Graphic controller

MEKBUS

V0.4

PROGRAMMING MANUAL

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1 GENERAL DESCRIPTION

The MEKBUS is a 4,3" color touch screen to control and monitor elements in a KNX installation.

Two models available:

- Resistive: MEKBUS
- Capacitive: MEKBUS-G

Designed to replace conventional switches and push-buttons, it allows to include 4 different pages to locate icons upon 3D drawings, plans, pictures, etc. and to control up to 20 installation points and to execute up to 20 programmable scenes by those allusive icons.

Characteristics:

- 4 different pages to locate icons upon 3D drawings, plans, pictures, etc.
- 20 point to point controls with different representative icons (lights, blinds, climate control, etc.)
- 20 scenes execution with a maximum of 64 events each.
- Up to 10 weekly timing programming
- Possibility to arm / disarm alarm and to activate presence simulation.
- Possibility of managing an independent climate area adding a temperature sensor (ref: STIBUS-SD) in the microSD slot
- Real presence simulation.
- Programmable from a specific application trough microSD card (2GB máx. FAT16 format).

2 TECHNICAL DESCRIPTION

2.1 MEKBUS

4,3" COLOR RESISTIVE TOUCH SCREEN

- **Supply** - 29 Vcc from auxiliary power supply or from KNX BUS.
- **Consumption** (depends on source):
    - Auxiliary Power Supply 18-30Vdc (Recommended)
        - 80 mA from auxiliary power supply.
        - 1mA from KNX BUS
    - KNX BUS (Optional)
        - 80mA from KNX BUS
- **Size** – 145x86x10mm.
- **Mounting** - On universal distribution box, screwed on wall.
- **Programming card** - MicroSD 2GB max. FAT16 format.

2.2 MEKBUS - G

4,3" COLOR CAPACITIVE TOUCH SCREEN

- **Supply** - 29 Vcc from auxiliary power supply or from KNX BUS.
- **Consumption** (depends on source):
    - Auxiliary Power Supply 18-30Vdc (Recommended)
        - 80 mA from auxiliary power supply.
        - 1mA from KNX BUS
    - KNX BUS (Optional)
        - 80mA from KNX BUS
- **Size** – 129x88x4mm (13 mm depth).
- **Mounting:**
    - Surface. Flush mounting with box (included)
    - On universal distribution box, screwed on wall
    - Easily mounting on plasterboard wall
- **Programming card** - MicroSD 2GB max. FAT16 format.

Remarks

Feed low voltage lines (BUS and inputs) in separate ducting to that of power (230V) and outputs to ensure there is enough insulation and avoid interferences.

Do not connect the main voltages (230 V) or any other external voltages to any point of the BUS.

3 OPERATION MODES

In the main window of the MEKBUS you can have up to 4 different pages, with point to point icons that control lights, blinds, etc. individually or scenarios: a group of actions that are executed simultaneously.

3.1 PAGES

Main window shows pages that you have included in your project (3D drawings, plans, pictures, etc.). 4 pages maximum.

Over those pages, you can find icons linked to point to point controls or to events. All of them should be programmed using the application we will see in 4 Device programming

If the project has more than one page, you can shift between them by simply dragging your finger left or right, depending which page you want to display.

If you drag from right to left will change to the next page.

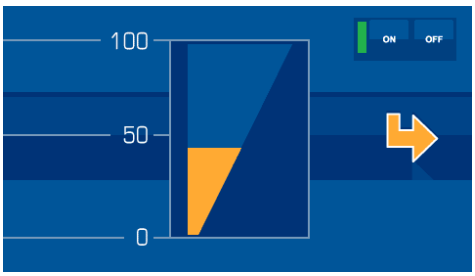
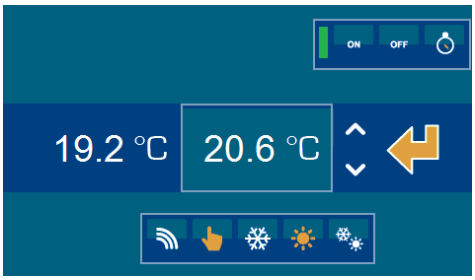
If you drag from left to right will change to the previous one.

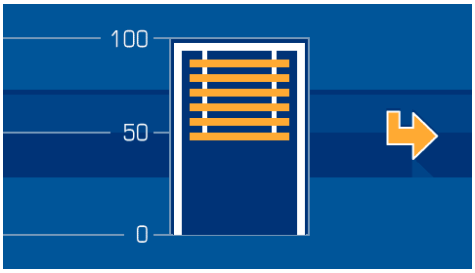
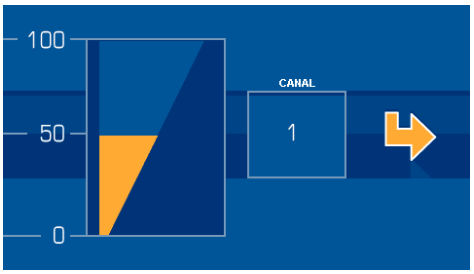
Below are some of the most common controls which are possible to include in the installations.

3.1.1 POINT TO POINT

The point to point row (upper one) allows to select up to 16 elements of the installation to be controlled individually. The following icons are available:

	On / Off lightning: activate or deactivate the lightning of a zone (name indicated below) and shows the actual state of the light.

	
	*Dimmer lightning*: This icon shows the different lightning level. The level desired can be set by pressing it. Use the arrow icon to return to the main menu. 
	*Thermostat*: By pressing this icon we access to a window that shows the actual temperature value (left) and the desired value (right). Slide the finger up and down to increase or decrease the set value. Use the arrow icon to return to the main menu. Use the buttons below to set the operation mode of the thermostat (winter mode, summer mode, mixed, etc.) 
	*Pushbutton*: By pressing this icon can be changed the state of any on / off output of the installation.
	*Climate:* By pressing this icon can be changed the state of any on / off output of the installation.
	*Flooding*: By pressing this icon can be changed the state of any on / off output of the installation.
	*Watering*: By pressing this icon can be changed the state of any on / off output of the installation.

	*Blind control*: This icon shows the state of a blind. By pressing it we access to a window that allows to set the blind position by sliding up and down the finger. Use the arrow icon to return to the main menu. 
	*Sound control*: By pressing this icon we access to a new window that allows to set the volume and select the channel of a SoniBUS. Press over the channel box to change it and slide the finger up and down to increase or decrease the volume. Use the arrow icon to return to the main menu. 

The available functions depend on the user's needs and can vary by programming.

3.1.2 SCENES

Each scene is a group of actions that are executed simultaneously. These scenes can only be configured by programming.

A scene will be executed by pressing the corresponding icon (name of the scene indicated below). The icon will remain on while the scene is in execution.

For example, a usually programmed scene is one to control every light or every blind in the house. By pressing the scene called “ALL OFF” we can switch off every light of the house so it is not necessary to switch off each room individually or by pressing the scene “ALL DOWN” we can close every blind.

The available scenes depend on the user’s needs and can vary by programming.

3.2 MENU

There is another window with fixed icons that is used to manage the intrusion alarm, program timings, activate or deactivate the presence simulation and to set date and hour. Press and slide up to access to this menu. To come back to the pages control, press and slide down.

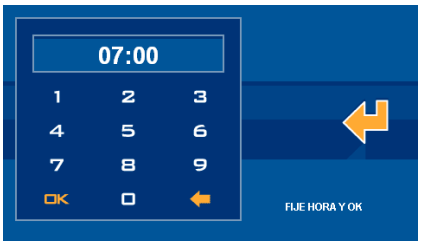
The appearance of this menu will be:

Next paragraphs contain explanations for each tool.

3.2.1 TIMINGS

The timings allow to set the day and hour of the week when the MEKBUS executes any scene. We can program up to 10 timings per week. Press the corresponding icon to show the timings menu.

First, select the number of timing to use and the scene that will be scheduled (they must be programmed before) with left and right arrows in the top right corner of the screen. Then, press over the hour to set the hours and minutes of execution with the keyboard.



Note: The hour is in 24h format.

After that, select the days of the week in the bottom of the screen just by pressing on them to activate and deactivate. The initial indicates that the day is activated and the scene will be executed and a hyphen indicates that it is deactivated for this day. Finally, activate or deactivate the timing by pressing over the clock on the left. If the clock is on it indicates that the scene is scheduled and will be executed.

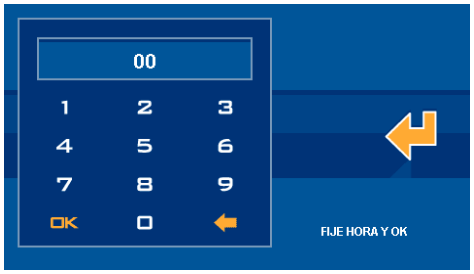
When there is any timing scheduled for the current day, the small clock on the bottom right corner of the screen will remain on.

Press enter to go back to the options menu.

3.2.2 DAY AND HOUR

The MEKBUS is a device that does not keep the hour exactly by itself, it requires an RTC (real time clock) to update the hour when it is rebooted. In case of do not having it in the installation, it is possible to set the day and hour manually from this menu.

Press and hold for some seconds over the hour, minutes or seconds to set a new value with the keyboard.



Note: The hour is in 24h format.

The day of the week can be change in the same way. Press and hold to set a new day with the keyboard, where the number 0 is Sunday and 6 is Saturday.

Note: When the device is disconnected from the power supply it is necessary to set the day and hour manually. If the installation incorporates the Ingenium RTC it is done automatically (see the RTC documentation for further information).

Press over any point of the screen to go back to the main menu.

3.2.3 INTRUSION ALARM

This icon shows the intrusion alarm menu where the alarm can be activated or deactivated from. The MEKBUS can manage up to 4 different zones.

Activation / Deactivation

Firs, select the zone to be activated by the right and left arrows on the top of the screen and then press over the text “press to arm” at the bottom of the screen.

Enter the password with the keyboard and press ok to validate. Each zone can be activated or deactivated with 5 different codes, which are initially configured as:

- Code 1: 1111 (minimum priority)
- Code 2: 2222
- Code 3: 3333
- Code 4: 4444
- Code 5: 5555 (maximum priority)

To activate or deactivate the intrusion alarm, enter a code which could be any of the them. Take into account that the codes are prioritized, where code 1 is minimum priority and 5 is the maximum. For example, if the alarm is activated by the code 4 it can only be deactivated by an equal of higher code (4 or 5).

While the alarm is being activated, the small man at the bottom right corner of the screen is blinking. When the screen receives the activation confirmation (after 30 seconds typically) it remains on.

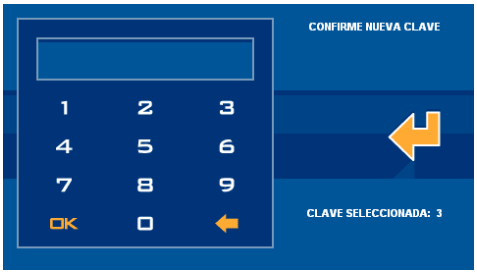
Press enter to go back to the options menu.

Password change

Press and hold over the man on the left in the intrusion menu to change the activation passwords.

To change any password, the screen requires first to enter the highest priority password (administrator).

Then, select the level of password to be changed by pressing form 1 to 5 on the keyboard and enter the new one twice to confirm it. If the level selected is 5, you will change the administrator code.



3.2.4 PRESENCE SIMULATION

The presence simulation allows to copy the last actions done by the customer and reproduces them as if there were people at home, switching on and off the lights, raising the blinds, etc.

Press over this icon to show the presence simulation menu and activate it by entering any intrusion code and pressing ok with the keyboard.

When it is activated, any code is required to deactivate it, just press the screen.

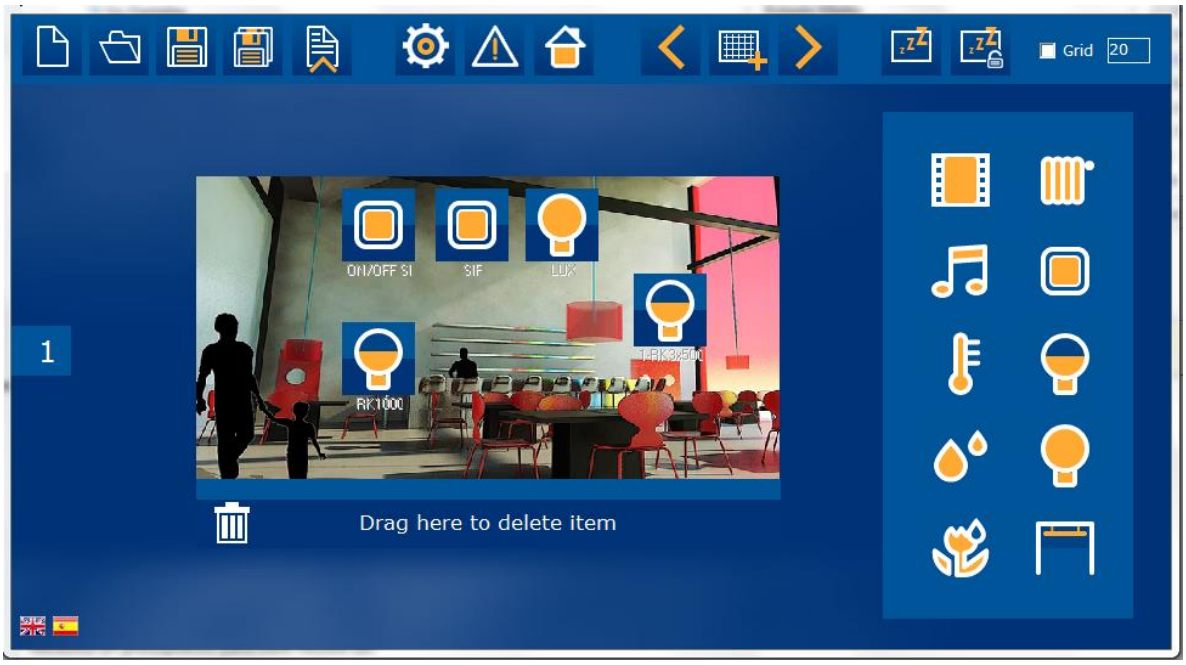
When the presence simulation is activated, the small house icon on the bottom right corner of the screen will remain on.

Press enter to go back to the options menu.

4 DEVICE PROGRAMMING

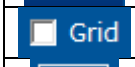
MEKBUS touch screen is programmed by a specific application and the project upload will be done using a microSD card (2GB maximum and FAT16 format).

The screen can have up to 4 plans where the programmer can locate icons at any position. Just doing click over the icon on the right area to insert it and then place it with the left button anywhere. Each icon can execute its functions, on/off, dimming, scenes, etc. Click and drag any icon to the trash to delete it.



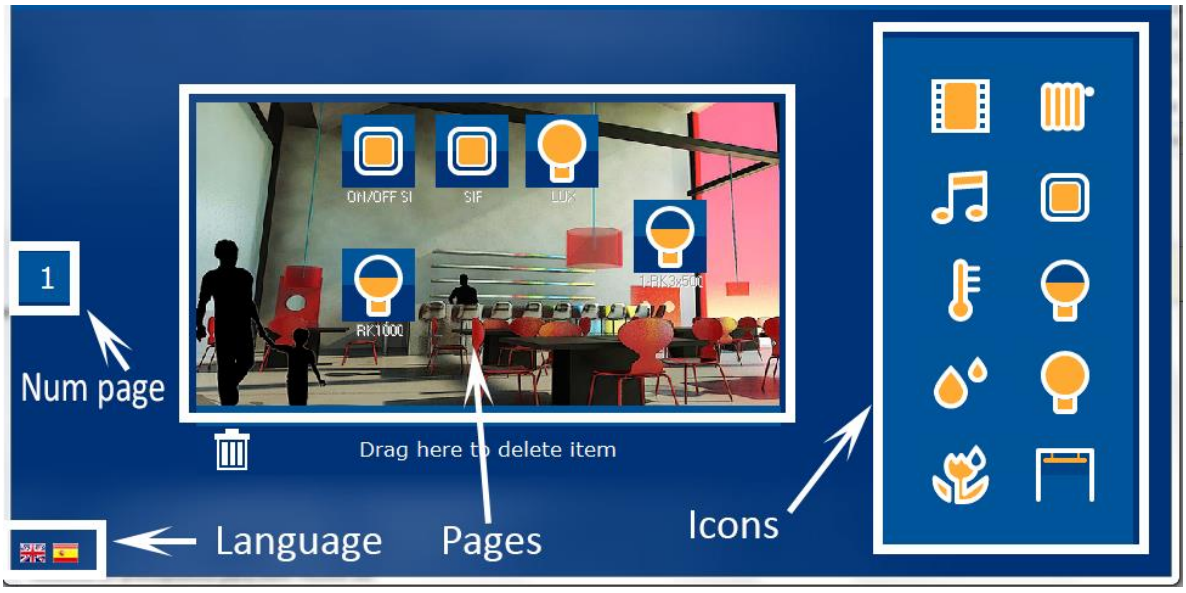
In the main window of the programming application there is an upper tool bar with the following buttons:

	*New*: Create a new programming project.
	Open: Open a previously saved programming project.
	*Save:* Saves every change done in the actual project.
	*Save as*: Save the actual project with the name specified.
	*Project download*: Exports the project to the microSD card for download it to the screen.
	*Screen options.* Different MEKBUS editable settings
	*Intrusion alarm*

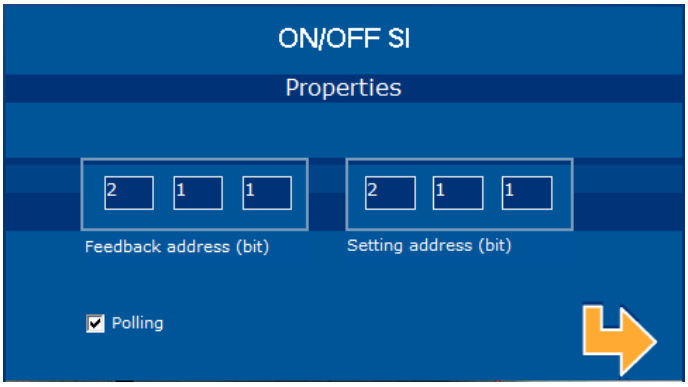
	*Presence simulation and technical alarms*
	*Previous plan.*
	*Load plan:* Load a background picture (470x272ppp in .bmp format)
	*Next plan.*
	*Screensaver:* Load a picture for the screensaver.
	*Block:* Load a picture to show when the screen is locked.
	*Grid:* Enables/Disables the grip for the icon positioning.
	*Grid value.*

Rest main interface area, include next options:

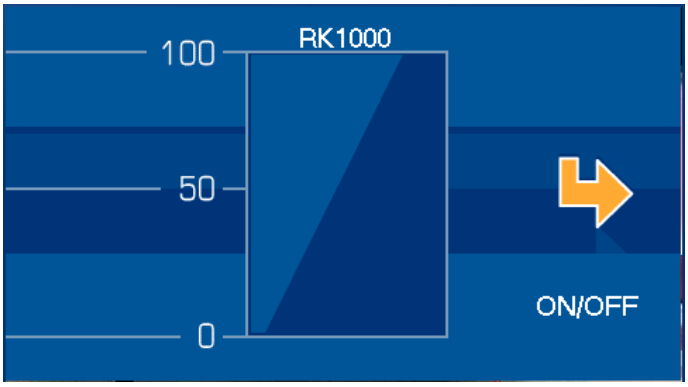
- Centre area to display pages and icons over images.
- Right area to select and include icons to the page
- Left identification to check which page we are editing (1-4)
- Language selectors in the left lower corner



Once icons are located over pages, it is necessary to link them to different group address, just doing double left click over the icon you want to update and editing all fields you need to link (using group address from your ETS project). Next paragraphs define some examples about how to program different functionalities (on/off, dimmers, blinds, etc.) to icons.



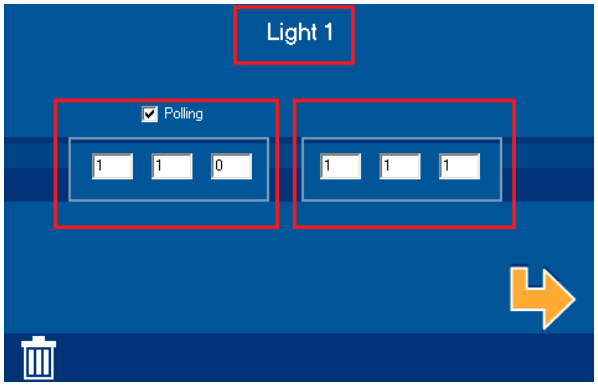
Depending on type of icon, the edition is direct or maybe it is necessary to do another double click of any item. It is dimmers case, where you need to click twice over the slider to assign group address.



4.1 POINT TO POINT

4.1.1 ON / OFF

These are the icons that allow to control on/off outputs. Do double click on them in the plan to edit the name of the icon and the group addresses of actuation (right) and feedback (left).

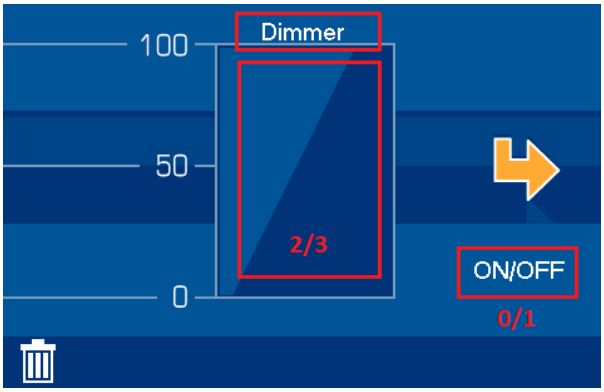


4.1.2 DIMMER

This icon allows to control a dimmer. The MEKBUS uses the following communication objects for it:

Object	Name / Function	Length	DPT	Flags				
				C	R	W	T	U
0	On/Off feedback	1 bit	1.001	●	●		●	●
1	Switch On/Off	1 bit	1.001	●		●	●	
2	Regulation value feedback	1 byte	5.010	●	●		●	●
3	Set new regulation value	1 byte	5.010	●		●	●	

Do double click on the icon in the plan to edit the name of the icon and the group addresses of actuation (right) and feedback (left).

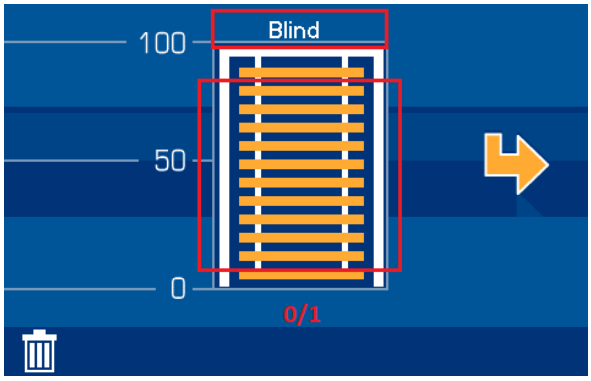


4.1.3 BLINDS

This icon allows to control a blind. The MEKBUS uses the following communication objects for it:

Object	Name / Function	Length	DPT	Flags				
				C	R	W	T	U
0	Regulation value feedback	1 byte	5.010	●	●		●	●
1	Set new regulation value	1 byte	5.010	●		●	●	

Do double click on the icon in the plan to edit the name of the icon and the group addresses of actuation (right) and feedback (left).



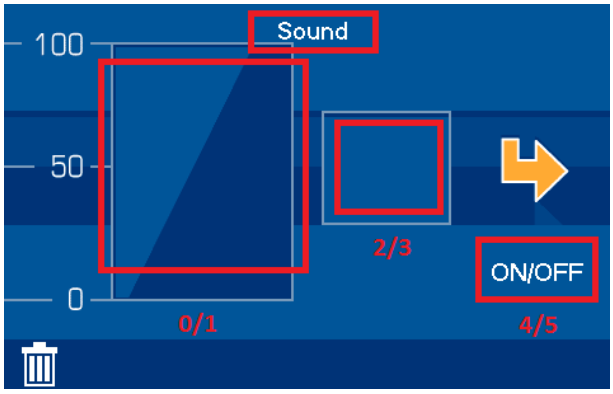
4.1.4 SOUND

This icon allows to control sound devices. The MEKBUS uses the following communication objects for it:

Object	Name / Function	Length	DPT	Flags				
				C	R	W	T	U

0	Sound level feedback	1 byte	5.010	●	●		●	●
1	Set new sound level	1 byte	5.010	●		●	●	
2	Current channel feedback	1 byte	5.001	●	●		●	●
3	Set new channel	1 byte	5.001	●		●	●	
4	On/Off feedback	1 bit	1.001	●	●		●	●
5	Switch On/Off	1 bit	1.001	●		●	●	

Do double click on the icon in the plan to edit the name of the icon and the group addresses of actuation (right) and feedback (left).

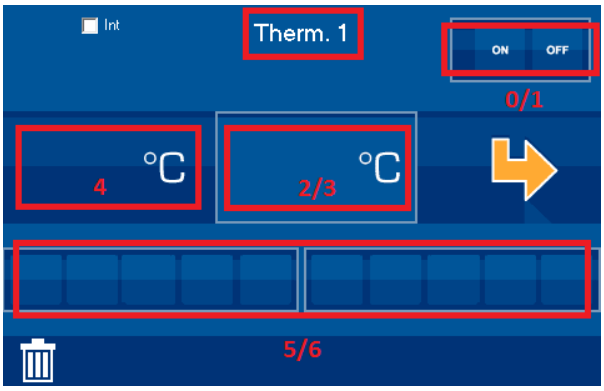


4.1.5 THERMOSTAT

This icon allows to control thermostats. The MEKBUS uses the following communication objects for it:

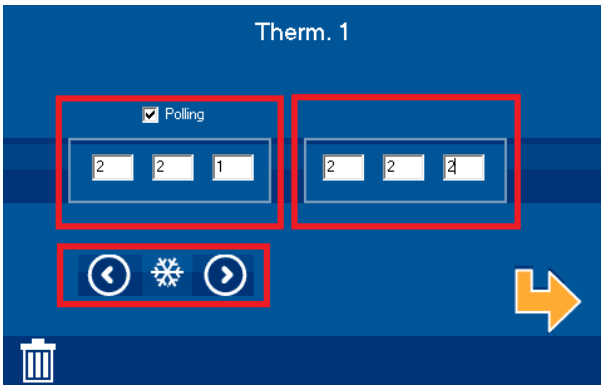
Object	Name / Function	Length	DPT	Flags				
				C	R	W	T	U
0	On/Off feedback	1 bit	1.001	●	●		●	●
1	Switch On/Off	1 bit	1.001	●		●	●	
2	Temperature set point feedback	1 byte	5.010	●	●		●	●
3	New temperature set point	1 byte	5.010	●		●	●	
4	Measured temperature feedback	1 byte	5.001	●	●		●	●
5	Mode buttons feedback	1 bit	1.001	●	●		●	●
6	Mode buttons switch On/Off	1 bit	1.001	●		●	●	

Do double click on the icon in the plan to edit the name of the icon and the group addresses.



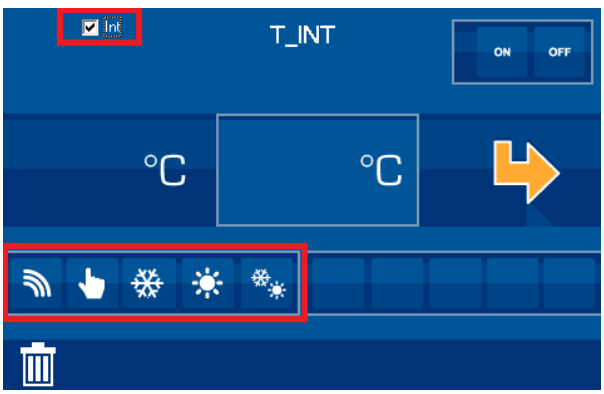
There are 10 programmable buttons that allow to control the working modes of the thermostat. They are restrictive by groups (left group and right group), it means that if one is activated the others are deactivated.

Do double click on them to edit the type of icon and the group addresses of actuation (right) and feedback (left).



If the MEKBUS is working in conjunction with STIBUS-SD Ingenium model, the internal thermostat is programmed by selecting the corresponding tick:

In this case, the mode buttons are fixed and we can only edit the feedback (left) group addresses of each function.

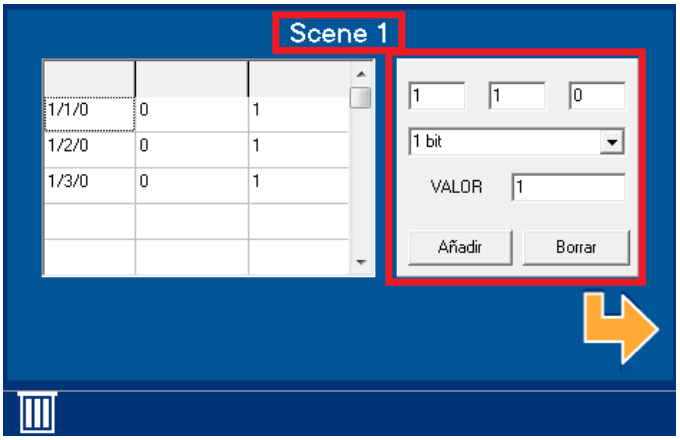


4.2 SCENES

This icon allows execute scenes. The MEKBUS can use the following communication objects for it:

Object	Name / Function	Length	DPT	Flags				
				C	R	W	T	U
0	Send bit	1 bit	1.001	●		●	●	
2	Send byte value	1 byte	raw	●		●	●	
3	Send 2 bytes value	2 byte	raw	●		●	●	
4	Pause	1 byte	-					

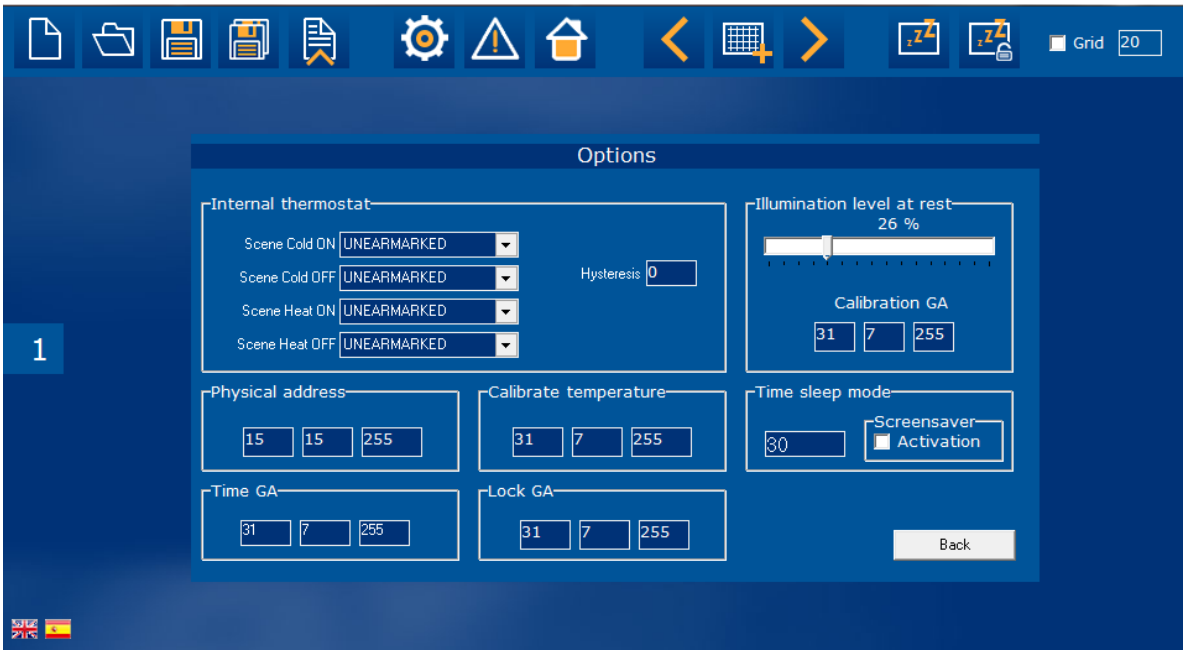
To program the scene, set the group address on the right, select the type of data, the value to send and press *Add.* Each scene can execute up to 64 telegrams. Pauses can also be programmed by selecting the corresponding option and setting the time in seconds (from 0 to 255).



The telegrams programmed on the left can be edited by selecting them or delete by pressing *Erase*.

4.3 TOOLS

Do click on this icon in the main screen of the application to configure the following functions of the screen:



4.3.1 INTERNAL THERMOSTAT SCENES

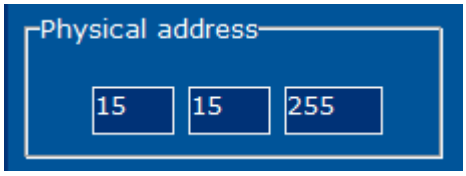
When the screen uses an internal thermostat (STIBUS-SD), it sends 4 scenes that can be programmed as normal scenes and they are selected here. The thermostat compares the measured temperature with the set point and depending on the working mode it sends the corresponding scene for *Heat On*, *Heat Off*, *Cool On* and *Cool Off*.

These scenes are programmed as any other scene and they must be selected here. When a scene is selected to be use by the internal thermostat it disappears of the main menu in the screen.

The hysteresis is the allowed difference between the set point value and the measured temperature, in other words, is the range within any order is sent. This parameter is used to avoid oscillations.

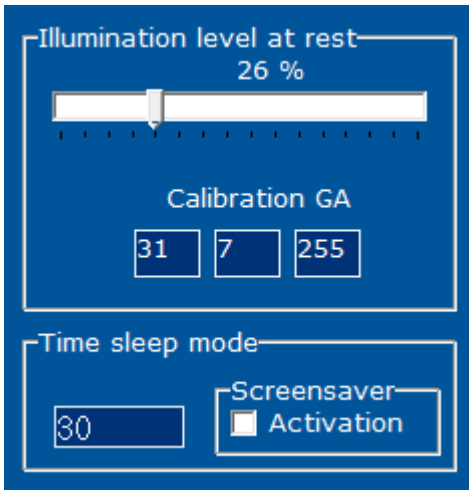
4.3.2 SCREEN PHYSIC ADDRESS

This is the box to write the physical address that will be used by the screen in the KNX installation.


Physical address
15
15
255

4.3.3 BACKLIGHT CONFIGURATION

In the top right of the tools window we can configure the parameters related to the backlight of the screen.



Backlight level: Is the brightness level of the screen after the backlight time.

Backlight time: It is the time that the screen remains on at the maximum brightness level after any pulsation.

Screensaver: Select if it is activated or deactivated.

Touchscreen calibration: Is the group address that can be used to run the touchscreen calibration routine of the screen.

4.3.4 OTHER PARAMETERS

Here we can set three group addresses that can be used for other functions of the screen:

Temperature calibration: The temperature measured by the screen can be calibrated trough this group address. To calibrate it with a reference thermometer proceed as follows:

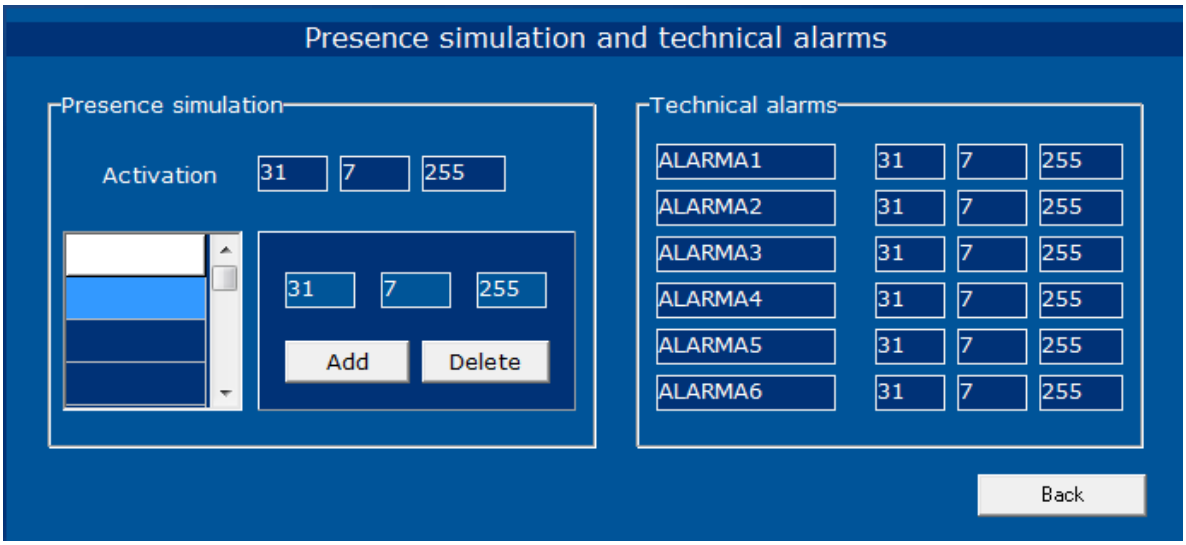
- Send a 0 to this group address.
- After some seconds, read the measured temperature.
- Multiply by 5 the difference between the measured temperature and the reference.
- Send the result value through the group address again.

Blocking the screen: When the screen receives a 1 to this group address it is blocked and cannot be used any function until it is unlocked.

Date and hour: Is the group address used to set the date and hour of the screen trough the KNX bus.

4.4 PRESENCE SIMULATION AND TECHNICAL ALARMS

Do click on this icon in the main screen of the application to configure the presence simulation and messages shown by technical alarms:

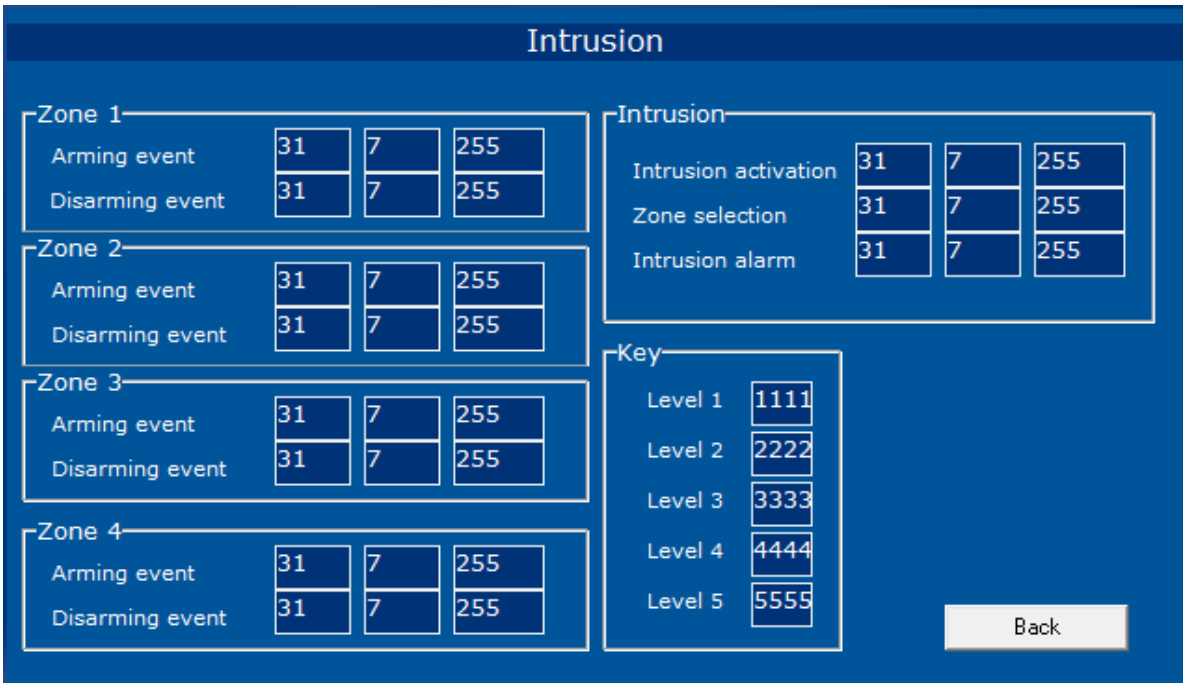


The MEKBUS incorporates a presence simulation function that allows to copy the last actions done by the customer and reproduces them as if there were people at home. In this configuration menu we have to set the group addresses that the screen will copy and the group address for activation and deactivation it remotely.

On the right side of the screen, there is a list of the technical alarms where we can enter the texts that will be shown on the screen for each alarm and the group address associated. To show an alarm, just write the name of the alarm and program the activation group address in the sensor.

4.5 INTRUSION ALARM

Do click on this icon in the main screen of the application to configure the intrusion alarm.



Zones: The MEKBUS can manage up to 4 intrusion zones sending a bit telegram to activate or deactivate any of them, these group addresses can be used to enable/disable the different sensors in the installation.

Codes: Each zone can be activated or deactivated with 5 different codes, which are initially configured as:

- Code 1: 1111 (minimum priority)
- Code 2: 2222
- Code 3: 3333
- Code 4: 4444
- Code 5: 5555 (maximum priority)

To activate or deactivate the intrusion alarm, enter a code which could be any of the them. Take into account that the codes are prioritized, where code 1 is minimum priority and 5 is the maximum. For example, if the alarm is activated by the code 4 it can only be deactivated by an equal of higher code (4 or 5).

Zone selection and Arm/Disarm: When the alarm is activated directly from the screen, the zone is selected previously but when it is activated from any other device the screen must be armed remotely and the zone selected before by the corresponding group addresses.

Alarm triggering: When the alarm is triggered the screen can show the keyboard to disarm by sending the value 1 trough the triggering group address.

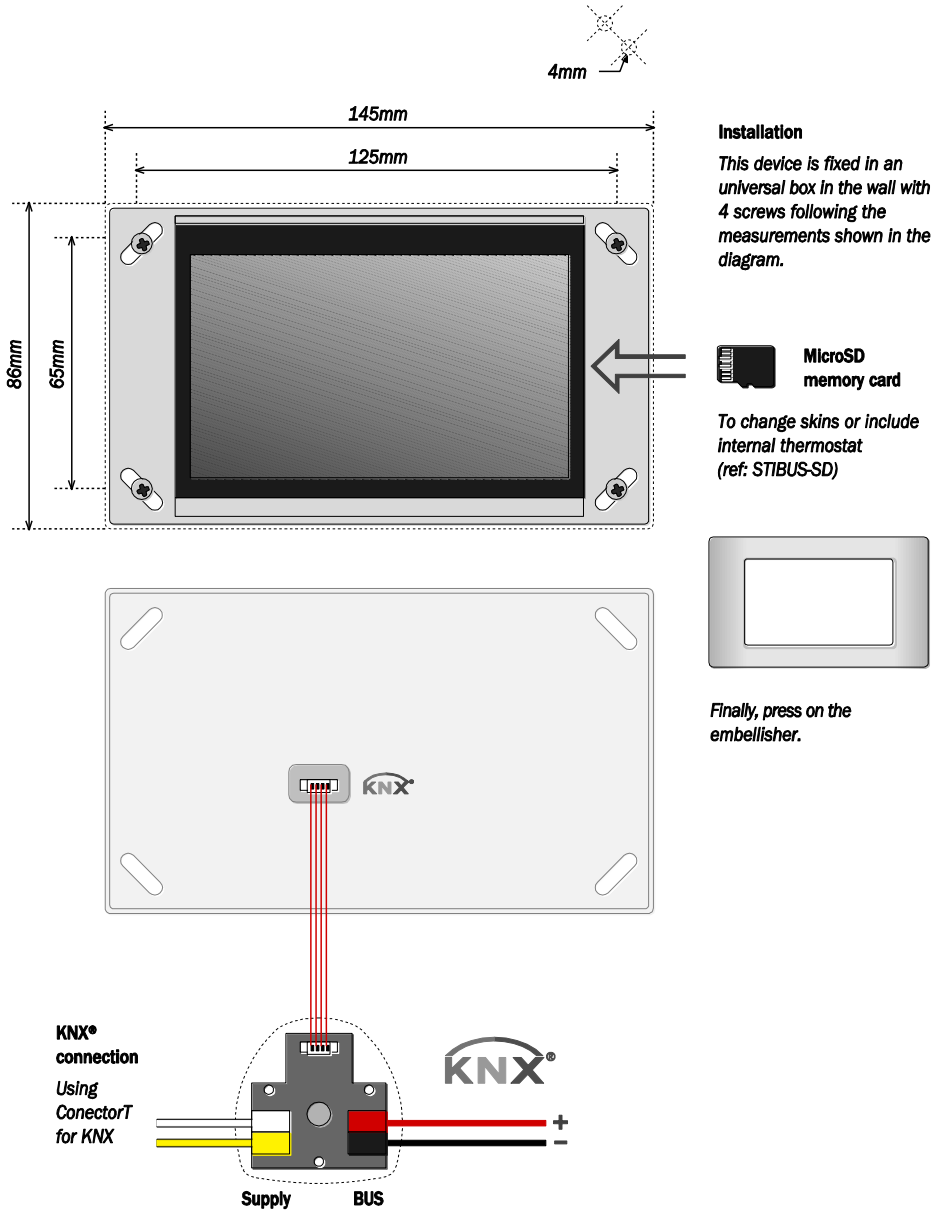
4.6 DATA DOWNLOAD

Press the button “Download to uSD” in the main window of the application and select the drive in which the card is located to download the programming.

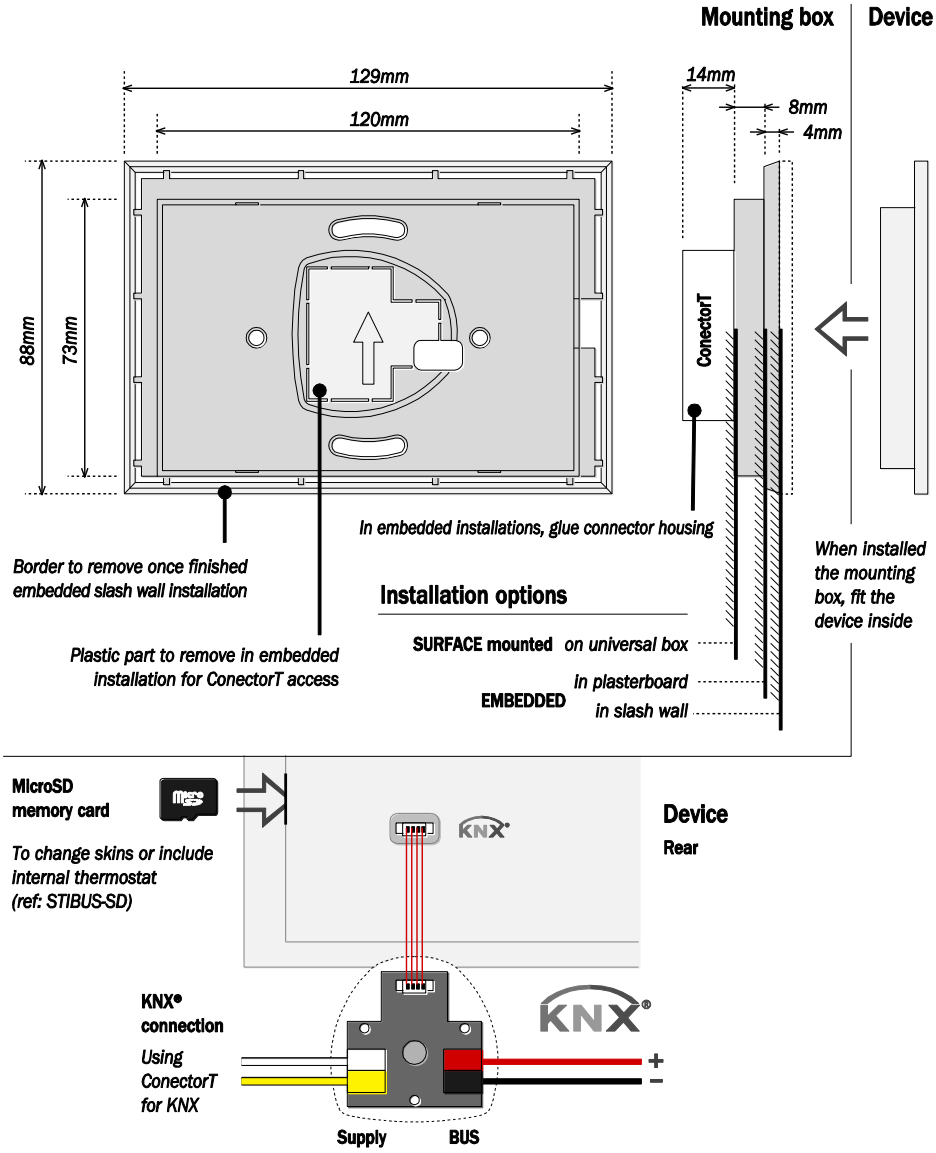
The microSD card must have a maximum capacity of 2GB and it must be formatted in FAT16. When the data has been already uploaded, switch off the screen, insert the card into it and switch the screen on. The uploading process should start from this point.

5 INSTALLATION

5.1 MEKBUS



5.2 MEKBUS-G


Mounting box
Device
129mm
120mm
14mm
8mm
4mm
88mm
73mm
ConectorT
In embedded installations, glue connector housing
When installed the mounting box, fit the device inside
Border to remove once finished embedded slash wall installation
Plastic part to remove in embedded installation for ConectorT access
Installation options
SURFACE mounted on universal box
EMBEDDED in plasterboard
in slash wall
MicroSD memory card
To change skins or include internal thermostat (ref: STIBUS-SD)
Device
Rear
KNX® connection
Using ConectorT for KNX
+
–
Supply
BUS

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