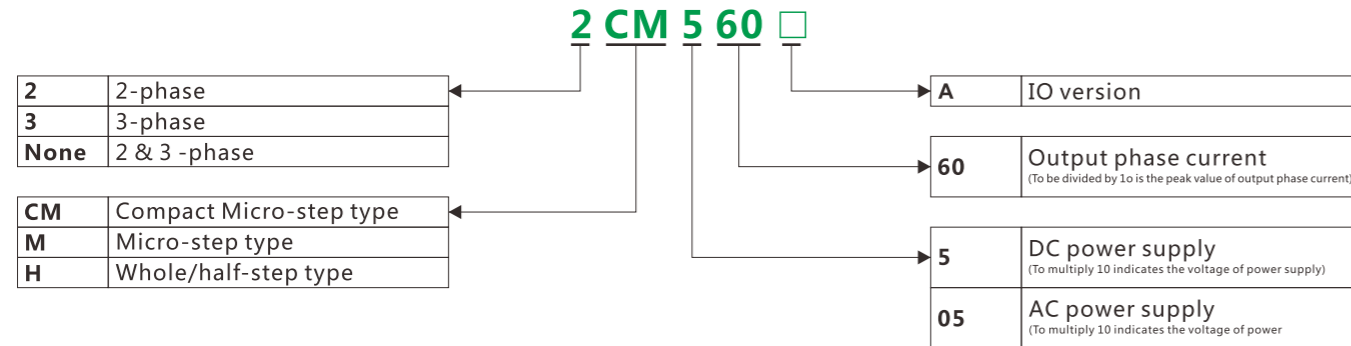


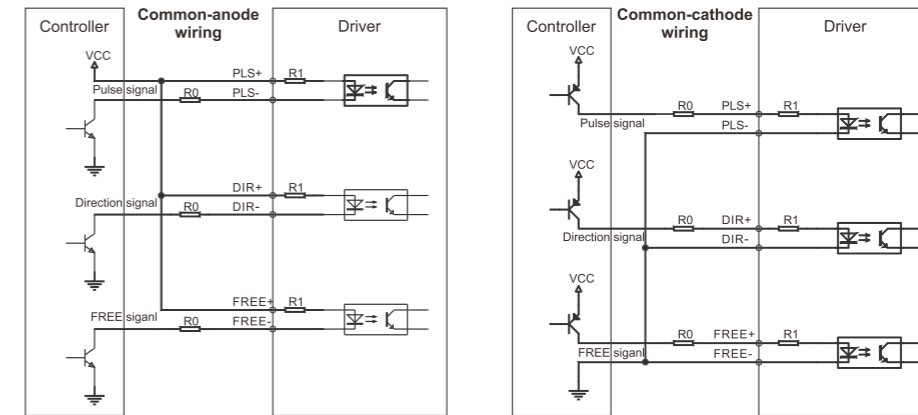
## Denomination rules of stepper driver



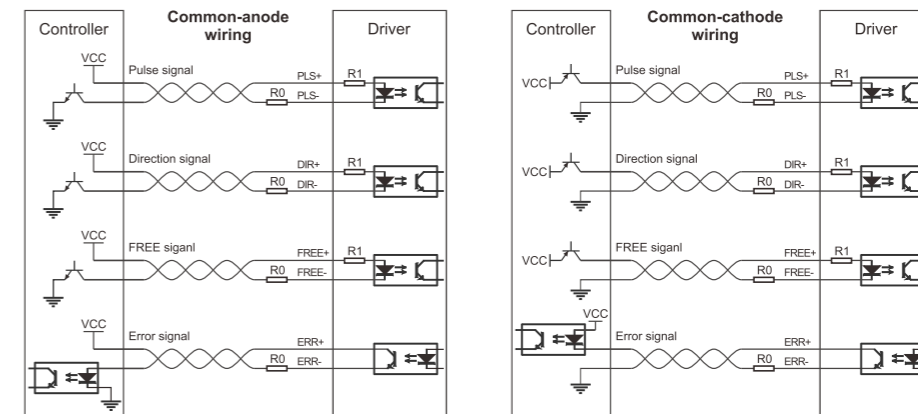
## Model list of stepper driver

Series No.	Phase	Model	Peak current	Voltage	Subdivision	Weight(Kg)	Dimension(mm)
CM Series	2-phase	2CM525	0.3 ~ 2.5A	24 ~ 50VDC	200 ~ 25600	0.25	118×75.5×25.4
	2-phase	2CM545	1.0 ~ 4.5A	24 ~ 50VDC	200 ~ 25600	0.25	
	2-phase	2CM560	1.8 ~ 6A	24 ~ 50VDC	200 ~ 25600	0.25	
	2-phase	2CM860	1.8 ~ 6A	24 ~ 70VDC	200 ~ 25600	0.25	118×75.5×34
	2-phase	2CM880	2.4 ~ 8A	24 ~ 70VDC	200 ~ 25600	0.253	
	3-phase	3CM880	2.4 ~ 8A	24 ~ 70VDC	400 ~ 25600	0.253	
	2&3-phase	CM	0.15 ~ 8A	24 ~ 70VDC	200 ~ 65535	0.29	

## 1. General Connection Mode of Control Signal

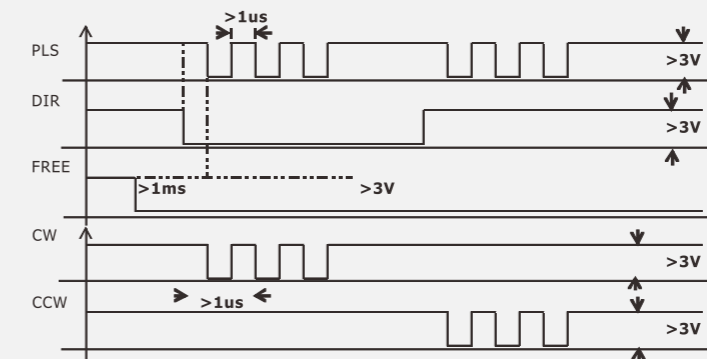


## 2. Twisted-pair Connection Mode of Control Signal



Note: 1. For 2CM525, 2CM545, 2CM560, 2CM860, 2CM880, 3CM880, CM880A, 2H1160, FM860, there is no need to connect 2K ohm resistor in the wiring, R0=0;  
 2. For 2M412, 2M1180N, 2M2280N, 3M2280N, 2K ohm resistor is required to be connected serially, R0=2K ohm.

## 3. Signal control sequence



# Stepper Driver 2CM525

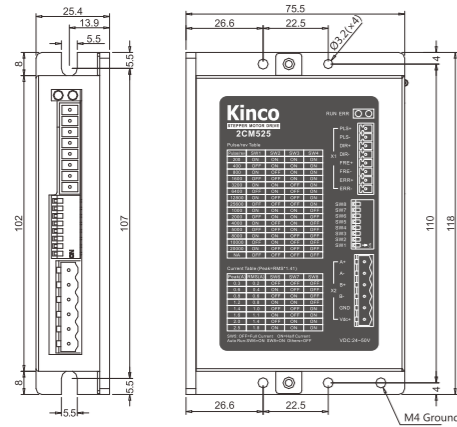
# Stepper Driver 2CM545



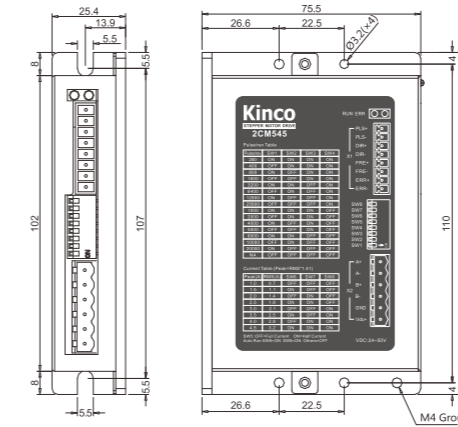
- Support parameter self-adaptive function, generate optimal parameters according to motor type, ensure motor run at optimal performance;
- Phase memory function;
- Automatic half-current function, selected by DIP switches;
- Test running function, selected by DIP switches;
- Over voltage protection, over current protection functions;
- Micro-step filter function can smooth input pulse to reduce transient motion of motor, make sure motor run more smoothly;
- Opto-isolation ERR signal output with max. current of 100mA;
- Opto-isolation 5-24V pulse input, responding frequency up 400KHz;
- 15 subdivision levels and 8 current levels are selectable by DIP switches;
- Pulse type is selectable by DIP switches: PUL+DIR&CW/CCW.

- Support parameter self-adaptive function, generate optimal parameters according to motor type, ensure motor run at optimal performance;
- Phase memory function;
- Automatic half-current function, selected by DIP switches;
- Test running function, selected by DIP switches;
- Over voltage protection, over current protection functions;
- Micro-step filter function can smooth input pulse to reduce transient motion of motor, make sure motor run more smoothly;
- Opto-isolation ERR signal output with max. current of 100mA;
- Opto-isolation 5-24V pulse input, responding frequency up 400KHz;
- 15 subdivision levels and 8 current levels are selectable by DIP switches;
- Pulse type is selectable by DIP switches: PUL+DIR&CW/CCW.

## Mechanical Dimensions (Unit : mm)



## Mechanical Dimensions (Unit : mm)



## Technical Specifications

Input voltage	24 ~ 50VDC
Overvoltage protection	85VDC
Undervoltage protection	15VDC
Overheat protection	80°C(Temperature of thermistor)
Phase current(Peak)	0.3/0.6/0.8/1.2/1.4/1.6/2.0/2.5, 8 settable values in total. (Unit: A)
Subdivision	200~25600 Pulse/rev , 15 subdivision levels in total
Adaptable motor	42/57 series 2-phase hybrid stepper motor
Input signal	PLS ( CW )、DIR(CCW)、FREE , Input voltage : 5 ~ 24VDC , Input current : 8mA@5VDC , 12mA@24VDC
Control mode	Pulse control : PLS+DIR , CW/CCW
Output signal	ERR, open collector output, maximum current:100mA
Operation indicator	Combination of RUN and ERR LED indicates different status
Protection circuit	Over voltage, under voltage, over current, over heat
Cooling method	Nature air cooling
Environment	Operation environment Avoid environment with great amount of metallic powder, oil mist, or erosive gases
	Operation humidity <85%, RH(Non-condensing or water drops)
	Operation temperature 0°C ~ +40°C
	Storage temperature -20°C ~ +70°C
Weight(Net)	0.25kg
Dimensions	118×75.5×25.4 mm ( Toothless heat sink )
Ingress protection	IP20

## Technical Specifications

Input voltage	24 ~ 50VDC
Overvoltage protection	85VDC
Undervoltage protection	15VDC
Overheat protection	85°C(Temperature of thermistor)
Phase current(Peak)	1/1.5/2/2.5/3/3.5/4/4.5, 8 settable values in total. (Unit: A)
Subdivision	200~25600 Pulse/rev , 15 subdivision levels in total
Adaptable motor	57 series 2-phase hybrid stepper motor
Input signal	PLS ( CW )、DIR(CCW)、FREE , Input voltage : 5 ~ 24VDC , Input current : 8mA@5VDC , 12mA@24VDC
Control mode	Pulse control : PLS+DIR , CW/CCW
Output signal	ERR, open collector output, maximum current:100mA
Operation indicator	Combination of RUN and ERR LED indicates different status
Protection circuit	Over voltage, under voltage, over current, over heat
Cooling method	Nature air cooling
Environment	Operation environment Avoid environment with great amount of metallic powder, oil mist, or erosive gases
	Operation humidity <85%, RH(Non-condensing or water drops)
	Operation temperature 0°C ~ +40°C
	Storage temperature -20°C ~ +70°C
Weight(Net)	0.25kg
Dimensions	118×75.5×25.4 mm ( Toothless heat sink )
Ingress protection	IP20

## Function of DIP switches

Function	DIP setting	Description
PLS+DIR	SW6,SW7=ON; Others=OFF	Set DIP switches according to functions required when power off. Power on driver, RUN LED blinking in green, ERR LED is red. It means settings take effect. Then power off driver, reset subdivision and current for normal use.
CW/CCW	SW7,SW8=ON; Others=OFF	
Micro-step smooth & dynamic filter disable	SW5,SW6=ON; Others=OFF	
Micro-step smooth filter enable	SW5,SW7=ON; Others=OFF	
Micro-step dynamic filter enable	SW5,SW8=ON; Others=OFF	
Test motor parameter upon power on disable	SW6,SW7,SW8=ON; Others=OFF	
Test motor parameter upon power on enable	SW5,SW6,SW7=ON; Others=OFF	Motor running @80RPM
Test running	SW6,SW8=ON; Others=OFF	
Automatic half-current	SW5=ON	Set SW5=ON to enable automatic half-current. Phase current will reduce to half of the set value after motor stops for 1.5s

## Function of DIP switches

Function	DIP setting	Description
PLS+DIR	SW6,SW7=ON; Others=OFF	Set DIP switches according to functions required when power off. Power on driver, RUN LED blinking in green, ERR LED is red. It means settings take effect. Then power off driver, reset subdivision and current for normal use.
CW/CCW	SW7,SW8=ON; Others=OFF	
Micro-step smooth & dynamic filter disable	SW5,SW6=ON; Others=OFF	
Micro-step smooth filter enable	SW5,SW7=ON; Others=OFF	
Micro-step dynamic filter enable	SW5,SW8=ON; Others=OFF	
Test motor parameter upon power on disable	SW6,SW7,SW8=ON; Others=OFF	
Test motor parameter upon power on enable	SW5,SW6,SW7=ON; Others=OFF	Motor running @80RPM
Test running	SW6,SW8=ON; Others=OFF	
Automatic half-current	SW5=ON	Set SW5=ON to enable automatic half-current. Phase current will reduce to half of the set value after motor stops for 1.5s

Subdivision setting (Unit:PULSE/REV)					Current setting (Unit: A)				
SW1	SW2	SW3	SW4=ON	SW4=OFF	SW6	SW7	SW8	RMS	Peak
ON	ON	ON	200	1000	ON	ON	ON	1.8	2.5
OFF	ON	ON	400	2000	OFF	ON	ON	1.4	2
ON	OFF	ON	800	4000	ON	OFF	ON	1.1	1.6
OFF	OFF	ON	1600	5000	OFF	OFF	ON	1	1.4
ON	ON	OFF	3200	8000	ON	ON	OFF	0.8	1.2
OFF	ON	OFF	6400	10000	OFF	ON	OFF	0.6	0.8
ON	OFF	OFF	12800	20000	ON	OFF	OFF	0.4	0.6
OFF	OFF	OFF	25600	NA	OFF	OFF	OFF	0.2	0.3

Subdivision setting (Unit:PULSE/REV)					Current setting (Unit: A)				
SW1	SW2	SW3	SW4=ON	SW4=OFF	SW6	SW7	SW8	RMS	Peak
ON	ON	ON	200	1000	ON	ON	ON	3.2	4.5
OFF	ON	ON	400	2000	OFF	ON	ON	2.8	4
ON	OFF	ON	800	4000	ON	OFF	ON	2.5	3.5
OFF	OFF	ON	1600	5000	OFF	OFF	ON	2.1	3
ON	ON	OFF	3200	8000	ON	ON	OFF	1.8	2.5
OFF	ON	OFF	6400	10000	OFF	ON	OFF	1.4	2
ON	OFF	OFF	12800	20000	ON	OFF	OFF	1.1	1.5
OFF	OFF	OFF	25600	NA	OFF	OFF	OFF	0.7	1

# Stepper Driver 2CM560

# Stepper Driver 2CM860

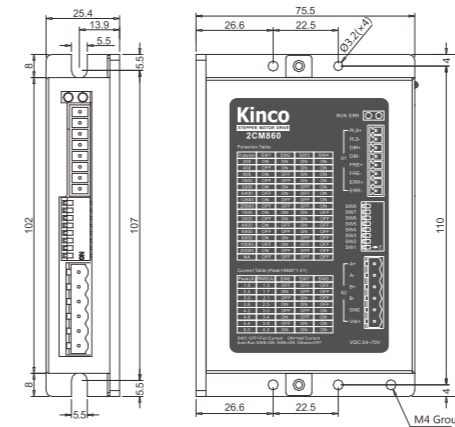
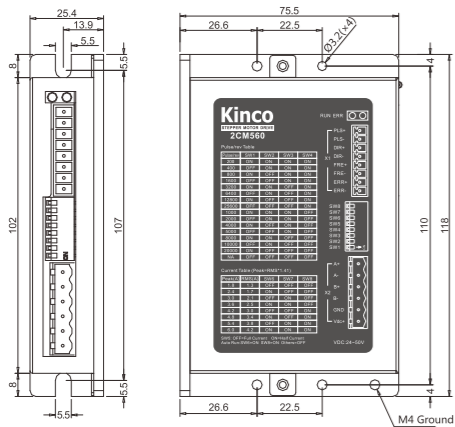


- Support parameter self-adaptive function, generate optimal parameters according to motor type, ensure motor run at optimal performance;
- Phase memory function;
- Automatic half-current function, selected by DIP switches;
- Test running function, selected by DIP switches;
- Over voltage protection, over current protection functions;
- Micro-step filter function can smooth input pulse to reduce transient motion of motor, make sure motor run more smoothly;
- Opto-isolation ERR signal output with max. current of 100mA;
- Opto-isolation 5-24V pulse input, responding frequency up 400KHz;
- 15 subdivision levels and 8 current levels are selectable by DIP switches;
- Pulse type is selectable by DIP switches: PUL+DIR&CW/CCW.

- Support parameter self-adaptive function, generate optimal parameters according to motor type, ensure motor run at optimal performance;
- Phase memory function;
- Automatic half-current function, selected by DIP switches;
- Test running function, selected by DIP switches;
- Over voltage protection, over current protection functions;
- Micro-step filter function can smooth input pulse to reduce transient motion of motor, make sure motor run more smoothly;
- Opto-isolation ERR signal output with max. current of 100mA;
- Opto-isolation 5-24V pulse input, responding frequency up 400KHz;
- 15 subdivision levels and 8 current levels are selectable by DIP switches;
- Pulse type is selectable by DIP switches: PUL+DIR&CW/CCW.

## Mechanical Dimensions (Unit : mm)

## Mechanical Dimensions (Unit : mm)



## Technical Specifications

Input voltage	24 ~ 50VDC
Overvoltage protection	85VDC
Undervoltage protection	15VDC
Overheat protection	80°C(Temperature of thermistor)
Phase current(Peak)	1.8/2.4/3/3.6/4.2/4.8/5.4/6, 8 settable values in total. (Unit: A)
Subdivision	200~25600 Pulse/rev , 15 subdivision levels in total
Adaptable motor	57 series 2-phase hybrid stepper motor
Input signal	PLS、DIR、FREE , Input voltage : 5 ~ 24VDC , Input current : 8mA@5VDC , 12mA@24VDC
Control mode	Pulse control : PLS+DIR , CW/CCW
Output signal	ERR, open collector output, maximum current:100mA
Operation indicator	Combination of RUN and ERR LED indicates different status
Protection circuit	Over voltage, under voltage, over current, over heat
Cooling method	Nature air cooling
Environment	Operation environment Avoid environment with great amount of metallic powder, oil mist, or erosive gases
	Operation humidity <85%, RH(Non-condensing or water drops)
	Operation temperature 0°C ~ +40°C
	Storage temperature -20°C ~ +70°C
Weight(Net)	0.25kg
Dimensions	118×75.5×25.4 mm ( Toothless heat sink )
Ingress protection	IP20

## Technical Specifications

Input voltage	24 ~ 70VDC
Overvoltage protection	85VDC
Undervoltage protection	15VDC
Overheat protection	80°C(Temperature of thermistor)
Phase current(Peak)	1.8/2.4/3/3.6/4.2/4.8/5.4/6, 8 settable values in total. (Unit: A)
Subdivision	200~25600 Pulse/rev , 15 subdivision levels in total
Adaptable motor	57 series 2-phase hybrid stepper motor
Input signal	PLS、DIR、FREE , Input voltage : 5 ~ 24VDC , Input current : 8mA@5VDC , 12mA@24VDC
Control mode	Pulse control : PLS+DIR , CW/CCW
Output signal	ERR, open collector output, maximum current:100mA
Operation indicator	Combination of RUN and ERR LED indicates different status
Protection circuit	Over voltage, under voltage, over current, over heat
Cooling method	Nature air cooling
Environment	Operation environment Avoid environment with great amount of metallic powder, oil mist, or erosive gases
	Operation humidity <85%, RH(Non-condensing or water drops)
	Operation temperature 0°C ~ +40°C
	Storage temperature -20°C ~ +70°C
Weight(Net)	0.25kg
Dimensions	118×75.5×25.4 mm ( Toothless heat sink )
Ingress protection	IP20

## Function of DIP switches

Function	DIP setting	Description
PLS+DIR	SW6,SW7=ON; Others=OFF	Set DIP switches according to functions required when power off. Power on driver, RUN LED blinking in green, ERR LED is red. It means settings take effect. Then power off driver, reset subdivision and current for normal use.
CW/CCW	SW7,SW8=ON; Others=OFF	
Micro-step smooth & dynamic filter disable	SW5,SW6=ON; Others=OFF	
Micro-step smooth filter enable	SW5,SW7=ON; Others=OFF	
Micro-step dynamic filter enable	SW5,SW8=ON; Others=OFF	
Test motor parameter upon power on disable	SW6,SW7,SW8=ON; Others=OFF	Motor running @80RPM
Test motor parameter upon power on enable	SW5,SW6,SW7=ON; Others=OFF	
Test running	SW6,SW8=ON; Others=OFF	
Automatic half-current	SW5=ON	Set SW5=ON to enable automatic half-current. Phase current will reduce to half of the set value after motor stops for 1.5s

## Function of DIP switches

Function	DIP setting	Description
PLS+DIR	SW6,SW7=ON; Others=OFF	Set DIP switches according to functions required when power off. Power on driver, RUN LED blinking in green, ERR LED is red. It means settings take effect. Then power off driver, reset subdivision and current for normal use.
CW/CCW	SW7,SW8=ON; Others=OFF	
Micro-step smooth & dynamic filter disable	SW5,SW6=ON; Others=OFF	
Micro-step smooth filter enable	SW5,SW7=ON; Others=OFF	
Micro-step dynamic filter enable	SW5,SW8=ON; Others=OFF	
Test motor parameter upon power on disable	SW6,SW7,SW8=ON; Others=OFF	Motor running @80RPM
Test motor parameter upon power on enable	SW5,SW6,SW7=ON; Others=OFF	
Test running	SW6,SW8=ON; Others=OFF	
Automatic half-current	SW5=ON	Set SW5=ON to enable automatic half-current. Phase current will reduce to half of the set value after motor stops for 1.5s

Subdivision setting (Unit:PULSE/REV)					Current setting (Unit: A)				
SW1	SW2	SW3	SW4=ON	SW4=OFF	SW6	SW7	SW8	RMS	Peak
ON	ON	ON	200	1000	ON	ON	ON	4.2	6
OFF	ON	ON	400	2000	OFF	ON	ON	3.8	5.4
ON	OFF	ON	800	4000	ON	OFF	ON	3.4	4.8
OFF	OFF	ON	1600	5000	OFF	OFF	ON	3	4.2
ON	ON	OFF	3200	8000	ON	ON	OFF	2.5	3.6
OFF	ON	OFF	6400	10000	OFF	ON	OFF	2.1	3
ON	OFF	OFF	12800	20000	ON	OFF	OFF	1.7	2.4
OFF	OFF	OFF	25600	NA	OFF	OFF	OFF	1.3	1.8

Subdivision setting (Unit:PULSE/REV)					Current setting (Unit: A)				
SW1	SW2	SW3	SW4=ON	SW4=OFF	SW6	SW7	SW8	RMS	Peak
ON	ON	ON	200	1000	ON	ON	ON	4.2	6
OFF	ON	ON	400	2000	OFF	ON	ON	3.8	5.4
ON	OFF	ON	800	4000	ON	OFF	ON	3.4	4.8
OFF	OFF	ON	1600	5000	OFF	OFF	ON	3	4.2
ON	ON	OFF	3200	8000	ON	ON	OFF	2.5	3.6
OFF	ON	OFF	6400	10000	OFF	ON	OFF	2.1	3
ON	OFF	OFF	12800	20000	ON	OFF	OFF	1.7	2.4
OFF	OFF	OFF	25600	NA	OFF	OFF	OFF	1.3	1.8

# Stepper Driver 2CM880

# Stepper Driver 3CM880

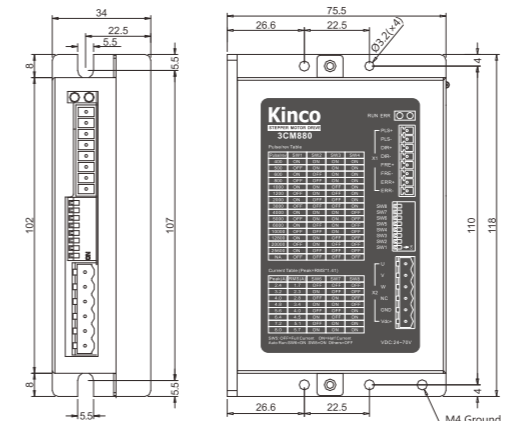
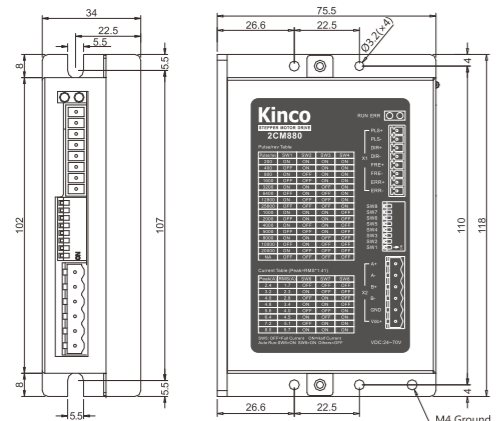


- Support parameter self-adaptive function, generate optimal parameters according to motor type, ensure motor run at optimal performance;
- Phase memory function;
- Automatic half-current function, selected by DIP switches;
- Test running function, selected by DIP switches;
- Over voltage protection, over current protection functions;
- Micro-step filter function can smooth input pulse to reduce transient motion of motor, make sure motor run more smoothly;
- Opto-isolation ERR signal output with max. current of 100mA;
- Opto-isolation 5-24V pulse input, responding frequency up 400KHz;
- 15 subdivision levels and 8 current levels are selectable by DIP switches;
- Pulse type is selectable by DIP switches: PUL+DIR&CW/CCW.

- Support parameter self-adaptive function, generate optimal parameters according to motor type, ensure motor run at optimal performance;
- Phase memory function;
- Automatic half-current function, selected by DIP switches;
- Test running function, selected by DIP switches;
- Over voltage protection, over current protection functions;
- Micro-step filter function can smooth input pulse to reduce transient motion of motor, make sure motor run more smoothly;
- Opto-isolation ERR signal output with max. current of 100mA;
- Opto-isolation 5-24V pulse input, responding frequency up 400KHz;
- 15 subdivision levels and 8 current levels are selectable by DIP switches;
- Pulse type is selectable by DIP switches: PUL+DIR&CW/CCW.

## Mechanical Dimensions (Unit : mm)

## Mechanical Dimensions (Unit : mm)



## Function of DIP switches

Function	DIP setting	Description
PLS+DIR	SW6,SW7=ON; Others=OFF	Set DIP switches according to functions required when power off. Power on driver, RUN LED blinking in green, ERR LED is red. It means settings take effect. Then power off driver, reset subdivision and current for normal use.
CW/CCW	SW7,SW8=ON; Others=OFF	
Micro-step smooth & dynamic filter disable	SW5,SW6=ON; Others=OFF	
Micro-step smooth filter enable	SW5,SW7=ON; Others=OFF	
Micro-step dynamic filter enable	SW5,SW8=ON; Others=OFF	
Test motor parameter upon power on disable	SW6,SW7,SW8=ON; Others=OFF	
Test motor parameter upon power on enable	SW5,SW6,SW7=ON; Others=OFF	Motor running @80RPM
Test running	SW6,SW8=ON; Others=OFF	
Automatic half-current	SW5=ON	Set SW5=ON to enable automatic half-current. Phase current will reduce to half of the set value after motor stops for 1.5s

## Technical Specifications

Input voltage	24 ~ 70VDC	
Overvoltage protection	85VDC	
Undervoltage protection	15VDC	
Overheat protection	80°C(Temperature of thermistor)	
Phase current(Peak)	2.4/3.2/4.4/8/5.6/6.4/7.2/8, 8 settable values in total. (Unit: A)	
Subdivision	200~25600 Pulse/rev , 15 subdivision levels in total	
Adaptable motor	57/86 series 2-phase hybrid stepper motor	
Input signal	PLS、DIR、FREE , Input voltage : 5 ~ 24VDC , Input current : 8mA@5VDC , 12mA@24VDC	
Control mode	Pulse control : PLS+DIR , CW/CCW	
Output signal	ERR, open collector output, maximum current:100mA	
Operation indicator	Combination of RUN and ERR LED indicates different status	
Protection circuit	Over voltage, under voltage, over current, over heat	
Cooling method	Nature air cooling	
Environment	Operation environment	Avoid environment with great amount of metallic powder, oil mist, or erosive gases
	Operation humidity	<85%, RH(Non-condensing or water drops)
	Operation temperature	0°C ~ +40°C
	Storage temperature	-20°C ~ +70°C
Weight(Net)	0.253kg	
Dimensions	118×75.5×34 mm ( Toothed heat sink )	
Ingress protection	IP20	

Subdivision setting (Unit:PULSE/REV)					Current setting (Unit: A)				
SW1	SW2	SW3	SW4=ON	SW4=OFF	SW6	SW7	SW8	RMS	Peak
ON	ON	ON	200	1000	ON	ON	ON	5.7	8
OFF	ON	ON	400	2000	OFF	ON	ON	5.1	7.2
ON	OFF	ON	800	4000	ON	OFF	ON	4.5	6.4
OFF	OFF	ON	1600	5000	OFF	OFF	ON	4	5.6
ON	ON	OFF	3200	8000	ON	ON	OFF	3.4	4.8
OFF	ON	OFF	6400	10000	OFF	ON	OFF	2.8	4
ON	OFF	OFF	12800	20000	ON	OFF	OFF	2.3	3.2
OFF	OFF	OFF	25600	NA	OFF	OFF	OFF	1.7	2.4

## Function of DIP switches

Function	DIP setting	Description
PLS+DIR	SW6,SW7=ON; Others=OFF	Set DIP switches according to functions required when power off. Power on driver, RUN LED blinking in green, ERR LED is red. It means settings take effect. Then power off driver, reset subdivision and current for normal use.
CW/CCW	SW7,SW8=ON; Others=OFF	
Micro-step smooth & dynamic filter disable	SW5,SW6=ON; Others=OFF	
Micro-step smooth filter enable	SW5,SW7=ON; Others=OFF	
Micro-step dynamic filter enable	SW5,SW8=ON; Others=OFF	
Test motor parameter upon power on disable	SW6,SW7,SW8=ON; Others=OFF	
Test motor parameter upon power on enable	SW5,SW6,SW7=ON; Others=OFF	Motor running @80RPM
Test running	SW6,SW8=ON; Others=OFF	
Automatic half-current	SW5=ON	Set SW5=ON to enable automatic half-current. Phase current will reduce to half of the set value after motor stops for 1.5s

## Technical Specifications

Input voltage	24 ~ 70VDC	
Overvoltage protection	85VDC	
Undervoltage protection	15VDC	
Overheat protection	80°C(Temperature of thermistor)	
Phase current(Peak)	2.4/3.2/4.4/8/5.6/6.4/7.2/8, 8 settable values in total. (Unit: A)	
Subdivision	400~25600 Pulse/rev , 15 subdivision levels in total	
Adaptable motor	3-phase hybrid stepper motor	
Input signal	PLS、DIR、FREE , Input voltage : 5 ~ 24VDC , Input current : 8mA@5VDC , 12mA@24VDC	
Control mode	Pulse control : PLS+DIR , CW/CCW	
Output signal	ERR, open collector output, maximum current:100mA	
Operation indicator	Combination of RUN and ERR LED indicates different status	
Protection circuit	Over voltage, under voltage, over current, over heat	
Cooling method	Nature air cooling	
Environment	Operation environment	Avoid environment with great amount of metallic powder, oil mist, or erosive gases
	Operation humidity	<85%, RH(Non-condensing or water drops)
	Operation temperature	0°C ~ +40°C
	Storage temperature	-20°C ~ +70°C
Weight(Net)	0.253kg	
Dimensions	118×75.5×34 mm ( Toothed heat sink )	
Ingress protection	IP20	

Subdivision setting (Unit:PULSE/REV)					Current setting (Unit: A)				
SW1	SW2	SW3	SW4=ON	SW4=OFF	SW6	SW7	SW8	RMS	Peak
ON	ON	ON	400	4000	ON	ON	ON	5.7	8
OFF	ON	ON	500	5000	OFF	ON	ON	5.1	7.2
ON	OFF	ON	600	6000	ON	OFF	ON	4.5	6.4
OFF	OFF	ON	800	10000	OFF	OFF	ON	4	5.6
ON	ON	OFF	1000	12800	ON	ON	OFF	3.4	4.8
OFF	ON	OFF	1200	20000	OFF	ON	OFF	2.8	4
ON	OFF	OFF	2000	25600	ON	OFF	OFF	2.3	3.2
OFF	OFF	OFF	3000	NA	OFF	OFF	OFF	1.7	2.4