

Load Cell Transducer MODEL TW-3S INSTRUCTION MANUAL

Warning

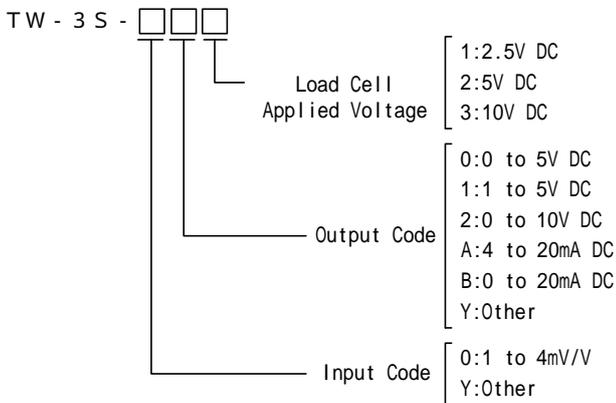
This symbol indicates that incorrect operation of this equipment may result in death or serious injury.

Caution

- (1) Applying of voltage or current that exceeds the maximum tolerance may damage the equipment.
- (2) Ensure the power applied within the tolerance range. Failure to do so may cause fire, electric shock or equipment damage.
- (3) The contents of this instruction manual are subject to change without notice as a result of continuing improvements to the equipment's performance and functions.
- (4) Every care has been taken in the writing of this manual. However, should any points of concern, errors or omissions be found, please contact a sales agent or inform Watanabe Electric Industry directly.
- (5) After reading this instruction manual, store it in a convenient location for future reference.

Outline
 The TW-3S Load Cell Transducer converts load cell signals to DC voltage and current signals which are then output.
 The input, output and power ports are mutually isolated and the case can be simply installed on a DIN rail.
 Detachable connectors are used for input and output.

Model Configuration
 The codes and standard specifications of this transducer are shown below. Please check them against your order specifications.



Input Specifications
 Load Cell : Strain Gauge Sensors(350)

Code No.	Load cell Response Range
0	1 to 4mV/V
Y	Other

Possible range for production specification Y : 4 to 20mV/V

Load Cell Applied Voltage

Code No.	Applied Voltage
1	2.5V
2	5V
3	10V

Allowable current : 30mA
 Tare Adjustment : ±0.25mV/V(input conversion)

N.B. If tare adjustment cannot be made due to high preliminary tension, this can be corrected by connecting a fixed resistor to one side of the load cell bridge.
 (Polarity between-SIG and +EXC, and SIG and EXC will be reversed.)

As external resistance has a direct effect on accuracy, ensure that a resistor with good temperature coefficient (less than 50ppm/) is used.

Input Conversion Distortion (mV/V)	0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.4	1.6	1.8
Resistance Value (k)	294	220	174	147	110	86.6	73.2	61.9	54.9	48.7

Output Specifications

Output : DC Voltage / Current

Code No.	Output Signal	Load Resistance
0	0 to 5V DC	More than 2k
1	1 to 5V DC	
2	0 to 10V DC	More than 4k
A	4 to 20mA DC	Less than 550
B	0 to 20mA DC	
Y	Other	

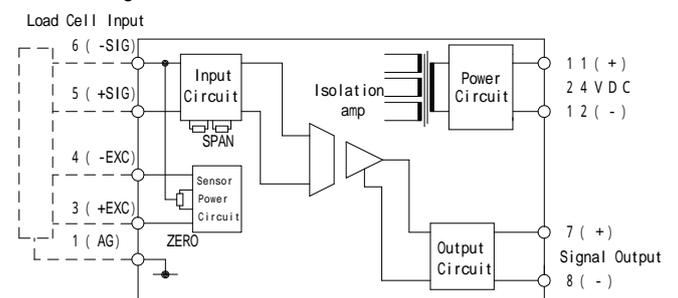
Possible range for production specification Y :

Output Current : Less than 20mA DC, minimum span 1mA DC
 Output Voltage : Less than 10V DC, minimum span 1V DC

General Specifications

- Allowable Tolerance : ±0.25% F.S(At 25 ±2)
- Temperature : ±0.03%F.S/
- Characteristic
- Response Time : Less than 10msec
 (Time required to reach 90% of rated output)
- Dielectric : Between input, output and power,
- Resistance : more than 100M (500V DC)
- Voltage Resistance : Between input, output and power, 1500V AC per minute, leakage current 2mA
- Power Supply Voltage : 24V DC ±10%
- Current Consumption : Less than 120mA (at 24V DC)
- Operating Ambient : -5 to 50
- Temperature
- Operating Ambient : Less than 90%RH (non-condensing)
- Humidity
- Storage Temperature : Between -10 to +70
- Storage Humidity : Less than 60%RH (non-condensing)
- Case Material : Black PBT 94-V0
- Weight : Approximately 120g

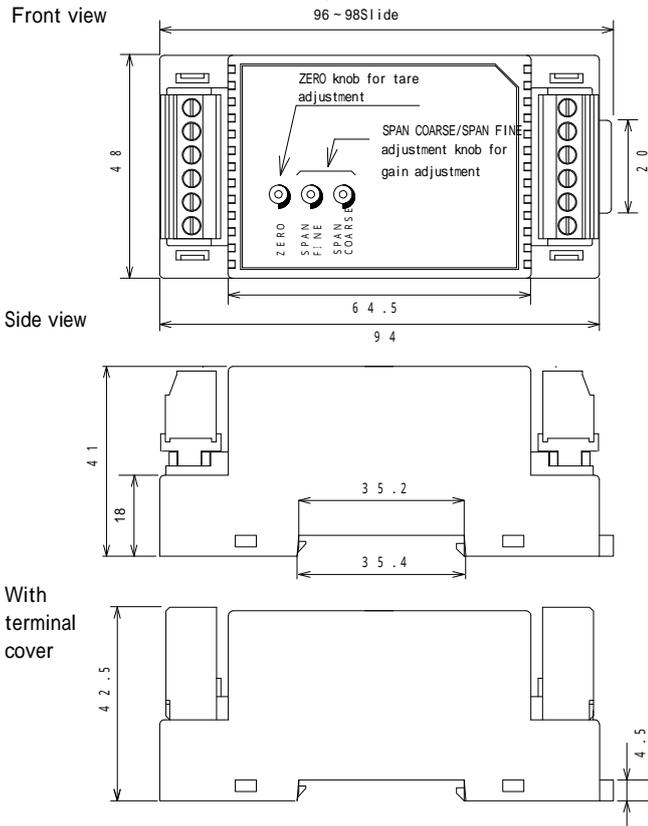
Block Diagram



Adjustment and Operation

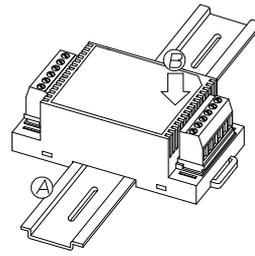
As this equipment is used for high precision measurement, please age the load cell, power and output devices for approximately 30 minutes after connection. During no load or when specified preliminary tension (tare etc.) has been added, turn the ZERO knob for tare adjustment until the output matches the minimum output for all output specifications. Next, add an actual load to the transducer in order to calibrate the equipment, using the SPAN COARSE and SPAN FINE adjustment knobs for gain adjustment until the desired output is attained.

Dimensional Outline Drawing



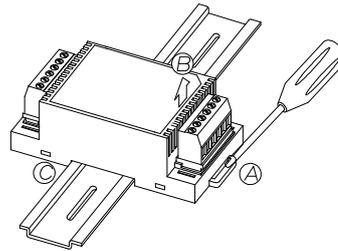
Installation and Removal

Installation



- Ⓐ Mount the left side of the transformer on the rail.
- Ⓑ Push the right side of the transformer into the rail.

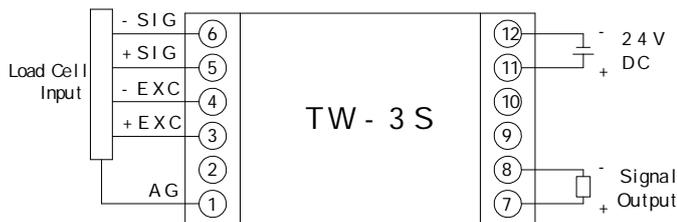
Removal



- Ⓐ Press down the slider using a screwdriver or similar instrument.
- Ⓑ Pull the right side of the transformer up.
- Ⓒ Remove the left side of the transformer from the rail.

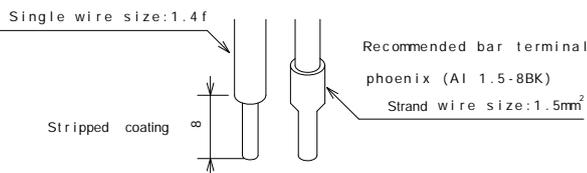
N.B. If there is a possibility that the transformer will move out of place after installation, it is recommended that clamps be used to keep it in place. If two or more transformers are to be installed next to each other, ensure there is space left between the transformers so they do not touch.

Input/ Output Connection Diagram



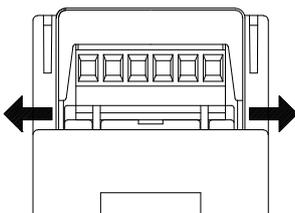
⚠ CAUTION: Ensure that the connection polarity is correct.

Recommended Arrangement of Connector Terminal Block Connection Wires



Removing the Terminal Cover

Pull out the sides at the bottom of the terminal cover and lift.



Caution

- Store the transducer at a temperature of between -10 to +70 and a humidity of less than 60%.
- Ensure that the area in which the equipment is used is free of dust, foreign particles, and chemical agents and gases that could damage electrical components.
- Avoid vibration and impact.
- In order to reduce noise and other effects, do not bundle the input/output wiring with the power source wiring or place them wires in the same duct.

Warranty

The warranty period for this equipment is one year from the date of delivery. If within this period the product develops a defect attributable to Watanabe Electric Industry, shall repair or replace the product free of charge.

After - sale Service

This equipment has been manufactured, tested and inspected under strict quality control. However, should a fault occur, contact an Watanabe Electric Industry agent or Watanabe Electric Industry directly. Write as much detail about the fault as possible and send this information together with the faulty product.

Accessories

Terminal covers	2
Detachable 6P connectors	2



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