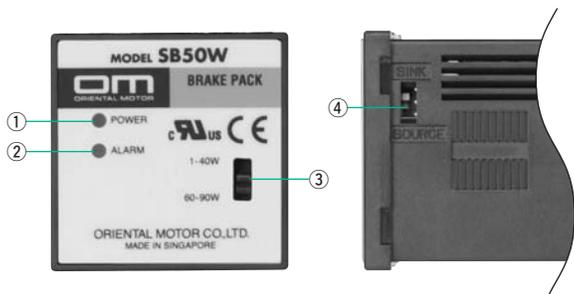


Connection and Operation

Names and Functions of Brake Pack Parts

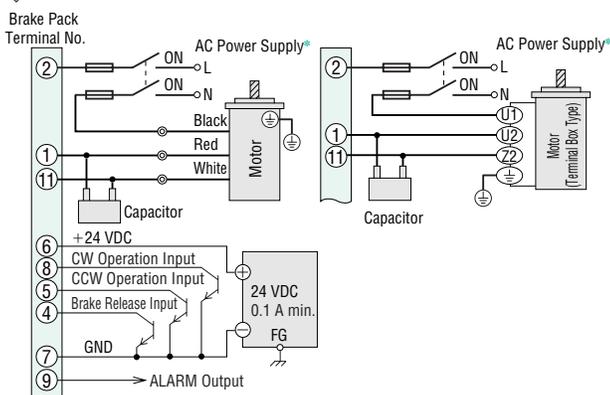


No.	Name	Factory Setting	Functions
①	POWER Indicator (Green)	–	Lit when 24 VDC is supplied.
②	ALARM Indicator (Red)	–	Lit when the ALARM output is "OFF."
③	Motor Output Select Switch	60–90 W (1/12–1/8 HP)	Used to set the motor output.
④	SINK/SOURCE Select Switch	SINK	Used to switch between Sink/Source for the control signal output.

Connection Diagrams

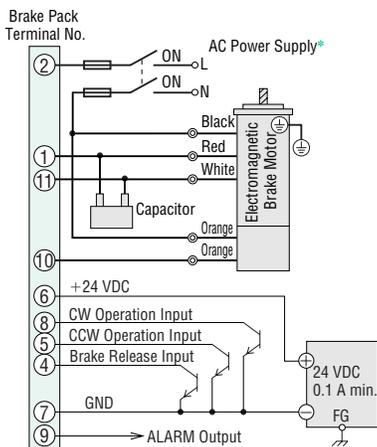
The wiring diagram is for when the SINK/SOURCE select switch is set to the "SINK" side.

Induction Motors/Reversible Motors



*Single-phase 100/110/115 VAC, single-phase 200/220/230 VAC

Electromagnetic Brake Motors



*Single-phase 100/110/115 VAC, single-phase 200/220/230 VAC

Terminal Arrangement for Flush Mounting Socket

Terminal No.	Signal Name	Description
①	Motor/Capacitor	Connect the motor and capacitor.
②	AC Power Input (L)	Single-phase 100–115 VAC Single-phase 200–230 VAC
③	NC	Not used. Leave this terminal unconnected.
④*1	Brake Release Input*2	Not an instantaneous stop but a natural stop
④	ALARM-RESET Input	Reset ALARM Output.
⑤	CCW Operation Input*3	Motor runs in the CCW direction during "ON."
⑥	DC Power Input	+24 VDC input
⑦	GND	GND
⑧	CW Operation Input	Motor runs in the CCW direction during "ON."
⑨	ALARM Output	Turns "OFF" when the motor's thermal protector is "open."
⑩	Electromagnetic Brake*4	Connect to the electromagnetic brake.
⑪	Motor/Capacitor	Connect the motor and capacitor.

*1 Functions as a brake release input during normal operation, and as an ALARM-RESET input when the ALARM output is OFF.

*2 Releases the electromagnetic brake for electromagnetic brake motors.

*3 Not used with an induction motor with four lead wires.

*4 Only for electromagnetic brake motors.

Notes:

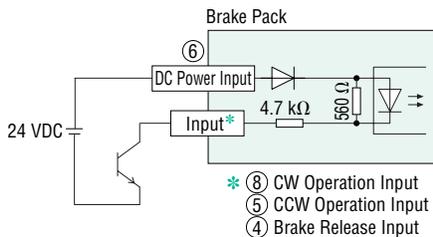
- The input-signal voltage is 24 VDC ± 10% and 0.1 A or more.
- Minimize the length of the motor cable and the input/output signal cable to reduce EMI.
- Use a cable of AWG18 (0.75 mm²) or more in diameter for the motor cable and power cable.
- Be sure to connect the GND terminal to GND (negative side) of the external controller, or the unit will not operate.

● I/O Signal Circuit

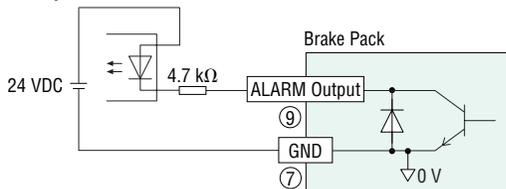
The I/O signal circuit can be switched between the sink mode and source mode using the sink/source select switch on the brake pack. The factory setting is the sink mode.

◇ Sink Logic

● Input Circuit

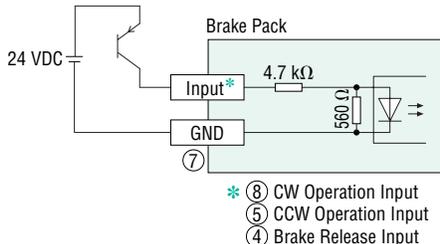


● Output Circuit

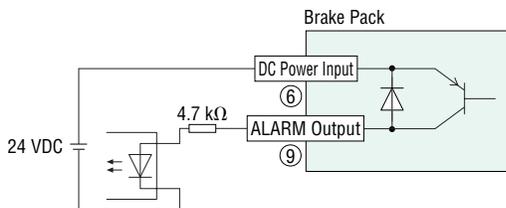


◇ Source Logic

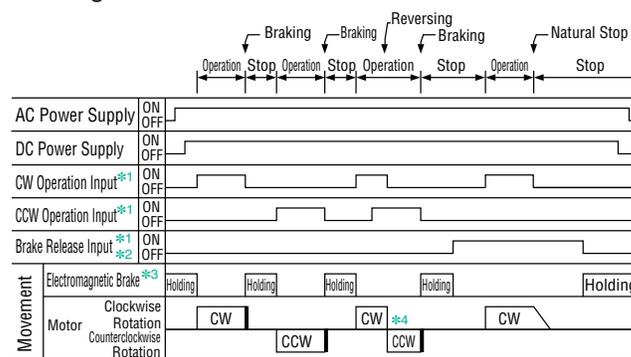
● Input Circuit



● Output Circuit



● Timing Chart



- *1 Turn on CW operation input, CCW operation input, and brake release input after turning on AC power. The motor does not operate if they are input ahead of AC power. The ALARM indicator will light and ALARM output will switch to "OFF."
- *2 The brake release input becomes ALARM-RESET input when the ALARM output is OFF.
- *3 Only for electromagnetic brake motors.
- *4 The induction motor will not accommodate instantaneous forward/reverse switching.

◇ CW Operation Input

Turning the CW operation signal to "ON" causes the motor's output shaft to turn in the CW direction. Turning it to "OFF" triggers an instantaneous stop.

◇ CCW Operation Input

Turning the CCW operation signal to "ON" causes the motor's output shaft to turn in the CCW direction. Turning it to "OFF" triggers an instantaneous stop.

If both the CW and CCW operation signals are simultaneously turned to "ON," the CW operation signal will take priority. Therefore, the wiring must be changed with an induction motor having four lead wires.

◇ Brake Release Input [ALARM-RESET Input]

Functions as a brake release input during normal operation, and as an ALARM-RESET input when the ALARM output is OFF.

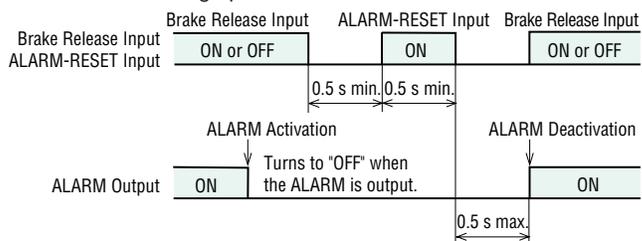
● When normal: [Brake Release Input]

Turning the brake release signal to "ON" disables both the electronic brake and electromagnetic brake. When the CW and CCW operation signals are turned to "OFF," the motor operates via inertial force before coming to a natural stop. When the motor is stationary, the electromagnetic brake is not activated, so the motor's output shaft can be moved freely.

Turning the brake release signal to "OFF" (or leaving the signal unconnected) and turning both CW and CCW operation signals to "OFF" will activate the electronic brake and electromagnetic brake, bringing the motor to an instantaneous stop. Once the motor stops, the electronic brake will release automatically. However, the electromagnetic brake will continue to operate and hold the load.

● When ALARM output is OFF: [ALARM-RESET Input]

When ALARM output is turned OFF, turn all input signals "OFF" and input 0.5 seconds or more for ALARM-RESET input. Wait at least 0.5 seconds after turning the ALARM-RESET input OFF before restarting operation.



It is also possible to deactivate the alarm by turning off the power and turning it on again. Turn off the DC or AC power, and turn all input signals "OFF" before turning on the power again.

◇ALARM Output (Thermal Protector Open Detection)

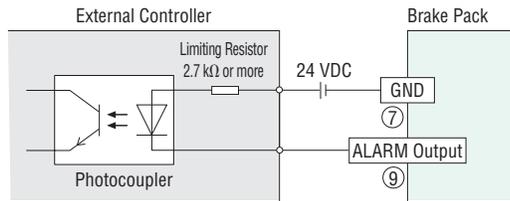
Since the **SB50W** ALARM output function detects the operations of the thermal protector, the current flowing in the motor is monitored. Operation occurs under the following conditions:

- When the thermal protector built-in to the motor is opened
- When there is improper connection/disconnection of the power supply cable and motor cable
- When the input signal is turned "ON" before the AC power is turned on
- When the AC power is turned off while the motor is in operation or while it is stopped

In the above conditions, state of the **SB50W** ALARM output is "OFF," the ALARM indicator lamp (red) on the panel lights up, and power supply to the motor is stopped.

With electromagnetic brake motors, the brake is activated in order to hold the load in position.

*When the DC power is turned on, the alarm indication lamp lights up instantaneously, but this is not an abnormality.



Use a power source of 26.4 VDC or less, and limit the output current to 10 mA or less.

■Operating/Braking Repetition Cycle

The repeated operation and braking of a motor will cause about a temperature increase in the motor and brake pack, thereby limiting the continuous operating time.

Observe the repetition cycle given in the table below for the operation and braking of the motor. The motor may generate heat depending on the conditions in which it is driven. Ensure that the temperature of the motor case does not exceed 90°C.

Motor Output Power	Repetition Cycle
1~25 W (1/750~1/30 HP)	2 seconds or more
40~90 W (1/19~1/8 HP)	4 seconds or more

(A repetition cycle of two seconds represents operation for one second and stopping for one second.)