

# SPEED CONTROLLER DSKM Series

We appreciate you for purchasing products of DKM Motor Co., Ltd.  
Before using the product you have purchased, check to make sure that it is exactly what you ordered. Then, please use it following the instructions below.



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## Safety Information

Alerts declared in the manual are classified to Danger, Warning and Caution by their criticality

<b>⚠ DANGER</b>	DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
<b>⚠ WARNING</b>	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
<b>⚠ CAUTION</b>	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury

### ⚠ DANGER

There is a danger of occurring electric shock in the input/output terminals so please never let your body touched to the conductive substance.

### ⚠ WARNING

- This product does not contain an electric switch or fuse, so the user needs to install a separate electric switch or fuse externally. (Fuse rating: +0.2A)
- To prevent deflection or malfunction of this product, supply proper power voltage in accordance with the rating.
- To prevent electric shock or malfunction of product, do not supply the power until the wiring is completed.
- Since this product is not designed with explosion-protective structure, do not use it any place with flammable or explosive gas.
- Do not decompose, modify, revise or repair this product. This may be a cause of malfunction, electric shock or fire.
- Reassemble this product while the power is OFF. Otherwise, it may be a cause of malfunction or electric shock.
- If you use the product out of the way, there may be body injuries or damages.
- Due to the danger of electric shock, use this product installed onto a panel while an electric current is applied.

### ⚠ CAUTION

- The contents of this manual may be changed without prior notification.
- Before using the product you purchased, make sure that it is exactly what you ordered.
- Make sure that there is no damage or abnormality of the product after delivery.
- Do not use this product at any place with corrosive (especially noxious gas or ammonia) or flammable gas.
- Do not use this product at any place with direct vibration or impact.
- Do not use this product at any place with liquid, oil, medical substances, dust, salt or iron contents. (Use at Pollution level 1 or 2)
- Do not polish this product with substances such as alcohol or benzene.
- Do not use this product at any place with a large inductive difficulty or occurring static electricity or magnetic noise.
- Do not use this product at any place with possible thermal accumulation due to direct sunlight or heat radiation.
- Install this product at place under 2,000m in altitude.
- When the product gets wet, the inspection is essential because there is a danger of electric leakage or fire.
- If there is excessive noise from the power supply, using insulating transformer or noise filter is recommended. The noise filter must be attached to a panel which is already connected to a ground and the wire between the filter output and power supply terminal must be as short as possible.
- If putting power cables closely together then it is effective against noise.
- Do not connect anything to the unused terminals.
- After checking the polarity of terminal, connect wires at the correct position.
- When this product is connected to a panel, use a circuit breaker or switch approved with IEC947-1 or IEC947-3.
- Install the circuit breaker or switch at near place for convenient use.
- Write down on a label that if the circuit breaker or switch is operating then the power will be disconnected since the circuit breaker or switch is installed.
- For the continuous and safe use of this product, the periodical maintenance is recommended.
- Some parts of this product have limited life span, and others are changed by their usage.
- The warranty period for this product including parts is one year if this product is properly used.
- The lower RPM setting is, the lower the motor's torque possible to use is. If the surface temperature of the motor is more than 90 degrees depending on the operating conditions of the motor, we recommend using at a higher speed range than the current set speed range.

## How to Replace DSK/DSKS with DSKM

In case of using new DSKM controller with existing socket wiring of DSK / DSKS

- Disconnect the ground if wire is on terminal #3.
- Short terminal #3 and #6.
- Short terminal #7 and #8.

\*In case of using external volume, connect external volume on terminal #3 and #6.

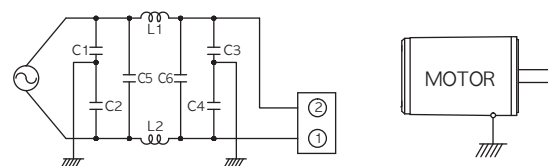
## Specification

Model	DSKM-M1	DSKM-M2
Rated voltage	AC 100~120V 50/60Hz	AC 220~240V 50/60Hz
Voltage regulation	±10%	
Power consumption	Below 4 VA	
Control mode	Phase Control	
Operating range	50Hz: 90 ~ 1400 rpm	
	60Hz: 90 ~ 1700 rpm	
Speed setting device	Internal volume (External volume usable)	
Electric brake	Possible to brake for certain period by electric brake	
Electric braking time	0.5second (standard value)	
Ambient temperature	-10℃ ~ 55℃	
Ambient humidity	35 ~ 85%RH	
Insulation resistance	Over DC 500V 100MΩ (between power supply and external terminal)	
Dielectric strength	AC 1500V for 1 minute (between the windings and the frame)	

## Before Using DSKM

- Check specifications which you ordered such as voltage, output and so on.
- Make sure a motor item whether the motor can be applicable with DSKM controller.
- Avoid the place in vibration, deep impact, lots of dust, inflammable gas and corrosive gas.
- Use socket connection and do not solder PIN in controller.
- Check the terminal number when wiring socket, the power switch should be off and check the PIN number when inserting a controller into socket.
- Install motor and controller as closely as possible.
- Make the circuit like (Connection diagram1) below if noise filter is assembled with each part.

<Connection diagram 1>

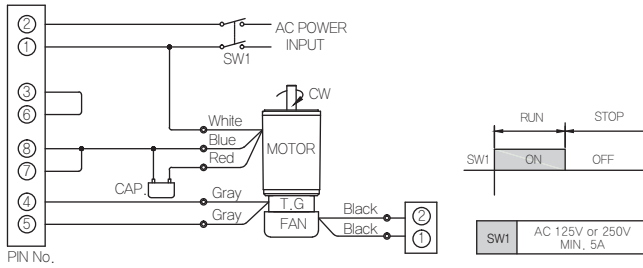


C1~C4	1000PF(2000VDC)
C5~C6	0.1uF~0.2uF AC 125WV or AC 250WV
L1~L2	100uH

- Ground the motor at the same place where capacitor is grounded.
- Shorten the connection cable.
- Use a thick cable for grounding.

## Basic Electric Wiring

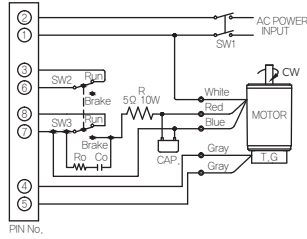
### Uni-directional operation + Variable speed



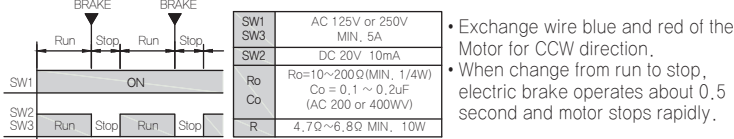
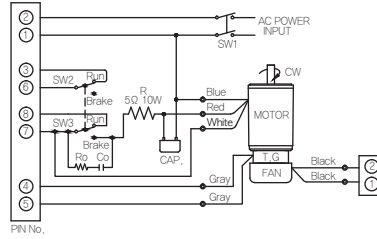
- Exchange wire blue and red of the motor for CCW direction.

### Uni-directional operation + Variable speed + Brake

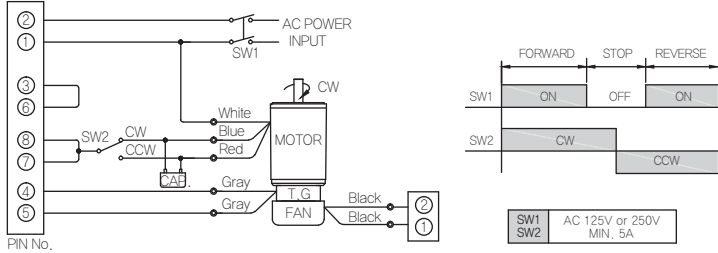
- Below motor output 25W



- Over motor output 40W



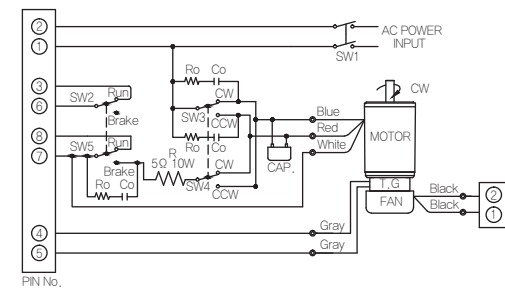
### Bi-directional operation + Variable speed



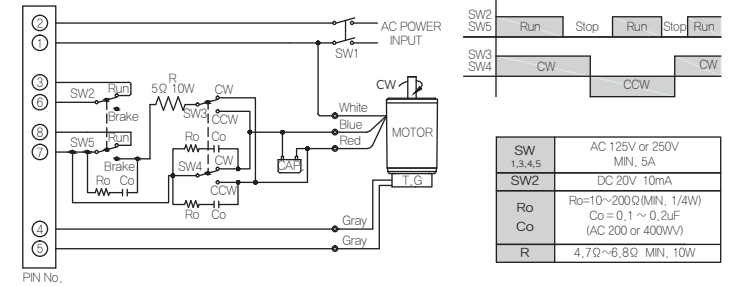
- Set stop period and switch SW2 after the motor completely stopped.

### Bi-directional operation + Variable speed + Brake

- Below motor output 25W



- Over motor output 40W

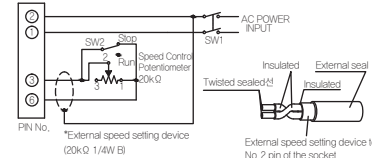


- When changed from run to stop, electric brake operates about 0.5 second and motor stops rapidly. At this moment, do not operate SW4, SW5.
- Changing period of SW4, SW5 should be done quicker than from stop to run of SW2, SW3.

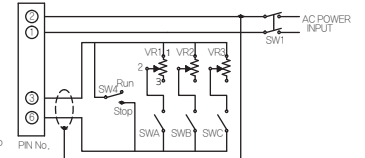
## How to use external volume

### \* Set internal volume "Zero" when using external volume

- Multi-stage speed setting



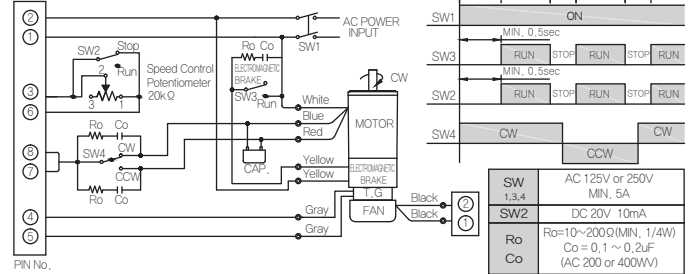
- Long distance control



- Set the volume to 'Zero'.
- Shorten the connection cable as much as possible.
- In case of malfunction, use twist shield cable.
- Set the volume to 'Zero'.
- Set a speed respectively through the external volume, VR1, VR2 and VR3 by switching S WA, SWB and SWC.

## Connection for electromagnetic brake motor

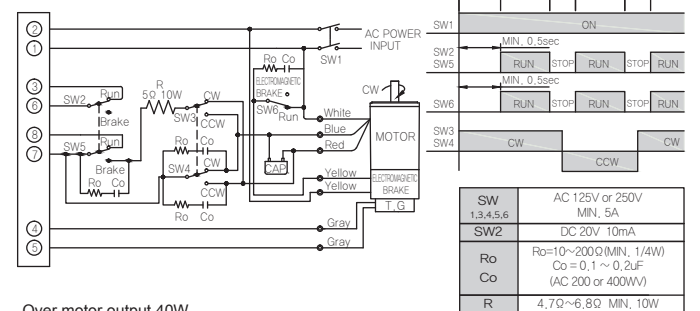
### When electric brake of controller is not used



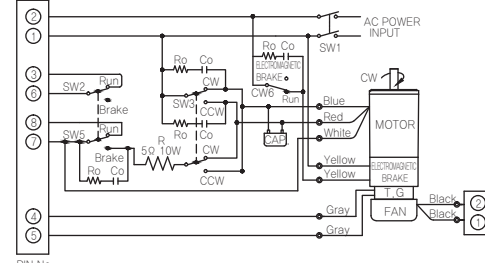
- Switch SW4 after motor completely stops.
- Input time for power switch SW1 should be faster about 0.5 second than the signal of start operating of SW2, SW3.
- When run/stop, operate with SW2, SW3 while SW1 is ON.
- Set internal volume "Zero" when using external volume.

### When electric brake of controller is used

- Below motor output 25W



- Over motor output 40W



- When changed from run to stop, electromagnetic operates and motor stops rapidly.
- Operate SW3, SW4 after the motor stops.
- Changing period of SW3, SW4 should be done quicker than starting signals of SW2, SW5, SW6.
- Power input time for SW1 should be faster at least 0.5 second than starting signals of SW2, SW5, SW6.
- When Run/Stop, operate with SW2, SW5, SW6 while SW1 is ON.

## Dimension

