

# §Small-sized plug-in transducer§

1 output type

Thermoelectric temperature transducer

FSHT

## Application

By inputting thermal electromotive forces of various kinds of thermocouples based on the JIS, the device insulates input and output, and then converts thermal electromotive forces into an output proportional to temperature. Up to 16 units can be housed in an installation base.

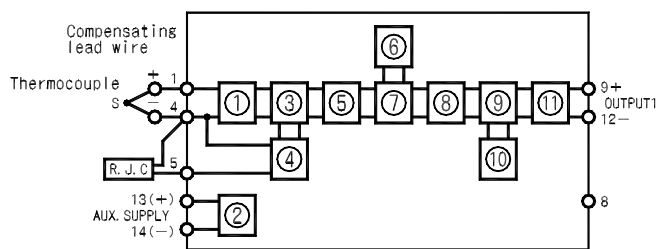
## Feature

1. Compact and high withstand voltage.
2. Withstand voltage between input/output/auxiliary supply/outer case is AC2, 000V (50/60Hz) for 1 min..
3. Constant voltage/current output type. No need to adjust the product if it operates within load resistance range.
4. A LED can confirm status of electric power applied.
5. Zero/span is adjustable. ( $\pm 2\%$  adjustable)
6. Plus (+) or minus (-) burnout can be specified.



23 × 76 × 125mm/160g

## Block Diagram

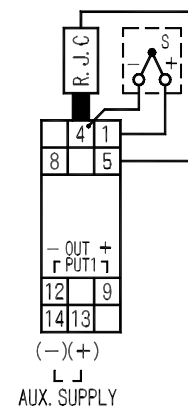


- Burnout detecting circuit
- Insulated power source circuit
- Input amplifying circuit
- Ambient temperature correction circuit
- Linearized circuit
- Oscillating circuit
- Pulse width modulation circuit
- Photo coupler insulation
- Pulse width demodulation circuit
- Reference voltage
- Output circuit

## Built-in cold junction compensation

Thermal electromotive force as an input varies along with temperature change of input terminal. Terminal temperature is measured by a RJC (compensating sensor) and the changed portion of thermal electromotive force caused by this temperature change is compensated.

## Connection diagram (socket)



## Compensating wire

A compensating wire compensates for the temperature difference between thermocouple terminals and transducer terminals.

Keep in mind that different thermocouple needs different compensating wire.

## External conducting wire resistance range

External wire resistance is the resistance value of a reciprocating circuit. The reciprocating circuit consists of thermocouple, compensating wire and connecting wire connected to a transducer. Use the product within an external conducting wire resistance range less than or equal to 500Ω.

# §Small-sized plug-in transducer§

1 output type

Thermoelectric temperature transducer

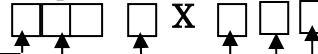
## Specification

How to specify

Type name

**FSHT**

Specification code



Kind of thermocouple	Input	Output (load resistant)	Auxiliary supply	Power fuse	Burnout	Common specification
<b>B</b> :*1 Range 600-1700 Span 1000	<b>01</b> :0-150 <b>02</b> :0-200 <b>03</b> :0-250 <b>04</b> :0-300 <b>05</b> :0-350 <b>06</b> :0-400 <b>07</b> :0-450 <b>08</b> :0-500	<b>1</b> :DC0-100mV ( 200 ) <b>2</b> :DC0-1V ( 200 ) <b>3</b> :DC0-5V ( 600 ) <b>4</b> :DC0-10V ( 2k ) <b>5</b> :DC1-5V ( 600 )	<b>F</b> :AC/DC80-264V Rated Voltage AC100/110V 50/60Hz AC200/220V 50/60Hz DC100/110V	<b>1</b> :without fuse <b>2</b> :with fuse	<b>1</b> :plus <b>2</b> :minus	<b>Conversion accuracy:</b> K,E,J,T,N: ± 0.4% B,R,S: ± 0.5% <b>Temperature characteristics:</b> 0.25%/10 <b>Response time:</b> 0.5s/90% <b>Accuracy of cold junction compensation:</b> K, E, J, T, N thermocouple: 0.5 S,R thermocouple: 1.0 <b>Burnout time:</b> 10s <b>Input external resistance:</b> 500 <b>Consumption VA:</b> At AC110V: 3.5VA At AC220V: 4.5VA At DC110V: 2.0W At DC24V: 2.5W <b>CE marking item:</b> At DC24V: 2.8W <b>Weight:</b> Without socket: approx.130g With socket: approx.160g
<b>R</b> : Range 0-1600 Span 1000	<b>09</b> :0-350 <b>10</b> :0-400 <b>11</b> :0-600 <b>12</b> :0-700 <b>13</b> :0-800 <b>14</b> :0-900 <b>15</b> :0-1000	<b>A</b> :DC0-1mA ( 10k ) <b>B</b> :DC0-5mA ( 2k ) <b>C</b> :DC0-10mA ( 1k ) <b>D</b> :DC0-16mA ( 600 ) <b>E</b> :DC1-5mA ( 3k ) <b>F</b> :DC4-20mA ( 750 )	<b>3</b> DC24V (DC19-30V) <b>A</b> :DC24V (DC19-30V) CE marking *3			
<b>S</b> : Range 0-1600 Span 1000	<b>16</b> :0-1100 <b>17</b> :0-1200 <b>18</b> :0-1300 <b>19</b> :0-1400 <b>20</b> :0-1500					
<b>K</b> : Range 0-1200 Span 250	<b>21</b> :0-1100 <b>22</b> :0-1200 <b>23</b> :0-1300 <b>24</b> :0-1400 <b>25</b> :0-1500					
<b>E</b> : Range 0-800 Span 150	<b>31</b> : 600-1600 *1 <b>32</b> : 600-1700 *1	<b>Z</b> :other than those above *2 (See product range)				
<b>J</b> : Range 0-750 Span 200						
<b>T</b> : Range 0-350 Span 200	<b>ZZ</b> :other than those above *2 (See product range)					
<b>N</b> : Range 0-1250 Span 300						

\*1 Only input code 31 or 32 is available for B thermocouple. \*2 Consult with us for specification other than those indicated in the table above.

### Product Range (including special handling)

Input (production measurement range)	Output
<b>B</b> : 0-1820 <b>R</b> : -50-1760 <b>S</b> : -50-1760 <b>K</b> : -270-1370 <b>E</b> : -270-1000 <b>J</b> : -210-1200	<b>T</b> : -270-400 *4 <b>N</b> : -270-1300 <b>ZZ</b> : because it varies by thermocouple specification, consult with us.
	Current output: 1mA-20mA Voltage output: 10mV-10V*5

### \*3 CE marking compliant specifications

**EMC compliant specifications**  
 EMI (emission) EN61000-6-4  
 EMS (immunity) EN61000-6-2

### Safety standard

EN61010-1  
 CAT , pollution degree: 2

\*4 T: 0-100 , 0-150 are specially manufacturable.

\*5 Plus/minus output is not manufacturable.