

# SPEED CONTROLLER

## : SRCE TYPE

### Characteristics

- Speed controller SR series are developed by the demands of speed variation.
- It uses the IC circuit that SPG Motor independently developed and is small, light weight and reliability.
- With acquisition of CE Mark certification, the product guarantees higher reliability.
- The rotating speed of the motor may be adjusted by a speed control variable resistor located at the front of the case and can also operate long-range by an extra speed setter.
- Increase of instantaneous stop function by electromagnetic brake
- Miniaturized type with 11pin plug



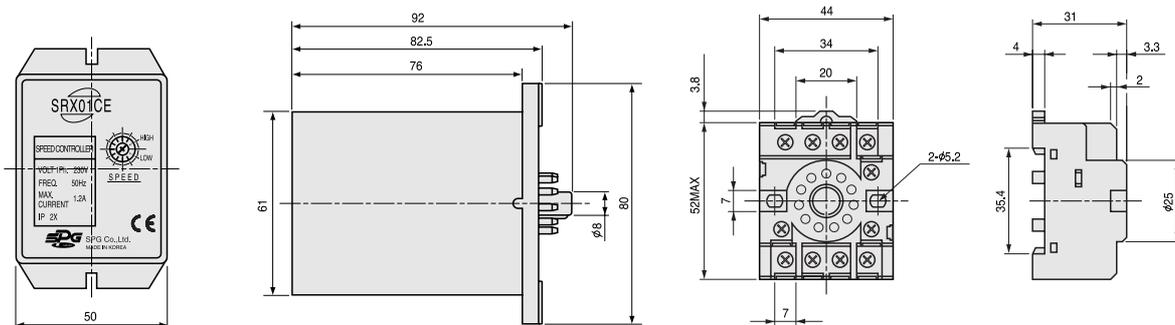
### SPECIFICATIONS

| SPEC                          |                    | MODEL | SRCE TYPE   |         |             |         |                   |         |                |         |                 |         |
|-------------------------------|--------------------|-------|---|---------|-------------|---------|-------------------|---------|----------------|---------|-----------------|---------|
|                               |                    |       | SRA01CE   | SRA02CE | SRB01CE     | SRB02CE | SRC01CE           | SRC02CE | SRD01CE        | SRD02CE | SRX01CE         | SRX02CE |
| Rated Voltage                 |                    |       | AC110V 60Hz   |         | AC220V 60Hz |         | AC100V 50/60Hz    |         | AC200V 50/60Hz |         | AC220~240V 50Hz |         |
| Operation Voltage Range       |                    |       | ±10%  |         |             |         |                   |         |                |         |                 |         |
| *1<br>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 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)

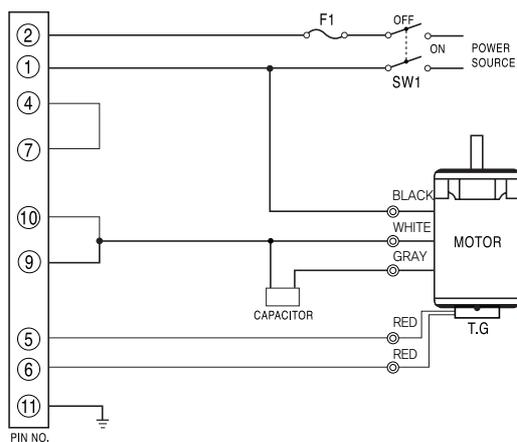
\*2: The electric brake does not have holding torque.

### + DIMENSIONS SRCE TYPE SPEED CONTROLLER



# + SCHEMATIC DIAGRAM

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

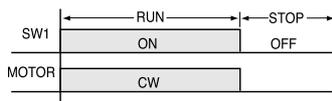


|     |                       |         |
|-----|-----------------------|---------|
| SW1 | AC 125V<br>or AC 250V | MIN. 5A |
| F1  | AC 125V<br>or AC 250V | 3A      |

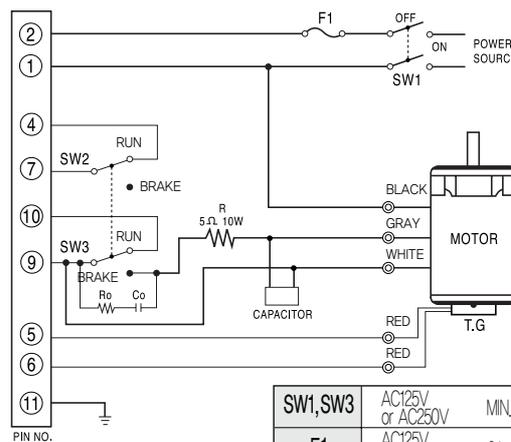
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

- 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 184 for the connection method.

◆ Example of operation



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

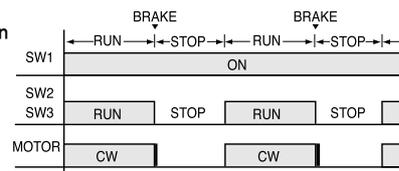


|          |  |         |
|----------|--|---------|
| SW1, SW3 | AC125V<br>or AC250V  | MIN. 5A |
| F1       | AC125V<br>or AC250V  | 3A      |
| SW2      | DC 20V 10mA  |         |
| Ro, Co   | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125W, AC250W) |         |
| R        | 4.7Ω~6.8Ω MIN. 10W   |         |

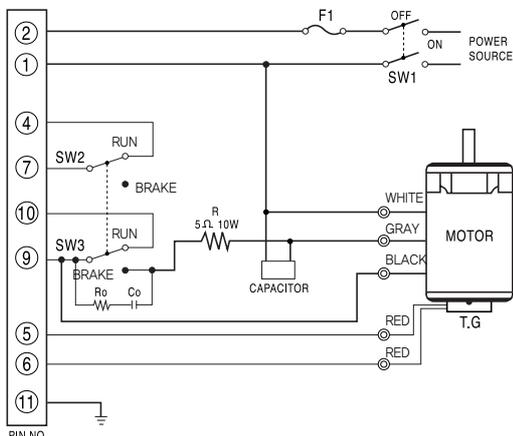
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

- 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. When switched from Run to Stop, electric brake will function about 0.5 sec. and motor will stop instantaneously.

◆ Example of operation



## 1-3 Uni Direction + Variable Speed + Brake

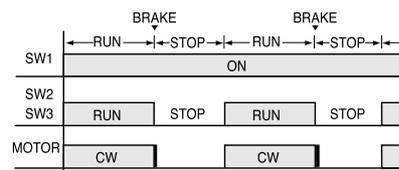


▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

|          |  |         |
|----------|--|---------|
| SW1, SW3 | AC125V<br>or AC250V  | MIN. 5A |
| F1       | AC125V<br>or AC250V  | 3A      |
| SW2      | DC 20V 10mA  |         |
| Ro, Co   | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(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 for 0.5sec. 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 184 for the connection method.

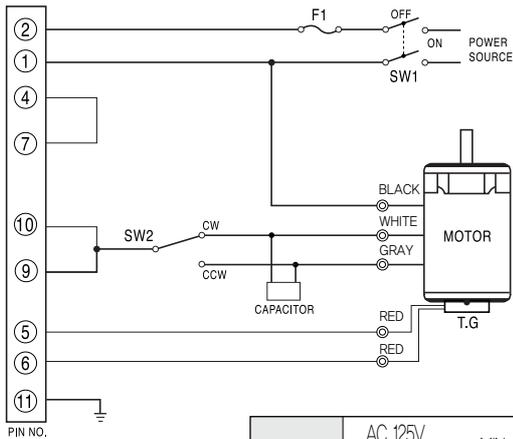
◆ Example of operation



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.)

### 2-1 Reverse + Variable Speed

INDUCTION MOTOR (6W~90W) REVERSIBLE MOTOR (6W~40W)

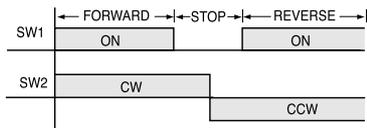


|       |                       |         |
|-------|-----------------------|---------|
| SW1,2 | AC 125V<br>or AC 250V | MIN. 5A |
| F1    | AC 125V<br>or AC 250V | 3A      |

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

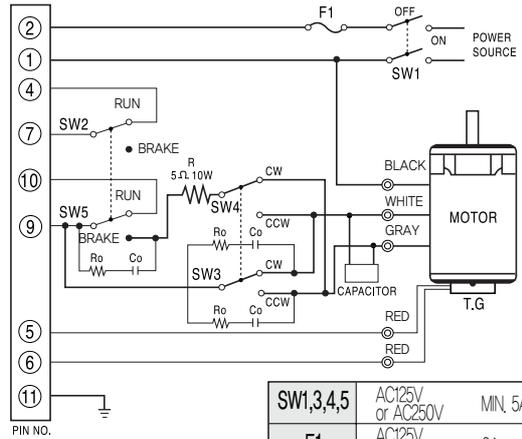
- Note) 1. Set "Stop" period for induction motor and switch SW2 after rotation has stopped.  
 2. Reversible Motor does not need "Stop" period. SW2 does not work when SW1 is on.  
 3. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 184 for the connection method.

◆ Example of operation



### 2-2 Reverse + Variable Speed + Brake

INDUCTION MOTOR (6W~25W) REVERSIBLE MOTOR (6W~25W)

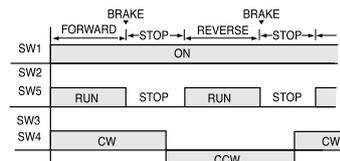


|           |  |         |
|-----------|--|---------|
| SW1,3,4,5 | AC125V<br>or AC250V  | MIN. 5A |
| F1        | AC125V<br>or AC250V  | 3A      |
| SW2       | DC 20V 10mA  |         |
| Ro,Co     | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125VW, AC250VW) |         |
| R         | 4.7Ω~6.8Ω MIN. 10W   |         |

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

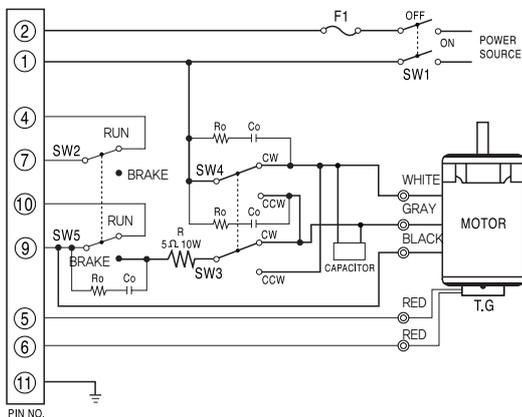
- Note) 1. When switched from Run to Stop, electric brake will function for 0.5sec. and motor will stop instantaneously  
 2. Do not operate SW4, SW5 for this 0.5 sec.  
 3. Changing period of SW4, SW5 should be done quicker than Stop to Run of SW2, SW3

◆ Example of operation



### 2-3 Reverse + Variable Speed + Brake

INDUCTION MOTOR (40W~90W) REVERSIBLE MOTOR (40W)

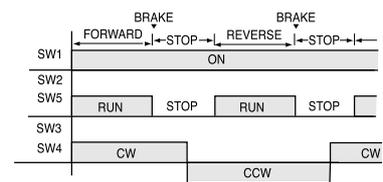


▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

|           |  |         |
|-----------|--|---------|
| SW1,3,4,5 | AC125V<br>or AC250V  | MIN. 5A |
| F1        | AC125V<br>or AC250V  | 3A      |
| SW2       | DC 20V 10mA  |         |
| Ro,Co     | Ro = 10~200 Ω (MIN. 1/4W)<br>Co = 0.1~0.2 μF<br>(AC125VW, AC250VW) |         |
| R         | 4.7 Ω~6.8 Ω 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 page 184 for the connection method.

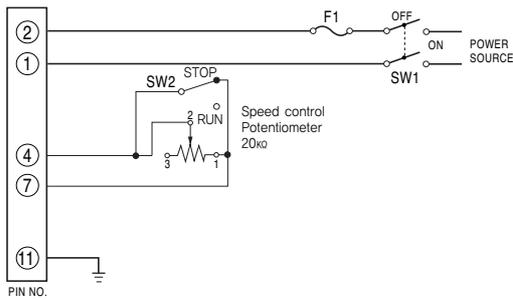
◆ Example of operation



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.)

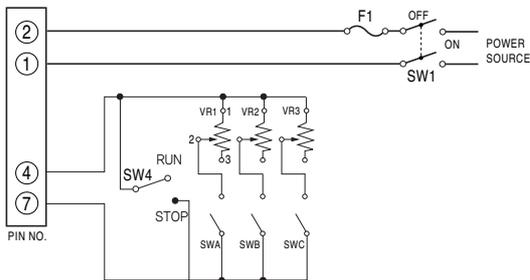
### 3-1 External speed setting device

#### ■ 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

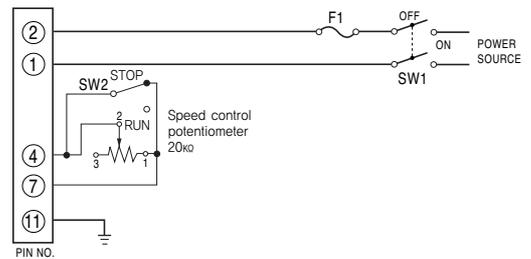


- Note) 1. Set the volume to 'LOW'.  
 2. If multi-stage speed control is needed, install VR1, VR2, and VR3 respectively and the speed can be changed by SWA, SWB, and SWC. The open/close time of the switch is advised to follow the open/close time of the relay contact point.

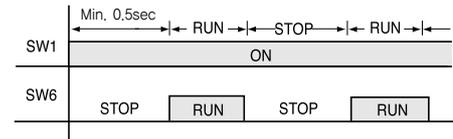
### 3-2 For prompt start(1)

#### ▼ Without braking

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



#### ◆ Example of operation

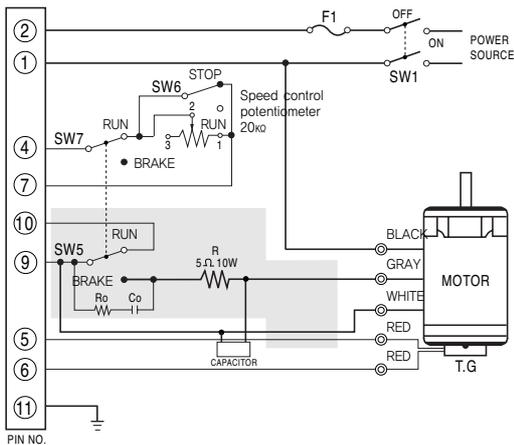


- Note) 1. Input time of SW1 should be about 0.5sec quicker than starting signal of SW2.  
 2. Set the volume to "LOW" and use external volume VR to control speed.  
 3. During Run/Stop operation, control SW2 while SW1 is on. Even with small signal motor can be controlled.  
 4. When not in use for long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

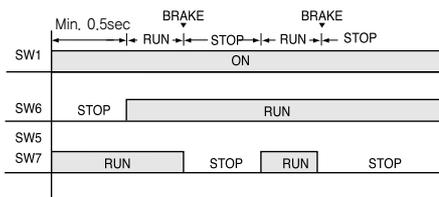
▼ With Braking INDUCTION MOTOR(6W~25W)  
REVERSIBLE MOTOR (6W~25W)



|       |  |          |
|-------|--|----------|
| SW1,5 | AC125V or AC250V   | MIN. 5A  |
| F1    | AC125V or AC250V   | 3A       |
| SW6,7 | DC 20V   | 10mA     |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125V, AC250V) |          |
| R     | 4.7Ω ~ 6.8Ω  | MIN. 10W |

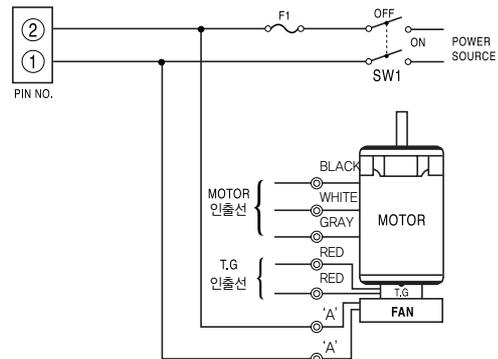
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

◆ Example of operation



- Note) 1. This wiring is for unidirection+Variable speed+braking of motors 25W or less. For motors 40W and 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 quicker 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 'A' |
|--------------------------|---------------------|
| SINGLE PHASE AC100V~110V | BROWN               |
| SINGLE PHASE AC200V~240V | YELLOW              |

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

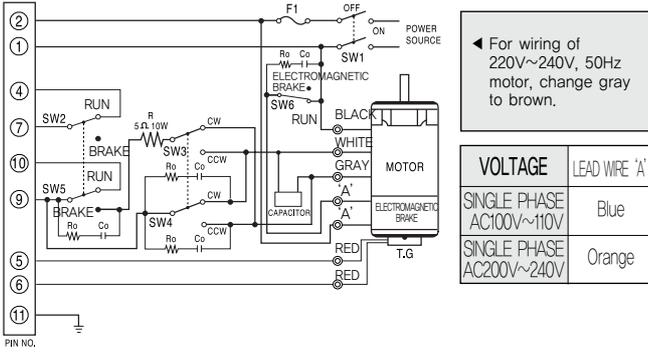
※ For the connection of something other than the box fan, refer to the electrical wiring diagram for the corresponding connection.

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

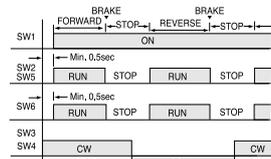
When electric brake of controller is used at the same time

E-S MOTOR (6W~25W)



|             |   |         |
|-------------|---|---------|
| SW1,3,4,5,6 | AC125V or AC250V  | MIN. 5A |
| F1          | AC125V or AC250V  | 3A      |
| SW2         | DC 20V 10mA   |         |
| Ro,Co       | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF (AC125V, AC250V) |         |
| R           | 4.7Ω~6.8Ω MIN. 10W                                      |         |

◆ Example of operation

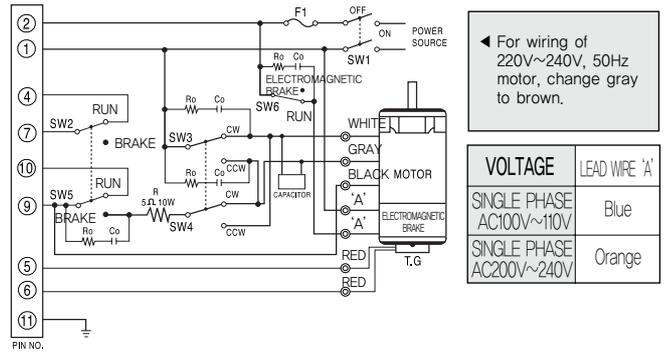


- Note) 1. When switched from Run to Stop, electromagnetic brake will function for about 0.5sec. and motor will stop instantaneously.  
 2. Operate SW3, SW4 after the motor has stopped.  
 3. Changing period of SW3, SW4 should be done quicker than stop to run of SW2, SW5, SW6.  
 4. Power input for SW1 should be at least 0.5sec. quicker 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

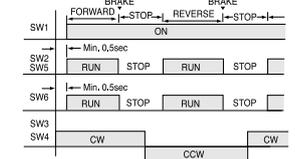
When electric brake of controller is used at the same time

E-S MOTOR (40W~90W)



|             |   |         |
|-------------|---|---------|
| SW1,3,4,5,6 | AC125V or AC250V  | MIN. 5A |
| F1          | AC125V or AC250V  | 3A      |
| SW2         | DC 20V 10mA   |         |
| Ro,Co       | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF (AC125V, AC250V) |         |
| R           | 4.7Ω~6.8Ω MIN. 10W                                      |         |

◆ Example of operation

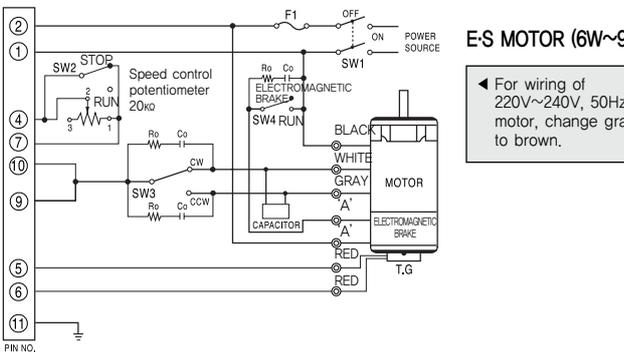


- Note) 1. When switched from Run to Stop, electromagnetic brake will function for about 0.5sec. and motor will stop instantaneously.  
 2. Operate SW3, SW4 after the motor has stopped.  
 3. Changing period of SW3, SW4 should be done quicker than stop to run of SW2, SW5, SW6.  
 4. Power input for SW1 should be at least 0.5sec. quicker 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 184 for the connection method.

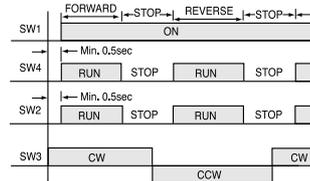
### 4-3 Wire connection for electromagnetic brake motor

When electric brake of controller is used at the same time

E-S MOTOR (6W~90W)



◆ Example of operation



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

|         |   |         |
|---------|---|---------|
| SW1,3,4 | AC125V or AC250V  | MIN. 5A |
| F1      | AC125V or AC250V  | 3A      |
| SW2     | DC 20V 10mA   |         |
| Ro,Co   | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF (AC125V, AC250V) |         |

- Note) 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. quicker 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 to "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 184 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.)