HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

HTW201

Accurate RH/T Measurement

Range Selection

IP65/NEMA 4X Protection

User Programmable Parameters & Units

RTD Pt100/Pt1000 Temperature Measurement Option

RTD or NTC Thermistor Resistance Output Option

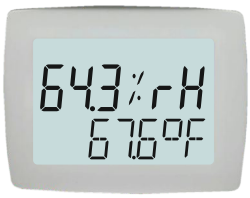
HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

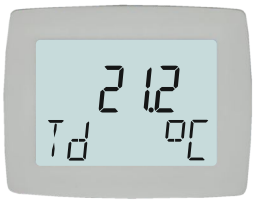
HTW201

HTW201 Transmitter can be used for different processes as mentioned below :

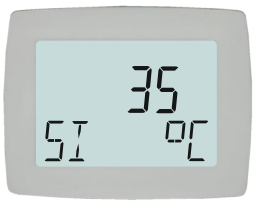
RELATIVE HUMIDITY & TEMPERATURE TRANSMITTER

RELATIVE HUMIDITY & DEWPOINT TRANSMITTER





SUMMER SIMMER INDEX TRANSMITTER

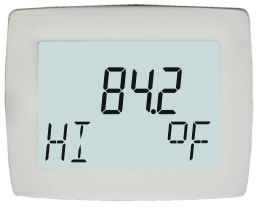


LINEARISED OUTPUT CORRESPONDS TO ENTHALPY

WATER VAPOUR PRESSURE & SATURATED WATER VAPOUR PRESSURE

ABSOLUTE HUMIDITY TRANSMITTER

HEAT INDEX



LINEARISED OUTPUT CORRESPONDS TO MIXING RATIO

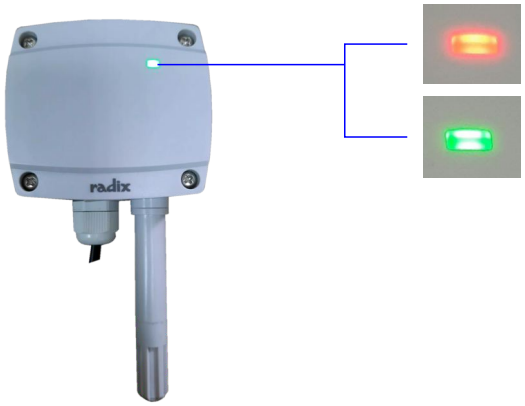
HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

HTW201

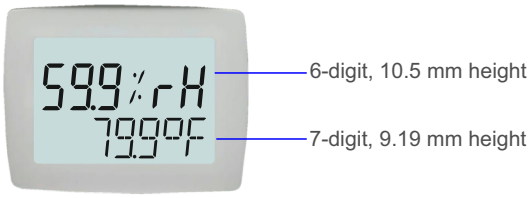
HIGH DEGREE OF PROTECTION AGAINST CONDENSATION & POLLUTION

2-PART HOUSING WITH FIXED BACK & REMOVABLE ELECTRONICS FOR CONVENIENT INSTALLATION

HEALTH/STATUS LED

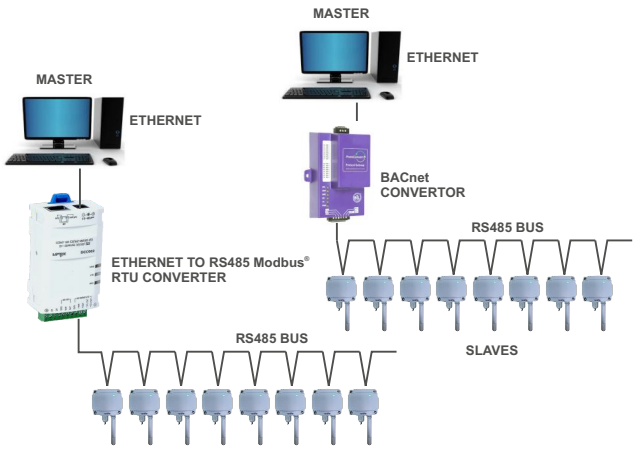


DUAL ROW DISPLAY



OPEN/CLOSE WITH A 1/4 TURN ROTATION OF BAYONET SCREWS

Modbus® RTU or BACnet MS/TP Option



DIP selectable slave addresses upto 32

HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

HTW201

REMOTE SENSOR OPTION

HTS201
Compact

HTS301
Wall mount

HTS401
Duct mount

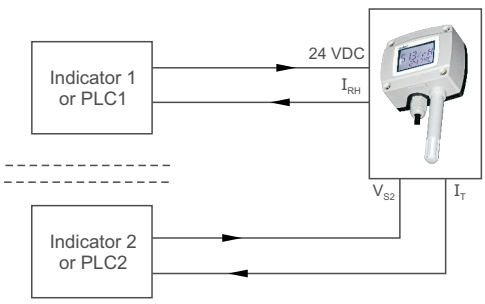
HTS501
SS Plate - Panel mount

TYPES OF REMOTE SENSOR

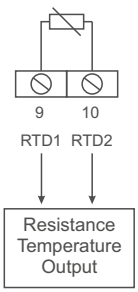
PROVISION FOR 1/2" CONDUIT CLAMPING

SURFACE (WALL), DUCT, OUTSIDE AIR SENSOR OPTION

4-20 mA ISOLATED OUTPUTS FOR RH & T



NTC THERMISTOR/RTD Pt100/Pt1000 TEMPERATURE RESISTANCE OUTPUT OPTION



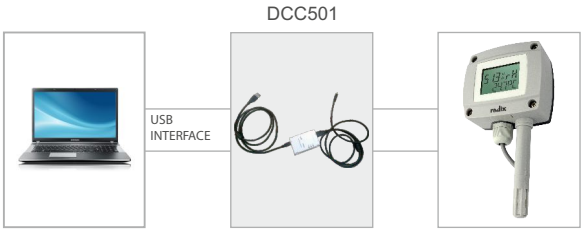
RTD or NTC Thermistor

HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

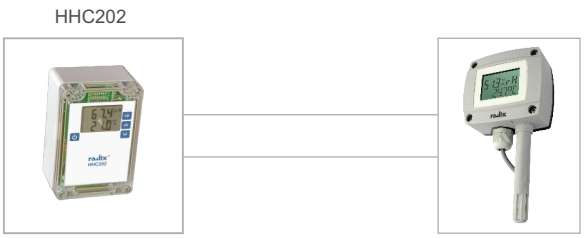
HTW201

PARAMETER CONFIGURATION

Using Handheld Configurator/PC Based Configurator

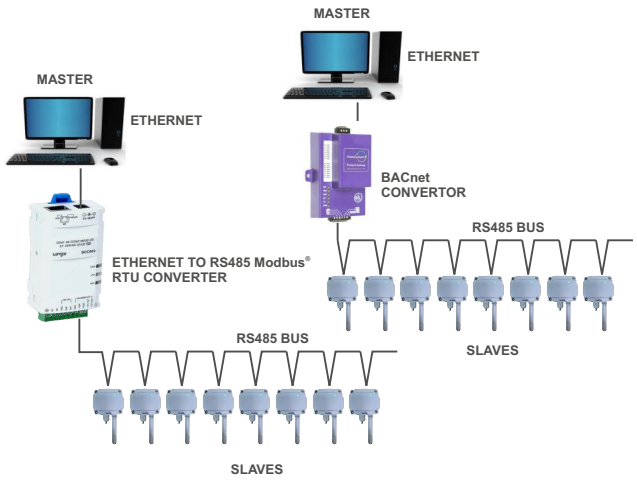


USB to Serial converter



Handheld Configurator

COMMUNICATION : RS485/Modbus® RTU BACnet MS/TP



DIP selectable slave addresses upto 32

ABOUT HTW201

HTW201 accurately measures humidity using capacitive sensor technology & temperature using band gap sensor or RTD.

It gives one or two, 2-wire, loop powered outputs, or 0-10 VDC outputs that can be assigned to Relative Humidity, Temperature or Dewpoint using handheld configurator or PC based configurator. Temperature output can be analog output or resistance output from Class A RTD, Pt100, Pt1000 or NTC Thermistor.

APPLICATIONS

- Commercial buildings
- Outdoor temperature and relative humidity reference
- Greenhouses
- Swimming halls
- Storage rooms & cooling chambers
- Air economizers, Air quality

HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

HTW201

SPECIFICATIONS

All specifications at ambient of 25°C (77°F), unless specified otherwise

INPUTS	
Integral sensor type	a. Smart sensor for Relative humidity and/or temperature
	b. i) Smart sensor for RH
	ii) RTD : Pt100/Pt1000, Class A
INDICATION	
Display	Dual row LCD display
Digits	6-digit, 10.5 mm (0.41") height
	7-digit, 9.19 mm (0.36") height
Resolution	1 & 0.1 for Relative humidity (<100% RH), Temperature and Dewpoint
Backlight	Enable/Disable option
LED indication (if no display provided)	Green : Successful RH+T measurement
	Red : Sensor failure
OUTPUTS	
Analog output	4-20 mA loop powered load 800 Ω @ 24 VDC
	0-10 VDC, Load >1K (0-1 VDC, 0-5 VDC outputs available on request)
Resistance output	Resistance output for RTD sensors Pt100/Pt1000
	3k Ω NTC Thermistor/10k Ω Type 3, NTC Thermistor/10k Ω Type 3, NTC Thermistor, 11k shunt resistor/20k Ω NTC Thermistor/10k Ω Type 2, NTC Thermistor/1801 Ω NTC Thermistor/2.252k Ω NTC Thermistor/1k Ω Nickel, Class B
ACCURACY	
RH	±2% RH, ±3% RH
	See Fig 1, Table 1 and ordering information
Temperature	±0.5°C (±0.9°F) for bandgap temperature sensor
	±0.2°C (±0.4°F) for RTD
Dewpoint	±1°C (±1.8°F)
ELECTRICAL CONNECTION	
Removable screw terminal block suitable for cable 14-22 AWG	
Torque	4 kgf.cm/M2.5
Mounting orientation sensitivity	Not orientation sensitive
PERFORMANCE	
Response time	RH - 8 seconds for $t_{63\%}$
	T - 5 to 30 seconds for $t_{63\%}$
Hysteresis	±1% RH
Repeatability	±0.1% RH & ±0.1°C (±0.2°F)
Long term drift (for RH+T sensor)	RH - <0.25% RH/yr
	T - <0.02°C/yr (<0.04°F/yr)
Environment	Air & Neutral gas
Temperature effect on accuracy	±0.5% of span/25°C (45°F)
Supply voltage effect	±0.002% of span/V
Supply ripple effect, 50/60 Hz, 5 Vp - p	±0.005% of span

HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

HTW201

SPECIFICATIONS

All specifications at ambient of 25°C (77°F), unless specified otherwise

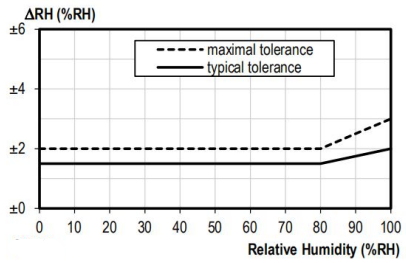
COMMUNICATION		
Port	RS485/BACnet	
Protocol	Modbus® RTU (RS485)	
	Ashrae® BACnet MS/TP (RS485)	
Slave ID	User programmable (1-247) for RS485	
	Auotdetect for BACnet	
Supported baud rate	4800, 9600, 19200, 38400, 57600, 115200 for RS485	
	Autodetect baudrate for BACnet	
POWER SUPPLY		
4-20 mA loop powered models	8-30 VDC, <200 mW power consumption	
0-10 VDC output models	18-30 VAC/DC, <1 W power consumption	
TEMPERATURE, HUMIDITY		
Parameter	**Operating Range**	**Storage Range**
Relative humidity	0-100% RH	0-100% RH non-condensing
Temperature & Dewpoint		
Without display	-40 to 60°C (-40 to 140°F)	-40 to 80°C (-40 to 176°F)
With display	-5 to 60°C (23 to 140°F)	-25 to 80°C (-13 to 176°F)
MECHANICAL		
Dimensions	See Fig 7, Fig 8, Fig 9	
Mounting/Sensor version	Surface mount, Duct mount, Outside air or Remote sensor version	
Enclosure material	Polycarbonate	
Protection	IP65	
Conduit connection	Provision for 1/2" conduit clamping	
Sensor filter	i) PTFE membrane [for T range <80°C) (176°F)] for Surface, Duct and Remote sensor	
	ii) Stainless steel SS304 [for 80°C (176°F) >T range <120°C (248°F) for Outside air	
CERTIFICATION		
Directive 2011/65/EU RoHS Compliant		

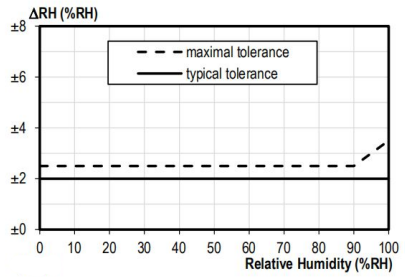
HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

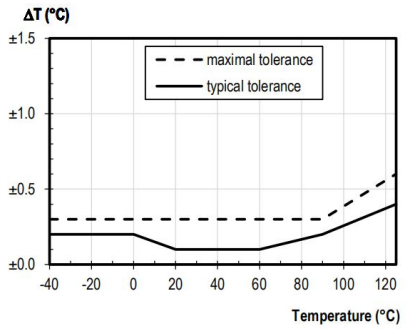
HTW201

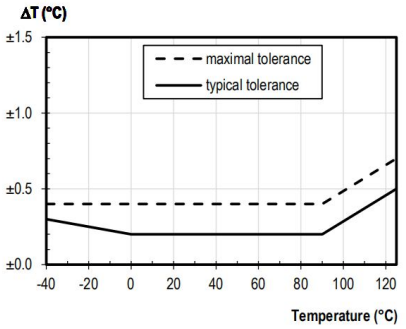
ACCURACY OF RELATIVE HUMIDITY & TEMPERATURE

Fig 1









For 2880 XXXXXX3XXXXXX order code (2% RH)	For 2880 XXXXXX2XXXXXX order code (3% RH)

TABLE 1

Sr. No.	Order Code	Accuracy
1	2% : 2880 XXXXXX3XXXXXX	±2% (10 to 90% RH), ±3% (5 to 10%, 90 to 95% RH)
2	3% : 2880 XXXXXX2XXXXXX	±3% (10 to 90% RH), ±4% (5 to 10%, 90 to 95% RH)

HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

HTW201

CONNECTION DIAGRAMS

4-20 mA loop powered output

Fig 2

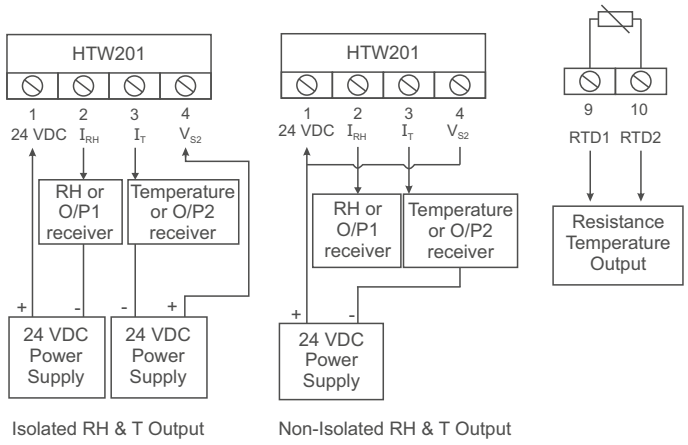
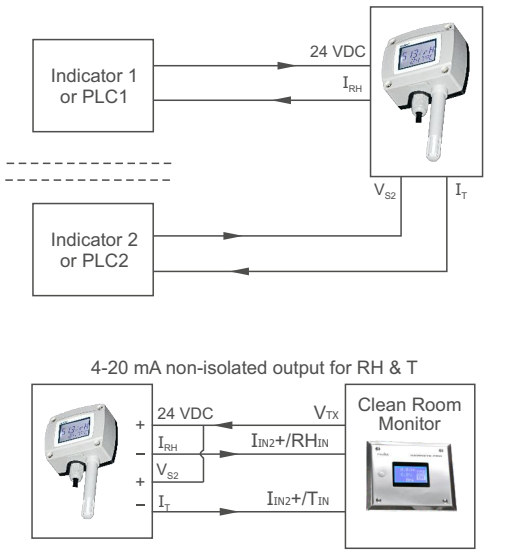


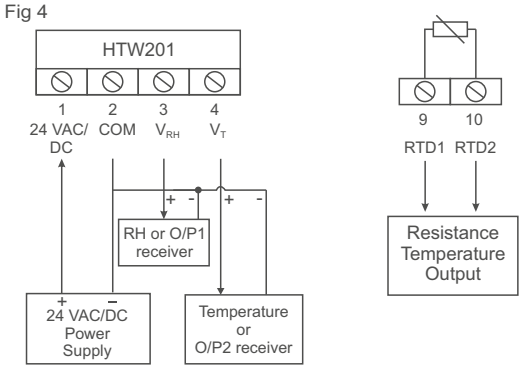
Fig 3 4-20 mA isolated output for RH & T



Note : Supply voltage to 24 VDC & I_{RH} is mandatory
In case only one O/P require then 24 VDC & I_{RH} terminal to be used one O/P to be assigned to RH or T as per requirement

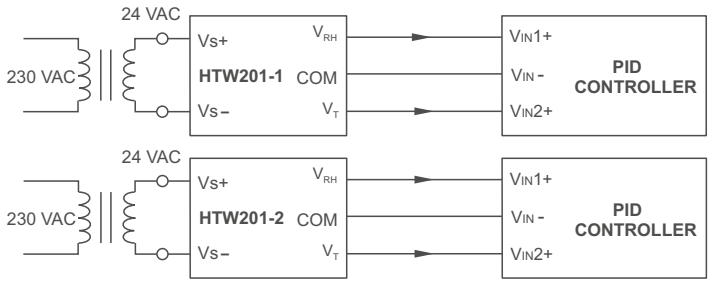
Voltage Output

Fig 4



Note: Common can be shorted with 24 VDC

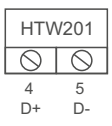
Fig 5 24V AC Connection



Note : Each HTW201 should have a separate winding or transformer

RS485 or BACNet output

Fig 6



HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

HTW201

DIMENSIONS mm (inch)

Fig 7 : **Surface Mount**

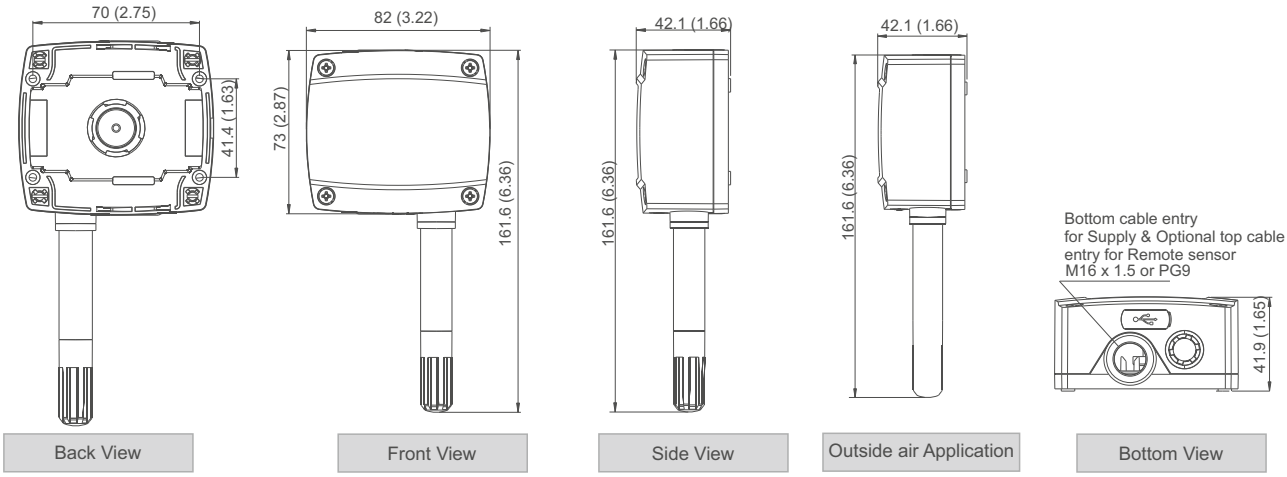


Fig 8 : **Duct Mount**

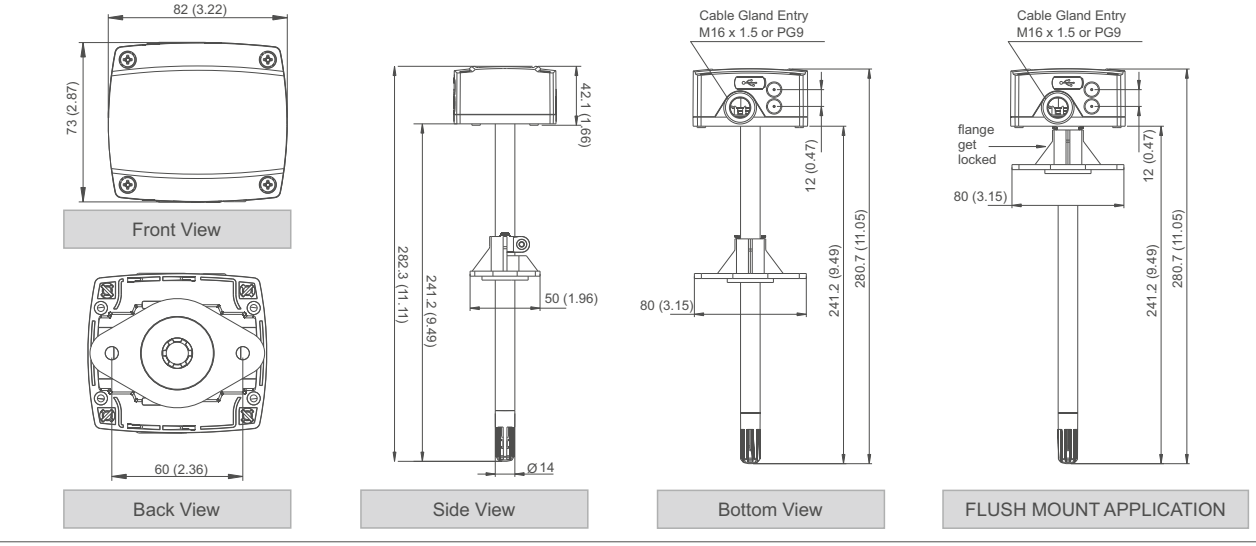
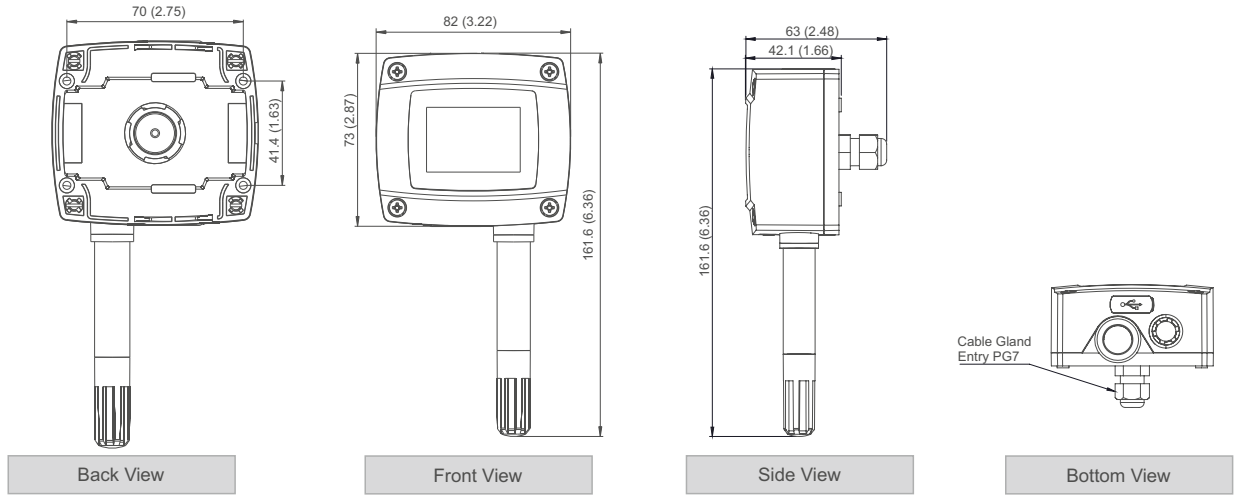


Fig 9 : **Wall Mount Back Side Cable Entry**



HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

HTW201

HUMIDITY/TEMPERATURE REMOTE SENSORS*

Fig 10

HTS201 : Compact

HTS301 : Wall mount

HTS401 : Duct mount

HTS501 : SS Plate - Panel mount

* To be ordered separately

FEATURES SUMMARY

- 2 x 2-wire, 4-20 mA or 0-10 VDC outputs
- Any or both outputs can be assigned to Relative Humidity or Temperature or Dewpoint or specific derived physical quantity
- RH & T range selection, parameter configuration and calibration with
  - USB to serial converter (DCC501)
  - Handheld configurator (HHC202)
  - Inbuilt LCD and 3 keys
- Heartbeat LED for device health status
- Isolated Modbus® RTU or BACnet MS/TP (RS485)
- Derived physical quantities
  - Dewpoint
  - Absolute Humidity
  - Heat Index
  - Enthalpy
- High degree of protection against condensation & pollution
- Surface (Wall), Duct, Outside & Remote sensor option available
- Convenient installation with 2-part housing with fixed back and removable electronics
- Integral sensor (default) or remote sensor
- Flush mount application

HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

HTW201

ORDERING INFORMATION

CODE	SPECIFICATIONS		1	2	3	4	5	6
2880								
1	**Configuration**	Relative Humidity & Temperature	1					
		Relative Humidity, Temperature & Dewpoint	2					
		Relative Humidity, Temperature, Dewpoint, Absolute humidity, Enthalpy, Heat index, Air density, etc.	3					
2	**Mounting**	Surface		1				
		Duct		2				
		Outside Air		3				
		Surface with rear cable entry		4				
		Outside Air with rear cable entry		5				
		Surface with Remote sensor***		8				
3	**Temperature Measurement**	Smart sensor (Bandgap)			1			
		RTD : Pt100			2			
		RTD : Pt1000			3			
4	**LCD Display**	None				1		
		Provided				2		
5	**RH Output**	4-20 mA loop powered					1	
		0-10 VDC output					2	
		None					3	
6	**Temperature Output**	None						1
		Analog output (same as RH output)						2
		Pt100 Ω RTD*						3
		Pt1000 Ω RTD*						4
		3k Ω NTC Thermistor*						5
		10k Ω Type 3, NTC Thermistor*						6
		10k Ω Type 3, NTC Thermistor, 11k shunt resistor*						7
		20k Ω NTC Thermistor*						8
		10k Ω Type 2, NTC Thermistor*						9
		1801 Ω NTC Thermistor*						A
		2.252k Ω NTC Thermistor*						B
		1k Ω Nickel, Class B*						C

* IEC 60751-95, Class A, RTD sensor
* For other RTD resistance outputs, contact sales@radix.co.in
*** For remote sensor, contact sales@radix.co.in and refer catalog for Humidity/Temperature remote sensor

continued ...

HUMIDITY, TEMPERATURE & DEWPOINT TRANSMITTER

HTW201

... continued

ORDERING INFORMATION

CODE	SPECIFICATIONS		7	8	9	10	11
2880							
7	%RH Accuracy	3%	2				
		2%	3				
8	Sensor Filter	None #		0			
		PTFE membrane		1			
		Sintered stainless steel filter		2			
9	Communication	None			1		
		Modbus® RTU **			2		
		BACNet/MSTP **			3		
10	Future Parameter 1	For future use				XX	
11	Future Parameter 2	For future use					XX

** 4-20 mA loop powered output can not be given if communication output is present
# Sensor filter None is applicable only for 'Surface with Remote sensor' mounting type

CODE-1-2-3-4-5-6-7-8-9-10-11

Order Code Format : XXXX-X-X-X-X-X-X-X-X-X-XX-XX

Example

HTW201, Relative Humidity & Temperature, Surface mount, Smart Sensor (Bandgap), 4-20 mA loop powered, %RH Accuracy : 2%, Sensor Filter : PTFE
2880-1-1-1-1-1-1-3-1-1-XX-XX

CONFIGURATORS

Product	Model	Order Code
USB-to-Serial Converter	DCC501	2555 0
Handheld Configurator	HHC202	2863 1