



THS30X Series(THS301 / 302 / 304 / 307)

Multifunction Temp. & Humidity Transmitter Indoor/Duct/Remote/Outdoor



THS301-Indoor
0 ... 50°C



THS302-Duct
- 40 ... + 80°C



THS304-Remote
- 40 ... + 80°C



THS307-Outdoor
- 40 ... + 80°C

Features

- Industrial sensor comes with high accuracy and long-term stability
- Capable of temperature compensation and linear calibration
- Multifunction physical quantities-Temperature & Humidity / Dew point / Frost point / Wet-bulb Temp. / Vapor pressure / Mixture ratio / Absolute humidity / Specific enthalpy
- Standard set 2 analog output or Modbus RS-485
- Optional analog output + RS-485
- Probe : PC
- Power supply : DC 8 ... 35 V and AC 12 ... 35 V
- 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 / Environmental chambers / Weather station / Indoor pool / Greenhouse / Livestock nursery / Pharmaceutical / Textile / Agriculture / Food / Manufacturing industry / Drying facility

Specification

Input		Environment	
Input type	Capacitive humidity sensor & Pt 100 class A	Medium	Air
Operating Range Suggestion		Operating Temp.	Housing : - 20 ... + 60°C
Temperature	0 ... 50°C(THS301) ; - 40 ... + 80°C(THS302 / 304 / 307)	Operating humidity	Housing : 0 ... 95%RH(Non-condensing)
Humidity	0 ... 100%RH	Operating Temp.	Housing : 0 ... 60°C(with display)
Dew point	- 40 ... + 60 dp°C	Proof Temp.	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	PVC cable : Max.80°C(Remote type)
Please refer to physical quantity measuring range list		Storage Temp.	- 25 ... + 60°C
Output		Filter	Plastic membrane filter(Standard) ; Option
Output	Standard RS-485 or 2 analog output 0 ... 20 mA / 4 ... 20mA / 0 ... 1V / 0 ... 5V / 0 ... 10V	CE certification	EN 61326-1 : 2006 \ EN 61326-2-2 : 2006
Signal connection	3-wire	Emissions	EN 55011 : 2009 / A1 : 2010
Modbus	RS-485(Programmable)and 2 analog output	Immunity	IEC 61000-4-2 : 2008
Display type	LCD Module with back light, double line character	IEC 61000-4-3 : 2006 / A1 : 2007 / A2 : 2010	IEC 61000-4-8 : 2009
Display range	Upon request, one decimal place	Electrical	
Height of character	5.56 mm	Power supply	DC 8 ... 35 V / AC 12 ... 30 V
Linear Accuracy(at 25°C)		Current consumption	DC 24V : 60 mA / DC 12 V : 120 mA AC 24V : 140 mA / AC 12 V : 230 mA
Temperature	$\pm 0.2^{\circ}\text{C} \pm 0.005^{\circ}\text{C} \times t_{\text{actual}}$	Electrical connection	M12 metal connector with 2 m cable or terminal(Cable gland)
Humidity	(at+25°C) $\pm 2\%$ RH	IP rating	Housing : IP65 ; Probe : IP20
Temp. influence	(at+25°C) 0.05%RH/°C(of body)	Electrical protection	■ Polarity protection ■ Over-voltage ■ Short-circuit
Load resistance	Current output : Max.500 Ω Voltage output : Min.10 KΩ	Installation	Indoor : Wall mount Outdoor : Fixed board for wall type(Standard) Duct / Remote : Plastic flange(Standard)
Output calibration	Software (ZERO & SPAN)	Housing	PC fire-proof class(PC-110)(UL94V-2)
Response time t90 (Temp. at+25°C)	<20 sec(Membrane filter / S.S. metal grid filter with mesh) ; <30 sec(Sintered filter)	Probe	PC fire-proof class(PC-110)

Physical Quantity Measuring Range List

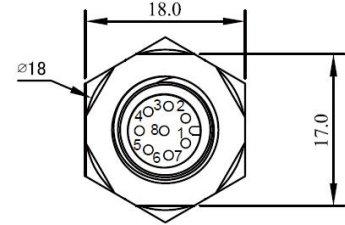
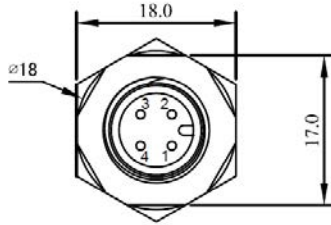
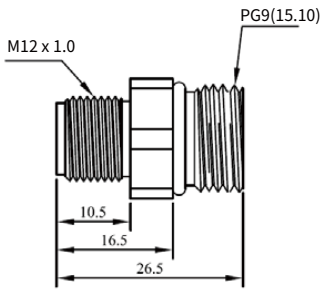
Physical quantity	THS301 Indoor	THS302 Duct	THS304 Remote (PVC cable)	THS307 Outdoor (Shield)
Temperature(T)	0 ... 50°C		- 40 ... + 80°C	
Humidity(H)	0 ... 100%RH		0 ... 100%RH	
Dew point(D)	- 40 ... + 50 dp°C		- 40 ... + 60 dp°C	
Frost point(F)	-46 ... 0 fp°C		-46 ... 0 fp°C	
Wet-bulb temp.(W)	0 ... 50°C		0 ... 80°C	
Vapor pressure(E)	0 ... 123 mbar		0 ... 473 mbar	
Mixture ratio(R)	0 ... 86 g/kg		0 ... 546 g/kg	
Absolute humidity(V)	0 ... 82 g/m ³		0 ... 290 g/m ³	
Specific enthalpy(S)	0 ... 273 kJ/kg		0 ... 1526 kJ/kg	

※Each physical quantity measuring range is calculated by converting the temperature and humidity of the product. The values are for reference only.

Electric Connector Unit : mm

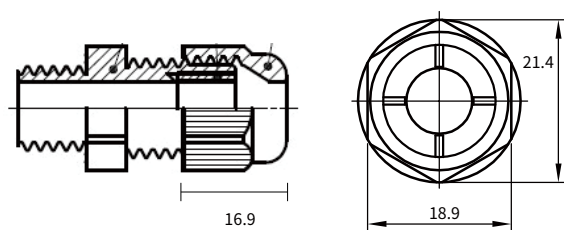
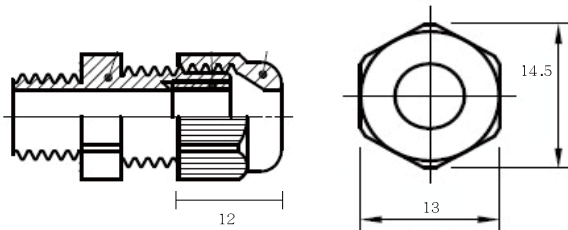
【M type(M12-4PIN metal connector)】
RS-485 or analog

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



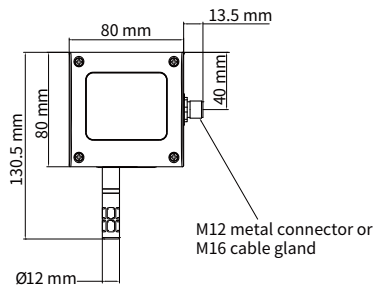
【M type(M12-8PIN metal connector)】
RS-485+analog

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

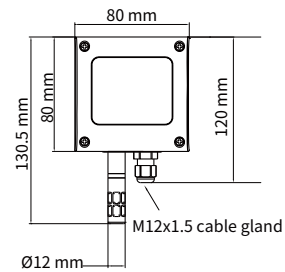


Dimension

【THS301(Indoor)- Wall mount】



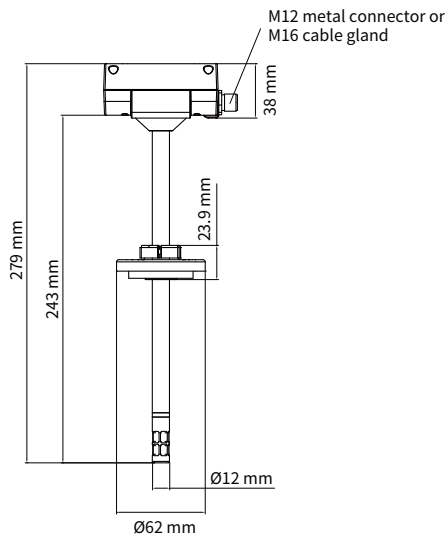
M type(4P) : RS-485 or analog
M type(8P) or N type : RS-485 + analog



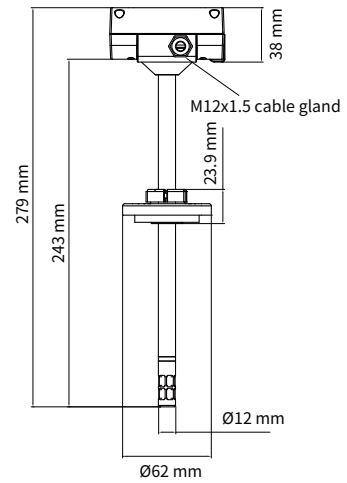
N type : RS-485 or analog

Dimension

【THS302(Duct)-PC probe、Standard plastic flange】

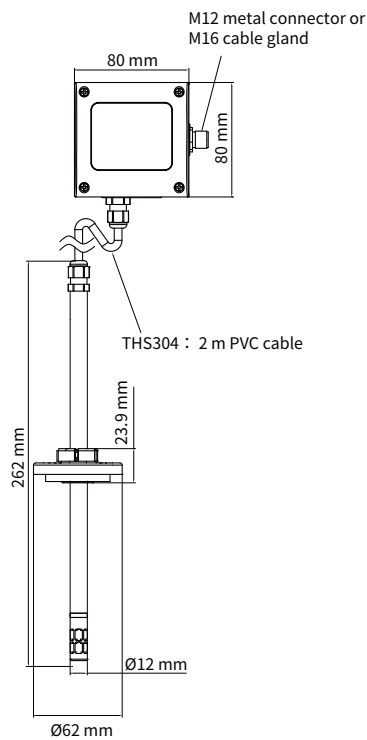


M type(4P) : RS-485 or analog
 M type(8P) or N type : RS-485+analog

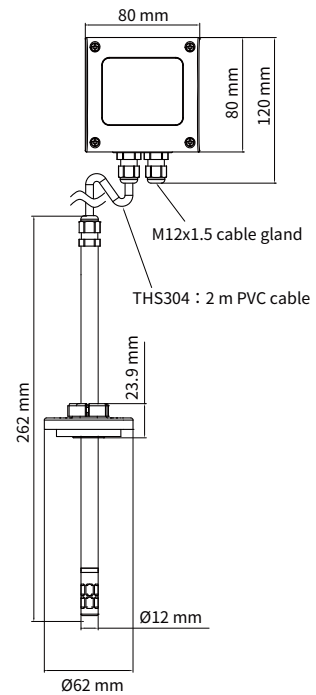


N type : RS-485 or analog

【THS304(Remote)-PC probe+2 m PVC-Standard : Plastic flange】



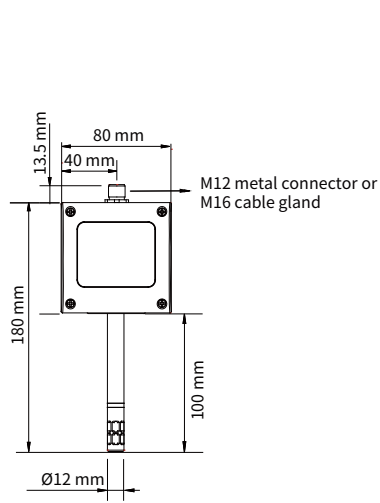
M type(4P) : RS-485 or analog
 M type(8P) or N type : RS-485+ analog



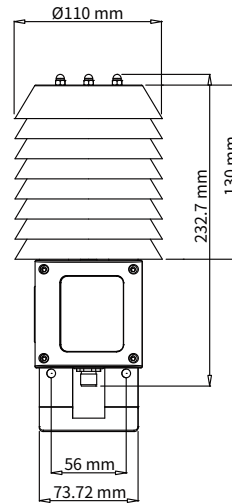
N type : RS-485 or analog

Dimension

【THS307(Outdoor)-PC probe+shield】

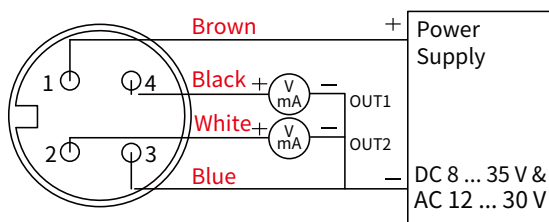


M or N type : RS-485+analog



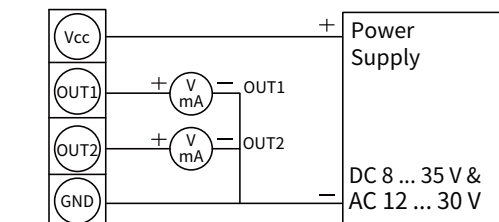
N type : RS-485 or analog

Analog Diagram



M12 connector

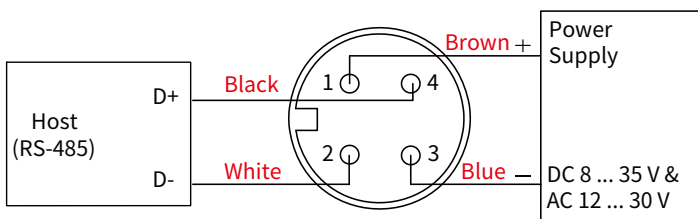
M type(4P)



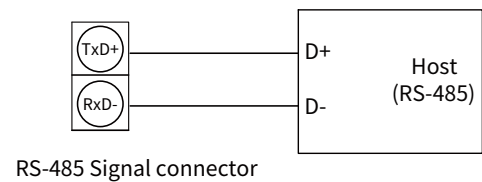
4P terminal

N type

RS-485 Diagram



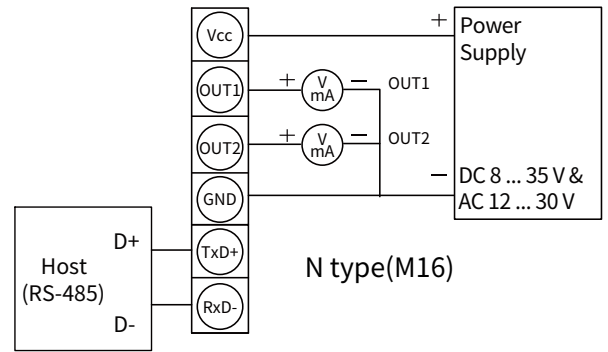
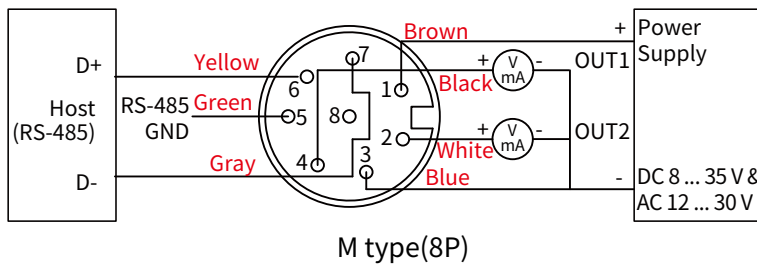
M type(4P)



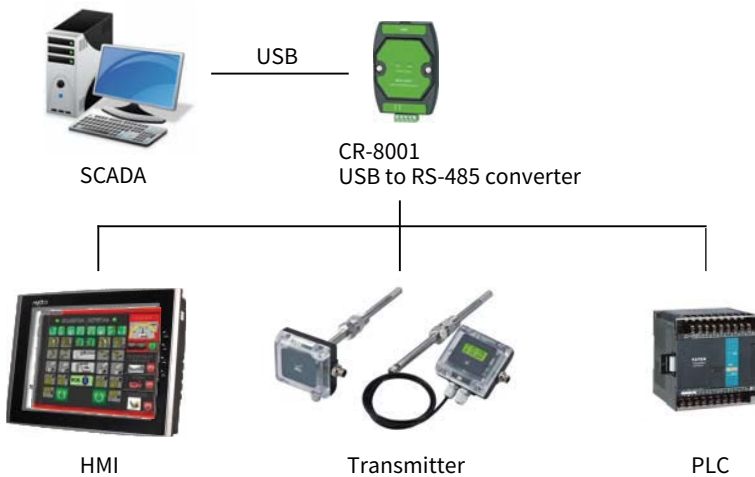
N type

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

Analog + RS-485 Diagram



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"

| Additional Option (ILAC / TAF) Test Report |



Additional option:(ILAC/TAF)Test report - Standard calibration laboratory(TAF accreditation:3032, complying with ISO / IEC 17025)
TAF has mutual recognition arrangement with ILAC MRA

Project	Measurand level or range
Resistance thermometer	-40°C ... +300°C
Thermocouple thermometer	-20°C ... +300°C
Project	Measurand level or range
Hygrometer	3 basic points(25°C. 30%. 50%. 80%)
	Temperature:0°C ... 70°C
	Humidity:10% ... 95%
Project	Measurand level or range
Dew point hygrometer	≥-80°C ... ≤60°C

Ordering Guide

Type	THS30	4	—	H	00	1	D	14	1	—	D	M	P	2	U
Installation	Indoor Duct(PC probe) Remote(PC probe, PVC cable) Outdoor(PC probe, shield)	1 2 4 7	— — — —												
Physical quantity output 1 ※Please refer to physical quantity measuring range list	Humidity Temperature Dew point Frost-point Wet-bulb temperature Vapor pressure Mixture ratio Absolute humidity Specific enthalpy RS-485(Default temperature)			H T D F W E R V S N											
Physical quantity scale 1	0 ... 50°C 0 ... 80°C 0 ... 100°C - 20 ... + 40°C - 40 ... + 60°C As physical quantity measuring range list (H, F, W, E, R, V, S, RS-485)special range				30 38 40 13 14 00 YY										
Signal output 1	4 ... 20 mA 0 ... 20 mA 0 ... 10 V 0 ... 5 V 0 ... 1 V RS-485					1 2 6 7 8 9									
Physical quantity output 2 ※Please refer to physical quantity measuring range list	Humidity Temperature Dew point Frost-point Wet-bulb temperature Vapor pressure Mixture ratio Absolute humidity Specific enthalpy RS-485(Default humidity)						H T D F W E R V S N								
Physical quantity scale 2	0 ... 50°C 0 ... 80°C 0 ... 100°C - 20 ... + 40°C - 40 ... + 60°C As physical quantity measuring range list (H, F, W, E, R, V, S, RS-485)special range							30 38 40 13 14 00 YY							
Signal output 2	4 ... 20 mA 0 ... 20 mA 0 ... 10 V 0 ... 5 V 0 ... 1 V RS-485								1 2 6 7 8 9						
Display	Yes No									- -	D X				
Electrical connector	Plastic cable gland M12 metal connector(with 2 m cable)											N M			
Filter	PC membrane filter(Standard : PC probe) Sintered filter(Standard : S.S. probe) S.S. metal grid filter with mesh PC membrane filter + metal mesh PTFE filter head												P S M G F		
Remote : Cable / Length (Max. length : 10 m)	Standard 2 m PVC cable 5 m PVC cable Other length													2 5 —	
Option / Other request	Other request(Quote as demand) RS-485 + analog														W U

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