# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for HONEYWELL AQS 51-KAM. You'll find the answers to all your questions on the HONEYWELL AQS 51-KAM in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual HONEYWELL AQS 51-KAM
User guide HONEYWELL AQS 51-KAM
Operating instructions HONEYWELL AQS 51-KAM
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Instruction manual HONEYWELL AQS 51-KAM

Honeywell

AQS51/61-KAM
COMBINED CO_2-/TEMPERATURE
DUCT SENSOR/CONTROLLER

PRODUCT DATA
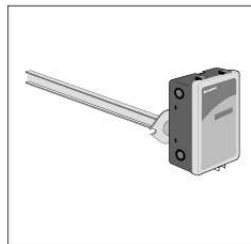
provide a more complex ventilation strategy based on a mixture of CO_2 plus temperature measurements and to assign a number of functions, including hierarchy.
For this analog output configuration, the software program STRATEGY is available, which is part of the User Interface Program Software package AQS-USP22 used for re-calibration, change of the measurement range or other service or set-up purposes.
The switching setpoint and differential of the relay output for CO_2 limit monitoring or plant/system ON/OFF control can be adjusted within the measurement range. This output can be used also as automatic fire threshold to switch off ventilation, when CO_2 levels exceed normal limit of e. g. 2500 ppm in case of fire.

FEATURES

- CO_2 measurement range 0...3000 ppm corresponding to 0...0.3% CO_2. Factory-calibrated 0...2000 ppm
- Multifunctional unit for temperature and CO_2-measurement or control
- State-of-the-art Non-Dispersion-Infrared (NDIR) technology to measure carbon dioxide gas
- Automatic drift correction (ABC-algorithm) based on a long term evaluation provides typical zero drift check maintenance-intervals of up to 5 years
- Standard output signals 0(2)...10 Vdc or 0(4)...20 mA each for CO_2 and temperature measurement or control
- Programmable mixed controller signal output(s) provides ventilation control strategies to match exactly the application requirements
- Digital ON/OFF relay output for CO_2 limit monitoring
- RS232 interface for configuration, parameter setting or data exchange with a PC using Windows 95/98
- User interface program on diskette for service, recalibration and change of measurement ranges
- Optional with 4-digit LCD display with the selectable indication of:
- - CO_2 and room temperature alternating
  - Error code
  - CO_2-concentration (ppm)
  - Temperature (°C)
  - Analog Output1
  - Analog Output2

GENERAL

The AQS51-KAM and AQS 61-KAM sensors/controllers for duct mounting measure the carbon dioxide (CO_2) con-centration and the temperature in the return or outside air. They are used in ventilation and air conditioning systems to control the amount of fresh outside air being supplied to the occupants for acceptable indoor air quality and to reduce unnecessary conditioning of outside air during low-occupancy periods.
This Demand Controlled Ventilation (DCV) is a cost effective solution to conserve energy and to ensure that the fresh outside air supplied is no more than is necessary to meet the actual requirements of the occupants at any given time.
The sensors/controllers offer separate 0(2)...10Vdc or 0(4)...20mA outputs for CO_2 and temperature and in addition a digital ON/OFF relay output with switching hysteresis for alarm or other purposes.
The UART interface (RS232) for serial communication allows a PC to be connected in order to perform maintenance checks or reconfigurations during normal operation. If used as a controller, each of these outputs can be configured to

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EN0B-1023 GE02R0700

Manual abstract:

For this analog output configuration, the software program STRATEGY is available, which is part of the User Interface Program Software package AQS-USP22 used for recalibration, change of the measurement range or other service or set-up purposes. @@@@g. @@@@@@This Demand Controlled Ventilation (DCV) is a cost effective solution to conserve energy and to ensure that the fresh outside air supplied is no more than is necessary to meet the actual requirements of the occupants at any given time. The sensors/controllers offer separate 0(2)...10Vdc or 0(4)...20mA outputs for CO_2 and temperature and in addition a digital ON/OFF relay output with switching hysteresis for alarm or other purposes.

The UART interface (RS232) for serial communication allows a PC to be connected in order to perform maintenance checks or reconfigurations during normal operation. If used as a controller, each of these outputs can be configured to · Automatic drift correction (ABC-algorithm) based on a long term evaluation provides typical zero drift check maintenance-intervals of up to 5 years · Standard output signals 0(2)...10 Vdc or 0(4).

..20 mA each for CO_2 and temperature measurement or control · Programmable mixed controller signal output(s) provides ventilation control strategies to match exactly the application requirements · Digital ON/OFF relay output for CO_2 limit monitoring · RS232 interface for configuration, parameter setting or data exchange with a PC using Windows 95/98 · User interface program on diskette for service, recalibration and change of measurement ranges · Optional with 4-digit LCD display with the selectable indication of: · - CO_2 and room temperature alternating - Error code - CO_2-concentration (ppm) - Temperature (°C) ° - Analog Output1 - Analog Output2 ® U.S. Registered Trademark Copyright © 2000 Honeywell Inc.

· All rights reserved EN0B-1023 GE02R0700 AQS51/61-KAM COMBINED CO_2-/TEMPERATURE DUCT SENSOR/CONTROLLER MODELS Type CO_2 and Temperature Duct Sensor without LCD display CO_2 and Temperature Duct Sensor with 4-digit LCD display Order Number AQS51-KAM AQS61-KAM ACCESSORIES Description Service Software; 3.5" Diskette (for changing the sensing range, the parametrization and the post calibration) Testset (consists of a portable gas generator for zero-position calibration, pump, packing, 3m tube, battery and transformer) RS Cable with built-in electronics and adapters Order Number AQS-USP22 AQS-F0005 AQS3/4 or AQS31/41 TECHNICAL DATA Power supply Power consumption Sensor life expectancy Maintenance interval General Self diagnostics Status LED indication Power-up time Ambient operating limits - Temperature - Humidity Operating principle Gas sampling mode Response time Measurement range CO_2 - Measurement Converting range Accuracy Pressure dependence Annual zero drift Operating principle Temperature Measurement Measurement range Converting range Accuracy Settings and configuration with Service Software AQS-USP22 P+I control + - Throttling range CO_2 - Throttling range temperature - Reset time adjustment ranges 100...800 ppm 1...10 K 2...

500 sec (factory setting: 300 sec) 0...50°C 0...95%rh (non condensing) Non-dispersive infrared (NDIR) Diffusion and 3 mm gas inlet push-on barb 2 min (diffusion) or 10 sec (0.2 ltr/min gas flow) 0...

3000 ppm 0...2000 ppm = 0..

.10 Vdc (factory setting) or 2...10 Vdc / 0.

..20 mA / 4...20 mA ±1% of measurement range, ±5% of reading +1.58% of reading per kPa deviation from normal pressure 100 kPa < ±1% of measurement range Thermistor -10...60°C 0.

..50 °C = 0...10 Vdc (factory setting) or 2...10 Vdc / 0..

.20 mA / 4...20 mA ±0.

2 K 24Vac ± 20%; 50/60Hz or 24Vdc ± 20% 2W >15 years 5 years Complete power/sensor/analog outputs internal test Yellow = Maintenance required; Red = Relay activated 1 min EN0B-1023 GE02R0700 2 AQS51/61-KAM COMBINED CO_2-/TEMPERATURE DUCT SENSOR/CONTROLLER 0...10 Vdc / 2..

.10 Vdc, impedance 100 or 0...20 mA / 4...20 mA, load 500 10mV (10Bits) ±2% of output voltage, +0.1 V ±2% of output current, ±0.3 mA PTC fuse (auto reset), short-circuit proof Both outputs can be configured to any sensor mix (CO_2 + temperature + digital input of 5 proportional ranges with priorities and offsets, using the PC software STRATEGY, Version 3) 1A/50 Vac (50VA) or 1 A / 24 Vdc (30 W) Relay activated: 1000 ppm Relay deactivated: 900 ppm (84 x 142 x 46) mm 203 mm Toggles between the following 6 display modes on the 4-digit display: - CO_2 and temperature alternating - Error code - CO_2 in ppm - Temperature in °C - Analog output 1 - Analog output 2 Output signal Resolution Analog outputs D/A conversion accuracy Protection Customization of P+I controller Single pole, double throw (SPDT) switching, potential free contact.

@@@@@@@@@@@Depending on the deviation the control output values are calculated and converted into two separate 0(2)...10Vdc or 0(4)...20mA outputs which can drive directly final control devices. The proportional band settings control the output spans. In this application the AQS-USP22 software package can be used to configure the available two analog outputs for temperature and ventilation control, and to assign for each output a number of functions to provide different ventilation control strategies. All sensor measurements can be addressed to these functions and mixed together by this software to form two independent and intelligent P+I controllers.

The relay output contact CM-NO is closed, if the CO_2 level exceeds the factory adjusted limit of 1000ppm and the contact CM-NC is closed, if the CO_2 level is equal or below 900ppm. These parameters are programmable within the specified measurement range. APPLICATION ADVICE For rooms where are the occupants the source of the main air pollution, a CO_2 concentration of max. 1200ppm should not be exceeded. MOUNTING The AQS51-KAM and AQS61-KAM sensor/controllers are supplied with the sensor printed circuit board already mounted into the aspiration box.

@@@@@@@@@@@5. @@Do not change jumper positions when power is on. 10. @@3 Mounting of AQS51/61-KAM onto the duct Mounting Instructions 1. Drill a 25 mm hole for the sampling probe (Fig.

2, Pos.1) into the duct of the selected mounting area. 2. Use the gasket (Pos. @@3. Drill 4mm holes for the mounting screws (Pos. 5). 4. Insert the sampling probe (with the gasket) into the duct. @@@@3).

@@@@@@5). 6. Remove the cover of the aspiration box. The box has several knock outs in two dimensions for PG7 (Pos. 8) and PG9 (Pos. 7) cable entry bushings, To make a hole, insert a screwdriver into the groove and hit firmly. Mount for each cable a cable entry bushing into the aspiration box and seal properly. 7. Mounting the aspiration box to the sampling probe is performed by a snap-in bayonet fitting (Pos. 10).

Insert first the temperature sensor placed on the end of a 150mm long soldered-on lead (Fig. 3, Pos. 2) into the air inlet to ensure accurate temperature measurement.

Turn the box by approx. 23° ccw and stick the box onto the sampling probe, so that the probe is fitted into the notches of the box, then turn the box cw until stop (see Fig.

2). 8. @@Feed never more than one cable through a cable entry bushing. 11. Mount the cover.

Fig. 4 Printed Circuit Board Fig. @@@@@@@@g. @@This function checks returns an error byte to system RAM. If the error message equals 8, it will not be cleared until a new self diagnostic procedure is activated after a power up. The other codes are reset when the causes have vanished. For AQS51/61-KAM the tests comprise checking internal voltage regulators and output values. In addition, constantly during operation, the sensor probes are checked against failure by checking the valid dynamic measurement ranges. Error Code and Actions Error Code 4 Suggested Action Indicate problems with the power supply. Check power supply voltage.

Indicates problem with OUT1. Could be too high an output load connected to the output. @@@@@@@@32 Could also indicate the need of zero point calibration. @@NOTE: If several errors are detected at the same time, the different error code numbers will be added together into one single error code. Home and Building Control Honeywell AG Böblinger Straße 17 D-71101 Schönaich Germany http://europe.hbc.honeywell.com Subject to change without notice. Printed in Germany EN0B-1023 GE02R0700 Manufacturing location is certified according to DIN EN ISO 9001 .