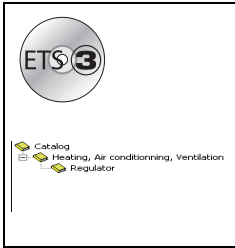

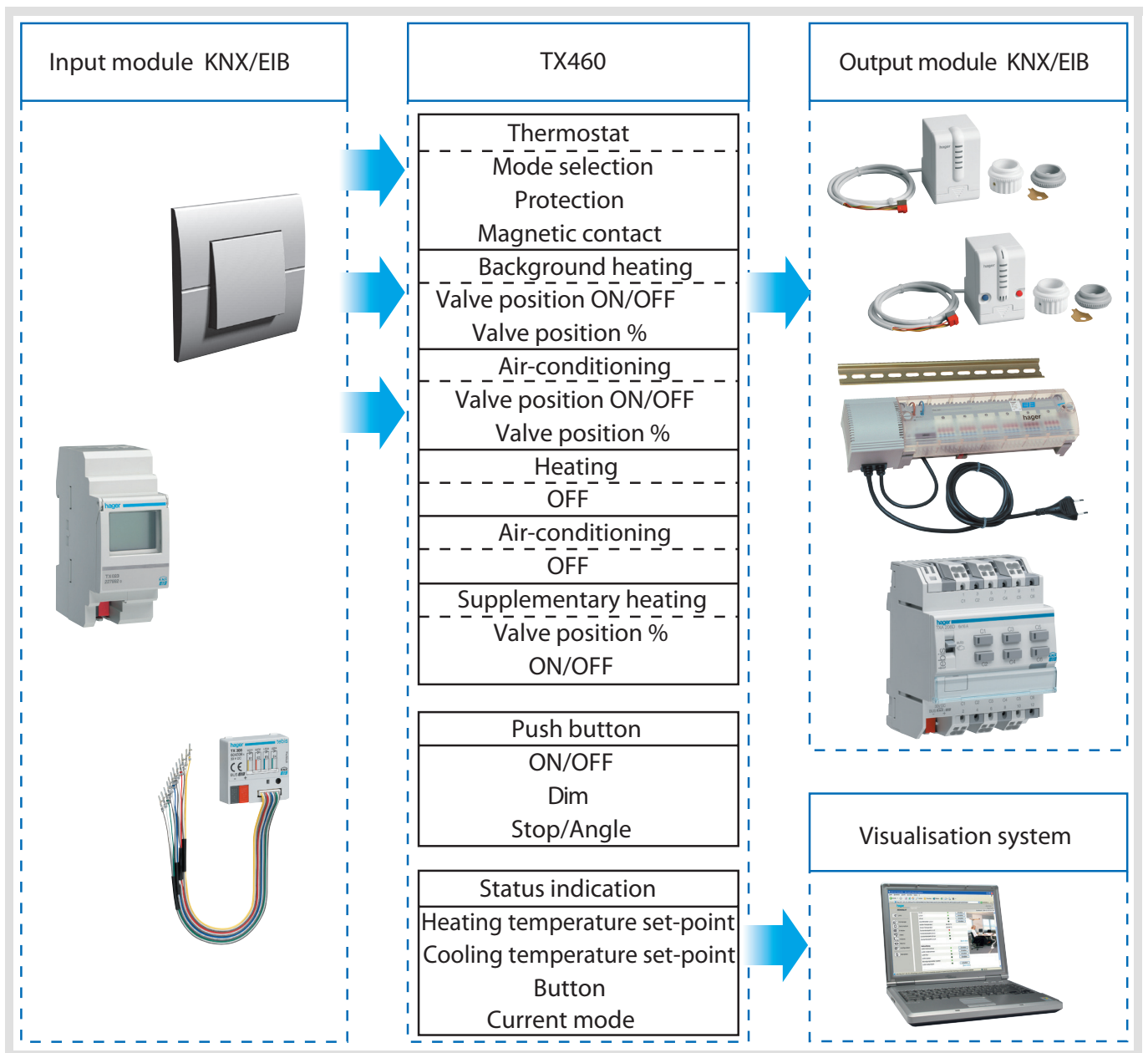


## Tebis application software

TL460 V 1.x  
Regulator and pushbutton functions



	Product reference	Product designation
	TX460	Room controller and regulator



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## A. Presentation of modes and functions of the TL460 application

### 1. The two operating modes of TX460

The TL460 application software allows configuring the two operating modes of the TX460:

- Regulator mode: Allows controlling the ambient temperature for heating and air-conditioning systems.
- Pushbutton mode: Allows operating the TX460 as a 4 pushbutton device.

A preferred display mode of the TX460 can be defined according to the user's choice:

- Pushbutton mode (the product however continues controlling according to the parameters set)
- Regulator mode (the pushbutton commands are not available any more)

### 2. Presentation of the Regulator mode functions of the TL460 application

#### ■ Control of the ambient temperature of the heating and air-conditioning systems

The thermostat function of the room controller and regulator allows controlling the following applications:

- Heating
- Air-conditioning
- Heating and air-conditioning (2 distribution systems)
- Heating and reversible air-conditioning or change-over (1 distribution system)

The switch-over between heating and air-conditioning may be automatic or manual (heating/air-conditioning changeover function).

It also allows driving a heating of the type background plus supplementary heating.

Mixed systems may be driven using separate outputs (e. g. for 4-tube fan convector) or one single output e. g. for 2-tube fan convector).

The control is based on the measurement of the ambient temperature. This temperature is compared with the setpoint defined by the user.

There are two limitation functions:

- Limitation according to the outside temperature
- Limitation according to the floor temperature

These two temperatures are measured by separated probes (connected to the KNX/EIB bus only).

The table below indicates, for each system:

- The type of transmitter that can be controlled by the product
- The temperatures used as input data for the control algorithm
- The type of algorithm available for the regulation of the systems

System	Transmitter type	Regulation temperatures			Regulation type		
		Ambient T°	Outside T°	Floor T°	On-off	Chrono proportional cycle	PID
Background heating or Background + supplementary heating	Hot water radiator	X					X (default value)
	Hot water floor heating	X		X (power limitation possible)			X (default value)
	Fan Convector (2 or 4 tubes)	X					X (default value)
	Electrical wall transmitter	X	X (power limitation possible)				X (default value)
	Electrical floor heating	X	X (power limitation possible)				X (default value)
	Customized setting	X	X (power limitation possible)	X (power limitation possible)			X adjustable
	Supplementary heating	X			X	X	
Air-conditioning	Fan Convector (2 or 4 tubes)	X					X (default value)
	Customized setting	X	X (power limitation possible)	X (power limitation possible)			X adjustable

The main functions of the TL460 application in the room controller and regulator mode are the following:

#### ■ Mode

The Mode function allows defining several modes: Comfort, Reduced, Economy, Protection. Selection may occur by means of a pushbutton, priority, derogation, a timer, a clock, activating a scene. A temperature setpoint is associated with each mode.

#### ■ Protection (frost protection or equipment protection)

The Protection function allows protecting a building against the risks linked with frost in winter and with a too high temperature in summer.

The Protection function has the following features:

- frost protection in Heating mode
- equipment protection in Air-conditioning mode.

#### ■ Timed Comfort

The Timed comfort function allows calling for the Comfort mode for a determined period of time.

#### ■ Priority

The Priority function allows forcing a mode. The function is available for the Comfort and Frost protection/Equipment protection modes.

#### ■ Derogation

The Derogation function allows overriding the current mode.

#### ■ Fan speed

The Fan speed function allows setting the ventilation speed of a fan convector. The speed may be fixed according to 3 levels: speed 1 to 3 increasing. The speed may be automatic: the room controller and regulator defines automatically the suitable speed according to the required thermal load.

#### ■ Power limitation

The Power limitation function allows limiting the request for energy. It is available for the following installations:

- Electrical heating
- Heating floor (electrical or water)
- Customized (customized setting)

There are two limitation functions:

- Limitation according to the outside temperature
- Limitation according to the floor temperature

#### ■ Valve protection function

The Valve protection function allows activating periodically the driving elements of the water systems (valves, pumps) to prevent them from jamming.

#### ■ Jamming

The Jamming function allows disabling the applications by deactivating one or more keys in PB Mode and/or in Thermostat mode.

#### ■ Scene

The Scene function allows grouping a set of heating or air-conditioning outputs. These outputs can be set to a predefined status upon parameterising or storing.

Pressing a single pushbutton activates a scene.

Each output may be integrated into 32 different scenes.

#### ■ Status display

The Status indication function allows sending on the bus:

- The current mode (Comfort,...)
- The ambient temperature
- The system selection (heating, air-conditioning)
- The heating setpoint temperature
- The cooling setpoint temperature

#### ■ Magnetic contact

The Magnetic contact function allows switching the system to Security mode when a window remained open.. The window must be equipped with a contact linked with the bus.

### 3. Presentation of the Pushbutton mode functions of the TL460 application

The main functions of the TL460 application in the room controller PB control mode are the following:

#### ■ Sending commands

The pushbuttons allow sending commands for lighting, blinds and shutters, heating, scenes.

- Lighting control  
Toggle, ON, OFF, ON/OFF, Timer.  
Dimming on 1 or 2 pushbuttons.
- Shutters control  
Up, Down, Stop, Blind slat angle, Security down.

#### ■ Priority

The priority function sends priority-start or priority-stop commands.

The Priority action depends on the type of application controlled: lighting, Roller shutters, etc.

#### ■ Scene

The Scene function sends group controls to different kinds of outputs to create ambiances or scenarios (leaving home scenario, reading ambience, etc.).

#### ■ Identification of the pushbutton functions

A specific icon allows identifying each function associated with a pushbutton.

#### ■ Status display

An icon allows indicating the status of the outputs controlled by a pushbutton.

#### ■ Jamming

The Jamming function authorizes product locking. Jamming forbids sending commands.

#### ■ 2-channel mode

The 2-channel mode function allows controlling, with the same pushbutton, two independent circuits having different functions.

### 4. Presentation of the general functions of the TL460 application

#### ■ Preferred display mode

The Preferred display mode function allows defining the main use of the room controller and regulator:

- PB command mode: the 4 sensitive keys of the controller have then the same functions as standard device pushbuttons. They may be configured for lighting management, shutters management, etc..
- Thermostat mode: the pushbuttons of the controller allow controlling the heating or the air-conditioning. They may be configured for modes selection (Comfort, Reduced, Eco, Protection), setpoint adjustment using +/-, presence/absence selection.

The product can be configured for complete or partial use:

- Pushbutton mode (preferred display mode) and thermostat.
- Thermostat mode (preferred display mode) and Pushbutton.
- Pushbutton mode: in this mode, the thermostat function operates without giving access to the display.
- Thermostat mode: in this mode, the PB function is inaccessible.

#### ■ Choice of language

One of 9 possible languages can be selected.

#### ■ Display backlight

The product is equipped with a backlit LCD, which may be activated automatically as soon as one gets close to the product and after each action on a key.

#### ■ Beeper key

A beep may be associated to each action on a key.

#### ■ Clock

The Clock function allows associating a scene to the clock function of the room controller and regulator.

#### ■ Antitheft Alarm

The Antitheft Alarm function allows sending an information on the bus when the front side of the room controller is removed.

## B. Configuration and parameterising of the TX460

### 1. Configuration and general parameterising of the room controller and regulator

#### 1.1 Objects List

Objects (type, name and function)		
Input	Time	
Output	Scene activation	Clock
	Antitheft Alarm	General
	Antitheft Alarm	8-bit antitheft alarm

#### 1.2 General parameterising of the room controller

##### ■ ETS version selection

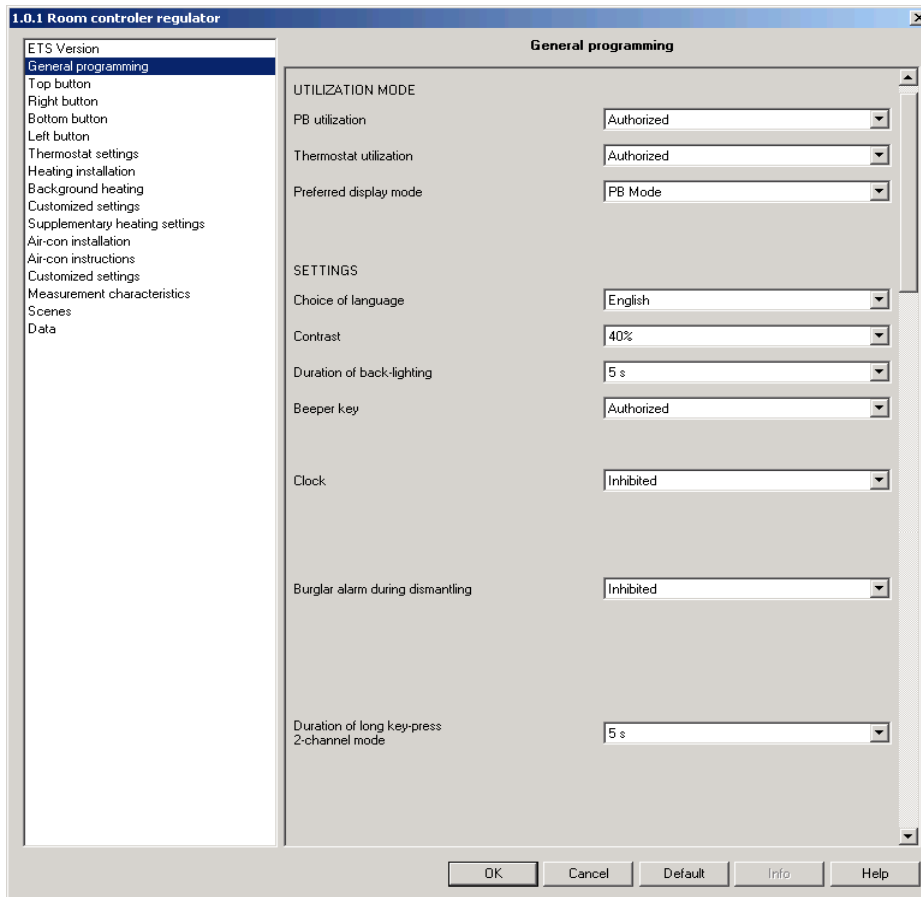
This parameter allows the presentation of the parameters to be optimised according to the ETS version used. Go to the ETS Version screen and select the required version: ETS 2 or ETS 3. Default value: ETS 3.

##### ■ General settings

The General settings menu allows defining:

- The Preferred display mode
- General settinge
- The Clock function
- The Antitheft alarm function

→ Parameters



Screen 1

A. Operating mode

Designation	Description	Values
PB utilization	This parameter allows enabling or disabling the display of the pushbutton mode.	Forbidden, Authorized. Default value: Authorized.
Thermostat utilization	This parameter allows enabling or disabling the display of the thermostat mode. The thermostat goes on regulating according to the parameters set.	Forbidden, Authorized. Default value: Authorized.
Preferred display mode	This parameter allows defining the preferred display of the desired mode.	PB Mode, Thermostat mode, Current Mode. Default value: PB Mode.

**B. Settings**

<b>Designation</b>	<b>Description</b>	<b>Values</b>
Choice of language	This parameter allows selecting the display language.	English, German, French, Flemish, Italian, Portuguese, Norwegian, Spanish, Swedish. Default value: English.
Contrast	This parameter allows setting the contrast of the digital display.	0%, 20%, 40%, 60%, 80%, 100%. Default value: 40%.
Duration of back-lighting	This parameter allows setting the duration of the back-lighting. This duration is defined for the IR proximity detection and when using the keys. This parameter also allows activating the proximity detection when selecting a duration.	Forbidden, 3 s, 5 s, 10 s, 15 s, 30 s. Default value: 5 s.
Beeper key	This parameter allows defining whether a beep is to be emitted when pressing a sensitive key.	Authorized, Forbidden. Default value: Authorized.
Clock	This parameter allows enabling or disabling the Clock function. Time setting and melody selection must occur from the product. The default setting is: start at 00h00 using melody 1.	Authorized, Forbidden. Default value: Forbidden.
Wake up scene (displayed if the value of the Clock parameter is Authorized)	This parameter allows enabling or disabling the Wake up scene function. This parameter allows associating a scene to the wake-up.	Forbidden, Scene 1 to 8. Default value: Forbidden.
Antitheft Alarm	This parameter allows enabling or disabling the Antitheft alarm function. This parameter allows defining the type of the object sent when removing the front side of the product.	Forbidden, 1-bit alarm, 8-bit alarm. Default value: Forbidden.
Alarm emission period (displayed if the value of the Antitheft alarm parameter is Alarm 1 bit or Alarm 8 bits)	This parameter defines the emission periodicity of the Antitheft alarm object.	1 min, 5 min, 10 min, 30 min. Default value: 10 min.
Alarm value (displayed if the value of the Antitheft alarm parameter is Alarm 8 bits)	This parameter defines the value of the desired identifier (allocation of an identification number to the room controller and regulator) to be sent on the bus.	Value included between 0 and 255. Default value: 0.

## 2. Configuration and parameterisation of the Regulator mode

### 2.1 Objects List

#### A. Use of the objects (inputs or outputs) to control the heating and/or air-conditioning systems

Objects (type, name and function)			Heating	Air-conditioning	Heating and air-conditioning	Single-circuit heating and air-conditioning
Input	Heating / Air-conditioning	Heating/air-cond changeover			(X) <sup>(1)</sup>	X
	Heating	Stop	X		X	X
	Air-conditioning	Stop		X	X	X
Output	Background heating	Valve position %	X		X	X
	Background heating	Valve position ON / OFF	X		X	X
	Supplementary heating	Valve position %	(X) <sup>(2)</sup>		(X) <sup>(2)</sup>	(X) <sup>(2)</sup>
	Supplementary heating	Valve position ON / OFF	(X) <sup>(2)</sup>		(X) <sup>(2)</sup>	(X) <sup>(2)</sup>
	Air-conditioning	Valve position %		X	X	
	Air-conditioning	Valve position ON / OFF		X	X	
	Status display	Heating temperature set-point	X		X	X
	Status display	Cooling temperature set-point		X	X	X
	Status display	Heating / Air-conditioning	X	X	X	X
Status display	Actual mode	X	X	X	X	

(X)<sup>(1)</sup>: Only active if the heating/air-conditioning changeover is carried out manually.

(X)<sup>(2)</sup>: Only active if the supplementary heating is authorized.

→ Description of the Heating/Air-conditioning object Heating/air-cond changeover

Behaviour according to the input value	0: Air-conditioning 1: Heating
--	-----------------------------------

→ Description of the Heating object Stop

Behaviour according to the input value	0: Stop 1: ON
--	------------------

→ Description if the Air-conditioning object Stop

Behaviour according to the input value	0: Stop 1: ON
--	------------------

→ Description of the Status indication object Heating / Air-conditioning

Output behaviour	0: Air-conditioning 1: Heating
------------------	-----------------------------------

→ Description of the Status indication object Current mode

Output behaviour	1: Comfort 2: Eco 3: Reduced 4: Protection
------------------	---

**B. Use of the objects (inputs or outputs) to control the thermostat for heating or air-conditioning**

Objects (type, name and function)			Room transmitter type (Heating)	Room transmitter type (Air-conditioning)
Input	Thermostat	Mode selection (Comfort, Eco,...)	All*	All
	Thermostat	Protection	All*	All
	Thermostat	Magnetic contact	All*	All
	Thermostat	Priority	All*	All
	Thermostat	Timer-controlled Comfort	All*	All
	Thermostat	Scene	All*	All
	Thermostat	Comfort temperature set-point	All*	All
	Temperature	Outside temperature	All*	All
	Temperature	Floor temperature	Only for the following transmitters: Heating floor (electrical or water) and Customized regulation.	Only for the following transmitters: Customized setting.
	Thermostat	Jamming	Always available	
	Temperature	Ambient temperature	All*	All
Output	Status display	Ambient temperature	All*	All
	Status display	Actual mode	All*	All
	Status display	Heating / Air-conditioning	All*	All
	Fan	Speed 1	Only for the following transmitters: Fan Convector and Customized regulation.	Only for the following transmitters: Fan Convector and Customized regulation.
	Fan	Speed 2	Only for the following transmitters: Fan Convector and Customized regulation.	Only for the following transmitters: Fan Convector and Customized regulation.
	Fan	Speed 3	Only for the following transmitters: Fan Convector and Customized regulation.	Only for the following transmitters: Fan Convector and Customized regulation.

\*: All excepted the supplementary heating.

→ Description of the Thermostat object Mode selection (Comfort, Eco,...)

Behaviour according to the input value	1: Comfort 2: Eco 3: Reduced 4: Protection
--	---

→ Description of the Thermostat object Protection

Behaviour according to the input value	0: Switching to Protection mode 1: Back to the previous mode
--	---

→ Description of the Thermostat object Magnetic contact

Behaviour according to the input value	0: Window closed and back to the previous mode 1: Window open and switching to Protection mode
--	---

→ Description of the Thermostat object Priority

Behaviour according to the input value	11: Start of Comfort mode priority 01: End of Comfort mode priority 10: Start of Protection mode priority 00: End of Protection mode priority
--	--

→ Description of the Thermostat object Timer-controlled Comfort

Behaviour according to the input value	1: Start of Comfort mode timer 0: Timer cancellation with return to the previous mode
--	--

→ Description of the Thermostat object Jamming

Behaviour according to the input value	Depending on the setting of the parameter "Jamming polarity"
--	--

→ Description of the Fan object Speed X

Output behaviour	0: Fan OFF 1: Fan ON
------------------	-------------------------

## 2.2 Settings of the Thermostat function

This function allows setting the parameters used for the operation of the thermostat.

The main settings are:

- The installation type.
- The use of the keys.

### A. Installation type function

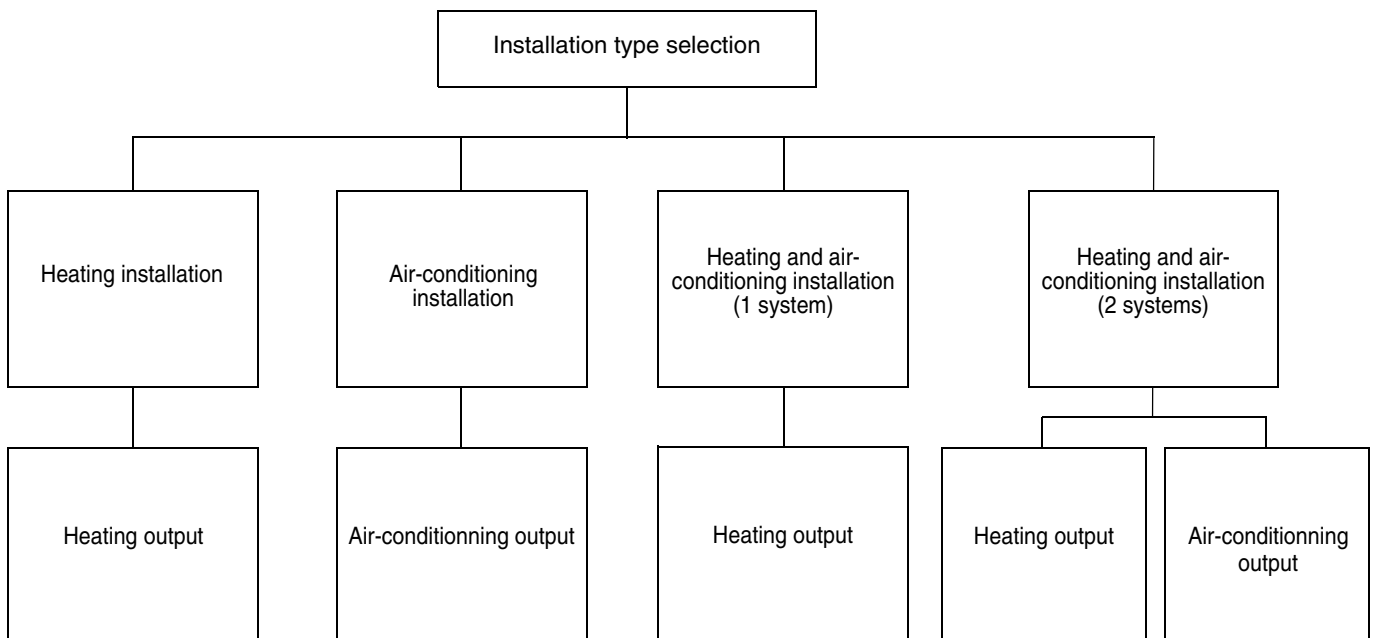
This function allows defining the installation type that is to be controlled by the room controller and regulator:

- Heating installation
- Air-conditioning installation
- Heating and air-conditioning installation (2 systems)
- Heating and air-conditioning installation (1 system)

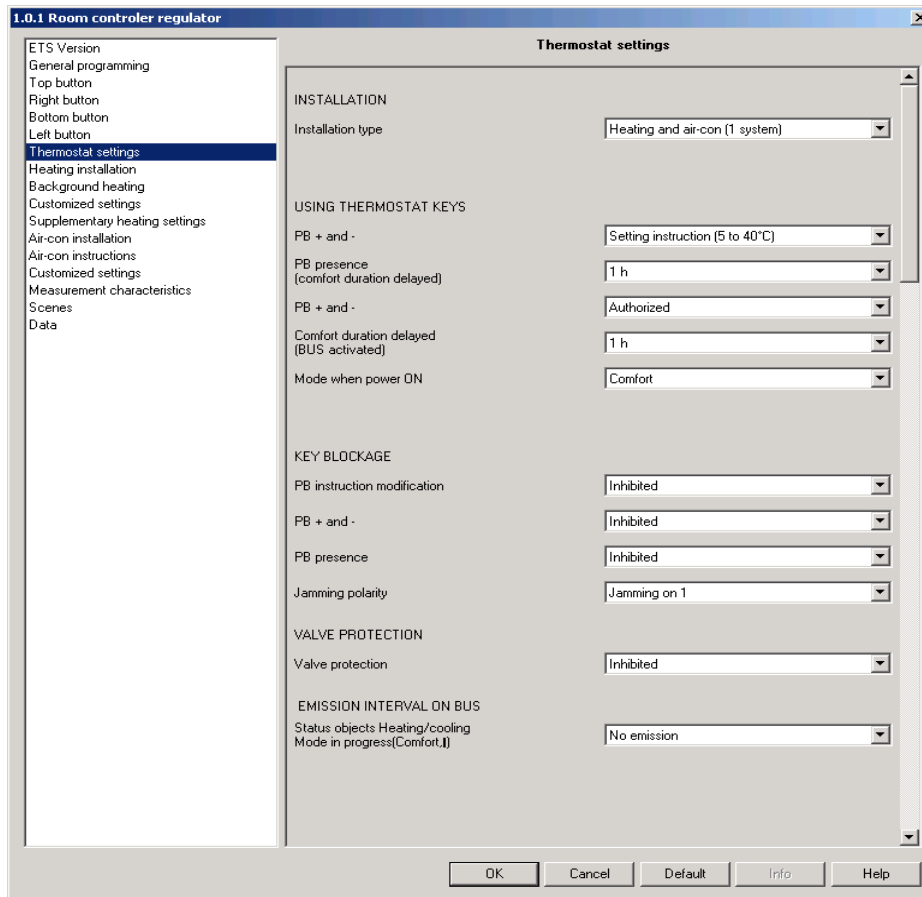
In the case of a heating and air-conditioning installation (2 systems), the control uses 2 separate outputs (1 heating output and 1 air-conditioning output). Changeover between heating mode and air-conditioning mode is carried out:

- Automatically: according to the ambient temperature (dead-band).
- Manually: manual selection in the setting menus.

In the case of a heating and air-conditioning installation (1 system), the control uses one single output. Changeover between heating mode and air-conditioning mode is manual, in the setting menus.



→ Parameters



Screen 2

- Definition of the Installation parameter

Designation	Description	Values
Installation type	This parameter allows defining the system that equips the room. The used outputs are induced from the setting of this parameter.	Heating, Air-conditioning, Heating and air-conditioning (2 systems), Heating and air-conditioning (1 system). Default value: Heating and air-conditioning (1 system).
Changeover Heating / Air-conditioning (displayed if the value of the Installation parameter is Heating and air-conditioning (2 systems))	This parameter allows defining whether the changeover between heating and air-conditioning is manual or automatic. If the changeover is manual, it is carried out upon receiving the object Heating/Air-conditioning Heating/air-cond changeover (See 2.6 "Measurement characteristics function").	Manual, Automatic. Default value: Automatic.

**B. Thermostat keys use function**

This function allows defining the functions of the 4 sensitive keys of the thermostat and allowing or not their remote disabling. When the keys are disabled, the regulation functions remain in operation.

→ Parameter Setting screen: See "Screen 2".

→ Parameters

Designation	Description	Values
PB + and -	This parameter allows activating the setting of the setpoints. This parameter allows defining the authorized setting ranges: absolute or relative.	Forbidden, Setting instruction (5 to 40°C), Deviation (+/-1°C), Deviation (+/-2°C), Deviation (+/-3°C). Default value: Setting instruction (5 to 40°C).
PB presence	This parameter allows forbidding the presence/absence function. This parameter allows authorizing the presence/absence function by setting the duration of the timed override in Comfort mode.	Forbidden, Permanent (24h/24), 15 min, 20 min, 30 min, 1 h, 1 h 30 min, 2 h, 2 h 30 min, 3 h, 3 h 30 min, 4 h, 5 h, 6 h, 12 h, 24 h. Default value: 1 h.
PB Mode	This parameter allows authorizing or forbidding the mode selection function.	Forbidden, Authorized. Default value: Authorized.
Comfort duration delayed (BUS activated)	This parameter allows forbidding the timed Comfort function (activated from the bus). This parameter allows authorizing the timed Comfort function (activated from the bus) by setting the duration of the timed override in Comfort mode.	Forbidden, 15 min, 20 min, 30 min, 1 h, 1 h 30 min, 2 h, 2 h 30 min, 3 h, 3 h 30 min, 4 h, 5 h, 6 h, 12 h, 24 h. Default value: 1 h.

- Key jamming

This function allows remote blocking of the actions on the thermostat keys. This function is started with the PB Jamming object.

Designation	Description	Values
PB + and -	This parameter allows authorizing or forbidding the jamming of the +PB and of the -PB.	Authorized, Forbidden. Default value: Forbidden.
PB Mode	This parameter allows authorizing or forbidding the jamming of the PB.	Authorized, Forbidden. Default value: Forbidden.
PB presence	This parameter allows authorizing or forbidding the jamming of the PB.	Authorized, Forbidden. Default value: Forbidden.
Jamming polarity	This parameter allows defining the value of the PB Jamming object to activate the PB jamming.	Jamming on 1, Jamming on 0. Default value: Jamming on 1.

**C. Valve protection function**

This function allows activating periodically the output to prevent the actuators connected to the various outputs from jamming.

- Parameter Setting screen: See "Screen 2".
- Parameters

Designation	Description	Values
Valve protection	This parameter allows enabling or disabling the Valve protection function.	Authorized, Forbidden. Default value: Forbidden.

**D. Other parameters**

- Parameter Setting screen: See "Screen 2".
- Parameters
- Periodicity of the emission on the bus

Designation	Description	Values
Status objects Heating/cooling and Mode in progress(Comfort,...)	This parameter allows defining the emission periodicity of the Heating/Air-conditioning and Actual mode (Comfort,...) objects.	No emission, 2 min, 3 min, 5 min, 10 min, 15 min, 20 min, 30 min, 45 min, 60 min. Default value: No emission.

- Mode when power ON

Designation	Description	Values
Mode when power ON	This parameter allows defining the regulation mode (Comfort,...) after a power cut-off.	Comfort, Eco, Reduced, Protection, Last mode stored. Default value: Comfort.

**2.3 Heating functions**

The room controller and regulator allows controlling a background heating:

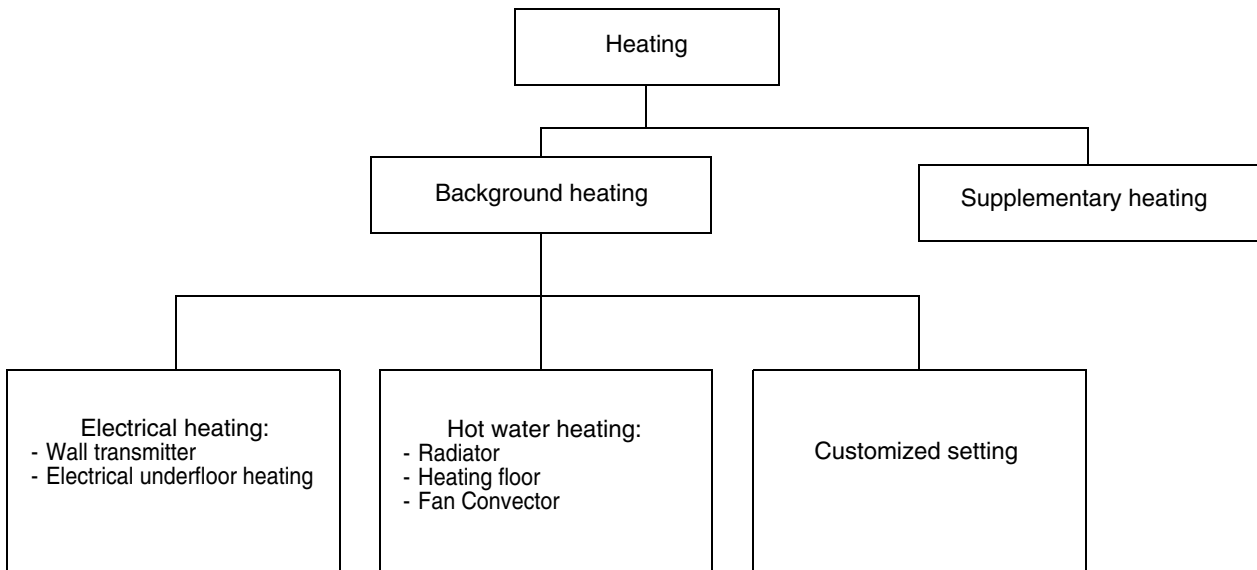
- Electrical
  - Electrical wall transmitter
  - Electrical floor heating
- Warm water
  - Radiator
  - Floor
  - Fan Convector

The room controller and regulator allows controlling a customized installation. The following parameters are to be set:

- Proportional band
- Integral period
- Shift period
- Chrono-proportional cycle

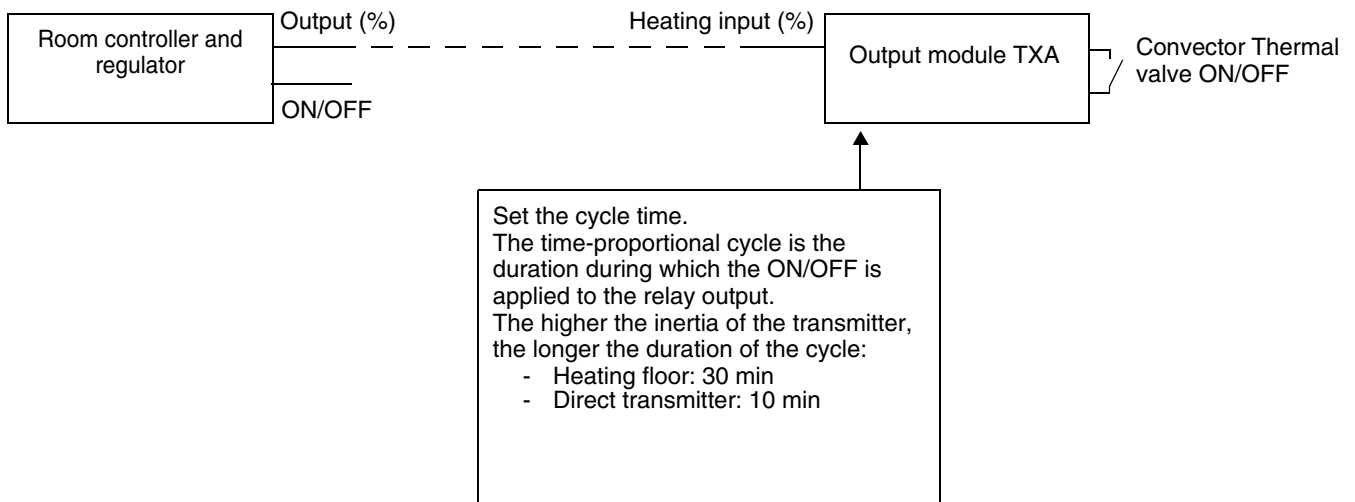
The room controller and regulator allows controlling a supplementary heating. The following parameters are to be set:

- The comfort temperature reduction for the regulation of the supplementary heating
- The regulation type

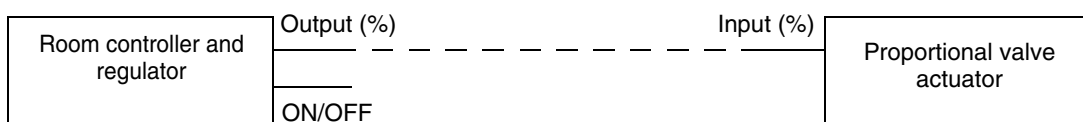


Utilization diagrams of the outputs of the room controller and regulator:

- Case of the use of a TXA-type output module



- Case of the use of a proportional valve-type output module



Note: The ON/OFF output of the room controller and regulator must be used when the output module has no proportional input (%).

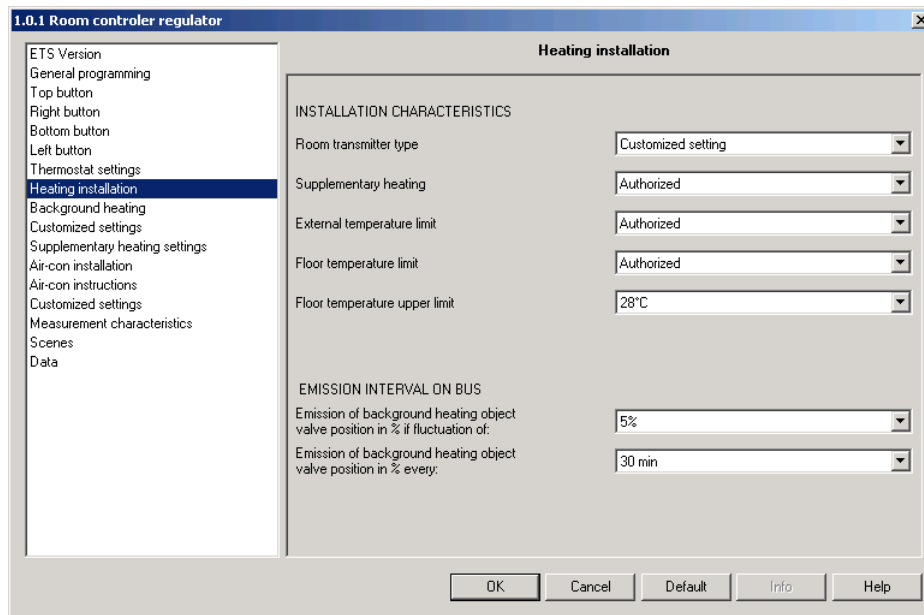
**A. Background heating function**

The background heating function allows regulating the ambient temperature according to the room transmitter type. A regulation algorithm is predefined for each transmitter type in order to ensure the required comfort level. Depending on the room transmitter, it is possible to activate power limitation functions.

There are two power limitation functions:

- Limitation according to the outside temperature: available in case of an electrical heating and for customized regulation. The function limits the called heating power according to the outside temperature. The Limitation function is controlled by the Outside temperature object.
- Limitation according to the floor temperature: available in case of a heating floor (electrical or water) and for customized regulation. The function limits the called heating power according to the floor temperature. The Limitation function is controlled by the Floor temperature object.

→ Parameters



Screen 3

Designation	Description	Values
Room transmitter type	This parameter allows selecting the type of the transmitter controlling the heating or air-conditioning.	Radiator, Hot water underfloor heating, Electrical wall transmitter, Electrical underfloor heating, Fan Convecteur, Customized setting. Default value: Radiator.
Supplementary heating	This parameter allows authorizing or forbidding a supplementary heating. For the parameterising of the supplementary heating: See §2.3 "Heating functions" E. "Supplementary heating function".	Authorized, Forbidden. Default value: Forbidden.
External temperature limit <sup>(1)</sup>	This parameter allows enabling or disabling the function of heat transfer limitation according to the outside temperature.	Authorized, Forbidden. Default value: Forbidden.
Floor temperature limit <sup>(2)</sup>	This parameter allows enabling or disabling the function of heat transfer limitation according to the floor temperature.	Authorized, Forbidden. Default value: Forbidden.
Floor temperature upper limit <sup>(3)</sup>	This parameter allows defining the upper floor temperature limit.	24°C to 46°C in 1°C steps. Default value: 28°C.
Emission of object "background heating valve position in %" if fluctuation of: <sup>(4)</sup>	This parameter allows defining the fluctuation above which the object is updated and re-sent on the bus.	1%, 2%, 3%, 5%, 7%, 10%, 15%. Default value: 5%.
Emission of object "background heating valve position in %" every: <sup>(5)</sup>	This parameter allows defining a minimum periodicity for the emission of the output object, even if there is no variation.	No emission, 2 min, 3 min, 5 min, 10 min, 15 min, 20 min, 30 min, 45 min, 60 min. Default value: 30 min.

<sup>(1)</sup>: The parameter is displayed only if the Room transmitter type parameter has the value: Electrical wall transmitter, Electrical floor heating or Customized setting.

<sup>(2)</sup>: The parameter is displayed only if the Room transmitter type parameter has the value: Hot water underfloor heating, Electrical floor heating, or Customized setting.

<sup>(3)</sup>: The parameter is displayed only if the Floor temperature limit parameter has the value: Authorized.

<sup>(4)</sup>: This parameter also acts implicitly upon the object "Supplementary heating valve position %".

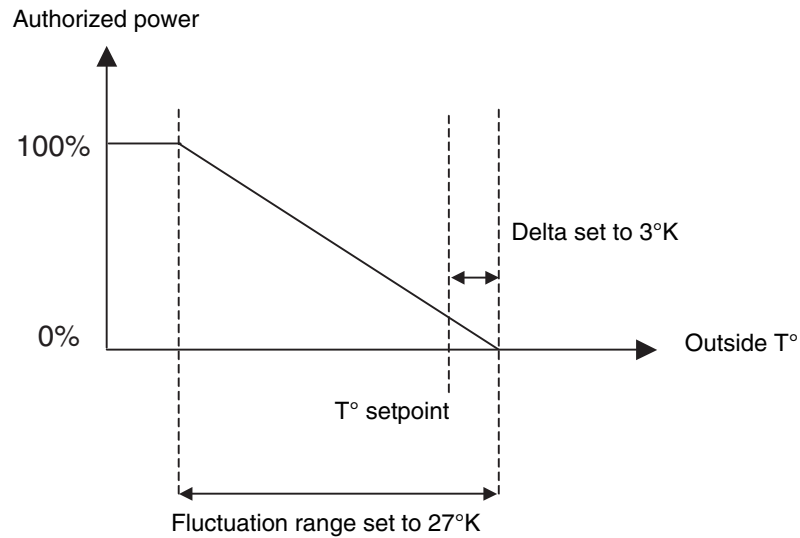
<sup>(5)</sup>: This parameter also acts implicitly upon the objects:

- "Supplementary heating valve position ON/OFF", "Supplementary heating valve position %"
- "Fan speed 1", "Fan speed 2", "Fan speed 3"
- "Background heating valve position ON/OFF", "Background heating valve position %"

**B. Outside temperature limit function**

The Outside temperature limit function is available in case of an electrical heating and for customized regulation. The function limits the called heating power according to the outside temperature. It is controlled by the Outside temperature object.

The heating power limitation curve according to the outside temperature for a fixed setpoint is shown on the following diagram:



Limitation example:

T° setpoint	Outside T°	Authorized power	Comment
20°C	25°C	0%	Maximum limitation
20°C	10°C	48%	/
20°C	-7°C	100%	Zero limitation

Calculation method:

Te: Outside temperature

Tc: Temperature setpoint

D: Delta of 3°K

P: Variation range of 27°K

If  $T_e \geq T_c + D$  THEN limitation is maximal (the heating output switches to the value 0% or OFF)

If  $T_e < (T_c + D) - P$  THEN limitation is zero

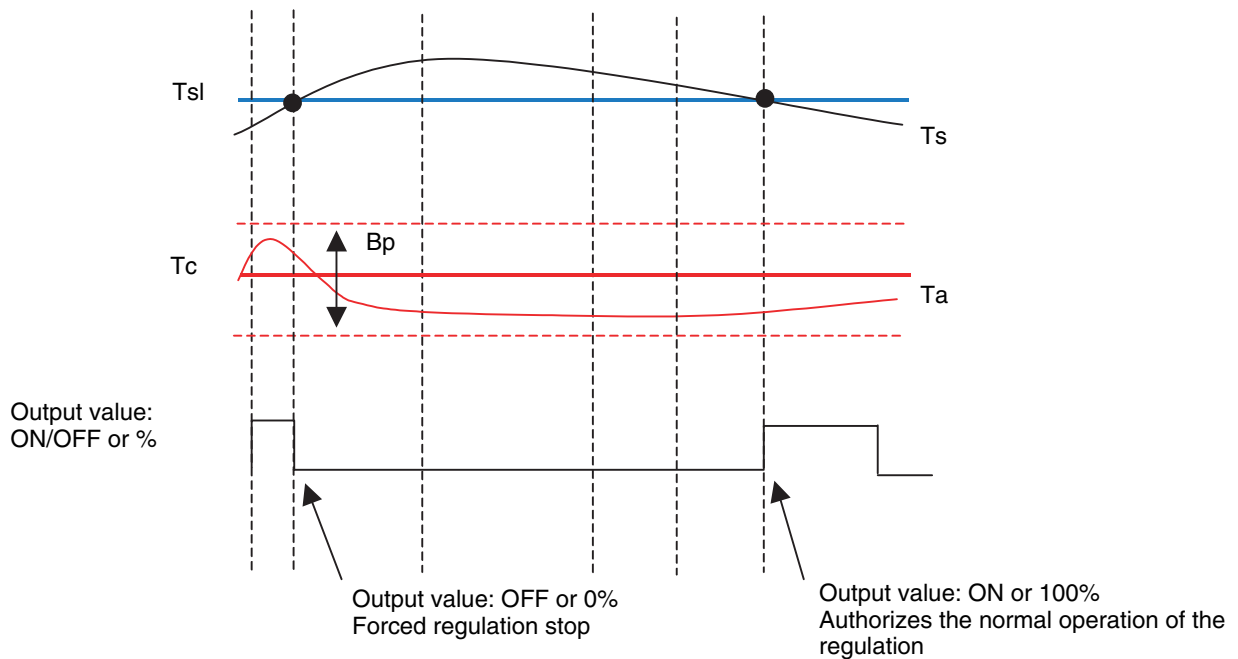
ELSE limitation is calculated according to the formula:  $\frac{(T_c + D) - T_e}{P}$

Note:

The Outside temperature limit function does not limit the power supplied by the supplementary heating.

### C. Floor temperature limit function

The Floor temperature limit function is available in case of heating floors (electrical or water) and for customized regulation. The function limits the called heating power according to the floor temperature. It is controlled by the Floor temperature object. The heating power limitation curve according to the floor temperature for a fixed setpoint is shown on the following diagram:



- Ts = Floor temperature
- Tsl = Upper floor temperature limit
- Tc = Temperature setpoint
- Ta = Ambient temperature
- Bp = Proportional band

**Notes:**

The Floor temperature limit function affects the ambient temperature. The Floor temperature limit function does not apply to the supplementary heating. Forcing the output to the OFF or 0% value is only possible for objects associated with the background heating.

### D. Mode function

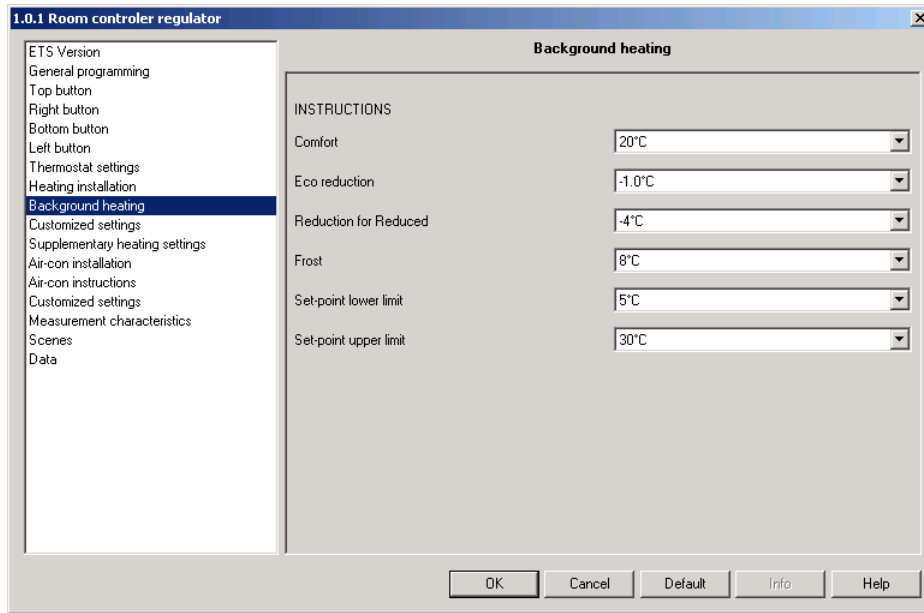
This function allows defining indirectly the heating temperature setpoints according to the modes: Comfort, Eco, Reduced, Protection.

The modes can be activated by the commands: Mode selection (Comfort, Eco,...), Priority, Timer-controlled Comfort, Scene, Protection, Magnetic contact.

			Comfort	Reduced	Economy	Protection
Objects (type, name and function)						
Input	Thermostat	Mode selection (Comfort, Eco,...)	X	X	X	X
	Thermostat	Priority	X			X
	Thermostat	Protection				X
	Thermostat	Timer-controlled Comfort	X			
	Thermostat	Scene	X	X	X	X
	Thermostat	Magnetic contact				X

It is also possible to define an upper and lower limit applicable to all setpoints, excepted to the Equipment protection setpoint.

→ Parameters



Screen 4

Designation	Description	Values
Comfort	This parameter allows defining the Comfort setpoint.	10°C to 30°C in 1°C steps. Default value: 20°C.
Eco reduction	This parameter allows defining the Eco setpoint by difference with the Comfort setpoint.	-0.5°C, -1.0°C, -1.5°C, -2.0°C, -2.5°C, -3.0°C, -3.5°C, -4.0°C. Default value: -1.0°C.
Reduction for Reduced	This parameter allows defining the Reduced setpoint by difference with the Comfort setpoint.	-2°C, -3°C, -4°C, -5°C, -6°C, -7°C, -8°C. Default value: -4°C.
Frost-free	This parameter allows defining the Frost protection setpoint.	5°C, 6°C, 7°C, 8°C, 9°C, 10°C, 11°C, 12°C. Default value: 8°C.
Set-point lower limit	This parameter allows defining a global lower limit for all setpoints, excepted the Frost protection setpoint.	5°C, 6°C, 7°C, 8°C, 9°C, 10°C, 11°C, 12°C, 13°C, 14°C, 15°C. Default value: 5°C.
Set-point upper limit	This parameter allows defining a global upper limit for all setpoints.	15°C, 16°C, 17°C, 18°C, 19°C, 20°C, 21°C, 22°C, 23°C, 24°C, 25°C, 26°C, 27°C, 28°C, 29°C, 30°C. Default value: 30°C.

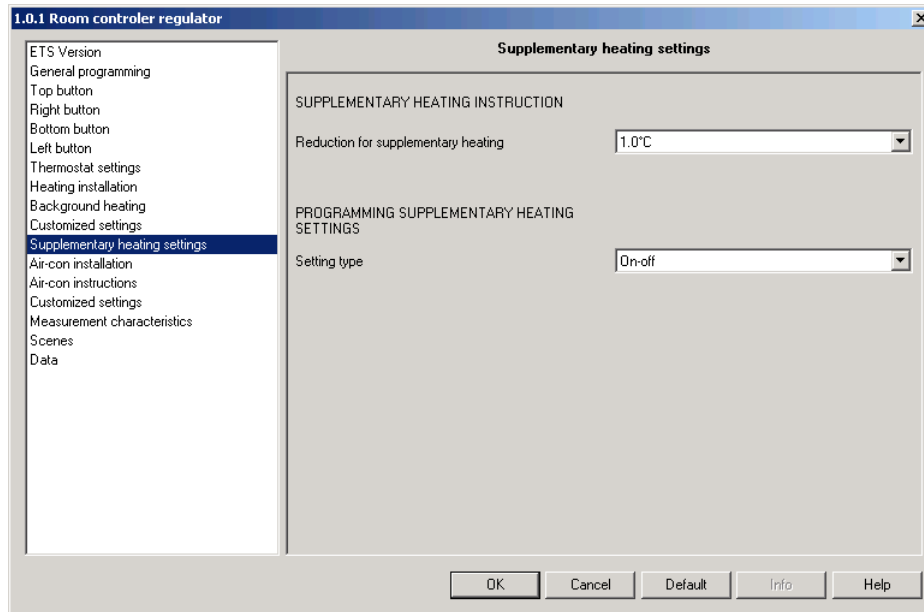
### E. Supplementary heating function

This function allows regulating the ambient temperature from a supplementary heating system.

The outputs for the supplementary heating are controlled by the Supplementary heating valve position % and Supplementary heating valve position ON/OFF objects.

→ Parameter Setting screen: See "Screen 3" and "Screen 5".

→ Parameters

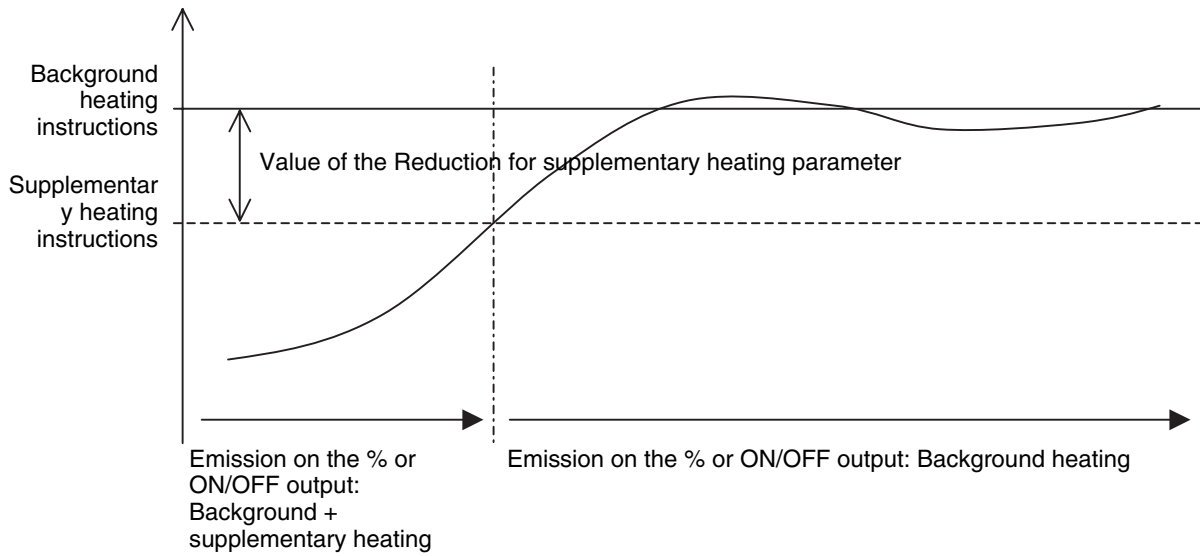


Screen 5

Designation	Description	Values
Reduction for supplementary heating	This parameter allows defining the regulation setpoint of the supplementary heating by difference with respect to the Comfort setpoint set in the "Background heating setpoint" tab..	1.0°C, 1.5°C, 2.0°C, 2.5°C, 3.0°C, 3.5°C, 4.0°C. Default value: 1.0°C
Regulation type	This parameter allows defining the regulation type of the supplementary heating.	On-off, Chrono proportional cycle. Default value: On-off.

These parameters are displayed only if the Supplementary heating parameter has the value: Authorized.

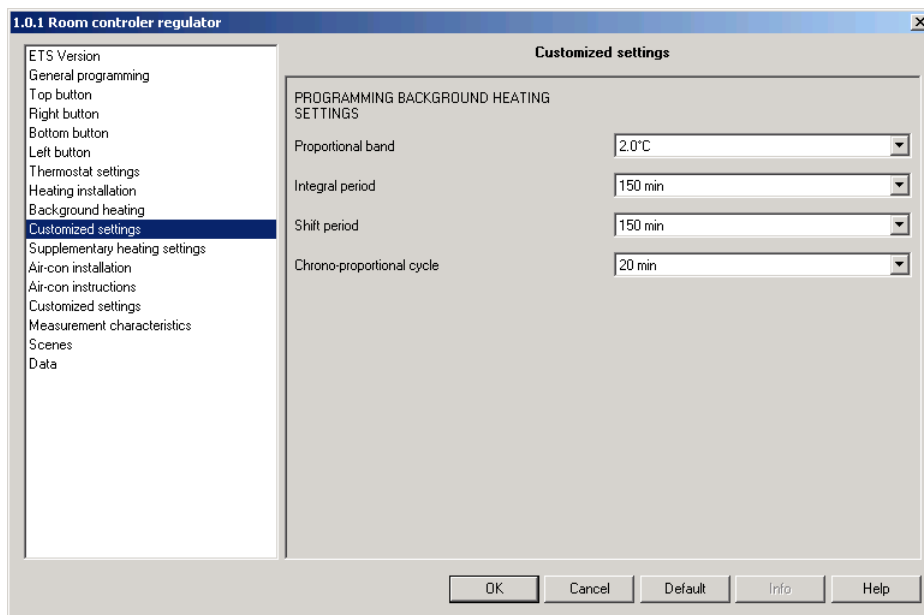
Diagram showing the operation of the regulation of the supplementary heating.



### F. Customized regulation function

This function allows customizing entirely the regulation loop of the background heating. This function can be used when the Room transmitter type parameter does not include the system really installed.

→ Parameters



Screen 6

Designation	Description	Values
Proportional band	This parameter allows defining the proportional band of the regulation loop (gain of the loop).	1.0°C to 8.5°C in 0.5°C steps Default value: 2.0°C.
Integral period	This parameter allows defining the integral correction period.	No correction, 15 min to 225 min in 15 min steps. Default value: 150 min.
Shift period	This parameter allows defining the shift correction period.	No correction, 15 min to 225 min in 15 min steps. Default value: 150 min.
Chrono-proportional cycle	This parameter allows defining the duration of the chrono-proportional command cycle.	5 min, 10 min, 15 min, 20 min, 25 min, 30 min, 35 min, 40 min, 45 min, 60 min, 75 min, 90 min. Default value: 20 min.

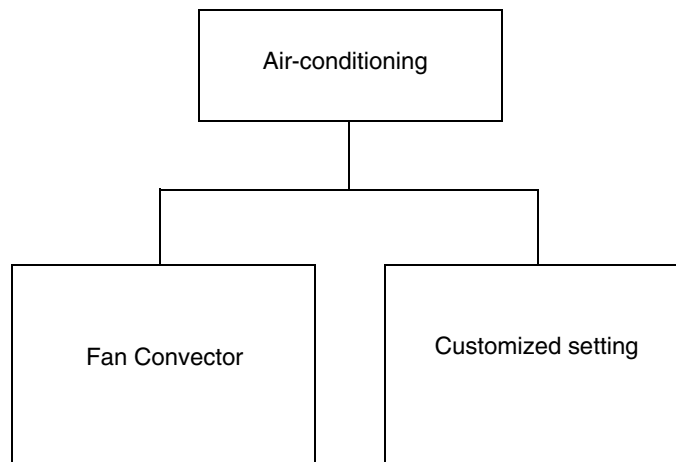
## 2.4 Air-conditioning function

The room controller and regulator allows controlling an air-conditioning installation:

- Fan Convector

The room controller and regulator allows controlling a customized installation. The following parameters are to be set:

- Proportional band
- Integral period
- Shift period
- Chrono-proportional cycle



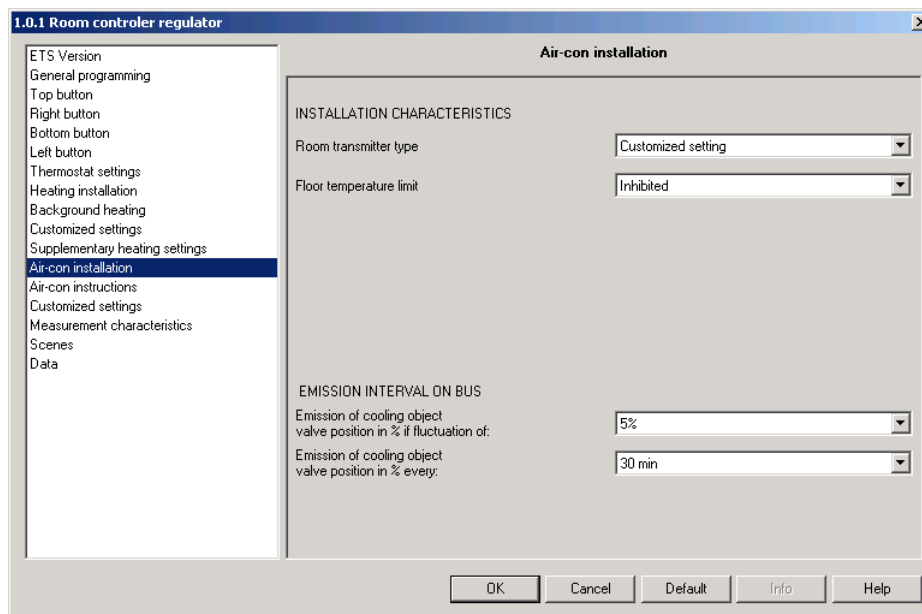
## A. Air-conditioning function

The air-conditioning outputs are controlled by the Air-conditioning Valve position % and Air-conditioning Valve position ON / OFF objects.

There is a power limitation function:

- Limitation according to the floor temperature: available in case of a customized regulation.  
The function limits the called cooling power according to the floor temperature.  
The Limitation function is controlled by the Floor temperature object.

→ Parameters



Screen 7

Designation	Description	Values
Room transmitter type	This parameter allows selecting the type of transmitter cooling the room.	Fan Convector, Customized setting. Default value: Fan Convector.
Floor temperature limit <sup>(1)</sup>	This parameter allows enabling or disabling the function of cooling limitation according to the floor temperature.	Authorized, Forbidden. Default value: Forbidden.
Floor temperature lower limit <sup>(2)</sup>	This parameter allows defining the lower floor temperature limit.	15°C to 30°C in 1°C steps Default value: 24°C.
Emission of object "cooling valve position in %" if fluctuation of: <sup>(3)</sup>	This parameter allows defining the fluctuation above which the object is updated and re-sent on the bus.	1%, 2%, 3%, 5%, 7%, 10%, 15%. Default value: 5%.
Emission of object "cooling valve position in %" every: <sup>(4)</sup>	This parameter allows defining a minimum periodicity for the emission of the output object, even if there is no variation.	No emission, 2 min, 3 min, 5 min, 10 min, 15 min, 20 min, 30 min, 45 min, 60 min. Default value: 30 min.

<sup>(1)</sup> The parameters are displayed only if the Room transmitter type parameter has the value: Customized setting.

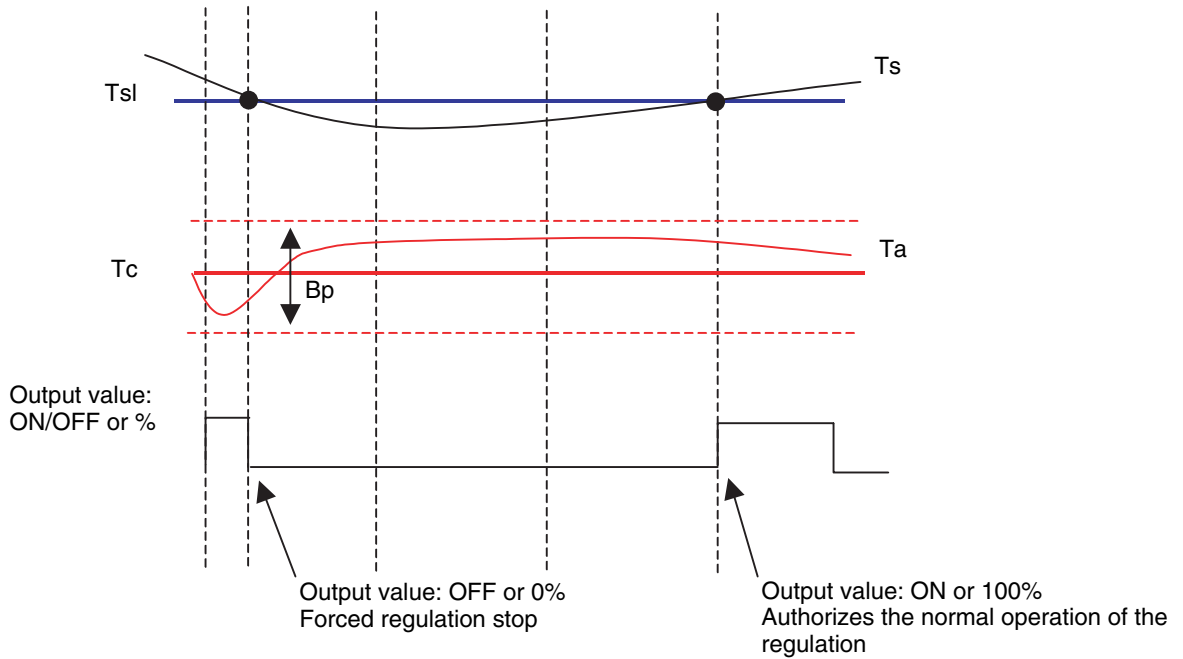
<sup>(2)</sup> The parameter is displayed only if the Floor temperature limit parameter has the value: Authorized.

<sup>(3)(4)</sup> This parameter also acts implicitly upon the objects:

- "Air-conditioning Valve position ON/OFF"
- "Fan speed 1", "Fan speed 2", "Fan speed 3"

**B. Floor temperature limit function**

The Floor temperature limit function is available in case of a customized regulation. The function limits the called cooling power according to the floor temperature. It is controlled by the Floor temperature object. The cooling power limitation curve according to the floor temperature for a fixed setpoint is shown on the following diagram:



- Ts = Floor temperature
- Tsl = Upper floor temperature limit
- Tc = Temperature setpoint
- Ta = Ambient temperature
- Bp = Proportional band

Notes:  
The activation of the Floor temperature limit function affects the ambient temperature.

**C. Mode function**

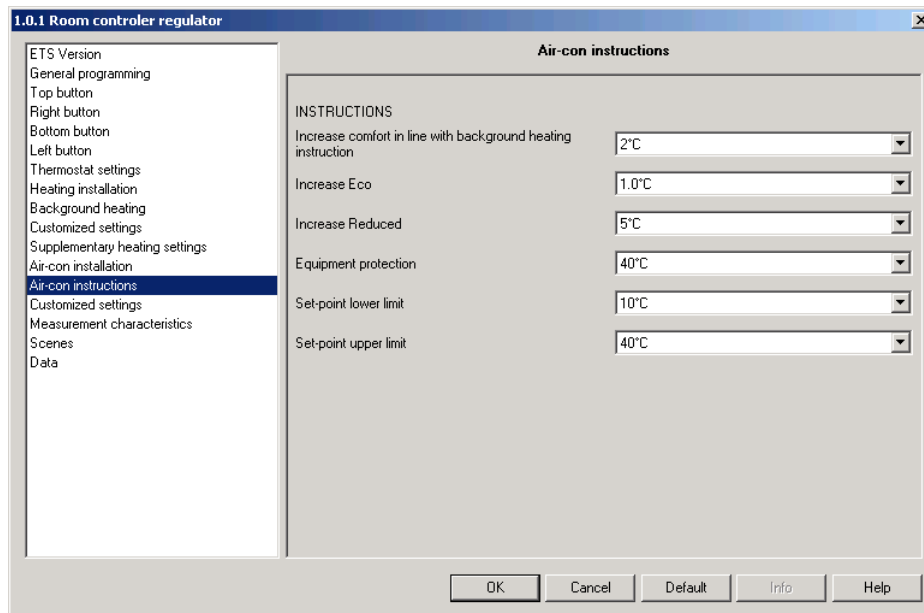
This function allows defining indirectly the air-conditioning temperature setpoints according to the modes: Comfort, Eco, Reduced, Equipment protection.

The modes can be activated by the commands: Mode selection (Comfort, Eco,...), Priority, Timer-controlled Comfort, Scene, Protection (warm, cold), Magnetic contact.

Objects (type, name and function)			Comfort	Reduced	Economy	Protection
Input	Thermostat	Mode selection (Comfort, Eco,...)	X	X	X	X
	Thermostat	Priority	X			X
	Thermostat	Protection (warm, cold)				X
	Thermostat	Timer-controlled Comfort	X			
	Thermostat	Scene	X	X	X	X
	Thermostat	Magnetic contact				X

It is also possible to define an upper and lower limit applicable to all setpoints, excepted to the Equipment protection setpoint.

→ Parameters



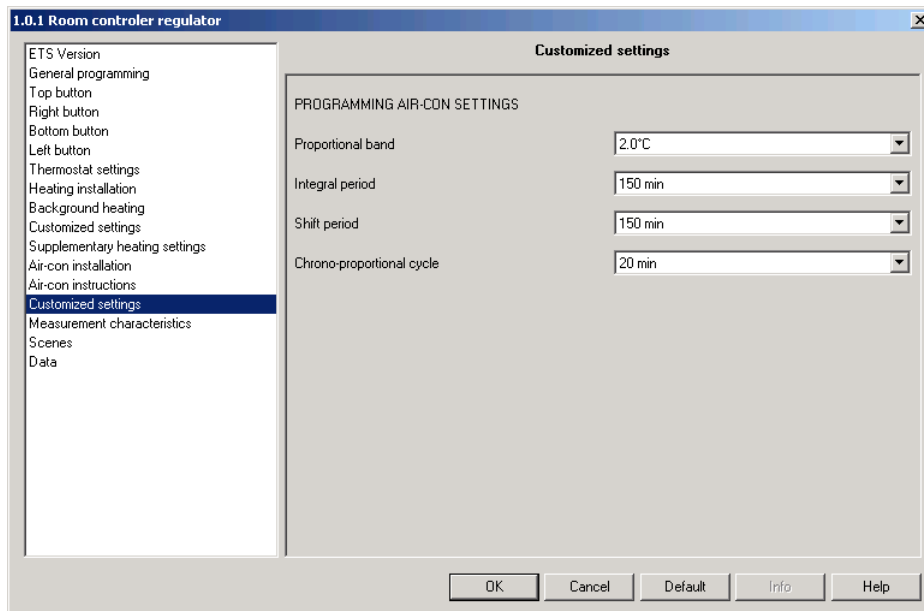
Screen 8

Designation	Description	Values
Comfort	This parameter allows defining the Comfort setpoint.	10°C to 30°C in 1°C steps. Default value: 20°C.
Increase Eco	This parameter allows defining the Eco setpoint by increase of the Comfort setpoint.	0.5°C to 4.0°C in 0.5°C steps. Default value: 1.0°C.
Increase Reduced	This parameter allows defining the Reduced setpoint by increase of the Comfort setpoint.	3°C to 8°C in 1°C steps. Default value: 5°C.
Equipment protection	This parameter allows defining the Equipment protection setpoint.	30°C to 40°C in 1°C steps. Default value: 40°C.
Set-point lower limit	This parameter allows defining a global lower limit for all setpoints.	10°C to 18°C in 1°C steps. Default value: 10°C.
Set-point upper limit	This parameter allows defining a global upper limit for all setpoints, excepted for the Equipment protection setpoint.	18°C to 40°C in 1°C steps. Default value: 40°C.

**D. Customized regulation function**

This function allows customizing entirely the regulation loop of the air-conditioning. This function can be used when the Room transmitter type parameter does not include the system really installed.

→ Parameters



Screen 9

Designation	Description	Values
Proportional band	This parameter allows defining the proportional band of the regulation loop (gain of the loop).	1.0°C to 8.5°C in 0.5°C steps Default value: 2.0°C.
Integral period	This parameter allows defining the integral correction period.	No correction, 15 min to 225 min in 15 min steps. Default value: 150 min.
Shift period	This parameter allows defining the shift correction period.	No correction, 15 min to 225 min in 15 min steps. Default value: 150 min.
Chrono-proportional cycle	This parameter allows defining the duration of the chrono-proportional command cycle.	5 min, 10 min, 15 min, 20 min, 25 min, 30 min, 35 min, 40 min, 45 min, 60 min, 75 min, 90 min. Default value: 20 min.

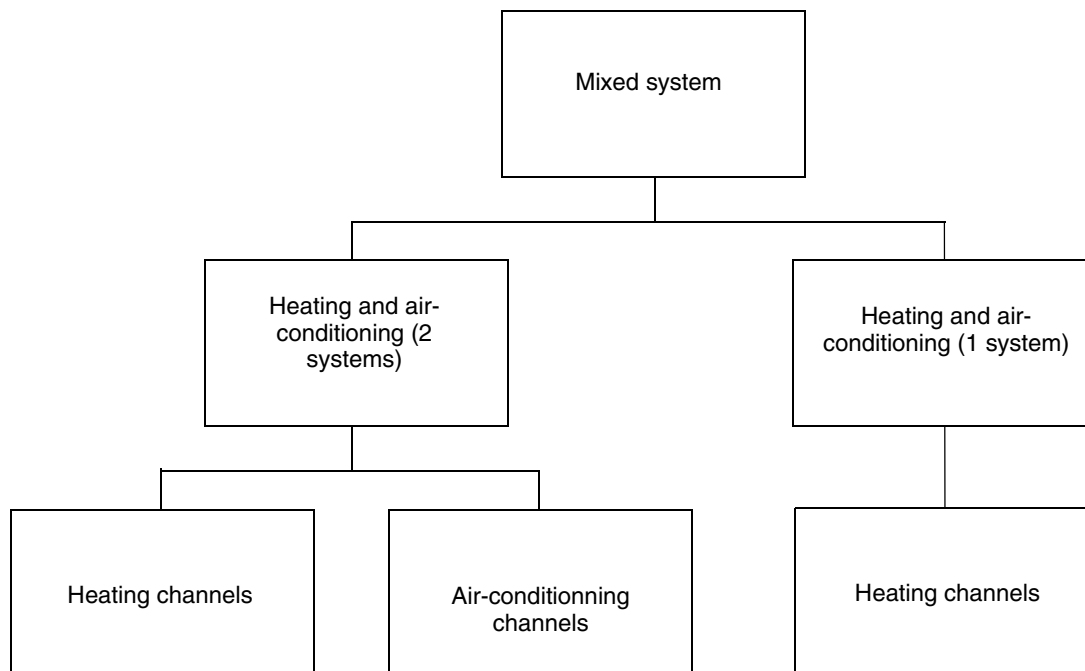
## 2.5 Mixed system function

The room controller and regulator allows controlling a mixed installation including a heating and an air-conditioning installation:

- Heating and air-conditioning installation (2 systems)
- Heating and air-conditioning installation (1 system)

In the first case, each system has its own distribution circuit. Thus, each system has its own outputs. A manual or automatic changeover is possible.

In the second case, both systems use the same distribution circuit. Both systems use the same outputs. These outputs are obligatorily heating outputs. A manual changeover is possible. The changeover is controlled by the Heating/Air-conditioning changeover object



### A. Changeover function

This function allows defining whether the changeover between the heating mode and the air-conditioning mode is manual or automatic. This function is displayed only if the Installation type parameter has the value: Heating and air-conditioning (2 systems).

→ Parameter Setting screen: See "Screen 2".

→ Parameters: refer to the table "Screen 2".

### B. Mode function (Heating)

See §2.3 "Heating functions", D. "Mode function".

→ Parameter Setting screen: See "Screen 4".

→ Parameters: refer to the table "Screen 4".

### C. Mode function (Air-conditioning)

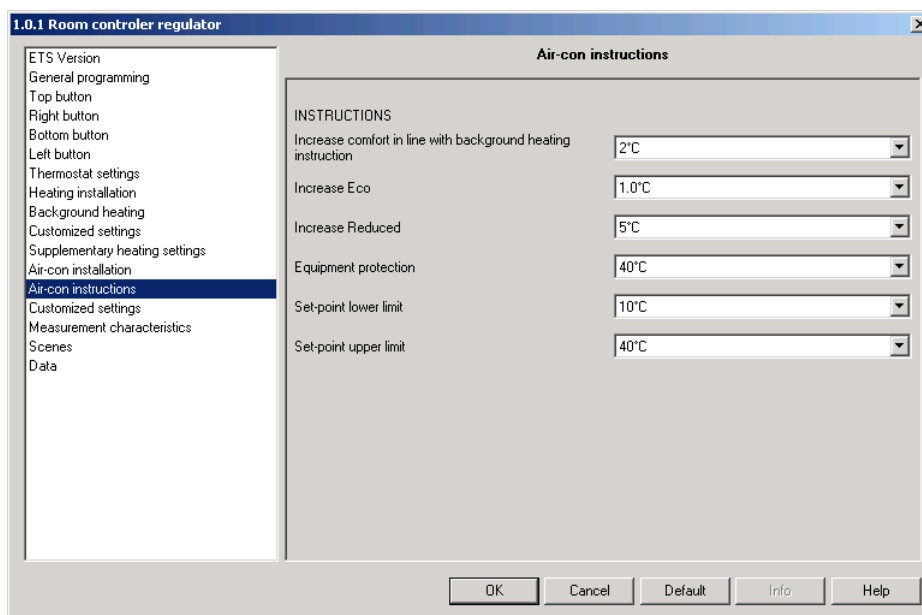
This function allows defining indirectly the air-conditioning temperature setpoints according to the modes: Comfort, Eco, Reduced, Equipment protection.

The Comfort setpoint is defined with respect to the Comfort setpoint of the heating (dead-band).

The modes can be activated by the commands: Mode selection (Comfort, Eco,...), Priority, Timer-controlled Comfort, Scene, Protection, Magnetic contact (See §2.4 "Air-conditioning function", C. "Mode function").

It is also possible to define an upper and lower limit applicable to all setpoints, excepted to the Equipment protection setpoint.

→ Parameters



Screen 10

<b>Designation</b>	<b>Description</b>	<b>Values</b>
Increase comfort in line with background heating instruction (dead-band)	This parameter allows defining the Comfort setpoint by increasing the Comfort setpoint set in the "Background heating setpoint" tab.	1°C to 6°C in 1°C steps. Default value: 2°C.
Increase Eco	This parameter allows defining the Eco setpoint by increasing the deduced Air-conditioning Comfort setpoint.	0.5°C to 4.0°C in 0.5°C steps. Default value: 1.0°C.
Increase Reduced	This parameter allows defining the Reduced setpoint by increasing the deduced Air-conditioning Comfort setpoint.	3°C to 8°C in 1°C steps. Default value: 5°C.
Equipment protection	This parameter allows defining the Equipment protection setpoint.	30°C to 40°C in 1°C steps. Default value: 40°C.
Set-point lower limit	This parameter allows defining a global lower limit for all setpoints.	10°C to 18°C in 1°C steps. Default value: 10°C.
Set-point upper limit	This parameter allows defining a global upper limit for all setpoints, excepted for the Equipment protection setpoint.	18°C to 40°C in 1°C steps. Default value: 40°C.

**D. Customized regulation function (Heating)**

See §2.3 "Heating functions", F. "Customized regulation function".

- Parameter Setting screen: See "Screen 6".
- Parameters: refer to the table "Screen 6".

**E. Customized regulation function (Air-conditioning)**

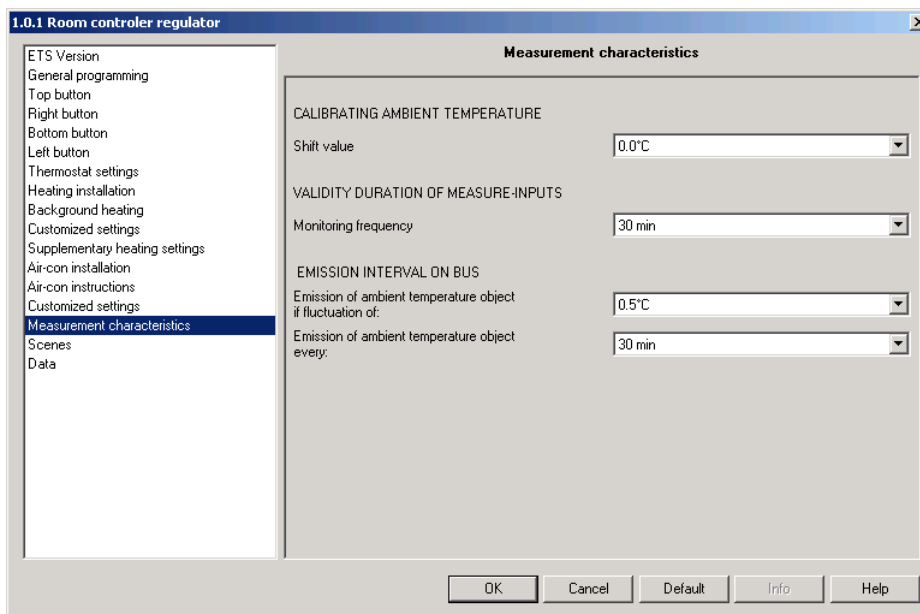
See §2.4 "Air-conditioning function", D. "Customized regulation function".

- Parameter Setting screen: See "Screen 9".
- Parameters: refer to the table "Screen 9".

## 2.6 Measurement characteristics function

This function allows calibrating the ambient temperature sensor, defining the measurement validity conditions and defining the emissions of the measurements on the bus.

→ Parameters



Screen 11

Designation	Description	Values
Shift value	This function allows calibrating the value of the temperature measured by the sensor with respect to another measuring device in the room.	-2.0°C to 2.0°C in 0.1°C steps. Default value: 0.0°C.
Monitoring frequency <sup>(1)</sup>	This parameter allows defining the duration above which the measurement inputs are considered invalid for the limitation functions. Valid for: - Outside temperature - Floor temperature	Unlimited, 2 min, 3 min, 5 min, 10 min, 15 min, 20 min, 30 min, 45 min, 60 min. Default value: 30 min.
Emission of object "status indication ambient temperature" if fluctuation of:	This parameter allows defining the fluctuation above which the object is updated and re-sent on the bus.	0.1°C, 0.2°C, 0.3°C, 0.5°C, 0.7°C, 1.0°C, 1.5°C, 2.0°C. Default value: 0.5°C.
Emission of object "status indication ambient temperature" every:	This parameter allows defining a minimum periodicity for the emission of the output object, even if there is no variation.	No emission, 2 min, 3 min, 5 min, 10 min, 15 min, 20 min, 30 min, 45 min, 60 min. Default value: 30 min.

(1) Without data reception during the time set and in case of failure of the measurement:

- of the floor temperature, the power limitation carried out by this object is stopped
- of the outside temperature, the power limitation carried out by this object is stopped and the outside temperature is not displayed any more on the display of the room controller and regulator.

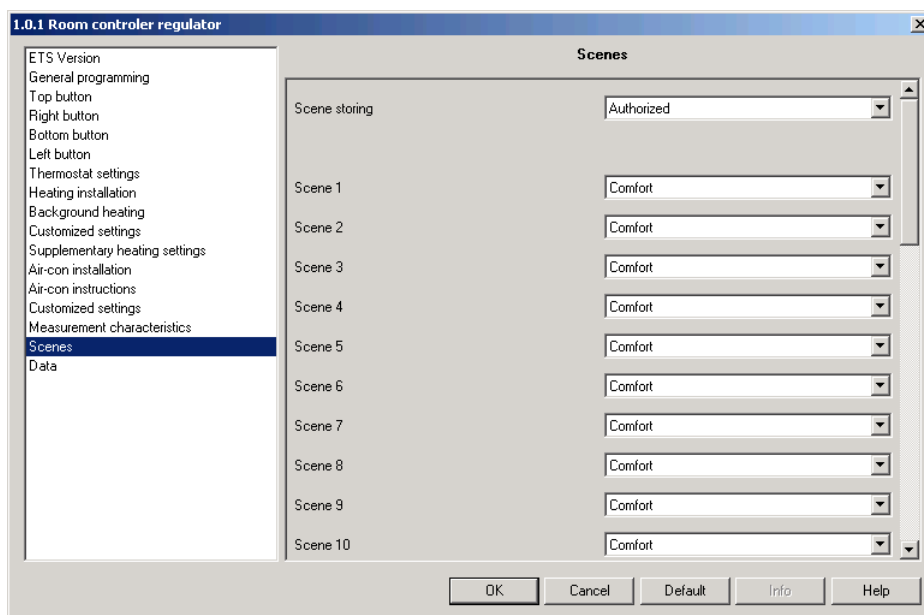
## 2.7 Scene function

The Scene function allows setting the thermostat in a predefined mode for a given scene. A scene is started by the Scene object. The group of outputs is created beforehand by establishing the link between the outputs that must belong to the scene and the pushbutton that will trigger the scene. One same output can belong to 32 different scenes. The status of each output may be defined by parameterising, by learning in the room using the pushbuttons of the installation or on the product.

→ Description of the Scene object

7	6	5	4	3	2	1	0
0 = Activation of a scene 1 = Storing of a scene	Not used	Scene number					

→ Parameters



Screen 12

Designation	Description	Values
Scene storing	This parameter authorizes or forbids the storing of the scene for all scenes.	Authorized, Forbidden. Default value: Authorized.
Scene X	This parameter allows defining the setpoint associated with the output.	Comfort, Eco, Reduced, Protection. Default value: Comfort.

### A. Learning and storing in the room

This procedure modifies and stores a scene by local action on the pushbuttons located in the room.

- Activate the scene by pressing briefly on the room pushbutton that triggers the scene.
- Define the mode (Comfort, Reduced,...) required for a desired scene number.
- Store the output statuses by pressing the room pushbutton that triggers the scene for longer than 5 s.

#### Notes:

It is impossible to activate a scene when the room controller and regulator is stopped or in Priority mode.

A scene may be modified on the product, in the room. Only the scenes 1 to 8 may be modified.

Only the ETS application allows associating to the scenes 1 to 32 a different mode (Comfort,...) for each scene.

The product in the room allows only configuring the scenes. A temperature setpoint or a mode may be associated.

### 3. Configuration and parameterising of the Pushbutton mode

#### 3.1 Objects List

Function \ Object name	ON/OFF	Toggle	Time-limited toggle switch	Timer	1-button dimmer	2-button dimmer	1-button shutters/blinds	2-button shutters/blinds	Heating / Air-conditioning	Priority	Scene	Value	2-channel mode, ON/OFF (ON or OFF)	2-channel mode, ON/OFF (Toggle)	2-channel mode, Value	General functions
ON/OFF	X	X			X	X										
Status display		X	X		X		X									
Time-limited toggle switch			X													
Timer				X												
Dim					X	X										
Stop/Angle							X	X								
Shutters/Blinds							X	X								
Setpoint selection									X							
Priority										X						
Scene											X					
Value												X				
ON/OFF Channel A													X	X		
ON/OFF Channel B													X	X		
Status indication, channel A														X		
Status indication, channel B														X		
Channel A value															X	
Channel B value															X	
Jamming	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

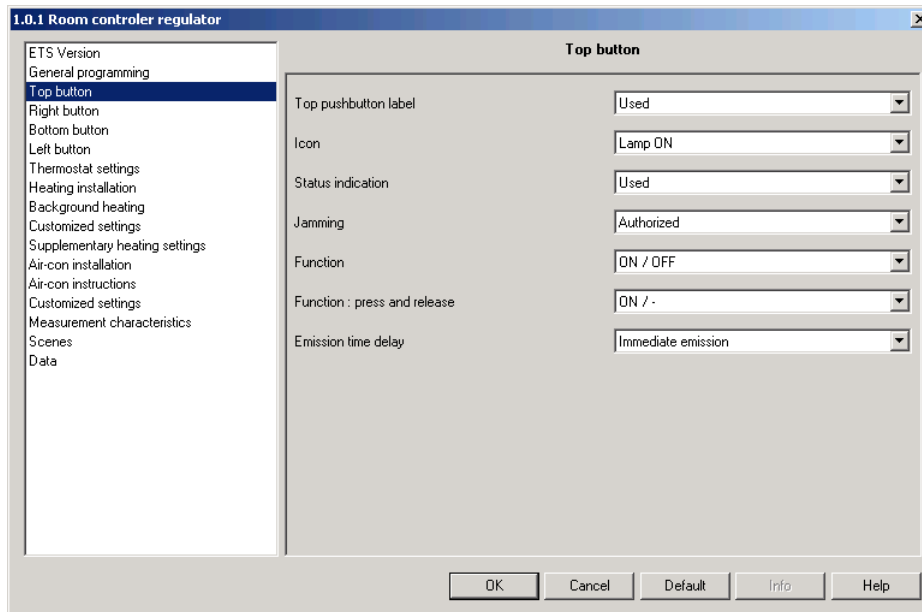
### 3.2 General setting of Pushbuttons parameters

■ Pushbutton selection

The 4 pushbuttons of the TX460 are identified by High, Right, Left and Low.

■ Function identification and status indication icon

→ Parameters



Screen 13

Designation	Description	Values
PB labels (High, Right, Left, Low)	This parameter defines whether an icon is associated with the pushbutton.	Used, Not used. Default value: Not used.
Icon*	Allows selecting the icon associated with the function of the pushbutton.	No icon, Lamp ON, Lamp OFF, Toggle, Timer ON, Dim, Up, Down, Shutters/Blinds, Timer, Comfort, Eco, Reduced, Protection, Auto, Priority, Shutters up, Shutters down, Shutter, Thermometer, Scene, "ON", "OFF". Default value: Lamp ON.
Status display*	Allows associating a status indication icon with the output controlled by the pushbutton.	Not used, Used. Default value: Not used.

\* This parameter is displayed only if the PB labels parameter has the value: Used.

■ Jamming

The Jamming function allows enabling the locking of a pushbutton. Jamming forbids sending commands. This function is started by the Jamming object.

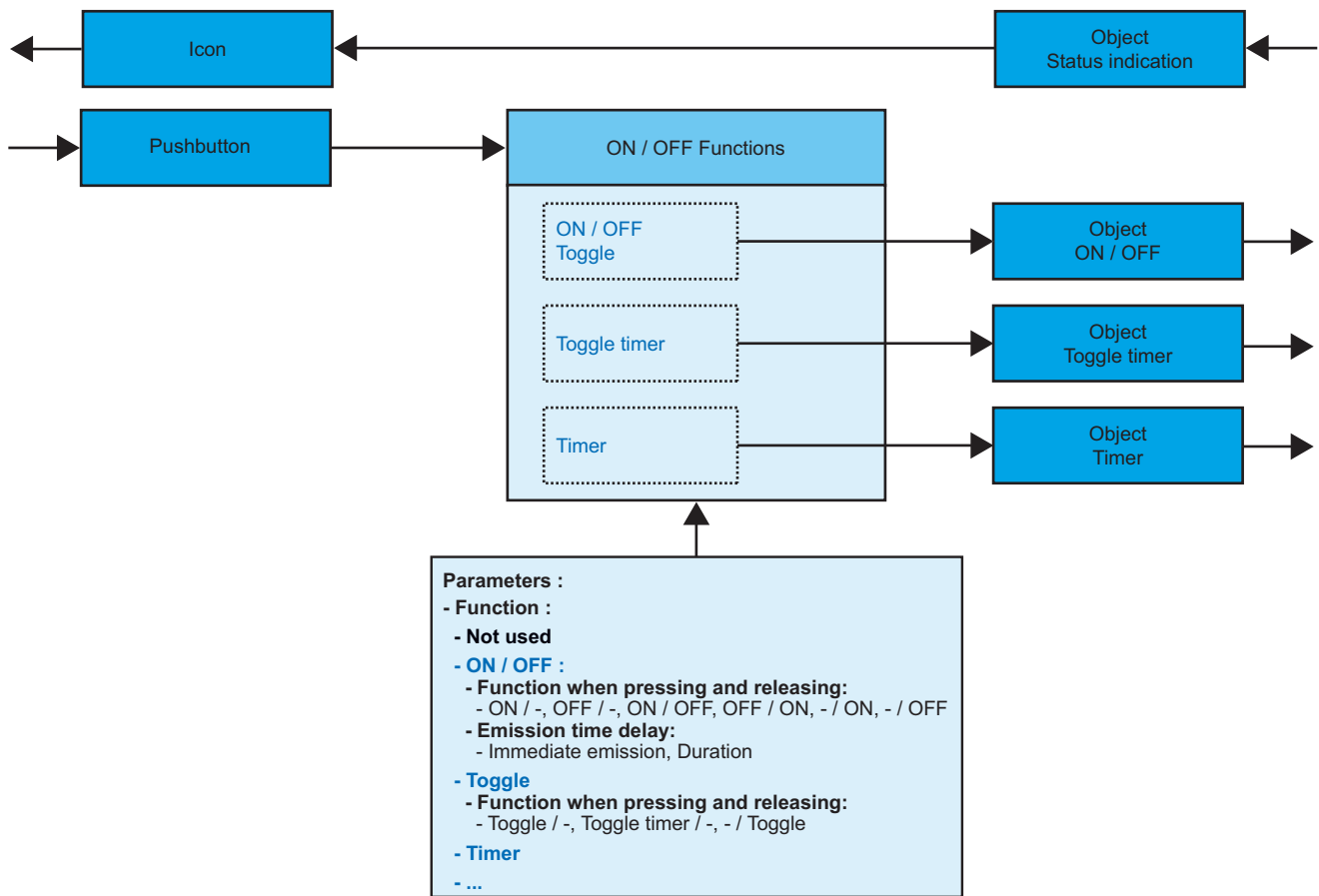
Designation	Description	Values
Jamming	This parameter allows blocking the use of the pushbutton.	Authorized, Forbidden. Default value: Forbidden.

■ Function

The Function parameter allows selecting the type of the function associated with a pushbutton.

**A. ON/OFF functions: ON/OFF, Toggle, Timer**

These functions allow switching ON or OFF a lighting circuit or any other load.  
 The ON/OFF and pushbutton functions are performed by sending the ON/OFF object.  
 The time delayed remote switch function is performed by sending the time delayed switch object.  
 The Timer function is performed by sending the Timer object.  
 The status of the controlled output is received on the Status indication object.  
 The available functions depend on the value of the parameters.



→ Parameter Setting screen: See "Screen 13".

→ Parameters

- ON/OFF

Designation	Description	Values
Function : press and release	This parameter defines the commands sent when the pushbutton is pressed and released.	ON/-, OFF/-, ON/OFF, OFF/ON, -/ON, -/OFF. Default value: ON/-.  Command when pressing / Command when releasing (" - " = No action).
Emission time delay	This parameter sends commands with a set delay in relation to pressing or releasing.	Immediate emission, 1 s, 2 s, 3 s, 5 s, 10 s, 15 s, 20 s, 25 s, 30 s, 40 s, 50 s, 1 min, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 3 min 30 s, 4 min, 4 min 30 s, 5 min. Default value: Immediate emission.

- Toggle

Designation	Description	Values
Function : press and release	This parameter defines the commands sent when the pushbutton is pressed and released.	Toggle / -, Time delayed remote switch / -, -/Toggle. Default value: Toggle / -. Command when pressing / Command when releasing (" - " = No action).

### B. Dimming function

This function allows dimming a light using one or two pushbuttons.

The ON/OFF function emits the ON/OFF object (short key-press).

The Dimming function emits the Dim object (long key-press).

→ Parameter Setting screen: See "Screen 13".

→ Parameters

Designation	Description	Values
Choice of function	This parameter selects the utilization mode: 1 button or 2-button dimmer.	1-button dimmer, 2-button dimmer. Default value: 1-button dimmer.
Dimming direction*	This parameter defines the dimming direction associated to the button.	Increase, Decrease. Default value: Increase.

\* This parameter is only visible if the parameter "Function" has the value: 2-button dimmer.

### C. Roller shutters / Blinds function

This function controls shutters or a blind using one or two pushbuttons.

The Up/Down function emits the Up/Down object (press for a long time).

The Stop/Angle function emits the Stop/Angle object (press briefly).

→ Parameter Setting screen: See "Screen 13".

Designation	Description	Values
Choice of button function	This parameter selects the utilization mode: 1 button, 2 buttons, 2 buttons Safety.	1-button shutters/blinds, 2-button shutters/blinds, 2-buttons Safety Shutters / Blinds. Default value: 1-button shutters/blinds.
Control type*	This parameter defines the movement direction associated to the button.	Up, Down. Default value: Up.

\* This parameter is only visible if the parameter "Function" has the value: 2-button shutters/blinds or 2-buttons Safety Shutters / Blinds.

**D. Heating / Air-Conditioning function**

This function allows selecting a heating or air-conditioning setpoint from a pushbutton. The Heating/Air-conditioning function emits the Mode selection (Comfort,...) object.

→ Parameter Setting screen: See "Screen 13".

Designation	Description	Values
Choice of button function	This parameter selects the setpoint associated to the button.	Comfort, Eco, Reduced, Protection, Auto. Default value: Comfort.

**E. Priority function**

The priority function sends priority-start or priority-stop commands.

The Priority action depends on the type of application controlled: Lighting, Blinds / shutters, Heating / Air-conditioning, etc. The Priority function emits the Priority object.

→ Parameter Setting screen: See "Screen 13".

Designation	Description	Values
Priority type	This parameter selects a Priority type. It depends on the type of application.	Priority ON, Priority OFF. Default value: Priority ON.

**F. Scene function**

The Scene function sends group controls to different kinds of outputs to create ambiances or scenarios (leaving home scenario, reading ambience, etc.).

The Scene function emits a Scene object.

→ Parameter Setting screen: See "Screen 13".

Designation	Description	Values
Scene number	This parameter defines the scene number.	Scene 1 to Scene 32. Default value: Scene 1.
Emission time delay	This parameter allows sending the commands with a parameterisable delay in relation to the key-press.	Immediate emission, 1 s, 2 s, 3 s, 5 s, 10 s, 15 s, 20 s, 25 s, 30 s, 40 s, 50 s, 1 min, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 3 min 30 s, 4 min, 4 min 30 s, 5 min. Default value: Immediate emission.
Scenes modification via long key-press	This parameter authorizes or forbids scene storing.	Authorized, Forbidden. Default value: Authorized.

**G. Value function**

The Value function allows the command of a luminosity level, a temperature, an illumination value, etc.  
The Value function emits a Value object.

→ Parameter Setting screen: See "Screen 13".

Designation	Description	Values
Value type	This parameter defines the type of value sent.	Value in %, Temperature, Brightness level, Illumination value, 2-octet value. Default value: Illumination value.
Value	This parameter defines the value to be sent to the bus.	Possible values: Value in % 0% to 100% in 1% steps. Default value: 0%. Temperature 0°C to 40°C in 0.5°C steps. Default value: 20°C. Brightness level 0 lux to 1000 lux in 50 lux steps. Default value: 300 lux. Illumination value 0% to 100% in 1% steps. Default value: 0%. 2-octet value 0 to 65535 in 1 steps. Default value: 0.

**H. 2-channels ON/OFF mode function**

The 2-channel mode function allows controlling, with the same pushbutton, two independent circuits having different functions.  
The 2-channel mode function emits the ON/OFF channel A and ON/OFF channel B objects.

→ Parameter Setting screen: See "Screen 13".

Designation	Description	Values
Channel A function (short key-press)	This parameter defines the command sent by a short key-press.	ON, OFF, Toggle. Default value: Toggle.
Channel B function (long key-press)	This parameter defines the command sent by a long key-press.	ON, OFF, Toggle. Default value: ON.

The duration of the long key-press is defined by the Duration of long key-press 2-channel mode parameter of the 13 display.

Designation	Description	Values
Duration of long key-press 2-channel mode	This parameter defines the duration of the long key-press for the emission of the command on channel B.	500 ms, 1 s up to 10 s in 1 s steps. Default value: 5 s.

**I. 2-channels mode value function**

The 2 channels mode value function allows sending a value associated with a short key-press and a value associated with a long key-press.

The 2 channels mode value function emits the Value, Channel A and the Value, Channel B objects.

→ Parameter Setting screen: See "Screen 13".

Designation	Description	Values
Value type on channel A (short key-press)	This parameter defines the nature of the value sent on Channel A.	Value in %, Temperature, Brightness level, Illumination value, 2-octet value. Default value: Illumination value.
Value, Channel A	This parameter defines the value to be sent to the bus.	Possible values:  Value in % 0% to 100% in 1% steps. Default value: 0%.  Temperature 0°C to 40°C in 0.5°C steps. Default value: 20°C.  Brightness level 0 lux to 1000 lux in 50 lux steps. Default value: 300 lux.  Illumination value 0% to 100% in 1% steps. Default value: 0%.  2-octet value 0 to 65535 in 1 steps. Default value: 0.
Value type on channel B (long key-press)	This parameter defines the nature of the value sent on Channel B.	Value in %, Temperature, Brightness level, Illumination value, 2-octet value. Default value: Illumination value.
Value, Channel B	This parameter defines the value to be sent to the bus.	Possible values:  Value in % 0% to 100% in 1% steps. Default value: 0%.  Temperature 0°C to 40°C in 0.5°C steps. Default value: 20°C.  Brightness level 0 lux to 1000 lux in 50 lux steps. Default value: 300 lux.  Illumination value 0% to 100% in 1% steps. Default value: 0%.  2-octet value 0 to 65535 in 1 steps. Default value: 0.

The duration of the long key-press is defined by the Duration of long key-press 2-channel mode parameter of the 13 display.

Designation	Description	Values
Duration of long key-press 2-channel mode	This parameter defines the duration of the long key-press for the emission of the command on channel B.	500 ms, 1 s up to 10 s in 1 s steps. Default value: 5 s.

## C. Main characteristics

Max. number of group addresses	254
Max. number of links	255
Objects	76

## D. Physical addressing

To perform physical addressing or to check for the presence of the bus, remove the front side and press the pushbutton located on the BCU.

Indicator on = bus presence and product in physical addressing.

The product remains in physical addressing until the physical address has been transmitted by ETS. Press again to exit physical addressing mode.

Physical addressing may be performed in Auto or Manual (☞) mode.

NOTA

