DRW171431BA

Autonics

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.

※Safety considerations are categorized as follows.
⚠**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.

※The symbols used on the product and instruction manual represent the following
⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠ 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. **Check explosion-proof standard (Ex d IIC T6) of this unit and do not use it in place where there are flammable or explosive gas, humidity, direct ray the light, radiant heat, vibration and impact etc.**
   Failure to follow this instruction may result in fire or explosion.
3. **Do not disassemble the case. Please contact us if it is required.**
   Failure to follow this instruction may result in fire.

⚠ Caution

1. **Do not apply beyond 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 shortening the life cycle of the unit, or fire.
3. **Keep dust and wire residue from flowing into the unit.**
   Failure to follow this instruction may result in product damage by fire.
4. **Wire it properly after checking terminal numbers when connecting power cable and measuring input.**
   Failure to follow this instruction may result in product damage by fire.
5. **Please contact our service center if using for the corrosive detergent.**
   Failure to follow this instruction may result in shortening the life cycle of the unit and product damage.
6. **Do not use water or oil-based detergent when cleaning the unit. Use dry cloth to clean the unit.**
   Failure to follow this instruction may result in electric shock or fire.
7. **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℃.**

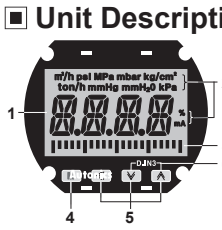
■ Ordering Information

PTF30 – **G** **7** **N** **N** – **F8** **(0 to 5kgf/cm²)**
① ② ③ ④ ⑤ ⑥ ⑦

	Description			
①Item	PTF30	Pressure Transmitter		
②Measurement pressure	G	Gauge pressure		
	A	Absolute pressure		
③Pressure range		Absolute pressure, Gauge pressure		Gauge pressure
	1	0 to 0.35kgf/cm²	7	0 to 70kgf/cm²
	2	0 to 1kgf/cm²	8	0 to 200kgf/cm²
	3	0 to 2kgf/cm²	9	0 to 350kgf/cm²
	4	0 to 7kgf/cm²	A	-257mmHg to 0kgf/cm²
	5	0 to 20kgf/cm²	C	-760mmHg to 0kgf/cm²
	6	0 to 35kgf/cm²	F	-760mmHg to 2kgf/cm²
		—	H	-760mmHg to 7kgf/cm²
			M	-760mmHg to 20kgf/cm²
			O	-760mmHg to 35kgf/cm²
	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※1		

※ **1**: Write the desired pressure range and it is the default of user pressure range. (Select "Z" at ③Pressure range)

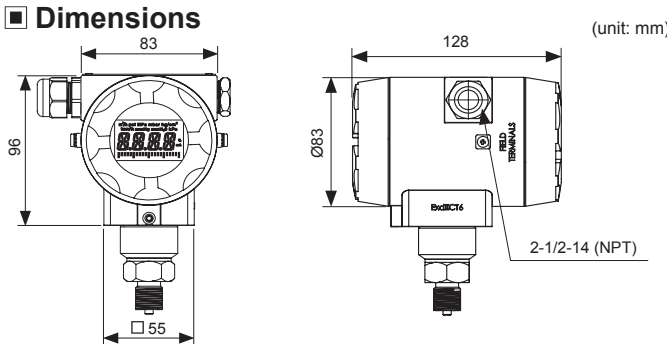
■ Unit Descriptions



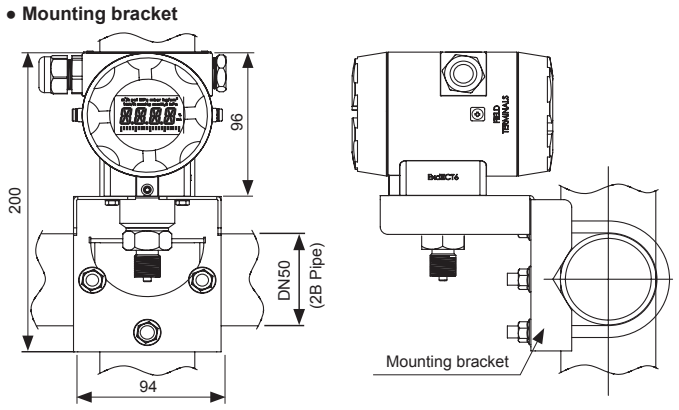
1. **Display part:** Displays detected pressure value, several setting value and errors.
2. **Unit display part:** Displays the currently set input unit.
3. **Output scale bar graph:** Displays output DC4-20 mA as scale bar graph by 5% unit.
4. **M key:** Used to enter parameter mode, move parameters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

■ 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		• 10% of Span < URL: ± (0.05 + 0.015 URL/Span)% of Span • 10% of Span ≥ URL: ±0.2% of Span
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		Ex d IIC T6
Protection structure		IP67 (IEC standard)
Approval		CE
Unit weight		1.2 kg

※ **1**: Span: User pressure range [L-RG to H-RG], URL: Pressure range by mode
※ **2**: This Explosion class is acquired and managed by Konics Co., Ltd.
※ Environment resistance is rated at no freezing or condensation.

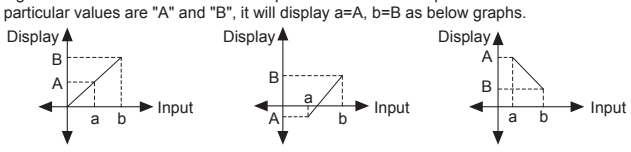
■ Functions

◎ **Input unit [UNIt]**
You can select input unit.
(bar, mbar, Pa, kPa, MPa, gf/cm², kgf/cm², mmH_2O, 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.

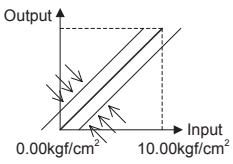
◎ **Decimal point setting [dP]**
This function is to change decimal point digit for input display value.
When input unit is set as % [%] or OFF [oFF], only the display position of decimal point is moved.
• Setting range: 0 / 0.0 / 0.00 / 0.000
※ Setting range is different by the pressure range.

◎ **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.

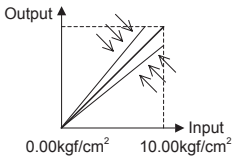


※ This function is available only when input unit is % [%] or OFF [oFF].

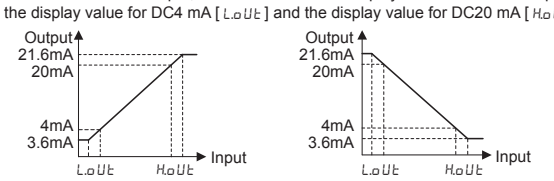
◎ **Zero-point correction [ZERo]**
It corrects the error of display value for 0% input.
• Setting range: -999 to 999



◎ **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 [MAV.F]**
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.

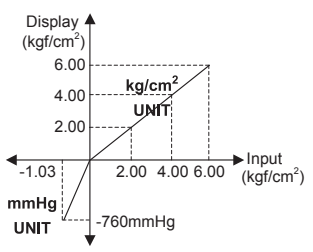
◎ **Digital input [dI -K]**
By front keys operation (D.IN3: ≫ + ∧ 3sec), one of two functions executes as the below table.

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

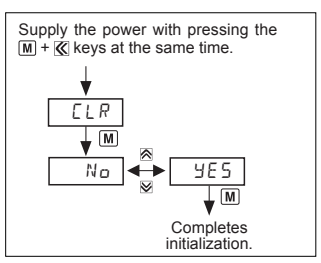
◎ **Multi-display selection [dSP1, dSP2]**
Select one for display 1 and display 2 among Pv, oUt, LPEK, HPEK.
Set dSP1 and dSP2 differently and it displays two different values in turn for 2 sec.
When selecting LPEK (HPEK), the left (or the right) of output scale bar graph flashes for 0.5 sec.

◎ **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.

◎ **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.



◎ **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

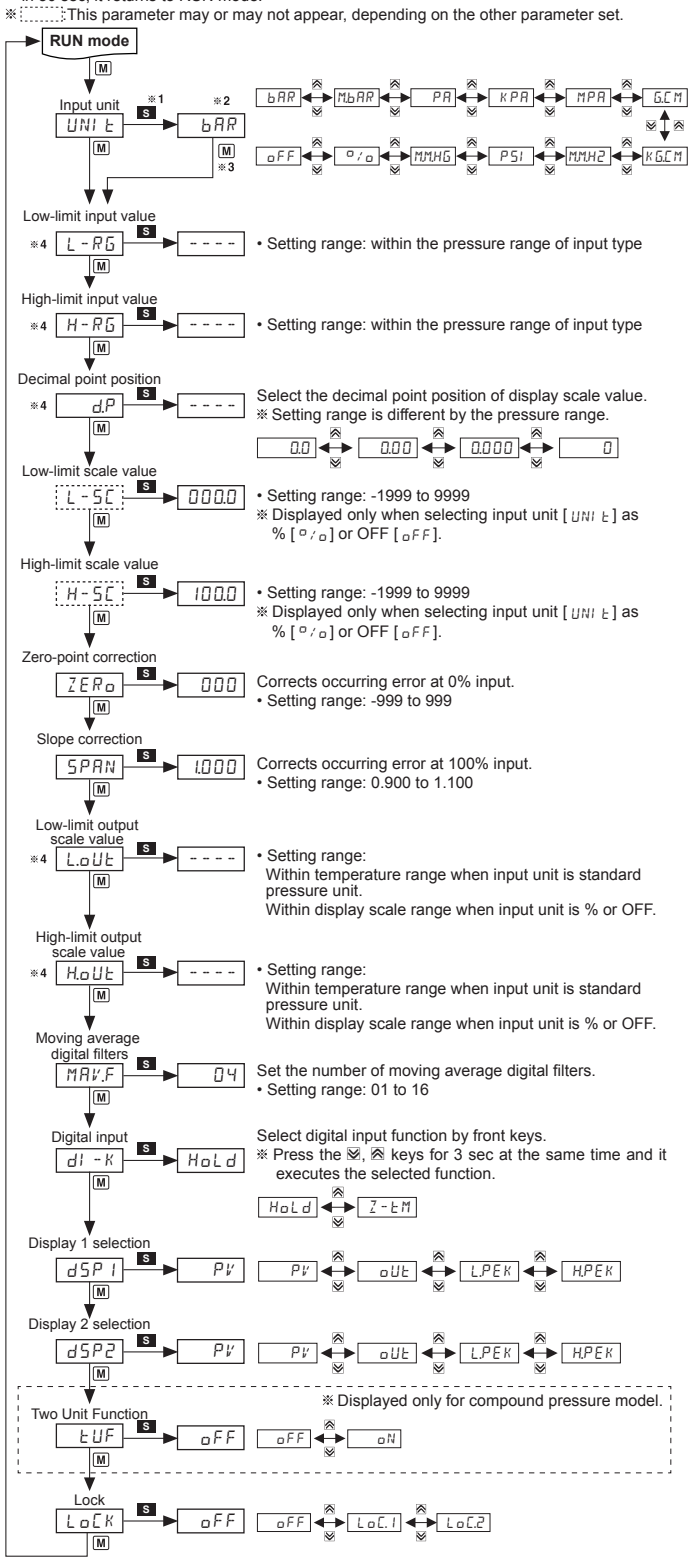
In LoC.2, only the LoCK parameter displays.

◎ **Error**

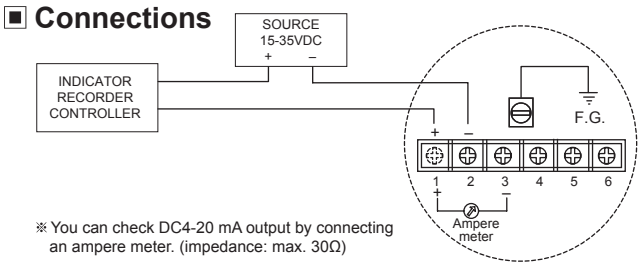
Display	Descriptions	Troubleshooting
HHHH	Flashes when measured pressure is higher than the 'pressure range'.	Adjust measured pressure within the 'pressure range'.
LLLL	Flashes when measured pressure is lower than the 'pressure range'.	
ERR	Flashes when there is error to SV	Re-set it after checking the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



■ 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	000.0	LoUt	0.000	dSP1	Pv
L-RG	0.000※1	H-SC	100.0	HoUt	0.350	dSP2	Pv
H-RG	0.350※1	ZERo	000	MAV.F	04※1	tUF	oFF
dP	0.350※1	SPAN	1.000	dI -K	HoLd※1	LoCK	oFF

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

■ Cautions during Use

1. For connecting the power, use a crimp terminal (M3.5, max. 7.2 mm).
2. The connection of this unit should be separated from the power line and high voltage line in order to prevent inductive noise.
3. Install a power switch or a circuit breaker to supply or cut off the power.
4. Switch or circuit breaker should be installed nearby users for convenient control.
5. Do not use this unit near the high frequency instruments (high frequency welding machine & sewing machine, large capacity SCR controller).
6. When supplying input, if HHHH or LLLL is displayed, measured input may have problem. Turn off the power and check the line.
7. Installation environment.
   ① Indoor / Outdoor ② Altitude max. 2,000 m
   ③ Pollution degree 2 ④ Installation category II
8. 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).
9. Use dedicated external terminal for earth. For connecting earth, use a spring washer and earth cable which is over 4mm².

※ **We are not responsible for any damages and claims for careless. Must read the cautions for your safety and using.**
※ **The 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.**

■ Major Products

■ Photoelectric Sensors
■ Fiber Optic Sensors
■ Door Sensors
■ Door Side Sensors
■ Area Sensors
■ Proximity Sensors
■ Pressure Sensors
■ Rotary Encoders
■ Connector/Sockets
■ Switching Mode Power Supplies
■ Control Switches/Lamps/Buzzers
■ I/O Terminal Blocks & Cables
■ Stepper Motors/Drivers/Motion Controllers
■ Graphic/Logic Panels
■ Field Network Devices
■ Laser Marking System (Fiber, Co_2, Nd: YAG)
■ Laser Welding/Cutting System
■ Temperature Controllers
■ Temperature/Humidity Transducers
■ SSR/Power Controllers
■ Counters
■ Timers
■ Panel Meters
■ Tachometer/Pulse (Rate) Meters
■ Display Units
■ Sensor Controllers
■ Recorders
■ Indicators
■ Converters
■ Controllers
■ Thyristor Units
■ Pressure Transmitters
■ Temperature Transmitters

Autonics Corporation
http://www.autonics.com
■ **HEAD QUARTERS:**
18, Bansong-ro 513 beon-gil, Haeundae-gu, Busan, South Korea, 48002
TEL: 82-51-519-3232
■ **E-mail:** sales@autonics.com

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