



Application

〈 Feature 〉

- IP67 protection degree, rugged aluminum case, fit in variety harsh environment
- Capable of temperature compensation
- Linear adjustment temperature & humidity by computer, analogue output or option RS-485
- Measure high accuracy temperature & 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, analogue output, station, etc
- Free calibration software : data logger / record 65535 datas / charts

〈 Application 〉

- 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
- Semiconductor, electronics, paper, printing, textiles, steel and iron Industry, food, chemical, pharmaceutical, biotechnology industry

Specification

Input

input type	Capacitive Humidity Sensor & PT 100Ω A class
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Output

output	0 ... 20 mA / 4 ... 20 mA / 0 ... 1 V / 0 ... 5 V / 0 ... 10 V
signal connection	3-wire
modbus	option RS-485 (programmable) and 2 analogue
	output
display type	LCD Module with back light, double line character
display range	upon request, one decimal place
height of character	5.55mm
load resistance	current output : max. 500Ω / voltage output : min. 10KΩ
output calibration (ZERO & SPAN)	software ; keyboard
response time t90 (temp. at +25 °C)	S.S. metal grid filter with mesh) ; < 30S(sintered filter)

Accuracy (at +25 °C)

temperature	$\pm 0.15 \text{ }^{\circ}\text{C} \pm 0.002 \text{ }^{\circ}\text{C} \times t_{\text{actual}}$
humidity (0 ... 90 %)	nonlinear error : $\pm 1.2 \text{ } \%$ RH
	hysteresis error : $\pm 0.8 \text{ } \%$ RH
	repeatability error : $\pm 0.4 \text{ } \%$ RH
humidity (90 ... 100 %)	$\pm 2 \text{ } \%$ RH
thermal sensitivity temperature error	0.05 % RH / $^{\circ}\text{C}$

Factory Uncertainty (at +25 °C)

temperature uncertainty	0.14 $^{\circ}\text{C}$
humidity uncertainty	0.4 % RH (>10 % ~ 20 %)
	0.65 % RH (>20 % ~ 90 %)
	0.97 % RH (>90 % ~ 98 %)

Environment

media measured	air
working temp. for housing	-20 ... +80 $^{\circ}\text{C}$
working humidity for housing	0 ... 95 % (non-cond.)
working temp. for housing with display	-20 ... +60 $^{\circ}\text{C}$
working temp. for probe	wall type : -40 ... 80 $^{\circ}\text{C}$, duct type : -40 ... +120 $^{\circ}\text{C}$;
	remote type : -40 ... +200 $^{\circ}\text{C}$
storage temp.	-25 ... +60 $^{\circ}\text{C}$
proof pressure for S.S. probe	10 bar

Certification

CE certification	EN 61326-1 : 2006 、 EN 61326-2-2 : 2006
Emissions	
	EN 55011 : 2009/A1 : 2010
Immunity	
	IEC 61000-4-2 : 2008
	IEC 61000-4-3 : 2006 / A1 : 2007 / A2 : 2010
	IEC 61000-4-8 : 2009

Electrical

power supply	8~35VDC / 12~30VAC
current consumption	DC 24V : 60mA / DC 12V : 120mA
	AC 24V : 140mA / AC 12V : 230mA
electrical connection	M12 - 4 PIN metal connector with 2 m cable
	or terminal (metal cable gland)
protect degree	body : IP67 ; probe : IP 20
electric protection	◎Polarity protection ◎over-voltage ◎short-circuit
installation	metal fitting thread
housing	aluminum alloy
probe	SUS 304
cable	teflon
option	metal connector / metal mounting flange / shield(outdoor)
weight	TB780 : 455g / TB782 : 521g / TB783 : 635g

Physical Quantity Measuring Range Lis

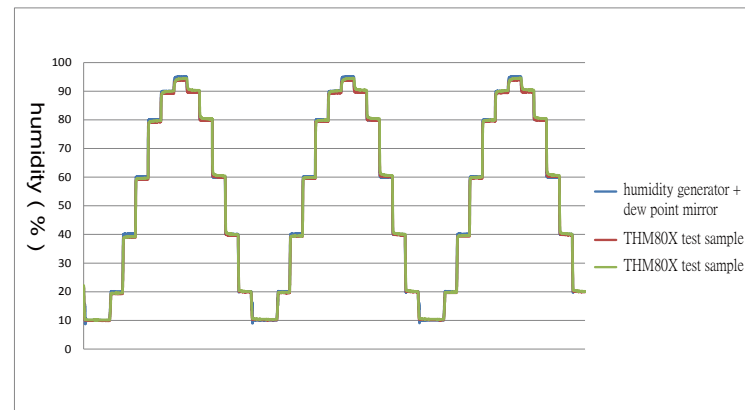
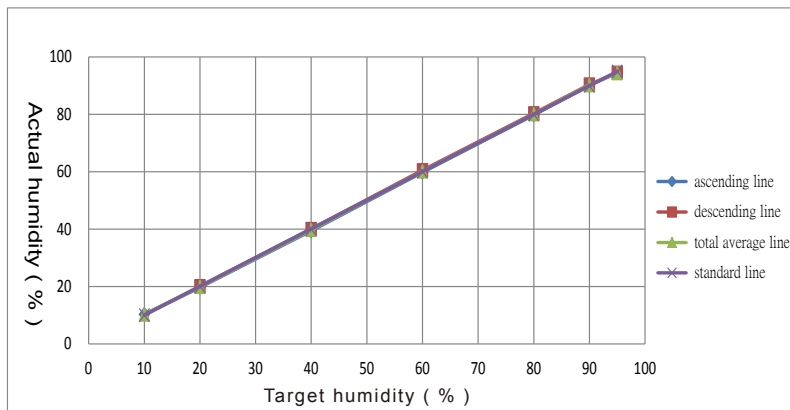
physical quantity	TB780 inddor	TB781 duct	TB783 remote
temperature (T)	-40~+80 $^{\circ}\text{C}$	-40~+120 $^{\circ}\text{C}$	-40~+200 $^{\circ}\text{C}$
humidity (H)	0~100%RH		
dew point (D)	-40~+60 $^{\circ}\text{C}$		
frost Point (F)	-40~0 $^{\circ}\text{C}$		
wet-bulb temp. (W)	0~100 $^{\circ}\text{C}$		
vapor pressure (E)	0~1100mbar		
mixture ratio (R)	0~999g/kg		
absolute humidity (V)	0~700g/m ³		
specific enthalpy (S)	0~2800kJ/kg		

Temp. & Humidity QC Inspection System

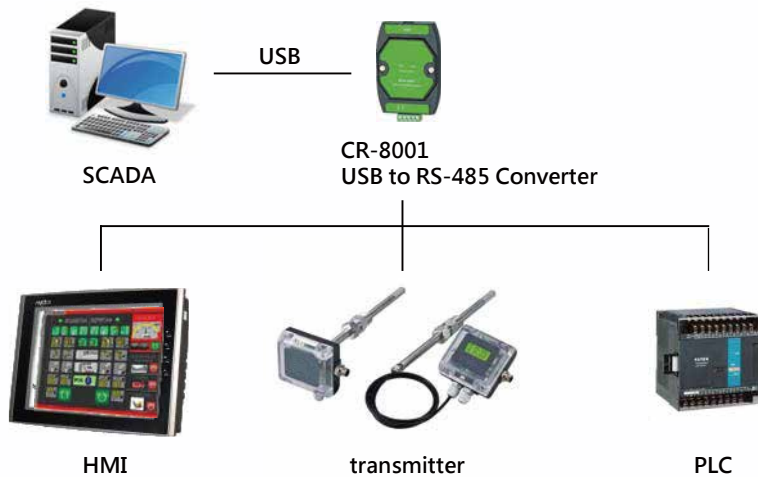


Use TB780 humidity generator, dew point mirror, Laboratory level facility to produce products, and automatic QC inspection sheet printing and factory report.

3-cycle curve



USB to Isolated RS-485 Application



※ Device

1. PC
2. RS-485 to USB Converter
3. power supply
4. UI software

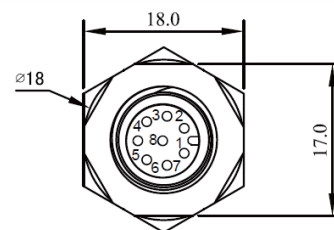
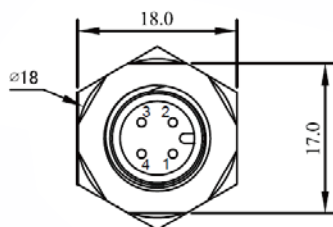
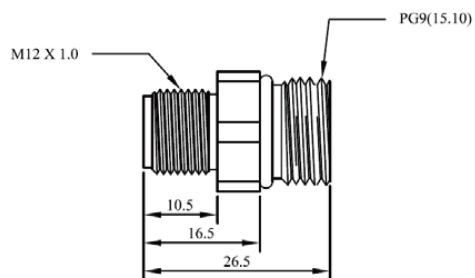
※ option converter: CR-8001

Electric Connector

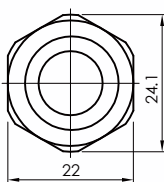
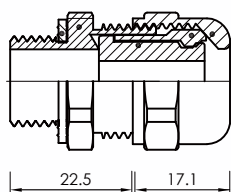
unit : mm

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

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

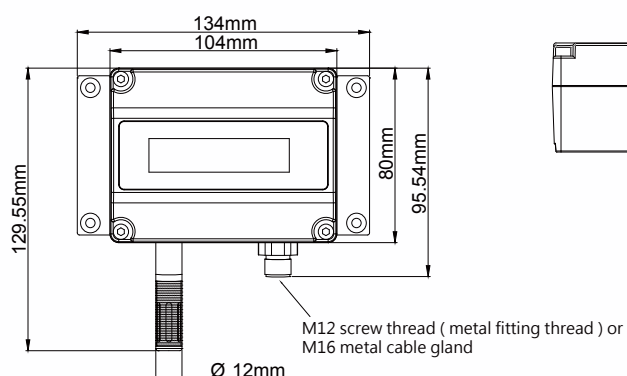


【 N type (M16 cable gland) 】 RS-485+analogue

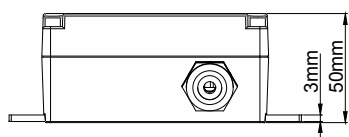


Dimension

TB780(wall)

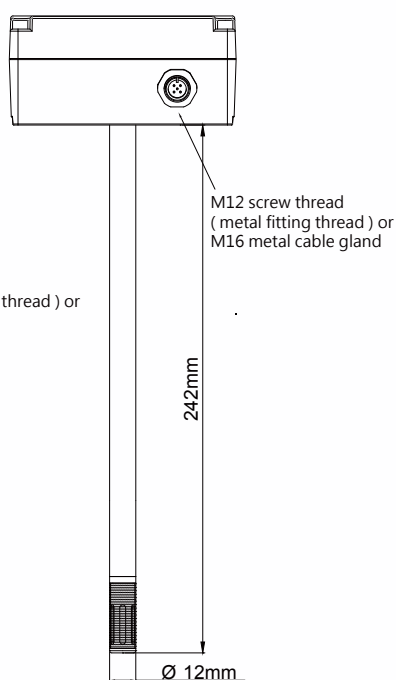


M型

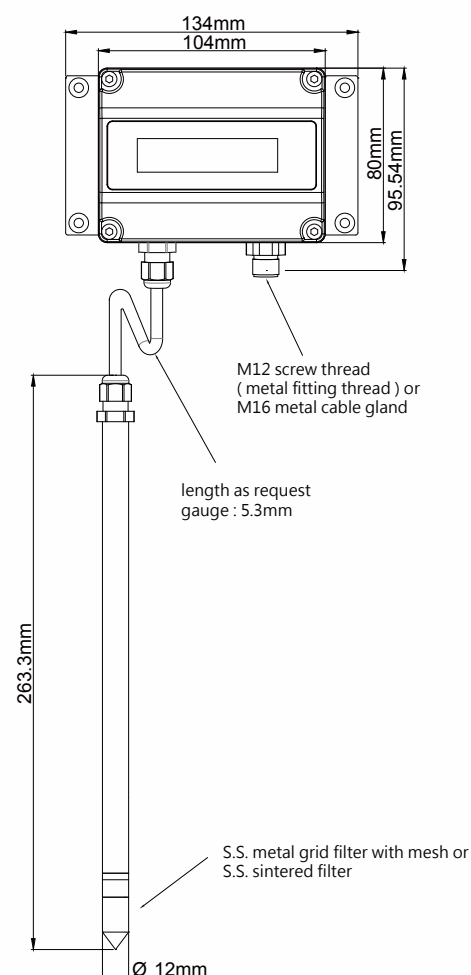


N型

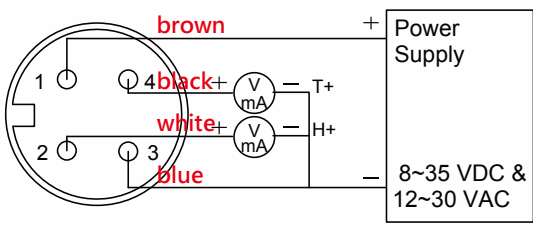
TB781(duct)



TB783(remote)

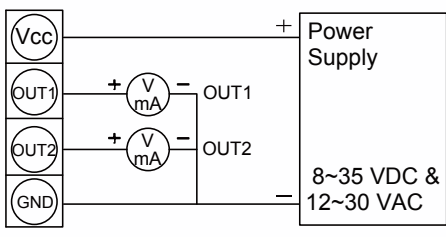


Analogue Diagram



M12 connector

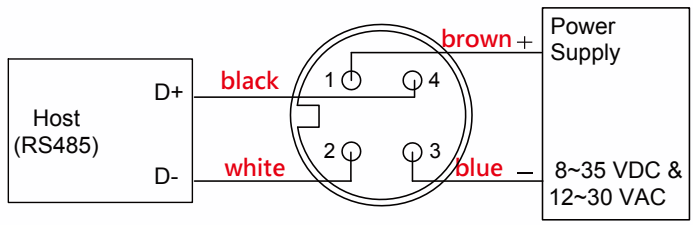
M type (4P)



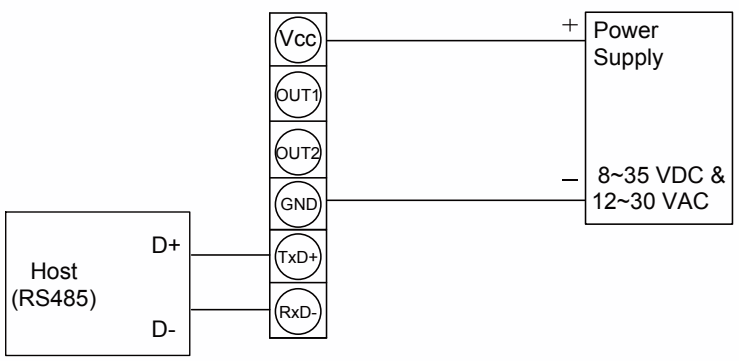
4P terminal

N type

RS-485 Diagram



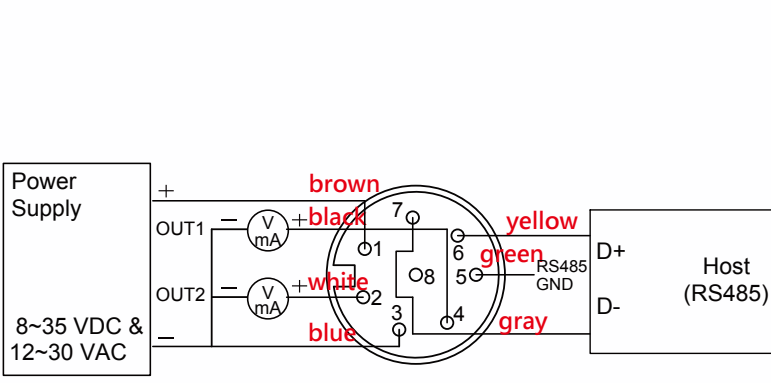
M type (4P)



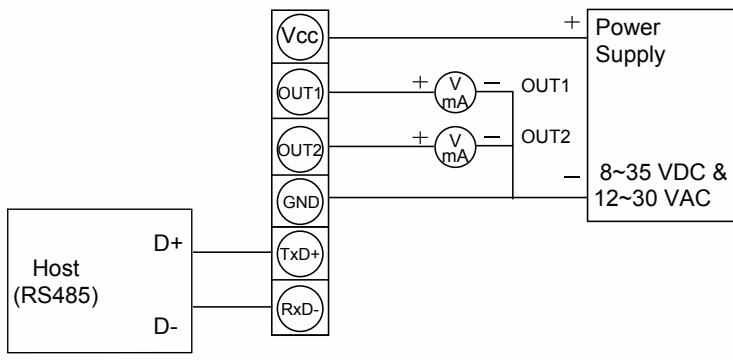
N type

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

Analogue + RS-485 Diagram



M型 (8P)



N型 (M16)