

# Humidity / Temp Transmitter & Modbus



HUM1: Duct Mount



HUM2: Wall Mount



HUM3: Room Mount

## 1. Descriptions

### Applications:

Humidity & Temperature transmitters are designed for environment monitoring and controlling in industrial, commercial and other buildings. These transmitters can be used for indoor air temperature and humidity monitoring in various industrial plant, clean room, lab, machine room, office and commercial building, airport, station, library and stadium.

### Highlights:

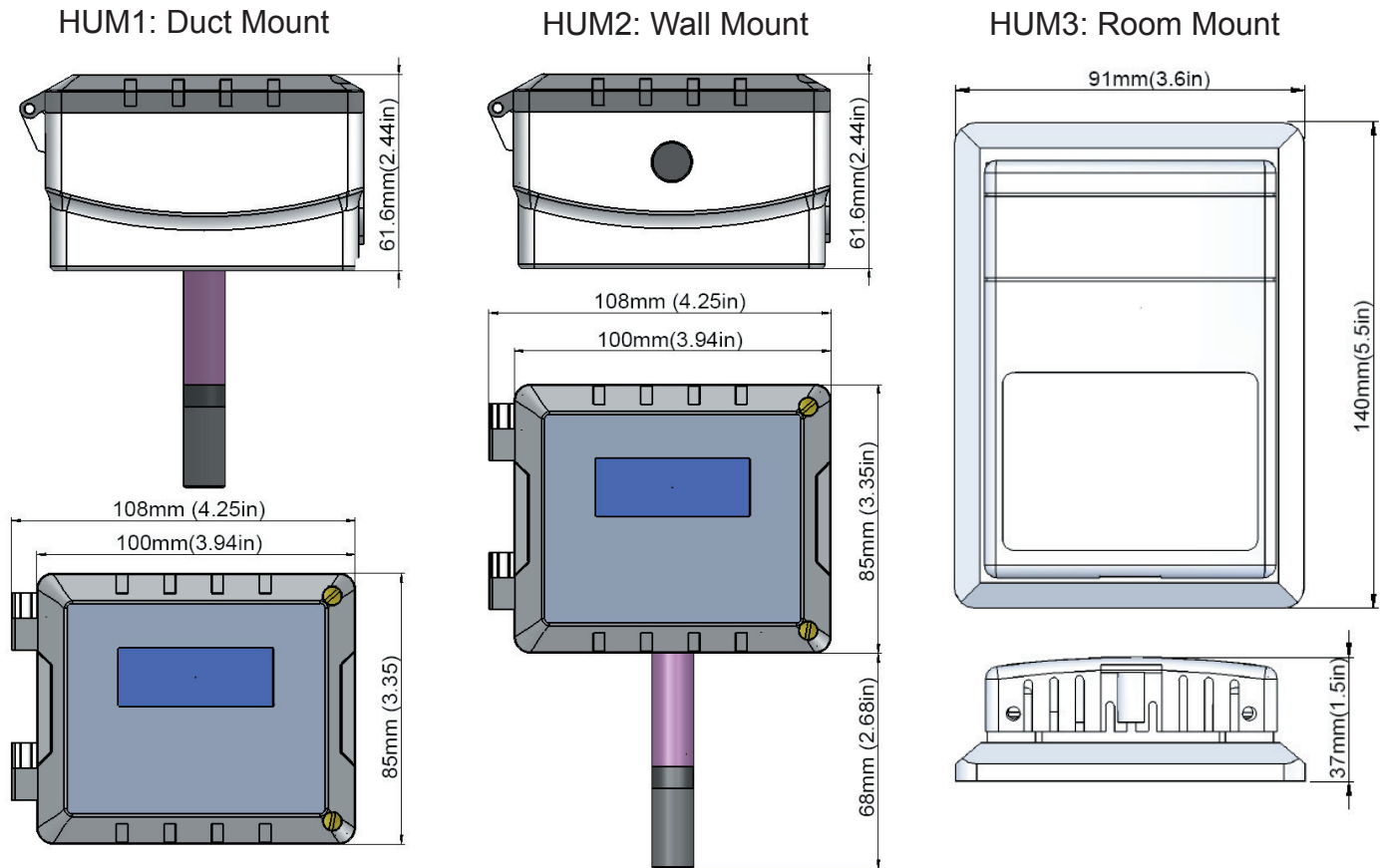
- High performance digital sensors and circuits, ensure accurate measurement and temperature compensation
- Good long term stability and reliability
- 100% field changeable sensors, no re-calibration needed
- Fast response
- Multiple output signals selectable: 4-20mA, 0-5V or 0-10V
- Modbus communications port: RTU, 19.2/9600 Baud
- Display in degrees Fahrenheit (°F) or Celsius (°C) (connection to Modbus)

## 2. Specifications

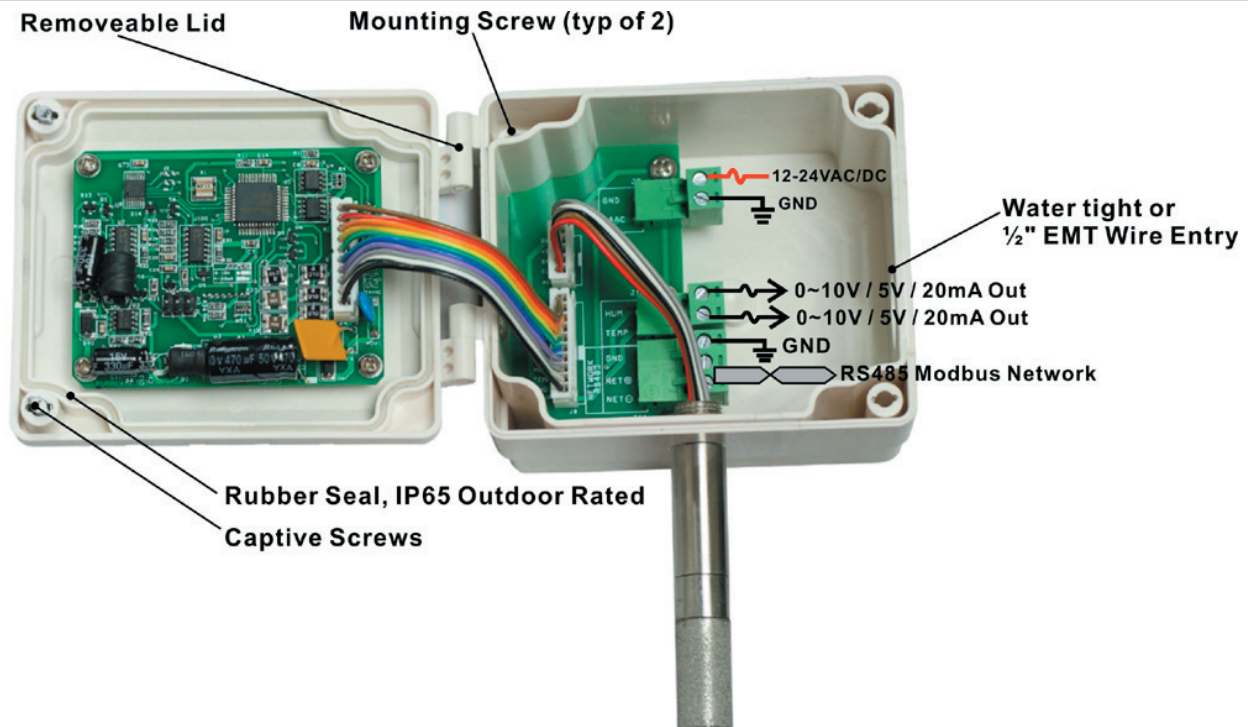
Relative Humidity:	
Sensor	capacitance polymer,
Range	0~100% RH
Output	4-20mA, 0-5V or 0-10V, RS 485
Accuracy	3% RH (25°C, 20~80% RH)
Hysteresis	< ±1% RH
Response time	< 10s (25°C, in slow air)
Drift	< ±0.5% RH / year
Temperature:	
Sensor	10K internal
Range	-30~70°C(-22~158°F)/transmitter
Output	4-20mA, 0-5V or 0-10V, RS 485
Accuracy	< ±0.5°C @ 25°C
General:	
Power	12- 24V AC / DC ±20%, 0.7VA
Current Output Load	< 500Ω
Display	LCD screen for wall / outdoor mount and duct mount
Display Resolution	0.1°C, 0.1% RH
Temperature Limit	-30~70°C, 0~95% RH(Non condensing)
Plastic Housing	Flammability rating UL 94V0 file E194560
Protection	IP65, outdoor rated for duct and wall mount models; IP30 for room mount

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## 3. Dimensions

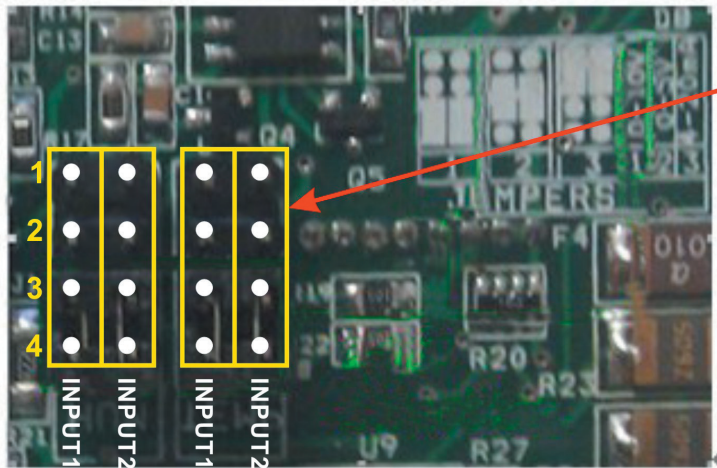


## 4. Highlights & Wiring Diagram

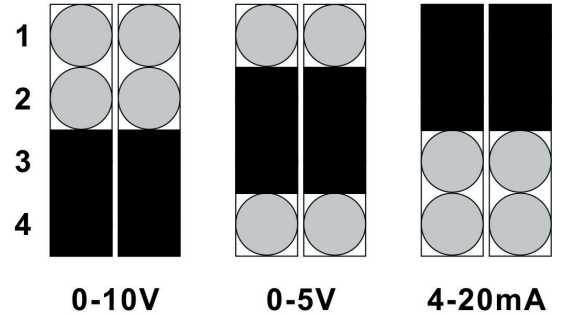


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## 5. Jumper Settings



### Jumpers:



**Output Modbus Settings:**  
 can auto detect hardware jumpers set, do not need to set registers

### Voltage & Current Formula:

0-10V output	Temperature (C) = (Voltage * 100 - offset) / 10
	Temperature (F) = (DegC) * 9 / 5 + 32
	Humidity = Voltage / 10
0-5V output	Temperature (C) = (Voltage * 100 - offset) / 20
	Temperature (F) = (DegC) * 9 / 5 + 32
	Humidity = Voltage / 20
4-20mA output	Temperature (C) = ((Current - 4)/0.16) - offset/10
	Temperature (F) = DegC * 9 / 5 + 32
	Humidity = (Current - 4)/0.16
	--- Temperature(F) : register 100
	--- Temperature(C) : register 101
	--- Offset : register 442, offset from zero C to adjust temperature range
	for example 0 = 0-100C; 300 = -30 to +70C (Default setting)
	Where Voltage is the input voltage in Volts, and Current is in mA, ie 10 = 10ma

# Humidity / Temp Transmitter & Modbus

## 6. Register List

Humidity Sensor uses MODBUS protocol to communicate with others. Following is a table of MODBUS Registers.

Address	Bytes	Range	Defaults		Register and Description
			°C	°F	
0 to 3	4	-	-	-	Serial Number -4 byte value. Read-only
4 to 5	2	-	-	-	Software Version –2 byte value. Read-only
6	1	255	254	254	ADDRESS. Modbus device address
7	1	0-255	13	13	Product Model. This is a read-only register that is used by the microcontroller to determine the product
8	1	0-255	-	-	Hardware Revision. This is a read-only register that is used by the microcontroller to determine the hardware Rev
9	1	0-255	-	-	PIC firmware version
10	1	0-255	-	-	PLUG_N_PLAY_ADDRESS, 'plug n play' address, used by the network master to resolve address conflicts. See VC code for algorithms
15	1	0-1	0	0	Base address selection. 0 = Protocol address, 1 = PLC address
16	1	0-255	-	-	Firmware Update Register, used to show the status of firmware updates
17-99					Blank, for future use
100	2	0-1000	-	-	ROOM TEMPERATURE reading in DegF. Can also write to this register for single point calibration.
101	2	0-600	-	-	ROOM TEMPERATURE reading in DegC. Can also write to this register for single point calibration.
111	1	0-2	-	-	Display parameter: 0=temp and humidity, 1=hum only, 2 = temp only
113	1	-	0	-	not used
121	1	0-1	DEGC_OR_F		LCD temperature will show C or F, 0 =C, 1=F
185	1	0-1	1	-	Bau - Baudrate, 0=9600, 1=19.2kbaud
186	1	1~3	-	-	The factory default is 1. Temperature Transducer output range, 1=0-10V, 2=0-5V, 3=4-20mA
187	1	1~3	-	-	The factory default is 1. Humidity Transducer output range, 1=0-10V, 2=0-5V, 3=4-20mA
217	2	0-1000	500	-	Temperature Calibration Offset for single point temperature calibration, offset of 500 in order to store positive and negative numbers in 2 bits, calculated automatically when you write to register 100.
304	2	0-1000	-		Relative Humidity reading. Writing a humidity value to the register will do calibration, for details, refer to Humidity Calibration.
369	1	0-1	-	-	when changed the calibration point ,The modbus register 369 value will auto turn to 1 to store the value. Default 369=0.
370	2	-	hz		Humidity Calibration, Frequency at first point
371	2	0-1000	%/10		Humidity Calibration, RH at first point
372	2	-	-		Humidity Calibration, Frequency at second point
373	2	0-1000	%/10		Humidity Calibration, RH at second point
374	2	-	-		Humidity Calibration, Frequency at third point
375	2	0-1000	%/10		Humidity Calibration, RH at third point
376	2	-	-		Humidity Calibration, Frequency at the fourth point
377	2	0-1000	%/10		Humidity Calibration, RH at the fourth point
378~389	2	-	-		additional humidity calibration points, 10 total