



THM50X

Temperature and Humidity Transmitter

Temp & Humid.-THM50X

www.eyc-tech.com

THM503
Remote type



THM501
Wall type

| Features |

- Aluminum alloy casing for harsh environments.
- Direct key operation for temperature/humidity adjustment, RS-485 settings, and unit switching.
- High-accuracy temperature and humidity measurement with fast response and quick recovery after condensation.
- RS-485 communication for configuring measurement units, ranges, output type, and station address.
- DATA LOG function capable of recording up to 65,535 entries for analysis.
- Measures extremely low humidity, down to 0.1% RH.
- Multiple physical measurement units switchable: %RH, °C, mbar, g/kg, g/m³, kJ/kg, AH%.

AH% represents the actual water vapor content in the air, referenced to the saturation moisture level at 25 °C.

The maximum moisture content at 25 °C is defined as 100%, and AH% is expressed as the percentage relative to this value.

Temperature	Measured	Absolute Humidity Percentage (AH%)
100 °C	4.6 g/m ³	$(4.6 \div 23) \times 100\% = 20\%$
100 °C	1.15 g/m ³	AH% = 5% (good drying condition)

| Applications |

Semiconductor / Electronics / Chemical industry / Pharmaceutical / Steel industry / Biotechnology industry / Industrial process monitoring / Air conditioning / Cleanrooms / Laboratories / Weather stations / Hospitals / Buildings / Dryers / Factories / Storage rooms / Environmental ventilation control / Environmental test chambers / Greenhouses

| Specification |

Input

Signal type	Capacitive humidity sensor & Pt100 Class A
Measuring range	Wall type : -40°C ... +80°C
	Remote type : -40°C ... +150°C
	Humidity : 0 ... 100%RH

Output

Output	4 ... 20 mA / 0 ... 10 V / RS-485 / NPN / PNP
Signal connection	3-wire
Warm-up time	< 30 sec
Response time (at 25°C)	t ₉₀ ≤ 20 sec (S.S.Metal grid filter with mesh)
	t ₉₀ ≤ 30 sec (Sintered filter)
Load resistance	Current output : ≤ 500 Ω
	Voltage output : ≥ 100 KΩ
Output calibration (Adjustment range)	Software / Button

Accuracy

Temperature	±0.1°C ± 0.002°C x t _{actual}
Humidity (0 ... 90%)	Nonlinear error : ±1%RH
	Hysteresis error : ±0.8%RH
	Repeatability error : ±0.4%RH
Humidity (90 ... 100%)	±2%RH
Temp. influence	0.05%RH/°C

Communication

Comm. Interface & Protocol	RS-485 Modbus RTU
RS-485 Baud Rate	9600、19200、38400、57600、115200 bps

Environmental

Measuring medium	Air
Temp. Operating (Housing)	-20 ... +60°C
	0 ... 90% (Non-condensing)
Storage temperature	-20 ... +60°C
Probe pressure resistance	4 bar
Display unit	°C / %RH / dp°C / AH%

Electrical

Power supply	DC 24 V ± 10%
Current consumption	DC 24 V : 60 mA
Electrical connection	M12 8P connector

Installation

Installation	Wall / Remote
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Display

Display readout	Temperature/Humidity (initial value setting), up to four displays.
Decimal point	Button
Sampling time	1 cycle/sec
Unit selection	Temperature(T) / Humidity(H) / Dew Point(D) / Frost Point(F) / Wet-bulb Temperature(W) / Water Vapor Pressure (E) / Mixing Ratio(R) Absolute Humidity(A) / Specific Humidity(S) / Absolute Humidity(A%)
Response time	0 ... 100

Certification

Certification	CE
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Protection

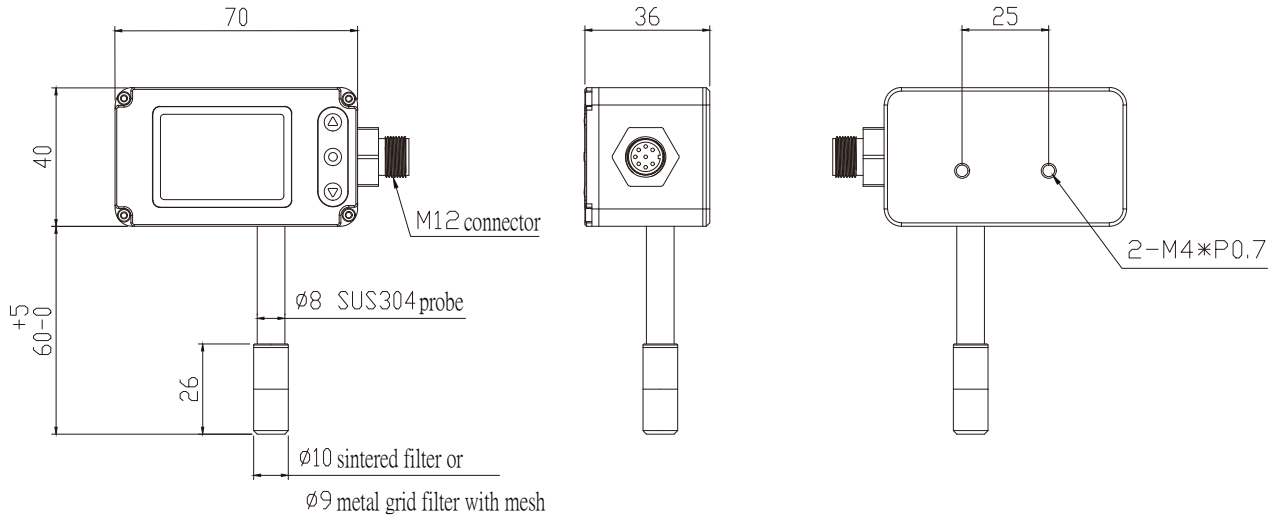
IP rating	IP65 (Body)
Electrical protection	■ Reverse polarity ■ Over-voltage

Material

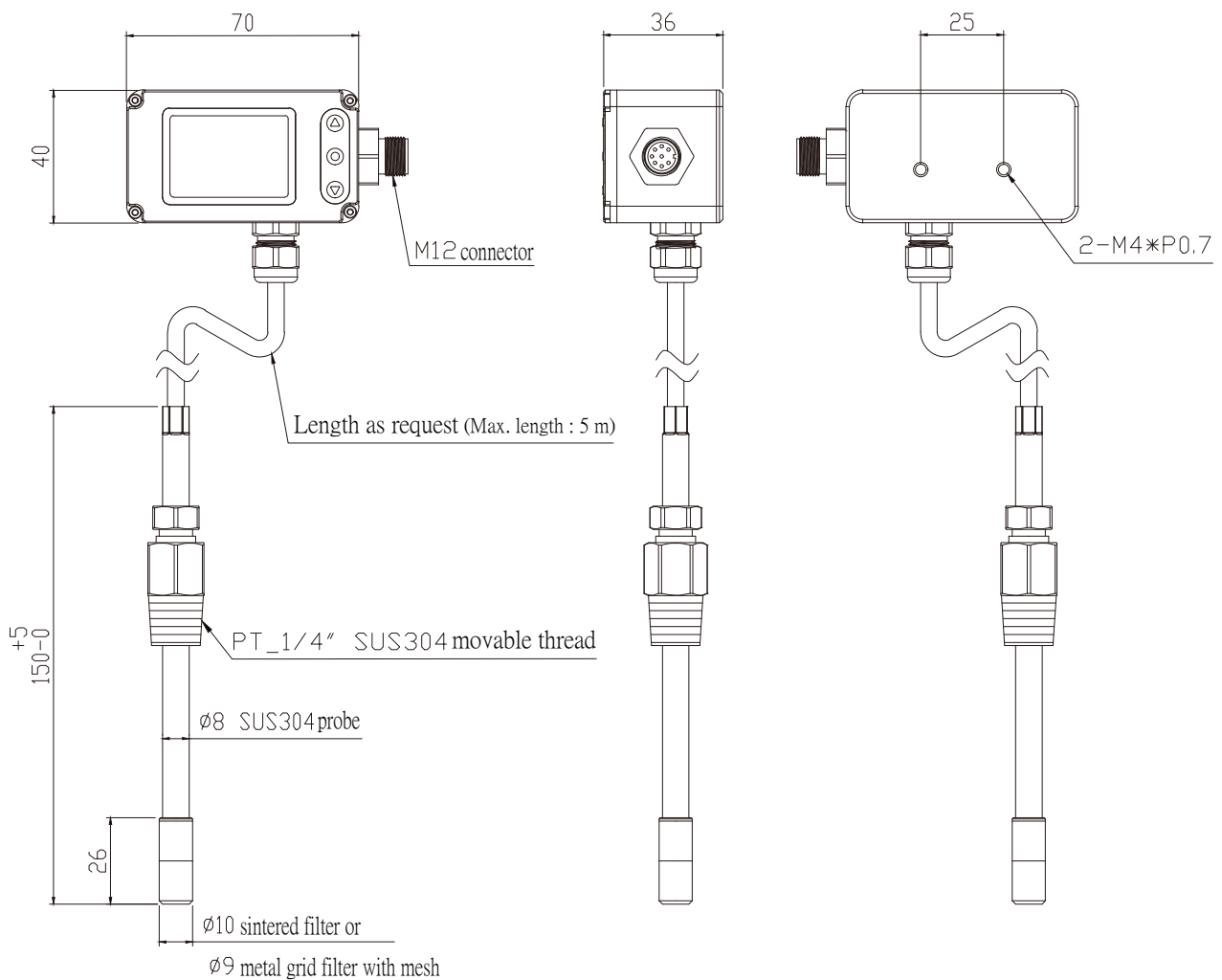
Housing	Aluminum alloy
Probe	Stainless steel
Remote probe cable	TEFLON
Weight	THM501 : 170 g
	THM503 : 370 g

| Dimension |

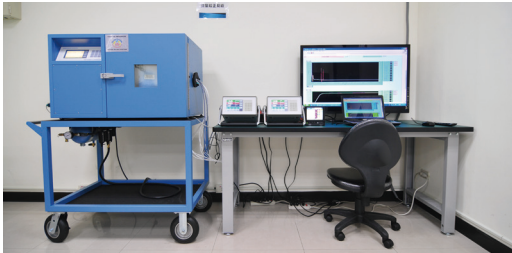
THM501 (Wall)



THM503 (Remote)



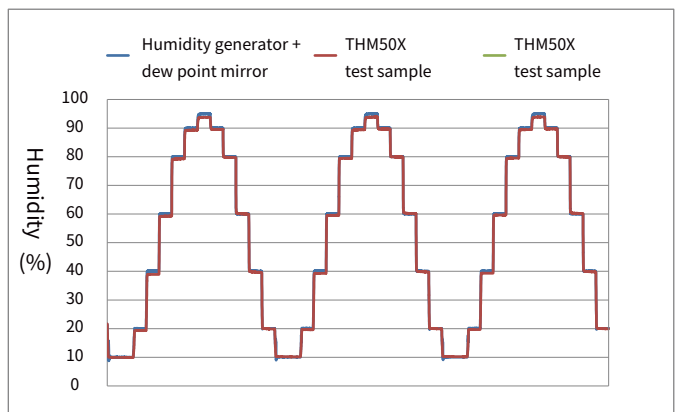
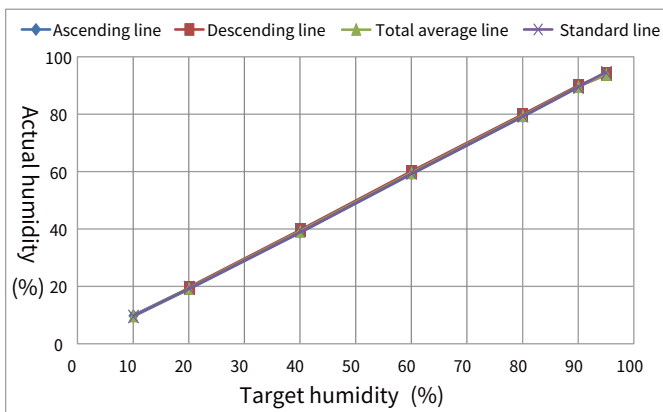
| Calibration System |



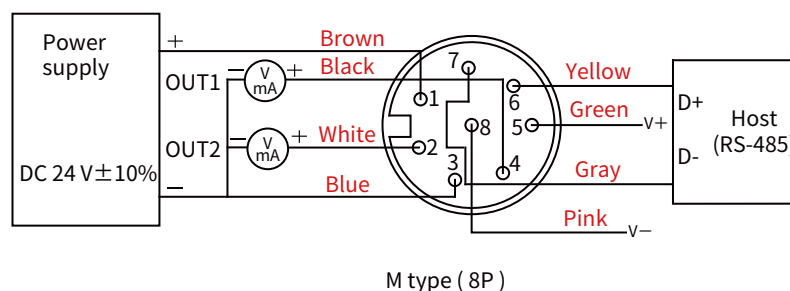
- System Facility
- Humidity generator
- Dew point mirror
- Laboratory level facility to produce products, and automatic QC inspection sheet printing and factory report

| 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

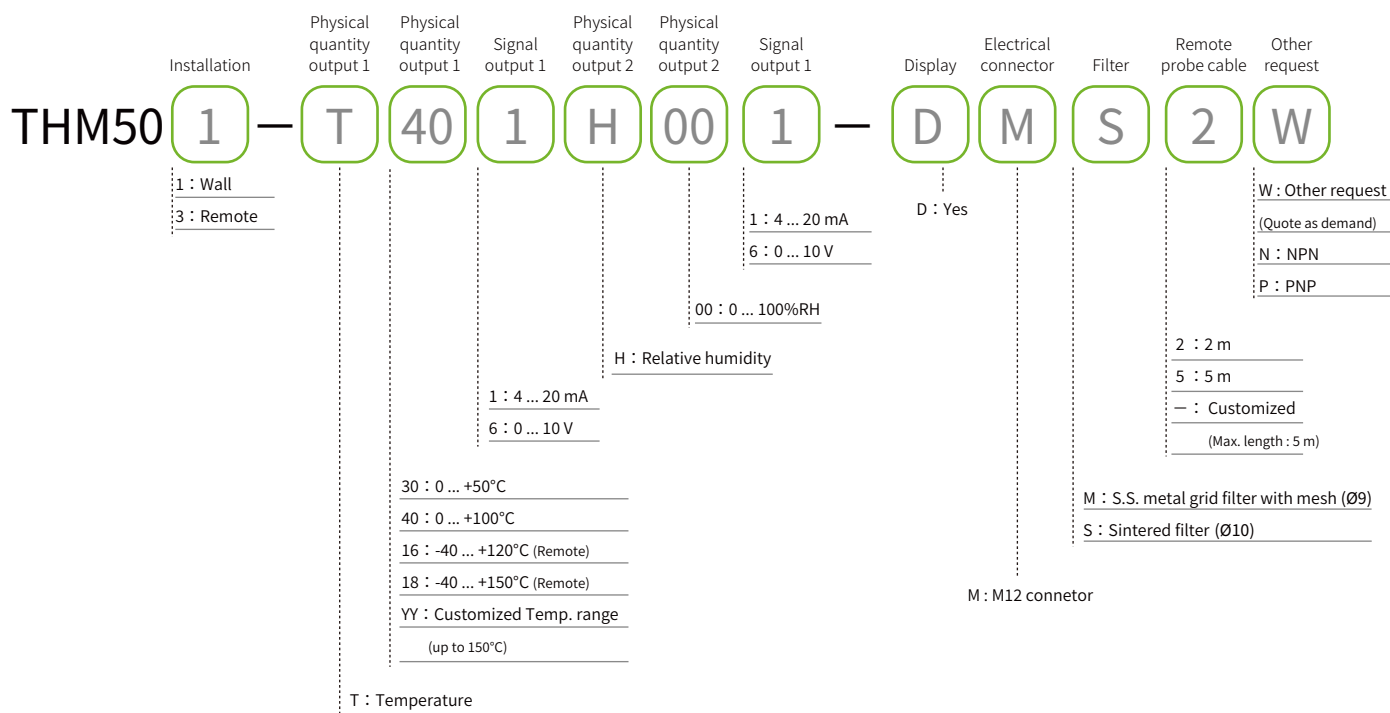


| Analog+RS-485 Diagram |



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

| Ordering Guide |



| 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