

# THS88 High Pressure Dew Point Transmitter



## Features

- Capable of temperature compensation and linear calibration
- Industrial sensor with non-condensing. Bearable pressure : 16 bar
- High pressure, low humidity. Dew point scaling range : -100 ... +60 dp°C
- Standard Modbus RTU protocol, RS-485 communication interface
- High accuracy and long-term stability
- More size of connector for different environment
- Analog output : 0 ... 1 V / 0 ... 5 V / 1 ... 5 V / 0 ... 10 V / 2 ... 10 V / 0 ... 20 mA / 4 ... 20 mA
- Free programmable software which can adjust dew point range and provide more physical quantities such as dew point, frost point, absolute humidity and so on

## Application

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

## Specification

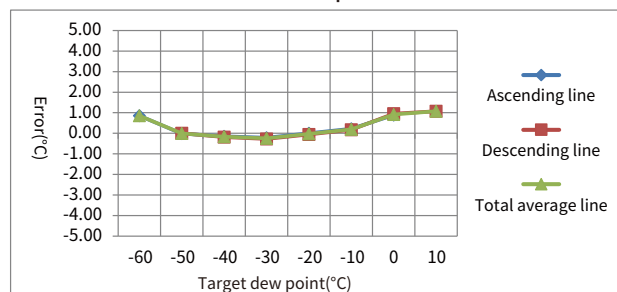
Input		Environment	
Input type	Capacitive humidity sensor & Pt 100	Medium	Air
Operating range of dew point	-60 ... +60 dp°C	Operating Temp. for housing	-40 ... +80°C
		Operating Humid. for housing	0 ... 95%RH (Non-condensing)
Output		Operating Temp. for probe	-70 ... +80°C
Max. scaling range	Dew point : -100 ... +60 dp°C	Storage temperature	-25 ... +60°C
Dew point switch to another physical quantity range	Frost point : -60 ... 0 fp°C ; Absolute humidity(Volume)0 ... 50000 ppm/v Absolute humidity(Weight)0 ... 50000 ppm/w	Bearable pressure	16 bar
Output signal	Standard RS-485 & 1 analog output 0 ... 20 mA / 4 ... 20 mA / 0 ... 1 V / 0 ... 5 V / 0 ... 10 V	Installation	
Signal connection	3-wire	Installation	Metal connector
Modbus	Standard RS-485 & 1 analog output	Protection	
Linear accuracy	±2 dp°C(at +25°C)±(0.02%F.S. / °C) (Operating range of dew point : -60 ... +60 dp°C)	IP rating	IP65(Probe : IP20)
Load resistance	Current output : Max.500 Ω Voltage output : Min.10 KΩ	Electrical protection	■ Polarity protection ■ Over-voltage ■ Short-circuit
Output calibration(ZERO & SPAN) adjustment range	Software	Material	
Response time t90 (Temp. at+25°C)	<20 sec	Housing	S.S.(SUS304)
		Probe	S.S.(SUS304) ; SUS sintered filter(SUS316)
		Weight	233 g
Electrical		Factory setting	
Power supply	DC 8 ... 35 V&AC 10 ... 30 V	Measuring range of dew point	: -100 ... +20°C ;
Current consumption	DC 24 V, 50 mA	Output	: 4 ... 20 mA&standard RS-485
Electrical connection	M12 connector		

\*Please make sure the product and the device which connect with RS-485 are on common ground, avoid damaged product.

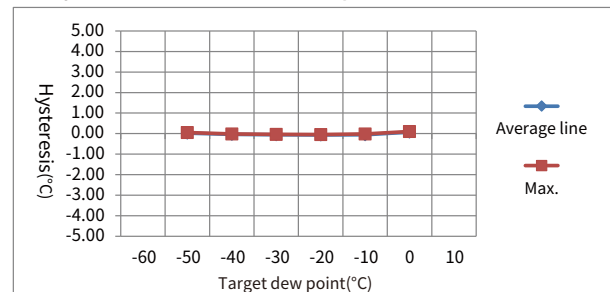
## Accuracy Error Curve

※ According to IEC 61298 and ISO 17025 standard to measure

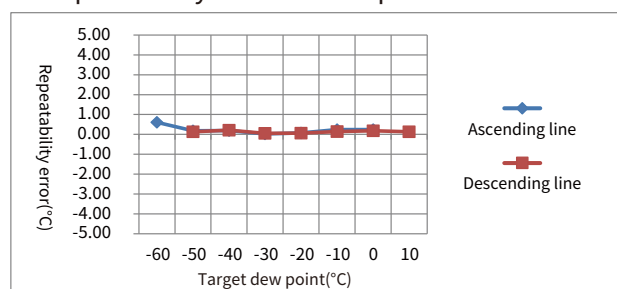
### ● Nonlinear error : 1.07 dp°C



### ● Hysteresis error : 0.10 dp°C

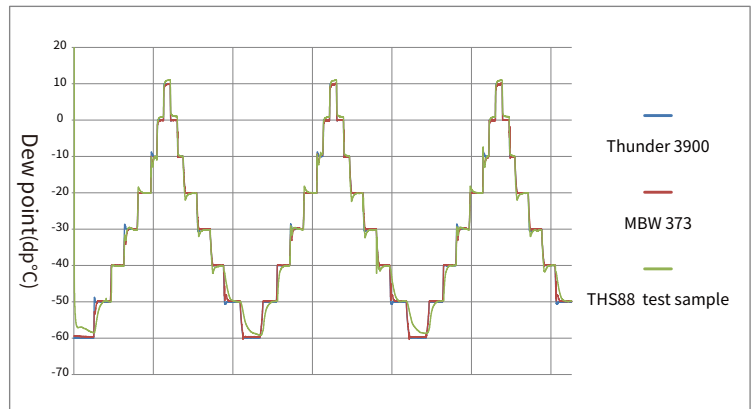
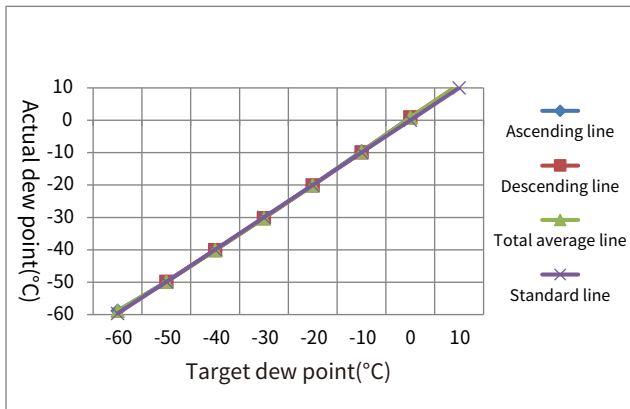


### ● Repeatability error : 0.61 dp°C

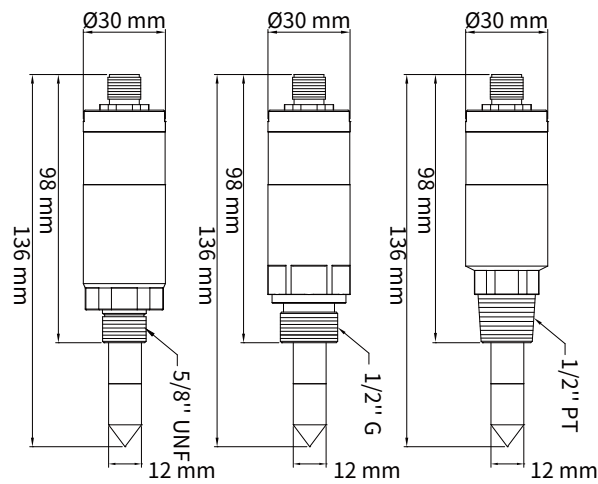


## 3-cycle Curve

※ 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

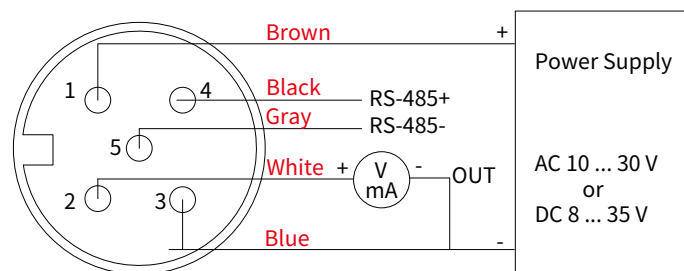


## Dimension



※ Standard — PVC-5PIN 2M waterproof cable

## Diagram



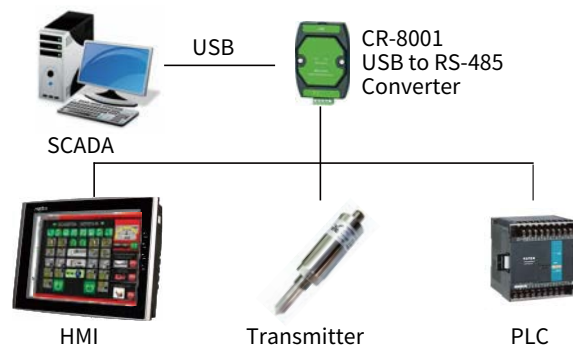
M12 connector

## Dew Point Automatic Inspection System



- System Facility
  - Thunder 3900 humidity generator
  - MBW 373 dew point mirror
  - Laboratory level facility to produce products, and automatic QC inspection sheet printing and factory report

## USB to Isolated RS-485 Application



- Require Device
  - PC / RS-485 to USB Converter / Power supply / UI software

## Ordering Guide

Type	THS	88	—	C	1
Dew point measuring range	-20 ... +20°C -40 ... +20°C -100 ... +20°C		— — —	A B C	
Connector	1/2" PT ( R1/2" ) 1/2" G 5/8" UNF				1 2 3

## | Additional Option (ILAC / TAF) Test Report



Additional option: (ILAC / TAF) Test report - Standard calibration laboratory(TAF accreditation: 3032, complying with ISO / IEC 17025)  
TAF has mutual recognition arrangement with ILAC MRA

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

# DPM02 Multifunction Signal Display Monitor



## Features

- Measuring input type : DC current / DC voltage
- More output type: Analog output / Relay / RS-485
- Extraction of square root (Input : voltage, current)
- Option RS-485 communication function can do 10-point linear calibration function
- Signal isolation, preventing noise, filtering function : Provide safe and stable measuring
- Power supply : AC 85 .. 253 V, 50 ... 60 Hz; Auxiliary supply output (DC 18 ... 26 V / 50 mA) : Use for 2-wire & 3-wire transmitter
- User-friendly, interactive operation interface
- Panel installation, high light red LED display panel, 14.1 mm height of character, 5 digits, -9.9.9.9 ... +9.9.9.9.9, 7-segment display
- Programmable, high safety & stability, fire-proof case, moisture-proof cover
- Plug-in installation design for easy maintenance

## Application

- Industry / Agriculture / Pottery & glass / Chemical Industry / Transportation / Technology / Energy / Eco-friendly / Oil & gas / Water circulation system / Marine / Factory automation / Metal & steel / Cement / Pulp & paper / Pharmaceuticals / Food & beverage

## Specification

## Display

Display readout	5 digits(-9.9.9.9 ... +9.9.9.9)
Decimal point	0 ... 4 place, button
Display	Highlight red LED(Brightness can be adjusted), digit height 14.1 mm
Accuracy	0.1%F.S.±1 digital
Sampling time	4 cycle/sec
Response time adjustment range	0.5 ... 60 sec
Parameter setting mode	Button

## Input

Input	Current:0 ... 20 mA / 4 ... 20 mA
	Voltage:0 ... 10 V / 2 ... 10 V / 0 ... 1 V / 0.2 ... 1 V / 1 ... 5 V

## Output

Analog output	Current:0 ... 20 mA / 4 ... 20 mA / 20 ... 0 mA / 20 ... 4 mA
	Voltage:0 ... 1V/0.2 ... 1V/0 ... 5V/1 ... 5V/0 ... 10V/2 ... 10V/1 ... 0V/1 ... 0.2V/5 ... 0V/5 ... 1V/10 ... 0V/10 ... 2V

## Analog

Load resistance	Current:RL < 500 Ω; Voltage ≥ 10 KΩ
Analog output resolution	12 bit
Signal error detection	Yes

## Relays

Alarm hysteresis	Display value or 0 ... 100%
ON and OFF delay	0 ... 3600 sec
Output signal error detection	Yes
Relay actuation direction	Upper limit: HI / AL; Lower limit: LO / AL
Relay capacity	Max current: 6 A
	Max voltage: AC 277 V / DC 30 V
	Max power: 1500 VA / 180 W

## Communication

Communication methods & protocol	RS-485 Modbus RTU, master or slave
RS-485 baud rate	9600、19200、38400、57600、115200 bps

## Environment

Operating environment	-10 ... +60°C; 0 ... 95%RH(Non-condensing)
Storage environment	-25 ... +60°C

## Electrical

Power supply / Voltage	AC 85 ... 253 V / 50 ... 60 Hz
Auxiliary power / Output	DC 18 ... 26 V / 50 mA
Insulation voltage endurance	2 K Vac/1 min
Parameter memory type	FLASH
Dissipated power	5 W

## Isolation

Power supply / Analog input / Analog output / RS-485	
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## Protect

IP rating	IP65(Front panel)
Electric protection	■ Polarity protection ■ Over-voltage

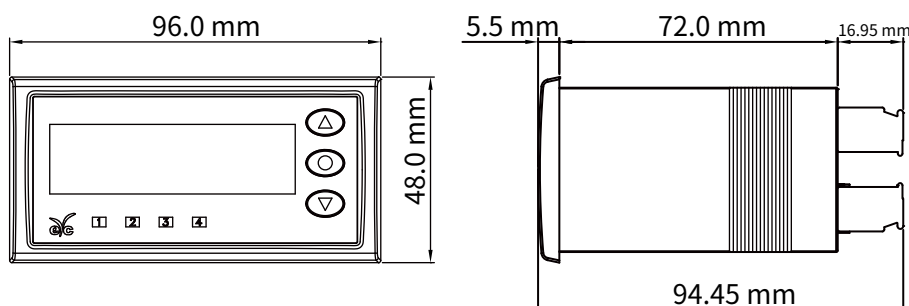
## Certification

CE Certification	
Emission	EN 61326-1:2013
	CISPR11:2009+A1:2010 Group 1 Class B
	EN 61000-3-2:2014
	EN 61000-3-3:2013
Immunity	EN 61326-1:2013 IEC 61000-4-5:2014
	IEC 61000-4-2:2008 IEC 61000-4-6:2013
	IEC 61000-4-3:2006+A1:2007+A2:2010 IEC 61000-4-8:2009
	IEC 61000-4-4:2012 IEC 61000-4-11:2004

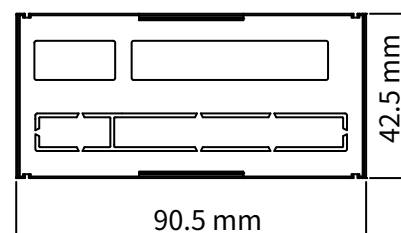
## Material

Case	ABS fire-proof class(UL94V-0)
Dimensions(HxWxD)	48x96x94.45 mm
Cut out dimensions	42.5x90.5 mm(+1 mm)
Weight	About 230 g

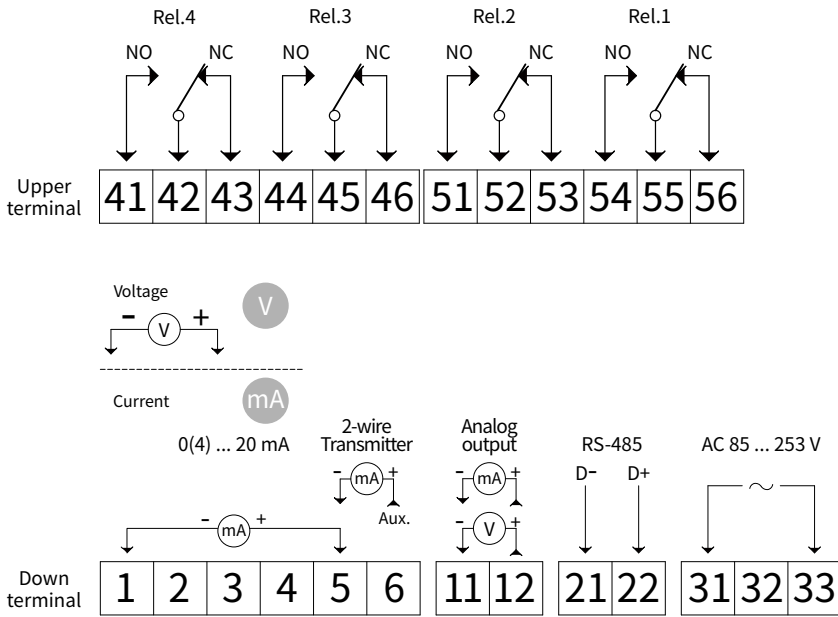
## Dimension



## Installation Dimension

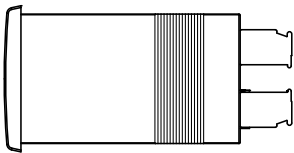


Diagram

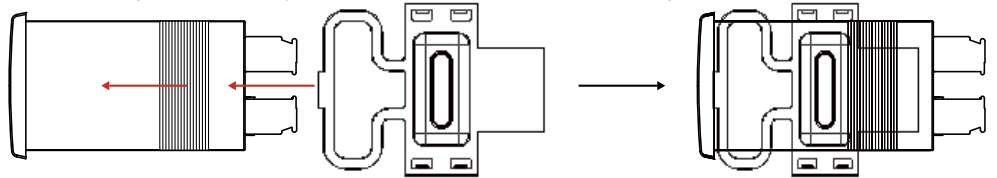


Installation

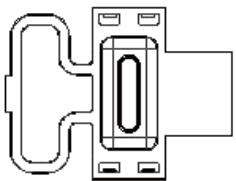
Side



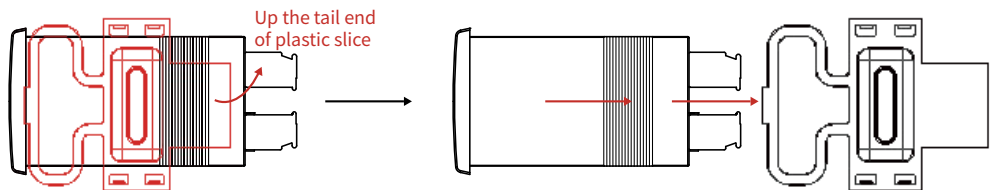
Fixed way : Push the plastic fixed slide in horizontally



Plastic fixed slice



Remove way : Up the tail end of plastic slice, then pull it out



Programmable

- Tool: PC, USB to RS-485 converter, Power supply
- Software: DPM UI
- Calibration Function: analog output / DC voltage & DC current / Linear adjustment / Extraction of square root



PC



CR-8001  
USB to RS-485  
Converter



DPM02



DPM02



DPM02

Transmitter  
(Temp. & Humidity / Dew  
point / Air velocity / Flow /  
Gas / Pressure / Differential  
Pressure and so on)



Ordering Guide

Type	DPM02 -	BA
Output	Display	AA
	Display+2 Relay	BA
	Display+4 Relay	CA
	Display+2 Relay+Analog output+RS-485	DA
	Display+4 Relay+Analog output+RS-485	EA