

PCD03 High Pressure Dew Point Transmitter



〈Feature〉

- High accuracy and long-term stability
- Capable of temperature compensation and linear adjustment
- Industry sensor with non-cond, bearable pressure : 16 bar
- Analogue output : 0 ... 1V / 0 ... 5V / 1 ... 5V / 0 ... 10V / 2 ... 10V / 0 ... 20mA / 4 ... 20mA
- Standard MODBUS RTU protocol, RS-485 communication interface
- More size of connector for different environment to be easily installed
- High pressure, low humidity, dew point Max scaling range - 100 ... + 60 dp°C
- Free programmable software which can adjust dew point range and provide more physical quantities, dew point, frostpoint, absolute humidity and so on to choose

〈Application Field〉

- Compressed air system / Freezer / Adsorption machine
- Plastic dryer / Industrial drying process
- Paper / Chemical process monitoring

Specificatio

Input

Input type	Capacitive humidity sensor & PT 100 Ω
Working range of dew point	- 60 ... +60 dp $^{\circ}\text{C}$

Output

Max. scaling range	Dew point : - 100 ... + 60 dp $^{\circ}\text{C}$
Dew point switch to another	Frost point : - 60 ... + 0 fp $^{\circ}\text{C}$;
Physical quantity range	Absolute humidity (volume) 0 ... 50000 ppm/v Absolute humidity (weight) 0 ... 50000 ppm/w
Output signal	Standard RS-485 & 1 analog output 0 .. 20mA / 4 .. 20 mA / 0 .. 1VDC / 0 .. 5VDC / 0 .. 10VDC
Signal connection	3-wire
Modbus	Standard RS-485 & 1 analog output
Linear accuracy (working range of dew point : -60 ... +60 dp $^{\circ}\text{C}$	± 2 dp $^{\circ}\text{C}$ (at + 25 $^{\circ}\text{C}$) \pm (0.02%FS/ $^{\circ}\text{C}$
Load resistance	Current output : max. 500 Ω / voltage output : min. 10K Ω
Output calibration (ZERO & SPAN adjustment range	Software
Responsetimet90(temp.at+25 $^{\circ}\text{C}$	< 20S

Environment

Media measured	Air
Operating temp. for housing	- 40 ... + 80 $^{\circ}\text{C}$
Operating humidity for housing	0 ... 95 RH % (non-cond.
Operating temp. for probe	- 70 ... + 80 $^{\circ}\text{C}$
Storage temperature	- 25 ... + 60 $^{\circ}\text{C}$
Bearable pressure	16 bar

Electrical

Power supply	8 ... 35 VDC & 10 ... 30 VAC
Current consumption	DC24V, 50 mA M12 connector
Electrical connection	

Installation

Installation	Metal connector
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Protection

Protect degree	Body IP : 65 (probe : IP20
	⊗Polarity protection ⊗Over-voltage ⊗Short circuit

Material

Housing	S.S. (SUS304)
Probe	S.S. (SUS304) / SUS sintered filter (SUS316)
Weight	233g

Factory setting

Measuring range of dew point : - 100 ... + 20 $^{\circ}\text{C}$;
Output : 4 ... 20 mA & standard RS-485

Ordering Guide

Type	PCD03	—	C	1
Dew point measuring range	-20 ... +20 $^{\circ}\text{C}$	—	A	
	-40 ... +20 $^{\circ}\text{C}$	—	B	
	-100 ... +20 $^{\circ}\text{C}$	—	C	
Connector	1/2"PT (R1/2")			1
	1/2"G			2
	5/8"UNF			3

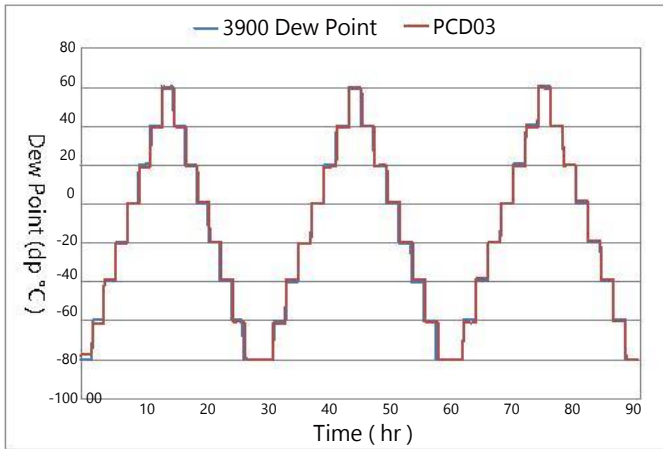
Dew Point Automatic Inspection

System facility :

- Thunder 3900 humidity generator
- MBW 373 dew point mirror, traceability to national standards - National Institute of Standards and Technology (NIST)
- Laboratory level facility to produce products, and automatic QC inspection sheet printing and factory report



3-cycle curve

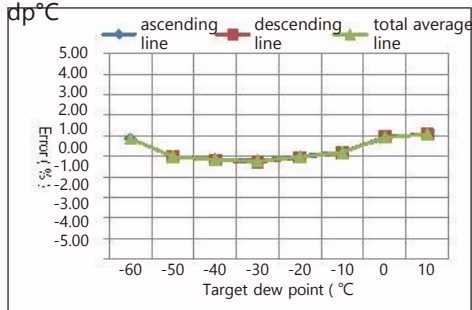


※ According to IEC 61298 and ISO 17025 standard to measuring 3-cycle curve.
As the charts result, accuracy of test sample match with accuracy chart of humidity generator + dew point mirror.

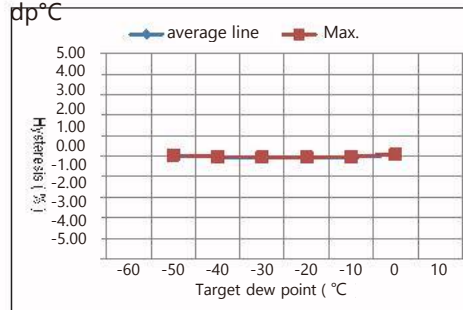
Accuracy Error curve

※ According to IEC 61298 and ISO 17025 standard to measure

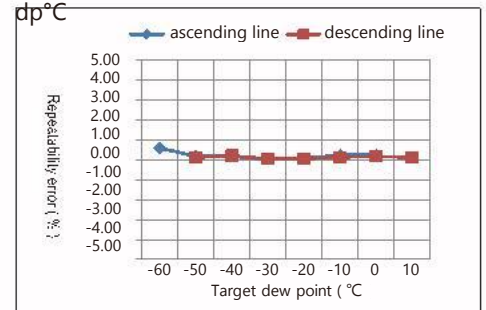
• Nonlinear error : 1.07



• Hysteresis error : 0.10



• Repeatability error : 0.61



Reaction speed

Before and after upgrade of PCD02 high pressure dew point transmitter.

Comparison benchmark:

Test environment 1 : Tested in an alumina chamber

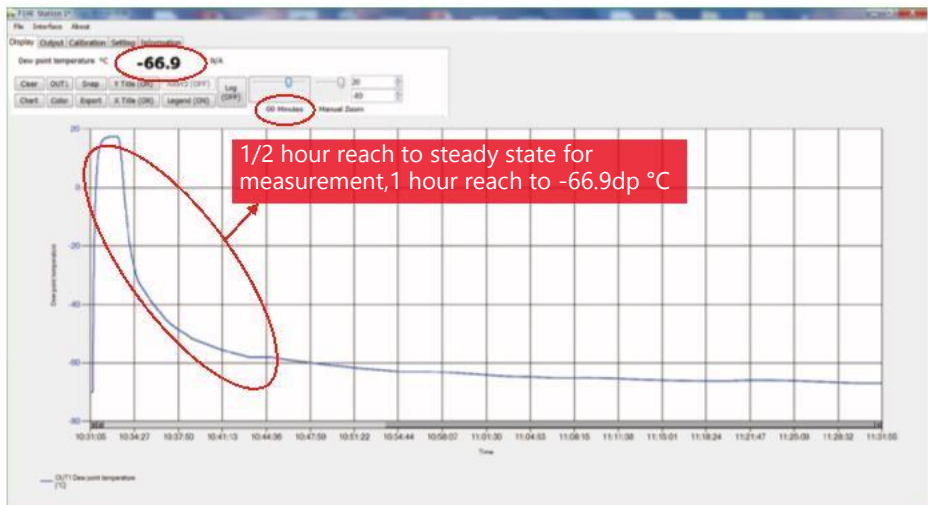
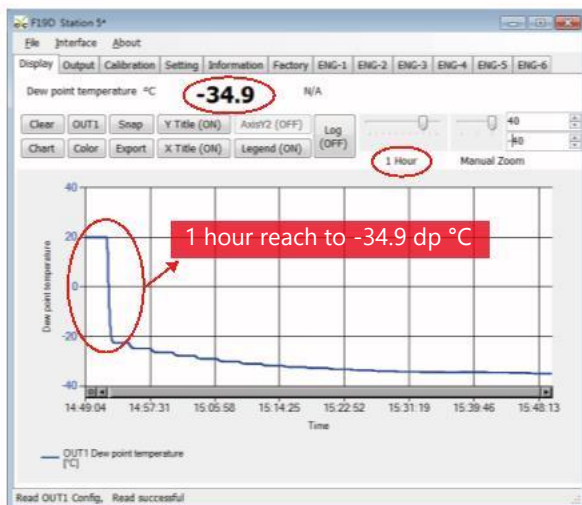
Test condition 2 : PCD02 and PCD03 are both performed by 20 dp °C

PCD02 :

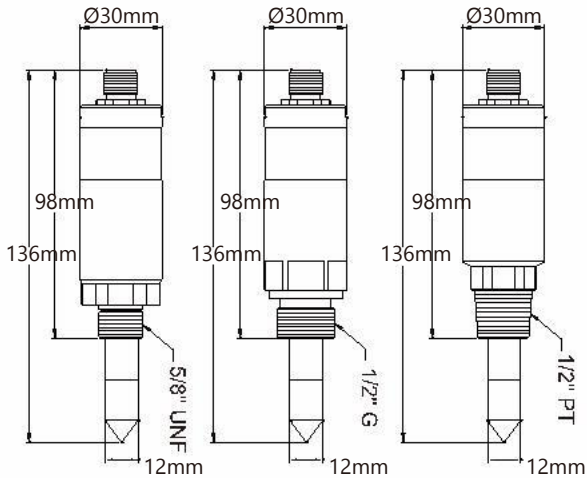
1 hour reach to -34.9 dp °C , 3 hours reach to steady state for measurement

PCD03 (Upgrade version):

1/2 hour reach to steady state for measurement,
1 hour reach to -66.9dp °C

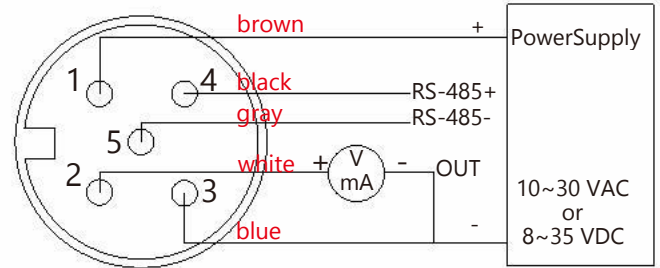


Dimension



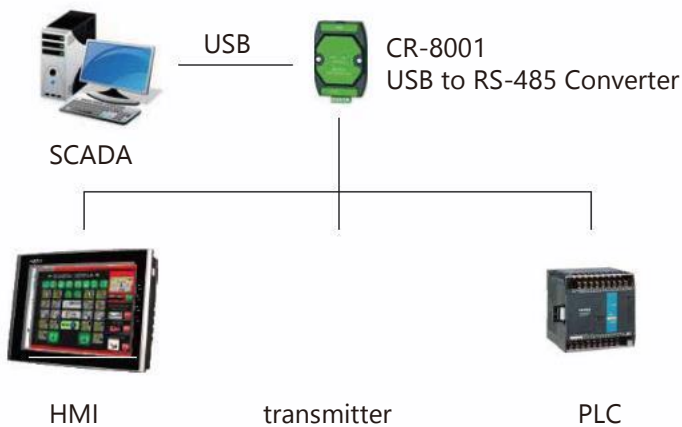
※ Standard — PVC-5PIN 2M waterproof cable

Diagram



M12 connector

USB to Isolated RS485



※ Require Device

1. PC
2. RS-485 to USB Converter
3. power supply
4. THS88 PLUS UI software

| Additional option (ILAC / TAF) Test report |



Additional option : Yuden standard calibration laboratory test report (TAF accreditation: 3032) complying with ISO /IEC 17025. TAF has mutual recognition arrangement with ILAC MRA

Project	Measurand level or range
Dew point hygrometer	$\geq -80^{\circ}\text{C} \dots \leq 60^{\circ}\text{C}$

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