Autonics

Display Pressure Transmitter
PTF30 SERIES

INSTRUCTION MANUAL

Thank you for choosing Autonics product.
Please read the following safety considerations before use.

■ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.
※⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠ **Warning** Failure to follow these instructions may result in serious injury or death.
⚠ **Caution** Failure to follow these instructions may result in personal injury or product damage.

⚠ Warning

1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
   Failure to follow this instruction may result in personal injury, fire or economic loss.
2. **Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
   Failure to follow this instruction may result in explosion or fire.
3. **The explosion-proof standard of this unit is Ex d IIC T6, protection structure of this unit is IP67 and the range of max. surface temperature is below 85℃.**
4. **Do not disassemble or modify the unit.**
   Failure to follow this instruction may result in fire or electric shock.

⚠ Caution

1. **Do not apply beyond the rated pressure.**
   Failure to follow this instruction may result in product damage.
2. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
3. **Keep metal chip, dust, and wire residue from flowing into the unit.**
   Failure to follow this instruction may result in fire or product damage.
4. **Check the polarity of the contact before wiring the unit.**
   Failure to follow this instruction may result in product damage by a fire.
5. **This product is designed to detect the pressure of noncorrosive fluid. Do not use for corrosive fluid.**
   Failure to follow this instruction may result in product damage.
6. **Use a dry cloth to clean the unit, and do not use water or organic solvent.**
   Failure to follow this instruction may result in fire.

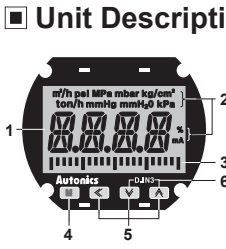
■ Ordering Information

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 he desired pressure range and it is the default of user pressure range.
(select "Z" at ③Rated pressure range)

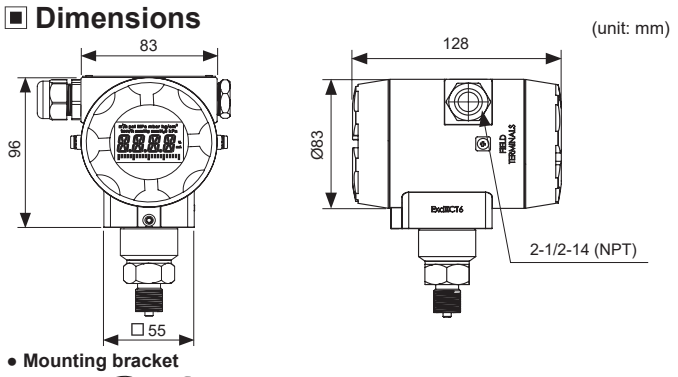
■ Unit Descriptions



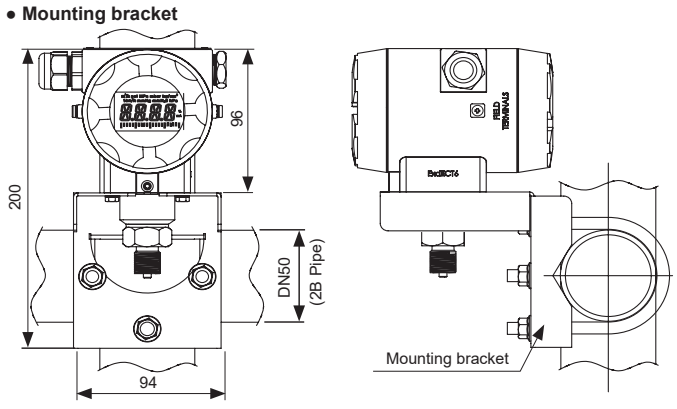
1. **Display part** Displays detected pressure value, several setting value and errors.
2. **Unit display part** Displays the currently set input unit.
3. **Output scale bar graph** Displays output DC4-20 mA as scale bar graph by 5% unit.
4. **M key** Used to enter parameter mode, move parameters and 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.

■ Dimensions

(unit: mm)



● **Mounting bracket**



※**The above specifications are subject to change and some models may be discontinued without notice.**
※**Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).**

■ 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×H10.73 mm (12-segment) / W1.45×H2.5 mm (unit)
Output		DC4-20mA 2-wire Low-limit: 3.6 mA (-2.5%), High-limit: 21.6 mA (+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		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 X, Y, Z direction for 2 hours
Insulation resistance		Over 100 MΩ (at 500VDC megger)
Noise immunity		Square shaped noise by noise simulator (pulse width 1 μs) ±240 V
Memory protection		Approx. 10 years (non-volatile semiconductor memory type)
Environment	Ambient temp	-20 to 70 ℃, storage: -20 to 80 ℃
	Ambient humi	0 to 85%RH
Material		Body: Aluminum (AlDc.8S), Cover O-Ring: Buna N, Diaphragm, connections: Stainless steel 316
Explosion class※2		Ex d IIC T6
Protection structure		P67 (EC standard)
Approval		CE
Unit weight		1.2 kg

※1: F.S.: Rated pressure range.
※2: The explosion class specification is acquired and managed by KONICS.
※Environment resistance is rated at no freezing or condensation.

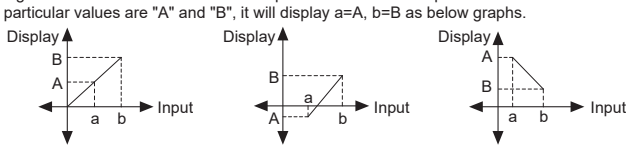
■ Functions

◎ **Input unit [UNIt]**
You can select input unit.
(bar, mbar, Pa, kPa, MPa, gf/cm², kgf/cm², mmH₂O, 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.

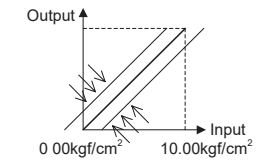
◎ **Decimal point setting [dP]**
This function is to change decimal point digit for input display value.
When input unit is set as % [▫] or OFF [oFF], only the display position of decimal point is moved.
• Setting range: 0 / 0 0 / 0.00 / 0 000
※Setting range is different by the pressure range.

◎ **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.

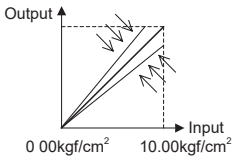


※This function is available only when input unit is % [▫] or OFF [oFF].

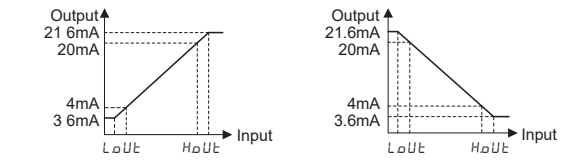
◎ **Zero-point correction [ZERo]**
It corrects the error of display value for 0% input.
• Setting range: -999 to 999



◎ **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 DC4-20 mA current output, this function is set to display value for current output.
Set the display value for DC4 mA [LoUt] and the display value for DC20 mA [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.

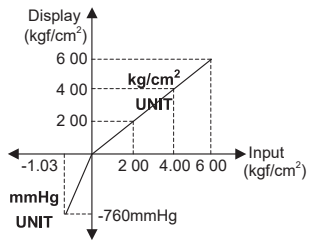
◎ **Digital input [dI -K]**
By front keys operation (D.IN3: ≫ + ∧ 3sec), one of two functions executes as the below table.

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

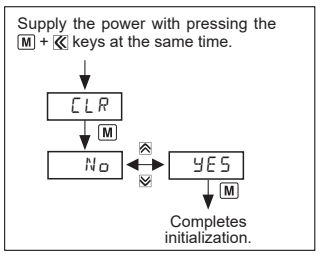
◎ **Multi-display selection [dSP1, dSP2]**
Select one for display 1 and display 2 among Pv, oUt, LPEK, HPEK.
Set dSP1 and dSP2 differently and it displays two different values in turn for 2 sec.
When selecting LPEK (HPEK), the left (or the right) of output scale bar graph flashes for 0.5 sec.

◎ **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.

◎ **Two Unit Function [tUF]**
For compound pressure model, this function displays the input pressure which is below atmospheric pressure by mmHg unit. t displays the input pressure atmospheric pressure or over atmospheric pressure by the set pressure unit.



◎ **Parameter initialization [INIt]**
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.



◎ **Lock [LoCK]**
It limits to check parameter set value and to change it.

	oFF	LoC.1	LoC.2
Parameter	●	◐	○

●: Enable to check/set
◐: Enable to check, disable to set
○: Disable to check

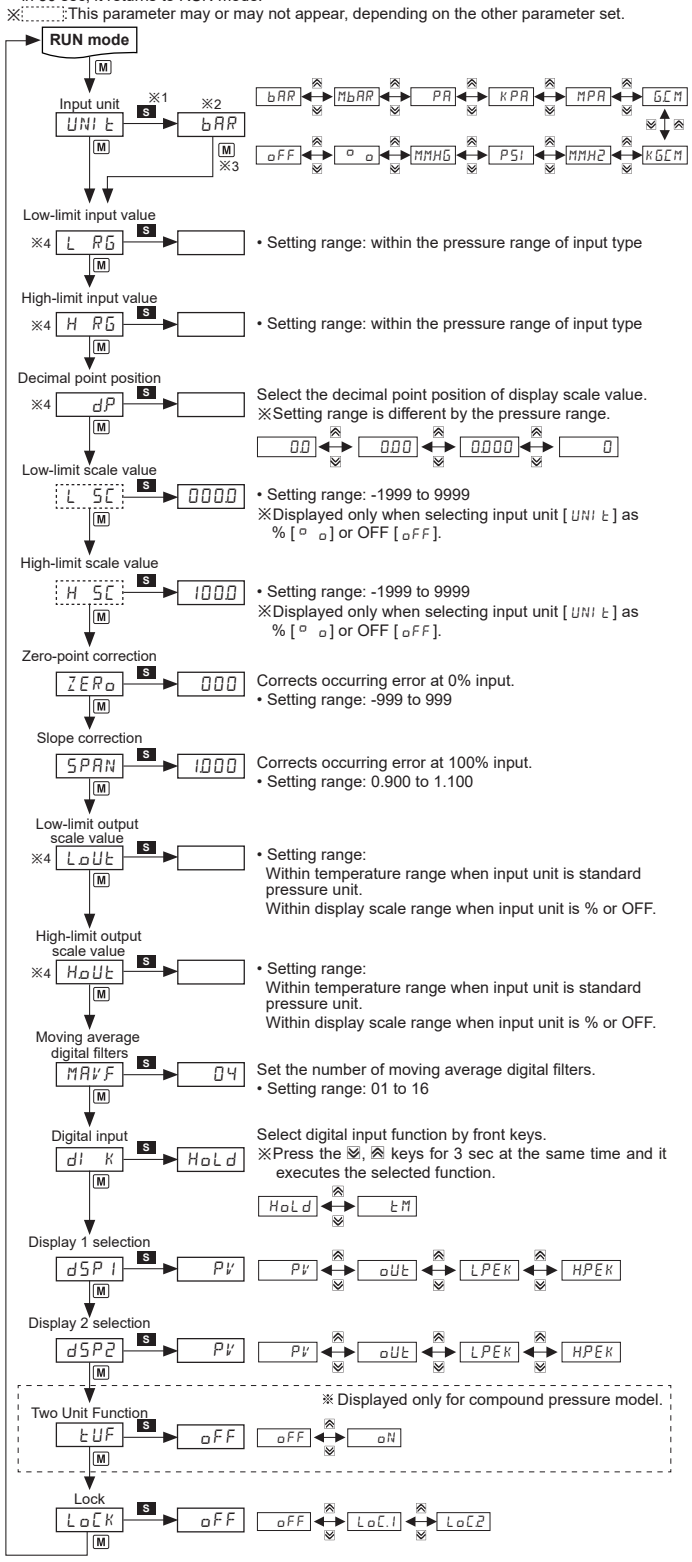
In LoC2, only the LoCK parameter displays.

◎ **Error**

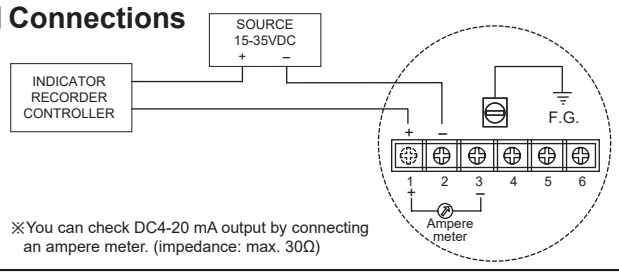
Display	Descriptions	Troubleshooting
HHHH	Flashes when measured pressure is higher than the 'pressure range'.	Adjust measured pressure within the 'pressure range'.
LLLL	Flashes when measured pressure is lower than the 'pressure range'.	
ERR	Flashes when there is error to SV	Re-set it after checking the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

■ 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. t 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.



■ Connections



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

■ Factory Default

Parameter	Default	Parameter	Default	Parameter	Default	Parameter	Default
UNIt	bAR	L SC	0000	LoUt	0000	dSP1	Pv
L RG	0000※1	H SC	1000	HoUt	0350	dSP2	Pv
H RG	0350※1	ERo	000	MAVF	04※1	tUF	oFF
dP	0350※1	SPAN	1000	dI K	HoLd※1	LoCK	oFF

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

■ Cautions during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
2. 15-35VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. The connection of this unit should be separated from the power line and high voltage line in order to prevent inductive noise.
4. Do not use this unit near the high frequency instruments
5. Switch or circuit breaker for suppling or cutting off the power should be installed nearby users for convenient control.
6. Use verified explosion-proof cable gland or sealing fitting.
   (explosion proof standard: over Ex d IIC T6, P rating: over IP67 protection structure).
7. Use dedicated external terminal for earth. For connecting earth, use a spring washer and earth cable which is over 4mm².
8. This unit may be used in the following environments.
   ① Indoor / Outdoor (in the environment condition rated in 'Specifications')
   ② Altitude max. 2,000 m
   ③ Pollution Degree 2
   ④ Installation Category II

※**The explosion-proof unit is certified and the same specifications which is reported to Korea Gas Safety Corporation. (This unit is manufactured following by the announcement 2013-54 of Ministry of Employment and Labor of Korea.)**

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