

AQS-KAM-xx, AQS 71-KAM-T, AQS-KAM-RH-V

DUCT CO₂ TEMPERATURE HUMIDITY TRANSMITTERS

PRODUCT DATA



GENERAL

The AQS Transmitters set new standards in CO₂ measurements in HVAC applications. Operation is based on the infrared principle. A calibration-free procedure compensates for aging of the dual-channel NDIR infrared source and ensures outstanding long-term stability. The AQS provide 0...10 V analog output for CO₂ and temperature and are designed for HVAC applications (contact Honeywell for special applications).

They are suitable for direct wiring with universal and voltage- controlled inputs. Additionally, the AQS-KAM-xx temperature transmitters feature a built-in passive temperature sensor.

The AQS-KAM-RH-V Temperature Sensor is equipped with a relative humidity sensor.

MODELS

OS no.	Analog outputs	Passive temp. output
AQS71-KAM-T	0...10V for CO ₂ and temperature	N/A
AQS-KAM-00		Pt 1000
AQS-KAM-10		NTC 10k
AQS-KAM-20		NTC 20k
AQS-KAM-RH-V	0...10V for CO ₂ , temp. and relative humidity	N/A

NOTE: Rough handling and shipping reduces the accuracy of the sensor. Full accuracy is restored after the device is powered up for 250 hours non-stop.

Avoid strong mechanical stress and improper handling. The cable gland and housing cover must be screwed tightly against gas penetration, to avoid incorrect measurements.

FEATURES

- Calibration-free dual channel NDIR technology
- Outstanding long-term stability
- Maintenance free
- Universal mounting flange

SPECIFICATIONS

Analog CO₂ sensor

Output signal	0...10 V (0...2000ppm)
Output current	-1 mA < IL < 1 mA
Accuracy (typ.)	± (30ppm + 3% of m.v.) at 400...2000ppm (25 °C [77°F]), 1013 mbar
Temperature stability (typ.)	± 2.5ppm/°C (0...+50 °C) [32...122°F]
Response time	t90 < 250 sec at 3 m/s
Warm-up time	< 5 min

Analog temperature sensor

Output signal	0...10 V (0...50°C) [32...122°F]
Output current	-1 mA < IL < 1 mA
Accuracy (typ.)	± 0.3 °C (25 °C [77 °F])
Response time (typ.)	t63 < 120 sec. at 3 m/s

Analog relative humidity sensor (AQS-KAM-RH-V)

Output signal	0...10 V (0...100%RH)
Output current	-1 mA < IL < 1 mA
Accuracy (typ.)	±3% RH (30...70% RH) at 25°C [77°F], otherwise ±5% RH
Response time (typ.)	t63 < 180 s at 3 m/s air velocity

Passive temperature sensor (AQS-KAM-xx)

Nominal value

Pt 1000	1000 Ω at 0 °C (32 °F)
NTC 10k	10 kΩ at 25 °C (77 °F)
NTC 20k	20 kΩ at 25 °C (77 °F)

Accuracy

Pt 1000 (IEC751 Class B)	±0.3 °C at 0 °C (32 °F)
NTC 10k	±0.2 °C at 25 °C (77 °F)
NTC 20k	±0.2 °C at 25 °C (77 °F)

Sensitivity

Pt 1000	≈ 3.85 Ω / K
NTC 10k	≈ -440 Ω / K at 25 °C (non-linear)
NTC 20k	≈ -935 Ω / K at 25 °C (non-linear)

Characteristic

Typical response time

t63	< 120 s at 3 m/s air velocity
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Type

2-wire

Wire resistance (typ.)

0.4 Ω (terminal-sensor)

NOTE: Temperature / relative humidity / CO₂ accuracy may differ, depending on various environmental conditions (e.g., air velocity or temperature difference between the air temperature and the ambient temperature).

SPECIFICATIONS (continuation)

General

Power supply	24 VAC, $\pm 20\%$ (SELV) 15...35 VDC
Power consumption	0,6 W
Max. current consumption	0,35 A (0,3 sec / 15 sec.)
Connection	Spring terminals, max. 1.5 mm ²
Housing material	Polycarbonate, UL94V-2 appr.
Protection class	IP65 / NEMA 4 for enclosure;
Cable gland	M16 x 1.5 / UL94-V2
EMC	EN61326-1, EN61326-2-3; FCC Part 15, Class B; ind. environment: ICES-003 Issue 5 Class B

Working conditions	-5...+55 °C (+23...+131 °F) 0...95% RH (non-condensing)
Storage conditions	-20...+60 °C (-4...+140 °F) 20...80% RH

Dimensions	See section "Dimensions & Mounting"
Mounting	Duct
Approvals	CE

DISPOSAL

At the end of their useful life the packaging and product should be disposed of according to local waste guidelines.

DIMENSIONS & MOUNTING

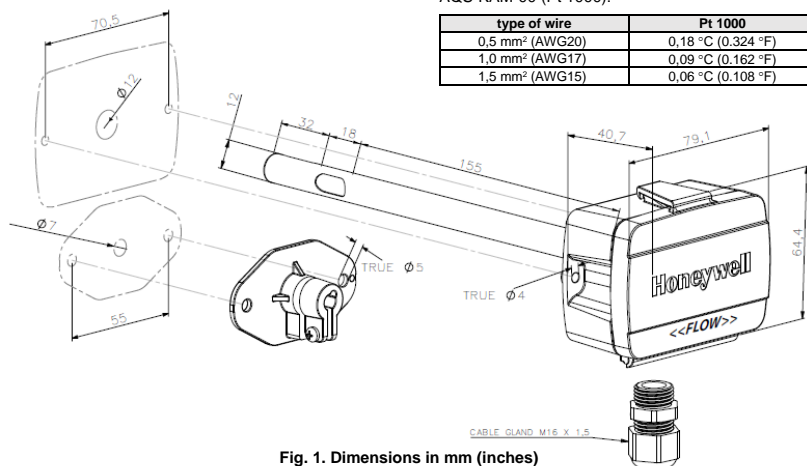


Fig. 1. Dimensions in mm (Inches)

ELECTRICAL CONNECTION

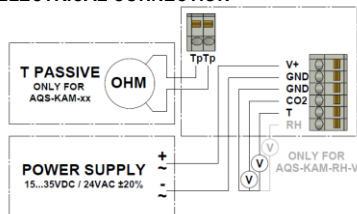


Fig. 2. Connection diagram

Wiring

Wiring run	Max. length
Sensor to controller	200 m (660 ft)

NOTE: Installation of the sensor near high EMI-emitting devices may lead to faulty measurements.

Use shielded wiring in areas with high EMI. Keep 15 cm (5.9") minimum distance between sensor lines and 230 VAC power lines.

Use two transformers: one for sensors and actuators and one for the controller.

Offset due to wire resistance per 10 m of distance from sensor to controller, when using the AQS-KAM-00 (Pt 1000):

type of wire	Pt 1000
0,5 mm ² (AWG20)	0,18 °C (0,324 °F)
1,0 mm ² (AWG17)	0,09 °C (0,162 °F)
1,5 mm ² (AWG15)	0,06 °C (0,108 °F)

Manufactured for and on behalf of the Connected Building Division of Honeywell Technologies Sàrl, Rolle, Z.A. La Pléce 16, Switzerland by its Authorized Representative:

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