Roth Touchline® SL
Controller 8 ch, extension

Advanced Wireless control system for underfloor heating/cooling, and radiator systems.

Living full of energy

TABLE OF CONTENT

I. SAFETY

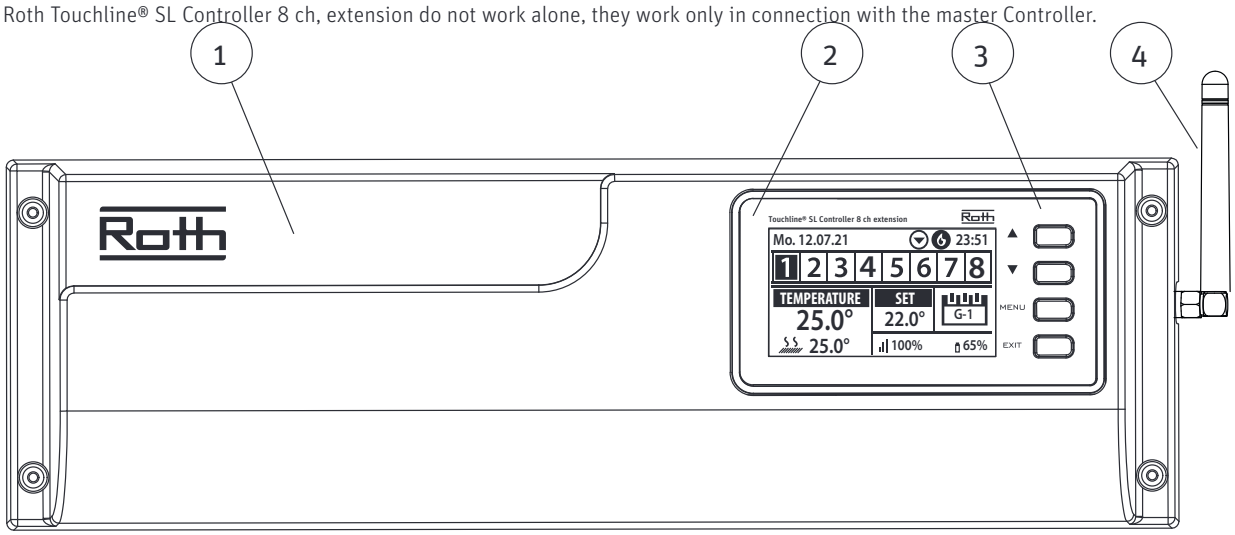
Roth Touchline® SL Control system must always be installed by a qualified person. The Controller must always be mounted on a wall or in a cabinet in a secure way.

WARNING
Risk of fatal electric shock from touching live connections. Before working on the controller switch off the power supply and prevent it from being accidentally switched on.

NOTE
Incorrect connection of cables may lead to controller damage.

We are committed to protecting the environment. Manufacturing electronic devices imposes an obligation of providing for environmentally safe disposal of used electronic components and devices. Hence, we have been entered into a register kept by the Inspection For Environmental Protection. The crossed-out bin symbol on a product means that the product may not be disposed of to household waste containers. Recycling of wastes helps to protect the environment. The user is obliged to transfer their used equipment to a collection point where all electric and electronic components will be recycled

Roth Touchline® SL Controller 8 ch, extension:
The Roth Touchline® SL Controller 8 ch, extension is an extensions module for the Roth Touchline® SL Controller 8 ch, master. In the Roth Touchline® SL system
it's possible to add up to 4 Roth Touchline® SL Controller, extension to one Roth Touchline® SL Controller – master.
The Roth Touchline® SL Controller 8 ch, extension do not work alone, they work only in connection with the master Controller.



1. Cover (it must be removed to connect the devices to the controller)
2. Display
3. Control buttons
4. Antenna – for wireless communication

II. First start-up

Follow these steps when starting the device for the first time to ensure its failure-free operation:

Step 1. Connect Roth Touchline® SL Controller - extension, with all the devices to be controlled

In order to connect the cables, remove the controller cover and connect the cables as indicated on connector labels and diagrams below:

› All the necessary actuators on CH 1-8 (zone 9-16 for 1. module and 17-24 for the second etc.).

› Pump (only, if a local pump must be connected to the extension module).

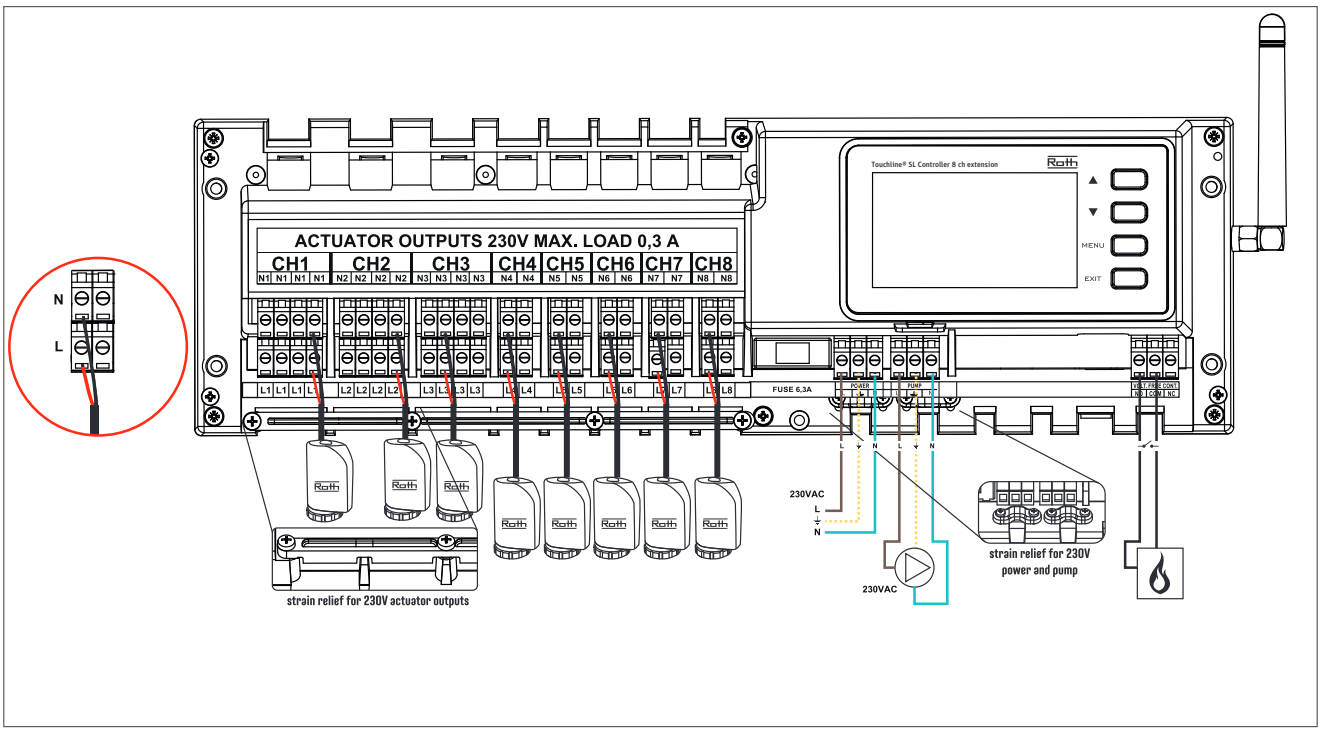
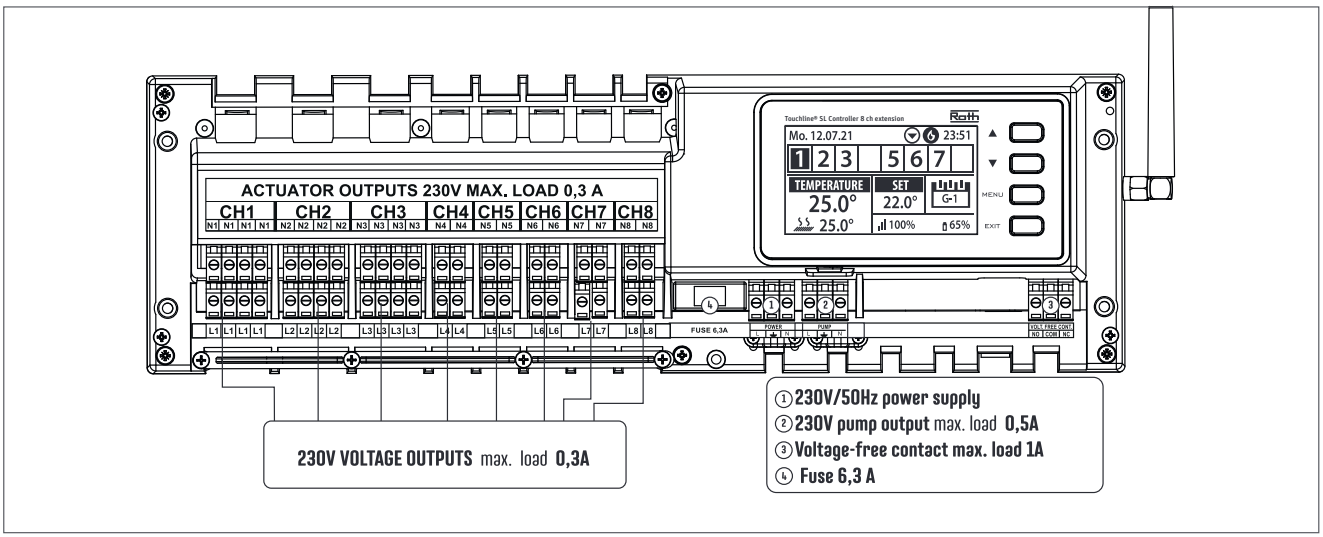
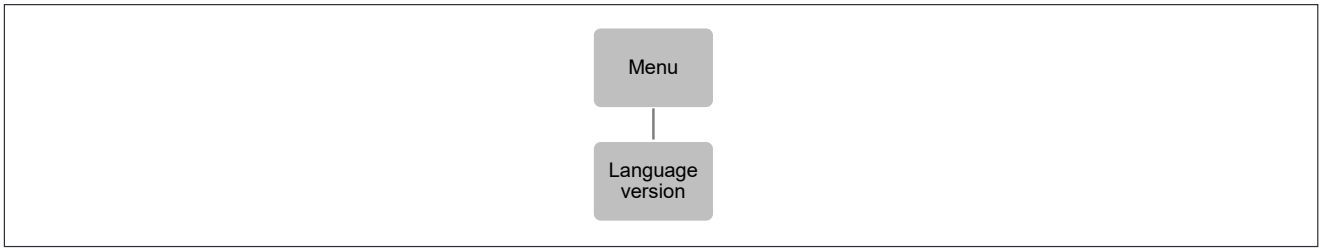


Diagram presenting wiring and communication with other devices in the system.



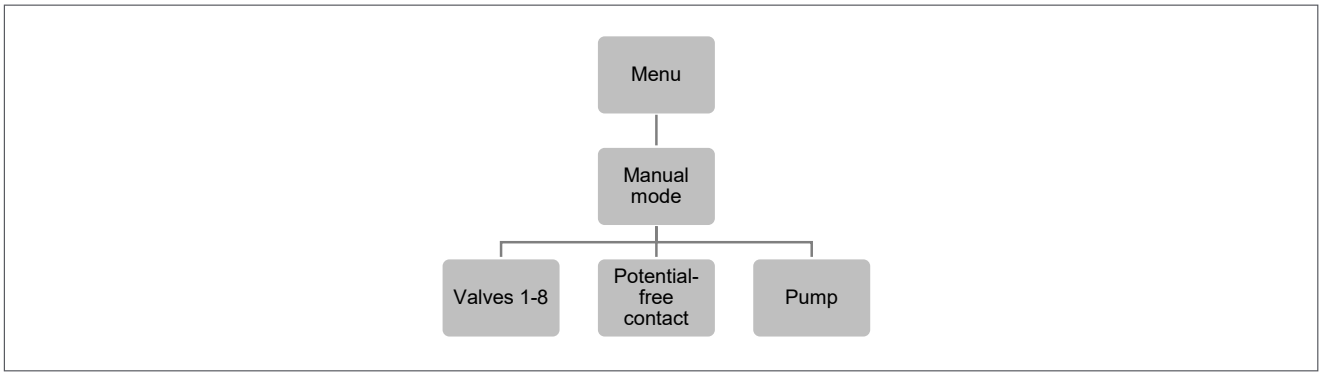
If required up to 4 actuators can be connected to the same output/zone (32 actuators in total on one controller).
Meaning: An output with 2, 3 or 4 terminals can all be connected with up to 4 actuators.

Step 2. Switch on the power supply and set your language



Press MENU button and use the button ▼ to select "Language selection". Use the button ▼ to select your language and confirm with MENU button.

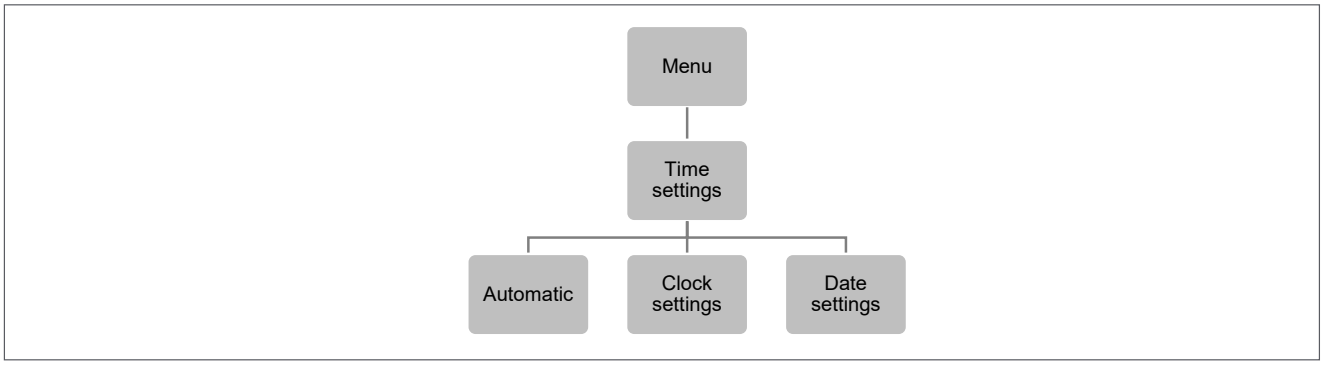
Step 3. Switch on the power supply and check if the devices work properly



Once all the devices has been connected, switch on the power supply. You can choose to use the "Manual mode" function to check if each device works properly, but it is not necessary to do this.

Press MENU button and use the button ▼ to select "Manual mode". Select "Valve 1" with MENU button – and carry on to all other valve's, potential-free contact and pump. When all are activated all connected valves should open (takes around 300 sec.), pump should be running (delay 2 min.) and the heatsource should be activated (delay 2 min.).

Step 4. Set current time and date



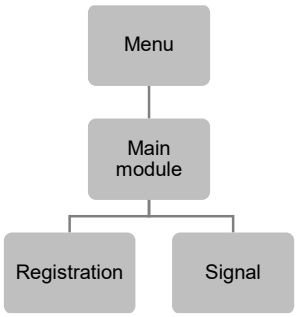
Press MENU button and use the button ▼ to select "Time settings" – press MENU.

The box "Automatic" are only visible if the controller is connectet to the master, and the master controller is connected to the internet. If so the clock and date will be set automatically.

If there is no internet connection then select "Clock settings" with MENU, set "hour" with ▼ or ▲ – confirm with MENU, set "Minute" with ▼ or ▲ – press MENU. Press MENU to "CONFIRM" or choose "CANCEL" with ▲ – press MENU.

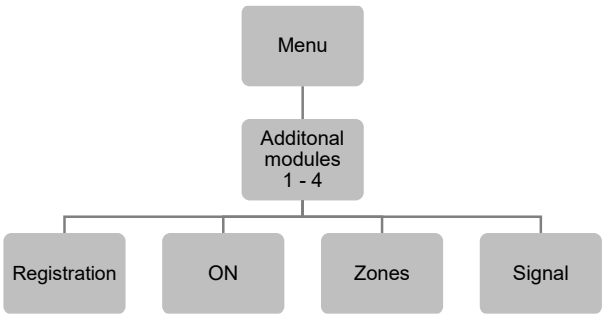
Now choose "Date settings", set "Year" with ▼ or ▲ – confirm with MENU, set "Month" with ▼ or ▲ – press MENU, set "day" with ▼ or ▲ – press MENU. Press MENU to "CONFIRM" or choose "CANCEL" with ▲ – press MENU.

Step 5. Connection between Roth Touchline® SL Controller 8 ch, extension and Roth Touchline® SL Controller 8 ch, master



Press MENU button and use the button ▼ to select "Main module" – press MENU.
To connect the two units, select "Registration" – press MENU.
The Roth Touchline® SL Controller 8 ch, extension will start to search for the Roth Touchline® SL Controller 8 ch, master module.
The Roth Touchline® SL Controller 8 ch, master must be in "Registration" mode, to be able to establish the connection, see below.

Roth Touchline® SL Controller 8 ch, master:
Diagram – Additional modules menu



Press MENU button and use the button ▼ to select "Additional modules 1 - 4" – press MENU.
Select "Registration" – press MENU.
The controller will now search for Roth Touchline® SL Controller 8 ch, extension.
After finding the Roth Touchline® SL Controller 8 ch, extension, it will confirm with "the connection is established "OK"".
It's possible to add up to 4 Extension Controllers to one Roth Touchline® SL Controller 8 ch, master module.

Registration	Here you register the connection between master and extension Controller.
On	Default is on, but you can turn of the connection to the specific extension Controller.
Zones	Here you can see and change settings for the zones on the specific extension Controller.
Signal	Here you can see the signal strenght between the master and the extension Controller.

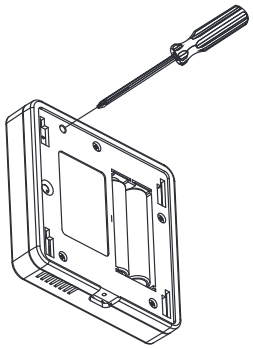
Step 6. Configure the settings for the temperature sensors and the room regulators
To enable the Roth controller - Extension to control a given zone, it is necessary to provide it with current temperature value. The easiest way is to use a room thermostat, where the user will be able to change the pre-set temperature value directly on the thermostat. But the user can also use a sensor which can be controlled via the display on the controller or using the Roth Touchline® SL App.

Registration of room thermostat:

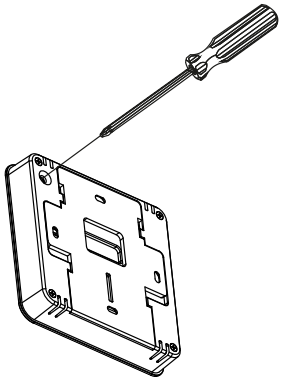
If it is the very first room thermostat "No active zones" will be displayed. Press MENU button and choose "Zones" -press MENU. Choose a zone with ▼ or ▲ where you want the thermostat to be connected - press MENU. Choose "registration" – press MENU. Choose YES to register sensor and searching will start. Press registration button (see pictures below) on the back of the thermostat and the sensor will be found. Choose OK with MENU to leave setup.

Repeat registration for other thermostats or sensors, by choosing one of the other zones (2 to 8) until required number of thermostas are connected.

Attention! If a thermostat is paired to the wrong zone, do not delete the thermostat. Pair the thermostat to the correct/new zone and the old pairing will be deleted.



Roth Touchline® PL room thermostat

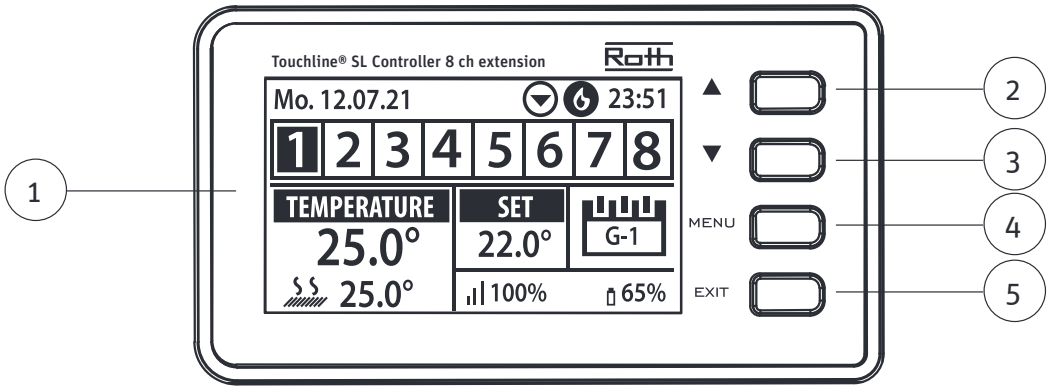


Roth Touchline® SL Standard room thermostat

Please see the manuals for the specific room thermostats or sensors for more detailed information about the functionality.

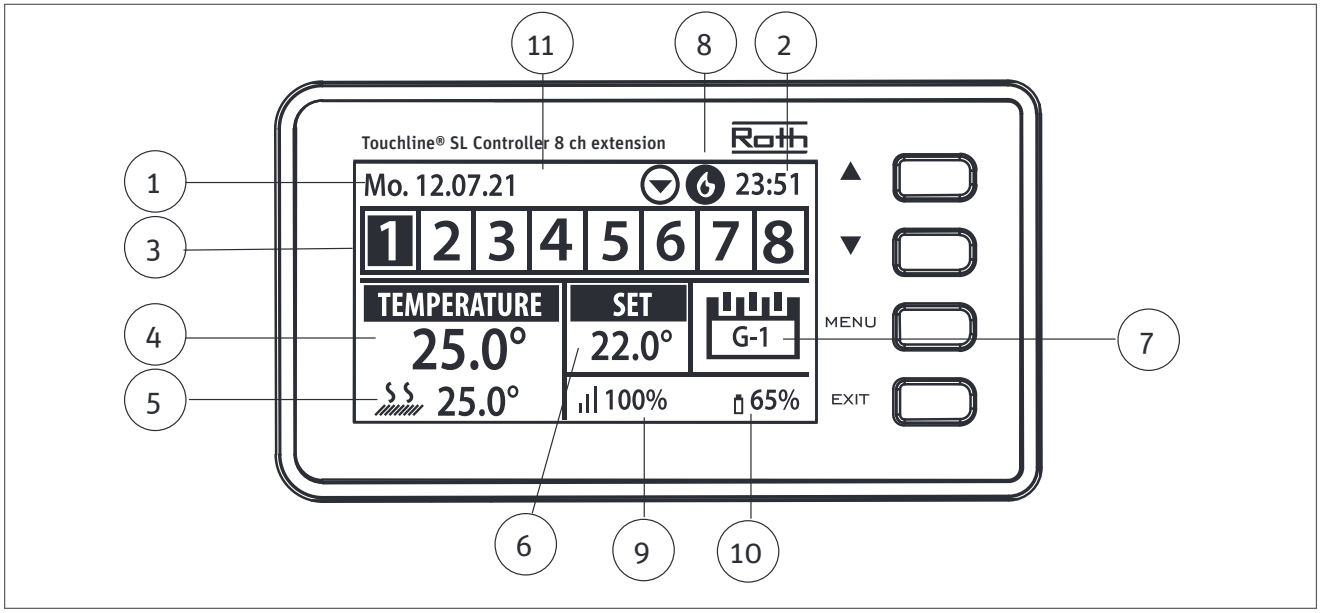
III. MAIN SCREEN DESCRIPTION

The user navigates in the menu structure using the buttons located next to the display. To wake up the display from sleepmode just press one of the buttons.



1. Display.
2. ▲ - “up” “plus” - it is used to view the menu options and increase the value while editing parameters. During standard operation the button is used to switch between different zones parameters.
3 ▼ - “down” “minus” - it is used to view the menu options and decrease the value while editing parameters. During standard operation the button is used to switch between different zones parameters.
4. MENU button – it is used to enter the controller menu and to confirm the new setting.
5. EXIT button – it is used to exit the menu and to cancel the setting.

Display informations.



1. Day of the week.
2. Current time.
3. Overview of zones. If a zone is highlighted (here it's ch 1) you can view the informations for this zone in the display. If no number is shown, no sensors are connected. If the zone digit is flashing, heating/cooling is on. In the event of a zone alarm, an exclamation mark (!) is displayed instead of the digit.
4. Showing actual temperature in the room.
5. Showing actual floor temperature if a floor sensor is connected.
6. Showing SET temperature in the room.
7. Shows actual mode for the zone:

"CON" Means constant SET temperature.

"00:56" Means that a different SET temperature is set with time limitation for another 56 minutes, after that the setting will return to previuos setting (CON or schedule).

"G1 to G5" Means the zone is running on a global timeschedule. Time schedule can be viewed and changed on the Controller or in the app. Current Set temperature (according to schedule) for the whole system is shown to the left.

"L" Means the zone is running on a local timeschedule. Time schedule can be viewed and changed on the Controller or in the app. Current Set temperature (according to schedule) for the whole system is shown to the left.

"Holiday" (Icon) Means the complete system is set in holiday mode. Set temperature for the whole system is shown to the left.

"Economy" (Icon) Means the complete system is set in economy mode. Set temperature for the whole system is shown to the left.

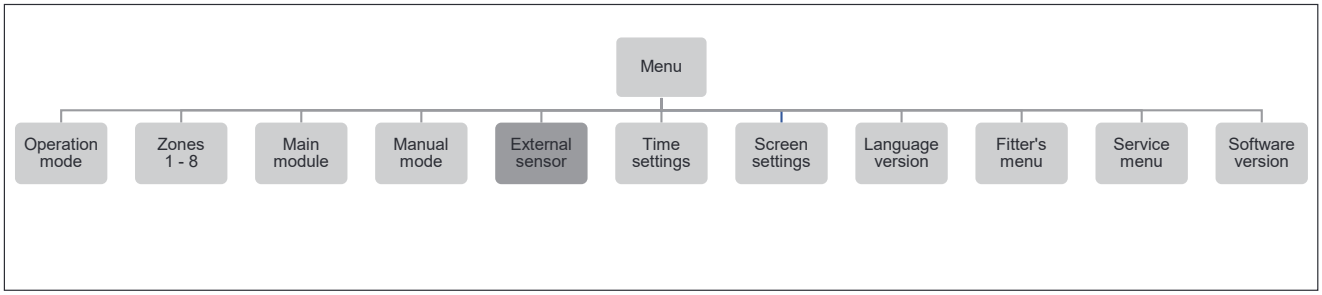
"Comfort" (Icon) Means the system is set in Comfort mode. Set temperature for the whole system is shown to the left.

8. These two icons are shown when pump and heatsorcue is active = running.
9. Shows the signal strenght of the connection between the controller and the thermostat. Must be at least 10%!
10. Shows the battery level of the thermostat in the zone.
11. Shows the outdooor temperature if an outdoor sensor is connected to the master controller.

IV. CONTROLLER FUNCTIONS

1. MAIN MENU

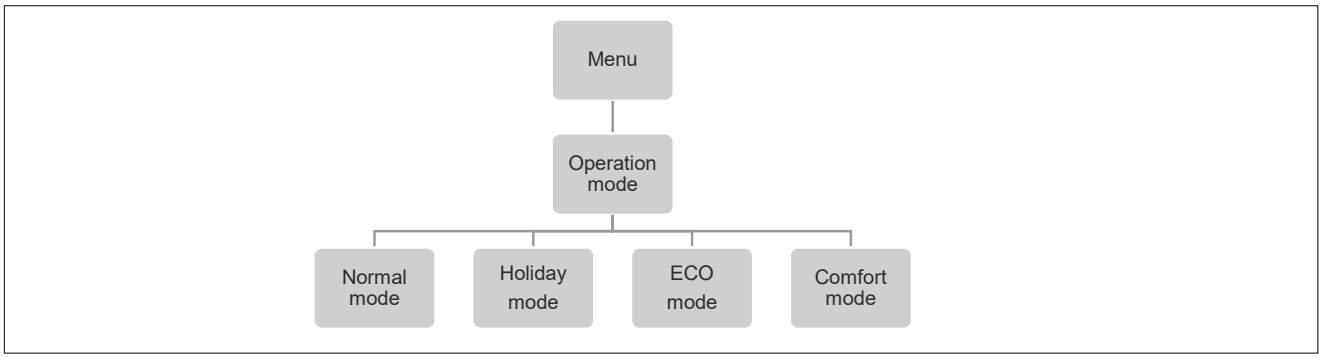
Diagram – Roth Touchline® SL Controller 8 ch, extension main menu



External sensor will only be visible if an outdoor sensor has been connected to the master controller! For detailed information about this please look in the manual for Roth Touchline® SL Controller Ch 8 – master.

2. OPERATION GLOBAL SYSTEM MODE MENU

Diagram – Operation global mode menu



This function enables the user to select the operation mode globally for the whole system.

Normal mode Is used when you want the pre-set temperature to follow the selected operation mode for each single zone.

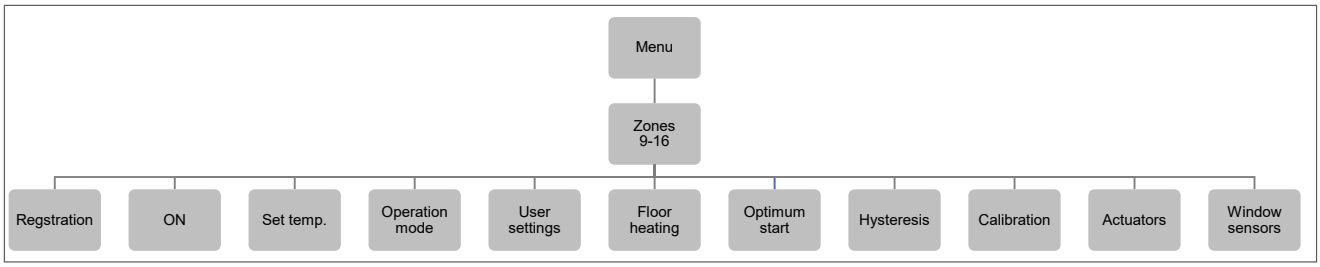
Holiday mode Is used when you want to lower the temperature globally for all zones for a longer period, for example during your holiday. Pre-set temperature can be changed in Zones › user settings › temperature settings. Default setting is 10°C.

Economy mode Is used when you want to lower the temperature globally for all zones for a shorter period, for example during a weekend where you are away from home.
Pre-set temperature can be changed in Zones › user settings › temperature settings. Default setting is 18°C.

Comfort mode Is used when you want to raise the temperature globally for all zones for a shorter period, for example to overrule a running timeschedule without having to change it.
Pre-set temperature can be changed in Zones › user settings › temperature settings. Default setting is 24°C.

3. ZONES MENU

Diagram - Zones menu



This submenu enables the user to configure operation parameters for the particular zones. When the pre-set temperature value in a zone is reached, the controller labels the zone as sufficiently heated and the status remains unchanged until the temperature drops below the pre-set temperature by hysteresis value. When the temperature in all the zones is sufficient, the controller disables both the pump and the heatsource (potential-free contact).

3.1 Registration

Here you make the registration between the room thermostat and the controller. It is possible to re-register a thermostat if you made a false connection (wrong thermostat) to the output.
Please see the manuals for the specific room thermostats or sensors for more detailed information about the registration procedure.

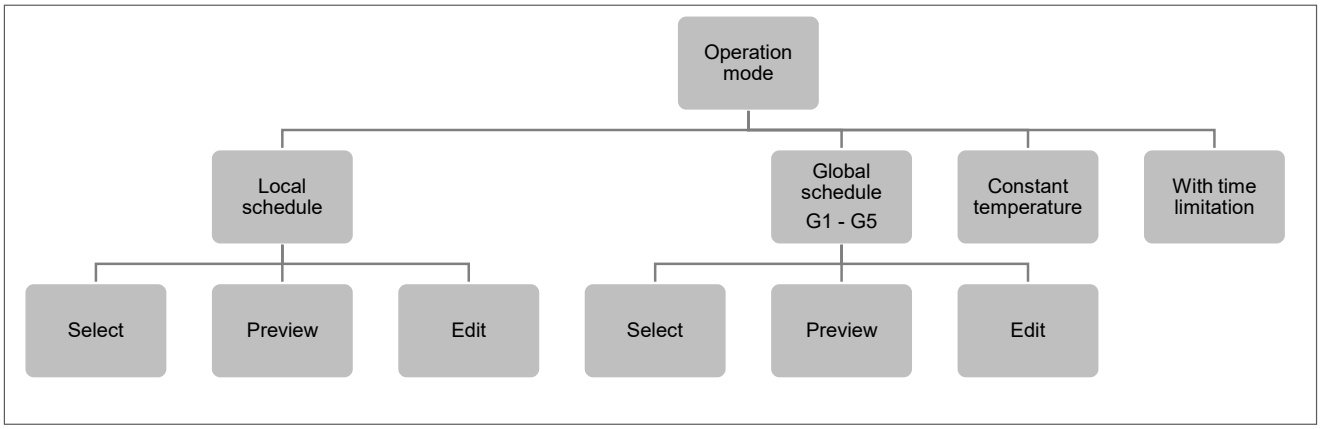
3.2 ON

After the room thermostat has been activated and registered in a given zone, it can be regulated by the controller. The function ”ON” is inactive by default, but it may be activated when the room thermostat has been registered.
Press MENU button to cancel ON.

3.3 PRE-SET TEMPERATURE

Temperature will normally be set on the room thermostat, but can also be set on the Controller display.
Press MENU button - , set temperature with ▼ or ▲ – press MENU. Press MENU to “CONFIRM” or choose “CANCEL” with ▲ – press MENU.

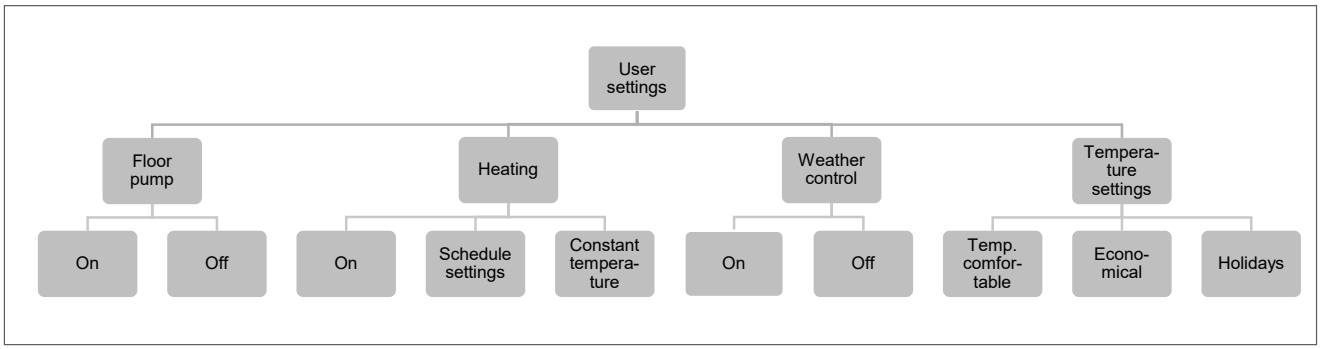
3.4 OPERATION MODE



Here you can choose between different modes, pres MENU button and scroll with ▼ or ▲, select with MENU button.

Local schedule	Here you can select a schedule which you can customize only for this zone. You can choose “Select” immidiately, “Preview” if you want to see the schedule first or “Edit” if you want to edit the schedule. Editing of the schedule is described in chapter VII Time settings menu.
Global schedule	Here you can choose to let the zone follow one of the 5 (G1 – G5) predefined global schedules. You can choose “Select” immidiately, “Preview” if you want to see the schedule first or “Edit” if you want to edit the schedule. Editing of the schedule is described in chapter VII Time settings menu.
Constant temperature	Here you choose to run the zone with a constant temperature. Press MENU button - , set temperature with ▼ or ▲ – press MENU. Press MENU to “CONFIRM” or choose “CANCEL” with ▲ – press MENU.
With time limitation	Here you choose to overwrite the current setting for a certain time. Press MENU button - , set temperature with ▼ or ▲ – press MENU. Set time “Hours” with▼ – press MENU, then set “Minutes” with ▲ – press MENU. Press MENU to “CONFIRM” or choose “CANCEL” with ▲ – press MENU.

3.5 USER SETTINGS



3.5.1 Floor pump

› It is possible to turn of the circulation pump, but this will result in no heating/cooling! Default ON.

3.5.2 Heating

› ON – this function enables the user to include/exclude the zone in/from the heating algorithm.

› Schedule settings – this function enables the user to choose the schedule which will apply in a zone (local schedule, global schedule G-1 to G5) during heating, if the zone operation is based on a schedule. How to set up schedule settings is described in chapter XIII.

› Constant temperature – this function enables the user to define a separate pre-set temperature that will apply in the zone during heating, if the zone operation is based on a constant temperature.

3.5.3 Weather control

› This menu is only visible if an wireless outdoor sensor is connected to the Master Controller.
› ON - Weather control is deactivated by default, so choose ON to activate.
› Average temperature - displayes the average temperature measured within the defined average time.
› Average time - time set to calculate avergae outdoor temperature, default 24 hours.
› Temperature treshold - outdoor temperature for the system to change into ”summer mode”. Default 15

3.5.4 Cooling

› This menu is only visible if cooling is ON (Fitters menu).

› ON – this function enables the user to include/exclude the zone in/from the cooling algorithm.

› Schedule settings – this function enables the user to choose the schedule which will apply in a zone (local schedule, global schedule G-1 to G5) during cooling, if the zone operation is based on a schedule.

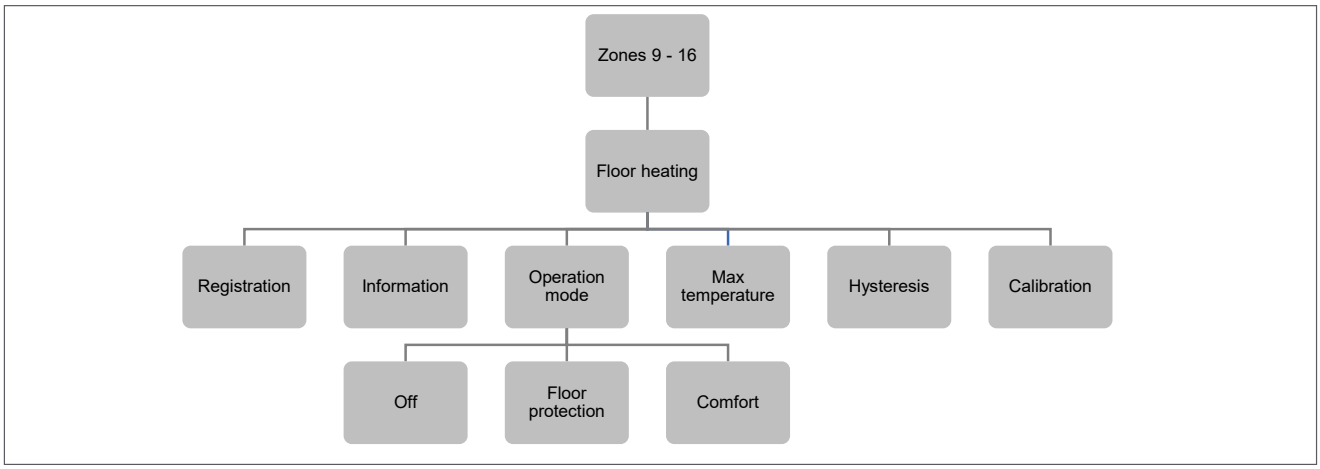
› Constant temperature – this function enables the user to define a separate pre-set temperature that will apply in the zone during cooling, if the zone operation is based on a constant temperature.

› Humidity protection – this function is used to protect the floor against dewfall (condensation). If the humidity in a given zone is higher than “Max humidity” value defined in the fitter’s menu, cooling will be disabled in this zone untill the humidity value drops below the pre-defined.

3.5.5 Temperature settings

› This function enables the user to define pre-set temperatures for the three operation modes (Comfort mode, Economical mode and Holiday mode) locally for the zone.

4. FLOOR HEATING

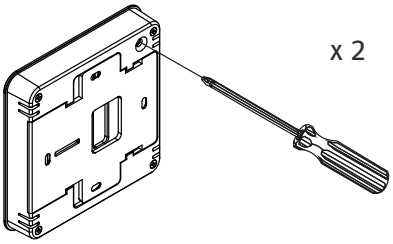


4.1 REGISTRATION

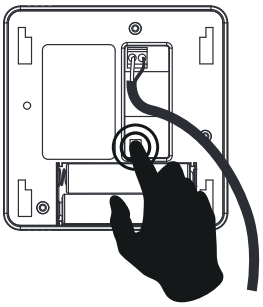
You can connect a cable floor sensor directly to the Roth Touchline® SL Standard room thermostat.

In connection with the Roth Touchline® SL Project room thermostat you can also connect a seperate wireless Roth Touchline® SL Project floor sensor to a zone if needed.

Choose “floor heating” using ▼ – pres MENU. Choose “registration” – press MENU. Choose YES to register sensor and searching will start. Press registration button briefly twice, on the back (see pictures below) of the Standard room thermostat and the sensor will be found. On the Project floor sensor you only press the registration button briefly once. Choose OK with MENU to leave setup.



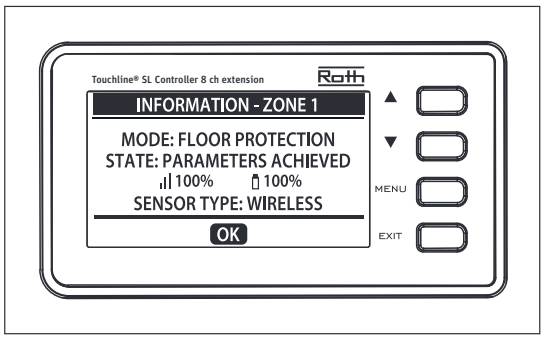
Roth Touchline® SL Standard room thermostat



Roth Touchline® PL floor sensor

4.2 INFORMATION

Here you can see the setting and status of the floor sensor.



4.3 OPERATION MODE

Operation mode for the floor sensor can be set set to either “OFF”, “Floor protection” or “Comfort”. Choose wished mode using ▼ – press MENU.

OFF	This turns of the sensor completely.
Floor protection	This function serves to maintain the floor temperature below the maximum temperature value in order to protect the system or flooring against overheating. When the floor temperature reaches the maximum temperature, the zone heating is disabled.
Comfort	This function serves to maintain comfort floor temperature. The controller monitors the floor temperature and disables the zone heating when zone temperature reaches the maximum temperature in order to prevent overheating. When the floor temperature drops below the pre-set minimum temperature, the zone heating will be enabled.

4.4 MAX TEMPERATURE/MIN TEMPERATURE

Minimum temperature can only be set if the operation mode is set to “Comfort”.

Max and min temperatures must be set when using the floor sensor. In mode “Floor protection” (setting range 20 - 35°C) and in mode “Comfort” (setting range 5 - 27°C).
If mode set to “Floor heating protection” you must set the “Max.temperature” for the floor sensor.

Choose “Max temperature” using ▼ – press MENU. Set temperature with ▼ or ▲ – press MENU. Press MENU to “CONFIRM” or choose “CANCEL” with ▲ – press MENU.

If mode set to “Comfort” you must set both the “Min temperature” and the “Max.temperature” for the floor sensor.

Choose “Min temperature” using ▼ – press MENU. Set temperature with ▼ or ▲ – press MENU. Press MENU to “CONFIRM” or choose “CANCEL” with ▲ – press MENU.

Then choose “Max temperature” using ▼ – press MENU. Set temperature with ▼ or ▲ – press MENU. Press MENU to “CONFIRM” or choose “CANCEL” with ▲ – press MENU.

4.5 HYSTERESIS

Floor temperature hysteresis defines the tolerance of the floor tempearture in order to prevent undesired oscillation in case of small temperature fluctuations (within the range 0,1 to minus 5°C).

Example:
Maximum floor temperature: 45°C Hysteresis: 2°C

The controller will disconnect to the floor sensor when the temprature exceeds 45°C. When the temperature starts falling, the connection will be ebnabkled again when the temperature is dropped to 43°C (unless the room temeperature has been reached).

4.6 CALIBRATION

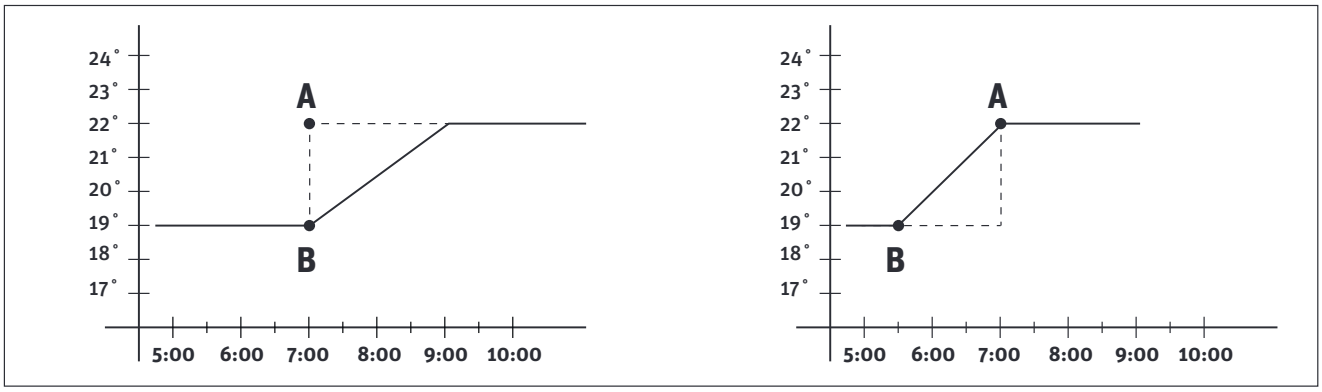
Floor sensor can be calibrated if the measured floor temperature displayed differs from the actual measured temperature (best to use an infrared thermometer). Calibration setting range is from -10°C to +10°C with the accuracy of 0,1°C.

Choose “Calibration” using ▼ – press MENU. Set “Degrees” with ▼ or ▲ – press MENU. Press MENU to “CONFIRM” or choose “CANCEL” with ▲ – press MENU.

5. OPTIMUM START

Optimum start is an intelligent system controlling the heating process. It involves constant monitoring of the heating system efficiency and using the information to activate the heating in advance in order to reach the pre-set temperatures.

The system requires no user intervention. It precisely reacts to any changes that affect the efficiency of the heating system. If, for example, some changes have been introduced to the heating system and the house heats up faster than before, the Optimum start system will recognize the changes at the next pre-programmed temperature change and in the next cycle the heating system activation will be adequately delayed, reducing the time needed to reach the desired temperature.



A – pre-programmed change from economical temperature to comfort temperature.

Activating this function means that at the time of pre-programmed change of the pre-set temperature determined by the schedule, the current room temperature will be close to the desired value.

NOTE
Optimum start is available only in heating mode.

6. HYSTERESIS

Room temperature hysteresis defines the tolerance of the room tempearture in order to prevent undesired oscillation in case of small temperature fluctuations (within the range 0,1 to minus 5°C).

Example: Desired room temperature: 20°C Hysteresis: 0,2°C

This means that the room temperature will operate within 19,8°C (starts heating) to 20,2°C (stops heating)

7. CALIBRATION

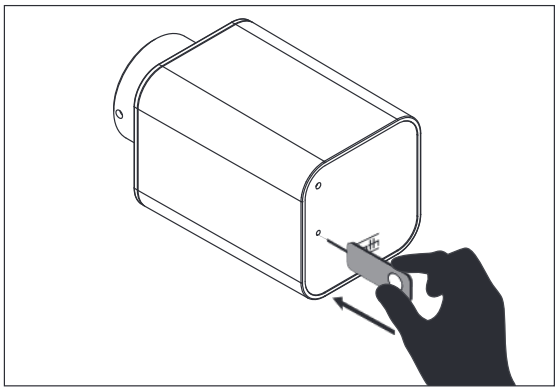
Room sensor can be calibrated if the measured room temperature displayed differs from the actual measured temperature (best to use an infrared thermometer). Calibration setting range is from -10°C to +10°C with the accuracy of 0,1°C.

Choose “Calibration” using ▼ – press MENU. Set “Degrees” with ▼ or ▲ – press MENU. Press MENU to “CONFIRM” or choose “CANCEL” with ▲ – press MENU.

8. ACTUATORS

Here you have the possibility to add and control up to 6 Roth Touchline® SL wireless Radiator actuators to the zone.

Registration Choose “Actuators” using ▼ – press MENU. Choose “Registration” with ▼ or ▲ – press MENU. Confirm “YES” with MENU to start registration of actuator. Controller will search for the actuator, press the button on the actuator to registrate it. Controller will confirm with “Registered”, press MENU for OK.



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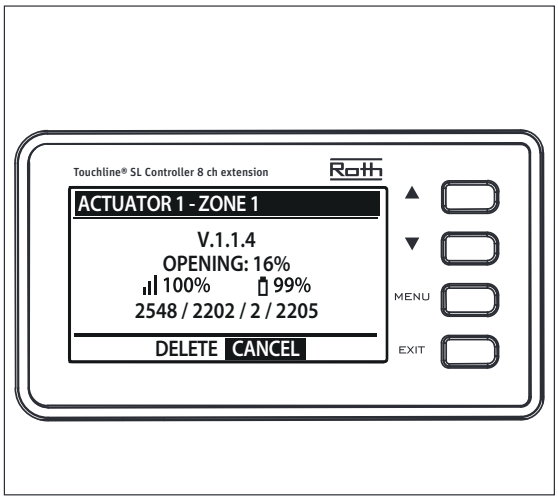
Confirm “YES” with MENU to start registration of actuator. Controller will search for the actuator, press the button on the actuator to registrate it.
Controller will confirm with “Registered”, press MENU for OK.



You will now see in the display that 1/6 possible actauators is registered to the zone.

Actuator removal

It is possible for you to remove the actuator again using “Actuators removal”.

Information

Choosing “Information” gives you an overview of the specific actuators connected to the zone:

Software version, opening position, wireless signal and battery level.

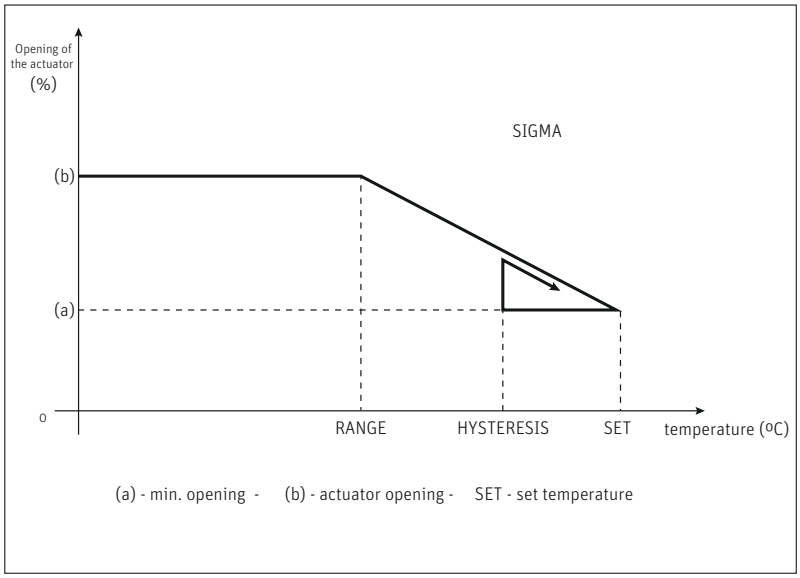
Settings

Choosing “Settings” will enable you to see and change specific settings for the actuator.

Sigma, minimum, and maximum opening time serves stabilizations of the zone temperature by proportional control of the actuator. In another word, it helps to prevent over and under heating on the zones and also saves battery life.

SIGMA

This function allows smooth control of the radiator actuator. The user may also define the minimum and maximum level of valve closing - the valve opening/closening level will never exceed these values.



Example:

Pre-set zone temperature: 23°C
Minimum opening: 30%
Maximum opening: 90%
Range: 5°C
Hysteresis: 2°C

In the above example, the thermostatic valve starts closing at the temperature of 18°C (pre-set value minus Range). The minimum opening is reached when the zone temperature reaches the pre-set value.
Once the pre-set temperature has been reached, the temperature starts falling. At the temperature of 21°C (pre-set value minus hysteresis), the valve starts opening. The maximum opening is reached at the temperature of 18°C.

Range The user can adjust at which room temperature the valve starts opening and closing. Range can be set min. 0,0 and max. 10°C.
Min. Opening Setting minimum opening between min. 0 and max. 50%.
Max. Opening Setting maximum opening between min. 0 and max. 50%.

Protection If this function is ON, the controller monitors the temperature. If the pre-set value is exceeded by the number of degrees specified in “Range” parameter, all actuators in a given zone will close (0% opening). This function is active only when SIGMA function has been enabled.

Emergency mode This function enables the user to define the actuator opening which will be forced in the event of an alarm in a given zone (sensor failure, communication error).

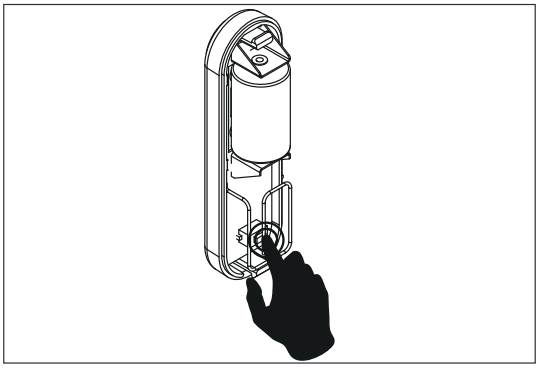
9. WINDOW SENSORS

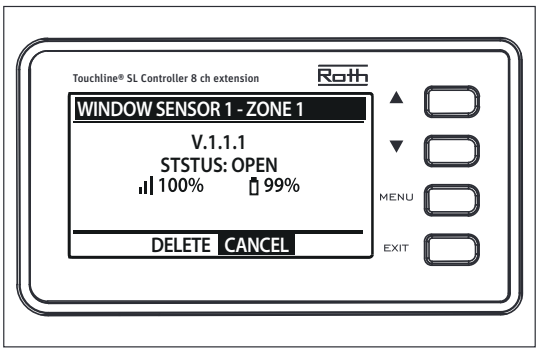
Here you have the possibility to add and control up to 6 Roth Touchline® SL Window contacts to the zone.

Registration Choose “Window sensors” using ▼ – press MENU. Choose “Registration” with ▼ or ▲ – press MENU. Confirm “YES” with MENU to start registration of Window sensor. Controller will search for the Window sensor, press the button (inside) on the Window sensor to registrate it. Watch the LED inside the contact:

› LED flashes twice - proper communication established.
› LED lights up continuously - no communication with the main controller.
› Controller will confirm with “Sensor registered”, press MENU for OK.

You will now see in the display that 1/6 possible Window sensors is registered to the zone.





Sensors removal It is possible for you to remove the sensor again using “Sensors removal”.

Information Choosing “Information” gives you an overview of the specific Window sensor:

Software version, position (open/closed), wireless signal, battery level.

Settings Choosing “Settings” will enable you to see and change specific settings for the actuator.

ON This option is used to activate sensors in a given zone (it is possible after the sensor has been registered).

Delay time This function enables the user to set the delay time. When the delay time is over, the main controller responds to window opening by disabling heating or cooling in a given zone.

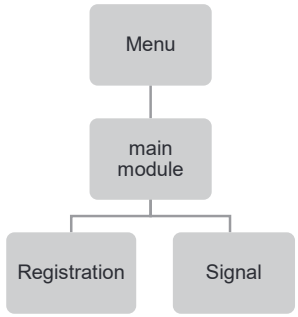
Example: Delay time is set at 10 minutes. When the window is opened, the sensor sends adequate information to the main controller and monitors the current window status. If the sensor sends another information that the window is open after 10 minutes (delay time), the main controller will force the actuators to close and disable heating in the zone.

NOTE

If the delay time is set at 0, the message forcing the actuators to close will be sent immediately.

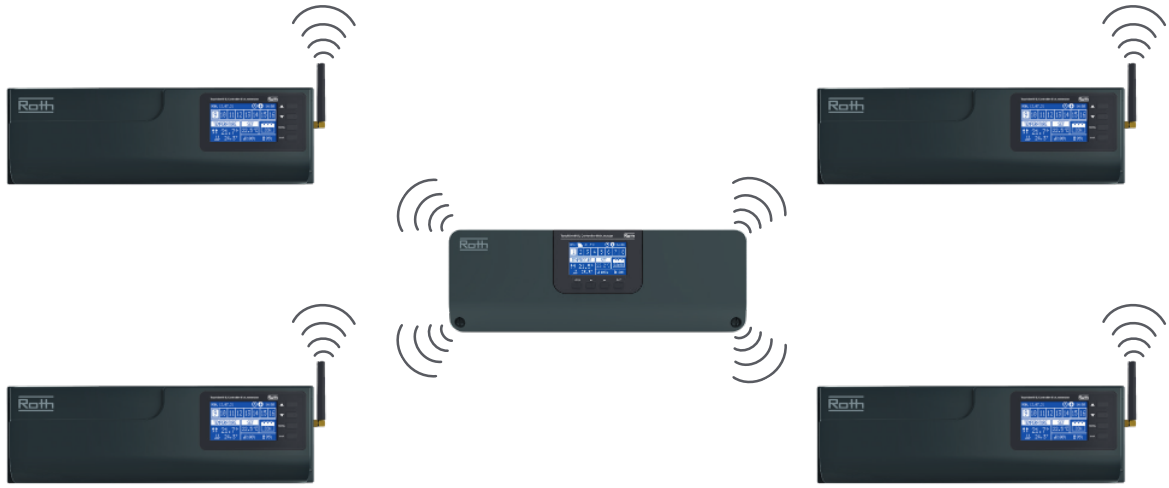
V. MAIN MODULE MENU

Diagram – Main module menu



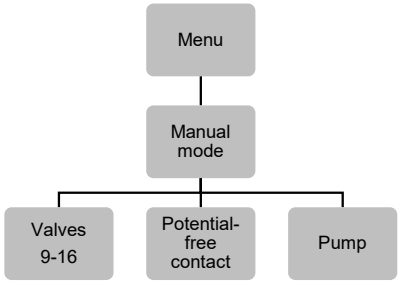
If you need to have a larger installation of more than 8 channels, you can add up to 4 Extension Controllers to one Master Controller. Please see the manuals for the master and extention Controllers to se how to add a module.

Registration	Here you register the connection between extension Controller and master Controller.
Signal	After connecting you can see the signal strenght between the master and the extension Controller.



VI. MANUAL MODE MENU

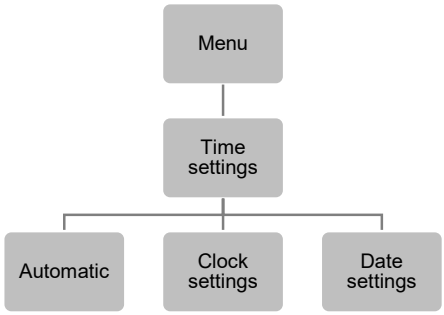
Diagram – Manual mode menu



This function enables the user to activate particular devices (valve actuators, voltage free contact and pump) independently of the others in order to check if they operate properly.
This function can also be used to make the mounting of valve- and Radiator actuators easier, by opening them before fitting them on the valves.
It is adviseable to check the devices using this procedure at the first start-up.

VII. TIME SETTINGS MENU

Diagram – Time settings



Here you set current time and date.

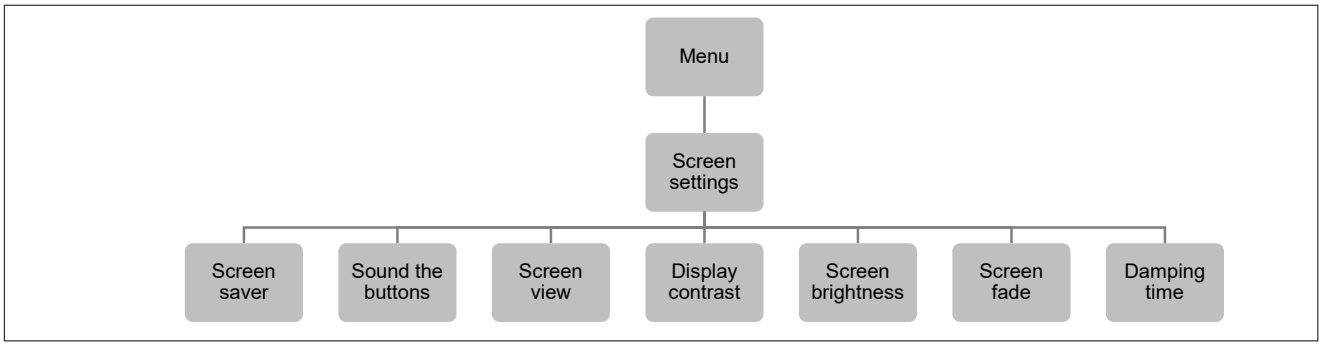
Press MENU button and use the button ▼ to select “Time settings” – press MENU. Select “Clock settings” with MENU, set “hour” with ▼ or ▲ – confirm with MENU, set “Minute” with ▼ or ▲ – press MENU. Press MENU to “CONFIRM” or choose “CANCEL” with ▲ – press MENU.

Now choose “Date settings”, set “Year” with ▼ or ▲ – confirm with MENU, set “Month” with ▼ or ▲ – press MENU, set “day” with ▼ or ▲ – press MENU. Press MENU to “CONFIRM” or choose “CANCEL” with ▲ – press MENU.

If the system (Master Controller) is connected to the internet, clock and date will automatically be set.

VIII. SCREEN SETTINGS MENU

Diagram – Screen settings menu



This function enables the user to adjust the screen properties to individual needs.

Screensaver Protects the display for burn-in. Default ON.

Sound the buttons Here you can turn of the sound of the buttons.

Screen view Here you can switch between the thre views: zones, Zone and Sensors. Same as when you push EXIT from the start menu.

Display contrast Here you can adjust the contrast of the display.

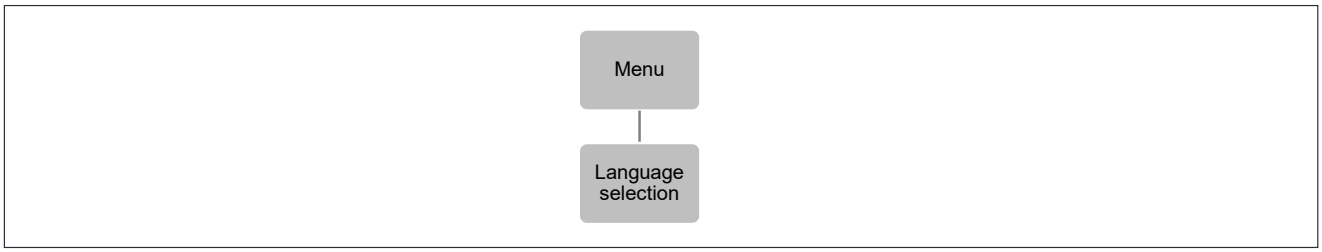
Screen brightness Here you can adjust the brightness of the display.

Screen fade Here you can adjust how much the screen fades when it goes to sleep.

Damping time The time from last using the buttons to the screen goes to sleep.

IX. LANGUAGE VERSION MENU

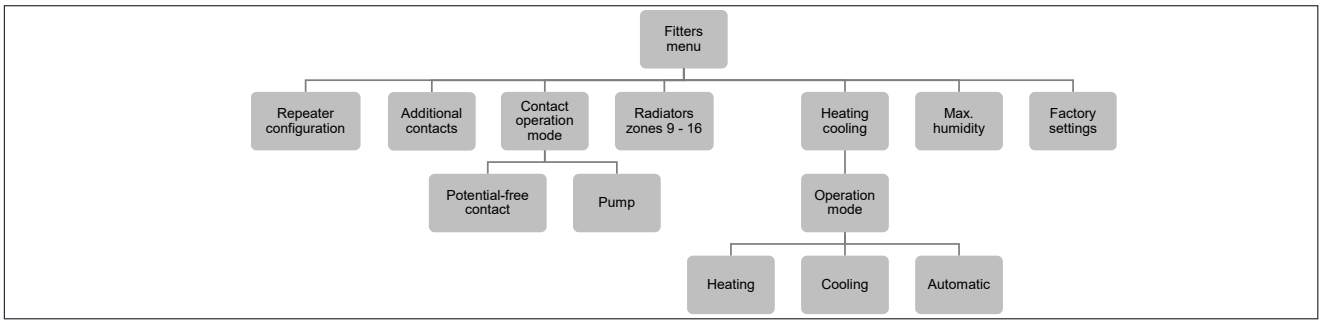
Diagram – Laguage version



To set your language (default is english).
Press MENU button and use the button ▼ to select “Language selection”. Use the button ▼ to select your language and confirm with MENU button.

X. FITTERS MENU

Diagram – Fitters menu



Fitter's menu is intended to be used by a qualified person in order to configure advanced controller settings.

1. REPEATER CONFIGURATION

An external repeater can be added to the system if you have problems with the signal between the master/extension controllers or between thermostat/sensors and controllers.

In order to be able to use the Roth Touchline® SL Repeater between the master - and extension controllers, it must first be configured. Please see the specific manual for the Roth Touchline® SL Repeater for more details.

2. ADDITONAL CONTACTS

Here you are able to connect and control different additional contacts. These contacts can be used to control boilers, heat pumps, pumps etc. using wireless relays/power plugs so the controller doesn't need to be right next to these products.
Not all these products are standard in the Roth Touchline® SL program for the moment , but please contact Roth North Europe if you have specific requirements.

Registration Follow these steps to register the device:

› Press the registration button on module
› Select 'Registration' in the master controller menu

If:

› All control lights are flashing simultaneously = the registration has been successful.
› The control lights are flashing one after another from one side to the other = module has not received the signal from the main controller.
› All control lights light up continuously = the registration attempt failed.

NOTE

It is possible to register up to 6 additional contact.
Once the device has been registered, the following functions appear in the contact submenu:

Information The screen shows information about the status, operation mode, range and delay time.
ON/OFF Turns the communication with the device on/off.
Delay time The contact will be enabled after the pre-set delay time. The controller disables the contact immediately e.g. when the pre-set temperature has been reached in every zone.
Operation mode This function enables the user to activate the operation mode in a given zone 1-8, voltage-free contact , pump or DHW.

3. CONTACT OPERATION MODE

Here you are able to change the setting for the pump and potential free contact. If you have set up a system with one or more extension controllers you can control these outputs globally via the master controller.

Potential-free-Contact	**Operation delay**	Here you can change the delay (default 2 min.) for the relay to react.
	Remote work	If ON, the signal is transferred to connected extension controllers.
Pump	**Operation delay**	Here you can change the delay (default 2 min.) for the pump to start after heat demand.
	Remote work	If ON, the signal is transferred to connected extension controllers.
	Pump anti-stop	This function forces pump operation and prevents scale deposit outside the heating season when the pump inactivity periods are long. This function may also involve the thermostatic valves (when it is active - ON, the thermostatic valves are opened).
	On	If ON the anti-stop is active and you can see and set the below settings.
	Valves	If ON the actuators will follow the anti-stop setting for the pump.
	Operation time	Is the time (default 5 min.) for the pump (and actuators) to be activated.
	Pause time	Is the pause between the activation of the pump (and actuators).

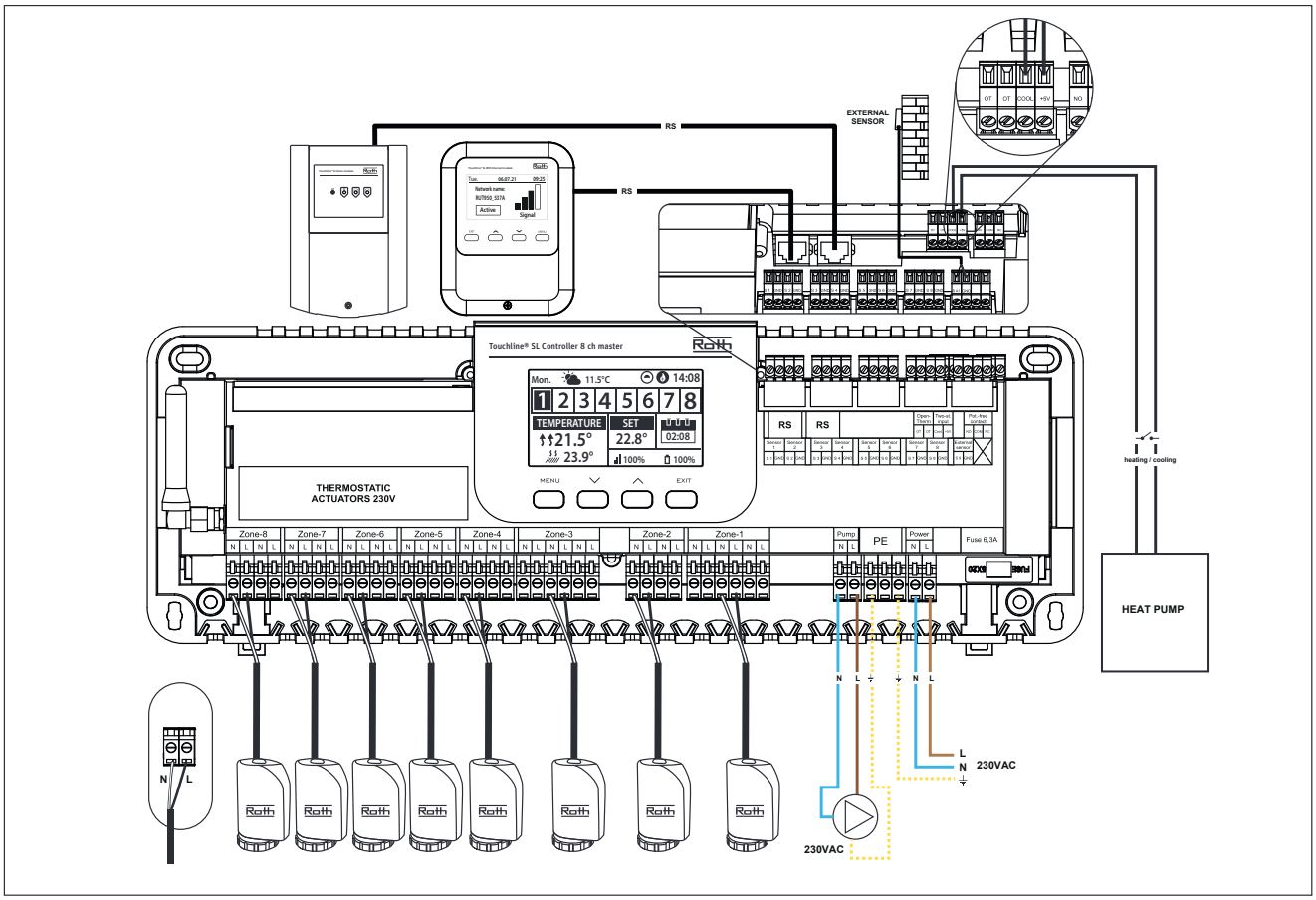
4. RADIATORS ZONES (9 – 16)

The zones control only the relay in a given zone and the wireless actuator. Their status does not affect the operation of the voltage-free contact and the valve.

5. HEATING – COOLING

The system works in cooling mode with monitoring of the humidity in the rooms, therefore thermostats or sensors with a built-in humidity sensor must be used. If the humidity (%) in the rooms exceeds the set global maximum value, the cooling to the respective room/zone will be stopped (the valve closes).

To ensure that there are no problems with moisture/condensation in the floor construction, it is therefore important that the flow temperature and/or a dewpoint protection can be controlled by the heat pump or cooling unit.



Configuration of the system in cooling operation
Diagram for connection of cooling unit/heat pump to the Master Controller.
If automatic switching from heating to cooling controlled by the cooling unit is required, a cable must be inserted into the terminal marked "Two-st. input" and connected to resp. "Cool." and "+ 5V". The signal must be a potential-free signal (ie. without current) and be "normal open" by default. When a signal is given from the cooling unit, the switch will be closed and the Roth Touchline® SL system will switch to cooling operation.
If the system consists of both master and extension control units, the cooling signal will be transmitted from master to extension modules.

Setting of heating/cooling mode on the Master controller
Press the MENU button and go to the "Fitters menu" with the arrow keys, confirm with MENU. Go to "Heating - cooling" confirm with MENU, confirm "Operation mode" with MENU.

Heating Manual switching for heating in all zones.
Cooling Manual switching for cooling in all zones.
Automatic If this setting is selected, the control unit automatically switches between cooling and heating based on an input from the heat pump or cooling unit.

Note
We strongly advice to choose "Automatic", so the switch over is controlled by the heat pump or cooling unit.

Setting of max. humidity
When using thermostats and/or sensors with build in humidity sensors in each room, it is possible to protect the floor construction against moisture generation during cooling in each single room.
To do this it is necessary to specify a maximum value for the humidity. This maximum value applies to the entire plant (globally). In order to set the value correctly, it is important to relate to the actual switch over room temperature and the preset minimum flow temperature (set on the heat pump or cooling device), respectively. In general, it is not recommended to cool with water that is colder than 19°C. The table below can be used to find the advised max. value for humidity in combination with the switch over room temperature, based on the minimum supply temperature.

	Humidity in the room (%)							
Switch-over actual room temperature (°C)	**90**	**80**	**70**	**60**	**50**	**40**	**30**	**20**
16	14,4	12,5	10,5	8,2	5,6	2,4	-1,6	-7,0
18	16,3	14,5	12,4	10,1	7,4	4,2	0,2	-5,3
20	18,3	16,4	14,4	12,0	9,3	6,0	1,9	-3,6
22	20,3	18,4	16,3	13,9	11,1	7,8	3,6	-2,0
24	22,3	20,3	118,2	15,7	129	9,6	5,3	-0,4
26	24,2	22,3	20,1	17,6	14,8	11,3	7,1	1,3
28	26,2	24,2	22	19,5	16,6	13,1	8,8	2,9
30	28,2	26,2	23,9	21,4	18,4	14,9	10,5	4,6

The table shows the connection between the switch-over temperature (°C) in the room (heating to cooling), the humidity (%) and the corresponding minimum required supply flow temperature (°C). It is allowed to interpolate in the table.

Example:
Heat pump is set to switch-over from heating to cooling at a room temperature of 26°C, and the minimum supply flow temperature is set to be 19°C.
So, using the 26°C as switch-over temperature and the minimum required 19°C supply flow temperature will give you a maximum value for the humidity between 60 and 70%. To be on the safe side we recommend choosing 60% as maximum humidity value (minimum supply temperature is 17,6).
If the switch-over is done manually on the heat pump, the room temperature could be even higher at the switching time, and maybe you need to lower the maximum humidity to an even lower value to be sure that it won't come to problems with the dewpoint at the start up of the cooling.

Settings in each zone
The menu described below is only visible if the system is set to "Cooling" or "Automatic" in the fitters menu. Press the MENU button and go to "Zones" with the arrow keys, confirm with MENU. Select the desired zone (1-8), confirm with MENU. Go to "User settings", confirm with MENU. Go to "Cooling" and confirm with MENU.

ON This function enables the user to include/exclude the zone from the cooling algorithm.

Schedule settings This function enables the user to choose the schedule which will apply in a zone (local schedule, global schedule G-1 to G5) during cooling, if the zone operation is based on a schedule.

Constant temperature This function enables the user to define a separate pre-set temperature that will apply in the zone only during cooling, and if the zone operation is based on a constant temperature (CON).

Example:
In heating mode, the desired temperature is set to 21°C. If a different temperature is required when switching to cooling (eg. 24°C), the temperature is set here. It can generally be accepted that the temperature is higher when cooling than when heating, and by allowing a higher temperature, a better economy is achieved in the installation in cooling operation.
NOTE! If you change the setpoint on the thermostat, the temperature during cooling will be overwritten and will be the new desired temperature during cooling.

Humidity protection This function is used to protect the floor against moisture (condensation). If the humidity in a given zone is higher than the "Max humidity" value defined in the fitter's menu, cooling will be disabled (valve closes) in this zone until the humidity value drops below the pre-defined. When the humidity drops below the set value again, cooling resumes automatically.
If one or more extension controllers are connected to the master controller, these settings must be made on each extension unit.

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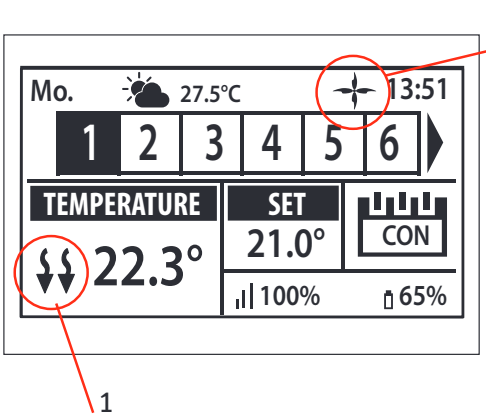


View in display during cooling operation

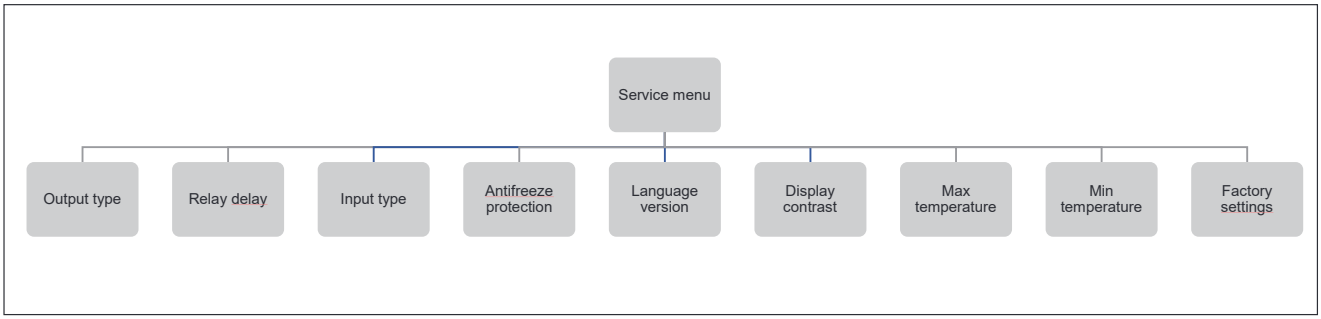
1. The arrows point downwards, which means that it is cooling.
2. A fan is displayed when cooling

If the maximum humidity is exceeded in a zone, the symbol 1. will switch off, but the symbol 2. will still be on.

6. FACTORY SETTINGS
This function is used to restore the fitter's menu settings saved by the manufacturer.

XI. SERVICE MENU

Diagram - Service menu



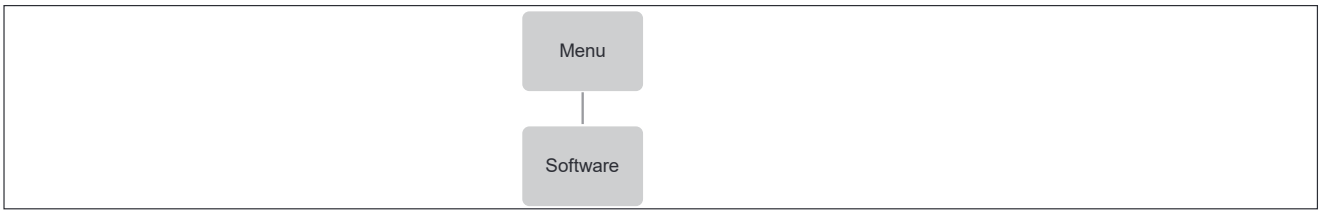
Service menu should only be used by a highly qualified person and only when it is necessary to adjust advanced settings that can have a big influence on the functionality and performance of the system.

Therefore the access to this MENU is also secured with a password code which is: 1234

To enter menu choose “Service menu” in the main menu – press MENU button. Enter password by using ▼ or ▲ – press MENU to go to the next number. Finally confirm by pressing MENU. Due to security reasons you will be automaticly thrown out of the service menu after 1 minute.

XII. SOFTWARE VERSION AND UPDATE

Diagram – Software version menu



When option is selected, the display shows the current controller software version.

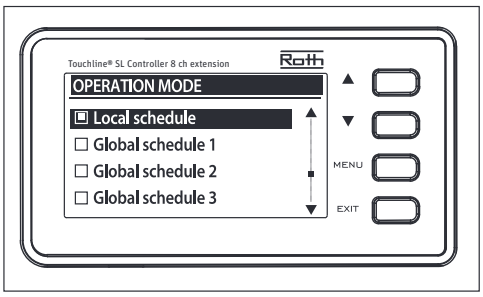
To install new software, disconnect the controller from the power supply. Insert a flash FAT formatted drive with new software into the USB port. Next, connect the controller to the power supply holding EXIT at the same time until a single sound signal is heard. It indicates that the software installing process has started. After successful update, the controller will reset automatically.

NOTE
Software update may be conducted only by a qualified fitter. After the software has been updated, it is not possible to return to the previous settings. All pairings and settings will be deleted.

NOTE
Do not switch off the controller during software update.

XIII. SCHEDULE SETTINGS

The operation mode “Local/Global schedule” can be selected, previewed og edited on the Controller. Global schedules from the Master Controller will automatically be shared on all Extension controllers. So you only need to change these schedules if they doesn’t fit your demands on the specific Extension controller.



Local schedule

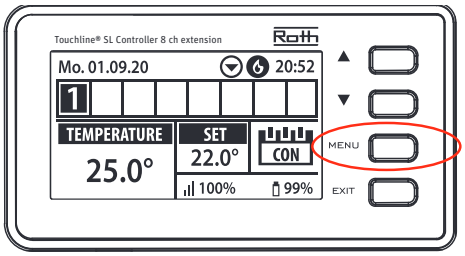
is used when separate settings are requiered for a single zone.
Choose “Local schedule” with ▼ or ▲ and press MENU button.
Choose “Select” to activate schedule.
Choose “Preview” to see the current schedule settings.
Choose “Edit” to change the schedule settings

Global setting

will control all zones.
Choose “Global schedule” (1 – 5) with ▼ or ▲ - Press MENU to “CONFIRM”.
Choose “Select” to activate schedule.
Choose “Preview” to see the current schedule settings
Choose “Edit” to change the schedule settings.

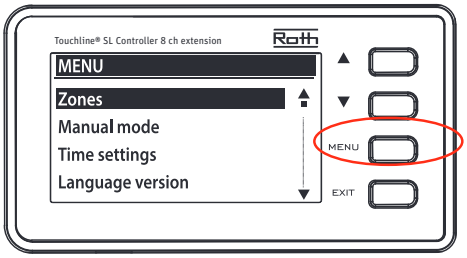
Re-activating time schedule

A schedule can be activated from the controller as described above. The latest activated schedule can be re-activated directly from a room thermostat. Press the “</>” (on Project thermostat “-/+”) button one time on the room thermostat. When the set temperature has finished flashing press the “< or >“ (“-” or “+”) buttons to navigate to “OFF”. It will automaticly confirm after 5 seconds. The calendar symbol (L or G) will now be shown on the controller display.



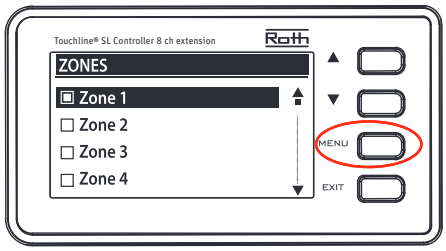
Deactivating time schedule

A schedule can be deactivated from the controller as described above. The schedule can also be deactivated directly from a room thermostat. Press the “</>” (on Project thermostat “-/+”) button one time on the room thermostat. When the set temperature has finished flashing press the
“< or >“ (“-” or “+”) buttons to navigate to “CON”. It will automaticly confirm after 5 seconds. The calendar symbol on the controller display will now be replaced by the letters “CON” (continous mode).

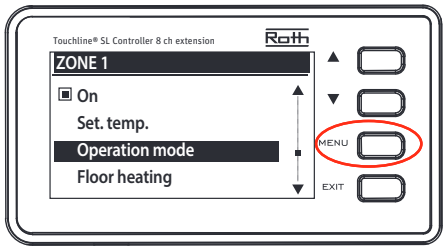


Edit time schedule

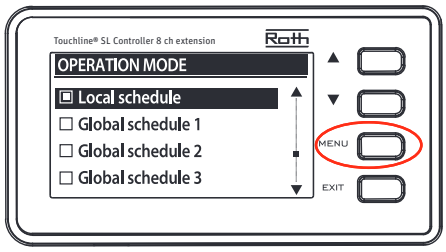
Press MENU twice to see all zones.



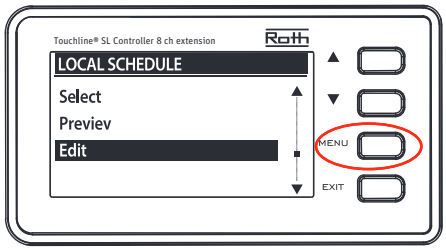
Use button UP/DOWN and Press MENU to enter the zone to be scheduled.



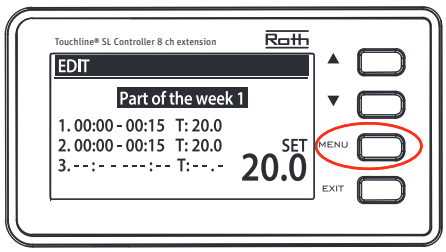
Use UP/DOWN and Press MENU to open “Operation mode”.



Press MENU button to select “Local schdule” to edit schedule for the single zone, or select “Global schedule” to edit schedule for all zones.

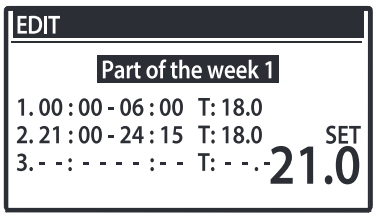


Use button UP/DOWN and Press MENU to “Edit” schedule.

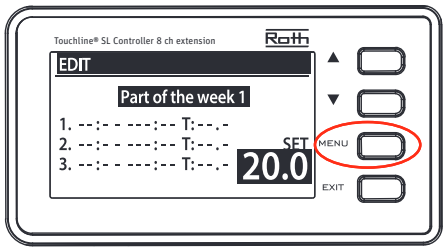


The text “Part of the week 1” will be flashing. Press MENU to start edditing the schedule.

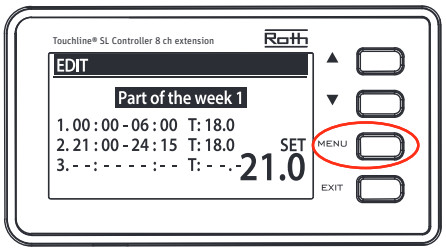
The below example describes how the schedule program is defined in time periods (1,2,3) with different set temperatures.



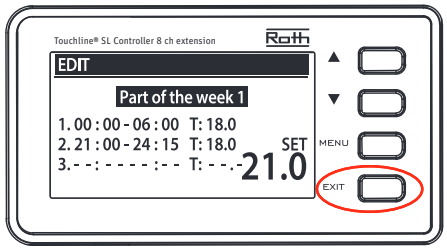
The pre-defined schedule (Local schedule 1) will do the following:
› Between 00:00 – 06:00 o'clock the temperature is set to 18 degrees.
› Between 06:00 – 21:00 o'clock the temperature is set to 21 degrees (default SET).
› Between 21:00-24:00 o'clock the temperature is set to 18 degrees.



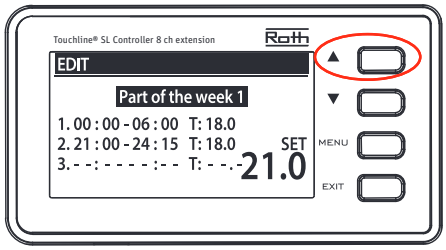
Press MENU bottom to start editing the schedule. Press button UP/DOWN to change SET temperature and confirm with MENU button. This is the default room temperature that the system will return to outside the scheduled hours.



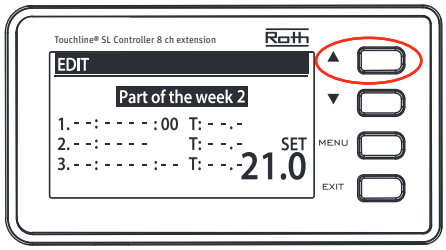
Set the start time for the first time period using the button UP/DOWN.
Confirm with MENU button.
Set the temperature (T) for the time period using the button UP/DOWN. Confirm with MENU button.
A new time period will automatically be created when confirming with MENU button.
To erase a newly created time period press button DOWN.



Press EXIT button to finished editing.
Pressing MENU bottom at this point will clear the entered schedule settings.



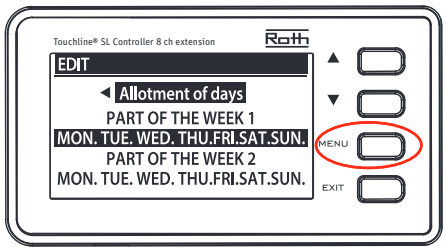
The text "Part of the week 1" will start flashing.
Press button UP to show "Part of week 2".



“Part of week 2” an optional schedule that makes it possible to define separate settings for specific days. For example, if the set temperature is going to be higher only in the weekends.

Press MENU button to define “Part of week 2.

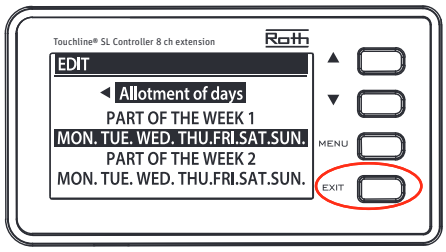
The procedure is the same as for setting “Part of week 1” (above).
In case no separate settings for specific days are required just press button UP button.



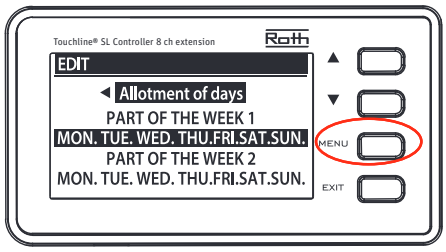
In this week overview “Allotment of days” will start flashing.

Press MENU bottom to start defining which days to be assigned to schedule “Part of week 1” and schedule “Part of week 2”.

Use button UP/DOWN to navigate through the days (MON. - SUN.) and press MENU button to include/exclude a day.



Press EXIT button twice to exit editing.



Press MENU button to “Confirm” and save the changes.

XIV. ALARM LIST

System alarm	Possible cause	How to fix
Sensor damaged (room sensor, floor sensor)	Sensor shorted or damaged	- Check the connection with the sensor - Replace the sensor with a new one or contact the service staff if necessary.
No communication with sensor/wireless regulator	- No range - No battery - Flat battery	Put the sensor/regulator in a different place - Insert batteries in the sensor/regulator The alarm deactivates automatically when communication is established.
No communication with module/ control panel/wireless contact	No range	Put the device in a different place or use a repeater to extend the range. The alarm deactivates automatically when communication is established.
Software update	System communication versions in two devices are not compatible	Update the software to the latest version.
Radiator actuator alarm		
Error #1 - Calibration error 1 - Moving the screw to the mounting position took too much time	The limit switch sensor is damaged	Call the service staff
Error #2 - Calibration error 2 - The screw is maximally pulled out. No resistance while pulling out	The actuator has not been screwed to the valve or has not been screwed completely - The valve stroke is too big or the valve dimensions are not typical - Actuator current sensor is damaged	- Check if the controller has been installed properly - Replace the batteries - Call the service staff
Error #3 - Calibration error 3 - The screw has not been pulled out enough - the screw meets resistance too early	- The valve stroke is too small or the valve dimensions are not typical - Actuator current sensor is damaged - Low battery level	- Replace the batteries - Call the service staff
Error #4 - No feedback	- The master controller is switched off - Poor range or no range in the master controller - Radio module in the actuator is damaged	- Turn on the master controller - Reduce the distance from the master controller - Call the service staff
Error #5 - Low battery level	The battery is flat	Replace the batterie
Error #6 - Encoder is locked	The encoder is damaged	Call the service staff
Error #7 - To high voltage	- Unevenness of the screw, the thread etc. may cause excessive resistance - Too high resistance of gear or motor - Current sensor is damaged	Call the service staff
Error #8 - Limit switch sensor error	Limit switch sensor damaged	Call the service staff

XV. TECHNICAL DATA

Roth Touchline® SL Controller 8 ch, master	**HVAC no. 7466397028**
Supply voltage	230V AC
Energy consumption	6 W
Number of outputs and voltage	18 (NC/NO), 230V AC
Max. sustained load	18 thermal actuators (0.3 A)* (2 channels of 3 actuators and 6 of 2 actuators)
Wireless channels	8 thermostat/sensors 6 radiator actuators (each zone) 6 window contacts (each zone)
Protection class I	(EN60730)
Transmission frequency	868 MHz
Range (up to)	30 m (in ordinary building)
Max. load pump relay	230V and 0.5 A
Max. load potential-free relay	1A
Power supply cable	85 cm
Ambient temperature	5 - 50°C
Ambient humidity	< 80% RH
Storage/transport temperature	-20 - +50°C
Degree of protection	IP20 (EN60529)
Fuse glass fuse	WT 6.3A (5 x 20mm)
Approvals	CE 2014/53/EU

* If required up to 4 actuators can be connected to the same output/zone (32 actuators in total on the controller).
Meaning: An output with 2, 3 or 4 terminals can all be connected with up to 4 actuators.

Roth Touchline® SL Controller 8 ch, extension	**HVAC no. 7466397038**
Supply voltage	230V AC
Energy consumption	6 W
Number of outputs and voltage	22 (NC/NO), 230V AC
Max. sustained load	22 thermal actuators (0.3 A)* (3 channels of 4 actuators and 5 channels of 2 actuators)
Wireless channels	8 thermostat/sensors 6 radiator actuators (each zone) 6 window contacts (each zone)
Protection class I	(EN60730)
Transmission frequency	868 MHz
Range (up to)	30 m (in ordinary building)
Max. load pump relay	230V and 0.5 A
Max. load potential-free relay	1A
Power supply cable	85 cm
Ambient temperature	5 - 50°C
Ambient humidity	< 80% RH
Storage/transport temperature	-20 - +50°C
Degree of protection	IP20 (EN60529)
Fuse glass fuse	WT 6.3A (5 x 20mm)
Approvals	CE 2014/53/EU

* If required up to 4 actuators can be connected to the same output/zone (32 actuators in total on the controller).
Meaning: An output with 2, 3 or 4 terminals can all be connected with up to 4 actuators.

Roth Touchline® SL Standard room thermostat	**HVAC no. 7466397180**
Supply voltage	2 pcs. AAA 1.5V
Battery life	> 2 years (floor sensor > 4 years)
Power consumption standby	~ 50uA
Room temperature, setting range	+5 - +30°C
Comfort floor temperature, setting range	+15 - +30°C
Humidity measure range	10 – 95% RH
Floor temperature, max. Setting range	+26 - +35°C
External sensor for floor	NTC 10k B = 3435K (2,5m)
Accuracy (resolution)	± 0.5 K.
Time constant (time delay)	Approx. 4 min.
Activation time (wake-up time)	< 2 sec.
Max. forced update time for data from control box	10 sec.
Standby display without operation	Max. 5 sec.
Standby by program. at user level	3.5 sec.
Transmission frequency	868 MHz
Range up to	30 m (ordinary building)
Ambient temperature	0 - 55°C
Ambient humidity	Max. 80% RF
Degree of protection	IP20 (EN60529)
Approvals	CE 2014/53/EU

Roth Touchline® SL WIFI Internet module	**HVAC no. 7466397000**
Supply voltage	5V DC/230V AC adapter
Power consumption	2W
Communication output	RS/RJ12
Transmission	IEEE 802.11 b/g/n (2,4 GHz)
Range up to	30 m (ordinary building)
Ambient temperature	5 - 50°C
Ambient humidity	Max. 80% RF
Storage/transport temperature	-20 - +50°C
Degree of protection	IP20 (EN60529)
Approvals	CE 2014/53/EU

Roth Touchline® SL