

Training ClimaECO, 2020

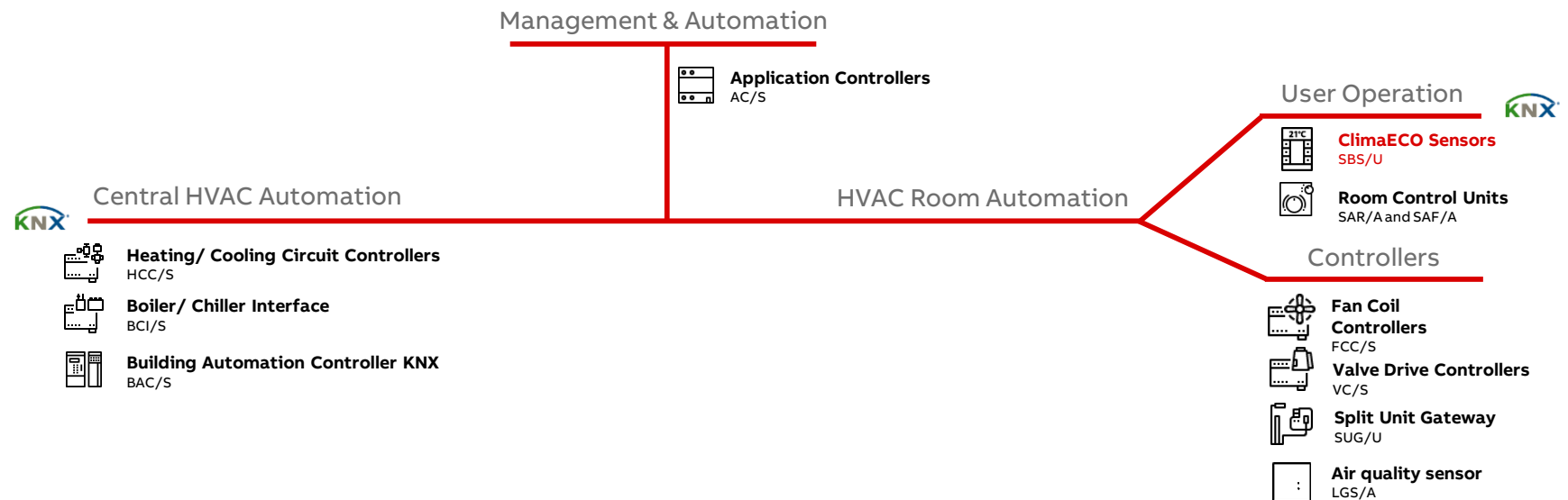
# ABB tenton - ClimaECO Sensors

Competence Center Europe – Smart Buildings

Thorsten Reibel

# ABB tenton - ClimaECO Sensors

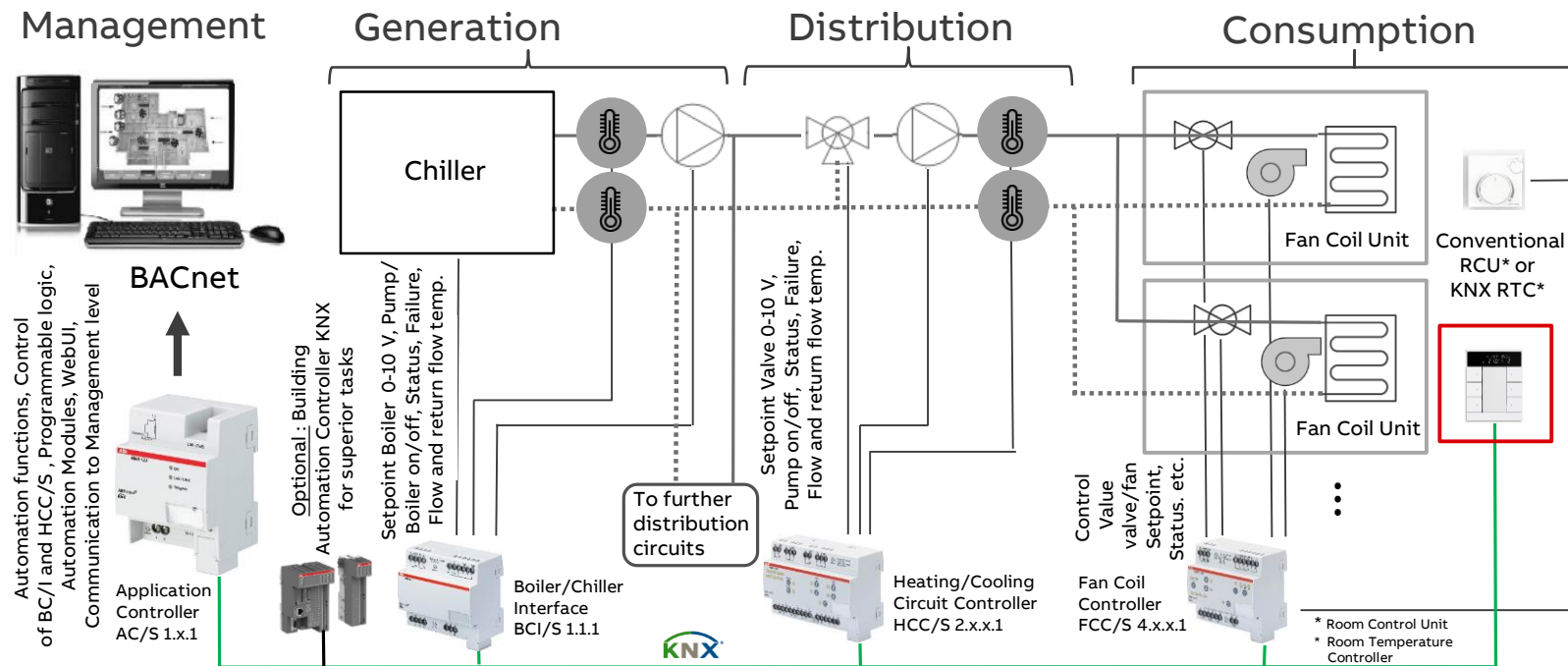
## Overview ClimaECO: New Products



A holistic HVAC Building Automation System, over 30 new devices

# ABB tenton - ClimaECO Sensors

## Overview ClimaECO: ABB i-bus® KNX HVAC Solutions



# ABB tenton - ClimaECO Sensors

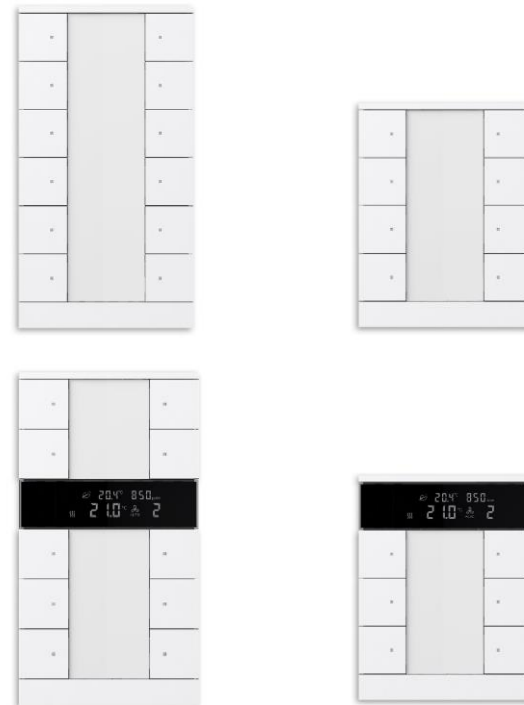
## Agenda

Overview and Product Range

Special Features

ETS Application

ETS Project





# ABB tenton - ClimaECO Sensors

Overview and Product Range

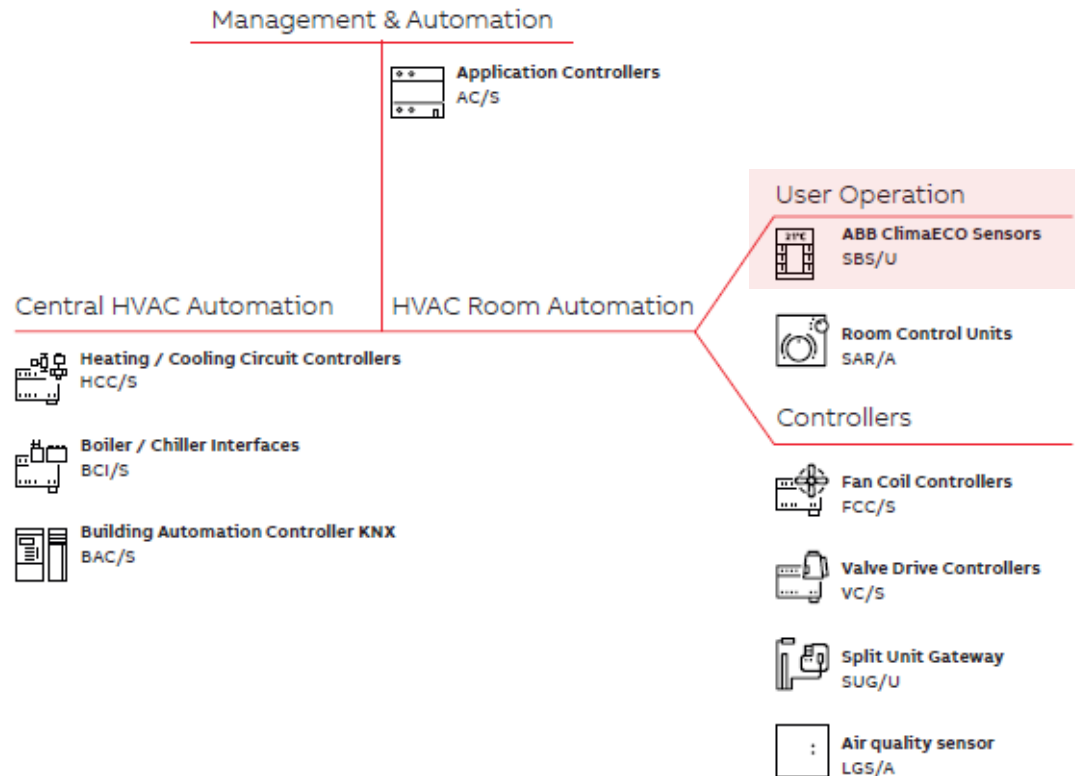
# ABB tenton - ClimaECO Sensors

## Introduction

### Motivation

Range of KNX push buttons including multi sensor- and controller functionality developed together with the project ClimaECO

- Clear and pure design
- Easy to operate (big buttons, labelling field)
- Optimized display (big characters, high resolution and contrast, good view from the side)
- Works perfectly with ClimaECO actuator/controller
- For commercial projects, but in principle for any KNX project and application

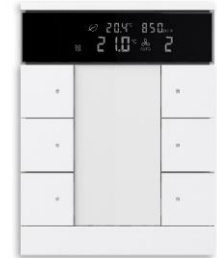
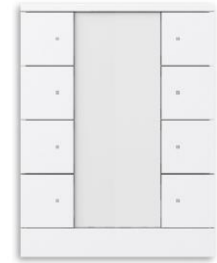
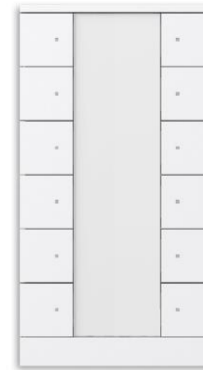


# ABB tenton - ClimaECO Sensors

## Introduction

### Features

- Complete product range:
  - Control element 8-fold and 12-fold with integrated temperature sensor
  - Control element with RTC slave 6- and 10-fold (no controller)
  - Control element with RTC 6- and 10-fold
  - Control element with RTC 6- and 10-fold plus CO<sub>2</sub> and humidity sensor and controller
- Labelling with icons and/or text online via our labelling tool
- All devices with an mechanical anti theft protection possible

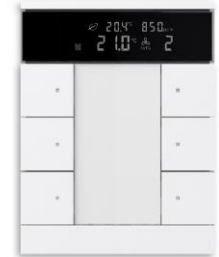
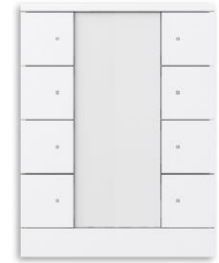
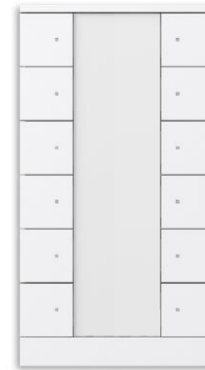


# ABB tenton - ClimaECO Sensors

## Introduction

### Features

- Installation in every country in the world (VDE, BS, NEMA, Australian brackets, etc.)
- Sensors can be installed/mounted in a flush mounted box or separate surface mounted box
- Delivery with metal frame for flush mounting
- Unified RTC concept
- Available in studio white
- Native ETS application for ETS4 and ETS5
- Values and icons are shown on a white illuminated display
- Status LED's with day and night mode
- Status LED's with ABB color concept
- No frame required
- No external power supply, only via KNX bus





# ABB tenton - ClimaECO Sensors

## Application example

### FCC/S linked with ClimaECO sensor and RTC

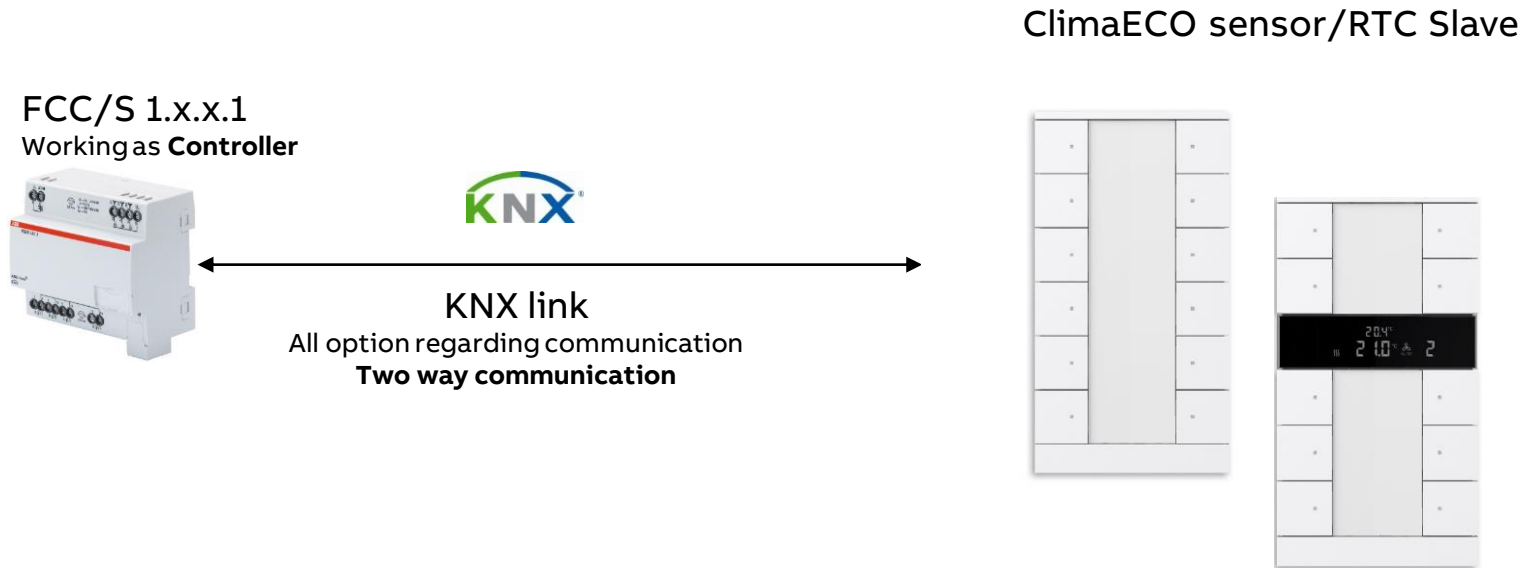
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# ABB tenton - ClimaECO Sensors

## Application example

### FCC/S linked with ClimaECO sensor and integrated temperature sensor



# ABB tenton - ClimaECO Sensors

## Application example

### VC/S linked with ClimaECO sensor and RTC

VC/S 4.x.1  
Working as **Actuator**



KNX link

All option regarding communication  
**Two way communication**

ClimaECO sensor with RTC



# ABB tenton - ClimaECO Sensors

## Application example

### VC/S linked with ClimaECO sensor and integrated temperature sensor

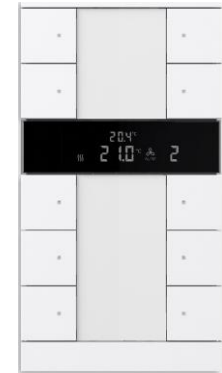
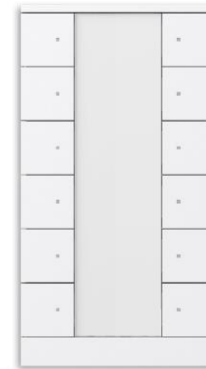
VC/S 4.x.1  
Working as **Controller**



KNX link

All option regarding communication  
**Two way communication**

ClimaECO sensor/RTC Slave



# ABB tenton - ClimaECO Sensors

## Application example

### VAA/A linked with ClimaECO sensor and RTC



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## Application example

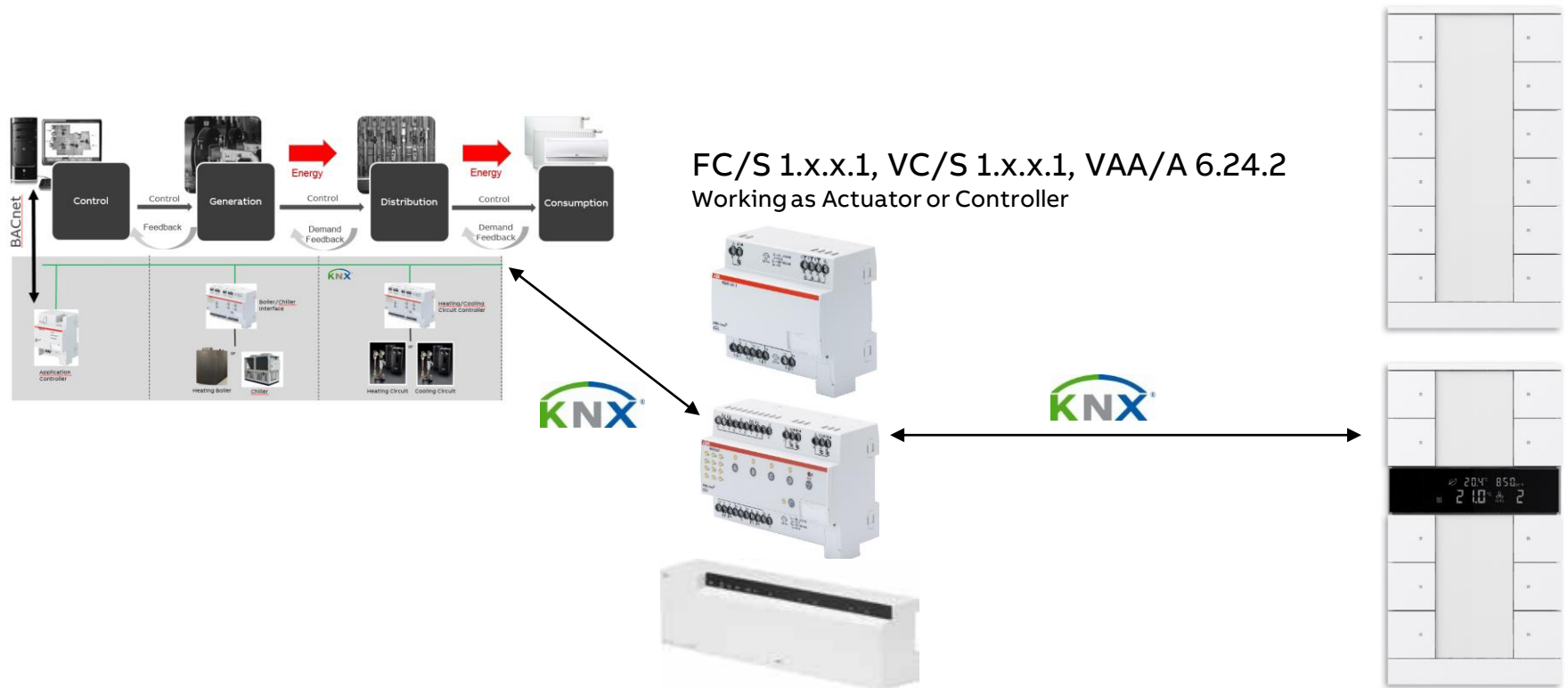
### VAA/A linked with ClimaECO sensor and temperature sensor



# ABB tenton - ClimaECO Sensors

## Application example

### ClimaECO Sensor integrated in ClimaECO



# ABB tenton - ClimaECO Sensors

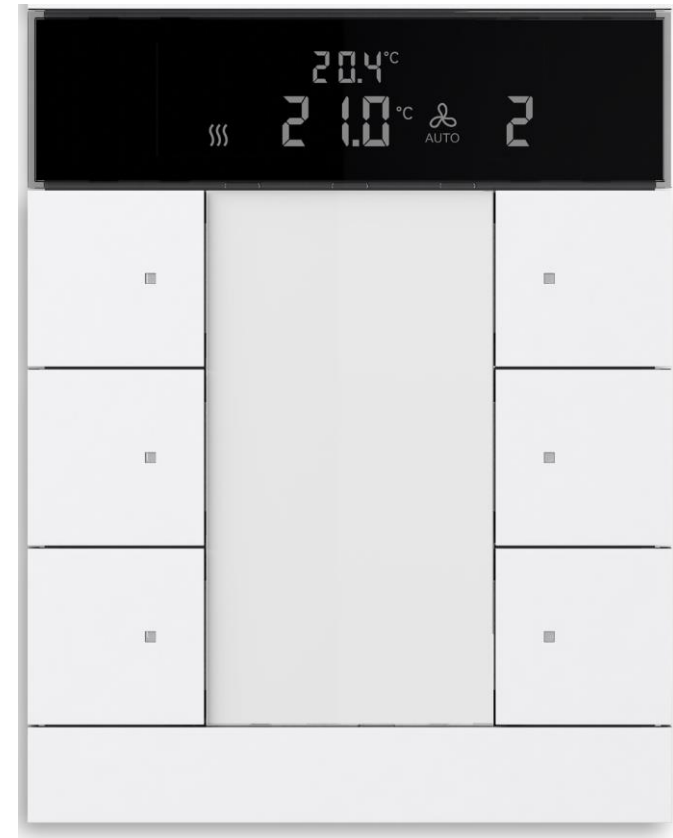
## Product Range

### Control Element with RTC Slave, 6-fold

Article number: SBS/U6.0.1-84  
Order number: 2CKA006330A0002

#### Technical information:

Dimension (WxHxD): 90mm x 116mm x 13mm  
Color: Studio white (-84)  
Status LED: RGB-color concept  
Labelling field : Yes  
FM mounting: Yes  
Surface mounting: Yes, with separate support frame  
Installation Standard: VDE, BS, CH, NEMA  
KNX-participant: 1 (max. 12mA)





# ABB tenton - ClimaECO Sensors

## Product Range

### Control Element with RTC Slave, 10-fold

Article number: SBS/U10.0.1-84  
Order number: 2CKA006330A0005

#### Technical information:

Dimension (WxHxD): 90mm x 166mm x 13mm  
Color: Studio white (-84)  
Status LED: RGB-color concept  
Labelling field : Yes  
FM mounting: Yes  
Surface mounting: Yes, with separate support frame  
Installation Standard: VDE, BS, CH, NEMA  
KNX-participant: 1 (max. 12mA)



# ABB tenton - ClimaECO Sensors

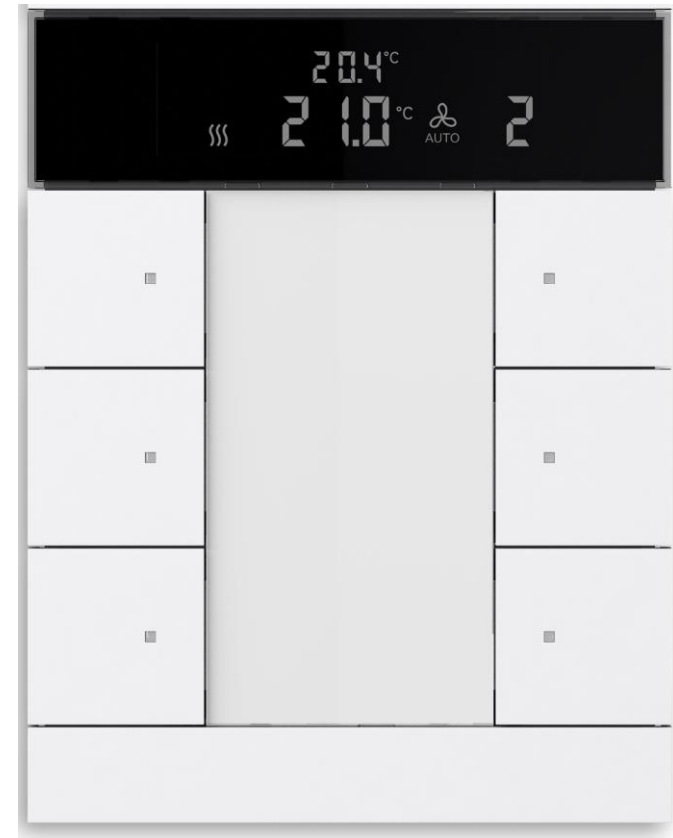
## Product Range

### RTC with Control Element, 6-fold

Article number: SBR/U6.0.1-84  
Order number: 2CKA006330A0004

#### Technical information:

Dimension (WxHxD): 90mm x 116mm x 13mm  
Color: Studio white (-84)  
Status LED: RGB-color concept  
Labelling field : Yes  
FM mounting: Yes  
Surface mounting: Yes, with separate support frame  
Installation Standard: VDE, BS, CH, NEMA  
KNX-participant: 1 (max. 12mA)



# ABB tenton - ClimaECO Sensors

## Product Range

### RTC with Control Element, 10-fold

Article number: SBR/U10.0.1-84  
Order number: 2CKA006330A0008

#### Technical information:

Dimension (WxHxD): 90mm x 166mm x 13mm  
Color: Studio white (-84)  
Status LED: RGB-color concept  
Labelling field : Yes  
FM mounting: Yes  
Surface mounting: Yes, with separate support frame  
Installation Standard: VDE, BS, CH, NEMA  
KNX-participant: 1 (max. 12mA)



# ABB tenton - ClimaECO Sensors

## Product Range

### RTC, CO<sub>2</sub>/Humidity Sensor and Controller with Control Element, 6-fold

Article number: SBC/U6.0.1-84  
Order number: 2CKA006330A0009

#### Technical information:

Dimension (WxHxD): 90mm x 116mm x 13mm  
Color: Studio white (-84)  
Status LED: RGB-color concept  
Labelling field : Yes  
FM mounting: Yes  
Surface mounting: Yes, with separate support frame  
Installation Standard: VDE, BS, CH, NEMA  
**KNX-participant: 2 (max. 24mA)**



# ABB tenton - ClimaECO Sensors

## Product Range

### RTC, CO<sub>2</sub>/Humidity Sensor and Controller with Control Element, 10-fold

Article number: SBC/U10.0.1-84  
Order number: 2CKA006330A0011

#### Technical information:

Dimension (WxHxD): 90mm x 166mm x 13mm

Color: Studio white (-84)

Status LED: RGB-color concept

Labelling field : Yes

FM mounting: Yes

Surface mounting: Yes, with separate support frame

Installation Standard: VDE, BS, CH, NEMA

**KNX-participant: 2 (max. 24mA)**



# ABB tenton - ClimaECO Sensors

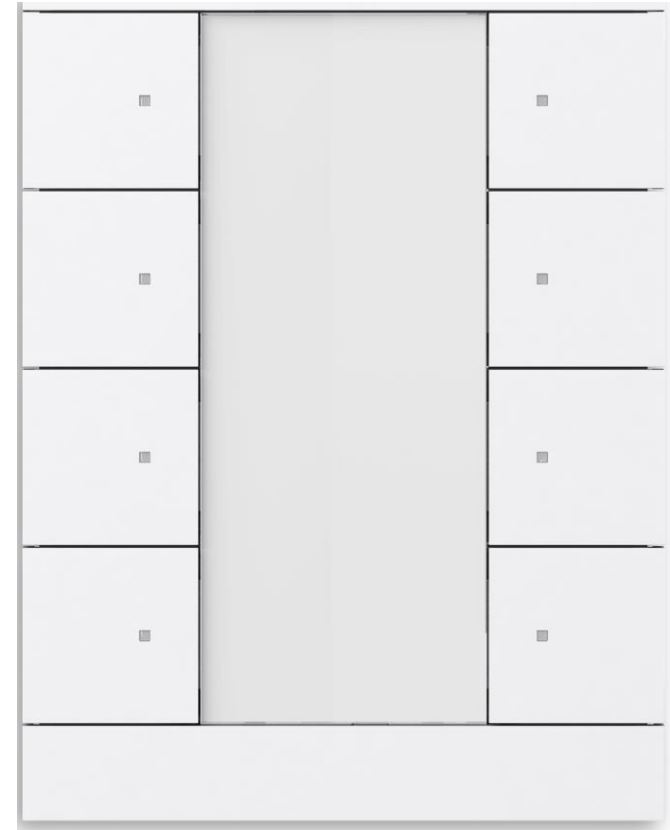
## Product Range

### Control Element, Temp.sensor, 8-fold

Article number: SB/U8.0.1-84  
Order number: 2CKA006330A0014

#### Technical information:

Dimension (WxHxD): 90mm x 116mm x 13mm  
Color: Studio white (-84)  
Status LED: RGB-color concept  
Labelling field : Yes  
FM mounting: Yes  
Surface mounting: Yes, with separate support frame  
Installation Standard: VDE, BS, CH, NEMA  
KNX-participant: 1 (max. 12mA)



# ABB tenton - ClimaECO Sensors

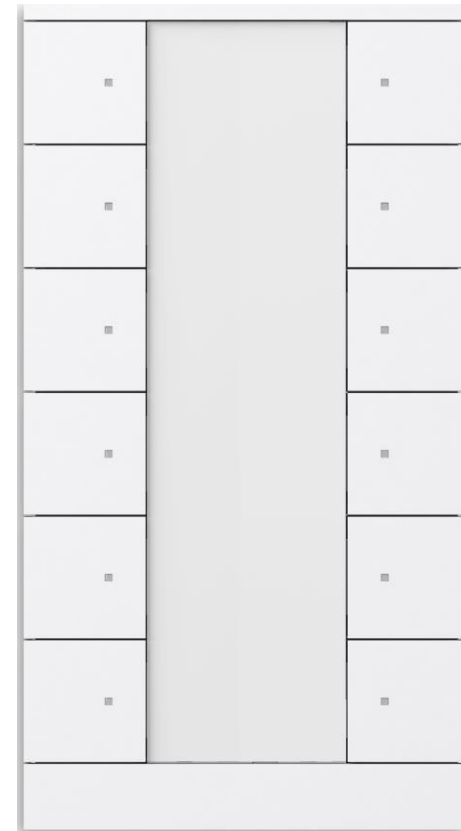
## Product Range

### Control Element, Temp.sensor, 12-fold

Article number: SB/U12.0.1-84  
Order number: 2CKA006330A0016

#### Technical information:

Dimension (WxHxD): 90mm x 166mm x 13mm  
Color: Studio white (-84)  
Status LED: RGB-color concept  
Labelling field : Yes  
FM mounting: Yes  
Surface mounting: Yes, with separate support frame  
Installation Standard: VDE, BS, CH, NEMA  
KNX-participant: 1 (max. 12mA)



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## Product Range

### Support Frame for Surface mounting

#### Support Frame small:

Article number: SAS/A.0.11-84

Order number: 2CKA006330A0018

#### Technical information:

Dimension (WxHxD):

Color: Studio white (-84)

FM mounting: Yes, only bold on

Surface mounting: Yes, with separate support frame

Installation Standard: No





# ABB tenton - ClimaECO Sensors

## Product Range

### Support Frame for Surface mounting

#### Support Frame large:

Article number: SAB/A.0.11-84

Order number: 2CKA006330A0020

#### Technical information:

Dimension (WxHxD):

Color: Studio white (-84)

FM mounting: Yes, only bold on

Surface mounting: Yes, with separate support frame

Installation Standard: No



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## Product Range

### Label Cover

#### Cover for label area RTC, small:

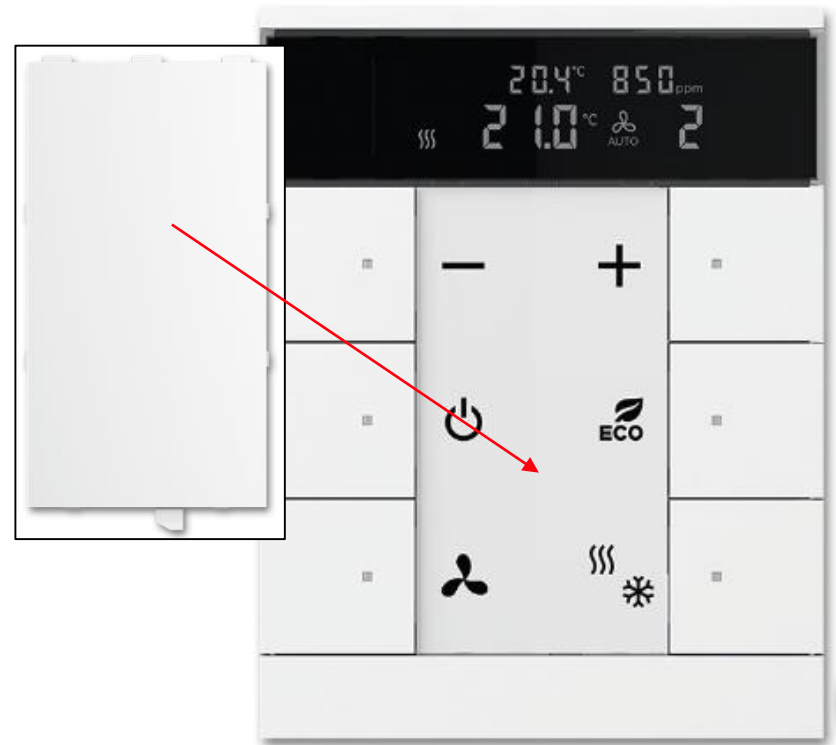
Article number: SLS/A.0.1-84

Order number: 2CKA006330A0022

#### Cover for label area RTC, large:

Article number: SLB/A.0.1-84

Order number: 2CKA006330A0026



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# ABB tenton - ClimaECO Sensors

## Product Range

### Label Cover

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#### Cover for label area Control Element, small:

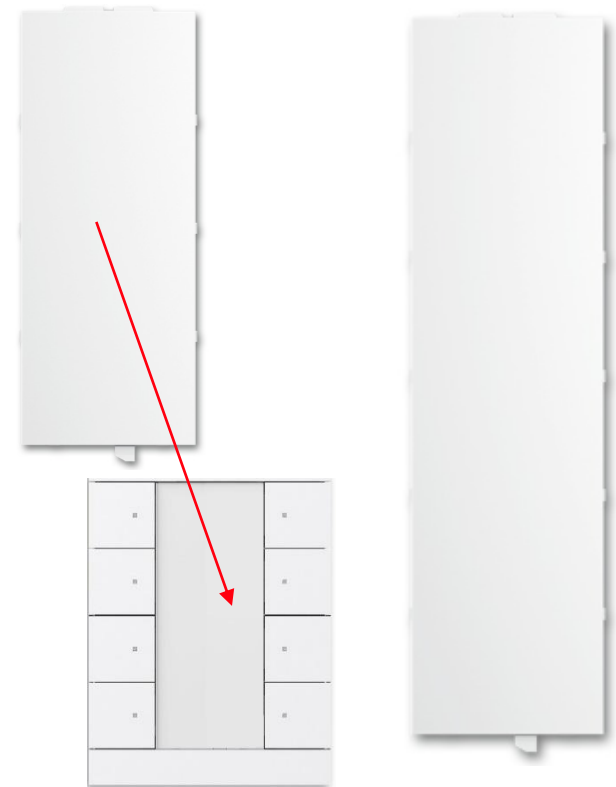
Article number: SLM/A.0.1-84

Order number: 2CKA006330A0024

#### Cover for label area Control Element, large:

Article number: SLX/A.0.1-84

Order number: 2CKA006330A0028





# ABB tenton - ClimaECO Sensors

Special Features

# ABB tenton - ClimaECO Sensors

## Special Features

### Programming Button

- Remove end strip at the bottom
- Press button on the right side
- All LED's are red and Display shows "PROG" in red
- ClimaECO sensor is in programming mode and ready for downloading of individual address

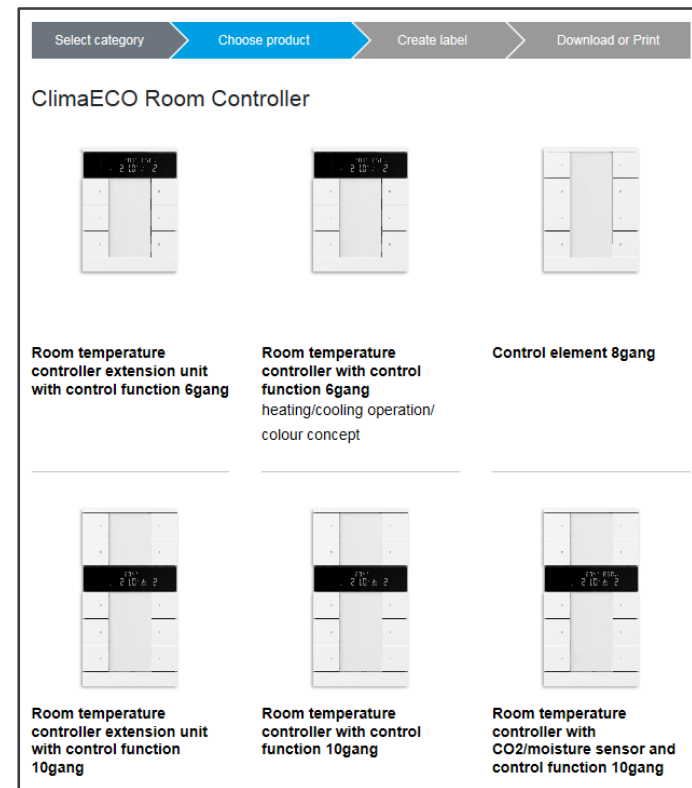


# ABB tenton - ClimaECO Sensors

## Special Features

### Labelling Field

- On our homepage under *Engineering Tools* go to *Labelling Tool*
- Search for ClimaECO sensor and select the right device

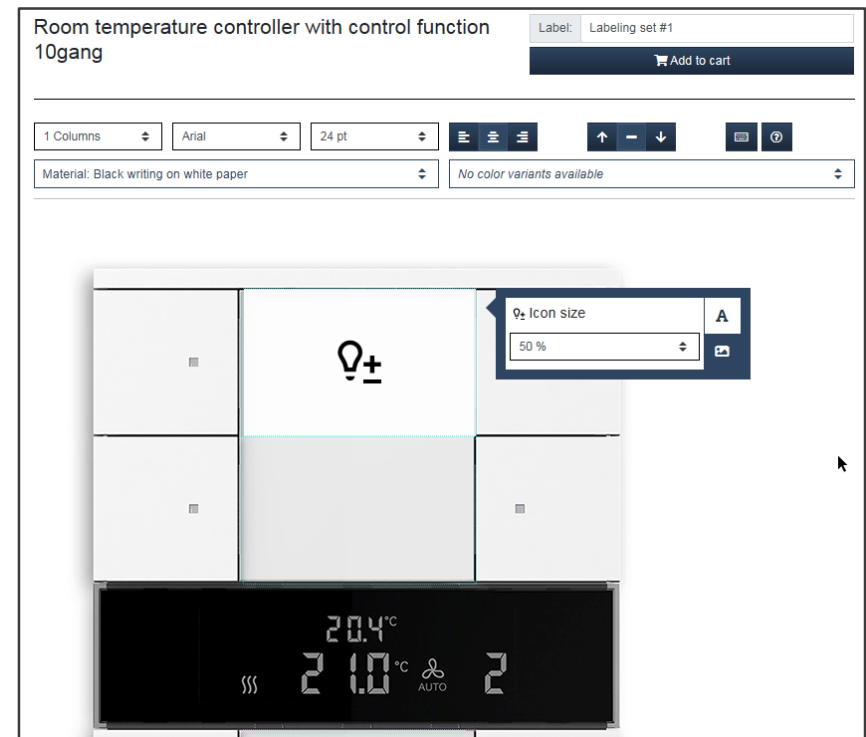


# ABB tenton - ClimaECO Sensors

## Special Features

### Labelling Field

- Create your labelling fields with icons or text
- Use print service or print it out by yourself



# ABB tenton - ClimaECO Sensors

## Special Features

### Labelling Field

- Remove cover and insert the printed labelling field





# ABB tenton - ClimaECO Sensors

## Special Features

### Support Frame

- Support frame for surface mounted installation
- Remove black mounting block, needed only for flush mounting with wallbox
- After installation of the frame on the wall snap the sensor on the frame and tighten the screw
- Please note: Depth of frame and sensor together around 28 mm

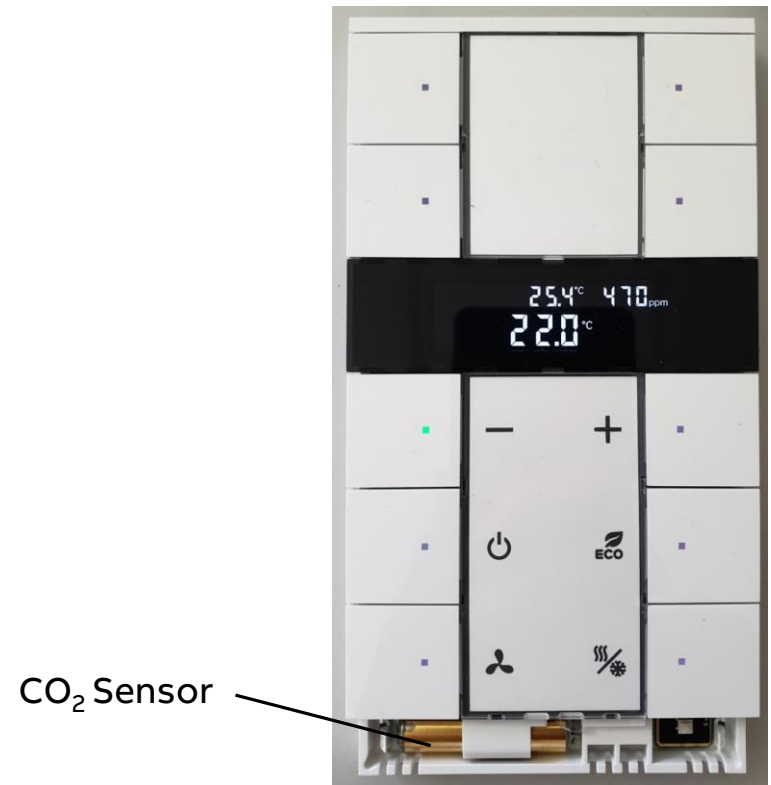


# ABB tenton - ClimaECO Sensors

## Special Features

### CO<sub>2</sub> Sensor

- CO<sub>2</sub> sensor is visible on the lower left side after removing the end strip (golden tube)
- Principle: Air of the room will be collected and via optical detection the air quality is measured in ppm
  - Absorption of IR-radiation at a defined wave length
- To be installed where no direct air draft is detected (doors, windows, air outlet)
- ETS Parameter: Height of mounting location of the building
- Please note: During the construction phase the installation of the sensor in the room should be done as late as possible to avoid the sensor to be exposed to dusty air.  
This would result in lower quality and life time





# ABB tenton - ClimaECO Sensors

ETS Application

# ABB tenton - ClimaECO Sensors

## ETS Application

### Display Settings

Various options to show information

- Display actual temperature, CO<sub>2</sub> and relative humidity, date and time
  - Date and time to be sent via telegram
- Change interval to show values
- Display backlighting In case of RTC operation, via telegram or always on
  - With telegram 50%, 100% or off for Day/Night mode possible
- Red backlighting via exceeding CO<sub>2</sub> or humidity or via telegram (e.g. alarm)

Further indications (Heating/Cooling Mode, Fan speed, Presence/Absence, Dew Point Alarm, OFF, ECO-Mode, Frost/Heat Protection ...)

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > Device settings > General

– Device settings	Display actual temperature value	<input type="radio"/> no <input checked="" type="radio"/> yes
– Display settings	Actual temperature value above	<input checked="" type="radio"/> Actual temperature value of controller <input type="radio"/> Communication object
– General	Temperature unit	<input checked="" type="radio"/> Celsius <input type="radio"/> Fahrenheit
– Additional LED functions	Adjusting the temperature unit via object	<input type="radio"/> no <input checked="" type="radio"/> yes
– Common parameter	Display CO2 value	<input type="radio"/> no <input checked="" type="radio"/> yes
– Device enable	CO2 value via	<input checked="" type="radio"/> Sensor <input type="radio"/> Communication object
– Common parameter	Display relative humidity	<input type="radio"/> no <input checked="" type="radio"/> yes
– Function during operation	Relative humidity value above	<input checked="" type="radio"/> Sensor <input type="radio"/> Communication object
– Common parameter	Show date	<input type="radio"/> no <input checked="" type="radio"/> yes
– Primary function	Display time	<input type="radio"/> no <input checked="" type="radio"/> yes
– Common parameter	Display change interval	5 s
+ RTC	Display backlighting white	Via communication object day/night and RTC operation
+ CO2 sensor	Display backlighting day	100%
+ Relative humidity/dewpoint se...	Display backlighting night	50%
– Function block 1	Display backlighting red	CO2 value

# ABB tenton - ClimaECO Sensors

## ETS Application

### Additional LED Functions

#### Day/Night Mode

- In case of a telegram (Group object Day/Night mode) LED is dimmed down to a low level

#### Alarm Function

- In case of a telegram (Group object Alarm) all LED's of the rockers start flashing in a selectable brightness and color

For each LED it has to be adjusted whether Day/Night Mode and Alarm function is assigned

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > Device settings > Common parameter

Device settings	Day/Night mode	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Display settings	Alarm function	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
General	LED brightness during alarm	<input type="radio"/> dark <input checked="" type="radio"/> bright
Additional LED functions	LED colour during alarm	Orange
Common parameter		
Device enable		
Common parameter		
Function during operation		

# ABB tenton - ClimaECO Sensors

## ETS Application

### Primary Function and Enable/Disable

The primary function is the first function of the device, which is executed when the user presses button 1 or 2

- Typical function needed when entering the room (e.g. switch on ceiling light)
- 1 bit and 1 byte values, but also scenes or RTC mode can be recalled

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > Primary function > Common parameter

+ Device settings	Application	<input type="radio"/> Inactive <input checked="" type="radio"/> 1-button switching
- Primary function	Object type	1 bit
Common parameter	Reaction on rising edge	alternating value1/value2
+ RTC	Reaction on falling edge	deactivated
+ CO2 sensor	Value 1	<input checked="" type="radio"/> Off <input type="radio"/> On
	Value 2	<input type="radio"/> Off <input checked="" type="radio"/> On

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > Device settings > Common parameter

- Device settings	Enable with	<input checked="" type="radio"/> On telegram <input type="radio"/> Off telegram
Display settings	After bus voltage recovery the device is	<input type="radio"/> blocked <input checked="" type="radio"/> enabled
General	Use of automatic enable/blockage	Automatic enable
Additional LED functions	Automatic switchover time	00:10:00 hh:mm:ss
Common parameter	Use object for switchover time	<input checked="" type="radio"/> no <input type="radio"/> yes
- Device enable	Overwrite switchover time at download	<input type="radio"/> no <input checked="" type="radio"/> yes
Common parameter	Brightness of the LED during blockage	off

# ABB tenton - ClimaECO Sensors

## ETS Application

### Enable/Disable

Via an group object it is possible to enable or disable the push buttons

- Enabling/Disabling is also possible via time, either adjusted via parameter or sent via telegram
- In case of blockage LED brightness adjustable (OFF, dark, bright)

Application: In case of a special events in public rooms push buttons are deactivated and all LED's are off

1.1.6 SB/U8.0 8-fach Bedienungselement > Device settings > Common parameter

– Device settings	Enable with	<input checked="" type="radio"/> On telegram <input type="radio"/> Off telegram
Device enable	After bus voltage recovery the device is	<input type="radio"/> blocked <input checked="" type="radio"/> enabled
Common parameter	Use of automatic enable/blockage	Automatic enable
Function during operation	Automatic switchover time	00:10:00 h:mm:ss
Common parameter	Use object for switchover time	<input type="radio"/> no <input checked="" type="radio"/> yes
Additional LED functions	Overwrite switchover time at download	<input type="radio"/> no <input checked="" type="radio"/> yes
Common parameter	Brightness of the LED during blockage	off

# ABB tenton - ClimaECO Sensors

## ETS Application

### Function during Operation

Enables a group object with cyclical sending to monitor the existence or basic function of the component

- Monitoring possible with Monitoring Unit EUB/S 1.1
- Same function like “In operation” in other ABB devices

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > Device settings > Common parameter

– Device settings	Cycle time	00:10:00	hh:mm:ss
Display settings	Objects sends cyclic	<input type="radio"/> Off telegram	<input checked="" type="radio"/> On telegram
General			
Additional LED functions			
Common parameter			
Device enable			
Common parameter			
Function during operation			
Common parameter			



# ABB tenton - ClimaECO Sensors

## ETS Application

### Room Temperature Controller (RTC)

It is actually our unified RTC used in all other components

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > RTC > General

+ Device settings	Device function	Single device
+ Primary function	Control function	Heating with additional stage
- RTC	Operating mode after reset	Comfort
	Additional functions/objects	<input type="radio"/> no <input checked="" type="radio"/> yes
	Delay time for read telegrams after reset (s)	5
	Object 'Current HVAC operating mode' active	<input checked="" type="radio"/> no <input type="radio"/> yes

**General**

- Control heating
- Control of heating additional...
- Setpoint settings
- Changing set values
- Temperature reading
- Alarm function
- Temperature limiter

# ABB tenton - ClimaECO Sensors

## ETS Application

### CO<sub>2</sub> Sensor

#### Integrated CO<sub>2</sub> sensor and controller

- Adaption depending on height of location plus correction possible
- External CO<sub>2</sub> measurement can be allocated with weighting

For controller either PI- or step control (1,2 or 3 stages) are possible

LED Backlight can change to red in case of reaching the highest CO<sub>2</sub> level (e.g. for 3 step control threshold 3)

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > CO2 sensor > CO2 sensor		
+ Device settings	CO2 sensor	<input type="radio"/> inactive <input checked="" type="radio"/> active
+ Primary function	Height of mounting location above normal height zero	0 m a.s.l.
+ RTC	Measured value correction	0 ppm
- CO2 sensor	Error CO2	<input type="radio"/> Do not send message <input checked="" type="radio"/> Message
CO2 sensor	Send CO2 values at changes	In case of a change of 10 ppm
CO2 controller	Send CO2 value cyclic	Every minute
Step controller	External measured value	<input type="radio"/> inactive <input checked="" type="radio"/> active
	Component	Include in calculation at 10%

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > CO2 sensor > Step controller		
+ Device settings	Switch command below threshold 1	<input type="radio"/> Off <input checked="" type="radio"/> On
+ Primary function	CO2 threshold 1	1150 ppm
+ RTC	Value above threshold 1	<input type="radio"/> Off <input checked="" type="radio"/> On
- CO2 sensor	CO2 threshold 2	Threshold 1 + 400 ppm
CO2 sensor	Value above threshold 2	<input checked="" type="radio"/> Off <input type="radio"/> On
CO2 controller	CO2 threshold 3	Threshold 2 + 400 ppm
Step controller	Value above threshold 3	<input checked="" type="radio"/> Off <input type="radio"/> On
	Control value at measured value failure	<input checked="" type="radio"/> Off <input type="radio"/> On
+ Relative humidity/dewpoint se...	Blocking object	<input checked="" type="radio"/> inactive <input type="radio"/> active

# ABB tenton - ClimaECO Sensors

## ETS Application

### Humidity Sensor

Integrated relative humidity sensor and controller

- Correction of measured value possible
- External humidity measurement can be allocated with weighting

For controller either PI- or step control (1,2 or 3 stages) are possible

LED Backlight can change to red in case of reaching the highest humidity level (e.g. for 3 step control threshold 3)

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > Relative humidity/dewpoint sensor > Relative humidity sensor		
+ Device settings	Relative humidity sensor	<input type="radio"/> inactive <input checked="" type="radio"/> active
+ Primary function	Measured value correction	0 % rH
+ RTC	Humidity sensor error	<input type="radio"/> Do not send message <input checked="" type="radio"/> Message
+ CO2 sensor	Send relative humidity at change	In case of a change of 1% rF
- Relative humidity/dewpoint se...	Send relative cyclic	Every minute
	External measured value	<input type="radio"/> inactive <input checked="" type="radio"/> active
	Component	Include in calculation at 10%
	Communication object data type	<input checked="" type="radio"/> 2 byte value (DPT 9.007)
	Relative humidity	<input type="radio"/> 1 byte value 0..100% (DPT 5.001)

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > Relative humidity/dewpoint sensor > PI controller		
+ Device settings	Setpoint	30 % rH
+ Primary function	Proportional range	20 % rH
+ RTC	Readjust time	15 min
+ CO2 sensor	Maximum control value	0 %
- Relative humidity/dewpoint se...	Maximum control value	100 %
	Value at measured value failure	0 %
	Blocking object	<input checked="" type="radio"/> inactive <input type="radio"/> active
	Relative humidity sensor	
	Relative humidity controller	
	PI controller	

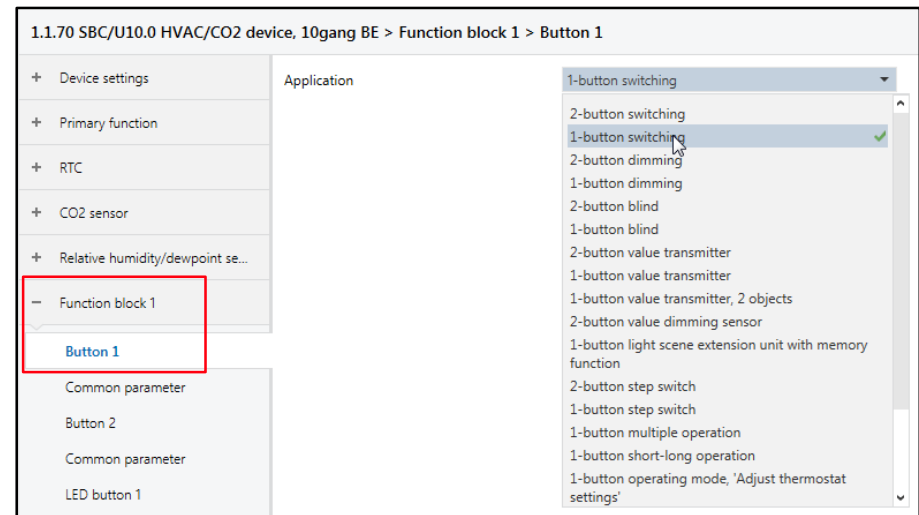
# ABB tenton - ClimaECO Sensors

## ETS Application

### Function Block

Each pair of horizontal buttons can be parametrized in so called Function Blocks

Each button can be chosen for the typical function like switching, dimming, shutter, value sender, but also RTC specific functions



# ABB tenton - ClimaECO Sensors

## ETS Application

### LED Button

Multi color LED's are available, color can be selected for on or off (1 bit) or in case of values a range can be assigned to a color

Status illumination means fixed color in bright or dark mode

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > Function block 1 > Common parameter

+ Device settings	Operating mode	<input checked="" type="radio"/> Status illumination <input type="radio"/> Function illumination
+ Primary function	Object type for status object	<input checked="" type="radio"/> 1 bit <input type="radio"/> 1-byte 0..100%
+ RTC	Colour for off	green
+ CO2 sensor	Colour for on	red
+ Relative humidity/dewpoint se...		off
- Function block 1		yellow
Button 1		red-orange
Common parameter		red
		violet
		blue
		green
		white

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > Function block 1 > Common parameter

+ Device settings	Operating mode	<input checked="" type="radio"/> Status illumination <input type="radio"/> Function illumination
+ Primary function	Object type for status object	<input type="radio"/> 1 bit <input checked="" type="radio"/> 1-byte 0..100%
+ RTC	Colour for Zone 1 (corresponds to 0%)	green
+ CO2 sensor	Colour for Zone 2 (starting at 1%)	yellow
+ Relative humidity/dewpoint se...	Threshold between Zone 2 and Zone 3 (%)	33
- Function block 1	Colour for Zone 3	white
Button 1	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

# ABB tenton - ClimaECO Sensors

## ETS Application

### Common Functions

Additional logic function which can be used independent of the ClimaECO sensor functions

- AND,OR, XOR, ...
- Up to 10 inputs
- 5 channels

1.1.70 SBC/U10.0 HVAC/CO2 device, 10gang BE > Common functions > Common parameter

+ Device settings	Channel name	Kanal
+ Primary function	logical function	AND
+ RTC	Number of input objects	AND
+ CO2 sensor		OR
+ Relative humidity/dewpoint se...		XOR
+ Function block 1		XNOR
+ Function block 2		NAND
+ Function block 3		NOR
+ Function block 4		
+ Function block 5		
- Common functions		
Channel 1		
Common parameter		
Parameter input 1		
Parameter input 2		
Parameter output		



# ABB tenton - ClimaECO Sensors

ETS Project

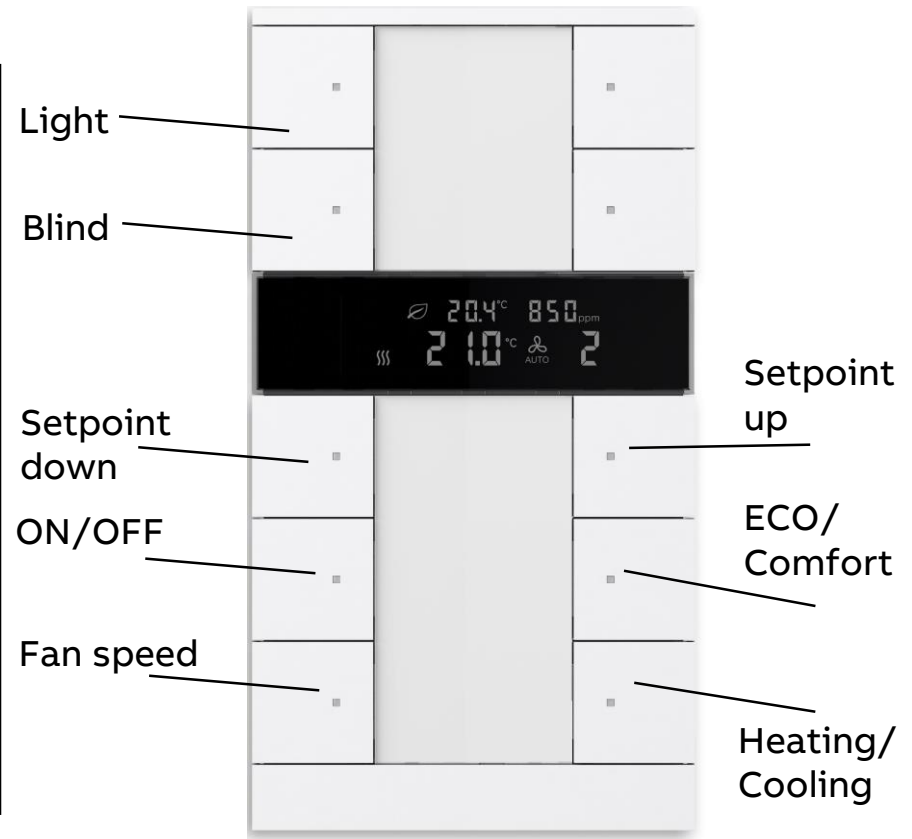
# ABB tenton - ClimaECO Sensors

ETS

## ETS Project

Typical functions in a room with climate control together with ClimaECO sensor

- Lighting and blind control
- Setpoint up/down
- Room control on/off
- Change between ECO and comfort mode
- Fan speed control
- Heating/Cooling change over





# ABB tenton - ClimaECO Sensors

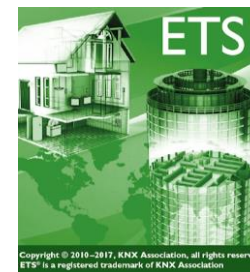
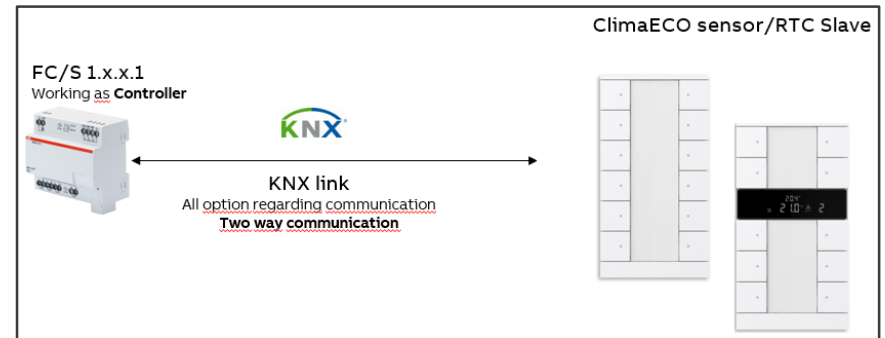
ETS

## ETS Project

Solution: Room Climate Control with ClimaECO sensor as slave and Fan Coil Controller FCC/S as controller

Advantage: Full functionality but less investment thanks to the slave version of ClimaECO sensor and controller in FCC/S

Due to the Master Slave concept with the Master- and Slave objects in unified RTC it is relatively easy to assign the right group objects



# ABB tenton - ClimaECO Sensors

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## ETS Project

ClimaECO sensor as Slave

Fan Coil controller as Controller

5.1.1 SLAVE: SBC/U10.0 HVAC/CO2 device, 10gang BE > RTC > General

+ Device settings	Device function	<input type="text" value="Slave device"/>
+ Primary function	Additional functions/objects	<input type="radio"/> no <input checked="" type="radio"/> yes
- RTC	Delay time for read telegrams after reset (s)	5

General

5.1.2 CONTROLLER: FCC/S1.3.2.1 Fan Coil Controller, 0-10V > Application > Application parameters

General	Device function	<input checked="" type="radio"/> Controller <input type="radio"/> Actuator device
+ Manual operation	The device is used with an internal controller that can control the fan coil unit and other heating/cooling systems in the same room.	
- Application	KNX analog room control units in Slave mode can be used for operation.	

Application parameters

# ABB tenton - ClimaECO Sensors

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## ETS Project – Assignment of Group Objects with the same Name

Master: Controller FCC/S

5.1.2 MASTER: Fan Coil Controller FCC/S1.3.2.1 Fan C					
107	Current HVAC operating mode	Channel - Controller			1 byte
106	Controller HVAC status (master)	Channel - Controller	HVAC Status	8/1/30	1 byte
105	Controller RHCC status	Channel - Controller			2 bytes
104	Confirm fan speed (master)	Channel - Controller	Confirm Fan Speed	8/1/11	1 byte
103	Request fan speed (master)	Channel - Controller	Request fan Speed	8/1/10	1 byte
102	Confirm fan manually (master)	Channel - Controller	Confirm fan manually	8/1/33	1 bit
101	Request fan manually (master)	Channel - Controller	Request fan manually	8/1/32	1 bit
99	Confirm setpoint adjustment (master)	Channel - Controller	Confirm Set point	8/1/21	2 bytes
98	Request setpoint adjustment (master)	Channel - Controller	Request Set point	8/1/20	2 bytes
97	Setpoint display (master)	Channel - Controller	Set point Display	8/1/22	2 bytes
96	Confirm On/Off (master)	Channel - Controller	Confirm ON/OFF	8/1/2	1 bit
95	Request On/Off (master)	Channel - Controller	Request ON/OFF	8/1/1	1 bit
94	Setpoint reached	Channel - Controller			1 bit
89	Reset manual setpoint adjustment	Channel - Controller			1 bit
88	Base setpoint	Channel - Controller			2 bytes
87	Heating/Cooling changeover	Channel - Controller	Heating/Cooling Changeover	8/1/13	1 bit
86	Activate minimum control value (basic lo...	Channel - Controller			1 bit
85	Status Cooling	Channel - Controller			1 bit
84	Status Heating	Channel - Controller			1 bit
83	Presence detector (master/slave)	Channel - Controller			1 bit
81	Operating mode override (master)	Channel - Controller			1 byte
80	Operating mode normal (master)	Channel - Controller	Operating Mode	8/1/25	1 byte
79	Current setpoint	Channel - Controller	Current Set point	8/1/23	2 bytes
76	External temperature 1	Channel - Controller	Actual Temperature	8/1/24	2 bytes

Slave: ClimaECO sensor

5.1.1 SLAVE: ClimaECO Sensor SBC/U10.0 HVAC/CO2 d					
2	Input	DS: Date	Date	8/1/50	3 bytes
3	Input	DS: Time	Time	8/1/51	3 bytes
8	Input	DS: Units switchover			1 bit
21	Input	RTC: On/off confirmation (Slave)	Confirm ON/OFF	8/1/2	1 bit
22	Output	RTC: Actual temperature	Actual Temperature	8/1/24	2 bytes
25	Input	RTC: Fault, actual temperature (slave)			1 bit
28	Output	RTC: Normal operating mode (Slave)	Operating Mode	8/1/25	1 byte
29	Input	RTC: Override operating mode (Master/Slave)			1 byte
30	Input	RTC: Window contact (master/slave)	Window Contact	8/1/27	1 bit
31	Input	RTC: Presence detector (master/slave)			1 bit
36	Input	RTC: Fan coil manual confirmation (Slave)	Confirm fan manually	8/1/33	1 bit
47	Input	RTC: Condensation/fill level alarm (Master/Slave)			1 bit
53	Output	RTC: On/off request (slave)	Request ON/OFF	8/1/1	1 bit
54	Input	RTC: Setpoint display (slave)	Set point Display	8/1/22	2 bytes
55	Output	RTC: Request setpoint (slave)	Request Set point	8/1/20	2 bytes
56	Input	RTC: Confirm setpoint (slave)	Confirm Set point	8/1/21	2 bytes
57	Output	RTC: Heating/cooling request (slave)	Heating/Cooling Changeover	8/1/13	1 bit
58	Output	RTC: Request fan speed level manual (slave)	Request fan manually	8/1/32	1 bit
59	Output	RTC: Request fan speed level (slave)	Request fan Speed	8/1/10	1 byte
60	Input	RTC: Confirm fan speed level slave)	Confirm Fan Speed	8/1/11	1 byte
62	Input	RTC: Controller status HVAC (slave)	HVAC Status	8/1/30	1 byte

# ABB tenton - ClimaECO Sensors

ETS

## ETS Project

For the buttons in ClimaECO sensor are dedicated RTC functions parametrisable, e.g. 2-button RTC function for changing setpoint or fan speed

[Link](#) for Download of ETS Project

5.1.1 SLAVE: SBC/U10.0 HVAC/CO2 device, 10gang BE > Function block 3 > Button pair 5-6 | button 5

+ Device settings	Application	2-button RTC function internal
+ Primary function		
+ RTC		
+ CO2 sensor		
+ Relative humidity/dewpoint se...		
+ Function block 1		
+ Function block 2		
- Function block 3		

Button pair 5-6 | button 5

Common parameter

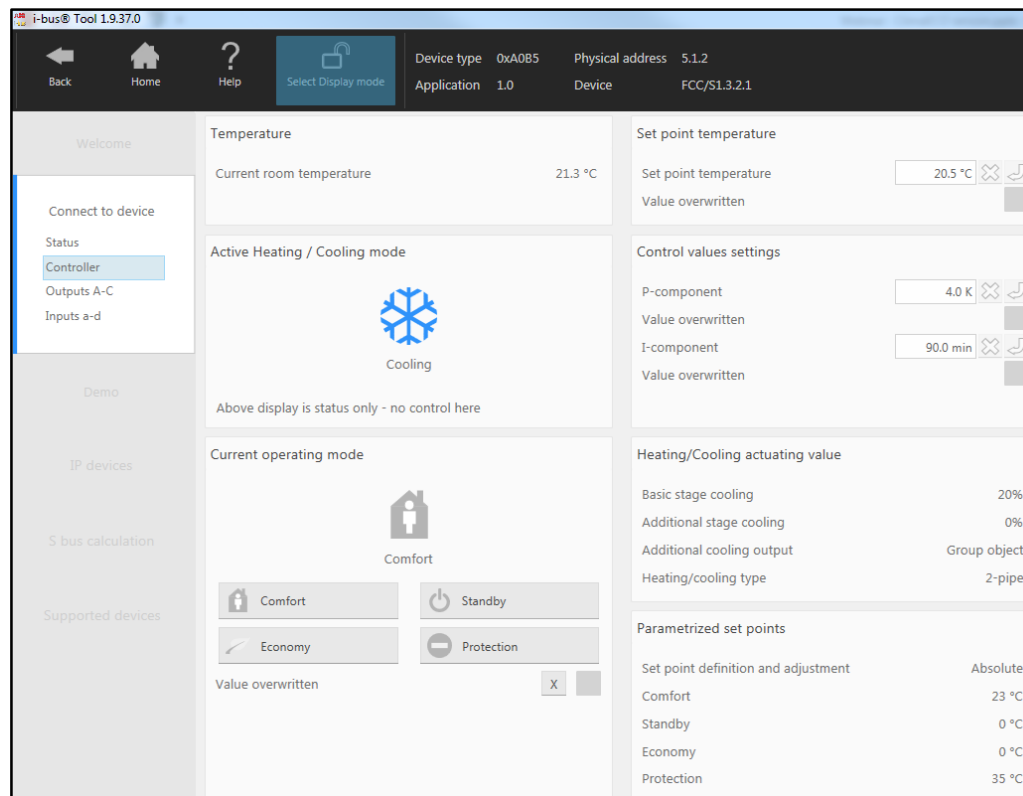
Rocker function ☒ Changing set values ☐ Fan stage adjustment

Rocker configuration ☒ left '-', right '+' ☐ left '+', right '-'

# ABB tenton - ClimaECO Sensors

ABB i-bus Tool

## Test with i-bus Tool



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