

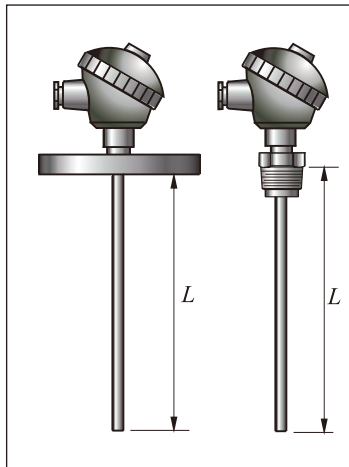


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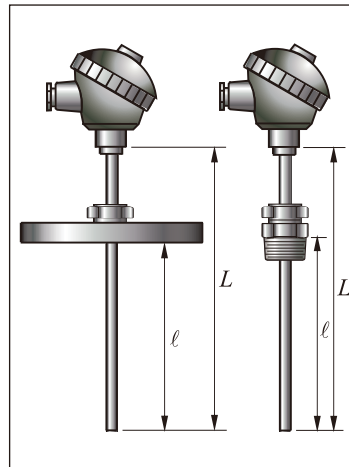
# Thermocouple



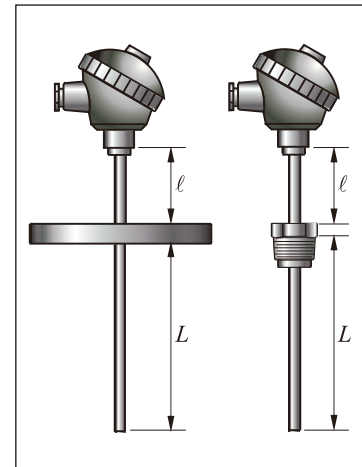
# THERMOCOUPLE / RESISTANCE BULB



**STANDARD TYPE**



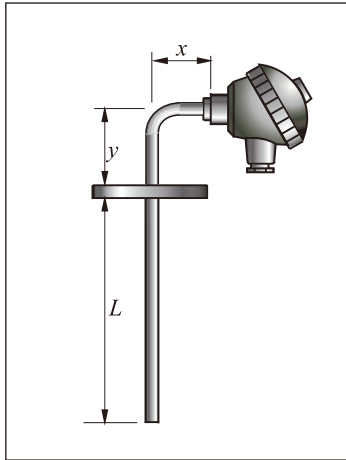
**ADJUSTABLE TYPE**



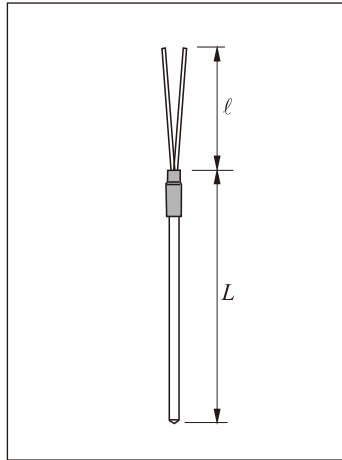
**EXTENSION TYPE**

Type	 <b>GKEA</b>	 <b>GPEA</b>	 <b>GKEB/GKKB</b>	 <b>GPEB/GPKB</b>	 <b>GKEC/GKKC</b>	 <b>GPEC/GPKC</b>
Operating Temp.	0~1200°C	-50~500°C	0~1200°C	-50~500°C	0~1200°C	-50~500°C
Class Tolerance	JIS 0.75 grade $\pm 0.0075 \times  t $	IEC 751 CLASS B $0.3 \pm 0.005 \times  t $	JIS 0.75 grade $\pm 0.0075 \times  t $	IEC 751 CLASS B $0.3 \pm 0.005 \times  t $	JIS 0.75 grade $\pm 0.0075 \times  t $	IEC 751 CLASS B $0.3 \pm 0.005 \times  t $
Protective Grade	IP65	IP65	IP65/IP44	IP65/IP44	IP65/IP44	IP65/IP44
Connection	1", 1 1/2" x 5kg/cm <sup>2</sup> 1/2"PT, 3/4"PT	1", 1 1/2" x 5kg/cm <sup>2</sup> 1/2"PT, 3/4"PT	1", 1 1/2" x 5kg/cm <sup>2</sup> 1/2"PT, 3/4"PT	1", 1 1/2" x 5kg/cm <sup>2</sup> 1/2"PT, 3/4"PT	1", 1 1/2" x 5kg/cm <sup>2</sup> 1/2"PT, 3/4"PT	1", 1 1/2" x 5kg/cm <sup>2</sup> 1/2"PT, 3/4"PT
Tube diameter	$\phi 5, \phi 6$ $\phi 8, \phi 9.5$	$\phi 8, \phi 12.7$ $\phi 17.2$	$\phi 5, \phi 6$ $\phi 8, \phi 9.5$	$\phi 8, \phi 12.7$ $\phi 17.2$	$\phi 5, \phi 6$ $\phi 8, \phi 9.5$	$\phi 8, \phi 12.7$ $\phi 17.2$
Material	SUS304/316 Titanium	SUS304/316 Titanium	SUS304/316 Titanium	SUS304/316 Titanium	SUS304/316 Titanium	SUS304/316 Titanium
Isolation resistance	>1000M $\Omega$ /500V	>1000M $\Omega$ /500V	>1000M $\Omega$ /500V	>1000M $\Omega$ /500V	>1000M $\Omega$ /500V	>1000M $\Omega$ /500V
Wire	Nickel-Aluminum Nickel-Chromium	---	Nickel-Aluminum Nickel-Chromium	---	Nickel-Aluminum Nickel-Chromium	---

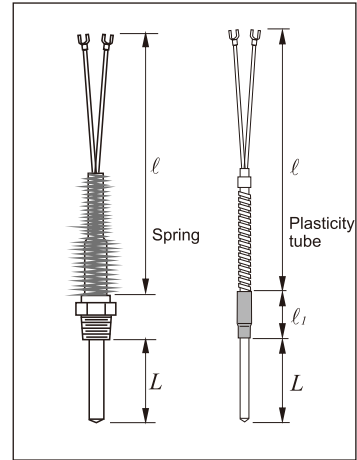
\* Special specification are acceptable







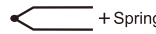

**L SHAPE TYPE**



**ECONOMICAL TYPE**

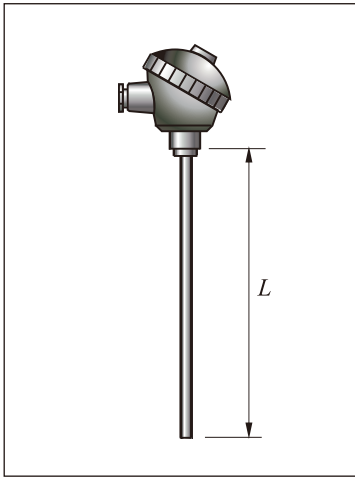


**ECONOMICAL TYPE**



Type	 <b>GKED/TKKD</b>	 <b>GPED/GDKD</b>	 <b>GK-E</b>	 <b>GP-E</b>	 + Spring <b>GK-F</b>	 + Plasticity tube <b>GP-G</b>
Operating Temp.	0~1200°C	-50~500°C	0~480°C	-50~250°C	0~480°C	-50~250°C
Class Tolerance	JIS 0.75 grade $\pm 0.0075 \times  t $	IEC 751 CLASS B $0.3 \pm 0.005 \times  t $	JIS 0.75 grade $\pm 0.0075 \times  t $	IEC 751 CLASS B $0.3 \pm 0.005 \times  t $	JIS 0.75 grade $\pm 0.0075 \times  t $	IEC 751 CLASS B $0.3 \pm 0.005 \times  t $
Protective Grade	IP65/IP44	IP65/IP44	IP44	IP44	IP44	IP44
Connection	1", 1 1/2" × 5kg/cm <sup>2</sup>	1", 1 1/2" × 5kg/cm <sup>2</sup>	---	---	1/4"PT	1/4"PT
Tube diameter	φ5, φ17.2	φ8, φ12.7 φ17.2	φ6, φ17.2	φ6, φ17.3	φ6, φ17.2	φ6, φ17.3
Material	SUS304/316 Titanium	SUS304/316 Titanium	SUS304/316 Titanium, PTFE	SUS304/316 PP, PTFE	SUS304/316 Titanium, PTFE	SUS304/316 PP, PTFE
Isolation resistance	>1000MΩ/500V	>1000MΩ/500V	>1000MΩ/500V	>1000MΩ/500V	>1000MΩ/500V	>1000MΩ/500V
Wire	Nickel-Aluminum Nickel-Chromium	---	Nickel-Aluminum Nickel-Chromium	---	Nickel-Aluminum Nickel-Chromium	---
Compensating Lead Wire	---	---	Isolated Cable PVC Cable	PTFE Silver Wire PTFE Copper Wire PVC Cable	Isolated Cable PVC Cable	PTFE Silver Wire PTFE Copper Wire PVC Cable

\* Special specification are acceptable

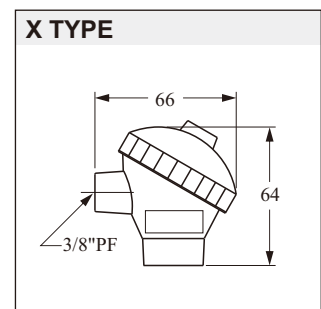
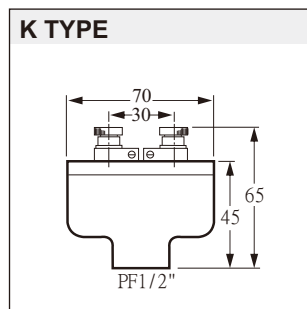
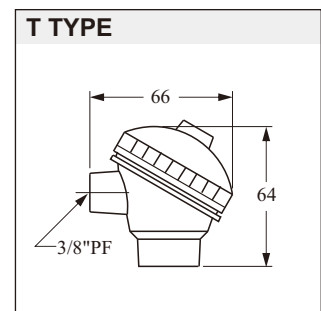
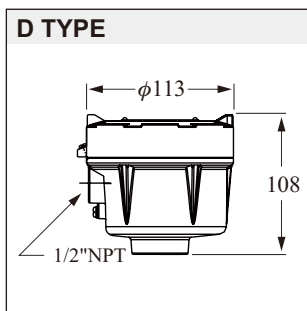
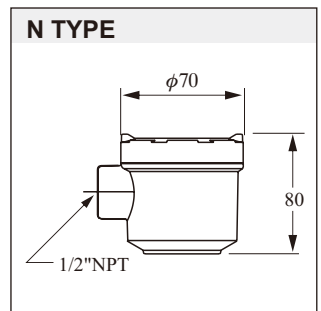
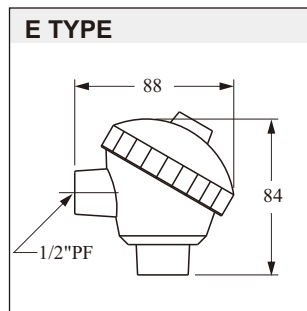
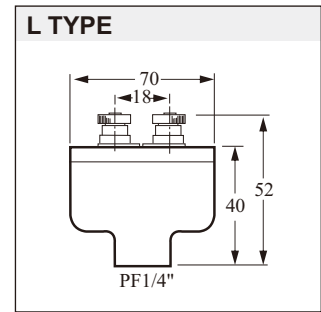
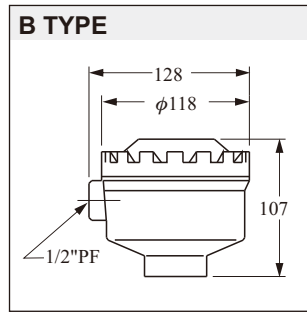
## TERMINAL BOX



**INTERCALARY TYPE**

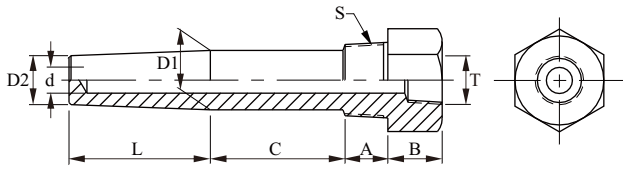
Type	 <b>GKEH</b>	 <b>GPEH</b>
Operating Temp.	0~480°C	-50~250°C
Class Tolerance	JIS 0.75 grade $\pm 0.0075 \times  t $	IEC 751 CLASS B $0.3 \pm 0.005 \times  t $
Protective Grade	IP65	IP65
Connection	---	---
Tube diameter	$\phi 6, \phi 17.2$	$\phi 6, \phi 17.3$
Material	SUS304/316 Titanium, PTFE	SUS304/316 Titanium
Isolation resistance	>1000M $\Omega$ /500V	>1000M $\Omega$ /500V
Wire	Nickel-Aluminum Nickel-Chromium	---

★ Special specification are acceptable

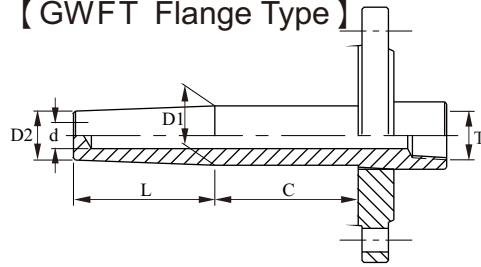


# METAL PROTECTION TUBE

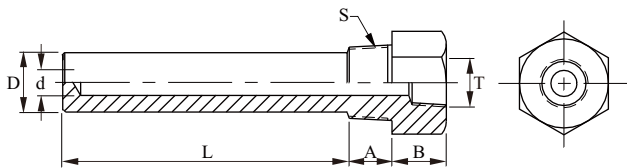
【 GWTT Screw Type 】



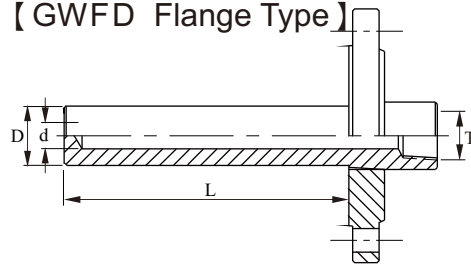
【 GWFT Flange Type 】



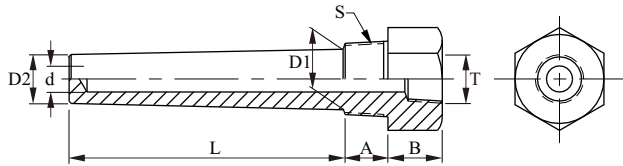
【 GWTD Type 】



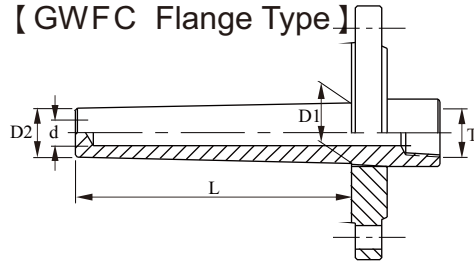
【 GWFD Flange Type 】



【 GWTC Screw Type 】



【 GWFC Flange Type 】



※Please specify the size and material of each part when ordering.

## MODEL NUMBER / ORDER CODE COMPARISON TABLE

Model Number	Order Code
GKEA	GKX10000-00E
GPEA	GPX10000-00E
GKEB	GKX10000-A2E
GKKB	GKX10000-A2T
GPEB	GPX10000-A2E
GPKB	GPX10000-A2T
GKEC	GKX10000-A1E
GKKB	GKX10000-A1T
GPEC	GPX10000-A1E
GPKC	GPX10000-A1T
GKED	GKX10000-A3E
GKKB	GKX10000-A3T
GPED	GPX10000-A3E
GPKD	GPX10000-A3T
GK-E	GKX10100-A50
GP-E	GPX10100-A50
GK-F	GKX10100-A60
GP-G	GPX10100-A60
GKEH	GKX10000-A4E
GPEH	GPX10000-A4E

# ORDER INFORMATION

G <sup>02</sup>  X 1 <sup>05</sup>  <sup>06</sup>  0 0 - <sup>09</sup>  <sup>10</sup>  <sup>11</sup>  <sup>12</sup>  <sup>13</sup>  <sup>14</sup>  <sup>15</sup>  <sup>16</sup>  <sup>17</sup>  <sup>18</sup>  <sup>19</sup>  <sup>20</sup>  <sup>21</sup>  <sup>22</sup>  <sup>23</sup>  <sup>24</sup>  <sup>25</sup>  <sup>26</sup>  <sup>27</sup>

**02 Input signal**

- K: Thermocouple K type
- J: Thermocouple J type
- S: Thermocouple S type
- P: Resistance PT100

**05 06 Model**

- 00: Standard
- 01: Economy (Without terminal box)

**09 10 Type**

- 00: Standard
- A1: Extension type
- A2: Adjustable type
- A3: L shape type
- A4: Intercalary type
- A5: Economical type
- A6: Economical type with spring
- A7: Economical type with tube

**11 Terminal box**

- 0: None
- E: Terminal head (Aluminum)
- T: T type Terminal(Big size)

**12 Output signal**

- A: DC4~20mA
- B: 2-wire output
- C: 3-wire output

**Connection**

**13 14**

- 00: None
- Flange
- AK: JIS-FF
- AN: ANSI-RF
- AS: DIN-FF
- Thread
- AC: ANSI
- AA: JIS

**15 16**

- 00: None
- A1: 1/8"
- A2: 1/4"
- A4: 3/8"
- A5: 1/2"
- A7: 3/4"
- A8: 1"
- A9: 1-1/4"
- B1: 1-1/2"
- B2: 2"

**17 18**

- 00: None
- 01: PT male
- 03: PF male
- 07: NPT male
- 40: 5 kg/cm<sup>2</sup>
- 42: 10 kg/cm<sup>2</sup>
- 48: 150 Lbs
- 49: 300 Lbs

(Next page)

G <sup>02</sup>  X 1 <sup>05</sup>  <sup>06</sup>  0 0 - <sup>09</sup>  <sup>10</sup>  <sup>11</sup>  <sup>12</sup>  <sup>13</sup>  <sup>14</sup>  <sup>15</sup>  <sup>16</sup>  <sup>17</sup>  <sup>18</sup>  <sup>19</sup>  <sup>20</sup>  <sup>21</sup>  <sup>22</sup>  <sup>23</sup>  <sup>24</sup>  <sup>25</sup>  <sup>26</sup>  <sup>27</sup>

<sup>19</sup> <sup>20</sup> **Probe diameter**

- 1A:  $\phi$ 4.0mm
- 1B:  $\phi$ 5.0mm
- 1D:  $\phi$ 6.0mm
- 1F:  $\phi$ 8.0mm
- 1G:  $\phi$ 9.5mm
- 2A:  $\phi$ 12.7mm
- 2D:  $\phi$ 17.2mm

<sup>21</sup> <sup>22</sup> **Probe material**

- MA: SUS 304
- MB: SUS 316
- MC: SUS 316L

<sup>23</sup> <sup>24</sup> <sup>25</sup> <sup>26</sup> **Length**

Code	Probe Length
0001~9999	0001~9999mm

<sup>27</sup> **Sensor amount**

- A: 1
- B: 2
- C: 3

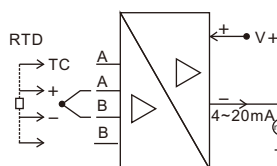
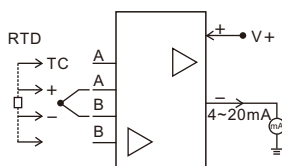


# TR210 / 220 SPECIFICATION



TYPE	TR210 Series	TR220 Series
	Non-Isolation	Isolation

Input :  
RTD · TC · Rohm



## Function summary

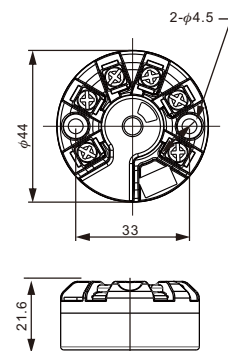
### Features:

Power supply(Vdc)	12~36 Vdc (Loop Power)	24 VDC ± 20%
Ambient temp. range(°C)	-40~85	-40~85
Isolation	N/A	1500Vac
Channels	1	1
CJC Accuracy(°C)	±1	±1
<b>Input:</b>		
PT100 Span /min. span(°C)	-200~850 / 10	-200~850 / 10
PT1000 Span /min. Span(°C)	-200~850 / 10	-200~850 / 10
Rohm Span /min. Span(Ω)	0~400 or 0~4000 /10	0~400 or 0~4000 /10
TC types	B, E, J, K, N, R, S, T	B, E, J, K, N, R, S, T
<b>Output:</b>		
Loop power 2-wire output	4~20mA or 20~4mA	4~20mA or 20~4mA

## Technical summary

	Basic Accuracy	Temperature Coefficient
PT100-2Wiers/PT1000-2Wiers	±1°C	±0.005% / °C
PT100-3Wiers/PT1000-3Wiers	±0.5°C	±0.005% / °C
PT100-4Wiers/PT1000-4Wiers	±0.5°C	±0.005% / °C
TC type: E, J, K, N, R, S	±1.5°C	±0.01% / °C
TC type: B	±2°C	±0.04% / °C
TC type: T	±1°C	±0.01% / °C
Rohm	±0.1Ω	±0.005% / °C

## Dimensions



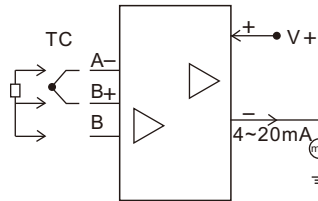
(Unit: mm)



**TYPE**

**TR160 Series**  
**Economical type**

Input : RTD, TC,  
Rohm, mV,  
Linear Current,  
Linear Voltage



**Function summary**

**Features:**

Power supply(Vdc)	18~36V
Ambient temp. range(°C)	-40~85
Isolation	None
Channels	1
CJC accuracy(°C)	$\leq \pm 1$

**Input:**

PT100 Span /min. span(°C)	-200~850 / 10
Rohm Span /min. Span( $\Omega$ )	0~400 / 5
TC types	B, E, J, K, N, R, S, T
Linear Current, signal range	0~20mA, 4~20mA
Linear Voltage, signal range	0~0.5V, 0~1V, 0~5V, 0~10V, 0~20V

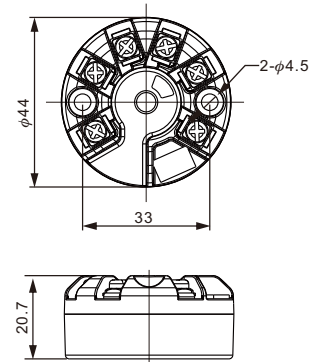
**Output:**

Loop Power 2-wire output	4~20mA/20~4mA
--------------------------	---------------

**Technical summary**

	Basic Accuracy	Temperature Coefficient
PT100	$\leq \pm 0.5^\circ\text{C}$	$\leq \pm 0.005^\circ\text{C}$
Rohm	$\leq \pm 0.4\Omega$	$\leq \pm 0.005^\circ\text{C}$
TC type: E, J, K, N, T	$\leq \pm 4^\circ\text{C}$	$\leq \pm 0.04^\circ\text{C}$
TC type: B	$\leq \pm 3^\circ\text{C}$	$\leq \pm 0.01^\circ\text{C}$
TC type: R, S	$\leq \pm 3^\circ\text{C}$	$\leq \pm 0.04^\circ\text{C}$
TC type: T	$\leq \pm 2^\circ\text{C}$	$\leq \pm 0.01^\circ\text{C}$
Voltage	$\leq \pm 0.1\text{mV}$	$\leq \pm 0.005^\circ\text{C}$

**Dimensions**



(Unit: mm)

# TR160 SPECIFICATION / ORDER INFORMATION

Model Number	Order Code
TR210	TRX30100-A
TR220	TRX30100-B
TR160	TRX20100-A

TRX <sup>04</sup>  0 1 0 0 - <sup>09</sup>  <sup>10</sup>  <sup>11</sup>  <sup>12</sup>  <sup>13</sup>

**<sup>04</sup> Version**

- 2: Second
- 3: Third

**<sup>09</sup> Isolation type**

- A: None Isolation
- B: Isolation

**<sup>10</sup> <sup>11</sup> Input range**

- |            |                          |                          |
|------------|--------------------------|--------------------------|
| V1: 0~0.5V | T1: ALL                  | T6: R Type -50°C~1760°C  |
| V2: 0~1V   | T2: K Type -200°C~1370°C | T7: S Type -50°C~1760°C  |
| V3: 0~5V   | TK: K Type -90°C~320°C   | T8: B Type -250°C~1820°C |
| V4: 0~10V  | T3: J Type -210°C~1200°C | T9: N Type -200°C~1300°C |
| V5: 0~20V  | TJ: J Type -90°C~320°C   | TA: PT 100 -200°C~850°C  |
| I1: 4~20mA | T4: T Type -200°C~400°C  | R1: 0~400 Ω              |
| I2: 0~20mA | T5: E Type -200°C~1000°C |                          |

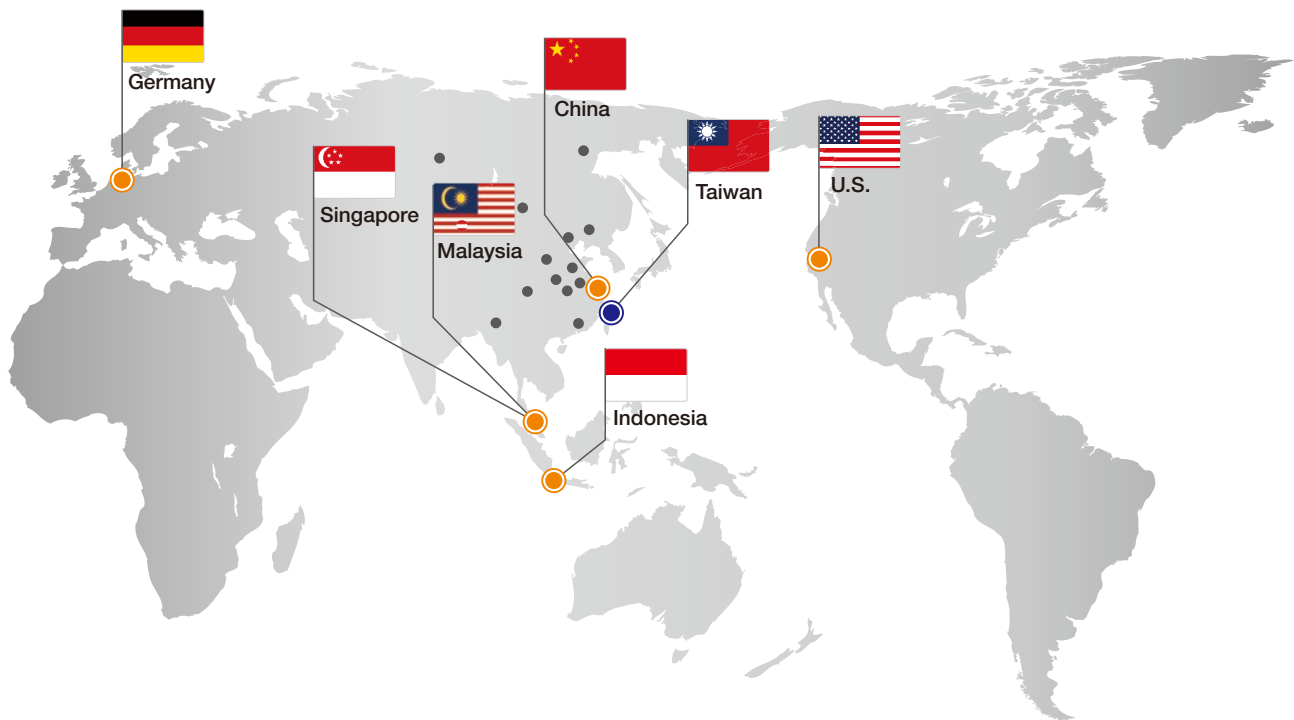
**<sup>12</sup> Analog output**

- 1: 4~20mA
- 2: 20~4mA

**<sup>13</sup> Display unit**

- A: °C
- B: °F

# Global Network



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