



VMB1TC

**Temperature control module for the
Velbus system**



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DESCRIPTION

The temperature controller (VMB1TC) forms in combination with one or more temperature sensors (VMB1TS) and relay modules (VMB1RY or VMB4RY) a programmable thermostat to control a heating or cooling installation. The different sensors can be adjusted, operated and programmed from one location by using this temperature controller. Multiple controllers at multiple locations are possible. It is also possible to define zones to group the sensors.

CHARACTERISTICS

Forms a programmable thermostat together with a Velbus temperature sensor and relay modules
Ideal to control the heating or air-conditioning of your residence
Can control a maximum of 32 temperature sensors (VMB1TS)
Up to 7 zones can be defined
Each sensor/zone can be placed in automatic mode (to follow the program), temporary mode (the program is suspended for a certain time) or manual mode (the program is disabled for an undefined time period)
Configurable both locally or via PC (using the serial or USB interface in combination with the Velbus link software)
All settings are retained in case of a power cut
Relay control through the Velbus e.g. for alarms
Possibility to set up a differential thermostat using two sensors

LED indication

- When the heater or cooler is active
- When in temporary mode (sleep timer), a LED is flashing
- During high or low temperature alarm, a LED will flash
- When power supply is detected
- When receiving or transmitting data over the Velbus

LCD:

- 2 lines of 16 characters to indicate the name of the selected sensor/zone, the selected mode (comfort, day or night, anti-freeze), the temperature and the time
- On screen indication of manual mode, temporary mode, duration of temporary mode (sleep time), key guard and cooling function
- Adjustable white backlight
- Possibility to adjust backlight automatically every day (2 times)
- Adjustable contrast

Clock

- Built-in clock with day indication
- Adjusting one clock synchronizes all other clocks on the Velbus system.
- Possibility to use one clock as reference for all other clocks in the system
- Wake-up function: 2 moments (wake-up time and sleep time) can be set

Local control

- Scroll through the different sensors with one button.
- Direct access to change the mode (comfort, day, night or anti-freeze) and the desired temperature.
- A short press on the menu button will open the short configuration menu:
 - set the comfort, day or night temperature
 - switch the alarm clock on or off, configure the wake-up and sleep times)
 - adjust the clock
 - configure the duration of the sleep mode (sleep time)
- Press and hold the menu button (4s) to enter the extended configuration menu:
 - enter or change program instructions
 - configure the sensors (cooling/heating, lock/unlock control, sleep time, low and high temperature alarm, anti-freeze temperature, upper heat temperature, lower and upper cool temperature, hysteresis, temperature difference, unblock pump/valve, zone number, difference sensor, sensor calibration and sensor name)
 - select language, read out (°C or °F), reference clock (on/off), alarm time (global/local), emergency power supply (on/off) or change PIN
 - set the address (254 possible), link the alarm output or search for all sensors present on the Velbus
 - change the contrast and the backlight of the display
 - recall statistics (minimum, maximum temperature and duration of heating/cooling)
- The extended configuration menu can be secured by a PIN.
- The menu is closed automatically after ±1 minute of inactivity.

Programming

- A program instruction can switch a sensor between comfort, day, night or anti-freeze mode at a certain time.
- Possibility to enter program instructions that are applicable for all zones or for all sensors in a defined zone.
- Up to 31 program instructions can be saved per sensor or zone.
- Program types:
 - day programs: every Monday, Tuesday, Wednesday, Thursday, Friday, Saturday or Sunday
 - working day programs: from Monday up to and including Friday or Saturday
 - weekend programs: every Saturday and Sunday
 - week programs: every day
- Wake-up time and sleep time can be used inside program instructions.

Power supply

- Required power supply: 12 to 18VDC
- Consumption backlight off: 25mA
- Maximum consumption (LEDs activated, backlight max.): 50mA
- Battery emergency power supply: 3V Lithium battery (CR2032 included)
- Consumption emergency power supply not active: 0.5µA
- Consumption emergency power supply activated: 200µA
- Display warning when battery needs replacement

Dimensions

- Module (L x B x H): 66 x 44 x 40mm
- Dimensions including cover plate (L x B x H): 118 x 80 x 40mm
- Cover plate not included

- 2-wire communication for Velbus data and 2 wires for power supply
- data transmission: 16.6 Kbit/s
- Serial data protocol: CAN (Controller Area Network)
- Short circuit proof (towards negative or positive pole of the power supply)
- LED indication when receiving or transmitting data over the Velbus
- bus error indication: 2 short flashes of the LEDs
- auto recovering after 25 seconds when a bus error occurs

The temperature controller module can be given a designation with a maximum of 16 characters.

The temperature controller module can transmit following messages:

- the current time
- the output status of the alarm clock
- the controller status
- the controller type (including software version)
- the controller name
- the communication error counter
- a program instruction
- the memory content

The temperature controller module can transmit following instructions:

- Request the:
 - module type (to search for sensors)
 - current time
 - memory content
 - sensor name
 - sensor set-up
 - sensor status
 - sensor temperature
 - sensor time statistics
 - program instruction
- Set the:
 - program storage location
 - program availability
 - program instruction
 - sensor zone
 - desired temperature for a sensor
 - sensor comfort temperature for heating
 - sensor day temperature for heating
 - sensor night temperature for heating
 - sensor anti-freeze temperature for heating
 - upper heat temperature
 - temperature difference for fast heating/cooling or differential thermostat
 - hysteresis temperature for a sensor
 - sensor comfort temperature for cooling
 - sensor day temperature for cooling
 - sensor night temperature for cooling
 - lower limit of the cooling preset range
 - upper limit of the cooling preset range
 - sensor calibration factor
 - low temperature alarm of a sensor
 - high temperature alarm of a sensor
- put the sensor in:
 - heating mode
 - cooling mode
 - comfort mode
 - in day mode
 - night mode
 - anti-freeze mode
- synchronize the alarm clock time
- lock the local sensor controls
- unlock the local sensor controls
- standard duration for temporary mode (sleep time) for a sensor

- reset the minimum and/or maximum temperature
- reset the time statistics of a sensor
- set or reset the de-blocking of the valve and/or circulation pump
- write to sensor memory
- The address of the linked sensor to set up a differential thermostat

The temperature controller module can receive following messages:

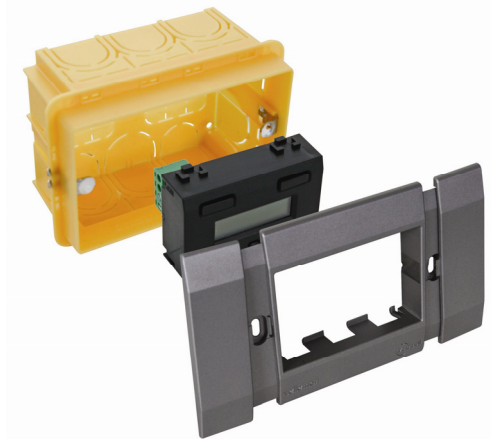
- the sensor type
- the sensor name
- the sensor temperature
- the sensor status
- the sensor settings
- the sensor time statistics
- the sensor program instruction

The temperature controller module can receive following instructions:

- request the current time
- set the current time
- synchronize the alarm clock
- set the alarm clock times
- request the module type
- request the communication error counter
- request the controller status
- request the controller name
- request the memory content
- change the memory content
- set the sensor program storage location
- set the sensor zone
- request a program instruction
- change a program instruction

EMBEDDING THE TEMPERATURE CONTROLLER

The temperature controller VMB1TC can be embedded in combination with a Velbus cover plate VMBFDG or VMBFLG. Push the modules from the back into the cover plate.



It is also possible to use a 3-module wide frame with cover plate from the BTicino Living series. The module must be pushed into the build-in frame from the front.



It is also possible to use a 3-module wide frame with cover plate from the BTicino Light or Light Tech series. The module must be pushed into the build-in frame from the front.

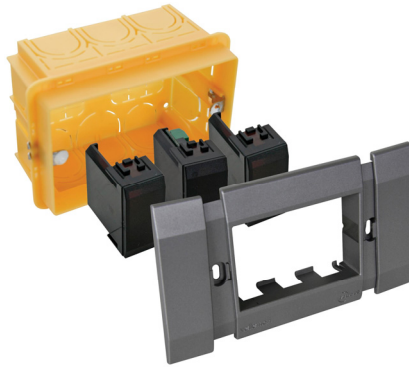


To build the controller in into a hollow wall, use a hollow wall pattress.



EMBEDDING A TEMPERATURE SENSOR

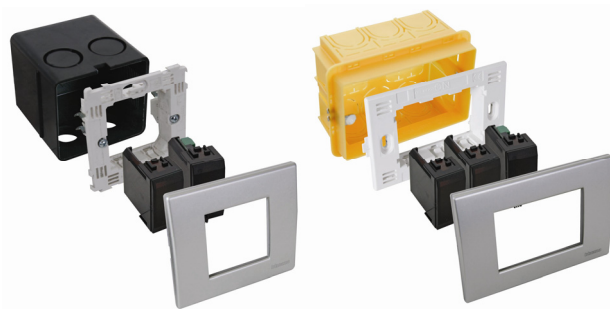
The temperature sensor VMB1TS can be embedded in combination with two blank frames VMBFBI and a Velbus cover plate VMBFDG or VMBFLG. Push the modules from the back into the cover plate.



It is also possible to use a 2- or 3-module wide frame with cover plate from the BTicino Living series. The module must be pushed into the build-in frame from the front.



It is also possible to use a 2- or 3-module wide frame with cover plate from the BTicino Light or Light Tech series. The module must be pushed into the build-in frame from the front.



To build the sensor in into a hollow wall, use a hollow wall pattress.



EMBEDDING A TEMPERATURE CONTROLLER TOGETHER WITH A SENSOR

The controller (VMB1TC) can be embedded together with a sensor (VMB1TS) in a 4-module wide frame with cover plate from the BTicino Living series. The module must be pushed into the build-in frame from the front.



The controller (VMB1TC) can be build-in together with a sensor (VMB1TS) in a 4-module wide frame with cover plate from the BTicino Light of Light Tech series. The module must be pushed into the build-in frame from the front.



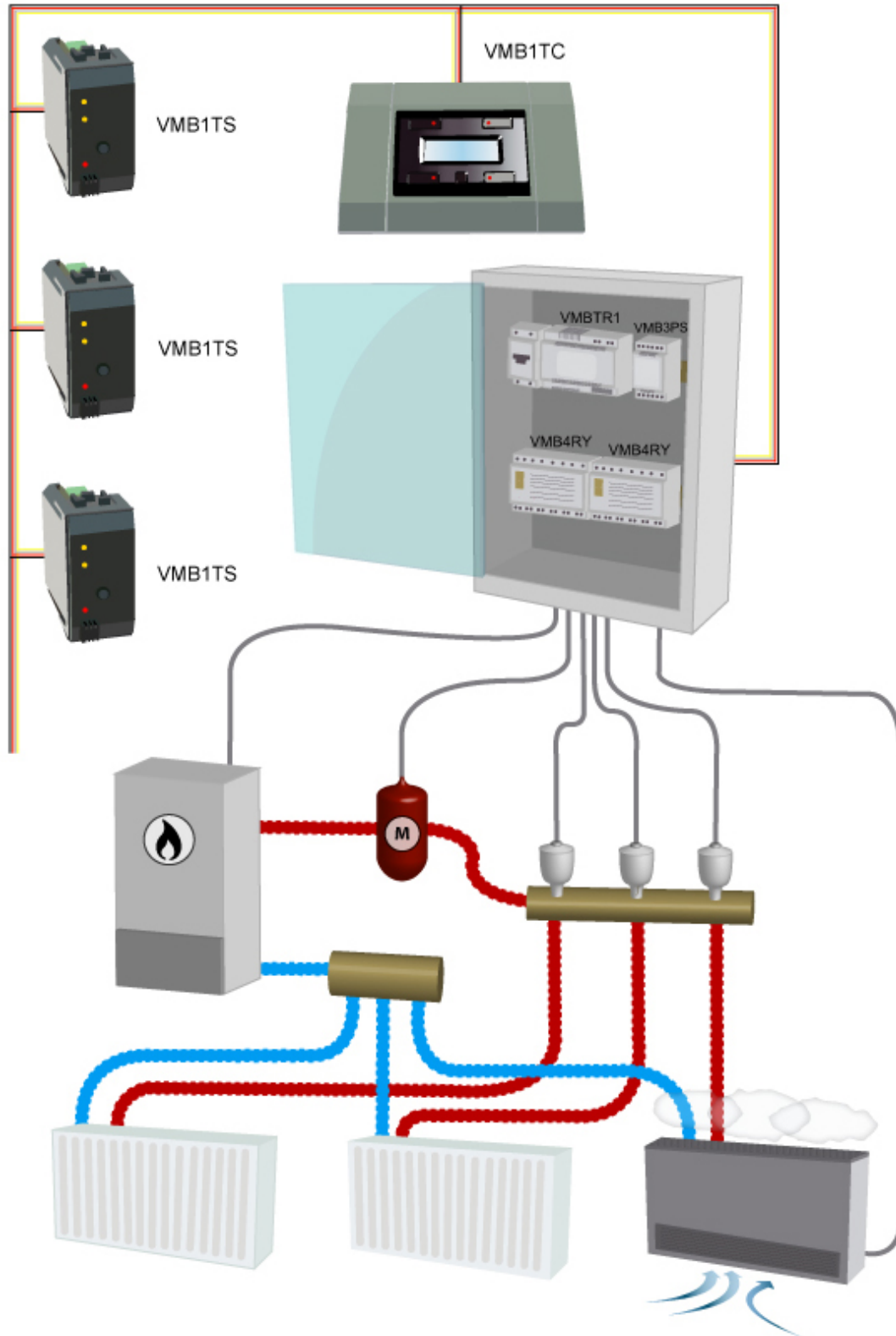
To build the controller and sensor in into a hollow wall, use a hollow wall pattress.



OVERVIEW HEATING INSTALLATION

A heating installation usually consists of radiators or convectors, a boiler, circulation pump and a collector with valves for every radiator group.

Every room is equipped with a temperature sensor VMB1TS which is controlled by one or multiple temperature controllers VMB1TC. The sensors in turn steer the relay modules VMB4RY (or VMB1RY) that control the valves. As soon as one of the valves is opened, a relay channel can activate the circulation pump and when one of the sensors is in day or comfort mode, a relay channel can put the boiler in day mode. When convectors with built-in fan are used, a relay channel can steer this fan in case the room temperature deviates too much from the desired temperature, e.g. to speed up heating in the morning.



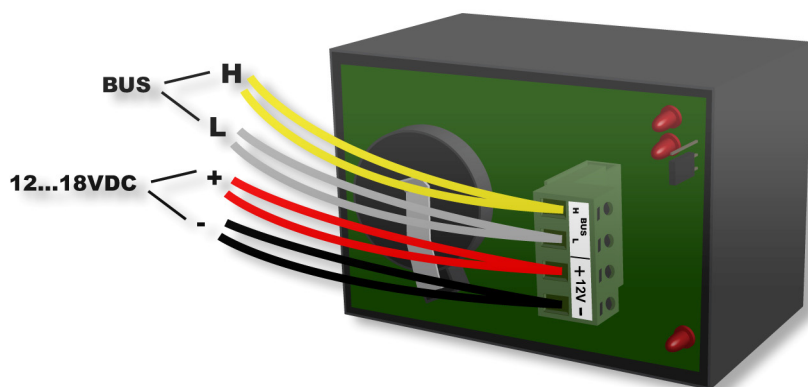
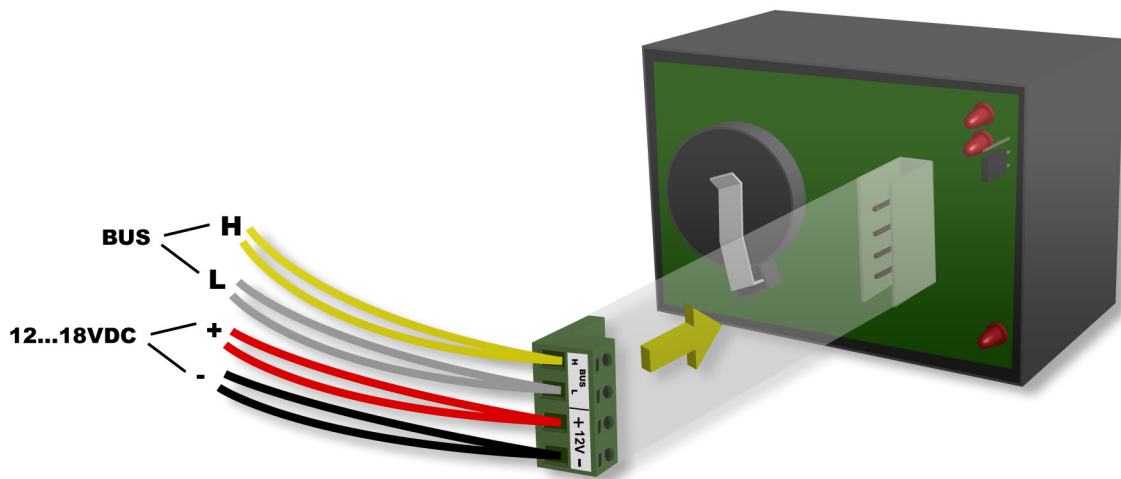
CONNECTION

To interconnect the Velbus modules the use of twisted-pair cable (EIB 2x2x0.8mm², UTP 8x0.51mm - CAT5 or equivalent) is recommended.

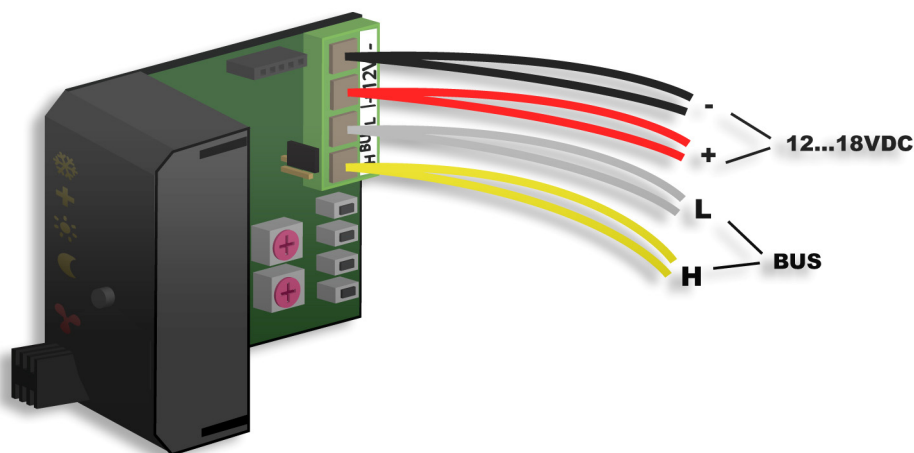
Connect the bus to the module (beware of the polarity).

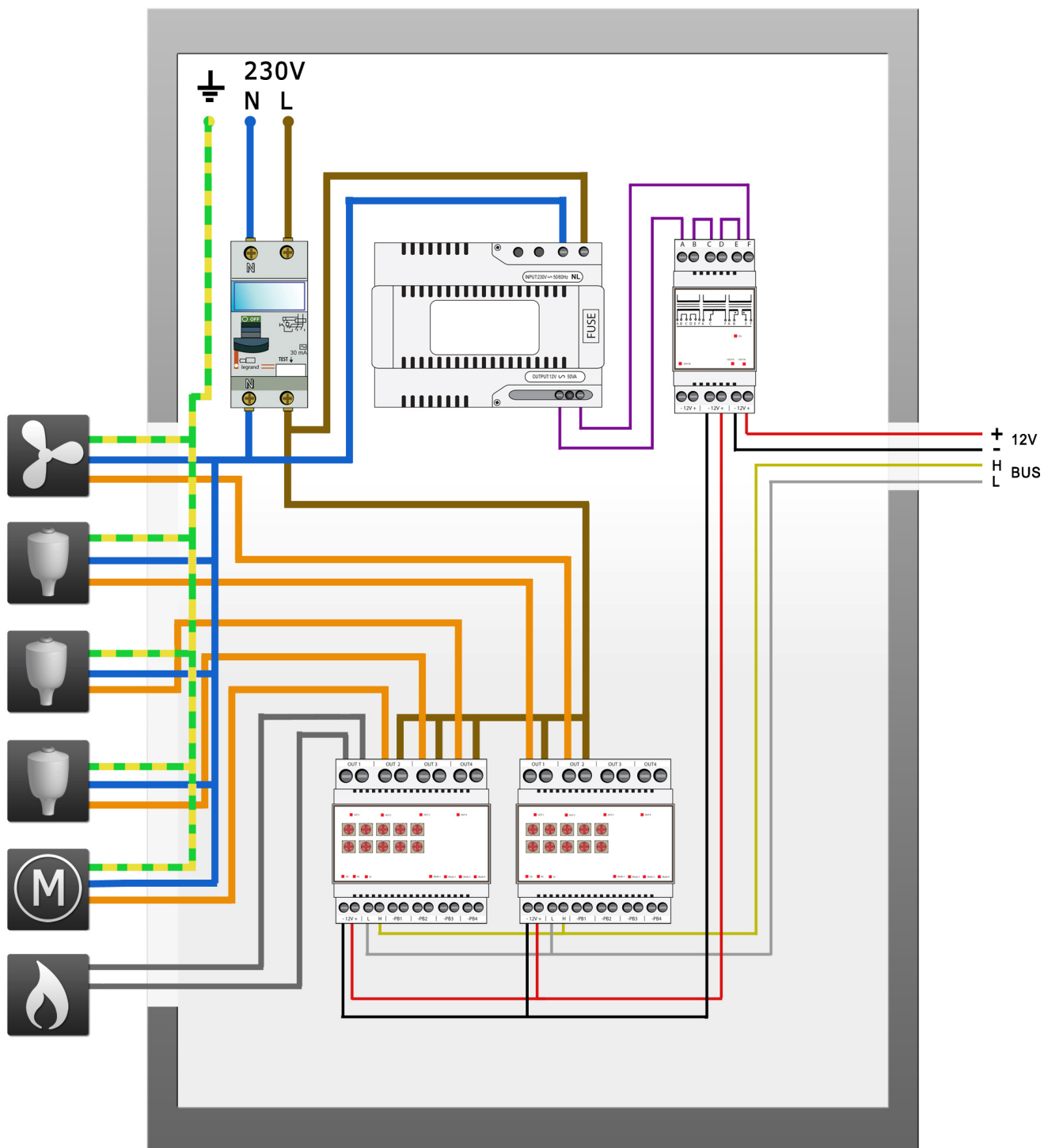
Connect the 12V to 18V direct current to the module (beware of the polarity).

Connecting the temperature controller VMB1TC



Connecting the temperature sensor VMB1TS





Terminator

Normally only 2 'TERM' terminators must be used in a complete Velbus installation. Usually this will be on one module inside the distribution box and on the module which is physically located furthest from the distribution box.



On all other modules, the terminator must be removed.



Remark:

In case the wiring contains a lot of branches, still only one terminator is placed on one module inside the distribution box and one on the module which is physically located furthest from the distribution box. When communication errors occur, an additional terminator can be used at the end of another branch. However, the number of terminators should be limited as more terminators place a heavy load on the bus.

Addressing

Every module on the Velbus system must have its own unique address.

On modules with a rotary switch e.g. the temperature sensor VMB1TS and the relay module VMB4RY the address is set using the 'ADDR' rotary switch (also refer to the manual of the relevant module).

The address of the temperature controller is set via a menu (see § 'configuration of the temperature controller' below).

These addresses may not be altered afterwards.

Allocate the relay channels

Every temperature sensor module VMB1TS can steer a relay channel to:

- open the valve that provides hot water to the radiator
- switch on the fan of a convector to speed up heating (when the difference between desired temperature and room temperature is too high)
- set the boiler in day mode
- switch on the air-conditioning
- switch on the circulation pump (when on of the valves is open)
- generate an alarm at low room temperature (heating system down)
- generate an alarm at high room temperature (valve fails to close)

Every relay channel that is steered by a temperature sensor must be placed in instant control, meaning that the TIME1 and MODE/TIME2 rotary switches of the channel on the relay module must be set to position '0'.

The easiest way to allocate those relay channels is by using the Velbus link software via a PC connected to a Velbus interface (VMB1USB, VMB1RS or VMBRSUSB).

However, it is also possible without the aid of a computer (see manual of the temperature sensor module VMB1TS).

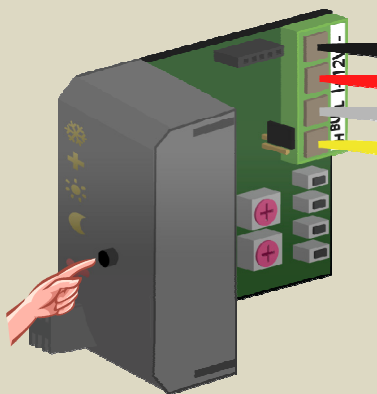
To set up the previous example of a heating system, use following procedures.

Allocate a relay channel to control valve 1

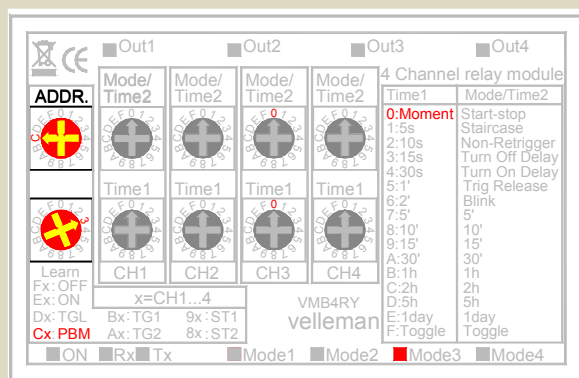
When room temperature drops below the desired value, the temperature sensor sends a request on the bus to energize a relay. When the room temperature rises above the desired value, another request by the temperature sensor is transmitted over the bus to de-energize the relay.

In our example, the first temperature sensor must control relay channel 3 of the first relay module to steer the valve.

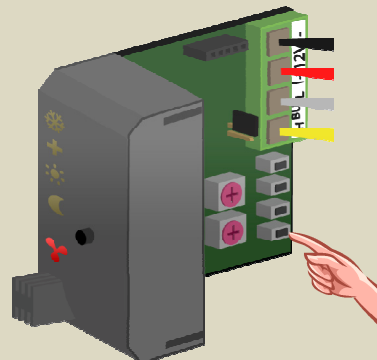
1. Set the first sensor module in anti-freeze mode by pressing the push button on the front panel repeatedly until all LEDs are off.



2. Set the MODE and TIME1 rotary switches for channel 3 of the first relay module to '0' (instant control).
3. Remember the address of this relay module to reinstate it later on.
4. Set the address of the first relay module to 'C3'. The 'MODE 3' LED flashes to indicate push button learning mode (PBM).



5. Press and hold the lowest push button (HEAT) of the first temperature sensor until the relay is energised and the red LED on the sensor module flashes.

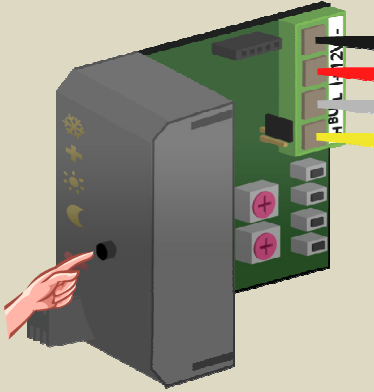


6. Set the address of the first relay module back to its original value.

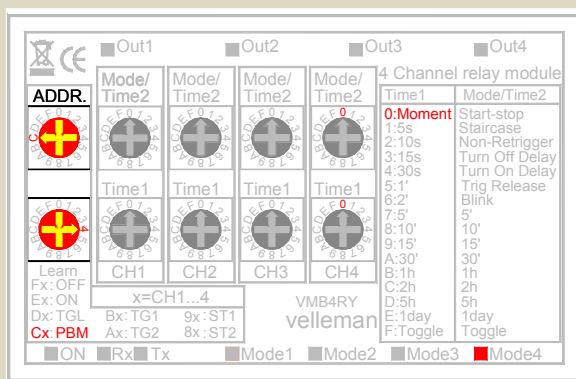
Allocate a relay channel to control valve 2

In our example, the second temperature sensor must control relay channel 4 of the first relay module to steer the valve.

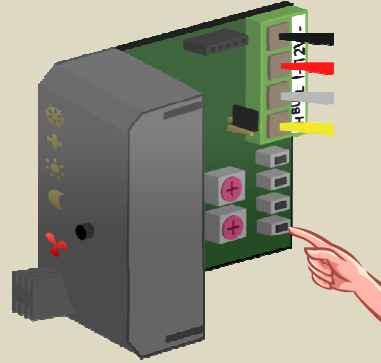
1. Set the second sensor module in anti-freeze mode by pressing the push button on the front panel repeatedly until all LEDs are off.



2. Set the MODE and TIME1 rotary switches for channel 4 of the first relay module to '0' (instant control).
3. Remember the address of this relay module to reinstate it later on.
4. Set the address of the first relay module to 'C4'. The 'MODE 4' LED flashes to indicate push button learning mode (PBM).



5. Press and hold the lowest push button (HEAT) of the second temperature sensor until the relay is energised and the red LED on the sensor module flashes.

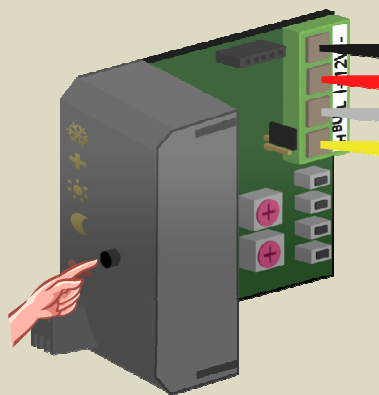


6. Set the address of the first relay module back to its original value.

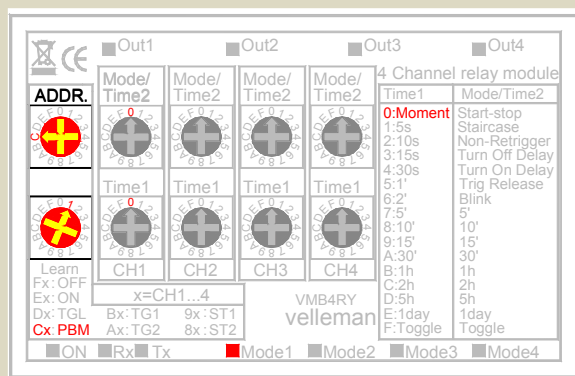
Allocate a relay channel to control valve 3

In our example, the third temperature sensor must control relay channel 1 of the second relay module to steer the valve.

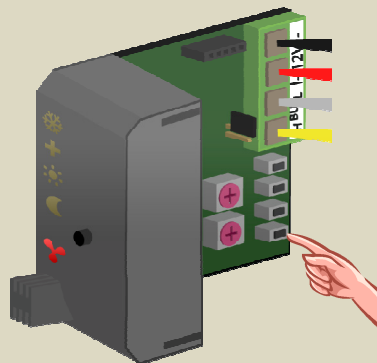
1. Set the third sensor module in anti-freeze mode by pressing the push button on the front panel repeatedly until all LEDs are off.



2. Set the MODE and TIME1 rotary switches for channel 1 of the second relay module to '0' (instant control).
3. Remember the address of this relay module to reinstate it later on.
4. Set the address of the second relay module to 'C1'. The 'MODE 1' LED flashes to indicate push button learning mode (PBM).



5. Press and hold the lowest push button (HEAT) of the third temperature sensor until the relay is energised and the red LED on the sensor module flashes.

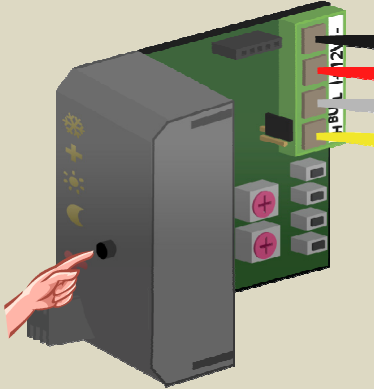


6. Set the address of the second relay module back to its original value.

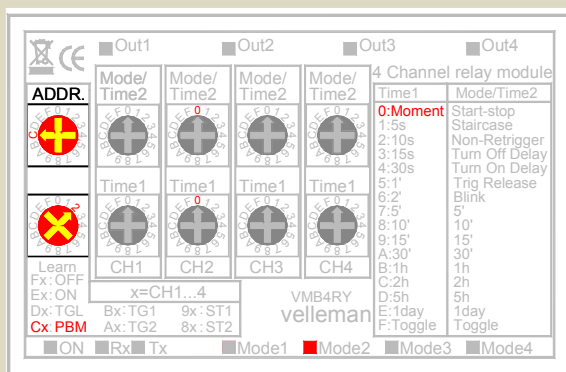
Allocate a relay channel to control the fan

In our example, the fan of the convector must be switched on when the temperature measured by the third temperature sensor deviates too much from the desired value. The fan is steered by relay channel 2 of the second relay module.

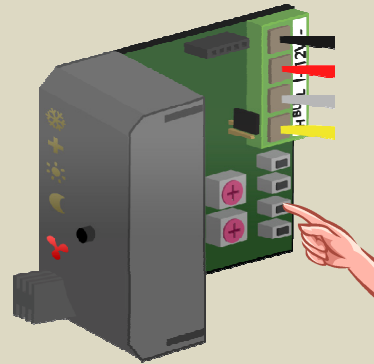
1. Set the third sensor module in anti-freeze mode by pressing the push button on the front panel repeatedly until all LEDs are off.



2. Set the MODE and TIME1 rotary switches for channel 2 of the second relay module to '0' (instant control).
3. Remember the address of this relay module to reinstate it later on.
4. Set the address of the second relay module to 'C2'. The 'MODE 2' LED flashes to indicate push button learning mode (PBM).



5. Press and hold the second push button (TURBO) of the third temperature sensor until the relay is energised and the red LED on the sensor module flashes.

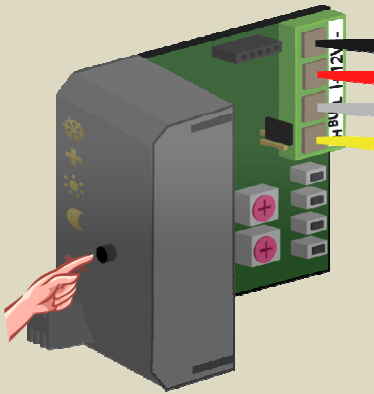


6. Set the address of the second relay module back to its original value.

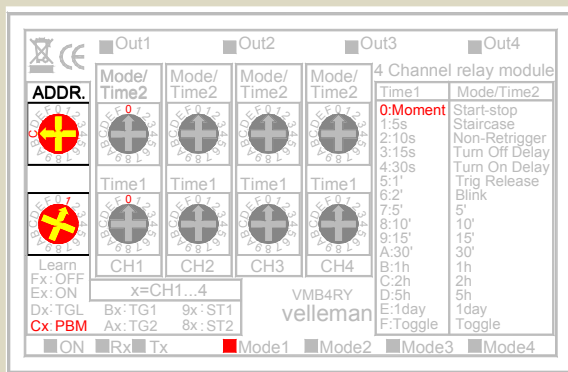
Allocate a relay channel for day mode of the boiler

Some boilers can be set to day or night mode. In night mode, the boiler temperature is set approximately 10 degrees lower. In our example, the boiler must be switched to day mode as soon as one of the sensor modules is in day or comfort mode. This is accomplished through relay channel 1 of the first relay module.

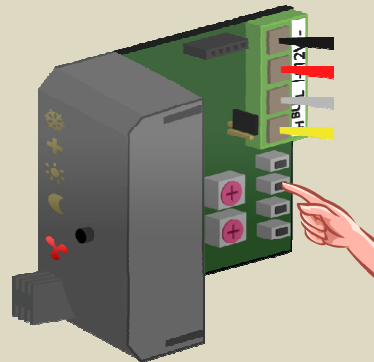
1. Set all sensor modules in anti-freeze mode by pressing the push button on the front panel repeatedly until all LEDs are off.



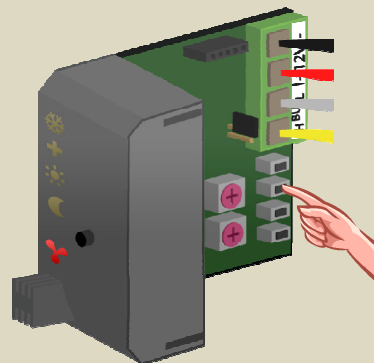
2. Set the MODE and TIME1 rotary switches for channel 1 of the first relay module to '0' (instant control).
3. Remember the address of this relay module to reinstate it later on.
4. Set the address of the first relay module to 'C1'. The 'MODE 1' LED flashes to indicate push button learning mode (PBM).



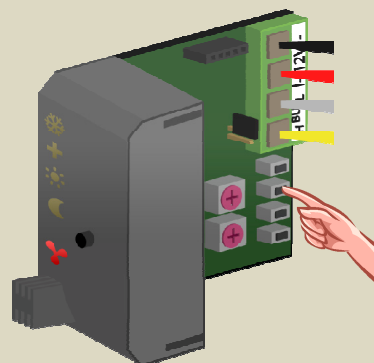
5. Press and hold the third push button (DAY) of the first temperature sensor until the relay is energised and the red LED on the sensor module flashes.



6. Press and hold the third push button (DAY) of the second temperature sensor until the relay is energised and the red LED on the sensor module flashes.



7. Press and hold the third push button (DAY) of the third temperature sensor until the relay is energised and the red LED on the sensor module flashes.



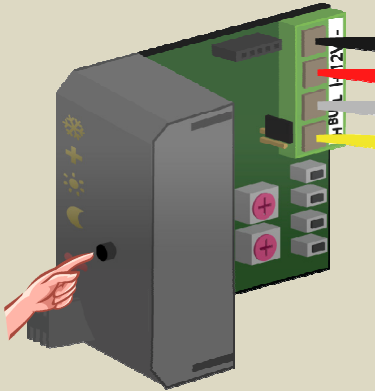
8. Set the address of the first relay module back to its original value.

Allocate a relay channel for the circulation pump

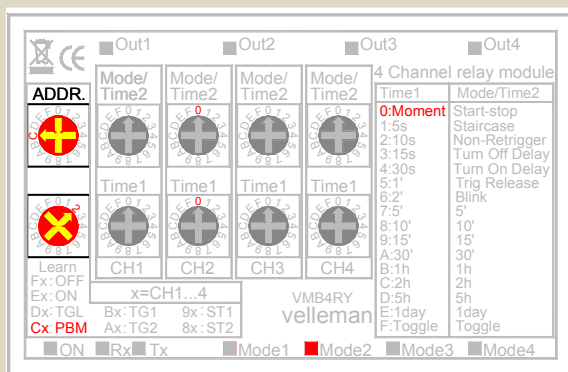
Some valves have a contact that closes when the valve is open. By wiring all the contacts in parallel, the circulation pump can be steered. For valves that do not have these contacts, a relay can be assigned to the temperature sensors to steer the circulation pump.

In our example the pump must be active as soon as one of the sensor modules indicates heating is required. This is done through relay channel 2 of the first relay module.

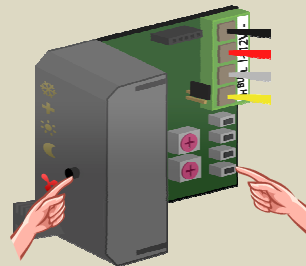
1. Set all sensor module in anti-freeze mode by pressing the push button on the front panel repeatedly until all LEDs are off



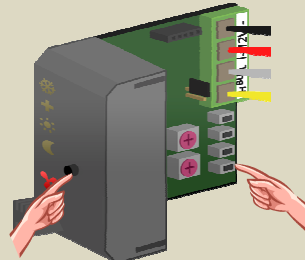
2. Set the MODE and TIME1 rotary switches for channel 2 of the first relay module to '0' (instant control).
3. Remember the address of this relay module to reinstate it later on.
4. Set the address of the first relay module to 'C2'. The 'MODE 2' LED flashes to indicate push button learning mode (PBM).



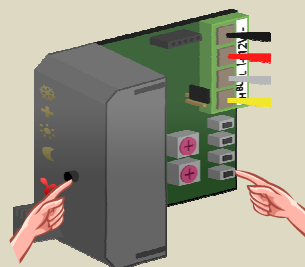
5. Press and hold the pushbutton on the front panel of the first temperature sensor and simultaneously press and hold the lowest push button (HEAT) until the relay is energised and the red LED on the sensor module flashes. First release the lowest push button (HEAT) followed by the push button on the front panel.



6. Press and hold the pushbutton on the front panel of the second temperature sensor and simultaneously press and hold the lowest push button (HEAT) until the relay is energised and the red LED on the sensor module flashes. First release the lowest push button (HEAT) followed by the push button on the front panel.

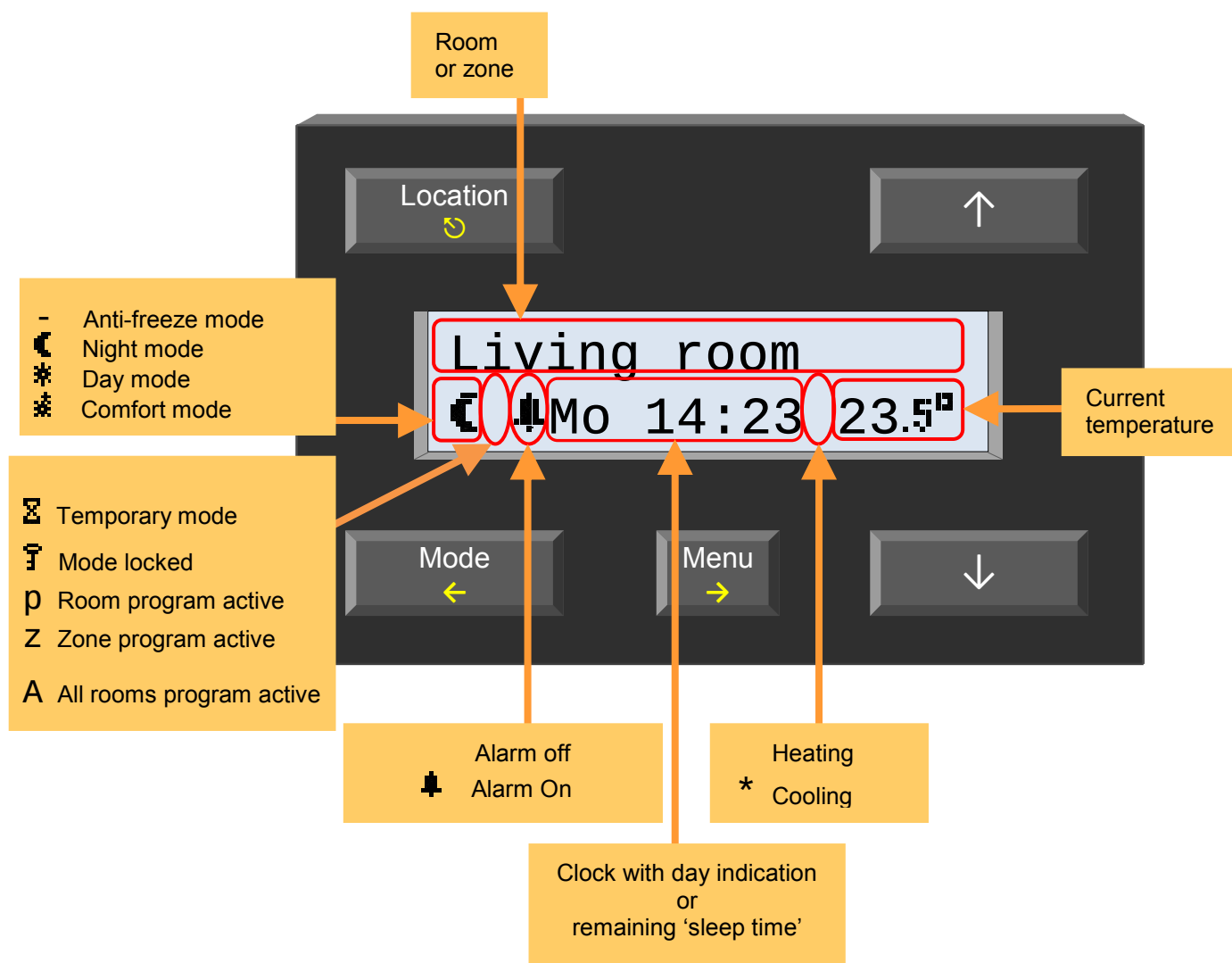


7. Press and hold the pushbutton on the front panel of the third temperature sensor and simultaneously press and hold the lowest push button (HEAT) until the relay is energised and the red LED on the sensor module flashes. First release the lowest push button (HEAT) followed by the push button on the front panel.

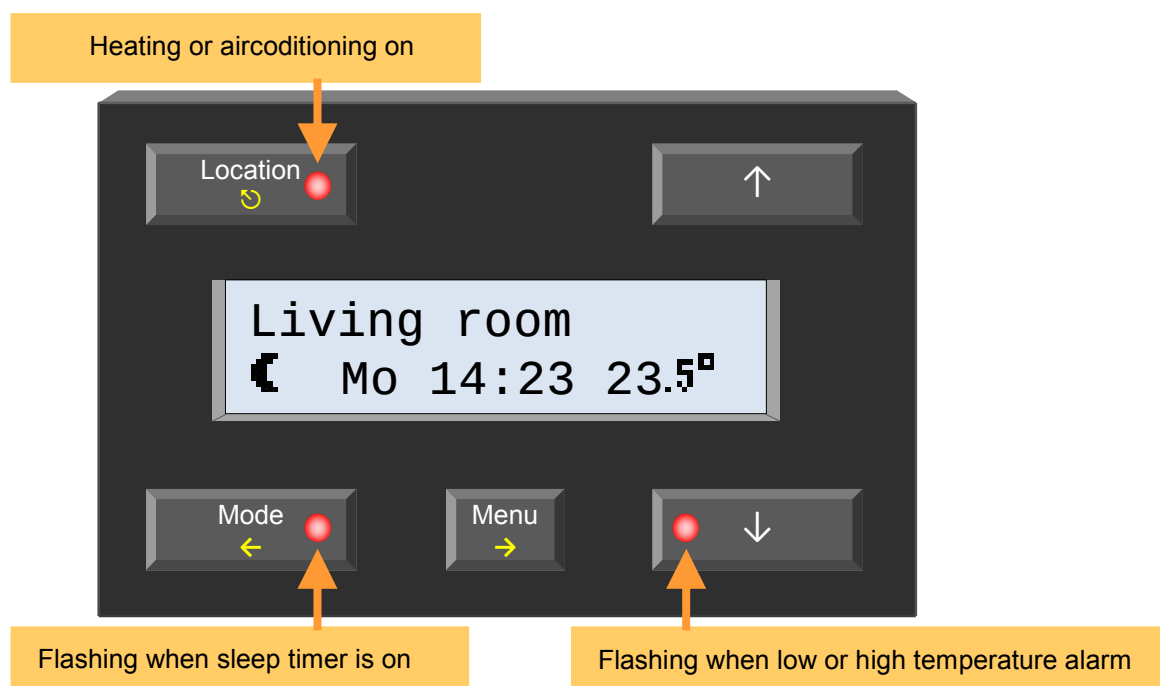


8. Set the address of the first relay module back to its original value.

SCREEN INDICATIONS

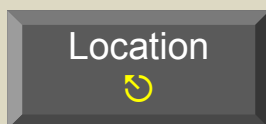
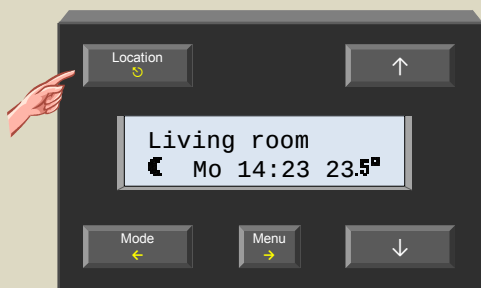


LED INDICATION



Remark: When a menu is active, the LED indication is replaced with flashing LEDs on the ↑ and ↓ buttons that indicate the scrolling direction.

BUTTON FUNCTIONS

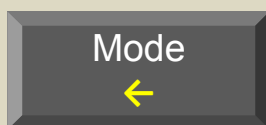


Location

Change room or zone.
Push and hold to switch between rooms and zones.



Exit the menu.
Changes made in a data entry screen (flashing item) are discarded.

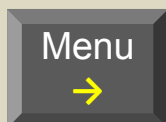


Mode

Switch between anti-freeze, night, day and comfort mode and start the sleep timer.
Push and hold to stop the sleep timer.



Move one level back in the menu.
Changes made in a data entry screen (flashing item) are discarded.



Menu

Open the menu.
Push and hold to open the extended menu.



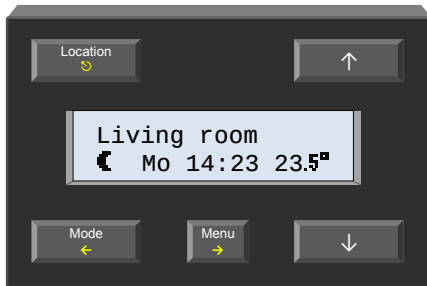
Move to the next level in the menu.
Changes made in a data entry screen (flashing item) are retained.



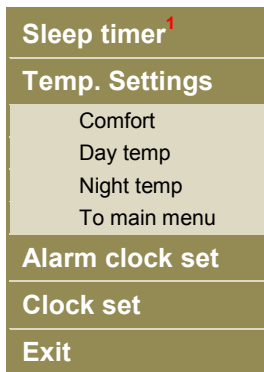
Alter the data entry (flashing item) or scroll through the menu.



Direct access menu



- Open the menu by pressing the 'Menu' button.
- Scroll through the menu with the ↑ or ↓ button.



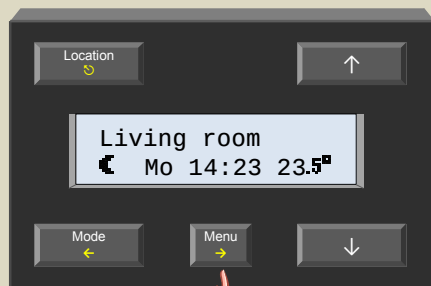
¹. This menu is only available when temporary mode (sleep timer) is activated.

- Select a menu item with the → button.
- Scroll through sub menus with the ↑ or ↓ button and select with the → button.
- Alter the data entry field (flashing item) with the ↑ or ↓ button.
- Confirm or move to the next data entry field with the → button.
- To cancel or return to the previous item, use the ← button.
- Quit the menu using the ⏮ button.
When a data entry field (flashing item) is still active, changes are discarded when using the ⏮ button.

Extended menu

To change the program, settings or statistics of the different sensors or to change the configuration of the temperature controller, use the extended menu. This extended menu can be secured by setting a PIN.

1. Open the extended menu by pushing and holding the 'Menu' button for about 4 seconds.



If the menu is not protected by a PIN, steps 2 to 5 are skipped.

2. Select the first number of the PIN using the ↑ or ↓ button and confirm with the → button.



3. Select the second number of the PIN using the ↑ or ↓ button and confirm with the → button.



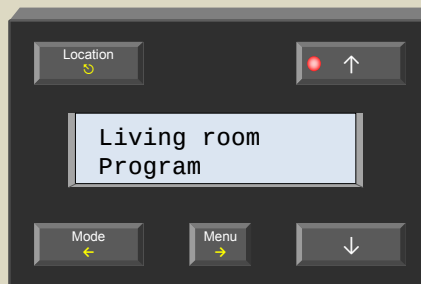
4. Select the third number of the PIN using the ↑ or ↓ button and confirm with the → button.



5. Select the last number of the PIN using the ↑ or ↓ button and confirm with the → button.



6. The first item of the extended menu is shown on the display.



- Scroll through the menu using the ↑ and ↓ buttons.

Program
Settings
Operating mode
Button lock
Sleep timer
Low temp. alarm
High temp. alarm
Anti-freeze temp
Upper heat temp
Lower cool temp
Upper cool temp
Hysteresis
Temp difference
Unjam pump
Unjam valve
Local program
Zone number ¹
Diff. Sensor ¹
Sensor cal. ¹
Change name ²
To main menu
Configuration
Language
Temp. read-out
Master clock
Global alarm
Battery backup
Change PIN code
Firmware version
Address ¹
Link wake-up ¹
Link go-to-bed ¹
Scan sensors ¹
To main menu
Display
Contrast
Backlight
To main menu
Statistics¹
Min temp 16.0°
Max temp 23.0°
- 0m/5m
☼ 0m/5m
✱ 8m/1h10m
✱ 10m/1h15m
Σ 18m/2h35m
To main menu
Exit

1. This menu is not available when a zone or 'all rooms' is selected.
2. This menu is not available when 'all rooms' is selected.

Note:

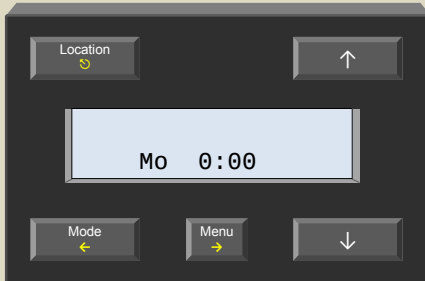
The naming of the menus and sub-menus might differ depending on the controllers' firmware version. Always make sure to use the latest firmware version.

- Select the menu item with the → button.
- When applicable, scroll through the sub menus with the ↑ or ↓ button and select with the → button.
- Change the data entry field (flashing item) using the ↑ or ↓ button.
- Confirm or move to the next entry field with the → button.
- Cancel or return to the previous item by using the ← button.
- Exit the menu with the ⏹ button.
When a data entry field (flashing item) is still active, changes are discarded when using the ⏹ button.

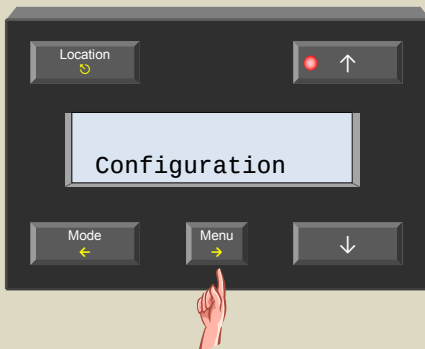
Choice of language

The menu text can be displayed in different languages. Factory default is English, but the language can be set to French, Dutch, Spanish or German.

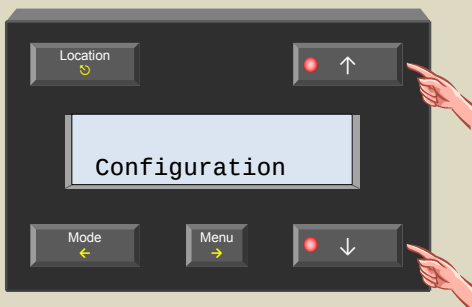
1. When applying power to the controller for the first time, only the time is shown on the display.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



3. If necessary scroll through the extended menu using the ↑ or ↓ button until the 'Configuration' item appears



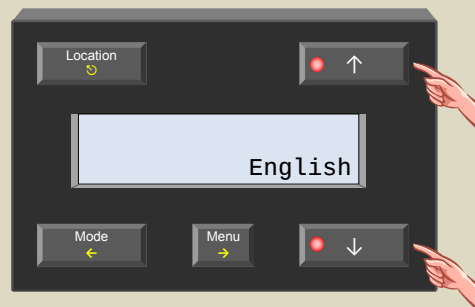
4. Select the configuration menu with the → button.



5. Select the language menu with the → button.



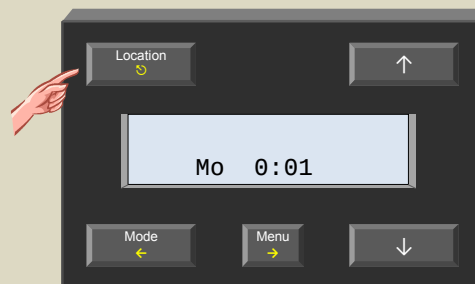
6. Choose the desired language with the ↑ or ↓ button.



7. Confirm the language selection with the → button.



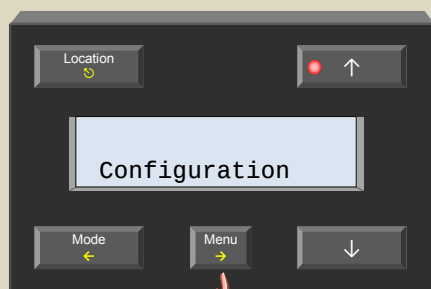
8. Exit the menu with the ↺ button.



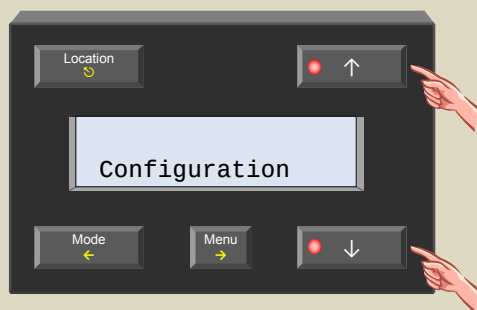
Temperature read-out (°Celsius or °Fahrenheit)

Default setting for the temperature read-out is degrees Celsius. Change the setting to see the read-out in degrees Fahrenheit.

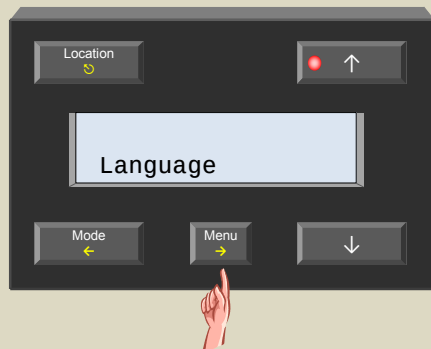
1. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



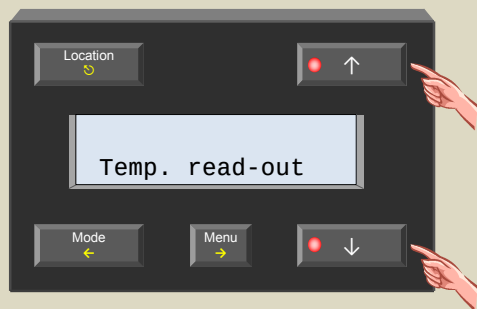
2. If necessary scroll through the extended menu using the ↑ or ↓ button until the 'Configuration' item appears



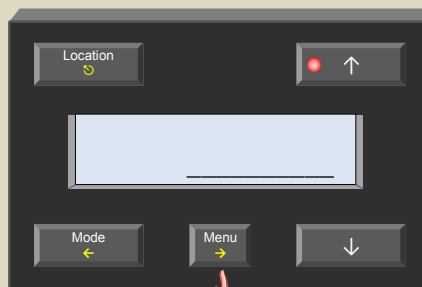
3. Select the configuration menu with the → button.



4. Scroll through the configuration menu using the ↑ or ↓ button until the 'Temp. Read-out' item appears.



5. Select the temperature Readout menu with the → button.



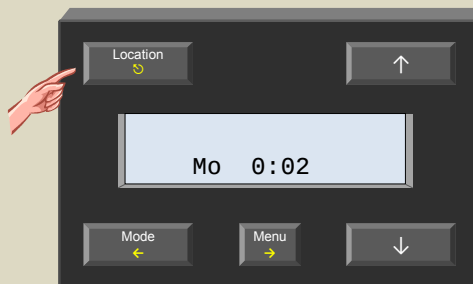
6. Set the read-out to °Celsius or °Fahrenheit using the ↑ or ↓ button.



7. Confirm the read-out setting with the → button.



8. Exit the menu with the ↺ button.



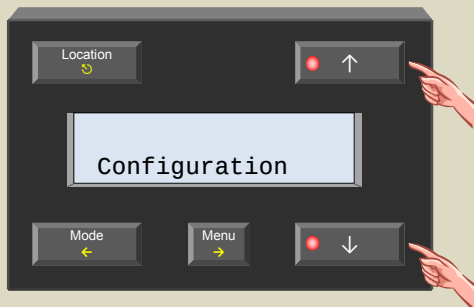
Master clock

When your Velbus installation contains multiple modules with built-in clock (temperature controllers VMB1TC and control panel VMB4PD) it is important that all clocks have the same time setting. This can be achieved by setting the clock of one module as reference (master). This module will then synchronize the other module clocks every day. This function is default disabled.

1. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



2. If necessary scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Configuration' item appears



3. Select the configuration menu with the $\rightarrow$ button.



4. Scroll through the configuration menu using the $\uparrow$ or $\downarrow$ button until the 'Master clock' item appears.



5. Select the temperature Master clock menu with the $\rightarrow$ button.



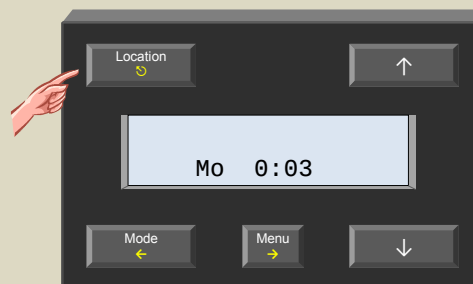
6. Switch the master clock on or off using the $\uparrow$ or $\downarrow$ button.



7. Confirm the master clock setting with the $\rightarrow$ button.



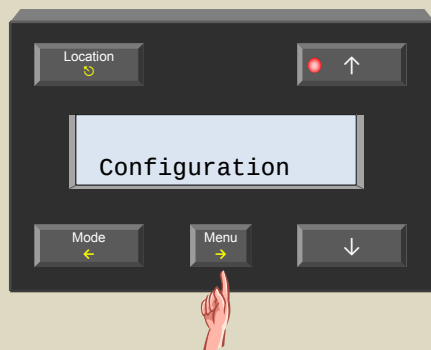
8. Exit the menu with the $\curvearrowright$ button.



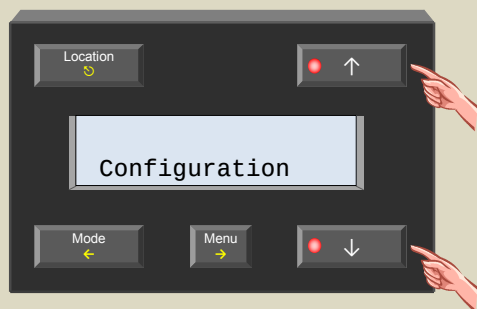
Global alarm

This setting only applies when multiple temperature controllers are connected to your Velbus installation. Default the global alarm function is disabled. Changing the alarm time on a module that has the global alarm function enabled will result in changing the alarm time on all temperature controllers that have the global alarm function enabled. For modules that have the global alarm time disabled, changes in alarm time will only apply to that module.

1. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



2. If necessary scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Configuration' item appears



3. Select the configuration menu with the $\rightarrow$ button.



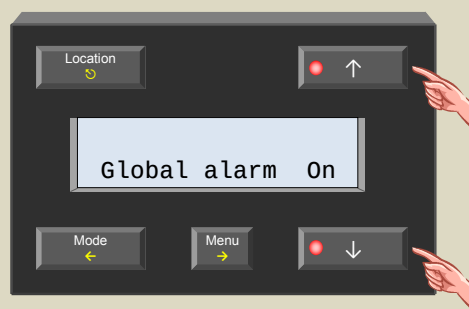
4. Scroll through the configuration menu using the $\uparrow$ or $\downarrow$ button until the 'Global alarm clk' item appears.



5. Select the global alarm menu with the $\rightarrow$ button.



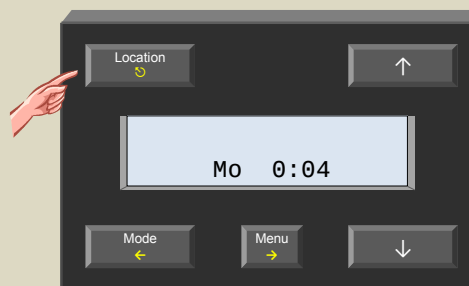
6. Switch the global alarm function on or off using the $\uparrow$ or $\downarrow$ button.



7. Confirm the global alarm setting with the $\rightarrow$ button.



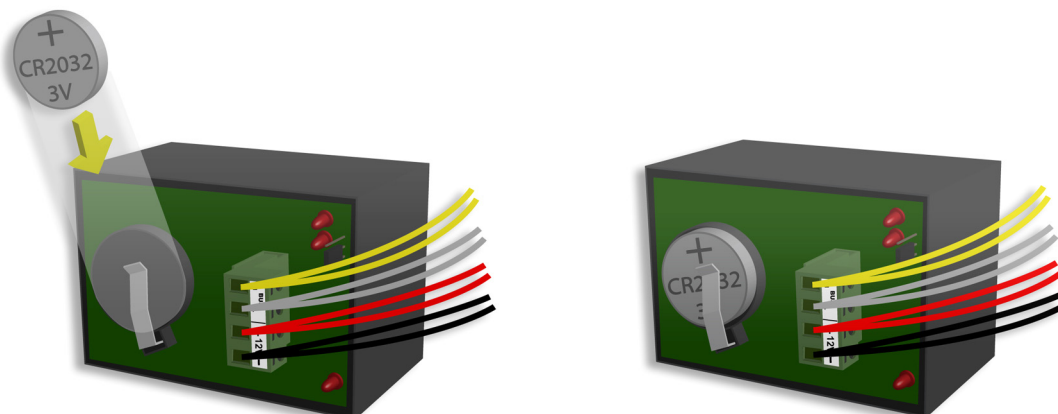
8. Exit the menu with the $\curvearrowright$ button.



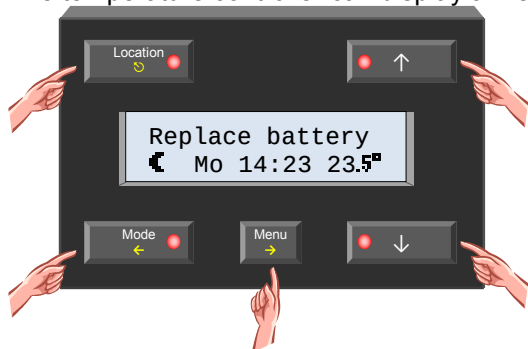
Battery backup

To avoid losing the clock when a power failure occurs, a backup battery (3V Lithium CR2032) can be installed in the battery holder at the back of the module.

To avoid premature depletion of the battery, only install it when permanent power is supplied to the Velbus system.

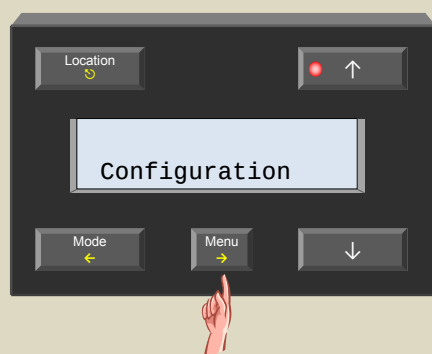


The temperature controller can display a message when the battery needs replacement.

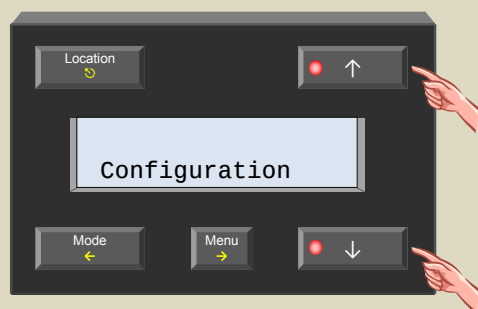


The battery voltage watchdog must be enabled through the configuration menu.

1. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



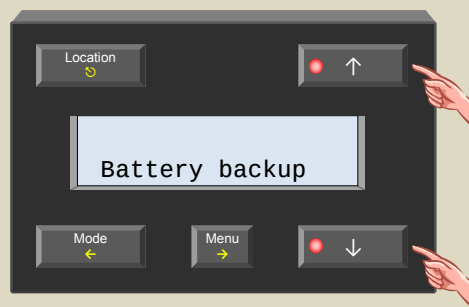
2. If necessary scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Configuration' item appears



3. Select the configuration menu with the $\rightarrow$ button.



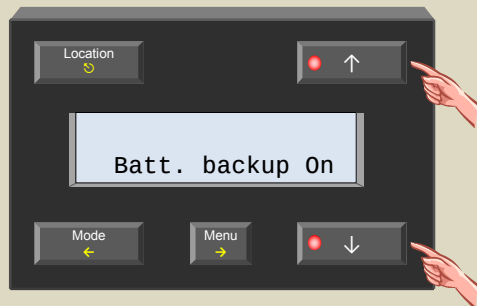
4. Scroll through the configuration menu using the $\uparrow$ or $\downarrow$ button until the 'Battery backup' item appears.



5. Select the battery backup menu with the → button.



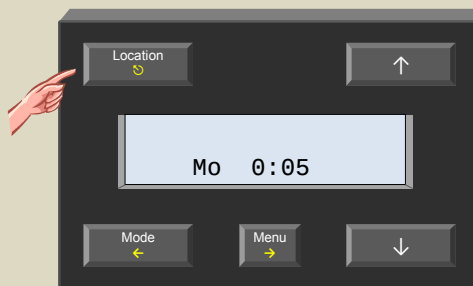
6. Enable the battery backup watchdog when a battery is inserted or disable it when no battery is present using the ↑ or ↓ button.



7. Confirm the battery backup setting with the → button.



8. Exit the menu with the ↶ button.



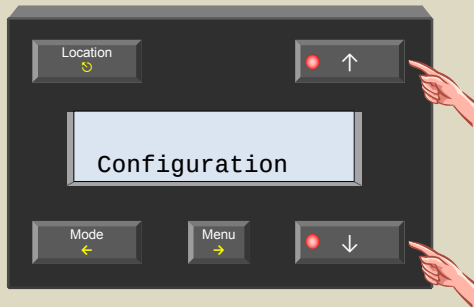
Addressing

Every module on the Velbus system must have its own unique address. On modules with a rotary switch the address is set using the 'ADDR' rotary switch (refer to the manual of the relevant module). On other modules e.g. the temperature controller the address is set via the menu. These addresses may not be altered afterwards.

1. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



2. If necessary scroll through the extended menu using the ↑ or ↓ button until the 'Configuration' item appears



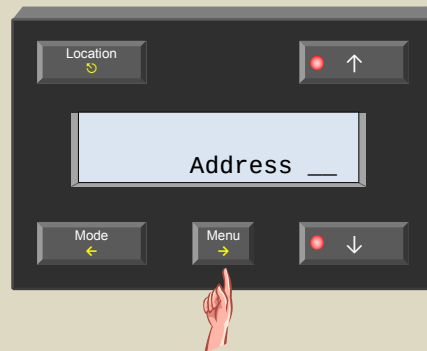
3. Select the configuration menu with the → button.



4. Scroll through the configuration menu using the ↑ or ↓ button until the 'Address' item appears.



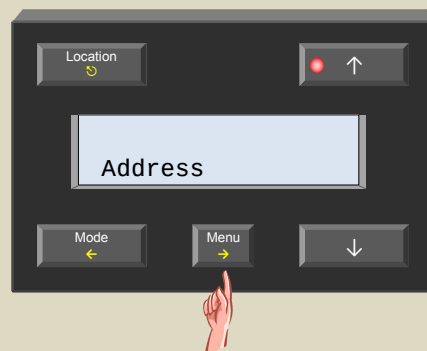
5. Select the Address menu with the → button.



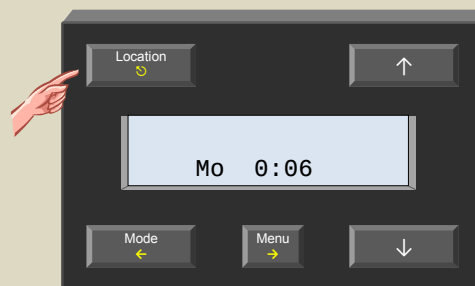
6. Enter a unique address ('01'...'FE') using the ↑ or ↓ button.



7. Confirm the address with the → button.



8. Exit the menu with the ↺ button.

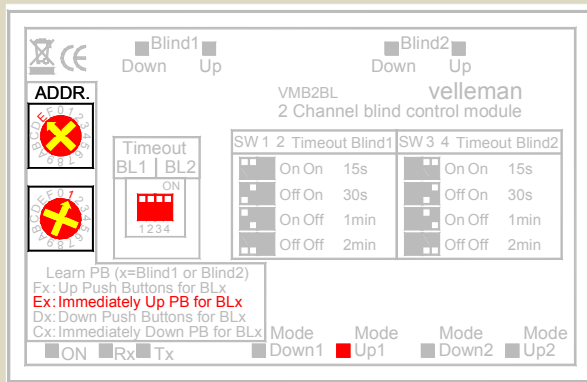


Assign an action to the wake-up time

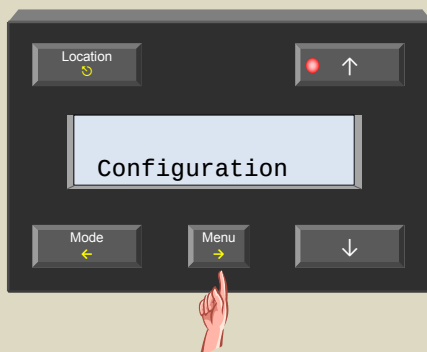
The wake-up time can be used with the thermostat program but also to perform a certain action e.g. switching off staircase lighting, opening the roll-down window shutters, switching certain mains outlets on or off...

As an example, we will automatically open all roll-down window shutters as soon as the set wake-up time is reached. This can also be configured through the Velbus link software on the computer but here we explain the manual procedure.

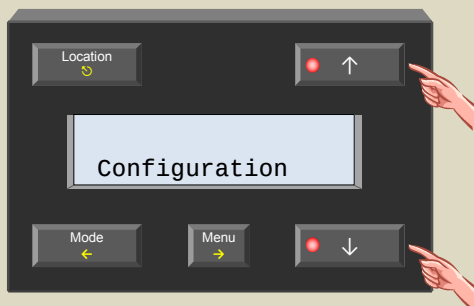
1. Remember all address settings of the shutter modules to reinstate them later on.
2. Set the addresses of all shutter modules to 'E1' to learn the immediately up action for channel 1. The 'Mode Up1' LEDs are flashing to indicate the learning mode.



3. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



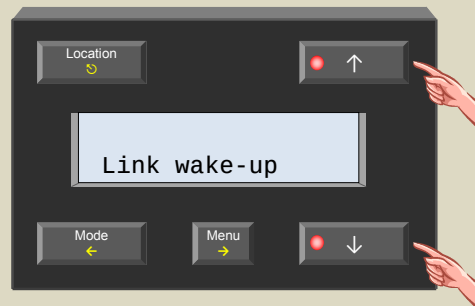
4. If necessary scroll through the extended menu using the ↑ or ↓ button until the 'Configuration' item appears.



5. Select the configuration menu with the → button.



6. Scroll through the configuration menu using the ↑ or ↓ button until the 'Link wake-up' item appears.



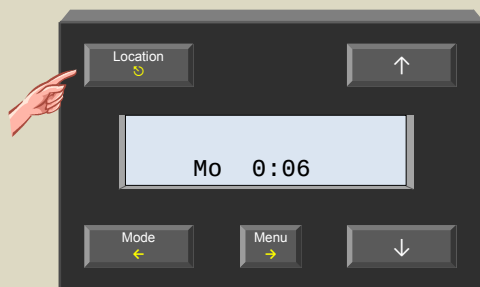
7. Select the link wake up menu with the → button. As a confirmation, the relays of the window shutter modules are energised.



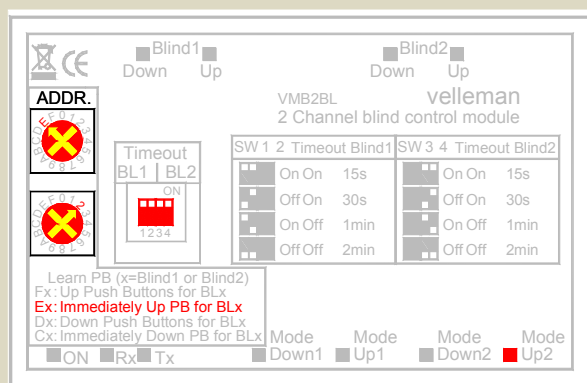
8. Confirm with the → button.
The relays of the window shutter modules are de-energised.



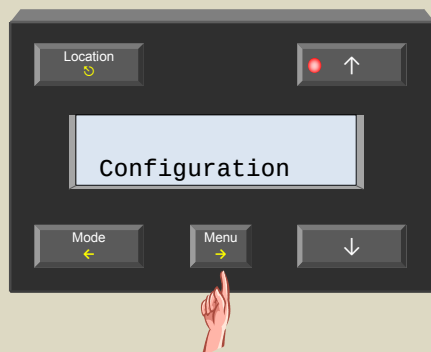
9. Exit the menu with the ↺ button.



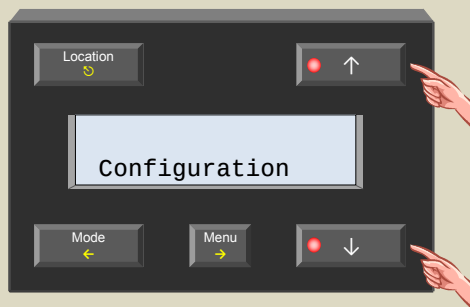
10. Now set the addresses of all shutter modules to 'E2' to learn the immediately up action for channel 2. The 'Mode Up2' LEDs are flashing to indicate the learning mode.



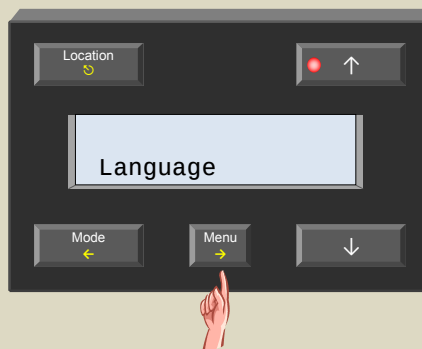
11. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



12. If necessary scroll through the extended menu using the ↑ or ↓ button until the 'Configuration' item appears



13. Select the configuration menu with the → button.



14. Scroll through the configuration menu using the ↑ or ↓ button until the 'Link wake up' item appears.



15. Select the link wake up menu with the → button. As a confirmation, the relays of the window shutter modules are energised.

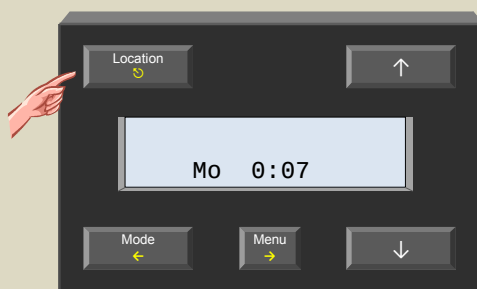


16. Confirm with the → button.

The relays of the window shutter modules are de-energised.



17. Exit the menu with the ↺ button.



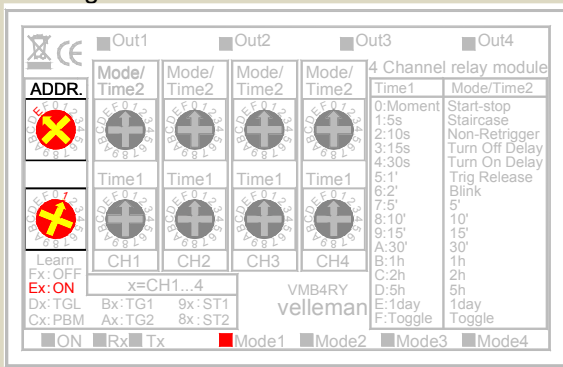
18. Set the addresses of the window shutter modules back to their original value.

Assign an action to the go-to-bed time

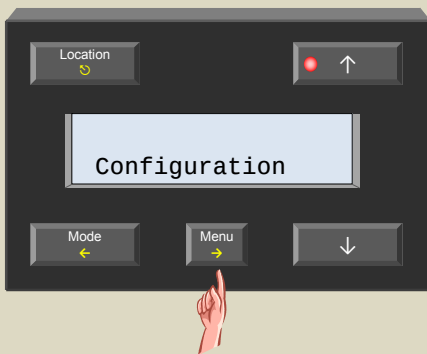
The go-to-bed time can be used with the thermostat program but also to perform a certain action e.g. switching on staircase lighting, closing the roll-down window shutters, switching certain mains outlets off...

As an example, we will automatically switch on the staircase lighting as soon as the set go-to-bed time is reached. This can also be configured through the Velbus link software on the computer but here we explain the manual procedure.

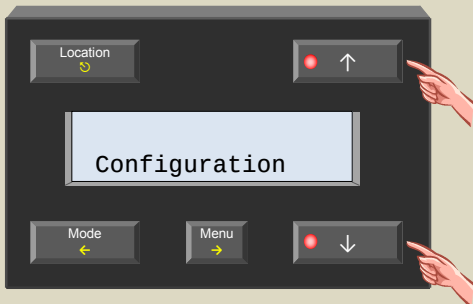
1. Remember the address of the relay module to reinstate it later on.
2. Set the address of the relay module to 'E1' to learn the on-function of the staircase lighting that is connected to channel 1. The 'Mode 1' LEDs are flashing to indicate the learning mode.



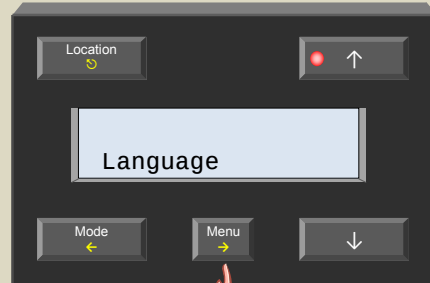
3. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



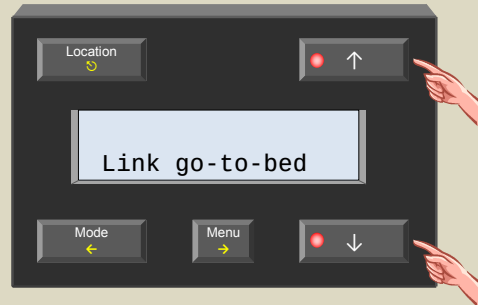
4. If necessary scroll through the extended menu using the ↑ or ↓ button until the 'Configuration' item appears.



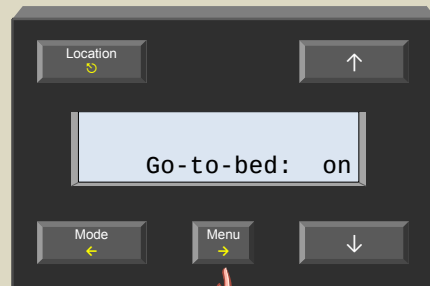
5. Select the configuration menu with the → button.



6. Scroll through the configuration menu using the ↑ or ↓ button until the 'Link go-to-bed' item appears.



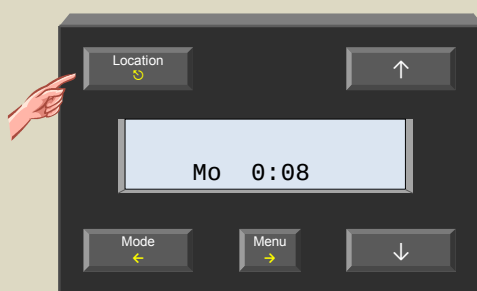
7. Select the link go to bed menu with the → button. As a confirmation, the relay of channel 1 is energised.



8. Confirm with the → button.
The relay is de-energised.



9. Exit the menu with the ↶ button.



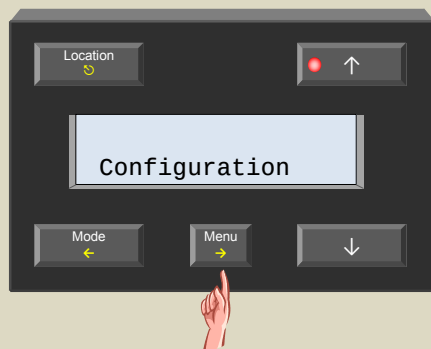
10. Set the address of the relay module back to its original value.

Searching for temperature sensors

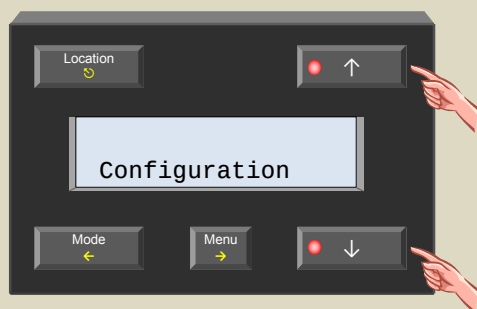
Before the controller can work together with the temperature sensors VMB1TS it must first scan the network for all connected temperature sensors.

When temperature sensors are installed or removed afterwards, the search process must be repeated to update the list of sensors to the new situation.

1. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



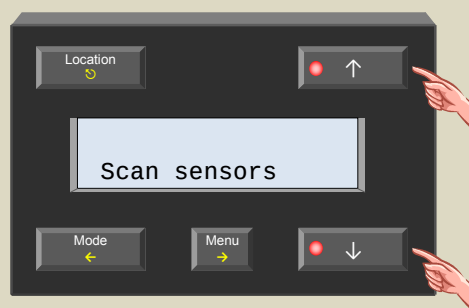
2. If necessary scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Configuration' item appears.



3. Select the configuration menu with the $\rightarrow$ button.



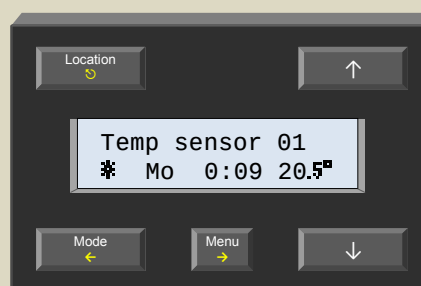
4. Scroll through the configuration menu using the $\uparrow$ or $\downarrow$ button until the 'Scan sensors' item appears.



5. Select the scan sensors menu with the $\rightarrow$ button. The search for sensors on the network is now in progress.



6. Once the search process is completed, the first of the connected temperature sensors is shown on the display.

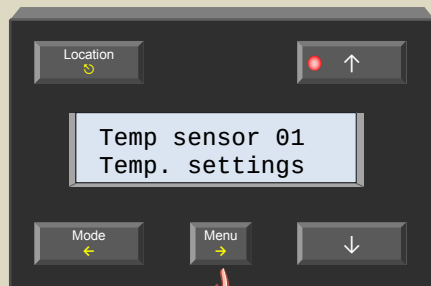


Setting the clock

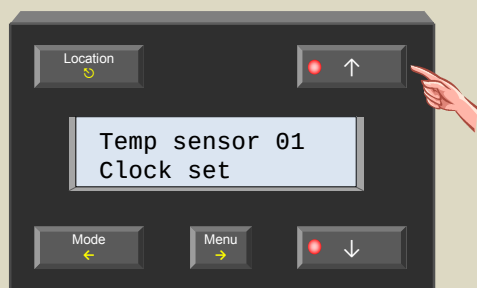
This module works together with one or more temperature sensors VMB1TS to form a programmable thermostat. It is important to set the right time for the internal clock.

Setting the time on this module will set the clocks of all clock containing modules that are connected to the Velbus simultaneously.

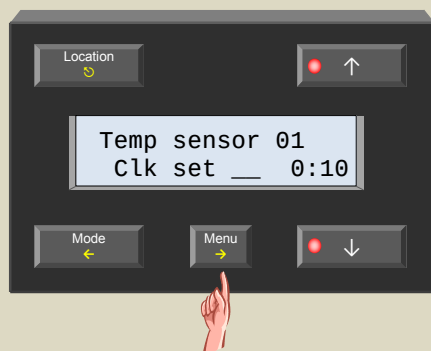
1. Open the menu by pressing the 'Menu' button.



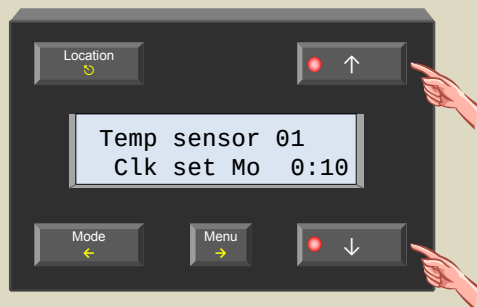
2. Scroll through the menu using the ↑ button until the 'Clock set' item appears.



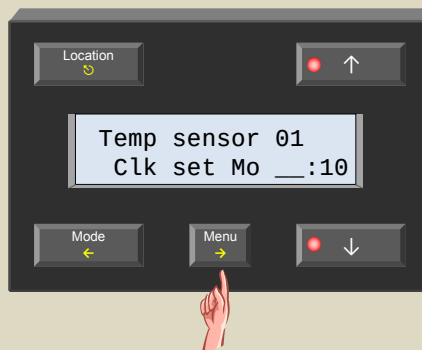
3. Select the set clock menu with the → button. The day-indication flashes.



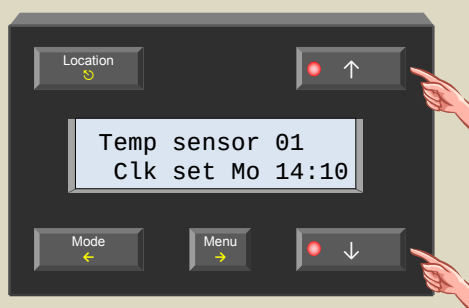
4. Set the day with the ↑ or ↓ button.



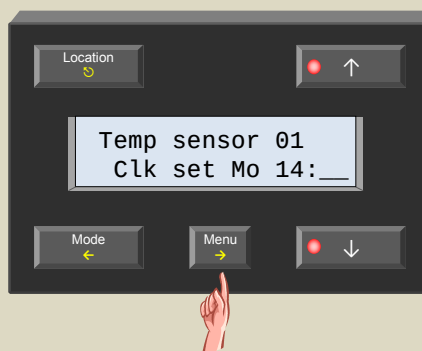
5. Confirm with the → button. The hour-indication flashes.



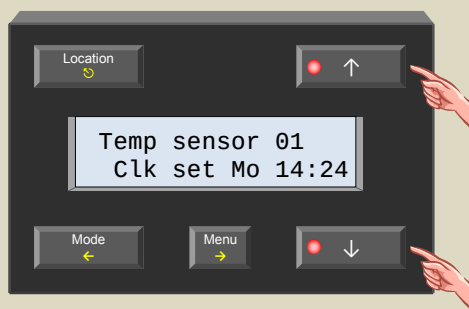
6. Set the hour with the ↑ or ↓ button.



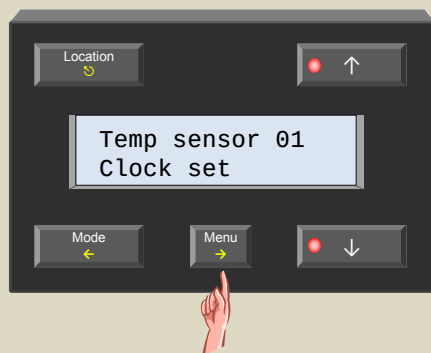
7. Confirm with the → button. The minutes-indication flashes.



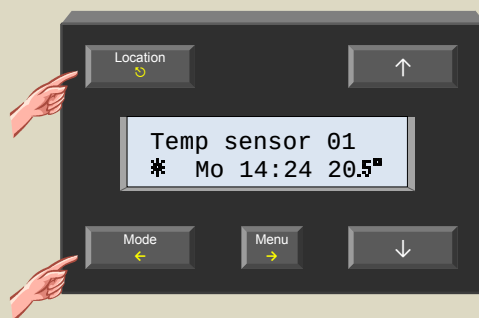
8. Set the minutes with the ↑ or ↓ button.



9. Confirm with the → button to start the clock from the set time.



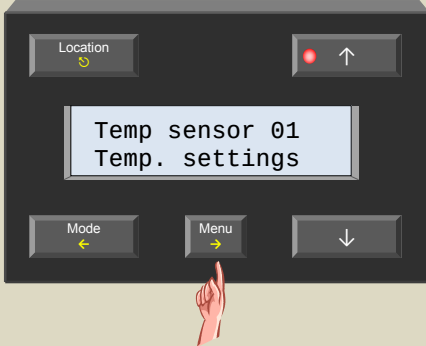
10. Exit the menu with the ↺ button.



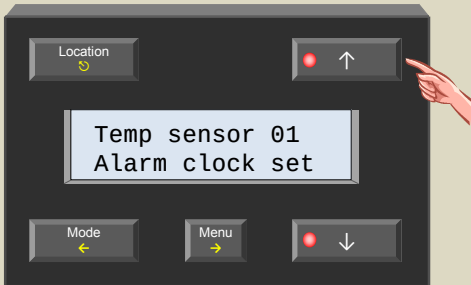
Setting the alarm clock

The module contains an alarm clock that can be enabled or disabled. The alarm times can be used in a thermostat program but also to control an output module (e.g. a relay module).
E.g. the wake-up time can be used to switch on the heating while the go-to-bed time can be used to switch the heating off.

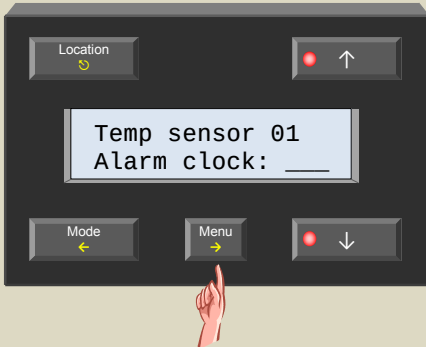
1. Open the menu by pressing the 'Menu' button.



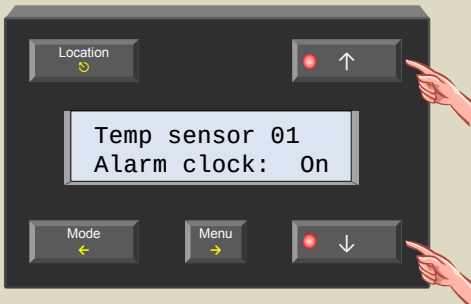
2. Scroll through the menu using the ↑ button until the 'Alarm set' item appears.



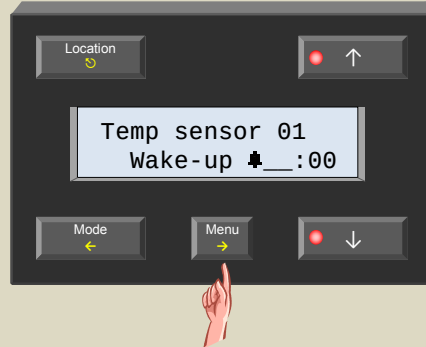
3. Select the alarm set menu with the → button.
The alarm-indication flashes.



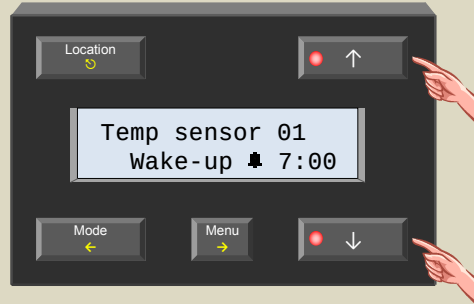
4. Set the alarm clock function with the ↑ or ↓ button.



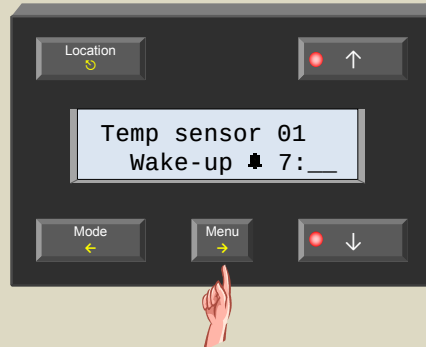
5. Confirm with the → button.
The hour-indication of the wake-up time flashes.



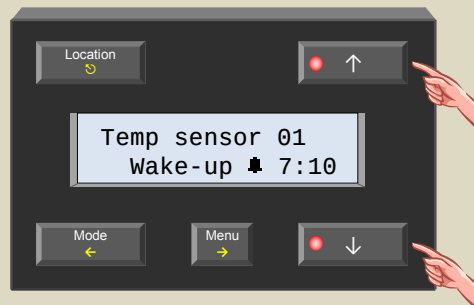
6. Set the hour of the wake-up time with the ↑ or ↓ button.



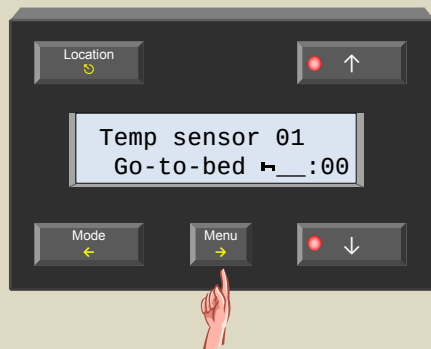
7. Confirm with the → button.
The minutes-indication of the wake-up time flashes.



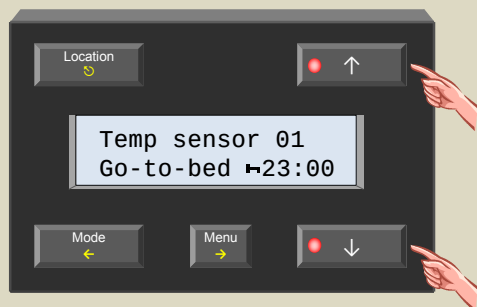
8. Set the minutes of the wake-up time with the ↑ or ↓ button.



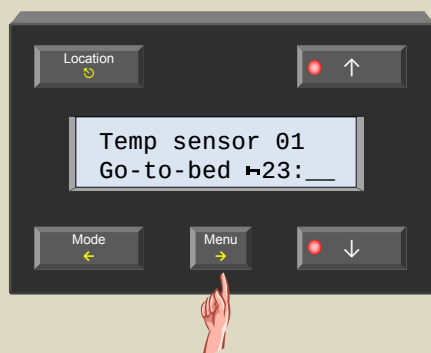
9. Confirm with the → button.
The hour-indication of the go-to-bed time flashes.



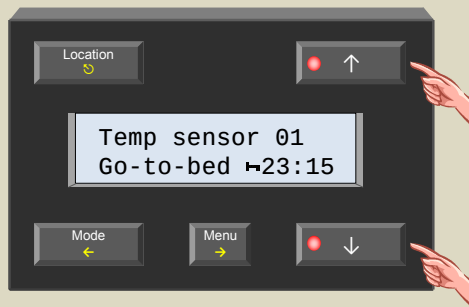
10. Set the hour of the go-to-bed time with the ↑ or ↓ button.



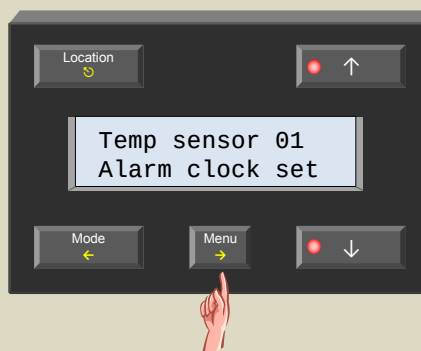
11. Confirm with the → button.
The minutes-indication of the go-to-bed time flashes.



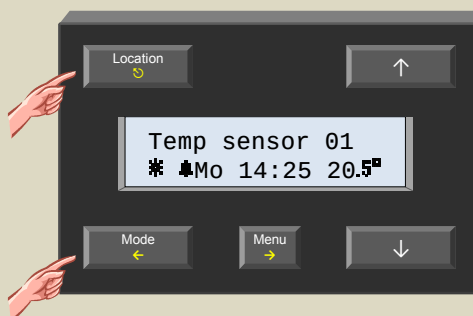
12. Set the minutes of the go-to-bed time with the ↑ or ↓ button.



13. Confirm with the → button.



14. Exit the menu with the ↶ or ← button.

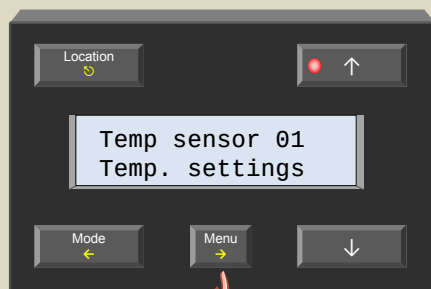


The * symbol indicates that the alarm function is activated.

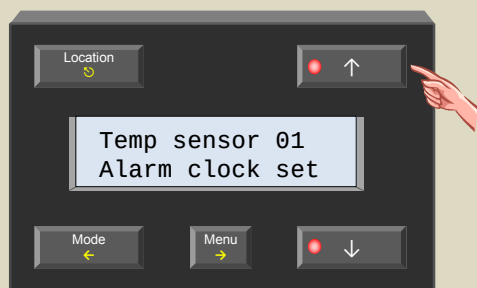
Disabling the alarm clock function

If the use of the alarm clock is no longer desired, the alarm function can be disabled. The actions and program instructions that are linked to the alarm times are suspended.

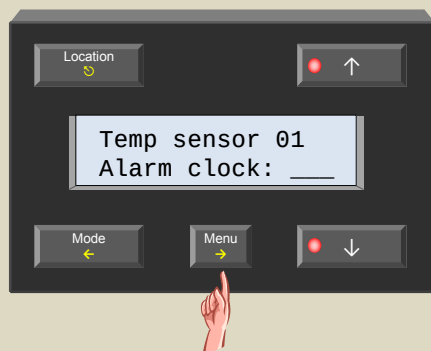
1. Open the menu by pressing the 'Menu' button.



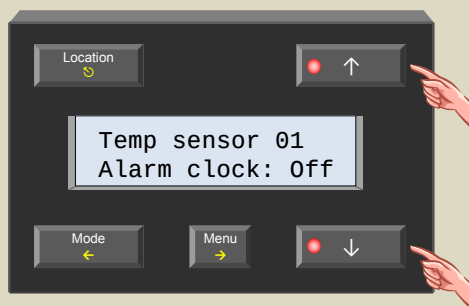
2. Scroll through the menu using the ↑ button until the 'Alarm set' item appears.



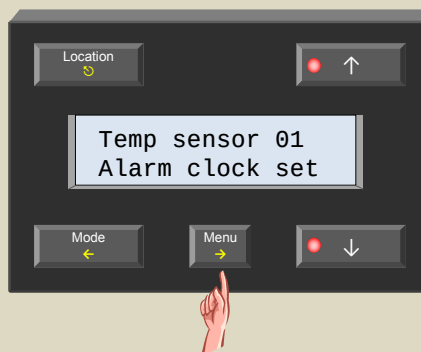
3. Select the alarm set menu with the → button. The alarm-indication flashes.



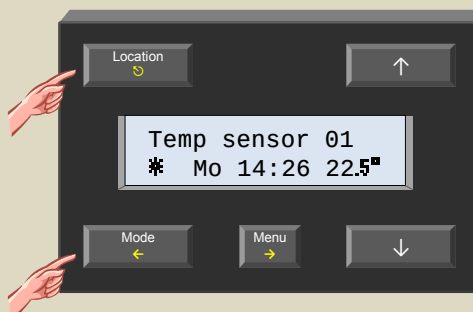
4. Disable the alarm clock function with the ↑ or ↓ button.



5. Confirm with the → button.



6. Exit the menu with the ↻ or ← button.

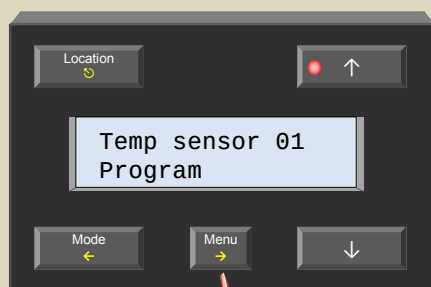


The ★ symbol is no longer visible on the display to indicate that the alarm function is disabled.

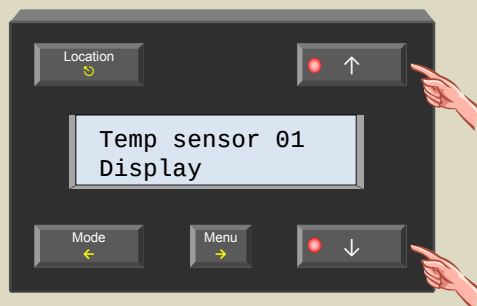
Setting the display contrast

Depending on the mounting location of the controller, it might be necessary to adjust the contrast settings of the display to increase readability.

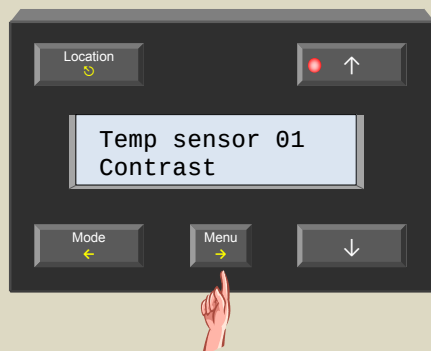
1. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



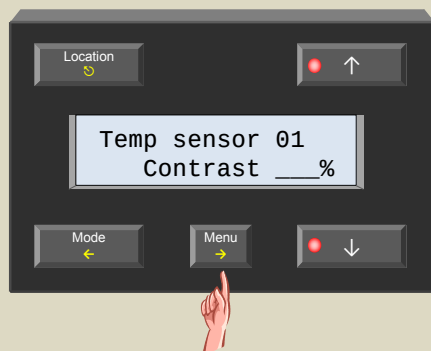
2. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Display' item appears.



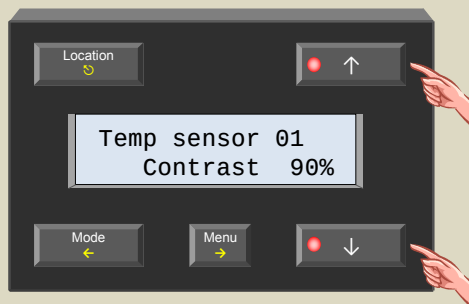
3. Select the display menu with the $\rightarrow$ button.



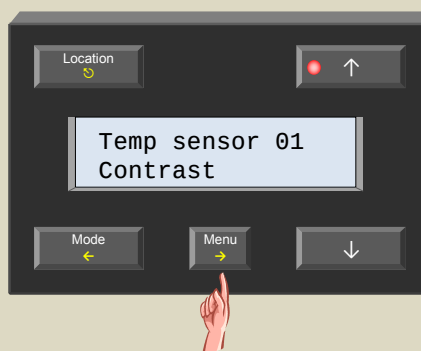
4. Select the contrast menu with the $\rightarrow$ button.



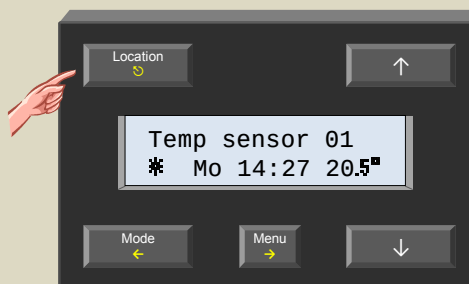
5. Change the contrast with the $\uparrow$ or $\downarrow$ button.



6. Confirm with the $\rightarrow$ button.



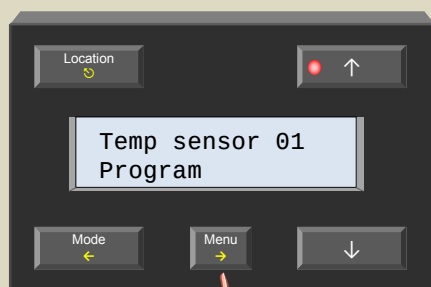
7. Exit the menu with the $\curvearrowright$ button.



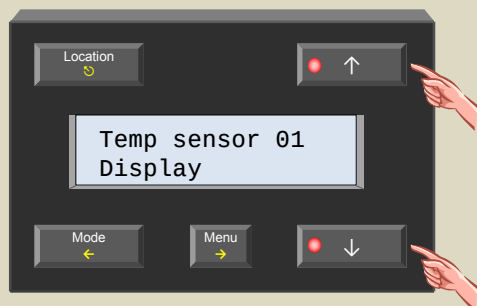
Setting the backlight of the display

The backlight of the display can be changed automatically twice a day. When operating the controller the backlight illumination is immediately set to maximum; after ± 1 minute of inactivity, the backlight will return to its original setting.

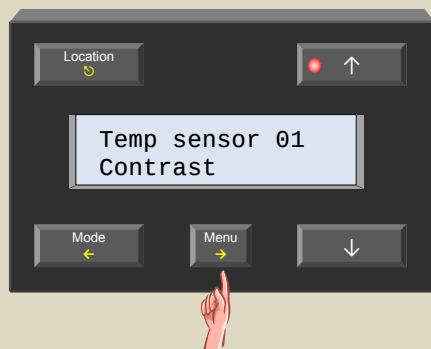
1. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



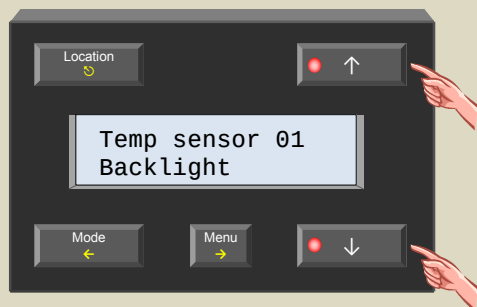
2. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Display' item appears



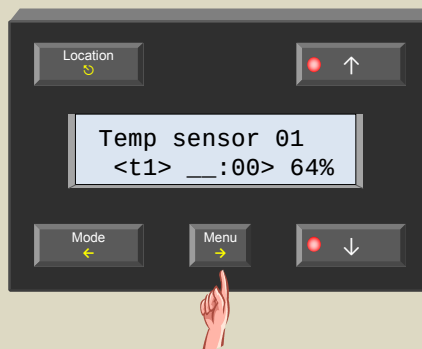
3. Select the display menu with the $\rightarrow$ button.



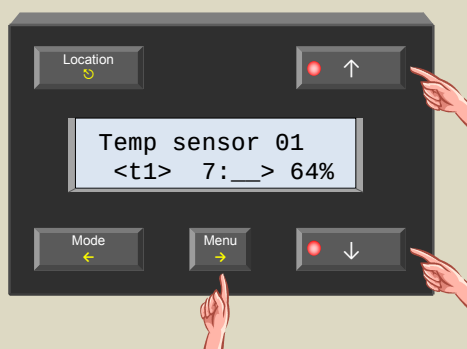
4. Scroll through the display menu using the $\uparrow$ or $\downarrow$ button until the 'Backlight' item appears.



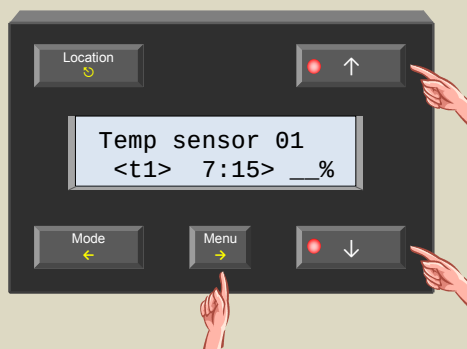
5. Select the backlight menu with the $\rightarrow$ button.



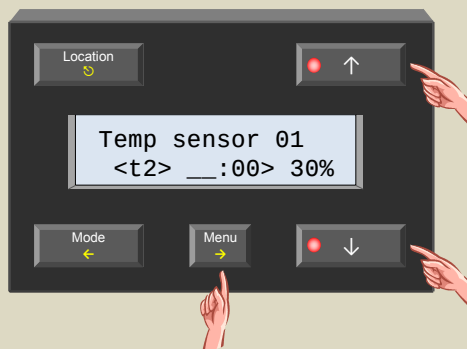
6. Change the hour of the first time frame with the $\uparrow$ or $\downarrow$ button and confirm with the $\rightarrow$ button.



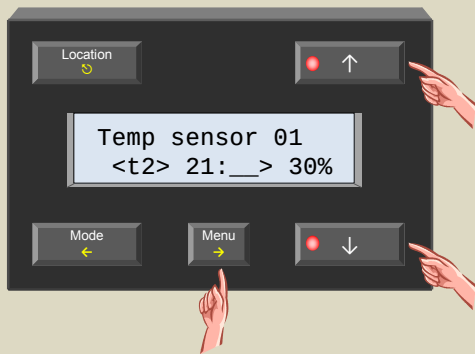
7. Change the minutes of the first time frame with the $\uparrow$ or $\downarrow$ button and confirm with the $\rightarrow$ button.



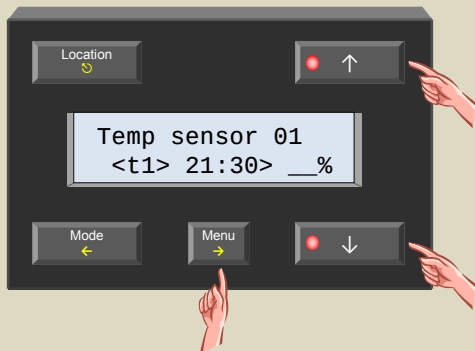
8. Set the brightness for the first time frame with the $\uparrow$ or $\downarrow$ button and confirm with the $\rightarrow$ button.



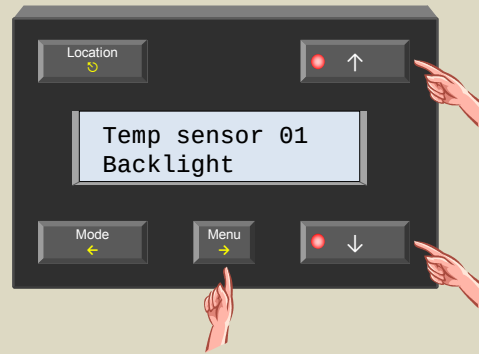
9. Change the hour of the second time frame with the ↑ or ↓ button and confirm with the → button.



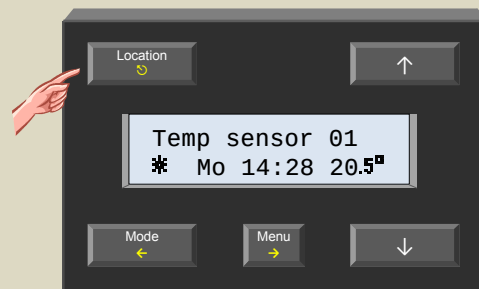
10. Change the minutes of the second time frame with the ↑ or ↓ button and confirm with the → button.



11. Set the brightness for the second time frame with the ↑ or ↓ button and confirm with the → button.



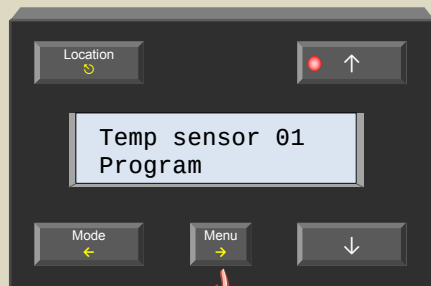
12. Exit the menu with the ⏮ button.



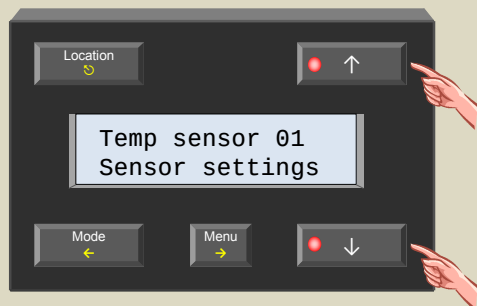
Assign sensor names

Default all the temperature sensors will have the same name ('Temp sensor xx'). To distinguish between the different temperature sensors it is strongly advised to assign a more meaningful name (e.g. the name of the room) to each sensor.

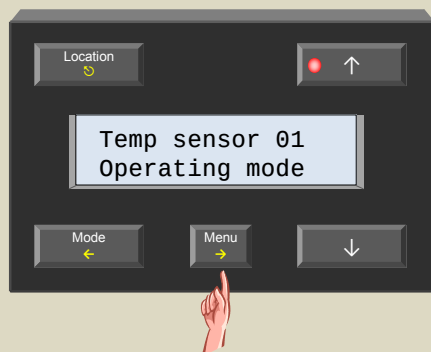
1. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



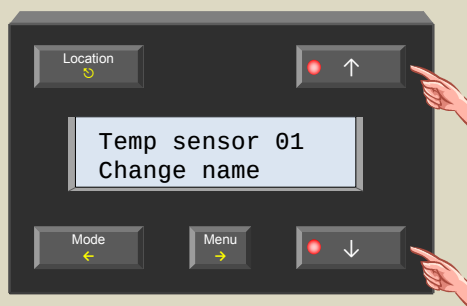
2. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



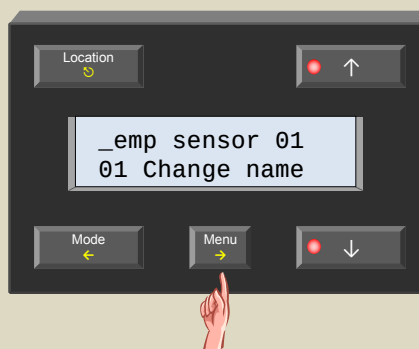
3. Select the sensor settings menu with the → button.



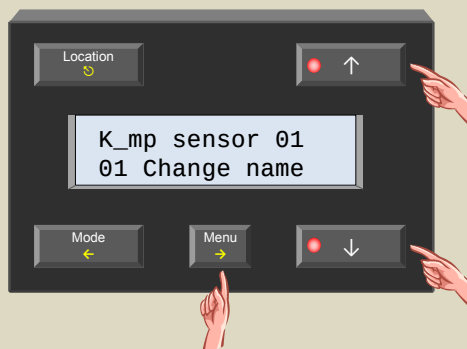
4. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Change name' item appears.



5. Select the change name menu with the → button. The cursor flashes on the first character of the name. The second line indicates the address of the selected temperature sensor. With this address the location of the sensor can be determined.



6. Change the character at the cursor location with the ↑ or ↓ button and confirm with the → button. The cursor moves to the next character.



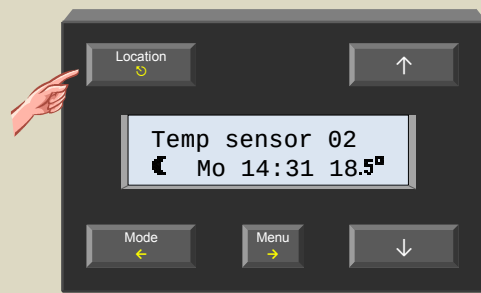
7. Repeat step 6 until all characters are entered.



8. Exit the menu with the  button.



9. Press the 'Location' button to select the next sensor.



10. Repeat steps 1 through 9 until every sensor has a meaningful name.

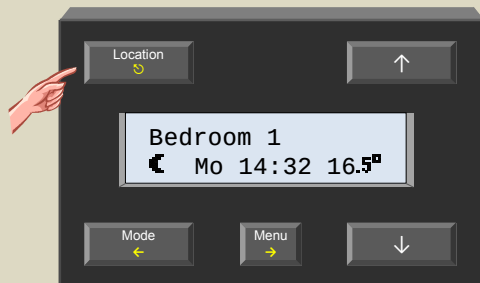
Defining zones

It could be interesting to group different sensors in a zone. When that zone is selected, all operations on the controller will be applicable for all sensors that belong to that zone. This way operating the system can be greatly facilitated.

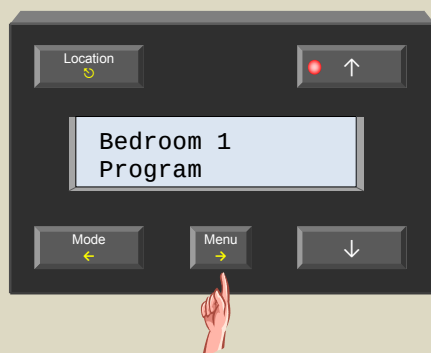
It is possible to define up to 7 zones e.g. ground floor, second floor, bedrooms ...

Default temperature sensors are not assigned to a zone. To assign them to a zone the procedure below should be followed.

1. Press the 'Location' button repeatedly until the sensor that will to be added to a zone is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



3. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the → button.



5. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Zone number' item appears



6. Select the zone number menu with the → button.



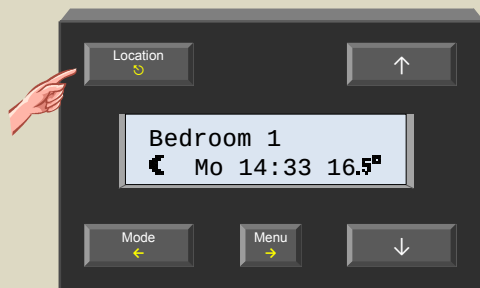
7. Change the zone with the ↑ or ↓ button. Option '---' indicates that the sensor does not belong to a zone.



8. Confirm with the → button.



9. Exit the menu with the ↶ button.

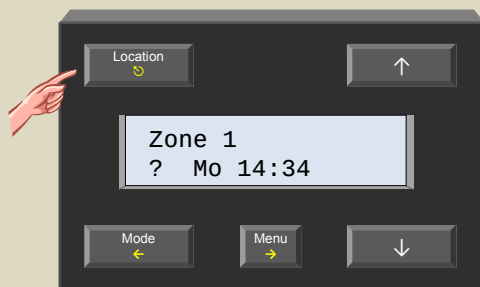


10. Repeat steps 1 through 9 for every sensor that needs to be added to a zone.

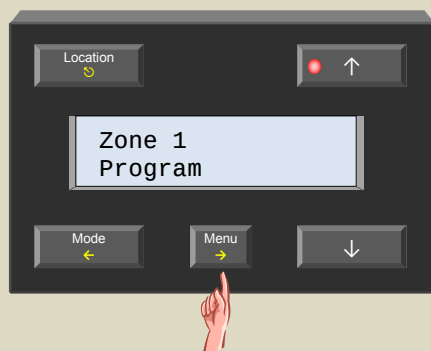
Change the default zone names

The names 'Zone 1', 'Zone 2' until 'Zone 3' can be changed into more meaningful names.

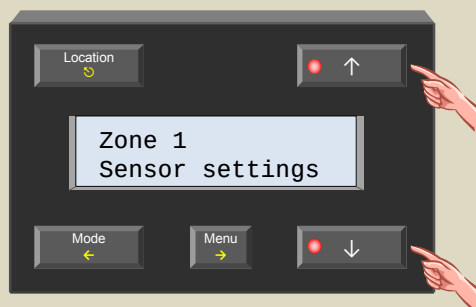
1. Press the 'Location' button repeatedly until the desired zone is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



3. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the → button.



5. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Change name' item appears.



6. Select the change name menu with the → button. The cursor flashes on the first character of the name. The second line indicates zone number.



7. Change the character at the cursor location with the ↑ or ↓ button and confirm with the → button. The cursor moves to the next character.



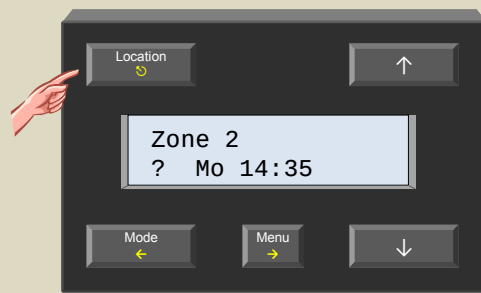
8. Repeat step 7 until all characters are entered.



9. Exit the menu with the ↺ button.



10. Press the 'Location' button to select the next zone.

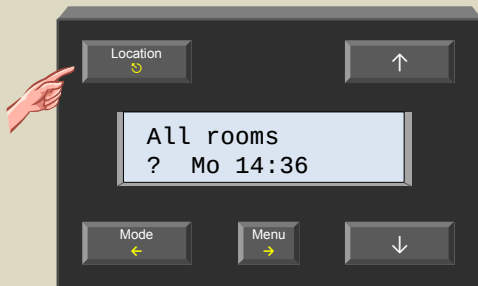


11. Repeat steps 2 through 10 until every zone has a meaningful name.

Heating or cooling mode

Default the sensor is programmed for heating installations. It is possible however to use it for controlling air-conditioning systems.

1. Press the 'Location' button repeatedly until the desired sensor or zone is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



3. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Sensor settings' item appears.



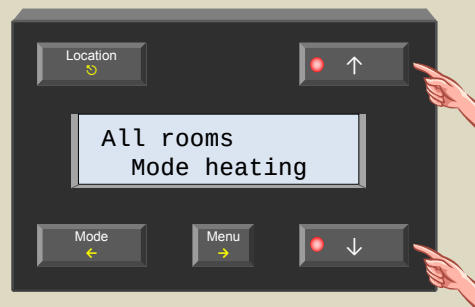
4. Select the sensor settings menu with the $\rightarrow$ button.



5. Select the operating mode menu with the $\rightarrow$ button.



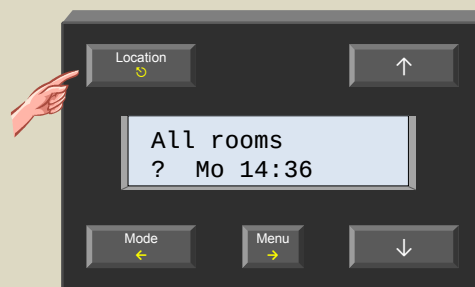
6. Change the mode to heating or cooling using the $\uparrow$ or $\downarrow$ button.



7. Confirm with the $\rightarrow$ button.



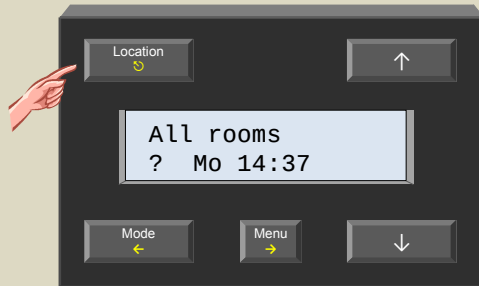
8. Exit the menu with the $\curvearrowright$ button.



Lock or unlock local mode setting

It is possible to switch between comfort, day, and night or anti-freeze mode locally on every temperature sensor. This can be avoided by disabling the function on the temperature sensor(s).

1. Press the 'Location' button repeatedly until the desired sensor or zone is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



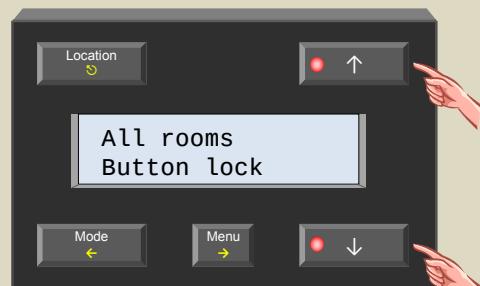
3. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the $\rightarrow$ button.



5. Scroll through the sensor settings menu using the $\uparrow$ or $\downarrow$ button until the 'Button lock' item appears.



6. Select the keyboard menu with the $\rightarrow$ button.



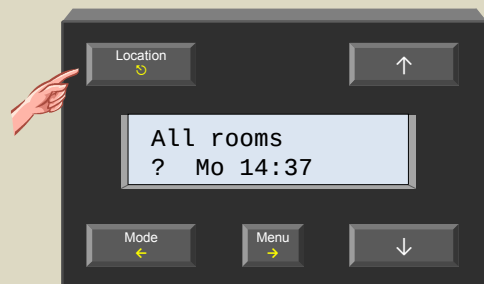
7. Lock or unlock using the $\uparrow$ or $\downarrow$ button.



8. Confirm with the $\rightarrow$ button.



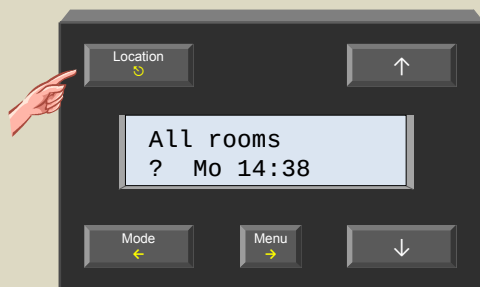
9. Exit the menu with the $\curvearrowright$ button.



Default duration of temporary mode (default sleep time)

The thermostat program can be temporary ignored by using the sleep timer. The default duration of this sleep time can be set.

1. Press the 'Location' button repeatedly until the desired sensor or zone for which the default sleep time will be set is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



3. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the → button.



5. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Sleep timer' item appears.



6. Select the sleep timer menu with the → button.



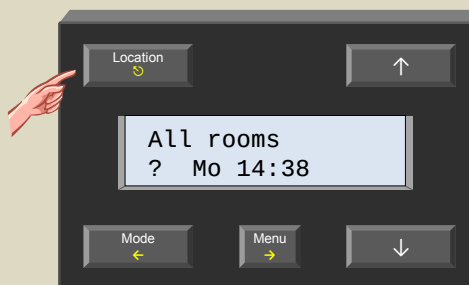
7. Change the 'sleep time' using the ↑ or ↓ button.



8. Confirm with the → button.



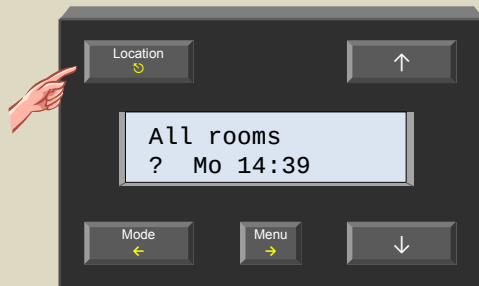
9. Exit the menu with the ↶ button.



Low temperature alarm

The sensor can trigger an alarm when the temperature drops below a defined value. This could be useful when the heating system shuts down and the temperature reaches freezing point.

1. Press the 'Location' button repeatedly until the desired sensor or zone for which the low temperature alarm must be set is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



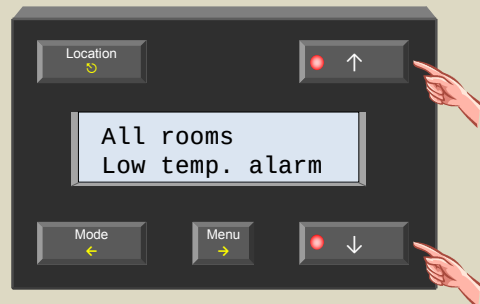
3. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the $\rightarrow$ button.



5. Scroll through the sensor settings menu using the $\uparrow$ or $\downarrow$ button until the 'Low temp. alarm' item appears.



6. Select the temp. alarm menu with the $\rightarrow$ button.



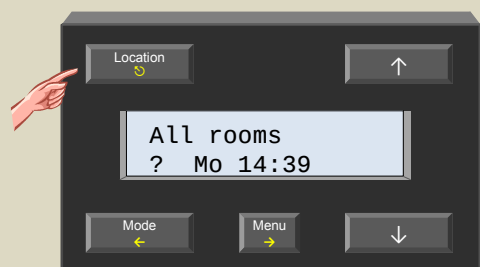
7. Change the alarm temp. using the $\uparrow$ or $\downarrow$ button.



8. Confirm with the $\rightarrow$ button.



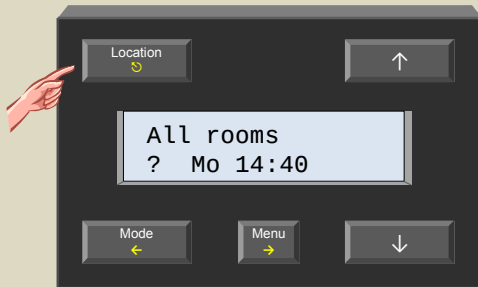
9. Exit the menu with the $\curvearrowright$ button.



High temperature alarm

The sensor can trigger an alarm when the temperature rises above a defined value. This could be useful when a valve fails to close and the room would keep heating up.

1. Press the 'Location' button repeatedly until the desired sensor or zone for which the high temperature alarm will be set is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



3. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the $\rightarrow$ button.



5. Scroll through the sensor settings menu using the $\uparrow$ or $\downarrow$ button until the 'High temp. alarm' item appears.



6. Select the temp. alarm menu with the $\rightarrow$ button.



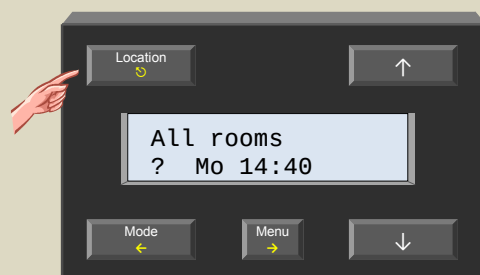
7. Change the alarm temp. using the $\uparrow$ or $\downarrow$ button.



8. Confirm with the $\rightarrow$ button.



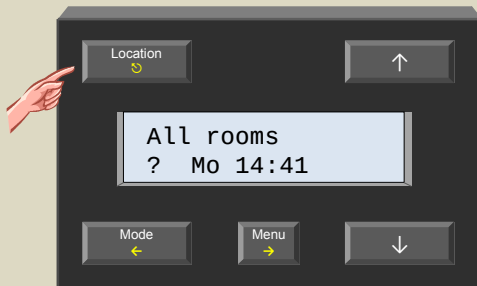
9. Exit the menu with the $\curvearrowright$ button.



Anti-freeze temperature

This is the lowest allowed room temperature. When temperature reaches or drops below freezing temperature, the heating will always switch on.

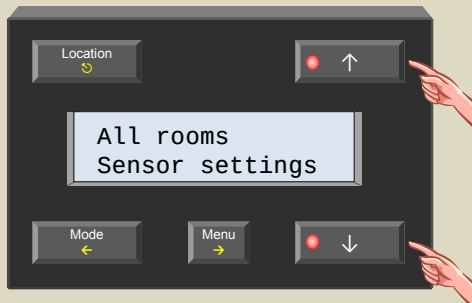
1. Press the 'Location' button repeatedly until the desired sensor or zone for which the anti-freeze temperature will be set is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



3. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the $\rightarrow$ button.



5. Scroll through the sensor settings menu using the $\uparrow$ or $\downarrow$ button until the 'Anti-freeze temp.' item appears.



6. Select the anti-freeze temperature menu with the $\rightarrow$ button.



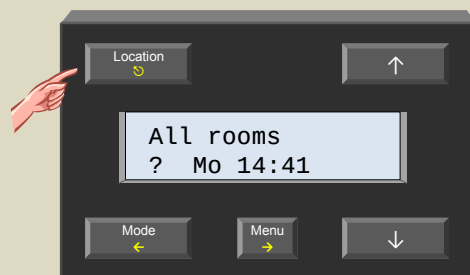
7. Set the anti-freeze temp. with the $\uparrow$ or $\downarrow$ button.



8. Confirm with the $\rightarrow$ button.



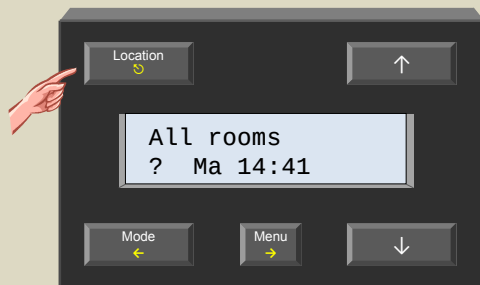
9. Exit the menu with the $\curvearrowright$ button.



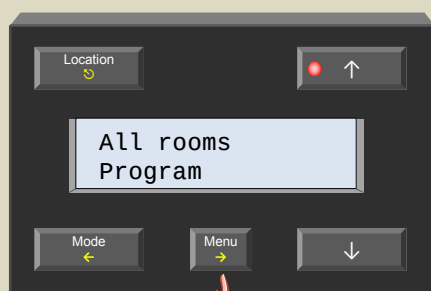
Heating limit

This is the maximum desired room temperature that can be set. Default it is set to 30° but the user can change this limit. This could be useful to make sure that the desired room temperature is never set to a value higher than a certain predefined value.

1. Press the 'Location' button repeatedly until the desired sensor or zone for which the upper heat temp. will be set is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



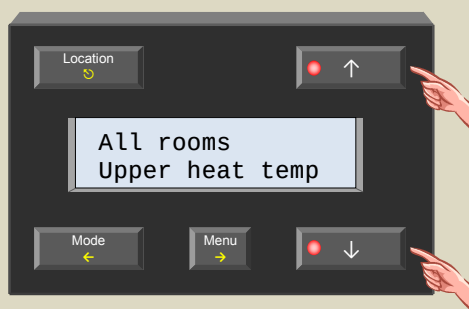
3. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the → button.



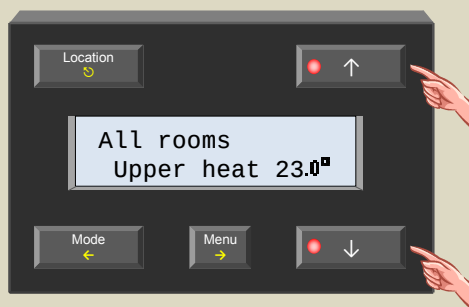
5. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Upper heat temp' item appears.



6. Select the upper heat temp. menu with the → button.



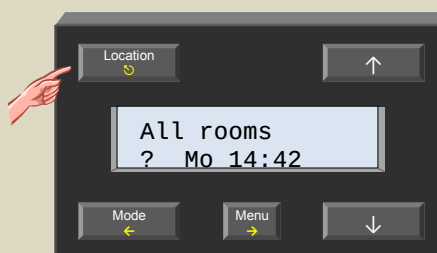
7. Set the upper heat temp. with the ↑ or ↓ buttons.



8. Confirm with the → button.



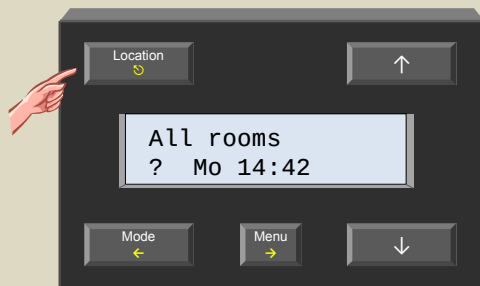
9. Exit the menu with the ↺ button.



Minimum cooling temperature

This is the minimum desired room temperature that can be set for the air conditioner. Default it is set to 16° but the user can change this limit. This could be useful to make sure that the air conditioner is never set to a value lower than a certain predefined value.

1. Press the 'Location' button repeatedly until the desired sensor or zone for which the lower cool temperature will be set is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



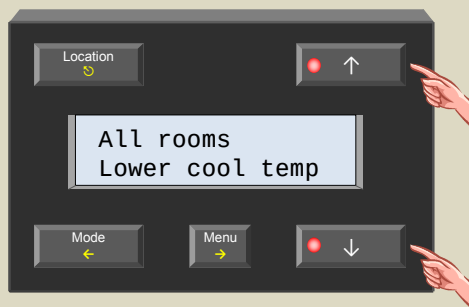
3. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the → button.



5. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Lower cool temp' item appears.



6. Select the lower cool temp. menu with the → button.



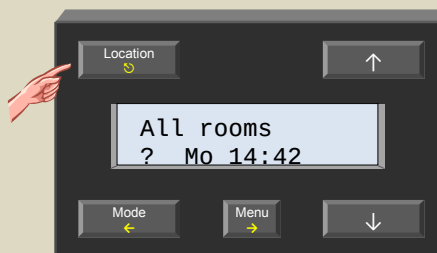
7. Set the lower cool temp. with the ↑ or ↓ button.



8. Confirm with the → button.



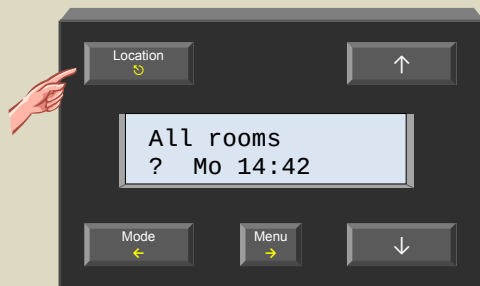
9. Exit the menu with the ⏮ button.



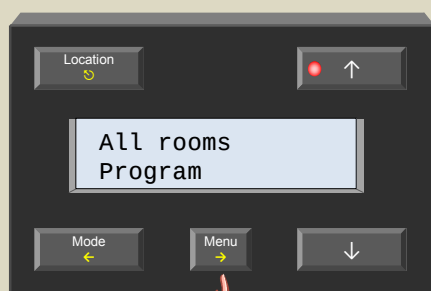
Maximum cooling temperature

This is the highest allowed room temperature. When temperature rises above the maximum cooling temperature, the air conditioner will switch on.

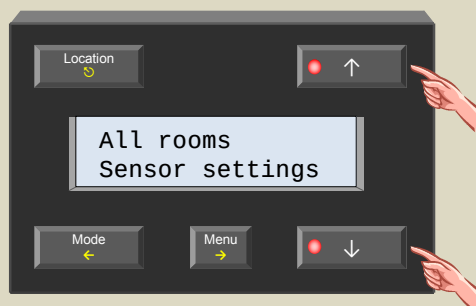
1. Press the 'Location' button repeatedly until the desired sensor or zone for which the upper cool temperature will be set is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



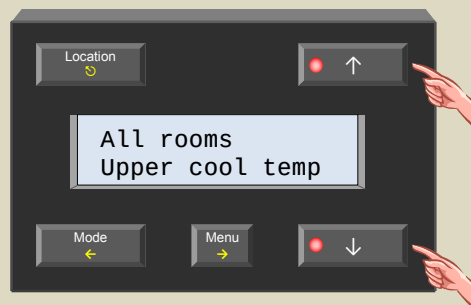
3. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the $\rightarrow$ button.



5. Scroll through the sensor settings menu using the $\uparrow$ or $\downarrow$ button until the 'Upper cool temp' item appears.



6. Select the upper cool temp. menu with the $\rightarrow$ button.



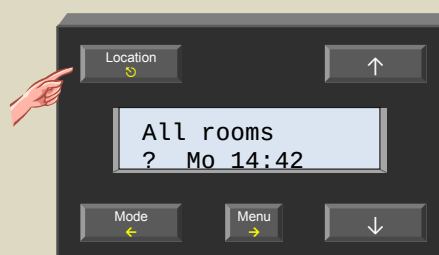
7. Set the upper cool temp. with the $\uparrow$ or $\downarrow$ button.



8. Confirm with the $\rightarrow$ button.



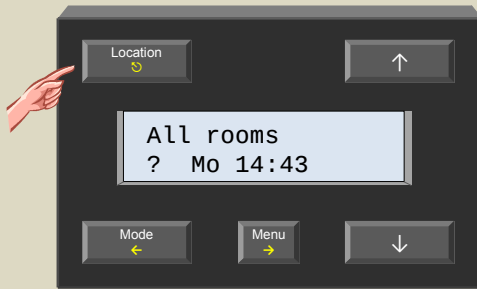
9. Exit the menu with the $\curvearrowright$ button.



Hysteresis temperature

Hysteresis defines the difference between the on- and off temperature of the heating or air-conditioning.

1. Press the 'Location' button repeatedly until the desired sensor or zone for which the hysteresis temperature will be set is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



3. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the $\rightarrow$ button.



5. Scroll through the sensor settings menu using the $\uparrow$ or $\downarrow$ button until the 'Hysteresis' item appears.



6. Select the hysteresis menu with the $\rightarrow$ button.



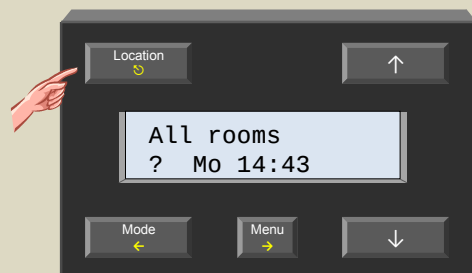
7. Set the hysteresis temperature with the $\uparrow$ or $\downarrow$ button.



8. Confirm with the $\rightarrow$ button.



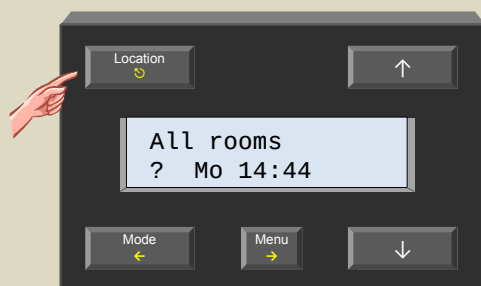
9. Exit the menu with the $\curvearrowright$ button.



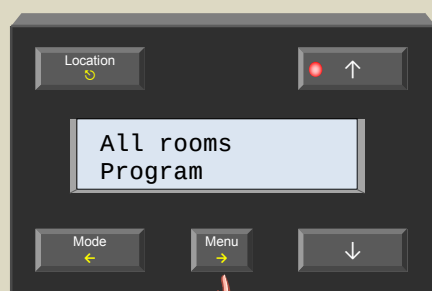
Temperature difference

Convectors often have a built-in fan for faster heating. This setting determines how much the temperature needs to drop below the desired temperature in order to switch on the convectors' fan(s). The temperature difference is also used for the differential thermostat (see paragraph on differential thermostat).

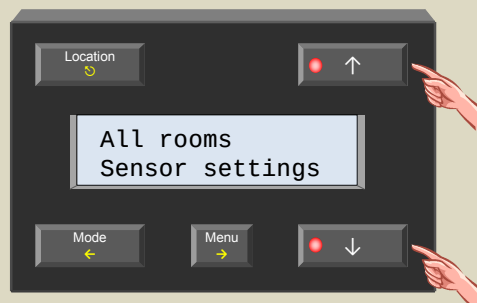
1. Press the 'Location' button repeatedly until the desired sensor or zone for which the temperature difference will be set is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



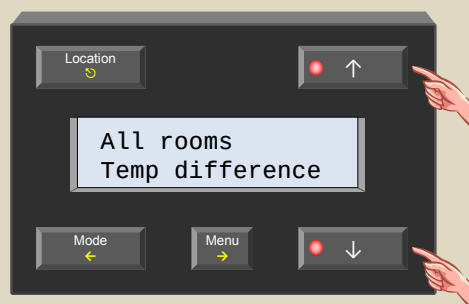
3. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the → button.



5. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Temp difference' item appears.



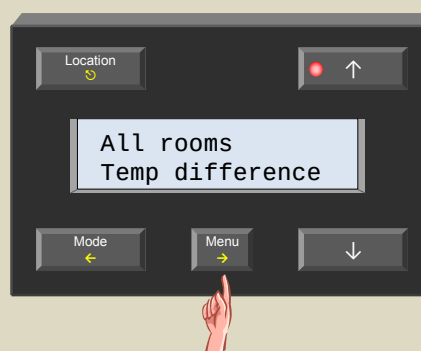
6. Select the temp. difference item with the → button.



7. Change the difference temperature with the ↑ or ↓ button.



8. Confirm with the → button.



9. Exit the menu with the ↺ button.



Difference sensor

Using two sensors a differential thermostat can be created. When the difference in temperature between both sensors reaches a certain value, a relay channel can be activated. To achieve this, the one sensor must know the address of the other one (see paragraph on differential thermostat).

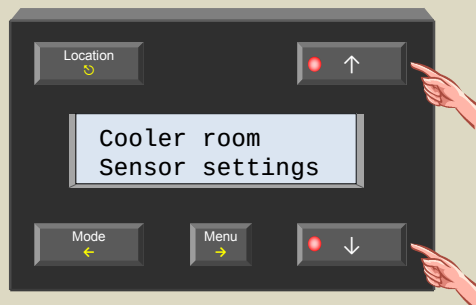
1. Push the 'Location' button until the first sensor of the differential thermostat is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



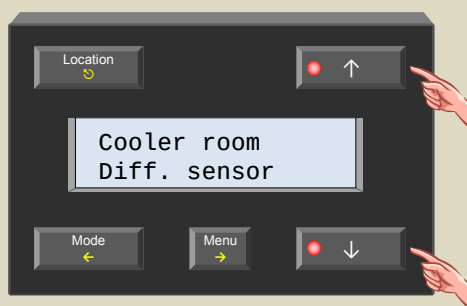
3. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the → button.



5. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Diff. sensor' item appears.



6. Select the diff. sensor item with the → button.



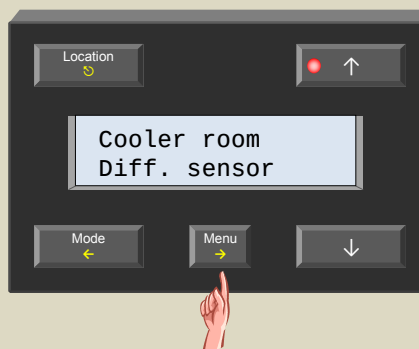
7. Select the second sensor of the differential thermostat using the ↑ or ↓ button.



Remark:

If no differential thermostat is needed, the entry field must remain empty ('---').

8. Confirm with the → button.

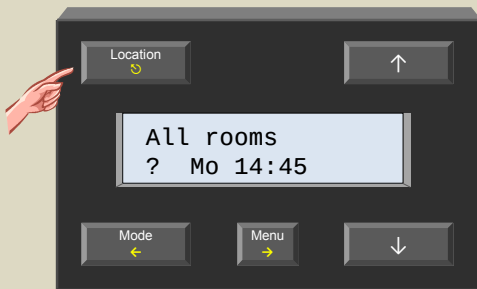


9. Exit the menu with the ⏮ button.

Protecting the circulation pump

When a circulation pump is not being used for some time, it might get stuck. To avoid this, an unjamming function can be enabled which activates the pump for at least one minute every day.

1. Press the 'Location' button repeatedly until the desired sensor or zone for which the pump unjamming function will be set is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



3. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



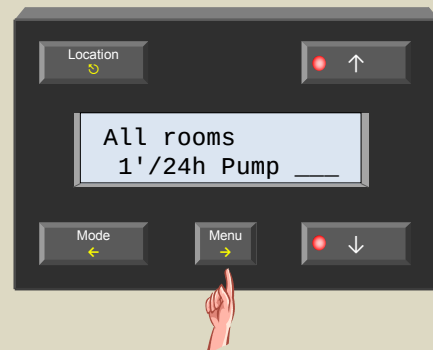
4. Select the sensor settings menu with the → button.



5. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Unjam pump' item appears



6. Select the unjam menu with the → button.



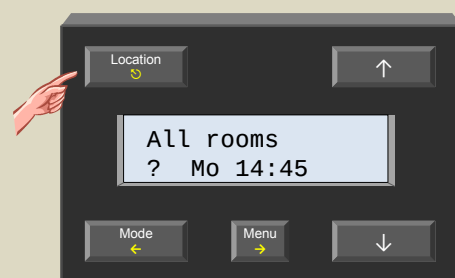
7. Switch unjam on or off with the ↑ or ↓ button.



8. Confirm with the → button.



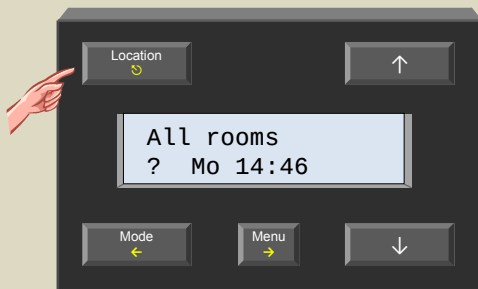
9. Exit the menu with the ⌂ button.



Protecting the valves

To avoid valves getting stuck, an unjam function is available. This function will open the valves for at least one minute every day

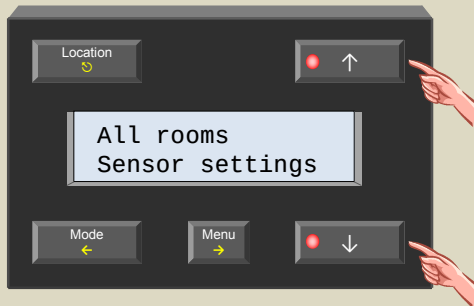
1. Press the 'Location' button repeatedly until the desired sensor or zone for which the valve unjamming function will be set is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



3. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the → button.



5. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Unjam valve' item appears.



6. Select the unjam menu with the → button.



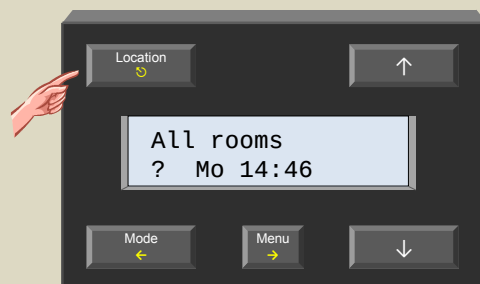
7. Switch unjam on or off with the ↑ or ↓ button.



8. Confirm with the → button.



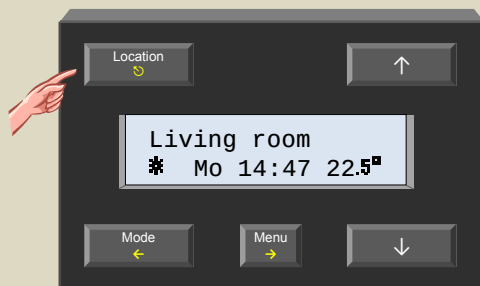
9. Exit the menu with the ↶ button.



Calibrating the sensor

When the read temperature does not match the real measured value on a thermometer, the read temperature can be corrected

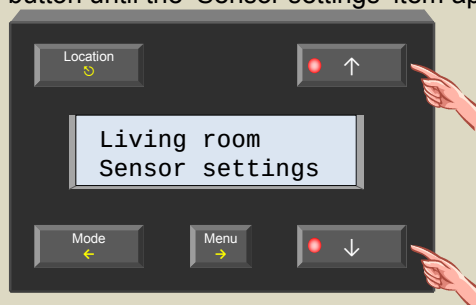
1. Press the 'Location' button repeatedly until the desired sensor that needs calibration is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



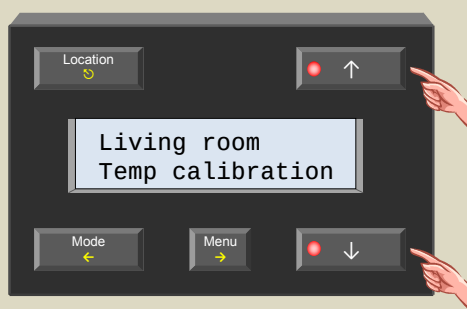
3. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Sensor settings' item appears.



4. Select the sensor settings menu with the $\rightarrow$ button.



5. Scroll through the sensor settings menu using the $\uparrow$ or $\downarrow$ button until the 'Temp calibration' item appears.



6. Select the calibration menu with the $\rightarrow$ button.



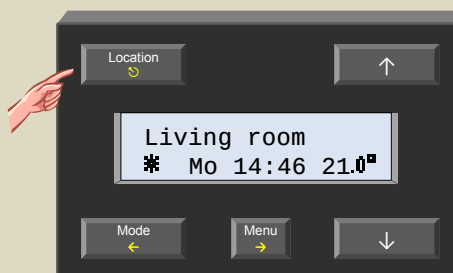
7. Enter the temperature as measured with a different thermometer using the $\uparrow$ or $\downarrow$ button.



8. Confirm with the $\rightarrow$ button.



9. Exit the menu with the $\curvearrowright$ button.



VERIFY SOFTWARE VERSION

Verify whether the controller contains the latest firmware by examining the firmware version.

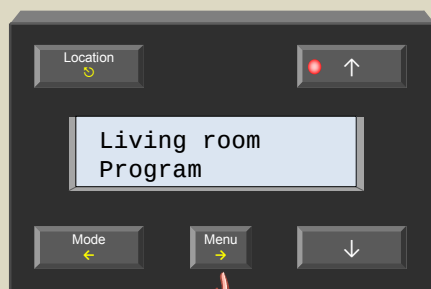
If the Velbus installation contains an interface (VMB1USB, VMB1RS or VMBRSUSB) the controller firmware can be updated when necessary.

Remark:

Upgrading a module is not without risk. **Do not** interrupt the process!

If for any reason the upgrade should fail, the module will cease normal operation. The module will have to be returned to the manufacturer.

1. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



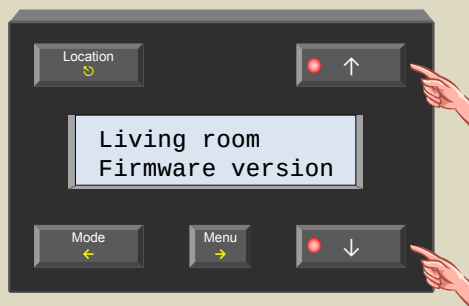
2. Scroll through the extended menu using the ↑ or ↓ button until the 'Configuration' item appears.



3. Select the configuration menu with the → button.



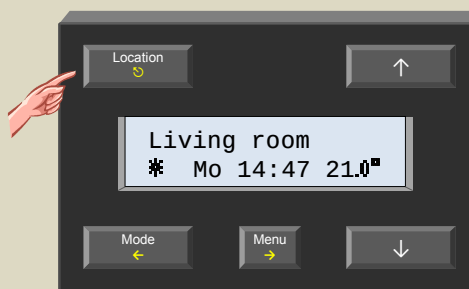
4. Scroll through the configuration menu using the ↑ or ↓ button until the 'Firmware version' item appears.



5. Select the firmware version menu with the → button. Remember the version number.



6. Exit the menu with the ↺ button.



7. Check <http://www.velbus.eu> whether you have the latest version.
If a newer version is available, download it.
Connect the Velbus interface to a PC and run the upgrade-software.
Follow the instructions on the screen.

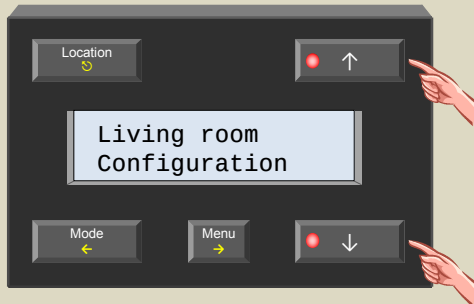
PIN CODE PROTECT THE EXTENDED MENU

Default any user can access the extended menu. To avoid unauthorized users making changes in the extended menu, restrict access by setting a PIN code.

1. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



2. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Configuration' item appears.



3. Select the configuration menu with the $\rightarrow$ button.



4. Scroll through the configuration menu using the $\uparrow$ or $\downarrow$ button until the 'Change PIN code' item appears.



5. Select the change PIN code menu with the $\rightarrow$ button.



6. Change the first number of the PIN code with the $\uparrow$ or $\downarrow$ button and confirm with the $\rightarrow$ button.



7. Change the second number of the PIN code with the $\uparrow$ or $\downarrow$ button and confirm with the $\rightarrow$ button.



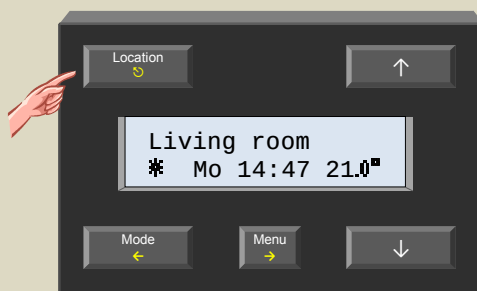
8. Change the third number of the PIN code with the $\uparrow$ or $\downarrow$ button and confirm with the $\rightarrow$ button.



9. Change the last number of the PIN code with the ↑ or ↓ button and confirm with the → button.



10. Exit the menu with the ↺ button.



When the PIN code is not '0000', the extended menu can only be accessed after entering the correct PIN code.

Anti-freeze, night, day or comfort mode indication

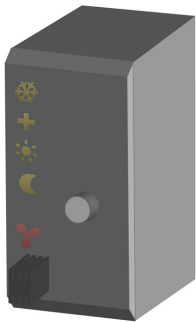
In rooms that have a temperature sensor VMB1TS the heating (or air-conditioning) can be set in 4 different modes: comfort, day, night or anti-freeze. Every mode has its own desired temperature setting.

The selected mode is indicated with LEDs.

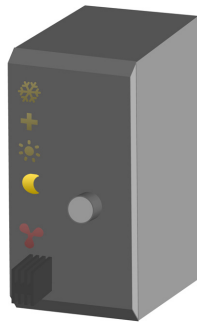
The sensor module is set to anti-freeze mode when the comfort, day and night mode LEDs are off.

When the comfort, day or night mode LED is flashing, the sensor module is set temporarily (sleep timer) to the indicated mode and normal program is suspended during that 'sleep' time.

Anti-freeze



Night



Day



Comfort

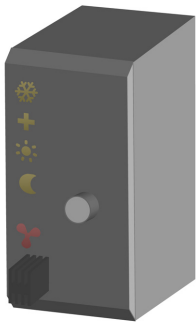


Cooling or heating mode indication

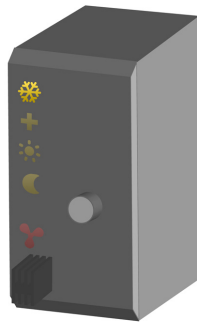
When the temperature sensor is configured to control an air-conditioning system, the frost flower LED (upper LED) will be lit.

Setting the heating or cooling mode can only be done through a temperature controller (VMB1TC) or through the Velbus link program.

Heating mode

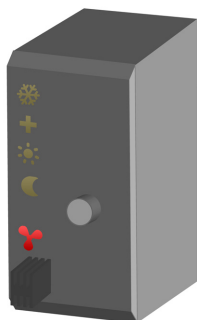


Cooling mode



Air-conditioner or heater active indication

When the heater (valve open) or air-conditioner is active, a red LED will be lit.



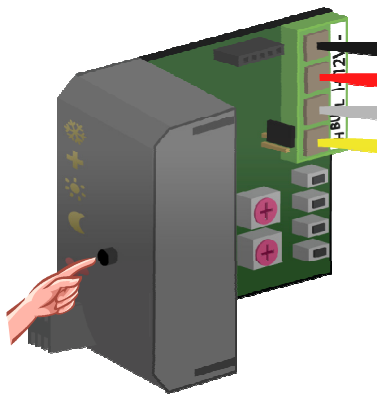
The red output LED can indicate following error conditions:

- *Flashing (short on, long off): the heater/cooler should be **off** but it did not receive the command from the relays module.*
- *Flashing (short off, long on): the heater/cooler should be **on** but it did not receive the command from the relays module.*
- *Fast flashing: configuration of the sensor chip failed.*

Note: as long as the error condition exists the output status will be re-transmitted every minute.

Operation

Pushing the push button repeatedly will switch the module between anti-freeze, night, day or comfort mode successively.



When the comfort, day or night mode LED is flashing, the sensor module is set temporarily (sleep timer) to the indicated mode. During this time the program is ignored.

When the sleep timer expires, the sensor module will resume the program or in case no program is present will return to its previous setting.

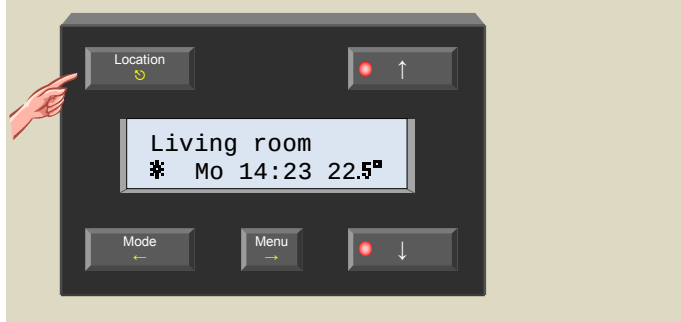
Remarks:

- Anti-freeze mode can not be set temporarily.
- Standard time is set through the temperature controller.
- Overriding temporary mode can be done by pushing and holding the push button. The LED stops flashing and the sensor remains in the selected mode until the next program step is executed.
- Local operation can be locked or unlocked via a temperature controller VMB1TC or via the Velbus link program.
- When the sensor module is set to manual mode via a temperature controller VMB1TC or via the Velbus link program, local operation will be locked.

Select room or zone

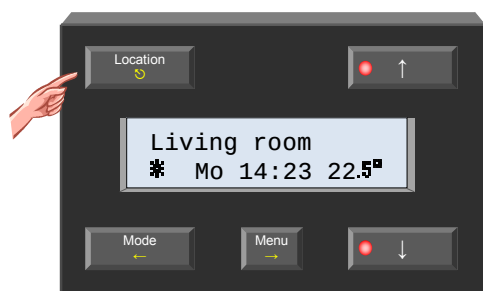
To set up a heating system for different rooms, each room will need a temperature sensor. Multiple rooms can be grouped together in zones (e.g. ground floor, second floor, bedrooms...). Prior to setting heating (or air-conditioning) requirements for a certain room or zone, the desired room or zone must be selected on the controller.

Press the 'Location' button repeatedly until the desired room or sensor is displayed.



Remark:

Press and hold the 'Location' button for fast switching between rooms and zones.



The previous/next room or zone can be selected with the “↑” or “↓” button as long as the LED of these buttons blinks.



Recall and change the desired temperature

At any time the desired temperature for a room can be shown and/or changed.

1. Press the ↑ or ↓ button.

The desired temperature for the selected room is flashing on the display.



2. When desired, change the target temperature with the ↑ or ↓ button.



3. Return to normal display by pressing the ↻ or ← button or simply wait for ±5 seconds without touching any button.



Remark:

When switching between anti-freeze, night, day or comfort mode the target temperature will be replaced by the desired temperature that is linked to each mode.

Temporarily switching between comfort, day, night or anti-freeze mode

In rooms equipped with a temperature sensor VMB1TS, the heating (or cooling) can be set to 4 modes (comfort , day , night  or anti-freeze -). Every mode has a preferred temperature setting.

The heating (or cooling) can be forced temporarily (sleep timer) into a certain mode. During that time, all program instructions will be ignored. Once the timer expires the normal program is resumed or when no program was active the device returns to the previous mode.

This could be useful e.g. to switch the heating of the bathroom to comfort mode for an hour.

Temporarily switching between the different modes is done by pushing the push button on the temperature sensor VMB1TS or via this module.

When a room is selected on the controller the heating (or cooling) mode can be adjusted.
 When a zone is selected on the controller the heating (or cooling) mode of all rooms that belong to that zone will be adjusted.

1. First select the desired room or zone with the 'Location' button



2. Press the 'Mode' button (bottom left) multiple times until the desired mode (- ⌚, ⌚, *⌚ or *⌚) is displayed.



To indicate that temporary mode (sleep timer) is enabled, the LED on the 'Mode' button starts flashing and the display shows an hourglass. The indication LEDs on the sensor module also will flash.
 The remaining time of the sleep timer is shown on the display except when a zone was selected.

symbol	mode
- ⌚	Temporarily in anti-freeze mode
⌚	Temporarily in night mode
*⌚	Temporarily in day mode
*⌚	Temporarily in comfort mode
?	The mode is not the same for every room inside the zone

Remark:

Temporary mode (sleep timer) can be cancelled by pushing and holding the 'Mode' button until the hourglass is not longer shown on the display.
 The chosen mode remains active until the next program instruction.

Setting the sleep time (temporary mode)

Once the heating (or air-conditioning) is in temporary mode, the duration of the sleep timer can be increased or decreased. This could be useful e.g. to leave the heating in comfort mode a few hours longer.

1. If sleep timer is active, press the 'Menu' button.



2. The 'Sleep timer' menu appears on the display. Select the item with the → button.



3. The remaining sleep timer-time flashes on the display. Change the time with the ↑ or ↓ button.



4. Confirm the changes with the → button.



Remark:

Cancel the changes by pressing the ← button in stead of the → button.

5. Exit the menu with the ↶ or ← button.



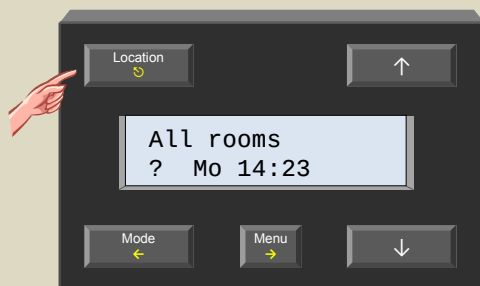
Remark:

It is also possible to exit the 'Sleep timer' menu by pressing the ↑ button until the 'Exit' item appears. Select this item with the → button.

Holiday setting

When going on a holiday trip, the heating should be set to anti-freeze or night mode and a sleep timer should be configured. As long as the sleep timer is running, all program instructions are ignored. Once the sleep timer is finished, normal operation is resumed.

1. Select 'All rooms' with the 'Location' button.



2. Set the heating (or AC) to anti-freeze or night mode using the 'Mode' button.



3. Press the 'Menu' button.



4. Select the sleep timer item with the → button.



5. Set the number of holidays with the ↑ or ↓ button.



6. Confirm the set time period with the → button.



7. Exit the menu with the ↺ or ← button.

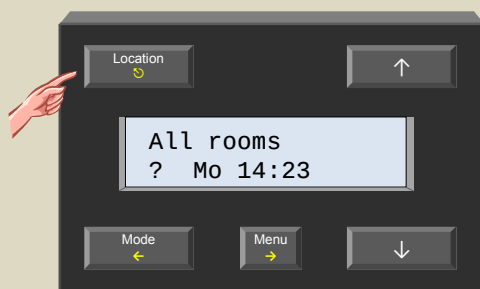


To cancel the holiday program, press and hold the 'Mode' button until the hourglass symbol (⌚) disappears.

Summer setting

During summer time the heating should be set in anti-freeze mode. All program instructions are ignored for an undefined time period.

1. Select 'All rooms' with the 'Location' button.



2. Set the heating to anti-freeze mode using the 'Mode' button.



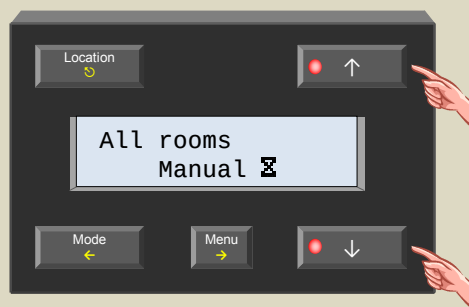
3. Press the 'Menu' button.



4. Select the sleep timer item with the → button.



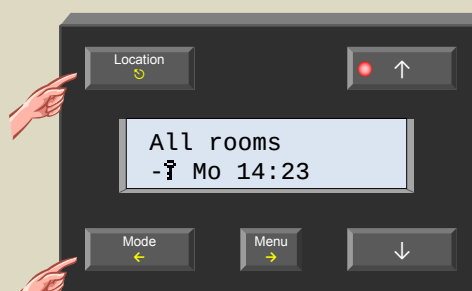
5. Set the sleep time to 'Manual' with the ↑ or ↓ button.



6. Confirm the manual setting with the → button.



7. Exit the menu with the ↺ or ← button.



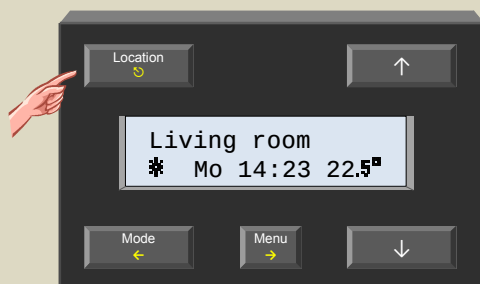
The key symbol (∞) confirms manual mode.

To cancel the summer program, press and hold the 'Mode' button until the key symbol (∞) disappears.

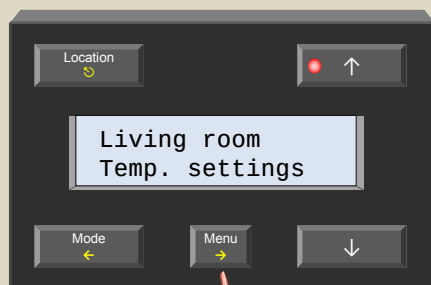
Setting the comfort, day and night temperature

The temperature sensor VMB1TS can be used in 4 modes (comfort , day , night , or standby -). Every mode has its own preset for the desired temperature.

1. Press the 'Location' button repeatedly until the desired room or zone for which one wants to set the preferred comfort, day and/or night temperature is displayed.



2. Press the 'Menu' button to open the menu.



3. Select the temperature settings menu with the → button.



4. Select the comfort item with the → button. The desired comfort temperature starts flashing.



5. Set the desired comfort temperature with the ↑ or ↓ button.



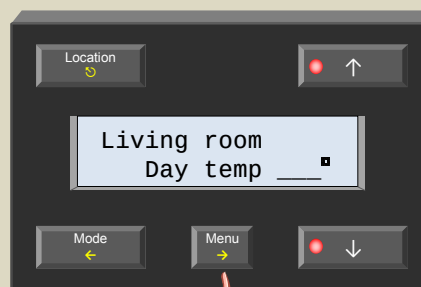
6. Confirm with the → button.



7. Scroll to the day item with the ↑ button.



8. Select the day item with the → button. The desired daytime temperature starts flashing.



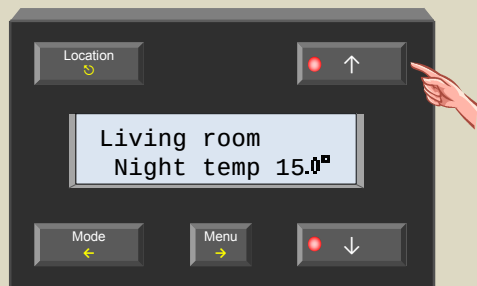
9. Set the desired day temperature with the ↑ or ↓ button.



10. Confirm with the → button.



11. Scroll to the night item with the ↑ button.



12. Select the night item with the → button. The desired night time temperature starts flashing.



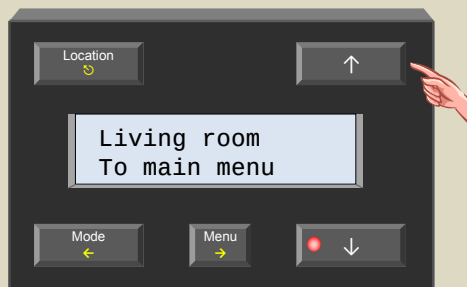
13. Set the desired night temperature with the ↑ or ↓ button.



14. Confirm with the → button.



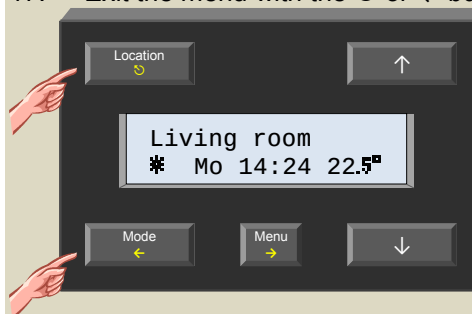
15. Scroll to the 'To main menu' item with the ↑ button.



16. Return to the main menu by pressing the → button.



17. Exit the menu with the ⏮ or ← button.

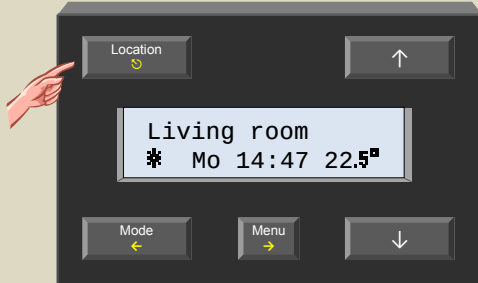


Note: In the sensor settings menu, it is possible to adjust the temperature limits.

For every temperature sensor the minimum and maximum temperatures can be recalled as well as the time during which the heating or air-conditioning was in a certain mode (comfort, day, night or anti-freeze) and how long it was active.

Requesting statistics

1. Press the 'Location' button repeatedly until the desired room or sensor is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu. Enter the PIN code if necessary.



3. Scroll through the extended menu using the ↑ or ↓ button until the 'Statistics' item appears.



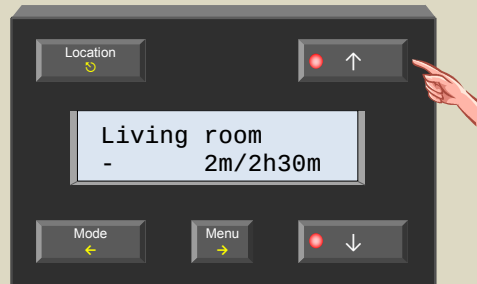
4. Select the statistics menu with the → button. The display shows the minimum temperature.



5. Press the ↑ button to see the maximum temperature.



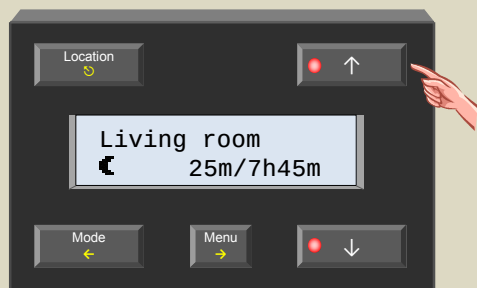
6. Press the ↑ button. The first time indication shows how long the heating or AC was on during anti-freeze mode. The second time indication shows how long anti-freeze mode has been enabled.



7. Press the ↑ button.

The first time indication shows how long the heating or AC was on during night mode.

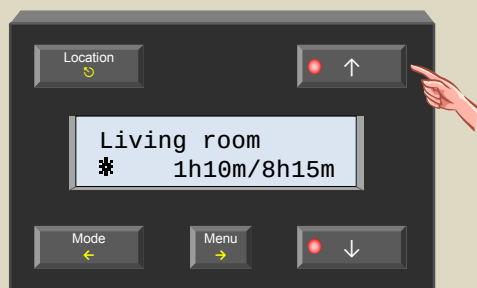
The second time indication shows how long night mode has been enabled.



8. Press the ↑ button.

The first time indication shows how long the heating or AC was on during day mode.

The second time indication shows how long day mode has been enabled.



9. Press the ↑ button.

The first time indication shows how long the heating or AC was on during comfort mode.

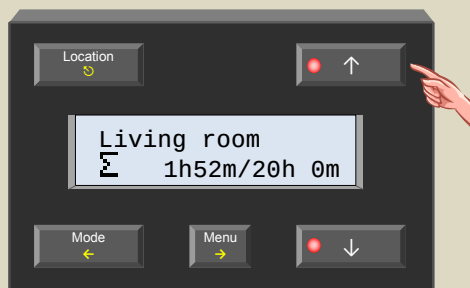
The second time indication shows how long comfort mode has been enabled.



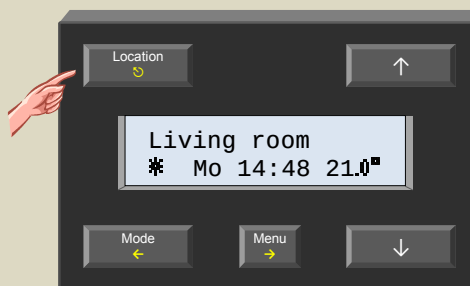
10. Press the ↑ button.

The first time indication shows how long the heating or AC was on in total..

The second time indication shows the total elapsed time since statistic registration started..



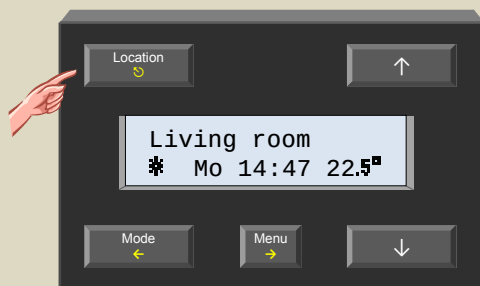
11. Exit the menu with the ↺ button.



Reset statistics

Statistics registration can be reset individually.

1. Press the 'Location' button repeatedly until the desired room of which the statistics must be reset is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu. Enter the PIN code if necessary.



3. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Statistics' item appears.



4. Select the statistics menu with the $\rightarrow$ button. The display shows the minimum temperature.



5. Scroll through the statistics menu using the $\uparrow$ or $\downarrow$ button until the statistic appears that needs to be reset.



6. Select the statistic with the $\rightarrow$ button. The statistics data starts flashing.



7. Use the $\uparrow$ or $\downarrow$ button until horizontal lines are displayed in the data entry fields.



8. Confirm the reset with the $\rightarrow$ button.



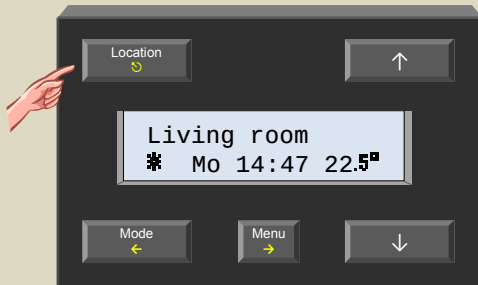
9. Repeat steps 5 through 8 to reset the other statistics, or exit the menu using the $\curvearrowright$ button.

This chapter is only applicable when multiple temperature controllers are connected to your Velbus installation. It can be skipped if you have only one controller connected.

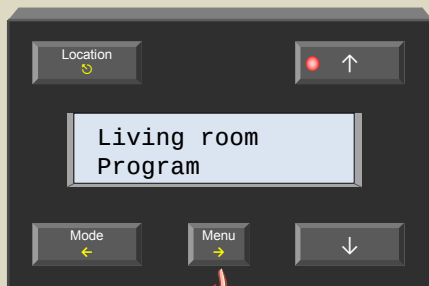
Prior to start programming it is important to determine which temperature controller will hold the program instructions for the rooms, zones and 'all rooms' to avoid that multiple controllers contain different instructions for the same rooms or zones.

The instruction set will be available from every controller.

1. Determine the temperature controller that will hold the program instructions for a certain room or zone.
2. On that controller, press the 'Location' button repeatedly until the desired room, zone or 'all rooms' is displayed.



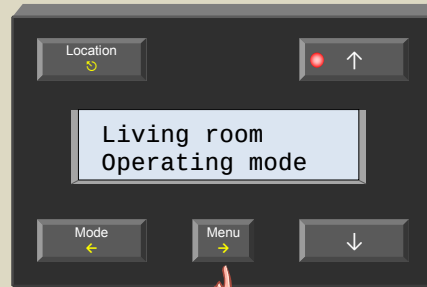
3. Press and hold the 'Menu' button for ±4 seconds to open the extended menu. Enter the PIN code if necessary.



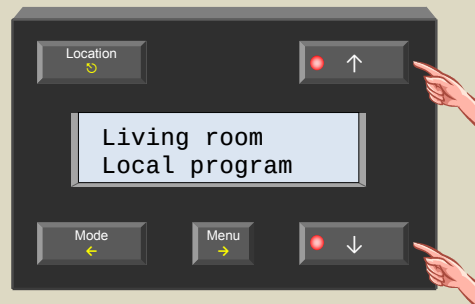
4. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



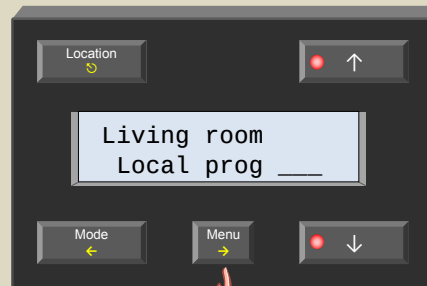
5. Select the sensor settings menu with the → button.



6. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Local program' item appears.



7. Select the local program menu with the → button.



8. Switch on local program with the ↑ or ↓ button.



9. Confirm with the → button.

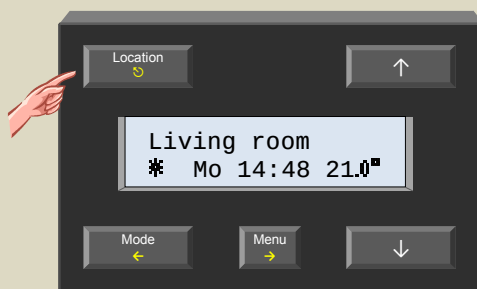
The living room program instructions will only be stored on this controller.



Remark:

If on another controller the location for the living room program instructions would be verified, it would show that the local program on that controller is off.

10. Exit the menu with the ↶ button.



11. Repeat steps 1 through 10 for all other rooms and zones.

The controller can handle up to 32 temperature sensors VMB1TS. Every room that needs to be heated or cooled must have its own temperature sensor. These rooms can be divided over 7 zones if desired.

For every room or zone a program instruction set is available. There is also a program instruction set foreseen for all rooms together.

In every program a maximum of 31 instructions can be stored.

A program instruction consists of 3 parts:

1. The days on which the program instruction is applicable:

- Day program: every Monday, Tuesday, Wednesday, Thursday, Friday, Saturday or Sunday
- Working day program: from Monday to Friday (included) or from Monday to Saturday (included)
- Weekend program: every Saturday and Sunday
- Week program: every day

2. The exact time at which the instruction is to be executed:

- Exact indicated time
- The wake-up time plus or minus a certain time period
- The go-to-bed time plus or minus a certain time period

3. The mode to which the heating or air-conditioning should be set:

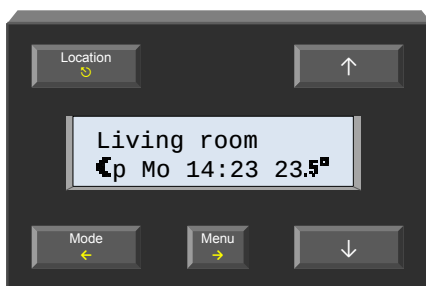
- Comfort mode
- Day mode
- Night mode
- Anti-freeze mode

Tips:

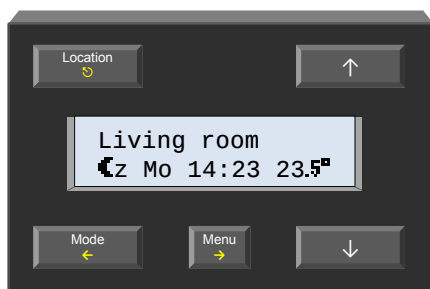
- Program instructions that are applicable for all rooms should be programmed under the 'all rooms' program. This way the instruction has to be entered only once instead of for each room separately.
- The same goes for common program instructions that are valid for all rooms in the same zone. Select the zone on the controller and enter the program instruction into the zone program.
- Program instructions that are unique for a room must be entered into the program of that room.
- Consider using wake-up or go-to-bed times inside the program instructions. When a certain instruction needs to be carried out at a different time, only the wake-up or go-to-bed time needs to change, not the whole program. For example, set the heating for bathroom, kitchen and living room in day mode half an hour before wake-up time; set the bathroom heating back to night mode 1 hour after wake-up time. If one feels like sleeping longer or getting up earlier, only changing the wake-up time is needed.

Remarks:

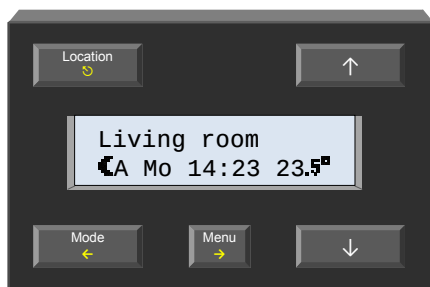
- As soon as a program is available for a certain room, a 'p' will appear on the display behind the mode symbol.

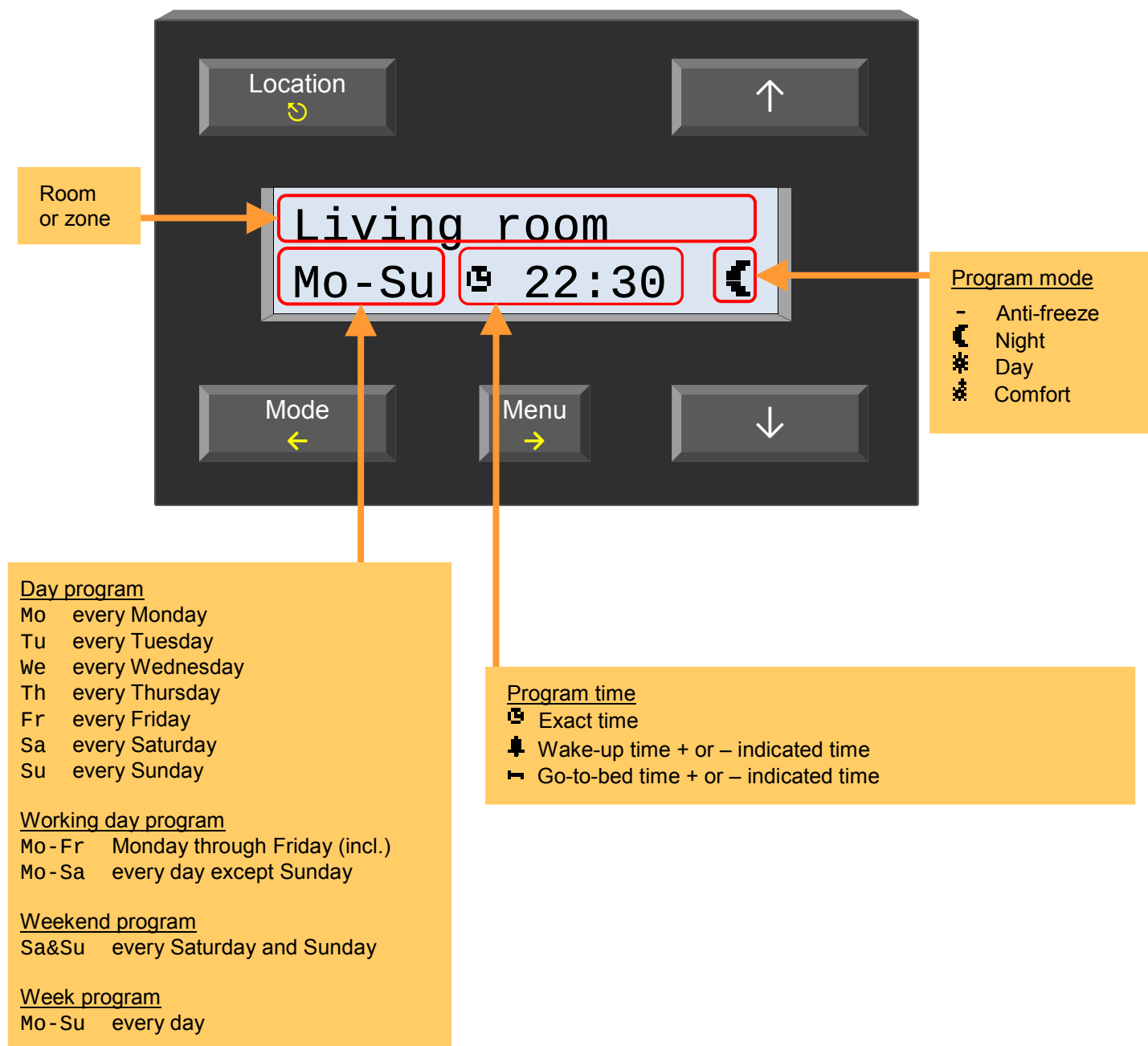


- When no sensor program is available, but there is a zone program, a 'z' will appear on the display behind the mode symbol.



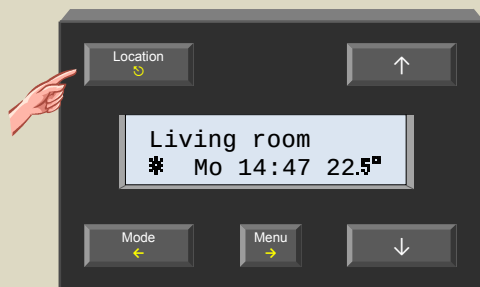
- When no sensor or zone program is available, but there is an 'All rooms' program, an 'A' will appear on the display behind the mode symbol.





Entering a new program instruction

1. Press the 'Location' button repeatedly until the room or zone of which a program instruction needs to be added is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu. Enter the PIN code if necessary.



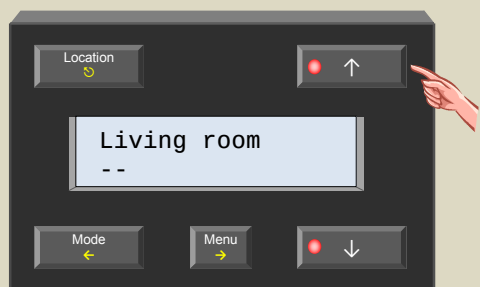
3. Select the program menu with the $\rightarrow$ button. The display shows the first program instruction.



Remark:

When no instructions are entered yet, the line will be empty. Skip step 4 and proceed with step 5.

4. Scroll through the program instructions using the $\uparrow$ button until the instruction line is empty.



5. Press the $\rightarrow$ button to add an instruction. The first data entry field flashes.



6. Use the $\uparrow$ or $\downarrow$ button to set the day(s) on which the instruction needs to be executed. Confirm with the $\rightarrow$ button.



7. Use the $\uparrow$ or $\downarrow$ button to set the time reference (exact, relative to wake-up or go-to-bed time) on which the instruction needs to be executed. Confirm with the $\rightarrow$ button.



8. Change the program time with the $\uparrow$ or $\downarrow$ button and confirm with the $\rightarrow$ button.



Remark:

In case the wake-up or go-to-bed time is selected as reference, the offset can be set per 15 minutes with a limit of 4 hours. Step 9 is not applicable.

9. Set the minutes using the ↑ or ↓ button and confirm with the → button.



10. Set the mode (comfort, day, night or anti-freeze mode) with the ↑ or ↓ button and confirm with the → button.

The flashing cursor disappears.



11. Repeat steps 4 through 10 to add more program instructions or exit the menu using the ↺ button.

Changing a program instruction

1. Press the 'Location' button repeatedly until the room or zone of which the program instruction needs to be changed is displayed.



2. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu. Enter the PIN code if necessary.



3. Select the program menu with the $\rightarrow$ button. The display shows the first program instruction.



4. Scroll through the program using the $\uparrow$ or $\downarrow$ button until the instruction that needs to change is shown.



5. Select the instruction that needs to change with the $\rightarrow$ button. The first data entry field flashes.



6. Use the $\uparrow$ or $\downarrow$ button to set the day(s) on which the instruction needs to be executed. Confirm with the $\rightarrow$ button.



7. Use the $\uparrow$ or $\downarrow$ button to set the time reference (exact, relative to wake-up or go-to-bed time) on which the instruction needs to be executed. Confirm with the $\rightarrow$ button.



8. Change the program time with the $\uparrow$ or $\downarrow$ button and confirm with the $\rightarrow$ button.



9. Set the mode (comfort, day, night or anti-freeze mode) with the ↑ or ↓ button and confirm with the → button.
The flashing cursor disappears.



10. Repeat steps 4 through 9 to change other program instructions or exit the menu using the ↶ button.

Removing a program instruction

1. Press the 'Location' button repeatedly until the room or zone of which the program instruction needs to be changed is displayed.



2. Press and hold the 'Menu' button for ±4 seconds to open the extended menu. Enter the PIN code if necessary.



3. Select the program menu with the → button. The display shows the first program instruction.



4. Scroll through the program using the ↑ or ↓ button until the instruction that needs to be removed is shown.



5. Select the instruction that needs to be deleted with the → button. The first data entry field flashes.



6. Use the ↑ button until the instruction line is empty.



7. Confirm with the → button. The program instruction is removed from the memory, the flashing cursor disappears and the next program instruction is shown. If this was the last instruction, the display remains empty.



8. Repeat steps 4 through 7 to remove other program instructions or exit the menu using the ⏻ button.

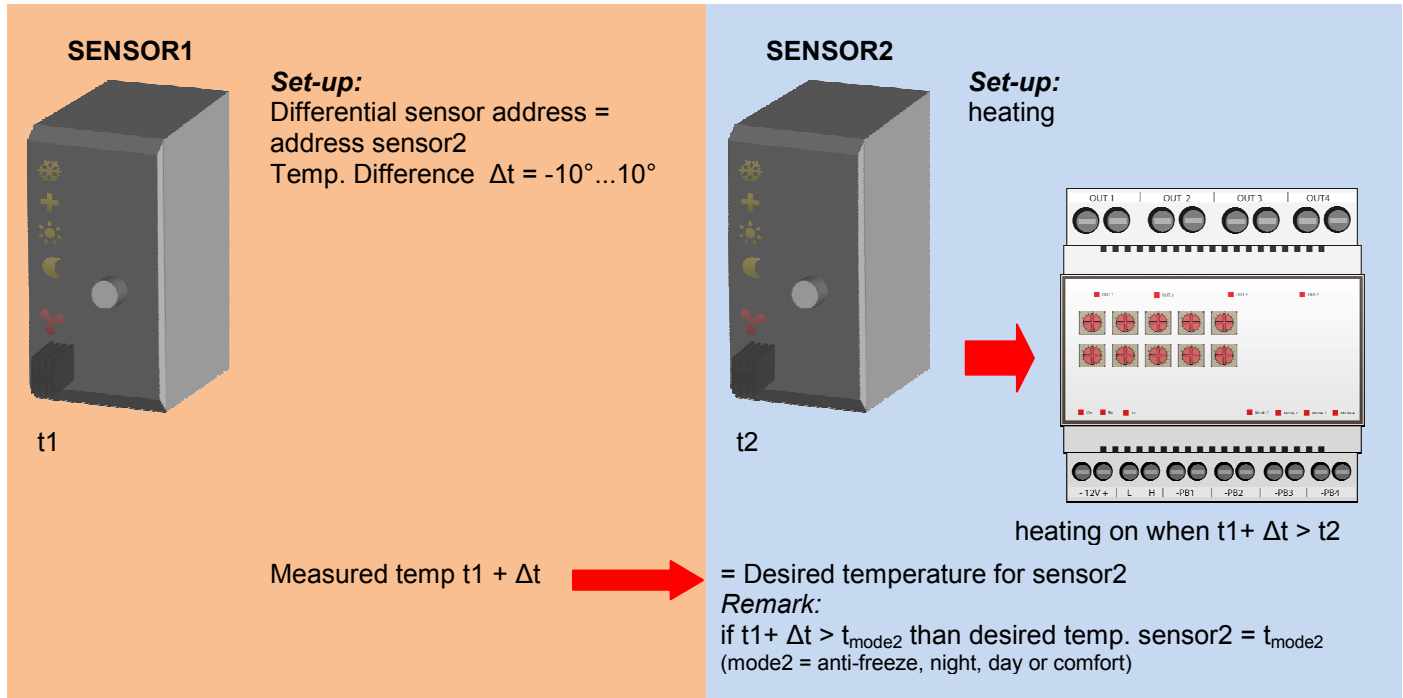
DIFFERENTIAL THERMOSTAT

Using two sensors, a differential thermostat can be created. When the temperature difference between both sensors crosses a preset value, a relay channel can be activated.

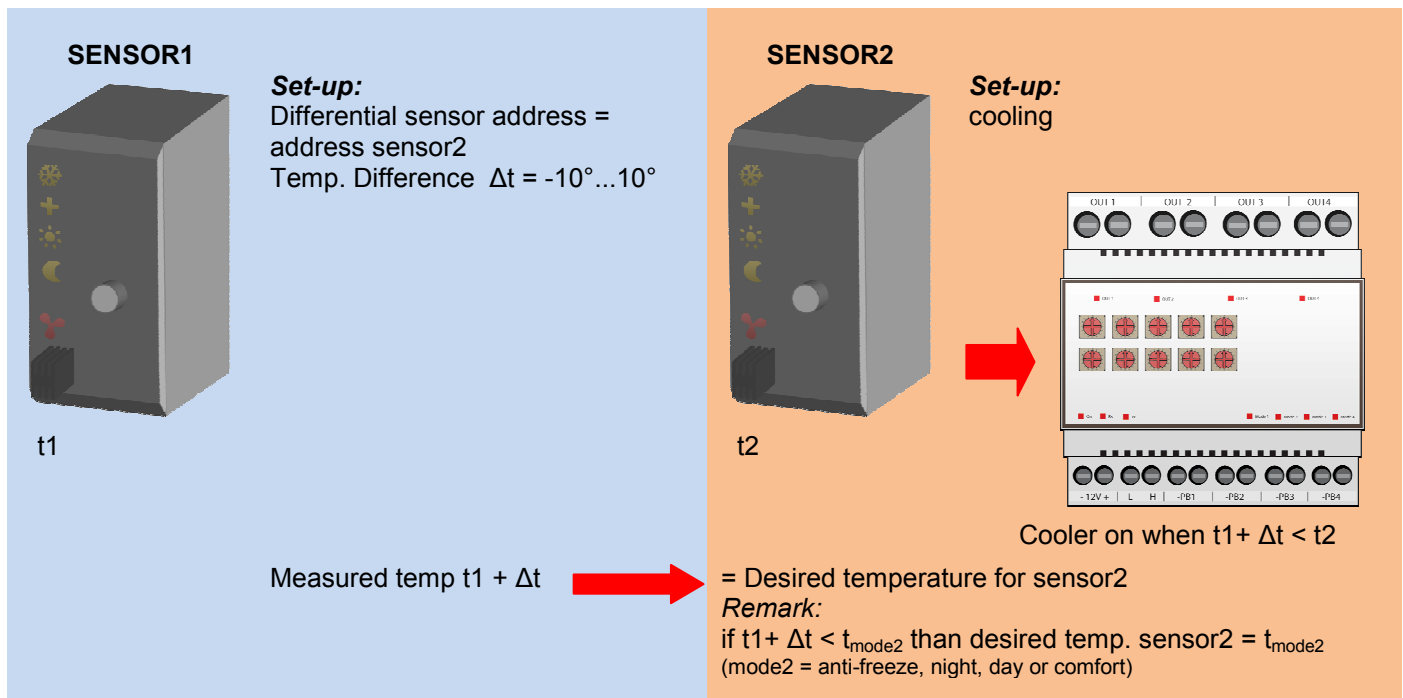
To achieve this, the first sensors must know the address of the second one. The second sensor must than be linked to a relay channel. The temperature difference value is set on the first sensor.

To create a differential thermometer the set temperature difference is added to (or subtracted from) the measured temperature of the first sensor and this value is than sent every 6 seconds as desired temperature to the second sensor. The settings can be done via a temperature controller VMB1TC or via the Velbus link program

Schematic overview differential thermostat (sensor2 in heating mode):



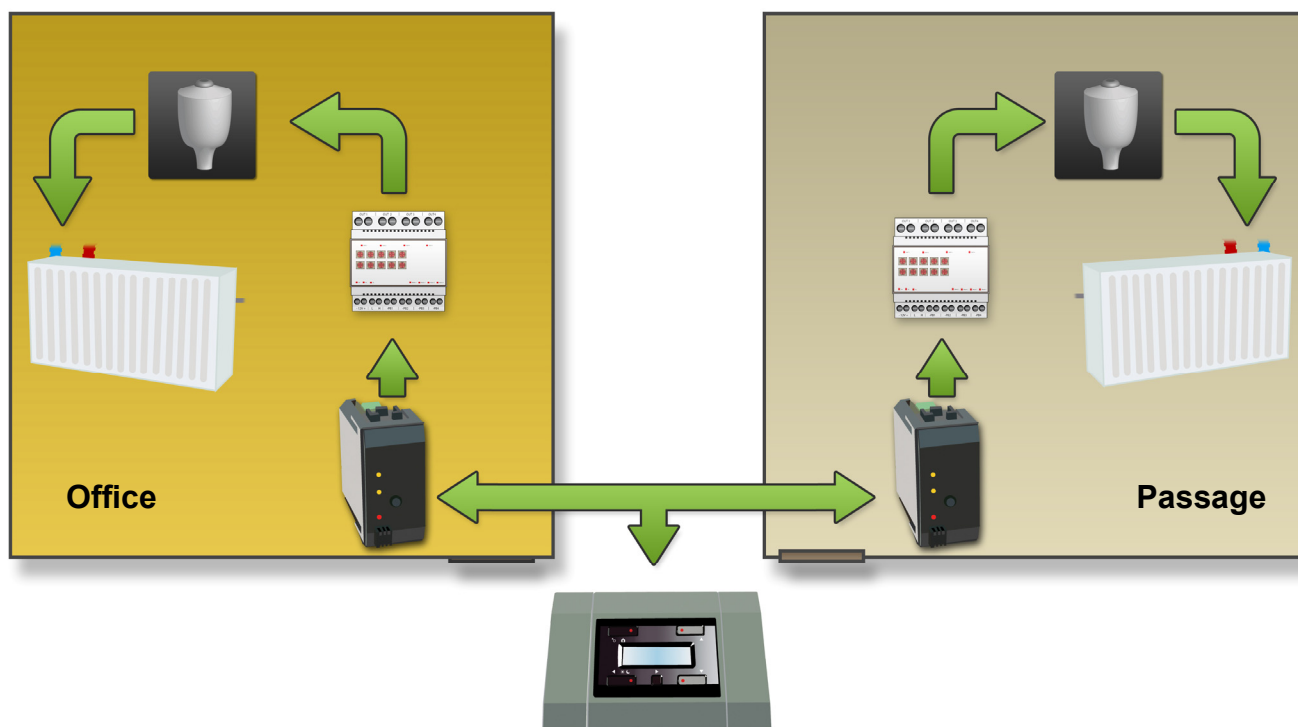
Schematic overview differential thermostat (sensor2 in cooling mode):



Refer to some applications of a differential thermostat below.

The passage automatically 3° cooler than the office

When the sensor module in the office is set to day-mode, the temperature in the passage must be 3° lower than the office. Is the day temperature of the office is set to 20°C the desired passage temperature will be 17°C.
When the sensor module in the office is set to night-mode, the temperature in the passage must be 3° lower than the office. Is the night temperature of the office is set to 15°C the desired passage temperature will be 12°C.



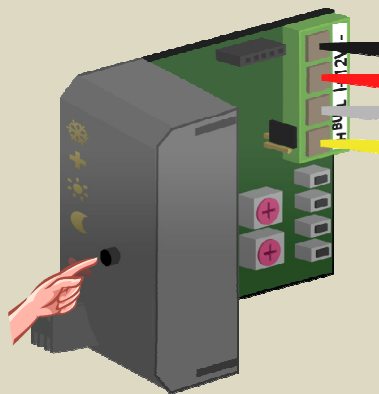
Configuration:

The easiest way to configure the system is to use the Velbus link program via a PC connected on the Velbus PC interface (VMB1USB, VMB1RS or VMBRSUSB).

However, configuration can also be done without the aid of a computer. Refer to the procedure below.

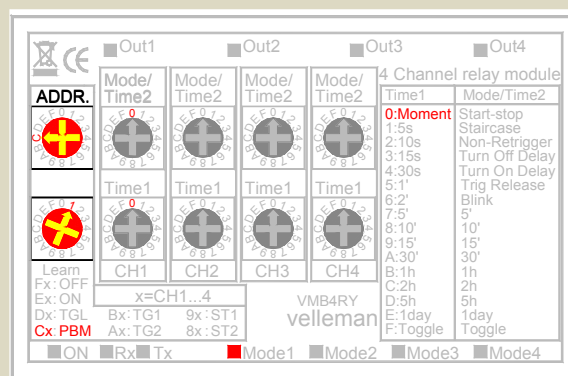
Link the heating output of the office sensor to a relay channel (ex. channel1).

1. Set the office sensor module in anti-freeze mode by pressing the push button on the front panel repeatedly until all LEDs are off.

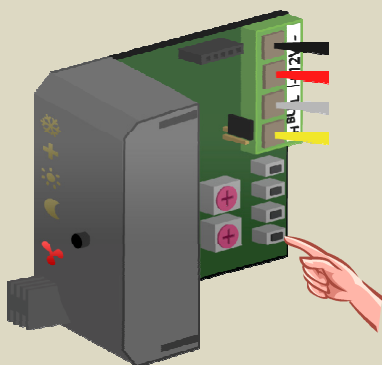


2. Set the MODE and TIME1 rotary switches for channel 1 of the second relay module to '0' (instant control).

3. Remember the address of this relay module to reinstate it later on.
4. Set the address of the relay module to 'C1'. The 'MODE 1' LED flashes to indicate push button learning mode (PBM).



- Press and hold the lowest push button (HEAT) of the office sensor until the relay is energised and the red LED on the sensor module flashes.

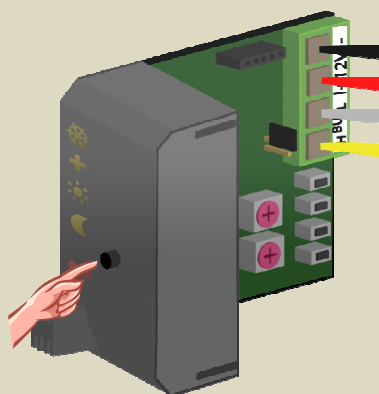


- Set the address of the relay module back to its original value.

Use the relay channel (ex. channel1) to control the valve of the office radiator.

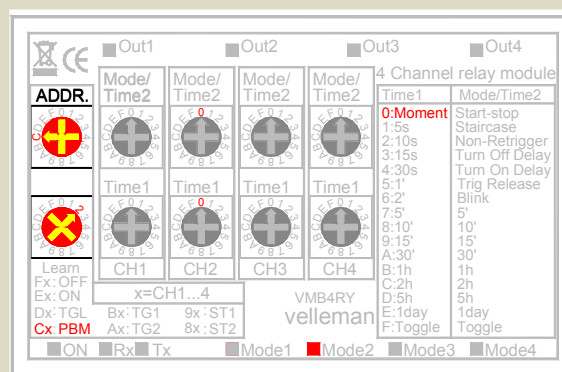
Link the heating output of the passage sensor to another relay channel (ex. channel2).

- Set the passage sensor module in anti-freeze mode by pressing the push button on the front panel repeatedly until all LEDs are off.

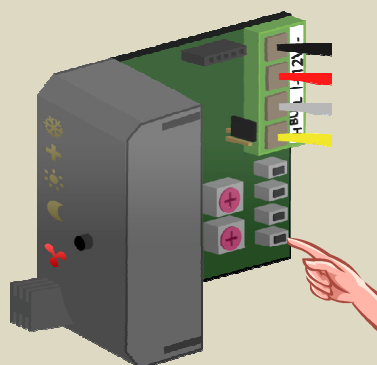


- Set the MODE and TIME1 rotary switches for channel 2 of the second relay module to '0' (instant control).
- Remember the address of this relay module to reinstate it later on.

- Set the address of the relay module to 'C2'. The 'MODE 2' LED flashes to indicate push button learning mode (PBM).



- Press and hold the lowest push button (HEAT) of the passage sensor until the relay is energised and the red LED on the sensor module flashes.

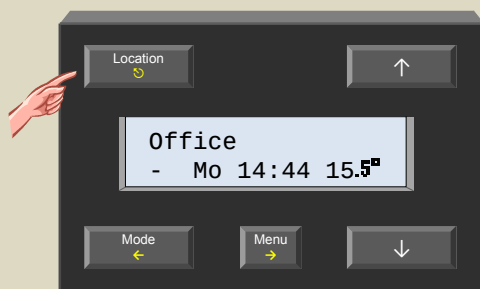


- Set the address of the relay module back to its original value.

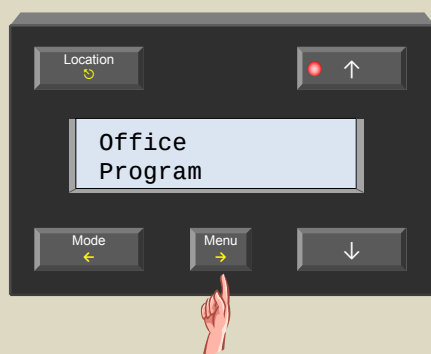
Use this relay channel (ex. Channel2) to control the valve of the passage radiator.

Set the difference sensor and difference temperature on the office sensor via the temperature controller

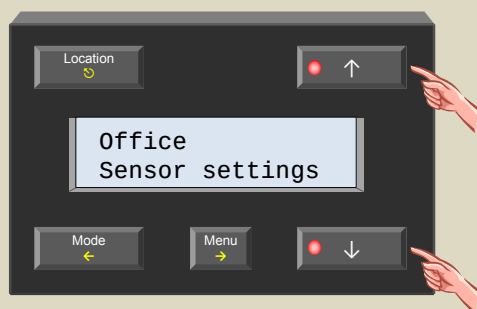
13. Press the 'Location' button until 'Office' is displayed.



14. Press and hold the 'Menu' button for ± 4 seconds to open the extended menu.



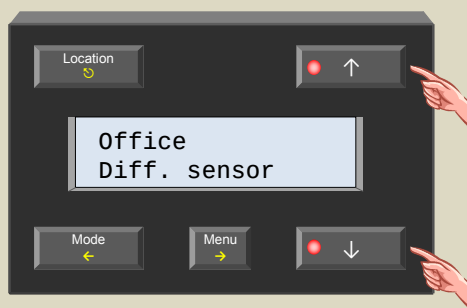
15. Scroll through the extended menu using the $\uparrow$ or $\downarrow$ button until the 'Sensor settings' item appears.



16. Select the sensor settings menu with the $\rightarrow$ button.



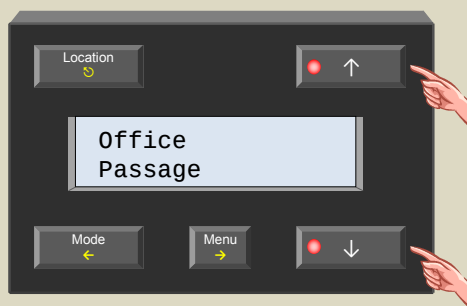
17. Scroll through the sensor settings menu using the $\uparrow$ or $\downarrow$ button until the 'Diff. sensor' item appears.



18. Select the diff. sensor item with the $\rightarrow$ button.



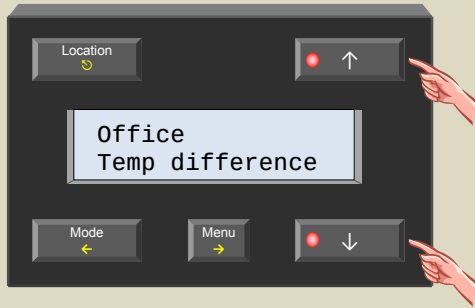
19. Select the sensor in the passage (to set up the differential thermostat) with the $\uparrow$ or $\downarrow$ button.



20. Confirm with the $\rightarrow$ button.



21. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Temp difference' item appears.



22. Select the temp. difference item with the → button.



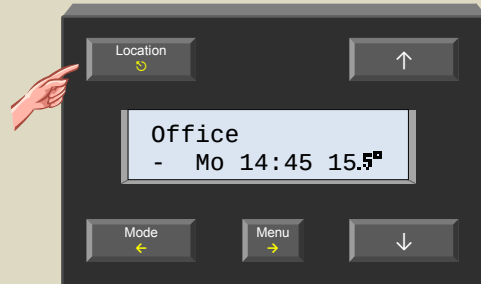
23. Set the Temp diff. to -3° using the ↑ or ↓ button.



24. Confirm with the → button.



25. Exit the menu with the ↶ button.



The configuration is now finished and the differential thermostat is enabled.

Remarks:

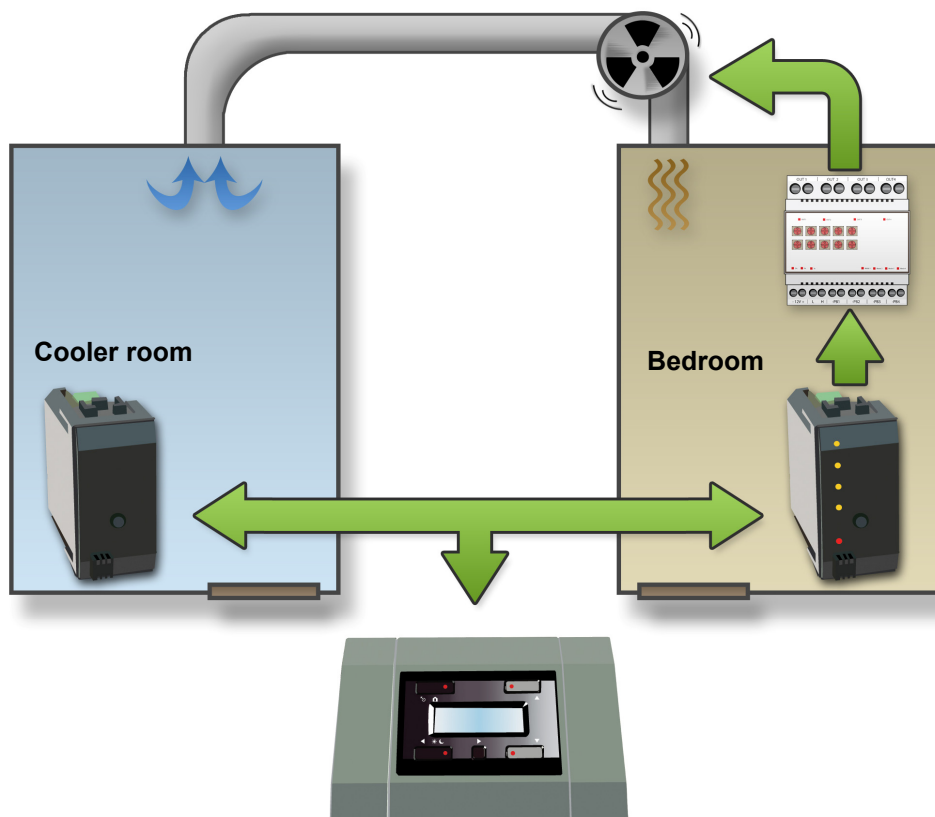
- Make sure both sensors are in heating mode (frost flower LED on the sensor is off).
- The passage temperature can never be higher than the preferred setting of its selected mode (anti-freeze, night, day or comfort).

Passive cooling of a bedroom

During summer time the bedroom is cooled via a fan that extracts air from a cooler room.

Mount a temperature sensor in both rooms. The temperature sensor of the bedroom is set to cooling mode and the cooling output is linked to a relay channel that controls the fan.

When the temperature in the cooler room is about 3 degrees lower than the bedroom temperature the fan is activated.



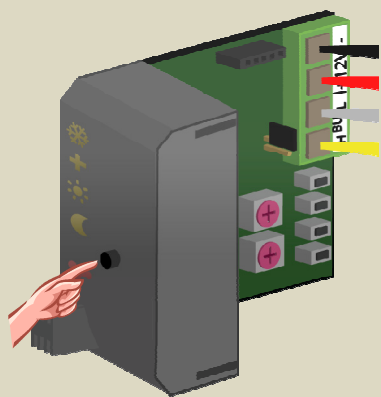
Configuration:

The easiest way to configure the system is to use the Velbus link program via a PC connected on the Velbus PC interface (VMB1USB, VMB1RS or VMBRSUSB).

However, configuration can also be done without the aid of a computer. Refer to the procedure below.

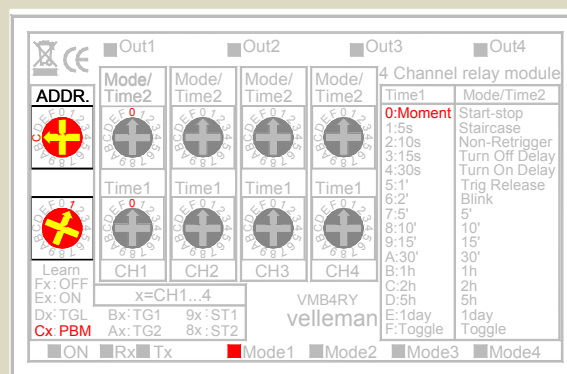
Link the cooling output of the bedroom sensor to a relay channel (ex. channel1).

1. Set the bedroom sensor module in anti-freeze mode by pressing the push button on the front panel repeatedly until all LEDs are off.

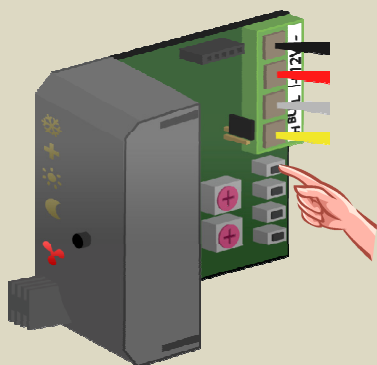


2. Set the MODE and TIME1 rotary switches for channel 1 of the second relay module to '0' (instant control).

3. Remember the address of this relay module to reinstate it later on.
4. Set the address of the relay module to 'C1'. The 'MODE 1' LED flashes to indicate push button learning mode (PBM).



5. Press and hold the highest push button (COOL) of the bedroom sensor until the relay is energised and the red LED on the sensor module flashes.



6. Set the address of the relay module back to its original value.

Use the relay channel (ex. Channel2) to control the fan.

Set the difference sensor and difference temperature on the sensor of the cooler room via the temperature controller

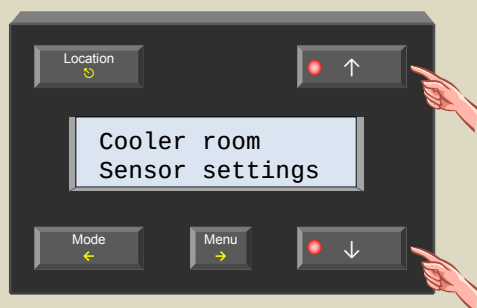
7. Press the 'Location' button until 'Cooler room' is displayed.



8. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



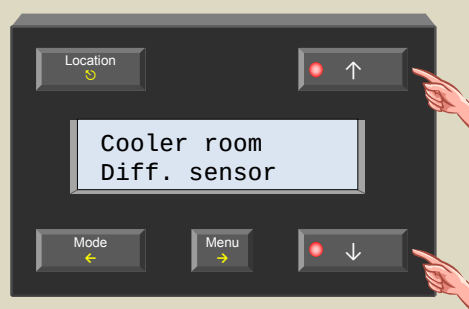
9. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



10. Select the sensor settings menu with the → button.



11. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Diff. sensor' item appears.



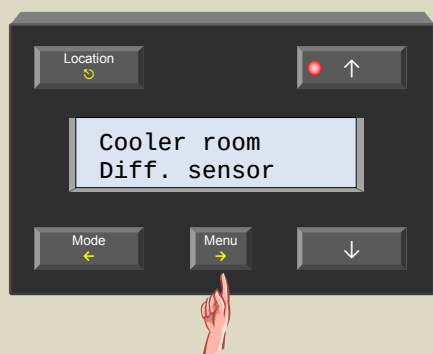
12. Select the diff. sensor item with the → button.



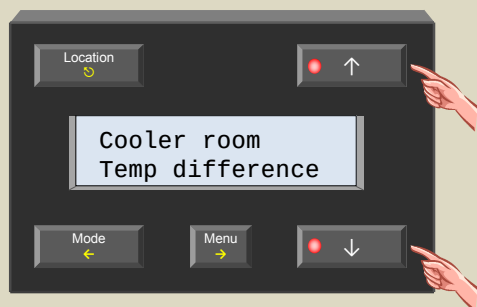
13. Select the bedroom sensor (to set up the differential thermostat) using the ↑ or ↓ button.



14. Confirm with the → button.



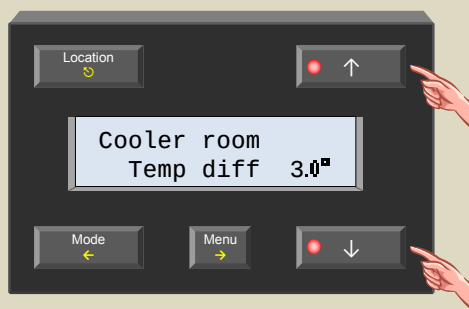
15. Scroll through the sensor settings menu using the ↑ or ↓ button until the 'Temp difference' item appears.



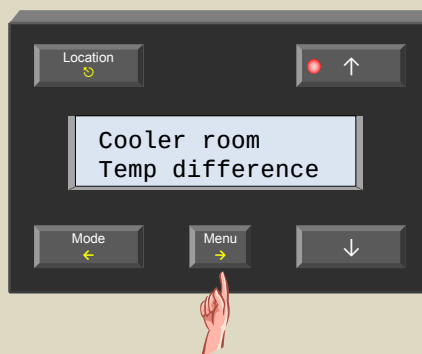
16. Select the temp. difference item with the → button.



17. Set the Temp. diff to 3° using the ↑ or ↓ button.



18. Confirm with the → button.

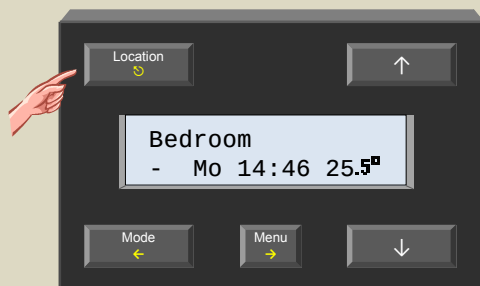


19. Exit the menu with the ↺ button.



Set the sensor of the bedroom to cooling mode via the temperature controller

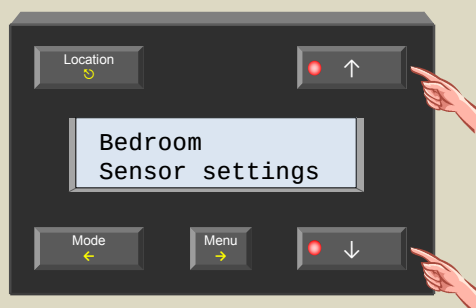
20. Press the 'Location' button until 'Bedroom' is displayed



21. Press and hold the 'Menu' button for ±4 seconds to open the extended menu.



22. Scroll through the extended menu using the ↑ or ↓ button until the 'Sensor settings' item appears.



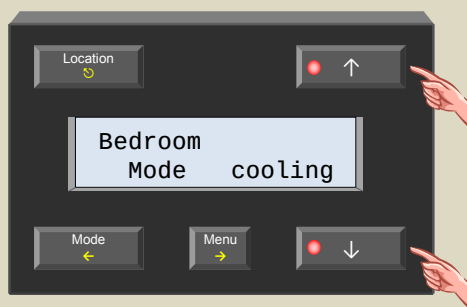
23. Select the sensor settings menu with the → button.



24. Select the operating mode menu with the → button.



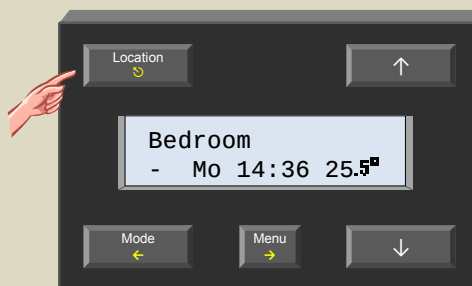
25. Change the mode to cooling using the ↑ or ↓ button.



26. Confirm with the → button.

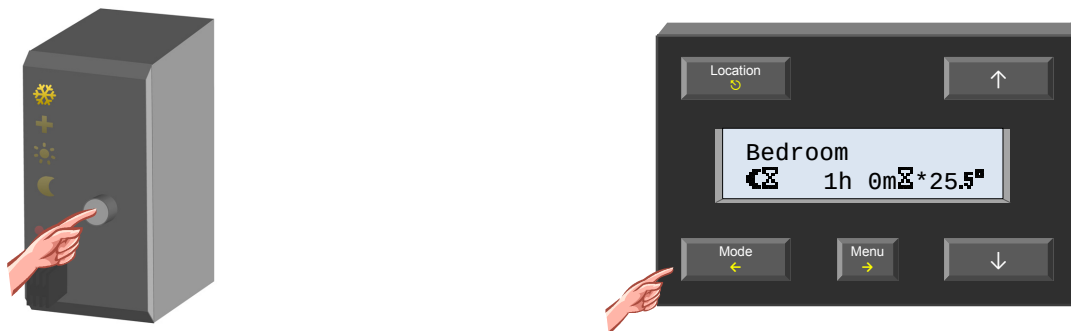


27. Exit the menu with the ↺ button.



Set the sensor of the bedroom to comfort, day or night mode via the temperature controller

This can be done via the pushbutton on the bedroom sensor or via the mode pushbutton on the controller.



The configuration is now finished and the differential thermostat is enabled.

Remark:

The cooling will stop when the bedroom temperature reaches the preferred setting of its selected mode (night, day or comfort).

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All appliances get intelligent, how about your home?

Choosing for Velbus means choosing for a future-proof system which provides comfort, safety and a better energy management at a price which is just slightly higher than classical wiring.

COMFORT



Imagine coming home from a long day at work. With a single button press you turn on the heating, the blinds close, several lights turn on and create a cosy, intimate atmosphere. The wall outlets, which were shut off for safety reasons during your absence, are switched on again...

SAFETY



A sudden noise wakes you up in the middle of the night. Press your bedside button and your home comes alive. All lighting is turned on, while all blinds open. The garden lighting starts to flash, to attract attention...

ENERGYSAVING



Bedtime. Again, you press a single button. All lighting is turned off and nightlights start to glow. The garden remains lit for an hour. Wall outlets are turned off again for safety and to reduce electrosmog. Finally, the heating is lowered with a couple of degrees.

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