

SPEED CONTROLLER

: SR TYPE

Characteristics

- This is a speed controller for small geared motors which was developed to meet the motor's variable speed demands.
- It uses the IC circuit that SPG Motor independently developed and is small, lightweight and reliable.
- Speed control is possible by controlling the number of revolutions with the variable resistor on the front of the case.
- Remote control is possible by installing a speed controller(speed setter).
- Instantaneous braking is possible with an electric brake.
- The small 8 pin plug in method was used.



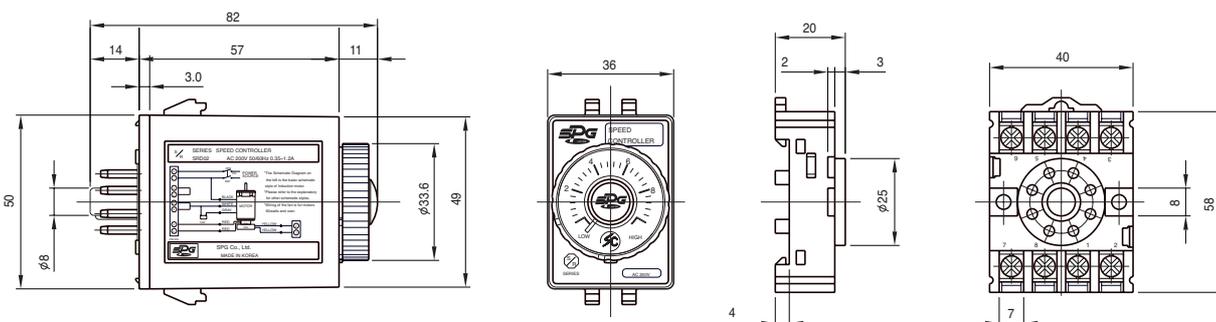
SPECIFICATIONS

SPEC		SR TYPE									
		SRA01	SRA02	SRB01	SRB02	SRC01	SRC02	SRD01	SRD02	SRX01	SRX02
Rated Voltage		AC110V 60Hz		AC220V 60Hz		AC100V 50/60Hz		AC200V 50/60Hz		AC220~240V 50Hz	
Operation Voltage Range		±10%									
※1 APPLICABLE MOTOR OUTPUT	INDUCTION	6W	15W~90W	6W	15W~90W	6W	15W~90W	6W	15W~90W	6W	15W~90W
	REVERSIBLE	6W	15W~40W	6W	15W~40W	6W	15W~40W	6W	15W~40W	6W	15W~40W
	E·S	6W	15W~90W	6W	15W~90W	6W	15W~90W	6W	15W~90W	6W	15W~90W
Speed control range		50Hz : 90~1400rpm					60Hz : 90~1700rpm				
Speed variation		5%(standard)									
Speed setting device		Built in external speed setting device attachable									
Braking		Possible to stop brake for certain period by electric brake									
※2	Braking period	0.5sec(standard)									
	Parallel operation	Not suitable for parallel operation									
Slow Run, Slow Stop		none									
Operation Temperature		-10~50°C									
Storage Temperature		-20~60°C									
Ambient humidity		85%Maximum(non condensing)									

※ 1: Suitable motors are Socket Type Speed Control Motor. (Use for 12V motor T.G)

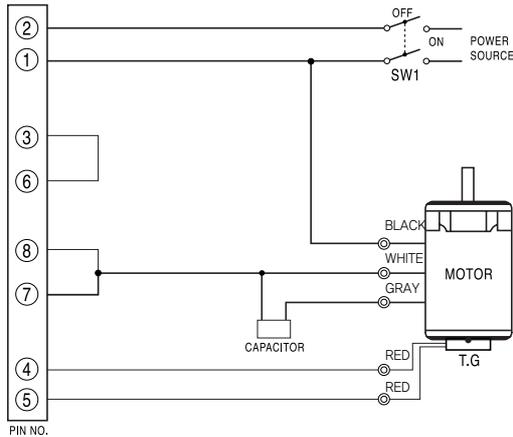
※ 2: The electric brake does not have holding torque.

+ DIMENSIONS SR TYPE SPEED CONTROLLER



+ SCHEMATIC DIAGRAM (INDUCTION MOTOR)

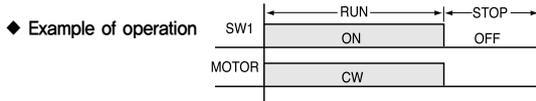
1-1 Uni Direction+Variable Speed INDUCTION MOTOR (6W~90W) REVERSIBLE MOTOR (6W~40W)



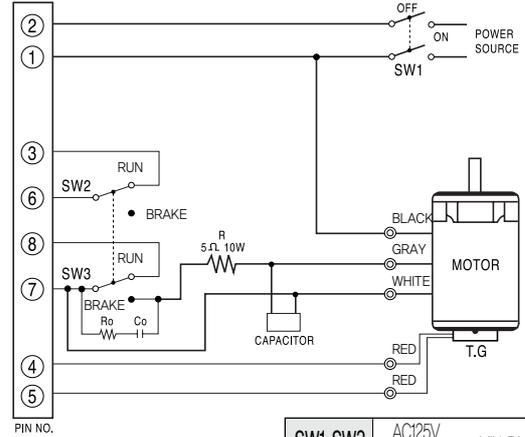
SW1	AC 125V or AC 250V	MIN. 5A
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▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

- Note) 1. The motor rotating direction is CW when viewed from output shaft. When adjusting to CCW, change and connect white and gray wire of motor.
2. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 178 for the connection method.



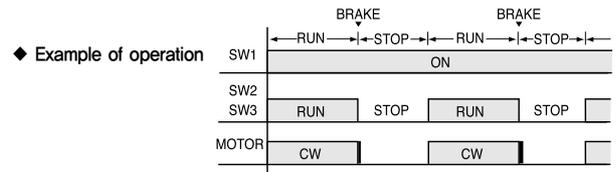
1-2 Uni Direction + Variable Speed + Brake INDUCTION MOTOR (6W~25W) REVERSIBLE MOTOR (6W~25W)



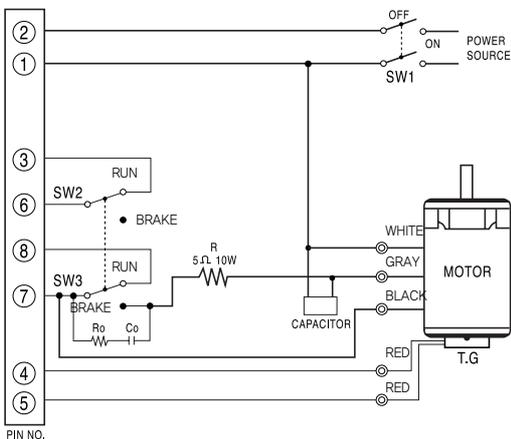
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

SW1,SW3	AC125V or AC250V	MIN 5A
SW2	DC 20V 10mA	
Ro,Co	Ro=10~200Ω (MIN. 1/4W) Co=0.1~0.2μF (AC125W, AC250W)	
R	4.7Ω~6.8Ω	MIN. 10W

- Note) 1. The motor rotating direction is CW when viewed from output shaft. When adjusting to CCW, change and connect white and gray wire of motor.
2. When switched from Run to Stop, electric brake will function about 0.5 sec and motor will stop instantaneously.



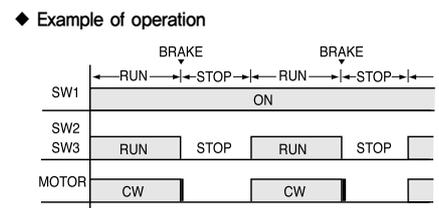
1-3 Uni Direction + Variable Speed + Brake INDUCTION MOTOR (40W~90W) REVERSIBLE MOTOR (40W)



▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

SW1,3	AC125V or AC250V	MIN 5A
SW2	DC 20V 10mA	
Ro,Co	Ro=10~200Ω (MIN. 1/4W) Co=0.1~0.2μF (AC125W, AC250W)	
R	4.7Ω~6.8Ω	MIN. 10W

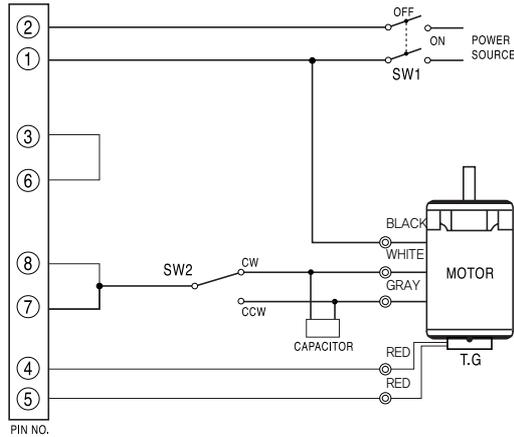
- Note) 1. The motor rotating direction is CW when viewed from output shaft. When adjusting to CCW, change and connect white and gray wire of motor.
2. When switched from Run to Stop, electric brake will function about 0.5 sec and motor will stop instantaneously.
3. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 178 for the connection method.



Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove. (There is a possibility to be burned.)

+ SCHEMATIC DIAGRAM (REVERSIBLE MOTOR)

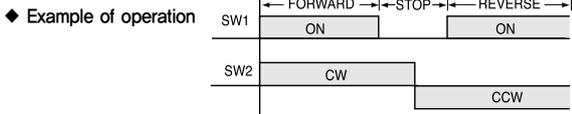
2-1 Reverse+Variable Speed INDUCTION MOTOR (6W~90W) REVERSIBLE MOTOR (6W~40W)



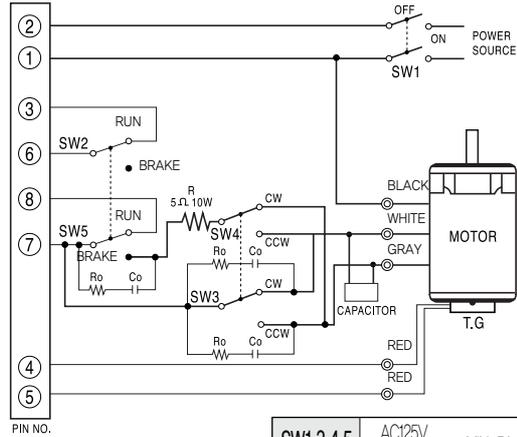
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

SW1,2	AC125V or AC 250V	MIN. 5A
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- Note) 1. Set "Stop" period for induction motor and switch SW2 after rotation has stopped.
 2. Rversible Motor does not need "Stop" period. It has no relation operating SW2 when SW1 is on.
 3. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 178 for the connection method.



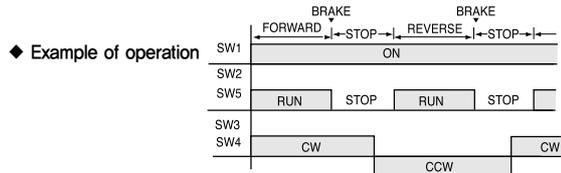
2-2 Reverse + Variable Speed + Brake INDUCTION MOTOR (6W~25W) REVERSIBLE MOTOR (6W~25W)



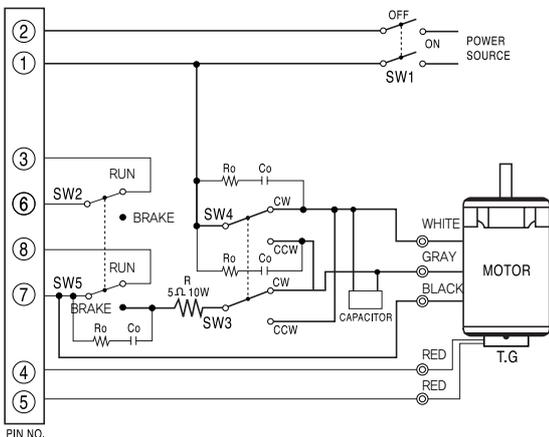
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

SW1,3,4,5	AC125V or AC250V	MIN. 5A
SW2	DC 20V 10mA	
Ro,Co	Ro=10~200Ω (MIN. 1/4W) Co=0.1~0.2μF (AC125WV, AC250WV)	
R	4.7Ω~6.8Ω	MIN. 10W

- Note) 1. When switched from Run to Stop, electric brake will function for 0.5sec. and motor will stop instantaneously.
 2. Do not operate SW4, SW5 for this 0.5 sec.
 3. Changing period of SW4, SW5 should be done quicker than Stop to Run of SW2, SW3.



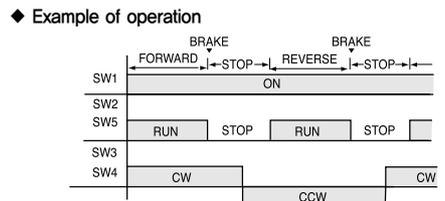
2-3 Reverse + Variable Speed + Brake INDUCTION MOTOR (40W~90W) REVERSIBLE MOTOR (40W)



▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

SW1,3,4,5	AC125V or AC250V	MIN. 5A
SW2	DC 20V 10mA	
Ro,Co	Ro=10~200Ω (MIN. 1/4W) Co=0.1~0.2μF (AC125WV, AC250WV)	
R	4.7Ω~6.8Ω	MIN. 10W

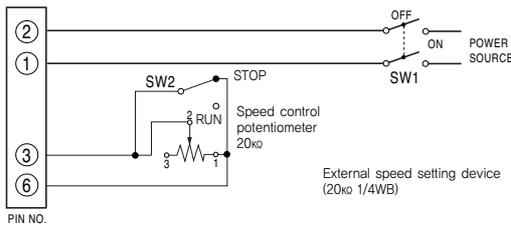
- Note) 1. When switched from Run to Stop, electric brake will function for 0.5sec. and motor will stop instantaneously.
 2. Do not operate SW4, SW5 for this 0.5 sec.
 3. Changing period of SW4, SW5 should be done quicker than Stop to Run of SW2, SW3.
 4. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to 178 page for the connection method.



Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove. (There is a possibility to be burned.)

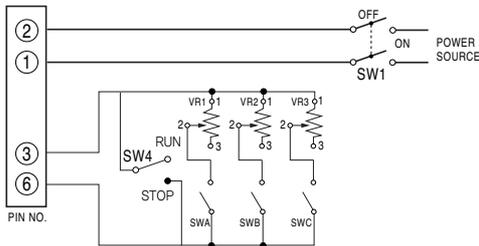
3-1 External speed setting device

When Distance Control is Necessary



- Note) 1. Set the volume to 'LOW'.
2. Shorten the connection cable as much as possible.

When Multi-Stage Speed Setting is Necessary

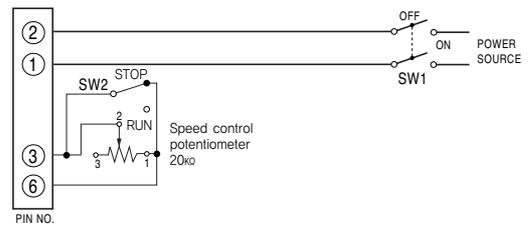


- Note) 1. Set the volume to 'LOW'.
2. If multi-stage speed control is needed, install VR1, VR2, and VR3 respectively and the speed can be changed by SWA, SWB, and SWC. The open/close time of the switch is advised to follow the open/close time of the relay contact point.

3-2 For prompt start(1)

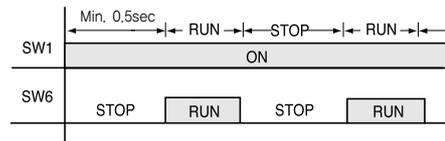
Without braking

※ When the motor starts slowly while starting signal is input at Run switch(SW1), use external volume VR at SW2 for Run/Stop.



SW2	DC 20V 10mA	External speed setting device (20kΩ 1/4WB)
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Example of operation

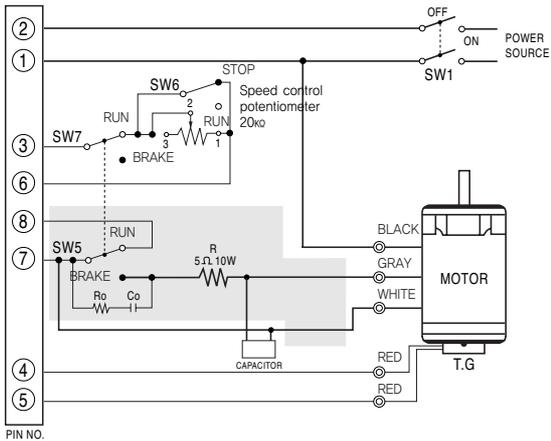


- Note) 1. Input time of SW1 should be about 0.5sec earlier than starting signal of SW2.
2. Set the volume to "LOW" and use external volume VR to control speed.
3. During Run/Stop operation, control SW2 while SW1 is on. Even with small signal motor can be controlled.
4. When not in use for long period turn SW1 off.

Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove.
(There is a possibility to be burned.)

3-3 For prompt start(2)

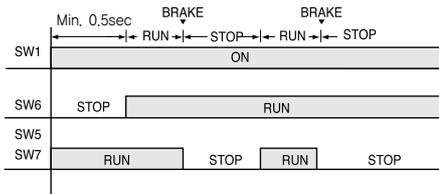
▼ While braking INDUCTION MOTOR(6W~25W)
REVERSIBLE MOTOR (6W~25W)



SW1,5	AC125V or AC250V MIN. 5A
SW6,7	DC 20V 10mA
Ro,Co	Ro=10~200Ω(MIN. 1/4W) Co=0.1~0.2μF (AC125W, AC250W)
R	4.7Ω~6.8Ω MIN. 10W

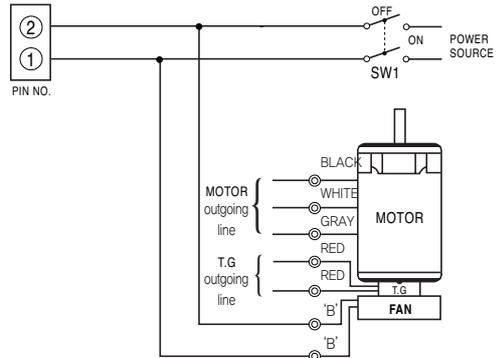
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

◆ Example of operation



- Note) 1. This wiring is for unidirection+variable speed+braking of motors 25W or less. For motors 40W over part of wiring is different. Refer to the electrical wiring diagram for the corresponding connection.
2. Input time of SW1 should be about 0.5sec earlier than SW6.
3. Set the volume to "LOW" and use external volume VR to control speed.
4. When not in use for long period turn SW1 off.

3-4 Box fan motor connection method



VOLTAGE	LEAD WIRE COLOR 'B'
SINGLE PHASE AC100V~110V	BROWN
SINGLE PHASE AC200V~240V	YELLOW

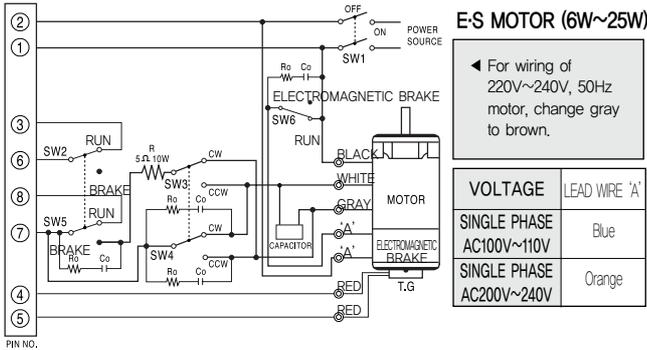
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

※ For the connection of something other than the box fan, refer to the electrical wiring diagram for the corresponding connection.

Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove.
(There is a possibility to be burned.)

4-1 Wire connection for electromagnetic brake motor

When electric brake of controller is used at the same time

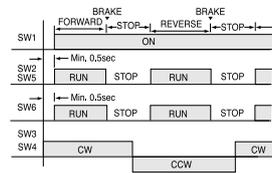


◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

VOLTAGE	LEAD WIRE 'A'
SINGLE PHASE AC100V~110V	Blue
SINGLE PHASE AC200V~240V	Orange

SW1,3,4,5,6	AC125V or AC250V MIN. 5A
SW2	DC 20V 10mA
Ro,Co	Ro=10~200Ω (MIN. 1/4W) Co=0.1~0.2μF (AC125V, AC250V)
R	4.7Ω~6.8Ω MIN. 10W

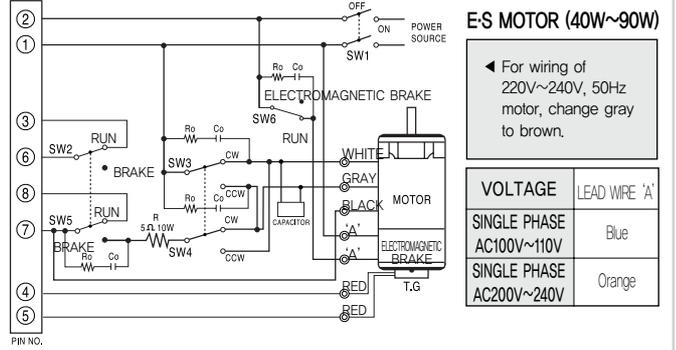
◆ Example of operation



1. When switched from Run to Stop, electromagnetic brake will function for about 0.5sec, and motor will stop instantaneously.
2. Operate SW3, SW4 after the motor has stopped.
3. Changing period of SW3, SW4 should be done quicker than stop to run of SW2, SW5, SW6.
4. Power input for SW1 should be at least 0.5sec. earlier than starting signals of SW2, SW5, SW6.
5. When Run/Stop, operate with SW2, SW5, SW6 while SW1 is On condition. Even with small signal it can control the motor. Turn SW1 off when not used for long period.

4-2 Wire connection for electromagnetic brake motor

When electric brake of controller is used at the same time

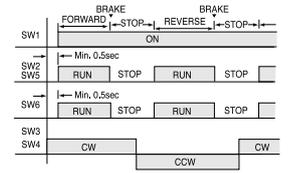


◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

VOLTAGE	LEAD WIRE 'A'
SINGLE PHASE AC100V~110V	Blue
SINGLE PHASE AC200V~240V	Orange

SW1,3,4,5,6	AC125V or AC250V MIN. 5A
SW2	DC 20V 10mA
Ro,Co	Ro=10~200Ω (MIN. 1/4W) Co=0.1~0.2μF (AC125V, AC250V)
R	4.7Ω~6.8Ω MIN. 10W

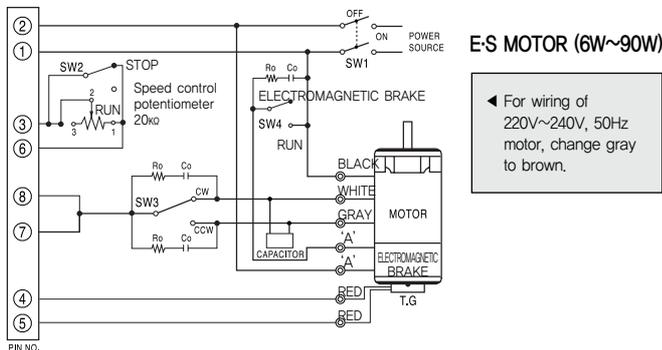
◆ Example of operation



1. When switched from Run to Stop, electromagnetic brake will function for about 0.5sec, and motor will stop instantaneously.
2. Operate SW3, SW4 after the motor has stopped.
3. Changing period of SW3, SW4 should be done quicker than stop to run of SW2, SW5, SW6.
4. Power input for SW1 should be at least 0.5sec. earlier than starting signals of SW2, SW5, SW6.
5. When Run/Stop, operate with SW2, SW5, SW6 while SW1 is 'On' condition. Even with small signal it can control the motor. Turn SW1 off when not used for long period.
6. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 178 for the connection method.

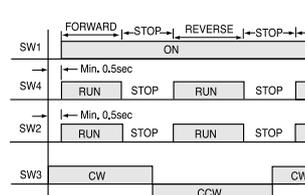
4-3 Wire connection for electromagnetic brake motor

When electric brake of controller is used at the same time



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

◆ Example of operation



VOLTAGE	LEAD WIRE 'A'
SINGLE PHASE AC100V~110V	Blue
SINGLE PHASE AC200V~240V	Orange

SW 1,3,4	AC125V or AC250V MIN. 5A
SW 2	DC 20V 10mA
Ro,Co	Ro=10~200Ω (MIN. 1/4W) Co=0.1~0.2μF (AC125V, AC250V)

1. Set the stop period to stop and convert to SW2 after rotation has stopped
2. Input period for power switch SW1 should be about 0.5sec. earlier than the signal of start operating of SW6, SW9

3. When Run/Stop, operate with SW2, SW4 while SW1 is on. Even with small signal it can control the motor Turn SW1 off when not used for long period.
4. Set the volume low and control the speed with external speed setting device VR
5. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 178 for the connection method.

Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove. (There is a possibility to be burned.)