



THM80X Series (THM801 / 802 / 803)

Industrial High Accuracy Temp. & Humidity Transmitter



| Features |

- IP65, aluminum alloy casing for harsh environments
- Capable of temperature compensation, computer-driven linear adjustment for temperature and humidity, with analog output or optional RS-485.
- High-accuracy temperature and humidity measurement, fast response and quick recovery after condensation, excellent long-term stability in high humidity.
- Process Temp : Up to 200°C, S.S. probe pressure resistance : 10 bar, movable thread for repeatable installation.
- Units switchable : [%RH], [°C], [mbar], [g/kg], [g/m³], [kJ/kg].
- RS-485 connection for configuring parameters via planning software with DATA LOG function, recording up to 65535 entries for graphical analysis.

| Applications |

Semiconductor / Electronics / 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 / Paper / Printing / Textiles / Steel and iron industry / Food / Chemical / Pharmaceutical / Biotechnology industry

Specification

Input

Signal type	Capacitive humidity sensor & Pt 100 A class
-------------	---

Output

Output	4 ... 20 mA / 0 ... 10 V / RS-485
Signal connection	3-wire
Display type	LCD Module with back light, double line character
Display range	upon request, one decimal place
Height of character	5.55 mm

Accuracy (at +25 °C)

Temperature	$\pm 0.15^{\circ}\text{C} \pm 0.002^{\circ}\text{C} \times t_{\text{actual}}$
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)	$\pm 2\% \text{RH}$
Temp. influence	0.05%RH/°C
Load resistance	Current output : Max. 500 Ω Voltage output : min. 100 K Ω
Output calibration(ZERO & SPAN)	Software
Response time t90 (at 25 °C)	<20 sec (S.S.Metal grid filter with mesh) <30 sec (Sintered filter)

Environmental

Medium	Air
Temp. Operating	Housing : -20 ... +80°C Housing with display : -20 ... +60°C
Humid. Operating	Housing : 0 ... 95% (Non-condensing)
Probe operating	Wall type : -40 ... +80°C Duct type : -40 ... +120°C Remote type : -40 ... +200°C
Storage temperature	-25 ... +60°C
Probe pressure resistance	10 bar

Certification

Certification	CE
---------------	----

Protection

IP rating	Housing : IP65 ; Probe : IP20
Electrical protection	■ Reverse polarity ■ Over-voltage ■ Short-circuit

Installation

Installation	THM801 : Wall type THM802 : Duct type THM803 : Remote type
--------------	--

Electrical

Power supply	DC 24 V $\pm 10\%$
Current consumption	DC 24 V : 60 mA
Electrical connection	M type : M12 connector with 2 m cable N type : M16 metal cable gland and terminal block

Material

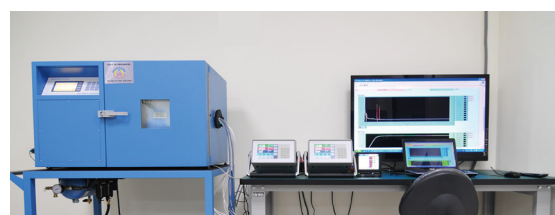
Housing	Aluminum alloy
Probe	SUS 304
Cable	Teflon
Weight	THM801 : 455 g / THM802 : 521 g / THM803 : 635 g

Measuring Range List

*Measurement ranges are converted based on Temp. and humidity, with values provided for reference only.
*The measurement range is defined at the standard condition(1013 mbar, 25°C).

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

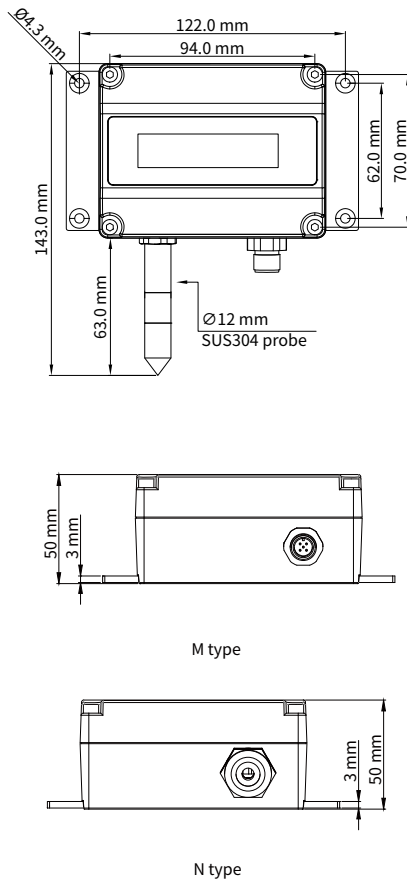
Calibration System



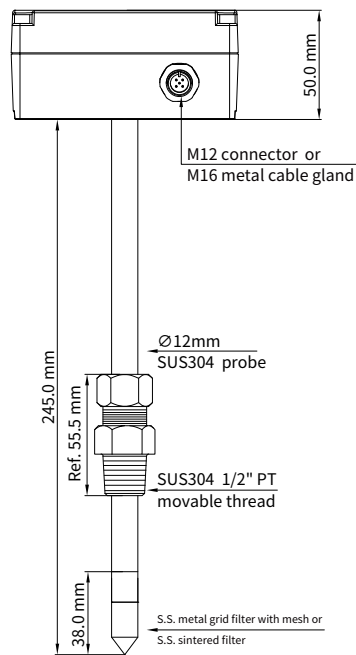
- System Facility
- Humidity generator
- Dew point mirror
- Laboratory level facility to produce products, and automatic QC inspection sheet printing and factory report

Dimension

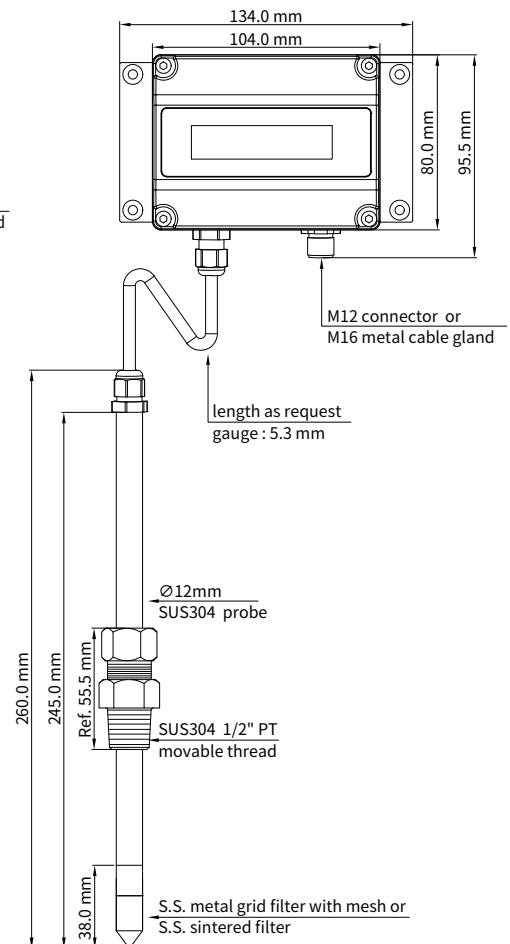
THM801 (Wall)



THM802 (Duct)



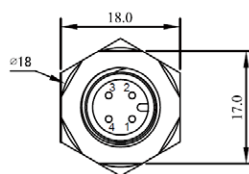
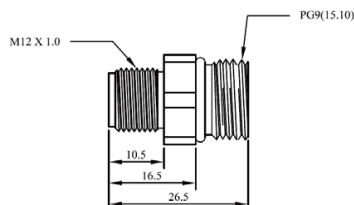
THM803 (Remote)



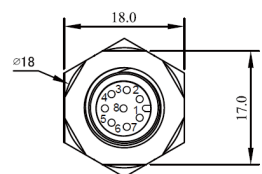
Electric Connector

Unit : mm

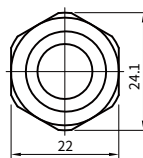
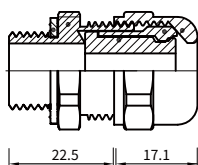
【M type (M12-4PIN connector) RS-485 or analog】



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



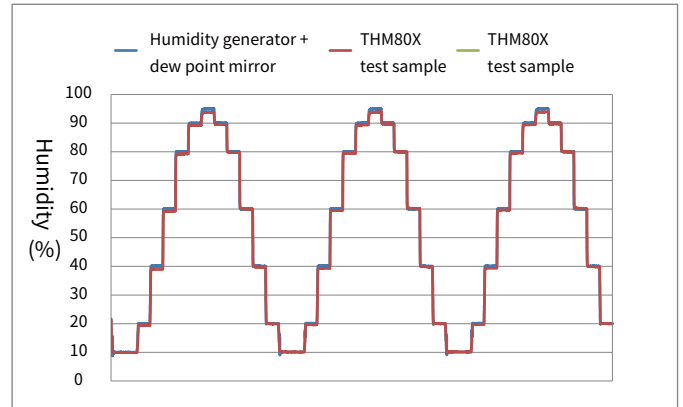
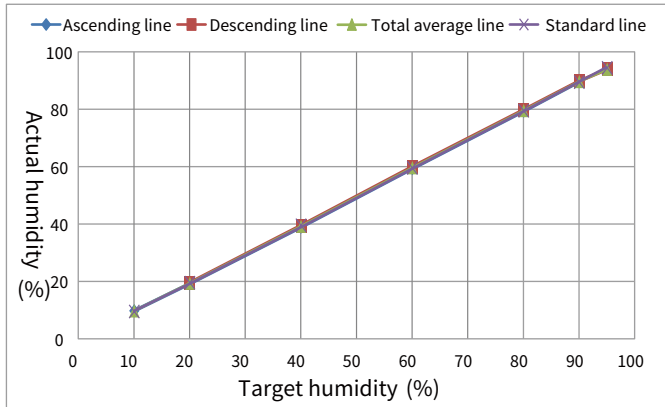
【N type (M16 cable gland)】



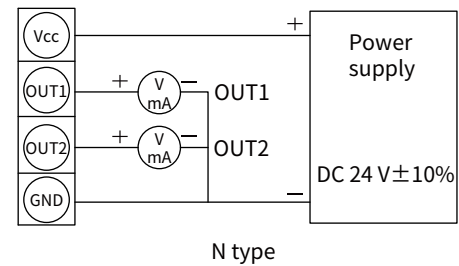
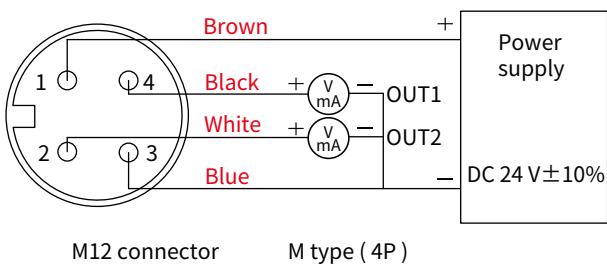
3-cycle curve

※ According to IEC 61298 and ISO 17025 standard to measuring 3-cycle curve.

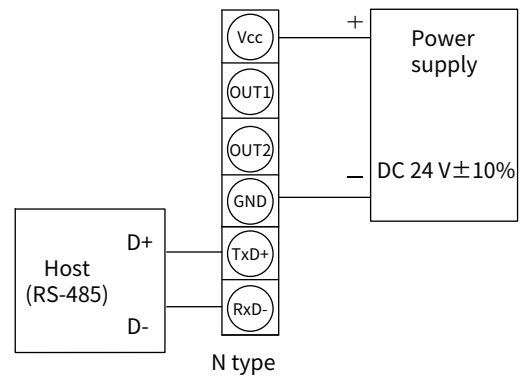
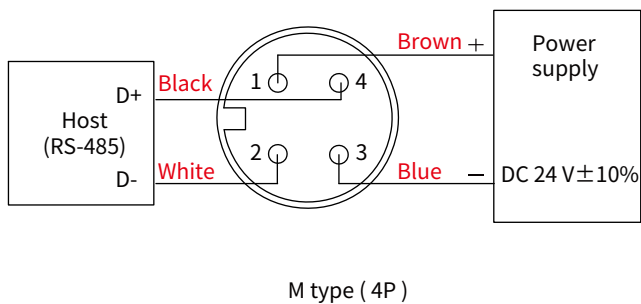
As the charts result, accuracy of test sample match with accuracy chart of humidity generator + dew point mirror



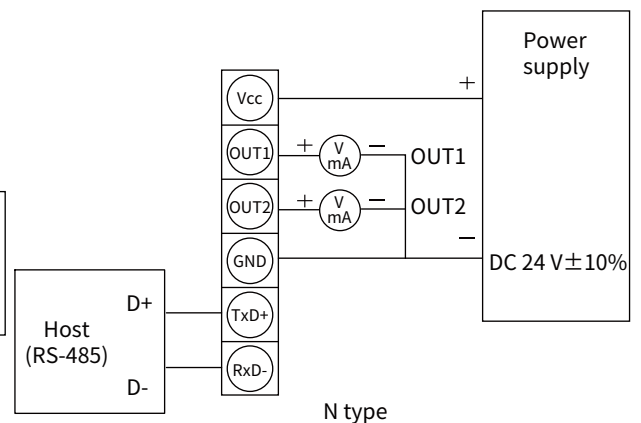
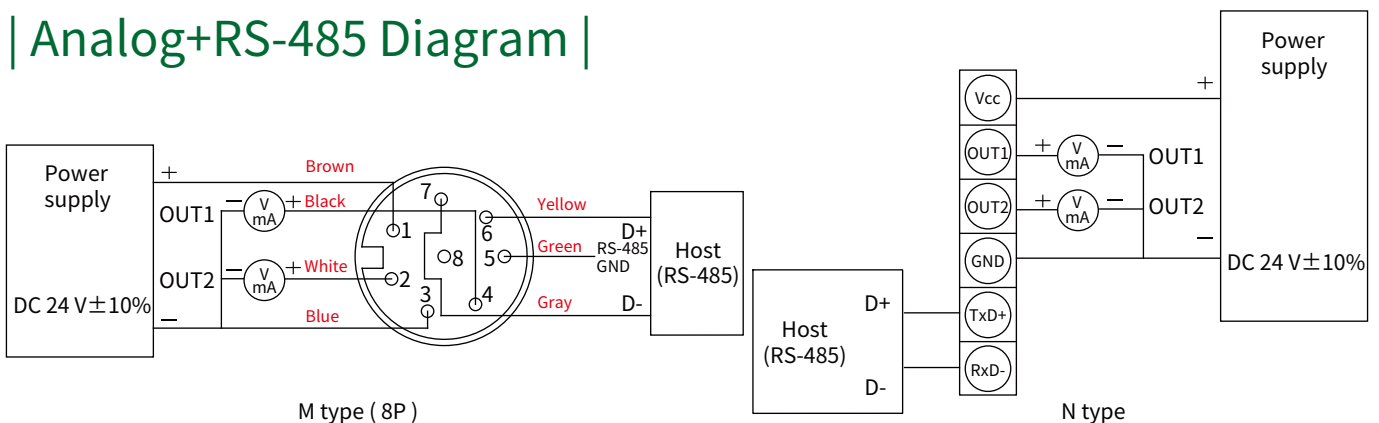
Analog Diagram



RS-485 Diagram



Analog+RS-485 Diagram



*Please make sure the product and the device which connect with RS-485 are on common ground, avoid damaged product.

Ordering Guide

THM80

Installation	Physical quantity output 1	Physical quantity scale 1	Signal output 1	Physical quantity output 2	Physical quantity output 2	Signal output 2	Display	Electrical connector	Filter	Remote Cable Length (TEFLON)	Other request
3	T	48	1	H	00	1	D	N	S	2	U
1 : Wall 2 : Duct 3 : Remote		30 : 0 ... +50°C 40 : 0 ... +100°C 42 : 0 ... +120°C 48 : 0 ... +180°C 47 : 0 ... +200°C 14 : -40 ... +60°C 16 : -40 ... +120°C 18 : -40 ... +180°C 20 : -40 ... +200°C 00 : RS-485 setting YY : Customized Temp. range (up to 200°C)	1 : 4 ... 20 mA 6 : 0 ... 10 V 9 : RS-485			1 : 4 ... 20 mA 6 : 0 ... 10 V 9 : RS-485	X : No D : Yes			2 : 2 m 5 : 5 m — : Customized (Max. length : 5 m)	W : Other request (Quote as demand) U : RS-485 + analog
	T : Temperature N : RS-485 setting (Default Temp.)			H : Relative humidity D : Dew point F : Frost-point W : Web-bulb temperature E : Vapor pressure R : Mixture ratio A : Absolute humidity S : Specific enthalpy N : RS-485 setting (Default Temp.)					M : S.S. metal grid filter with mesh S : Sintered filter		
										N : M16 metal cable gland M : M12 connector	

Additional Option Test Report

For more detailed information please contact us.

ILAC / TAF

YUDEN-TECH CO.,LTD. Calibration Laboratory - (ILAC / TAF) Test report.

(TAF accreditation : 3032, complying with ISO / IEC 17025) TAF has mutual recognition arrangement with ILAC MRA

Project	Measurand level or range
Hygrometer	Temperature : 0°C ... 69.5°C
	Humidity : 10% ... 95%

Project	Measurand level or range
Dew point transmitter	≥ -80 dp°C ... ≤ 60 dp°C

ISO 9001

Project	Measurand level or range
Temperature and Humidity	Temperature : 0°C ... 200°C
	Humidity : 0.1% ... 99.8%

Project	Measurand level or range
Dew point	≥ -95 dp°C ... ≤ 60 dp°C