

JUNE 2017

Webinar KNX Sensors commercial Buildings

BU EPBP GPG Building Automation

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KNX Sensors for commercial Buildings

Agenda

- Push buttons with integrated temperature sensor
- Push button coupler for conventional rockers and ocean®
- Room temperature controller with integrated inputs, CO₂ and humidity sensor and controller
- Motion sensor



KNX Sensors for commercial Buildings

Motivation and Objectives

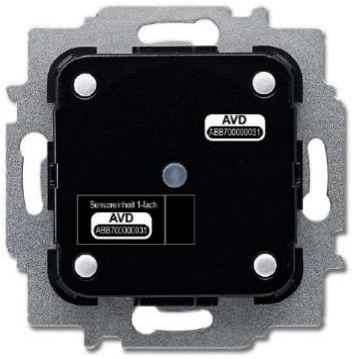
- A KNX product range specially adjusted to functional buildings
- Range consists of compact devices including bus coupler
- Powerful but easy to handle native ETS application
- Rockers with different ABB designs available
- Integration of conventional ABB switches
- New area of application: Measurement of CO₂ and humidity concentrations in rooms
- Version for BS (British Standard) available
- Cost efficient solution



KNX Sensors for commercial Buildings

Overview

Operation sensors



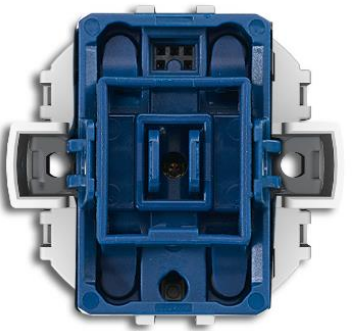
Push-button coupler
1/2-gang

- integrated temperature sensor



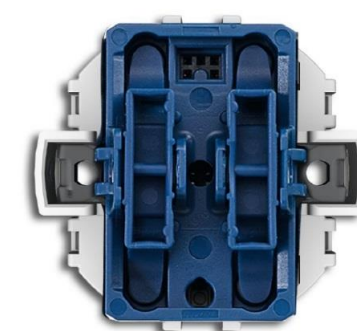
Push-button coupler
2/4-gang

- integrated temperature sensor



Push-button coupler
1/2-gang

- For conventional 1-gang rocker switches
- For ocean®



Push-button coupler
2/4-gang

- For conventional 2-gang rocker switches
- For ocean®

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Push-button coupler 1/2 gang (6108/06) and 2/4 gang (6108/07)

Functionality

- One or two rockers for up to two/four functions
- Primary function
- For contacting rockers of different ABB designs, colours with/without icons (like free@home) including British Standard (BS)
- Rockers with middle position and two contacts
- Bus connection via enclosed terminal block
- Integrated temperature sensor
- LED with colour concept (yellow=lighting, blue=blind, orange=RTC, magenta=scene and white=neutral/no function assigned) or standard illumination red/green
- Application for ETS4 and 5, comprehensive functionality

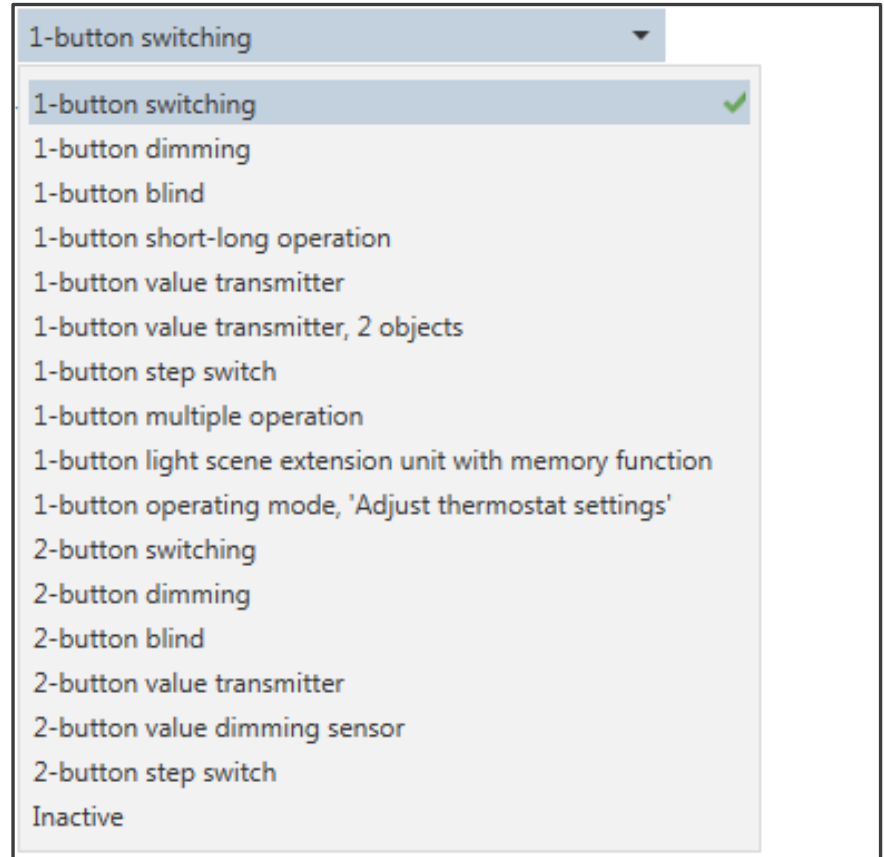


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Push-button coupler 1/2 gang (6108/06) and 2/4 gang (6108/07)

ETS

- From 1-button operation (independent function each button of a rocker) or 2-button operation (one function per rocker)
- Further adjustable functions known from other inputs or push buttons like dimming, multiple operation, value sender and more



KNX Sensors for commercial Buildings

Push-button coupler 1/2 gang (6108/06) and 2/4 gang (6108/07)

ETS

– Primary function

- It is the function carried out when any button is actuated **and** the device is disabled
- 1-button switching is possible, with the following data types to be sent out: 1 bit, 1 byte, light scene number, RTC operating mode
- Independent values for pressing the button (rising edge) or releasing the button (falling edge) possible
- Example: When the cleaning staff enters the office rooms during the night the primary function is active at all buttons to turn on the ceiling light only. Standard function is not working

Application Inactive 1-button switching

Object type 1-byte 0..100%

Reaction on rising edge 1 bit

Reaction on falling edge 1-byte 0..100% ✓

1-byte 0..255

Light scene number 1-64

RTC operating mode switchover (1 byte)

KNX Sensors for commercial Buildings

Push-button coupler 1/2 gang (6108/06) and 2/4 gang (6108/07)

ETS

- Enable function
 - Allows to activate/deactivate the whole push button via telegram or in case of bus voltage recovery **and** can activate the primary function
 - With automatic enable/blockage a time can be defined after which the function is off again
 - Time can be changed via telegram
 - LED during blockage can be off, dark or bright
 - Example: In a festival hall after start of an event local push buttons will be deactivated

Application	<input type="radio"/> Inactive <input checked="" type="radio"/> Enable application

Enable with	<input checked="" type="radio"/> On telegram <input type="radio"/> Off telegram
After bus voltage recovery the device is	<input checked="" type="radio"/> blocked <input type="radio"/> enabled
Use of automatic enable/blockage	no ▼
Brightness of the LED during blockage	off ▼

Use of automatic enable/blockage	Automatic enable ▼
Automatic switchover time	03:00:00 hh:mm:ss
Use object for switchover time	<input type="radio"/> no <input checked="" type="radio"/> yes
Overwrite switchover time during download	<input type="radio"/> no <input checked="" type="radio"/> yes

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Push-button coupler 1/2 gang (6108/06) and 2/4 gang (6108/07)

ETS

– LED

- LED with 7 colours either as orientation or status
- For status 5 zones adjustable to have different colours depending on values
- Zone 1: Value 0 %
- Zone 2: Value between 1 % and x %
- Zone 3: Value between x % and y %
- Zone 4: Value between y % and 99 %
- Zone 5: Value 100 %
- Example: Depending on CO₂ concentration in the conference room different LED colours are visible from green to red

The screenshot shows the ETS configuration interface for LED functionality. It is divided into two sections. The top section is for 'Orientation lighting' and the bottom section is for 'Status illumination'.

Top Section (Orientation lighting):

- Application: LED functionality Inactive
- Operating mode: Status illumination Orientation lighting
- Colour of orientation illumination: A dropdown menu is open, showing options: off, yellow (light), red-orange (heating), red, violet (scene), blue (blind), green, and White (neutral) (checked with a green checkmark).

Bottom Section (Status illumination):

- Operating mode: Status illumination Orientation lighting
- Object type for status object: 1 bit 1-byte 0..100%
- Colour for Zone 1 (corresponds to 0%): green
- Colour for Zone 2 (starting at 1%): yellow
- Threshold between Zone 2 and Zone 3 (%): 33
- Colour for Zone 3: white
- Threshold between Zone 3 and Zone 4 (%): 66
- Colour for Zone 4 (up to 99%): red-orange
- Colour for Zone 5 (corresponds to 100%): red

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Push-button coupler 1/2 gang (6108/06) and 2/4 gang (6108/07)

ETS

- LED extended parameter
 - **Day/Night Mode** (two different brightness levels)
 - ON telegram LED on group object → "bright"; OFF telegram → "dark"
 - Example: At 10 pm telegram is sent to all LED's in sleeping rooms to go to "dark" mode
 - **Storage function light scene**
 - LED will blink for 3 s if a scene storage telegram is received on the 1-byte object "Scene storage"
 - **Alarm function**
 - LED flashes with ON telegram on group object "Alarm", with OFF telegram the LED is off

Day/Night mode	<input type="radio"/> deactivated	<input checked="" type="radio"/> activated
Storage function light scenes	<input type="radio"/> deactivated	<input checked="" type="radio"/> activated
Alarm function	<input type="radio"/> deactivated	<input checked="" type="radio"/> activated

LED1: Day/Night mode	Input	1 bit
LED1: Alarm	Input	1 bit
LED1: Scene storage	Input	1 byte

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Push-button coupler 1/2 gang (6108/06) and 2/4 gang (6108/07)

ETS

- Room temperature sensor
 - Integrated temperature sensor to send room temperature on KNX for further processing
 - Value can be transmitted cyclically or in case of adjustable change
 - Offset allows to adjust the value in the event of not precise measurement
 - Example: Room temperature sensor together with external controller functionality in Logic Controller ABA/S 1.2.1 for room temperature control
 - Example: Room temperature measurement in addition to the controller for more precise detection

Application	<input type="radio"/> Inactive	<input checked="" type="radio"/> Temperature sensor

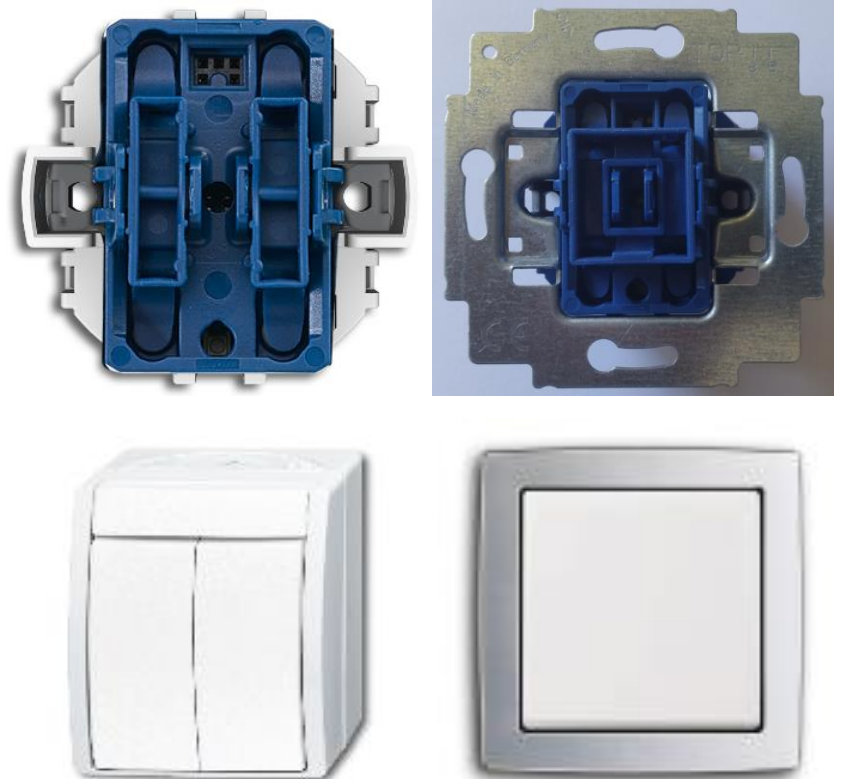
Send measured values	<input type="radio"/> only cyclical	<input checked="" type="radio"/> Cyclic and during change
Cycle time for sending of the actual temperature	<input type="text" value="00:00:25"/>	hh:mm:ss
Temperature difference for sending within cycle time * 0.1K	<input type="text" value="20"/>	▲▼
Offset of the temperature sensor (x 0.1°C)	<input type="text" value="5"/>	▲▼

KNX Sensors for commercial Buildings

Push-button coupler 1/2 gang (6108/06-AP) and 2/4 gang (6108/07-AP)

Functionality

- For integration of conventional 1 gang/ 2 gang rocker switches
- Rocker with middle position
- Enclosed mounting plate for the following ranges: Busch-Duro 2000® SI/SI Linear, Reflex SI/SI Linear, future® linear, alpha, solo®, Busch-axcent®, carat® and pure stainless steel
- For inserting in the ocean® surface-mounted housing without mounting plate
 - Outdoor installation: Temperature range - 5 ...+45° Celsius !
- 2 gang version: Integrated two-colour status LED (red, green, off)
- 4 gang version without LED

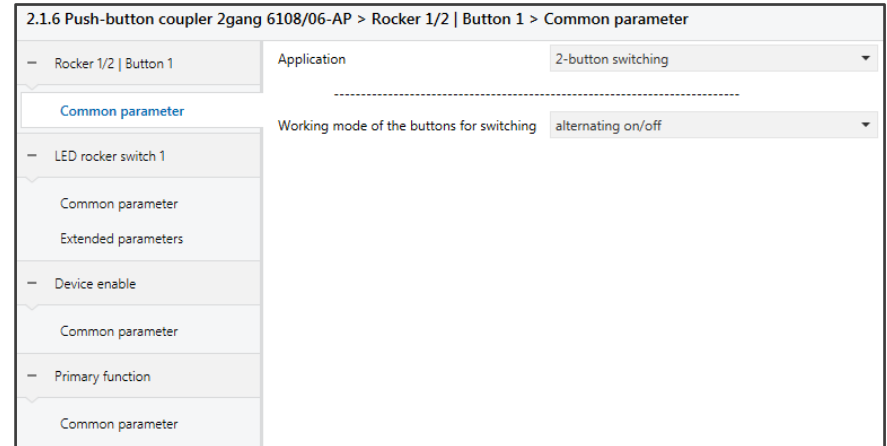


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Push-button coupler 1/2 gang (6108/06-AP) and 2/4 gang (6108/07-AP)

ETS

- ETS application like push-button coupler 2/4 gang flush mounted except the following:
 - No LED colour concept
 - No Day/Night Mode for LED
 - No integrated temperature sensor



KNX Sensors for commercial Buildings

Overview - Detectors

Movement and Presence detectors



Watchdog standard

- 4 channels
- Integrated bus coupler



Presence detectors

- Basic and Premium
- Mini and regular (different in detection area)



Watchdog Sky

- Basic
- Installation height up to 12 m



Presence Corridor

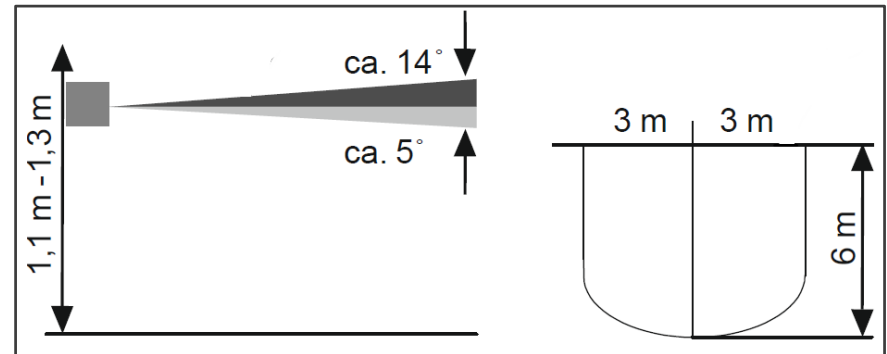
- Basic and Premium
- Rectangular detection area

KNX Sensors for commercial Buildings

Busch-Watchdog sensor with integrated bus coupler 6122/10

Functionality

- Movement Detector with up to 4 channels
- Bus connection via enclosed terminal block
- Integrated KNX bus coupler
- Different ABB designs and colours available (like free@home)

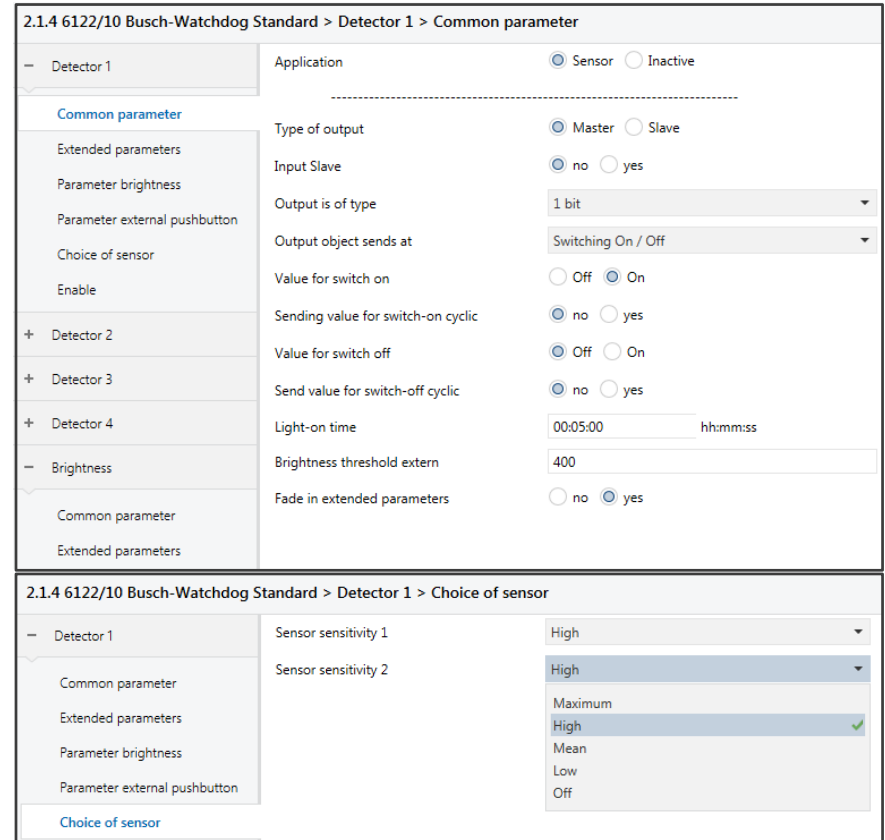


KNX Sensors for commercial Buildings

Busch-Watchdog sensor with integrated bus coupler 6122/10

ETS

- Powerful functionality with all known possibilities from other ABB's movement/presence detectors
 - 4 channels with individual parameters (e.g. for lighting, HVAC and monitoring)
 - Master/Slave (e.g. for multiple sensors in a corridor)
 - 2 sensors with adjustable sensitivity (off, low, mean, high maximum, e.g. to compensate interfering heat sources)
 - External push button to 'operate' the sensor (e.g. to switch on the light, motion sensor switches off automatically)
 - ...



KNX Sensors for commercial Buildings

Overview

Room Temperature Controller



6108/18

- internal temperature sensor



6109/18

- 5x universal inputs
- internal temperature sensor



6109/28

- 5x universal inputs
- internal temperature sensor
- CO₂/humidity controller
- Air pressure sensor
- Auto calibration

KNX Sensors for commercial Buildings

Overview

Room Temperature Controller



6109/05

- Room temperature controller only



6109/08

- 5x universal inputs
- internal temperature sensor

KNX Sensors for commercial Buildings

Room Temperature Controller 6108/18

Functionality

- Control element with room thermostat function for controlling heating and cooling application, either ventilation and fan-coil actuators
- LCD Display showing operation mode and temperature (Setpoint/Room temperature)
- Buttons to operate:
 - Setpoint adjustment
 - Fan Speed/Auto-Mode
 - Switchover heating/cooling
 - On/Off (long operation)
 - ECO-Mode (increased setpoint cooling, decreased setpoint heating, fan speed limitation)

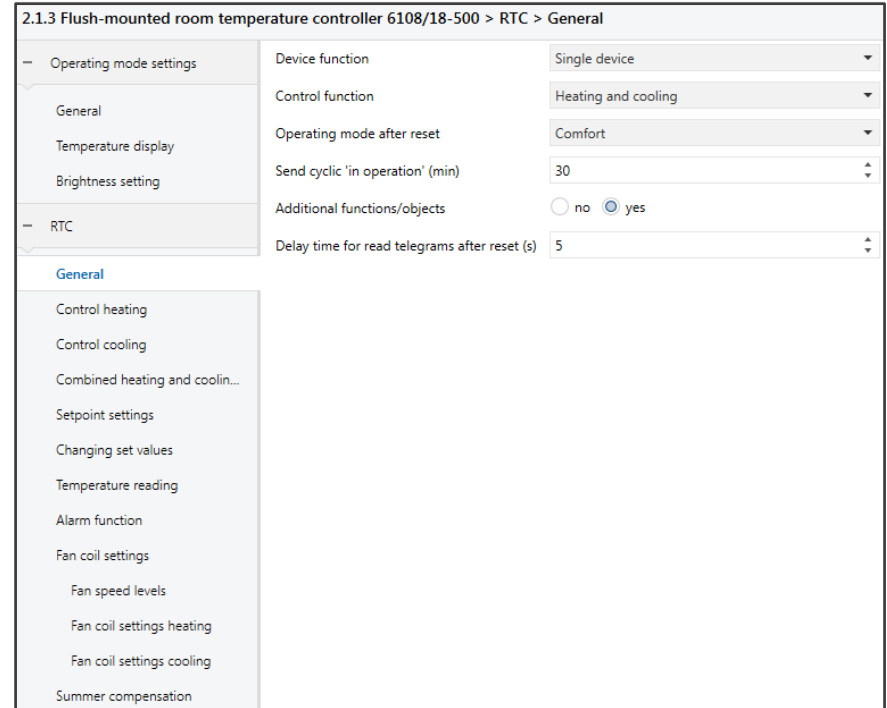


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Room Temperature Controller 6108/18

ETS

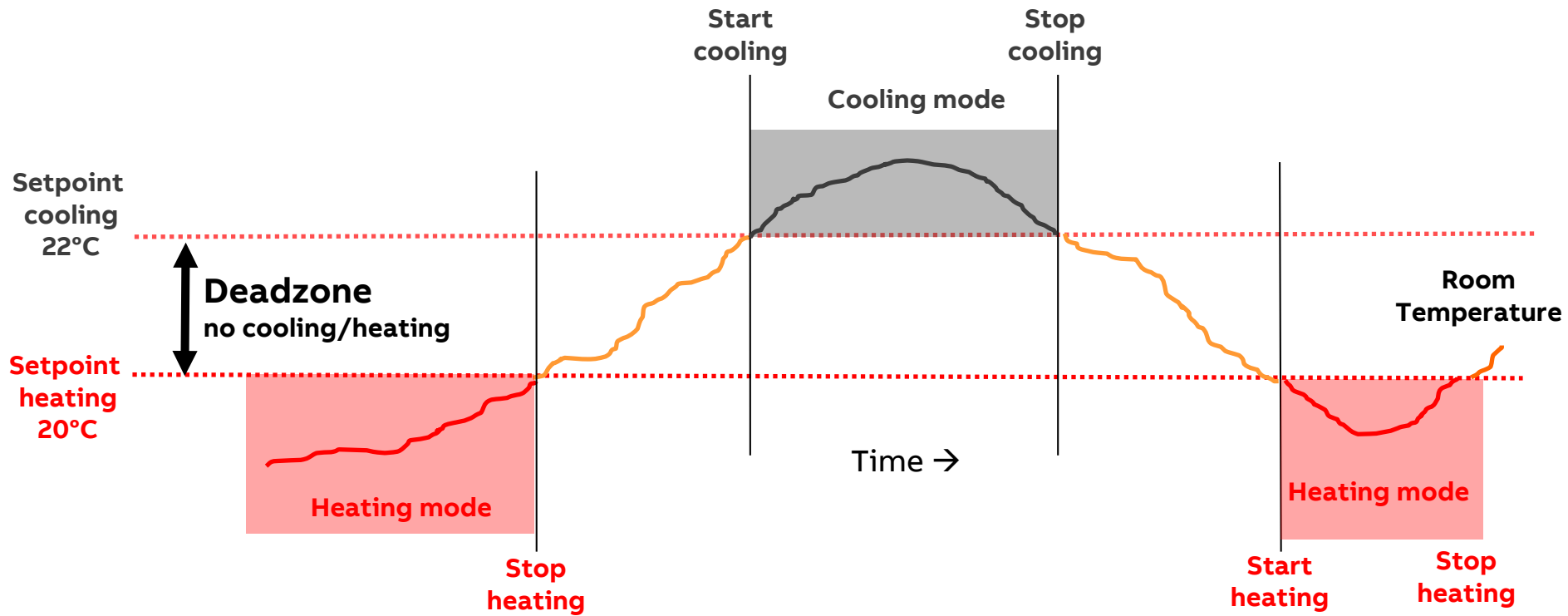
- Application based on ABB's unified RTC concept
- It is the same software concept, providing the user with the same function for all devices → easier to commission and operate
- Uniform Master Slave concept → easy implementation of more than one RTC's in a room
- One set point mode → easier to program,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



KNX Sensors for commercial Buildings

Room Temperature Controller

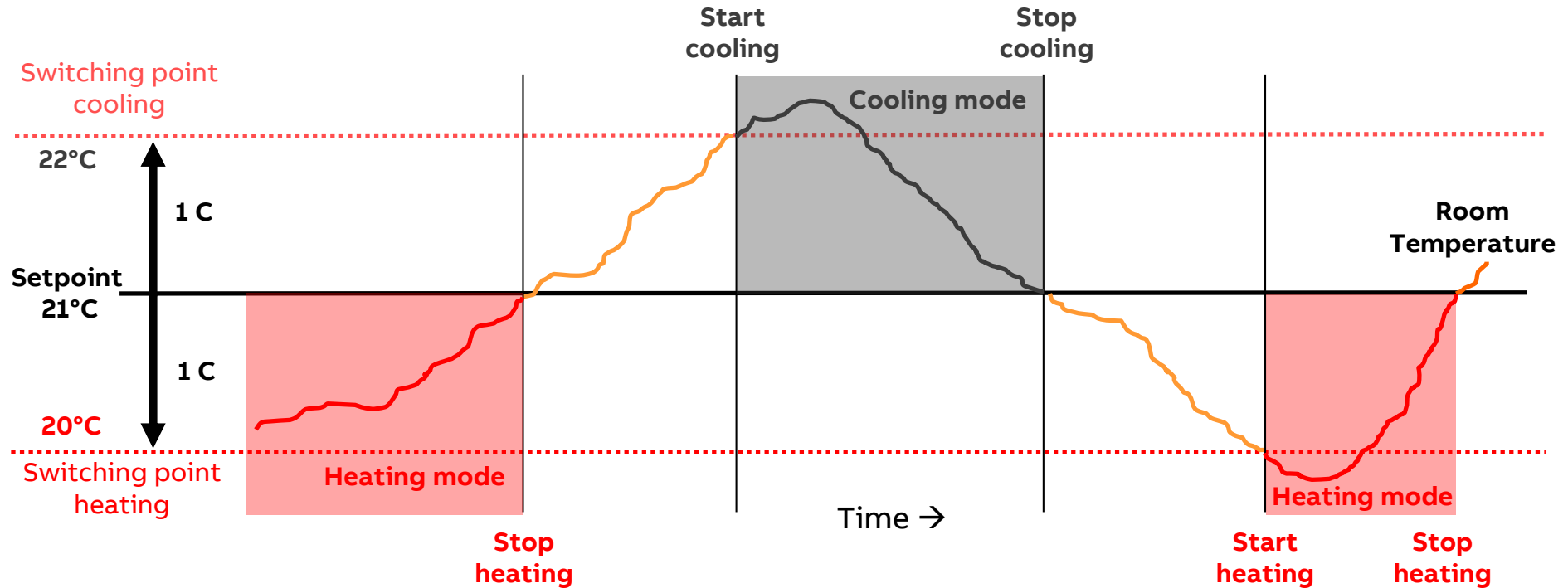
Two Setpoint Mode



KNX Sensors for commercial Buildings

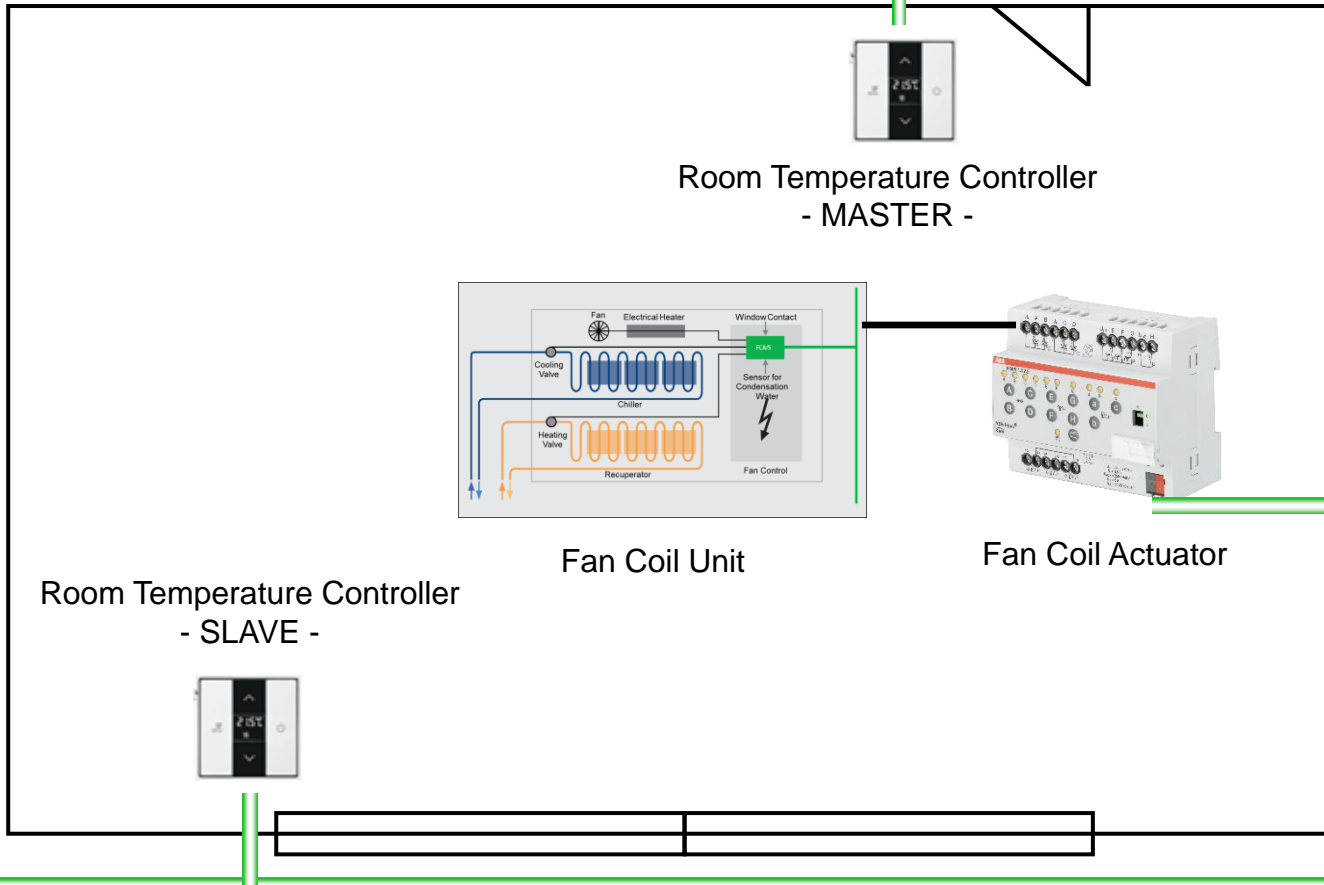
Room Temperature Controller

One Setpoint Mode



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Master - Slave

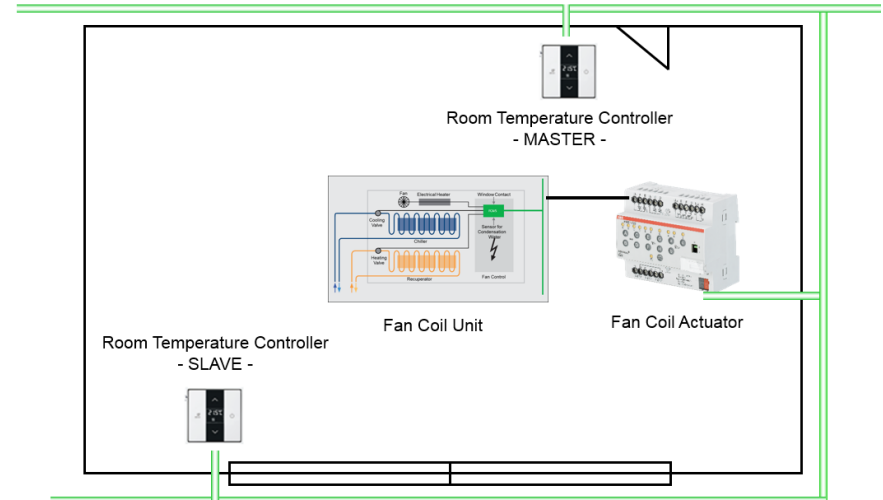


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Room Temperature Controller

Master - Slave

- **Single device** Stand alone operation / application in a single room
 - **Master device** At least two RTCs in use. One defined as Master and the second (and further if required) as an additional operating and display element (Slave). The Master is to be connected according to the designated communication objects with the slave. The Master is responsible for the temperature control
 - **Slave device(s)** The Slave is to be connected according to the designated communication objects with the Master. The Slave uses the room temperature controller functions of the master
- Synchron indication and operation between Master and Slave devices



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Room Temperature Controller 6108/18

Additional Heating/Cooling

An additional stage allows to run a separate heating/cooling circuit

- Example: Room with cooling ceiling (basic stage) and classical fan coil unit as additional stage
- For more information look at Webinar 'Application Fan Coil unit – Part 2' January 2016 in our T&Q database

2.1.11 6109/18 RTC with universal input 5gang > RTC > General

General commands	Device function	Single device
General commands	Control function	Heat
RTC	Operating mode after reset	Heat
General	Additional functions/objects	Heating with additional stage
Heating control	Jump-back time to the primary function	Cool
		Cooling with additional stage
		Heating and cooling
		Heating and cooling with additional stage

2.1.11 6109/18 RTC with universal input 5gang > RTC > Control of additional cooling stage

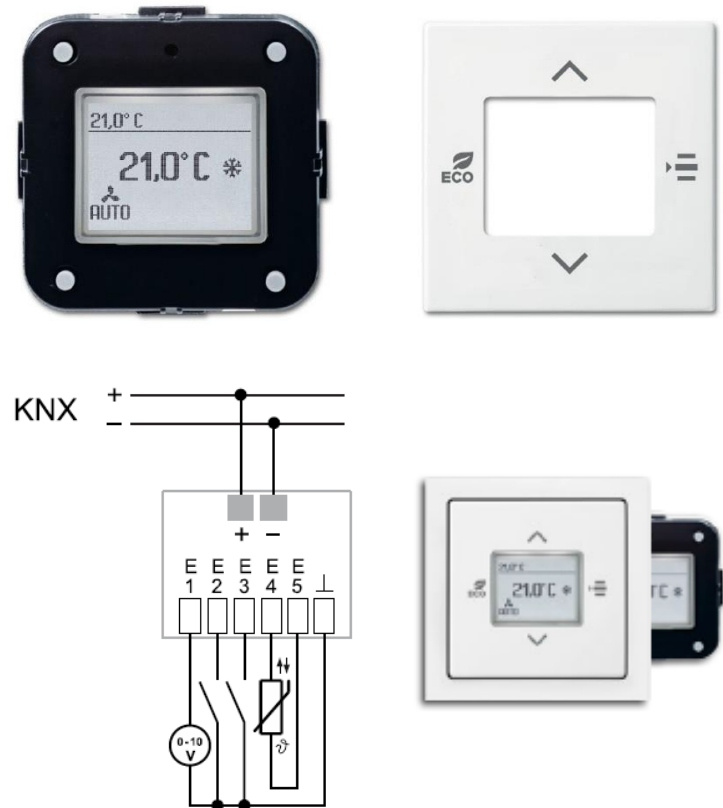
RTC	Control value type	2-point 1 bit, Off/On
General	Temperature difference to basic stage [0.1°C]	2-point 1 bit, Off/On
Heating control	Advanced settings	2-point 1 byte, 0-100%
Control of additional heating...		PI continuous, 0-100%
Cooling control		PI PWM, On/Off
Control of additional coolin...		Fan coil

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Room Temperature Controller with 5 gang universal input 6109/18

Functionality

- Control element with room thermostat function for controlling heating and cooling application, either ventilation and fan-coil actuators
- Universal input with max. of 5 binary inputs
 - 4 binary inputs and 1 analogue input for sensors with external power supply 1-10 V/0-10 V
 - 2 binary inputs and 1 analogue input for sensors with external power supply 1-10 V/0-10 V or an external temperature sensor without power supply PT1000 / T6226 (Accessory free@home panel 4.3)



KNX Sensors for commercial Buildings

Room Temperature Controller with 5 gang universal input 6109/18

ETS

- Application like room temperature controller 6108/18
- Additionally: Universal input with 5 inputs
 - Option 1: E1 – E5 binary inputs
 - Option 2: E1 analogue input, E2 – E5 binary inputs
 - Option 3: E1 – E3 binary inputs, E4/5 for external temperature sensor
 - Option 4: E1 analogue input, E2 – E3 binary inputs, E4/5 for external temperature sensor



Terminal	Binary	Temperature sensor	0 to 10 V	1 to 10 V
E1	X	—	X	X
E2	X	—	—	—
E3	X	—	—	—
E4	X	X	—	—
E5	X		—	—
E6 (GND)	—	—	—	—

KNX Sensors for commercial Buildings

Room Temperature Controller with 5 gang universal input 6109/18

ETS

- Binary Inputs:
 - Known functions from other binary inputs
- Analogue inputs:
 - Known functions from other analogue inputs, e.g. two threshold with hysteresis, filter, adjustable measuring limits, ...
 - 0...10 V or 1...10 V Signals

Designation: Input 1 conventional sensor

Function: Binary input

Binary function: Switching/alarm

Sensor type: 0-10 V 1-10 V

Lower measuring limit in x% of effective range: 0

Upper measuring limit in x% of effective range: 100

Output value: 4-byte floating point

Output value to be sent at lower measuring limit: 0

Output value to be sent at upper measuring limit: 0

Use threshold value: Inactive Active

Tolerance band lower limit in x% of output range: 0

Tolerance band upper limit in x% of output range: 100

Limit value changeable via bus: Inactive Active

Data type of threshold value object: 1 bit

Send if threshold value undershot: Send OFF telegram

Send if threshold value exceeded: Send ON telegram

Minimum duration of undershoot: Inactive

Minimum duration of overshoot: Inactive

KNX Sensors for commercial Buildings

Room Temperature Controller with 5 gang universal input 6109/18

ETS

- Temperature sensor:
 - PT1000 / T6226 (Accessory free@home panel 4.3) connectable
 - Functions like line fault compensation (length or resistance) or temperature offset



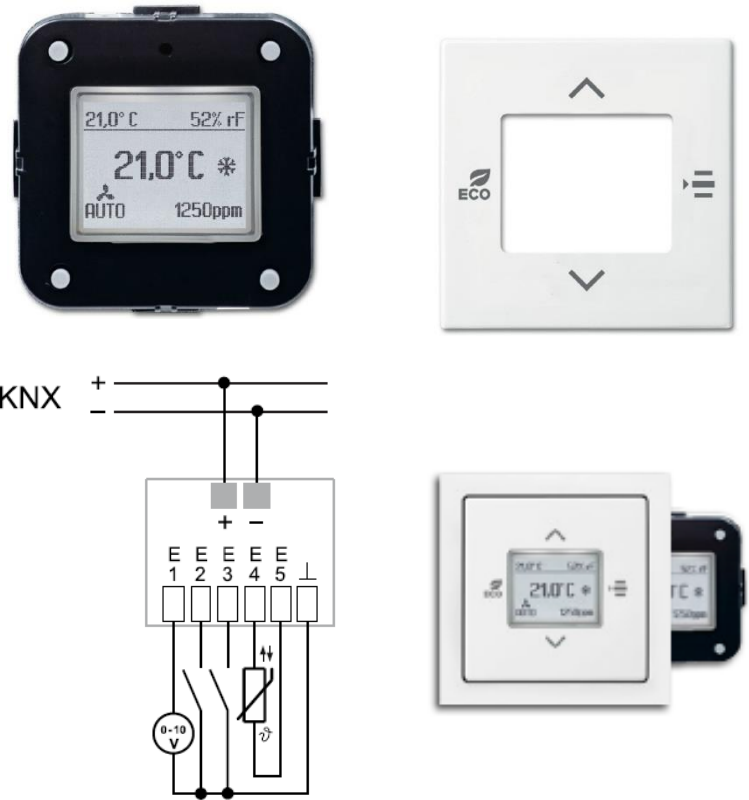
Temperature sensor type	<input checked="" type="radio"/> Pt1000 <input type="radio"/> 6226/T
Temperature offset in K	0,0
Line fault compensation	Length
Line length, single distance ... in m	10
Cross-section of the busbar, value * 0.01 mm ²	100
Filters	Medium (mean of 16 measurements)
Send output value	Cyclic
Output value is sent, every	5 seconds
Enable object 'Disable'	<input type="radio"/> Inactive <input checked="" type="radio"/> Active

KNX Sensors for commercial Buildings

Room Temperature Controller with 5 gang universal input 6109/28

Functionality

- Control element with room thermostat, functions like 6109/18
- Additionally:
 - CO₂ sensor and controller
 - Relative humidity sensor and controller
 - Temperature sensor
 - Dew point sensor
 - Air pressure sensor
- Automatic calibration of CO₂ measurement when KNX voltage is connected
 - After Reset or bus voltage failure automatic calibration starts again
- To be installed in windproof switch box



KNX Sensors for commercial Buildings

Room Temperature Controller with 5 gang universal input 6109/28

ETS

- CO₂ sensor and controller
 - Measurement between 390 ppm and 10000 ppm
 - Notification in case of sensor error
 - Value offset for adaption
 - Integration of external value with 10 ... 100 % proportion
- CO₂ control with 1/2/3 step control or PI control
 - Step control with thresholds and hysteresis
 - PI control with setpoint, P-coefficient, integral time and min./max. control values

CO2 sensor	<input type="radio"/> disabled <input checked="" type="radio"/> enabled
value offset	0 ppm
error CO2 sensor	<input type="radio"/> don't notify <input checked="" type="radio"/> notify
send CO2 value when changing	if change above 50 ppm
send CO2 value cyclically	disabled
external value	<input type="radio"/> disabled <input checked="" type="radio"/> enabled
percentage	with 50% proportion

set point	400 ppm
proportional band	800 ppm
reset time (15...240min)	15
min. control value	0%
max. control value	100%
control value in case of sensor error	0%
blocking object	<input checked="" type="radio"/> disabled <input type="radio"/> enabled

KNX Sensors for commercial Buildings

Room Temperature Controller with 5 gang universal input 6109/28

ETS

- Relative humidity sensor and controller
 - Measurement between 0 and 100 %
 - Notification in case of sensor error
 - Value offset for adaption
 - Integration of external value with 10 ... 100 % proportion
- Relative humidity control with 1/2/3 step control or PI control
 - PI control with setpoint, P-factor, integral time and min./max. control values
 - Step control with thresholds and hysteresis

relative humidity sensor	<input type="radio"/> disabled <input checked="" type="radio"/> enabled
value offset	3% ▼
error humidity sensor	<input type="radio"/> don't notify <input checked="" type="radio"/> notify
send relative humidity when changing	disabled ▼
send relative humidity cyclically	disabled ▼
external value	<input checked="" type="radio"/> disabled <input type="radio"/> enabled

control type	3-step ▼
allow to change base set point via bus	<input checked="" type="radio"/> no <input type="radio"/> yes
control value Output format	switching command ▼
send control value when change-over	<input checked="" type="radio"/> disabled <input type="radio"/> enabled
send control value cyclically	disabled ▼
hysteresis (symmetrical)	5% ▼

KNX Sensors for commercial Buildings

Room Temperature Controller with 5 gang universal input 6109/28

ETS

- Additional temperature beside integrated room temperature controller
 - Measurement between 0° and 35° Celsius
 - Notification in case of sensor error
 - Value offset for adaption
 - Integration of external value with 10 ... 100 % proportion

temperature sensor	<input type="radio"/> disabled <input checked="" type="radio"/> enabled
value offset [0,1K], (-5K...+5K)	0
error temperature sensor	<input type="radio"/> don't notify <input checked="" type="radio"/> notify
send temperature when changing	if change above 0,5K
send temperature cyclically	every 10 minutes
external value	<input type="radio"/> disabled <input checked="" type="radio"/> enabled
percentage	with 10% proportion

KNX Sensors for commercial Buildings

Room Temperature Controller with 5 gang universal input 6109/28

ETS

– Air pressure sensor

- Absolute and relative air pressure between 300hPa and 1100 hPa (relative air pressure related to height)
- Notification in case of sensor error
- Height of the location for relative air pressure

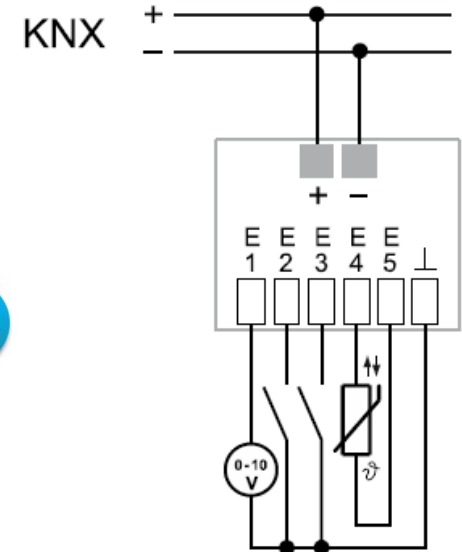
air pressure sensor	<input type="radio"/> disabled <input checked="" type="radio"/> enabled
error air pressure sensor	<input type="radio"/> don't notify <input checked="" type="radio"/> notify
send absolute air pressure when changing	if change above 5 hPa ▼
send absolute air pressure cyclically	every 5 minutes ▼
send relative air pressure when changing	if change above 2 hPa ▼
send relative air pressure cyclically	disabled ▼
height [m. a. s. l.] (0...5000m)	300 ▲▼

KNX Sensors for commercial Buildings

Room Temperature Controller with 5 gang universal input 6109/05

Functionality

- Device with room thermostat and inputs like 6109/18 but ...
- **no** internal temperature sensor
- **no** display and buttons to operate
- For invisible installation in a wall box
- Room temperature either via connected sensor to the input or via KNX telegram

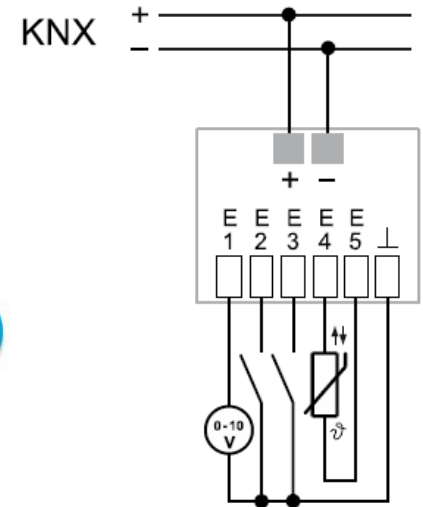


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Room Temperature Controller object range with 5 gang universal input
6109/08

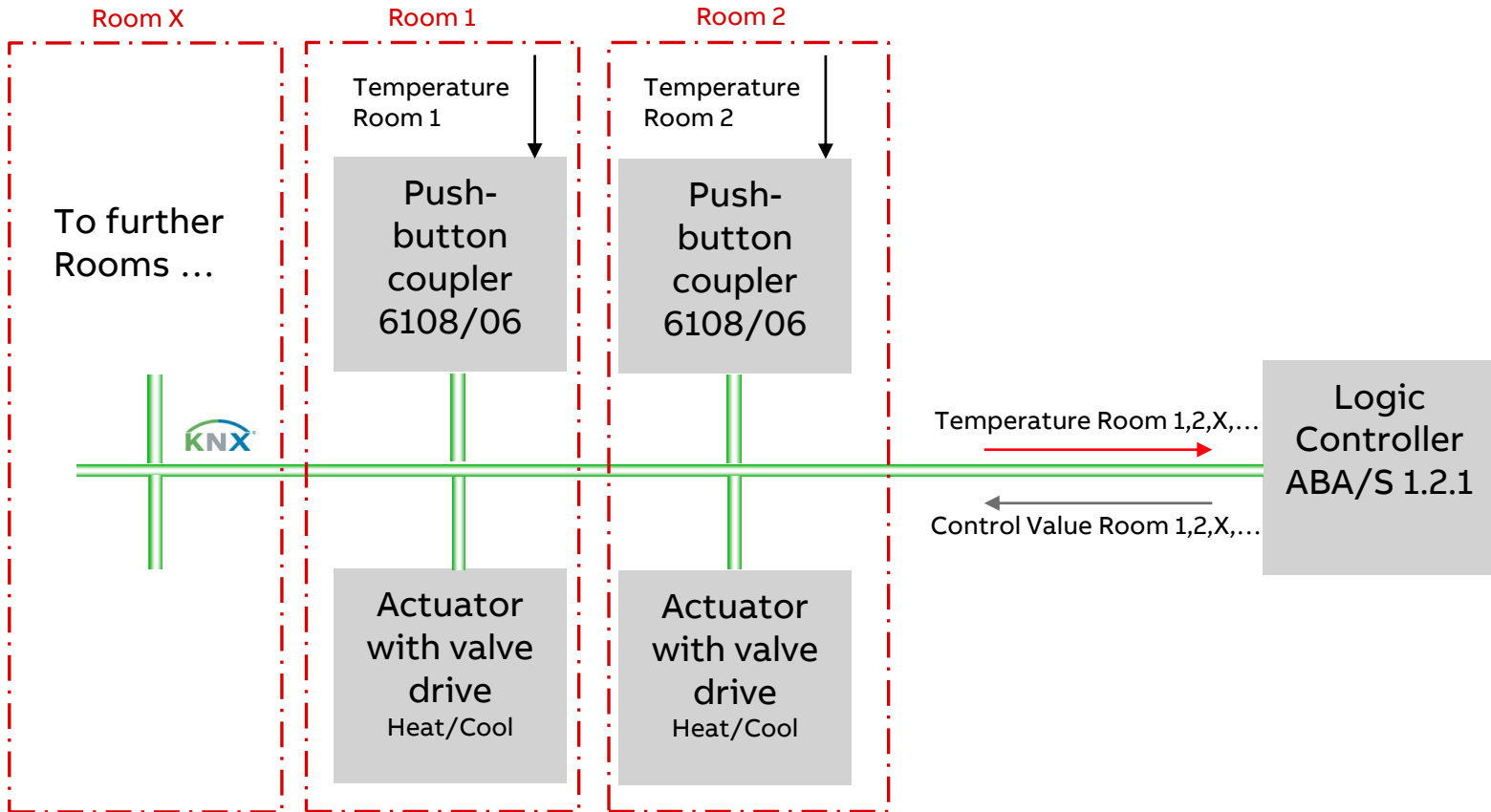
Functionality

- Device with room thermostat and inputs like 6109/18 but ...
- **no** display and buttons to operate
- For flush mounting in a wall box
- To be used with a cover plate 2114-xxx or 6541-xxx



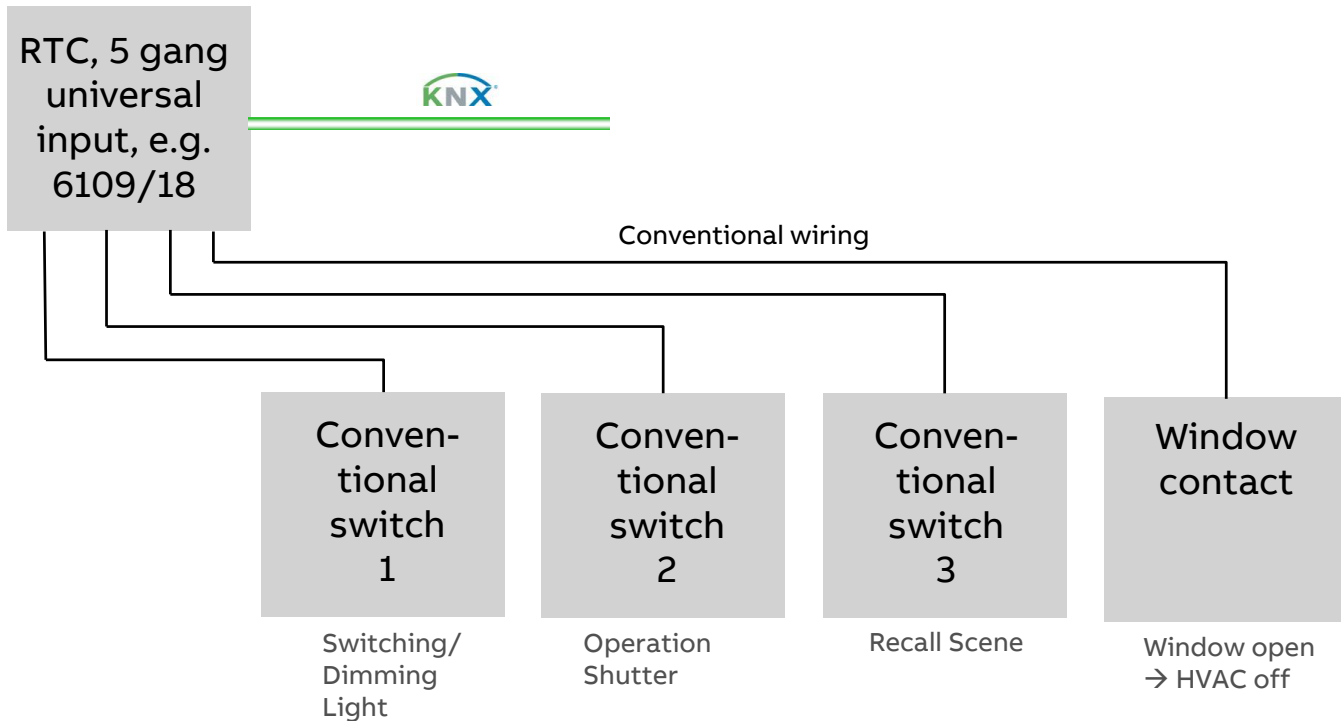
KNX Sensors for commercial Buildings

Push button coupler 6108/06 with Room Temperature Control



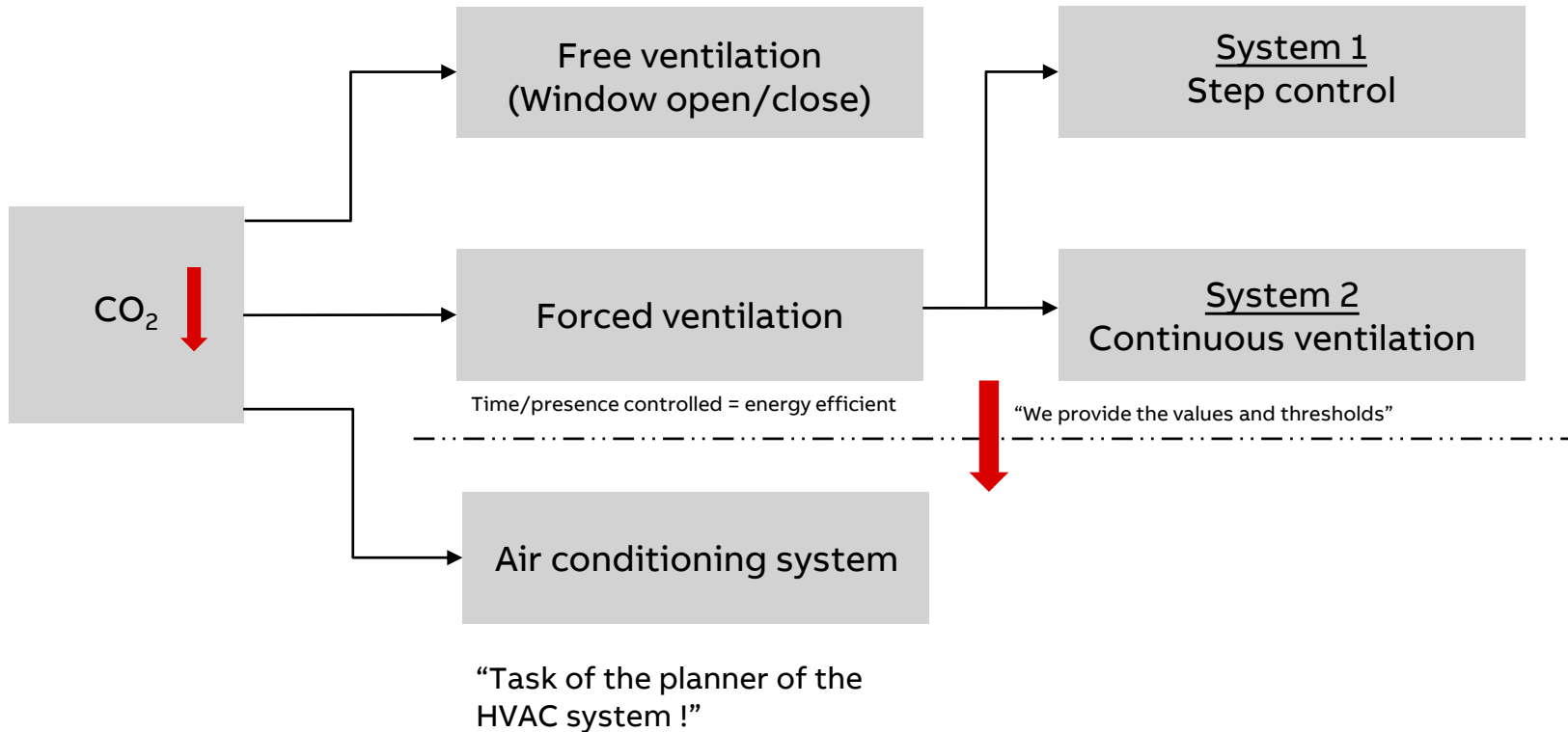
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RTC with 5 gang universal input plus additional conventional switches/contact



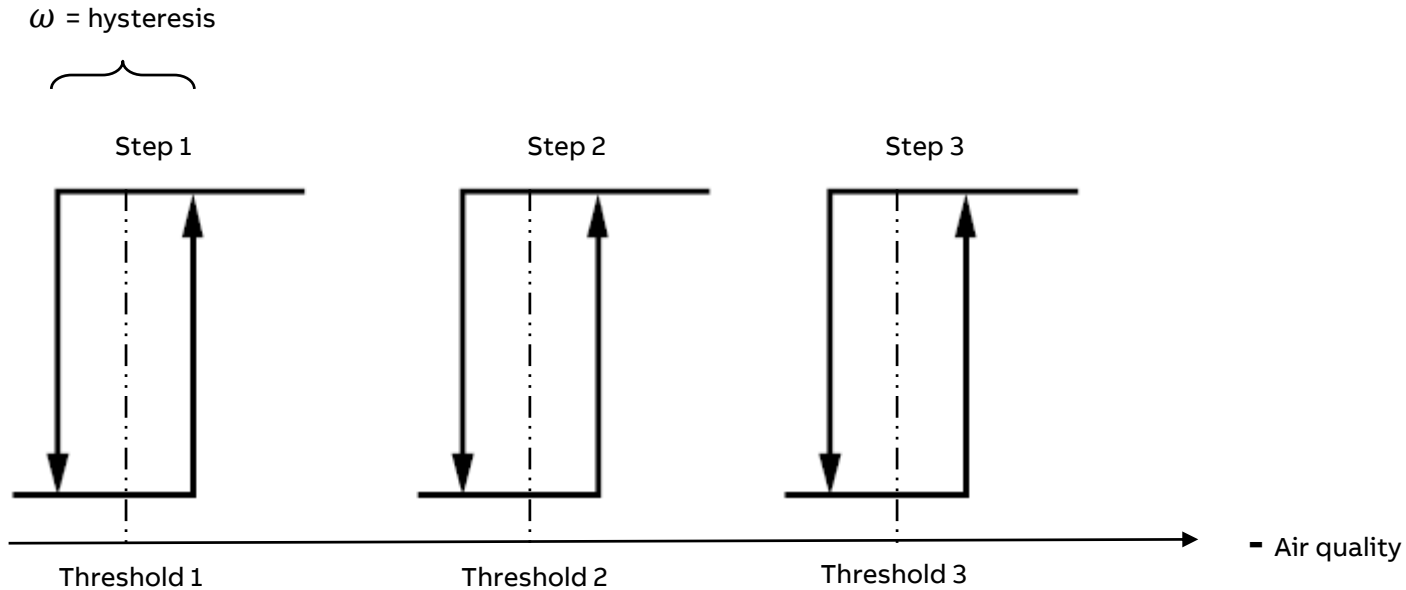
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Application CO₂



KNX Sensors for commercial Buildings

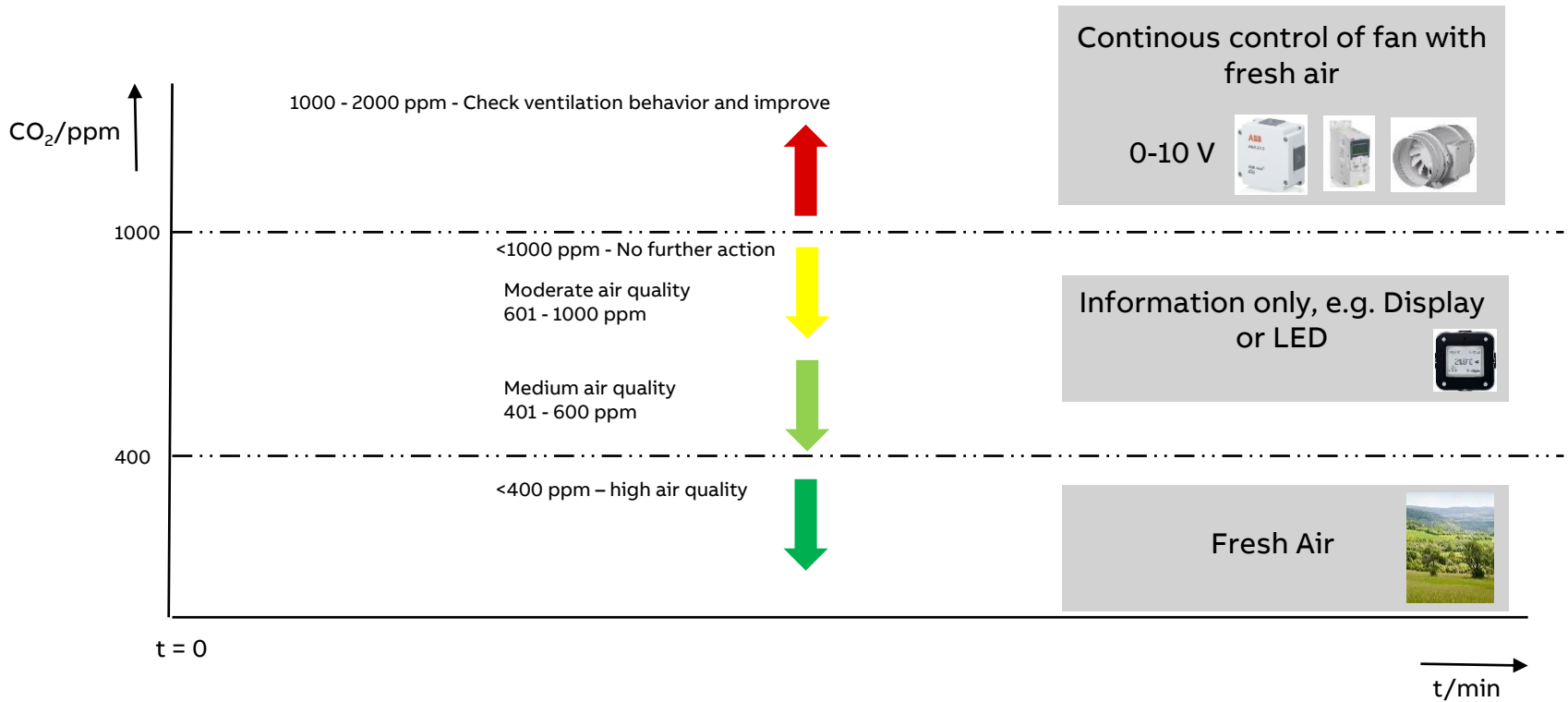
System 1: Ventilation with step control



If the air quality is deteriorated, the system is switched on at the first ventilation stage
2nd ventilation stage is turned on in a further deterioration of air quality
3rd ventilation stage is turned on in a further deterioration of air quality

RTC with CO₂/humidity sensor/controller

System 2: Continuous Control



KNX Sensors for commercial Buildings

Bus Connection Terminals



Push-button coupler 6108/06 AP and 07 AP, Room temperature controller 6108/18

- Small and grey bus connection terminal



Bus connection terminal

- 2 wires per pole



Room temperature controller 6109/18 and 28, push-button coupler 6108/06 AP and 07 AP

- Standard red/black bus connection terminal



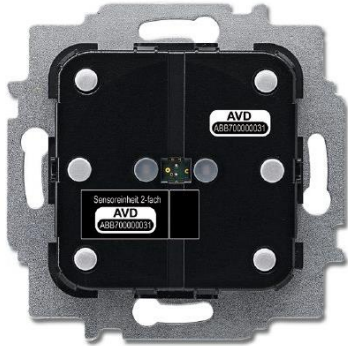
Bus connection terminal

- 4 wires per pole

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Parts to be ordered

Main Element



Part 1

- e.g. Push-button coupler 2-gang 6108/07

Operating Element



Part 2

- e.g. Rocker 2-gang left with 'Scene' icon and Rocker 2-gang right with 'Dimmer' icon

Frame



Part 3

- e.g. solo® 1-fold, chrome, matt

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Overview – Devices for BS (British Standard)

Watchdog and Push-buttons



Watchdog

- 6122/10-**BS**-500



Push-button coupler 1/2 gang

- 6108/06-**BS**-500



Push-button coupler 2/4 gang

- 6108/07-**BS**-500








Room temperature controller

- 6108/18-**BS**-500

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Overview

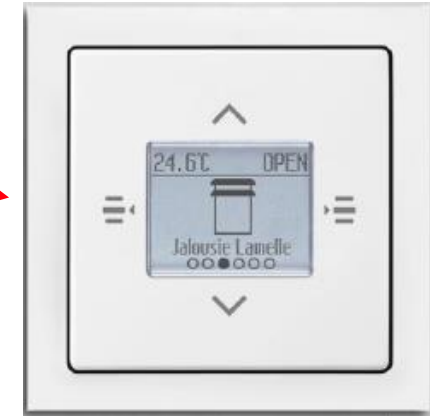
Technical data					
Program	FM room temperature controller				
					
	6108/18 6108/18-BS	6109/18	6109/28	6109/08	6109/05
Control element					
Standard function	-	-	-	-	-
Additional function	-	-	-	-	-
Indication					
Display	■	■	■	-	-
Actual temperature display	■	■	■	-	-
Status display via text and/or ICON	-	-	-	-	-
RTC					
Manual operation	■	■	■	-	-
Heating and/or cooling with/without additional stage	■	■	■	■	■
Fan coil	■	■	■	-	-
Master/slave	■	■	■	master only	master only
Basic load	■	■	■	■	■
Internal and/or external actual temperature sensor	■	■	■	■	external only
Internal actual temperature sensor	■	■	■	■	■
Air quality					
CO ₂	-	-	■	-	-
Humidity	-	-	■	-	-
Air pressure	-	-	■	-	-
Universal input/binary input					
Switching/alarm	-	■	■	■	■
Dimming	-	■	■	■	■
Blind	-	■	■	■	■
Value	-	■	■	■	■
Scene	-	■	■	■	■
Switching sequences	-	■	■	■	■
Multi	-	■	■	■	■
Pulse counter	-	■	■	■	■
Universal analogue input e.g. external sensors					
0-10 V (external)	-	■	■	■	■
1-10 V (external)	-	■	■	■	■
Upper/lower threshold value	-	■	■	■	■
Universal input of external temperature sensor (PT1000 or 6226/T)					
Actual temperature sensor	-	■	■	■	■
Temperature limiter	-	■	■	■	■
ABB					
basic5®	■	■	■	■	-
future® linear	■	■	■	■	-
alpha exclusive/nea	-	■	■	■	-
Busch-axcent®	■	■	■	■	-
solid®	■	■	■	■	-
pure stainless steel	■	■	■	■	-
carat®	■	■	■	■	-
ocean®	-	-	-	-	-
All weather 44	-	-	-	-	-

KNX Sensors for commercial Buildings

Overview

Technical data

Program	FM Watchdog with integrated bus coupler	FM push-button coupling unit with integrated bus coupler			
					
	6122/10 6122/10-B5-500	6108/06 6108/06-B5 1/2gang	6108/07 6108/07-B5 2/4gang	6108/60 6-fold KNX sensor	6108/06-AP 1/2gang 6108/07-AP 2/4gang
KNX function					
Switching, rocker switch total	-	■	■	-	■
Switching, rocker switch left/right	-	■	■	-	■
Dimming, rocker switch total	-	■	■	-	■
Dimming, rocker switch left/right	-	■	■	-	■
Blind, rocker switch total	-	■	■	-	■
Venetian blind, rocker switch total left/right	-	■	■	-	■
Short-long operation, rocker switch left/right	-	■	■	-	■
Value sender, rocker switch total	-	■	■	-	■
Value sender, rocker switch left/right	-	■	■	-	■
Value dimming sensor, rocker switch total	-	■	■	-	■
Red/green LED status illumination (red/green/off)	-	-	-	-	1 LED
RGB LED function illumination + status illumination	-	One LED per rocker switch	One LED per rocker switch	-	-
Setting the RTC operating mode	-	■	■	-	■
Value sender, 2 objects, rocker switch left/right	-	■	■	-	■
Light scene extension unit with light scene memory function	-	■	■	-	■
Level switch, rocker switch total	-	■	■	-	■
Level switch, rocker switch total left/right	-	■	■	-	■
Multiple operation, rocker switch left/right	-	-	-	-	■
IR remote control channels (up to 5 channels)	-	-	-	-	-
Room temperature controller only					
Temperature reading	-	■	■	■	-
RTC settings	-	-	-	■ (only as slave)	-
Illuminated display	-	-	-	-	-
Fan coil operation for heating and cooling	-	-	-	■ (only as slave)	-
Logic function (including light scenes)	■	-	-	-	-
Busch-watchdog 4 channels	■	-	-	-	-
ABB					
basic55®	-	■	■	■	■
future® linear	-	■	■	■	■
alpha exclusive/nea	-	-	-	-	■
Busch-xcent®	-	■	■	■	■
solo®	-	■	■	■	■
pure stainless steel	-	■	■	■	■
carat®	-	■	■	■	■
ocean®	-	-	-	-	■
All weather 44	-	-	-	-	■



- 6 functions (switching, dimming, blinds, scenes)
- RTC operation (slave)
- Display with icons and text

- Available August 2017

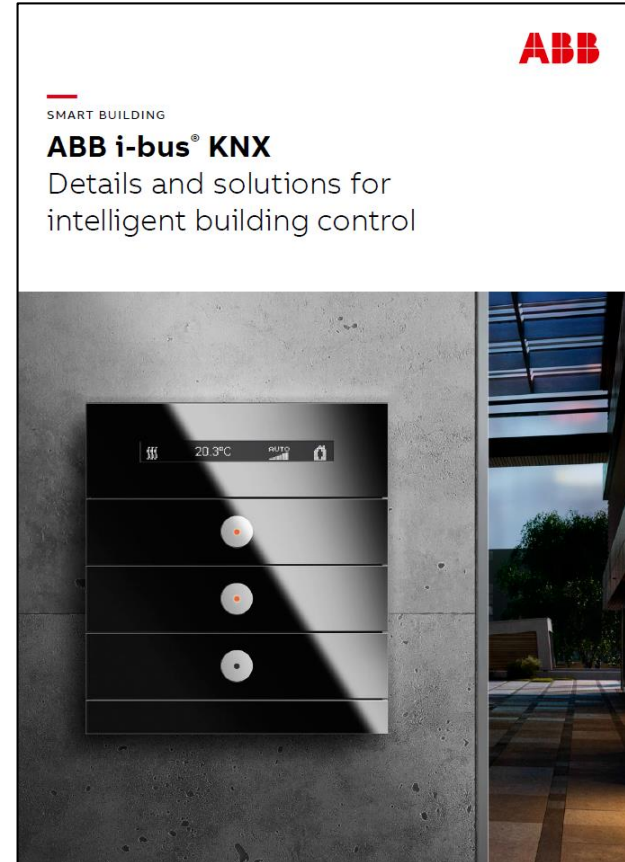
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Marketing Material

Brochure

Overview KNX sensors and displays

[Link](#)



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Training & Qualification

KNX Certified Training

Certified KNX Courses in Heidelberg

- Advanced Course 17th to 21st July
- Tutor Course 09th to 13th October

And many more training courses in the calendar “International Training Dates 2017”



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Next Webinar

Visualisation, Display and Signalling

Wednesday 26th July 2017

- Morning 09:00 am Europe Time (Berlin, UTC + 2h)
- Afternoon 03:00 pm Europe Time (Berlin, UTC + 2h)
- Busch-ComfortTouch®
- Busch-SmartTouch® 7"
- Busch-ControlTouch®

* Topic is subject to change



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