

ENG

INSTRUCTION FOR USE AND INSTALLATION



saunum

**Saunum Automatic Water
Dispensing Unit AutoLEIL**



THE BEST SAUNA EXPERIENCE TO HAVE!



I am very glad that you have invested in the Saunum device, and I believe that our innovative technology will offer you a wonderful and extraordinary sauna experience.

I have a degree in thermal engineering and come from the Southern Estonia, where my love for saunas began. The special feature of local historic smoke saunas is the lower temperature and higher humidity level than, for example, a classic Finnish sauna. In ordinary saunas, the stone volume of the sauna heater is generally small. Such an arrangement can cause a sudden, burning hot steam and an extremely uneven temperature, where your head and shoulder level is really hot, but your feet are left cold. Such an experience can be quite unpleasant and may cause headaches and lead to body stress. However, in ancient smoke saunas and Native American saunas, the stones were first heated during the day. Then the heat stored in the stones was used to cleanse the body and create a truly enjoyable sauna experience.

Inspired by the experience of a smoke sauna, I wanted to create an innovative solution that combines the best features of an authentic sauna with modern technology; enabling a pleasantly mild and relaxing sauna experience without painfully scorching steam. For that, however, I had to solve the problem of how to achieve an even temperature, at both the head and foot levels. My development work was supported by research done alongside Tallinn University of Technology,



in which we analyzed the thermal stratification and air movement in the sauna room. Saunum was born in cooperation between scientific thinking and technological innovation.

Saunum's unique patented mixing system of air layers captures the hot steam that rises under the ceiling of the sauna room, mixes it with the cooler air from the surface of the floor, and directs the milder steam back evenly. This makes for an enjoyable, unaggressive heat. You can sit in the sauna for a longer time, and enjoy a sweat and a deep cleanse without feeling tired. The stone volume of our heaters is significantly larger than other sauna heaters, which is the reason for the especially pleasant indoor climate with long and soft steam.

A moist steamy sauna, a therapeutic salt sauna, or a healthy aroma sauna – all of these functions are available on Saunum's devices to create a truly relaxing sauna experience. When using Himalayan salt orbs in our device, salt ions that are beneficial to skin and respiratory tract evaporate and the steam circulates these into the air. Adding a sauna aroma system that blends steam and healthy aroma oil creates an even more enjoyable sauna environment.

Saunum's sauna devices are suitable for both adults and children.

Have a pleasant sauna!

Andrus Vare
The creator of Saunum

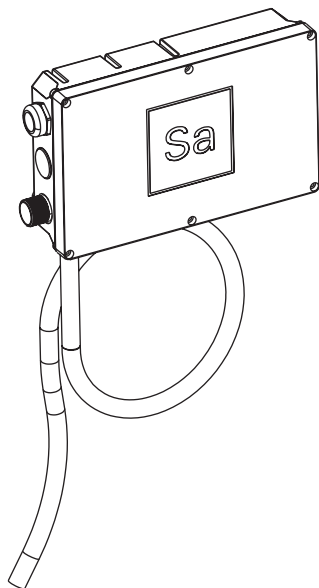


Saunum **congratulates you**
on choosing an innovative
sauna automatic water
dispensing unit!



CONTENTS

Warnings and notes _____	6
DIRECTION FOR USE	
Using the automated water dispensing unit _____	8
Automated water dispensing unit _____	9
Using AutoLeil unit with Leil Control unit _____	10
Automatic water dispensing unit _____	10
Automatic water dispensing modes _____	11
Water dispensing in public saunas _____	12
Operating button _____	13
Button functions _____	14
Heating _____	14
Creating a sauna type _____	15
Technical data _____	16
INSTALLING	
Instructions for installation _____	18
Installing the operating button _____	18
Installing the humidity sensor _____	20
Installing the main unit _____	21
Installing the piping _____	22
Pre-bent pipe _____	22
Installing the nozzle _____	23
Electrical connection _____	24
Warranty _____	28
Installation Protocol _____	29



All users of this product must read the warnings and manual carefully before using the product! Failure to follow the instructions could result in personal injury, death, fire, and/or property damage, and the device's warranty may be voided.

The automatic water dispensing unit is meant for automatic dispensing of water on the heated stones of a sauna heater. Through its humidity sensor and electronics, the unit measures, creates and maintains sauna climate according to user's preferences.

It is not to be used for any other purpose!

This device should not be used by children, people with reduced mobility or sick people. Children should use the device only under constant and close adult supervision.

Persons with reduced physical, sensory, or mental capabilities, or persons with a lack of experience and knowledge, should use this device only under constant and close adult supervision and only after consulting with a physician.

Before using sauna, all users should consult with a physician to ensure that they have no health conditions that would make sauna bathing unsafe, and discuss time and temperature limitations. Pregnant women should consult their physician before the use of the sauna. Excessive body temperatures have the potential to cause fetal damage during early pregnancy.

Use of drugs, medication, or alcohol before or during the sauna session may lead to dizziness or unconsciousness, resulting in injury or death. No person should use this product while under the influence of alcohol or drugs. Persons taking medications should consult with their physician to ensure that it is safe to use sauna while taking their medications. Users should place a towel between their skin and sauna bench or wall while sitting or lounging in the room. When using the sauna, be aware of the dangers



associated with going to the sauna. Do not stay in the sauna room for more than 30 minutes at a time.

Prolonged exposure to steam can be harmful or fatal. Users should discontinue using the sauna if they feel light-headed, dizzy, or experience heat exhaustion. It is prohibited to sleep inside the heated sauna. Users should take care to avoid falling asleep while using the sauna.

The electrical device should only be connected to the mains in accordance with all laws and regulations by a licensed, professional, certified electrician.

After connecting and installing the control unit, the installer must inform the sauna owner or operator of all operating requirements.

The requirements for use must be given by the owner or operator to everyone who uses the sauna.

All maintenance other than regular surface cleaning of the product must be performed by a trained professional.

Always disconnect the device from the mains before carrying out any maintenance work!

- Check the control unit for visible damage before installation and use. Do not use a damaged device or a

device that has been modified from the original manufacturer's condition in any way.

- It is vital to install the device according to the instructions for installation and use. Failure to carefully follow all instructions can cause the risk of fire or short-circuit, leading to property damage, bodily injury, or death.
- No accessories that the manufacturer has not approved should be installed in this device. If suitable accessories are installed in the device, follow the accessory-specific operating and installation instructions!
- If the supply cord is damaged, it must be replaced by the manufacturers' service partner or a similarly qualified licensed, professional, certified electrician to avoid a hazard.
- Clean the control panel by using a lightly moistened cloth. Use only mild cleaning agents, never solvents or corrosive chemicals. Allow the product to dry thoroughly before operation.
- This product should not be disposed of with general household waste. When recycling your product, take it to your local collection facility or contact the place of purchase.



USING THE AUTOMATED WATER DISPENSING UNIT

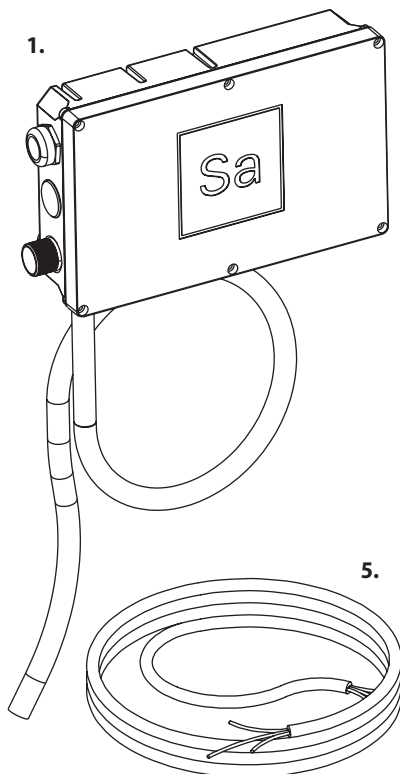
The air in the sauna becomes dry as it heats up. Therefore, it is necessary to create steam to achieve a suitable level of humidity. The effects of heat and steam on people are different. When testing the different settings of the sauna climate device, you will find the most suitable combination of temperature and humidity. The effects of heat and steam on people are different.

- Always check there are no water leaks in the system.
- Always check that the water dispensing unit has switched off and stopped water dispensing after the operation period has elapsed.
- Always check that the water tap is closed when sauna session is finished.
- Make sure that the controller unit is installed in a dry room where ambient temperature does not drop below 0°C to avoid freezing of the water in the system.
- Excessive moisture may damage the electrical equipment and sauna construction!
- Make sure you have proper ventilation in the sauna room. Ventilate the sauna room after high humidity sauna sessions.
- Avoid throwing excessive amount of water on the stones.
- Prolonged sauna use can damage your health or cause death.
- Do not stay in the steam room for more than 30 continuous minutes (in a row).
- Leave the steam room if you feel sleepy, dizzy, or weak.
- Do not dry objects or living things in the sauna.

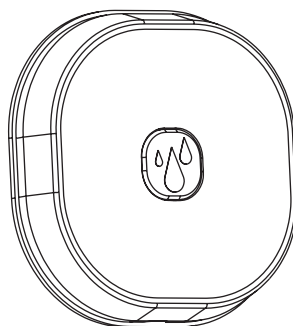


AUTOMATED WATER DISPENSING UNIT

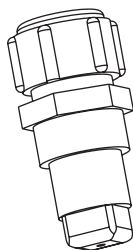
The Saunum water dispensing unit AutoLEIL consists of **a control unit with water valve (1), an operating button (2), a spray nozzle (3), a humidity sensor (4) and a set of cables for (5).**



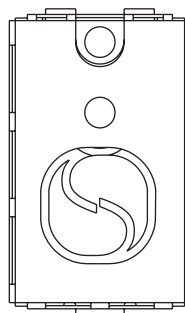
2.



3.



4.



The control unit controls the supply of water on to the heater.

The operating button is used to turn ON/OFF automatic dispensing function and throwing extra water on the heater stones.

The spray nozzle creates a wide dispersed water spray pattern.

The humidity of the sauna room is regulated based on humidity sensor readings.



USING AUTOLEIL UNIT WITH LEIL CONTROL UNIT

The device requires Saunum Leil controller for operation and is suitable with Saunum heaters.

NB! AutoLEIL requires the latest Saunum Leil controller software. Before proceeding, be sure to update the "Control Panel" from Leil touch screen.

AutoLEIL communicates with Saunum Leil controller via data cable. Leil is the main controller of the heater system, whereas AutoLEIL is an accessory device in the system.

AutoLEIL is recognized by Leil when they are connected. AutoLEIL does not have its own user interface – it uses the touch screen control panel of Leil system and when the two systems are connected, then AutoLEIL functions will appear in Leil system.

The automatic water dispensing will turn off when the set time ends, the "Stop" button is pressed on Leil, the automatic dispensing function is turned OFF via operating button, or an error occurs.

AUTOMATIC WATER DISPENSING UNIT

The water dispensing unit is designed for automatic dispensing of water on the heated stones of a sauna heater and through

its sensors and electronics the unit scans and maintains sauna climate according to user's preferences. Automatic dispensing of water allows the sauna user to sit back and relax, while sauna humidity is regulated automatically. Water dispensing parameters and sauna climate parameters can be modified through Leil touchscreen control panel.

- Controls the sauna room humidity according to humidity sensor readings by automatically dispensing water on to heater stones.
- Alternatively, the unit can be set up to throw user specified amounts of water at specified time intervals.
- Enables three preset sauna-types where automatic water dispensing is separately described.
- An operating button inside the sauna allows for a "push button" way of throwing water on heated stones.
- Enables to select a time for the sauna to be ready for use

After completing installation of the unit, the installer should give this manual to the owner of the sauna. The product owner should provide the manual to all persons using or operating the sauna. Please read more instructions for installation, use, and recycling in the original user manual of the control unit. Saunum reserves the right to modify this manual from time to time, and modifications will be posted to

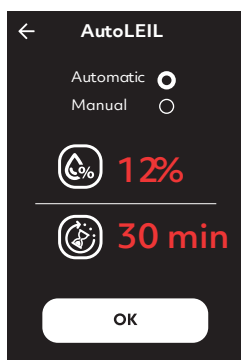


www.saunum.com. Failure to follow the instructions could result in personal injury, death, fire, and/or property damage, and the device's warranty may be voided.

AUTOMATIC WATER DISPENSING MODES

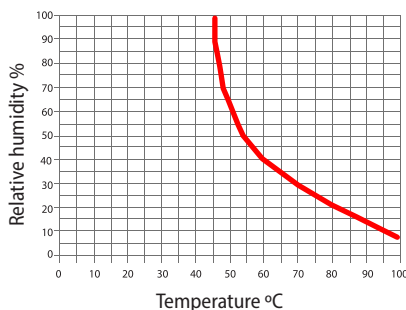
There are two different modes to setup the automatic water dispensing – **Automatic and Manual Humidity** modes.

Automatic Humidity mode allows the user to define their desired relative humidity (5–60 RH%) in the sauna and duration of the automatic dispensing cycle (1–30 min). Upon that AutoLEIL automatically optimizes the water quantity and dispensing interval in order to reach the desired humidity level and then maintain uniform humidity throughout session duration.



Maximum relative humidity value that can be applied in Automatic Mode is correlated

to the previously set temperature value. For example, it is not possible to order more than 30%RH in a 70°C sauna. Roughly, the temperature/humidity limits are shown on the graph below.

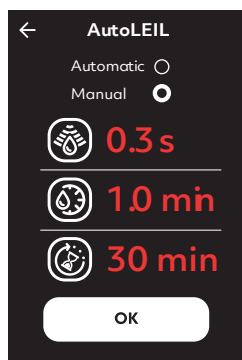


Water is dispensed on to the stones in 1 minute intervals until target humidity value is reached. Upon reaching target humidity value, water is then dispensed when humidity drops 5 percentage points below target value.

As every sauna has a unique ventilation, insulation, room size and layout, power of the heater, etc., the target value might not be possible to obtain or is reached at the expense of overly cooled stones. Experimenting is necessary to determine most optimal dispensing parameters.



Manual humidity mode allows user to define water quantity (i.e the duration that the water valve is open during dispensing or in other words how long is the flow of water on the heater stones. This can be adjusted from 0.3–4 sec), time interval of the water dispensing (1–10 min) and duration of the automatic dispensing cycle (1–30 min).



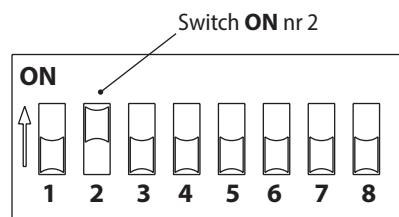
The exact amount of water dispensed depends on the water tap pressure. Please note that in most cases with good water pressure 2–4 second value for water quantity can be an excessive amount of water. We recommend start testing with 0.5–0.8 sec to get a feel.

WATER DISPENSING IN PUBLIC SAUNAS

By default AutoLEIL duration can be configured up to 30 minutes. In use cases such as public saunas where the sauna is operating most of the day, this 30 minute duration is insufficient. In such cases, a manual switch needs to be made on Leil "Power board" (inside the control box). **Not to be confused with AutoLEIL circuit board.**

NB! Make sure the device is disconnected from main power before opening the control box!

To do this, open the cover on Leil controller (secured with 6 screws). Locate the red dip switch on the circuit board and move switch number 2 to ON position.



After making that switch the settings are changed in AutoLEIL duration setting. Now the duration can be set from 1 hour up to 12 hours, in 1 hour increments. .

NB! After making the switch, only Public Sauna mode is available in AutoLEIL settings.



Default settings can be restored if the switch is returned to original position.



We recommend to configure water dispensing to a small water quantity and adequate water dispensing intervals to avoid cooling the stones, for example 0.7 sec water splash at every 3 to 5 minute interval. Also, from AutoLEIL options we recommend to activate "Automatic Vent" function. This will ensure that whenever water is automatically dispensed (or dispensed on demand from the operating button), the ventilator will be activated for the pre-set duration according to the Sauna Type settings. We recommend that in public sauna mode the ventilator duration and water dispense interval are in more or less 50/50 correlation.

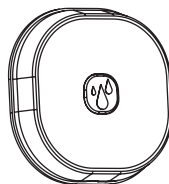
NB! Experimenting is necessary to determine most optimal dispensing parameters!

To illustrate the previous settings, a splash of water (0.7 sec) is dispensed on the heater in 5 minute intervals. Simultaneously with each splash the ventilator is activated ("Automatic Vent" function = ON). The ventilator operates for 2 minutes (this duration is set in Types settings) and for remaining 3 minutes the ventilator stays off. Cycle restarts when 5 minutes is up.

Please note that in Public Sauna mode the humidity sensor functionality is limited to only reading the relative humidity value. Automatic humidity function is not available.

OPERATING BUTTON

The device can be operated both through the operating button and Leil touchscreen control panel. The operating button is intended for turning the automatic water dispensing ON or OFF, as well as dispensing additional splashes of water on the rocks in between the automatic dispensing. Leil control panel on the other hand allows to fine tune the settings of AutoLEIL water dispensing and the desired sauna parameters.





BUTTON FUNCTIONS

ON/OFF Long press the operating button (~1 sec) to turn automatic water dosing ON/OFF. LED light indicates whether the dosing is ON (light ON) or OFF (light OFF). Dosing cycle will remain active for preset cycle duration as seen in control unit interface (default 30 min). It is recommended to turn OFF automatic water dosing when leaving sauna room, this will avoid excessive cooling of the rocks.

Water. When you short press or click the operating button (while ON), the device dispenses a pre-set amount of water on the heater stones. This does not interrupt the automatic dispensing or reset the water dispensing interval.

The "sauna ready" time is when the sauna's steam zone temperature has reached the selected temperature level.

"Humidity settings" allow to set up automatic water dispensing in either **Automatic** or **Manual control** mode and fine-tune the water dispensing.

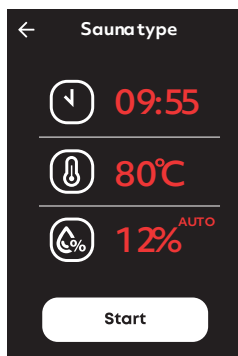
Tap the "Start" button to start heating the sauna.

HEATING

Setting up the sauna!



Tap screen to get started.





While the sauna is in heating mode, it is possible to change the “sauna ready” time and the temperature by tapping on the time and temperature controls and selecting the desired numbers.

Set the heater.



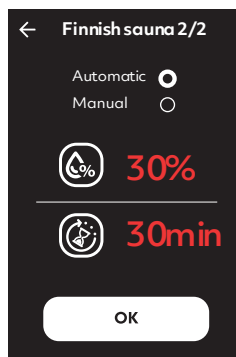
CREATING A SAUNA TYPE

Automatic water dispensing function can be described differently in each pre-set sauna type.

Name your sauna type.



Set the water dispensing.





TECHNICAL DATA

CONTROL PANEL (LEIL TOUCH SCREEN):

- Humidity adjustment range 5–60 %RH.
- Water output period adjustment range: 0,3–4 sec.
- Automatic water dispensing interval adjustment range 1–10 min.
- Automatic water dispensing function duration adjustment range: 1–30 min or 1–12 hrs settings.

MAIN UNIT:

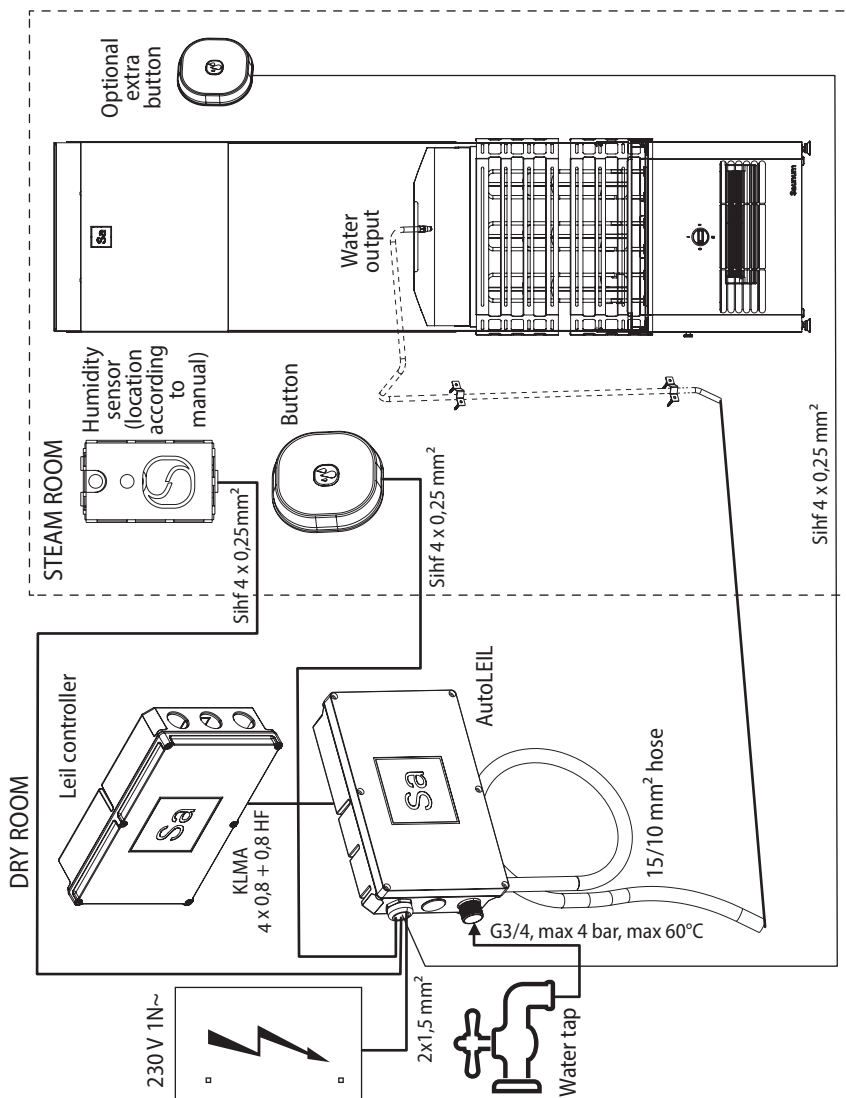
- Supply voltage: 230V 1N~.
- Length of outlet hose 1,5 m.
- Dimensions: 60 × 257 × 165 mm.

OPERATING BUTTON:

- Length of cable: 4 m.
- Dimensions 72 × 72 × 15 mm.

HUMIDITY SENSOR:

- Length of cable: 4 m.
- Dimensions 30 × 50 × 20 mm.





INSTRUCTIONS FOR INSTALLATION

WARNING! Failure to install the product in accordance with all instructions here in will void the warranty. It can result in the risk of fire and/or electrical short circuiting, leading to property damage, bodily injury, or death.

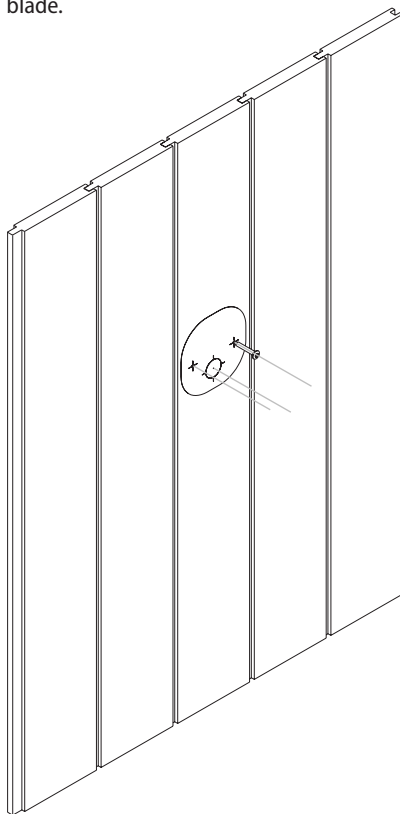
A licensed professional electrician may only do the installation of the control unit in accordance with current regulations. The person in charge of the installation should provide the necessary training and return the user manual to the product owner after completing the installation. The product owner should provide access to the manual to all persons using or operating the product.

INSTALLING THE OPERATING BUTTON

Install the operating button inside the sauna room. The button can be installed on the sauna wall or on the bench.

For concealed installation, the data cable can be installed in a protective tube inside the wall; if this is not possible, it must be installed on the wall surface.

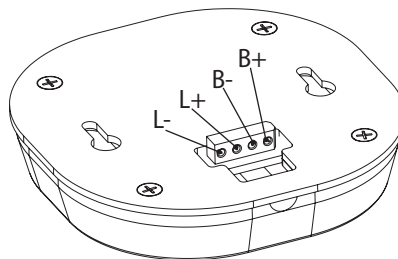
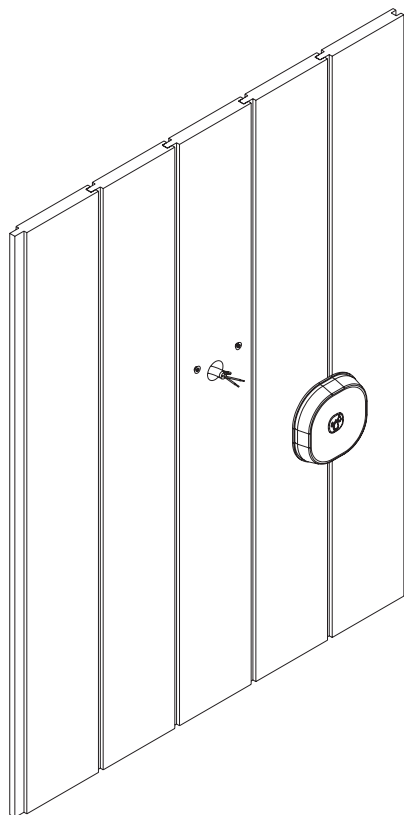
1. Use the printed template to mark locations for screw holes and a drill hole (Ø 18–23 mm drill bit) for the cable connector. If the cable is not concealed inside the wall, the hole can be only 5 mm deep or even carved into the wall using a sharp blade.



The operating button must be installed on the wall, in a place protected from water splashes.

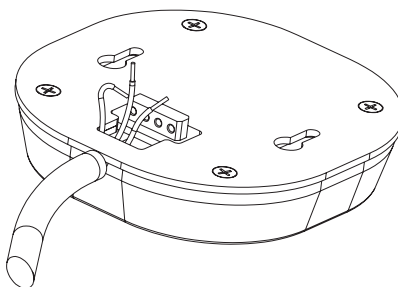


2. Install the screws, leaving the heads out 3-4mm from the wall. Drill the hole through the wall and bring the cable to the opening. Pull enough cable through the hole to connect the cable to the button connectors.



3. Connect the wires to the button connector. Make sure the wires are connected to the main unit in same color code order. See also electrical schematic on page 23.

4. Connect the button to the wall aligning screw heads with the keyholes in the back of the button.



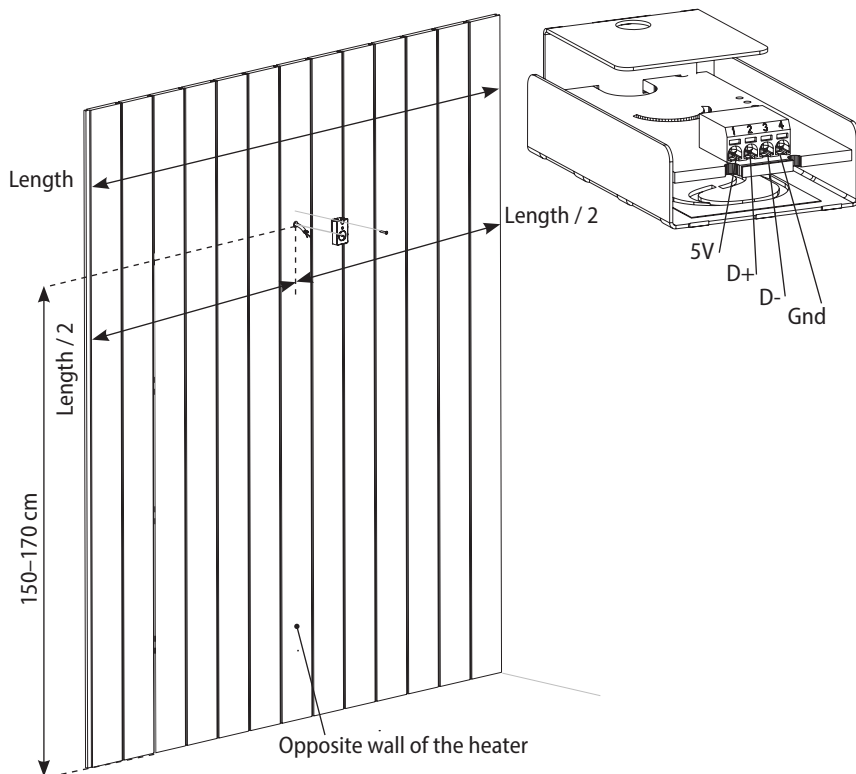
If it's not possible to conceal the cable inside the wall, it can be installed on the wall surface. In this case the wires must be pulled through the groove in the wooden enclosure before connecting to the connector.



INSTALLING THE HUMIDITY SENSOR

Install the humidity sensor inside the sauna room. The sensor should be installed on the opposite wall to the heater. Best to install it in the center of the wall at 150–170 cm from floor.

Connect the wires to the button connector. Make sure the wires are connected to the main unit in same color code order. See also electrical schematic on page 26.



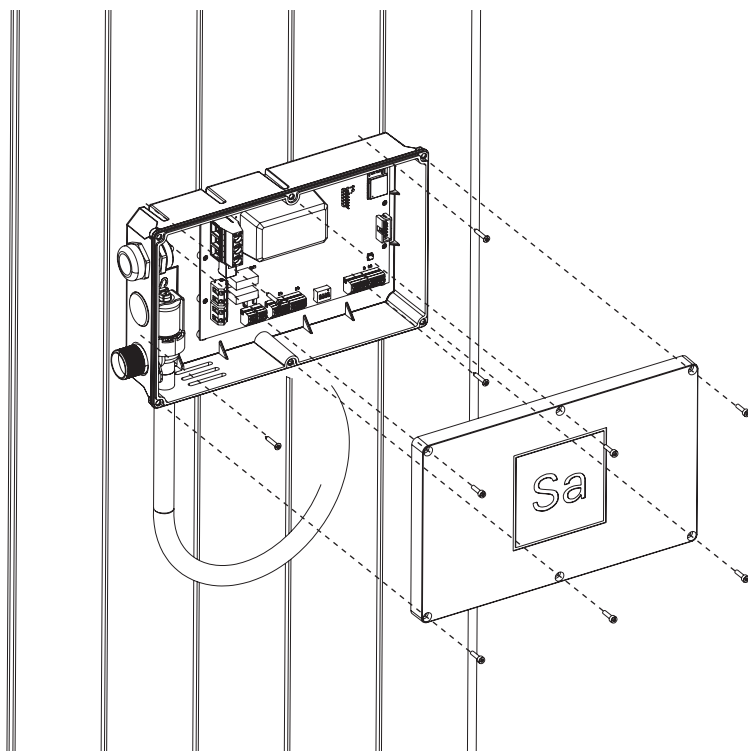


INSTALLING THE MAIN UNIT

Installation location for the main unit must be a dry space outside the sauna room with a floor drain (ambient temperature $>0^{\circ}\text{C}$ to avoid freezing of the water hose/pipes).

Fix the unit to the wall and make the electrical and water supply connections.

As the AutoLEIL Main Unit needs to communicate with Leil controller, it is advised that they are positioned close to each other. Main Unit communicates with Leil via provided data cable (1,5 m), see figure for further information about electrical connections.





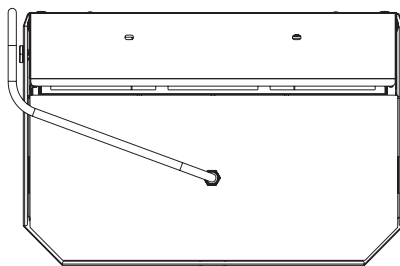
INSTALLING THE PIPING

Only the nozzle is included in the package, the other piping supplies are not included. We recommend to use a copper or stainless steel pipe (outer diameter 10 mm) and metal fasteners. Piping must be heat resistant in the vicinity of the heater.

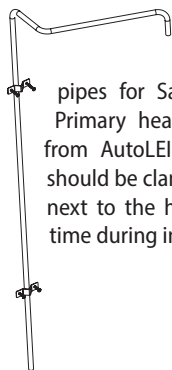
The pipe bending must be done on site with a pipe bending tool.

The outlet of the water pipe must be centered 150–300 mm above the stone basket stones.

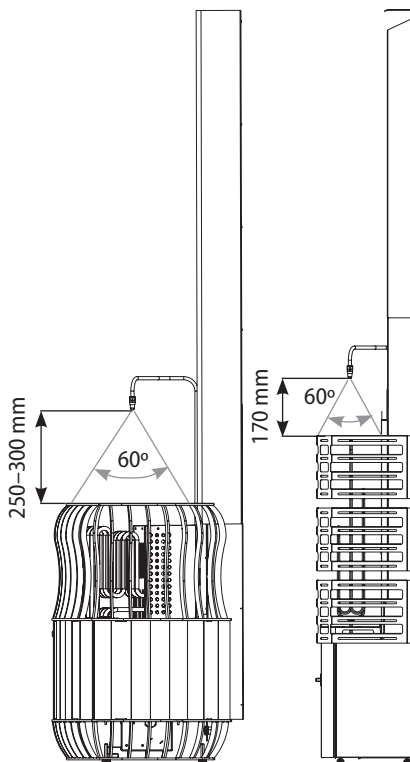
See an installation example of the nozzle and piping in the figure below. We recommend to use the nozzle which is delivered with the device.



PRE-BENT PIPE



Pre-bent stainless steel pipes for Saunum Professional and Primary heaters are sold separately from AutoLEIL package. These pipes should be clamped on to the wall right next to the heater and allow to save time during installation.





INSTALLING THE NOZZLE

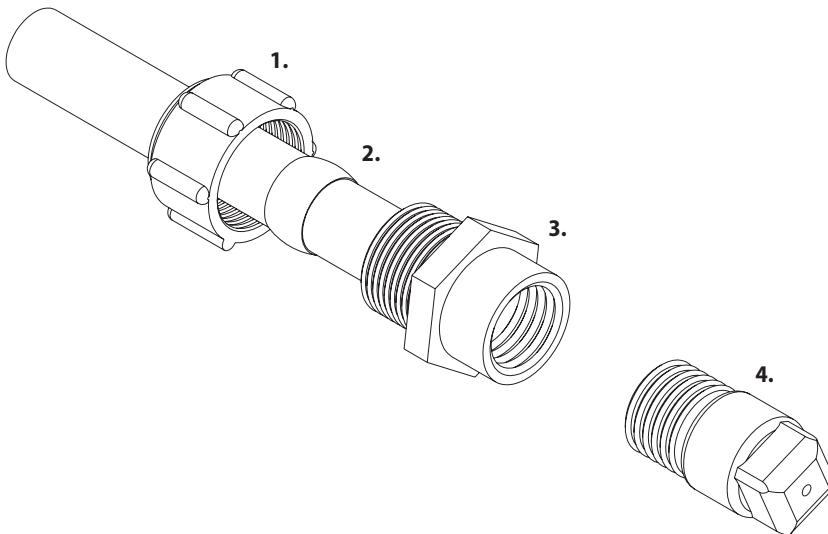
When the pipe is installed, fit the spray nozzle in the end of water outlet pipe. Cut the pipe square, deburr properly. Slide cap nut (1) and compression ring (2) over tube end.

Push the fitting (3) against the pipe. Push the nut (1) and ring (2) towards the fitting (3) and tighten by hand. Make sure you keep pushing the fitting against the pipe the entire time.

Tighten cap nut (1) by wrench. Adequate number of turns for 10mm copper pipe is 1 full turn (360°) and for 10mm stainless steel pipe $\frac{3}{4}$ full turn (270°). Do not use pipe-wrench!

Finally, tighten the nozzle (4) (external thread G $\frac{1}{4}$) in to the fitting (3).

After all the water connections are made, pressurize the system and test for potential leaks. Re-do or tighten the connections if necessary.





ELECTRICAL CONNECTIONS

The connection of the main unit is shown on the diagram of electrical connections.

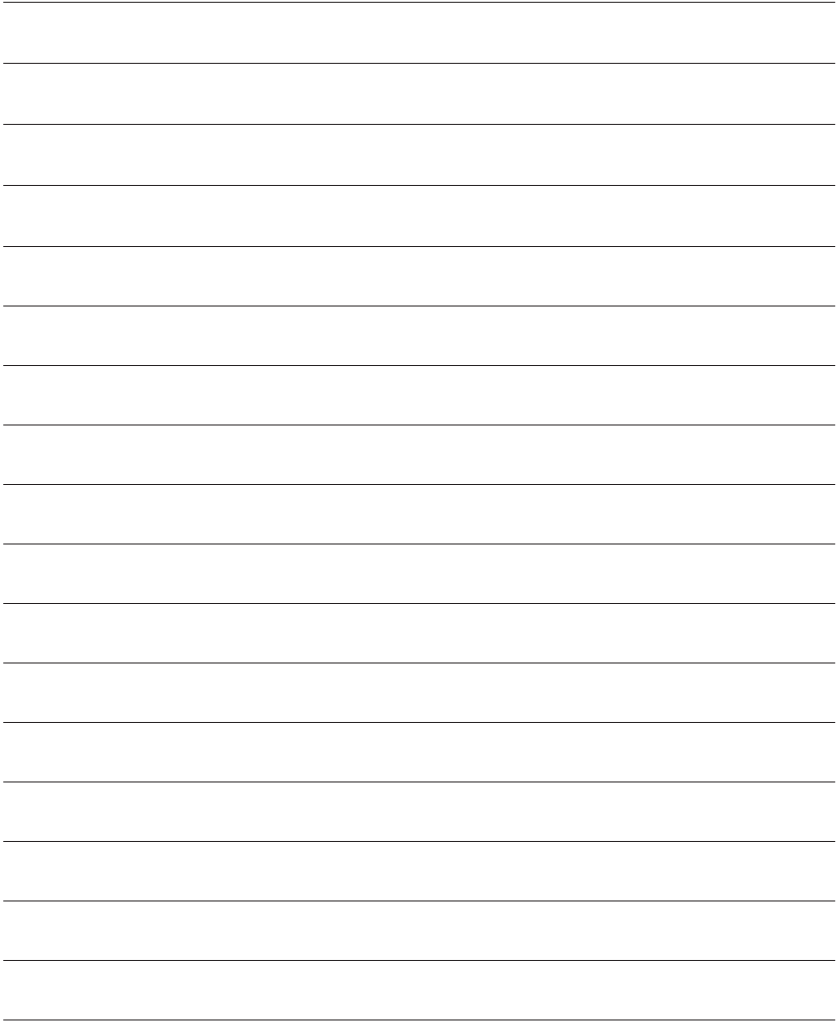
For more information on connecting the heater or Leil control unit, see respective heater and/or Leil control unit installation and operating manuals.

If the connection and installation cables are located higher than 100cm from the floor of the sauna room or inside the walls of the sauna room, they must be able to withstand a temperature at least 170°C (e.g., SSJ). Electrical equipment installed in the steam room below 100 cm from the floor must withstand a temperature of at least 125 °C (e.g., T125).

RECOMMENDED SIGNAL CABLE SIZES

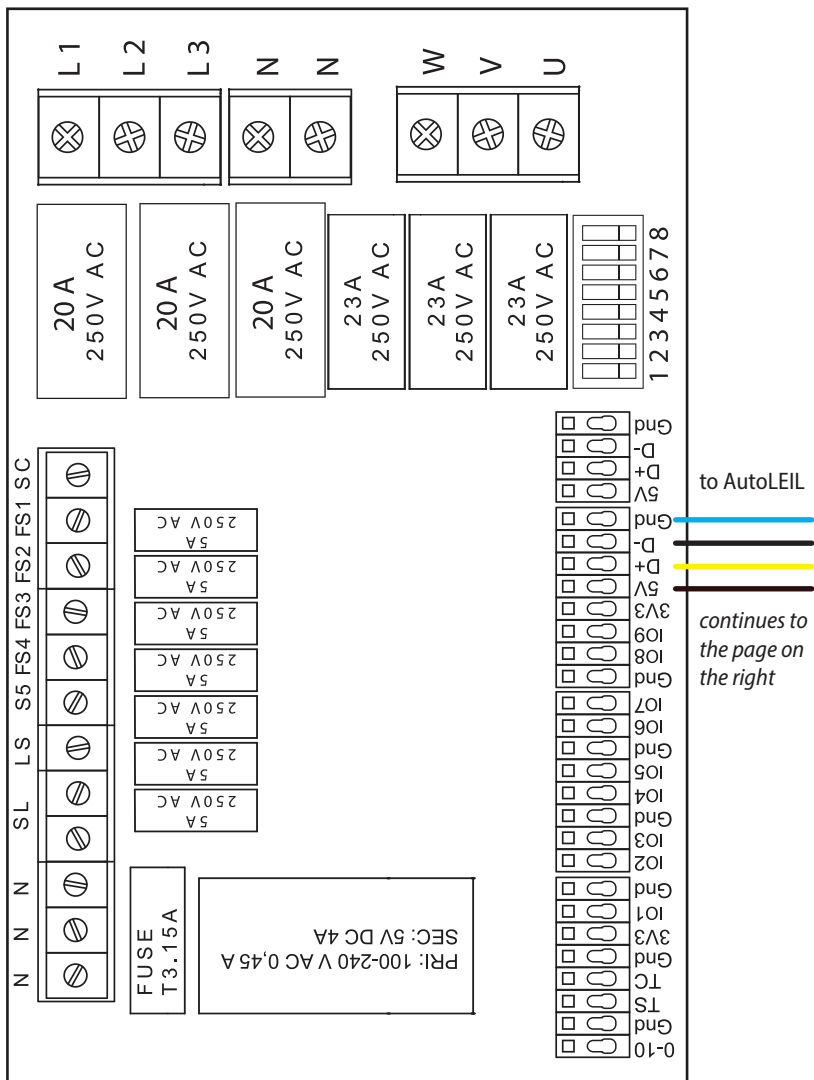
If it is necessary to extend the provided cables, use cables with similar technical specification.

Operating Button	SIHF temperature resistant cable, 4 x 0,25 mm ²
Humidity sensor	SIHF temperature resistant cable, 4 x 0,25 mm ²
Communication cable	KLMA 4 x 0,8 + 0,8 HF





Leil Main Unit



to Leil

continues to the page on the left

RS485

RS485

5V/D+ D- GND

5V D- HUMIDITY SENSOR

LED BUTTON

LED BUTTON

B+ B- L+ L-

OUTPUT 4

OUTPUT 3

L N

L N

230V 1~N

G 3/4

WATER TAP

OUTLET ONTO HEATER STONES

BUTTON



WARRANTY

- The warranty is only valid if a completed installation report is submitted with the claim;
- The device is connected to the mains in accordance with all laws and regulations by a licenced, certified electrician;
- A warranty period of two (2) years applies to the Device if it is used in a private sauna;
- A warranty period of one (1) year applies to the Device if it is used in a public sauna.

The Saunum warranty starts from the date of purchase and includes all manufacturer-provided parts of the control unit. The warranty covers faults from the manufacturing and materials only. Under this warranty, Saunum will provide replacement parts to the buyer, but only after the faulty parts have been returned to the manufacturer or reseller. Replacement of any part in the control unit by Saunum does not extend the original warranty period.

The electrical device should only be connected to mains in accordance with all laws and regulations by a licenced, certified electrician.

The warranty applies only to the first installation of the product and to the original purchaser.

The warranty does not cover:

- Routine maintenance and cleaning of the device, and replacement of the components due to normal wear and tear;
- Risks arising from transport;
- Damage resulting from the misuse of the device;
- Damage resulting from the improper installation of the device;
- Adaptation or modification of the device for any purpose other than that indicated in the instructions for use;
- Repairs to the device not carried out by Saunum's recommended repair and maintenance partner;
- Accidents, lightning, water, fire, improper ventilation, or any other factor beyond the control of Saunum.

The list of installation and maintenance providers recommended by Saunum Saunas OÜ is available at www.saunum.com.



INSTALLATION **PROTOCOL**

Saunum model: _____

Date of purchase: _____

Original purchaser: _____

Place of installation: _____

Purchased from: _____

Date of electrical installation: _____

Signature of the installer: _____

Notes: _____

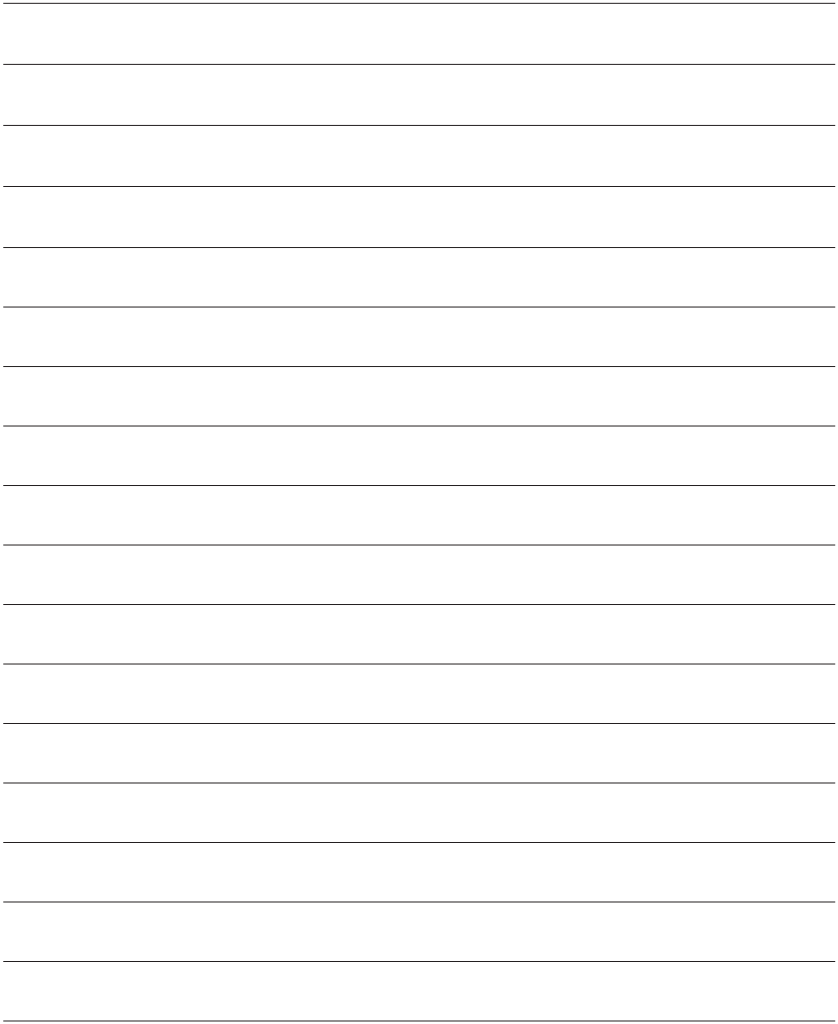
Customer's contact (name, email address): _____

Work accepted: _____

Read all of the instructions for use carefully and thoroughly before using the device and keep them in a safe and easily accessible place for future reference.



A series of horizontal lines for writing notes, spanning the width of the page.



ENG

INSTRUCTION FOR USE AND INSTALLATION