



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 °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

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 $\pm 0.15\text{ }^\circ\text{C} \pm 0.002\text{ }^\circ\text{C} \times t_{\text{actual}}$

Humidity (0 ... 90 %RH) nonlinear error : $\pm 1.2\text{ } \%$ RH
hysteresis error : $\pm 0.8\text{ } \%$ RH
repeatability error : $\pm 0.4\text{ } \%$ RH

Humidity (90 ... 100 %RH) $\pm 2\text{ } \%$ 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 \oplus Polarity protection \oplus Over-voltage \oplus 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/m ³	
Specific enthalpy(S)		0 ... 2800 kJ/kg	

Temp. & Humidity QC Inspection System

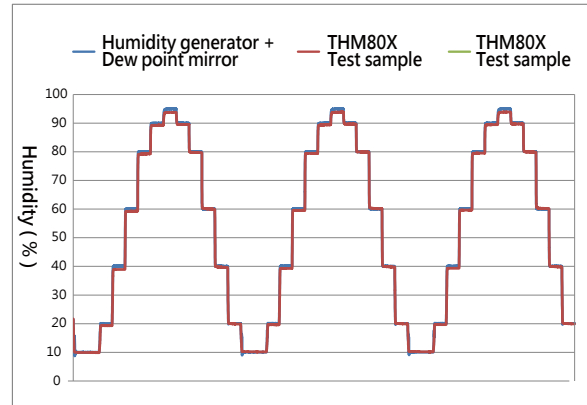
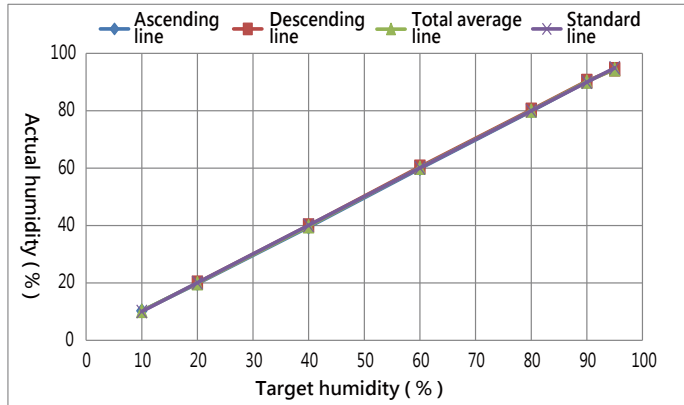


Use Thunder 2500 humidity generator, MBW473 dew point mirror, Laboratory level facility to produce products, and automatic QC inspection sheet printing and factory report.

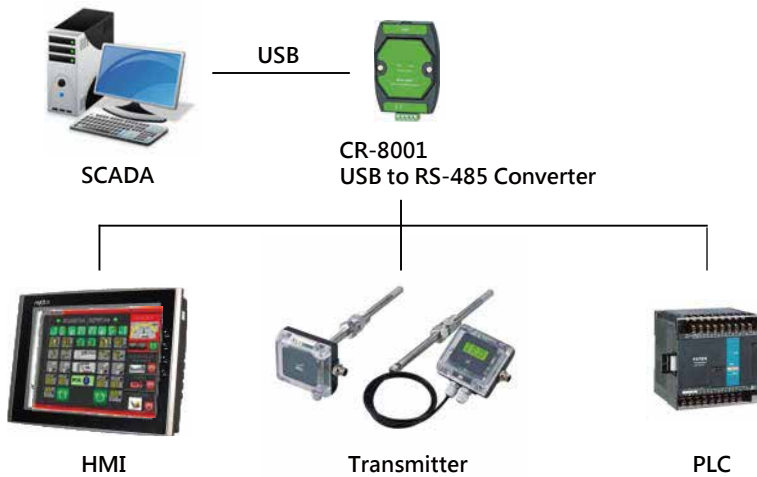
3-cycle curve

※ 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



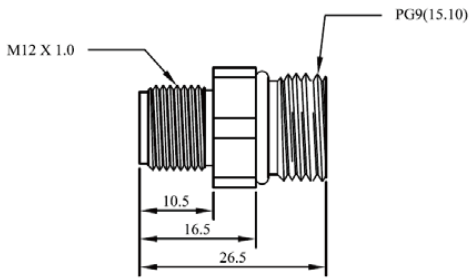
※ Device

1. PC
2. RS-485 to USB Converter
3. power supply
4. Download THM80X UI please see THM80X product page attach

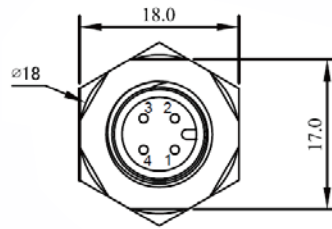
※ Option converter : CR-8001

Electric Connector

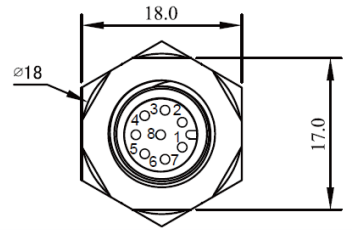
Unit : mm



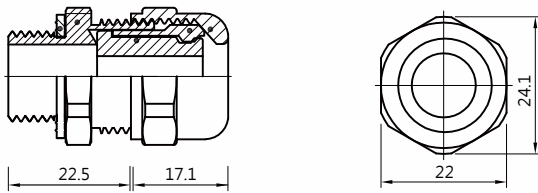
【 M type (M12-4PIN metal connector) RS-485 or analog



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

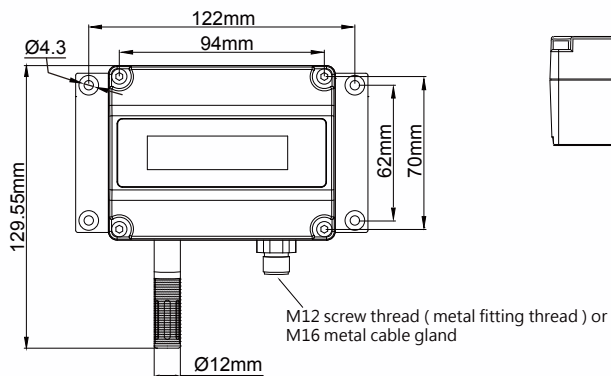


【 N type (M16 cable gland) RS-485+analog

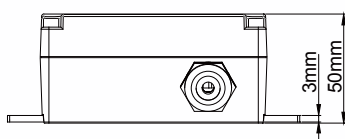


Dimension

THM801 (wall)

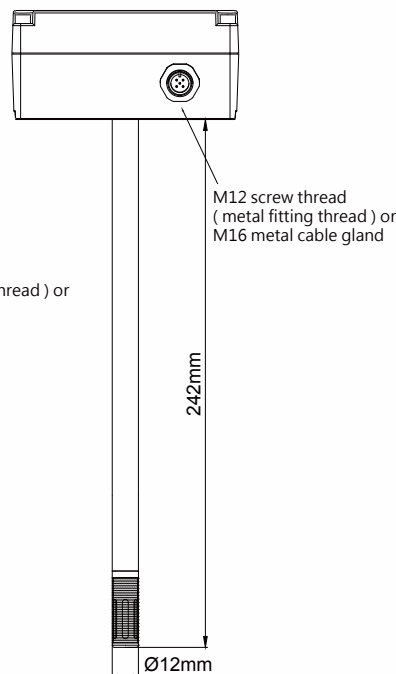


M type

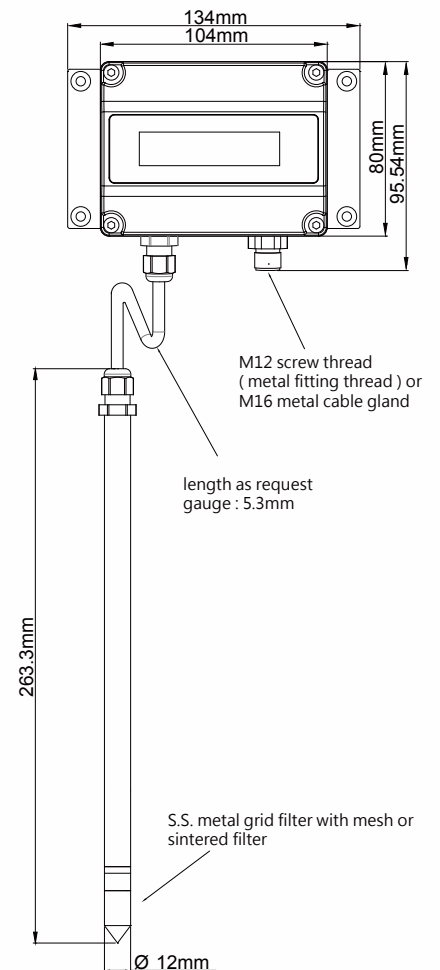


N type

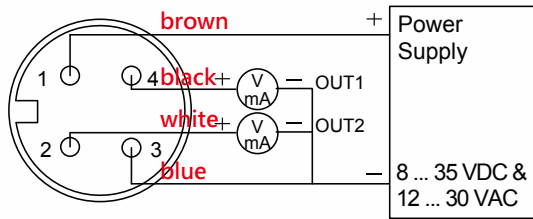
THM802 (duct)



THM803 (remote)

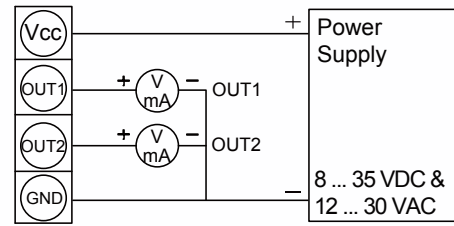


Analogue Diagram



M12 connector

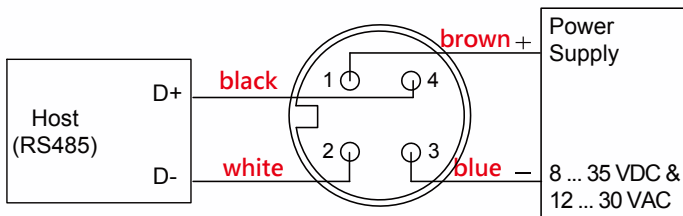
M type (4P)



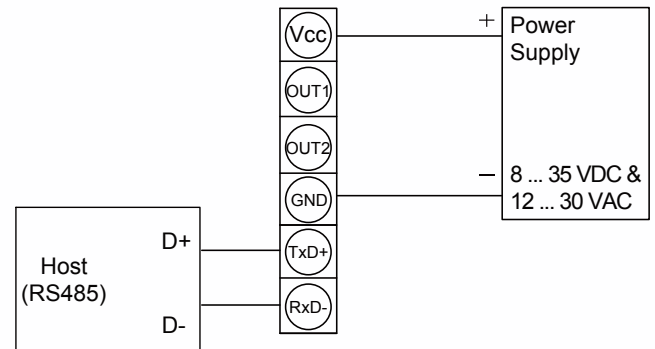
4P terminal

N type

RS-485 Diagram



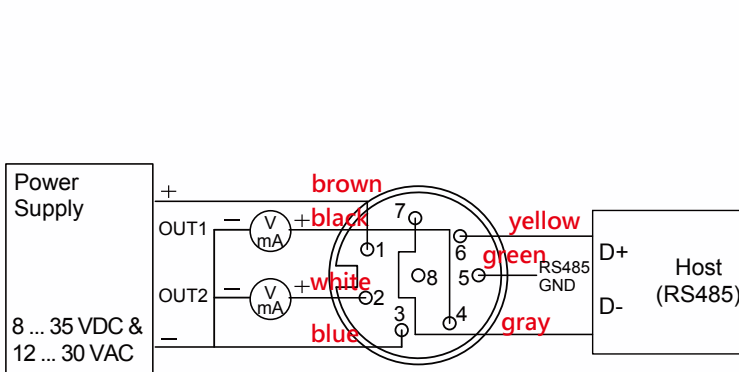
M type (4P)



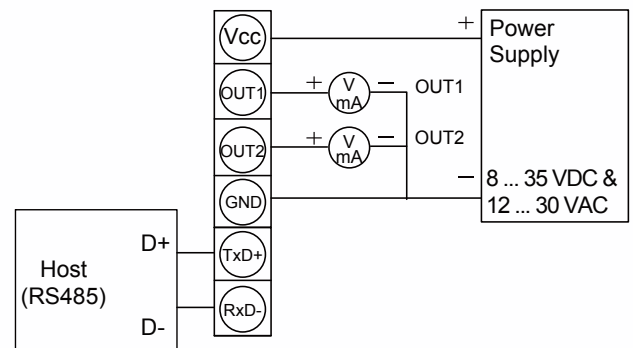
N type

※ 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)