



ABB i-bus[®] KNX
Air Quality Sensor LGS/A 1.1
Product Manual

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1 General

Reduction of energy consumption in buildings requires intelligent installation systems. ABB provides the right solution to ABB i-bus® KNX standards. A further larger share in reducing energy consumption in buildings can be achieved with the building shell. This must be sealed from an energy point of view.

However, inadequate ventilation of a building impairs the quality of the room air. The CO₂ concentration of the room air is a verifiable indicator concerning the quality of the room air. A high concentration of carbon dioxide in the air impairs the well-being and performance of the occupants. Therefore, it is essential to ensure a sufficient supply of fresh air.

For this purpose, the DIN 1946-6 demands provision of an external air volume flow of 30 m³/h per person. This value can no longer be achieved with just occasional ventilation or an inclined window due to conventional building standards and the high density of the building shell. For this reason, a controlled ventilation system is required in rooms and buildings. The ABB i-bus® KNX provides the optimum prerequisites for intelligent buildings.

By combining energy management with illumination and shutter control, heating, ventilation and surveillance, the use of the ABB i-bus® KNX enhances the quality of life, comfort and safety and can be easily combined with cost-effectiveness and environmental awareness with minimal planning and installation effort. Furthermore, the flexible usage of rooms and the continuous adaptation to changing requirements are simple to realise.

The ABB i-bus® KNX Air Quality Sensor 1.1 is a combined sensor for CO₂, temperature and humidity measurement (relative humidity). It monitors the air quality in conference and meeting rooms, offices, schools and kindergartens, passive and low energy houses as well as living areas without controlled ventilation. Through its connection to the ABB i-bus® KNX system of a room/building, controlled ventilation with the lowest possible energy consumption can be easily realised on the basis of the monitoring data of the LGS/A in combination with a fresh air supply.



Danger

The Air Quality Sensor is **not** suitable for safety-relevant gas measurements!

1.1 Using the product manual

This manual provides you with detailed technical information relating to the function, installation and programming of the ABB i-bus® KNX Air Quality Sensor LGS/A 1.1.

The application of the device is described using examples.

This manual is divided into the following sections:

Chapter 1	General
Chapter 2	Device technology
Chapter 3	Commissioning
Chapter 4	Planning and application
Chapter A	Appendix

1.1.1 Structure of the product manual

All parameters are described in chapter 3.

1.1.2 Note

Notes and safety instructions are represented as follows in this product manual:

Note
Tips for usage and operation

Examples
Application examples, installation examples, programming examples

Important
These safety instructions are used as soon as there is danger of a malfunction without risk of damage or injury.

Caution
These safety instructions are used if there is a danger of damage with inappropriate use.

 Danger
These safety instructions are used if there is a danger for life and limb with inappropriate use.

  Danger
These safety instructions are used if there is a danger to life with inappropriate use.

1.2 Product and functional overview

The ABB i-bus® KNX Air Quality Sensor LGS/A 1.1 is a CO₂ room air sensor. It measures the CO₂ concentration, temperature and relative humidity of a room. The power is supplied via the KNX, and an additional auxiliary supply is not required. The connection to the ABB i-bus® KNX is implemented via a bus connection terminal in the device interior. The assignment of the physical addresses as well as the parameterization is carried out with Engineering Tool Software ETS3.

The following functions can be set:

- Measured values can be transmitted directly on the bus.
- Three independent programmable thresholds for CO₂ concentration and relative humidity.
- A threshold for the temperature.
- Exceeding or under-shooting (under-running) the thresholds can trigger an action, e.g. sending, switching, value or priority.
- Display of the achieved CO₂ concentration and relative humidity via a four-colour LED on the sensor.
- CO₂ adjustment range from 500...2550 ppm (threshold).
- Relative humidity adjustment range from 1...100 %.
- Temperature adjustment range 0...40 °C.
- A separate communication object *Lock threshold x CO2* (x = 1, 2 or 3) is available for every threshold.
- The communication object *Ventilation* can be used for speed control or as a position indicator for ventilation flaps.

2 Device technology

2.1 Air Quality Sensor LGS/A 1.1



2CDC 071 029 S0010

LGS/A 1.1

The ABB i-bus® KNX Air Quality Sensor 1.1 is a combined sensor for CO₂, temperature and humidity measurement (relative humidity).

Three independent thresholds can be set for the CO₂ concentration and the relative humidity in addition to a threshold for the temperature. Exceeding or under-running the thresholds can trigger an action. A separate communication object *Lock threshold x CO2* (x = 1, 2 or 3) is available for every threshold. Measured values can be transmitted directly on the bus. The communication object *Ventilation* can be used for speed control or as a position indicator for ventilation flaps.

The parameterization is undertaken via the ETS. The connection to the KNX is established using the bus connection terminals on the interior of the device.

2.1.1 Technical data

Supply	Bus voltage	21...30 V DC
	Current consumption via bus	< 12 mA
CO₂	Measuring range	300...9,999 ppm
	Accuracy in the range	
	300...1,000 ppm	± 120 ppm of actual measured value
	1,000...2,000 ppm	± 250 ppm of actual measured value
	2,000...5,000 ppm	± 300 ppm of actual measured value
Humidity	Measuring range	1...100 %
	Accuracy	± 5 % of actual measured value
Temperature	Measuring range	0...40 °C
	Accuracy	± 2 % of actual measured value
Connections	KNX	Via bus connection terminals, □0.8 mm Ø, solid
Operating and display elements	Button/LED <i>Programming</i> in the device interior	for assignment of the physical address
	LED CO ₂ 	Four-colour (green, yellow, orange, red, depending on the parameterization) to indicate the CO ₂ concentration
	LED ΔΔΔ%  (relative humidity)	Four-colour (yellow, green, red, blue, depending on the parameterization) to indicate the relative humidity
Enclosure	IP 20	To EN 60 529
Safety class	III	To EN 60 730-1
Isolation category	Overvoltage category	III to EN 60 664-1
	Pollution degree	2 to EN 60 664-1

KNX safety extra low voltage	SELV 24 V DC	
Temperature range	Operation	-5 °C...+45 °C
	Storage	-10 °C...+60 °C
	Transport	-10 °C...+60 °C
Ambient conditions	Maximum air humidity	93 %, no condensation allowed
Design	Device for wall mounting	
	Dimensions	74 x 74 x 28 mm (H x W x D)
Weight	in kg	0.1
Mounting	Surface Mounting (SM), screw mounted	To EN 60 715
Mounting position	As required	
Housing/colour	Plastic, white (similar to RAL 9010)	
Approvals	KNX to EN 50 090-1, -2	Registered
CE mark	In accordance with the EMC guideline and low voltage guideline	

Device designation	Application program	Maximum number of communication objects	Maximum number of group addresses	Maximum number of associations
LGS/A 1.1	CO2, rel. humidity and temperature/1.1	27	128	128

Note

ETS from version ETS3.0f or higher is required for programming. A *.VD3 or higher type file must be imported. The application program is available in the ETS3 at *ABB/Heating, Ventilation, Air conditioning/Air Quality Sensor*. The device does not support the closing function of a KNX device in the ETS. If you inhibit access to all devices of the project with a *BCU code*, it has no effect on this device. Reading out data and programming is still possible.



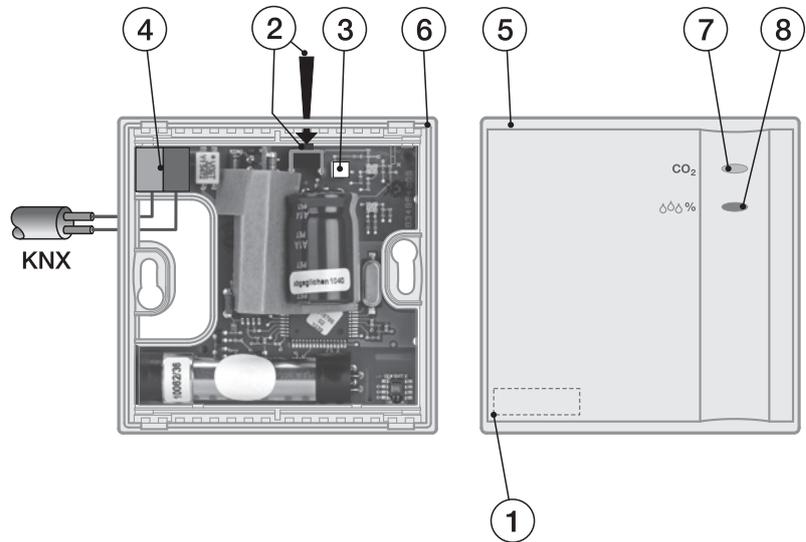
Danger

The Air Quality Sensor is **not** suitable for safety-relevant gas measurements!

Important

Safeguard the device against falling. Vibrations can damage the sensor. Damage to the sensor can lead to incorrect measurement results.

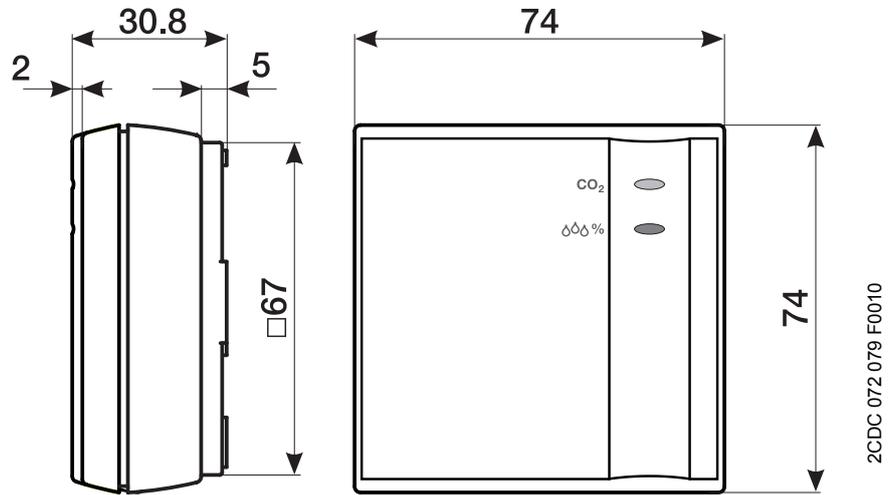
2.1.2 Circuit diagram



- 1 Label carrier
- 2 Button *Programming*
- 3 LED *Programming*
- 4 Bus connection terminal
- 5 Housing upper section
- 6 Housing lower section
- 7 LED CO₂ (four-colour, CO₂ concentration)
- 8 LED ΔΔΔ% (four-colour, relative humidity)

2CDC 072 080 F0010

2.1.3 Dimension drawing



2.2 Assembly and installation

The ABB i-bus® KNX Air Quality Sensor is a wall mounted device. The device should be protected against draughts and heat irradiation as otherwise the measured data will be falsified. Do not mount on soft surfaces as otherwise an exchange of air will not occur.

The connection to the bus is implemented via a bus connection terminal inside the device, refer to [Connection to the KNX](#), page 13.

The device is ready for operation after connection to the bus voltage.

Accessibility to the device for the purpose of operation, testing, visual inspection, maintenance and repair must be provided compliant to VDE 0100-520.

Commissioning requirements

In order to commission the device, a PC with ETS and an interface, e.g. USB or IP, to the ABB i-bus® are required.

The device is ready for operation after connection to the bus voltage.

The installation and commissioning may only be carried out by qualified electrical specialists. The appropriate norms, guidelines, regulations and specifications should be observed when planning and setting up electrical installations.

Protect the device from damp, dirt and damage during transport, storage and operation.

Only operate the device within the specified technical data limits!

Protect the device from dirt and damage.

The voltage supply to the device must be switched off before mounting work is performed!

Supplied state

The device is supplied with the physical address 15.15.255.

The application program is pre-installed. It is therefore only necessary to load group addresses and parameters during commissioning.

However, the complete application program can be reloaded if required. The entire application program is loaded after a change of the application program, after a discontinued download or after discharge of the device. The process takes significantly longer than loading parameters and group addresses.

Download behaviour

Depending on the PC, which is used, the progress bar for the download may take up to one and a half minutes before it appears due to the complexity of the device.

Assignment of the physical address

The assignment and programming of the physical address is carried out in the ETS.

The device features a button *Programming* for assignment of the physical device address. The red LED *Programming* lights up after the button has been pushed. It switches off as soon as the ETS has assigned the physical address or the button *Programming* is pressed again, refer to [Programming of the physical address](#), page 14.

Cleaning

If devices become dirty, they can be cleaned using a dry cloth. Should a dry cloth not remove the dirt, the device can be cleaned using a slightly damp cloth and soap solution. Corrosive agents or solutions should never be used.

Maintenance

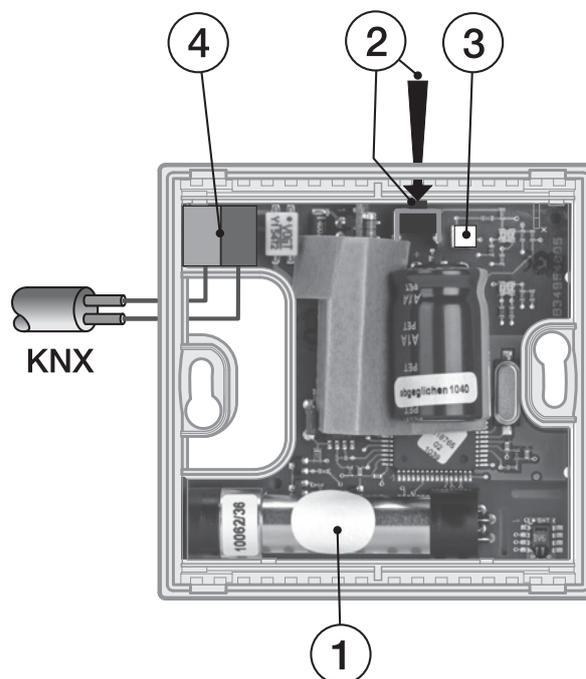
The device is maintenance-free. No repairs should be carried out by unauthorised personnel if damage occurs, e.g. during transport and/or storage.

2.2.1 Opening the device

The device must be opened to connect it to the KNX.

Connection to the KNX

- Open the housing cover with a screwdriver on one of the four side latching lobes.
- Feed the bus cable through the bottom of the opening and into the bus terminal (1). Ensure correct polarity!
- Close the housing cover.



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- 1 Sensor membrane
- 2 Button *Programming*
- 3 LED *Programming*
- 4 Bus terminal connection

Caution

Do not touch the sensor membrane (1) during mounting!
It could cause incorrect measured value detection.

A section of the PCB beside the bus connection terminal is covered with cardboard for isolation purposes. This cardboard may not be removed. Failure to observe this instruction can cause damage to the device due to electrostatic discharge during installation.

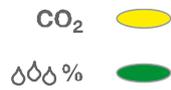
Programming of the physical address

The *Programming* button is located on the LGS/A 1.1 in the interior of the device (2). To press the *Programming* button, push a screwdriver through the opening on the lower section of the device.

The red LED *Programming* LED lights up. This is also easily recognizable with a closed upper housing section.

2.3 Display elements

Two indicator LEDs are located on the front of the Air Quality Sensor:



Four colours are displayed on each indicating the quality of the room air as determined by the parameterized thresholds:

Measured value	LED CO ₂	CO ₂ concentration	LED ∅∅∅%	Room state Humidity
Below threshold 1	Green 	Low	Yellow 	Humidify
Between thresholds 1 and 2	Yellow 	Medium	Green 	Humidity OK
Between thresholds 2 and 3	Orange 	High	Red 	Dehumidify
Below threshold 3	Red 	Very high	Blue 	Condensation alarm

3 Commissioning

The ABB i-bus® KNX Air Quality Sensor 1.1 is a combined sensor for CO₂, temperature and humidity measurement (relative humidity) intended to monitor room air.



Danger

The Air Quality Sensor is **not** suitable for safety-relevant gas measurements!

A short overview of all functions of the Air Quality Sensor can be found in the next chapter.

3.1 Overview

The following table provides an overview of the functions that are possible with the Air Quality Sensor LGS/A 1.1 and the application program *CO₂, rel. humidity and temperature/1.1*.

Parameter window	Functional description
General	Setting for the LED CO ₂ and relative humidity.
Measured values	Settings for sending the CO ₂ concentration, relative humidity and temperature.
Threshold CO₂	Definition of the 3 CO ₂ thresholds.
Threshold 1, 2, 3 CO₂	Setting the reaction for overshoot and undershoot of the corresponding CO ₂ threshold.
Ventilation CO₂	Setting of the fan speed dependent on the CO ₂ concentration.
Scenes CO₂	Setting of the scene numbers to be sent dependent on the CO ₂ concentration.
Thresholds humidity	Definition of the 3 humidity thresholds.
Threshold 1, 2, 3 Humidity	Setting the reaction for overshoot and undershoot of the corresponding humidity threshold.
Ventilation humidity	Setting of the fan speed dependent on the relative humidity.
Scenes humidity	Setting of the scene numbers to be sent dependent on the relative humidity.
Temperature threshold	Definition of the temperature threshold and reaction to overshoot and undershoot.

3.2 Parameters

Parameterization of the Air Quality Sensor is implemented using the Engineering Tool Software ETS3.

The application program is available in the ETS3 at *ABB/Heating, Ventilation, Air conditioning/Air Quality Sensor*.

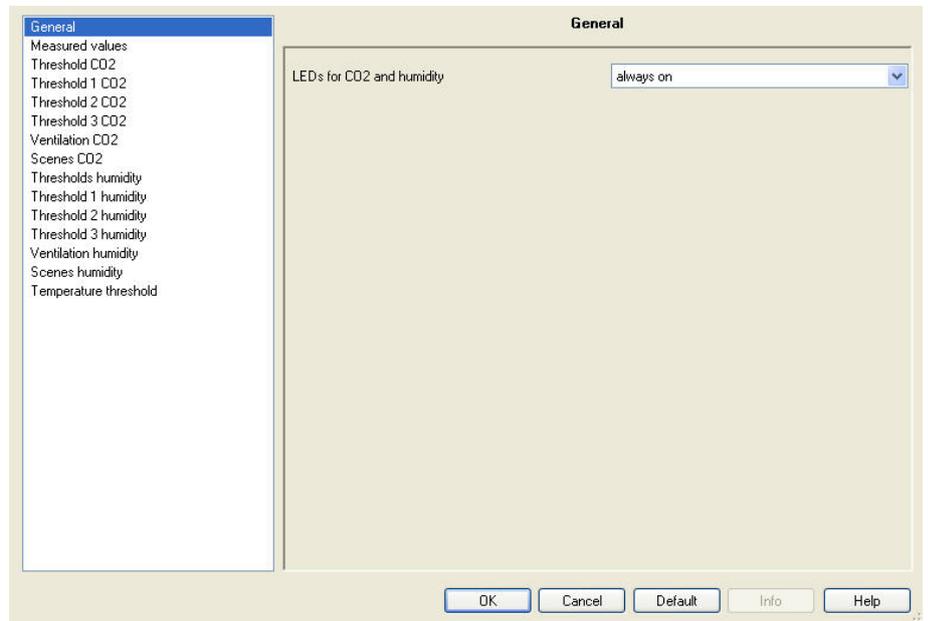
The following chapter describes the parameters of the Air Quality Sensor using the parameter window. The parameter window features a dynamic structure so that further parameters may be enabled depending on the parameterization and the function.

The default values of the parameters are underlined, e.g.:

Options: yes
 no

3.2.1 Parameter window *General*

In the parameter window *General*, the behaviour of the LED on the front of the device is set.



LEDs for CO2 and humidity

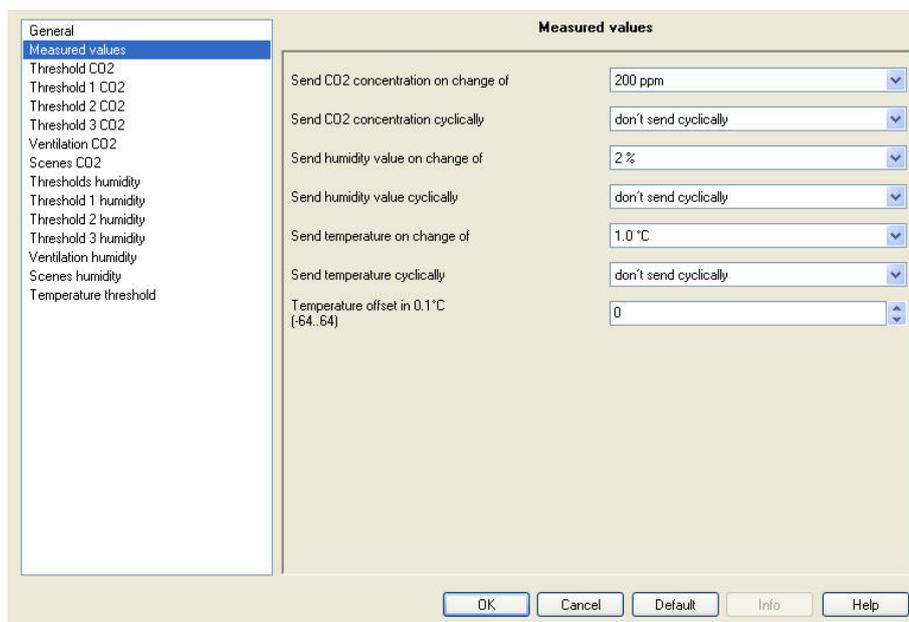
Options: always on
always off
switchable via object 26

This parameter defines the reaction of both LED on the front of the device.

- *always on*: Both LED are always switched on and indicate the current room state based on the parameterized thresholds.
- *always off*: Both LED are always switched off.
- *switchable via object 26*: Both LED can be switched on or off via communication object *switchable via object 26*, e.g. switch off of the LED at night using a timer.

3.2.2 Parameter window *Measured values*

In the parameter window *Measured values*, the settings for sending the CO₂ concentration, temperature and relative humidity are undertaken.



Send CO₂ concentration on change of

Options: not due to a change
100/200/300/500 ppm

- *not due to a change*: The CO₂ concentration is not sent on the bus after a change.
- *100/200/300/500 ppm*: The CO₂ concentration is sent on the bus if the value set here has changed since the last time it was sent.

Send CO₂ concentration cyclically

Options: don't send cyclically
every minute
every 2 min.
every 3 min.
...
every 30 min.
every 45 min.
every 60 min.

- *don't send cyclically*: The CO₂ concentration is not sent cyclically on the bus.
- *every minute*: The CO₂ concentration is sent cyclically every minute on the bus.
- *every X min.*: The CO₂ concentration is sent cyclically every X minutes on the bus.

Send humidity value on change of

Options: not due to a change
2/3/5/10 %

- *not due to a change*: The humidity value is not sent on the bus after a change.
- *2/3/5/10 %*: The humidity value is sent on the bus if the value set here has changed since the last time it was sent.

Send humidity value cyclically

Options: don't send cyclically
every minute
every 2 min.
every 3 min.
...
every 30 min.
every 45 min.
every 60 min.

- *don't send cyclically*: The humidity value is not sent cyclically on the bus.
- *every minute*: The humidity value is sent cyclically every minute on the bus.
- *every X min.*: The humidity value is sent cyclically every X minutes on the bus.

Send temperature on change of

Options: not due to a change
0.5/1.0/1.5/2.0/2.5 °C

- *not due to a change*: The temperature is not sent on the bus after a change.
- *0.5/1.0/1.5/2.0/2.5 °C*: The temperature is sent on the bus if the value set here has changed since the last time it was sent.

Send temperature cyclically

Options: don't send cyclically
every minute
every 2 min.
every 3 min.
...
every 30 min.
every 45 min.
every 60 min.

- *don't send cyclically*: The temperature is not sent cyclically on the bus.
- *every minute*: The temperature is sent cyclically every minute on the bus.
- *every X min.*: The temperature is sent cyclically every X minutes on the bus.

**Temperature offset in 0.1 °C
(-64...64)**

Options: -64...0...64

In this parameter, the correction values for the temperature measurement when the sent temperature deviates from the actual ambient temperature are defined.

Example

Ambient temperature = 20 °C

Sent temperature = 21 °C

Difference = 1 °C

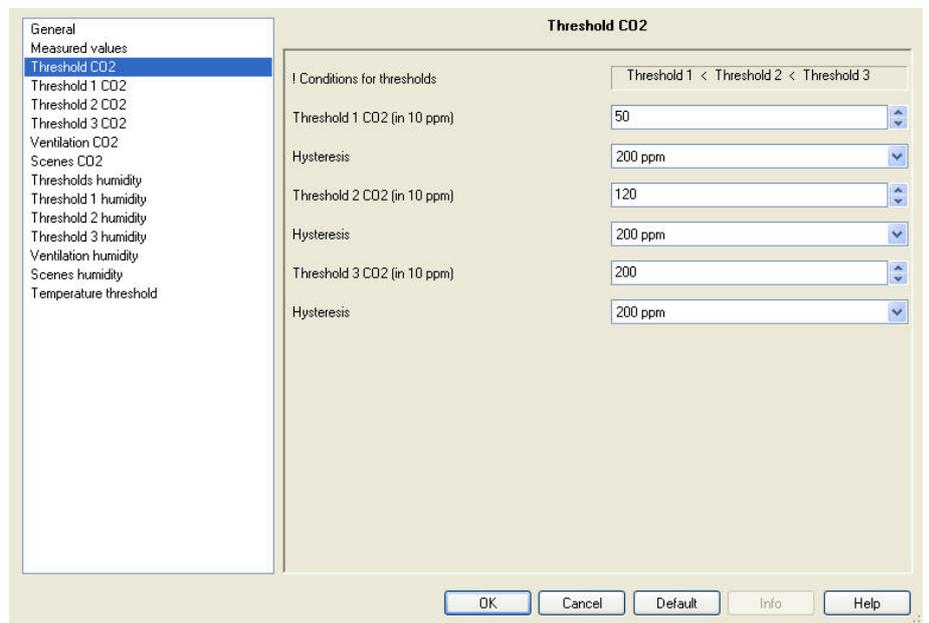
Correction value to be set = 10 (10 = 1 °C / 0.1 °C)

3.2.3 Parameter window *Threshold CO2*

In parameter window *Threshold CO2*, the three thresholds for the CO₂ concentration are set.

Important

The value for threshold 1 must always be less than the value for threshold 2, and the value for threshold 2 must always be less than the value for threshold 3.



! Conditions for thresholds

Threshold 1 < Threshold 2 < Threshold 3

Threshold 1 CO2 (in 10 ppm)

Options: 50...255

This parameter defines threshold 1 for the CO₂ concentration, e.g. the value 50 corresponds to 500 ppm CO₂.

Hysteresis

Options: 100/200/300/500 ppm

This parameter defines the hysteresis value.

For further information see: [Hysteresis](#), page 57

Threshold 2 CO2 (in 10 ppm)

Hysteresis

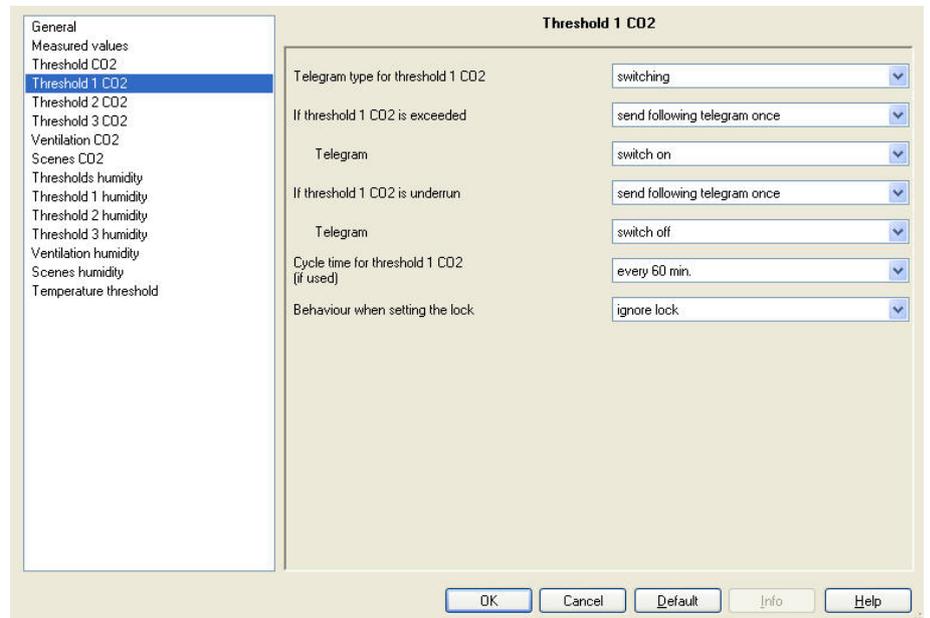
Threshold 3 CO2 (in 10 ppm)

Hysteresis

Note
The functions and setting options of the parameter <i>Threshold 2 CO2 (in ppm)</i> , <i>Threshold 3 CO2 (in ppm)</i> and for <i>Hysteresis</i> do not differ from those of the parameter <i>Threshold 1 CO2 (in ppm)</i> and <i>Hysteresis</i> . Please use the description from parameter <i>Threshold 1 CO2 (in ppm)</i> .

3.2.4 Parameter window *Threshold 1 CO2*

In parameter window *Threshold 1 CO2*, the settings for behaviour at under-run or overshoot of *Threshold 1 CO2* are undertaken.



Telegram type for threshold 1 CO2

Options: switching
 Priority
 value in percent
 value from 0 to 255

This parameter defines whether a switching telegram, priority telegram or a value in % or between 0...255 is sent

The possibility to send a value in percent is important for the [Fan control](#), page 59.

If threshold 1 CO2 is exceeded

If threshold 1 CO2 is underrun

Options: no telegram
 send following telegram once
 send cyclically

This parameter defines the reaction to overshoot or underrun of *Threshold 1 CO2*.

Note

Both of these parameters enable a dependent parameter *Telegram* if a telegram is to be sent once or cyclically.

The option selection for this parameter is dependent on the parameterization of the first parameter *Telegram value...* within this parameter window.

Telegram**With selection *switching*:**

Options: switch off
 switch on

This parameter determines whether a switch off or on command is sent on the bus.

With selection *Priority*:

Options: no priority
 OFF (up)
 ON (down)

This parameter determines whether no priority or the selected priority is sent on the bus.

With selection *value in percent*:

Options: 0/5/...35...95/100 %

This parameter determines the value in percent to be sent on the bus.

With selection *value from 0 to 255*:

Options: 0...85...255

This parameter determines which value is sent on the bus.

**Cycle time for threshold 1 CO2
(if used)**

Options: every minute
 every 2 min.
 every 3 min.
 ...
 every 30 min.
 every 45 min.
 every 60 min.

This parameter determines the time intervals at which *Threshold 1 CO2* is sent on the bus.

Note

The cycle time is only relevant for the parameters/ thresholds (e.g. parameters *If threshold 1 CO2 is exceeded* and/or *If threshold 1 CO2 is underrun*) for which the option *send cyclically* has been selected.

Behaviour when setting the lock

Options: ignore lock
 do not send
 same as threshold exceeded
 same as threshold underrun

- *ignore lock*: The *Threshold 1 CO2* cannot be inhibited.
- *do not send*: The *Threshold 1 CO2* is not sent as long as the communication object *Lock threshold 1 CO2* is set.
- *same as threshold exceeded*: When setting the communication object *Lock threshold 1 CO2*, the same telegram is sent on the bus as is sent with an underrun of *Threshold 1 CO2*.
- *same as threshold underrun*: When setting the communication object *Lock threshold 1 CO2*, the same telegram is sent on the bus as is sent with an overshoot of *Threshold 1 CO2*.

Behaviour when releasing the lock

Options: do not send
 update

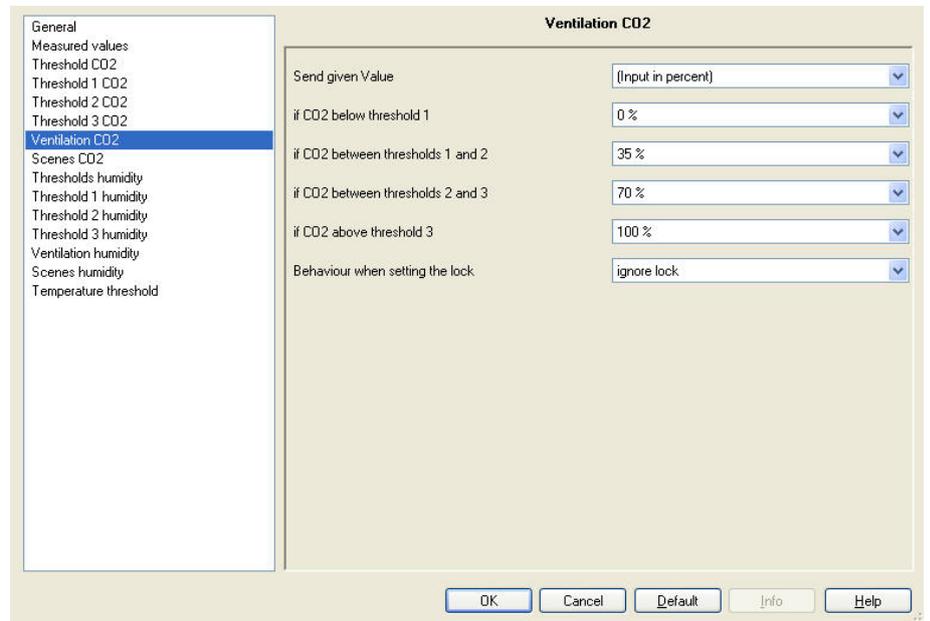
- *do not send*: There is no reaction when the block is released.
- *update*: When releasing the lock, the current threshold value is sent on the bus.

3.2.5 Parameter window
*Threshold 2 CO2***3.2.6** Parameter window
*Threshold 3 CO2***Note**

The functions and setting options of the parameter window *Threshold 2 CO2* and *Threshold 3 CO2* do not differ from those of the parameter window *Threshold 1 CO2*. For this reason, please take the description from parameter window [Threshold 1 CO2](#), page 25.

3.2.7 Parameter window *Ventilation CO2*

In the parameter window *Ventilation CO2*, the settings for the fan control are undertaken.



Send given Value:

Options: (Input as figure from 0 to 255)
 (Input in percent)

This parameter defines the input format for the fan control.
This setting is relevant for the Fan Coil Actuator.

Depending on the selected input format, the following option selections change.

if CO2 below threshold 1

if CO2 between thresholds 1 and 2

if CO2 between thresholds 2 and 3

if CO2 above threshold 3

Options: 0...100 %
 0...255

This parameters define the fan speed in dependence on the CO₂ concentration (parameterized threshold values)

Behaviour when setting the lock

Options: ignore lock
 do not send
 send following value

- *ignore lock*: The threshold *Ventilation CO2* cannot be locked.
- *do not send*: The threshold *Ventilation CO2* is not sent as long as the communication object *Lock ventilation CO2* is set.
- *send following value*: When the communication object *Lock ventilation CO2* is set, the value of the following parameter is sent on the bus.

Depending on the selected input format, the following parameters change.

Value if locked**Value if locked (0-255)**

Options: 0...100 %
 0...255

This parameter determines the value which should be sent on the bus when communication object *Lock ventilation CO2* is set.

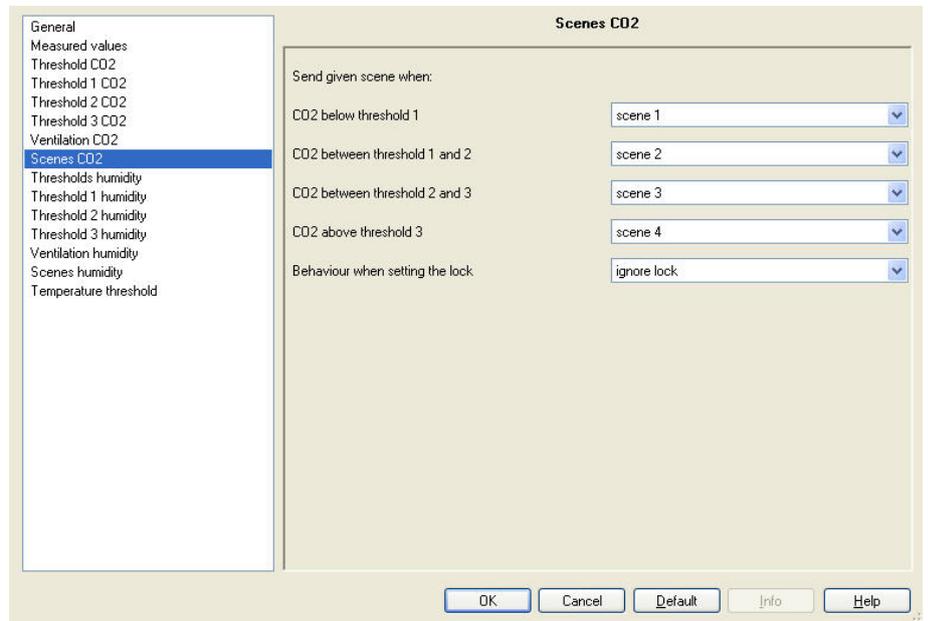
Behaviour when releasing the lock

Options: do not send
 update

- *do not send*: There is no reaction when the block is released.
- *update*: When releasing the lock, the current threshold value is sent on the bus.

**3.2.8 Parameter window
Scenes CO2**

The different thresholds can be assigned with scene numbers in parameter window *Scenes CO2*.



Send given scene when:

CO2 below threshold 1

Options: scene 1
...
scene 64

CO2 between threshold 1 and 2

Options: scene 1
scene 2
...
scene 64

CO2 between threshold 2 and 3

Options: scene 1
scene 2
scene 3
...
scene 64

CO2 above threshold 3

Options: scene 1
...
scene 4
...
scene 64

Each of these parameters can be assigned to a scene number (1...64). The scene number is sent on the bus when the respective threshold is reached.

For further information see: Parameter window Scenes in the corresponding product manuals of the other KNX devices of the installation system

Behaviour when setting the lock

Options: ignore lock
do not send
send scene

- *ignore lock*: The communication object *Scenes CO2* cannot be inhibited.
- *do not send*: The communication object *Scenes CO2* is not sent as long as the communication object on *Lock CO2 scenes* is set.
- *send scene*: When the communication object *Lock CO2 scenes* is set, the scene of the following parameters is sent on the bus.

Scene if locked

Options: scene 1
...
scene 64

This parameter determines the scene number, which should be sent on the bus when communication object *Lock CO2 scenes* is set.

Behaviour when releasing the lock

Options: do not send
update

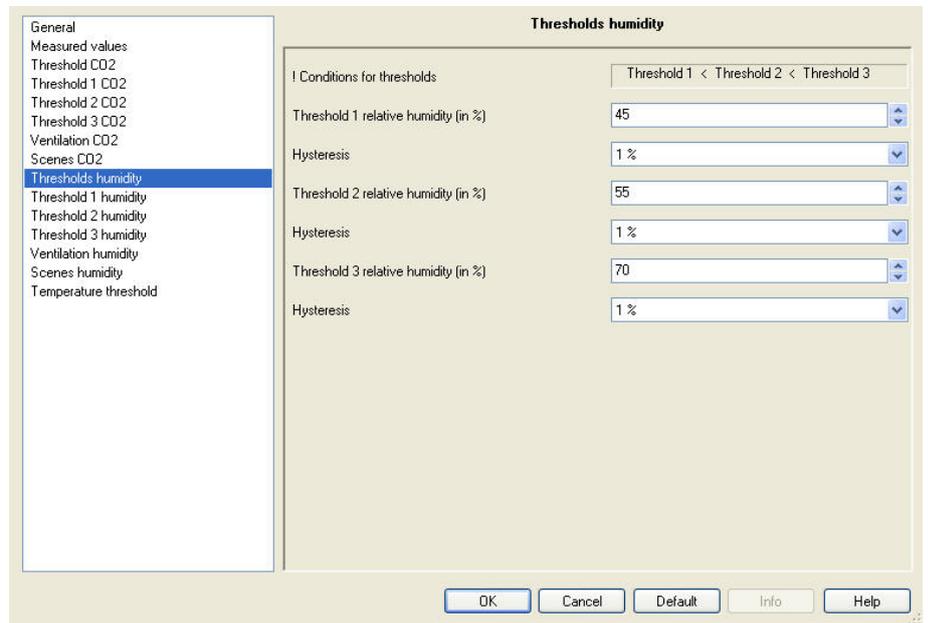
- *do not send*: There is no reaction when the block is released.
- *update*: When releasing the lock, the current state is sent on the bus.

3.2.9 Parameter window
Thresholds humidity

In parameter window *Threshold humidity*, the three thresholds for the relative humidity are set.

Important

The value for threshold 1 must always be less than the value for threshold 2, and the value for threshold 2 must always be less than the value for threshold 3.



! Conditions for thresholds

Threshold 1 < Threshold 2 < Threshold 3

Threshold 1 relative humidity (in %)

Options: 0...45...100

This parameter defines threshold value 1 for relative humidity in percent

Hysteresis

Options: 1/2/3/5/7/10 %

This parameter defines the hysteresis value.

For further information see: [Hysteresis](#), page 57

Example

The actual threshold value with the default settings shown here is thus 46 %. This results from the relative humidity of 45 % and the hysteresis of 1 %.

Threshold 2 relative humidity (in %)

Hysteresis

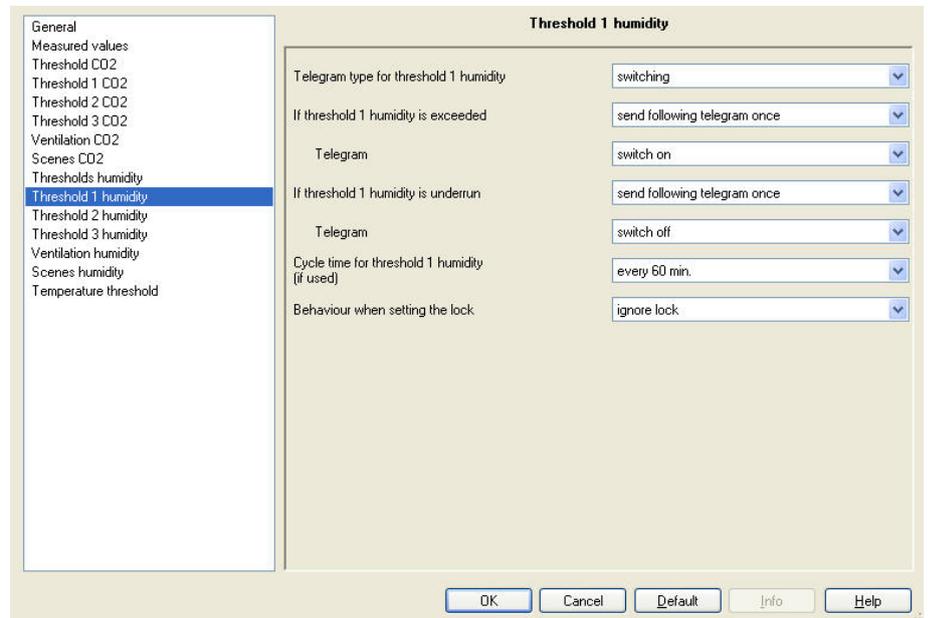
Threshold 3 relative humidity (in %)

Hysteresis

Note
The functions and setting options of the parameter <i>Threshold 2 relative humidity (in %)</i> , <i>Threshold 3 relative humidity (in %)</i> and for <i>Hysteresis</i> do not differ from those of the parameter <i>Threshold 1 relative humidity (in %)</i> and <i>Hysteresis</i> . Please find the description from parameter <i>Threshold 1 relative humidity (in %)</i> .

3.2.10 Parameter window *Threshold 1 humidity*

In parameter window *Threshold 1 humidity*, the settings for behaviour at underrun or exceeded of *Threshold 1 CO2* are undertaken.



Telegram type for threshold 1 humidity

Options: switching
Priority
value in percent
value from 0 to 255

This parameter defines whether a switching telegram, priority telegram or a value in % or between 0...255 is sent.

The possibility to send a value in percent is important for the [Fan control](#), page 59.

If threshold 1 humidity is exceeded

If threshold 1 humidity is underrun

Options: no telegram
send following telegram once
send cyclically

This parameter defines the reaction to overshoot or underrun of *Threshold 1 humidity*.

Note

Both of these parameters enable a dependent parameter *Telegram* if a telegram is to be sent once or cyclically.

The option selection for this parameter is dependent on the parameterization of the first parameter *Telegram value...* within this parameter window.

Telegram**With selection *switching*:**

Options: switch off
 switch on

This parameter determines whether a switch off or on command is sent on the bus.

With selection *Priority*:

Options: no priority
 OFF (up)
 ON (down)

This parameter determines whether no priority or the selected priority is sent on the bus.

With selection *value in percent*:

Options: 0/5/...35...95/100 %

This parameter determines the value in percent to be sent on the bus.

With selection *value from 0 to 255*:

Options: 0...85...255

This parameter determines which value is sent on the bus.

**Cycle time for threshold 1 humidity
(if used)**

Options: every minute
 every 2 min.
 every 3 min.
 ...
 every 30 min.
 every 45 min.
 every 60 min.

This parameter determines the time intervals at which *Threshold 1 humidity* is sent on the bus.

Note

The cycle time is only relevant for the parameters/ thresholds (e.g. parameters *If threshold 1 humidity is exceeded* and/or *If threshold 1 humidity is underrun*) for which the option *send cyclically* has been selected.

Behaviour when setting the lock

Options: ignore lock
 do not send
 same as threshold exceeded
 same as threshold underrun

- *ignore lock*: The *Threshold 1* humidity cannot be inhibited.
- *do not send*: The *Threshold 1 humidity* is not sent as long as the communication object *Lock threshold 1 humidity* is set.
- *same as threshold exceeded*: When setting the communication object *Lock threshold 1 humidity*, the same telegram is sent on the bus as is sent with an underrun of *Threshold 1 humidity*.
- *same as threshold underrun*: When setting the communication object *Lock threshold 1 humidity*, the same telegram is sent on the bus as is sent with an overshoot of *Threshold 1 humidity*.

Behaviour when releasing the lock

Options: do not send
 update

- *do not send*: There is no reaction when the block is released.
- *update*: When releasing the lock, the current threshold value is sent on the bus.

3.2.11 Parameter window
Threshold 2 humidity

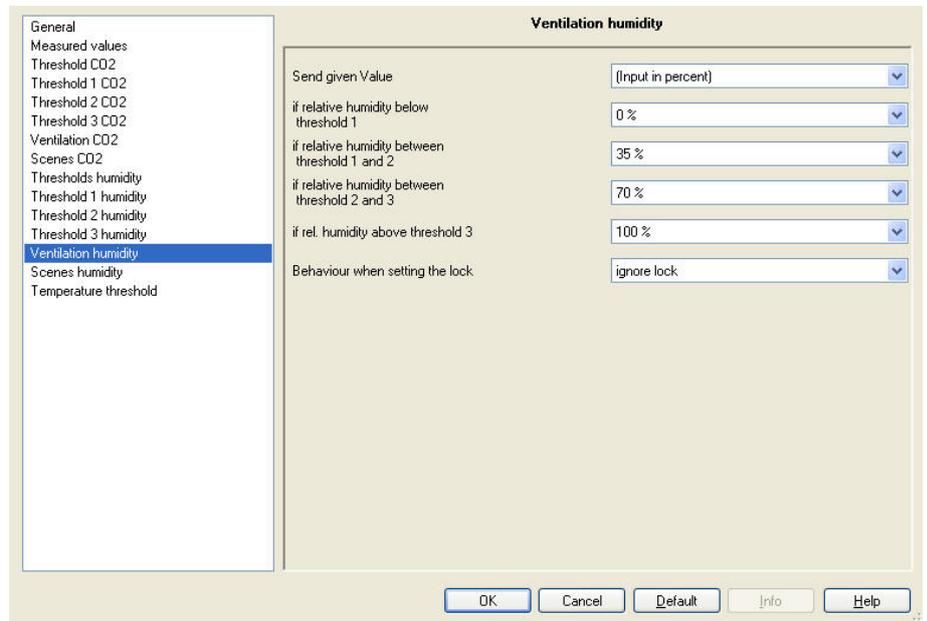
3.2.12 Parameter window
Threshold 3 humidity

Note

The functions and setting options of the parameter window *Threshold 2 humidity* and *Threshold 3 humidity* do not differ from those of the parameter window *Threshold 1 humidity*. For this reason, please take the description from parameter window [Threshold 1 humidity](#), page 35.

3.2.13 Parameter window *Ventilation humidity*

In the parameter window *Ventilation humidity*, the settings for the fan control are undertaken.



Send given Value:

Options: (Input as figure from 0 to 255)
(Input in percent)

This parameter defines the input format for the fan control.
This setting is relevant for the Fan Coil Actuator.

Depending on the selected input format, the following option selections change.

if relative humidity below threshold 1

if relative humidity between thresholds 1 and 2

if relative humidity between thresholds 2 and 3

if rel. humidity above threshold 3

Options: 0...100 %
0...255

These parameters define the fan speed in dependence on the moisture concentration (parameterized threshold values)

Behaviour when setting the lock

Options: ignore lock
 do not send
 send following value

- *ignore lock*: The *Ventilation rel. humidity* cannot be inhibited.
- *do not send*: The threshold *Ventilation rel. humidity* is not sent as long as the communication object *Lock ventilation rel. humidity* is set.
- *send following value*: When the communication object *Lock ventilation rel. humidity* is set, the value of the following parameter is sent on the bus.

Depending on the selected input format, the following parameters change.

Value if locked

Options: 0...100 %

This parameter determines the value that should be sent on the bus when communication object *Lock ventilation rel.humidity* is set.

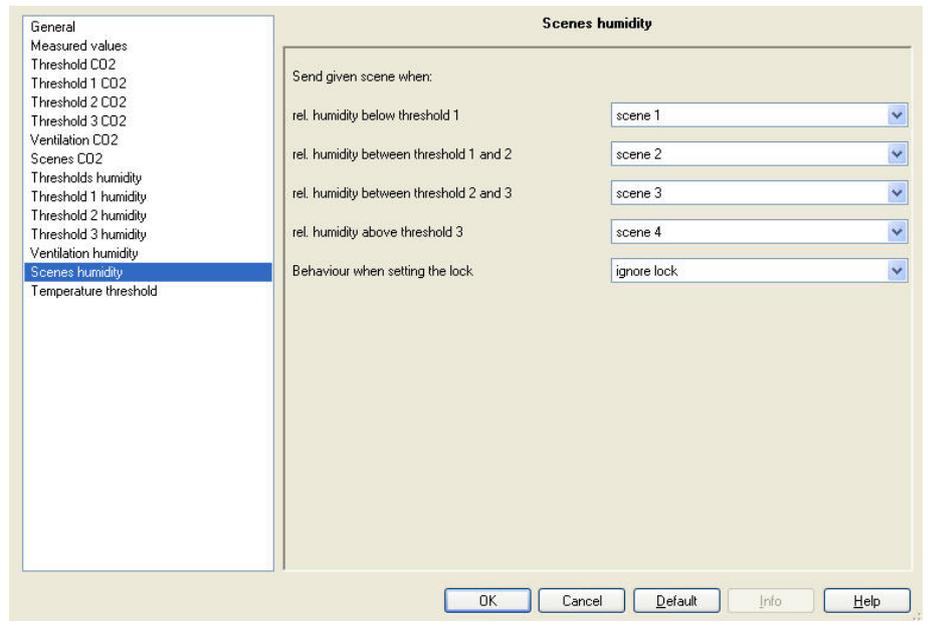
Behaviour when releasing the lock

Options: do not send
 update

- *do not send*: There is no reaction when the block is released.
- *update*: When releasing the lock, the current threshold value is sent on the bus.

3.2.14 Parameter window *Scenes humidity*

The different thresholds can be assigned with scene numbers in parameter window *Scenes humidity*.



Send given scene when:

rel. humidity below threshold 1

Options: scene 1
...
scene 64

rel. humidity between thresholds 1 and 2

Options: scene 1
scene 2
...
scene 64

rel. humidity between thresholds 2 and 3

Options: scene 1
scene 2
scene 3
...
scene 64

rel. humidity above threshold 3

Options: scene 1
...
scene 4
...
scene 64

Each of these parameters can be assigned to a scene number (1...64). The scene number is sent on the bus when the respective threshold is reached.

For further information see: Parameter window Scenes in the corresponding product manuals of the other KNX devices of the installation system

Behaviour when setting the lock

Options: ignore lock
do not send
send scene

- *ignore lock*: The communication object *Scenes rel. humidity* cannot be inhibited.
- *do not send*: The communication object *Scenes rel. humidity* is not sent as long as the communication object on *Lock scenes rel. humidity* is set.
- *send scene*: When the communication object *Lock scenes rel. humidity* is set, the scene of the following parameters is sent on the bus.

Scene if locked

Options: scene 1
...
scene 64

This parameter determines the scene number, which should be sent on the bus, when communication object *Lock scenes rel. humidity* is set.

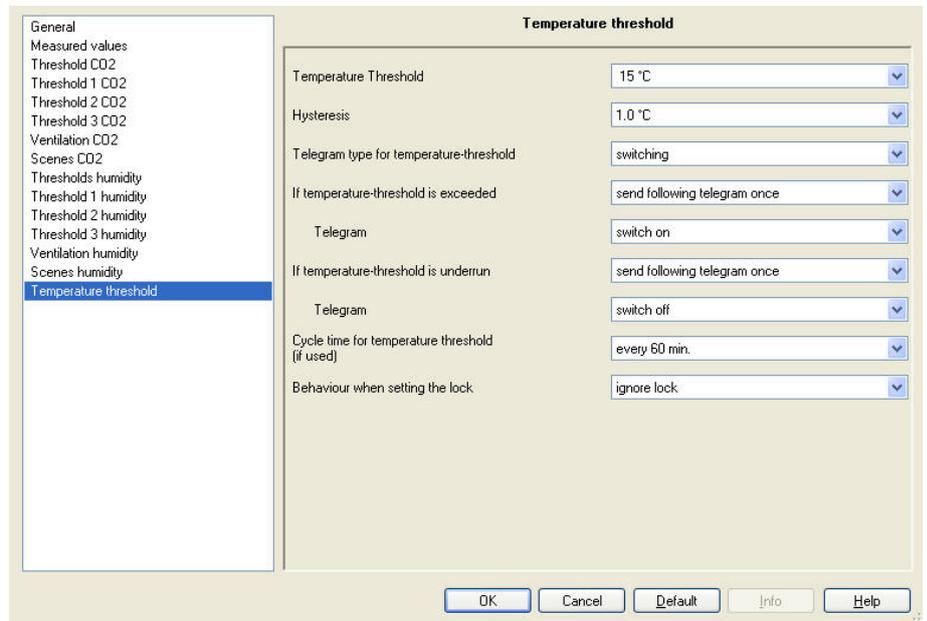
Behaviour when releasing the lock

Options: do not send
update

- *do not send*: There is no reaction when the block is released.
- *update*: When releasing the lock, the current state is sent on the bus.

3.2.15 Parameter window *Temperature threshold*

In this parameter window, the settings for the *Temperature threshold* are undertaken.



Temperature Threshold

Options: 1...15...40 °C

This parameter defines the temperature threshold in °C.

Hysteresis

Options: 1.0/1.5/2.0/2.5 °C

This parameter defines the hysteresis value.

For further information see: [Hysteresis](#), page 57

Telegram type for temperature-threshold

Options: switching
Priority
value in percent
value from 0 to 255

This parameter defines whether a switching telegram, priority telegram or a value in % or between 0...255 is sent.

The possibility to send a value in percent is important for the [Fan control](#), page 59.

If temperature-threshold is exceeded**If temperature-threshold is underrun**

Options: no telegram
 send following telegram once
 send cyclically

This parameter defines the reaction to overshoot or underrun of a *Temperature threshold*.

Note

Both of these parameters enable a dependent parameter *Telegram* if a telegram is to be sent once or cyclically.

The option selection for this parameter is dependent on the parameterization of the first parameter *Telegram value...* within this parameter window.

Telegram**With selection *switching*:**

Options: switch off
 switch on

This parameter determines whether a switch off or on command is sent on the bus.

With selection *Priority*:

Options: no priority
 OFF (up)
 ON (down)

This parameter determines whether no priority or the selected priority is sent on the bus.

With selection *value in percent*:

Options: 0/5/...35...95/100 %

This parameter determines the value in percent to be sent on the bus.

With selection *value from 0 to 255*:

Options: 0...85...255

This parameter determines which value is sent on the bus.

**Cycle time for temperature threshold
(if used)**

Options: every minute
 every 2 min.
 every 3 min.
 ...
 every 30 min.
 every 45 min.
 every 60 min.

This parameter determines the time intervals at which *Temperature threshold* is sent on the bus.

Note

The cycle time is only relevant for the parameters/ thresholds (e.g. parameters *If temperature threshold is exceeded* and/or *If temperature threshold is underrun*) for which the option *send cyclically* has been selected.

Behaviour when setting the lock

Options: ignore lock
 do not send
 same as threshold exceeded
 same as threshold underrun

- *ignore lock*: The *Temperature threshold* can not be inhibited.
- *do not send*: The *Temperature threshold* is not sent as long as the communication object *Lock temperature threshold* is set.
- *same as threshold exceeded*: When setting the communication object *Lock temperature threshold*, the same telegram is sent on the bus as is sent with an underrun of the *Temperature threshold*.
- *same as threshold underrun*: When setting the communication object *temperature threshold*, the same telegram is sent on the bus as is sent with an overshoot of *Temperature threshold*.

Behaviour when releasing the lock

Options: do not send
 update

- *do not send*: There is no reaction when the block is released.
- *update*: When releasing the lock, the current threshold value is sent on the bus.

3.3 Communication objects

In this chapter, the communication objects of the Air Quality Sensor LGS/A 1.1 are described.

In order to obtain a quick overview of the function possibilities of the Air Quality Sensor, all communication objects are listed in an overview table. The detailed function can be examined in more detail in the subsequent description of the individual communication objects.

Note

Some communication objects are dynamic and are only visible if the corresponding parameters are activated in the application software.

3.3.1 Brief overview of the communication objects

CO* No.	Name	Function	Data Point Type (DPT)	Length	Flags				
					C	R	W	T	A
0	CO2 Value	Physical value	DPT 9.008	2 byte	x	x		x	
1	Rel. humidity value	Physical value	DPT 5.001	1 byte	x	x		x	x
2	Temperature value	Physical value	DPT 9.001	2 byte	x	x		x	x
3	Threshold 1 CO2	Switch	DPT 1.001	1 bit	x	x		x	x
		Value	DPT 5.001 DPT 5.010	1 byte	x	x		x	x
		Priority	DPT 2.001	2 bit	x	x		x	x
4	Lock threshold 1 CO2	Input	DPT 1.001	1 bit	x	x	x		
5	Threshold 2 CO2	Switch	DPT 1.001	1 bit	x	x		x	x
		Value	DPT 5.001 DPT 5.010	1 byte	x	x		x	x
		Priority	DPT 2.001	2 bit	x	x		x	x
6	Lock threshold 2 CO2	Input	DPT 1.001	1 bit	x	x	x		
7	Threshold 3 CO2	Switch	DPT 1.001	1 bit	x	x		x	x
		Value	DPT 5.001 DPT 5.010	1 byte	x	x		x	x
		Priority	DPT 2.001	2 bit	x	x		x	x
8	Lock threshold 3 CO2	Input	DPT 1.001	1 bit	x	x	x		
9	Ventilation CO2	Value for ventilation-actuator	DPT 5.001	1 byte	x	x		x	
10	Lock ventilation CO2	Input	DPT 1.001	1 bit	x	x	x	x	
11	Scenes CO2	Scene control	DPT 18.001	1 byte	x	x		x	
12	Lock CO2 scenes	Input	DPT 1.001	1 bit	x	x	x		
13	Threshold 1 humidity	Switch	DPT 1.001	1 bit	x	x		x	x
		Value	DPT 5.001 DPT 5.010	1 byte	x	x		x	x
		Priority	DPT 2.001	2 bit	x	x		x	x
14	Lock threshold 1 humidity	Input	DPT 1.001	1 bit	x	x	x		
15	Threshold 2 humidity	Switch	DPT 1.001	1 bit	x	x		x	x
		Value	DPT 5.001 DPT 5.010	1 byte	x	x		x	x
		Priority	DPT 2.001	2 bit	x	x		x	x
16	Lock threshold 2 humidity	Input	DPT 1.001	1 bit	x	x	x		
17	Threshold 3 humidity	Switch	DPT 1.001	1 bit	x	x		x	x
		Value	DPT 5.001 DPT 5.010	1 byte	x	x		x	x
		Priority	DPT 2.001	2 bit	x	x		x	x
18	Lock threshold 3 humidity	Input	DPT 1.001	1 bit	x	x	x		

CO* No.	Name	Function	Data Point Type (DPT)	Length	Flags				
					C	R	W	T	A
19	Ventilation rel. humidity	Value for ventilation-actuator	DPT 5.001 DPT 5.010	1 byte	x	x		x	
20	Lock ventilation rel. humidity	Input	DPT 1.001	1 bit	x	x	x	x	
21	Scenes rel. humidity	Scene control	DPT 18.001	1 byte	x	x		x	
22	Lock scenes rel. humidity	Input	DPT 1.001	1 bit	x	x	x		
23	Temperature threshold	Switch	DPT 1.001	1 bit	x	x		x	x
		Value	DPT 5.001 DPT 5.010	1 byte	x	x		x	x
		Priority	DPT 2.001	2 bit	x	x		x	x
24	Lock temperature threshold	Input	DPT 1.001	1 bit	x	x	x		
25	Highest active value ventilation	Value for ventilation-actuator	DPT 5.010	1 byte	x	x		x	
26	LEDs for CO2 and humidity	Switch On / Off	DPT 1.001	1 bit	x	x	x		

* CO = communication object

3.3.2 Communication objects
LGS/A 1.1

Number	Name	Object Function	Length	C	R	W	T	U
0	CO2 Value	Physical value	2 Byte	C	R	-	T	-
1	Rel. humidity value	Physical value	1 Byte	C	R	-	T	-
2	Temperature value	Physical value	2 Byte	C	R	-	T	-
3	Threshold 1 CO2	Switch	1 bit	C	R	-	T	-
4	Lock threshold 1 CO2	Input	1 bit	C	R	W	-	-
5	Threshold 2 CO2	Switch	1 bit	C	R	-	T	-
6	Lock threshold 2 CO2	Input	1 bit	C	R	W	-	-
7	Threshold 3 CO2	Switch	1 bit	C	R	-	T	-
8	Lock threshold 3 CO2	Input	1 bit	C	R	W	-	-
9	Ventilation CO2	Value for ventilation-actuator	1 Byte	C	R	-	T	-
10	Lock ventilation CO2	Input	1 bit	C	R	W	-	-
11	Scenes CO2	Scene Control	1 Byte	C	R	-	T	-
12	Lock CO2 scenes	Input	1 bit	C	R	W	-	-
13	Threshold 1 humidity	Switch	1 bit	C	R	-	T	-
14	Lock threshold 1 humidity	Input	1 bit	C	R	W	-	-
15	Threshold 2 humidity	Switch	1 bit	C	R	-	T	-
16	Lock threshold 2 humidity	Input	1 bit	C	R	W	-	-
17	Threshold 3 humidity	Switch	1 bit	C	R	-	T	-
18	Lock threshold 3 humidity	Input	1 bit	C	R	W	-	-
19	Ventilation rel. humidity	Value for ventilation-actuator	1 Byte	C	R	-	T	-
20	Lock ventilation rel. humidity	Input	1 bit	C	R	W	-	-
21	Scenes rel. humidity	Scene Control	1 Byte	C	R	-	T	-
22	Lock scenes rel. humidity	Input	1 bit	C	R	W	-	-
23	Temperature threshold	Switch	1 bit	C	R	-	T	-
24	Lock temperature treshold	Input	1 bit	C	R	W	-	-
25	Highest active value ventilation	Value for ventilation-actuator	1 Byte	C	R	-	T	-
26	LEDs for CO2 and humidity	On / Off	1 bit	C	R	W	-	-

No.	Name	Function	Data type	Flags
0	CO2 Value	Physical value	2 byte DPT 9.008	C, R, T
This communication object sends the current CO ₂ concentration measured by the sensor, provided that it is permitted by the parameterization.				
1	Rel. humidity value	Physical value	1 byte DPT 5.015	C, R, T
This communication object sends the current relative humidity measured by the sensor, provided that it is permitted by the parameterization.				
2	Temperature value	Physical value	2 byte DPT 9.001	C, R, T
This communication object sends the current temperature measured by the sensor, provided that it is permitted by the parameterization.				
3	Threshold 1 CO2	Switch	1 bit DPT 1.001	C, R, T
Communication object output for threshold 1 CO2.				

No.	Name	Function	Data type	Flags
3	Threshold 1 CO2	Value	1 byte DPT 5.001 DPT 5.010	C, R, T
Communication object output for threshold 1 CO2.				
3	Threshold 1 CO2	Priority	2 bit DPT 2.001	C, R, T
Communication object output for threshold 1 CO2.				
4	Lock threshold 1 CO2	Input	1 bit DPT 1.001	C, R, W
<p>This communication object is enabled if in parameter window Threshold 1 CO2, page 25, the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same as threshold exceeded</i> or <i>same as threshold underrun</i>.</p> <p>Using this communication object, the CO₂ dependent ventilation can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				
5	Threshold 2 CO2	Switch	1 bit DPT 1.001	C, R, T
Communication object output for threshold 2 CO2.				
5	Threshold 2 CO2	Value	1 byte DPT 5.001 DPT 5.010	C, R, T
Communication object output for threshold 2 CO2.				
5	Threshold 2 CO2	Priority	2 bit DPT 2.001	C, R, T
Communication object output for threshold 2 CO2.				
6	Lock threshold 2 CO2	Input	1 bit DPT 1.001	C, R, W
<p>This communication object is enabled if in parameter window Threshold 2 CO2, page 28, the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same as threshold exceeded</i> or <i>same as threshold underrun</i>.</p> <p>Using this communication object, the CO₂ dependent ventilation can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				

No.	Name	Function	Data type	Flags
7	Threshold 3 CO2	Switch	1 bit DPT 1.001	C, R, T
Communication object output for threshold 3 CO2.				
7	Threshold 3 CO2	Value	1 byte DPT 5.001 DPT 5.010	C, R, T
Communication object output for threshold 3 CO2.				
7	Threshold 3 CO2	Priority	2 bit DPT 2.001	C, R, T
Communication object output for threshold 3 CO2.				
8	Lock threshold 3 CO2	Input	1 bit DPT 1.001	C, R, W
<p>This communication object is enabled if in parameter window Threshold 3 CO2, page 28, the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same as threshold exceeded</i> or <i>same as threshold underrun</i>.</p> <p>Using this communication object, the CO₂ dependent ventilation can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				
9	Ventilation CO2	Value for ventilation-actuator	1 byte DPT 5.001	C, R, T
<p>Control value for the ventilation actuator (1 byte telegram).</p> <p>This communication object is used if the ventilation should only be used because of the CO₂ concentration, e.g. in a conference room.</p> <p>Important: The parameterization of the entry as a percentage value or as a figure from 0 to 255 is relevant for the Fan Coil Actuator.</p>				
10	Lock ventilation CO2	Input	1 bit DPT 1.001	C, R, W, T
<p>This communication object is enabled if in parameter window Ventilation CO2, page 29, the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same as threshold exceeded</i> or <i>same as threshold underrun</i>.</p> <p>Using this communication object, the CO₂ dependent ventilation can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				
11	Scenes CO2	Scene control	1 byte DPT 18.001	C, R, T
<p>This communication object sends the CO₂ dependent scene recall code on the bus.</p> <p>For further information see: Code table Scenes, page 62</p>				

No.	Name	Function	Data type	Flags
12	Lock CO2 scenes	Input	1 bit DPT 1.001	C, R, W
<p>This communication object is enabled if in parameter window Scenes CO2, page 31, the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same as threshold exceeded</i> or <i>same as threshold underrun</i>.</p> <p>Using this communication object, the CO₂ dependent scenes can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				
13	Threshold 1 humidity	Switch	1 bit DPT 1.001	C, R, T
Communication object output for Threshold 1 humidity.				
13	Threshold 1 humidity	Value	1 byte DPT 5.001 DPT 5.010	C, R, T
Communication object output for Threshold 1 humidity.				
13	Threshold 1 humidity	Priority	2 bit DPT 2.001	C, R, T
Communication object output for Threshold 1 humidity.				
14	Lock threshold 1 humidity	Input	1 bit DPT 1.001	C, R, W
<p>This communication object is enabled if in parameter window Threshold 1 humidity, page 35, the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same as threshold exceeded</i> or <i>same as threshold underrun</i>.</p> <p>Using this communication object, the humidity-dependent ventilation can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				
15	Threshold 2 humidity	Switch	1 bit DPT 1.001	C, R, T
Communication object output for Threshold 2 humidity.				
15	Threshold 2 humidity	Value	1 byte DPT 5.001 DPT 5.010	C, R, T
Communication object output for Threshold 2 humidity.				
15	Threshold 2 humidity	Priority	2 bit DPT 2.001	C, R, T
Communication object output for Threshold 2 humidity.				

No.	Name	Function	Data type	Flags
16	Lock threshold 2 humidity	Input	1 bit DPT 1.001	C, R, W
<p>This communication object is enabled if in parameter window Threshold 2 humidity, page 38 Fehler! Textmarke nicht definiert., the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same as threshold exceeded</i> or <i>same as threshold underrun</i>.</p> <p>Using this communication object, the humidity-dependent ventilation can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				
17	Threshold 3 humidity	Switch	1 bit DPT 1.001	C, R, T
Communication object output for Threshold 3 humidity.				
17	Threshold 3 humidity	Value	1 byte DPT 5.001 DPT 5.010	C, R, T
Communication object output for Threshold 3 humidity.				
17	Threshold 3 humidity	Priority	2 bit DPT 2.001	C, R, T
Communication object output for Threshold 3 humidity.				
18	Lock threshold 3 humidity	Input	1 bit DPT 1.001	C, R, W
<p>This communication object is enabled if in parameter window Threshold 3 humidity, page 38, the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same as threshold exceeded</i> or <i>same as threshold underrun</i>.</p> <p>Using this communication object, the humidity-dependent ventilation can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				
19	Ventilation rel. humidity	Value for ventilation-actuator	1 byte DPT 5.001 DPT 5.010	C, R, T
<p>Control value for the ventilation actuator (1 byte telegram).</p> <p>This communication object is used if the ventilation should only be used because of the relative humidity, e.g. in a conservatory.</p> <p>Important: The parameterization of the entry as a percentage value or as a figure from 0 to 255 is relevant for the Fan Coil Actuator.</p>				

No.	Name	Function	Data type	Flags
20	Lock ventilation rel. humidity	Input	1 bit DPT 1.001	C, R, W
<p>This communication object is enabled if in parameter window Ventilation humidity, page 39, the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same or send following value</i>.</p> <p>Using this communication object, the humidity-dependent ventilation can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				
21	Scenes rel. humidity	Scene control	1 byte DPT 18.001	C, R, T
<p>This communication object sends the humidity-dependent scene recall code on the bus. For further information see: Code table Scenes, page 62</p>				
22	Lock scenes rel. humidity	Input	1 bit DPT 1.001	C, R, W
<p>This communication object is enabled if in parameter window Scenes humidity, page 41, the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same or send scene</i>.</p> <p>Using this communication object, the humidity-dependent scenes can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				
23	Temperature threshold	Switch	1 bit DPT 1.001	C, R, T
<p>Communication output for the temperature.</p>				
23	Temperature threshold	Value	1 byte DPT 5.001 DPT 5.010	C, R, T
<p>Communication output for the temperature.</p>				
23	Temperature threshold	Priority	2 bit DPT 2.001	C, R, T
<p>Communication output for the temperature.</p>				

No.	Name	Function	Data type	Flags
24	Lock temperature threshold	Input	1 bit DPT 1.001	C, R, W
<p>This communication object is enabled if in parameter window Temperature threshold, page 43, the parameter <i>Behaviour when setting the lock</i> has been selected with the option <i>do not send, same as threshold exceeded</i> or <i>same as threshold underrun</i>.</p> <p>Using this communication object, the temperature-dependent ventilation can be blocked.</p> <p>Telegram value: 1 = lock 0 = unlock.</p>				
25	Highest active value ventilation	Value for ventilation-actuator	1 byte DPT 5.010	C, R, T
<p>Control value for the ventilation actuator (1 byte telegram).</p> <p>This communication object is used if the ventilation is to be used because of the CO₂ concentration as well as the relative humidity.</p> <p>The control value of communication objects nos. 9 and 19 are monitored, and the corresponding highest value is always sent.</p> <p>Important: The parameterization of the entry as a percentage value or as a figure from 0 to 255 is not relevant for the Fan Coil Actuator.</p>				
26	LEDs for CO2 and humidity	Switch On / Off	1 bit DPT 1.001	C, W
<p>This communication object is enabled if in parameter window General, page 19, the parameter <i>LEDs for CO2 and humidity</i> has been selected with the option <i>switchable via object 26</i>.</p> <p>Telegram value: 1 = LEDs in operation 0 = LEDs off.</p>				

4 Planning and application

Typical applications for the LGS/A 1.1 are the CO₂, temperature and humidity-dependent monitoring of the room air, and in combination with KNX actuators, e.g. FCA/S 1.1, control of the air quality.



Danger

The Air Quality Sensor is **not** suitable for safety-relevant gas measurements!

For further information see: Application manual Heating, Ventilation, Air-Conditioning

4.1 Hysteresis

The hysteresis determines the difference between the switch on and switch off value; on the LGS/A 1.1, it is unilaterally negative. Without hysteresis, the threshold control would continuously switch on and off as long as the actual value is in the setpoint range.

Example

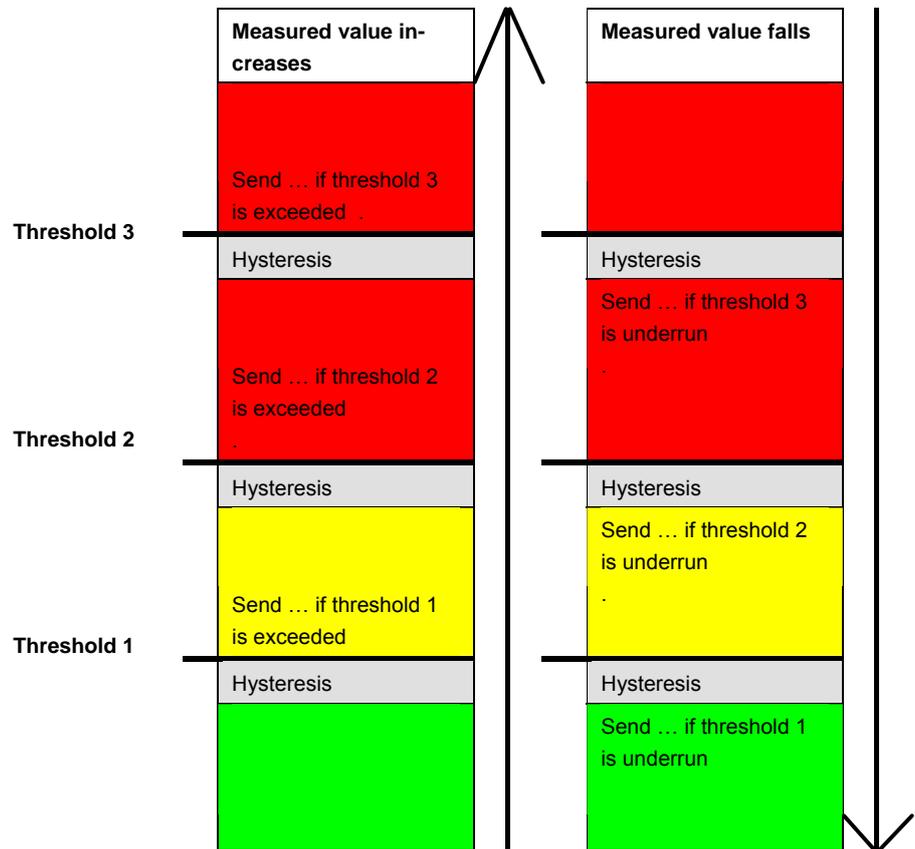
CO₂ threshold:

Threshold 1 = 500 ppm, hysteresis = 100 ppm.

The threshold is exceeded if the actual value is greater than or equal to 500 ppm.

It is underrun if the actual value falls below the setpoint – hysteresis, i.e., 500 ppm – 100 ppm = 400 ppm.

4.2 Switching behaviour of the thresholds for CO₂ and humidity



The telegram of the last overshoot or underrun threshold is always sent. If several thresholds are exceeded from one measurement cycle to the next, the telegrams are sent accordingly with increasing values (from threshold 1...3), whereby with cyclic sending only the telegram of the last threshold exceeded is cyclically sent. The behaviour with falling values is the same.

4.3 Fan control

The following criteria should be taken into account when using fan control with percentage values:

The LGS/A 1.1 sends a percentage value as a control value for every threshold.

In the Fan Coil Actuator FCA/S 1.1M, this control value (in accordance with the set threshold values) is accepted as the fan speed between 0 and 3.

Important

The sent control value should always be a bit higher than the threshold setting of the Fan Coil Actuator.

Example:

Threshold for fan speed	Set values LGS/A	Recommended values for FCA/S 1.1M
1	20 %	10 %
2	50 %	40 %
3	80 %	70 %

If fan speed 2 is selected using the push button, the respective communication object (No. 9 or 19) sends the control value 50 %.

As the threshold for speed 2 in the Fan Coil Actuator is set to 40 %, the received control value will be assigned with fan speed 2 and accepted by the fan.

4.4 Relative humidity

Relative humidity is a measure of the saturation of the air with water vapour. It is expressed as the ratio to the maximum absorption capacity at the corresponding temperature.

Example

A relative air humidity of 60 % means that the air is saturated with 60 % of the maximum absorption capacity.

At 100 %, the air is fully saturated and additional moisture can no longer be absorbed.

If the existing water vapour levels have exceeded the existing 100 % limit, this results in the formation of condensation or fog.

The absorption capacity of the air for water vapour is temperature dependent.

Warm air can absorb more water vapour than cold air.

A Appendix

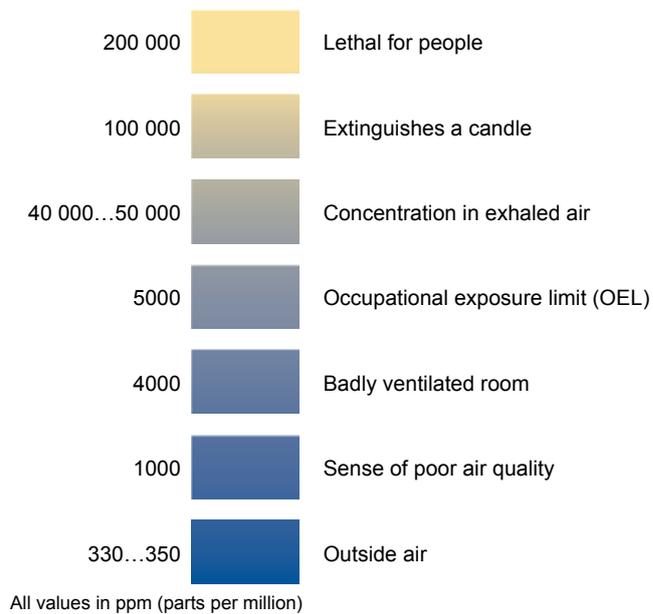
A.1 Scope of delivery

The ABB i-bus® KNX Air Quality Sensor 1.1 is supplied together with the following components.

Please check the items received using the following list.

- 1 pc. LGS/A 1.1, SM
- 1 pc. Installation and operating instructions
- 1 pc. Bus connection terminal (red/black)

A.2 CO₂ reference values



A.3 Code table
Scene (8 bit),
DPT 18.001

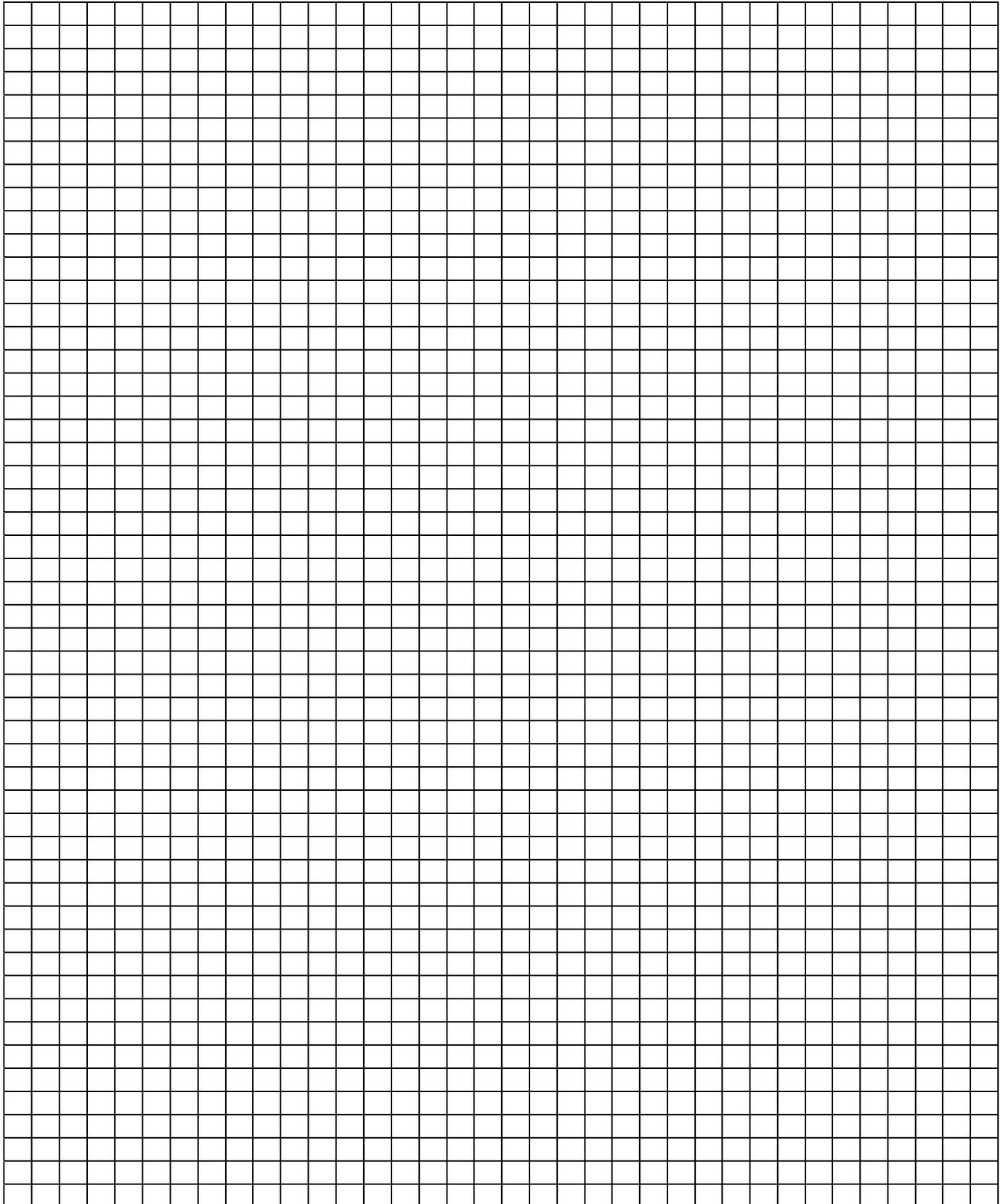
The following table indicates the telegram code for an 8 bit scene in hexadecimal and binary code with the first 64 scenes. Normally when retrieving or storing a scene, an 8 bit value must be sent.

Scene no.	Recall code		Scene no.	Recall code	
	Hex.	Dec.		Hex.	Dec.
1	\$00	0	33	\$20	32
2	\$01	1	34	\$21	33
3	\$02	2	35	\$22	34
4	\$03	3	36	\$23	35
5	\$04	4	37	\$24	36
6	\$05	5	38	\$25	37
7	\$06	6	39	\$26	38
8	\$07	7	40	\$27	39
9	\$08	8	41	\$28	40
10	\$09	9	42	\$29	41
11	\$0A	10	43	\$2A	42
12	\$0B	11	44	\$2B	43
13	\$0C	12	45	\$2C	44
14	\$0D	13	46	\$2D	45
15	\$0E	14	47	\$2E	46
16	\$0F	15	48	\$2F	47
17	\$10	16	49	\$30	48
18	\$11	17	50	\$31	49
19	\$12	18	51	\$32	50
20	\$13	19	52	\$33	51
21	\$14	20	53	\$34	52
22	\$15	21	54	\$35	53
23	\$16	22	55	\$36	54
24	\$17	23	56	\$37	55
25	\$18	24	57	\$38	56
26	\$19	25	58	\$39	57
27	\$1A	26	59	\$3A	58
28	\$1B	27	60	\$3B	59
29	\$1C	28	61	\$3C	60
30	\$1D	29	62	\$3D	61
31	\$1E	30	63	\$3E	62
32	\$1F	31	64	\$3F	63

A.4 Ordering Information

Short description	Description	Order code	bbn 40 16779 EAN	Price group	Weight 1 pc. [kg]	Packaging [pc.]
LGS/A 1.1	Air Quality Sensor, SM	2CDG 120 038 R0011	83712 5	P2	0.1	1

A.5 Notes



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