

AQW Series 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
- Facilitates compliance with ASHRAE 62.1 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

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
- M = 6-26k (Not valid w/ BACnet)
- T = 200-900 Ω (Not valid w/ BACnet)

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)
	RdJ, Adjustment	CO2 Offset adjustment +/-250ppm (0 default)
	CL, Auto Calibration Period	Off, 7 days, 14 days, 30 days, 60 days (14 days default)
	DFE, Displayed Temp Unit	°F degrees fahrenheit (default), °C degrees celsius
	LUL Analog Output Scale	5V 5.0V full scale, 10V 10.0V full scale (default)
Protocol Output	Run Mode	Displays temp and optional CO2 and RH
	Protocol	BACnet (Isolated)
	Connection	3-wire RS-485, with isolated ground
	Data Rate	Locally set baud rate up to 115200 (9600, 19200, 28800, 38400, 57600, 76800, 115200)
Protocol Relay Set-point	Address Range	0-127
	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
Relative Humidity	Sample rate	3 seconds
	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
Temperature (with RH option)	Operating conditions ⁽⁴⁾	-20° C to 60° C @ RH>90%; -20° C to 80° C @ RH=50%
	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
Temperature (without RH option)	Sample rate	3s
	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
Operating Environment	Repeatability	+/-0.2° C
	Sample Rate	100 milliseconds
	Temperature	32 to 122F (0 to 50C)
Enclosure	Humidity	0-95% non-condensing
	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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7 year limited warranty