SIEMENS 1⁵⁷¹



Indoor Air Quality Controller

QPA84

- With integrated VOC (Volatile Organic Compounds) sensor
- Operating voltage AC 230 V,
- Two-position output (non-potential-free relay contact)

Use

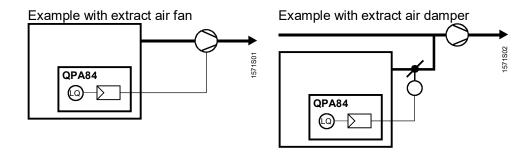
In ventilation plant to optimize the indoor air quality and the consumption of energy by providing demand-controlled ventilation.

The QAP84 indoor air quality controller has been designed for use in basic ventilation plant where there is a need to remove annoying odours from a room, depending on demand, primarily in rooms with greatly varying occupancy levels and / or odours, thereby optimizing the ventilation time and ensuring good air quality. The controller is used especially in applications where a fan or an air damper actuator is controlled either manually or by a time switch.

Typical spaces and applications:

- Small restaurants, pubs, bistros
- Lounges
- Recreation spaces and smoking areas
- Kitchens
- Changing rooms and cloakrooms
- Controlled ventilation of living spaces

Application examples



Functions

The integrated VOC sensor measures concentrations of odorous substances and gases, such as tabacco smoke, human body odours, kitchen odours, carbon monoxide, methane, ethanol, acetone, methanol, etc., in the room air.

The concentrations measured by the sensor are compared with the setpoint. If the setpoint is exceeded, the fan or the air damper actuator will be switched on via control output Y1. When the air quality improves as a result of the ventilation or other influencing factors, the device connected to control output Y1 will be deactivated again.

The QPA84 is supplied with a factory-set setpoint. As soon as the controller is connected to power, the self-adaptation algorithm ensures that the indoor air quality setpoint will be matched to the local supply air quality.

The switching on / off behaviour of control output Y1 can be changed by means of a shorting plug:

Position of shorting plug	Action
- 0 + I21.7201	Very good air quality level, increased energy consumption 1)
- 0 + 121205	Good air quality level, optimum energy consumption ¹⁾ (factory setting)
- 0 + 1577203	Acceptable air quality level, minimum energy consumption 1)

¹⁾ Energy consumption resulting from heating or cooling and fan operation.

Caution!

To change the position of the shorting plug, the housing cover must be removed. This work must be carried out by an authorized electrician since there is a risk of touching mains—carrying wires or parts.

Ordering

Product number	Stock number	Designation	
QPA84	BPZ:QPA84	Indoor air quality controller	
When ordering please give name and type reference			

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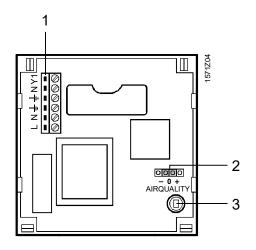
Equipment combinations

For indoor air quality control with extract air dampers: OpenAirTM two-position air damper actuators **GCA32..**

see data sheet N4613

The controller consists of three major parts: the mounting plate made of plastic, the housing which accommodates the sensor and the control electronics, and the housing cover which is also made of plastic. Using suitable screws, the mounting plate is secured to a commercially available recessed conduit box. The housing engages in the mounting plate and is then secured by means of two catches. After wiring, the housing cover is also secured with two catches.

Sensor, connection and setting elements



- 1 Connection terminals
- Shorting plug for changing the switching on / off behaviour of control output Y1.Plug positions:
 - = acceptable air quality
 - 0 = good air quality (factory setting)
 - + = very good air quality
- VOC sensing element

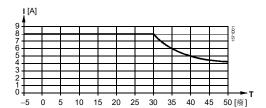
Engineering notes

Power supply to the QPA84 should not be interrupted during operation (e.g. by a manual switch or time switch program). If interrupted, the controller will lose the adapted indoor air quality setpoint (the optimum setpoint for the room).

Caution!

- The QPA84 may not be used for safety-related gas measurements!
- The screw terminals are only suited for installation wires. Stranded wires are not permitted!
- A 10 A prefuse must be used in the power supply line (L) to the controller.
- The two terminals for the protective earth (interconnected inside the unit) are merely used for earthing a regulating unit of safety class I connected to output Y1

The maximum permissible switching current (I) at output Y1 must be observed. It is dependent on the ambient temperature (T) of the QPA84:





▲ WARNING

No internal line protection for supply lines to external consumers Risk of fire and injury due to short-circuits

 Adapt the line diameters as per local regulations to the rated value of the installed fuse.

Mounting notes

Mounting location: in the room.

The location where the controller is mounted should be representative of the indoor air quality level, e.g. on an open wall, 1.5 to 3 m above the floor.

The controller should not be mounted in niches or bookshelves, not behind curtains, etc., or in locations where people are continuously present (within one to two meters), such as speaker's desks, working places, etc.

The permissible environmental conditions must be observed.

The controller is supplied complete with detailed mounting instructions.

The controller must be installed by an authorized electrician.

Commissioning notes

Caution!

The VOC sensing element requires about one minute to attain the right operating temperature.

Control output Y1 can be activated by the electronics, depending on the mixed-gas concentration in the room.

The proper functioning of the QPA84 can then be checked as follows:

- Hold a cloth or cotton-wool pad saturated with alcohol in front of the unit's ventilation slots, or
- Let gas from a cigarette lighter enter the ventilation slots

Then, control output Y1 will be activated after a short period of time.

Operating notes

After about two days, the QPA84 will assume the setpoint that ensures optimum indoor air quality. This is accomplished by the setpoint adaptation algorithm. The algorithm adjusts the setpoint periodically. For this reason, the power supply to the controller should not be interrupted. The unit is maintenance-free.

Disposal



The device is considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Technical data

Power supply Operating voltage AC 230 V + 10 % - 15 % Mains frequency 50 / 60 Hz \pm 4 %

Power consumption 0.5 VA

External supply line protection Fuse slow max. 10 A

or

Circuit breaker max. 13 A

Characteristic B, C, D according to EN 60898

Control output Y1 Breaking voltage non-potential-free switching contact AC 230 V

Switching current 1) max. 8 A (res.)

max. $6.8 \text{ A (ind.)}, \cos \varphi = 0.6$ External supply line protection Refer to section "Power Supply"

Terminals Connection terminals screw terminals for wires of 1 to 2.5 mm²

Cable lengths L, N, PE, Y1 depending on the load and in compliance with local

regulations

Degree of protection Protection class I according to EN 60730-1

Protection degree of housing IP30 according to EN 60529

Environmental conditions Operation to IEC 60721-3-3

Climatic conditions class 3K5

Temperature -5 ... +50 °C (non-condensing)

Humidity <85 % r.h.

Mechanical conditions class 3M2

Transport to IEC 60721-3-2

Climatic conditions class 2K3

Temperature -25 ... +65 °C

Humidity <95 % r.h.
Mechanical conditions class 2M2
Product standard EN 60730-1

Automatic electrical controls for household and

similar use

0.28 kg

Electromagnetic compatibility (Applications) For use in residential, commerce, light-industrial

and industrial environments

EU Conformity (CE) CM2T1571xx²⁾

Dimensions Refer to "Dimensions"

Incl. packing

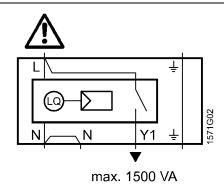
1) The maximum permissible switching current is dependent on the ambient temperature of the

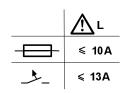
QPA84 (refer to "Engineering notes")

2) The documents can be downloaded from http://siemens.com/bt/download

Internal diagrams

Weight





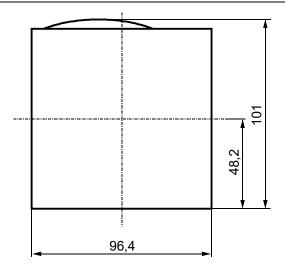
_, N Operating voltage AC 230 V

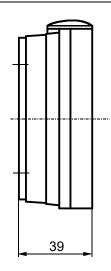
Protective earth connection for loads of safety class I

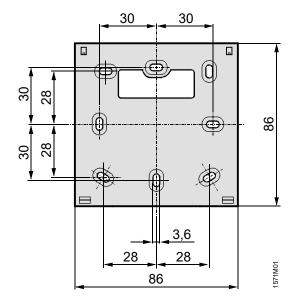
Y1 Control output, demand for ventilation

Dimensions

Dimensions in mm







Mounting plate

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Technical specifications and availability subject to change without notice.