

Descriptions

Humidity & Temperature transmitters node with display is designed for environment monitoring and controlling in industrial, commercial and other buildings. These transmitters can be used to monitor air temperature and humidity in various industrial and commercial settings. Use in the traditional mode for analog output to other controllers or use Modbus RS485/Bacnet MS/TP to integrate over the network.



Highlights:

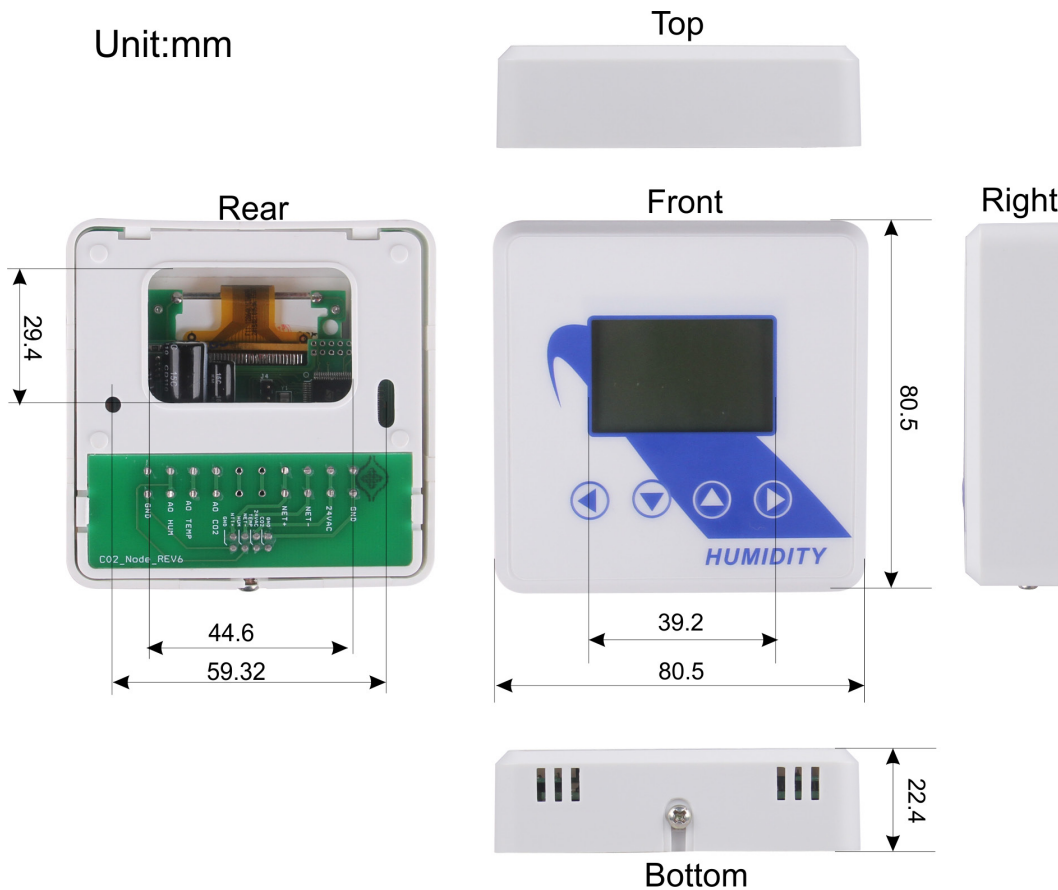
- High performance digital sensors and circuits, ensure accurate measurement and temperature compensation
- With calibrating, the latest gear can hold up to 10 user calibration points.
- The factory calibration points are also stored on the device, up to 10 of those as well.
- Easily switch between factory and user calibration using the GUI.
- The output signals and RS485 are hardened up for overvoltage and power supply crossed over.
- Display in degrees Fahrenheit or Celsius(connection to Modbus).
- The LCD is a bitmap so we can show network connectivity.
- The user can configure what they want to show on the display: network activity, baud rate, protocol, etc.
- You can show a user setpoint so you can use it as a room / setpoint display.
- RS485/Bacnet MS/TP for direct digital reading on all models

Specifications

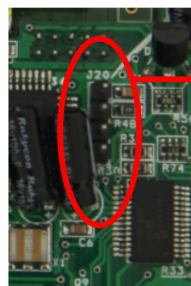
Typical Application	Wall mount indoors
Output Signal Type	Jumper select: 4-20mA,0-10V,0-5V
Output Signal Drive	> 500Ω for mA mode, 75mA max output drive for voltage mode
RS485 ports	1
Power	15-24V +/- 10%, AC or DC, 1 watt typical
Operating Temp	-30~+60°C, 0-95% non condensing
Plastic Housing	Flammability rating UL 94V0 file E194560
Display	LCD screen, Resolution 0.1°C, 0.1% RH
Control Features	N/A

HUM	Sensor Type	Capacitive
	Range	0-100% Non-Condensing
	Accuracy	5% @ 25°C, 20~80%
	Drift	< 0.5% RH / year
TEMP	Sensor Type	10K thermistor
	Range	-40~150°C (-60~340°F)
	Accuracy	< ±0.5°C @ 25°C
Size	80.5 (L)x 80.5(W)x22.4(H)mm	

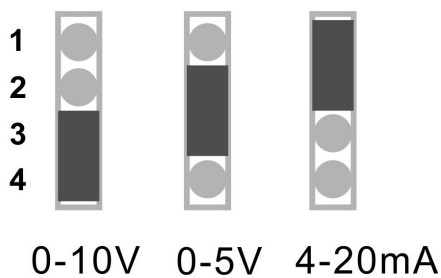
Dimension



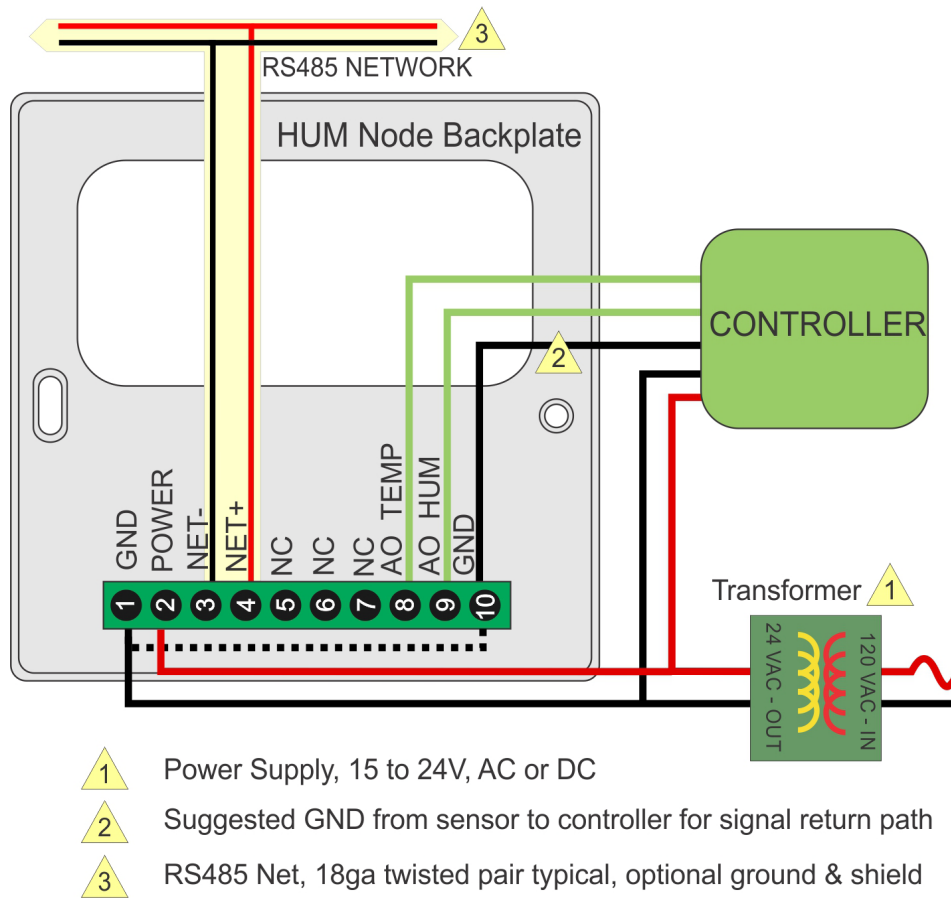
Jumper Settings



JUMPERS

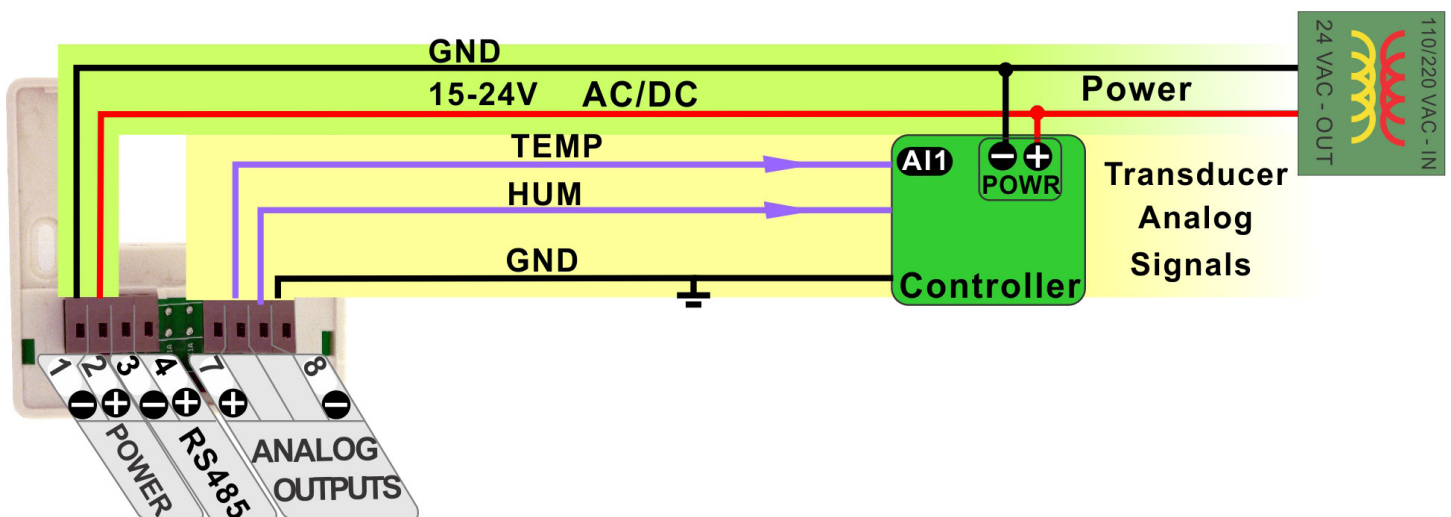


Backplate Features

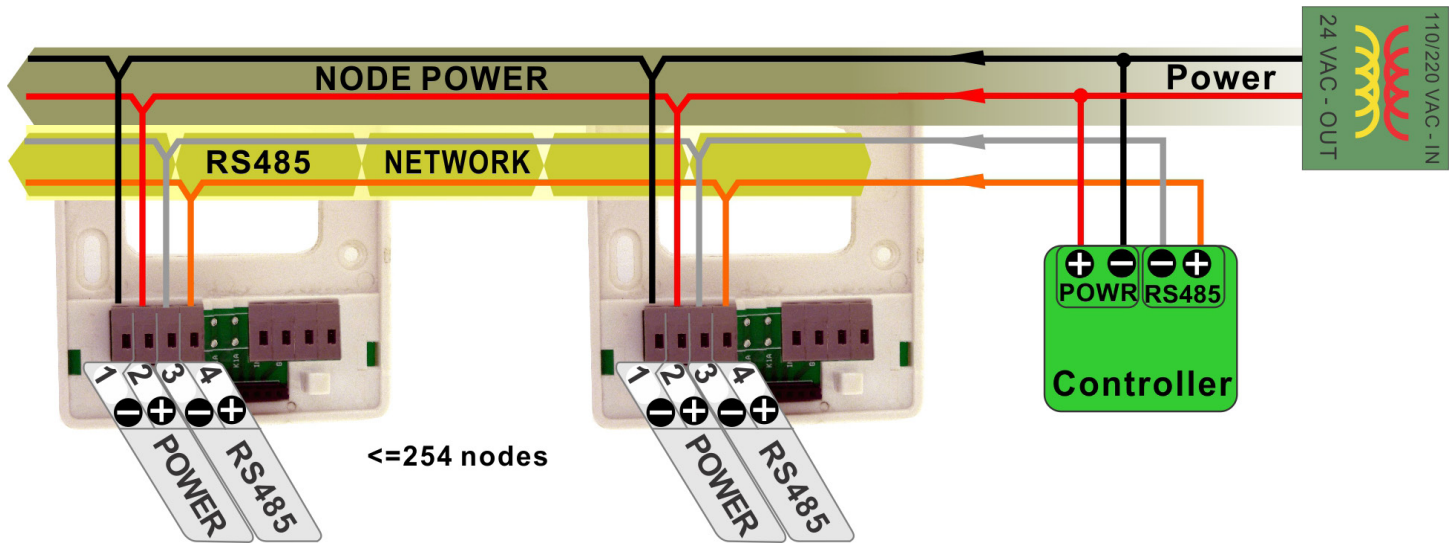


Wiring Diagram

The diagram below shows the wiring for the usual transducer mode of operation for the HUM Node. The transducer outputs connect to a master controller using the traditional analog output signals.



The next diagram shows the HUM Node working in the RS485 network, the node quantity can be 255. A group of sensors distributed through the building can cooperate friendly through net. The RS485 network is available for transmitting the same values digitally to other controllers.



In this mode the device acts as a traditional transducer where it sends out three analog signals which is humidity, temperature readings. All you need to do is to set this one single jumper to the appropriate signal type: 4-20mA, 0-10V, or 0-5V.

Modbus Register List

Humidity sensor node with display uses MODBUS protocol to communicate with others. Below table is for HUM-N.

Address	Register and Description
0 to 3	Serial Number - 4 byte value. Read-only
4 to 5	Software Version – 2 byte value. Read-only
6	ADDRESS. Modbus device address
7	Product Model. This is a read-only register that is used by the microcontroller to determine the product
8	Hardware Revision. This is a read-only register that is used by the microcontroller to determine the hardware rev
9	PIC firmware version
10	PLUG_N_PLAY_ADDRESS, 'plug n play' address, used by the network master to resolve address conflicts. See VC code for algorithms
11-14	Blank
15	Bau - Baudrate, 0=9.6kbaud, 1=19.2kbaud 2=38.4kbaud 3=57.6kbaud 4=115.2kbaud
16	Firmware Update Register, used to show the status of firmware updates
17-20	Reserved
21	Protocol switch. 3 = MODBUS,0=MSTP
22-100	Reserved
101	Adc value of temperature voltage output, not used, read only
102	Adc value of humidity voltage output, not used, read only
103	Reserved
104	Adc value of temperature current output, not used, read only
105	Adc value of humidity current output, not used, read only
106	Adc value of on board thermistor sensor, read only
107	Adc value of on board light sensor, read only
108-109	Reserved
110	Delta value for eliminating the pulse ppm value. The default value is 200
111	Filter times, make the ppm value go smooth. The default value is 5.
112-114	Reserved
115	The version number of humidity sensor
116	The relative humidity
117	The frequency value read from humidity sensor, read only
118	The number of calibration points of the humidity sensor
119	Degree celsius temperature value of the humidity sensor
120	Degree fahrenheit temperature value of the humidity sensor
121	Celsius degree temperature value of the on board thermistor sensor
122	Fahrenheit degree temperature value of the on board thermistor sensor
123	The offset for calibrating the on board thermistor sensor

Modbus Register List

Address	Register and Description
124	Select the temperature direct to analog output: 0: on board thermistor sensor, default setting; 1: humidity sensor
125	Select the temperature direct to analog output: 0: on board thermistor sensor, default setting; 1: humidity sensor
126	Lighting value, for feature
127	Analog output mode, change it by setting the jumper (J20) on the board, read only
128	The minimum value of temperature directs to the analog output
129	The maximum value of temperature directs to the analog output
130	The minimum value of humidity directs to the analog output
131	The maximum value of humidity directs to the analog output
132-135	Reserved
136	The manual value of temperature
137	The manual value of humidity
138-151	Reserved
152	Enable/Disable the password for the menu system operation. 0=Disable, 1=Enable.
153	The first digital of the password. Should be from 0 to 9
154	The second digital of the password. Should be from 0 to 9
155	The third digital of the password. Should be from 0 to 9
156	The fourth digital of the password. Should be from 0 to 9
157-158	Reserved
159	Modbus reply delay time (ms)
160	Modbus receive delay time(ms)
161-501	Reserved
502	Maximum adjustment per day” default is 1ppm, max is 10 ppm, minimum is 1
503	“Number of days to watch for minimum” , default is 7 days. Max is 30 days. Minimum is 2 days

Bacnet Register List of HUM-N

Humidity sensor node with display uses BACNET protocol to communicate with others. Below table is for HUM-N.

Variable	Variable and Description
0	SerialNumber LowByte
1	Product Model
2	SerialNumber HighByte
4	SoftWare Version
5	HardWare Version
6	Humdity Version
7	Uart BaudRate 0=9.6kbaud, 1=19.2kbaud 2=38.4kbaud 3=57.6kbaud 4=115.2kbaud
8	Reset to factory set = 143
9	Protocol switch. 0 = MODBUS,1=MSTP.
10	Auto/Manual, Bit 0 :temperture bit1 :humidity
11	Humidity Value
12	Temperature Value
13	Reserved
14	Dew point
15	Partial Pressure of water at saturation at given temperature, [hPa]
16	Mixing Ratio, the mass of water over the mass of dry gas, [g/kg]
17	Enthalpy of the air, [kJ/kg]
18	OffSet Humdity
19	OffSet Tempeature
20	Reserved
21	Filter Humdity
22	Filter Temperature
23	Reserved
24	Temperature Unit:0 =C, 1=F
25	OutMode: 1=0-10V, 2=0-5V, 3=4-20mA
26	Humdity analog output
27	Temperature analog output
28	Reserved
29	Humdity Min Range
30	Humdity Max Range
31	Temperatur Min Range
32	Temperatur Max Range