PTF30 Series

Pressure Transmitter

▣ 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
- DC4-20mA 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 class: Ex d IIC T6
- Protection structure: IP67 (IEC standard)

> ⚠ **Please read "Safety Considerations" in operation manual before using.**

CE

▣ Ordering Information

PTF30	—	G	7	N	N	—	F8	(-0.1 to 35MPa)
①		②	③	④	⑤		⑥	⑦

		Description	
①Item	PTF30	Pressure Transmitter	
②Measurement pressure	G	Gauge pressure, sealed gauge pressure[1]	
	A	Absolute pressure	
③Rated pressure range		Gauge pressure	Absolute pressure
	1	0 to 35kPa	0 to 35kPa
	2	0 to 0.1MPa	0 to 0.1MPa
	3	0 to 0.2MPa	0 to 0.2MPa
	4	0 to 0.7MPa	0 to 0.7MPa
	5	0 to 2MPa	0 to 2MPa
	6	0 to 3.5MPa	0 to 3.5MPa
	7	0 to 7MPa	
	8	0 to 21MPa	
	9	0 to 35MPa	
		Sealed gauge pressure[1]	
	A	-35 to 0kPa	
	C	-0.1 to 0MPa	
	F	-0.1 to 0.2MPa	
	H	-0.1 to 0.7MPa	
	M	-0.1 to 2MPa	
	O	-0.1 to 3.5MPa	
	Z	Others	
④HART communication output	N	None	
⑤Mounting bracket	N	Without bracket	
	B	With bracket	
⑥Pressure port	F8	G3/8 (PF)	
⑦User pressure range		User pressure range[2]	

※1: The pressure is sealed gauge pressure. The unit is sealed structure. It is based on atmospheric pressure 101.3kPa (1.013bar).
※2: Write the desired pressure range and it is the default of user pressure range.(select "Z" at ③Rated pressure range)

Pressure Transmitter

▣ Specifications

Series	PTF30
Measured materials	Vapor, liquid, fluid (except corrosive environment of stainless steel 316)
Power supply	15-35VDC⎓
Display method	12-segment 4-digit LCD Display
Character size	W6.24×H10.73mm (12-segment) / W1.45×H2.5mm (unit)
Output	DC4-20mA 2-wire Low-limit: 3.6mA (-2.5%), high-limit: 21.6mA (+10%)
Accuracy[1]	±0.3% of F.S.
Temperature characteristics	At 20℃, ± (0.075% × URL + 0.15% × Span)
Setting method	Setting by front push keys
Sampling cycle	300ms
Dielectric resistance	1,000VAC for 1 min (between external terminal and case)
Vibration	0.75mm amplitude at frequency of 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Insulation resistance	Over 100MΩ (at 500VDC megger)
Noise immunity	Square shaped noise by noise simulator (pulse width 1μs) ±240V
Memory protection	Approx. 10 years (non-volatile semiconductor memory type)
Environ-ment	Ambient temperature	-20 to 70℃, storage: -20 to 80℃
	Ambient humidity	0 to 85%RH
Material	Body: aluminum (AlDc.8S), cover O-Ring: buna N, diaphragm: stainless steel 316, connections: stainless steel 316
Explosion class[2]	Ex d IIC T6
Protection structure	IP67 (IEC standard)
Approval	C€
Unit weight	Approx. 1.2kg

※1: F.S.: Rated pressure range.
※2: This Explosion class is acquired and managed by Konics Co., Ltd.
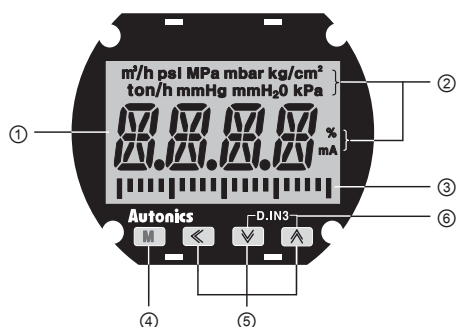※Environment resistance is rated at no freezing or condensation.

▣ Pressure Conversion Chart

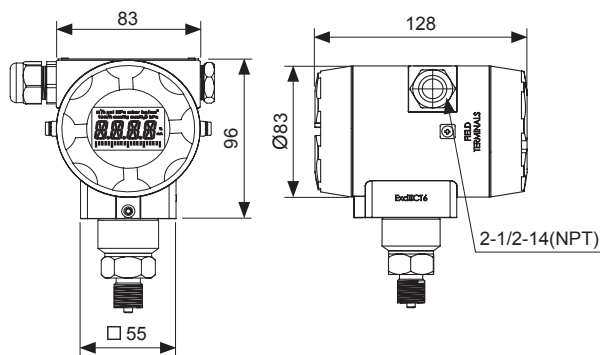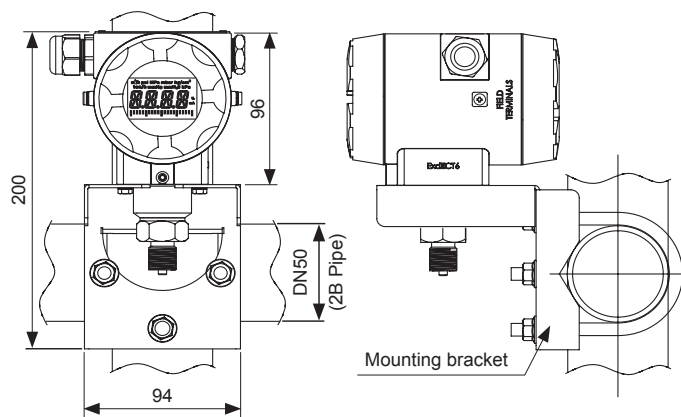|	gf/cm²	kgf/cm²	Pa	kPa	MPa	mbar	bar	mmH2O	psi	mmHg
1gf/cm²	1	0.001000	98.0665	0.0980665	0.000098	0.980665	0.000981	10.00000	0.014223	0.735559
1kgf/cm²	1000.000	1	98066.50	98.06650	0.098067	980.665	0.980665	10000.00	14.22334	735.5592
1Pa	0.010197	0.0000102	1	0.001000	0.000001	0.01	0.000010	0.101972	0.000145	0.007501
1kPa	10.19716	0.010197	1000.000	1	0.001000	10	0.010000	101.9716	0.145038	7.500617
1MPa	10197.16	10.19716	1000000	1000.000	1	10000	10.00000	101971.6	145.0378	7500.617
1mbar	1.019716	0.0010197	100.0000	0.100000	0.000100	1	0.001000	10.19716	0.014504	0.750062
1bar	1019.716	1.019716	100000.0	100.0000	0.100000	1000	1	10197.16	14.50377	750.0617
1mmH2O	0.100000	0.000100	9.80665	0.009807	0.0000098	0.0980665	0.000098	1	0.001422	0.073556
1psi	70.30699	0.070307	6894.757	6.894757	0.006895	68.94757	0.068948	703.0696	1	51.71493
1mmHg	1.359510	0.001360	133.3224	0.133322	0.0001333	1.333224	0.001333	13.59510	0.019337	1

PTF30 Series

▣ Unit 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 DC4-20mA 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.

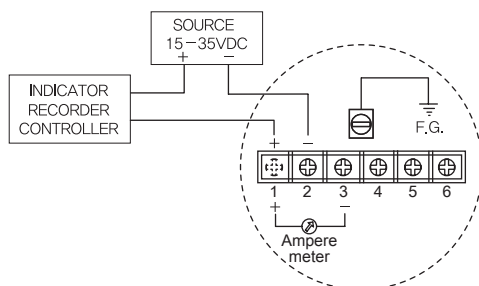## ▣ Dimensions

(unit: mm)

● Mounting bracket

▣ Connections

※You can check DC4-20mA output by connecting an ampere meter. (impedance: max. 30Ω)

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▣ Functions

■ Input unit [UNIt]

You can select input unit.
(bar, mbar, Pa, kPa, MPa, gf/cm^2, kgf/cm^2, mmH$_2$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 % [°/°] or OFF [oFF], only the display position of decimal point is moved.

- Setting range: 0 / 0.0 / 0.00 / 0.000

※Setting 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.
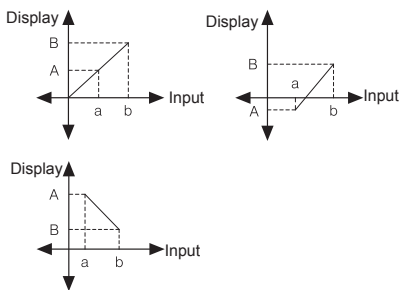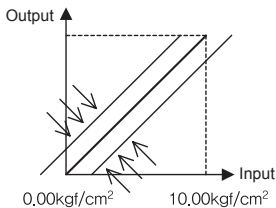

※This function is available only when input unit is % [°/°] or OFF [oFF].

■ Zero-point correction [ZERo]

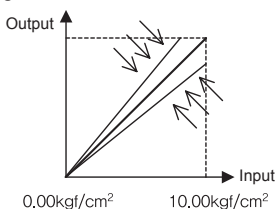It corrects the error of display value for 0% input.

- Setting range: -999 to 999

■ Slope correction [SPAN]

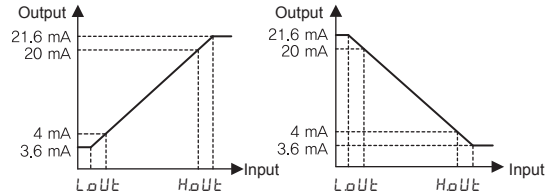It corrects the error of display value for 100% input.

- Setting range: 0.900 to 1.100

■ Output scale [LoUt, HoUt]

For DC4-20mA current output, this function is set to display value for current output.

Set the display value for DC4mA [LoUt] and the display value for DC20mA [HoUt].

■ 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.

- Setting 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
HoLd	Display Hold	Temporarily indicated value is stopped in order to confirm indicated value in unstable input.
Z-tM	Zero-point adjustment	It is same function as [ZERo]. When executing this function, you can check and change correction value at ZERo.

■ Multi-display selection [dSP1, dSP2]

Select one for display 1 and display 2 among PV, oUt, 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].
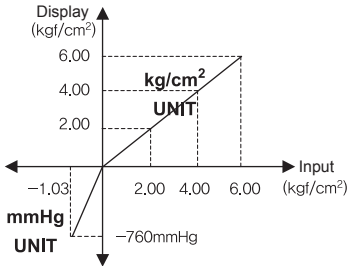
In this case, peak value is the present input value.

PTF30 Series

▣ Functions

■ Two unit function [ᵗᵁF]

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 [LoᴄK]

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

	oFF	LoᴄI	Loᴄ2
Parameter	●	◖	○

●: Enable to check/set, ◖: Enable to check, disable to set,
○: Disable to check
In Loᴄ2, only the LoᴄK parameter displays.

■ Parameter initialization [ꜱNꜱᵗ]

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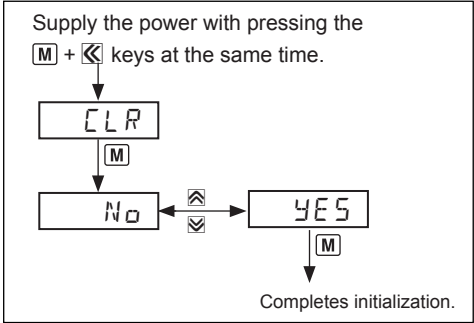
■ Error

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'.	
ERR	Flashes when there is error to SV	Re-set it after checking the setting conditions

▣ Factory Default

Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default
UNIᵗ	ᵇAR	L-ꜱᴄ	0.000	LoUᵗ	0.000 ※1	dꜱPI	PV
L-RG	0.000 ※1	H-ꜱᴄ	100.0	HoUᵗ	0.350 ※1	dꜱP2	PV
H-RG	0.350 ※1	ZERo	0.00	MAVF	04	ᵗUF	oFF
dP	0.350 ※1	ꜱPAN	100.0	dꜱ-K	HoLd	LoᴄK	oFF

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

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▣ Parameters

※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 may or may not appear, depending on the other parameter set.

RUN mode

M

Input unit
UNI t — **S** — ※1 ※2 — bAR
M — **M** ※3

bAR ⇄ MbAR ⇄ PA ⇄ KPA ⇄ MPA ⇄ GCM
oFF ⇄ °/o ⇄ MMHG ⇄ PSI ⇄ MMH2 ⇄ KGCM

Low-limit input value
※4 L-RG — **S** — - - - -
M
• Setting range: Within the pressure range of input type

High-limit input value
※4 H-RG — **S** — - - - -
M
• Setting range: Within the pressure range of input type

Decimal point position
※4 dP — **S** — - - - -
M
Select the decimal point position of display scale value.
※Setting range is different by the pressure range.
0.0 ⇄ 0.00 ⇄ 0.000 ⇄ 0

Low-limit scale value
L-SC — **S** — 000.0
M
• Setting range: -1999 to 9999
※Displayed only when selecting input unit [UNI t] as % [°/o] or OFF [oFF].

High-limit scale value
H-SC — **S** — 100.0
M
• Setting range: -1999 to 9999
※Displayed only when selecting input unit [UNI t] as % [°/o] or OFF [oFF].

Zero-point correction
ZERo — **S** — 000
M
Corrects occurring error at 0% input.
• Setting range: -999 to 999

Slope correction
SPAN — **S** — 1000
M
Corrects occurring error at 100% input.
• Setting range: 0.900 to 1.100

Low-limit output scale value
※4 LoUt — **S** — - - - -
M
• Setting 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 HoUt — **S** — - - - -
M
• Setting range: Within temperature range when input unit is standard pressure unit.
Within display scale range when input unit is % or OFF.

PTF30 Series

Moving average digital filters

$MAVF$ | S → 04

M ↓

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

Digital input

$dI-K$ | S → $HoLd$

M ↓

Select digital input function by front keys.
※Press the ⌄, ⌃ keys for 3 sec at the same time and it executes the selected function.

$HoLd$ ↕ $Z-tM$

Display 1 selection

$dSP1$ | S → PV

M ↓

PV ↕ oUt ↕ $LPEK$ ↕ $HPEK$

Display 2 selection

$dSP2$ | S → PV

M ↓

PV ↕ oUt ↕ $LPEK$ ↕ $HPEK$

Two Unit Function

tUF | S → oFF

M ↓

oFF ↕ oN

※Displayed only for compound pressure model

Lock

$LoCK$ | S → oFF

M ↓

oFF ↕ $LoC.1$ ↕ $LoC2$

▣ Proper Usage

• 15-35VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
• For connecting the power, use a crimp terminal
  (M3.5, max. 7.2mm).
• 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.
• This product may be used in the following environments.
  ① Indoor / Outdoor
  ② Altitude max. 2,000m
  ③ Pollution degree 2
  ④ Installation category II
• Use verified explosion-proof electric connection
  (cable gland or sealing fitting)
  (explosion proof standard: over Ex d IIC T6, IP rating: over IP67 protection structure).
• Use dedicated external terminal for earth. For connecting earth, use a spring washer and earth cable which is over 4mm^2.

• **We are not responsible for any damages and claims for careless. Must read the cautions for your safety and using.**
• **This explosion-proof unit is certified and the same specifications which is reported to Korea Gas Safety Corporation.**
• **If there are any problems with the unit, contact the head office.**
• **Failure to follow these instructions may result in product damage.**

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