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Technical Description of the Room Unit

RCD is a wall-mount room unit with one inner sensor and a touchscreen, designed as a standard unit on a CIB bus.

The unit is intended for operation in normal and chemically non-aggressive environment. No maintenance is required. It consists of 2 parts: bottom with terminals and a cover with PCB and control screen. It shall be fitted onto a diam. 60 recessed electric box or on a wall. There is an opening for cable in the bottom part.

The unit is fitted with a touchscreen where special symbols are controlled by the module's CPU. The unit is equipped with 5 capacitive keys in the bottom part of the screen, permitting to scroll between screens and edit displayed values.

The unit can be controlled using either a simple display mode (a LOCK icon is shown on the display) or a complete display mode. The display mode and items shown in the complete display mode can be selected on the service level of the controller's web interface.

Wiring the Room Unit

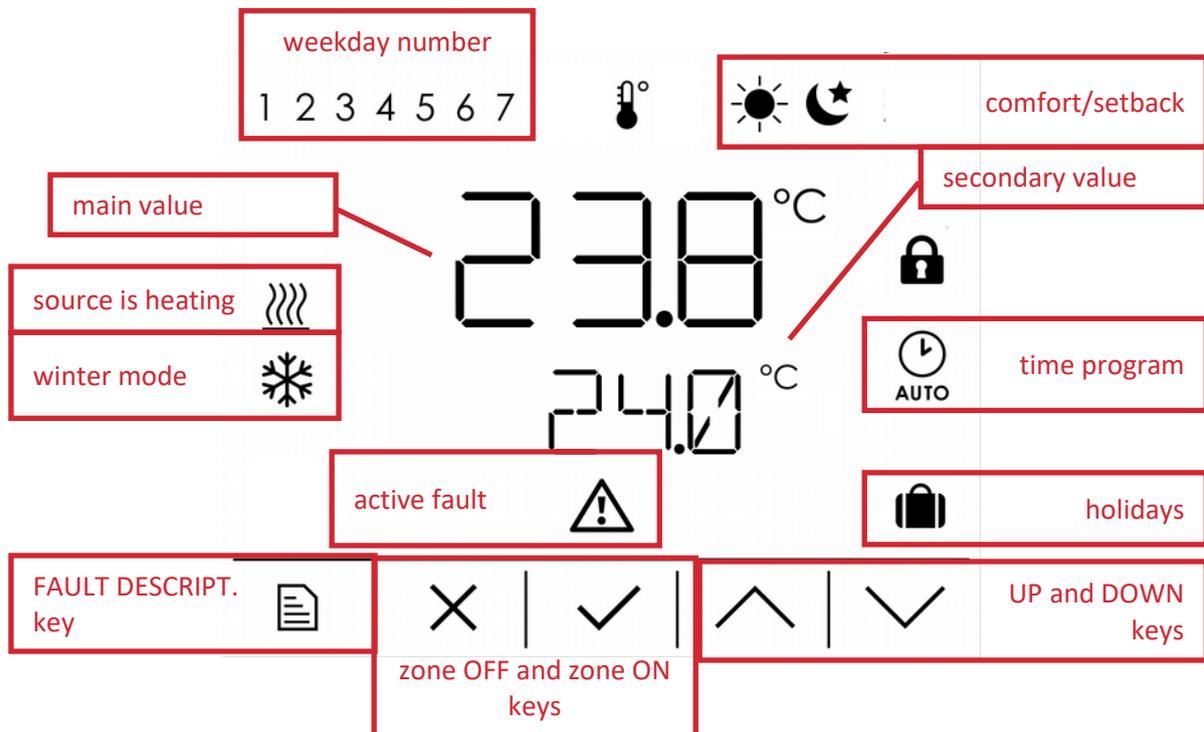
Warning: This controller may be wired by a qualified person only. Adjustment made by a layman may cause damage to system components.

The Room Unit shall be wired by a 2-core cable of max. 1.5 mm² cross section to a standard CIB bus, to screw terminals on the PCB. The right polarity shall be unconditionally respected.

Adjustments to the Room Unit (configuration and HW address) are then done via the controller's web interface.

After the CIB bus is energized, the Room Unit is ready for operation. Its HW address is printed on a label on the PCB.

Room Unit Simple Mode



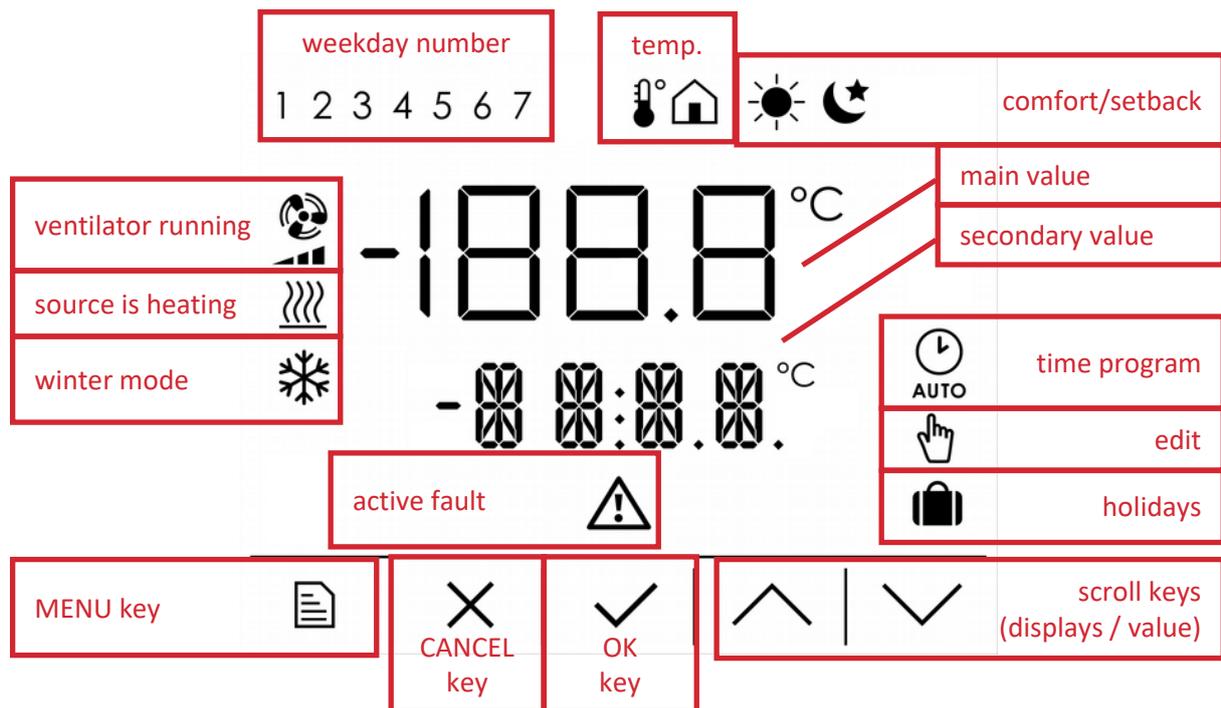
- Main value** Actual room temperature measured by the temperature sensor located inside the room unit.
- Secondary value** Desired room temperature – depends on the zone mode (comfort/setback/holidays). The desired room temperature (corresponding to the current zone mode) can be edited in steps of 0.1°C by UP (+0.1°C) and DOWN (-0.1°C) keys.
- Zone OFF and ON keys** If a zone is switched on by the user, the ON key is displayed. By clicking the ON key the zone will be switched off by the user and the OFF key is displayed. By clicking the OFF key the zone will be switched on by the user and the ON key will be displayed again.

 **Switching a zone ON/OFF by the user using Zone ON and Zone OFF keys is a function that can be enabled or disabled on the service level of the controller's web interface.**

- Weekday number** Display of the actual weekday number.
- Comfort/setback** Display of the actual zone mode (comfort or setback).
- Time program** Displayed when the zone is in automatic mode and being heated following a time program.
- Holidays** Displayed when the zone is in holiday mode.

Heat source on	The main source (depending on the controller version) is currently running.
Winter mode	The zone is currently in the winter mode (no icon is shown in the summer mode).
Active fault	Indication of an active fault. The fault description could be displayed by pressing the FAULT DESCRIPTION key.

Room Unit Display in Complete Mode



Main value	Numeric display of the main value (usually temperature).
Secondary value	Display of the secondary value – temperature, number, date, text. When the text is too long and cannot fit into the 4-character display, it will run in an endless loop.
Weekday number	Display of the actual weekday number – only on initial displays and during time program editing.
Temperature	A thermometer symbol is displayed only when the main value shows the temperature. A house symbol is displayed only when the outdoor temperature is shown.
Comfort/setback	Display of the actual zone mode (comfort or setback).
Time program	Displayed when the zone is in automatic mode and being heated following a time program.
Edit	The icon flashes when the current value is being edited (edit mode).

Holidays	Displayed when the zone is in holiday mode.
Ventilator running	The ventilation unit (depending on the controller version) is currently running (along with the fan power indicator).
Source is heating	The main source (depending on the controller version) is currently running.
Winter mode	The zone is currently in the winter mode (no icon is shown in the summer mode).
Active fault	Indication of an active fault (on initial displays only). In the place of the secondary value, the text of the last active fault runs in a loop.

Control keys

MENU key	In the basic display (room temperature), this key will bring you to the main menu. From all other displays it will bring you back to the basic display.
CANCEL key	In the edit mode (edit icon flashing) this key will abort editing a value (no changes will be saved). It is used to return to the basic display (room temperature) from initial displays. From all other displays it will bring you to a higher level.
OK key	In the edit mode, it will save the value and finish editing. By pressing OK, editing a value will be enabled, or enter into a selected menu item confirmed.
Scroll keys	They are used to scroll between displays within a group. If the edit mode is active (the edit icon flashing), the value of a variable can be modified using these two keys.

After 2 minutes of inactivity (no key pressed) automatic return to the basic display will follow (room temperature displayed)..

Initial displays in Complete Mode

Initial displays are a group of displays of the highest level (pressing CANCEL keys does not bring you to any higher group of displays) you can scroll between using the up and down arrows. The default (basic) display in this group is the room temperature showing display (the value taken from the inner temperature sensor of the room unit). By pressing MENU from this display, the main menu can be opened and selected values edited.

Other displays may offer mode selection, show outdoor temperature or current DHW recirculation and show some important system temperatures.

The basic display permits editing the desired room temperature (comfort/setback depending on the current mode), while the current mode display permits selecting the zone mode

(auto/comfort/setback), and the recirculation display enables turning on DHW recirculation for a preset period.



Entering the menu from the basic display and some displays within the initial group of displays may be unavailable in some controller versions.

Basic display (room temperature)

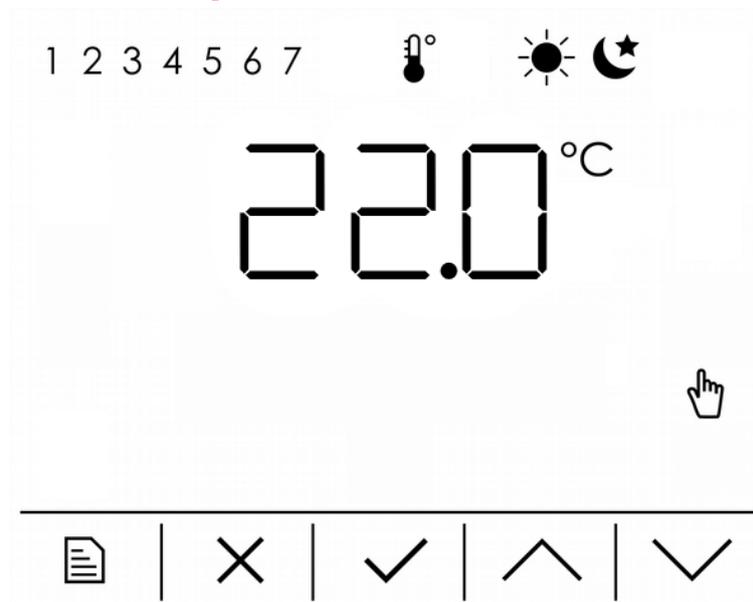


- Main value** Actual room temperature – measured with a temperature sensor inside the room unit.
- Secondary value** Information if the zone is switched on/off by a user (**ON/OFF**).
- Comfort/Setback/Holidays** Current zone mode, showing info on the desired temperature.
- Time program** Displayed when the zone is in automatic mode and being heated following a time program.
- Heat source on** The main source (depending on the controller version) is currently running.
- Winter mode** The zone is currently in the winter mode.
- MENU key** Access to the main menu for editing selected parameters (may be inaccessible, depending on the controller version).
- OK key** Editing the current desired room temperature.

The current desired room temperature is based on the zone mode. If the zone is running in the comfort mode, the comfort room temperature can be edited; if the zone is running in the setback mode, the setback room temperature can be edited.

Editing the desired temperature during the Holiday mode is possible from the respective menu only.

Editing the current desired temperature



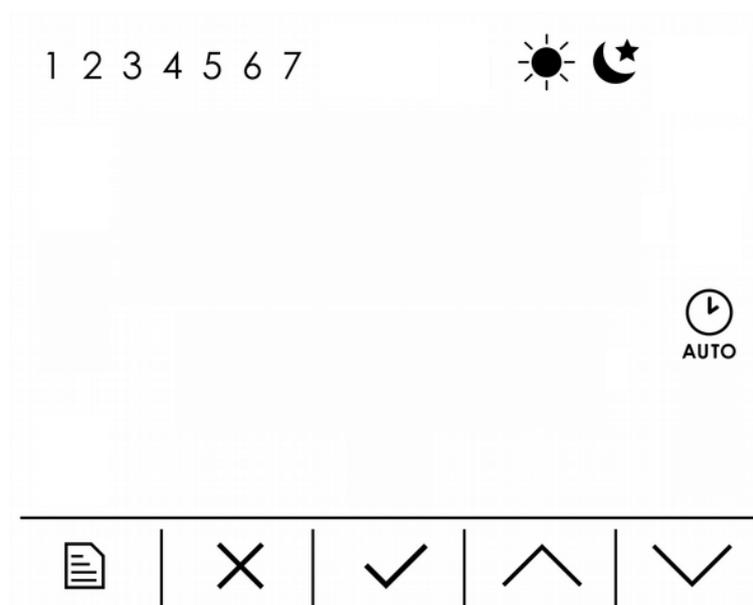
Main value

Editing the current desired room temperature (comfort/setback).

Comfort/Setback

Zone mode is shown here, i.e. also the temperature being edited on the display.

Mode selection display



Comfort/Setback	Current zone mode.
Time program	Automatic zone mode – comfort/setback controlled by the zone time program.
OK key	Entering the zone mode editing.

Editing zone mode

A zone mode can be changed using the up and down arrows. 3 modes are available – permanent Comfort (Comfort icon displayed), permanent Setback (Setback icon displayed) and Automatic (time program symbol displayed).

If the Automatic mode is selected, the desired room temperature is based on the zone time program with automatic transitions between comfort and setback temperatures. Permanent Comfort/Setback will override the time program, fixing the desired temperature at a Comfort/Setback value.

Outdoor temperature display



Main value	Current outdoor temperature.
Secondary value	Current time.

Immediate recirculation display



Secondary value *CIRC* text and the info on the immediate recirculation function on are displayed alternately (**ON/OFF**).

OK key Entry into editing and switching on immediate recirculation.

Editing immediate recirculation



Main value Time period (in minutes) when the immediate recirculation function will be on.

Secondary value *CIRC* and *MIN* texts are displayed alternately (recirculation time in minutes).

The immediate recirculation will be started on pressing the **OK** key and will be running for the preset time. After that it will be switched off again and return to the preset automatic mode.

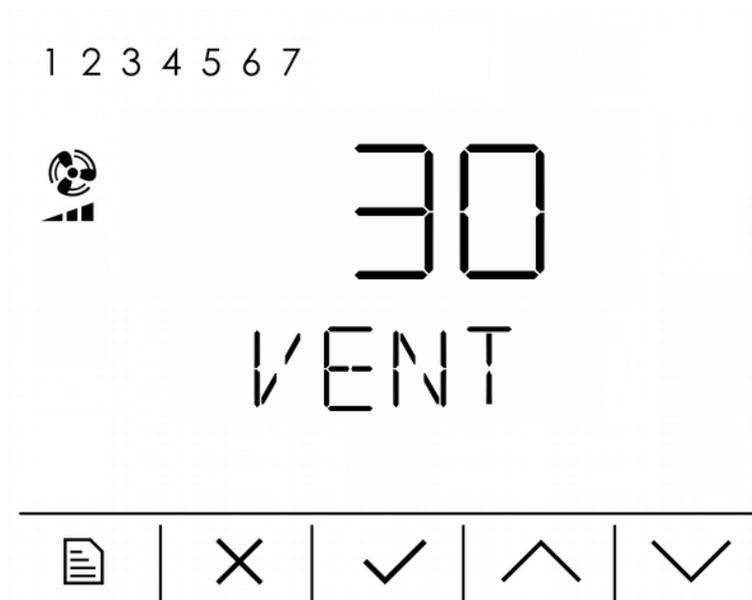
Immediate ventilation display



Secondary value **VENT** text and the info on the immediate ventilation function on are displayed alternately (**ON/OFF**).

OK key Entry into editing and switching on immediate ventilation.

Editing immediate recirculation



Main value Time period (in minutes) when the immediate ventilation function will be on. The power to which the ventilation unit fan will be set has to be changed in the controller's web interface.

Secondary value **VENT** and **MIN** texts are displayed alternately (ventilation time in minutes).

The immediate ventilation will be started on pressing the **OK** key and will be running for the preset time. After that it will be switched off again and return to the preset automatic mode.

Temperature displays



The number and contents of temperature displays depends on the controller version and type.



Main value

The displayed temperature.

Secondary value

Alternating display of a text identifying the displayed temperature (e.g. **SOLAR, DHW, ZONE 2...**), the desired temperature and a text **ON/OFF** showing whether the function (zone, source) is ON or OFF.

Heat source on

The source the temperature is assigned to is currently running.



Display of secondary values (**ON/OFF, desired temperature**) and display of a running source may be unavailable for some displayed temperatures.

Main menu in Complete Mode

The main menu is accessible from the basic display (room temperature) only, by pressing MENU. The following items are then available in the main menu:

- Heating zone settings (**ZONE 1,2...**)
- DHW zone settings (**DHW**)
- Ventilation settings (**DHW**)
- Holidays function settings (**HOLIDAYS**)
- Heat pump settings (**HP**) – only in certain controller versions
- Solar heating settings (**SOLAR**)
- Source / Additional source settings – only in certain controller versions
- Clear display of IR inputs values (**INPUTS**)
- Date and time settings (**TIME**)
- Password reset for IR controller web interface (**WWW**)



The info displayed in the main menu depends on the controller version and type. In some controller versions some info may be unavailable.

Heating zone settings (**ZONE**)

In the heating zone settings three parameters can be set in the following order (scroll the displays by up and down arrows in case edit mode is off – edit symbol is not flashing, remains off)

1. User turning zone off/on (**OFF/ON**)
2. Comfort room temperature (**COMFORT**)
3. Setback room temperature (**SETBACK**)

You can edit the settings by pressing the OK key (the edit symbol starts flashing) and selecting the desired value using up/down arrows. The value is then saved by pressing OK again, while pressing CANCEL will abort the modifications. In either case, the edit symbol will go out and you will exit the edit mode.

You can access further items for a more detailed setting of heating zone by scrolling the displays and browsing in the heating zone menu:

4. Zone time program (**PROGRAM**)
5. Adjusting the OTC curve (**OTC**)
6. Adjusting the Summer/Winter mode (**SUMMER** and **WINTER**)

The next adjustment level can be entered by pressing OK.



The info displayed in the heating zone menu depends on the controller version and type. In some controller versions some info may be unavailable.

Zone time program settings

The time program can be set for every weekday separately, 2 comfort periods are available for each day (i.e. periods when the room temperature corresponds to the comfort temperature). A weekday time program is better illustrated by the following graph (comfort temperature 22°C, setback temperature 20°C):



Four values can be then adjusted for each day – two transitions for each of the two periods (from setback to comfort and back from comfort to setback).



Main value	Setting the comfort period (1 = 1st period of day, 2 = 2nd period of day).
Secondary value	The time of the period transition being currently edited.
Weekday	The day the current value is being set for.
Comfort/setback	If the COMFORT symbol is shown, the transition from setback to comfort is being edited; if the SETBACK symbol is shown, the transition from comfort to setback is being edited.

Setting an OTC curve for a heating zone (OTC)

The weather-compensating heating curve in IR Controllers is calculated from heating system parameters and can be shifted in parallel or its inclination changed at two points, namely -15°C and +15°C outdoor temperature. When editing the correction value of one point, the other one always remains unchanged and the curve changes its inclination. For a parallel shift, the same correction at both the points shall be made.

You can edit the settings by pressing the OK key (the edit symbol starts flashing) and selecting the desired value using up/down arrows. The value is then saved by pressing OK again, while pressing CANCEL will abort the modifications. In either case, the edit symbol will go out and you will exit the edit mode.

You can access 4 points of OTC curve computed from the OTC formula in the format [outdoor temperature; desired heating water temperature] by scrolling the displays further. For each of the 4 outdoor temperatures (described as **E1**, **E2**, **E3**, a **E4** in the display) a desired heating water temperature of **I1**, **I2**, **I3** a **I4** is displayed.

Setting the Summer-Winter mode (SUMMER and WINTER)

A threshold temperature and its duration in hours (HRS) can be set for either mode (Summer, Winter). Turning on/off the Summer-Winter mode is common for both the modes. The order of displays when setting the mode is following:

1. Switching on/off the Summer/Winter mode (**OFF/ON**)
2. Setting the threshold temperature for SUMMER or WINTER mode (the secondary value is blank)
3. Setting the temperature duration for SUMMER or WINTER mode (**HRS**)

If the Summer-Winter mode is off, the WINTER mode is set as default, i.e. zones are heated up to the desired temperatures following the time program.

When the Summer-Winter mode is on, the controller keeps comparing the outdoor temperature with the set threshold temperatures.

When the outdoor temperature is **below** the set threshold temperature for WINTER mode for the set duration for WINTER mode then the WINTER mode is activated (zone is heated up).

When the outdoor temperature is **above** the set threshold temperature for SUMMER mode for the set duration for SUMMER mode then the SUMMER mode is activated (zone heating is deactivated).

DHW zone settings (DHW)

In the DHW zone settings three parameters can be set in the following order (scroll the displays by up and down arrows in case edit mode is off – edit symbol is not flashing, remains off):

1. User turning zone off/on (**OFF/ON**)
2. Comfort temperature (**COMFORT**)
3. Setback temperature (**SETBACK**)

You can edit the settings by pressing the OK key (the edit symbol starts flashing) and selecting the desired value using up/down arrows. The value is then saved by pressing OK again, while pressing CANCEL will abort the modifications. In either case, the edit symbol will go out and you will exit the edit mode.

You can access further items for a more detailed setting of DHW zone by scrolling the displays and browsing in the DHW zone menu:

4. DHW zone time program (**PROGRAM**) – described in the chapter *Heating zone settings*
5. Setting the DHW recirculation (**CIRCULATION**)

The next adjustment level can be entered by pressing OK.



The info displayed in the DHW zone menu depends on the controller version and type. In some controller versions some info may be unavailable.

DHW recirculation settings

In the DHW zone settings three parameters can be set in the following order (scroll the displays by up and down arrows in case edit mode is off – edit symbol is not flashing, remains off):

1. User turning zone off/on (**OFF/ON**)
2. Recirculation time in minutes (alternately **ON** and **MIN**)
3. Circulation pump delay time in minutes (alternately **OFF** and **MIN**)
4. Time program for DHW recirculation (**PROGRAM**) – described in the chapter *Heating zone settings*

You can edit the settings in displays 1 to 3 by pressing the OK key (the edit symbol starts flashing) and selecting the desired value using up/down arrows. The value is then saved by pressing OK again, while pressing CANCEL will abort the modifications. In either case, the edit symbol will go out and you will exit the edit mode.

You can access the time program editing (display 4) by pressing OK.

A DHW recirculation pump is started only if its switching is enabled by the recirculation time program.

The pump always runs during the recirculation time (display 2 – recirculation time – in the secondary display the text **ON** and **MIN** is displayed alternately), then it stops for the idle time (display 3 – idle time - in the secondary display the text **OFF** and **MIN** is displayed alternately). This cycle is being repeated permanently..

Ventilation settings (**VENT**)

In the ventilation settings three parameters can be set in the following order (scroll the displays by up and down arrows in case edit mode is off – edit symbol is not flashing, remains off):

1. User turning zone off/on (**OFF/ON**)
2. Power of the fan from 0-100% for the comfort mode (**COMFORT**)

3. Power of the fan from 0-100% for the setback mode (**SETBACK**)

You can edit the settings by pressing the OK key (the edit symbol starts flashing) and selecting the desired value using up/down arrows. The value is then saved by pressing OK again, while pressing CANCEL will abort the modifications. In either case, the edit symbol will go out and you will exit the edit mode.

You can access further items for a more detailed setting of ventilation zone by scrolling the displays and browsing in the DHW zone menu:

4. Ventilation time program (**PROGRAM**) – described in the chapter *Heating zone settings*

The next adjustment level can be entered by pressing OK.



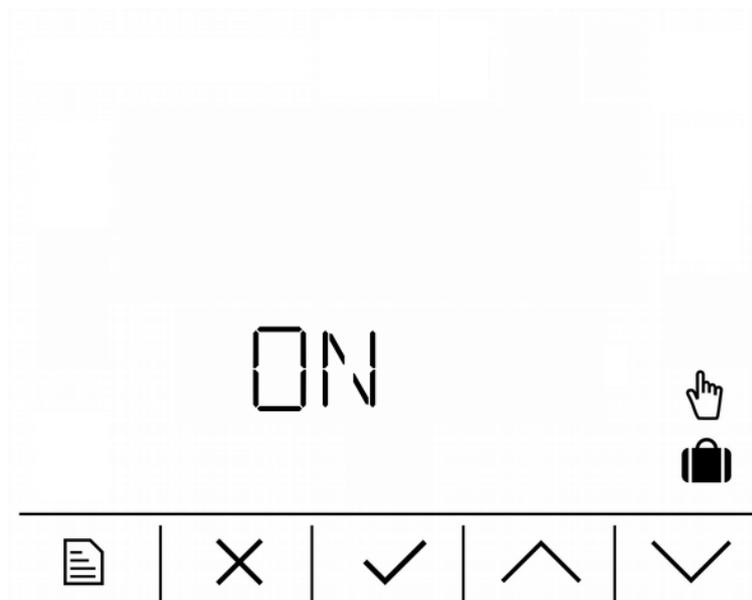
The info displayed in the ventilation menu depends on the controller version and type. In some controller versions some info may be unavailable.

Holidays function settings (**HOLIDAYS**)

The Holidays function permits to reduce temporarily the desired temperatures in heating and DHW zones for the preset number of days. This means that both the comfort and setback temperatures will be overridden by the desired holidays temperature temporarily.

After the number of days expires that were set for the Holidays function, this function will be switched off and the controller will return to the preceding mode (automatic/permanent comfort/permanent setback).

The displays within the Holidays function follow in this order:



Holidays switch-on display. If not in edit mode, the display shows the current state of the Holiday function (**ON/OFF**); on entering the edit mode (pressing the OK key - the edit symbol starts flashing) the state can be changed.

When changed to the **ON** state, the Holidays function starts immediately and will run for the number of days set (see the next display), then it will finish (**OFF**). If desired, the function can be switched off manually any time by changing the state to **OFF**.



Setting how long (in days) the function shall be active when switched on. After the time expires, the function will be switched off.

A number of displays follows (depending on the controller type and version) where the desired holidays temperatures can be set for separate zones. The temperature shown as the main value is always unambiguously identified by the secondary text.

Heat pump settings (HP)



This group of displays is only available in those IR controllers that are designed to control heat pumps.

Only this one parameter can be changed in the heat pump settings:

1. User switching off/on a HP cascade (**OFF/ON**)

You can edit the settings by pressing the OK key (the edit symbol starts flashing) and selecting the desired value using up/down arrows. The value is then saved by pressing OK again, while pressing CANCEL will abort the modifications. In either case, the edit symbol will go out and you will exit the edit mode.

The following three displays contain only information on the condition of the heat pump and the values cannot be edited:

2. HP condition in text (e.g.: **HEATING DHW**)
3. HP Flow temperature (**INLET**)
4. HP Return temperature (**OUTLET**)

Solar heating settings (**SOLAR**)



This group of displays is only available in those IR controllers that are designed to control solar heating.

The solar heating settings menu may contain items for setting up to 3 solar consumers (depending on the controller version and type). Each solar consumer can be switched on/off by the user and the desired temperature coming from the solar heating set. The group of displays can then contain up to 6 displays:

1. User turning off/on the solar consumer 1 (alternately **S1** and **ON/OFF**)
2. Desired temperature of solar consumer 1 (**S1**)
3. User turning off/on the solar consumer 2 (alternately **S2** and **ON/OFF**)
4. Desired temperature of solar consumer 2 (**S2**)
5. User turning off/on the solar consumer 3 (alternately **S3** and **ON/OFF**)
6. Desired temperature of solar consumer 3 (**S3**)



The number of displays (number of solar consumers) depends on the controller version and type.

You can edit the settings by pressing the OK key (the edit symbol starts flashing) and selecting the desired value using up/down arrows. The value is then saved by pressing OK again, while pressing CANCEL will abort the modifications. In either case, the edit symbol will go out and you will exit the edit mode.

Auxiliary heat source settings (**SOURCE**)



Setting a heat source may be unavailable in some types of IR controllers.

Only this one parameter can be changed in the aux heat source settings:

1. User switching on/off an aux heat source (**OFF/ON**)

You can edit the settings by pressing the OK key (the edit symbol starts flashing) and selecting the desired value using up/down arrows. The value is then saved by pressing OK again, while pressing CANCEL will abort the modifications. In either case, the edit symbol will go out and you will exit the edit mode.

Display of sensor values (**INPUTS**)

In the INPUTS group of displays the current values of temperature sensors are displayed. The number of displays and their contents will differ depending on the controller version and type.



Main value Actual temperature at the temperature sensor.

Secondary value Unambiguous temperature identification.

Date and time settings (**TIME**)

Date and time are set in 6 steps. First the year shall be set (in the range between 00 and 99 which corresponds to 2000-2099), then the month (1-12), day (1-31), hour (0-23) and minute (0-59). The last display lets you save the set values and overwrite the IR controller system time (RTC). The displays are shown in the following order:

1. Setting the year between 0 (2000) and 99 (2099) (**YEAR**)
2. Setting the month between 1 (January) and 12 (December) (**MON**)
3. Setting the day between 1 and 31 (**DAY**)
4. Setting the hour between 0 and 23 (**HRS**)
5. Setting the minute between 0 and 59 (**MIN**)
6. Saving the values and overwriting the system time (**SAVE**)

You can edit the settings by pressing the OK key (the edit symbol starts flashing) and selecting the desired value using up/down arrows. The value is then saved by pressing OK again, while pressing CANCEL will abort the modifications. In either case, the edit symbol will go out and you will exit the edit mode.

While in the **SAVE** display, press **OK** to enable saving the values to the system time circuit of the controller (RTC). If you chose **YES**, the set values are saved and the system time overwritten. If you chose **NO**, the system time remains unchanged but the values set on displays 1-5 remain changed).

When the new time is successfully saved in the RTC circuit, the display will return to the basic menu.

Password reset for controller website access (**WWW**)

In the password reset menu the secondary display will show **PASS RESET** running in an endless loop. After pressing OK, the possibility to reset user access data to the control website of the IR controller will become available.

By choosing **YES**, user access data will be reset to default settings (name: **user**, password: **user**) and the display will return to the basic menu. If **NO** is chosen, the edit mode is aborted and the access data will remain unchanged.

