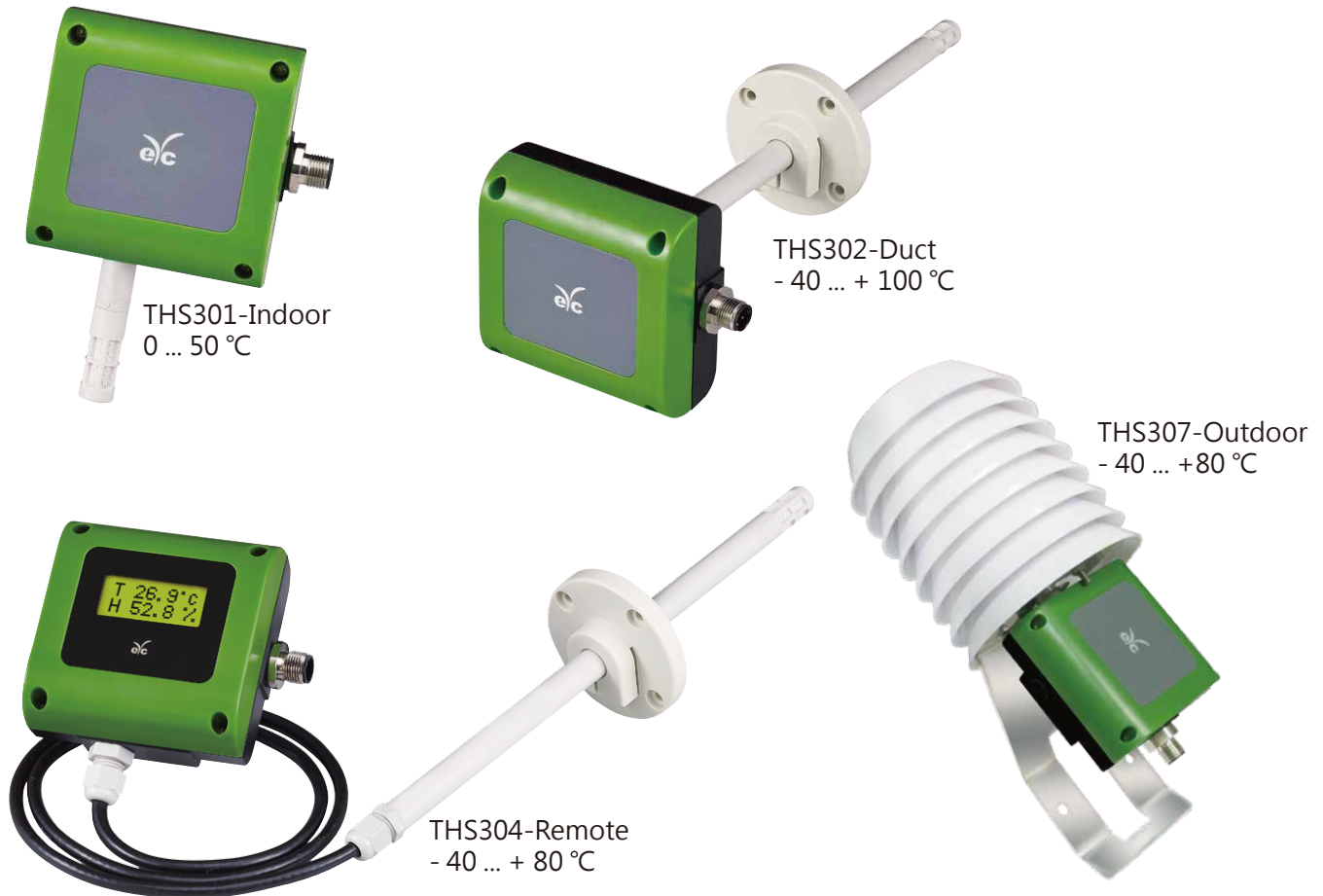




THS30X Series (THS301 / 302 / 304 / 307)

Multifunction Temperature & Humidity Transmitter



Features

- Industrial sensor comes with high accuracy and long-term stability
- Capable of temperature compensation and linear adjustment
- Multifunction physical quantities – temperature & humidity / dew point / frost point / wet-bulb temp. / vapor pressure / mixture ratio / absolute humidity / specific enthalpy
- Standard 2 analog output or Modbus RS-485
- Option analog output+ RS-485
- Probe : PC or S.S. ; Remote type : PVC cable
- Power supply : 8-35VDC and 12-35VAC
- RS-485 and Modbus RTU
- Free programmable software - physical quantities / output / data logger / charts / calibration
- Option : USB to RS-485 Converter

Application

- Monitoring for HVAC process / air conditioning / environmental ventilation control
- Building / factory / hospital/ clean room / Lab. / storeroom
- Cooling tank / crisper / environmental chambers / weather station
- Indoor pool / greenhouse / livestock nursery
- Pharmaceutical / textile / agriculture / food / manufacturing industry / monitoring for process / drying facility

Specification

Input		Environment	
input type	Capacitive Humidity Sensor & PT 100Ω class A	media measured	air
Working Range Suggestion		working temp. for housing	- 20 ... + 60 °C
temperature	0 ... 50°C (THS301) ; -40 ... +100 °C (THS302) -40 ... +80 °C (THS304 / 307)	working humidity for housing	0 ... 95 %RH (non-cond.)
humidity	0 ... 100 %RH	working temp. for housing with display	0 ... 60 °C
dew point	-40 ... +60 °C	proof Temp. for probe	PC probe : max. 120 °C
Frost Point (F) 、 Wet-bulb Temperature (W) 、 Vapor Pressure (E) 、 Mixture Ratio (R) 、 Absolute Humidity (V) 、 Specific Enthalpy (S) :		cable (remote type)	PVC cable : max. 80 °C
please refer to physical quantity measuring range list		storage temperature	- 25 ... + 60 °C
Output		proof pressure for S.S. probe	10bar
output	standard RS-485 or 2 analog output 0 ... 20 mA / 4 ... 20mA / 0 ... 1V / 0 ... 5V / 0 ... 10V	filter	plastic membrane filter (standard) ; option
signal Connection	3-wire	CE certification	EN 61326-1 : 2006 、 EN 61326-2-2 : 2006
modbus	RS-485 (programmable) and 2 analog output	Emissions	EN 55011 : 2009/A1 : 2010
display type	LCD Module with back light, double line character	Immunity	IEC 61000-4-2 : 2008
display range	upon request, one decimal place		IEC 61000-4-3 : 2006 / A1 : 2007 / A2 : 2010
height of character	5.56mm		IEC 61000-4-8 : 2009
Linear Accuracy (at 25°C)		Electrical	
temperature	$\pm 0.2 \text{ }^\circ\text{C} \pm 0.005 \text{ }^\circ\text{C} \times \uparrow \text{ actual}$	power supply	8 ... 35VDC / 12 ... 30VAC
humidity	(at + 25 °C) $\pm 2 \text{ \%RH}$	current consumption	DC 24V : 60mA / DC 12V : 120mA AC 24V : 140mA / AC 12V : 230mA
temperature influence of body	(at + 25 °C) 0.05 %RH / °C	electrical connection	M12 metal connector with 2 m cable or terminal (cable gland)
load Resistance	current output : max. 500Ω / voltage output : min. 10KΩ	protection rating	housing : IP65 ; probe : IP20
output calibration (ZERO & SPAN)	software	electric protection	• polarity protection • over-voltage • short-circuit
response time t90 (temp. at +25°C)	< 20S (membrane filter / S.S. metal grid filter with mesh) ; < 30S (sintered filter)	installation	indoor : wall outdoor : fixed board for wall type (standard) ; duct / remote : plastic flange (standard)
		housing	duct / remote : plastic flange (standard)
		probe	PC fire-proof class (PC-110) (UL94V-2) PC fire-proof class (PC-110) / S.S. (SUS304)

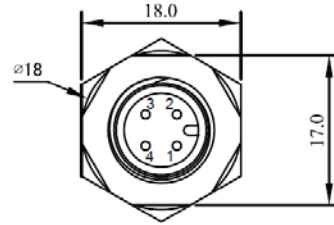
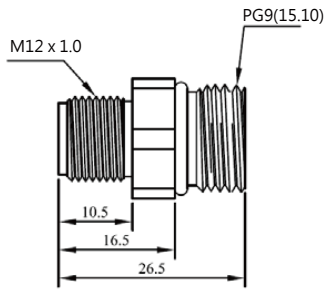
Physical Quantity Measuring Range List

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

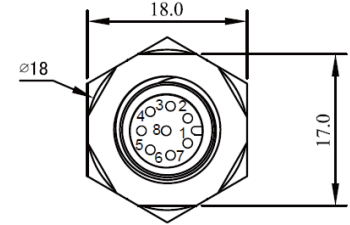
Physical quantity	THS301 indoor	THS302 duct	THS304 remote (PVC cable)	THS307 outdoor (shield)
Temperature (T)	0 ... 50°C	-40 ... +100°C	-40 ... +80°C	-40 ... +80°C
Humidity (H)	0 ... 100%RH			
Dew Point (D)	-40 ... +50°C	-40 ... +60°C		
Frost Point (F)	-40 ... 0°C			
Wet-bulb temp. (W)	0 ... 50 °C	0 ... 100 °C	0 ... 80 °C	0 ... 80 °C
Vapor Pressure (E)	0 ... 150 mbar	0 ... 1100 mbar	0 ... 500 mbar	0 ... 500 mbar
Mixture Ratio (R)	0 ... 100 g/kg	0 ... 999 g/kg	0 ... 600 g/kg	0 ... 600 g/kg
Absolute Humidity (V)	0 ... 100 g/m ³	0 ... 700 g/m ³	0 ... 300 g/m ³	0 ... 300 g/m ³
Specific Enthalpy (S)	0 ... 300 kj/kg	0 ... 2800 kj/kg	0 ... 1600 kj/kg	0 ... 1600 kj/kg

Electric Connector

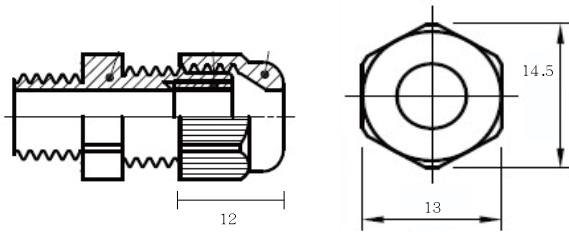
【 M type (M12-4PIN metal connector) RS-485 or analog



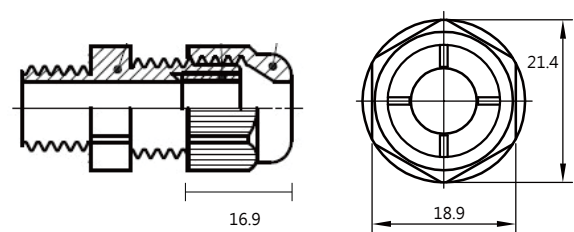
【 N type (M12 cable gland) RS-485 or analog



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

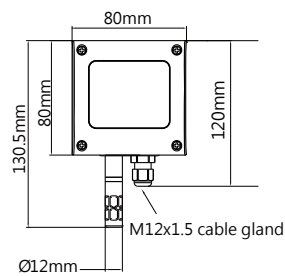
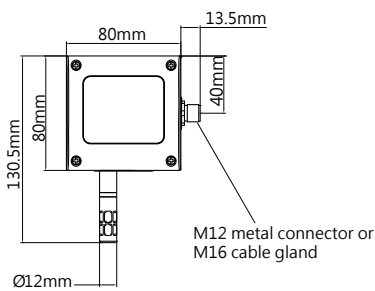


【 N type (M16 cable gland) RS-485+analog



Dimension

【 THS301 indoor 】 - wall

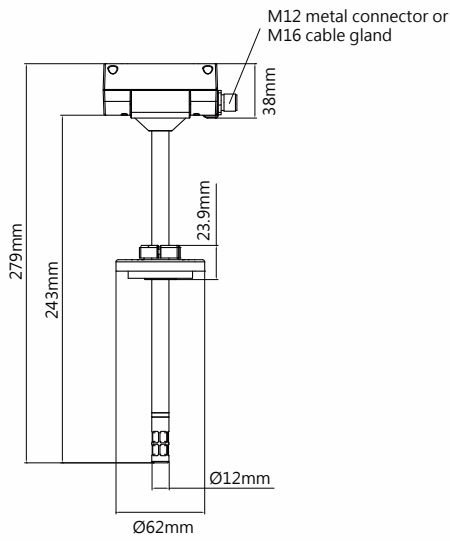


M type (4P) : RS-485 or analog
M type (8P) or N type : RS-485 + analog

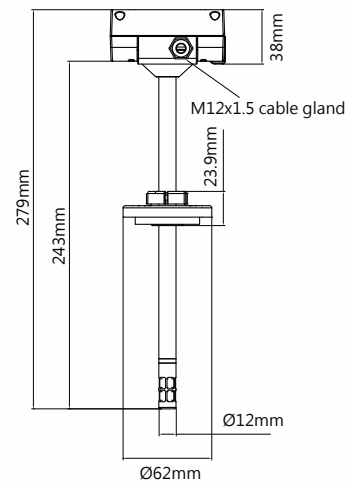
N type : RS-485 or analog

Dimension

【THS302 duct】— standard plastic flange

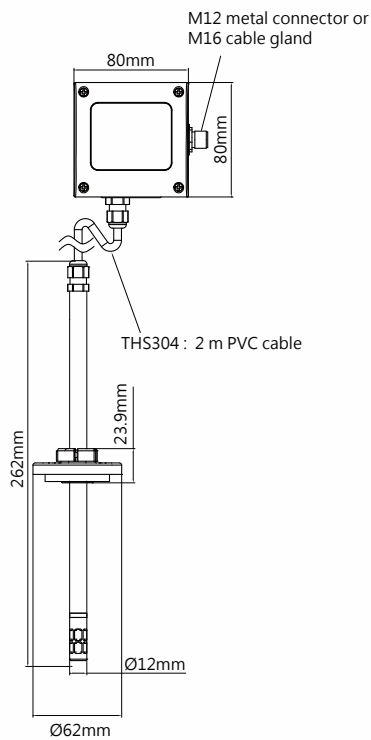


M type (4P) : RS-485 or analog
 M type (8P) or N type : RS-485+ analog

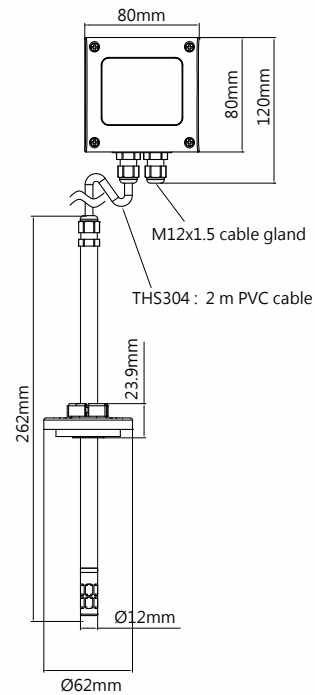


N type : RS-485 or analog

【THS304 remote】— standard plastic flange + standard 2 m PVC cable



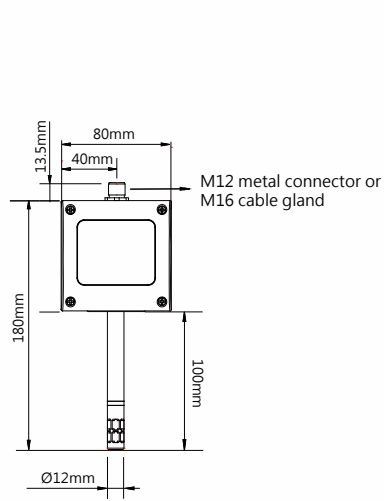
M type (4P) : RS-485 or analog
 M type (8P) or N type : RS-485+ analog



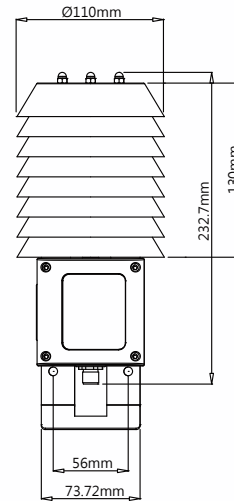
N type : RS-485 or analog

Dimension

【THS307 outdoor - shield】— fixed board for wall type (standard)

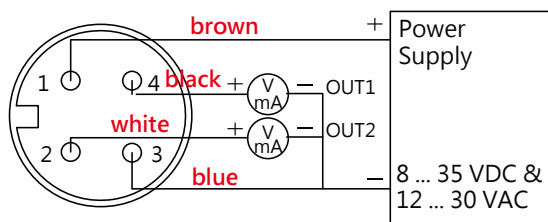


M or N type : RS-485+analog



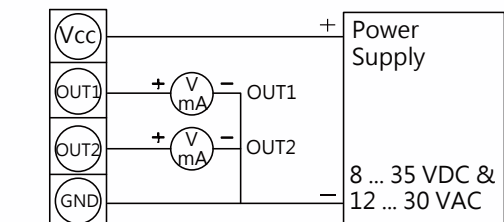
N type : RS-485 or analog

Analog Diagram



M12 connector

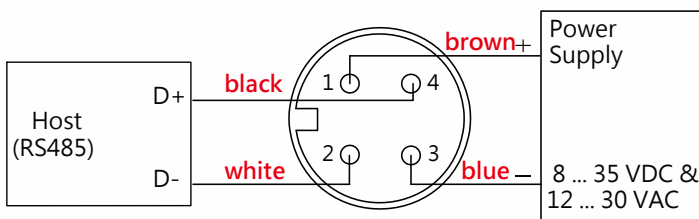
M type (4P)



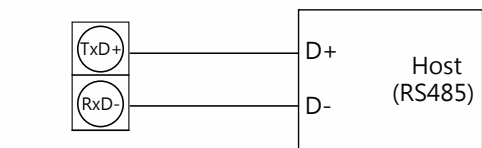
4P terminal

N type

RS-485 Diagram



M type (4P)

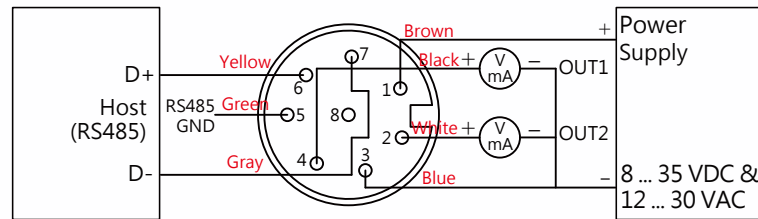


RS-485 Signal connector

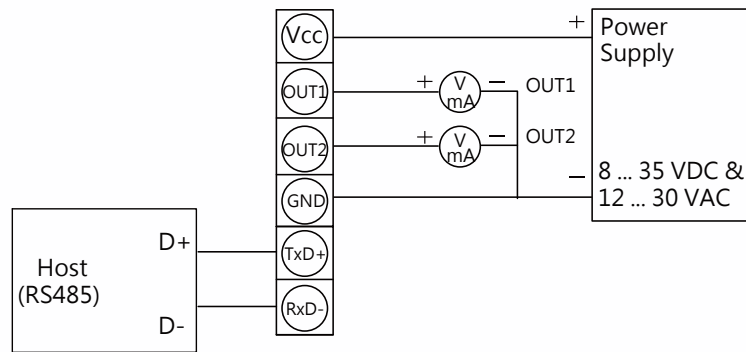
N type

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

Analog + RS-485 Diagram

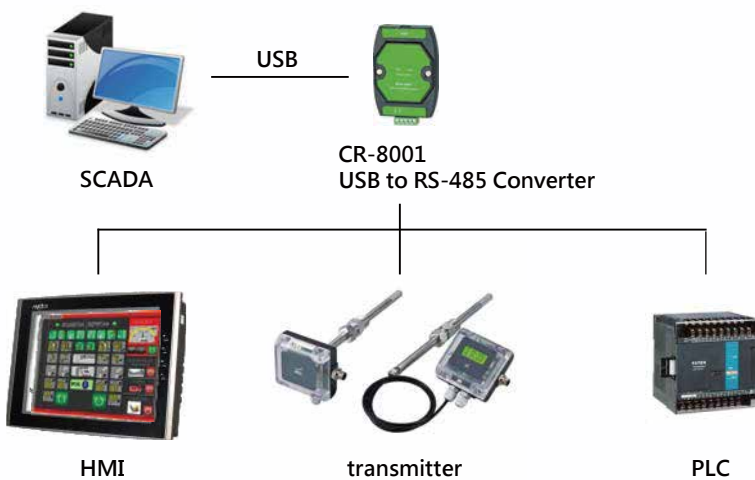


M type (8P)



N type (M16)

USB to Isolated RS-485 Application



- ※ Device
 1. PC
 2. RS-485 to USB Converter
 3. power supply
 4. UI software
- ※ option converter : CR-8001
- ※ free programmable software UI download please see THS30X Series product page "Attach"

