

LTHM Series (LTHM 801 / 802 / 803) Industrial High Accuracy Temp. & Humidity Transmitter



| Features |

- IP65 , rugged aluminum case, fit in variety harsh environment
- Capable of temperature compensation. Linear adjustment temperature & humidity by computer, analog 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, analog output, station, etc
- Free calibration software : data logger / record 65535 datas / charts

| 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

Output

Output Capacitive humidity sensor & Pt 100_{A class}

Signal connection

Modbus

Display type 0 ... 20 mA / 4 ... 20 mA / 0 ... 10 V

Display range 3-wire

Height of character 2 analog / option RS-485
(Programmable) LCD Module with back light,

Accuracy (at +25 °C) double line character

Temperature upon request, one decimal place

Humidity (0 ... 90 %RH) 5.55 mm

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

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

Load resistance Current output : Max. 500 Ω

Output calibration Voltage output : min. 100 K Ω

(ZERO & SPAN) Software / Keyboard

Response time t₉₀ (at 25 °C) <20 sec_(S.S.Metal grid filter with mesh)

<30 sec (Sintered filter)

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%)

Electrical

Power supply DC 24 V $\pm 10\%$

Current consumption DC 24 V: 60 mA

Electrical connection M12 metal connector with 2 m cable or
terminal (Metal cable gland)

Environmental

Medium Air

Temp. Operating Housing: -20 ... +80°C

Humid. Operating Housing with display: -20 ... +60°C

Probe operating Housing: 0 ... 95% (Non-condensing)

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 Polarity protection

Over-voltage

Short-circuit

Installation

Installation Metal fitting thread

Material

Housing Aluminum

Probe alloy SUS 304

Cable Teflon

Weight LLLTHM801 :

455 g

LTHM802: 521

g LTHM803 :

635 g

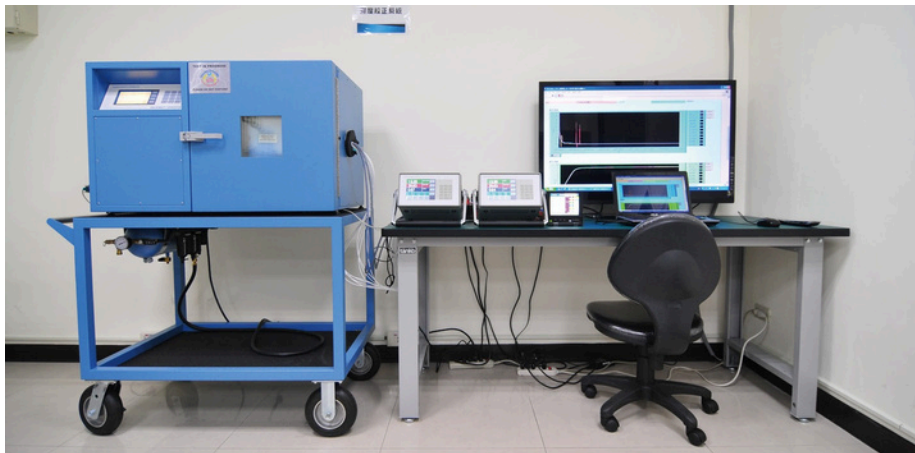
*Please make sure the product and the device which connect with RS-485 are on common ground, avoid damaged product.

| Measuring Range List |

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

Physical quantity	LTHM801 Wall type	LTHM802 Duct type	LTHM803 Remote type
Temperature(T)	- 40°C ...	- 40°C ... + 120°C 0	- 40°C ... +
Humidity(H)	+80°C	... 100%RH -40	200°C
Dew point(D)		dp°C ... +60 dp°C	
Frost point(F)		-40 ... 0 fp°C 0 ...	
Wet-bulb Temp.(W)		100°C 0 ... 1100	
Vapor pressure(E)		mbar 0 ... 999 g/kg	
Mixture ratio(R)		0 ... 700 g/m3 0 ...	
Absolute humidity(A)		2800 kj/kg	
Specific enthalpy(S)			

| Temp. & Humidity QC Inspection System |

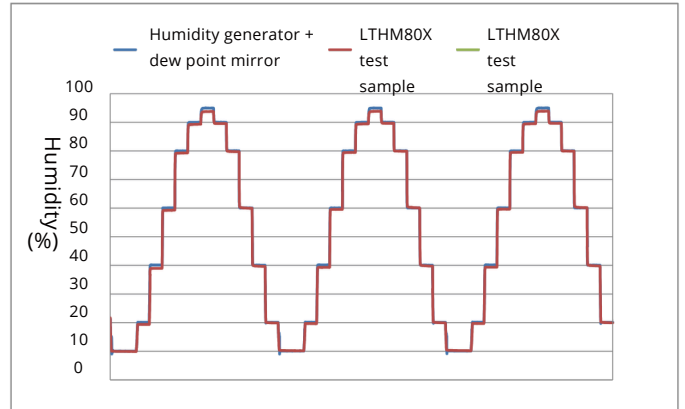
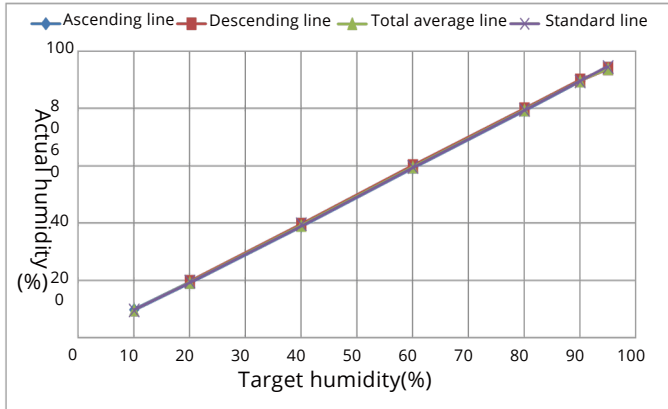


- System Facility
- Humidity generator
- Dew point mirror
- Laboratory level facility to produce products, and automatic QC inspection sheet printing and factory report

| 3-cycle curve |

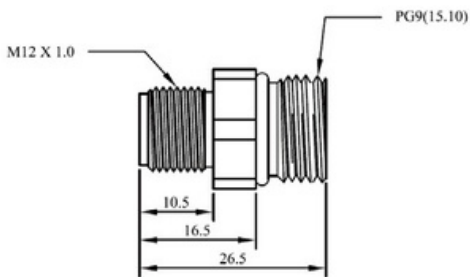
※ According to IEC 61298 and ISO 17025 standard to measuring 3-cycle curve.

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

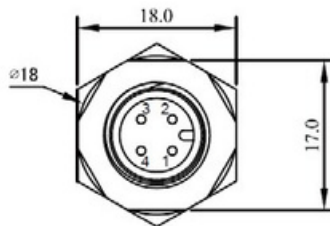


| Electric Connector |

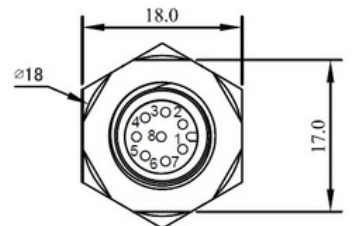
Unit : mm



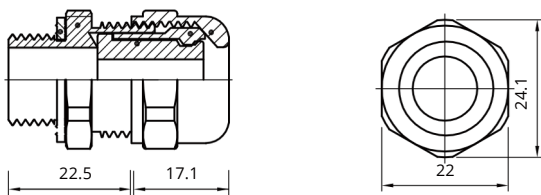
【M type (M12-4PIN metal connector) RS-485 or analog】



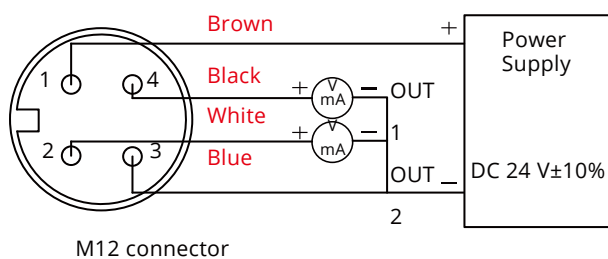
【M type (M12-8PIN metal connector) RS-485+analog】



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

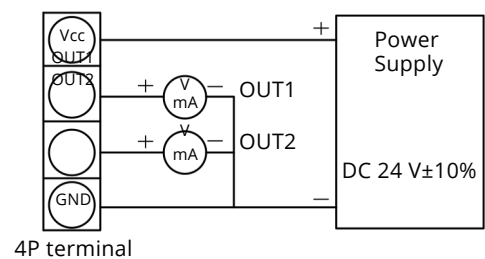


| Analog Diagram |



M12 connector

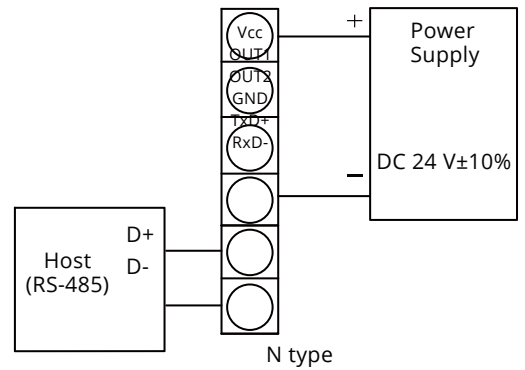
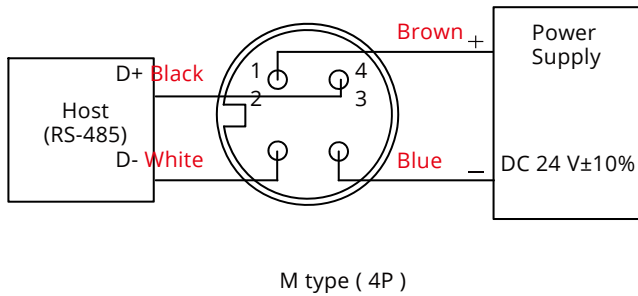
M type (4P)



4P terminal

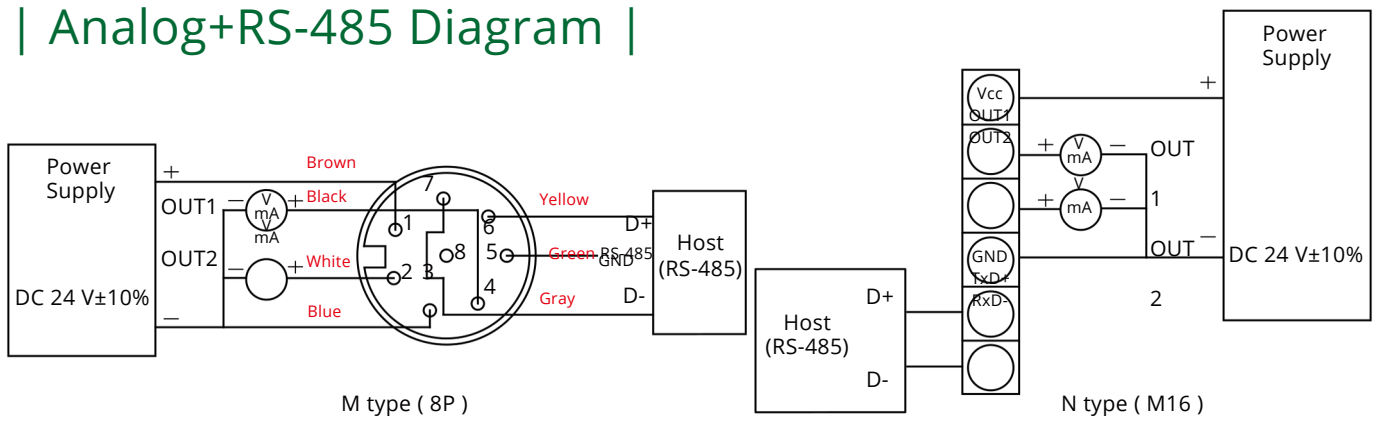
N type

RS-485 Diagram |

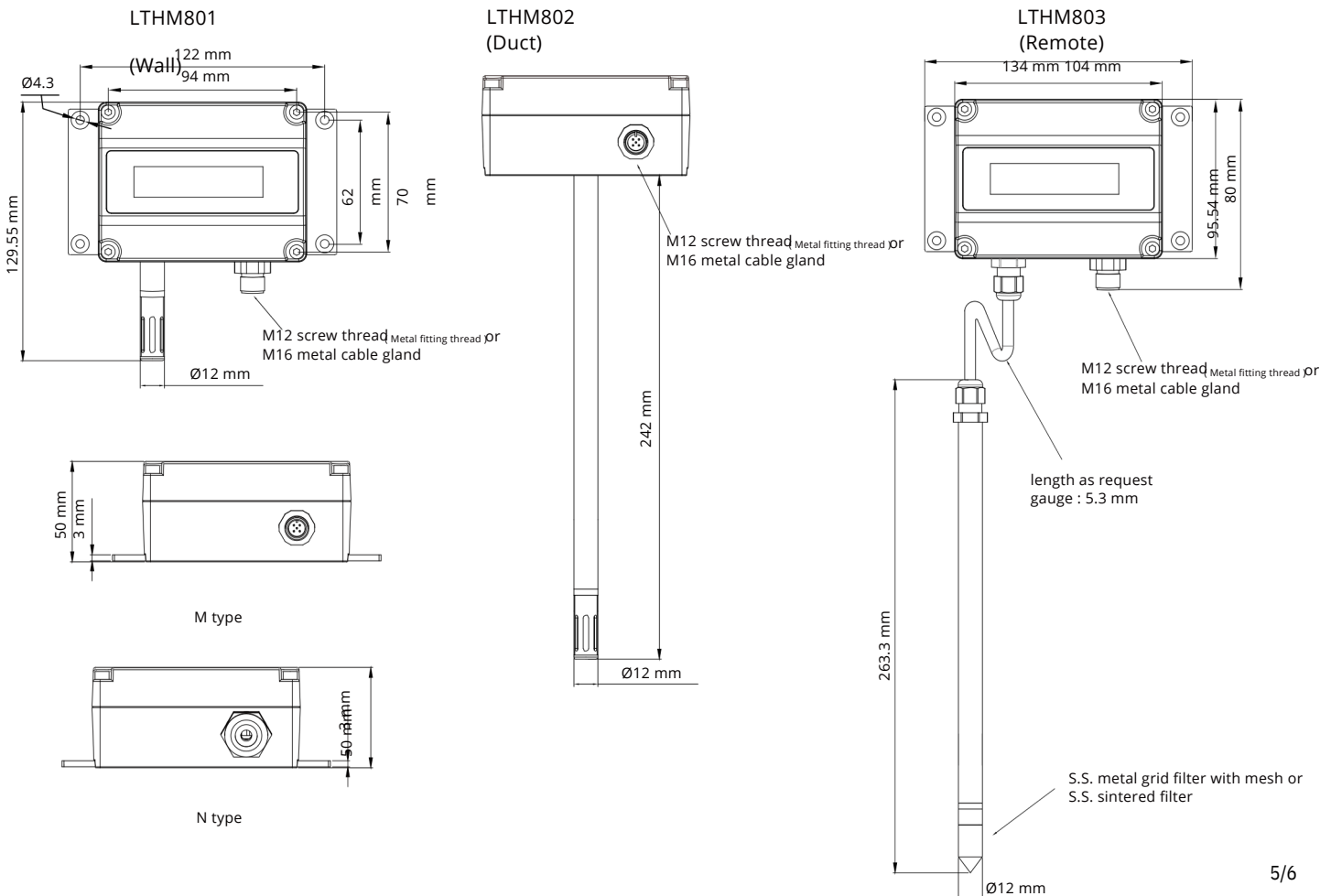


※ When output of ordering code is RS-485 (without analog), RS-485 diagram of default setting is M type.

Analog+RS-485 Diagram |



Dimension |



| Ordering Guide |

THM80 **3** — **T** **48** **1** — **H** **00** **1** — **D** **N** **S** **2** **U**

<p>Installation</p> <p>1 : Wall 2 : Duct 3 : Remote</p>	<p>Physical quantity output 1</p> <p>30 : 0 ... +50°C 38 : 0 ... +80°C 40 : 0 ... +100°C 42 : 0 ... +120°C 48 : 0 ... +180°C 47 : 0 ... +200°C 13 : -20 ... +40°C 14 : -40 ... +60°C 16 : -40 ... +120°C 18 : -40 ... +180°C 20 : -40 ... +200°C 49 : -70 ... +180°C 00 : As physical quantity measuring range list YY : Customized (up to 200°C)</p> <p>T : Temperature H : 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 (Default Temp.)</p>	<p>Physical quantity scale 1</p> <p>1 : 4 ... 20 mA 2 : 0 ... 20 mA 6 : 0 ... 10 V 9 : RS-485</p>	<p>Signal output 1</p>	<p>Physical quantity output 2</p> <p>30 : 0 ... +50°C 38 : 0 ... +80°C 40 : 0 ... +100°C 42 : 0 ... +120°C 48 : 0 ... +180°C 47 : 0 ... +200°C 13 : -20 ... +40°C 14 : -40 ... +60°C 16 : -40 ... +120°C 18 : -40 ... +180°C 20 : -40 ... +200°C 49 : -70 ... +180°C 00 : As physical quantity measuring range list YY : Customized (up to 200°C)</p> <p>T : Temperature H : 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 (Default Temp.)</p>	<p>Physical quantity output 2</p>	<p>Signal output 2</p> <p>1 : 4 ... 20 mA 2 : 0 ... 20 mA 6 : 0 ... 10 V 9 : RS-485</p>	<p>Display</p> <p>X : No D : Yes</p>	<p>Electrical connector</p> <p>N : M16 metal cable gland M : M12 metal connetor</p>	<p>Filter</p> <p>M : S.S. metal grid filter with mesh S : Sintered filter</p>	<p>Remote Cable Length (TEFLON)</p> <p>2 : 2 m 5 : 5 m — : Customized (Max. length : 5 m)</p>	<p>Other request</p> <p>W : Other request (Quote as demand) U : RS-485 + analog</p>
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