Wall Combo Sensors
CO2/Humidity/Temp

Available with analog outputs or protocol for BACnet RS-485
Integrated set-point relay
Optional field replaceable NDIR CO2 and RH elements

DESCRIPTION

The AQW series design allows customization for a sensor that meets project requirements for monitoring temperature, CO2 and relative humidity. The sensor can be ordered as stand alone temperature, CO2/Temp, RH/Temp or all-in-one CO2/RH/Temp with a 0-5/10V analog or BACnet RS485 output. Lower material costs and installation time by combining multiple sensors into a single sensor housing with standard LCD and optional add-on features.

APPLICATIONS

- Controlling ventilation in response to occupancy
- Facilitating compliance with ASHRAE 62.1-2004 standard for air quality
- Offices, conference rooms, and public assembly areas

FEATURES

Customize to meet project requirements

- Standard LCD and temperature on each device
- Options to add CO2 and/or RH sensing elements
- Field replaceable elements for CO2 and RH
- Available with 0-5/10V Analog or BACnet protocol communication

Protocol Version

- BACnet RS-485 ready
- Auto-configuration wizard detects baud rate and MAC address
- Adjustable set-point using button menu or optional 10k slider

Analog Version

- LCD for easy setup of all parameters (concealment cover included)
- Programmable set-points for complete control
- Provision to offset CO2 reading
- Optional thermistors, sliders and override button

High performance field replaceable NDIR CO2 element

- Selectable auto-calibration mode returns sensor to baseline values

2% RH field replaceable sensor

- On-board temperature compensation for RH eliminates temp coefficient errors achieving excellent measurement accuracy, high repeatability and offset stability.
- State of the art testing facilities. 8-point NIST traceable certification available—consult factory

Quality

- Industry leading 7-year limited warranty/ 2-year RH element, 3-year CO2 element limited warranties

Proudly Made in the U.S.A.

ORDERING INFORMATION

	Output	CO2	RH	SLD	BTN	RTD/TH	Color
AQW -							

Output Type
A = Analog (0-5/10V)
B = BACnet RS-485

CO2 Sensor
A = None
B = CO2 Sensor

RH Sensor
A = None
B = 2% RH Sensor

Set-Point Slider
A = None
B = 1k (Not valid w/ BACnet)
C = 10k

Push Button
A = None
B = Override Button (Requires thermistor)
C = User Push Button

RTD/Thermistor*
A = None
C = 100Pt (385) RTD
D = 1000Pt (385) RTD
E = 10k type 2
F = 10k type 3
G = 10k w/11k
H = 3k
I = 2k2
J = 1k8
K = 20k

Color
1 = White
2 = Ivory
4 = Light Almond

*Add-on RTD/Thermistor not readable via BACnet; Temperature output is standard on AQW devices, Add-on RTD/Thermistor is option for Analog.

Example

	Output	CO2	RH	SLD	BTN	RTD/TH	Color
AQW -	B	B	B	A	A	A	1

(AQW sensor with BACnet RS-485, Temp, CO2, 2% RH, no set-point slide, no user push button, no RTD/thermistor, white color)

SPECIFICATIONS

Power Supply		12-30VDC/24VAC(1), 100mA max.
Analog Outputs	Temperature	0--5/10V standard, Scaling 50°F to 95°F (10°C to 35°C); thermistor/RTD values optional
	CO2 and RH	0-5/10V
	Update Rate	Continuous
	Programmable Relay	Solid-state output, 1A @ 30VAC/DC, N.O.
Analog LCD Menu Parameters (2)	SPt, Set point, Hi (On)	Sets relay turn-on threshold (800ppm default)
	SPh, Set point, hysteresis (Off)	Sets the relay turn-off hysteresis (100ppm default)
	SCL, Scaling	0-2000ppm or 0-5000ppm (2000ppm default)
	AdJ, Adjustment	CO2 Offset adjustment +/-250ppm (0 default)
	CAL, Auto Calibration Period	Off, 7 days, 14 days, 30 days, 60 days (14 days default)
	oFC, Displayed Temp Unit	oF degrees fahrenheit (default), oC degrees celsius
	LoL Analog Output Scale	5u 5.0V full scale, 10u 10.0V full scale (default)
	RUN, Run Mode	Displays temp and optional CO2 and RH
Protocol Output	Protocol	BACnet (Isoloated)
	Connection	3-wire RS-485, with isolated ground
	Data Rate	Locally set baud rate up to 115200 (9600, 19200, 28800, 38400, 57600, 76800, 115200)
	Address Range	0-127
Protocol Relay Set-point	Programmable	Solid-state output, 1A @ 30VAC/DC, N.O. Source selectable: CO2, RH, Temperature
CO2	Type	Non-dispersive Infrared (NDIR)
	Accuracy	±40ppm, ±3% of reading (400-2000ppm)
	Range	0-2000/5000ppm; Programmable up to 10,000ppm
	Response time	60 seconds to 90% reading
	Sample rate	3 seconds
Relative Humidity	Type	Digital CMOS
	Accuracy	2% models, +/-2% over 10 to 90%RH range
	Resolution	0.05%RH
	Hysteresis	+/-1%RH
	Temperature coefficient	Compensated on-board
	Response time (3)	30s
	Sample rate	3s
	Operating range/Output Scale	0 to 100%RH (non-condensing)
	Long term drift	<0.5%RH per year
	Operating conditions (4)	-20° C to 60° C @ RH>90%; -20° C to 80° C @ RH=50%
Temperature (with RH option)	Type	Silicon Bandgap
	Nominal Accuracy	+/-0.3° C (operating range)
	Maximal Accuracy	+/-0.5° C (at 25° C), +/-1.0° C (operating range)
	Resolution	0.01° C
	Repeatability	+/-0.1° C
	Response time (3)	30s
	Sample rate	3s
Temperature (without RH option)	Type	NTC Thermistor
	Nominal Accuracy	+/-0.5° C (operating range)
	Maximal Accuracy	+/-1.0° C (at 25° C), +/-2.0° C (operating range)
	Resolution	0.05° C
	Repeatability	+/-0.2° C
	Sample Rate	100 milliseconds
Operating Environment	Temperature	32 to 122F (0 to 50C)
	Humidity	0-95% non-condensing
Enclosure	Material	ABS Plastic
	Dimensions	4.85"h x 3.25"w x 1.19"d

(1) One side of transformer, secondary is connected to signal common. Dedicated transformer is recommended.
(2) Quick Start Menu parameters shown, for additional capabilities see installation manual.
(3) Time for reaching 63% of reading at 25° C and 1 m/s airflow
(4) Long term exposures to conditions outside normal range at high humidity may temporarily offset the RH reading (+3%RH after 60 hours.)

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