

# Cala KNX IL (CO<sub>2</sub>)

Functions and Applications of the New CO<sub>2</sub> Indicator Light

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**elsner** | academy



# Learning Goals

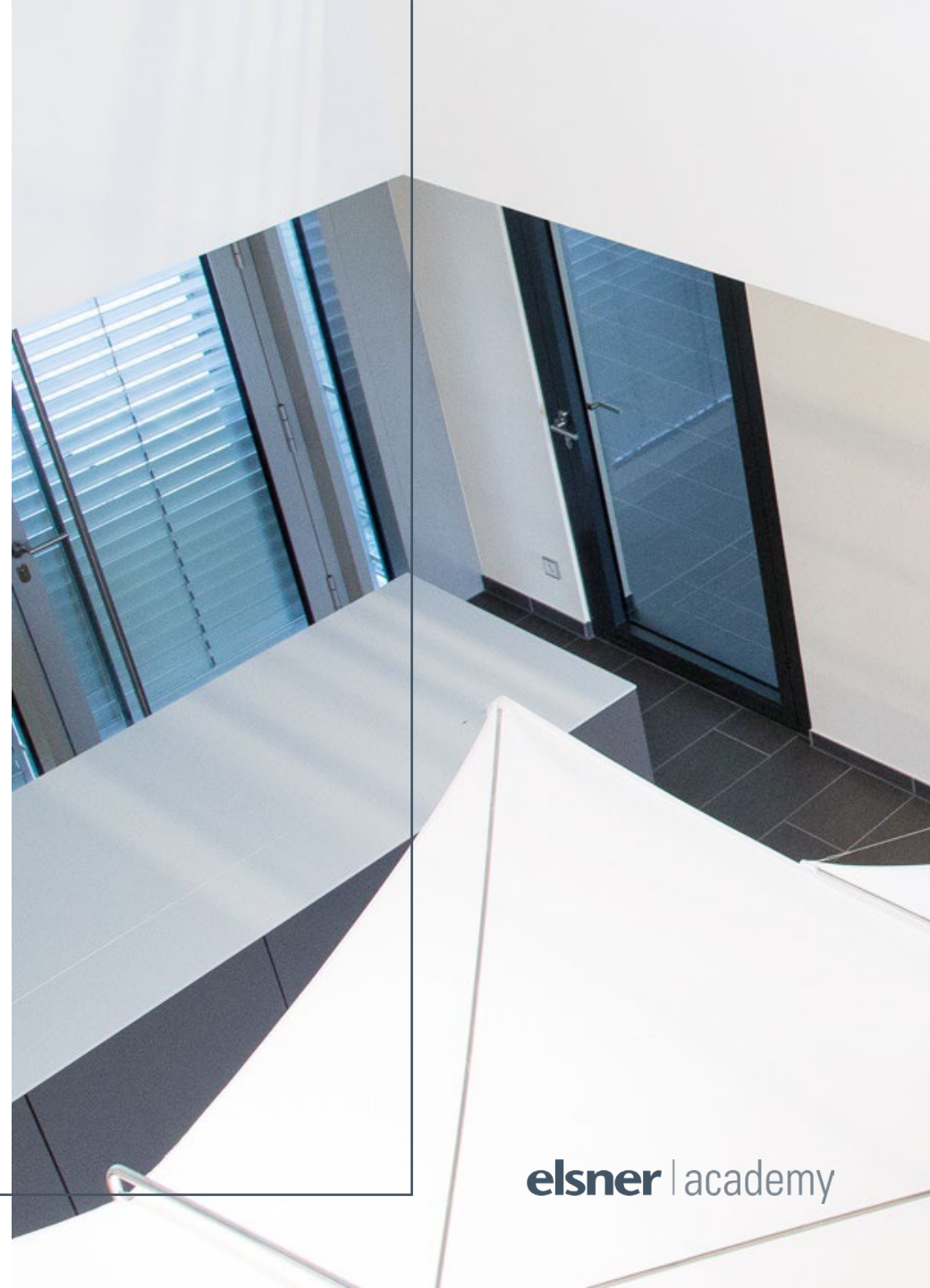
After this webinar you will be able to:

- ✓ Determine the indoor air quality
- ✓ Optimally adjust the parameters of the Cala KNX IL
- ✓ To use the Cala KNX IL in different areas



# Agenda

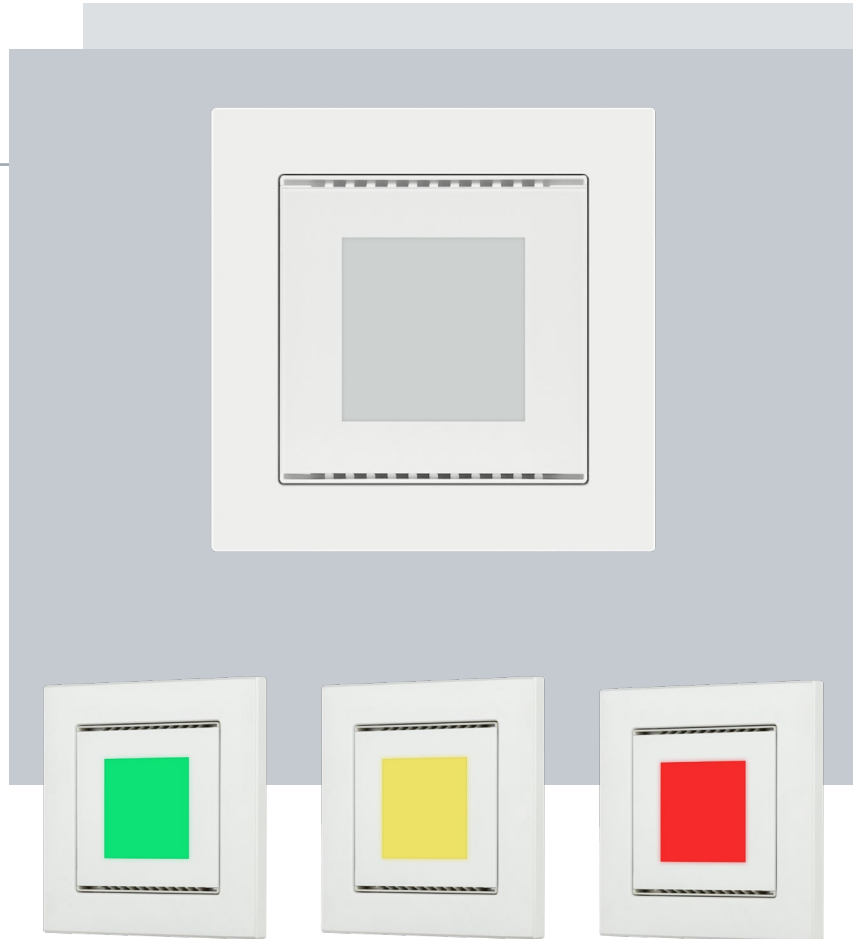
1. Product Presentation
2. Wiring Diagram
3. CO<sub>2</sub> Threshold Values / Air Quality
4. Application / Parameter
5. Application Examples



# 1 | Product Presentation

# Product Presentation of Cala KNX IL CO2

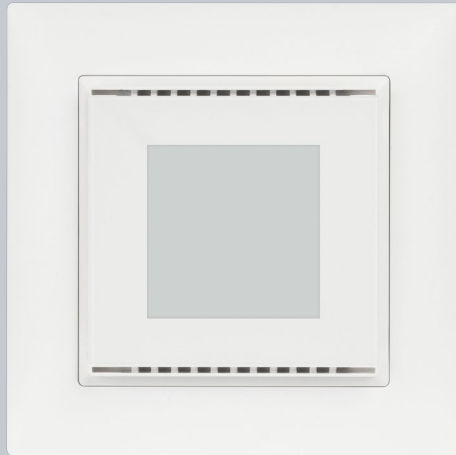
KNX Cala KNX IL CO2 (Item no. 71380) and Cala KNX IL (Item no. 71390)



- CO<sub>2</sub> indicator light to indicate the air quality via three colours (red, yellow, green) illuminated or flashing
- Integrated CO<sub>2</sub> threshold values
- Integrated CO<sub>2</sub> PI control
- Four AND/OR logic gates
- Two actuating variable comparators

# Product Presentation of Cala KNX IL CO2 CH

KNX Cala KNX IL CO2 CH (71391) and Cala KNX IL CH (Artikel 71381)



- Also available for Swiss installation systems (60 mm)
- Same functionality as 55 mm variant

## 2. | Installation

# Connection / Mounting

Fig. 01



Fig. 02

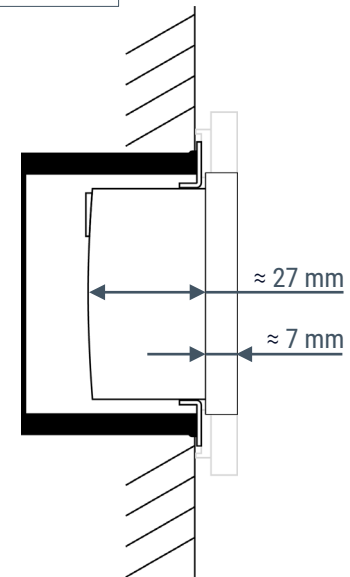


Fig. 03

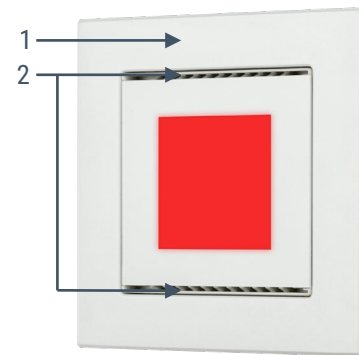


Fig. 04



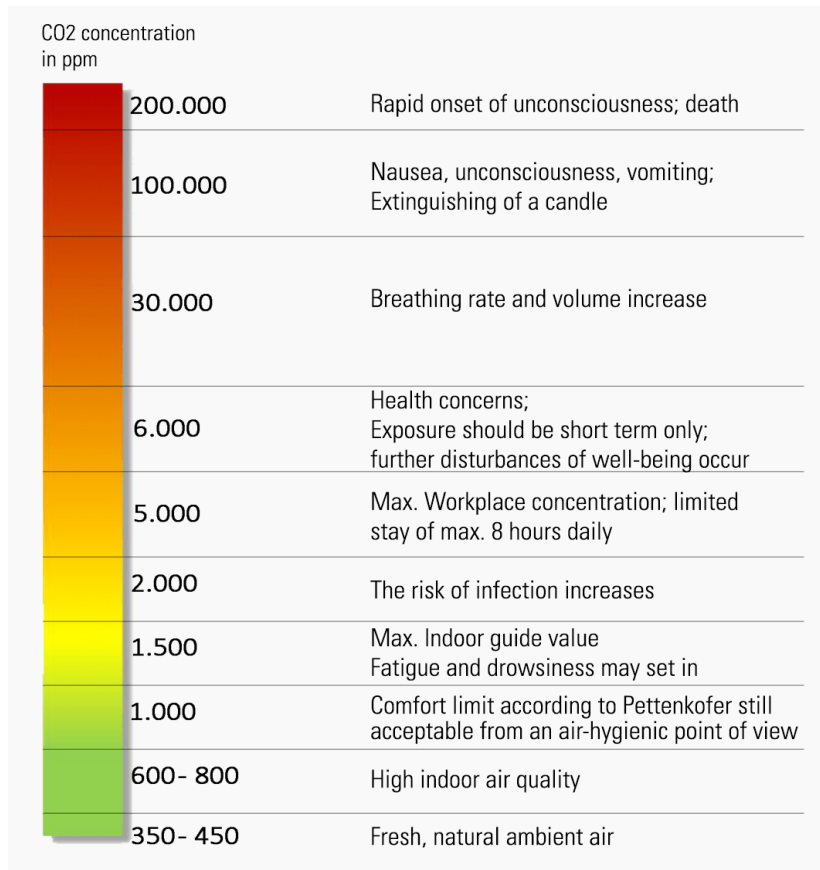


### 3. | Air Quality / CO<sub>2</sub> Threshold Values



# Air Quality Overview

The CO<sub>2</sub> content in the air influences the general well-being.



# CO<sub>2</sub> Threshold Values

Default threshold values in Cala KNX IL CO2



Red = 2000ppm

Yellow = 1200ppm

Green = Less than 1200ppm

Source photo [Verkehrssampel Schwarzer Metall Schirm Wandlampe Moderne Rot-Orange-Grünes Glas Kreis LED 3-Kopf Wandleuchte - 220V-240V Schwarz \(lifad.com\)](#)

## 4. | Parameters

# Application Cala KNX IL CO2

## Application Overview

1.1.1 Cala KNX IL CO2 > Indicator Light

General settings	Light signal valid until 1st communication	<input type="radio"/> Off <input checked="" type="radio"/> On
Indicator Light	Brightness valid until 1st communication	100 %
CO2 measured value	Signal colour is determined by	CO2 total measured value
CO2 threshold values	The limit values received via object and the switching distance (hysteresis) should	not
Threshold value 1	Start limit value for change from green to yellow	1000 ppm
Threshold value 2	Start limit value for change from green to red	1400 ppm
Threshold value 3	Start switching distance (hysteresis) for falling values	200 ppm
Threshold value 4		
CO2 PI control	If the signal colour Red is active, the light signal should be	Flashing
Variable comparator	Flash cycle (in 0.1 s)	5
Actuating variable comparat...	If the signal colour Yellow is active, the light signal should be	permanently On
Actuating variable comparat...	If the signal colour Green is active, the light signal should be	permanently On
Logic		
AND logic 1	Send status objects for signal colour	not
AND logic 2		
AND logic 3		
AND logic 4		
OR logic 1		
OR logic 2		
OR logic 3		
OR logic 4		

# Application Cala KNX IL CO2

Setting what determines the signal colour

## 1.1.1 Cala KNX IL CO2 > Indicator Light

General settings	Light signal valid until 1st communication	<input type="radio"/> Off <input checked="" type="radio"/> On
<b>Indicator Light</b>	Brightness valid until 1st communication	100 %
CO2 measured value	Signal colour is determined by	CO2 total measured value
CO2 threshold values	The limit values received via object and the switching distance (hysteresis) should	3 x one-bit object 1 x Scene object 1 x percent object with limit value 1 x two-byte floating point object with limit value
Threshold value 1	Start limit value for change from green to yellow	CO2 total measured value ✓
Threshold value 2	Start limit value for change from green to red	
Threshold value 3	Start switching distance (hysteresis) for falling values	200 ppm
Threshold value 4		

# Application Cala KNX IL CO2

Setting the threshold values for switching the indicator light colour

1.1.1 Cala KNX IL CO2 > Indicator Light		
General settings	Light signal valid until 1st communication	<input type="radio"/> Off <input checked="" type="radio"/> On
<b>Indicator Light</b>	Brightness valid until 1st communication	100 %
CO2 measured value	Signal colour is determined by	CO2 total measured value
CO2 threshold values	The limit values received via object and the switching distance (hysteresis) should	not
Threshold value 1	Start limit value for change from green to yellow	1000 ppm
Threshold value 2	Start limit value for change from green to red	1400 ppm
Threshold value 3	Start switching distance (hysteresis) for falling values	200 ppm
CO2 PI control	If the signal colour Red is active, the light signal should be	Flashing
Variable comparator	Flash cycle (in 0.1 s)	5
Actuating variable comparat...	If the signal colour Yellow is active, the light signal should be	permanently On
Actuating variable comparat...	If the signal colour Green is active, the light signal should be	permanently On

# Application Cala KNX IL CO2

## Status objects

Send status objects for signal colour: on change and periodically

Send cycle: 30 sec

Value for object "Status colour RGB" with status = Green: #00FF00

Value for object "Status colour RGB" with status = Yellow: #FFFF00

Value for object "Status colour RGB" with status = Red: #FF0000

Number	Name	Object Function	Length
0	Output software version	Software version	2 bytes
11	Input light signal	Light signal On/Off	1 bit
12	Input light signal	Light signal brightness	1 byte
25	Input / output light signal	Light signal GW green/yellow	2 bytes
26	Input / output light signal	Light signal GW yellow/red	2 bytes
27	Input / output light signal	Light signal TV of switching distance (hystere...	2 bytes
35	Output light signal	Light signal status colour red On/Off	1 bit
36	Output light signal	Light signal status colour yellow On/Off	1 bit
37	Output light signal	Light signal status colour green On/Off	1 bit
42	Output light signal	Light signal status colour RGB	3 bytes



# Application Cala KNX IL CO2

## Context help

1.1.1 Cala KNX IL CO2 > Indicator Light

General settings	Light signal valid until 1st communication	<input type="radio"/> Off <input checked="" type="radio"/> On
Indicator Light	Brightness valid until 1st communication	100 %
CO2 measured value	Signal colour is determined by	CO2 total measured value
CO2 threshold values	The limit values received via object and the switching distance (hysteresis) should	3 x one-bit object 1 x Scene object 1 x percent object with limit value 1 x two-byte floating point object with limit value
Threshold value 1	Start limit value for change from green to yellow	CO2 total measured value
Threshold value 2	Start limit value for change from green to red	
Threshold value 3	Start switching distance (hysteresis) for falling values	200 ppm
Threshold value 4		
CO2 PI control	If the signal colour Red is active, the light signal should be	Flashing
Variable comparator	Flash cycle (in 0.1 s)	5
Actuating variable comparat...	If the signal colour Yellow is active, the light signal should be	permanently On
Actuating variable comparat...	If the signal colour Green is active, the light signal should be	permanently On
Logic		
AND logic 1	Send status objects for signal colour	not
AND logic 2		
AND logic 3		
AND logic 4		
OR logic 1		
OR logic 2		
OR logic 3		
OR logic 4		

Set how the signal colour is determined. Status information is received by the 3 one-bit objects. For example, a window contact can control the colour change this way. A scenario number is received by the scenario object. So, for example, the "meeting" scenario created can switch the door signal of a room to red. An integral percent value is received by the percent object. The threshold value entered in ETS controls the colour change. For example, the colour can change when the tank fill level falls short. A value is received by the two-byte object. Thus, for example, an external CO2 measured value can be visualised. In Cala KNX IL CO2, the value measured by the integrated CO2 sensor value (CO2 total measurement) can be used for the signal colour. This then lights up corresponding to the current measured value and the set threshold values. Depending on the selection, other settings appear hereafter.

## 5. | Application Examples

# Application Area Cala KNX IL

Variant with CO<sub>2</sub> sensor (item no. 71380)

- Offices
- Classrooms
- Meeting rooms
- Event locations
- Kindergartens



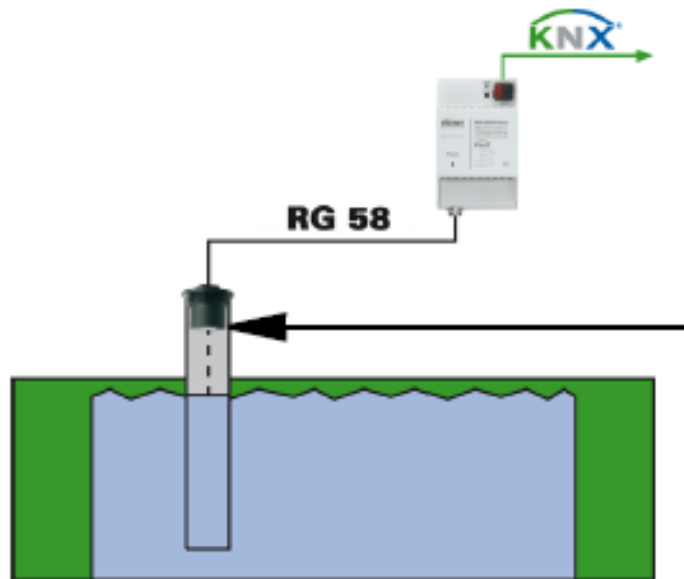
# Application Area Cala KNX IL

Variant without CO<sub>2</sub> sensor (item no. 71390)

- Everywhere where a status display is necessary
- Fill level of tanks
- Display of window contacts
- Display of fault messages
- Room occupancy

# Application Example

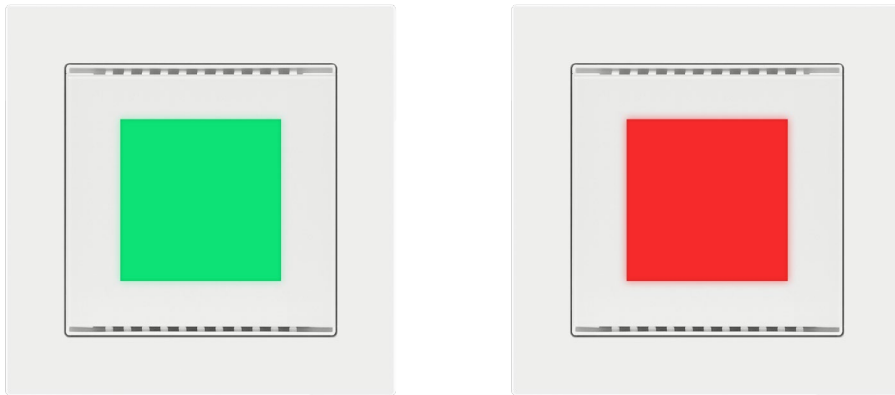
Level indicator cistern / heating oil tank



- Tank probe
- Level measured value
- 0-100%
- Cala KNX IL
- Conversion
- Setting signal colour
- Percent object
- Threshold value

# Application Example

Room occupancy



- LED display: shows room occupancy
- Pushbutton/presence detector: supplies scene number
- Cala KNX IL: converts scene number to LED display

# Application Example

Visualization window contacts

- LED display
- Window contact with 1-bit signal
- Cala KNX IL
- OR Logic
- Signal colour by 3x 1-bit object
- Flashing light active when red



# Application Example

CO<sub>2</sub> indicator light with external CO<sub>2</sub> mixed value

- Event location
- CO<sub>2</sub> sensors
- Mixed value
- CO<sub>2</sub> indicator light







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