

# Heating control using the RF+ Heating Valve Drive in combination with the Glass Push-button II Smart and the Glass Touch Smart

**Note:**

With many devices, such as the Glass Push-button II Smart with temperature sensor or the GTS, it is possible to set the target temperature for the Heating Valve Drive. Since the RF+ is a battery-powered device designed for long battery life, it enters a sleep mode to conserve energy, while it briefly activates at adjustable intervals to query ambient values and perform control operations. There are a few points to note here, which are described in the following document.

**Software and devices used:**

- **ETS 6.x.x**
- **MDT RF+ Heating Valve Drive with display**  
RF-HVA1DAA.01S / RF-HVA1DLB.01S
- **MDT Glass Push-button II Smart (Push-button Smart 86), with temperature sensor**  
BE-GT2Tx.02 (BE-TAS86T.02)
- **MDT Glass Touch Smart**  
BE-GTS06TX.01S
- **MDT RF+ Line Coupler**  
RF-LK001.03

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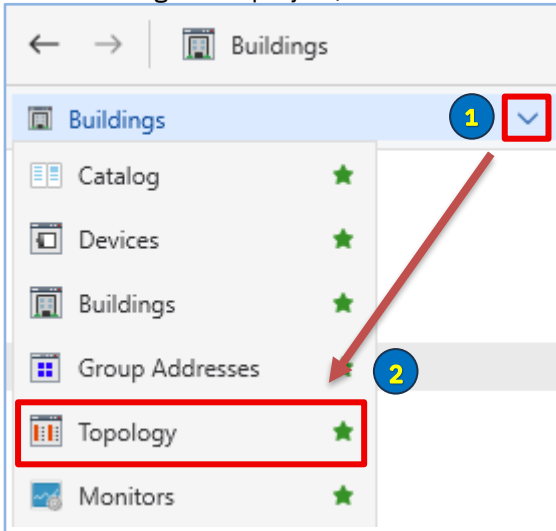
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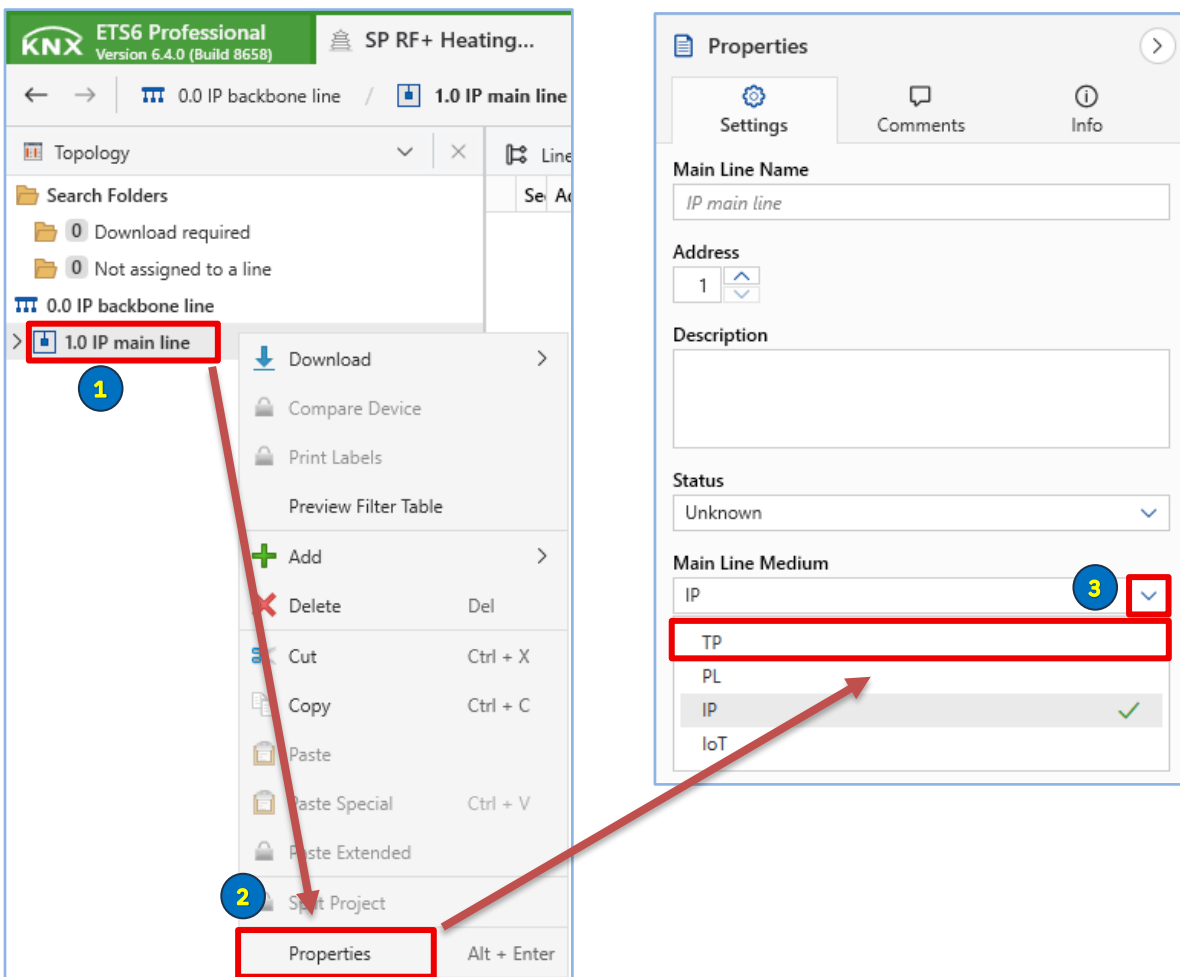
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## Creating an RF line

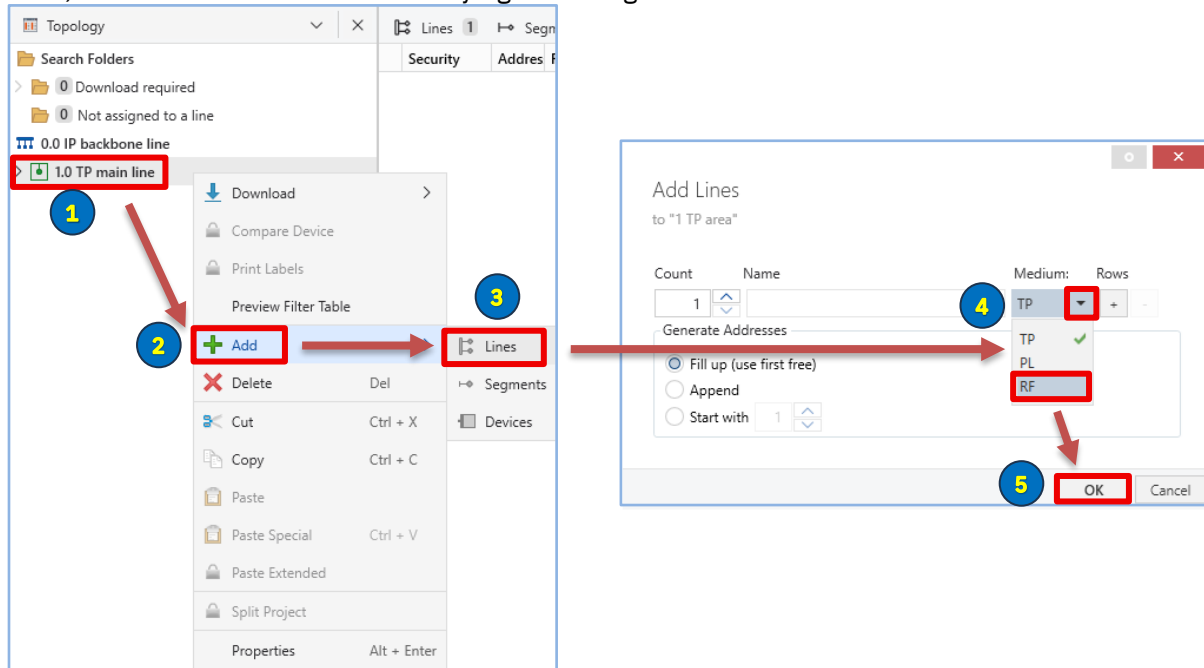
After creating a new project, first switch to the Topology view.



For the RF+ Line Coupler, it is necessary to change the Area to TP so that coupling between the wired KNX system and a radio line is possible. This is done via the context menu by right-clicking on the main line field (1.0 IP main line). In the properties window on the right side of the ETS, you can now switch to TP.

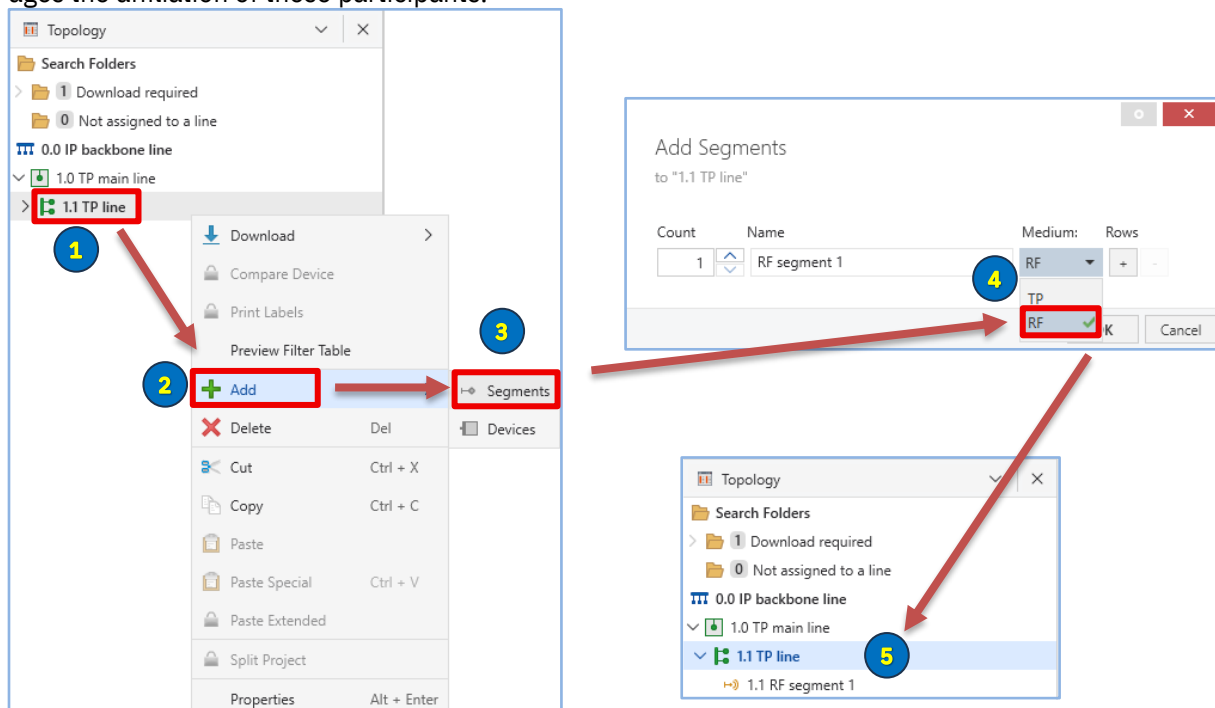


Next, an RF line is added to the area by right-clicking on it.



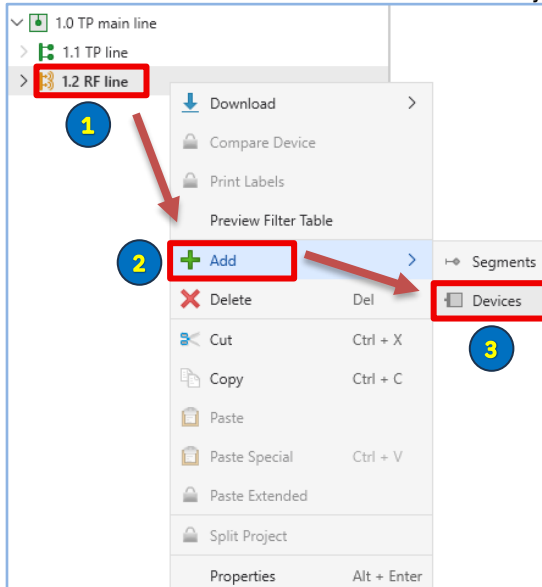
## Creating an RF segment (alternative to an RF line)

Alternatively, starting with ETS 6, it is possible to add an RF segment to an existing TP line. Since the cabling in existing installations often does not allow for the installation of a separate line, this option represents a practical way to expand the system with RF. To use an RF segment, follow the steps below and then insert the RF devices into the segment. The physical addresses are not further subdivided here but correspond to the same numbering already used for the line. It is important to note that the RF+ Line Coupler must be programmed first after adding additional devices to the segment, as it manages the affiliation of these participants.

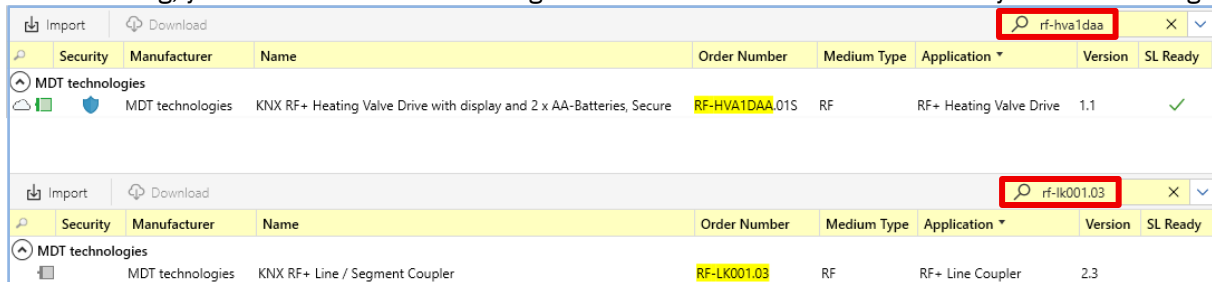


## Adding the RF+ Line Coupler and the RF+ Heating Valve Drive

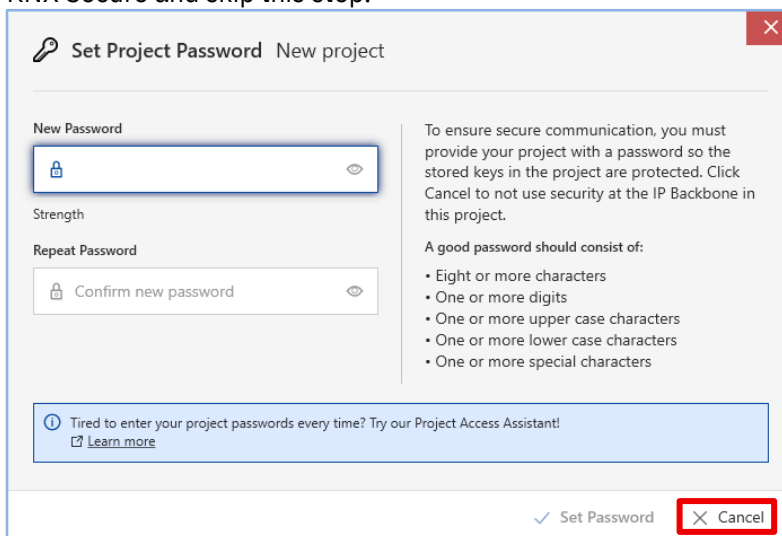
You can now add RF devices to the RF line by right-clicking on them.



In the catalog, you can find the devices using the search function and insert them by double-clicking.



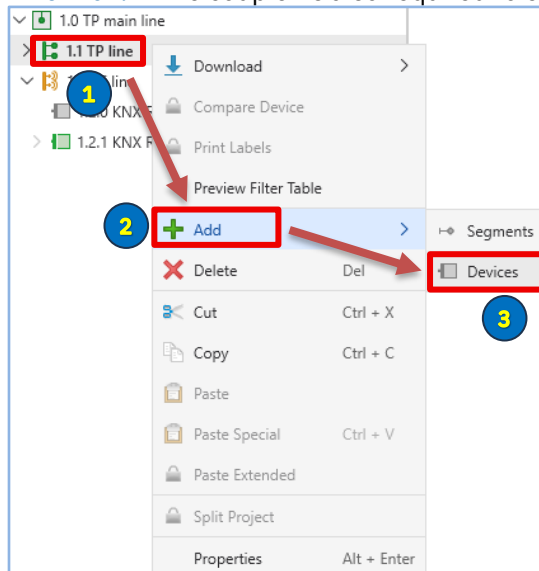
If the device being added is KNX Secure-compatible, a dialog box will appear prompting you to enter a project password first, as this is required for KNX Secure. In this example, we will proceed without KNX Secure and skip this step.



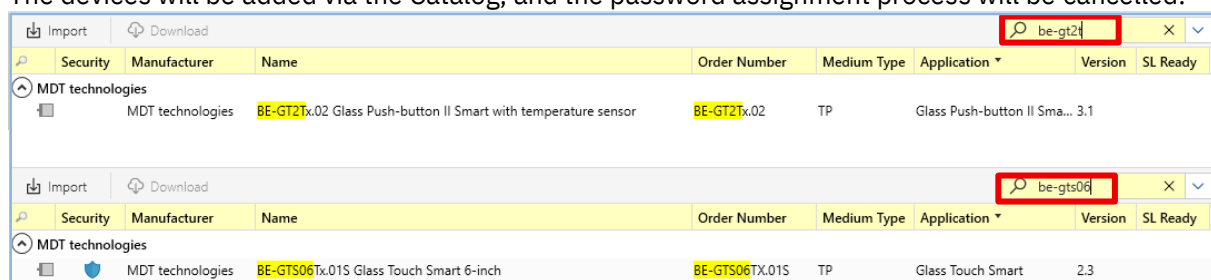
## Adding the Glass Pushbutton II Smart and the Glass Touch Smart

Next, the pushbuttons are inserted into the TP line of the project. This step works the same way as adding the RF components did earlier, except this time you right-click on the TP line.

**Attention:** A line coupler is also required to ensure that the installation is topologically correct.



The devices will be added via the Catalog, and the password assignment process will be cancelled.



Security	Manufacturer	Name	Order Number	Medium Type	Application	Version	SL Ready
	MDT technologies	BE-GT2Tx.02 Glass Push-button II Smart with temperature sensor	BE-GT2Tx.02	TP	Glass Push-button II Sma...	3.1	
	MDT technologies	BE-GTS06Tx.01S Glass Touch Smart 6-inch	BE-GTS06Tx.01S	TP	Glass Touch Smart	2.3	

## Basic Configuration: RF+ Heating Valve Drive

To ensure that the sensor's actual temperature is transmitted to the thermostat, this parameter must be set to "active." The "Send on change" and "Send cyclically" parameters can also be used to determine how frequently the measured value is updated. This directly affects the maximum delay with which the device responds to changes in the setpoints.

**Attention:** Every time data is transferred, the device wakes up from sleep mode, which reduces battery life.

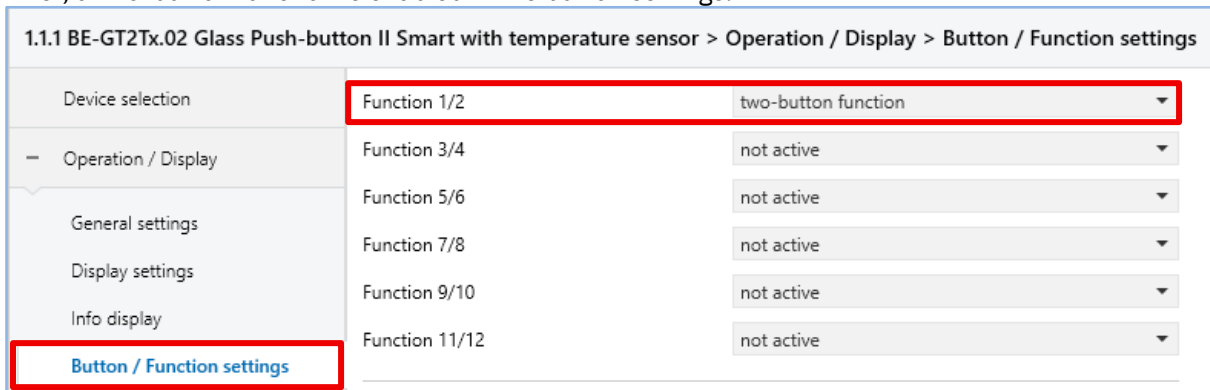
### 1.2.1 KNX RF+ Heating Valve Drive with display and 2 x AA-Batteries, Secure > Room temperature controller

General settings	Room temperature controller	<input checked="" type="radio"/> internal <input type="radio"/> external
<b>Room temperature controller</b>	Request interval setpoint	00:15 hh:mm
Battery	Temperature sensor	<input checked="" type="radio"/> internal <input type="radio"/> external
	Calibration value	0 K
	<b>Send valve position</b>	<input checked="" type="radio"/> not active <input type="radio"/> active
	Send temperature measurement value	<input type="radio"/> not active <input checked="" type="radio"/> active
	Send on change	<input type="radio"/> not active <input checked="" type="radio"/> active
	On change of	1,0 K
	Send cyclically	<input checked="" type="radio"/> not active <input type="radio"/> active
<b>Detection of „window open“ by</b>		
	Temperature	<input checked="" type="radio"/> not active <input type="radio"/> active
	Window contact	<input checked="" type="radio"/> not active <input type="radio"/> active
	"Boost" - function	<input type="radio"/> not active <input checked="" type="radio"/> active

**i** The actuator will be opened for 5 minutes when the upper button on the device has been pressed > 5 s.

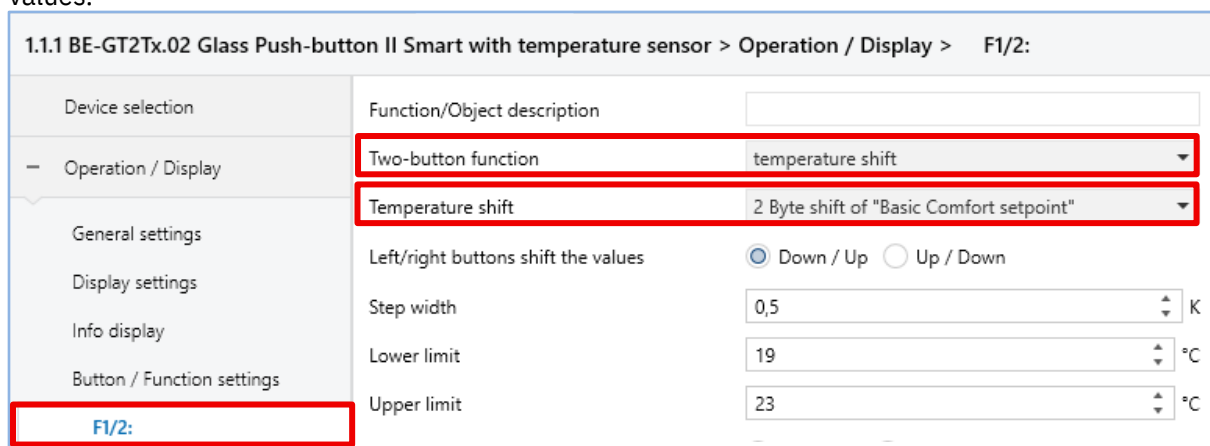
## Basic Configuration: Glass Push-button II Smart

First, a two-button function is enabled in the button settings.



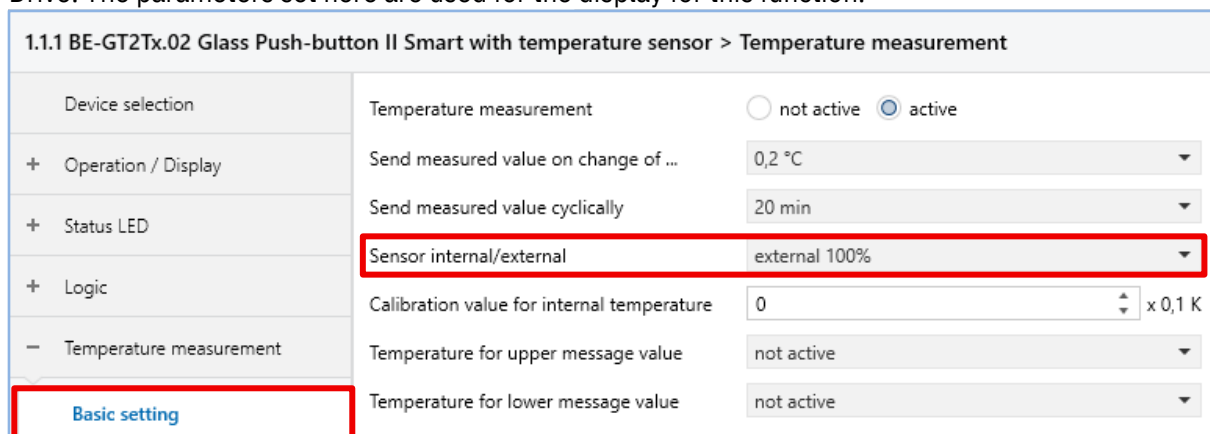
1.1.1 BE-GT2Tx.02 Glass Push-button II Smart with temperature sensor > Operation / Display > Button / Function settings		
Device selection	Function 1/2	two-button function
Operation / Display	Function 3/4	not active
General settings	Function 5/6	not active
Display settings	Function 7/8	not active
Info display	Function 9/10	not active
Button / Function settings	Function 11/12	not active

The RF+ Heating Valve Drive can only be used by setting the absolute setpoint via the 2 Byte object. It is not possible to adjust the setpoint via 1 Bit, 1 Byte, or 2 Byte commands. The reason for this is that adjusting the setpoint requires direct communication with the thermostat every time a button is pressed; however, the RF+ Heating Valve Drive only briefly wakes up during the set cycle to update its values.



1.1.1 BE-GT2Tx.02 Glass Push-button II Smart with temperature sensor > Operation / Display > F1/2:		
Device selection	Function/Object description	
Operation / Display	Two-button function	temperature shift
General settings	Temperature shift	2 Byte shift of "Basic Comfort setpoint"
Display settings	Left/right buttons shift the values	<input checked="" type="radio"/> Down / Up <input type="radio"/> Up / Down
Info display	Step width	0,5 K
Button / Function settings	Lower limit	19 °C
	Upper limit	23 °C

Finally, the temperature reading must be set to 100% externally if you do not want to use the internal temperature of the Glass Push-button II Smart, but rather the reading from the RF+ Heating Valve Drive. The parameters set here are used for the display for this function.



1.1.1 BE-GT2Tx.02 Glass Push-button II Smart with temperature sensor > Temperature measurement		
Device selection	Temperature measurement	<input type="radio"/> not active <input checked="" type="radio"/> active
Operation / Display	Send measured value on change of ...	0,2 °C
Status LED	Send measured value cyclically	20 min
Logic	Sensor internal/external	external 100%
Temperature measurement	Calibration value for internal temperature	0 x 0,1 K
	Temperature for upper message value	not active
	Temperature for lower message value	not active

## Basic Configuration: Glass Touch Smart

Using the page configuration, you can select any template (here, Template 3) for the display or create one yourself using DCA. We then assign the function, which is subsequently configured, to a tile (here, #1).

1.1.2 BE-GTS06TX.01S Glas Touch Smart > Page layout / Functions > Page configuration > Page 1:

- + Device configuration
- + Standby / Status elements
- Page layout / Functions
- Page configuration
  - Page 1:**
  - + Functions 1-8:
  - Functions 9-16:
  - Functions 17-24:
  - Functions 25-32:
  - Functions 33-40:
  - Functions 41-48:
  - Functions 49-56:
  - Functions 57-64:
- + Settings page
- Slap function
- + Device settings via scene object...
- + Messages
- Ambient lighting
- + Logic functions
- + Temperature measurement / co...

Description of the page (in ETS)

Consider page with swipe gesture and display in navigation bar  not active  active

Page colour in navigation bar  free setting  defined values

Value

**Template**

DCA settings  not active  active

**Template for presenting the tiles**

Preview

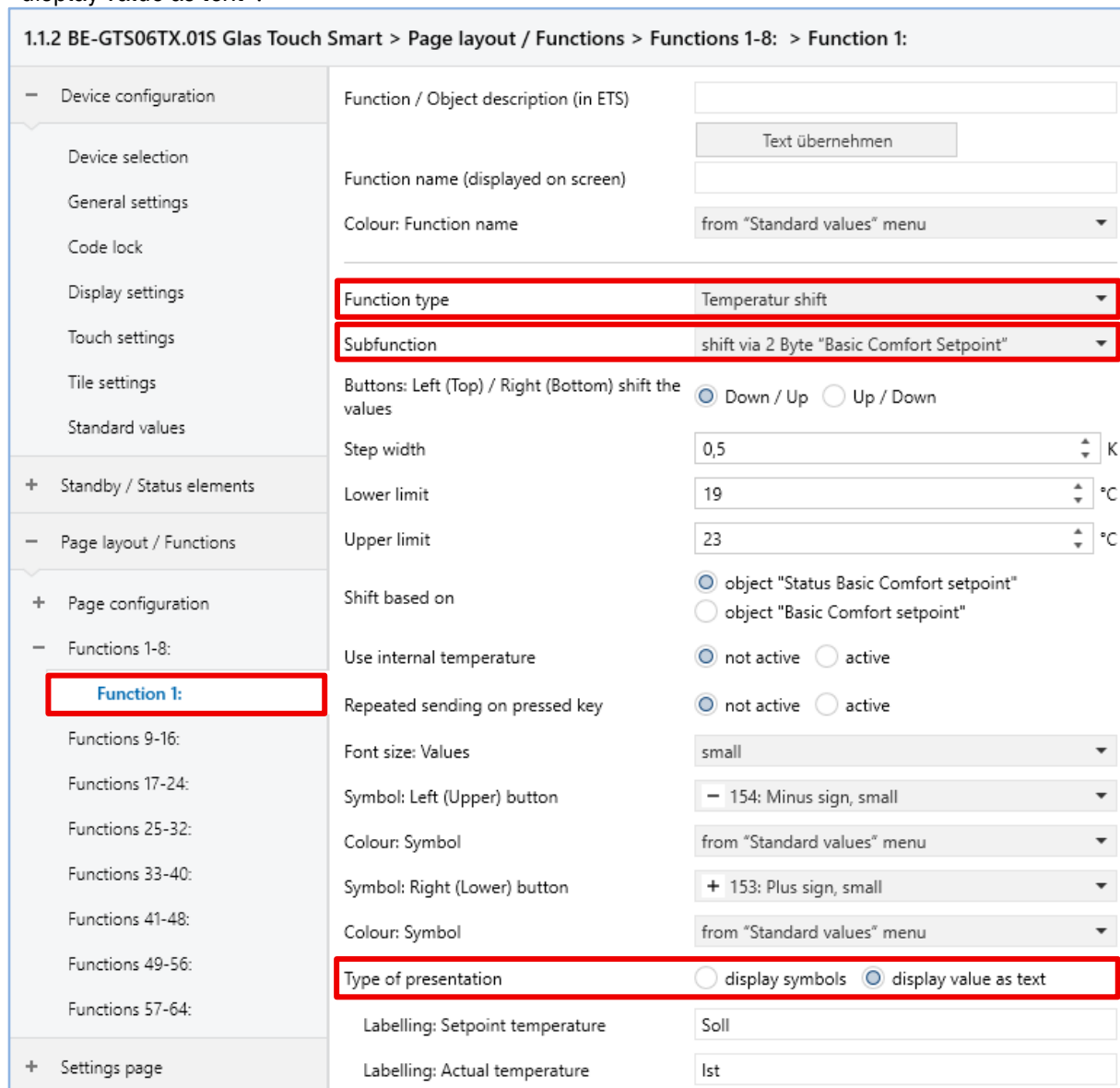
**i** Standard values are defined in "Tile settings" menu.

**i** A function may only be assigned one tile!  
Function 0 = not active.

**The table can be used to assign the tiles (#) defined functions:**

#	Tile transparency	Tile colour	View "Day"	View "Night"	Function	Tile size
1	standard	standard	MDT grey	MDT black	1	2x1 tile (horizontal)
2	standard	standard	MDT grey	MDT black	0	2x1 tile (horizontal)
3	standard	standard	MDT grey	MDT black	0	2x1 tile (horizontal)
4	standard	standard	MDT grey	MDT black	0	2x1 tile (horizontal)

The function type is set to “Temperature offset” and selected in the Subfunction “shift via 2 Byte ‘Basic Comfort Setpoint’”. To display the actual temperature value, we change the display type to “display value as text”.



1.1.2 BE-GTS06TX.01S Glas Touch Smart > Page layout / Functions > Functions 1-8: > Function 1:

Device configuration	Function / Object description (in ETS)	<input type="text"/>
		<input type="button" value="Text übernehmen"/>
Device selection	Function name (displayed on screen)	<input type="text"/>
General settings	Colour: Function name	from "Standard values" menu
Code lock		
Display settings	Function type	Temperatur shift
Touch settings	Subfunction	shift via 2 Byte "Basic Comfort Setpoint"
Tile settings	Buttons: Left (Top) / Right (Bottom) shift the values	<input checked="" type="radio"/> Down / Up <input type="radio"/> Up / Down
Standard values	Step width	0,5 K
Standby / Status elements	Lower limit	19 °C
Page layout / Functions	Upper limit	23 °C
Page configuration	Shift based on	<input checked="" type="radio"/> object "Status Basic Comfort setpoint" <input type="radio"/> object "Basic Comfort setpoint"
Functions 1-8:	Use internal temperature	<input checked="" type="radio"/> not active <input type="radio"/> active
<b>Function 1:</b>	Repeated sending on pressed key	<input checked="" type="radio"/> not active <input type="radio"/> active
Functions 9-16:	Font size: Values	small
Functions 17-24:	Symbol: Left (Upper) button	- 154: Minus sign, small
Functions 25-32:	Colour: Symbol	from "Standard values" menu
Functions 33-40:	Symbol: Right (Lower) button	+ 153: Plus sign, small
Functions 41-48:	Colour: Symbol	from "Standard values" menu
Functions 49-56:	Type of presentation	<input type="radio"/> display symbols <input checked="" type="radio"/> display value as text
Functions 57-64:	Labelling: Setpoint temperature	Soll
Settings page	Labelling: Actual temperature	Ist

## Linking group addresses

The group address assignments are shown below. Please note that the order of assignment for objects 2 and 3 of the Glass Push-button II Smart, as well as for objects 192 and 193 of the Glass Touch Smart, must be maintained as shown. This is because only the first assigned group address for each object will be written by the object.

Number	Name	Object Function	Linked with	Group Address	Length
1.1.1 BE-GT2Tx.02 Glass Push-button II Smart with temperature sensor					
0	F1/2:	Basic Comfort setpoint	current setpoint	0/0/2	2 bytes
2	F1/2:	Status current setpoint	current setpoint	0/0/2, 0/0/3	2 bytes
3	F1/2:	Status Basic Comfort setpoint	current setpoint	0/0/2, 0/0/3	2 bytes
133	Day / Night	Day = 1 / Night = 0			1 bit
134	Presence	Input			1 bit
135	Temperature	Send measured value			2 bytes
136	Temperature	External sensor - Input	measured value	0/0/1	2 bytes
139	Time	Receive current value			3 bytes
140	Date	Receive current value			3 bytes
141	Time/Date	Receive current values			8 bytes
147	Status text 1	Input			14 bytes
148	Status text 2	Input			14 bytes
154	Button operation	Output			1 bit
1.1.2 BE-GTS06TX.01S Glas Touch Smart					
1	In operation	Output			1 bit
2	Day/Night	Day = 0 / Night = 1			1 bit
3	Time	Receive current value			3 bytes
4	Date	Receive current value			3 bytes
5	Time / Date	Receive current values			8 bytes
6	Page change	Input			1 byte
9	Presence	Input			1 bit
16	Device setting	Scene number			1 byte
82	Temperature measurement: Internal	Send measured value			2 bytes
190	Function 1:	Basic Comfort setpoint	current setpoint	0/0/2	2 bytes
191	Function 1:	External temperature - Input	measured value	0/0/1	2 bytes
192	Function 1:	Status: Current setpoint	current setpoint	0/0/2, 0/0/3	2 bytes
193	Function 1:	Status: Basic Comfort setpoint	current setpoint	0/0/2, 0/0/3	2 bytes
194	Function 1:	Additional status			1 bit
1.2.1 KNX RF+ Heating Valve Drive with display and 2 x AA-Batteries, Secure					
2	Temperature controller	Send current setpoint	status current setpoint	0/0/3	2 bytes
3	Temperature controller	Preset setpoint	current setpoint	0/0/2	2 bytes
6	Temperature	Send measured value	measured value	0/0/1	2 bytes
11	Battery	Status			1 byte
12	Battery	Warning			1 bit

The special part of this setup is that one of the Push-buttons—which is used in the system to adjust the temperature on the RF+ Heating Valve Drive—must be configured as the master, from which the RF+ Heating Valve Drive can read the updated setpoint when it wakes up from deep sleep. This master configuration is achieved by setting the “R” flag.

Number	Name	Object Function	Linked with	Group Address	Length	C	R	W	T	U
1.1.1 BE-GT2Tx.02 Glass Push-button II Smart with temperature sensor										
0	F1/2:	Basic Comfort setpoint	current setpoint	0/0/2	2 bytes	C	-	-	T	-
2	F1/2:	Status current setpoint	current setpoint	0/0/2, 0/0/3	2 bytes	C	R	W	T	U
3	F1/2:	Status Basic Comfort setpoint	current setpoint	0/0/2, 0/0/3	2 bytes	C	-	W	T	U
133	Day / Night	Day = 1 / Night = 0			1 bit	C	-	W	T	U
134	Presence	Input			1 bit	C	-	W	T	U
135	Temperature	Send measured value			2 bytes	C	R	-	T	-
136	Temperature	External sensor - Input	measured value	0/0/1	2 bytes	C	-	W	T	U

Finally, the line couplers must be programmed again so that the linked group addresses are written to the filter tables to ensure the cross-line communication.

## External control

### Note:

As an alternative to the internal controller, the RF+ Heating Valve Drive can be controlled by an external controller. The room temperature measured by the RF+ Heating Valve Drive can still be output as a measured value and processed further if necessary.

### Disabling the controller in the RF+ Heating Valve Drive

For external control, simply set the “Room temperature controller” parameter on the radiator thermostat to “external.”

**1.2.1 KNX RF+ Heating Valve Drive with display and 2 x AA-Batteries, Secure > Room temperature controller**

General settings	Room temperature controller <input type="radio"/> internal <input checked="" type="radio"/> external
Room temperature controller	Request interval setpoint / control value <input type="text" value="00:15"/> hh:mm
Battery	Send valve position <input checked="" type="radio"/> not active <input type="radio"/> active
	Send temperature measurement value <input checked="" type="radio"/> not active <input type="radio"/> active
	"Boost" - function <input type="radio"/> not active <input checked="" type="radio"/> active

**i** The actuator will be opened for 5 minutes when the upper button on the device has been pressed > 5 s.

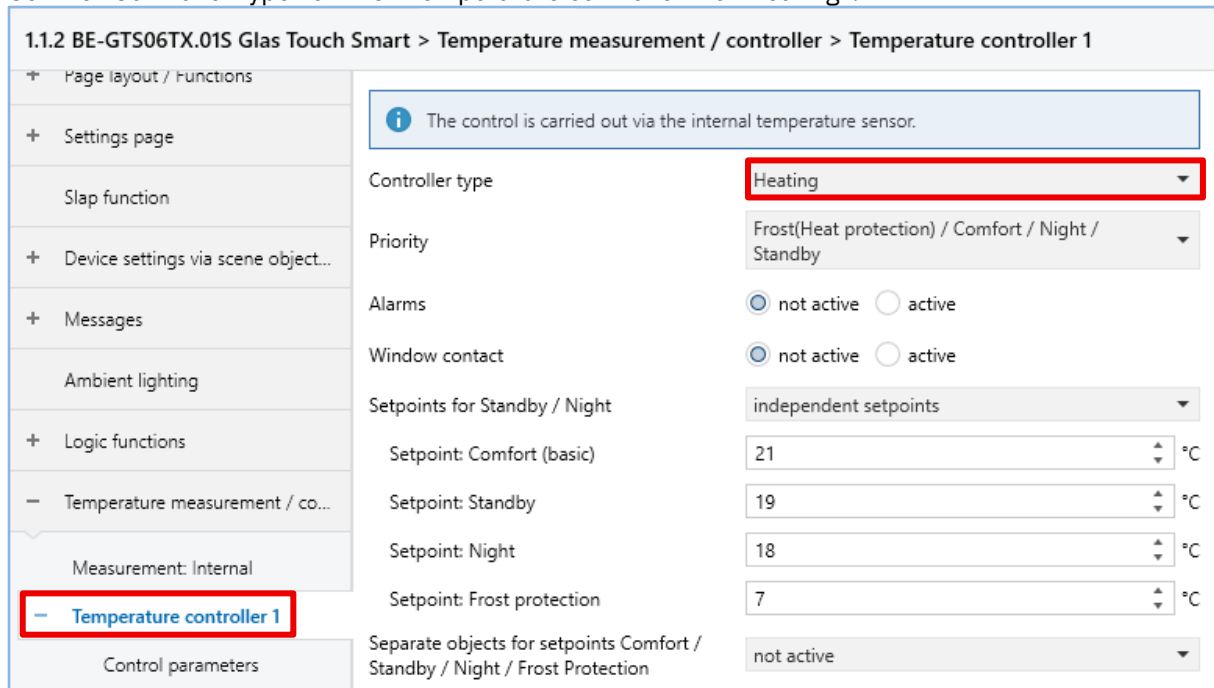
### Enabling the controller in the Glass Touch Smart

In this example, the GTS (BE-GTS06Tx.01S) is used as the external controller. The parameters for temperature measurement under the “Measurement: Internal” menu item are left at their default values in this example.

**1.1.2 BE-GTS06TX.01S Glas Touch Smart > Temperature measurement / controller > Measurement: Internal**

Slap function	Temperature measurement <input type="radio"/> not active <input checked="" type="radio"/> active
+ Device settings via scene object...	Send measured value on change of ... <input type="text" value="0.2 K"/>
+ Messages	Send measured value cyclically <input type="radio"/> not active <input checked="" type="radio"/> active
Ambient lighting	Cycle time <input type="text" value="00:10"/> hh:mm
+ Logic functions	From internal and external sensor <input type="text" value="calculate average"/>
- Temperature measurement / co...	Sensor internal / external <input type="text" value="100 % internal"/>
Measurement: Internal	Calibration value for internal sensor <input type="text" value="0"/> x 0,1 K
Temperature controller 1	Temperature: Upper message value <input type="text" value="not active"/>
	Temperature: Lower message value <input type="text" value="not active"/>

Set the “Controller type” on the “Temperature controller” to “Heating”.



1.1.2 BE-GTS06TX.01S Glas Touch Smart > Temperature measurement / controller > Temperature controller 1

Page layout / Functions

Settings page

Slap function

Device settings via scene object...

Messages

Ambient lighting

Logic functions

Temperature measurement / co...

Measurement: Internal

**Temperature controller 1**

Control parameters

The control is carried out via the internal temperature sensor.

Controller type: Heating

Priority: Frost(Heat protection) / Comfort / Night / Standby

Alarms:  not active  active

Window contact:  not active  active

Setpoints for Standby / Night: independent setpoints

Setpoint: Comfort (basic): 21 °C

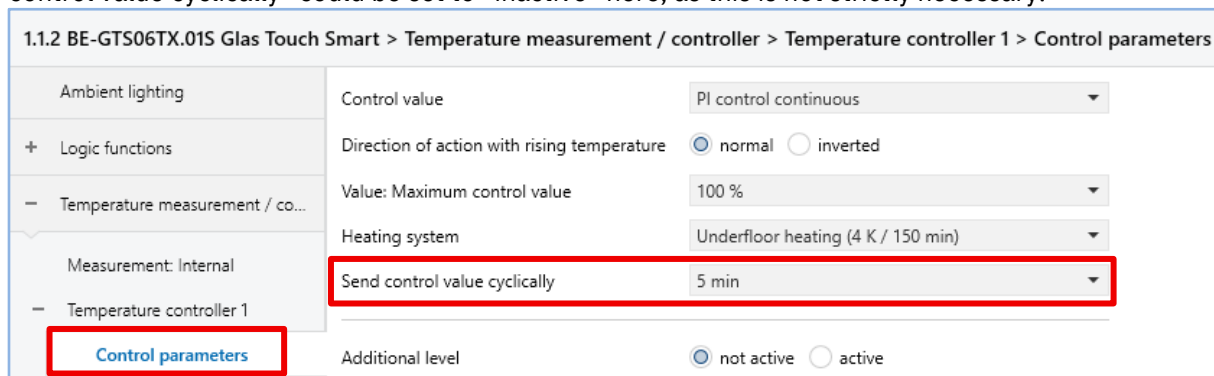
Setpoint: Standby: 19 °C

Setpoint: Night: 18 °C

Setpoint: Frost protection: 7 °C

Separate objects for setpoints Comfort / Standby / Night / Frost Protection: not active

Under the “Control parameters” section, you can configure the settings for the type of control. “Send control value cyclically” could be set to “inactive” here, as this is not strictly necessary.



1.1.2 BE-GTS06TX.01S Glas Touch Smart > Temperature measurement / controller > Temperature controller 1 > Control parameters

Ambient lighting

Logic functions

Temperature measurement / co...

Measurement: Internal

Temperature controller 1

**Control parameters**

Control value: PI control continuous

Direction of action with rising temperature:  normal  inverted

Value: Maximum control value: 100 %

Heating system: Underfloor heating (4 K / 150 min)

**Send control value cyclically: 5 min**

Additional level:  not active  active

In the settings, under the “Use internal temperature” option, the setting is changed to “active” for this configuration, since the GTS temperature sensor is to be used.

1.1.2 BE-GTS06TX.01S Glas Touch Smart > Page layout / Functions > Functions 1-8: > Function 1:

<ul style="list-style-type: none"> <li>Device configuration</li> <li>Device selection</li> <li>General settings</li> <li>Code lock</li> <li>Display settings</li> <li>Touch settings</li> <li>Tile settings</li> <li>Standard values</li> </ul>	Function / Object description (in ETS) <input type="text"/> <input type="button" value="Text übernehmen"/> Function name (displayed on screen) <input type="text"/> Colour: Function name from "Standard values" menu <input type="text"/>
	Function type <input type="text" value="Temperatur shift"/>
	Subfunction <input type="text" value="shift via 2 Byte 'Basic Comfort Setpoint'"/>
	Buttons: Left (Top) / Right (Bottom) shift the values <input checked="" type="radio"/> Down / Up <input type="radio"/> Up / Down
	Step width <input type="text" value="0,5"/> K
	Lower limit <input type="text" value="19"/> °C
	Upper limit <input type="text" value="23"/> °C
	Shift based on <input checked="" type="radio"/> object "Status Basic Comfort setpoint" <input type="radio"/> object "Basic Comfort setpoint"
	Use internal temperature <input type="radio"/> not active <input checked="" type="radio"/> active
	Repeated sending on pressed key <input checked="" type="radio"/> not active <input type="radio"/> active
	Font size: Values <input type="text" value="small"/>
	Symbol: Left (Upper) button <input type="text" value="- 154: Minus sign, small"/>
	Colour: Symbol from "Standard values" menu <input type="text"/>
	Symbol: Right (Lower) button <input type="text" value="+ 153: Plus sign, small"/>
	Colour: Symbol from "Standard values" menu <input type="text"/>
	Type of presentation <input type="radio"/> display symbols <input checked="" type="radio"/> display value as text
	Labelling: Setpoint temperature <input type="text" value="Soll"/>
	Labelling: Actual temperature <input type="text" value="Ist"/>

## Linking group addresses

Unlike when using the internal controller, no flags need to be set.

1.1.2 BE-GTS06TX.01S Glas Touch Smart							
1	In operation	Output			1 bit	C R - T -	
2	Day/Night	Day = 0 / Night = 1			1 bit	C - W T U	
3	Time	Receive current value			3 bytes	C - W T U	
4	Date	Receive current value			3 bytes	C - W T U	
5	Time / Date	Receive current values			8 bytes	C - W T U	
6	Page change	Input			1 byte	C - W - -	
9	Presence	Input			1 bit	C - W T U	
16	Device setting	Scene number			1 byte	C R W T U	
82	Temperature measurement: Internal	Send measured value			2 bytes	C R - T -	
91	Temperature controller 1	Preset setpoint	current setpoint	0/0/2	2 bytes	C - W - -	
97	Temperature controller 1	Send current setpoint	status current setpoint	0/0/3	2 bytes	C R - T -	
98	Temperature controller 1	Manual setpoint shift (2 Byte)			2 bytes	C - W - -	
99	Temperature controller 1	Manual setpoint shift (1 = + / 0 = -)			1 bit	C - W - -	
101	Temperature controller 1	Control value Heating: Send control value	Manual setpoint shift (2 Byte)	0/0/4	1 byte	C R - T -	
106	Temperature controller 1	Mode selection			1 byte	C - W - -	
108	Temperature controller 1	Mode: Comfort			1 bit	C - W - -	
109	Temperature controller 1	Mode: Night			1 bit	C - W - -	
110	Temperature controller 1	Operating mode: Frost protection			1 bit	C - W - -	
111	Temperature controller 1	DPT_HVAC Mode: Send controller status			1 byte	C R - T -	
117	Temperature controller 1	Diagnosis: Status			14 bytes	C R - T -	
190	Function 1:	Basic Comfort setpoint	current setpoint	0/0/2	2 bytes	C - - T -	
192	Function 1:	Status: Current setpoint	status current setpoint	0/0/3	2 bytes	C - W T U	
193	Function 1:	Status: Basic Comfort setpoint	status current setpoint	0/0/3	2 bytes	C - W T U	
194	Function 1:	Additional status			1 bit	C - W T U	
1.2.1 KNX RF+ Heating Valve Drive with display and 2 x AA-Batteries, Secure							
2	Temperature controller	Preset setpoint	current setpoint	0/0/2	2 bytes	C - - T -	
3	Temperature controller	Receive current setpoint	status current setpoint	0/0/3	2 bytes	C - W T U	
4	Temperature controller	Receive control value	Manual setpoint shift (2 Byte)	0/0/4	1 byte	C - W T U	
11	Battery	Status			1 byte	C - - T -	
12	Battery	Warning			1 bit	C - - T -	