HYGROMATIK SPA

Manual

Spa Remote Touch

SPART.EN

READ AND SAVE THESE INSTRUCTIONS!

Warning, Hazardous Voltage: All work to be performed by trained personnel only. All electrical installation and servicing of the electrical components of this unit to be performed by qualified electricians only. Disconnect power supply before installation and servicing!

1. Introduction

Dear Customer,

In order to operate your HygroMatik steam generator safely, properly and efficiently, please read these operating instructions.

Employ your steam generator only in sound condition and as directed. Consider potential hazards and safety issues and follow all the recommendations in these instructions.

If you have additional questions, please contact us:

Tel.:	**+49-(0)4193 / 895-0**	**(Front desk)**
Tel.:	**+49-(0)4193 / 895-293**	**(Technical support hotline)**
Fax:	**+49-(0)4193 / 895-33**	
e-mail:	**hotline@HygroMatik.de**	

1.1 Typographic Distinctions

- preceded by a bullet: general specifications.

» preceded by an arrow: Procedures for servicing or maintenance which should or must be performed in the indicated order.

☑ Installation step which must be checked off.

italics Terms used with graphics or drawings.

1.2 Documentation

Scope of Supply

HygroMatic steam generators are always accompanied by two operating manuals, one for the unit itself and one for the control. This manual additionally describes the operating of the Spa Remote Touch remote control.

This document is only effective in combination with the operating instructions for the steam generator control. When operating HygroMatik devices all safety regulations must be obeyed. These are in chapter 2 of the operating manual included with the device.

Retention

Please retain these operating instructions in a secure, always accessible location. If the product is resold, turn the documentation over to the new operator. If the documentation is lost, please contact HygroMatik.

Versions in Other Languages

These operating instructions are available in several languages. If interested, please contact HygroMatik (www.hygromatik.com) or your HygroMatik dealer.

2. Safety Notes

2.1 Overview

These safety notes are required by law. They promote workplace safety and accident prevention.

Warnings and Safety Symbols

The safety symbols below identify sections containing warnings about hazards or potential dangers. Please familiarize yourself with these symbols.

Warning: Failure to observe this warning may result in serious injury or death and/or damage to the unit.

Danger, Hazardous Voltage: Hazardous electrical current! Failure to observe this warning may result in injury or even serious injury or death.

Warning: Failure to follow these instructions may result in damage to the unit due to electrostatic discharge. The electronic components of the humidifier control are very sensitive to electrostatic discharges. In order to safeguard these components during installation and servicing, steps must be taken to protect against ESD.

Reminder: Materials and consumables must be handled and/or disposed of as required by law.

Note: Appears before explanations or cross-references which refer to other sections of the operating instructions.

2.2 Guidelines for Safe Operation

Overview

Obey all safety notes and warnings present on the unit.

In case of a malfunction, switch off the unit immediately and prevent a restart. Repair malfunctions promptly.

After any repair work, have qualified personnel check the safe operation of the unit.

Use original spare parts only.
Additional national safety regulations also fully apply to the operation of this unit.

Warning: Ensure that no skin contact to hot steam can occur in the immediate area of the steam feed.

Warning: Ensure that possible condensate from the location of the steam feed cannot fall onto the skin.

Accident Prevention Regulations
Please comply with the relevant accident prevention regulation to prevent injury to yourself and others.

Operation of the Unit

Do not perform any work which compromises the safety of the unit.

Regularly check that all safety and monitoring devices are functioning normally.

Do not remove or disable safety devices.

Installation, Dismantling, Maintenance and Repair of the Unit

Disconnect unit components from power supply prior to maintenance or repair work.

Attaching or installing **additional components** is permitted only with the **written consent** of the manufacturer.

When installing a humidifier in a room without a drain, a safety device must be provided in the room to ensure closure of the humidifier's water supply in the event of a leak.

Electrical

Work on the electrical system must be performed by qualified personnel.

Disconnect unit components from power supply prior to work.

In case of a malfunction in the electrical power supply, switch off the unit immediately.

Use only original fuses with the appropriate amperage rating.

Regularly check the unit's electrical equipment. Promptly repair any damage, such as loose connections or burned wiring. After proper electrical installation or repair, test all safety mechanisms (such as grounding resistance).

HeaterSlim steam humidifiers are IP20 protected. Make sure that the unit is protected from drips in its installed location.

2.3 Disposal after Dismantling

Note: The operator is responsible for the disposal of unit components as required by law.

3. Brief Description Spa Remote Touch

For charging the Spa Remote Touch is put in the charging cradle. The cradle can be wall-mounted by means of a bracket or just be placed on a table When not in the cradle the Spa Remote Touch can be run for up to three hours on the batteries inegrated in the remote control. The charging cradle is permanantly connected to the steam generator through a communication and supply line.

Touch screen usage

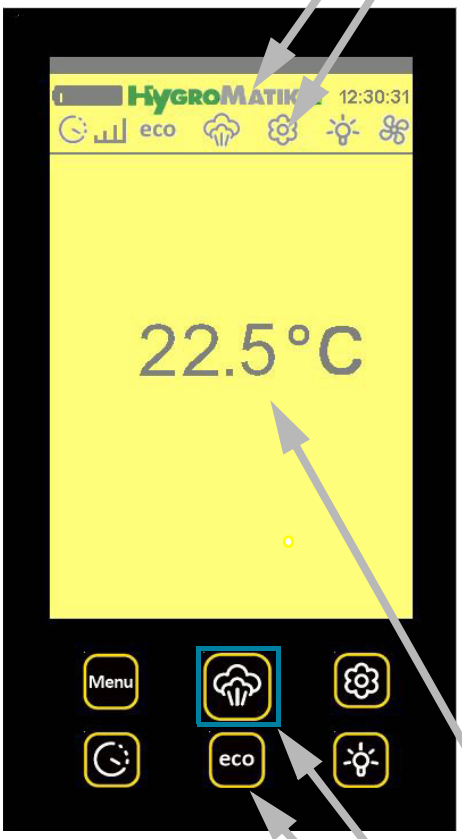
Please note: For selection of a function tap in the middle of an icon. Please, touch only very gently since the touch screen is very sensitive and reacts to the faintest contact.

3.1 Display and Control Unit Overview

The display is designed as a backlit touchscreen. When switching on the steam generator, the display shows the following:

- the HygroMatik logo (or an alternative logo) and the time of day
- an overview bar for the current states of the functions:

Symbol	Status	Description
	permanently on	preset **Timer** mode is activated
	blinking	steam generator is currently working in the preselected **Timer** mode
	permanently on	**communication** between the display and control unit and the steam generator is disturbed
	permanently on	steam generator is in the preselected **ECO** mode
	permanently on	steam generator is **enabled** for steam production
	permanently on	**essence** injection is enabled
	blinking	**essence** pump is currently in operation
	permanently on	relay output for **light** is switched
	permanently on	supply **fan** or exhaust **fan** function is enabled
	blinking	supply **fan** or exhaust **fan** is working
Failure message	permanently	In the fault case the steam generator is switches off and distributes a specific fault text message



- The current actual temperature in the steam bath. Improper temperature values are indicated by arrows showing up or down. This area also is the touch screen interface. Operating menus and submenus for the setting of parameters are displayed here.
- Operating status LED
- Six quick access keys for steam bath functions.Tapping the quick access keys provides instantaneous access to the most frequently used functions:
  Menu
  Enable steam production
  Essence injection
  Timer function
  ECO function
  Light function

Touch Screen information:

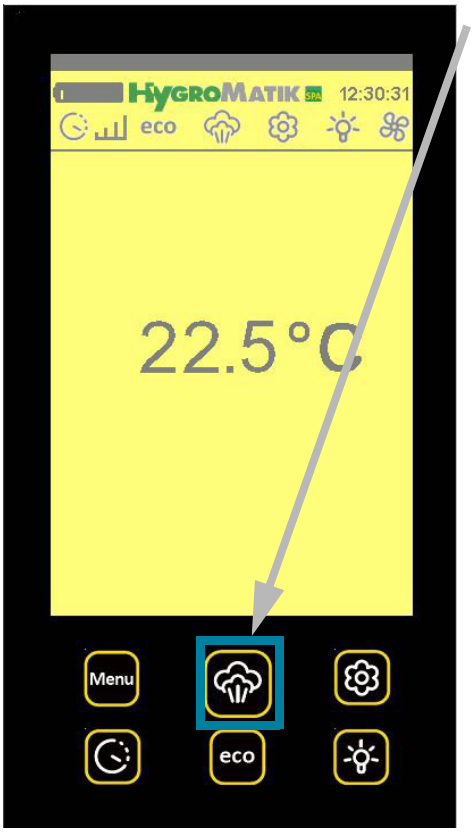
Tap in the centre of an icon to select it.

Please touch the touchscreen only lightly. It is sensitive enough to react to a gentle touch.

3.2 Operating Status LED

The operating status LED indicates different operating states with different colors.

These are:



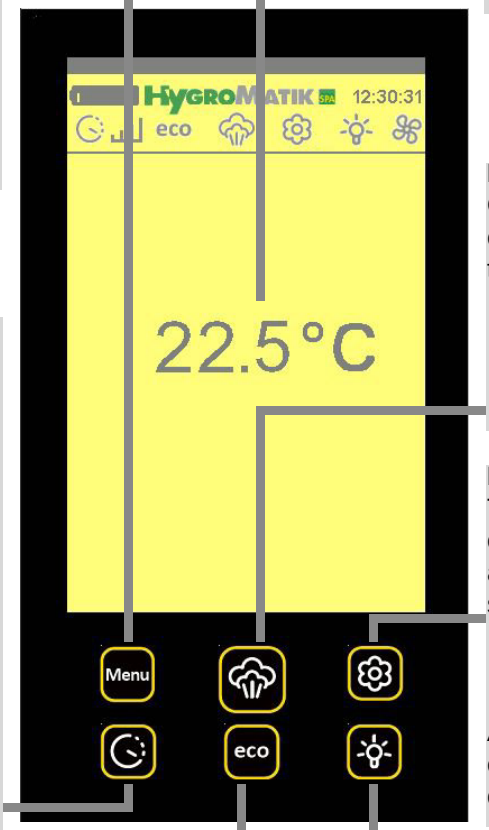
LED Color	Operating Status
light blue	**Filling** (the steam cylinder is supplied with water)
white	**Ready for Use** (the safety chain (clamp 1/2) is open; the device is not enabled for steam production)
dark blue	**ECO** (device operates in ECO mode)
orange	**No Demand** (the requirement is below the switching-on point of the steam generator)
green	**Humidifying** (steam is produced)
green blinking	**Service** message
purple	**Blow-down** (cylinder water is blown-down)
flashing red	**Fault** (the device is switched off with an error message on the display)
flashing yellow	**Safety Stop** Operating time equals the parameter set for „Operating time limitation“. Operation is halted.
black	**No communication**

3.3 Quick Access Functions Overview

Menu function
Tapping on the key
MENU
takes you to the main menu with the submenus:

Steam bath
Timer
ECO
Device configuration
Language

Set temperature value
Tap on the display in the position where the temperature is shown. You can change the set temperature with the displayed up or down arrows.



Release steam production
On tapping this button the unit is enabled to produce steam and the status bar shows:

Timer function
Tapping the key allows for setting the timer functions.
If a timer function is activated this icon appears in the status bar:

A blinking icon indicates that the unit is working in timer mode. Hourly, daily or weekly timer functions can be set on operator level.

Essence function
Tapping this key switches the essence injection enabling on and off. If enabled the status ba shows this icon:

A blinking icon shows that the essence pump is currently operated.

Light function
Tapping the key can switch the light function on or off.
If the light function is switched on, the light icon appears in the status bar:

ECO function
If the ECO function is activated, the steam generator cuts normal steam operation and this icon appears in the status bar:

eco

Steam generation is still activated in regular intervals but with reduced output.

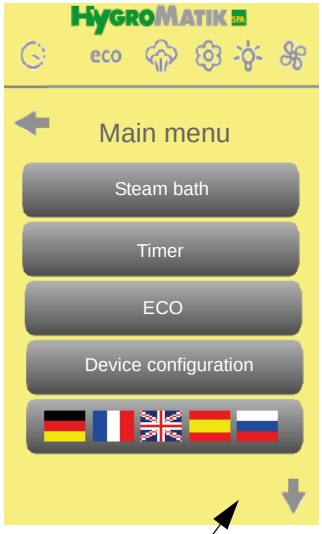
4. Operating the Spa Remote Touch on User and Operator Levels

The **User level** allows limited access to the most important parameters for daily use. Switching on the device generally takes you to the user level.

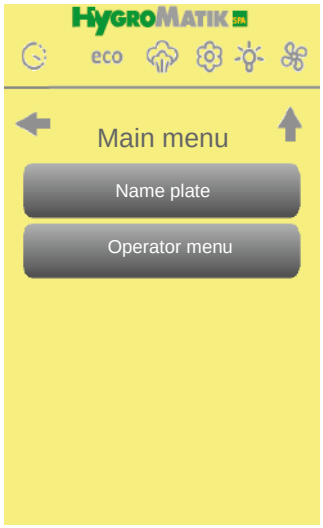
The **Operator level** also provides expanded access to additional parameters. Only password entry activates the operator level. If there has not been an entry for a period of 15 minutes, control automatically switches back to the user level.

Additionally, restricted use of the Spa Remote Control is possible on **Guest Level**, which only allows for the display of the steam bath nominal temperature and switching the essence dosing on and off. From guest level the return to user level requires a 5 character numeric password that can be set on operator level.

Note: The functions that are accessible only on operator level are highlighted in grey in the following description.



When this symbol is touched the menu expands to the next page



4.1 Accessing the Main Menu

The main menu is accessed by touching the menu key (the operator menu can only be accessed on operator level, as shown further down).

4.2 Overview on Submenus

Steam bath
Timer
ECO
Device configuration
Language

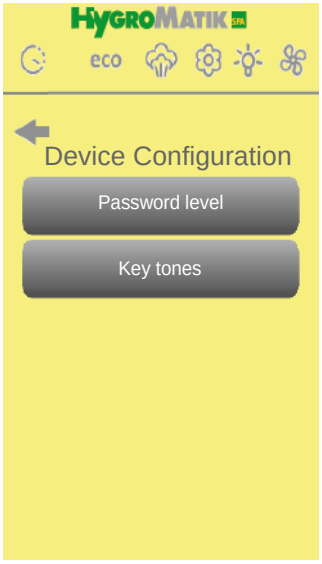
limited access on user level and expanded access on operator level

Operator menu — Access on operator level only

Passwort Level
Code 000 -> Code 010

4.3 Access to Operator Level

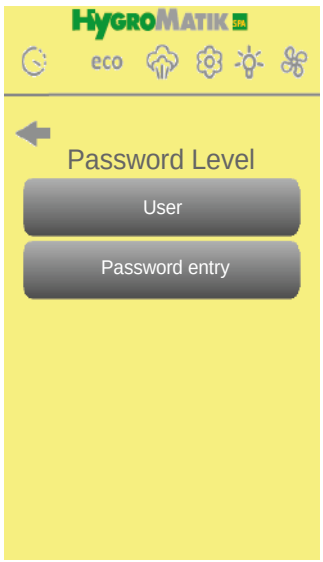
Approach:



Selecting **Menu / Device configuration** offers access to the submenus "Password level“ and "Key tones".

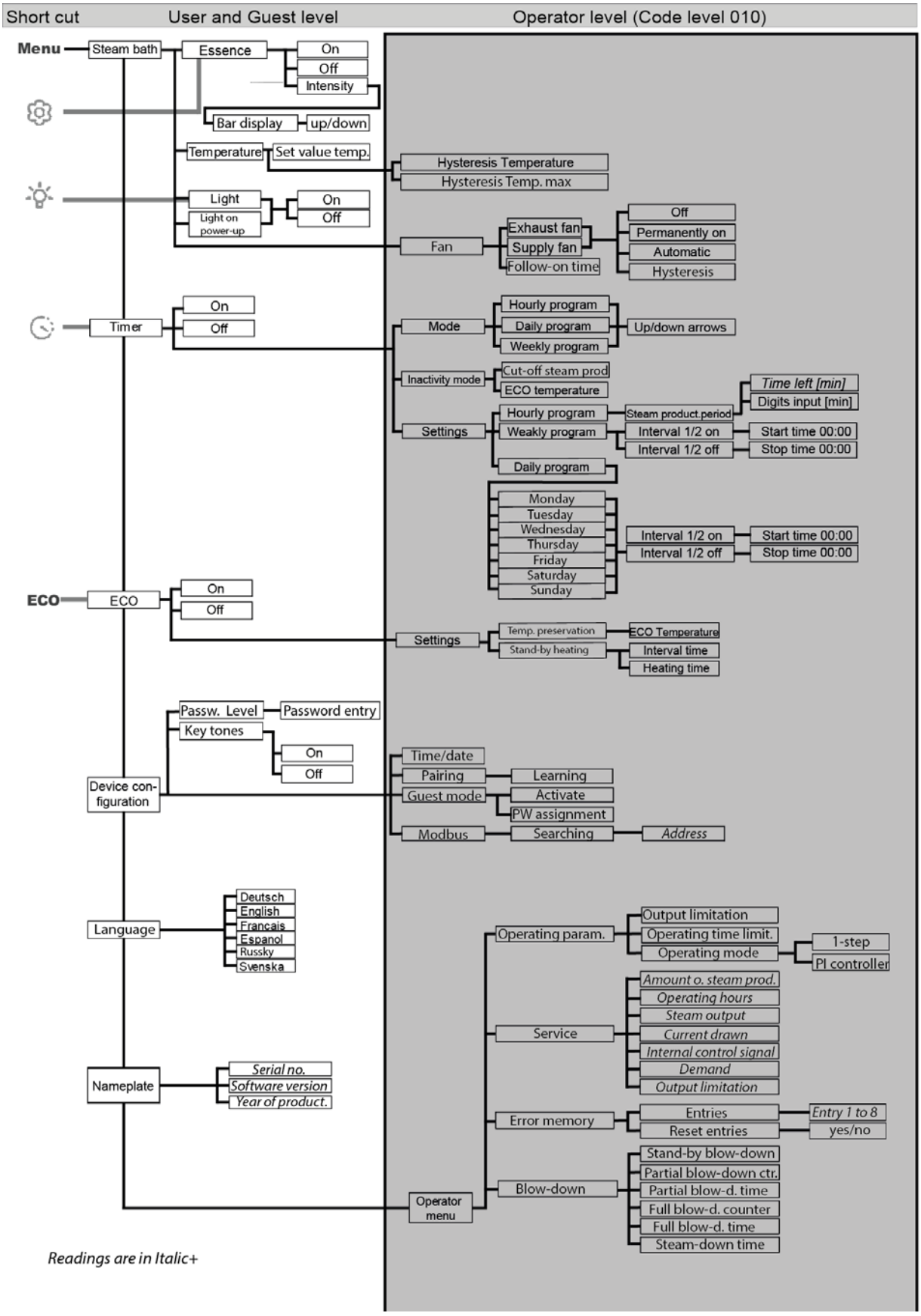
» Please select *Password level*
» Select *Password entry*
» Type in code 010 for settings
» Quit the menu with ◄

Before any password input has taken place the Spa Remote Control is on user level as shown by the „User“ indication in white in the appropriate display field. After typing in „010“ as an access code the character colour changes to grey. Instead of „Password entry“, „Operator“ is displayed as the status indication for the operator level.



For entry of an other access code some time later *User* must be touched first in order to allow for a new password entry.

4.4 Menu Scheme



4.4.1 Menu Steam Bath

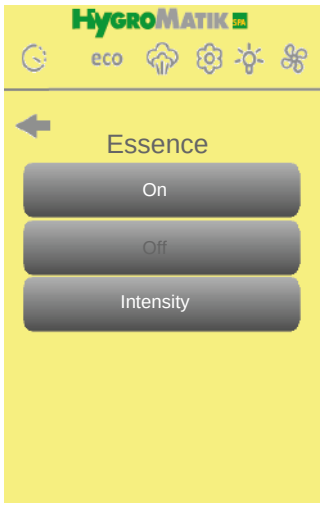
Approach:

Selecting ***Menu / Steam bath*** offers you the following submenus:

- **Essence**
- **Temperature**
- **Light**
- **Fan (only visible on operator level)**

4.4.1.1 Essence

» Select *Steam bath*
» Select *Essence*



Essence supply is set to „on“ when accessing the menu for the first time.

Switching off the essence supply:

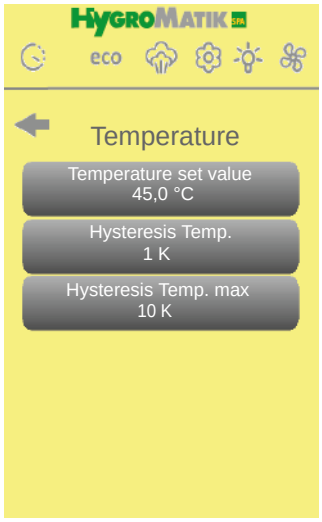
» Select *Off* to switch off essence supply
» Quit the menu with ◄
» For switching the essence supply on, reenter the essence submenu and select *On*

Intensity

» Select *Intensity* to set the intensity of the essence
» The intensity grade selected is shown in a 11-stage diagram
» Touch the diagram in order to change the intensity value
» By touching the up/down arrows the intensity grade can be changed from one bar (lowest grade) to eleven bars (highest grade)

Factory setting is 6 bars corresponding to an injection time of 2 seconds and a pause time of 5 minutes. Setting less bars will increase the pause time whereas the setting of more bars will increase the injection time.

4.4.1.2 Temperature



» Select *Steam bath*
» Select *Temperature*

Changing the temperature set value of the steam bath:

» Select *Temperature set value* to change the set temperature
» Select a value between 20°C and 49°C and confirm the entry
» Quit the menu with ◄

Adjusting the hysteresis of the temperature control:

» Select *Hysteresis Temp.(*this parameter defines the temperature value for cutting the steam production with respect to the temperature set value)
» Select a value between 0K and +10K (entry in 1K steps possible) and confirm the entry
» Quit the menu with ◄

Adjusting the hysteresis for stopping steam production and generating the „Error °C Max“ alarm message

» Select *Hysteresis Temp. max* (this parameter determines at which temperature with respect to the temperature set value steam generation is cut and the alarm „Error °C max“ is generated
» Select a value between 0K und +10K (entry in 1 K steps possible) and confirm the entry
» Quit the menu with ◄

4.4.1.3 Light

» Select *Steam bath*
» Select *Light*

Light (on/off)

» Select *On* to switch on light control or
» Select *Off* to switch off light control
» Quit the menu with ◄

Light on power-up of the steam generator (on/off)

» Select *On* for switching on light control on start-up of the steam generator
» Select *Off*, for swiching off light control on start-up of the steam generator
» Quit the menu with ◄

4.4.1.4 Fan

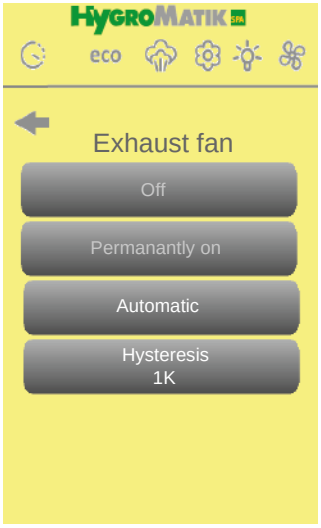
» Select *Steam bath*
» Select *Fan*
» Select E*xhaust fan* or *Supply fan* to set the switching function of the according fan
» Select *Follow-on time* to make the fans run an additional time after steam production was switched off

The fans can be switched off completely or run in „Permanently on“ or „Automatic“ mode. When run in „Automatic“, hysteresis can be changed. Follow-on time refers to both fans, if activated.

Switching function of exhaust fan and supply fan

Switch off

» Select *Off* to switch off the fan function
» Quit the menu with ◀



Switch on permanently

» Select *Permanently On* to set the according fan for permanent operation
» Quit the menu with ◀

Changing the switch-off temperature (hysteresis) of the fan

» Select *Automatic*
» Select *Hysteresis* to set the temperature hysteresis (set temperature minus *hysteresis* = switch off temperature of the fan) of the according fan
» Select a value between 0K and +10K and confirm the entry
» Quit the menu with ◀

Setting the follow-on time

» Select *Follow-on time*
» Type in a time value in the range of 0 to 255 minutes
» Confirm by pressing *OK* or discard by using the *ESC* button
» Quit the menu with ◀

Please note: The fans can only run in follow-on time when the main switch of the unit is still „on“, i.e. switching-off of the steam generator was accomplished by opening the security chain.

4.4.2 *Timer*

Approach:

Selecting ***Menu / Timer*** make the following submenus available.

- **On**
- **Off**
- **Modes**
- **Inactivity mode**
- **Settings**

4.4.2.1 On

» Select *On* to switch on the timer function

» Quit the menu with ◄

4.4.2.2 Off

» Select *Off* to switch off completely the timer function

» Quit the menu with ◄

4.4.2.3 Modes

The following timer modes are available:

- Hourly
- Daily
- Weekly

Setting of the relevant times can be made in *Settings.* The program selected is shown in the display.

Select timer mode

» Select *Modes*

» Select the mode intended by using the up/down arrows

» Confirm by pressing *OK* or discard by using the *ESC* button

» Quit the menu with ◄

4.4.2.4 Inactivity Modes

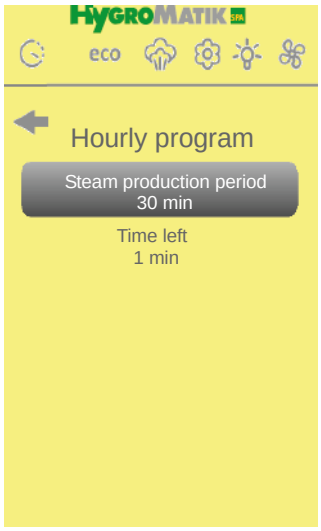
The inactivity mode selected defines the operation of the steam generator when timer control is not in the active phase.The following inactivity modes are available:

- Steam production cut-off
- ECO temperature

The mode selected is shown in the display.

Selection of inactivity mode

» Select *Inactivity mode*
» Using the up/down arrows select *Cut steam production* or *ECO temperature*
» Confirm by pressing *OK* or discard by using the *ESC* button
» Quit the menu with ◄



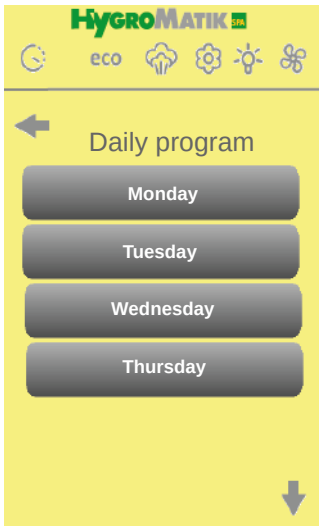
4.4.2.5 Settings

Settings for hourly program

This setting allows for the definition of the steam production period. After timer start the remaining period is displayed in the button field.

Steam production period

» Select *Steam production period* after preselecting *Hourly program*
» Type in a value in the range from 20 to 999 minutes
» Confirm by pressing *OK* or discard by using the *ESC* button
» Quit the menu with ◄



Settings for daily program

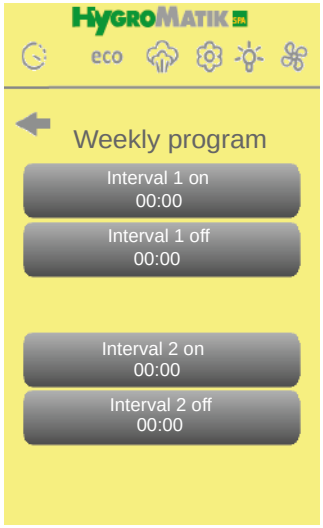
The daily program allows for two steam production intervals to be preset for every individual day of the week (Monday to Sunday).

Selection of day of the week

» Select the day of the week in question after preselection of *Daily program*
» Quit the menu with ◄

Setting intervals (see also „Setting the weekly program“)

» Select after preselection of the day of the week *Interval 1 on or Intervall 1 off (*and *Interval 2 on/off* resp.*)*
» Type in the times for start and stop of steam production
» Confirm by pressing *OK* or discard by using the *ESC* button
» Quit the menu with ◄



Settings for the weekly program

The weekly program allows the preselection of two intervals for steam production that are running on each day of the week (Monday to Sunday) in the same way .

Setting intervals

» Select *Interval 1 on* or *Interval 1 off* (and *Interval 2 on/off* resp.) after preselection of „Weekly program“
» Type in the times for start and stop of steam production
» Confirm by pressing *OK* or discard by using the *ESC* button
» Quit the menu with ◄

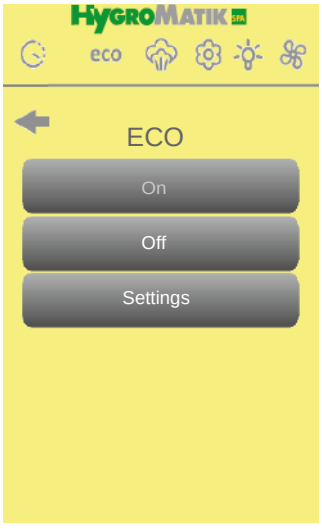
4.4.3 ECO Mode

The steam generator stops actual steam operation if the ECO function is activated. The **eco** icon appears in the status bar. The steam cylinder is actuated regularly but the steam generator is working on reduced output.

Approach:

By selecting ***Menu / ECO mode*** the following submenus are available:

- **On**
- **Off**
- **Settings**

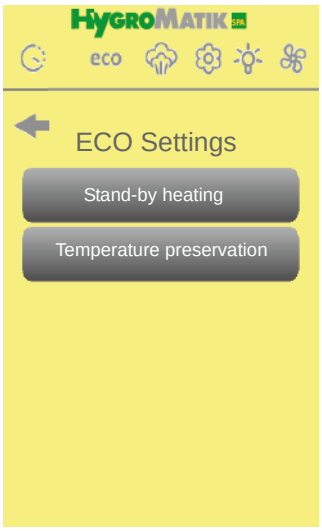


4.4.3.1 Switch on ECO mode

» Select *On*
» Quit the menu with ◄
»

4.4.3.2 Switch off ECO Mode

» Select *Off*
» Quit the menu with ◄



4.4.3.3 ECO Settings

The ECO settings allow for choosing among the functions

- **Stand-by heating** or
- **Temperature preservation**

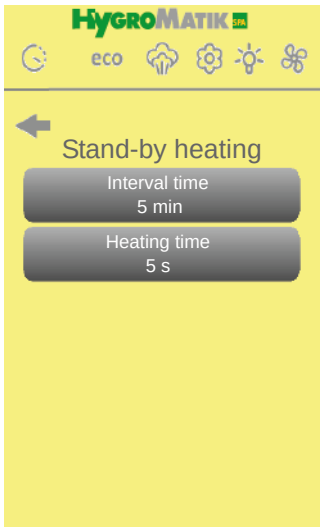
During Stand-by heating, actual steam bath operation (steam production) is interrupted. However, the **cylinder water is heated** periodically for a set heating-on period followed by the heating-off period. After that, the heating will be on again, and so on.

During Temperature preservation, actual steam bath operation (steam production) is interrupted. However, the steam bath is now kept at a set-point temperature lower than the standard value.

Please note: Standby-Heating and temperature preservation can not be active at the same time.

Selection of the ECO function intended

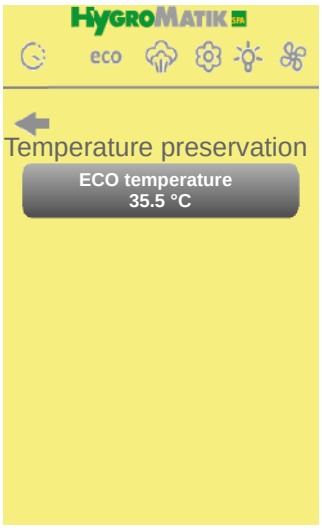
» Select *ECO Settings*
» Select one of the functions *Stand-by heating* or *Temperature preservation*
» Quit the menu with ◀



Setting the stand-by heating parameters

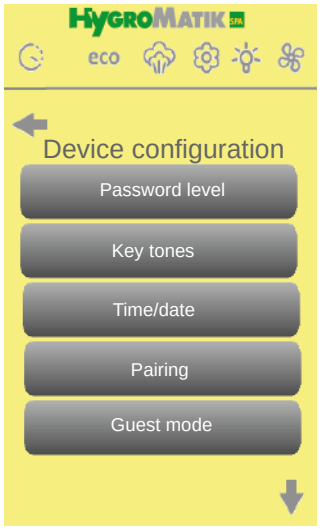
» Select *Interval time* (entry of the time in minutes) or *Heating time* (entry of the time in seconds)
» Set the intended duration values and confirm the entries
» Quit the menu with ◀

Please note: It is recommended to vary the heating time in small steps only while checking the effect after each change.



Setting the temperature preservation parameter

» Select *Temperature preservation*
» Select the *ECO temperature*
» Set the desired temperature preservation value and confirm the entry
» Quit the menu with ◄



4.4.4 Device Configuration

Selecting ***Menu / Device configuration*** the following submenus are available:

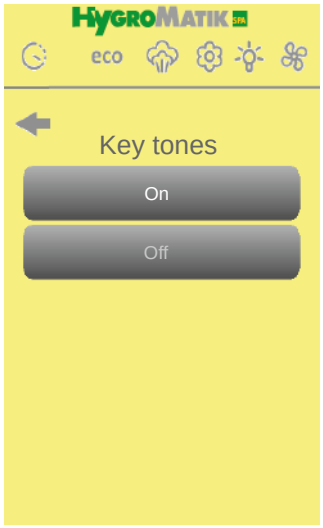
- **Password level**
- **Key tones**
- **Time/date**
- **Pairing**
- **Guest mode**
- **Modbus**

4.4.4.1 Password Level

Password level
Code 000 -> Code 010
User level - Operator level

The **User level** allows limited access to the most important parameters for daily use. Switching on the device generally takes you to the user level.

The **Operator level** also provides expanded access to all parameters. Only password entry activates the operator level. If there has not been an entry for a period of 15 minutes, control automatically switches back to user level.



» Select *Password level*
» For operator level acces type in code „010“ (code „000“ takes you back to user level)
» Quit the menu with ◄

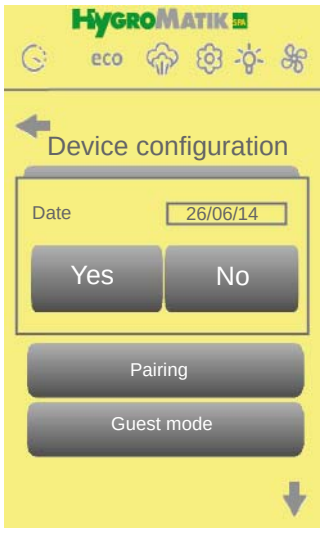
4.4.4.2 Key Tones

This menu allows for the selection whether entries are confirmed with a beep or not when pressing a key.

Key tones (On / Off)

» Select *On* for beeps on entries
» Select *Off* for no beeps on entries
» Quit the menu with ◄

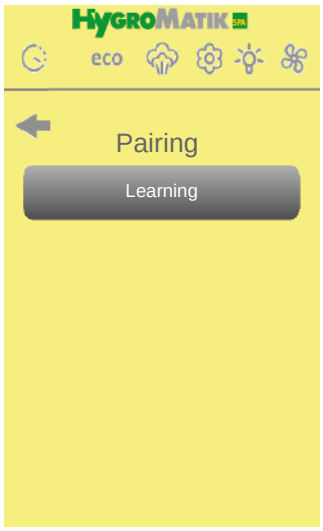
4.4.4.3 Set Time/Date



This menu allows for setting time and date of the steam generator control.

Setting

» Select *Set Time/Date*
» You will now be asked whether the date shown is correct or not. If yes, please select *Yes*, otherwise select *No* and then enter the correct date in the TT:MM:YY format)
» You will now be asked whether the displayed time is correct
» If yes, please select *Yes*; if not, please select *No* (and then please enter the correct time with the hh:mm:ss format)
» Quit the menu with ◀

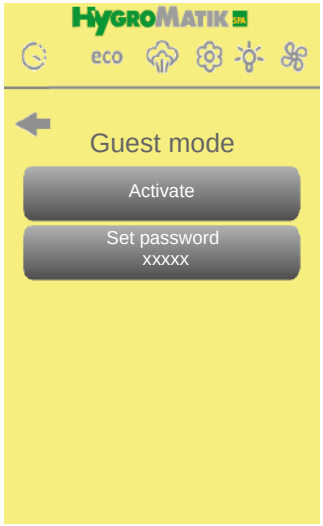


4.4.4.4 Pairing

If subsequently a new remote control is to be connected to the steam generator, then this remote control has to be registered at first.

Approach:

» Select *learning* while the charging cradle is connected to the turned on steam generator
» In the next step the charging cradle must be prepared. To do so, the two pins on jumper JP1 on the board of the charging cradle have to be bridged for 1 second (e.g. with a screwdriver)
» The connection is established automatically and wirelessly between the remote control and the charging cradle in the vicinity.



4.4.4.5 Guest Mode

In guest mode only very limited functions of the remote control are available. These are the display of the set-point steambath temperature and the switching on and off of the essence supply. Any access to the main menu is not allowed with the exemption of the fast access key with the essence supply symbol on it.

Guest mode is entered by selecting *Guest mode / Activate*. If activated, access to the main menu is only possible after input of a 5-character password to be defined on user level. Only then the guest mode is terminated (when the remote control is switched off, it will remain in guest mode until the correct password is typed in). The password set is displayed in the „Set password“ button field.

The submenu allows for the following actions:

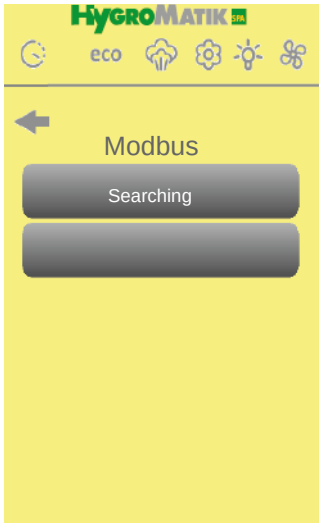
- **Activate**
- **Set password**

Activate guest mode

» Select *Activate* enterring guest mode
» Quit the menu with ◄

Set password for re-enterring user mode

» Select *Set password*
» Type in a 5-character digit sequence as a password
» Confirm by touching *OK* or discard the input by using the *ESC* button



4.4.5.6 Modbus

This submenu allows the selection of the following:

Searching

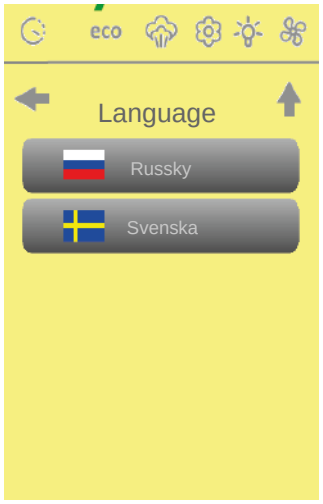
„Searching“ will start a cycle for the Spa remote control as the Modbus master to learn about the slaves connected to the RS485-Bus of the charging cradle.

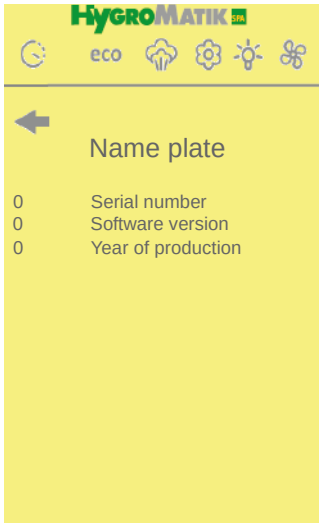
Search Modbus for connected devices

» Select *Searching*
» Connected Modbus devices will correspond by transmitting their Modbus adress
» Quit the menu with ◄

4.4.6 Language Selection

The menu language is selected by touching the respective button

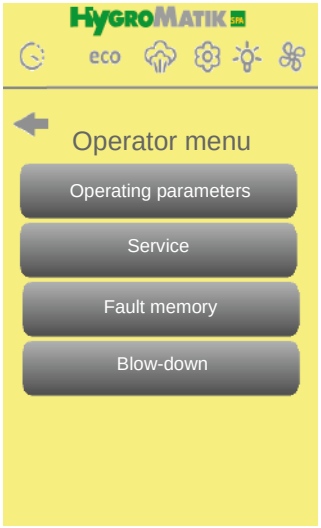




4.4.7 Name Plate

The nameplate holds the following information concerning the steam humidifier connected:

- Serial number
- Software version of control unit
- Year of production

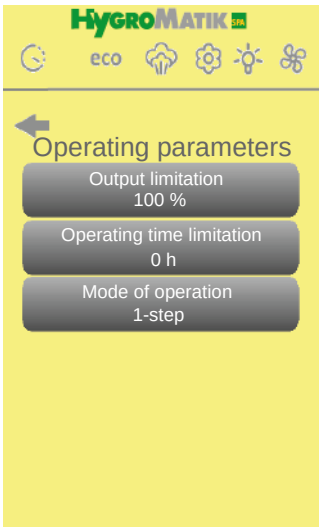


4.4.8 Operator Menu

The operator menu gives access to the following submenus:

- **Operating parameters**
- **Service**
- **Fault memory**
- **Blow-down**

4.4.8.1 Operating parameters



Output limitation

» Select *Operating parameters*
» Select *Output limitation*
» Type in a value in the range of 25 and 100 %
» Confirm by pressing *OK* or discard the input using the *ESC* button
» Quit the menu with ◄

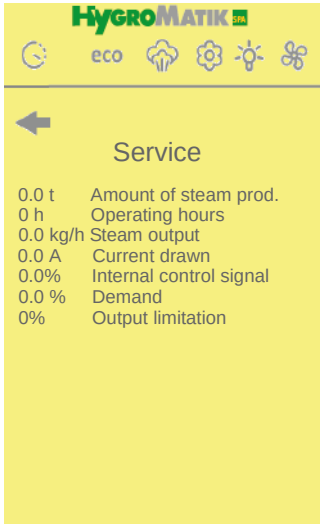
Operating time limitation

» Select *Operating parameters*
» Select *Operating time limitation*
» Type in a value in the range of 0 and 255 hours
» Confirm by pressing *OK* or discard the input using the *ESC* button
» Quit the menu with ◄

Mode of operation

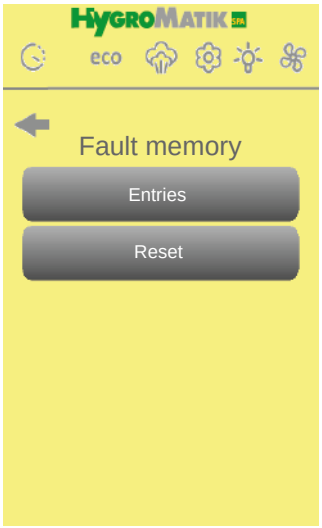
» Select *Operating parameters*
» Select *Mode of operation*
» Use arrows to select *1-step* or *PI controller*
» Confirm by pressing *OK* or discard the input using the *ESC* button
» Quit the menu with ◄

4.4.8.2 Service



In this submenu the following readings and production parameters are displayed:

» Amount of steam produced [t]
» Operatings hours [h]
» Steam output [kg/h]
» Current drawn [A]
» Internal control signal [%]
» Demand [%]
» Output limitation [%]
» Quit the menu with ◄



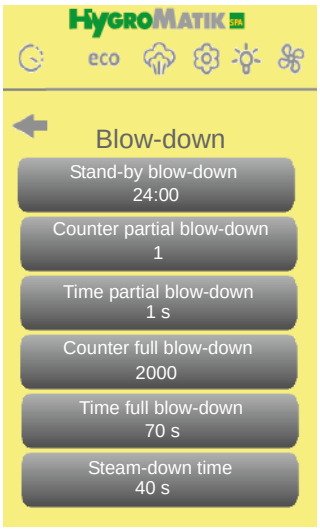
4.4.8.3 Fault Memory

Read fault memory

» Select *Operator menu*
» Select *Fault memory*
» Select *Entries*
» The last 8 alarms are displayed. Memory is overwritten in a rolling way
» Quit the menu with ◄

Reset fault memory

» Select *Operator menu*
» Select *Fault memory*
» Select *Reset*
» Confirm „Execute?“ with *Yes* or cancel with *No*
» Quit the menu with ◄



4.4.8.4 Blow-Down

For steam bath operation different blow-down methods are implemented, namely partial blow-down or full blow-down. The corresponding menu differentiates between heater humifier and electrode humifier since differing criteria have to be considered for the start of the blow-down operation (device type recognition is automatic by the remote control)

Additionally and not depending on the type of humidifier stand-by blow-down is implemented. This is a timer function that defines when after breaking the safety chain a full blow-down shall be initiated automatically.

Setting-up of stand-by blow-down

» Select *Operator menu*
» Select *blow-down*
» Select *Stand-by blow-down*
» Type in a value (format is *HH:MM* , 00:00 corresponding to „off“)
» Quit the menu with ◄

Blow-down modes

The following settings depend on the type of humidifier in question (electrode humidifier or heater humidifier).

Electrode steam generator

Partial/full blow-down counter

These parameters define the amount of solenoid valve plays before partial or full blow-down is initiated.

Partial/full blow-down time

These parameters define the operating time of the pump (in s) during blow-down with respect to the mode chosen.

Heater steam generator

Partial/full blow-down counter

These parameters define the amount of steam produced (in kg) before the relevant blow-down is initiated.

Partial/full blow-down

These parameters define the operating time of the pump (in s) during blow-down with respect to the mode chosen.

Setting up of partial blow-down counter

» Select *Operator menu*
» Select *blow-down*
» Select *Partial blow-down counter*
» Type in a value in the range from 0...255 setting the number of solenoid valve plays (electrode humidifier) or from 0 to 999 defining the steam amount produced [kg] , resp., (heater humidifier)
» Confirm by touching *OK* or discard the input using *ESC* button
» Quit the menu with ◄

Setting-up of partial blow-down time

» Select *Operator menu*
» Select *blow-down*
» Select *Partial blow-down time*
» Type in a value in the range from 0...255 s
» Confirm by touching *OK* or discard the input using *ESC* button
» Quit the menu with ◄

Setting-up of full blow-down counter

» Select *Operator menu*
» Select *blow-down*
» Select *Partial blow-down counter*
» Type in a value in the range from 0...9999 setting the number of solenoid valve switching cycles (Electrode humidifier) or from 0 to 9999 defining the steam amount produced [kg] , resp., (Heater humidifier)
» Confirm by touching *OK* or discard the input using *ESC* button
» Quit the menu with ◄

Setting-up of full blow-down time

» Select *Operator menu*
» Select *blow-down*
» Select *full blow-down time*
» Type in a value in the range from 0...255 s for heater humidifiers or 0...999 s for electrode humidifiers
» Confirm by touching *OK* or discard the input using *ESC* button
» Quit the menu with ◄

Setting-up of steam-down time

» Select *Operator menu*
» Select *blow-down*
» Select *steam-down time*
» Type in a value in the range from 0...9999 s
» Confirm by touching *OK* or discard the input using *ESC* button
» Quit the menu with ◄

5. Parameters

Para-meter	Designation	Range	Description of parameter	Menu/Sub-menü
A4	Stand-by blow-down	0H0:00 to 600:00 [HH:MM] factory setting = 24:00	In case of interruption of the steam bath generator by means of the security chain expectedly for a longer period of time while the main power switch remains in the on-position, it is advisable to blow-down the cylinder filling. Parameter A4 (Stand-by blow-down) determines the period of time after which a full blow-down is initiated automatically. Only when the security chain is closed again while a demand is identified, water is fed to to the cylinder again.	Operator menu/ Blow-down
A 17	Stand-by heating/ temperature preservation	on = stand-by heating off =temperature preservation factory setting = off	If stand-by heating is selected the normal steam production operation is cut. However, the main contactor is switched on and off periodically as determined by the heating time (parameter C17), thus heating-up the water in the cylinder. Heating-up is followed by a pause as determined by the interval time parameter C16, and so on. Standby-heating is only operational in ECO mode when A17 = on. On A17 = off, temperature preservation is operational, i.e. the steam bath temperature is held on a lower set value (as determined by E11).	ECO/Settings
C17	Heating time	0 - 255 s factory setting = 15 s	see parameter A17 (stand-by heating)	ECO/Settings/ Stand-by heating
C16	Pause time	0 - 255 min factory setting = 25 min	see parameter A17 (stand-by heating)	ECO/Settings/ Stand-by heating
D1	Exhaust fan	off/permanently on/automatic factory setting = automatic	When set to automatic mode the fan is switched on depending on (G2 + G3)	Steam bath/ Fan/Exhaust fan
D2	Essence	on/off factory setting = on	Intensity is determined by E14	Steam bath/ Essence
D3	Light	on/off factory setting = off	Light is switched on on power-up of the steam generator. Additionally, direct light on/off is availabel as determined by an internal parameter.	Steam bath/ Light
D4	Supply fan	off/Permanently on/Automatik factory setting = automatic	When set to automatic mode the fan is switched on depending on (G2 + G13)	Steam bath/ Fan/Supply fan
D5	Operating time limitation	0 - 255 h factory setting = 8	maximum operating time of the steam generator before automatic cut-off occurs	Operator menu/ Operating parameters/Operating time lim.

Para-meter	Designation	Range	Description of parameter	Menu/Sub-menü
E1	Xp-PI controller	0.1 - 100 % factory setting = 5 %	gain of PI contoller (Xp=100/E1) (only relevant when U6 = „PI controller“)	Operator menu/ Operating para-meters/XP
E2	Tn-PI controller	0 -255 sec factory setting = 60 sec	integral time of PI controller (only relevant when U6 = „PI controller“)	Operator menu/ Operating parameters/TN
E11	ECO temperature	0 - 49 °C factory setting = 35 °C	determines the set value of the steam bath temperature when ECO mode „Temperature preservation“ is selected	ECO/Eco set-tings/Tempera-ture preser-vation
E14	Intensity	11-stage bar dia-gram	each bar corresponds to a certain combination of injection time and interval time. While the middle position bar (bar 6) reflects the settings of injection time and interval time directly, the intensity correlated with the other bars results from scaling up and down, resp. .	Steam bath/ Essence/Inten-sity
G1	Hysteresis 1-step controller	0 -10 K factory setting = 1K	This parameter allows for determing the switch-on/switch-off differential temperature of the temperature controller. A single-heater steam generator is switched-off at a temperature resulting from **(G2 + G1)** , with **G2 = steam bath °C temperature set value** and **G1 = Hys-teresis 1-step controller.** **Example:** G2 is set to 45°C and G1 is set to 1K t. The steam generator will be switched of at 46° C and will be switched on again at 45 °C.	Steam bath/ temperature/ Hysteresis temp.
G2	Steam bath °C set value	0 - 49 °C factory setting = 45 °C	determines steam bath temperature set value. The setting is preserved on power-down of the steam generator.	Steam bath/ temperature/Set value tempera-ture
G3	Hysteresis exhaust fan	0 -10 K factory setting = 1K	determines the off-switching point of the exhaust fan. The fan is switched-off when the steam bath temperature falls equals (G2 -G3), with **G2 = steam bath °C temperature set value** and **G3 = hysteresis exhaust fan.** **Example:** G2 is set to 45 °C and G3 is set to 2 Kt.The fan will be switched-off at 43° C.	Steam bath/ Fans/Exhaust fan
G4	Injection time	0 - 25 sec factory setting = 2 sec	determines the duration of essence injection when D2 = on	Steam bath/ Essence/Inten-sity/Injection time
G5	Interval time	0 - 99 min factory setting = 5 min	determines the pause between 2 essence injections when D2 = on	Steam bath/ Essence/Inten-sity/Pause time
G6	Essence hystere-sis	0 - 25K factory setting = 5K	determines the start point of essence injection with respect to the temperature set value based on (G7 - G6)	Steam bath/ Esssence/Hys-teresis

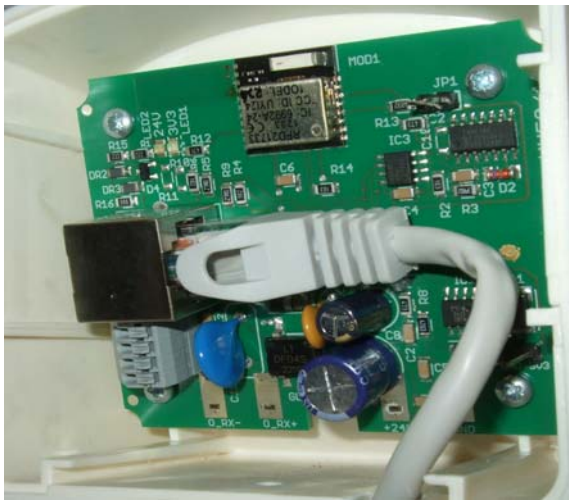
Para-meter	Designation	Range	Description of parameter	Menu/Sub-menü
G7	Hysteresis Temp. max	0 - 10 K factory setting = 10 K	determines the temperature threshold for the „Temp. max“ alarm based on (G2 + G7)	Steam bath/ Temperature/ Hysteresis Temp. Max
G8	Follow-on time	0 - 255 min factory setting = 0 min	additional supply fan operating time for drying of the steam cabin	Steam bath/ Fans/Follow-on time
G13	Hysteresis supply fan	0 - 10 K factory setting = 1 K	the supply fan is powered until the steam bath temperature reaches (G2 + G13), with **G2 = steam bath °C temperature set value** and **G13 = hysteresis supply fan.** Beyond that temperature the fan remains off	Steam bath/ Fans/Supply fan/Hysteresis
H1/ H11	Partial blow-down	0 - 255 0 - 999 kg	number of filling cycles before partial blow-down is initiated (electrode humidifier only) amount of steam produced before partial blow-down is initiated (heater humidifier)	Operator menu/ Blow-down/Par-tial blow-down counter
H2/12	Partial blow-down time	1 - 255 s	pump operating time during partial blow-down (applies to both types of humidifiers)	Operator menu/ Blow-down/Par-tial blow-down time
H7/ H17	Full blow-down counter	0 - 9999 (ELDB) 0 - 9999 kg (HKDB)	number of filling cycles before full blow-down is initiated (electrode humidifier only) amount of steam produced before full blow-down is initiated (heater humidifier)	Operator menu/ Blow-down/Fulll blow-down counter
H8/ H18	Full blow-down time	0 - 999 s 0 - 255 s	pump operating time during full blow-down (applies to both types of humidifiers)	Operator menu/ Blow-down/Fulll blow-down time
H10	Steam-down time	0 - 9999 min (HKDB)	steam-down time as a criterion for the correct operation of a heater steam humidifier (HKDB). Within the time set a defined level variation of the cylinder filling must be observable	Operator menu/ Blow-down/ Steam-down time
L0	Amount of steam produced	Reading	reading [t]	Operator menu/ Service
L1	Power output	Reading	reading [kg/h]	Operator menu/ Service
L2	Current drawn	Reading	reading [A]	Operator menu/ Service
L3	Control signal	Reading	reading [%]	Operator menu/ Service
L4	Demand	Reading	reading [%]	Operator menu/ Service
L5	Output limitation	Reading	reading [%]	Operator menu/ Service

Para-meter	Designation	Range	Description of parameter	Menu/Sub-menü
P1	Output limitation	25 - 100% factory setting = 100 %	allows for output limitation	Operator menu/ Operating parameters/ Output limitation
S3	Software version	Reading	automatically read	Main menu/ Nameplate
S4	Unit type	Reading	automatically read	Main menu/ Nameplate
S5	Year of production	Reading	automatically read	Main menu/ Nameplate
S6	Serial number	Reading	automatically read	Main menu/ Nameplate/
U6	Mode of operation	1-step or PI controller	determines control characteristic	Operator menu/ Operating parameters/ Mode of operation

6. Connecting the Spa Remote Touch Charging Cradle to the Control Unit

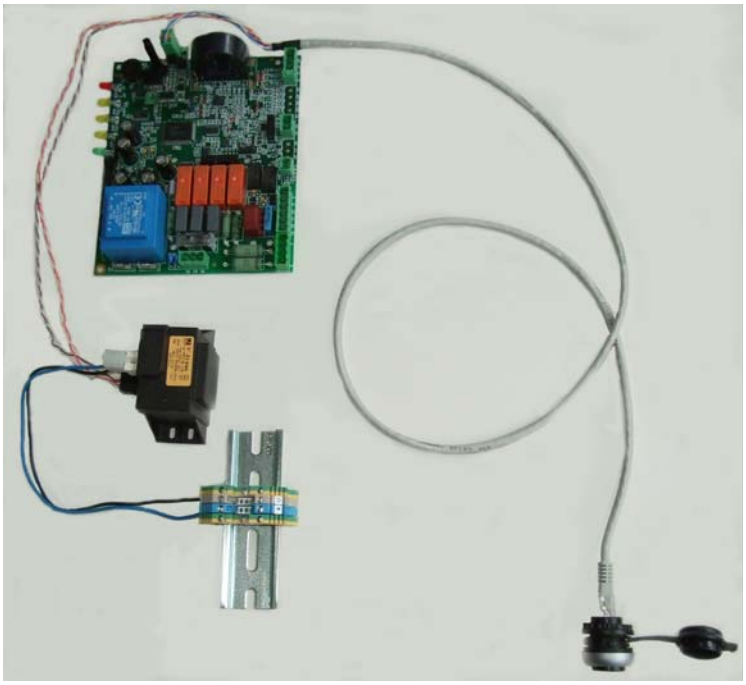
Connection of the Spa Remote Touch charging cradle holding the radio electronics is made through a standard RJ45 patch cable to be provided by the customer. The photos below show the cabling on the bottom side of the control unit housing and inside the charging cradle.

Connection of the RJ45 cable to the plug on the bottom side of the steam generator housing

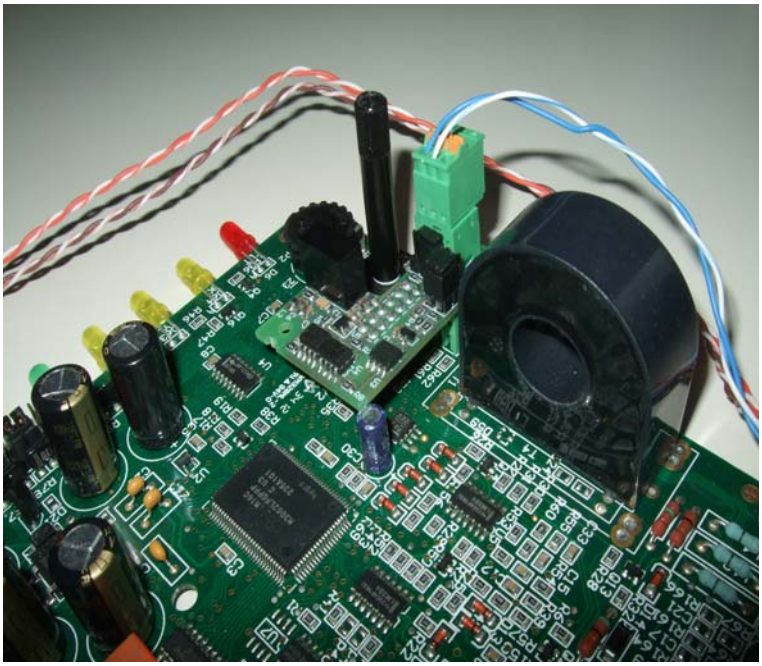


Connection of the RJ45 cable to the charging cradle electronics

The photos below show the internal cabling of the control unit for connecting the Spa Remote Touch charging cradle:

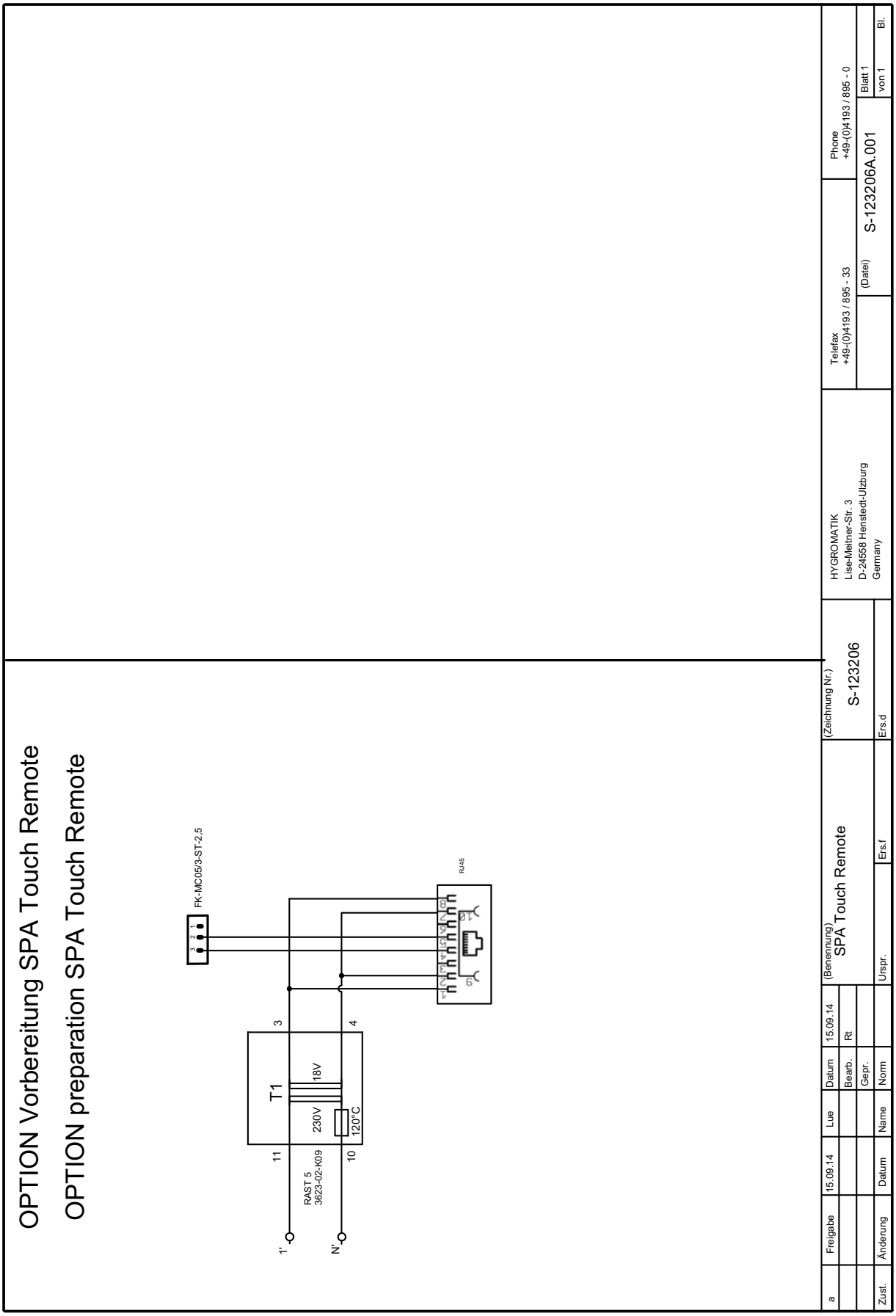


Internal cabling of control unit



Internal cabling of control unit, detail

7. Wiring Diagram



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