Shock Relay SB Series

Features

- Choose between self-holding or automatic reset for the output relay
- Economically priced
- Broad current setting range
- High repeating accuracy
- Includes TEST/RESET buttons
- All-in-one unit with CT (current transformer)
- CE marking
- DIN rail (35 mm) mountable
- Can be used with a single-phase motor
- UL/cUL certification
- CCC certification

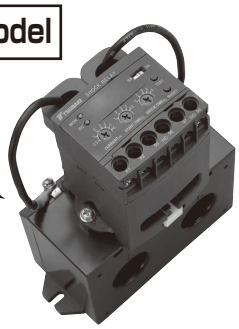
CT all-in-one model

CT
(current transformer)

TSBSB05
TSBSB10
TSBSB30
TSBSB60

CT externally mounted model

External CT
(current transformer)



TSBSB100 (TSBSB05+TSB2CT100)
TSBSB200 (TSBSB05+TSB2CT200)
TSBSB300 (TSBSB05+TSB2CT300)

Standard specifications

Model no.		TSBSB05	TSBSB10	TSBSB30	TSBSB60	TSBSB100	TSBSB200	TSBSB300
Applicable motors	200V class	0.1 to 0.75kW	1.5 to 2.2kW	3.7 to 5.5kW	7.5 to 11kW	15 to 18.5kW	22 to 37kW	45 to 75kW
	400V class	0.2 to 2.2kW	3.7kW	5.5 to 11kW	15 to 22kW	30 to 45kW	55 to 90kW	110 to 132kW
Maximum motor circuit voltage		AC600V 50/60Hz						
Load current setting range*1		0.5 to 6.0A	1 to 12A	3 to 30A	5 to 60A	10 to 100A	20 to 200A	30 to 300A
Start time setting range*1		0.2 to 10.0s*2						
Shock time setting range*1		0.2 to 5.0s*2						
Rated operating power supply voltage		24 to 240V AC/DC (non-polar)						
Rated operating power supply frequency		50/60Hz						
Current setting accuracy		±10% (full-scale)						
Current detection system		2-phase CT system						
Output relay	Operation selection	SS: Excitation during normal operation, self-holding after tripping SA: Excitation during abnormal operation, auto reset after tripping						
	Contact capacity	1a1b 3A AC250V $\cos\phi = 1$						
	Min. applicable load*3	DC10V, 10mA						
	Life	80,000 activations						
Usage environment	Ambient temperature	−20 to +60°C						
	Ambient humidity	45 to 85% RH; no condensation						
	Ambient vibration	5.9m/s² or less						
	Altitude	2000m or less						
	Atmosphere	No dust or corrosive gas						
Withstand voltage	Between circuit–housing	2000V AC, 60Hz, 1 minute (power supply circuit and contact circuit)						
	Between contacts	1000V AC, 60Hz, 1 minute						
	Between circuit	2000V AC, 60Hz, 1 minute (power supply circuit and contact circuit)						
Protective structure		IP20						
Mass		0.2kg max.						
Power consumption		2W max.						

Notes: *1. Current and time setting ranges are settable ranges, not the upper and lower levels of setting volume.
*2. Although the minimum value on the display is 1s, values smaller than 1s can be set with the dial.
*3. When directly inputting output relay contact into the programmable controller (PLC), be aware that a minute electric current can cause contact failure. Therefore, before inputting the output relay contact into the PLC, it is recommended that you drive the relay coil for a minute current via the relay signal.

Part names and functions

LOAD CURRENT setting

Load current can be set to stop the motor at the desired level when overload occurs. When the motor current exceeds the preset current value (continues to exceed the preset shock time), the Shock Relay activates and stops the motor.

START TIME setting

To prevent the Shock Relay from operating due to the motor start-up current, set the start time a little bit longer than the time the motor settles into the steady zone.

TEST button

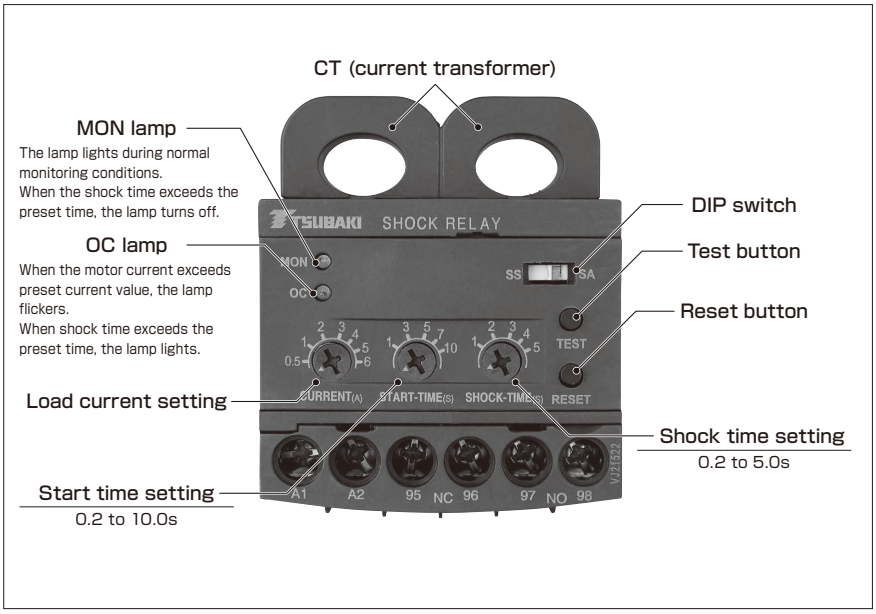
Shock Relay can be tested standalone or when not in operation. (When testing the Shock Relay, continue to press and hold the TEST button longer than the set start time or shock time, whichever is longer.)

RESET button

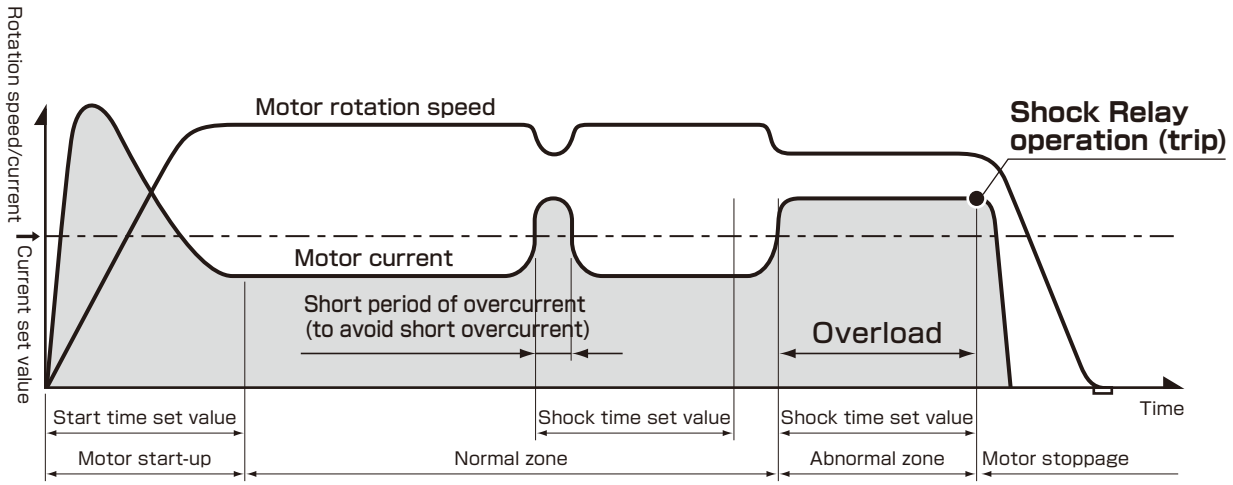
After the Shock Relay activates, the RESET button is used to cancel the self-holding of the output contact.

SHOCK TIME setting

Shock time is the amount of time set until the Shock Relay activates when overload occurs. Within the set time, the Shock Relay will not activate, even if it is overloaded.



Operating mode



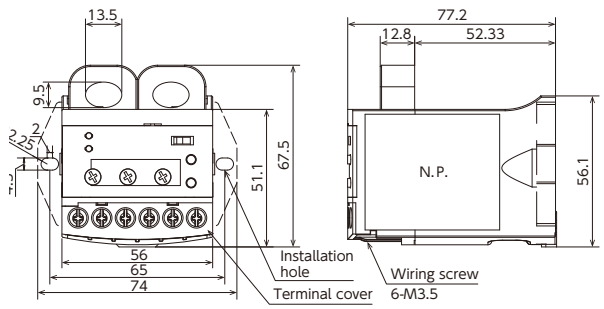
Model

TSB SB 05

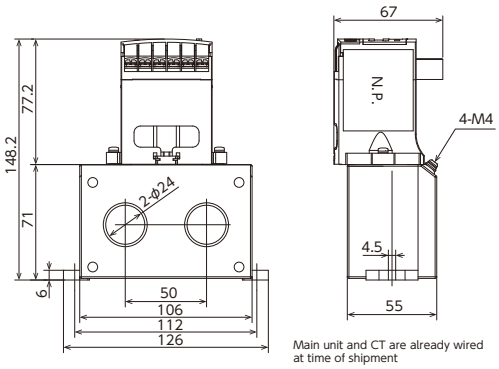
- TSB: Shock Relay
- SB: SB Series
- 05: Size

Outline dimensions

CT all-in-one model

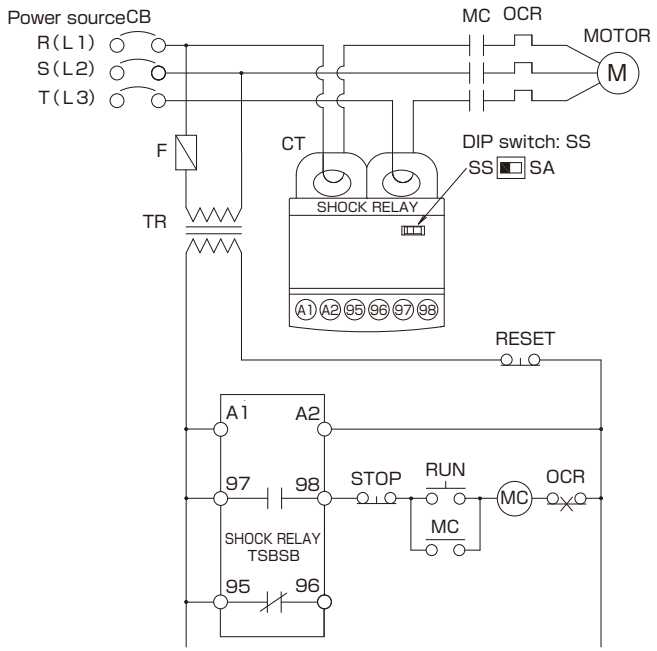


CT externally mounted model

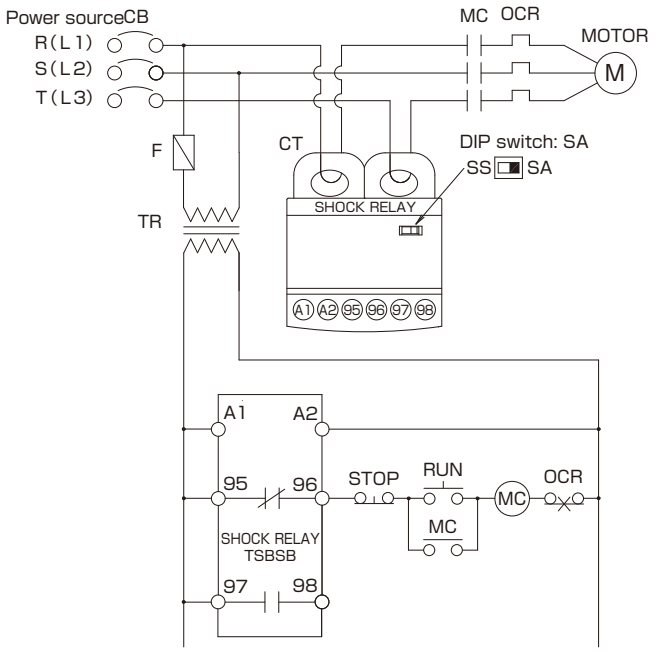


Basic connection diagram

When DIP switch is set to SS



When DIP switch is set to SA



Number of wire(s) that pass through the CT

Depending on motor capacity, use the chart on the right to select the applicable Shock Relay model and number of wire(s) to pass through the CT.
In order to increase the current setting accuracy, the number of wires that pass through the CT is two times or more for small motor currents.
When the motor load factor is low, increase the number of wires that pass through the CT as necessary.
Furthermore, when the number of the wires that pass through the CT is more than two, it is necessary to convert the current scale value of current volume.
(Ex.) When a wire passes two times through the CT, the value on the current scale should be at half value.

AC 200V class motor			AC 400V class motor		
Capacity (kW)	Shock Relay model no.	No. of wires passing through CT	kW	Shock Relay model no.	No. of wires passing through CT
0.1	TSBSB05	4	—	—	—
0.2	TSBSB05	3	0.2	TSBSB05	4
0.4	TSBSB05	2	0.4	TSBSB05	3
0.75	TSBSB05	1	0.75	TSBSB05	2
1.5	TSBSB10	1	1.5	TSBSB05	1
2.2	TSBSB10	1	2.2	TSBSB05	1
3.7	TSBSB30	1	3.7	TSBSB10	1
5.5	TSBSB30	1	5.5	TSBSB30	1
7.5	TSBSB60	1	7.5	TSBSB30	1
11	TSBSB60	1	11	TSBSB30	1
—	—	—	15	TSBSB60	1
—	—	—	18.5	TSBSB60	1
—	—	—	22	TSBSB60	1

Innovation in Motion

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