Descriptions

 Air Quality Node is designed for environment monitoring and controlling in industrial, commercial and other buildings. These transmitters can be used to monitor air quality and temperature in various industrial and commercial settings. Modbus RS485/Bacnet MS/TP for direct digital reading on all models.

Highlights:

•   The RS485 are hardened up for overvoltage and power supply crossed over.

•   Display in degrees Fahrenheit or Celsius(connection to Bacnet).

•   The LCD is a bitmap so we can show network connectivity.

•   The user can configure what they want to show on the display: network activiy, 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
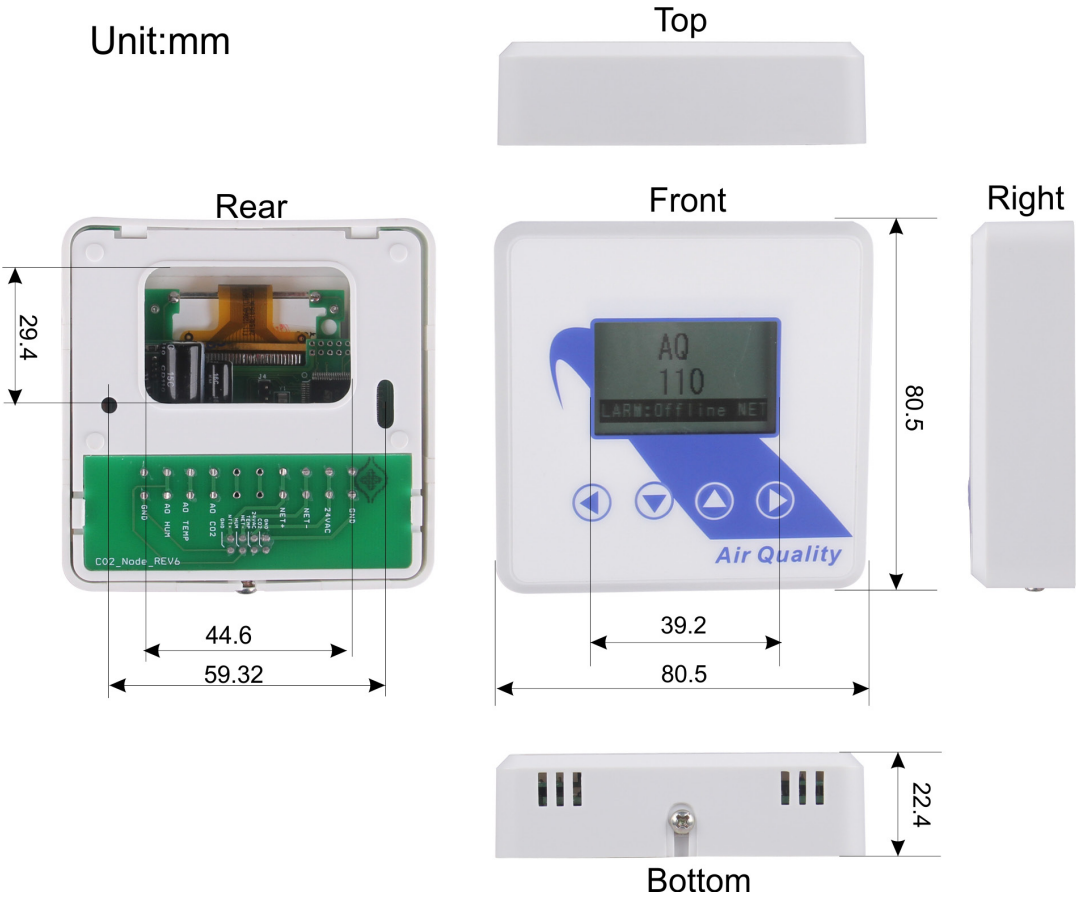

AQ-N-LCD

AQ-N

Specifications

Typical Application	Wall mount indoors	
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	
Analog	Output 10v 4-20mA	
Protocols	Bacnet&Modbus	
TEMP	Sensor Type	10K thermistor
	Range	-40~150°C(-60~340°F)
	Accuracy	< ±0.5°C @ 25°C
AQ	Sensor Type	TGS2600
Size	80.5 (L)x 80.5(W)x22.4(H)mm	

Dimension

AQ-N-LCD

Unit:mm

Top

Rear

29.4

44.6

59.32

Front

AQ
110

LARM:Offline NET

Air Quality

80.5

39.2

80.5

Right

Bottom

22.4

AQ-N

Unit:mm

Top

Rear

29.4

44.6

59.32

Front

● NET
● GOOD
● FAIR
● POOR

80.5

80.5

Right

Bottom

22.4

Backplate Features

RS485 NETWORK ⚠2

Transformer ⚠1

GND
POWER
NET-
NET+
NC
NC
NC
NC
NC
GND

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

24 VAC - OUT
120 VAC - IN

TSTAT8   TSTAT7   TSTAT6   Expansion I/O
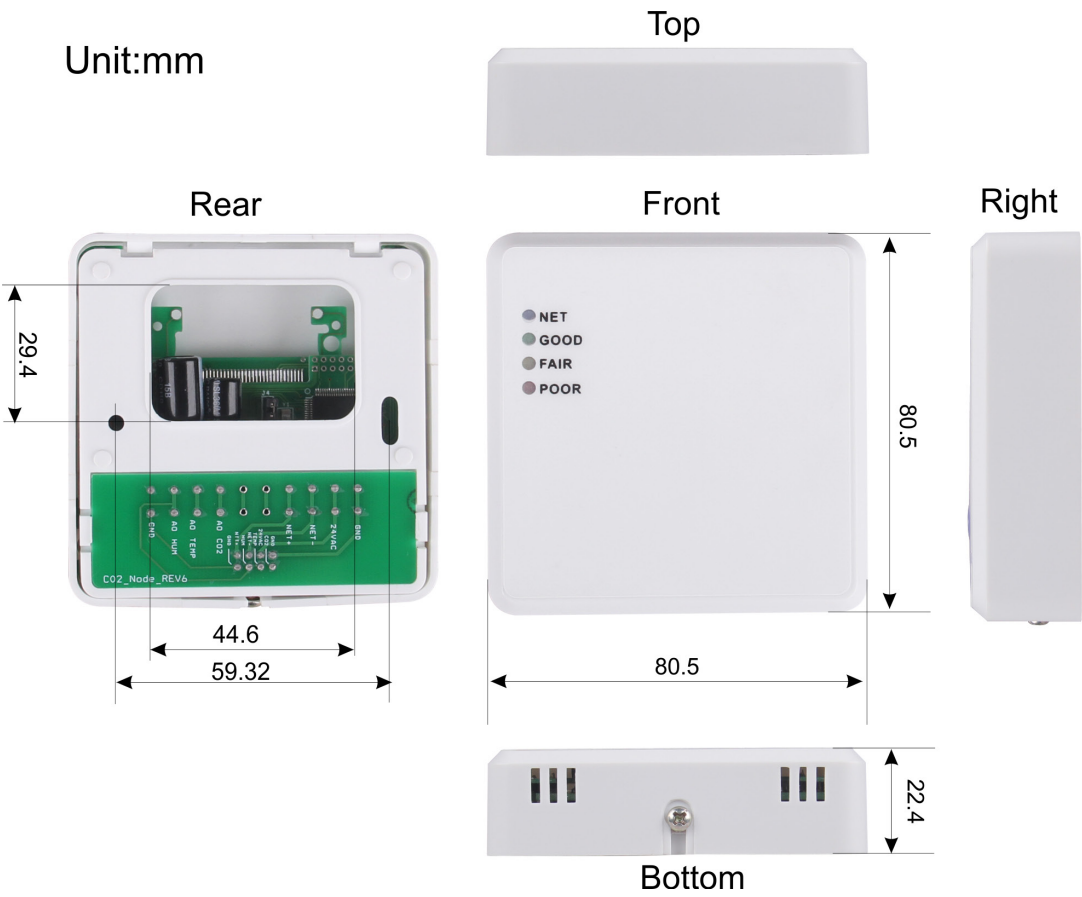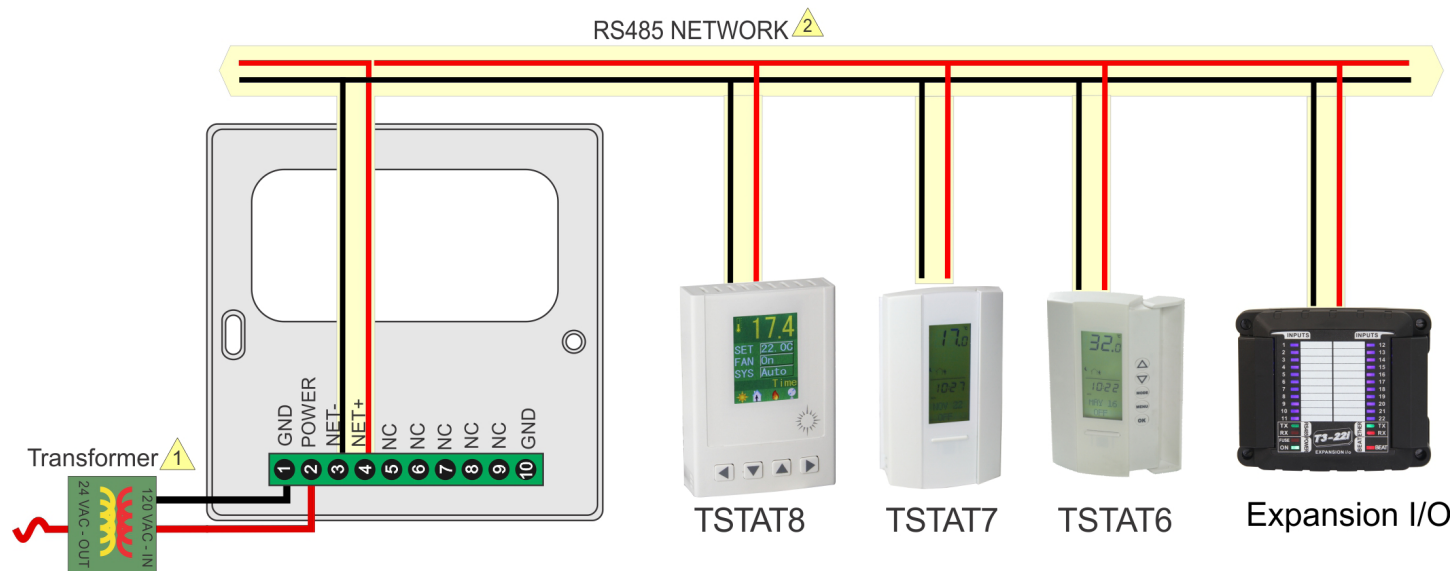
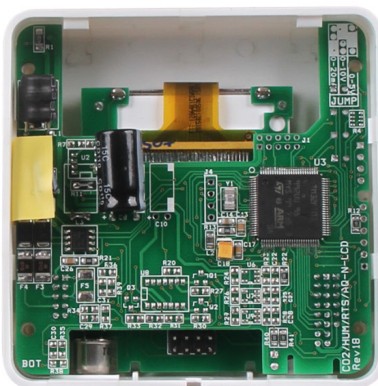⚠1 Power Supply, 15 to 24V, AC or DC

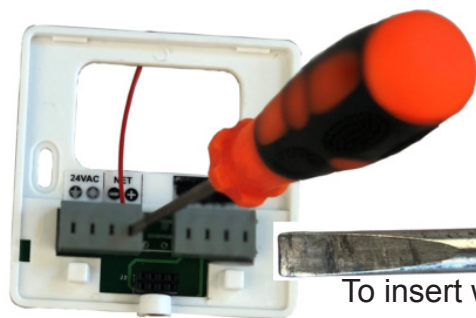⚠2 RS485 Net, 18ga twisted pair typical, optional ground & shield

Rear

Rear of device

Front

Front

Installation instructions

Flat screwdriver tip

To insert wires into the nuscrew terminals there is a small trick which may not be apparent to folks who have not used these terminals before.Strip the wire about half a centimeter and twist the stands together if its stranded conductor,Gently press the end of a sall flat screwdriver into the wire entry port,insert the wire into the hole while maintaining pressure with the screw-driver. Release the screwdriver and the connection is made.Tug on the wire to make sure there's good contact the wire should not pull out.

Modbus Register List

Address	Bytes	Register Description
0 to 3	4	Serial Number - 4 byte value. Read-only
4 to 5	2	Software Version – 2 byte value. Read-only
6	1	ADDRESS. Default Modbus device address=254
7	1	Product Model. This is a read-only register that is used by the microcontroller to determine the product
8	1	Hardware Revision. This is a read-only register that is used by the microcontroller to determine the hardware rev
9	1	PIC firmware version
10	1	PLUG_N_PLAY_ADDRESS, 'plug n play' address, used by the network master to resolve address conflicts. See VC code for algorithms
15	1	Baudrate Setting: 0 = 9600bps, 1 = 19200bps,2=38400bps,3=57600bps,4=115200bps
16	1	Firmware Update Register, used to show the status of firmware updates
17 to 99		Blank, for future use
100	2	adc value of co2 voltage output, not used, read only
101	2	adc value of temperature voltage output, not used, read only
102	2	adc value of humidity voltage output, not used, read only
103	2	adc value of co2 current output, not used, read only
104	2	adc value of temperature current output, not used, read only
105	1	adc value of humidity current output, not used, read only
106	2	adc value of on board thermistor sensor, read only
107	2	adc value of on board light sensor, read only
108	2	co2 value (ppm). It will be calibrated if write to it.
109	2	co2 calibration offset. User can change it to calibrate the co2 ppm. It will be changed also if user write the data to register co2 ppm
110	1	Delta value for eliminating the pulse ppm value. The default value is 200.
111	2	Fitler times, make the ppm value go smooth. The default value is 5.
112	2	The fair alarm ppm setpoint of co2 sensor.
113	2	The poor alarm ppm setpoint of co2 sensor.
114	1	co2 alarm status:
		0b'xxxx 1xxx': co2 poor
		0b'xxxx 01xx': co2 fair
		0b'xxxx 001x': co2 good
115	1	the version number of humidity sensor
116	2	the relative humidity
117	2	the frequency value read from humidity sensor, read only
118	1	the number of calibration points of the humidity sensor
119	2	degree celsius temperature value of the humidity sensor
120	2	degree fahrenheit temperature value of the humidity sensor
121	2	celsius degree temperature value of the on board thermistor sensor

Modbus Register List

Address	Bytes	Register Description
123	2	the offset for calibrating the on board thermistor sensor
124	1	select the temperature direct to analog output: 0: on board thermistor sensor, default setting 1: humidity sensor
125	1	select the temperature unit direct to analog output:
		0: degree celsius
		1: degree fahrenheit, default setting
126	2	Lighting value, for feature
127	1	analog output mode, change it by setting the jumper (J20) on the board, read only
128	2	the minimum value of temperature directs to the analog output
129	2	the maximum value of temperature directs to the analog output
130	2	the minimum value of humidity directs to the analog output
131	2	the maximum value of humidity directs to the analog output
132	2	the minimum value of co2 directs to the analog output
133	2	the maximum value of co2 directs to the analog output
		e.g. co2 output: if the co2 ppm is 1000, the (minimum value, maximum value) = (0, 3000), then
		1. setting J20 to select 0V-10V output mode, so the co2 output is about ((1000ppm / (3000ppm - 0ppm)) * (10V - 0V)) + 0V = 3.3V
		2. setting J20 to select 0V-5V output mode, so the co2 output is about ((1000ppm / (3000ppm - 0ppm)) * (5V - 0V)) + 0V = 1.65V
		3. setting J20 to select 4mA-20mA output mode, so the co2 output is about ((1000ppm / (3000ppm - 0ppm)) * (20mA - 4mA)) + 4mA = 9.3mA
184	2	AQ value
500	1	co2 automatic compensation background enalbe or disable.0 = Disable,1= Enable.
501	2	"Background C02", default is 400ppm, minimum is 390, max is 500.
502	1	Maximum adjustment per day" default is 1ppm, max is 10 ppm, minimum is 1.
503	1	"Number of days to watch for minimum" , default is 7 days. Max is 30 days. Minimum is 2 days.
505	2	co2 background calibration offset.

Bacnet Register List

Value	Value and Description
AV1	SerialNumber LowByte
AV2	SerialNumber HighByte
AV3	SoftWare Version
AV4	Modbus id
AV5	Product Model
AV6	Instance
AV7	Station Number
AV8	BaudRate
AV9	Update
AV10	Protocol switch. 0 = MODBUS,1=MSTP.
AV11	Auto/Manual,Analog output auto/manual control. Bit 1 directs to temperature output, 0=Auto, 1=Manual.
AV12	Dew Point
AV13	Passwords
AV14	Mixing Ratio, the mass of water over the mass of dry gas, [g/kg]
AV15	Enthalpy of the air, [kJ/kg]
AV16	Spare
AV17	Temperature Offset
AV18~AV19	Spare
AV20	Temperature Filter
AV21	Spare
AV22	Temperature Unit
AV23	Output Mode
AV24~ AV25	Spare
AV26	Minimal Range for temperature
AV27	Maxium Range for temperature
AV28~AV30	Spare
AV31	Temperature Setpoint
AV32	Spare

Analog Intput	Analog Input and Description
AI1	Spare
AI2	Temperature
AI3	Spare

Analog Output	Analog Output and Description
AO1	Spare
AO2	Temperature
AO3	Spare