

<b>INPUT LOOP POWERED ISOLATOR</b>	MODEL	<b>TSN</b>
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**BEFORE USE ....**

Thank you for choosing us. Before use, please check contents of the package you received as outlined below. If you have any problems or questions with the product, please contact our sales office or representatives.

**■ PACKAGE INCLUDES:**

Signal conditioner .....(1)

**■ MODEL NO.**

Confirm Model No. marking on the product to be exactly what you ordered.

**■ INSTRUCTION MANUAL**

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

**POINTS OF CAUTION**

**■ GENERAL PRECAUTIONS**

- Before you remove the unit or mount it, turn off the input signal for safety.

**■ ENVIRONMENT**

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -5 to +60°C (23 to 140°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

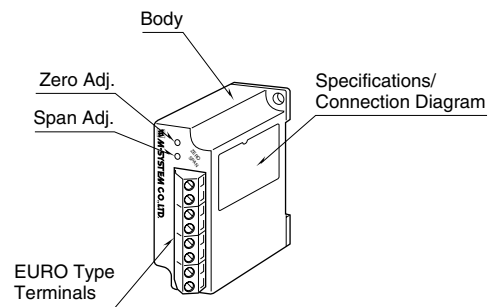
**■ WIRING**

- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

**■ AND ....**

- The unit is designed to function as soon as the input signal is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

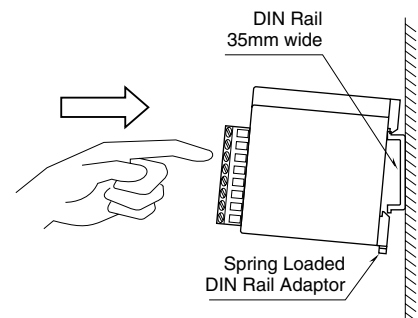
**COMPONENT IDENTIFICATION**



**INSTALLATION**

**■ DIN RAIL MOUNTING**

Set the unit so that its DIN rail adaptor is at the bottom. Hang the upper hook at the rear side of the unit on the DIN rail and push in the lower. When removing the unit, push down the DIN rail adaptor utilizing a minus screwdriver and pull.



**■ WALL MOUNTING**

Refer to "EXTERNAL DIMENSIONS."

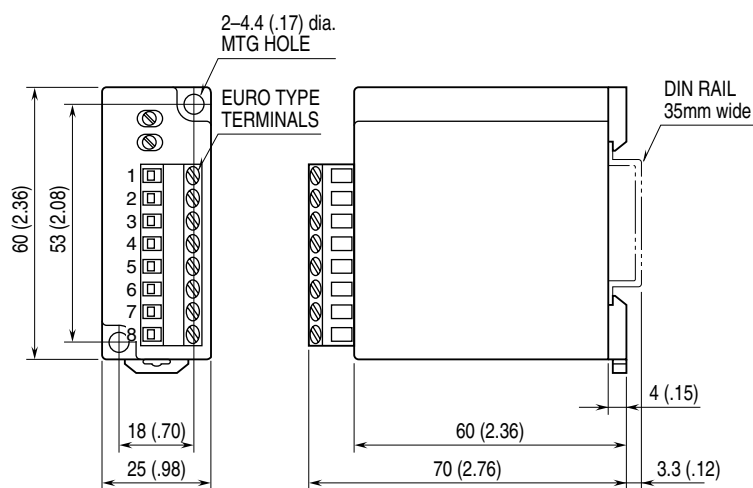
## TERMINAL CONNECTIONS

Connect the unit as in the diagram below or refer to the connection diagram on the side of the unit.

Do not interconnect negative sides of input and output terminals (via grounding terminals e.g.) as they are not of the same potential level.

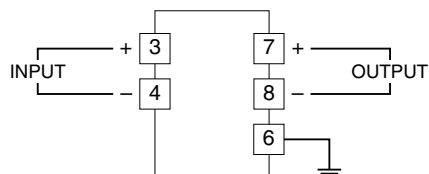
Ground the terminal 6 for RFI protection if necessary. When grounded, dielectric strength between output signal line and ground is of 50V DC, though it is of 500V AC when not grounded.

### EXTERNAL DIMENSIONS unit: mm (inch)



•When mounting, no extra space is needed between units.

### CONNECTION DIAGRAM



## WIRING INSTRUCTIONS

### ■ EURO TYPE TERMINAL

Applicable wire size: 0.25 – 1.5 mm<sup>2</sup>

Stripped length: 7 mm

## CHECKING

- 1) Terminal wiring: Check that all cables are correctly connected according to the connection diagram.
- 2) Input: Check current with an ammeter. Be sure that the connected transmitter allows the load shown in the following table.

MODEL	EQUIVALENT INPUT IMPEDANCE
TSN	250Ω
TSN-H6	100Ω

- 3) Output: Check that output load is within the permissible limit shown in the following table.

MODEL	LOAD RESISTANCE
TSN	50kΩ minimum
TSN-H6	50kΩ minimum

## ADJUSTMENT PROCEDURE

This unit is calibrated at the factory to meet the ordered specifications, therefore you usually do not need any calibration.

For matching the signal to a receiving instrument or in case of regular calibration, adjust the output as explained in the following.

### ■ HOW TO CALIBRATE THE OUTPUT SIGNAL

Use a signal source and measuring instruments of sufficient accuracy level. Turn the input signal on and warm up for more than 10 minutes.

- 1) ZERO: Apply 0% input and adjust output to 0%.
- 2) SPAN: Apply 100% input and adjust output to 100%.
- 3) Check ZERO adjustment again with 0% input.
- 4) When ZERO value is changed, repeat the above procedure 1) – 3).

## MAINTENANCE

Regular calibration procedure is explained below:

### ■ CALIBRATION

Warm up the unit for at least 10 minutes. Apply 0%, 25%, 50%, 75% and 100% input signal. Check that the output signal for the respective input signal remains within accuracy described in the data sheet. When the output is out of tolerance, recalibrate the unit according to the “ADJUSTMENT PROCEDURE” explained earlier.

## LIGHTNING SURGE PROTECTION

We offer a series of lightning surge protector for protection against induced lightning surges. Please contact us to choose appropriate models.