



THM80X Series

Industry degree high accuracy temperature & humidity transmitter



Application

〈 Feature 〉

- IP67 protection degree, rugged aluminum case, fit in variety harsh environment
- Capable of temperature compensation
- Linear adjustment temperature & humidity by computer, analogue output or option RS-485
- Measure high accuracy temperature & humidity, reaction quickly, the sensor can work well after temporary condensation, long term stable in high humidity environment
- Process temp. : up to 200°C, S.S. probe proof pressure : 10 bar, metal connector : installation repeatedly
- Switch multifunction physical quantities : [%RH]、[°C]、[mbar]、[g/kg]、[g/m3]、[kJ/kg]
- Calibration physical quantities, measuring range, analogue output, station, etc
- Free calibration software : data logger / record 65535 datas / charts

〈 Application 〉

- Industrial Process Monitoring / Air Conditioning / Environmental Ventilation Control
- Buildings, factories, hospitals, clean rooms, laboratories, weather stations Environmental monitoring
- Storage rooms, environmental chambers, greenhouses, mushroom farms
- Semiconductor, electronics, paper, printing, textiles, steel and iron Industry, food, chemical, pharmaceutical, biotechnology industry

Specification

Input

input type	Capacitive Humidity Sensor & PT 100Ω A class
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Output

output	0 ... 20 mA / 4 ... 20 mA / 0 ... 1 V / 0 ... 5 V / 0 ... 10 V
signal connection	3-wire
modbus	option 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	5.55mm
load resistance	current output : max. 500Ω / voltage output : min. 10KΩ
output calibration (ZERO & SPAN)	software ; keybord
response time t90 (temp. at +25 °C)	S.S. metal grid filter with mesh) ; < 30S(sintered filter)

Accuracy (at +25 °C)

temperature	$\pm 0.15\text{ }^{\circ}\text{C} \pm 0.002\text{ }^{\circ}\text{C} \times t_{\text{actual}}$
humidity (0 ... 90 %)	nonlinear error : $\pm 1.2\%$ RH
	hysteresis error : $\pm 0.8\%$ RH
	repeatability error : $\pm 0.4\%$ RH
humidity (90 ... 100 %)	$\pm 2\%$ RH
thermal sensitivity temperature error	0.05 % RH / $^{\circ}\text{C}$

Factory Uncertainty (at +25 °C)

temperature uncertainty	0.14 $^{\circ}\text{C}$
humidity uncertainty	0.4 % RH (>10 % ~ 20 %)
	0.65 % RH (>20 % ~ 90 %)
	0.97 % RH (>90 % ~ 98 %)

Environment

media measured	air
working temp. for housing	-20 ... +80 $^{\circ}\text{C}$
working humidity for housing	0 ... 95 % (non-cond.)
working temp. for housing with display	-20 ... +60 $^{\circ}\text{C}$
working temp. for probe	wall type : -40 ... 80 $^{\circ}\text{C}$, duct type : -40 ... +120 $^{\circ}\text{C}$;
	remote type : -40 ... +200 $^{\circ}\text{C}$
storage temp.	-25 ... +60 $^{\circ}\text{C}$
proof pressure for S.S. probe	10 bar

Certification

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 (metal cable gland)
protect degree	body : IP67 ; probe : IP20
electric protection	◎Polarity protection ◎over-voltage ◎short-circuit
installation	metal fitting thread
housing	aluminum alloy
probe	SUS 304
cable	teflon
option	metal connector / metal mounting flange / shield(outdoor)
weight	THM801 : 455g / THM802 : 521g / THM803 : 635g

Physical Quantity Measuring Range List

physical quantity	THM801 inddor	THM802 duct	THM803 remote
temperature (T)	-40~+80 $^{\circ}\text{C}$	-40~+120 $^{\circ}\text{C}$	-40~+200 $^{\circ}\text{C}$
humidity (H)		0~100%RH	
dew point (D)		-40~+60 $^{\circ}\text{C}$	
frost Point (F)		-40~0 $^{\circ}\text{C}$	
wet-bulb temp. (W)		0~100 $^{\circ}\text{C}$	
vapor pressure (E)		0~1100mbar	
mixture ratio (R)		0~999g/kg	
absolute humidity (V)		0~700g/m ³	
specific enthalpy (S)		0~2800kJ/kg	

Temp. & Humidity QC Inspection System

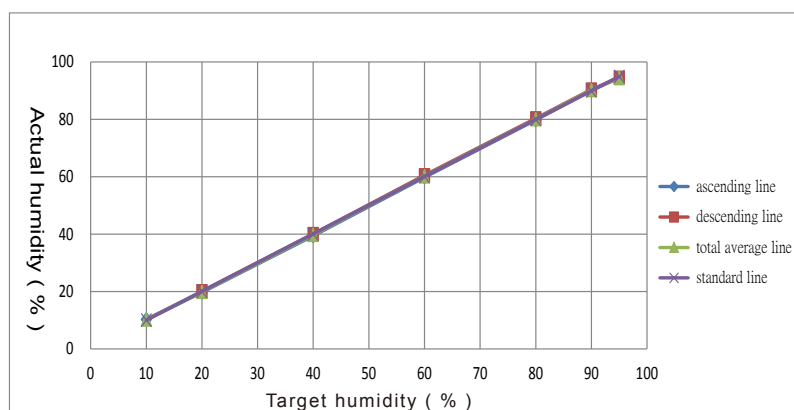


Use Thunder 2500 humidity generator, MBW473 dew point mirror, Laboratory level facility to produce products, and automatic QC inspection sheet printing and factory report.

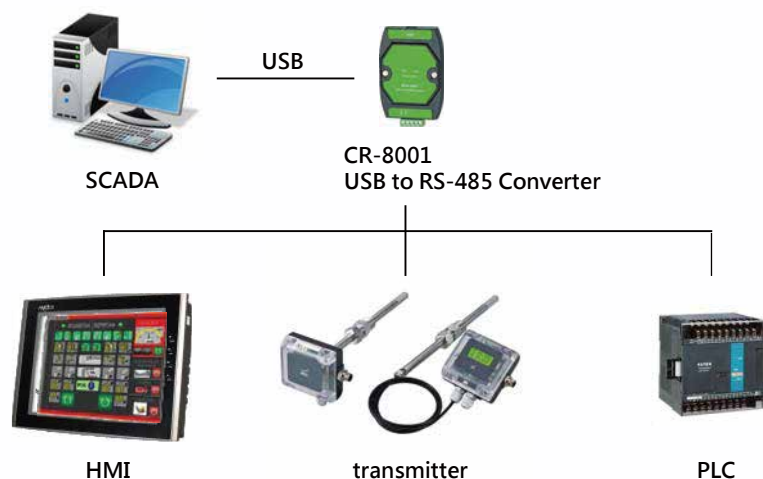
3-cycle curve

※ 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



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

※ EYC free programmable software

<http://www.eyc-tech.com/download/download149.html>

Ordering Guide

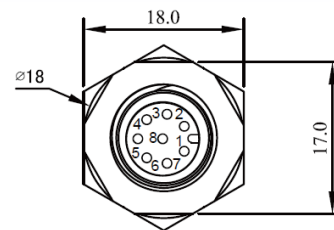
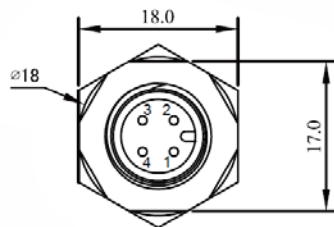
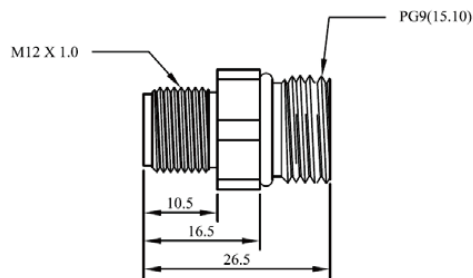
type	THM80	3	—	T	48	1	H	00	1	—	D	N	S	2	
installation	wall duct remote	1 2 3	— — —												
physical quantity output 1	temperature humidity dew point frost-point web-bulb temperature vapor pressure mixture ratio absolute humidity specific enthalpy RS-485 (default temp.)			T H D F W E R V S N											
physical quantity scale 1	0 ... 50°C 0 ... 80°C 0 ... 100°C 0 ... 120°C 0 ... 180°C 0 ... 200°C -20 ... +40°C -40 ... +60°C -40 ... +120°C -40 ... ~+180°C -40 ... +200°C -70 ... +180°C as physical quantity measuring range list (H, F, W, E, R, V, S) special range				30 38 40 42 48 47 13 14 16 18 20 49 00 YY										
signal output 1	4 ... 20 mA 0 ... 20 mA 0 ... 10 V 0 ... 5 V 0 ... 1 V RS-485					1 2 6 7 8 9									
physical quantity output 2	temperature humidity dew point frost-point web-bulb temperature vapor pressure mixture ratio absolute humidity specific enthalpy RS-485 (default temp.)						T H D F W E R V S N								
physical quantity scale 2	0 ... 50°C 0 ... 80°C 0 ... 100°C 0 ... 120°C 0 ... 180°C 0 ... 200°C -20 ... +40°C -40 ... +60°C -40 ... +120°C -40 ... ~+180°C -40 ... +200°C -70 ... +180°C as physical quantity measuring range list (H, F, W, E, R, V, S) special range							30 38 40 42 48 47 13 14 16 18 20 49 00 YY							
signal output 2	4 ... 20 mA 0 ... 20 mA 0 ... 10 V 0 ... 5 V 0 ... 1 V RS-485								1 2 6 7 8 9						
display	no yes										X D				
electric connector	M16 metal cable gland M12 metal conneter											N M			
filter	S.S. metal grid filter with mesh sintered filter												M S		
remote cable (max. length : 10 m)	2 m TEFLON cable 5 m TEFLON cable other length													2 5 —	
option / other request	other request (quote as demand) RS-485 + analogue														W U

Electric Connector

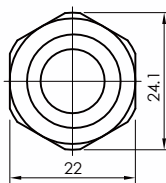
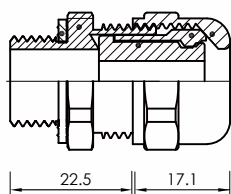
unit : mm

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

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

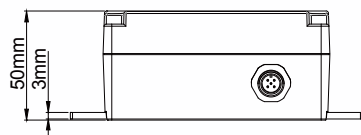
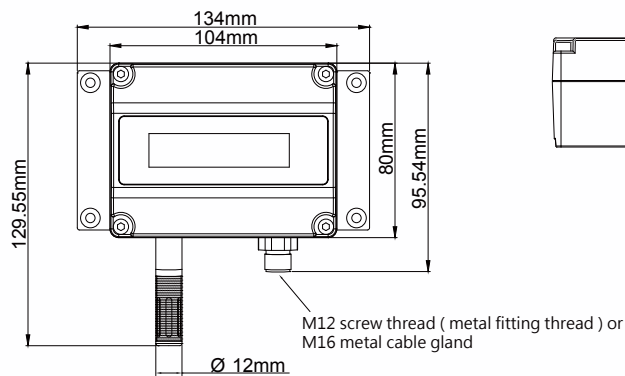


【 N type (M16 cable gland) 】 RS-485+analogue

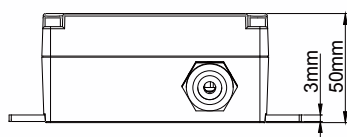


Dimension

THM801 (wall)

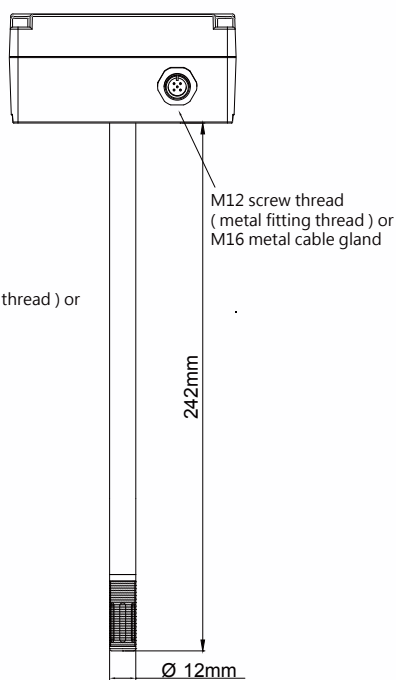


M型

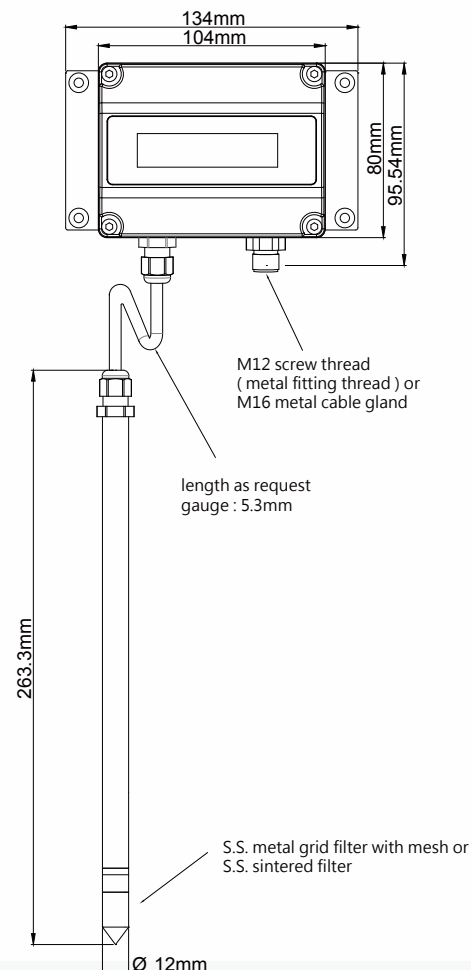


N型

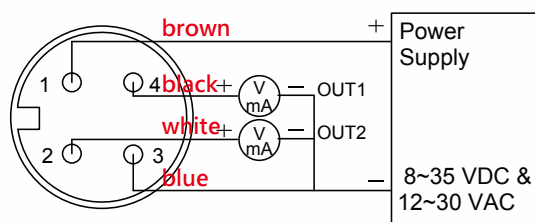
THM802 (duct)



THM803 (remote)

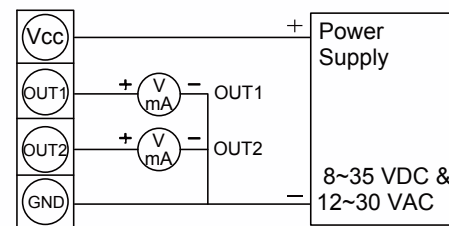


Analogue Diagram



M12 connector

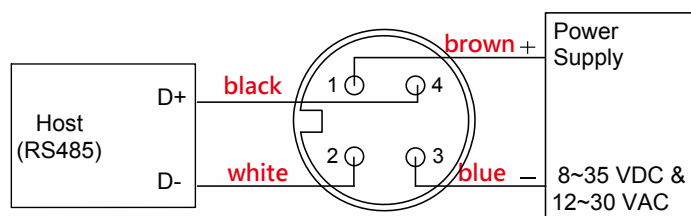
M type (4P)



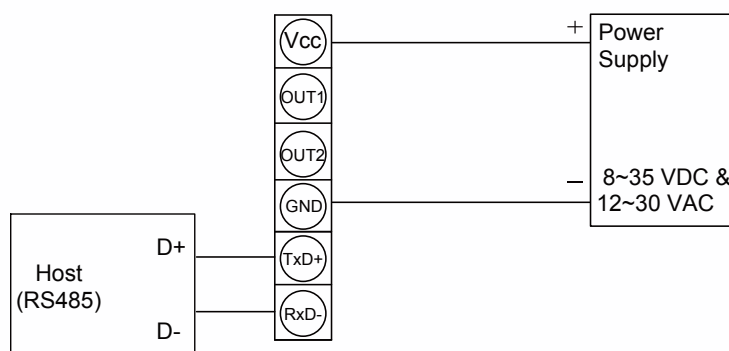
4P terminal

N type

RS-485 Diagram



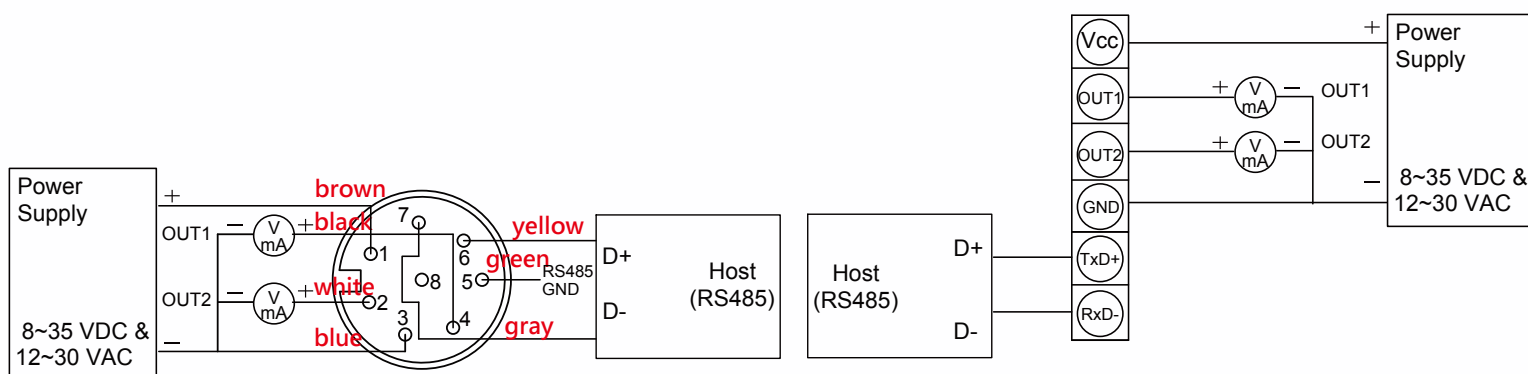
M type (4P)



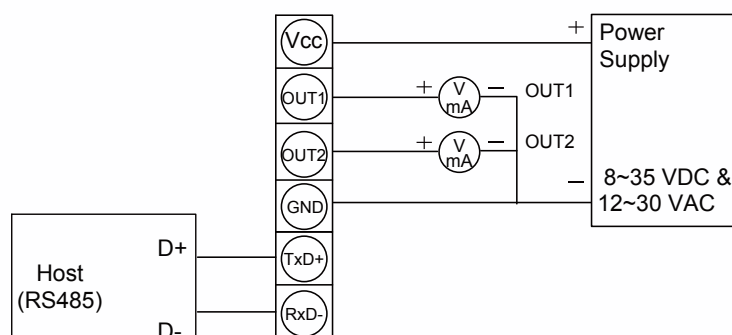
N type

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

Analogue + RS-485 Diagram



M型 (8P)



N型 (M16)