

NOVEMBER 2017

# Webinar New KNX Devices Nov. 2017

JRA/S 6.230.3.1, LGS/A 1.2, TR/A 1.1

Webinar – Competence Center Europe – Building Automation

---

# Agenda

Blind/ Roller Shutter Actuator with Binary Inputs - JRA/S 6.230.3.1

Air Quality Sensor with Room Temperature Controller – LGS/A 1.2

Time Receiver GPS - TR/A 1.1

# Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

## Introduction

- Extension of the existing range of ABB's shutter actuators with one 6-fold device for 230 V AC motors
- **Existing range:**
  - 2-fold, 4-fold and 8-fold for 230 V AC
  - with/without manual operation and LED for indication
  - with/without travel time detection
  - 4-fold for 24 V DC motors and SMI-Motors
- **New:**
  - **6-fold device for 230 V AC motors, including binary inputs**
  - Control of Shutters and Blinds but also loads with standard relay function
  - Inputs and Outputs in one device for an easy and fast implementation but also cost efficient solution



# Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

## Motivation

- Manufacturer of shading systems offer more and more KNX shutter and blind actuator similar to our new 6-fold actuator
- Request for integrated binary inputs to operate the motor directly
- Different from these manufacturer of shading systems available for everybody, not only selected partners

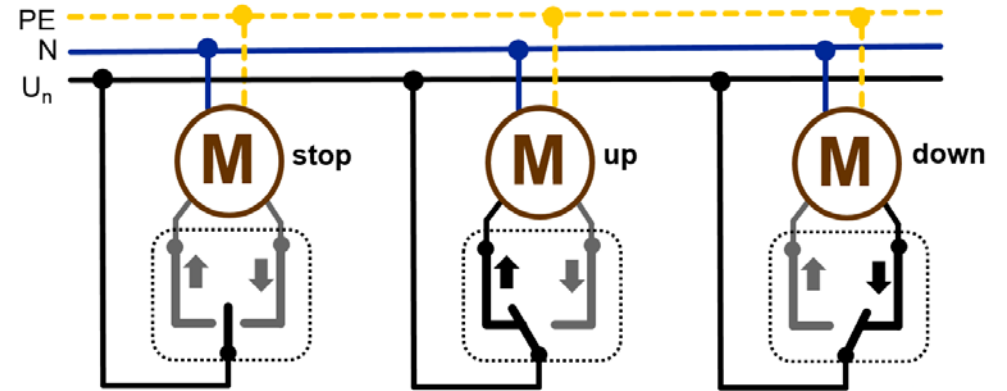


# Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

## Benefits

- Electro-mechanically interlocked outputs (changeover contact) prevent possible destruction of the drives
  - no damage of the motor in case malfunction of the contacts

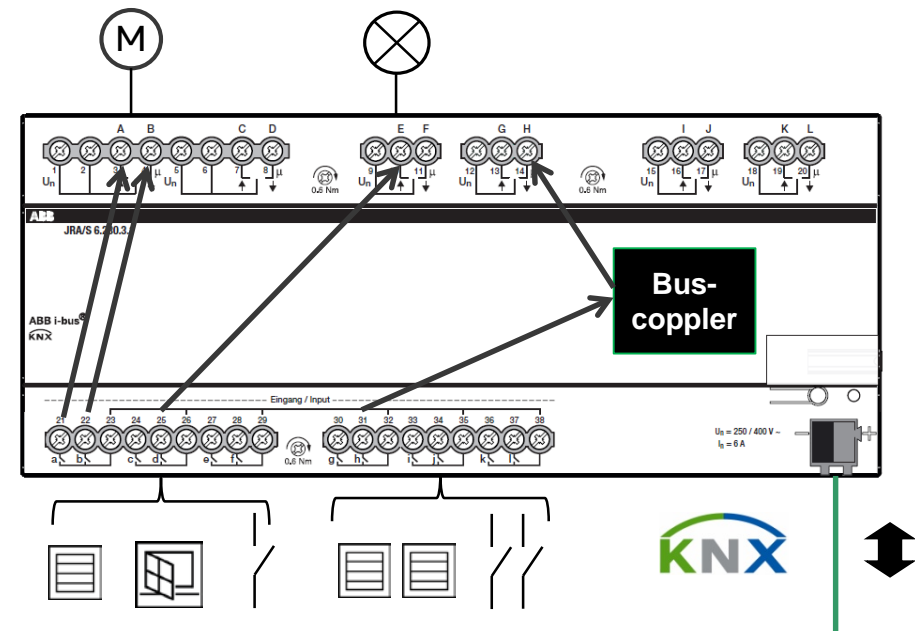


# Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

## Benefits

- 12 Integrated binary inputs to connect conventional switches and push buttons or contacts
  - For connection of potential free contacts
  - Switches, pushbuttons or any contacts
  - to control directly the connected motors/loads or any other motor/load connected to another KNX device via telegram
  - Direct control of motors after installation via binary inputs (preprogrammed from factory)
  - Internal connection between in- and output for easy and fast linkage
  - Connection via group addresses (also additionally) always possible



# Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

## Hardware

DIN rail device, 12 modules width, based on Room Master RM/S

### Outputs

- 6 mechanically locked Blind/Roller Shutter outputs
  - 230 V AC, 6 A
  - Changeover contacts
  - Each output can be programmed also as relay output, e.g. for lighting control (only contact up valid)

### Inputs

- 12 binary inputs for potential free contacts
  - 6 groups, 2 inputs per group
  - Internal connection between inputs and outputs without group addresses (like Room Master)
  - Inputs can also be used as standard binary inputs for other functions



# Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

## Software

Software based on Room Master RM/S

### Shutter outputs

- Blinds (stop and slat adjustment)
- Shutters (stop)
- Position via 8 bit value
- Scene (8 bit)
- Security functionality (2 safety objects per channel)
  - Rain, Frost, Wind or priority function
  - Up, down, stop or unchanged
  - Option cyclical monitoring
- Automatic sun protection





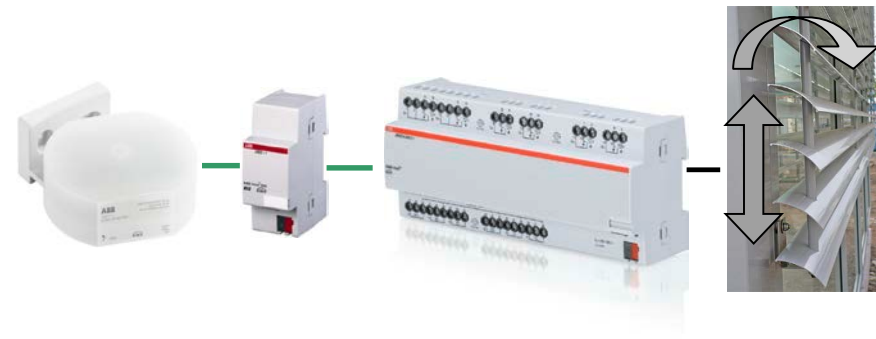
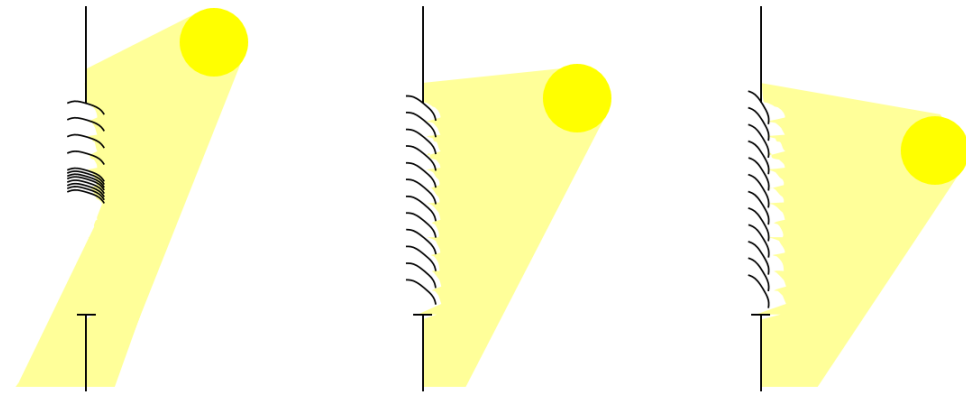
# Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

## Software

Automatic sun protection

- Automatic sun protection depending on sun position together with shutter control unit JSB/S 1.1 and brightness sensor
- Powerful application for sophisticated shading solution



# Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

## Software

### Outputs

- NC or NO contact
- Staircase, on/off delay, Blinking
- Scenes (8 bit)
- Logic
- Forced control (1 or 2 bit)


### Inputs

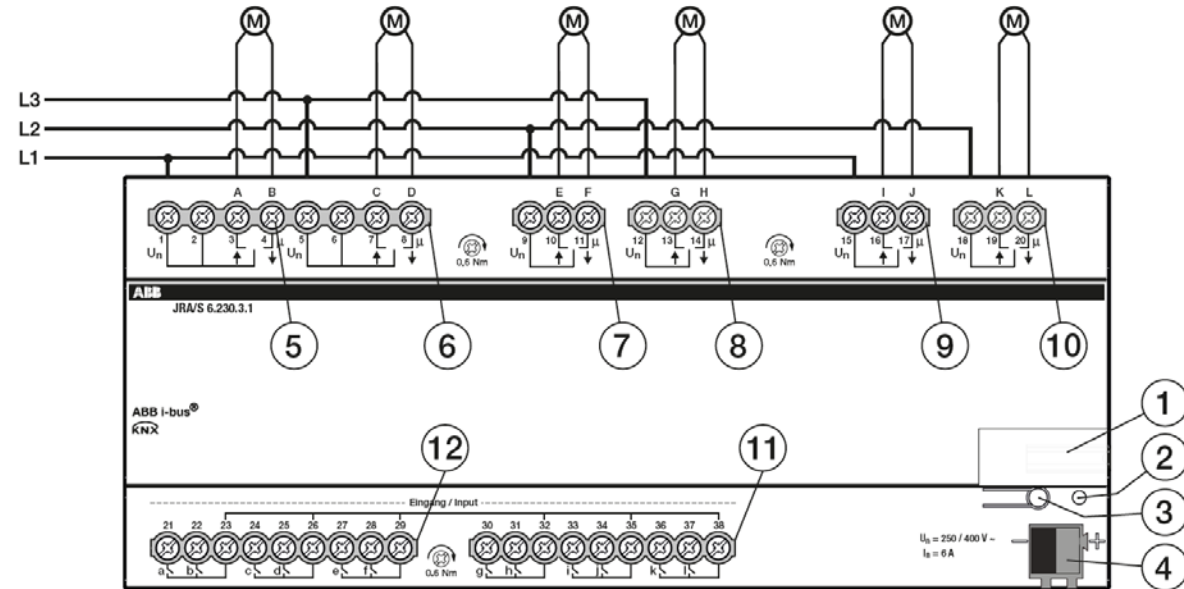
- Internal connection to outputs
- Switching, dimming, shutter control
- Value/forced control



# Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

- ① Label carrier
- ② Key **Program** 
- ③ LED **Program** ● (red)
- ④ Bus connection terminal
- ⑤ Shutter 1 (A, B)
- ⑥ Shutter 2 (C, D)
- ⑦ Shutter 3 (E, F)
- ⑧ Shutter 4 (G, H)
- ⑨ Shutter 5 (I, J)
- ⑩ Shutter 6 (K, L)
- ⑪ Binary imports (g, h, i, j, k, l)
- ⑫ Binary imports (a, b, c, d, e, f)



# Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

## Product Information

Product name:

EN: Blind/Roller Shutter Actuator with Binary Inputs, MDRC

DE: Jalousie-/ Rollladenaktor mit Binäreingängen, REG

Product type: JRA/S 6.230.3.1

Order number: 2CDG 110 208 R0011

Availability: available



---

# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Influence of the CO<sub>2</sub> concentration on well-being of people

Room air quality is an important planning parameter for energy-efficient buildings

The European building directive (EPBD – Energy Performance of Buildings Directive) requires that when verifying energy performance, in addition to the systems for compensating outdoor ambient conditions (i.e. heating, cooling), the indoor climatic conditions must also be monitored

The requirements for reduction of energy consumption often lead to poor ventilation in today's highly insulated buildings

The quality of the room air often does not meet the desired and stipulated levels

A suitable indicator for determination of the room air quality is the CO<sub>2</sub> concentration



# Air Quality Sensor with Room Temperature Controller

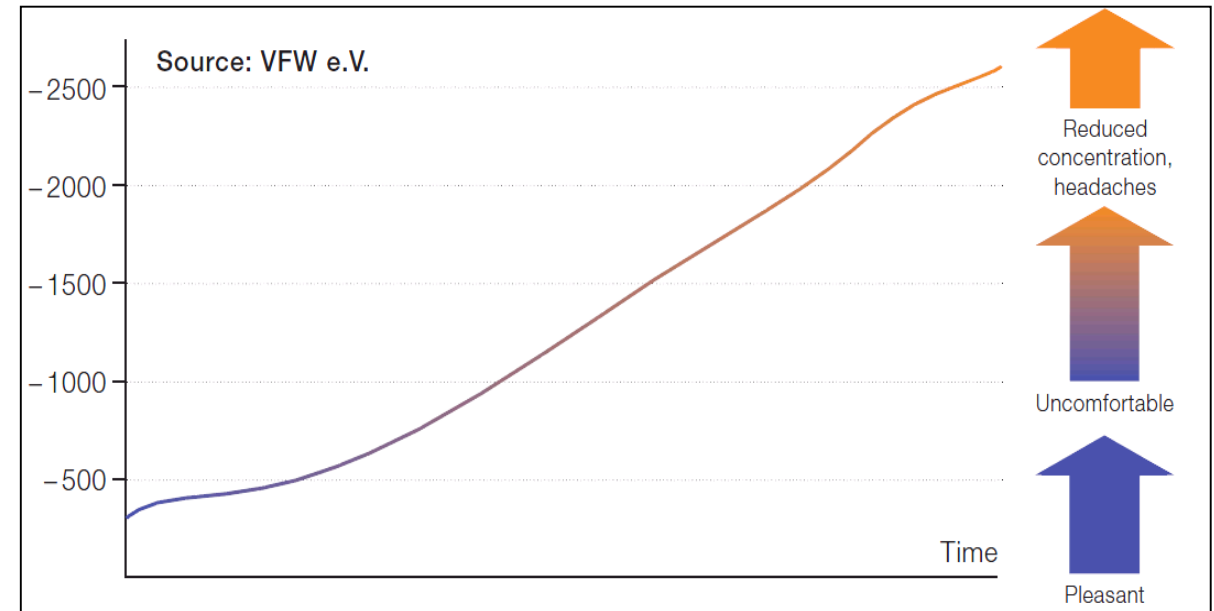
LGS/A 1.2

## Influence of the CO<sub>2</sub> concentration on well-being of people

People increase the CO<sub>2</sub> concentration in the air naturally during respiration

A high CO<sub>2</sub> concentration in the air influences the well-being as well as the performance and learning ability of people

This means that rooms in which many persons are present (schools, conference rooms, open-plan offices) will require the provision of a sufficient supply of fresh air



# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Comfortable room climate - a sample calculation

The respiratory volume of an adult at rest is between 450 and 500 ml and the respiratory rate is about 18 times a minute

If a seminar room (8 m x 7 m x 2.5 m = 140 m<sup>3</sup>), without a supply of fresh air, is occupied by 30 persons for 1 hour, the oxygen concentration in the room air is reduced from 21% to about 20.5%

However the CO<sub>2</sub> concentration increases sharply to about 4,500 ppm

The concentration at which physical limitations e.g. reduced concentration, tiredness, headaches, are to be expected, starts as early as 2,000 ppm



# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Comfortable room climate

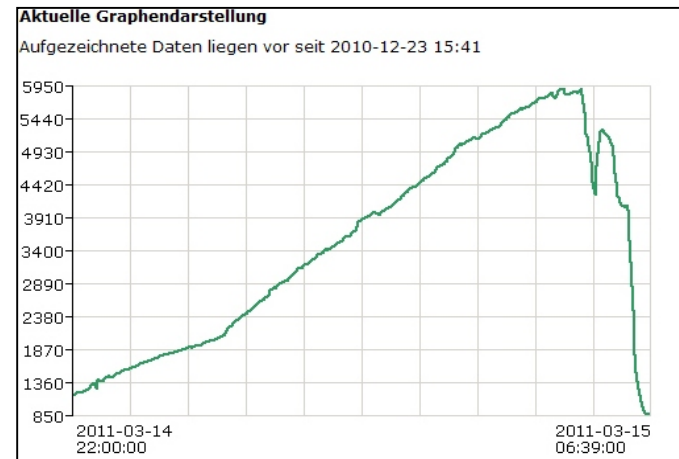
Starting from a concentration of 800 ppm (0.08 Vol %) makes carbon dioxide, humans tired!

The German Standard DIN 1946-6 prescribes due to its an outside air flow rate of 30 m<sup>3</sup>/h per person

With the current build standard this value is not reached

Reason for it is e.g. the high tightness of the building cover and the occasional air with tilted windows

A control ventilation of areas in buildings is therefore urgently necessary



Recording the CO<sub>2</sub>-concentration in a bedroom  
2 adults, window and door were closed



# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Introduction

- Extension/Replacement of ABB's range of air quality (CO<sub>2</sub>) sensors with a new surface mounted device
- **Existing range:**
  - 6109/28 with display
  - LGS/A 1.1 with colored LED
- **New:**
  - Air quality sensor LGS/A 1.2
  - CO<sub>2</sub> Measurement and control
  - Measurement of relative humidity and control
  - Temperature measurement and control
  - Air pressure measurement
  - Dew point calculation
  - 2 LEDs to display exceeding CO<sub>2</sub>/ Humidity level
  - Replacement of LGS/A 1.1



# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Motivation

- Replacement/Update of existing surface mounted air quality sensor LGS/A 1.1
- Integration of controller functionality (Temperature, CO<sub>2</sub>, humidity)
- Implementation of unified RTC concept like all other room temperature controller from ABB
- Design update, less depth of housing



---

# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Benefits

---

- Surface mounted air quality sensor
  - Easy installation, supply via KNX
- Integrated temperature controller with unified RTC concept different from LGS/A 1.1
- LEDs for simple information about CO<sub>2</sub> and humidity level for the end user
- Maintenance free and precise CO<sub>2</sub> measurement with automatic calibration
- Comprehensive ETS application with more functions (e.g. integrated controller) compared with former LGS/A 1.1



# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Hard- and Software

### Hardware

- Surface mounted device
- CO<sub>2</sub> measurement: 390 ... 10.000 ppm
- Temperature measurement: 0 ... 50° C
- Relative humidity measurement: 0 ... 100 %
- Air pressure
- Automatic calibration of CO<sub>2</sub> measurement

### Software

- Sending of measured values
- PI control for CO<sub>2</sub> and humidity
- 1/2/3 step control for CO<sub>2</sub> and humidity (3 thresholds)
- Dew point calculation and alarm
- Software application like RTC 6109/28 (unified RTC)

Functionality	CO <sub>2</sub>	Humidity	Temperature	Dew point
Send value	X	X	X	X
PI Control	X	X	X (unified RTC)	
Thresholds	X	X		
Alarm				X

# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Hardware

- Optical indication of CO<sub>2</sub> limits via LED
  - Threshold 1 (orange): 400...1500 ppm
  - Threshold 2 (red): threshold 1 + (50...1000ppm)
- Optical indication of humidity via LED
  - Threshold 1 (orange): 20...50 %
  - Threshold 2 (red): threshold 1 + (1...30%)
- Green LED when below threshold 1
- LEDs can be switched off via telegram

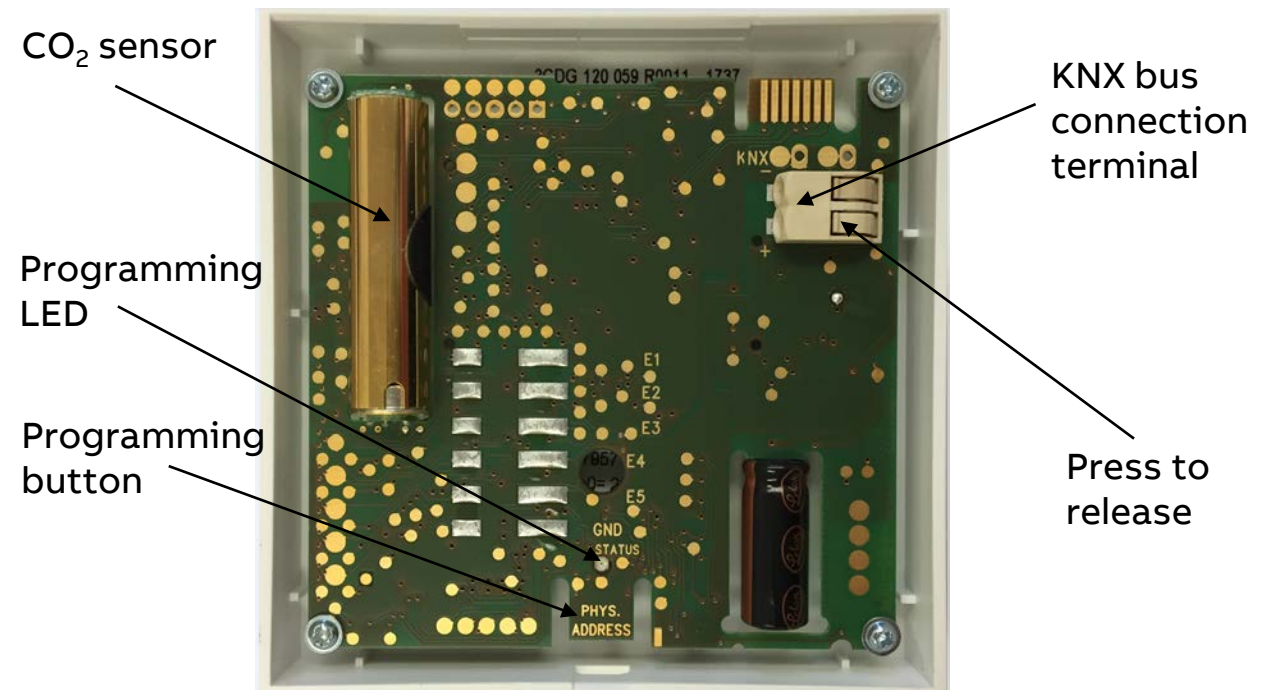


# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Hardware

- Bus connection including power supply
  - Insertion of wire without tool, by pressing the cover wire can be removed
- Calibration of CO<sub>2</sub> measurement, automatically with switch on of KNX voltage/Reset
- Activation of programming button by pressing on the circuit board marked with PHYS. ADDRESS



# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## ETS Application

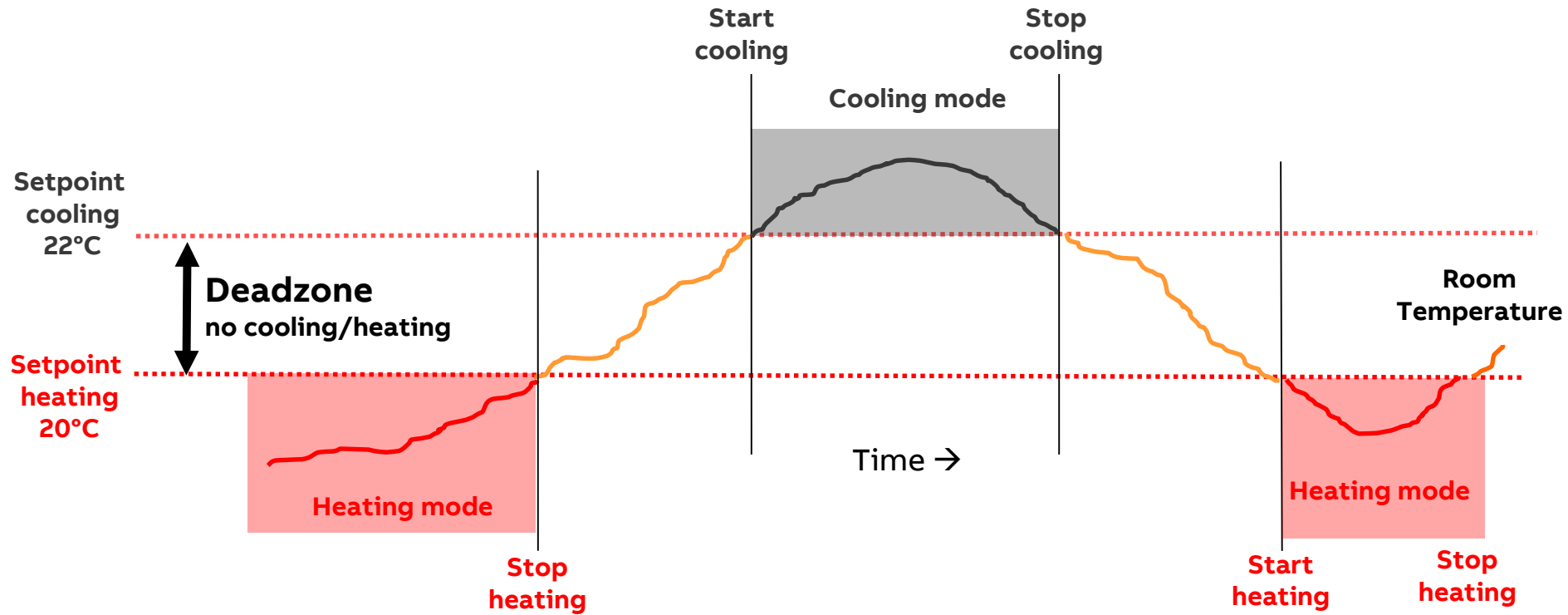
- Application based on ABB's unified RTC concept
- It is the same software concept, providing the user with the same function for all devices → easier to commission and operate
- Uniform Master Slave concept → easy implementation of more than one RTC's in a room
- One set point mode → easier to program, easier to operate for the user (Alternatively two set point mode with dead zone parametrizable)
- Additional stage for heating and cooling with individual parameters as an independent second control circuit (e.g. basic floor heating) → more flexibility



# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Two Setpoint Mode

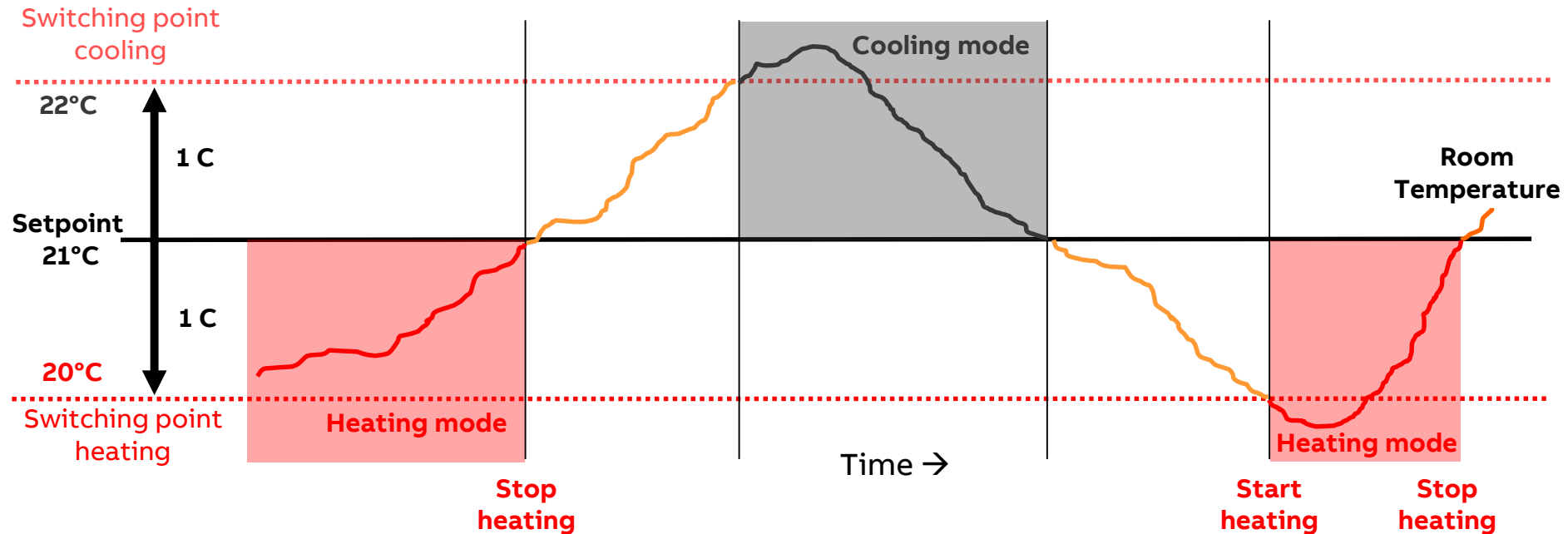




# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

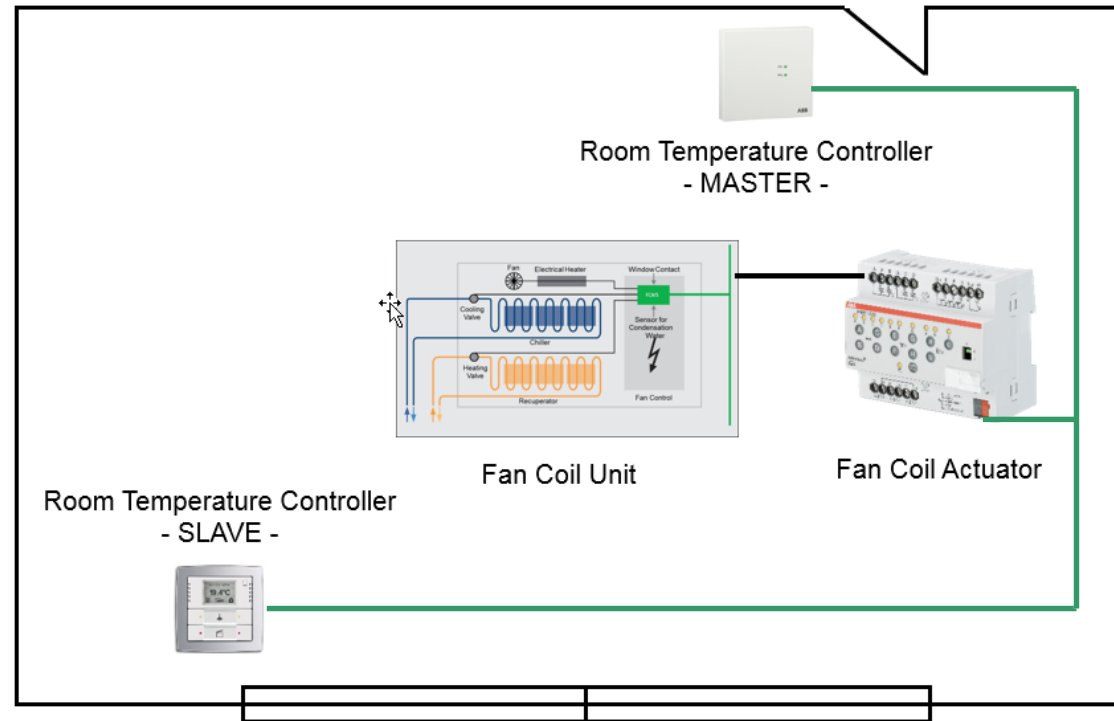
## One Setpoint Mode



# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Master-Slave

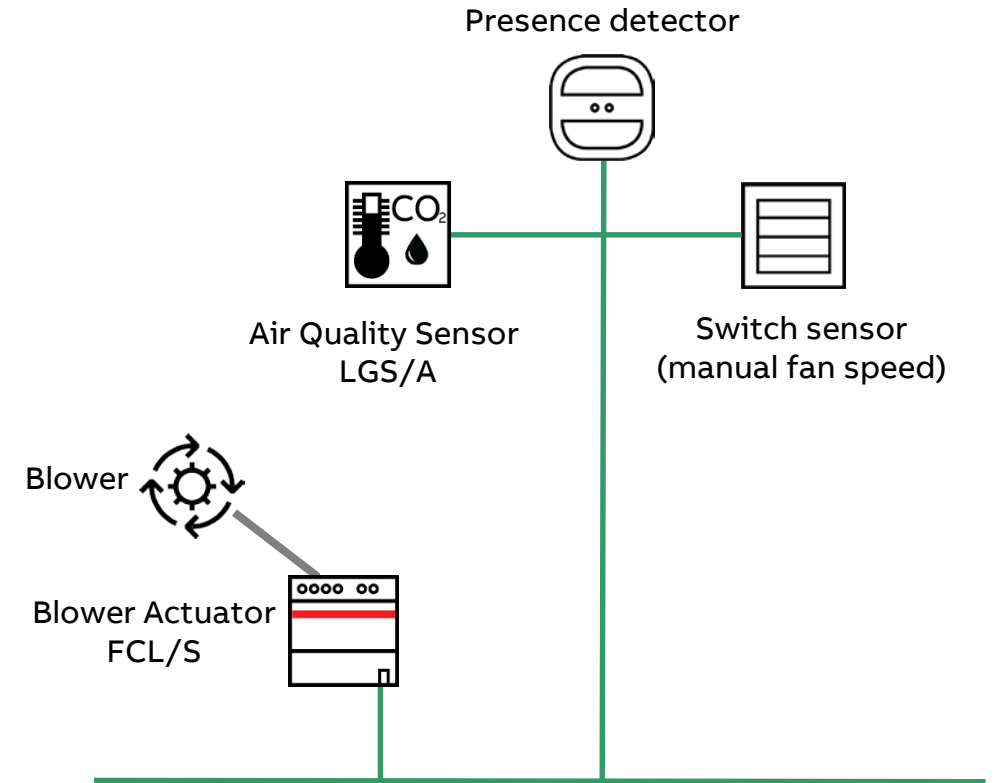


# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

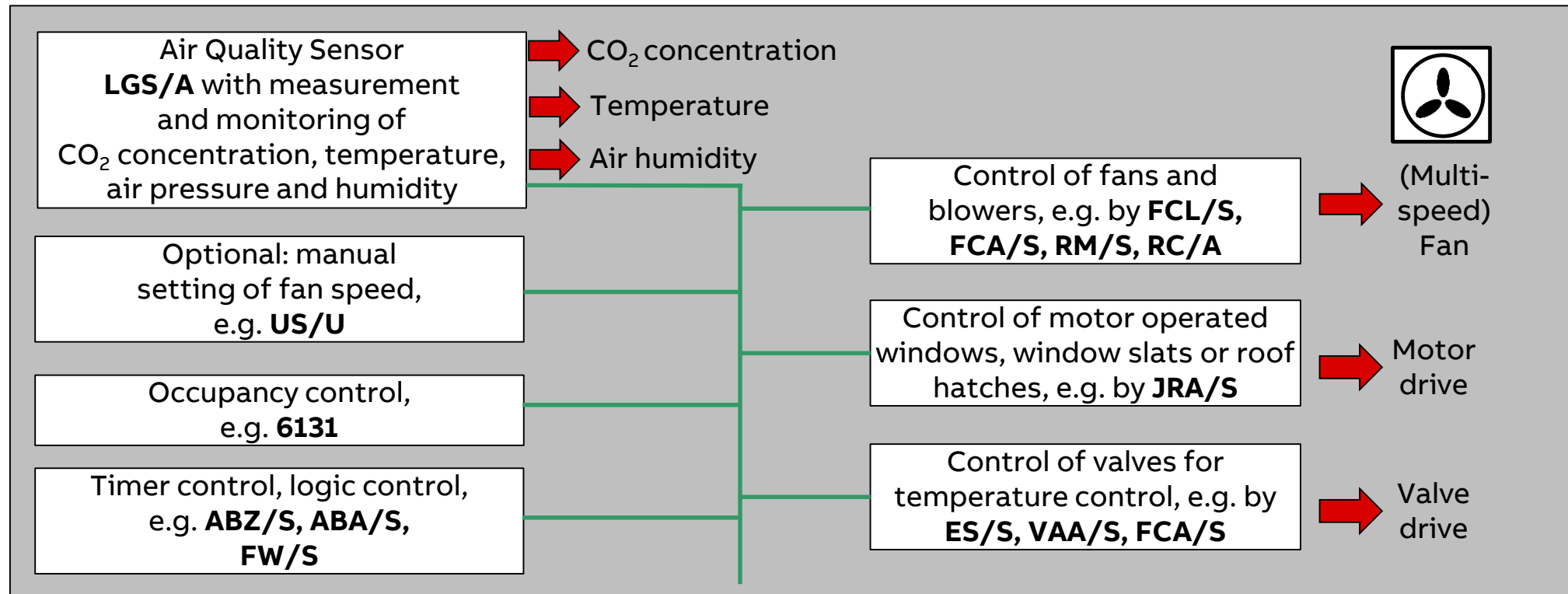
## Applications

- Air quality control
  - Dependent on CO<sub>2</sub> level
  - Dependent on humidity level
  - e.g. in combination with Blower Actuator FCL/S x.6.1.1
- CO<sub>2</sub>/ Humidity/ Temperature/ Air pressure measurement
- Dew point calculation and alarm
- Room temperature control
  - e.g. in combination with Fan Coil Actuator FCA/S 1.x.y.1
  - RTC master functionality
- Optical indication of CO<sub>2</sub> and humidity limits for the user



# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2



# Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

## Product Information

Product name:

EN: Air quality sensor with RTC, SM

DE: Luftgütesensor mit RTR, AP

Product type: LGS/A 1.2

Order number: 2CDG 120 059 R0011

Availability: week 46/2017

**Successor of the LGS/A 1.1, which will be discontinued**



# Time Receiver GPS

## TR/A 1.1

### Introduction

- Extension of ABB's range of KNX devices to receive time and date via GPS and send it on KNX
  - Functions of a time switch
  - Temperature and brightness measurement and resulting functions
- **Existing product:**
  - Radio Time switch FW/S 8.2.1
  - GPS antenna FAG/A 1.1
- **New:**
  - Time Receiver GPS TR/A 1.1



# Time Receiver GPS

## TR/A 1.1

### Motivation, Features and Benefits

- Extension of ABB's product portfolio for
  - Receiving date and time via GPS
  - Sending date and precise time on KNX
  - Measurement of outside temperature
  - Measurement of outside brightness
- Three functions in one device
  - Cost efficient solution, especially for smaller buildings/projects
- Time emitter for logic controller ABA/S 1.2.1, shutter control unit JSB/S 1.1 or application unit time ABZ/S 1.1 and others
- Worldwide use due to existing GPS Signal for date and time

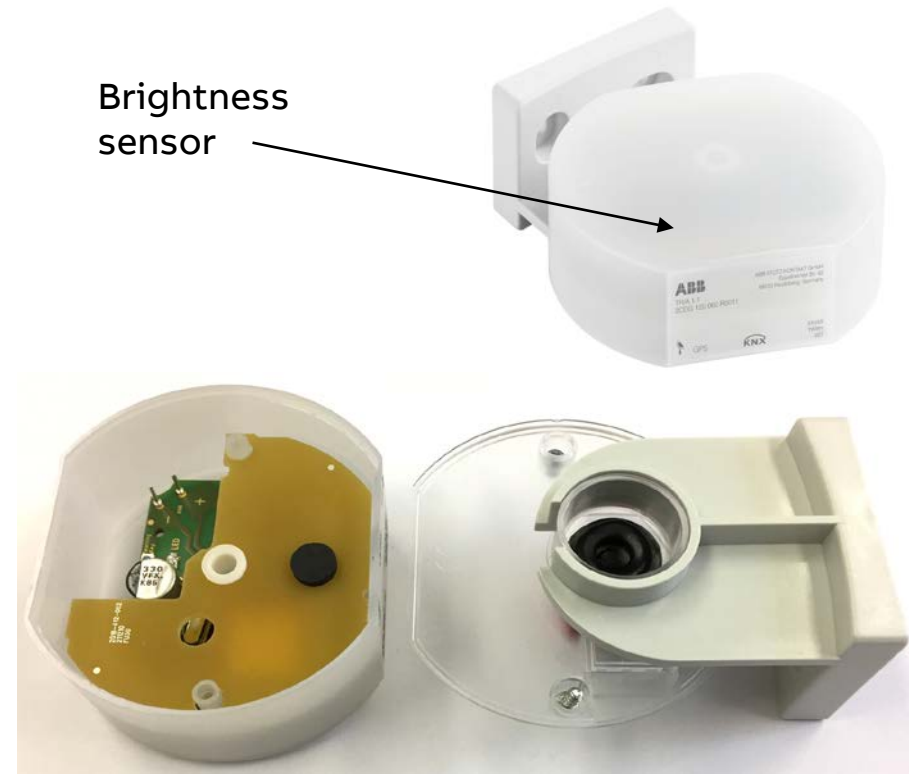


# Time Receiver GPS

## TR/A 1.1

### Hardware

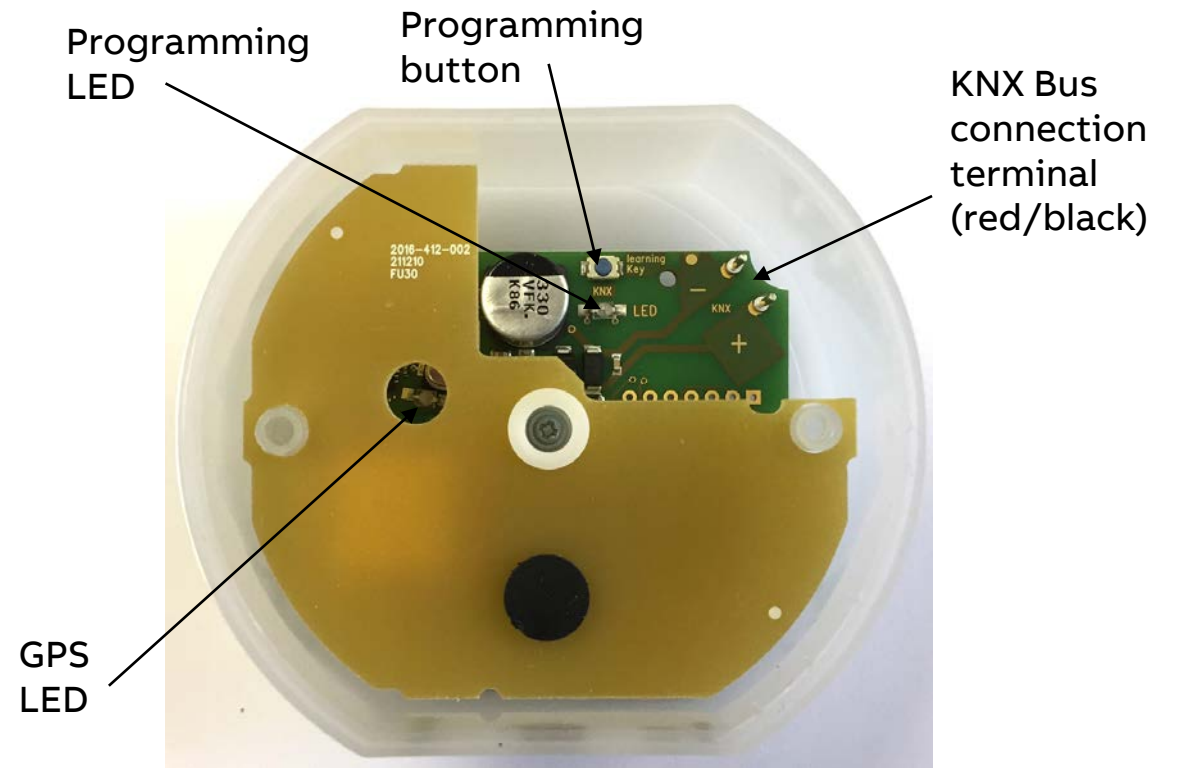
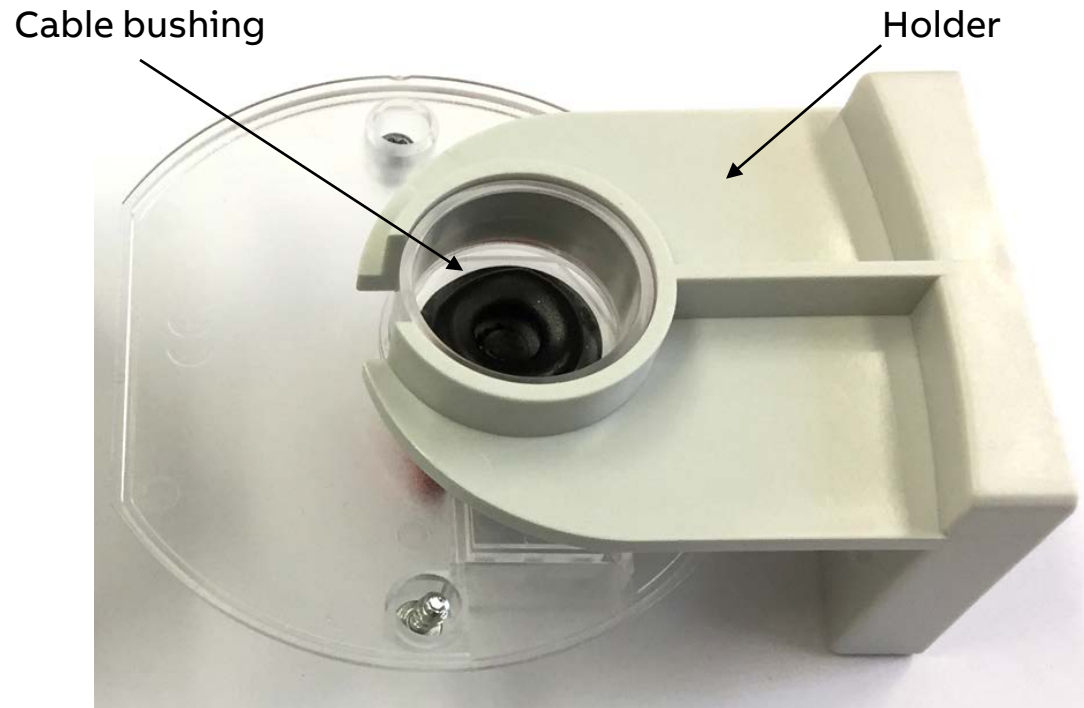
- To be mounted outside e.g. on a façade
- Component can be easily put on the holder
- Direct connection to the KNX Bus, no additional supply voltage
- Cable bushing for safe wiring
- One brightness sensor behind the cover on top
- Integrated temperature sensor
- Integrated GPS receiver (Date, Time, Latitude, Longitude)
- LED GPS
  - slow flashing: Signal ok
  - Fast flashing: Signal faulty
- Protection class IP 56





# Time Receiver GPS

TR/A 1.1



# Time Receiver GPS

## TR/A 1.1

### Software

- GPS signal for date and time
  - 2 x time switch options
  - 2 x astro (sunrise/sunset) switch options
  - 2 x astro plus (offset and switch on/off period)
  - Sending of sun position (azimuth/elevation)
  - Sending of sunrise/sunset time
  - Switching between summer and winter time
- Outdoor temperature measurement
  - Temperature logic
  - $T < \text{setpoint} \rightarrow \text{Heating}$  /  $T > \text{setpoint} \rightarrow \text{Cooling}$
- Brightness measurement (One sensor)
  - 2 x Brightness threshold
  - On/off delay
  - Switch on/off period
- Switching object or scene (8 bit)

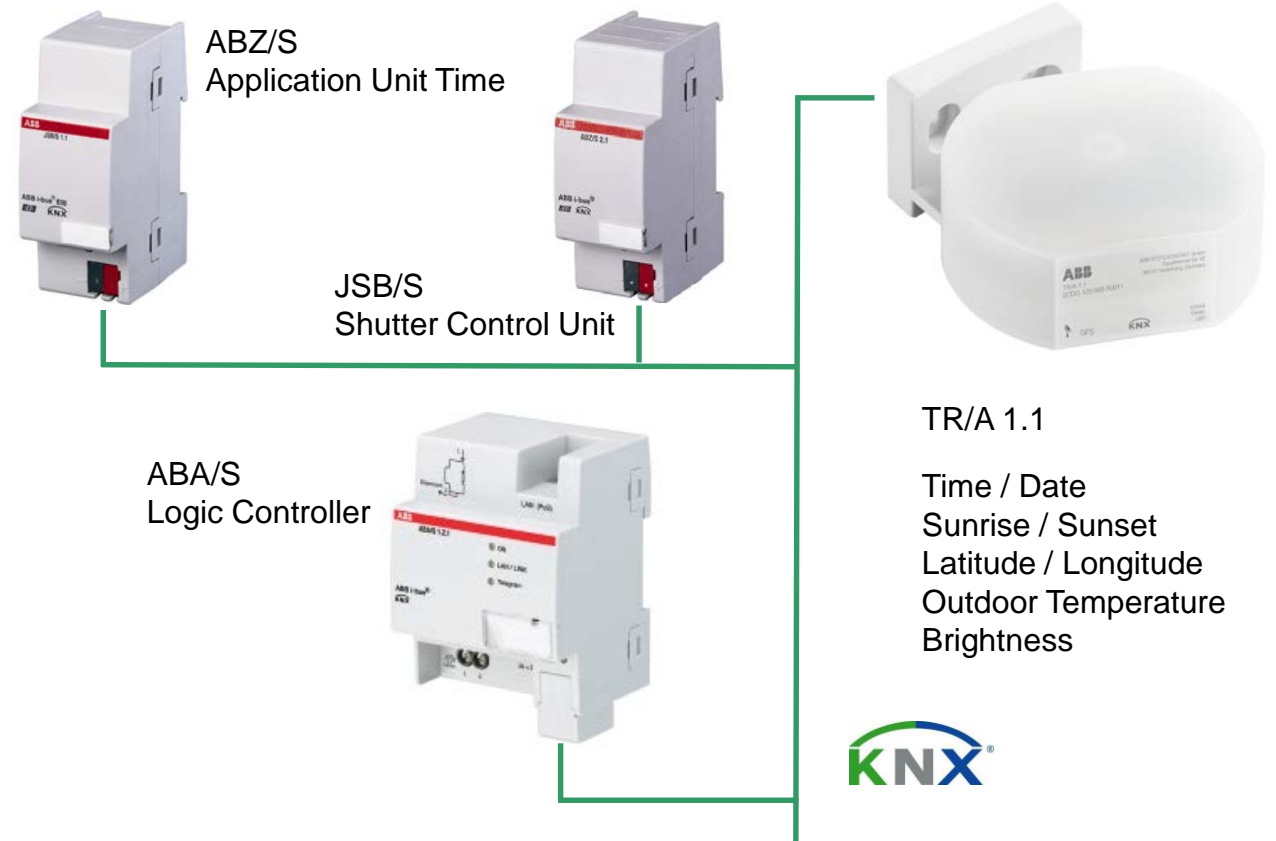
Time standard	Coordinates by receiver or bus value	<input type="radio"/> Bus (extern) <input checked="" type="radio"/> Receiver (intern)
GPS coordinates und sun data	How to send GPS coordinates	never
Time switch standard	How to send sun azimuth and elevation	never
Time switch astro	How to send sunrise/sunset times	on query and automatic/cyclic
Time switch astro plus	Cycle interval for sunrise/sunset times	at 00:02 am and change of DST
Light control		
Temperature control		
Fault and state interval		

# Time Receiver GPS

TR/A 1.1

## Applications

- Delivery of date and time into the KNX system to synchronize other KNX devices

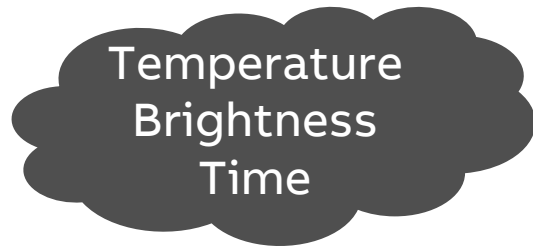


# Time Receiver GPS

TR/A 1.1

## Applications

---



- Synchronisation of time and date on KNX
- Switching or recall of scene depending on time, sunrise or sunset for lighting and shading
- Send of date, time, brightness, temperature, latitude, longitude, sun position ...
- Temperature control, e.g. green house or information heating/cooling mode for HVAC solutions

# Time Receiver GPS

TR/A 1.1

## Product Information

Product name:

EN: Time Receiver GPS, SM

DE: Zeitempfänger GPS, AP

Product type: TR/A 1.1

Order number: 2CDG 120 060 R0011

Availability: week 46/2017



# Webinar “New KNX devices”

Competence Center Europe – Asia – Middle East Africa – America

## Training & Qualification Calendar 2018

In addition to the online modules and the traditional training programs offered by your local ABB sales team, we offer a variety of on-site trainings conducted by our specialists at different ABB training facilities

In this Training & Qualification Calendar you can find the educational events that are taking place during 2018

If you are interested in a training of the calendar please contact your local ABB

[www.abb.com/knx](http://www.abb.com/knx)

→ Training and Qualification

→ Training Calendar



**2018 NEW !!!**

System	Date	Location	Language
free@home	17.01.2018 - 18.01.2018	Lüdenscheid, Germany	EN
Lighting Control	05.02.2018 - 08.02.2018	Heidelberg, Germany	EN
Security Solution	08.02.2018 - 09.02.2018	Heidelberg, Germany	EN
free@home	12.02.2018 - 13.02.2018	Lüdenscheid, Germany	EN
Certified KNX Basic Course	19.02.2018 - 23.02.2018	Heidelberg, Germany	EN

---

# Webinar “New KNX devices”

Competence Center Europe – Asia – Middle East Africa – America

## KNX Certified Training

Certified KNX Courses in Heidelberg 2018

- Basic Course 19<sup>th</sup> to 23<sup>rd</sup> February
- Advanced Course 16<sup>th</sup> to 20<sup>th</sup> July
- Tutor Course 09<sup>th</sup> to 13<sup>th</sup> October

And many more training courses in the calendar:  
“International Training Dates 2018”



# Webinar “New KNX devices”

## Next Webinar

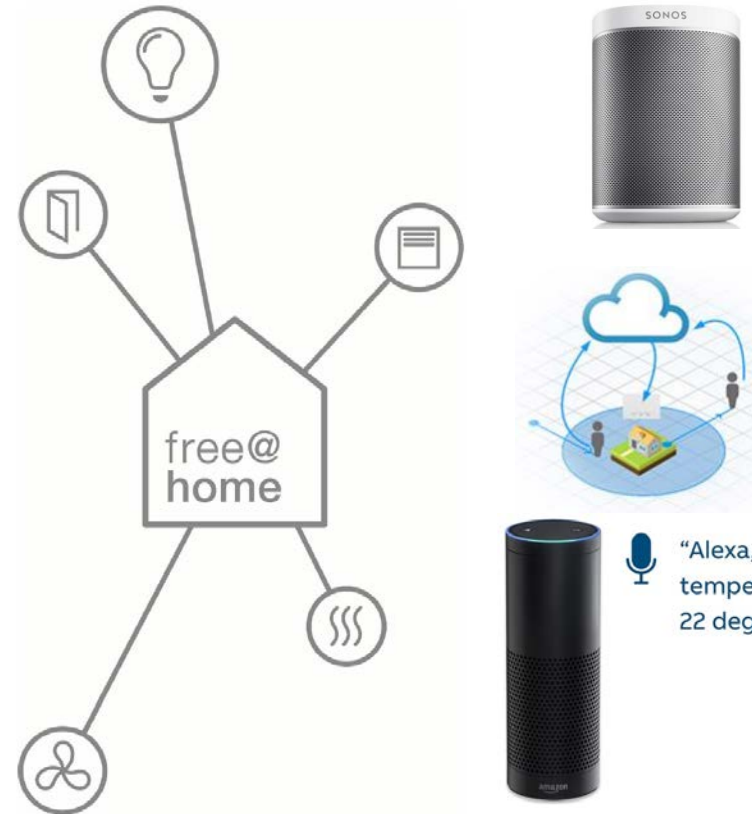
### ABB-free@home®

Wednesday 13<sup>th</sup> December 2018

- Morning 09:00 am Europe Time (Berlin, UTC + 1h)
- Afternoon 03:00 pm Europe Time (Berlin, UTC + 1h)

ABB-free@home® - new functionalities and highlights about software update

- Integration of Sonos wireless home sound system
- Geofencing
- Integration of Amazon’s Alexa  
... and more





# Disclaimer

The information in this document is subject to change without notice and does not represent any obligation on the part of ABB. ABB does not accept any responsibility for potential errors in this document.

ABB does not accept liability for direct, indirect or consequential damage of any kind resulting from the use of this document. ABB also is not liable for any indirect or consequential damage resulting from the use of an item of software or hardware described in this document.

© Copyright [2017] ABB. All rights reserved



**AABB**