

# SIEMENS



The world-wide standard for home and building control



## Ensuring the perfect room climate – energy-efficiently

KNX-capable Symaro sensors for flush mounting, with minimal energy demand and flexible design

### Demand-controlled ventilation

A low CO<sub>2</sub> value in the ambient air increases the ability to concentrate and the comfort of room users. The new Symaro™ sensors for flush mounting measure the CO<sub>2</sub> value in the air and control ventilation based on demand. This means that only as much fresh air is supplied as necessary. Other influencing factors needed for a comfortable room climate, like humidity and temperature, can also be measured and controlled by the multisensors.

### Broad range of applications

The communicating sensors for flush mounting are especially recommended for areas where people remain for longer periods of time. In addition, they are ideal for rooms where the number of

people present varies over time. In combination with the various frames of the DELTA switch program from Siemens, they can be optimally matched with any room design, from classic to modern.

### High functionality incl. LED display

The communicating sensors for flush mounting measure several variables and provide a connection for a second passive temperature sensor. They can also be used as a controller for room temperature or ventilation or to control lighting and blinds. The current status of the air quality can be displayed on a three-color LED display. Thanks to the KNX S-Mode, the sensors can also be easily integrated into building automation systems from different manufacturers.

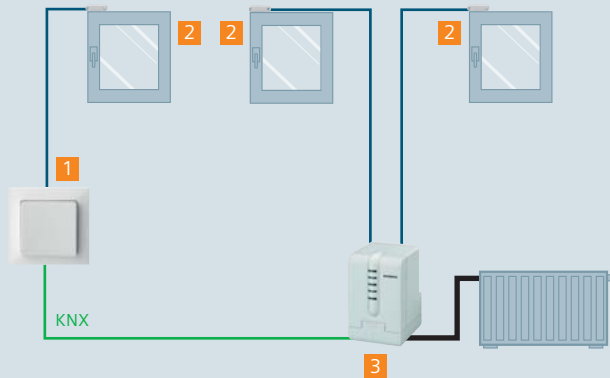
### Highlights

- Attractive design for any room application – can be combined with DELTA frames as well as third-party frames
- Energy savings thanks to fast, highly precise measurement and low energy consumption
- Higher functionality due to multisensor and integrated control function
- Sensors have theft protection and no operating elements – ideal for public places like e.g. schools

Answers for infrastructure.

# Application examples

## Application 1: room temperature control



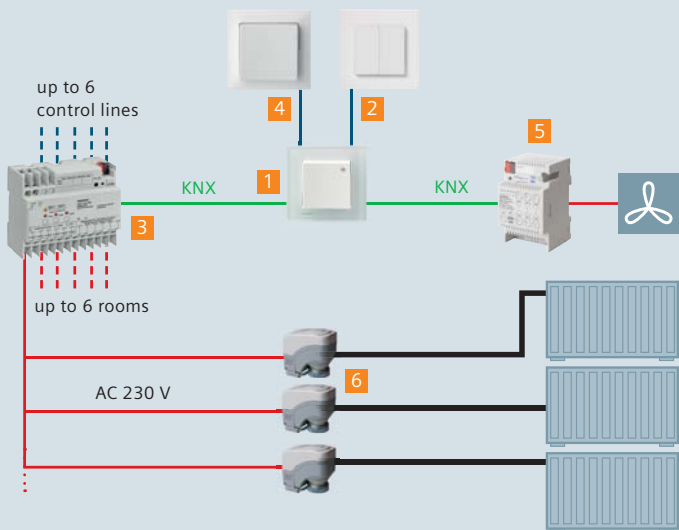
This application is ideal for smaller offices and rooms with only one radiator. The Symaro sensor for flush mounting measures and controls the room temperature and sends the positioning signal via the KNX bus to the valve actuator. In combination with a window contact, the sensor can also identify the current status of a window and transmit it via the KNX bus.

### Legend\*

- 1 Room sensors for flush mounting AQR2570... + AQR2532NNW (2 binary inputs for window contacts)
- 2 Window contact S290
- 3 Electromotive valve actuator AP562/02

\* Possible combination of components

## Application 2: room climate control



This application is especially suitable for rooms with several radiators – for example, in offices, lecture halls or conference rooms. The sensor for flush mounting measures the CO<sub>2</sub> value in the ambient air, controls the ventilation based on demand and so saves energy and costs. In conjunction with the integrated room temperature control, the sensor ensures a comfortable room climate. For example, lighting and blinds can be controlled by means of a conventional double push-button. Furthermore, it is possible to connect an additional room temperature sensor, e.g. to calculate a mean value.

### Legend\*

- 1 Sensors for flush mounting AQR2576... + AQR2535NNWQ (2 binary inputs and 1 analog input NTC 10k)
- 2 Double pushbutton 5TD2 111
- 3 Thermo drive N605 for 6 control loops
- 4 Temperature sensors for flush mounting AQR2500... (mounting plate) + AQR2531FNW (NTC 10k)
- 5 Switching actuator N562/11
- 6 Electrothermal valve actuator STA21 (up to 4 per room)

\* Possible combination of components

## Installation note: energetically optimal mounting



To ensure correct measurement of room temperature and thus energy-efficient operation and the best possible room comfort, the sensors for flush mounting should be:

- positioned 1.5 m above the floor and at a distance of at least 50 cm from the door.
- not mounted on exterior walls, in niches or behind curtains.
- not installed within the radiation zone of heat sources, e.g. light sources.
- not exposed to direct sunlight.

Important note: If an installation conduit is used to install the sensor, it should be ensured that the device-side end is sealed to prevent drafts that will affect the sensor's measurement.

# Physical Sensors

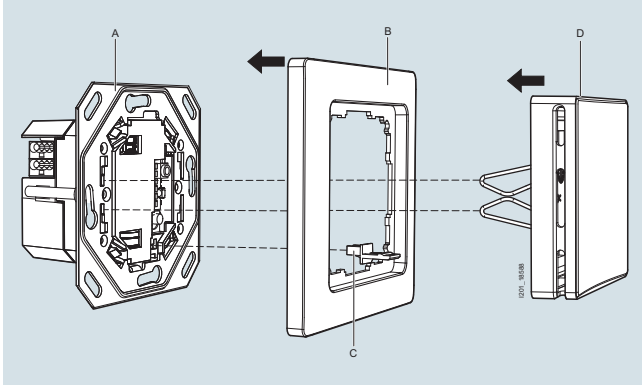
## With KNX Connection

### Introduction

#### Overview

##### Easy to handle

The front modules of the Symaro sensors are equipped with snap-on catches which ensure easy and correct mounting of the front modules onto the base modules. There is also an antitheft stud to prevent unauthorized removal of the front module.



A: AQR257... base module  
 B: DELTA AQR251... frame  
 C: Antitheft stud  
 D: AQR253... front module

##### All-round harmony - with a uniform room design

Symaro sensors for flush mounting blend perfectly with any room design: They can be installed worldwide in all standard flush mounting boxes and are freely combinable with frames from the DELTA line, DELTA miro and DELTA azio switching programs. Matching the sensors with the respective room and switch designs can be done easily.

The snap-in mounting plate for the base modules are available in various country-specific versions. Following international standards are supported: CEE/VDE, British Standard, Italian standard and UL.



The various possible combinations and country-specific versions are listed in the following table:

Type reference	Base module + Front module	Measured variables				Inputs	
		CO <sub>2</sub>	Relative humidity	Temperature	Air quality indication	Temperature passive NTC 10k	Two potential-free contacts
AQR2570Nx	+ AQR2532NNW	--	--	✓	--	✓	✓
	+ AQR2533NNW	--	✓	--	--	✓	✓
	+ AQR2535NNW	--	✓	✓	--	✓	✓
AQR2576Nx	+ AQR2530NNW	✓	--	--	--	✓	✓
	+ AQR2532NNW	✓	--	✓	--	✓	✓
	+ AQR2533NNW	✓	✓	--	--	✓	✓
	+ AQR2535NNW	✓	✓	✓	--	✓	✓
	+ AQR2535NNWQ	✓	✓	✓	✓	✓	✓



"x" must be replaced in accordance with the country-specific standard with:

- F for CEE/VDE (70 x 70 mm)
- H for British Standard (83 x 83 mm)
- G for Italian standard 3 modular (110 x 64 mm)
- J for UL standard (64 x 110 mm)

### Technical specifications

Type	Description
<b>Flush mounting base modules</b>	
 <b>AQR2570 NF</b>	<p><b>KNX AQR2570.. flush mounting base modules</b></p> <ul style="list-style-type: none"> <li>Base module with KNX communication for flush mounting</li> <li>Temperature control can be set as a PWM control and/or continuous-action control (PID algorithm), for heating only, for cooling only, or for heating and cooling mode</li> <li>3 independently adjustable switching values for relative humidity for ventilation control               <ul style="list-style-type: none"> <li>Output for 1, 2 or 3-stage ventilators (humidity)</li> <li>Output for 1, 2 or 3-step actuating signals (humidity)</li> </ul> </li> <li>Setpoint value for room temperature and relative humidity can be set via KNX</li> </ul> <p>Versions</p>
	<ul style="list-style-type: none"> <li>1 analog input for the connection of temperature sensors with NTC 10k measured element for temperature measurement</li> <li>2 multifunctional binary inputs for detection of window contact states, pushbuttons for shutters/blinds and/or light</li> <li>Adjustable commissioning and control parameters</li> <li>Power supply through KNX bus, bus load &lt; 5 mA</li> <li>Maintenance-free</li> <li>Flush mounting in walls using a device box</li> <li>Degree of protection: IP20</li> </ul>
	<p><b>KNX AQR2570NF flush mounting base modules</b></p> <ul style="list-style-type: none"> <li>CEE/VDE support plate, dimensions (L x W x D): approx. 71 x 71 x 39 mm</li> </ul> <p><b>KNX AQR2570NH flush mounting base modules</b></p> <ul style="list-style-type: none"> <li>British Standard, dimensions (L x W x D): 83 x 83 x 39 mm</li> </ul>
	<p><b>KNX AQR2570NG flush mounting base module</b></p> <ul style="list-style-type: none"> <li>3 Modular, dimensions (L x W x D): 110 x 64 x 39 mm</li> </ul> <p><b>KNX AQR2570NJ flush mounting base module</b></p> <ul style="list-style-type: none"> <li>UL, dimensions (L x W x D): 64 x 110 x 39 mm</li> </ul>
<b>Front modules</b>	
 <b>AQR2532 NNW</b>	<p><b>AQR2532NNW front modules</b></p> <ul style="list-style-type: none"> <li>For measuring the room temperature</li> <li>Temperature measuring range: 0...50 °C</li> <li>For mounting on a bus-compatible KNX AQR2576N.. base module (incl. CO<sub>2</sub>) / AQR2570.. base module with antitheft stud (optional)</li> </ul>
	<ul style="list-style-type: none"> <li>Degree of protection: IP30</li> <li>Dimensions (L x W x D): approx. 55 x 55 x 12.5 mm</li> <li>Color: Titanium white</li> </ul>

### Selection and ordering data

Type	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
kg								
<b>Flush mounting base modules</b>								
<b>KNX AQR2570.. flush mounting base modules</b>								
Versions								
	<b>AQR2570NF</b>	• CEE/VDE	A	<b>S55720-S 207</b>	1	1 unit	A04	0.110
	<b>AQR2570NH</b>	• British Standard	A	<b>S55720-S 208</b>	1	1 unit	A04	0.110
	<b>AQR2570NG</b>	• 3 Modular	A	<b>S55720-S 209</b>	1	1 unit	A04	0.110
	<b>AQR2570NJ</b>	• UL	A	<b>S55720-S 210</b>	1	1 unit	A04	0.110
S55720-S 207 S55720-S 208 S55720-S 209 S55720-S 210								
<b>Front modules</b>								
<b>AQR253. front modules <sup>1)</sup></b>								
For mounting on a bus-compatible KNX AQR2570.. base module, titanium white								
	<b>AQR2532 NNW</b>	<b>Temperature measurement</b>	A	<b>S55720-S 136</b>	1	1 unit	A04	0.072
S55720-S 136								



<sup>1)</sup> Suitable for the DELTA line, DELTA miro and DELTA azio frame program, see Catalog ET G1.

# Physical Sensors



## With KNX Connection

### Humidity

#### Technical specifications







Type	Description
<b>Flush mounting base modules</b>	
 <b>AQR2570NF</b>	<p><b>KNX AQR2570.. flush mounting base modules</b></p> <ul style="list-style-type: none"> <li>Base module with KNX communication for flush mounting</li> <li>Temperature control can be set as a PWM control and/or continuous-action control (PID algorithm), for heating only, for cooling only, or for heating and cooling mode</li> <li>3 independently adjustable switching values for relative humidity for ventilation control               <ul style="list-style-type: none"> <li>Output for 1, 2 or 3-stage ventilators (humidity)</li> <li>Output for 1, 2 or 3-step actuating signals (humidity)</li> </ul> </li> <li>Setpoint value for room temperature and relative humidity can be set via KNX</li> </ul> <p>Versions</p>
	<ul style="list-style-type: none"> <li>1 analog input for the connection of temperature sensors with NTC 10k measured element for temperature measurement</li> <li>2 multifunctional binary inputs for detection of window contact states, pushbuttons for shutters/blinds and/or light</li> <li>Adjustable commissioning and control parameters</li> <li>Power supply through KNX bus, bus load &lt; 5 mA</li> <li>Maintenance-free</li> <li>Flush mounting in walls using a device box</li> <li>Degree of protection: IP20</li> </ul>
	<p><b>KNX AQR2570NF flush mounting base modules</b></p> <ul style="list-style-type: none"> <li>CEE/VDE support plate, dimensions (L x W x D): approx. 71 x 71 x 39 mm</li> </ul> <p><b>KNX AQR2570NH flush mounting base modules</b></p> <ul style="list-style-type: none"> <li>British Standard, dimensions (L x W x D): 83 x 83 x 39 mm</li> </ul>
	<p><b>KNX AQR2570NG flush mounting base module</b></p> <ul style="list-style-type: none"> <li>3 Modular, dimensions (L x W x D): 110 x 64 x 39 mm</li> </ul> <p><b>KNX AQR2570NJ flush mounting base module</b></p> <ul style="list-style-type: none"> <li>UL, dimensions (L x W x D): 64 x 110 x 39 mm</li> </ul>
<b>Front modules</b>	
	<p><b>AQR253. front modules</b></p> <ul style="list-style-type: none"> <li>For mounting on a bus-compatible KNX AQR2576N.. base module (incl. CO<sub>2</sub>) / AQR2570.. base module with antitheft stud (optional)</li> <li>Degree of protection: IP30</li> </ul> <p>Versions</p>
	<ul style="list-style-type: none"> <li>Dimensions (L x W x D): approx. 55 x 55 x 12.5 mm</li> <li>Color: Titanium white</li> </ul>
 <b>AQR2533NNW</b>	<p><b>AQR2533NNW front modules</b></p> <ul style="list-style-type: none"> <li>For recording the relative humidity</li> </ul>
	<ul style="list-style-type: none"> <li>Relative humidity measuring range: 0...100%</li> </ul>
<b>AQR2535NNW</b>	<p><b>AQR2535NNW front modules</b></p> <ul style="list-style-type: none"> <li>For recording the temperature and the relative humidity</li> </ul>
	<ul style="list-style-type: none"> <li>Relative humidity measuring range: 0...100%, Temperature measuring range: 0...50 °C</li> </ul>

#### Selection and ordering data


Type	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
kg								
<b>Flush mounting base modules</b>								
<b>KNX AQR2570.. flush mounting base modules</b>								
Versions								
	<b>AQR2570NF</b>	• CEE/VDE	A	<b>S55720-S 207</b>	1	1 unit	A04	0.110
	<b>AQR2570NH</b>	• British Standard	A	<b>S55720-S 208</b>	1	1 unit	A04	0.110
	<b>AQR2570NG</b>	• 3 Modular	A	<b>S55720-S 209</b>	1	1 unit	A04	0.110
	<b>AQR2570NJ</b>	• UL	A	<b>S55720-S 210</b>	1	1 unit	A04	0.110
S55720-S 207 S55720-S 208 S55720-S 209 S55720-S 210								
<b>Front modules</b>								
<b>AQR253. front modules <sup>1)</sup></b>								
For mounting on a bus-compatible KNX AQR2570.. base module, titanium white								
	<b>AQR2533NNW</b>	<b>Humidity</b>	A	<b>S55720-S 140</b>	1	1 unit	A04	0.072
	<b>AQR2535NNW</b>	<b>Temperature and humidity</b>	A	<b>S55720-S 141</b>	1	1 unit	A04	0.072
S55720-S 140 S55720-S 141								

<sup>1)</sup> Suitable for the DELTA line, DELTA miro and DELTA azio frame program, see Catalog ET G1.

### Technical specifications

Type	Description
<b>Flush mounting base modules</b>	
 <b>AQR2576NF</b>	<p><b>KNX AQR2576.. flush mounting base modules</b></p> <ul style="list-style-type: none"> <li>Base module with KNX communication for flush mounting</li> <li>Integrated CO<sub>2</sub> sensor, measuring range 0...5000 ppm</li> <li>Temperature control can be set as a PWM control and/or continuous-action control (PID algorithm), for heating only, for cooling only, or for heating and cooling mode</li> <li>3 independently adjustable switching values for CO<sub>2</sub> concentration and rel. humidity for ventilation control                             <ul style="list-style-type: none"> <li>Output for 1, 2 or 3-stage ventilators (humidity and CO<sub>2</sub>)</li> <li>Output for 1, 2 or 3-step actuating signals (humidity and CO<sub>2</sub>)</li> </ul> </li> <li>Setpoint value for room temperature and relative humidity and CO<sub>2</sub> concentration can be set via KNX</li> </ul> <p>• 1 analog input for the connection of temperature sensors with NTC 10k measured element for temperature measurement</p> <p>• 2 multifunctional binary inputs for detection of window contact states, pushbuttons for shutters/blinds and/or light</p> <p>• Adjustable commissioning and control parameters</p> <p>• Power supply through KNX bus, bus load &lt; 15 mA</p> <p>• Maintenance-free</p> <p>• Flush mounting in walls using a device box</p> <p>• Degree of protection: IP20</p> <p>Versions</p>
	<p><b>KNX AQR2576NF flush mounting base modules</b></p> <ul style="list-style-type: none"> <li>CEE/VDE support plate, dimensions (L x W x D): approx. 71 x 71 x 39 mm</li> </ul> <p><b>KNX AQR2576NH flush mounting base module</b></p> <ul style="list-style-type: none"> <li>British Standard, dimensions (L x W x D): 83 x 83 x 39 mm</li> </ul>
	<p><b>KNX AQR2576NG flush mounting base module</b></p> <ul style="list-style-type: none"> <li>3 Modular, dimensions (L x W x D): 110 x 64 x 39 mm</li> </ul> <p><b>KNX AQR2576NJ flush mounting base module</b></p> <ul style="list-style-type: none"> <li>UL, dimensions (L x W x D): 64 x 110 x 39 mm</li> </ul>
<b>Front modules</b>	
	<p><b>AQR253. front modules</b></p> <ul style="list-style-type: none"> <li>For mounting on a bus-compatible KNX AQR2576N.. base module (incl. CO<sub>2</sub>) / AQR2570.. base module with antitheft stud (optional)</li> <li>Degree of protection: IP30</li> </ul> <p>Dimensions (L x W x D): approx. 55 x 55 x 12.5 mm</p> <p>Color: Titanium white</p> <p>Versions</p>
 <b>AQR2533NNW</b>	<p><b>AQR2533NNW front modules</b></p> <ul style="list-style-type: none"> <li>For recording the relative humidity</li> </ul> <p>Relative humidity measuring range: 0...100%</p>
 <b>AQR2535NNW</b>	<p><b>AQR2535NNW front modules</b></p> <ul style="list-style-type: none"> <li>For recording the temperature and the relative humidity</li> </ul> <p>Relative humidity measuring range: 0...100%, Temperature measuring range: 0...50 °C</p>
 <b>AQR2532NNW</b>	<p><b>AQR2532NNW front modules</b></p> <ul style="list-style-type: none"> <li>For recording the room temperature</li> </ul> <p>Temperature measuring range: 0...50 °C</p>
 <b>AQR2530NNW</b>	<p><b>AQR2530NNW front modules</b></p> <ul style="list-style-type: none"> <li>Blanking cover without measuring function</li> </ul>
 <b>AQR2535NNWQ</b>	<p><b>AQR2535NNWQ front modules</b></p> <ul style="list-style-type: none"> <li>For recording the temperature and the relative humidity, including air quality indicator</li> <li>Indication of air quality by 3-color LED (red (poor), orange (moderate) and green (good))</li> </ul> <p>Relative humidity measuring range: 0...100%, Temperature measuring range: 0...50 °C</p>

### Selection and ordering data



Type	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	
<b>Flush mounting base modules</b>									
	<b>KNX AQR2576.. flush mounting base modules</b>								
	Integrated CO <sub>2</sub> sensor								
	Versions								
	<b>AQR2576NF</b>	• CEE/VDE	A	<b>S55720-S 203</b>		1	1 unit	A04	0.116
	<b>AQR2576NH</b>	• British Standard	A	<b>S55720-S 204</b>		1	1 unit	A04	0.116
<b>AQR2576NG</b>	• 3 Modular	A	<b>S55720-S 205</b>		1	1 unit	A04	0.116	
<b>AQR2576NJ</b>	• UL	A	<b>S55720-S 206</b>		1	1 unit	A04	0.116	

S55720-S 203  
S55720-S 204  
S55720-S 205  
S55720-S 206

# Physical Sensors

## With KNX Connection

### Air quality

Type	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	
<b>Front modules</b>									
 <p>S55720-S 137 S55720-S 136 S55720-S 140 S55720-S 141</p>  <p>S55720-S 219</p>	<b>AQR253. front modules <sup>1)</sup></b> For mounting on a bus-compatible KNX AQR2576N.. base module (incl. CO2), titanium white								
	<b>AQR2530 NNW</b>	<b>Blanking cover without measuring function</b>	A	<b>S55720-S 137</b>		1	1 unit	A04	0.070
	<b>AQR2532 NNW</b>	<b>Temperature measurement</b>	A	<b>S55720-S 136</b>		1	1 unit	A04	0.072
	<b>AQR2533 NNW</b>	<b>Humidity</b>	A	<b>S55720-S 140</b>		1	1 unit	A04	0.072
	<b>AQR2535 NNW</b>	<b>Temperature and humidity</b>	A	<b>S55720-S 141</b>		1	1 unit	A04	0.072
	<b>AQR2535 NNWQ</b>	<b>Temperature and humidity measurement incl. air quality indicator</b>	A	<b>S55720-S 219</b>		1	1 unit	A04	0.072

<sup>1)</sup> Suitable for the DELTA line, DELTA miro and DELTA azio frame program, [see Catalog ET G1](#).

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The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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#### **Answers for infrastructure.**

Our world is undergoing changes that force us to think in new ways: demographic change, urbanization, global warming and resource shortages. Maximum efficiency has top priority – and not only where energy is concerned. In addition, we need to increase comfort for the well-being of users. Also, our need for safety and security is constantly growing. For our customers, success is defined by how well they manage these challenges. Siemens has the answers.

**“We are the trusted technology partner for energy-efficient, safe and secure buildings and infrastructure.”**