

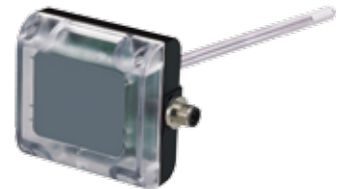
# THS80X Series (THS801/802/803/804/805/806) Industry Degree Temperature & Humidity Transmitter



THS801-indoor  
0~50°C



THS802-duct  
-40~+100°C



THS803-duct  
-40~+120°C



THS804- remote  
PVC cable  
-40~+80°C



THS805-remote  
TEFLON cable  
-40~+100°C



THS806-remote  
TEFLON cable  
-40~+200°C

## Application

### 〈 Feature 〉

- Industrial sensor comes with high or low dew point and high accuracy and long-term stability. Acid alkali resistant
- Capable of temperature compensation and linear adjustment. Factory test report.
- Multifunction physical quantities — temperature & humidity/dew point/frost point/wet-bulb temp./vapor pressure/mixture ratio/absolute humidity/specific enthalpy
- Standard 2 analogue output or Modbus RS-485
- Option analogue+RS485
- Probe : PC or S.S. ; Remote type : PVC or TEFLON
- Power supply : 8-35VDC and 12-35VAC
- RS-485 and Modbus RTU
- Free programmable software - physical quantities/output/data logger/charts/calibration
- Option : USB to RS-485 Converter

### 〈 Application 〉

- Monitoring for high-end HVAC process/ air conditioning/ environmental ventilation control
- Building / factory / hospital/ clean room / Lab. / storeroom
- Cooling tank/crisper/environmental chambers/weather station
- Indoor pool/greenhouse/livestock nursery
- Pharmaceutical/textile/agriculture/food/manufacturing industry /monitoring process/drying facility/chemical industry

## Specification

### Input

input type Capacitive Humidity Sensor & PT 100Ω A級

### Working Range Suggestion

temperature 0~50°C (THS801) ; -40~+100°C (THS802/805)  
 -40~+120°C (THS803) ; -40~+80°C (THS804)  
 -40~+200°C(THS806)  
 humidity 0~100%  
 dew point -40~+60°C  
 Frost Point(F) 、 Wet-bulb Temperature(W) 、 Vapor Pressure(E) 、 Mixture Ratio(R) 、  
 Absolute Humidity(V) 、 Specific Enthalpy(S) : please refer to physical quantity measuring range list

### Output

output standard RS-485 and 2 analogue output  
 0-20mA/4~20mA/0~1V/0-5V/0-10V  
 signal Connection 3-wire  
 modbus Standard RS-485 (programmable)  
 and 2 analogue output  
 display type LCD Module with back light, double line character  
 display range upon request, one decimal place  
 height of character 5.56mm

### Linear Accuracy(at 25°C)

temperature  $\pm 0.15^\circ\text{C} \pm 0.002^\circ\text{C} \times t_{\text{actual}}$   
 humidity (0~90%)  $\pm 1.5\%RH$   
 humidity (90~100%)  $\pm 2\%RH$   
 temperature influence of body (at+25°C) 0.05%RH/°C  
 load Resistance current output : max. 500Ω / voltage output : min. 10KΩ  
 output calibration ( ZERO & SPAN ) software  
 response time t90 ( temp. at +25°C) < 20S ( membrane filter / S.S. metal grid filter  
 with mesh ) ; < 30S( sintered filter )

### Environment

media measured air  
 working temp. for housing -20~+60°C  
 working humidity for housing 0~95%(non-cond.)  
 working temp. for housing with display 0~60°C  
 working temp. for probe PC probe : max. 120°C ; S.S. probe : max. 200°C  
 cable (remote type) PVC cable : max. 80°C ; TEFLON cable : max. 200°C  
 storage temperature -25~+60°C  
 proof pressure for S.S. probe 10bar  
 filter PC membrane filter ( standard : PC probe )  
 Metal grid filter with mesh ( standard : S.S. probe )  
 CE certification EN 61326-1 : 2006 、 EN 61326-2-2 : 2006  
 Emissions EN 55011 : 2009/A1 : 2010  
 Immunity IEC 61000-4-2 : 2008  
 IEC 61000-4-3 : 2006 / A1 : 2007 / A2 : 2010  
 IEC 61000-4-8 : 2009

### Electrical

power supply 8~35VDC / 12~30VAC  
 current consumption DC 24V : 60mA / DC 12V : 120mA  
 AC 24V : 140mA / AC 12V : 230mA  
 electrical connection M12 - 4 PIN metal connector with 2 m cable  
 or terminal ( cable gland )  
 protect degree body : IP65 ; probe : IP 20  
 electric protection ◎Polarity protection ◎over-voltage ◎short-circuit  
 installation PC probe : Plastic flange ( standard )  
 housing PC fire-proof class(PC-110)  
 probe PC fire-proof class(PC-110) / S.S. (SUS304)

## Physical Quantity Measuring Range List

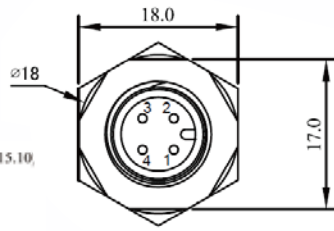
※ Beside temp. & dew point, other physical quantities range as default setting

Physical quantity	THS801 indoor ( PC probe )	THS802 duct ( PC probe )	THS803 duct ( S.S. probe )	THS804 remote ( PC probe + PVC cable)	THS805 remote ( PC probe+TEFLON cable)	THS806 remote ( SS.probe+TEFLON cable)
Temperature (T)	0~50°C	-40~+100°C	-40~+120°C	-40~+80°C	-40~+100°C	-40~+200°C
Humidity (H)	0~100%RH					
Dew Point (D)	-40~+50°C	-40~+60°C				
Frost Point (F)	-40~0°C					
Wet-bulb temp. (W)	0~50°C	0~100°C		0~80°C		0~100°C
Vapor Pressure (E)	0~150mbar	0~1100mbar		0~500mbar		0~1100mbar
Mixture Ratio (R)	0~100g/kg	0~999g/kg		0~600g/kg		0~999g/kg
Absolute Humidity (V)	0~100g/m <sup>3</sup>	0~700g/m <sup>3</sup>		0~300g/m <sup>3</sup>		0~700g/m <sup>3</sup>
Specific Enthalpy (S)	0~300kj/kg	0~2800kj/kg		0~1600kj/kg		0~2800kj/kg

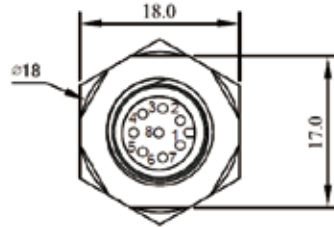
## Electric Connector

unit : mm

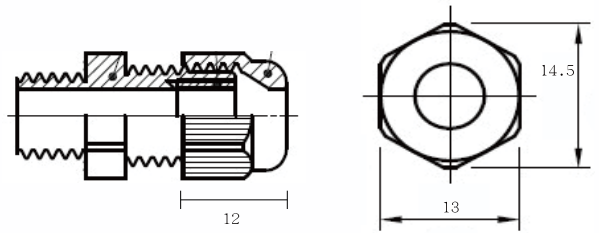
【 M type (M12-4PIN metal connector) 】  
RS-485 or analogue



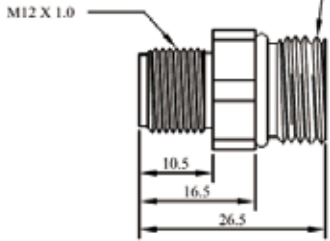
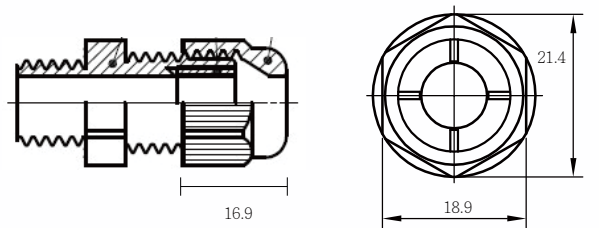
【 M type (M12-8PIN metal connector) 】  
RS-485+analogue



【 N type (M12 cable gland) 】 RS-485 or analogue

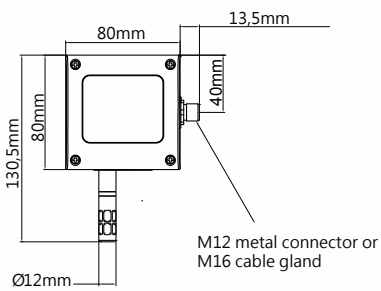


【 N type (M16 cable gland) 】 RS-485+analogue

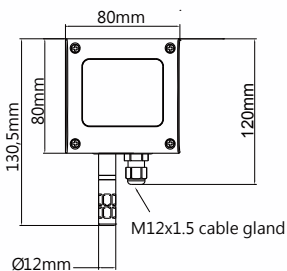


## Dimension

【 THS801(indoor) – PC probe 】

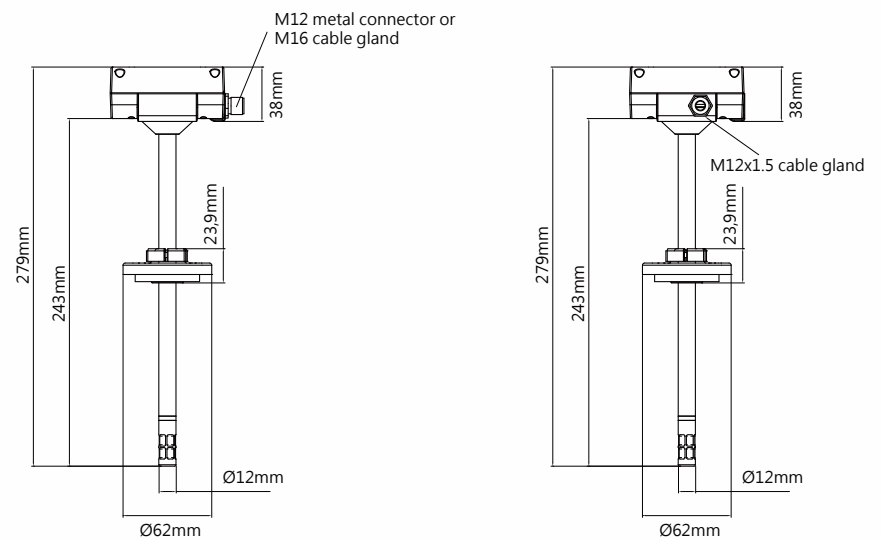


M type (4P) : RS-485 or analogue  
M type (8P) or N type : RS-485 + analogue



N type : RS-485 or analogue

【 THS802(duct) – PC probe 、 standard plastic flange 】

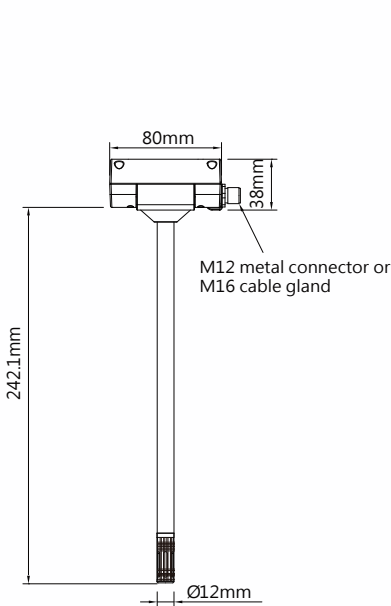


M type (4P) : RS-485 or analogue  
M type (8P) or N type : RS-485+analogue

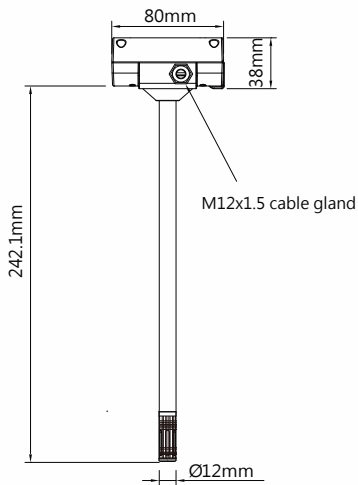
N type : RS-485 or analogue

Dimension

【THS803 duct – S.S. probe】

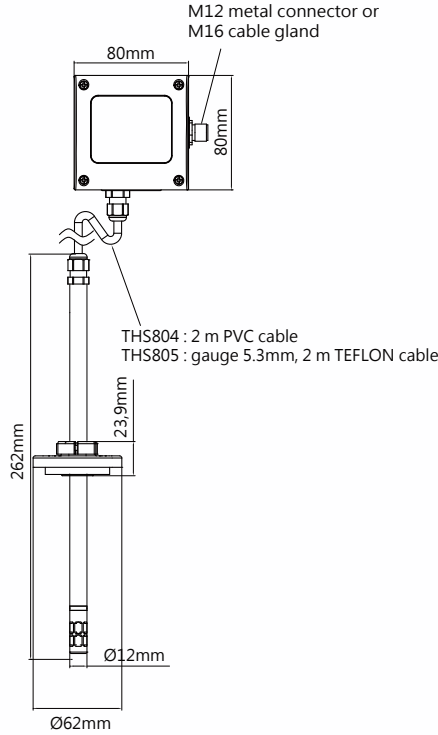


M type (4P) : RS-485 or analogue  
M type (8P) or N type : RS-485+ analogue

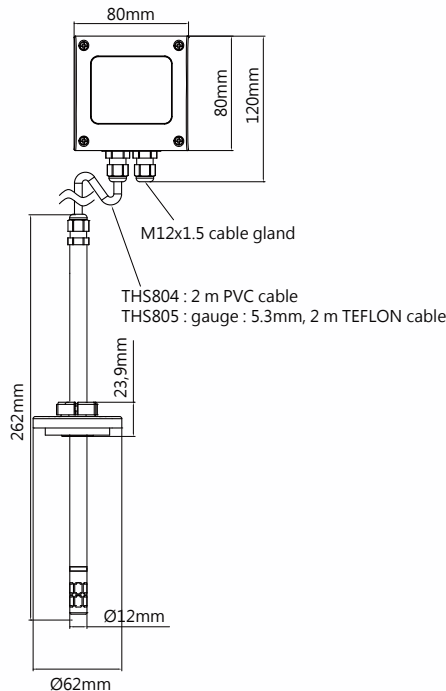


N type : RS-485 or analogue

【THS804/THS305 remote  
– THS804 : PC probe+ 2 m PVC cable  
– THS805 : PC probe+ 2 m TEFLON cable  
– standard : plastic flange】

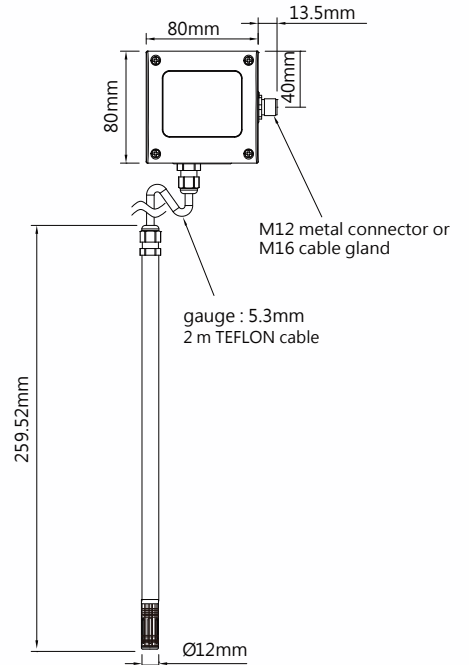


M type (4P) : RS-485 or analogue  
M type (8P) or N type : RS-485+ analogue

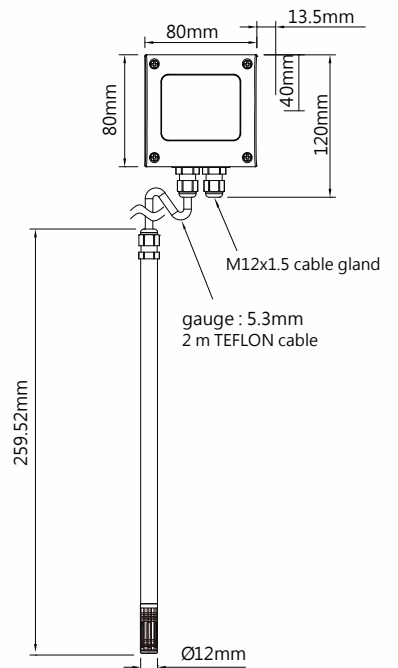


N type : RS-485 or analogue

【THS806 remote】  
– S.S. probe+ 2 m TEFLON cable】

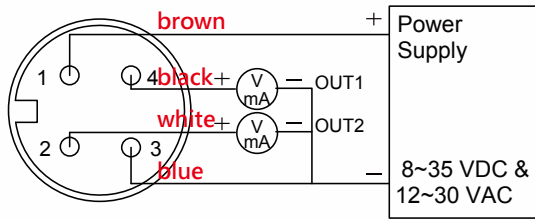


M type (4P) : RS-485 or analogue  
M type (8P) or N type : RS-485+ analogue



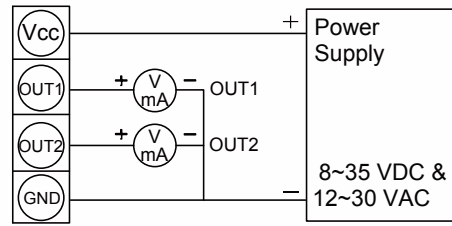
N type : RS-485 or analogue

## Analogue Diagram



M12 connector

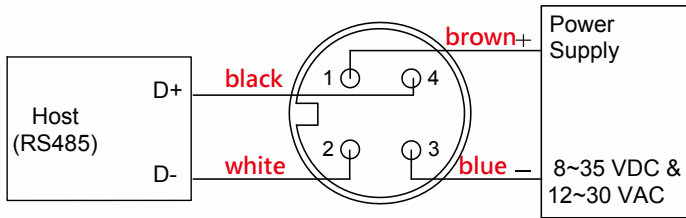
M type (4P)



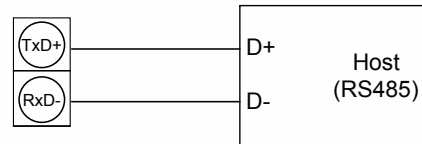
4P terminal

N type

## RS-485 Diagram



M type (4P)

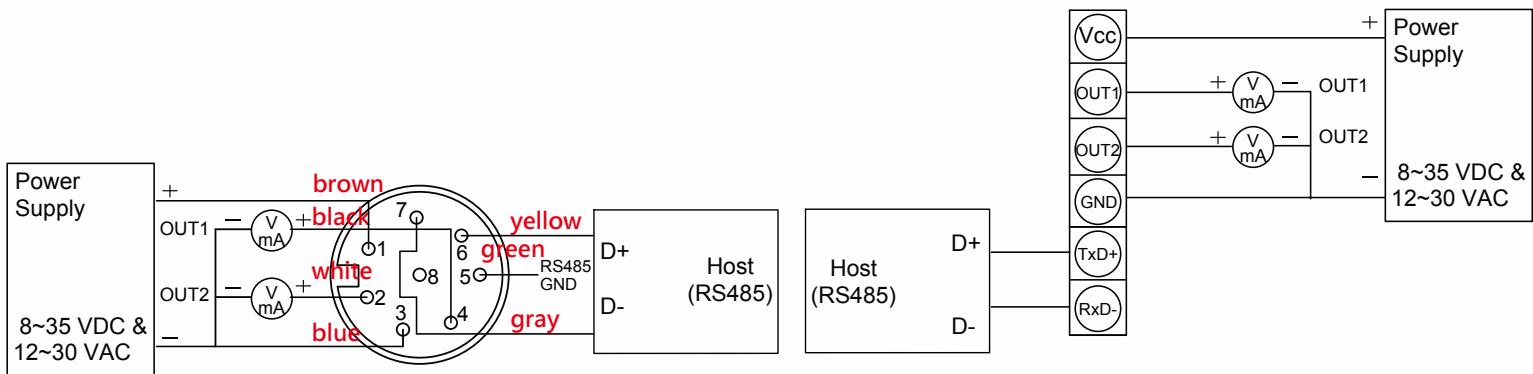


RS-485 Signal connector

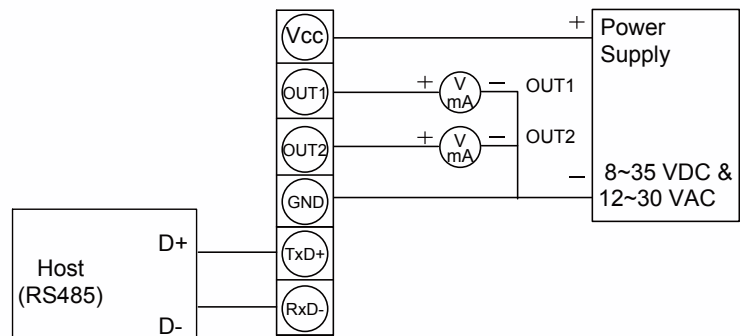
N type

※ when output of ordering code is RS-485(without analogue), RS-485 diagram of default setting is M type.

## Analogue + RS-485 Diagram

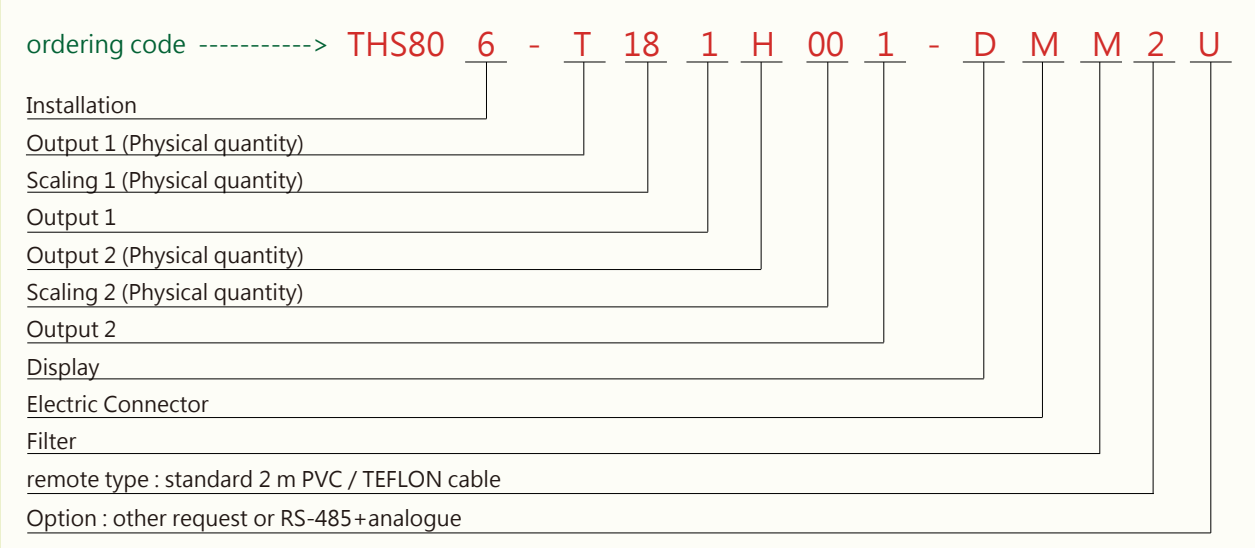


M type (8P)



N type (M16)

## Ordering Guide



### 【Ordering item】

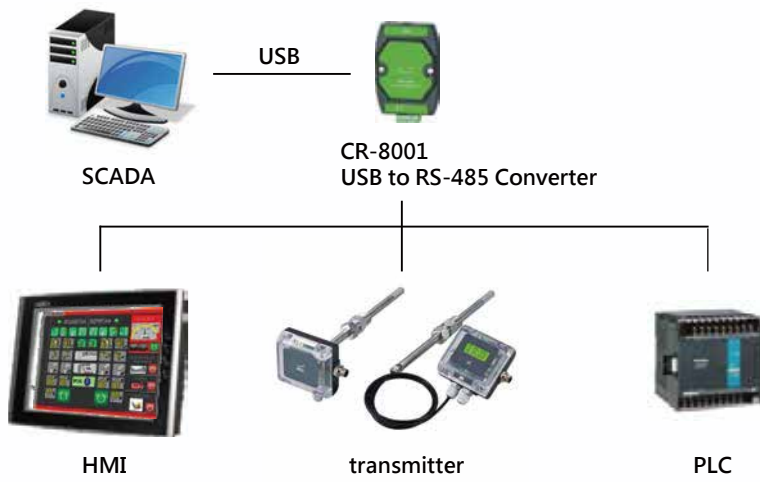
Installation	code	Output 1 (physical quantity)	code	Scale1 (physical quantity)	code	Output 1	code
indoor	1	※please refer to physical quantity measuring range list		0~50 °C	30	4-20mA	1
duct ( PC probe )	2	humidity	H	0~80 °C	38	0~20mA	2
duct ( S.S. probe )	3	temperature	T	0~100 °C	40	0~10V	6
remote ( PC probe, PVC cable )	4	dew point	D	0~120 °C	42	0~5V	7
remote ( PC probe, TEFLON cable )	5	frost-point	F	0~180 °C	48	0~1V	8
remote ( S.S. probe, TEFLON cable )	6	wet-bulb temperature	W	0~200 °C	47	RS-485 <sup>(2)</sup>	9
		vapor pressure	E	-20~+40 °C	13		
		mixture ratio	R	-40~+60 °C	14		
		absolute humidity	V	-40~+120 °C	16		
		specific enthalpy	S	-40~+180 °C	18		
		RS-485 (Default Temp.)	N	-40~+200 °C	20		
				-70~+180 °C	49		
				as physical quantity measuring <sup>(1)</sup> 00			
				range list (H, F, W, E, R, V, S, RS-485)			
				special range	YY		

Output 2 (physical quantity)	code	Scale2 (physical quantity)	code	Output 2	code
※please refer to physical quantity measuring range list		0~50 °C	30	4-20mA	1
humidity	H	0~80 °C	38	0~20mA	2
temperature	T	0~100 °C	40	0~10V	6
dew point	D	0~120 °C	42	0~5V	7
frost-point	F	0~180 °C	48	0~1V	8
wet-bulb temperature	W	0~200 °C	47	RS-485 <sup>(2)</sup>	9
vapor pressure	E	-20~+40 °C	13		
mixture ratio	R	-40~+60 °C	14		
absolute humidity	V	-40~+120 °C	16		
specific enthalpy	S	-40~+180 °C	18		
RS-485	N	-40~+200 °C	20		
(Default humidity. : 0~50 ± °C)		-70~+180 °C	49		
		as physical quantity measuring <sup>(1)</sup> 00			
		range list (H, F, W, E, R, V, S, RS-485)			
		special range	YY		

Display code	Electric connector code	Filter	code	Remote cable	code	Option/other request	code
yes	D	plastic cable gland	N	PC membrane filter (standard : PC probe)	P	max. cable length : 10 m	other request(quote as demand) <sup>(3)</sup> W
no	X	M12 metal connector (with 2 m cable)	M	sintered filter	S	standard 2 m PVC or TEFLON caable	2 RS-485+analogue U
				S.S. Metal grid filter with mesh	M	5 m	※ M type-M12(8P) metal connector or
				PC membrane filter + Metal mesh	G	other length	— N type-M16 cable gland

note :  
 (1) Default setting : please refer to page 2 , physical quantity measuring range list (H, F, W, E, R, V, S).  
 (2) Output 1 : code 9 (RS-485)→connector way :please refer to " RS-485 Diagram"  
 (3) Special request, please put code "W" at last

## USB to Isolated RS-485 Application



※ Device

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

※ option converter: CR-8001

※ free programmable software