

watanabe

Leading company of measuring instruments

**Watanabe Electric Industry Co. Ltd.**



Quality Assurance Measures (ISO 9001)  
Environmental Activities (ISO 14001)  
(Excluding Komae Factory)

\*Specification is subject to change without notice

1810C50(E)-5



# Products Guide

2020



**NEW!! YouTube Video**

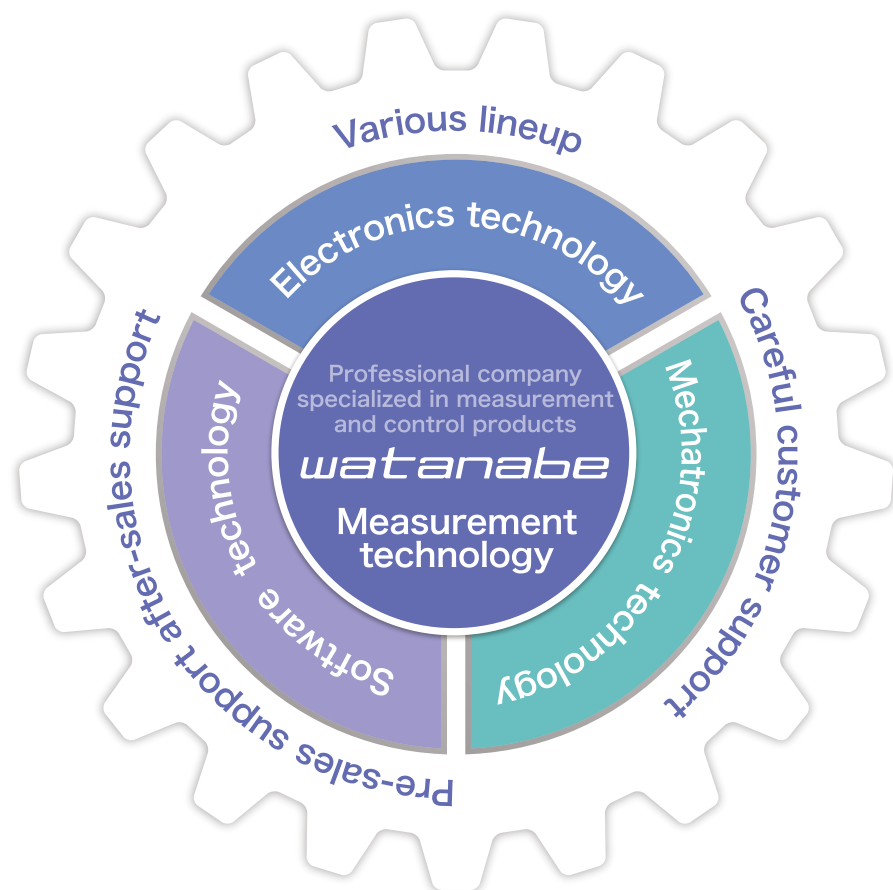
|                                 |                                                                         |
|---------------------------------|-------------------------------------------------------------------------|
| 1. Product Introduction         | <a href="https://youtu.be/rBL784EB_Kg">https://youtu.be/rBL784EB_Kg</a> |
| 2. WPMZ Features                | <a href="https://youtu.be/bUBCPxc4Y2g">https://youtu.be/bUBCPxc4Y2g</a> |
| 3. WPMZ How to use              | <a href="https://youtu.be/1Fro4qzebQY">https://youtu.be/1Fro4qzebQY</a> |
| 4. Signal converter Application | <a href="https://youtu.be/e2nw0jMQgjE">https://youtu.be/e2nw0jMQgjE</a> |

Leading company of measuring instruments

watanabe

# About *watanabe*

We will provide customer's maximum satisfaction by being aware of the needs of the age



## Products



### Signal Converters

We have been developing and selling Signal converters since 1974, widely in the fields of FA, PA and VA. There are 2 types, 'Plug-in type' which is easy to maintain and compact 'Terminal block type' available. We can provide various models which meets the needs of customers, quick delivery and good after support.

P4~7



### Digital Panel Meters

By being aware of the needs of the age, our digital instruments made rapid development. We have one of the most largest product line-up of Digital panel meters (Voltage/Current, Temperature, tachometer, pressure, resistance, frequency etc.) in the industry, which can support wide range of fields of digital measurement of equipment and production.

P8~11



### Temperature Sensors

Thermocouple and RTD are added to Watanabe Brand line-up. We can offer the suitable sensor for customer's BA / PA / FA. Special specifications are also available which suits your environment, location and conditions.

P12~13

## Company Outline

|                      |                                              |
|----------------------|----------------------------------------------|
| Company Name         | Watanabe Electric Industry Co.Ltd.           |
| Trademark            | <i>watanabe</i>                              |
| Headquarters Address | 6-16-19 Jingumae, Shibuya-ku, Tokyo 150-0001 |
| Representative       | Hideki Watanabe, President                   |
| Founded              | November 3, 1940                             |
| Capital Funds        | 45 million yen                               |
| Total Employees      | 190                                          |

### Products

#### ■ Component Products

- 1) Signal converter
- 2) Digital panel meter
- 3) Graphic multi meter
- 4) Temperature Sensors

#### ■ System Products

- 1) Power multi-meter
- 2) Energy monitoring
- 3) Headlight tester

All products made in Japan factory

## Business Bases

### ■ Headquarter & Tokyo Sales Office

6-6-19, Jingumae, Shibuya-ku, Tokyo 150-0001, Japan  
TEL : +81-3-3400-6147  
FAX : +81-3-3409-3156  
E-mail : support@watanabe-electric.co.jp

### ■ Osaka Sales Office

TCS Bldg. 5F, 1-14-33 Esaka-cho, Suita-shi, Osaka  
564-0063, Japan

### ■ Nagoya Sales Office

Fushimi IT Bldg. 5F, 1-4-25 Nishiki, Naka-ku, Nagoya-shi, Aichi  
460-0003, Japan

### Watanabe Electric Manufacturing Co.LTD.

#### ■ Tokyo Factory

1-1-10 Nishi-Tsutsujigaoka, Chofu-shi, Tokyo 182-0006, Japan

#### ■ Fukushima Factory

55 Kuwajimaichi, Kori-machi, Date-gun, Fukushima 969-1613, Japan

#### ■ Komae Factory

3-11-7 Iwatokita, Komae-shi, Tokyo 201-0004 Japan

## Location



Headquarter (Tokyo, Shibuya)



Fukushima Factory

1. Number of Employees : 61
2. Site area : 3,733m<sup>2</sup>
3. Building area : 1,557m<sup>2</sup>
4. Main line of products :  
Signal converter (WSPF, TZ, TW, TH series),  
Digital panel meter, Graphic meter



Tokyo Factory

1. Number of Employees : 37
2. Site area : 1,152m<sup>2</sup>
3. Building area : 683m<sup>2</sup>
4. Main line of products :  
Signal converter (WSP, WVP, WAP series)



# Signal converter isolates and converts various signals for FA & BA.

## High quality & Excellent service! Wide varieties!

Watanabe Electric Industry is 'Manufacturer specializing in measuring and instrumentation instruments' and has history of over 75 years since foundation. Especially among them, we have made many sales results of Signal converters. Signal converter converts various electrical signals to standardized signal which can use with various kinds of equipment.



### Large number of products! Supports all sorts of sensors and equipped devices

333 products  
Extensive lineup

PH

PH sensor

Temperature and humidity sensor

Rotary encoder

Pulse

Load cell sensor

Potentiometer

etc.

Data logger

Monitoring equipment

Digital panel meter

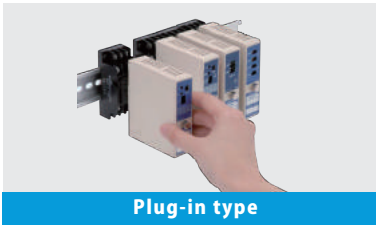
Control equipment

PLC

etc.

Compatible with various kinds of sensors and devices

### Plug-in type, Terminal block type available



"Plug-in type" and "Terminal block type" available. "Plug-in type" can take off the body part from the socket. Therefore mounting and maintenance is easy. "Terminal block type" saves space and costs."



1 Long term stable supply

2 Quick delivery

Made in Japan

### New Compact Plug-in Signal Converter

Functions conformed to the actual sites, high usability

## WSPF Series New Product



- 1 Wide zero & span adjustment
- $\pm 5\%$

$\rightarrow$

$\pm 10\%$
- 2 Improved adjustment sensitivity
- Time saving by improving adjustment trimmer
- 1 turn

$\rightarrow$

15 turn
- 3 Safe design by high dielectric strength
- Compatible with 3kV stable operation
- 2kV

$\rightarrow$

3kV
- 4 Long warranty period
- 5 years long warranty period
- 5 Extended range of power supply
- Can be used for Automotive batteries
- DC30V

Power supply compatible



Easy and fine adjustment by using precision screwdriver

#### New WSPF series line up list

|                                   |                                               |
|-----------------------------------|-----------------------------------------------|
| Isolator                          |                                               |
| WSPF-IS                           | Isolator                                      |
| WSPF-DS                           | Isolator                                      |
| WSPF-DSW                          | Dual-output Isolator                          |
| WSPF-DE                           | High-speed Response Isolator                  |
| WSPF-DEW                          | Dual-output High-speed Response Isolator      |
| Distributor (Current Loop Supply) |                                               |
| WSPF-DBZ                          | Distributor (Current Loop Supply)             |
| WSPF-DBZW                         | Dual-output Distributor (Current Loop Supply) |
| Thermocouple Converter            |                                               |
| WSPF-THZ                          | Thermocouple Converter                        |
| WSPF-THW                          | Dual-output Thermocouple Converter            |
| RTD converter                     |                                               |
| WSPF-RTS                          | RTD converter                                 |
| WSPF-RTW                          | Dual-output RTD Converter                     |
| Potentiometer Converter           |                                               |
| WSPF-MS                           | Potentiometer Converter                       |
| WSPF-MSW                          | Dual-output Potentiometer Converter           |



# Quality and Service are the advantage of Watanabe based on the long history over 75 years

[Signal Converter] Matrix

|                                   |                                                                | Series                                                                             |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |
|-----------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|
|                                   |                                                                | New Product                                                                        |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |
|                                   |                                                                |  |   |  |   |  |   |  |   |  |   |
|                                   |                                                                | New Compact Plug-in Signal Converter WSPF                                          |   | Compact Plug-in Signal Converter WSP                                                |   | Plug-in Signal Converter WVP                                                        |   | Plug-in Signal Converter WAP                                                        |   | Compact Terminal Block Signal Converter TZ                                          |   |
|                                   |                                                                | 13models                                                                           |   | 52models                                                                            |   | 92models                                                                            |   | 65models                                                                            |   | 16models                                                                            |   |
| Function type                     | Number of models                                               |                                                                                    |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |
|                                   |                                                                |                                                                                    |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |
| Isolator                          | •1 output/2 output<br>•High-speed response type etc.           | ●                                                                                  | — | —                                                                                   | — | ●                                                                                   | ● | ●                                                                                   | ● | ●                                                                                   | ● |
| Distributor (Current Loop Supply) | •1 output/2 output<br>•With extraction of square root etc.     | ●                                                                                  | — | —                                                                                   | — | ●                                                                                   | ● | ●                                                                                   | ● | ●                                                                                   | ● |
| Temperature Converter             | •Thermocouple<br>•RTD (Pt) etc.                                | ●                                                                                  | — | —                                                                                   | — | ●                                                                                   | ● | —                                                                                   | ● | —                                                                                   | — |
| Load Cell Signal Converter        | •Load cell                                                     | —                                                                                  | — | —                                                                                   | — | ●                                                                                   | ● | —                                                                                   | ● | —                                                                                   | — |
| Sensor Signal Input Converter     | •Potentiometer                                                 | ●                                                                                  | ● | ●                                                                                   | ● | ●                                                                                   | ● | ●                                                                                   | ● | ●                                                                                   | ● |
| Power/AC Input Converter          | •CT/PT Converter<br>•Power Converter etc.                      | —                                                                                  | ● | —                                                                                   | — | ●                                                                                   | ● | ●                                                                                   | — | —                                                                                   | — |
| Pulse/Frequency Converter         | •Pulse scaler<br>•2-phase pulse etc.                           | —                                                                                  | ● | —                                                                                   | — | ●                                                                                   | ● | —                                                                                   | ● | —                                                                                   | — |
| Alarm Setter                      | •1 output/2 output<br>•With LCD type etc.                      | —                                                                                  | ● | —                                                                                   | — | ●                                                                                   | ● | —                                                                                   | ● | —                                                                                   | — |
| Calculation Unit                  | •Ratio/bias converters<br>•with extraction of square root etc. | —                                                                                  | ● | —                                                                                   | — | ●                                                                                   | ● | —                                                                                   | — | —                                                                                   | — |
| Function Modules                  | •Peak hold<br>•Limiter etc.                                    | —                                                                                  | ● | —                                                                                   | — | ●                                                                                   | ● | —                                                                                   | — | —                                                                                   | — |
| AD/DA Converter                   | •A/D Converters<br>•D/A Converters                             | —                                                                                  | — | —                                                                                   | — | ●                                                                                   | ● | —                                                                                   | — | —                                                                                   | — |

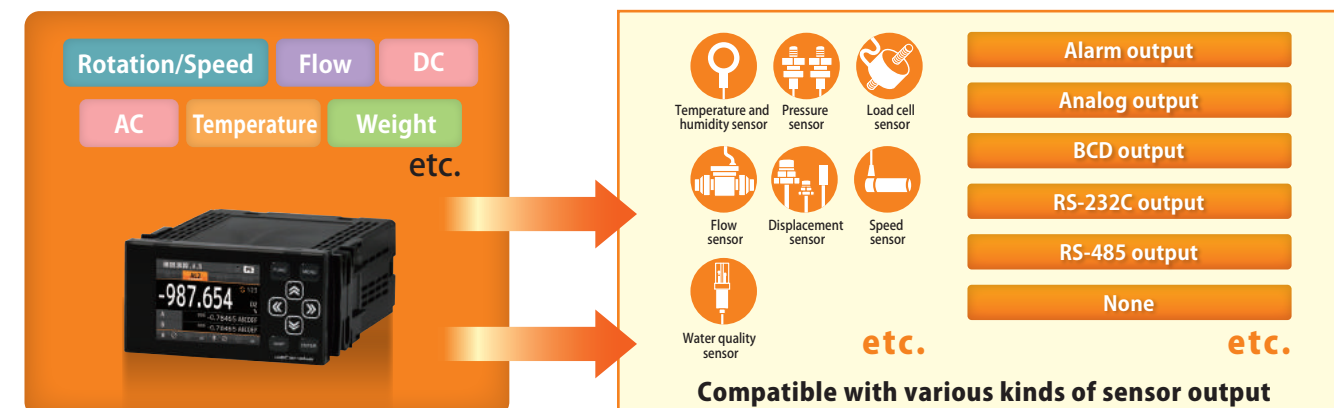
# Supports all kinds of sensors

(Pressure, Temperature, Displacement, Flow, Rotation, Load cell sensors etc.)

Visualization by measurement, monitoring and inspection of production line

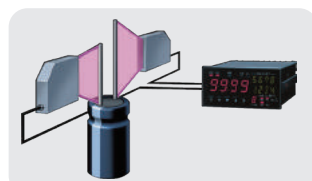


## Product Line Up

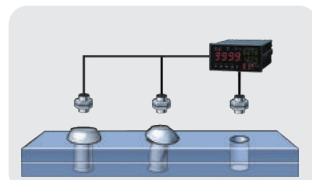


## Three functions of Digital panel meter which are essential for FA.

### 1. Measurement and determination



Measurement and determination of lead length of condenser

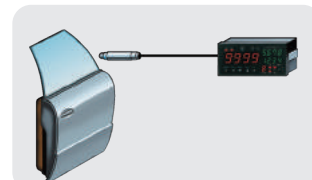


Determination of rivet mounting state

### 2. Inspection and detection

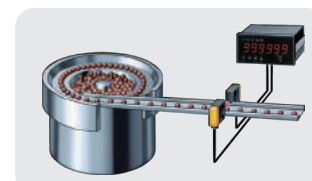


High-speed determination by high-speed mode

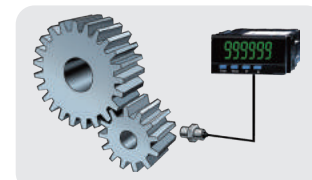


Detection of warp condition of door glass by differential transformer

### 3. Process management



Detection of number and poor shape of materials



Display gear revs

## Ultra small Digital meter relay(1/32 DIN size)

## Minimum size with high performance

Input signal DC

## AM-215B Series NEW

GOOD DESIGN AWARD 2017



- Bright & Clear LED display**
  - Easy to see digits by new reflector and screen
- 3 relay setpoints for alarm output**
  - 3 independent relay setpoints selectable from HH/HI/GO/LO/LL
  - Connection to a device with high current capacity becomes safer
- Space saving by short depth and easy mounting**
  - 73mm short depth
  - Easy mounting by new design adapter

## LCD Digital panel meter

## Friendly operation by LCD display

Input signal Rotation, Flow, Process signal\*, Load cell\*

## WPMZ Series NEW



- TFT 2.4 inch full-color LCD display**
  - Display selectable. Single/dual display, vertical display, digits/bar graph/trend graph display
- Various types of optional output**
  - Optional output : 4 point comparative output, Analog, BCD, RS232C, RS485 (Modbus)
- 2-channel input dual display available**
  - Cost reduction by 2-channel dual display
  - WPMZ can calculate between 2 inputs



## 1/8 DIN Digital panel meter

## High-brightness LED

Input signal DC, Process signal

## WPM Series

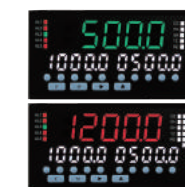
GOOD DESIGN AWARD 2014



Single display type

Multi display type

- Pure green LED**
  - Easy to see by pure green and red LED which is selectable by setting
- Auto-range function**
  - Unnecessary to switch range setting by Auto-range function
- Large capacity sensor power supply**
  - DC12V(100mA), DC24V(50mA) large capacity power supply for sensor



## A Series

Input signal:

DC

AC

Temperature

Frequency

Resistance

Load cell

Process signal

### A1000

Dimensions : 48 (H) × 96 (W) × 65.5 (D) mm  
Display : 1999



### A6000

Dimensions : 48 (H) × 96 (W) × 97.5 (D) mm  
Display : 9999  
● Comparative output



### A9000

Dimensions : 48 (H) × 96 (W) × 75 (D) mm  
Display : 19999



### A2000

Dimensions : 24 (H) × 48 (W) × 40 (D) mm  
Display : 1999/19999



### A7000

Dimensions : 36 (H) × 72 (W) × 118 (D) mm  
Display : 9999  
● Comparative output



### A5000

Dimensions : 48 (H) × 96 (W) × 146.5 (D) mm  
Display : 9999  
● Comparative output



Multi display type

### A8000

Dimensions : 24 (H) × 48 (W) × 85.5 (D) mm  
Display : 19999  
● Comparative output



With sheet switch

## Rotation / Flow meter

### WPMZ NEW

Dimensions : 48 (H) × 96 (W) × 145 (D) mm  
Display : 999999  
● Comparative output



### AC-911

Dimensions : 48 (H) × 96 (W) × 97.5 (D) mm  
Display : 999999  
● Comparative output



## Counter

### AC-116B

Dimensions : 48 (H) × 96 (W) × 95 (D) mm  
Display : 999999



## DC Voltmeters/Ammeters

### WPMZ NEW

Dimensions : 48 (H) × 96 (W) × 145 (D) mm  
Display : 999999  
● Comparative output



### AM-756

Dimensions : 48 (H) × 96 (W) × 97.5 (D) mm  
Display : 199999  
● Comparative output



### AP-301

Dimensions : 36 (H) × 72 (W) × 29 (D) mm  
Display : 1999



### AP-540

Dimensions : 48 (H) × 96 (W) × 34.5 (D) mm  
Display : 199999



### AH-330/331

Dimensions : 29.5 (H) × 65 (W) × 18.2 (D) mm  
Display : 999/1999



### AM-215B NEW

Dimensions : 24 (H) × 48 (W) × 72.8 (D) mm  
Display : 9999  
● Comparative output



### AMH-763

Dimensions : 48 (H) × 96 (W) × 144.5 (D) mm  
Display : 99999  
● Comparative output



### AP-501B

Dimensions : 48 (H) × 96 (W) × 34.5 (D) mm  
Display : 1999



### AS-101

Dimensions : 48 (H) × 96 (W) × 71 (D) mm  
Display : 1999



### AH-381

Dimensions : 29.5 (H) × 65 (W) × 16.5 (D) mm  
Display : 1999



### WPM-1

Dimensions : 48 (H) × 96 (W) × 97.5 (D) mm  
Display : 999999  
● Comparative output



### AP-101

Dimensions : 48 (H) × 96 (W) × 73 (D) mm  
Display : 1999



### AP-502A

Dimensions : 48 (H) × 96 (W) × 33 (D) mm  
Display : 1999



### AH-231

Dimensions : 24 (H) × 48 (W) × 24 (D) mm  
Display : 1999



## Thermometer

### ATC-217

Dimensions : 24 (H) × 48 (W) × 98 (D) mm  
Display : 1999



### AT-501

Dimensions : 48 (H) × 96 (W) × 22 (D) mm  
Display : 1999



## Load cell meter

### WPMZ NEW

Dimensions : 48 (H) × 96 (W) × 145 (D) mm  
Display : 999999  
● Comparative output



### ASG-158

Dimensions : 48 (H) × 96 (W) × 144 (D) mm  
Display : 9999  
● Comparative output



## AC Voltmeters/Ammeters

### AP-560

Dimensions : 48 (H) × 96 (W) × 22 (D) mm  
Display : 999



### AM-332

Dimensions : 36 (H) × 72 (W) × 118 (D) mm  
Display : 9999  
● Comparative output



## 2-wire Loop-powered Meter

### AL-203

Dimensions : 24 (H) × 48 (W) × 24 (D) mm  
Display : 1999



### AL-213

Dimensions : 24 (H) × 48 (W) × 40 (D) mm  
Display : 1999



### AL-501A

Dimensions : 48 (H) × 96 (W) × 22 (D) mm  
Display : 1999



### AL-512

Dimensions : 48 (H) × 96 (W) × 22 (D) mm  
Display : 1999



## Graphic Load Cell Meter

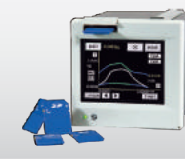
Input signal:

Load cell

Process signal

### G1000 Series

Dimensions : 96 (H) × 100 (W) × 153 (D) mm



# Thermocouple & RTD sensors additional to the line-up!!

## Many installation results at FA / BA, large commercial facilities

### Temperature Sensors

Temperature Sensors are added to the Watanabe brand and started manufacturing. We will offer a total solution of BA / PA / FA with existing measuring devices.

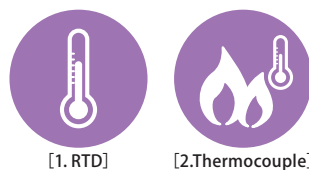


#### Temperature measuring

Temperature sensor has 2 categories.

[1. RTD], [2. Thermocouple]

It is possible to measure temperature in various place and environment.



#### [Quick delivery] [Special specifications] [Stable supply]

We have confidence in short lead time and stable long term supply. Not only the catalog standard product, special specifications are also available.

We also sell protection tubes, screws, flanges, mounting brackets etc.

Three advantages



#### Installation results of Temperature sensors



Buildings

- Public facilities such as government office buildings, libraries etc.
- Central air-conditioning system of large buildings
- Hotels
- Medical facilities
- Transportation facilities such as Airport, subway, etc.



Plants

- Power plant such as thermal power, geothermal power etc.
- Various plants such as steel, chemistry, shipbuilding
- Garbage disposal plant such as incinerator
- Water treatment plants



Large commercial facilities

- Attractions of large leisure facilities
- Competition facilities
- Cultural heritage

#### Total support from upstream to downstream

[Introduction of main sensor types]

#### RTD

Using Pt100Ω platinum element. It can correspond to Connection head type, lead wire type or other standard/special shapes.



Screw type with connection head



Wire anchor for thermal storage tank



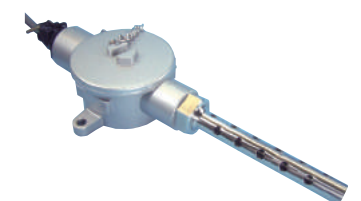
Ring sensor for wiring surface



Flat thermo



White stick for chemicals



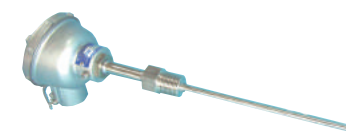
Wall-mount type for low temperature

Also the other various kinds of RTD available.

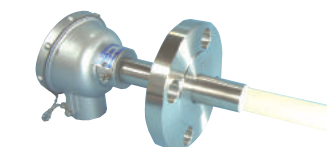
[High precision Pt100Ω element] [Pt100Ω element for calorie calculation] [Sheath RTD]

#### Thermocouple

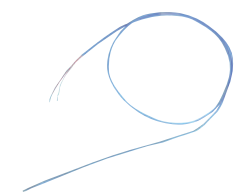
Thermocouple type B, R, S, K, E, J, T available for wide range -200°C to 1,700°C



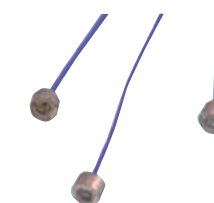
Sheath screw type with connection head



Non-metallic protection tube type for high temperature



Coating thermocouple

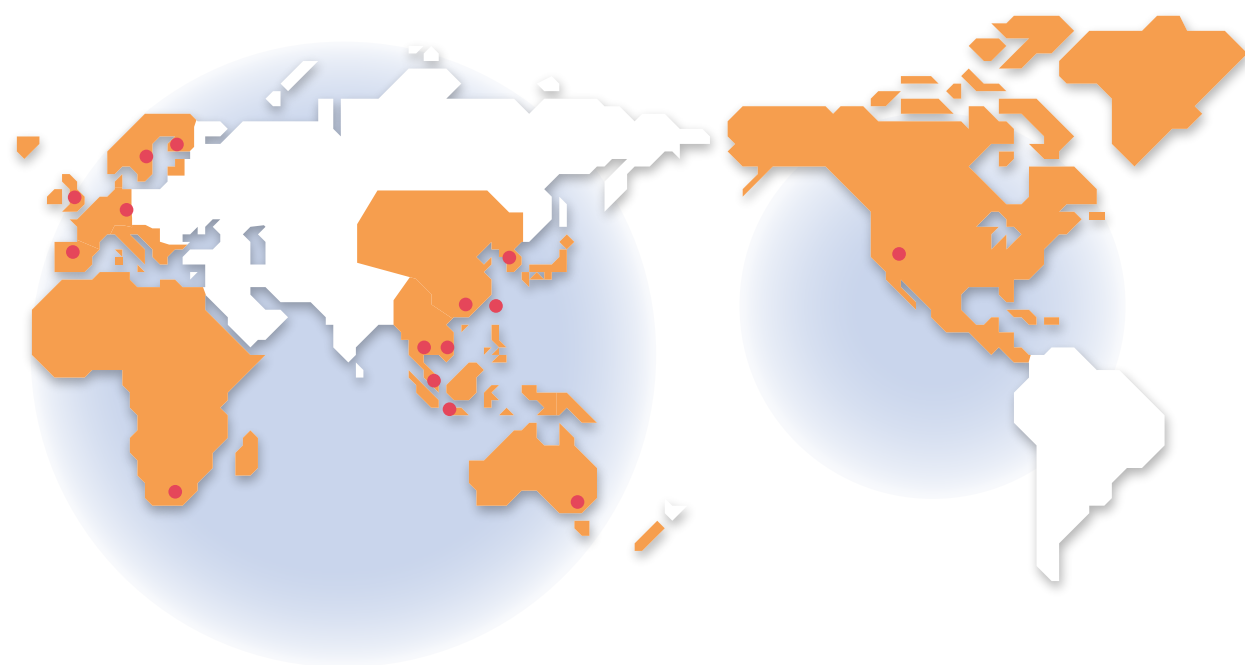


Magnetic type



Surface thermocouple sheet

## Overseas Distributors



## Website introduction

<https://www.watanabe-electric.co.jp/en/>

For more information, please visit our website!

Watanabe's Vision

Global Sales Network



Product Search by  
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