eyc

THM80X Series (THM801 / 802 / 803)
Industrial High Accuracy Temp. & Humidity Transmitter

THM802-Duct

THM803-Remote

THM801-Wall

| 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℃, S.S. probe pressure resistance : 10 bar, movable thread for repeatable installation.
- Units switchable : [%RH], [℃], [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

Temp & Humid.-THM80X

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| 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	$\pm0.15°C\pm0.002°C\times t_{actual}$
Humidity (0 ... 90 %RH)	Nonlinear error : $\pm1.2\%RH$
	Hysteresis error : $\pm0.8\%RH$
	Repeatability error : $\pm0.4\%RH$
Humidity (90 ... 100 %RH)	$\pm2\%RH$
Temp. influence	0.05%RH/°C
Load resistance	Current output : Max. 500 Ω
	Voltage output : min. 100 KΩ
Output calibration(ZERO & SPAN)	Software
Response time t90 (at 25 °C)	＜20 sec (S.S.Metal grid filter with mesh)
	＜30 sec (Sintered filter)

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

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

Material

Housing	Aluminum alloy
Probe	SUS 304
Remote probe cable	TEFLON (Remote THM803)
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.
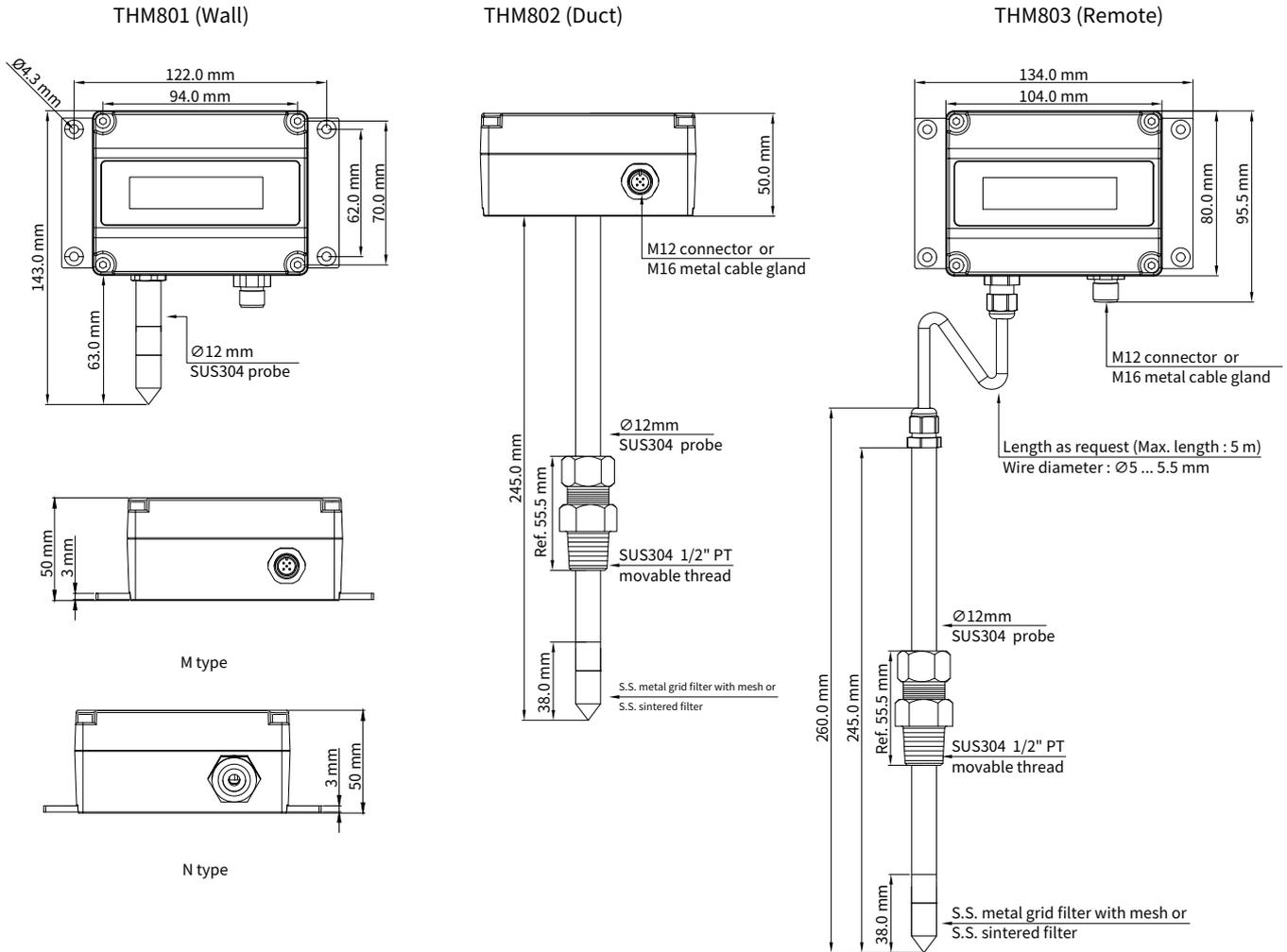*The measurement range is defined at the standard condition(1013 mbar, 25℃).

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 |
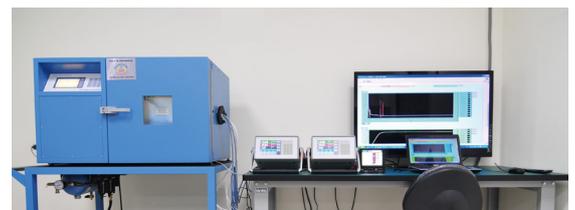
■ System Facility

● Humidity generator

● Dew point mirror

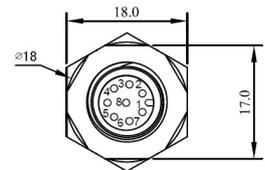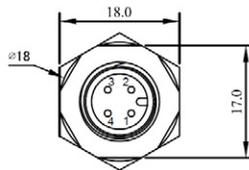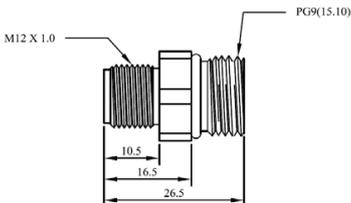● Laboratory level facility to produce products, and automatic QC inspection sheet printing and factory report

| Dimension |

THM801 (Wall)

∅4.3 mm
122.0 mm
94.0 mm
143.0 mm
62.0 mm
70.0 mm
63.0 mm
∅12 mm
SUS304 probe

50 mm
3 mm

M type

3 mm
50 mm

N type

THM802 (Duct)

50.0 mm
M12 connector or
M16 metal cable gland
245.0 mm
∅12mm
SUS304 probe
Ref. 55.5 mm
SUS304 1/2" PT
movable thread
38.0 mm
S.S. metal grid filter with mesh or
S.S. sintered filter

THM803 (Remote)

134.0 mm
104.0 mm
80.0 mm
95.5 mm
M12 connector or
M16 metal cable gland
Length as request (Max. length : 5 m)
Wire diameter : ∅5 ... 5.5 mm
∅12mm
SUS304 probe
260.0 mm
245.0 mm
Ref. 55.5 mm
SUS304 1/2" PT
movable thread
38.0 mm
S.S. metal grid filter with mesh or
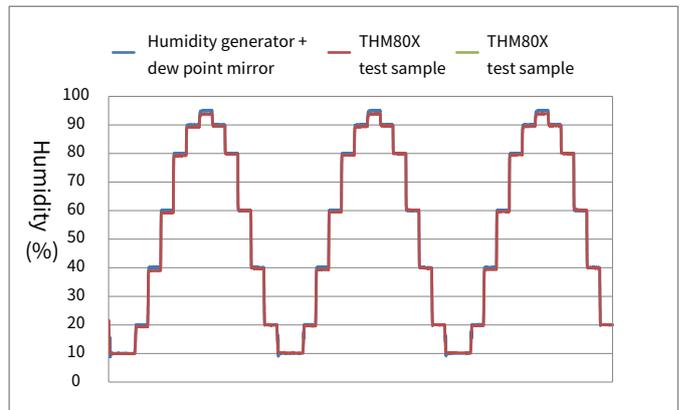S.S. sintered filter

| Electric Connector | Unit : mm

M12 X 1.0
PG9(15.10)
10.5
16.5
26.5

【N type (M16 cable gland)】

22.5
17.1

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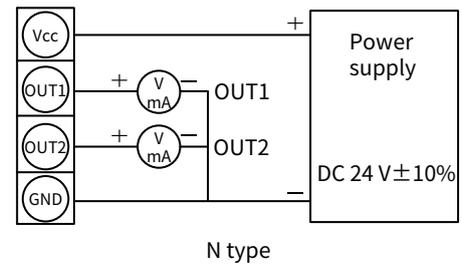RS-485 or analog

18.0
∅18
17.0

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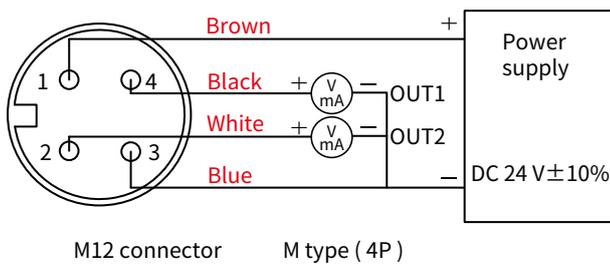RS-485+analog

18.0
∅18
17.0

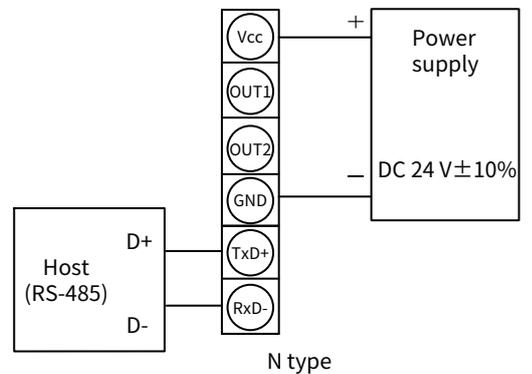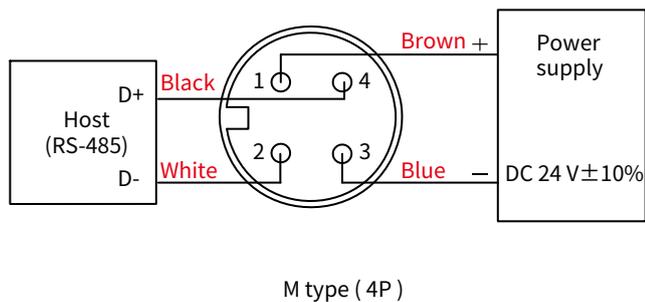24.1
22
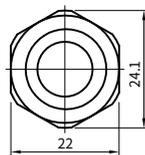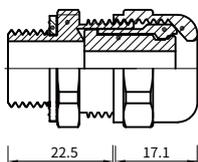
| 3-cycle curve |

※ 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

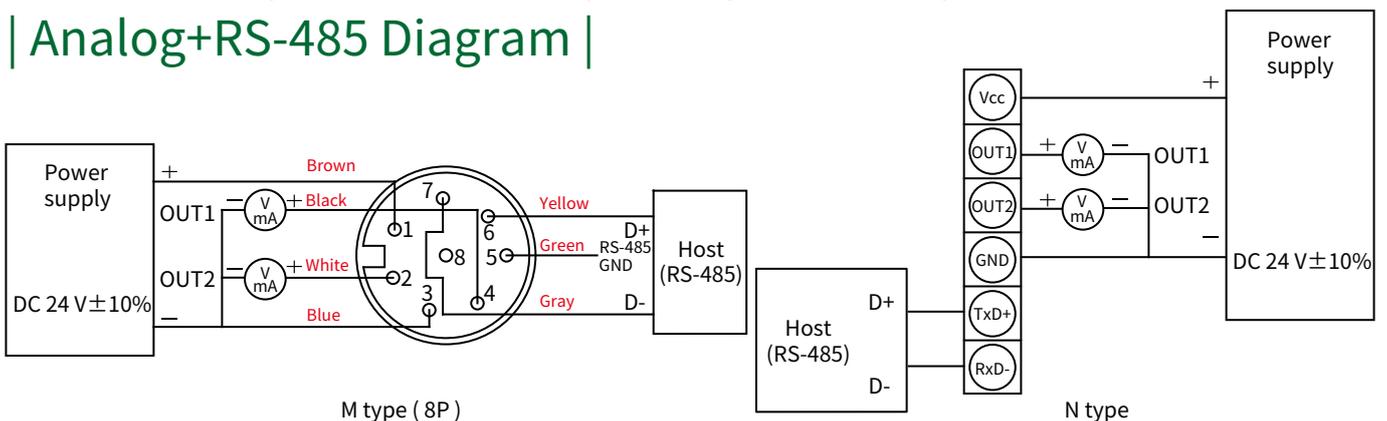Ascending line — Descending line — Total average line — Standard line

Actual humidity (%)
Target humidity (%)

Humidity generator + dew point mirror — THM80X test sample — THM80X test sample

Humidity (%)

| Analog Diagram |

Brown
Black + OUT1
White + OUT2
Blue

Power supply
DC 24 V±10%

M12 connector   M type (4P)

Vcc
OUT1 + OUT1
OUT2 + OUT2
GND

Power supply
DC 24 V±10%

N type

| RS-485 Diagram |

Host (RS-485)
D+ Black
D- White

Brown +
Blue

Power supply
DC 24 V±10%

M type (4P)

Vcc
OUT1
OUT2
GND
TxD+
RxD-

Host (RS-485)
D+
D-

Power supply
DC 24 V±10%

N type

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

| Analog+RS-485 Diagram |

Power supply
DC 24 V±10%

OUT1 + Brown
Black
OUT2 + White
Blue

7
1
6
8 5
2
3 4

Yellow
Green D+ RS-485 GND
Gray D-

Host (RS-485)

M type (8P)

Host (RS-485)
D+
D-

Vcc
OUT1 + OUT1
OUT2 + OUT2
GND
TxD+
RxD-

Power supply
DC 24 V±10%

N type

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

Temp & Humid.-THM80X

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| Ordering Guide |

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 probe cable	Other request
THM80 3	— T	48	1	H	00	1	— D	N	S	2	U

Installation
1 : Wall
2 : Duct
3 : Remote

Physical quantity scale 1
1 : 4 ... 20 mA
6 : 0 ... 10 V
9 : RS-485

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)

Physical quantity output 1
T : Temperature
N : RS-485 setting (Default Temp.)

Display
X : No
D : Yes

Signal output 2
1 : 4 ... 20 mA
6 : 0 ... 10 V
9 : RS-485

00 : As physical quantity
measuring range list
(Adjustable via RS-485)

Physical quantity output 2
H : Relative humidity
D : Dew point
F : Frost-point
W : Web-bulb temperature
E : Vapor pressure
R : Mixture ratio
A : Absolute humidity
S : Speific enthalpy
N : RS-485 setting (Default Temp.)

Other request
W : Other request
(Quote as demand)
U : RS-485
+ analog

Remote probe cable
2 : 2 m
5 : 5 m
— : Customized
(Max. length : 5 m)

Filter
M : S.S. metal grid filter with mesh
S : Sintered filter

Electrical connector
N : M16 metal cable gland
M : M12 connetor

*Recommended best-selling

Product ordering number	Product Specifications
THM803-T481H001-XMS5U	Remote type, CH1 : T, 0 ... +180 °C / CH2 : H, 0 ... 100%, O/P : 4 ... 20 mA, M12, 5 m TEFLON cable, Sintered filter
THM803-T481H001-DMS5U	Remote type + display, CH1 : T, 0 ... +180 °C / CH2 : H, 0 ... 100%, O/P : 4 ... 20 mA + RS-485, M12, 5 m TEFLON cable, Sintered filter

| 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