

Preface

Thank you for purchasing our SH□, SH□W, Signal Conditioners. This manual contains instructions for the mounting, functions, operations and notes when operating the SH□, SH□W. To ensure safe and correct use, thoroughly read and understand this manual before using this instrument. To prevent accidents arising from the misuse of these instruments, please ensure the operator receives this manual.

Notes

- This instrument should be used in accordance with the specifications described in the manual. If it is not used according to the specifications, it may malfunction or cause a fire.
- Be sure to follow the warnings, cautions and notices. If they are not observed, serious injury or malfunction may occur.
- The contents of this instruction manual are subject to change without notice.
- Care has been taken to ensure that the contents of this instruction manual are correct, but if there are any doubts, mistakes or questions, please inform our sales department.
- This instrument is designed to be installed on a DIN rail within a control panel. If it is not, measures must be taken to ensure that the operator cannot touch power terminals or other high voltage sections.
- Any unauthorized transfer or copying of this document, in part or in whole, is prohibited.
- Shinko Technos Co., Ltd. is not liable for any damage or secondary damage(s) incurred as a result of using this product, including any indirect damage.

Safety Precautions (Be sure to read before using our products)

The safety precautions are classified into categories: "Warning" and "Caution". Depending on circumstances, procedures indicated by ⚠ Caution may result in serious consequences, so be sure to follow the directions for usage.

⚠ Warning Procedures which may lead to dangerous conditions and cause death or serious injury, if not carried out properly.

⚠ Caution Procedures which may lead to dangerous conditions and cause superficial to medium injury or physical damage or may degrade or damage the product, if not carried out properly.

⚠ Warning

- To prevent an electrical shock or fire, only Shinko or other qualified service personnel may handle the inner assembly.
- To prevent an electrical shock, fire or damage to the instrument, parts replacement may only be undertaken by Shinko or other qualified service personnel.

⚠ Safety Precautions

- To ensure safe and correct use, thoroughly read and understand this manual before using this instrument.
- This instrument is intended to be used for industrial machinery, machine tools and measuring equipment. Verify correct usage after purpose-of-use consultation with our agency or main office. (Never use this instrument for medical purposes with which human lives are involved.)
- External protection devices such as protective equipment against excessive temperature rise, etc. must be installed, as malfunction of this product could result in serious damage to the system or injury to personnel. Proper periodic maintenance is also required.
- This instrument must be used under the conditions and environment described in this manual. Shinko Technos Co., Ltd. does not accept liability for any injury, loss of life or damage occurring due to the instrument being used under conditions not otherwise stated in this manual.

⚠ Caution with Respect to Export Trade Control Ordinance

To avoid this instrument from being used as a component in, or as being utilized in the manufacture of weapons of mass destruction (i.e. military applications, military equipment, etc.), please investigate the end users and the final use of this instrument. In the case of resale, ensure that this instrument is not illegally exported.

● Installation Precautions

⚠ Caution

This instrument is intended to be used under the following environmental conditions (IEC61010-1): Overvoltage category II, Pollution degree 2. Ensure the mounting location corresponds to the following conditions:

- A minimum of dust, and an absence of corrosive gases
- No flammable, explosive gases
- No mechanical vibrations or shocks
- No exposure to direct sunlight, an ambient temperature of -10 to 55°C (14 to 131°F) that does not change rapidly, and no icing
- An ambient non-condensing humidity of 35 to 85 %RH
- No large capacity electromagnetic switches or cables through which large current is flowing
- No water, oil, chemicals or the vapors of these substances can come into direct contact with the unit
- When installing this unit within a control panel, please note that the ambient temperature of this unit – not the ambient temperature of the control panel – must not exceed 55°C (131°F). Otherwise the life of electronic components (especially electrolytic capacitors) may be shortened.

Note: Avoid setting this instrument directly on or near flammable material even though the case of this instrument is made of flame-resistant resin.

● Wiring Precautions

⚠ Caution

- Do not leave wire remnants in the instrument, as they could cause a fire or malfunction.
- When wiring, use a crimping pliers and a solderless terminal with an insulation sleeve in which an M3 screw fits.
- Tighten the terminal screw using the specified torque.
- This instrument does not have a built-in power switch, circuit breaker and fuse. It is necessary to install a power switch, circuit breaker and fuse near the instrument. (Recommended fuse: Time-lag fuse, rated voltage 250 V AC, rated current 2 A)
- For wiring of AC power source, be sure to use terminals as described in this manual. If AC power source is connected to incorrect terminals, the unit will be burnt out.
- Do not apply a commercial power source to the sensor which is connected to the input terminal nor allow the power source to come into contact with the sensor.
- Use a thermocouple and compensating lead wire according to the sensor input specifications of this instrument.
- Use the 3-wire RTD according to the sensor input specifications of this unit.
- When using DC voltage and current input, do not confuse polarity when wiring.
- Keep the input/output wires and power line separate.

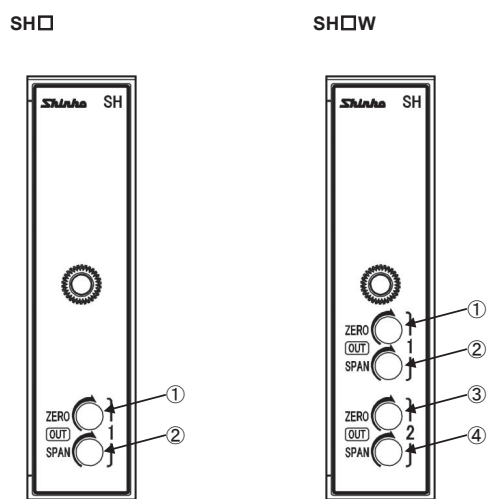
● Operation and Maintenance Precautions

⚠ Caution

- Do not touch live terminals. This may cause an electrical shock or problems in operation.
- Turn the power supply to the instrument OFF when retightening the terminal or cleaning. Working on or touching the terminal with the power switched ON may result in severe injury or death due to electrical shock.
- Use a soft, dry cloth when cleaning the instrument.
- (Alcohol based substances may tarnish or deface the unit.)

1. Name and Functions

1.1 Front Panel



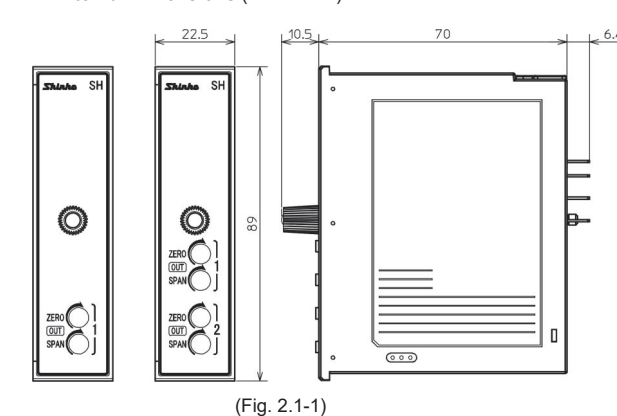
(Fig. 1.1-1)

- ① **Output 1 Zero:** Adjusts the value of Output 1 Zero.
- ② **Output 1 Span:** Adjusts the value of Output 1 Span.
- ③ **Output 2 Zero:** Adjusts the value of Output 2 Zero.
- ④ **Output 2 Span:** Adjusts the value of Output 2 Span.

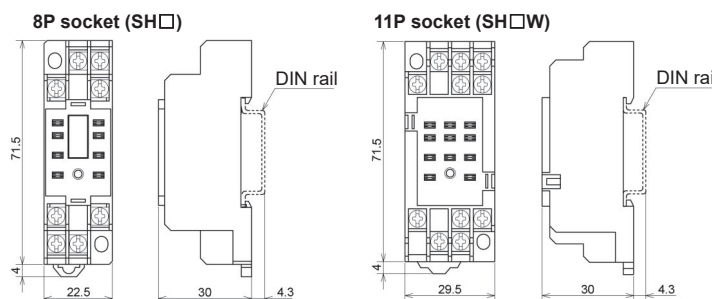
*1: Only for SH□W (2-outputs spec)

2. Mounting

2.1 External Dimensions (Scale: mm)



(Fig. 2.1-1)



(Fig. 2.1-2)

2.2 Mounting to, and Removal from the DIN Rail

Mounting to the DIN Rail (Fig. 2.2-1)

- Loosen the mounting screw on the front panel before removing the unit from the socket.
- Make sure the lock lever of the socket is located in the lower part of the socket. Hook the upper side of the socket onto the DIN rail, then fit the lower part of the socket onto the DIN rail (A clicking sound should be heard when done properly.)

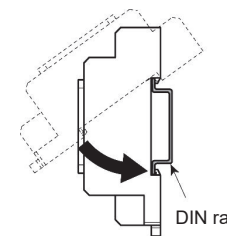
⚠ Caution

- Before inserting the instrument to the socket, make sure the cable is wired properly. (Refer to "3. Wiring".)
- When inserting or removing the socket, make sure the socket is oriented vertically. If force is applied in any other direction than vertically, a malfunction may occur.
- If the mounting screw is fastened too tightly, a malfunction may occur.

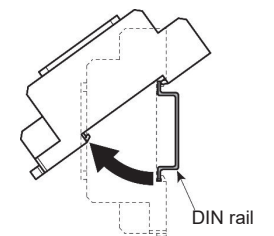
- Insert the instrument into the socket.
- Fasten the mounting screw by turning it clockwise, to secure the instrument onto the socket. Tighten the screw lightly.

Removal from the DIN rail (Fig. 2.2-2)

- Turn the power to the instrument OFF.
- Separate the instrument from the socket by loosening the mounting screw on the front panel.
- Insert a flat blade screwdriver into the Lock lever (lower part of the socket), and remove the socket from the DIN rail while pulling the lever down.



(Fig. 2.2-1)



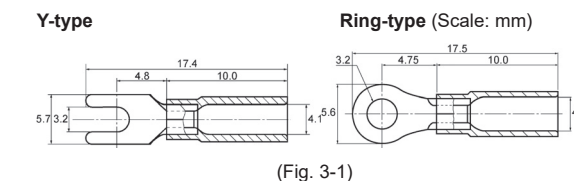
(Fig. 2.2-2)

3. Wiring

Lead Wire Solderless Terminal

Use a solderless terminal with an insulation sleeve in which an M3 screw fits as shown below. The torque should be 0.63 N·m.

Solderless Terminal	Manufacturer	Model
Y-type	NICHIFU TERMINAL INDUSTRIES CO., LTD.	TMEX1.25Y-3
	J.S.TMFG.CO.,LTD.	VD1.25-B3A
Ring-type	NICHIFU TERMINAL INDUSTRIES CO., LTD.	TMEX1.25-3
	J.S.TMFG.CO.,LTD.	V1.25-3



(Fig. 3-1)

For terminal arrangement, refer to the specifications for each instrument. Please download the specifications from Shinko website. <https://shinko-technos.co.jp/e/> → Signal Conditioners → SH series → List of models

4. Adjustment

For this instrument, the output adjustment has already been completed when shipped. If the instrument is used with the ordered Input/Output spec, the adjustment is not required. However, for calibration, or for the fine adjustment of the instrument to which any equipment is connected, perform the adjustment. Connect an mV generator or Dial resistor to the input terminals of this instrument. Connect a digital multimeter to the output terminals.

Output 1 Adjustment

- Enter the value corresponding to 0% output, and adjust the value using the 'Output 1 Zero' trimmer while viewing the output value (on the digital multimeter).
- Enter the value corresponding to 100% output, and adjust the value using the 'Output 1 Span' trimmer while viewing the output value (on the digital multimeter).
- Enter the value corresponding to 0% output again, and confirm the output value (on the digital multimeter).
- If the value corresponding to 0% output is not at 0%, repeat steps ① to ③ again.

Output 2 Adjustment

The procedure for Output 2 adjustment is the same as that of Output 1 adjustment. Use Output 2 Zero and Span trimmers for adjustment.

Inquiries

For any inquiries about this unit, please contact our agency or the vendor where you purchased the unit after checking the following.

- (e.g.)
- Model ----- SHI-A01-0-0
 - Serial number ----- No.154F05000

In addition to the above, please let us know the details of the malfunction, or discrepancy, and the operating conditions.

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