THM80X Series
Industry degree high accuracy Temp. & humidity transmitter

Introduction

- IP65 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 Temp. & humidity, reaction quickly, the sensor can work well after temporary condensation, long term stable in high humidity environment
- Process Temp. : up to 200 ℃, S.S. probe proof pressure : 10 bar, metal connector : installation repeatedly
- Switch multifunction physical quantities：[%RH]、[℃]、[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

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 analog
	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	software ; keybord
(ZERO & SPAN)	
Response time t90 (at 25 °C)	S.S. metal grid filter with mesh) ; < 30S(sintered filter)

Accuracy (at +25 °C)

Temperature	± 0.15 °C ± 0.002 °C x t actual
Humidity (0 ... 90 %RH)	nonlinear error : ± 1.2 % RH
	hysteresis error : ± 0.8 % RH
	repeatability error : ± 0.4 % RH
Humidity (90 ... 100 %RH)	± 2 % RH
Thermal sensitivity Temp. error	0.05 % RH / °C

Factory Uncertainty (at +25 °C)

Temp. uncertainty	0.14 °C
Humidity uncertainty	0.4 %RH (>10 ... 20 %)
	0.65 %RH (>20 ... 90 %)
	0.97 %RH (>90 ... 98 %)

Environment

Media measured	Air
Working Temp.	Housing : -20 ... + 80 °C ;
	Housing with display : -20 ... +60 °C
Working humidity	Housing : 0 ... 95 % (non-cond.)
Working Temp. for probe	Wall type : - 40 ... + 80 °C ; Duct type : - 40 ... + 120 °C ;
	Remote type : - 40 ... + 200 °C
storage temp.	- 25 ... + 60 °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 : IP65 ; Probe : IP 20
Electric protection	◎Polarity protection ◎Over-voltage ◎Short-circuit
Installation	Metal fitting thread
Housing	Aluminum alloy
Probe	SUS 304
Cable	Teflon
Weight	THM801 : 455g / THM802 : 521g / THM803 : 635g

Physical Quantity Measuring Range List

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

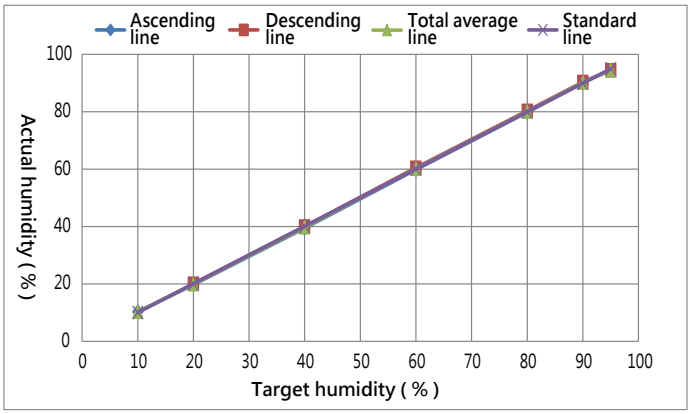
Physical quantity	THM801 Indoor	THM802 Duct	THM803 Remote
Temp.(T)	- 40 ... + 80 °C	- 40 ... + 120 °C	- 40 ... + 200 °C
Humidity(H)	0 ... 100 %RH		
Dew point (D)	- 40 ... + 60 °C		
Frost Point(F)	- 40 ... 0 °C		
Wet-bulb Temp.(W)	0 ... 100 °C		
Vapor pressure(E)	0 ... 1100 mbar		
Mixture ratio(R)	0 ... 999 g/kg		
Absolute humidity(V)	0 ... 700 g/m³		
Specific enthalpy(S)	0 ... 2800 kj/kg		

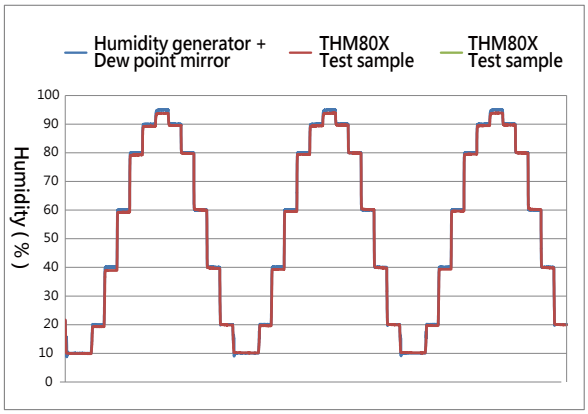
Temp. & Humidity QC Inspection System

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

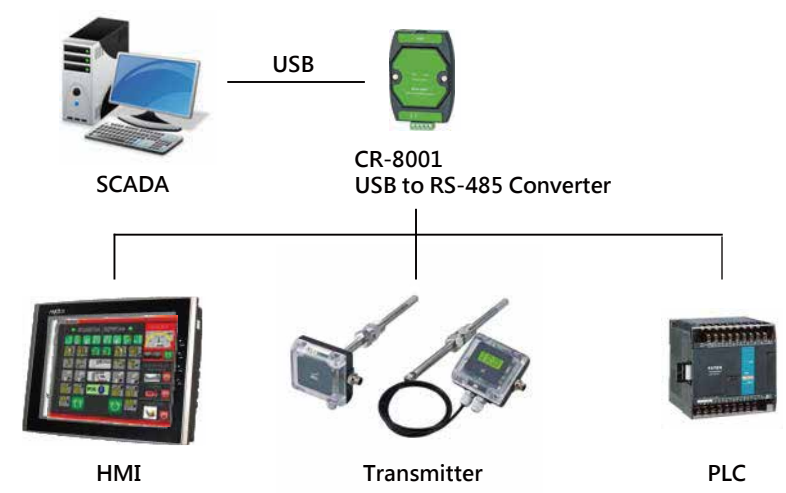
3-cycle curve

※ 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. Download THM80X UI please see THM80X product page attach

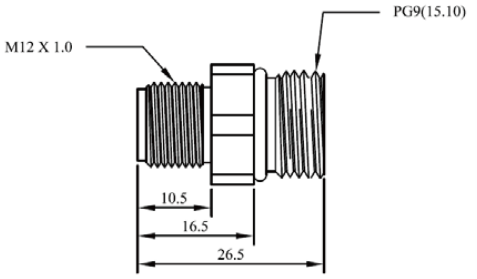
※ Option converter : CR-8001

Ordering Guide

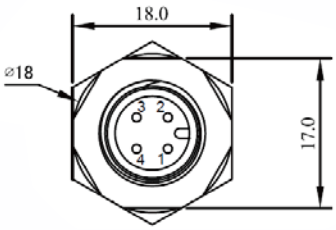
Type	THM80	3	–	T	48	1	H	00	1	–	D	N	S	2	
Installation	Wall	1	–												
	Duct	2	–												
	Remote	3	–												
Physical quantity output 1	Temperature			T											
	Humidity			H											
	Dew point			D											
	Frost-point			F											
	Web-bulb temperature			W											
	Vapor pressure			E											
	Mixture ratio			R											
	Absolute humidity			V											
	Speific enthalpy			S											
	RS-485 (default temp.)			N											
Physical quantity scale 1	0 ... + 50 ℃				30										
	0 ... + 80 ℃				38										
	0 ... + 100 ℃				40										
	0 ... + 120 ℃				42										
	0 ... + 180 ℃				48										
	0 ... + 200 ℃				47										
	- 20 ... + 40 ℃				13										
	- 40 ... + 60 ℃				14										
	- 40 ... + 120 ℃				16										
	- 40 ... + 180 ℃				18										
	- 40 ... + 200 ℃				20										
	- 70 ... + 180 ℃				49										
	As physical quantity measuring range list (H, F, W, E, R, V, S)				00										
	Special range				YY										
Signal output 1	4 ... 20 mA					1									
	0 ... 20 mA					2									
	0 ... 10 V					6									
	0 ... 5 V					7									
	0 ... 1 V					8									
	RS-485					9									
Physical quantity output 2	Temperature						T								
	Humidity						H								
	Dew point						D								
	Frost-point						F								
	Web-bulb temperature						W								
	Vapor pressure						E								
	Mixture ratio						R								
	Absolute humidity						V								
	Speific enthalpy						S								
	RS-485 (Default Humidity)						N								
Physical quantity scale 2	0 ... + 50 ℃							30							
	0 ... + 80 ℃							38							
	0 ... + 100 ℃							40							
	0 ... + 120 ℃							42							
	0 ... + 180 ℃							48							
	0 ... + 200 ℃							47							
	- 20 ... + 40 ℃							13							
	- 40 ... + 60 ℃							14							
	- 40 ... + 120 ℃							16							
	- 40 ... + 180 ℃							18							
	- 40 ... + 200 ℃							20							
	- 70 ... + 180 ℃							49							
	As physical quantity measuring range list (H, F, W, E, R, V, S)							00							
	Special range							YY							
Signal output 2	4 ... 20 mA								1						
	0 ... 20 mA								2						
	0 ... 10 V								6						
	0 ... 5 V								7						
	0 ... 1 V								8						
	RS-485								9						
Display	No										X				
	Yes										D				
Electric connector	M16 Metal cable gland											N			
	M12 Metal connetor											M			
Filter	S.S. Metal grid filter with mesh												M		
	Sintered filter												S		
Remote cable (max. length : 10 m)	2 m TEFLON cable													2	
	5 m TEFLON cable													5	
	Other length													–	
Option / other request	Other request (quote as demand)														W
	RS-485 + Analog														U

Electric Connector

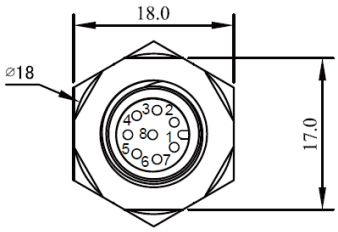
Unit : mm



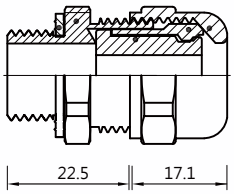
【M type (M12-4PIN metal connector】RS-485 or analog

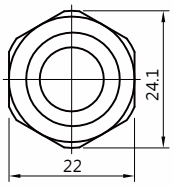


【M type (M12-8PIN metal connector)】RS-485+analog



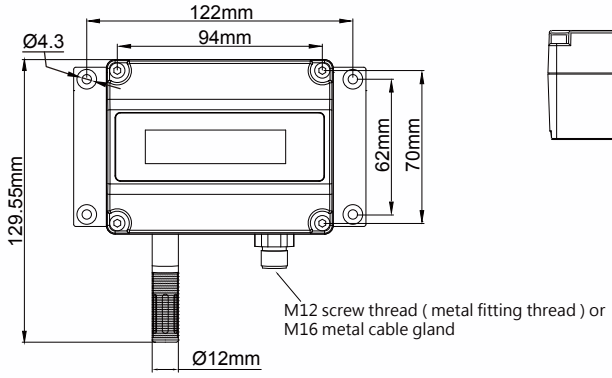
【N type (M16 cable gland)】RS-485+analog

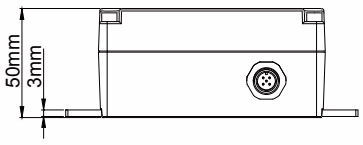




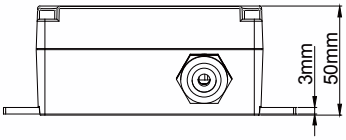
Dimension

THM801 (wall)



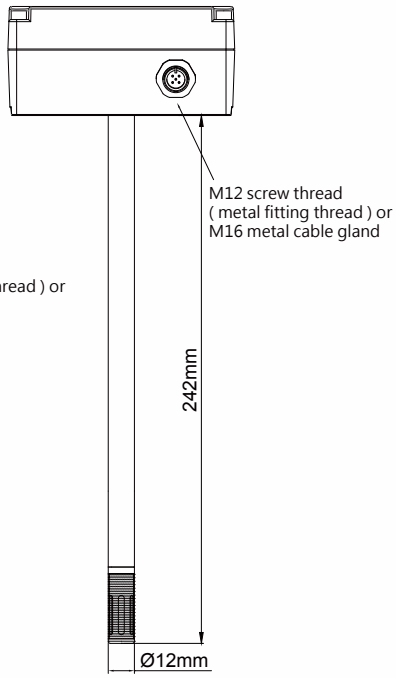


M type

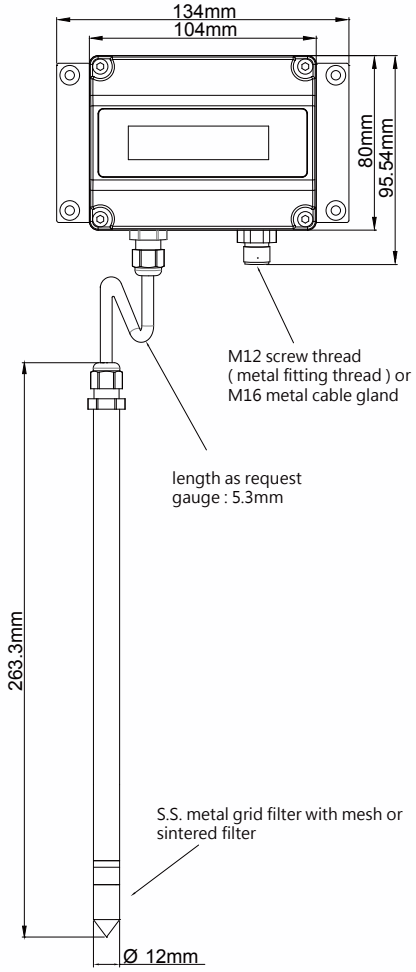


N type

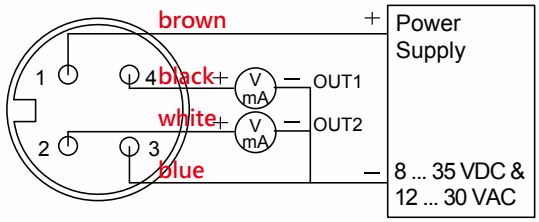
THM802 (duct)



THM803 (remote)

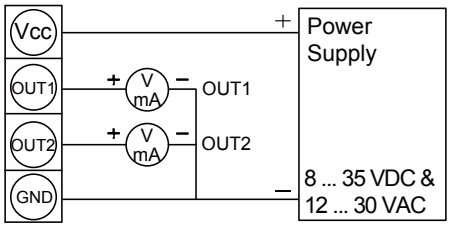


Analogue Diagram



M12 connector

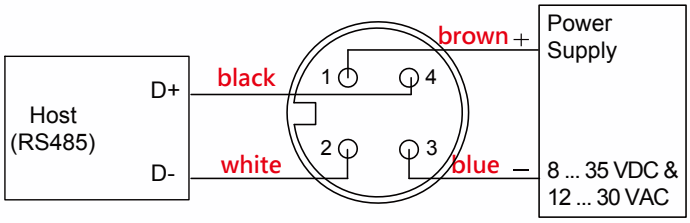
M type (4P)



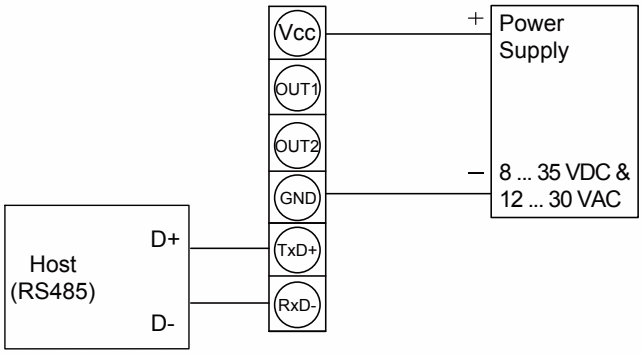
4P terminal

N type

RS-485 Diagram



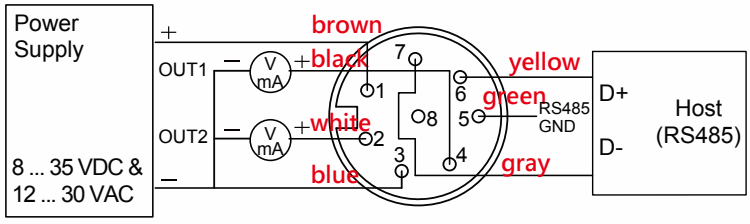
M type (4P)



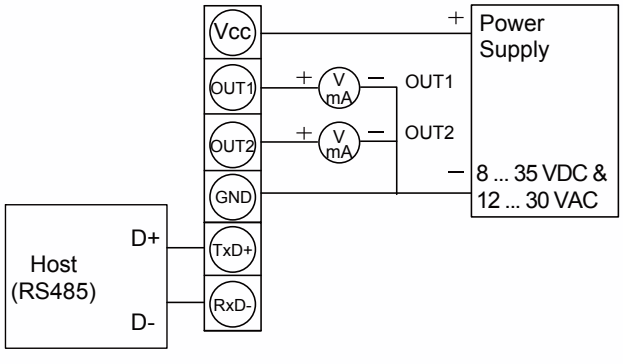
N type

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

Analogue + RS-485 Diagram



M type (8P)



N type (M16)