

# PTF30 Series

## Features

- Best pressure transmission solution for small and middle sized project such as indoor heating and air conditioning, water and sewer, or incinerator, etc.
- Improves noise resistance and minimize effects by external disturbance
- Realizes high accuracy measurement by stainless steel diaphragm of pressure sensing part for various measured subjects
- 4-20 mA analog output (2-wire)
- Various functions :  
User input range, display scale, output scale, digital filter, multi-display selection, error display, TUF (two unit function), etc.
- Explosion-proof structure : Ex d IIC T6 (IP67)

CE



**⚠ Please read "Caution for your safety" in operation manual before using this unit.**

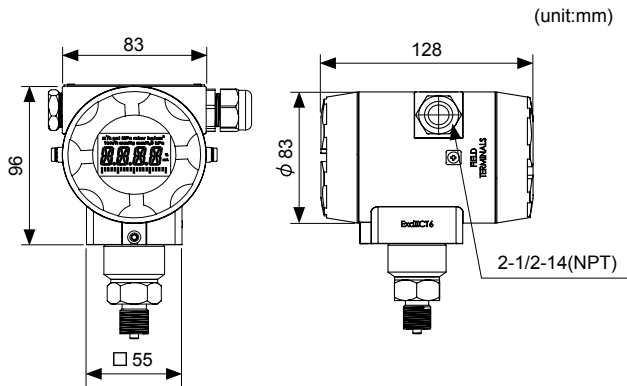
## Ordering information

<b>PTF30</b>	<b>-</b>	<b>G</b>	<b>6</b>	<b>N</b>	<b>N</b>	<b>-</b>	<b>F8</b>	<b>(0 to 7 kgf/cm<sup>2</sup>)</b>																																																																								
								<table border="1"> <tr> <td>User pressure range</td> <td></td> <td>User pressure range *1</td> </tr> <tr> <td>Pressure port</td> <td>F8</td> <td>PF 3/8</td> </tr> <tr> <td>Communication output</td> <td>N</td> <td>Without bracket</td> </tr> <tr> <td></td> <td>B</td> <td>With bracket</td> </tr> <tr> <td>HART communication output</td> <td>N</td> <td>None</td> </tr> <tr> <td></td> <td>1</td> <td>0 to 0.35 kgf/cm<sup>2</sup> (G, A)</td> </tr> <tr> <td></td> <td>2</td> <td>0 to 1 kgf/cm<sup>2</sup> (G, A)</td> </tr> <tr> <td></td> <td>3</td> <td>0 to 2 kgf/cm<sup>2</sup> (G, A)</td> </tr> <tr> <td></td> <td>4</td> <td>0 to 7 kgf/cm<sup>2</sup> (G, A)</td> </tr> <tr> <td></td> <td>5</td> <td>0 to 20 kgf/cm<sup>2</sup> (G, A)</td> </tr> <tr> <td></td> <td>6</td> <td>0 to 35 kgf/cm<sup>2</sup> (G, A)</td> </tr> <tr> <td></td> <td>7</td> <td>0 to 70 kgf/cm<sup>2</sup> (G)</td> </tr> <tr> <td></td> <td>8</td> <td>0 to 200 kgf/cm<sup>2</sup> (G)</td> </tr> <tr> <td></td> <td>9</td> <td>0 to 350 kgf/cm<sup>2</sup> (G)</td> </tr> <tr> <td></td> <td>A</td> <td>-257 mmHg to 0 kgf/cm<sup>2</sup> (G)</td> </tr> <tr> <td></td> <td>C</td> <td>-760 mmHg to 0 kgf/cm<sup>2</sup> (G)</td> </tr> <tr> <td></td> <td>F</td> <td>-760 mmHg to 2 kgf/cm<sup>2</sup> (G)</td> </tr> <tr> <td></td> <td>H</td> <td>-760 mmHg to 7 kgf/cm<sup>2</sup> (G)</td> </tr> <tr> <td></td> <td>M</td> <td>-760 mmHg to 20 kgf/cm<sup>2</sup> (G)</td> </tr> <tr> <td></td> <td>O</td> <td>-760 mmHg to 35 kgf/cm<sup>2</sup> (G)</td> </tr> <tr> <td></td> <td>Z</td> <td>Others</td> </tr> <tr> <td>Measurement pressure</td> <td>G</td> <td>Gauge pressure</td> </tr> <tr> <td></td> <td>A</td> <td>Absolute pressure</td> </tr> <tr> <td>Item</td> <td>PTF30</td> <td>Pressure Transmitter</td> </tr> </table>	User pressure range		User pressure range *1	Pressure port	F8	PF 3/8	Communication output	N	Without bracket		B	With bracket	HART communication output	N	None		1	0 to 0.35 kgf/cm <sup>2</sup> (G, A)		2	0 to 1 kgf/cm <sup>2</sup> (G, A)		3	0 to 2 kgf/cm <sup>2</sup> (G, A)		4	0 to 7 kgf/cm <sup>2</sup> (G, A)		5	0 to 20 kgf/cm <sup>2</sup> (G, A)		6	0 to 35 kgf/cm <sup>2</sup> (G, A)		7	0 to 70 kgf/cm <sup>2</sup> (G)		8	0 to 200 kgf/cm <sup>2</sup> (G)		9	0 to 350 kgf/cm <sup>2</sup> (G)		A	-257 mmHg to 0 kgf/cm <sup>2</sup> (G)		C	-760 mmHg to 0 kgf/cm <sup>2</sup> (G)		F	-760 mmHg to 2 kgf/cm <sup>2</sup> (G)		H	-760 mmHg to 7 kgf/cm <sup>2</sup> (G)		M	-760 mmHg to 20 kgf/cm <sup>2</sup> (G)		O	-760 mmHg to 35 kgf/cm <sup>2</sup> (G)		Z	Others	Measurement pressure	G	Gauge pressure		A	Absolute pressure	Item	PTF30	Pressure Transmitter
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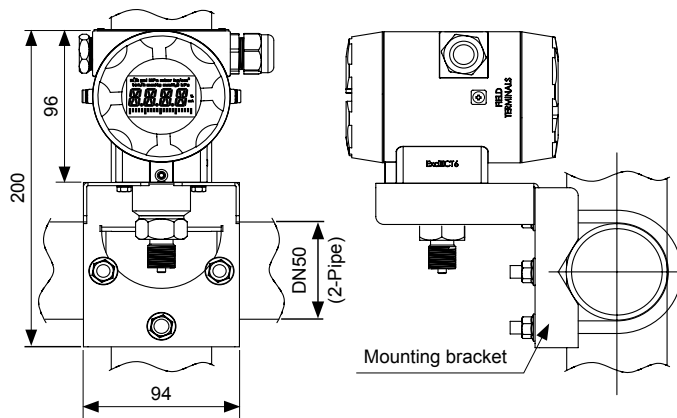
\*1. Write the desired pressure range and it is the default of user pressure range.

# Standard Pressure Transmitter

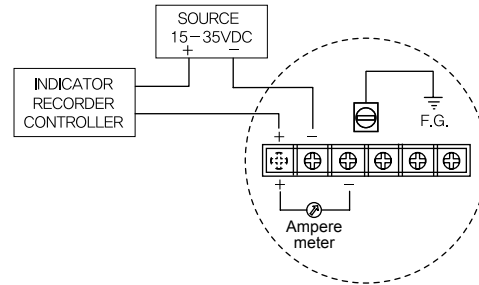
## Dimensions



### • Mounting bracket



## Connections



※ You can check 4-20 mA output by connecting an ampere meter. (impedance: max. 30 Ω)

## Specifications

Series	PTF30	
Measured materials	Vapor, Liquid, Fluid (except corrosive environment of SUS316)	
Power supply	15-35 VDC	
Display method	4 digit 12 Segment LCD Display	
Character size	W 6.24×H10.73 mm (12 Segment) / W1.45×H2.5 mm (unit)	
Output	DC4-20 mA 2-wire Low-limit : 3.6 mA(-2.5%), High-limit : 21.6 mA (+10%)	
Accuracy*1	<ul style="list-style-type: none"> <li>• 10% of Span &lt; URL: <math>\pm(0.05 + 0.015 \text{ URL}/\text{Span})\%</math> of Span</li> <li>• 10% of Span <math>\geq</math> URL: <math>\pm 0.2\%</math> of Span</li> </ul>	
Temperature characteristics	At 20 °C, $\pm(0.075\% \times \text{URL} + 0.15\% \times \text{Span})$	
Setting method	Setting by front push keys	
Sampling cycle	300 ms	
Dielectric resistance	1000 VAC for 1 min. (between external terminal and case)	
Vibration	0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 2 hours	
Insulation resistance	Min. 100 MΩ (at 500VDC megger)	
Noise resistance	Square shaped noise by noise simulator (pulse width 1 μs)±240 V	
Memory protection	Approx. 10 years (non-volatile semiconductor memory type)	
Environment	Ambient temperature	-20 to 70 °C, storage: -20 to 80 °C
	Ambient humidity	0 to 85%RH
Material	Body : Aluminum(AIDc.8S), Cover O-Ring : Buna N, Diaphragm : SUS316, Connections : SUS316	
Explosion-proof structure	Ex d IIC T6 (IP67)	
Approval	CE	
Unit weight	1.2 kg	

※ 1. Span: User pressure range[L - P5 to H - P5]  
URL: Pressure range by model

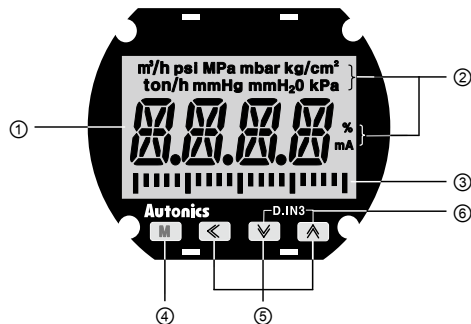
※ Environment resistance is rated at no freezing or condensation.

A. Recorder  
B. Indicator  
C. Converter  
D. Controller  
E. Thyristor unit  
F. Pressure transmitter  
G. Temp. transmitter  
H. Accessories

TPS20  
KT-302H  
PTF30

# PTF30 Series

## Part descriptions



- ① Display part: Displays detected pressure value, several setting value and errors.
- ② Unit display part: Displays the currently set input unit.
- ③ Output scale bar graph: Displays output 4-20 mA as scale bar graph by 5% unit.
- ④ **M** key: Used to enter parameter mode, move parameters and save SV.
- ⑤ **←**, **→**, **↕** key: Used to enter parameter set mode, move digits.
- ⑥ D.IN3 : Press the **↕** and **↔** keys at the same time for 3 sec., the set function (display HOLD, zero-point adjustment) at  $dI - K$  in parameter.

## Pressure conversion chart

	gf/cm <sup>2</sup>	kgf/cm <sup>2</sup>	Pa	kPa	MPa	mbar	bar	mmH <sub>2</sub> O	psi	mmHg
1 gf/cm <sup>2</sup>	1	0.001000	98.0665	0.0980665	0.000098	0.980665	0.000981	10.00000	0.014223	0.735559
1 kgf/cm <sup>2</sup>	1000.000	1	98066.50	98.06650	0.098067	980.665	0.980665	10000.00	14.22334	735.5592
1 Pa	0.010197	0.0000102	1	0.001000	0.000001	0.01	0.000010	0.101972	0.000145	0.007501
1 kPa	10.19716	0.010197	1000.000	1	0.001000	10	0.010000	101.9716	0.145038	7.500617
1 MPa	10197.16	10.19716	1000000	1000.000	1	10000	10.00000	101971.6	145.0378	7500.617
1 mbar	1.019716	0.0010197	100.0000	0.100000	0.000100	1	0.001000	10.19716	0.014504	0.750062
1 bar	1019.716	1.019716	100000.0	100.0000	0.100000	1000	1	10197.16	14.50377	750.0617
1 mmH <sub>2</sub> O	0.100000	0.000100	9.80665	0.009807	0.0000098	0.0980665	0.000098	1	0.001422	0.073556
1 psi	70.30699	0.070307	6894.757	6.894757	0.006895	68.94757	0.068948	703.0696	1	51.71493
1 mmHg	1.359510	0.001360	133.3224	0.133322	0.0001333	1.333224	0.001333	13.59510	0.019337	1

## Factory default

Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default
UNI E	bAR	L-SC	0000	L.oUt	0000*1	dSP1	PV
L-RG	0000*1	H-SC	1000	H.oUt	0350*1	dSP2	PV
H-RG	0350*1	ZERo	000	MAV.F	04	εUF	oFF
dP	0350*1	SPRN	1000	dI -K	HoLd	LoCK	oFF

※ 1. Defaults are different by the pressure range by each model.

## Functions

### Input unit [UNI E]

You can select input unit.  
(bar, mbar, Pa, kPa, MPa, gf/cm<sup>2</sup>, kgf/cm<sup>2</sup>, mmH<sub>2</sub>O, psi, mmHg, %, OFF)

### User input range [L-RG, H-RG]

Even though each unit has the range, you can set user input range within the pressure range when input range is limited for actual usage.

### Decimal point setting [dP]

This function is to change decimal point digit for input display value.

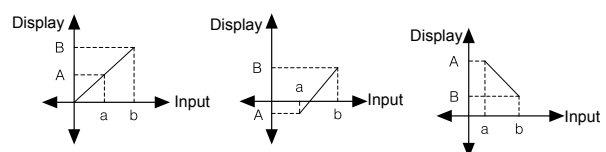
When input unit is set as % [o / o] or OFF [oFF], only the display position of decimal point is moved.

- Set range : 0 / 0.0 / 0.00 / 0.000

※ Set range is different by the pressure range.

### Display scale [L-SC, H-SC]

This function is to set (-1999 to 9999) for particular high/low limit value in order to display high/low limit value of measurement input. If measurement inputs are 'a' and 'b' and particular values are 'A' and 'B', it will display a=A, b=B as below graphs.



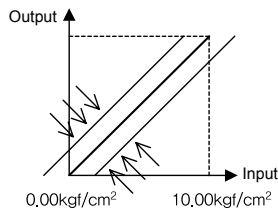
※ This function is available only when input unit is % [o / o] or OFF [oFF].

# Standard Pressure Transmitter

## Zero-point correction [ZER0]

It corrects the error of display value for 0% input.

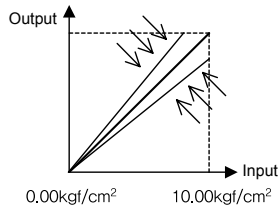
- Set range : -999 to 999



## Slope correction [SPAN]

It corrects the error of display value for 100% input.

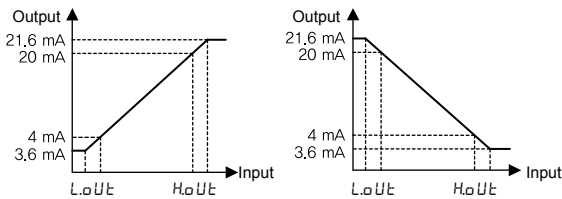
- Set range : 0.900 to 1.100



## Output scale [L0UT, H0UT]

For 4-20 mA current output, this function is set to display value for current output.

Set the display value for 4 mA [L0UT] and the display value for 20 mA [H0UT].



## Digital filter [MAVF]

Digital filter is able to display stably and output the noise from input line and irregular signals. This unit applies moving average digital filter and display cycle is same.

- Set range : 01 to 16

※ when setting as 01, digital filter function does not run.)

## Digital input [dI - k]

By front keys operation (D.IN3:  +  for 3 sec.), one of two functions executes as the below table.

Function		Operation
H0Ld	Display HOLD	Temporarily indicated value is stopped in order to confirm indicated value in unstable input.
Z - t M	Zero-point adjustment	It is same function as [ZER0]. When executing this function, you can check and change correction value at ZER0.

## Multi-display selection [dSP1, dSP2]

Select one for display 1 and display 2 among PV, 0UT, LPEK, HPEK. Set dSP1 and dSP2 differently and it displays two different values in turn for 2 sec. When selecting LPEK (HPEK), the left (or the right) of output scale bar graph flashes for 0.5 sec.

## High/Low peak monitoring [LPEK, HPEK]

This function is to save high/low peak to check the invisible abnormal condition of system. Select this function display selection [dSP1, dSP2] parameter.

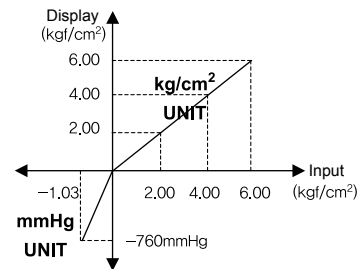
When the high/low peak is out of the temperature range, it displays HHHH or LLLL.

To initialize high/low peak, press the  ,  keys at the same time for 3 sec. at [HPEK] or [LPEK].

In this case, peak value is the present input value.

## Two Unit Function [LUF]

For compound pressure model, this function displays the input pressure which is below atmospheric pressure by mmHg unit. It displays the input pressure atmospheric pressure or over atmospheric pressure by the set pressure unit.



## Lock [L0CK]

It limits to check parameter set value and to change it.

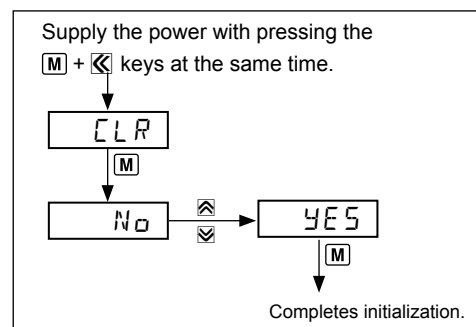
	oFF	L0C.1	L0C.2
Parameter	•	◦	◦

- : Enable to check/set, ◦: Enable to check, disable to set,
- : Disable to check/set

※ In L0C.2, only the L0CK parameter displays.

## Parameter initialization [INI]

To initialize all parameter as factory default, supply the power to the product with pressing the [M] key and  key at the same time and it enters initialization parameter.



## Error

Display	Descriptions	Troubleshooting
HHHH	Flashes when measured pressure is higher than the 'pressure range'.	Adjust measured pressure within the 'pressure range'.
LLLL	Flashes when measured pressure is lower than the 'pressure range'.	Adjust measured pressure within the 'pressure range'.
ERR	Flashes when there is error to SV	Re-set it after checking the setting conditions

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KT-302H
PTF30

# PTF30 Series

## Parameters

**RUN mode**

[M]

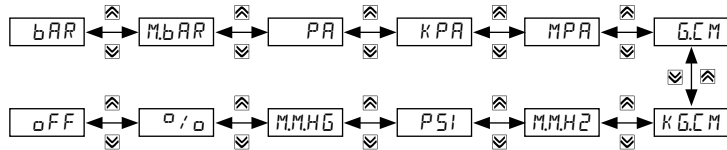
Input unit

UNIT

[S] ※1

BAR

Select input unit.



[M]

[S] ※2

BAR

Set low-limit input value of input range.

Low-limit input value

※4 L-RG

[S]

----

Set low-limit input value of input range.  
• Set range : within the pressure range of input type

High-limit input value

※4 H-RG

[S]

----

Set high-limit input value of input range.  
• Set range : within the pressure range of input type

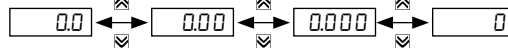
Decimal point position

※4 d.P

[S]

----

Select the decimal point position of display scale value.  
※ Set range is different by the pressure range.



Low-limit scale value

※4 L-SC

[S]

0000

Set low-limit scale value.  
• Set range : -1999 to 9999  
※ Displayed only when selecting input unit [UNIT] as % [o/o] or OFF [OFF].

High-limit scale value

※4 H-SC

[S]

1000

Set high-limit scale value.  
• Set range : -1999 to 9999  
※ Displayed only when selecting input unit [UNIT] as % [o/o] or OFF [OFF].

Zero-point correction

ZERO

[S]

000

Corrects occurring error at 0% input.  
• Set range : -999 to 999

Slope correction

SPAN

[S]

1.000

Corrects occurring error at 100% input.  
• Set range : 0.900 to 1.100

Low-limit output scale value

※4 L.oUt

[S]

----

Set low-limit output scale value.  
• Set range : Within temperature range when input unit is standard pressure unit.  
Within display scale range when input unit is % or OFF.

High-limit output scale value

※4 H.oUt

[S]

----

Set high-limit output scale value.  
• Set range : Within temperature range when input unit is standard pressure unit.  
Within display scale range when input unit is % or OFF.

Moving average digital filters

MAV.F

[S]

04

Set the number of moving average digital filters.  
• Set range : 01 to 16

[M]

※ 1. [S] : Press any key among the [←], [→], [✓].

※ 2. [←]: Moves digits / [✓], [→]: Changes SV.

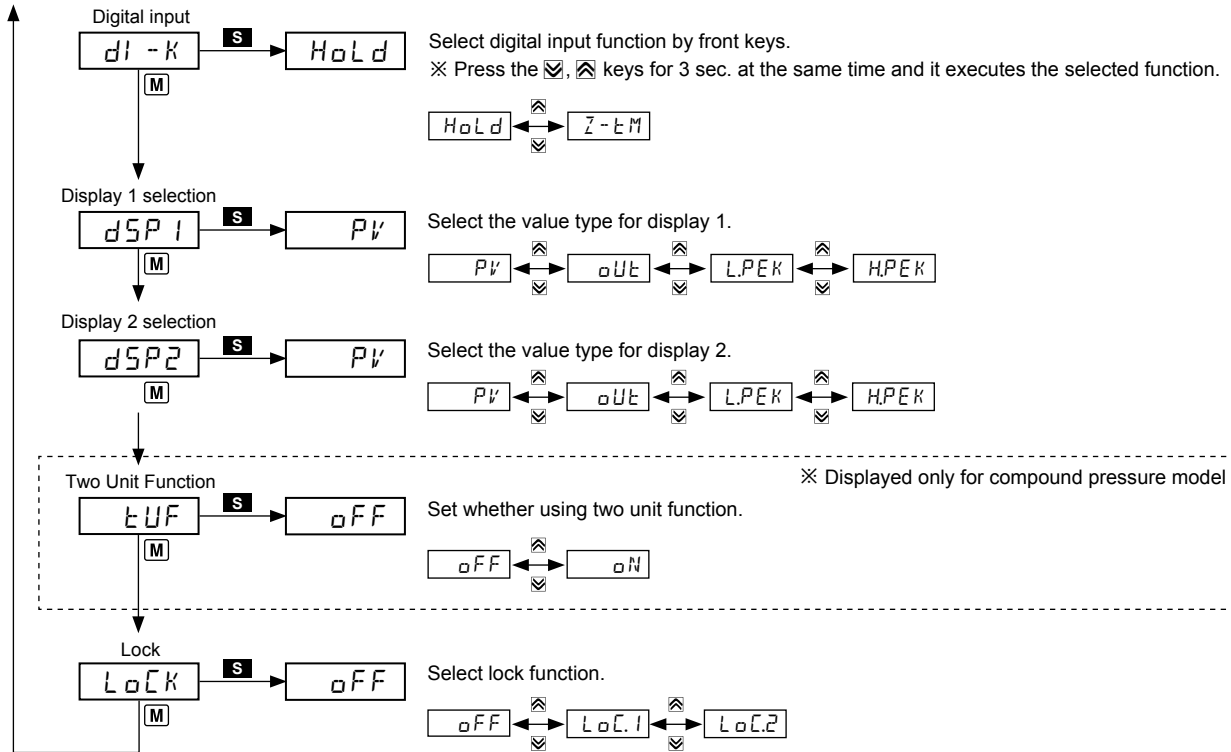
※ 3. Press the [M] key after checking/changing SV in each parameter.  
The value flashes twice and is saved. It moves to next parameter.

※ 4. Defaults are different by the pressure range by each model.

※ After entering setting group, press the [M] key for 3 sec. or there is no additional key operation in 30 sec., it returns to RUN mode.

※ [ ]: This parameter might not be displayed depending on other parameter settings.

# Standard Pressure Transmitter



A. Recorder
B. Indicator
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<b>F. Pressure transmitter</b>
G. Temp. transmitter
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## Proper usage

### Caution for using

- For connecting the power, use a crimp terminal (M3.5, min. 7.2 mm).
- The connection of this unit should be separated from the power line and high voltage line in order to prevent inductive noise.
- Install a power switch or a circuit breaker to supply or cut off the power.
- Switch or circuit breaker should be installed nearby users for convenient control.
- Do not use this unit near the high frequency instruments (high frequency welding machine & sewing machine, large capacity SCR controller).
- When supplying input, if HHHH or LLLL is displayed, measured input may have problem. Turn off the power and check the line.
- Installation environment
  - ① Indoor / Outdoor
  - ② Altitude max. 2,000 m
  - ③ Pollution Degree 2
  - ④ Installation Category II

TPS20
KT-302H
<b>PTF30</b>