EHX653.0601

TSUBAKI

SHOCK RELAY
TSB SM

INSTRUCTION MANUAL

This instruction manual explains the installation and adjustment of your SHOCK RELAY. All settings must be properly adjusted to ensure correct operation Please attach this instruction manual when you ship your equipment to the end-user

SHOCK RELAY PROTECTS YOUR MACHINERY AND EQUIPMENT FROM COSTLY DOWNTIME.

⚠ WARNING

1. Make sure you read this instruction manual thoroughly before installing, wiring, operation and inspecting this SHOCK RELAY.
2. Please make sure that this instruction manual accompanies the SHOCK RELAY to the end user.
3. Keep this instruction manual in order not to lose so that it will always be available for the duration of the SHOCK RELAY's operating life.
4. Product specification are subject to change for improvement without notice.

TSUBAKI EMERSON CO.

2004. 4.21

⚠ WARNING

USE CARE TO PREVENT ELECTRICAL SHOCK

CAMPLY WITH THE FOLLOWING TO AVOID SERIOUS PERSONAL INJURY

1. Disconnect power. Always lock out power switch before installing, removing, or servicing unit. Comply with Occupational Safety and Health Standards 1910. 147 “The Control of Hazardous Energy (Lock Out/Tag Out)”.

2. Install in proper enclosure in accordance with NEMA 250-1991 “Enclosures for Electrical Equipment (1000Volts Maximum)” and NFPA496 1993 edition “Purged and Pressurized Enclosures for Electrical Equipment, 1993 Edition” When revisions of these standards are published, the updated edition shall apply.

3. Guards must be provided on all power transmission and conveyor applications in accordance with provisions of ASMEB15.1-1992 “Safety standards for Mechanical Power Transmission Apparatus” and ASMEB20.1-1993 “Safety standard for Conveyors and Related Equipment”, or other applicable standards. When revisions of these standards are published, the updated edition shall apply.

⚠ CAUTION

- If danger is expected from your application, take the necessary steps to ensure that it operates safely.
- If your Tsubaki product does not operate normally, take care to ensure that dangerous operating conditions do not occur.
- Wear suitable clothing and protective equipment(safety glasses, gloves, safety shoes, etc.)
- Keep your work place tidy and safe to prevent secondary accidents.

1. Preface

Thank you for purchasing the Shock Relay TSBSM series.

This instruction manual describes everything from installation to adjustment.

Be sure to read it carefully before using your shock relay.

When delivering any device containing the shock relay to an end user , be sure that this instruction manual is included.

2.Outline.

SHOCK RELAY TSBSM is the electric-type over-load protection device.

It protects the general industry machine driven by a motor from the over-load.

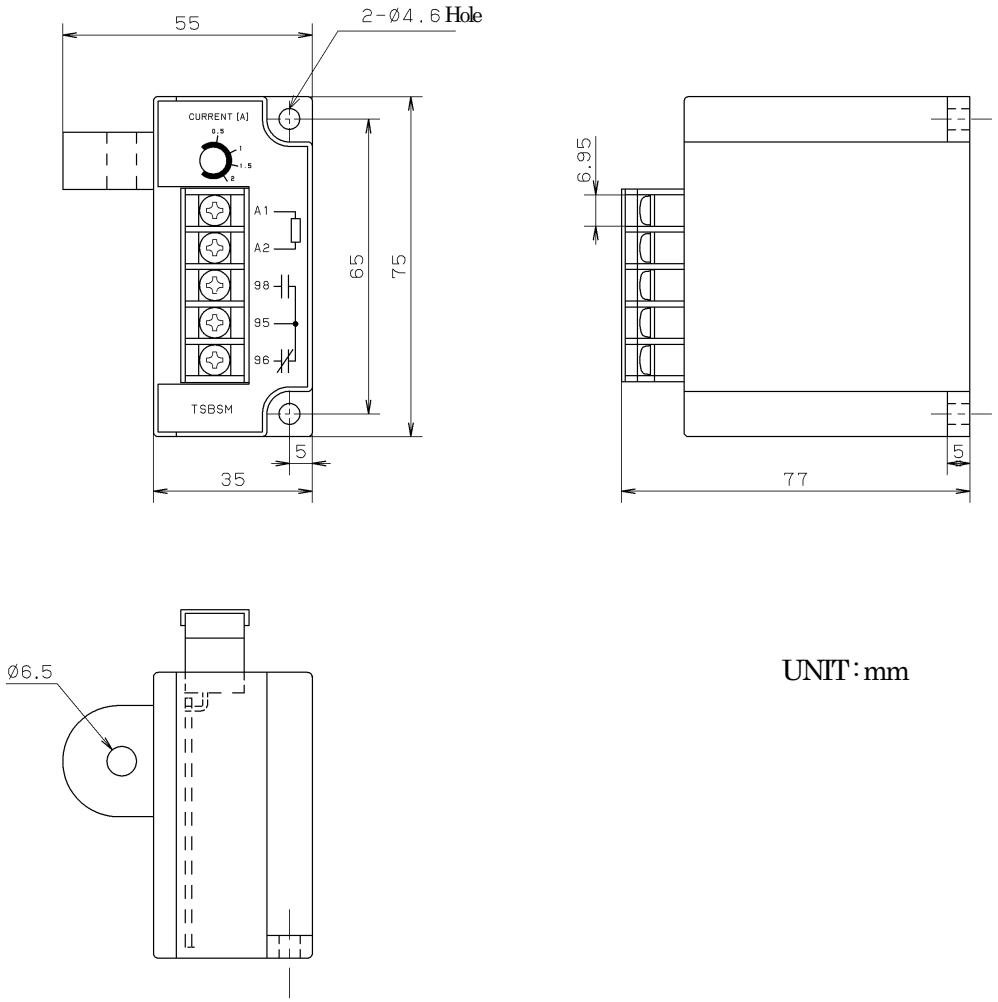
- One of three phases of the motor current are monitored by integral current transformers
- A load is detected in the electric current value of the motor wiring that it goes through CT (current transformer) installed in TSBSM.
- When the actual load current exceeds the preset CURRENT for the preset SHOCK TIME ,the shock relay trips to break the motor circuit.

  If the motor current drops back down below the preset current level before the preset trip time delay has elapsed, Shock Relay will return to normal condition.

Specifications

Items \ TYPE		TSB SM02
Current Setting		0.5～2.0A
Applicable motor	3phase 200VAC	60～200W
	1phase 200VAC	60～200W
	1phase 100VAC	25～90W
Ambient Environment	Temperature	-10 - +50℃ (14 - +122 F)
	Humidity	45 – 85％ RH without Condensation
	Vibration	5.9m/s^2
	Atmosphere	Required to be free from dust and corrosive gas
Starting Trip Delay	Start Time	1.5s(fixed)
Trip Time	Shock Time	1.0s(fixed)
Accuracy	Current	±10％
Control Power Supply		90～250VAC, 50/60Hz
Current Sensing		1 Integral Current Transformer
Output Relay	Mode	1-SPDT(1-C) , Auto- reset
	Rating	3A / 250VAC, Resistive
	Minimum applicable load	DC10V, 10mA
	Status	Normally De-Energized
Expected Output Relay Life	Electrical	100,000 Operations
Insulation	Between casing and circuit	Over 10MΩwith 500 VDC Megger
Dielectric Strength	Between casing and circuit	AC 2000V, 5mA, 60Hz, 1min
	Between contacts	AC 1000V, 5mA, 60Hz, 1min
	Between circuits	AC 2000V, 5mA, 60Hz, 1min
Weight		0.2Kg

3. DIMENSIONS



UNIT : mm

4. Set up

1) Current dial

Slowly turn the CURRENT dial clock-wise until Relay is ON. This indicates actual load current.

Set the CURRENT knob to the desired trip setting.

2) Start Time

Start Time is fixed to 1.5s.

When starting a motor , the starting current value is greater than the rated current. This starting current value continues until the motor reached normal speed. During this starting period , the function of detecting the overload current is disabled.

3) Shock Time

Shock Time is fixed to 1.0s.

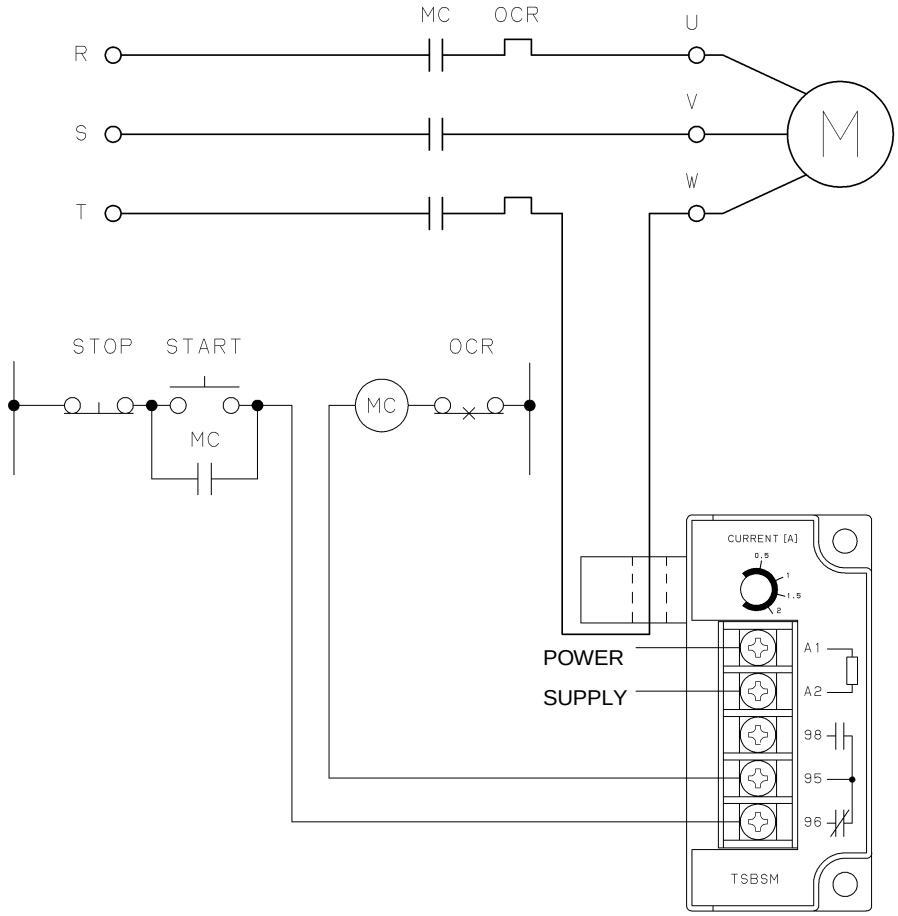
Every momentary load over the preset current with shorter period than 1.0s is ignored.

5. Current Transfomer

Select number of wiring passing through the CT (Current Transformer) by using the following the table for best performance.

Motor rated current	Wiring passing Through CT
Under 0.5 A	3
Under 1.0 A	2
More than 1.0A	1

6. Wiring Diagram



1. One of three phases of the motor are passed through the Shock Relay's CT.
2. A transformer may be required, depending on the voltage of Motor.
   (i.e. over 250VAC)
3.Output relay is normally De-energized. When Shock Relay works, it is ON.

7. Maintenance

During performance of any maintenance or testing, be sure to go the following.

(1) To prevent a fire hazard, keep the surrounding area clean and create a safe environment.

(2) When performing tests on the Shock Relay mounting or connections, be sure that the power supply is disconnected, that the instrument is completely stopped. Also, make sure that the power supply cannot be accidentally reconnected.

(3) Observe the guidelines listed in the Labor Safety and Health Regulation.

(4) Depending on the environment and operation hours, the life of the Shock Relay will vary, but if run continuously under allowable conditions, the life of the electrolytic capacitor will be approximately 10 years. In order to avoid an untimely malfunction, we recommend occasional overhauling or replacement.

8. Guarantee.

1) Range of guarantee

With regard to any troubles happened to our products, replacement or repair of such troubled parts will be provided for free of charge during the effective period of guarantee, provided that installation and maintenance/management of said products have been performed properly pursuant to the description of this instruction manual and said products have been used under the condition described in the brochures or agreed separately through mutual consultations. The content of guarantee is limited only to the Shock Relay itself delivered to you and the judgment thereof will be made by our selection because such judgment pertaining to the range of guarantee is often complex.

2)Guarantee period

The guarantee period shall be either 18 months after shipment from our factory or 12 months after starting operation, whichever is shorter. Any and all inspection/repair undertaken by us after the above guarantee period has passed will be charged. Should questions arise, please do not hesitate to contact us or the dealer from whom you purchased.

3) Miscellaneous

a) Any matters described in this instruction manual are subject to change without notice.

b) We have tried our best in preparing the contents of this instruction manual. Should any mistake or oversight be found, we will be more than happy if you would advice us of them.

MEMO

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