

PS DIGITAL AIR PRESSURE SENSOR



INSTRUCTION SHEET

Thank you for selecting INNO for your requirement. This sheet describes the procedure and precautions required for installing and operating the product. Kindly read this sheet before operating or installing the product. Store the sheet for future reference.

CAUTION FOR SAFETY

- Please keep this sheet for review before use of unit.
- Please observe the following:
 - WARNING** Serious injury may occur if instructions are not followed
 - CAUTION** Product failure or injury can occur if instructions are not followed
- WARNING**
 - This is not a safety product and is not to be used with machinery that requires use of safety control.
 - Do not disassemble or modify this unit. It may lead to electric shock/fire.
- Do not connect sensor to AC power supply. **RISK OF EXPLOSION!**
- CAUTION**
 - This unit shall not be used outdoors.
 - Do not use the unit in places where there is flammable or explosive gas.
 - Please use within the rated pressure range in Instruction Sheet.
 - Do not use this unit beyond rated power and do not supply AC power at DC power type.
 - Please check the polarity of power and wrong wiring.
 - Do not use this unit in places where there is vibration or impact.
 - Do not use water or oil based detergent for cleaning the unit.
 - Do not use excessive force to tighten the unit and do not hammer the unit.
 - Please process it as industrial waste and dispose responsibly.

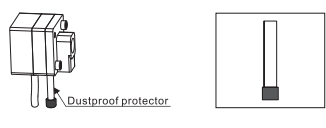
SPECIFICATIONS

*For details on Customized/ Special Models contact Seller

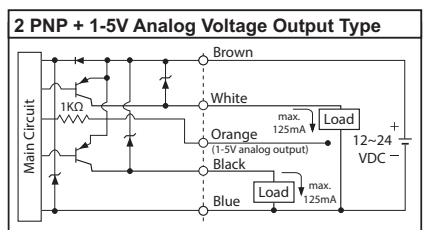
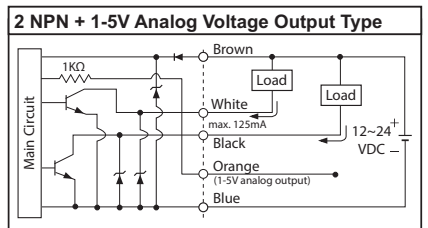
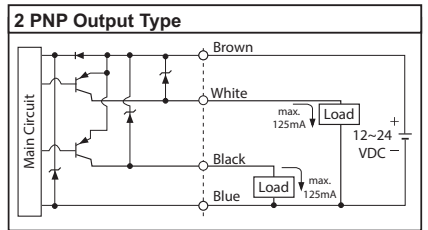
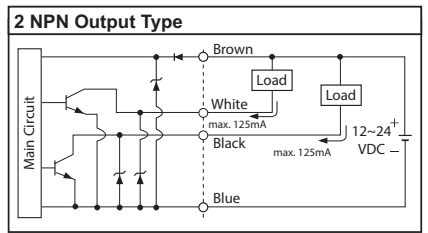
Type	Vacuum		Positive		Compound		
*Models	2 NPN	PS-VN2-2M	PS-VN2-M12J3	PS-PN2-2M	PS-PN2-M12J3	PS-CN2-2M	PS-CN2-M12J3
	2 NPN + 1-5V	PS-VN2V-2M		PS-PN2V-2M		PS-CN2V-2M	
	2 PNP	PS-VP2-2M	PS-VP2-M12J3	PS-PP2-2M	PS-PP2-M12J3	PS-CP2-2M	PS-CP2-M12J3
	2 PNP + 1-5V	PS-VP2V-2M		PS-PP2V-2M		PS-CP2V-2M	
Pressure Type	Gauge Pressure						
Pressure Port Type	1/8" NPT, M5						
Rated Pressure Range	0.0 ~ -101.3 kPa		0.0 ~ 1000.0 kPa		-100.0 ~ 100.0 kPa		
Display Pressure Range	10.0 ~ -101.3 kPa		-100.0 ~ 1000.0 kPa		-100.0 ~ 100.0 kPa		
Withstand Pressure	300 kPa		1500 kPa		300 kPa		
Applicable Fluid	Air, Non-corrosive & Non-flammable gas						
Power Supply	12 to 24 VDC ±10%						
Current Consumption	< 55 mA at no load						
Connection	Prewired 2 meter cable	M12 Jn. Connector, 0.3m extension	Prewired 2 meter cable	M12 Jn. Connector, 0.3m extension	Prewired 2 meter cable	M12 Jn. Connector, 0.3m extension	
Operating Mode	Hysteresis Mode; Window Mode						
Control Output	Type	NPN or PNP open collector output (depending on model)					
	Rating	Load Voltage: 24 VDC ; Load Current: max. 80mA; Residual Voltage: max. 1V					
	Hysteresis	Hysteresis mode: Adjustable; Window mode: Fixed(3 digits)					
	Repeatability Error	max. ±0.2% F.S, ±1 digit					
	Response time	2.5ms; Chatter-proof Function: 24ms, 192ms, 768ms selections					
Analog Voltage Output	Output Voltage: 1~5V ±5% F.S; Linearity: ±1% F.S						
Display	3 1/2 digit Red LED 7 segment display (sampling 5/sec)						
Output Indication	Output 1: Green LED; Output 2: Orange LED						
Other Indication	7 user changeable pressure units, key lock indication, sleep mode indication						
Protection Circuits	Output Short Circuit Protection						
Withstand Voltage	1000 VAC (between lead and case) for 1 minute						
Insulation Resistance	50 MΩ min. (at 500 VDC) between case and lead wire						
Shock Resistance	100G, 3 times each in direction of X, Y and Z						
Vibration Resistance	1.5mm amplitude at 10-50 Hz for 2 hours each in direction of X, Y and Z						
Ambient Temperature	Operation: 0° ~ 50°C; Storage: -20° ~ 60°C (non-freezing; non-condensing)						
Ambient Humidity	Operation: 30 ~ 85% RH; Storage: 35 ~ 85% RH (non-condensing)						
Protection Class	IP 65						
Weight	Cable type: approx. 110g; Junction Connector type: approx. 45g						
Material	Housing: ABS; Front Case: PC; Cable: 0.15mm ² Oil-resistant PVC						

CAUTION

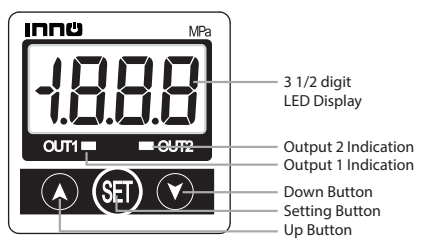
The dustproof protector is to be installed properly as shown in the diagram for IP 65 level protection. Exposure to a dusty and or environment with high humidity/ water splash or spray without the protector will lead to permanent damage or explosion of the sensor.



OUTPUT CIRCUIT DIAGRAM



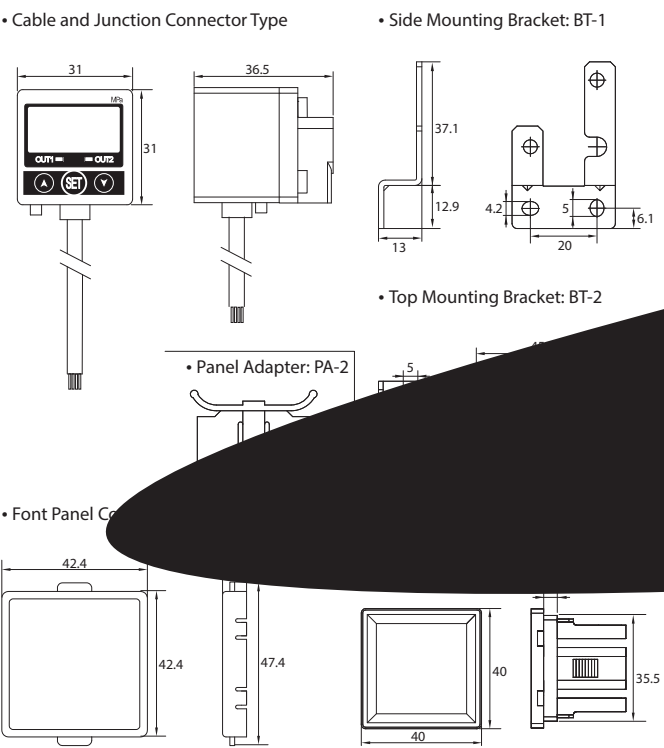
NOMENCLATURE



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DIMENSIONS



SETTING PRESSURE RESOLUTION

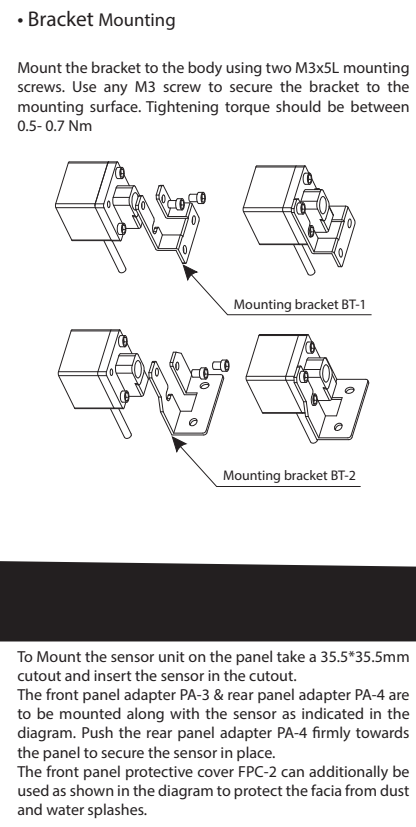
Type	Vacuum	Positive	Compound
kPa	0.1	-	0.1
Mpa	-	0.001	-
kgf/cm ²	0.001	0.01	0.001
bar	0.001	0.01	0.001
psi	0.01	0.1	0.01
mmHg	0.1	-	0.1
mmHg	1	-	1
mmHg	20	-	0.1

CONVERSION

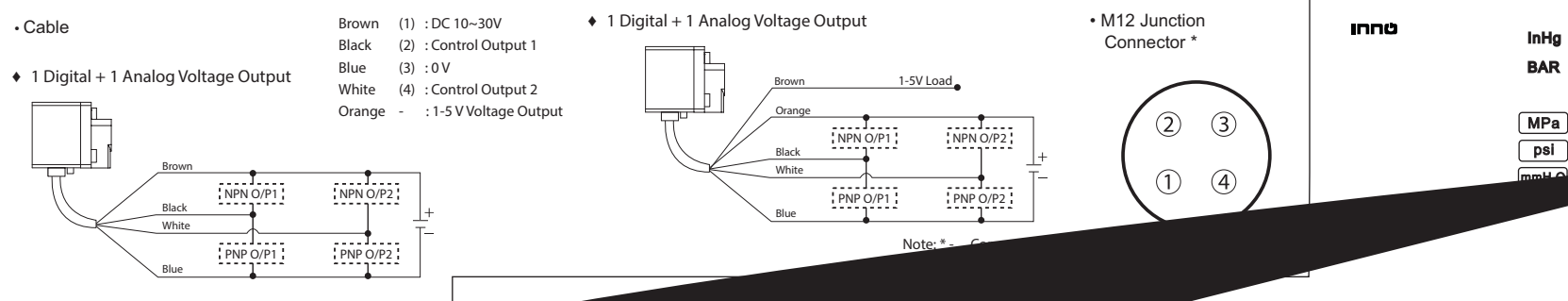
1 MPa	100000	98066.5	133.32	6895	100000.0	3386.388	9.80665	0.000001	0.000010197	0.00750062	0.000145038	0.00001	0.0002953	0.101968
100000	100000	98066.5	133.32	6895	100000.0	3386.388	9.80665	0.000001	0.000010197	0.00750062	0.000145038	0.00001	0.0002953	0.101968
98066.5	100000	100000	133.32	6895	100000.0	3386.388	9.80665	0.000001	0.000010197	0.00750062	0.000145038	0.00001	0.0002953	0.101968
133.32	100000	100000	100000	6895	100000.0	3386.388	9.80665	0.000001	0.000010197	0.00750062	0.000145038	0.00001	0.0002953	0.101968
6895	100000	100000	100000	100000	100000.0	3386.388	9.80665	0.000001	0.000010197	0.00750062	0.000145038	0.00001	0.0002953	0.101968
100000.0	100000	100000	100000	100000	100000.0	100000	9.80665	0.000001	0.000010197	0.00750062	0.000145038	0.00001	0.0002953	0.101968
3386.388	100000	100000	100000	100000	100000.0	100000	100000	0.000001	0.000010197	0.00750062	0.000145038	0.00001	0.0002953	0.101968
9.80665	100000	100000	100000	100000	100000.0	100000	100000	0.000001	0.000010197	0.00750062	0.000145038	0.00001	0.0002953	0.101968

Note: when using the unit mmH₂O, please multiply display value by 100.

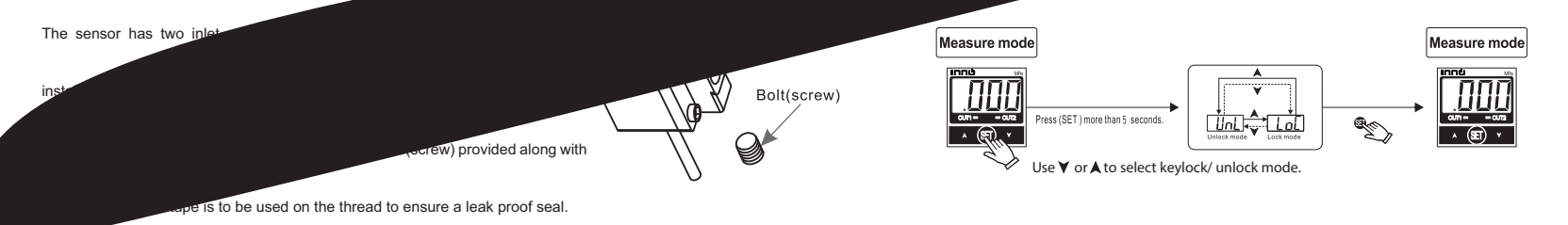
MOUNTING AND ADJUSTMENTS



CONNECTION DIAGRAM



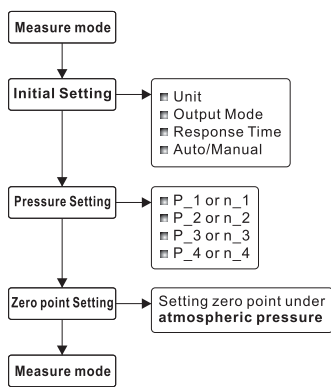
INSTALLATION



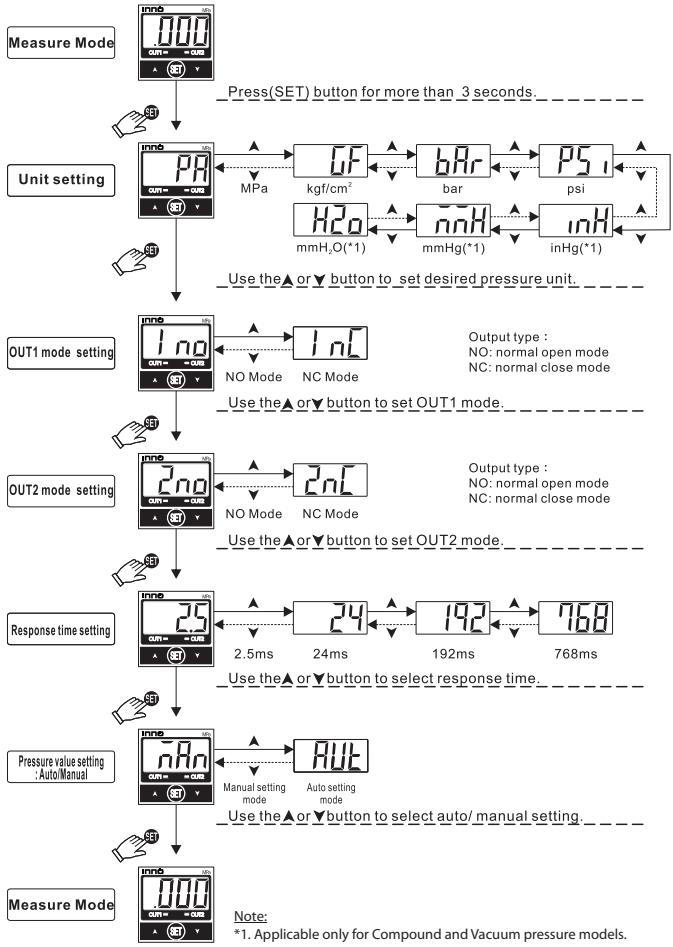
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SETTING STEPS



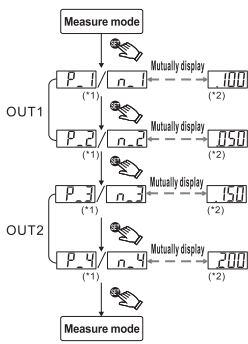
INITIAL SETTING MODE



PRESSURE SETTING MODE

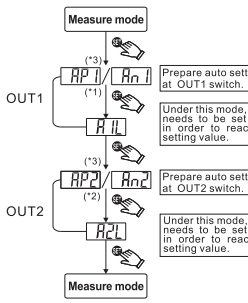
Select auto/ manual setting mode during initial setting mode

Manual Setting Mode



Note:
1. The LED shows (P.) at normally open mode and (n.*) at normally closed mode:
Pressure setting value is shown normally and will not lead to pressure to stop working.
*2. Change Pressure Value:
Press ▲ button, each button press will increase one digit. Keep pressing the ▲ button, the pressure value will keep increasing.
Press ▼ button, each press will decrease one digit. Keep pressing the ▼ button, the pressure value will keep decreasing.

Auto Setting Mode



Note:
*1. In case of without need of OUT1 pressure value setting, press ▼+▲ at the same time to enter (AP2)/(An2).
*2. In case of without need of OUT2 pressure value setting, press ▼+▲ at the same time to enter measure mode.
3. The LED show 'AP', at normal open mode and 'An*' at normally closed mode.

CALCULATION OF SETTING VALUE:
A= The max. pressure value under Auto Setting Mode.
B= The min. pressure value under Auto Setting Mode.

$$P1(n1) = A - \frac{A-B}{4}$$

$$P2(n2) = B + \frac{A-B}{4}$$

ZERO POINT SETTING MODE

Zero Setting Mode

Press the ▼+▲ button at the same time until "00" is shown. Release the button to end the Zero Setting.



Max. Value Display Mode

Press the ▲ button 2 seconds to enter the Max. Value Mode, pressure sensor will detect the max. value and retain it on the display. Press the ▲ button 2 seconds to return to the Measure Mode.



Min. Value Display Mode

Press the ▼ button 2 seconds to enter the Min. Value Mode, pressure sensor will detect the min. value and retain it on the display. Press the ▼ button 2 seconds to return to the Measure Mode.



OUTPUT TYPES

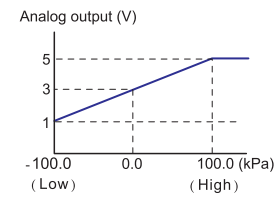
Digital Output Models

	Positive/ Compound Pressure Models	Vacuum Pressure Models
P1(n1)>P2(n2) P3(n3)>P4(n4)	Normally Open ON: Pressure rises above set point. OFF: Pressure falls below set point.	Normally Open ON: Pressure falls below set point. OFF: Pressure rises above set point.
Hysteresis Mode	Normally Close ON: Pressure falls below set point. OFF: Pressure rises above set point.	Normally Close ON: Pressure rises above set point. OFF: Pressure falls below set point.
	Normally Open ON: Pressure rises above set point. OFF: Pressure falls below set point.	Normally Open ON: Pressure falls below set point. OFF: Pressure rises above set point.
Window Comparator Mode P1(n1)<P2(n2) P3(n3) P4(n4)	Normally Open ON: Pressure between set points. OFF: Pressure outside set points.	Normally Open ON: Pressure between set points. OFF: Pressure outside set points.
	Normally Close ON: Pressure between set points. OFF: Pressure outside set points.	Normally Close ON: Pressure between set points. OFF: Pressure outside set points.

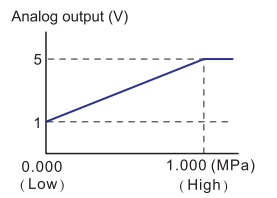
NOTE:
In case hysteresis is set at less than or equal to 2 digits, switch output may chatter if input pressure fluctuates near the set point.
In Window Comparator mode, the hysteresis is fixed in 3 digits. Pressure value level settings, at least 6 digits.

Analog Voltage (1-5V) Output Models

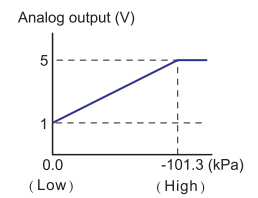
Compound Pressure



Positive Pressure



Vacuum Pressure



ERROR CODE INSTRUCTIONS

Error Type	Error Code	Error Condition	Error Resolution
Excess load Current Error	Out1 Er1	Output 1 load current is more than 80mA	Turn off power and check the load current. Restart after reducing load current to under 80mA.
	Out2 Er2	Output 2 load current is more than 80mA	
Residual Pressure Error	Er3	During zero reset, ambient is over ±3 % F.S	Change input pressure to ambient pressure and perform zero reset again
Applied Pressure Error	---	Supply pressure exceeds upper limit of pressure setting	Adjust the pressure within the pressure range
	---	Supply pressure exceeds lower limit of pressure setting	
System Error	Er4	Internal data Error	Turn of power and restart, If error conditions remains, Return unit to factory.
	Er6	Internal System Error	
	Er7	Internal Data Error	
	Er8	Internal System Error	

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