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℃, 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 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	± 0.15 ˚C ± 0.002 ˚C x t actual
humidity (0 ... 90 %)	nonlinear error : ± 1.2 % RH
	hysteresis error : ± 0.8 % RH
	repeatability error : ± 0.4 % RH
humidity (90 ... 100 %)	± 2 % RH
thermal sensitivity temperature error	0.05 % RH / ˚C

Factory Uncertainty (at +25 °C)

temperature 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. for housing	-20 ... + 80 ˚C
working humidity for housing	0 ... 95 % (non-cond.)
working temp. for housing with display	-20 ... +60 ˚C
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
option	metal connector / metal mounting flane / 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℃	-40~+120℃	-40~+200℃
humidity (H)	0~100%RH		
dew point (D)	-40~+60℃		
frost Point (F)	-40~0℃		
wet-bulb temp. (W)	0~100℃		
vapor pressure (E)	0~1100mbar		
mixture ratio (R)	0~999g/kg		
absolute humidity (V)	0~700g/m³		
specific enthalpy (S)	0~2800kj/kg		

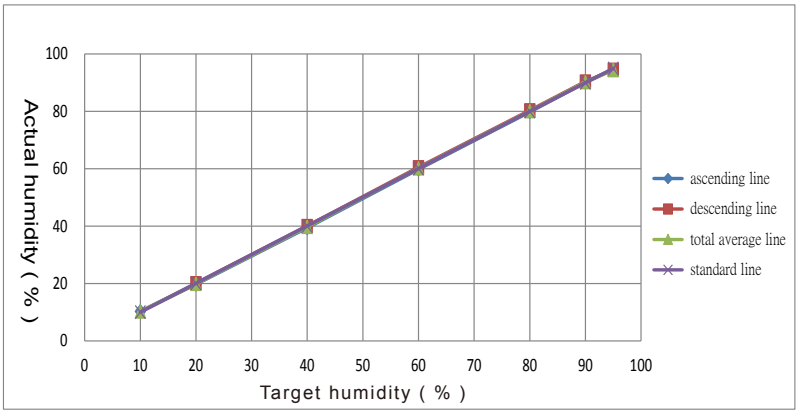
※ Beside temp. & dew point, other physical quantities range as default setting

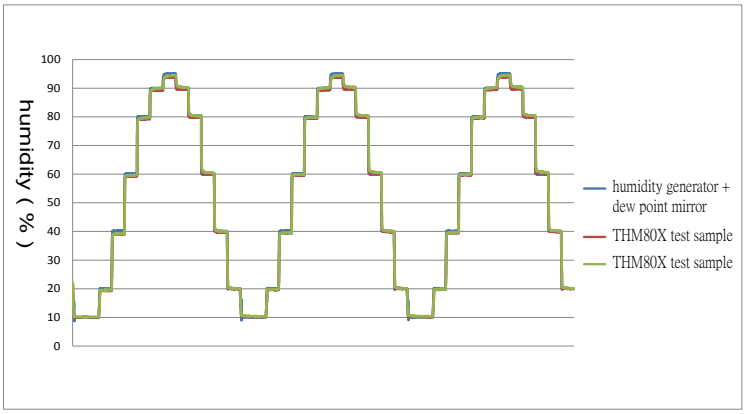
Temp. & Humidity QC Inspection System

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

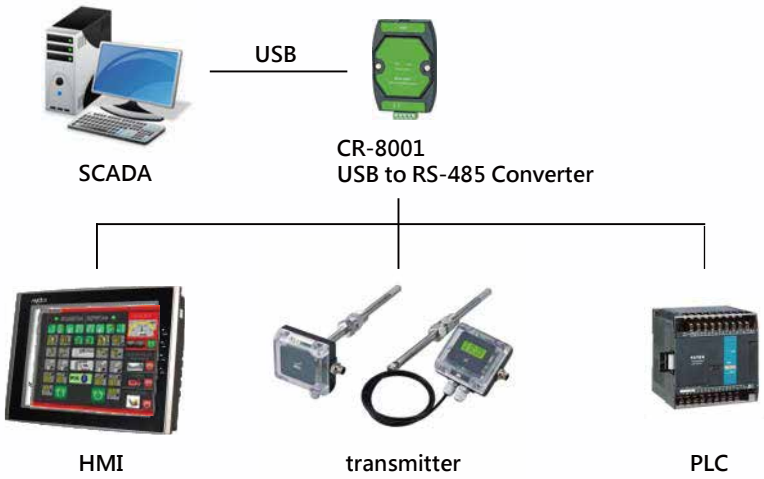
3-cycle curve

※ 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	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 temp.)						N								
physical quantity scale 2	0 ... 50℃							30							
	0 ... 80℃							38							
	0 ... 100℃							40							
	0 ... 120℃							42							
	0 ... 180℃							48							
	0 ... 200℃							47							
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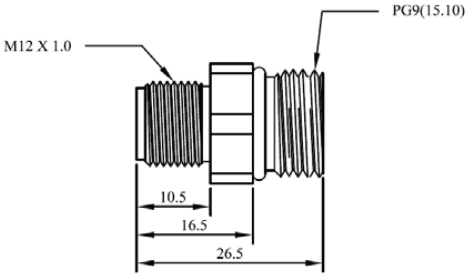
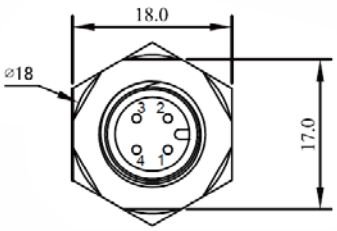
signal output 2	4 ... 20 mA								1						
	0 ... 20 mA								2						
	0 ... 10 V								6						
	0 ... 5 V								7						
	0 ... 1 V								8						
	RS-485								9						
display	no										X				
	yes										D				
electric connector	M16 metal cable gland											N			
	M12 metal connetor											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 + analogue														U

Electric Connector

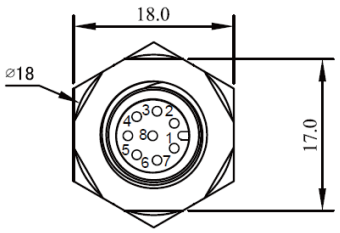
unit : mm

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

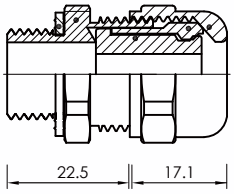


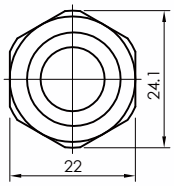


【M type (M12-8PIN metal connector)】 RS-485+analogue



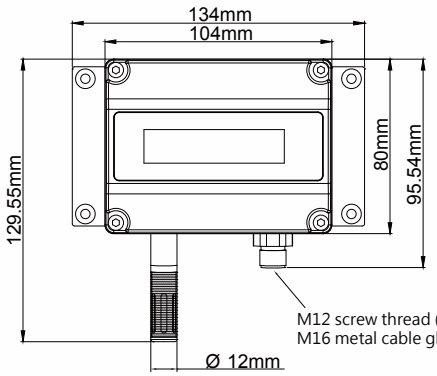
【N type (M16 cable gland)】RS-485+analogue

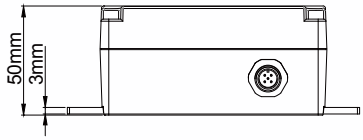




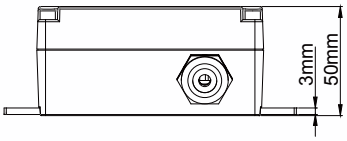
Dimension

THM801 (wall)



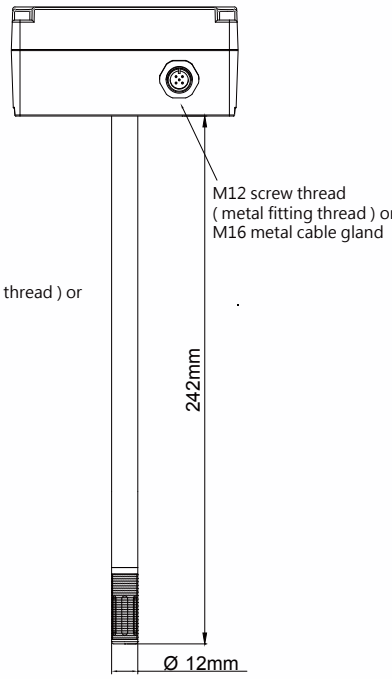


M型

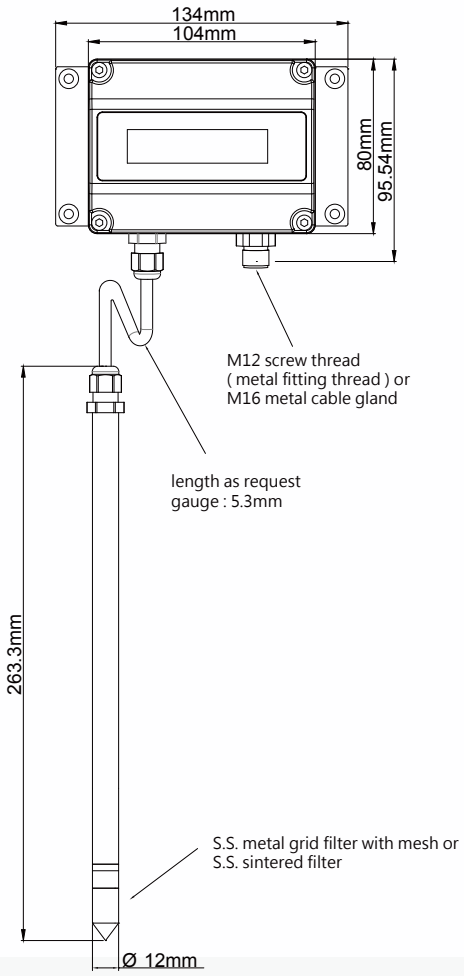


N型

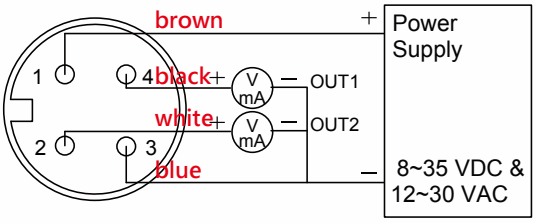
THM802 (duct)



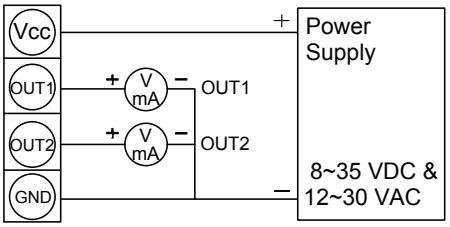
THM803 (remote)



Analogue Diagram



M12 connector

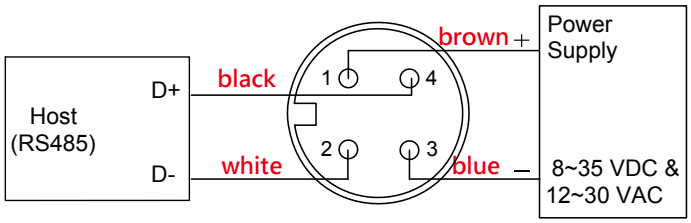


4P terminal

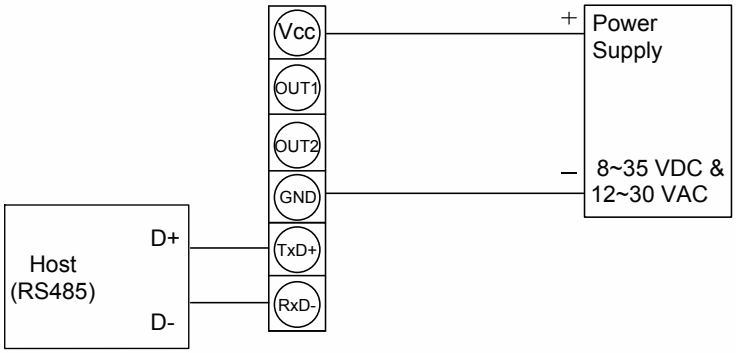
M type (4P)

N type

RS-485 Diagram



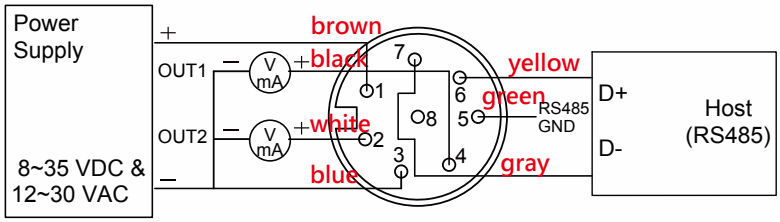
M type (4P)



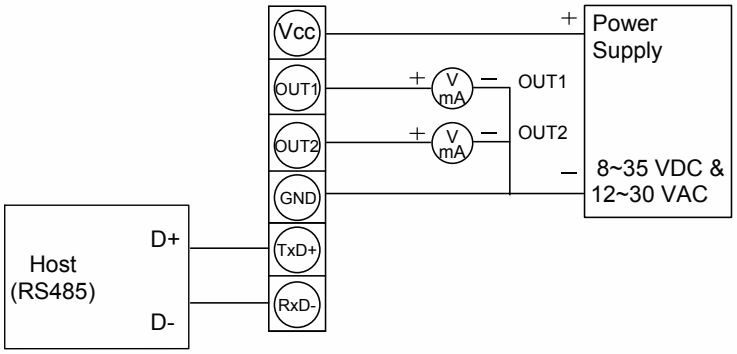
N type

※ 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)