Manual

Controls

Basic- DS
Comfort- DS
Comfort Plus- DS

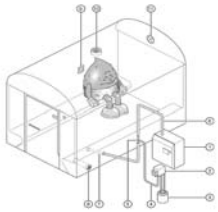
READ AND SAVE THESE INSTRUCTIONS!

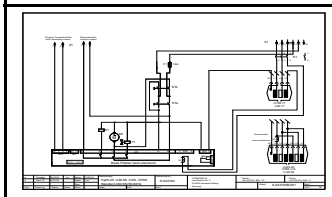
Quick Overview:

Control Comfort -DS (**C-DS**):

Control Comfort Plus -DS (**CP-DS**):

Control Basic -DS (**B-DS**):





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,

Thank you for choosing a HygroMatik steam humidifier.

HygroMatik steam humidifiers represent the latest in humidification technology.

They will impress you with their safety, ease of use and economical operation.

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

Employ your steam humidifier 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** **(Main Number)**

Tel.: **+49-(0)4193 / 895-293** **(Technical Support Hotline)**

Fax: **+49-(0)4193 / 895-33**

e-mail: **hot1@HygroMatik.de**

For all technical questions or spare parts orders, please be prepared to provide unit type and serial number (see name plate on the unit).

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

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 or your HygroMatik dealer.

1.3 Directions for Use

The proven principle of heating water by the use of electric immersion heaters is exploited to generate steam.

Warning: Only qualified and authorised personnel may operate the unit. Persons transporting or working on the unit , must have read and understood the corresponding parts of the Operation and Maintenance Instruction and especially the chapter 2. „Safety Notes“. Additionally, operating personnel must be informed of any possible dangers. You should place a copy of the Operation and Maintenance Instruction at the unit‘s operational location (or near the unit).

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 Comply with the accident prevention regulation
Accident Prevention Regulation Electrical Systems and Equipment (VBG4/BGVA2) 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, safety work must be carried out 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).

HyLine steam humidifiers are IP21-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.

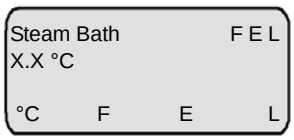
3. Comfort- DS / Comfort Plus- DS

The display and operating panel enables local communication with the steam generator.

3.1 General View of DS-Control and Operating Panel

DS-Control Display and Operating Panel

The display is supplied as a four-line, lighted LC-display. Once the humidifier is switched on, it shows:



1st Line: Operating mode of the steam bath steam generator and status of **fan**, **essence** delivery and **light**.

2nd Line: active temperature in the cabin (**°C**)

3rd Line: normally blank

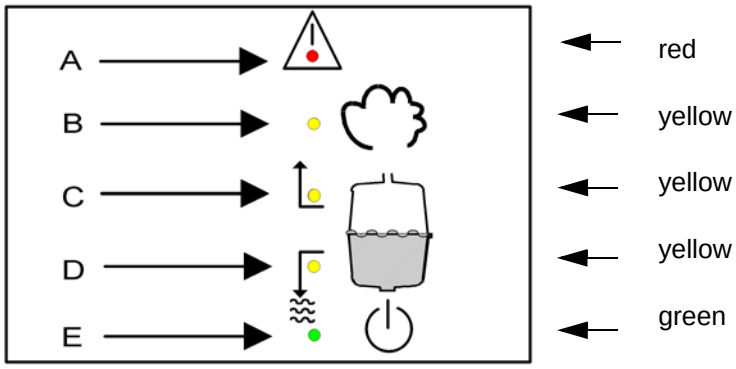
4th Line: function settings for the fan, essence delivery system and light

The humidifier operational conditions **steam production / humidification / filling** and **blow-down** can also be displayed and are indicated by the three middle yellow LEDs on the operating panel (see graphic below).

In case of a steam generator malfunction, the topmost red LED blinks. The control automatically shuts off the steam generator.

The lowermost green LED indicates that the steam humidifier is switched on and ready.

LED colors:



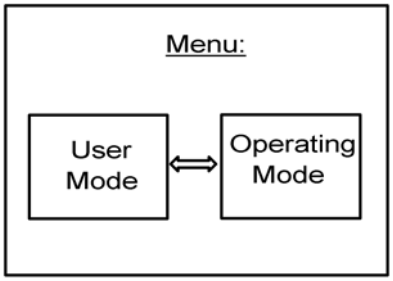
A: Malfunction

B: Steady LED = humidification; blinking LED = maximum water

C: Filling

D: Blow-Down

E: Steady LED = ready; blinking LED = maintenance interval



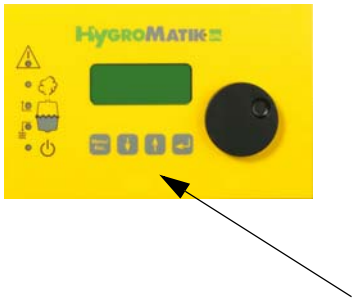
3.2 Communication with the Control

Local communication with the Comfort / Comfort Plus control (data input and output) is possible using the display and keypad.

Access modes for communication with the steam bath control are divided into:

- the **User Mode** (access for daily use), also see Section “User Mode - Communication with the Control”
- the **Operating Mode** (access for initial operation and maintenance), also see Section “Software Menu and Setting Parameters”

3.2.1 Function Keys



Keys

Keys  are located below the display. Above each key, a context-based action (software key) is shown on the lowest line of the display (i.e. an “°C” key). The action is performed by pressing the key. The software keys in the display unit enable parameter modification.

3.3 DS-Comfort and DS-Comfort Plus Compared

Comfort- DS

Comfort Plus- DS

Encoder Knob

Unlike the DS-Comfort, the DS-Comfort Plus is equipped with an additional encoder knob for easy use.

Turning the knob left or right is equivalent to pressing the software keys “up arrow“ or “down arrow“.

Pushing down the encoder corresponds to pressing the software key “Enter”.

When using the encoder knob, an additional option for selection appears in the menus and submenus: “Back”. If the underscore (cursor) is located under “back” and the encoder knob is depressed, the control jumps to the next higher menu.

In addition, the Comfort-Plus Control features a timer function (Parameter T0), also see Section “Humidifier Operating Parameters”.

4. User Mode - Communication with the Control (Comfort-DS/ Comfort Plus-DS)

After switching on the steam humidifier, the user is placed in user mode.

This mode includes the indicators and controls needed to modify the following parameters:

- Temperature Set Value °C - (Key 

)
- Steam Bath Fan Function F - (Key )
- Essence Delivery Function E - (Key )
- Cabin Light Function L - (Key )

The active steam bath temperature is always simultaneously displayed.

Note: For safety reasons, modifications to steam bath parameters in user mode are temporary, i.e. they are lost when the steam humidifier is switched off. Upon restart the unit operates with the previously entered parameter settings.

Stable parameter modifications are done in operating mode, also see Section “Operating Mode - Advanced Communication with the Control”.

4.1 Changing Steam Bath Parameters in User Mode

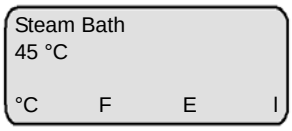
Warning: Before changing steam bath parameters, consider the consequences! Setting the desired steam bath temperature value too high can lead to scalding.

Steam bath operation and installation is described in the next Section.

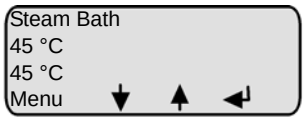
4.1.1 Modifying the Temperature Set Value (G2)

Note: In user mode, the temperature may be modified in increments of 0.5°C.

Example: To reduce the desired temperature value from 45°C to 42°C.

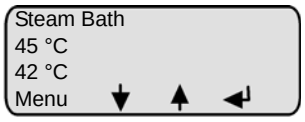


» Switch on steam generator. The display indicates the type of operation and the active cabin temperature.

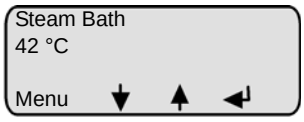


» Press 

once. The programmed temperature value appears on the display.



» Hold down ↓ until the temperature value 42°C appears on the display.



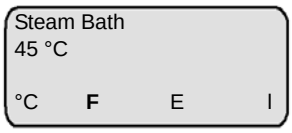
» Press ↵ once.

The new temperature set value is programmed. After a few seconds, the program jumps back to the standard display. The display again indicates the active cabin temperature.

Note: Concerning Parameter G2, also see Section “Steam Bath Parameters (G0 - G9, G13)” .

4.1.2 Steam Bath Exhaust Fan (D1)

Automatic - Function



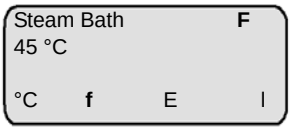
On the automatic setting, the fan operation is a function of the steam bath temperature. The control switches on the steam bath fan when the set temperature level is reached and switches it off again when the temperature falls below the set value, minus the hysteresis for the steam bath fan (Parameter G3).

Also see Parameters “Temperature Set Value” (G2) and “Hysteresis Steam Bath Fan” (G3). The **automatic** setting is preset in the factory and is indicated on the display by an **F**.

Näheres finden Sie im Kapitel „Dampfbad-Temperaturverlauf“**Note:** More details to be found in the graph, also see Section “Steam Bath - Temperature Control”.

Continuous Operation (Continuous On) - Function

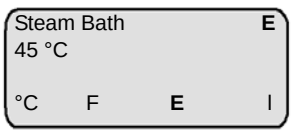
With this setting the steam bath fan operates continuously regardless of the temperature in the steam bath. Set this mode by pressing the ↓ key once after start-up.



The display now indicates **f** for continuous operation of the fan. If an **F** is shown in the 1st line of the display, the fan is being controlled.

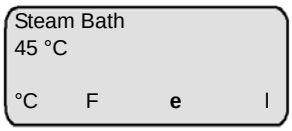
4.1.3 Essence Delivery System - Function (D2)

Automatic



The **automatic** setting for the Parameter “Essence Injector” (D2) is indicated by an **E** in the display; essence is injected according to the programmed essence delivery interval (G5) and Injection Duration (G4). The factory setting for the essence delivery interval is 5 minutes and the setting for the essence injection duration is 2 seconds.

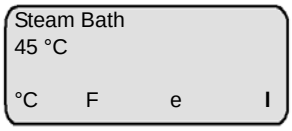
Delivery System Off



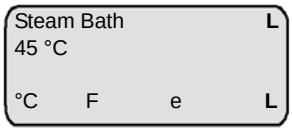
By pressing the key once, the **Essence Injector** Parameter is set continuously to **off**. This is indicated in the display by an **e** and results in no essence delivery into the steam bath.

4.1.4 Light - Function

Light (on / off)



In the factory, the light in the steam cabin is switched off for initial operation. This is indicated by an **I** in the display. By pressing the key once, the cabin light is switched on.



The display now shows an **L** to indicate continuous operation of the light. If an **L** is present in the 1st line of the display, the cabin light is operating.

4.2 Overview of Steam Bath Operation and Installation

The necessary steam for the operation of the steam bath is supplied by the HygroMatik Steam Generator. The recorded temperature in the steam bath is the only control variable for controlling steam production. At the default setting, the steam bath achieves a temperature of about 45°C at 100% relative humidity. A steam bath air supply fan may be used to deliver fresh air, and an exhaust fan to remove warm air from the steam bath, in order to ensure continuous steam supply and a stable temperature control.

Heat-Up Phase:

Steam is supplied to the still cold steam bath, increasing the relative humidity to 100% at an initially constant temperature. Subsequent steam delivery then increases the temperature; the relative humidity remains at 100%.

Operating Phase:

When the desired temperature (plus hysteresis) is reached, steam production is interrupted. If the steam bath temperature falls below the desired value, steam is again delivered into the cabin.

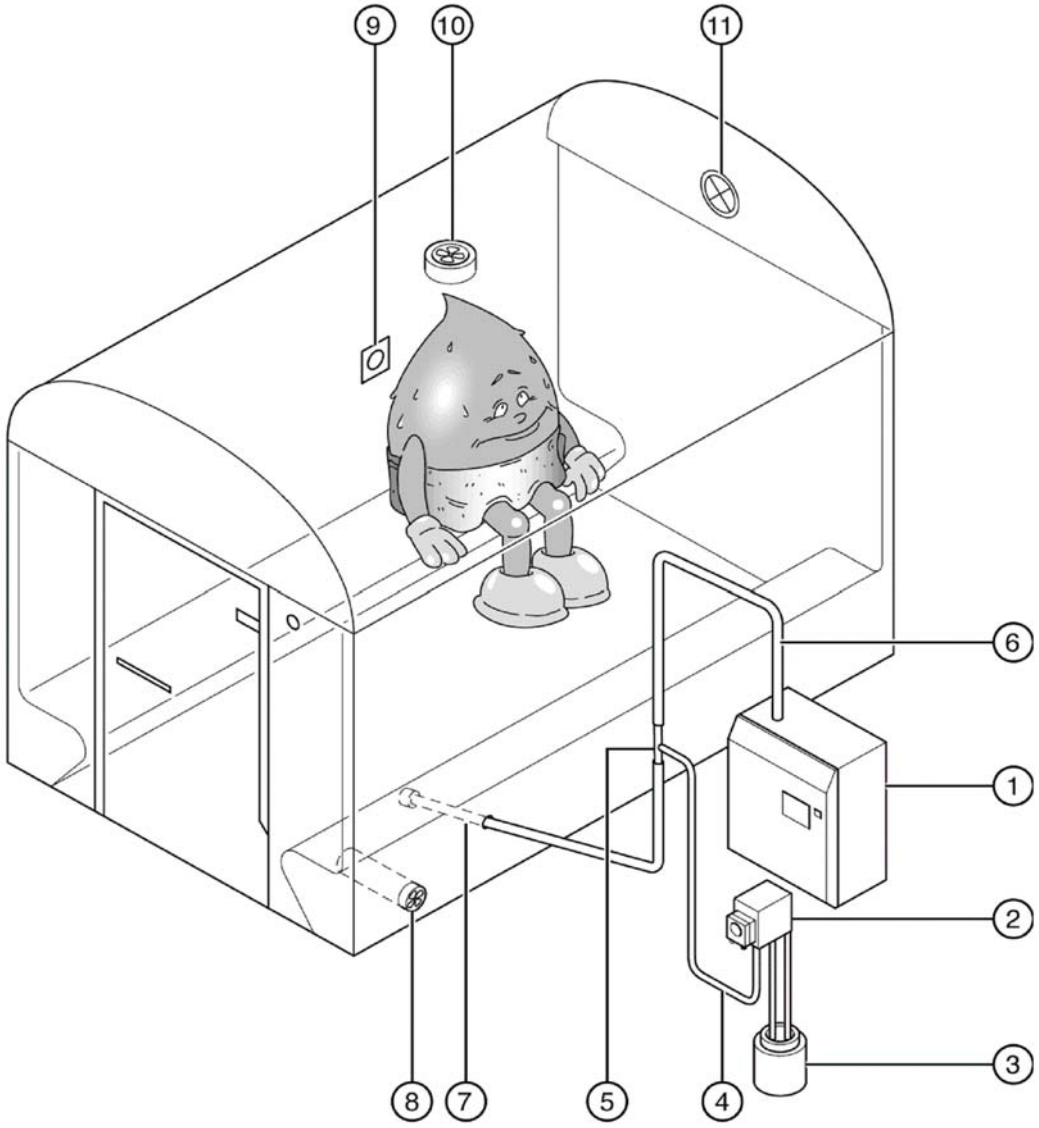
Note: Light control, fan control and essence injection control are optional accessories.HygroMatik steam bath systems are available either in 24V or 230V versions.

Warning: Inside the steam cabin, safe low voltage (24V) should be employed for the fan and light.

4.2.1 Steam Bath Installation (Schematic Layout)

Location	Designation
1	Steam generator
2	Essence peristaltic pump
3	Essence reservoir
4	Essence line to steam hose
5	T-piece for essence feed into the steam hose
6	Steam hose
7	Steam manifold in steam bath
8	bath supply fan
9	Temperature sensor
10	bath exhaust fan
11	Cabin light

Note: The illustration below depicts a schematic layout for a steam bath - it is not an installation instruction.



4.2.2 Steam Bath - Temperature Control

With any steam bath, a temperature sensor must be installed in the cabin. The temperature sensor measures the **temperature** in the steam bath and is connected to the steam generator.

The DS-Comfort or DS-Comfort Plus controls the HygroMatik steam generator according to the temperature reading. The **relative humidity** is not measured since it is **always 100%** following the heat-up phase.

In addition, depending on your order preference, you can connect an essence injector, light and fan to the steam generator.

The sample diagram below shows how the DS-Control functions:

Parameters G1 to G4 + G13 (may only be modified in operating mode) are programmed as follows:

Hysteresis Temperature Controller (G1)= 1K

Hysteresis Steam Bath Exhaust Fan (G3) = 1K

Hysteresis Steam Bath Supply Fan (G13) = 1K

Steam Bath Temperature Set Value = 45°C

If the temperature in the steam bath falls below **45°C**, an adjustment is made by increasing steam production.

If the temperature in the steam bath rises above **46°C**, steam production is shut off with 1-step operation or adjusted downwards with continuous operation.

The release point for the steam generator is determined as follows:

Steam Bath °C Set Value (G2)+Hysteresis °C-Controller (G1) =

45°C+1K = 46°C.

If the temperature in the steam bath rises above the programmed temperature set value of 45°C, the DS-Control activates the steam bath exhaust fan. The control switches off the exhaust fan below 44°C. The release point for the steam bath exhaust fan is determined as follows:

Steam Bath °C Set Value (G2) -

Hysteresis °C Steam Bath Exhaust Fan (G3) =

45°C - 1K = 44°C

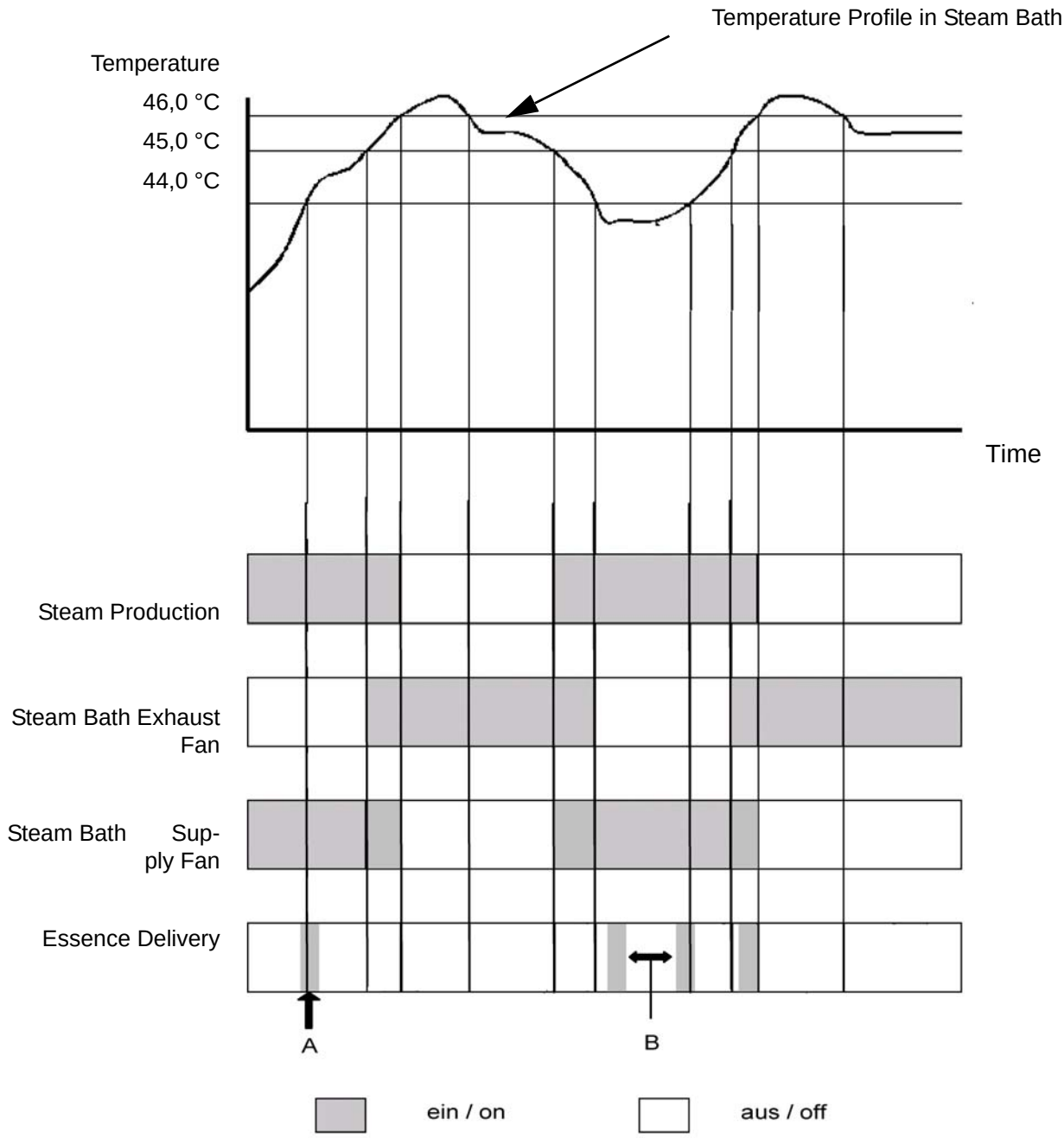
Note: The Parameter “Steam Bath Exhaust Fan” (D1) must be programmed to automatic.

Steam is only produced as long as the temperature in the steam bath remains below the “set temperature value.” If the temperature in the steam bath remains above the “set temperature value” for a long period of time, resulting in this case in **no visible steam** production, this could be due to:

- excessively high heat supply from an additional source, e.g. from heated benches.
- a well-insulated steam bath
- too little air flow in the steam bath.

Air flow in the steam bath is facilitated by a steam bath exhaust fan, causing the temperature in the steam bath to fall more quickly. Renewed steam production compensates for the drop in temperature. In this way, the fan ensures constant, stable steam production - with visible steam in the cabin.

4.2.2.1 Diagramm Temperature Profile in Steam Bath



5. Operating Mode - Advanced Communication with the Control (Comfort-/Comfort Plus-DS)

5.1 Introduction to the Comfort- DS / Comfort Plus-DS Control

Control of your HygroMatik steam humidifier is performed by sophisticated microprocessors. These microprocessors intelligently and self-adaptively select the most economical mode of operation for the steam humidifier appropriate to the existing water quality. Optimized start-up procedures provide rapid steam production and quick responses to all control operations. The HygroMatik control regulates the complete blow-down procedure and the operation of the water inlet solenoid valve. For electrode steam humidifiers, it self monitors to control the conductivity of the cylinder water.

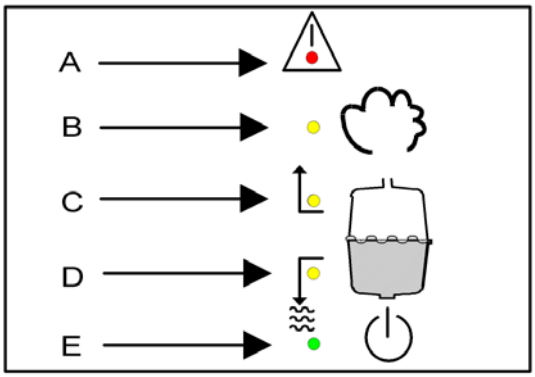
The HygroMatik microprocessor control Type DS is a particularly user-friendly control, delivering the user all important information.

The Comfort- DS /Comfort Plus- DS Control features:

- a lighted alphanumeric LC-Display
- an integrated computer interface RS232 or RS485, or BUS System, available to customer specifications
- optimal calibration of the steam generator due to open adjustability
- 5 LEDs on the display panel give an instant overview of the most important operations
- Stand-By Blow-Down to prevent standing cylinder water. After a long period with no steam production, the cylinder is completely drained.
- 4 connections for control of the steam bath supply and exhaust fans, essence delivery system and light
- Remote control (optional)
- selection of steam bath operations with or without status indicator
- variable temperature control depending on operational mode

The performance options and available settings for your HygroMatik Control Type DS-Comfort and DS-Comfort Plus are explained below in detail.

Both the HygroMatik Comfort Control and the Comfort Plus consist of a main PCB and a display unit with back-lighted display, as well as an LED with icons and keys for direct communication with the control.



LED colors:

red

yellow

yellow

yellow

green

A: Malfunction

B: LED steady = humidification; LED blinking = maximum water

C: Filling

D: Blow-Down

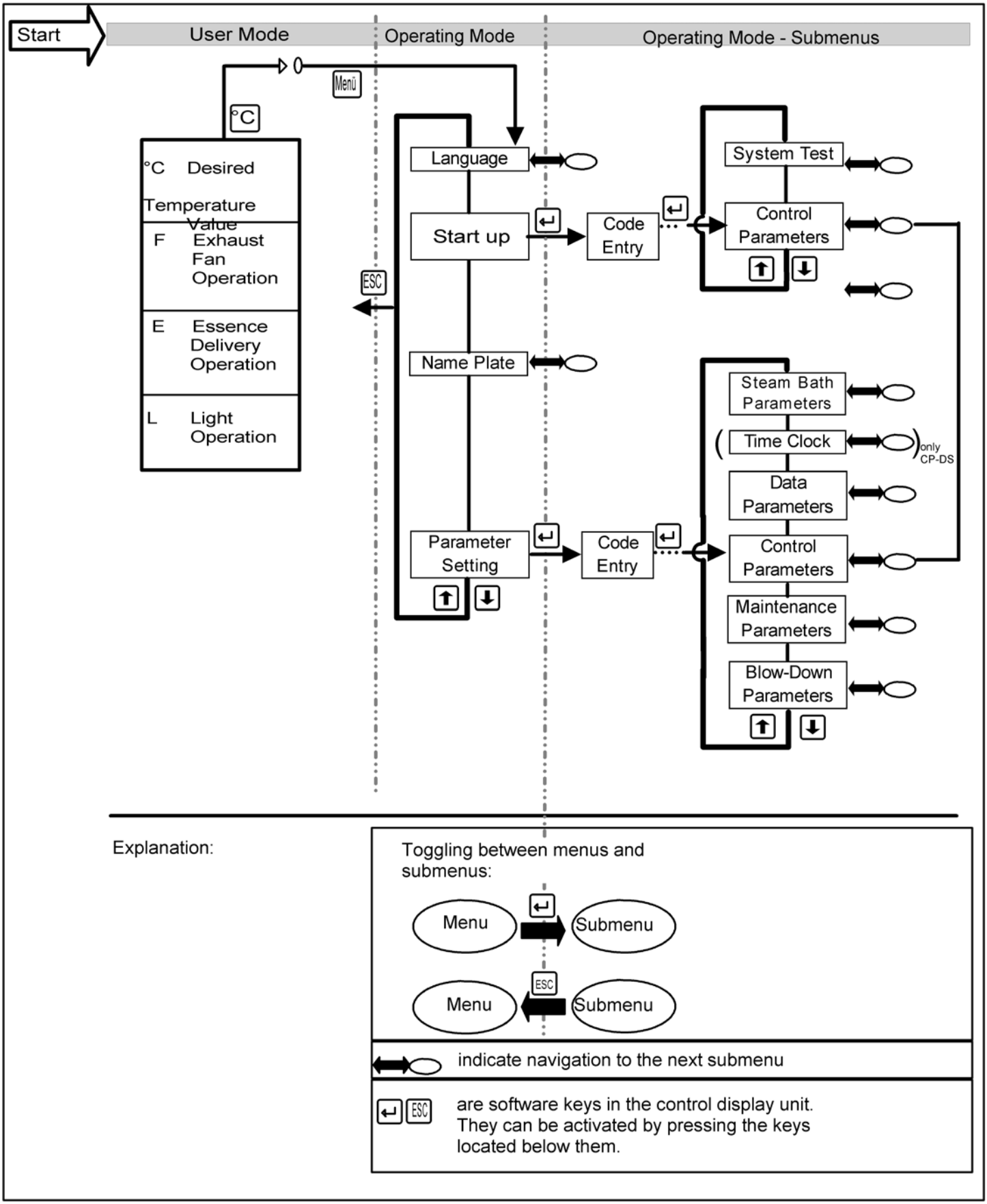
E: LED steady = ready; LED blinking = maintenance interval

The green LED blinks when the service interval has expired, and “Service” appears on the dispay.The maintenance interval can be adjusted to existing water quality. For more information, see “Setting the Maintenance Interval.”

Other information and functions can be called up by the panel keys.

Note: After pressing a key the display lights up. After one minute without pressing any key the display goes back into stand by mode. (The display is dark.)

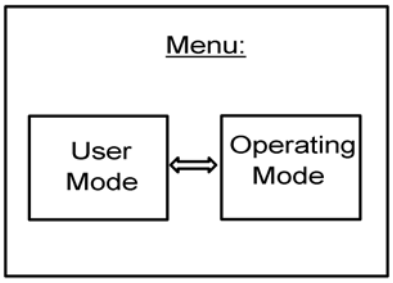
5.2 Software Menu and Parameter Setting



Local communication (data entry and readout) is possible with the Comfort / Comfort Plus Control using the display and the keypad.

The most important types of communication are:

- Readout/Modification of steam bath operational values (in User Mode)
- Selection of the active language (in Operating Mode)
- Readout of humidifier data (“electronic name plate”; in Operating Mode)
- Selection/Modification of essential parameters and system functions (in Operating Mode)

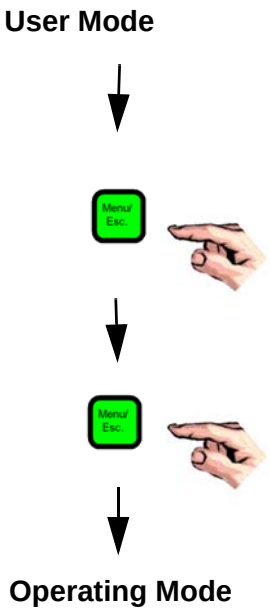


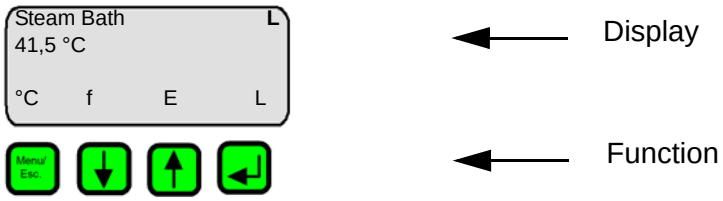
Access Options:

In **User Mode**, some parameters can be temporarily modified (Desired Temperature Value, Essence Delivery, Steam Bath Exhaust Fan Operation, Light Operation), also see Section: “Changing Steam Bath Parameters in User Mode”; all other parameters and system functions which have a critical impact on the proper operation of the humidifier are typically protected by an access procedure that requires entry of a code (P0=010).

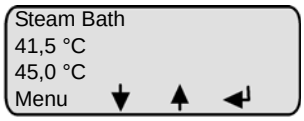
5.2.1 Access to Operating Mode

After switching on the steam humidifier, the user is placed in user mode. The display shows the following:





When the Menu/ Esc. key is pressed, the software key "°C" is activated and the following display appears:



By pressing the Menu/ Esc. key again, the software key "Menu" is activated and the user accesses **Operating Mode**.

The sections below describe the configuration of the software menu, navigation through the menus, as well as display values, parameters and system functions.

5.2.2 Function Keys

Keys

Keys  are located below the display. Above each key, a context-based action (software key) is shown on the lowest line of the display (i.e. an "°C" key). The action is performed by pressing the key. The software keys in the display unit enable parameter modification.

Software Key Function	
Menü	Access Menu Mode
ESC	Back to previous menu level
	Reduce a value or "scroll up" within a menu or parameter list
	Increase a value or "scroll down" within a menu or parameter list
	Save or confirm a value / a figure or navigate to the subordinate submenu

5.3 Operating Mode - Description of Accessible Parameters

In Operating Mode, you have access to the following menus:

- Language
- Startup
- Name Plate
- Parameter Settings

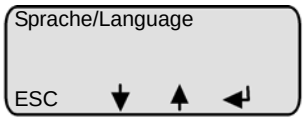
5.3.1 Language Menu

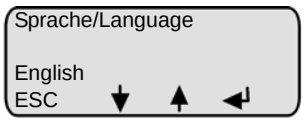
In this menu, you can select the language in which you communicate with the humidifier.

Sprache / Language
German
English
French
Spanish
Japanese
Italian

Programming sequence to modify the language:

press Menü in Operating Mode,





select the desired language with ↑ or ↓ and confirm with ↵.

Exit the language menu with ESC .

5.3.2 Start-Up Menu

The start-up menu comprises settings and parameters that may be needed for humidifier start-up.

The start-up menu is divided into two submenus.

- Control Parameters
- System Test.

5.3.2.1 Control Parameters Submenu (under Startup Menu)

Summary of Parameters:

Para-meter	Description	Possible Settings	Access Code
U6	Controls	1 Step (On/Off) internal PI-controller	010
P1	Steam generation output limiter [%]	25-100%	010
E1*	Xp-PI-controller [Amplification]	[0- 100 %]	010
E2*	Tn-PI-controller [Integration time]	[0- 255sec.]	010

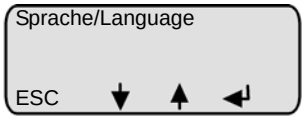
* Only when internal PI-controller is activated

Programming sequence to modify the control parameters.

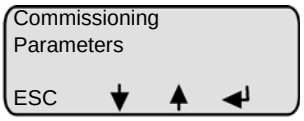
Task: Parameter U6 should be reset from “internal PI-controller” to “1-step”.

» die Programmierabfolge ist hier anfänglich analog der Beschreibung zum Untermenü Ansteuerungsparame-

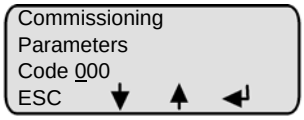
ter)press Menü in Operating Mode,



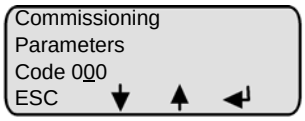
» press ↑ or ↓ until “Commissioning Parameters” appears on the display



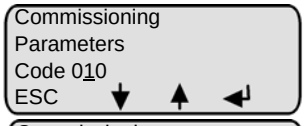
» press ↵



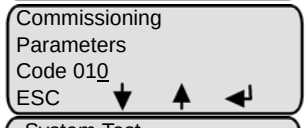
» press ↵



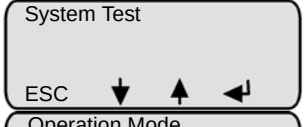
» press ↑



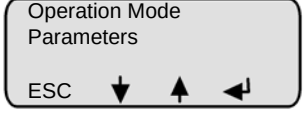
» press ↵



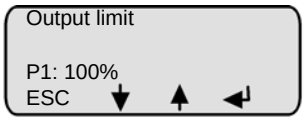
» press ↵



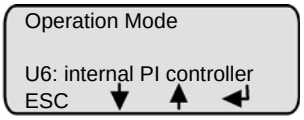
» press ↑ or ↓ until the submenu “Operation Mode Parameters” appears on the display



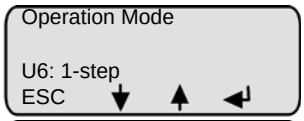
» press ↵



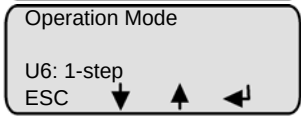
» press ↑ or ↓ until Parameter U6 is displayed



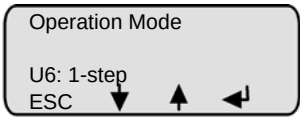
» press ↵



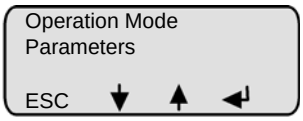
» press ↑ or ↓ to select “1-step”



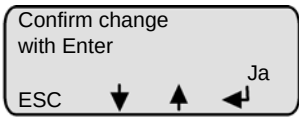
» confirm with ↵



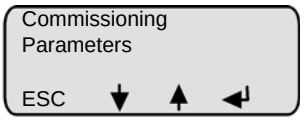
» press ESC to exit



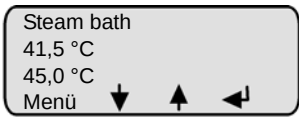
» press ESC to exit the submenu



» the modification must be confirmed in order to be permanently saved; press ↵ to confirm



» press ESC to exit the menu



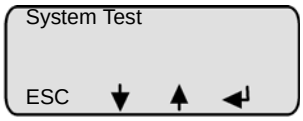
5.3.2.2 System Test Submenu (under Startup Menu)

This test enables checks of various humidifier functions (for example, during start-up).

The following test routines can be executed:

System Test
Automatic System Test (includes all stand-alone tests)
LED Test (stand-alone test)
Pump/MV test (stand-alone test)
Control Status Test (stand-alone test)

To select the “System Test” submenu (the initial programming sequence here is analogous to the description of navigation to the control parameters submenu):



» select the desired test routine with ↑ or ↓ and confirm with ↵ - the test will be executed

Automatic System Test

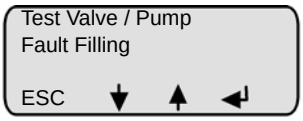
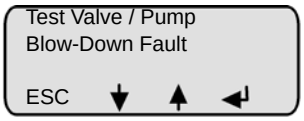
The automatic system test performs all the stand-alone tests described below. Upon completion of each test, a message appears on the display for a few seconds. After this, the next test is performed.

LED Test

This test provides the ability to check the function of the LEDs. The LEDs **Humidifying**, **Filling**, **Blow-Down** and **Fault** are activated sequentially for a few seconds. Simultaneously, the component which corresponds to the LED is activated. For example, the water inlet solenoid valve is activated along with the LED Filling, or the collective fault relay is activated when the LED Fault is activated.

Pump/MV Test

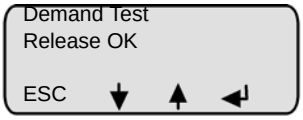
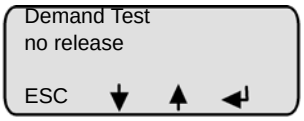
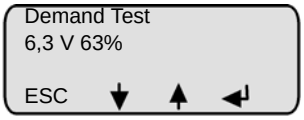
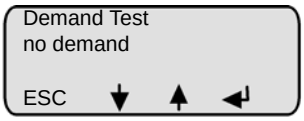
This test checks the function of the inlet solenoid valve and blow-down pump. The following messages can be displayed:

Sample Display	Status
	Solenoid valve out of order or no water supply; also see Section: “Malfunctions and Messages”. Fault Filling.
	Blow-down pump out of order; also see Section: “Malfunctions and Messages”. Blow-Down Fault.

Note: This test can take up to 30 minutes.

Control Status Test

This test checks whether the safety interlock is closed or has been released. For control configurations using an internal or external controller, the demand from the controller is also checked, also see Section: “Malfunctions and Messages”.

Sample Display	Status
	Safety interlock is closed. Humidifier is operating with 1 step control.
	Safety interlock activated (i.e. by Max.-Hygrostat). Humidifier is on stand-by.
 *	Safety interlock is closed. No demand is present. The demand percentage is displayed. The humidifier is operating.
 *	No demand from the controller. The humidifier is on stand-by.

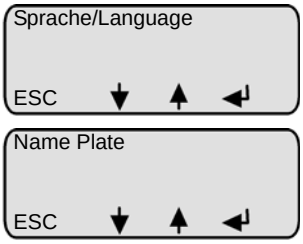
* Only for control types (U6): external controller, internal PI-controller and internal PI-controller with max-limiter

5.3.3 Electronic Name Plate Menu

The display can show 6 different sets of unit data.

Electronic Name Plate	
S1	Cylinder number
S2	Nominal capacity [kg/h]
S3	Software version
S4	Model type
S5	Year of manufacture
S6	Serial number
S10	Equipment designation

» press Menü in Operating Mode, press Menü in Operating Mode,



» press ↑ or ↓ until “Nameplate” appears in the display

» press ↵ and then press ↑ or ↓ until the desired value appears on the display

5.3.4 Parameter Setting Menu

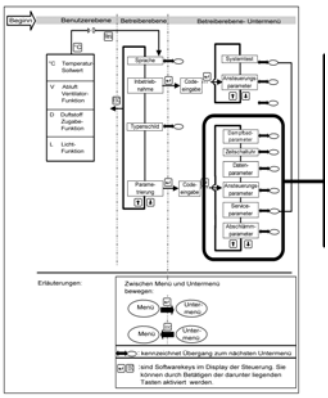
Parameters partly determine the humidifier's sequence of operations and processing of signals.

These parameters can be modified as needed.

For security reasons, access to some parameters is protected by an entry code. Two separate access levels have been defined:

- "Basic customer level" without access code
- "Advanced customer level" with access code "010"

Access Code 010



The "Parameter Setting" menu is divided into six submenus:

- Steam Bath Parameters
- Time Clock
- Data Parameters
- Maintenance Parameters
- Control Parameters
- Blow-Down Parameters

Once access to the "Parameter Settings" menu is gained by entering access code "010," an expanded set of parameters is available in comparison to access without a code entry.

See following pages for a summary table of parameters containing the information below:

- Parameter designation
- Possible parameter value settings
- Menu/submenu where the parameter is located
- Required access code for the parameter

At the end of the summary table, the parameters are described in detail; examples of programming sequences for parameter setting are provided with and without access codes.

Note: Parameter modifications made and confirmed in Operating Mode are permanent. They also remain saved after the unit is deactivated.

6. Parameters

6.1 Summary Table of Parameters

Para-meter	Designation	Possible Settings	in Menu / Submenu	Access Code
A4	Standby Blow-down	0 Min. - 999 Hours [HHH : MM]	Parameter Setting/ Blow-Down Parameters	none
D0	Steam bath mode	“with status” / “without status”	Parameter Setting/Steam Bath Parameters	010
D1	Exhaust fan	Exhaust Fan Automatic / Continuous Operation	Parameter Setting/Steam Bath Parameters	010
D2	Essence (injection)	Essence Injection Automatic / off	Parameter Setting/Steam Bath Parameters	010
D3	Light	Light on/off	Parameter Setting/Steam Bath Parameters	010
D4	Supply fan	Supply Fan Automatic / Continuous Operation	Parameter Setting/Steam Bath Parameters	010
D5	limitation of operating time	0 - 255 h (0 is Factory setting (=off))	Parameter Setting/Steam Bath Parameters	010
E1*	Xp-PI-controller [Amplification]	0 - 100 %	Parameter SettingsControl Parameters	010
E2*	Tn-PI-controller [Integration time]	0 - 255 sec.	Parameter SettingsControl Parameters	
E5	Base relay (programmed switching signal)	0= collective fault (**Factory Setting**) 1= Fault Data Exchange 2= Humidification 3= Stand-By 4= Max. Level 5= Blow-Down Fault 6= Maintenance Interval Expired 7= Fault Filling 8= No Demand 9= ---- 10= ---- 11= Activated Thermo Sensor 12= Fault Main Contactor 13= Supply Fan 14= Exhaust Fan 15= Essence Injection 16= Light 17= Super Flush	Parameter Setting/ Data Parameters	010

Para-meter	Designation	Possible Settings	in Menu / Submenu	Access Code
E6	1. Transmitting relay	same options as with E5, status 15 = factory setting	Parameter Setting / Data Parameters	010
E7	2. Transmitting relay	same options as with E5, status 14 = factory setting	Parameter Setting / Data Parameters	010
E8	3. Transmitting relay	same options as with E5, status 13 = factory setting	Parameter Setting / Data Parameters	010
E9	4. Transmitting relay	same options as with E5, status 16 = factory setting	Parameter Setting / Data Parameters	010
E17	baud rate (interface)	9600 / 4800 / 2400 / 1200	Parameter Setting / Data Parameters	010
G0	Calibration °C actual value	-5 to 5 K	Parameter Settings/ Steam Bath Parameters	010
G1	Hysteresis controller	0 - 10 K 1 K = Factory Setting	Parameter Settings/ Steam Bath Parameters	010
G2	Steam Bath °C set Value	0 - 55 °C 45 °C = Factory Setting	Parameter Settings/ Steam Bath Parameters	010
G3	Hysteresis exhaust fan	0 - 10 K 1 K = Factory Setting	Parameter Settings/ Steam Bath Parameters	010
G4	Time essence injection	0 - 25 sec. 2 sec. = Factory Setting	Parameter Settings/ Steam Bath Parameters	010
G5	Interval time essence injection	0 - 99 min. 5 min. = Factory Setting	Parameter Settings/ Steam Bath Parameters	010
G6	Hysteresis essence injection	0 -25 K 25 K = Factory Setting	Parameter Settings/ Steam Bath Parameters	010
G7	Hysteresis °C max.	0 -25 K 10 K = Factory Setting	Parameter Settings/ Steam Bath Parameters	010
G8	Fan run-on time	0 - 999 min. 0 min. = Factory Setting	Parameter Settings/ Steam Bath Parameters	010
G9	Power retention	0 - 100 % 0 % = Factory Setting	Parameter Settings/ Steam Bath Parameters	010
G13	Hysteresis supply fan	0 - 10 K 1 K = Factory Setting	Parameter Settings/ Steam Bath Parameters	010
H1	Counter Partial Blow-down	0 - 255 [Filling Cycle]	Parameter Setting/ Blow-Down Parameters	010
H2	Time Partial Blow-down)	0-255 [s]	Parameter Setting/ Blow-Down Parameters	010
H6	Full Blow-Down	Yes (On) No (Off)	Parameter Setting/ Blow-Down Parameters	010

Para-meter	Designation	Possible Settings	in Menu / Submenu	Access Code
H11	Counter Partial Blow-down	0 - 999 kg	Parameter Setting/ Blow-Down Parameters	010
H12	Time Partial Blow-down	0-255 [s]	Parameter Setting/ Blow-Down Parameters	010
P1	Output limitation	25% - 100%	Parameter Setting	none
P2	Maintenance interval	0,1 - 25,5 [10^3 kg]	Parameter Setting/ Maintenance Parameters	010
P3	Reset maintenance interval	Yes / No	Parameter Setting/Maintenance Parameters	010
P5	Address	1 - 999	Parameter Setting/ Data Parameters	none
P6	Operation timer	dddd:hh	Parameter Setting/ Data Parameters	none
T0	Timer mode (only with Comfort Plus)	Switch On and Switch Off Times (weekly, daily, off)	Parameter Setting/ Time Clock	010
U5	Pumping without K1	Yes (Main Contactor=off) No (Main Contactor=on)	Parameter Setting/ Blow-Down Parameters	010
U6	Operating mode	1-step internal PI-Controller	Parameter Setting/ Control Parameters	010

* Only when an internal PI-Controller is activated.

6.2 Explanation of Parameters

Note: Parameters D1, D2, D3 and G2 may also be modified in User Mode; but the new settings will be lost when the unit is switched off.

6.2.1 Steam Bath Functions

6.2.1.1 Steam Bath Mode D0 (Operating Mode)

Possible Settings: **-with status**
-without status

The DS-Control is designed for use with steam baths. Additional information (operational conditions) regarding steam generation may be useful for maintenance and initial start-up. If the operational mode is set to “with status”, an operational condition is displayed in the 1st line of the display (also see illustration in Section “Operational Conditions (Dependent on Unit Type)” and readout values are displayed in the 2nd and 3rd lines of the display (also see illustration in Section “Readout Values”).

6.2.1.2 Exhaust Fan D1 (Operating Mode)

Possible Settings: **- Automatic**
- On (Continuous Operation)
- Off

Automatic

At this setting, fan operation is a function of the temperature in the steam bath. The control switches the exhaust fan on when the desired temperature is reached, and switches it off again when the temperature falls below the set value minus hysteresis.

Also see Parameters “Steam Bath °C set value (G2) and “Hysteresis fan (G3). If the fan is control-activated, the letter **F** is shown on the display.

On (Continuous Operation)

When in continuous operation, the fan runs independently of the temperature in the steam bath. In this setting, you use the control switch to simultaneously switch the fan and the steam generator on and off.

Off

The exhaust fan is deactivated on this setting.

6.2.1.3 Essence D2 (Operating Mode)

Possible Settings: **- On**
- Off

On

If Parameter “Essence Injection” (D2) is programmed to “**On**”, essence is delivered according to the programmed Interval Time Essence Injection (G5) und Time Essence Injection (G4). At factory settings, the essence interval period is 5 minutes and the essence injection duration is 2 seconds.

Off

When Parameter “Essence Injector” (D2) is programmed to “deactivated,” no essence is added to the steam.

6.2.1.4 Light D3 (Operating Mode)

Possible Settings: **- On**
- Off

On

At this setting, the control continuously powers the cabin light.

The letter **L** appears in the display and **I** changes to **L** on the 4th line.

Off

At this setting, the cabin light remains off.

6.2.1.5 Supply Fan D4 (Operating Mode)

Possible Settings: **- Automatic**
- On (Continuous Operation)
- Off

Automatic

At this setting, fan operation is a function of the temperature in the steam bath. The control switches the supply fan off when the desired temperature plus hysteresis is reached, and switches it on again when the temperature falls below the set value.

Also see Parameters “Steam Bath °C Set Value“ (G2) and “Hysteresis fan“ (G3).

On (Continuous Operation)

When in continuous operation, the fan runs independently of the temperature in the steam bath. In this setting, you use the control switch to simultaneously switch the fan and the steam generator on and off.

Off

The supply fan is deactivated on this setting.

6.2.1.6 Limitation of operating time D5

Possible settings: 0-255 hours

Factory setting: 0 (=off)

With this parameter you determine if and when the steam generator should stop operation after the safety interlock has been closed. If the steam generator stops the message „Safety stop” is displayed. By opening and closing the safety interlock the steam generator restarts operation for the programmed hours.

6.2.2 Steam Bath Parameters (G0 - G9, G13)

Note: Steam bath Parameters G0 - G9 and G13 can only be accessed on the parameter lists with a code (Code 010).

6.2.2.1 Calibration °C Actual °C (G0)

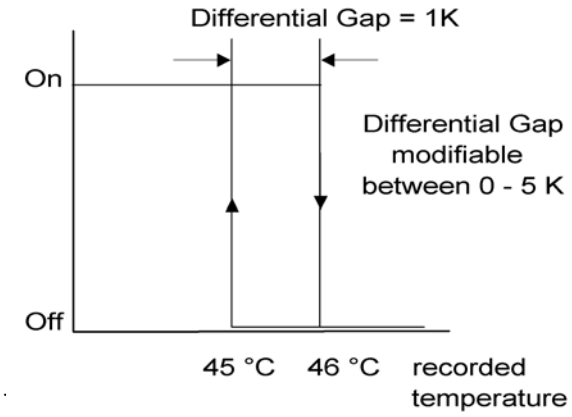
Using this Parameter, one can calibrate the temperature sensor connected to terminals 6 and 7.

Note: The sensor is calibrated at the factory. Readjustment with a 2nd. temperature gauge is possible within a range of -5K to +5K.

6.2.2.2 Hysteresis Controller (G1)

Using this parameter, you can modify the differential between the activation and deactivation points of the temperature controller. The steam generator shuts off at a temperature of **Steam Bath °C Set Value (G2) + Hysteresis Controller (G1)**.

Example: G2 is set to 45°C and G1 is set to 1 K. The steam generator shuts off at 46°C and switches on again at 45°C.



6.2.2.3 Steam Bath °C Set Value (G2)

Using this parameter, you can set the desired temperature in the steam bath. Changes to this setting in Operating Mode are saved when the steam generator is switched off.

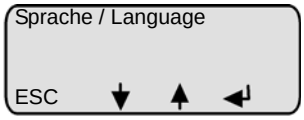
Modifying set Temperature Value (G2)

Note: The temperature may be modified in increments of 1°K in the main menu.

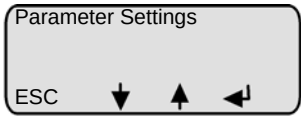
Example: The desired temperature value should be reduced from 45 °C to 42 °C.

To do this, proceed as follows:

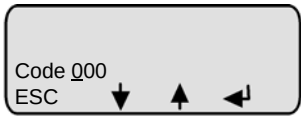
» press Menü in Operating Mode



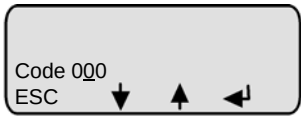
» select “Parameter Settings” menu with ↑ or ↓



» enter the “Parameter Settings” menu with ↵

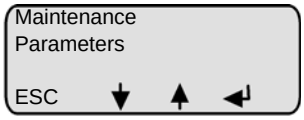


» dthe access code (P0=010) to the advanced customer level must be entered; press ↵

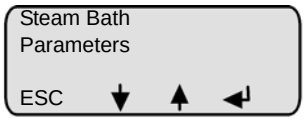


» press ↑

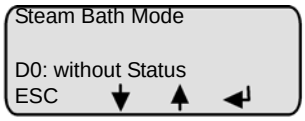
» press ↑



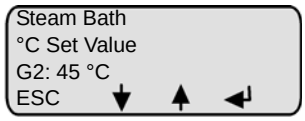
» select the “Steam Bath Parameters” submenu with ↑ or ↓



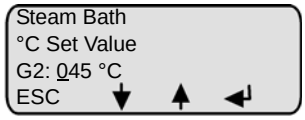
» enter the “Steam Bath Parameters” submenu with ↵



» select Parameter G2 “Steam Bath °C Set Value” with ↑ or ↓

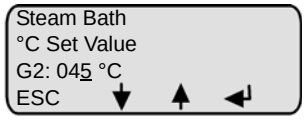


» enable Parameter G2 with ↵

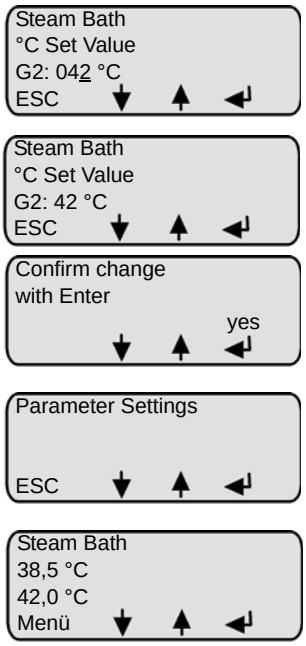


» press ↵ twice to move the cursor under the third digit

»



» press ↓ three times to reduce the value from 5 to 2



» Finish entry of value with ↵

» Press ESC twice to exit the submenu

» the modification must be confirmed to be permanently saved;

to do this press ↵

» press ESC to exit the menu

Values between 0 and 65 °C are programmable. The preset value for G2 is 45 °C.

6.2.2.4 Hysteresis Exhaust Fan (G3)

This parameter sets the release point for the fan during steam bath operation. The fan shuts off when the steam bath temperature falls to the value “Steam Bath °C Set Value (G2) - Hysteresis Exhaust Fan (G3)“.

Example: G2 is set to 45 °C and G3 is set to 2 K. The fan switches off at 43 °C.

The preset value is 1 K. Values between 0 and 10 K are possible.

6.2.2.5 Time Essence Injection (G4)

This parameter is used to set the duration [sec.] of essence delivery.

Values between 0 and 25 seconds may be programmed. The preset value is 2 seconds.

Note: For Parameters G2 - G4, please also consult the graph in Section “Steam Bath - Temperature Control”.

6.2.2.6 Interval Time Essence Injection (G5)

Use this parameter to set the interval period [min.] between essence injections.

Values between 0 and 99 minutes are possible. The preset value is 5 minutes.

6.2.2.7 Hysteresis Essence Injection (G6)

With this parameter, you set the cabin temperature at which essence delivery is enabled. The essence system is released to operate at a temperature value of **Steam Bath °C Set Value (G2) - Hysteresis Essence Injection (G6)**.

Example: G2 is set to 45 °C and G6 is set to 25 K. Essence delivery release occurs at 20 °C.

Values between 0 and 25 K are programmable. The preset value is 25 K.

6.2.2.8 Hysteresis °C Max (G7)

With this setting, you set the maximum cabin temperature at which the steam generator must be shut off as a safety precaution.

Example: G2 is set to 45 °C and G7 is set to 10 K. The steam generator shuts off at 55 °C.

Values between 0 and 25 K are possible. The preset value is 10 K.

6.2.2.9 Fan Run-On Time (G8)

With this parameter, you determine if and how long the fan should run after the safety interlock opens.

Using Fan Run-On Time (G8) when Time Essence Injection (G4) is set to “Automatic”, the fan is continuously enabled for the Run-On Time Delay (G8) by the opening of the safety interlock.

Values between 0 and 999 minutes are programmable. The preset value is 0 minutes.

6.2.2.10 Power Retention (G9)

With this parameter, you determine whether the steam generator will shut off when the desired steam bath temperature is reached, or whether it will switch over to an adjustable power retention of 0-50%. The power retention continues operating until the temperature falls below the value Steam Bath °C Set Value (G2). If too high a power retention causes the Steam Bath °C Set Value + Hysteresis Max. °C (G7) to be exceeded, the control deactivates with the **Fault °C Max**.

Note: Power retention is intended as compensation for a cooling sensation due to continuous fresh air supply.

The preset value is 0 %.

6.2.2.11 Hysteresis Supply Fan (G13)

The fan is activated until the programmed value Steam Bath °C Set Value (G2) + Hysteresis Supply Fan (G13) is reached. If the temperature rises above this value, the supply fan is switched off again.

Values between 0 and 10 K are possible. The preset value is 1 K.

6.2.3 Humidifier Operating Parameters

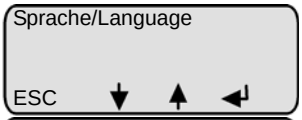
P1 Output Limitation

The steam output can be set to a value between 25% and 100% of nominal capacity using the steam generation output limitation. The actual steam output released depends on the control signal.

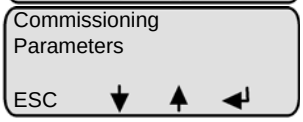
Limitation of the steam output may be needed for better control.

Example: The steam generation output limitation should be reduced from P1 = 100% (factory setting) to P1 = 70%.

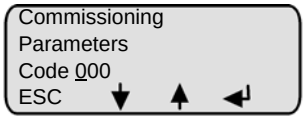
» press Menü in Operating Mode



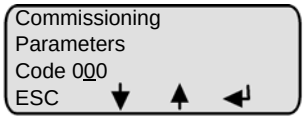
» press ↑ or ↓ until “Commissioning Parameters” appears in the display



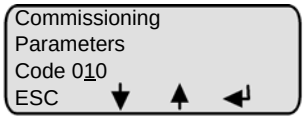
» press ↵



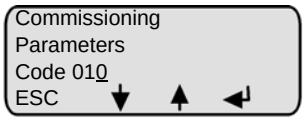
» press ↵



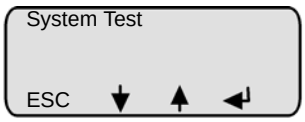
» press ↑



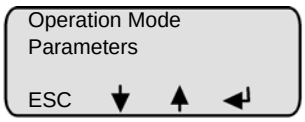
» press ↵



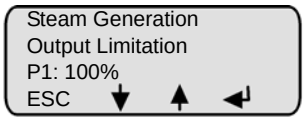
» press ↵



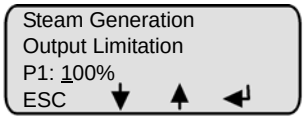
» press ↑ or ↓ until the “Operation Mode Parameters” submenu appears in the display



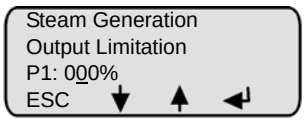
» press 



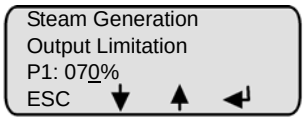
» press  again to select P1



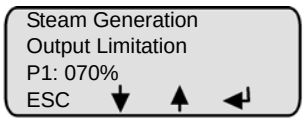
» press  and then set the first digit to 0; then press 



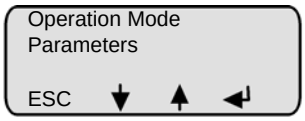
» the cursor is now located below the 2nd. digit, press  3 times to set the 2nd. digit to 7; then press 



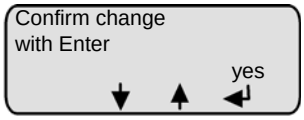
» now the cursor is located below the 3rd digit, press  to finish modifying P1



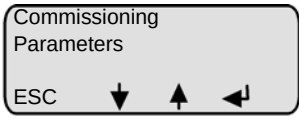
» press 



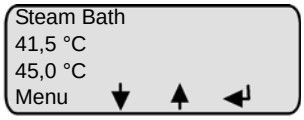
» press  to exit the submenu



» the modification must be confirmed to be permanently saved; to do this press 

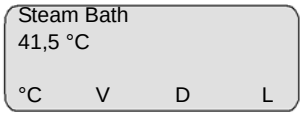


» press  to exit the menu

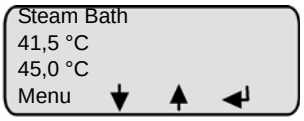


P3 Reset Maintenance Interval

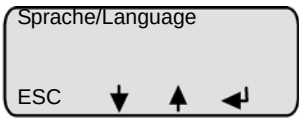
After maintenance, reset the service interval as shown below (green LED is still blinking):



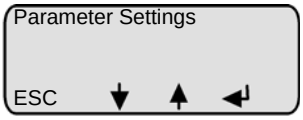
» press °C



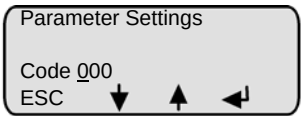
» press Menü



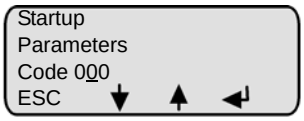
» press ↑ or ↓ until “Parameter Settings” appears in the display



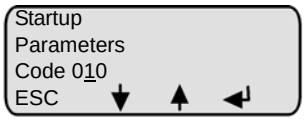
» press ↵



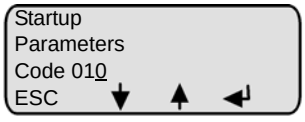
» press ↵



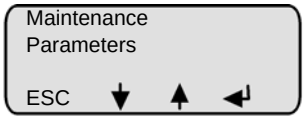
» press ↑



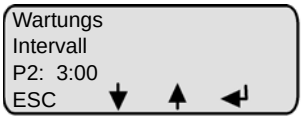
» press ↵



» press ↵

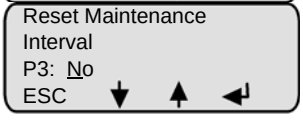


» press ↵

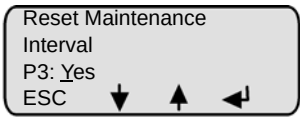


» press ↑

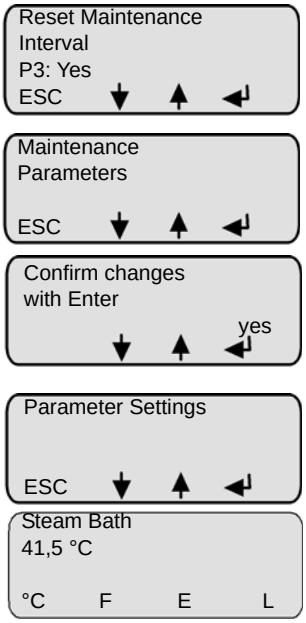
» press ↵



» press ↑



» press ↵



» press ESC

» press ESC to exit the submenu

» the modification must be confirmed to be permanently saved;

to do this press ↵

» press ESC to exit the menu

A4 Stand-By Blow-Down

If the controller or hygrostat demands no humidity from the humidifier for a long period of time, it is advisable to flush out the cylinder water. At Parameter A4 Stand-By Blow-Down, the time period is set after which the complete blow-down is automatically performed. Water will not be fed into the cylinder until a new demand signal is received.

E1 Xp-PI-Controller

Boosting PI-controller [Xp = 0 - 100%]

E2 Tn-PI-Controller

Reset Time PI-controller [Tn = 0 - 255 sec]

E5 Base Relay

The base relay provides a potentialfree two-way contact at terminals 28, 29 and 30 (rated load: 250V/8A) (see page 59).

It is activated if certain operational conditions apply. The operational condition “collective fault” is preset.

It is possible to associate another operational condition with the base relay circuit, also see Section: “Summary Table of Parameters” on Page 35, “Parameter E5.”

E6 1. Transmitting Relay

The switching function of this relay is factory set to “Essence Injection” and should not be modified.

The base relay provides a potentialfree two-way contact at terminals 31, 32 and 33 (rated load: 250V/8A).

E7 2. Transmitting Relay

The switching function of this relay is factory set to “Exhaust Fan” and should not be modified. The base relay provides a potentialfree two-way contact at terminals 34, 35 and 36 (rated load: 250V/8A).

E8 3. Transmitting Relay

The switching function of this relay is factory set to “Supply Fan” and should not be modified. The base relay provides a potentialfree two-way contact at terminals 37, 38 and 39 (rated load: 250V/8A).

E9 4. Transmitting Relay

The switching function of this relay is factory set to “Light” and should not be modified. The base relay provides a potentialfree two-way contact at terminals 40, 41 and 42 (rated load: 250V/8A).

E17 Baud Rate

As an option, the Comfort / Comfort Plus can be supplied with an RS485 computer interface. Here one can set the required baud rate for data transfer.

H1 Counter Blow-Down (only for electrode humidifiers)

Using this parameter, one specifies how many solenoid valve cycles occur before a partial blow-down is performed. The preset value should only be modified in consultation with HygroMatik.

H2 Time Partial Blow-Down (only for electrode humidifiers)

Using this parameter, set the pump run time during partial blow-down. This is given as a specified blow-down time in seconds.

H6 Full Blow-Down

With this parameter, you turn the full blow-down function on and off. The setting “Blow-Down Yes” means that blow-down is switched on.

H11 Counter Partial Blow-Down (only for HeaterLine Type humidifiers)

Using this parameter, you specify the quantity of steam. After the steam humidifier has produced this quantity of steam, the control initiates a partial blow-down. The preset value should only be modified in consultation with HygroMatik.

H12 Time Partial Blow-Down (only for HeaterLine Type humidifiers)

With this parameter, you set the pump run time during partial blow-down. This is given as a specified blow-down time in seconds. The pre-set value should only be modified in consultation with HygroMatik.

P2 Maintenance Interval

The Comfort / Comfort Plus Control records the quantity of steam actually produced. The total steam quantity maintenance interval is saved in Parameter P2 Steam Amount Service Interval. If the humidifier has produced this quantity of steam, the green LED on the operating unit blinks continuously (service message). The frequency of maintenance depends primarily on the water quality (conductivity, carbonate deposits) and on the interim steam amount produced. The maintenance interval can be adjusted to the water quality using Parameter P2.

P5 Address

As an option, the Comfort / Comfort Plus can be equipped with an RS485 computer interface. The required address for this can be set here.

P6 Operation Timer

With this parameter, the operating run time (= period during which the heating voltage is enabled) is given in format dddd:hh.

T0 Timer Mode (only available with Comfort Plus-DS Control)

If the Timer Mode T0 is programmed to a daily or weekly period of operation and the external safety chain is closed the steam generator is released during the programmed periods. In these periods the steam generator produces steam (if the steam bath temperature is below the set temperature).

Setting the system time and date:

For commissioning and after changing the battery the current system time and date has to be set.

By pressing  in the time clock menu the system time is displayed.

Pressing  again allows to change the system time with  or  .

Confirm entry with  .

Afterwards the current system date can be displayed by pressing  .

Changing the system date corresponds to the operating sequence for

the system time.

Setting the Timer Mode

There are three possible settings for the time clock:

- **off:** time clock is disabled
- **weekly:** every day the steam generator is released for the same period of time
- **daily:** for each weekday the steam generator is released for a special period of time

The setting:

Within the submenu „Time Clock“ press  until „Timer Mode“ appears. Select the „Timer Mode“ submenu by pressing  and choose between the three possible settings with  . By pressing  the choosen setting is stored. If a daily or weekly timer mode is choosen press  for putting in the respective switch-on and switch-off times [hh:mm] (T1 and T2 = weekly operating period; T3 and T16 daily operating period).

U5 Pumping without K1 (main contactor deactivated during blow-down)

With this parameter, one can specify the switching status of the “On” / “Off” contactor during blow-down. At the “on” setting, the control will switch off the contactor during the blow-down procedure. This setting could be useful if the power supply line is routed through a sensitive residual-current-operated circuit breaker (rccb).

U6 Operating Mode

With parameter U6, one can set the humidifier control type.

6.2.3.1 Values and Operational Conditions

If the operating mode is set to “with status” using Parameter D0 (see page 38), the operational conditions below are displayed in the 1st line of the display and a readout value is displayed in both the 2nd and 3rd lines.

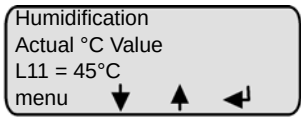
Readout Values

Using ↑ or ↓, you can toggle between the readout values (L x) below:

Readout	
L13	Working hour [dddd:hh]
L12	Output signal [%]
L11	Actual °C Value [°C]
L10	Set Value °C [°C]
L5	Output limitation [%max.output]
L2	Actual current [A]
L1	Steam output [kg/h]
L0	Steam amount[10^3 kg]

Note: Normally the display shows the operational conditions of the humidifier and a readout value. The readout value is selected as in the example below:

Example: The standard display should show the “actual value relative humidity” (L7):



» Select the Actual °C Value (L11) with ↑ or ↓

» Confirm selection with ↵

Operational Conditions (dependent on unit type)

The display shows the following operational conditions:

Unit Type	
HyLine, CompactLine, MiniSteam	**HeaterLine**
- Humidification / Heating up	- Humidification / Heating up
- Stand-by	- Stand-by
- No demand	- No demand
- Filling	- Filling
- Partial blow-down	- Partial blow-down
- Stand-by blow-down	- Stand-by blow-down
- Dilution	- Max.-level
- Full blow-down	- Full blow-down
- Blow-down overcurrent	
- Safety stop	- Safety stop

Humidifying / Heating Up The steam humidifier produces steam if a demand from the hygrostat or controller is present (safety interlock must be closed).

After a humidifier cold start-up, or after a full blow-down, **Heating up** displays for a short time. The display reads **Humidifying** only after the first refill.

Stand-By

The safety interlock is open. The unit is producing no steam.

No Demand

The demand value from the controller is less than the activation point of the steam humidifier. The unit produces no steam.

Filling

The control activates the inlet solenoid valve. The cylinder is supplied with water.

Stand-by Blow-Down

If the controller or hygrostat demands no humidity from the humidifier for a long period of time, a full-blown is automatically performed after a specified period. This prevents standing water in the cylinder. The display shows Blow-Down. Set the time period using Parameter Stand-By Draining (A4).

Partial Blow-Down

In order to dilute the concentration of the cylinder water, the control regularly performs a partial blow-down.

Full Blow-Down

Depending on water quality, a complete blow-down is done every 3-8 days.

Blow-Down overcurrent

At cold start-up, the nominal current increases to a maximum of 128% in order to achieve a rapid start-up. When this current value is reached, a **power surge blow-down** is triggered and performs partial drainage of the cylinder.

Dilution

The **Dilution** message is displayed if an additional partial blow-down is required. This occurs for example at high conductivity levels, with a significantly fluctuating control signal, or when drainage is blocked.

Sicherheitsstop

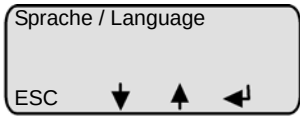
Safety stop With this parameter you determine if and when the steam generator should stop operation after the safety interlock has been closed. If the steam generator stops the message „Safety stop” is displayed. By opening and closing the safety interlock the steam generator restarts operation for the programmed hours.

With parameter D5 you determine if and when the steam generator should stop operation after the safety interlock has been closed. If the steam generator stops the message „Safety stop” is displayed. By opening and closing the safety interlock the steam generator restarts operation for the programmed hours.

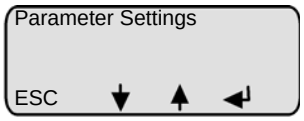
Example: Changing the steam bath mode from “without status” to “with status.”

To do this, proceed as follows:

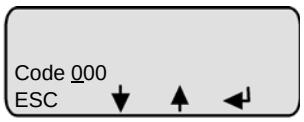
» press Menü in Opearing Mode



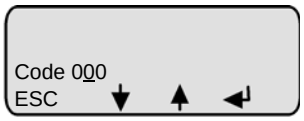
» press ↑ or ↓ until the “Parameter Settings” menu appears in the display



» enter the “Parameter Settings” menu with ↵

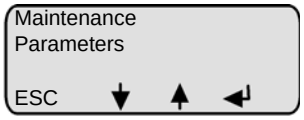


» the access code (P0=010) to the advanced customer level must be entered; press ↵

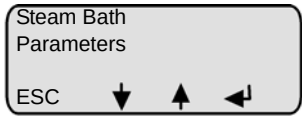


» press ↑

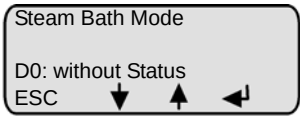
» press ↵



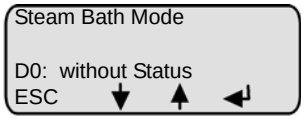
» select the “Steam Bath Parameters” submenu with ↑ or ↓



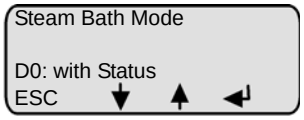
» enter the “Steam Bath Parameters” submenu with ↵



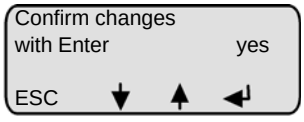
» select Parameter D0 by pressing ↵



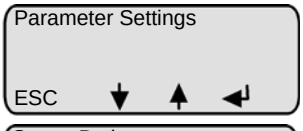
» press ↑ or ↓ to select “with status” and confirm with ↵



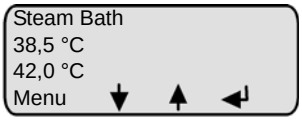
» press ESC twice to exit the submenu



» the modification must be confirmed to be permanently saved; to do this press ↵



» press ESC to exit the menu



7. Basic- DS

If the steam humidifier is equipped with a control type Basic-DS the Basic-DS-display unit does not include any LC-display or keypad.

Communication between user and steam bath control is thus not possible. Changing parameters is only possible when connecting an optional available display (Comfort-DS-display) instead of the Basic-DS-display.

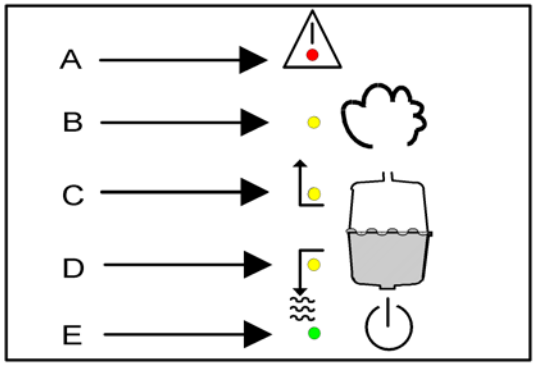
Note: Chapters „User Mode - Communication with the Control (Comfort-DS/ Comfort Plus-DS) and „Operating Mode - Advanced Communication wiht the Control (Comfort-DS/ Comfort Plus-DS)“ do not apply to Control type Basic-DS.

7.1 Basic Construction

The HygroMatik control Type Basic-DS consists of a main PCB and a display unit with icons to describe the LED.

7.1.1 Basic-DS Display Unit

Using 5 LED, the display unit of the Basic-DS Control provides the user with information about operational conditions and fault messages:



D: Blow-down (yellow LED)

E: Stand-by (green LED)

LED B, C, D and E represent the following operational conditions:

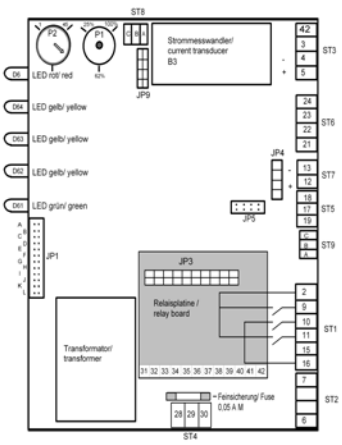
LED B: Steam production (main contactor is switched)

LED C: filling water

LED D: draining water

LED E: power supply for control is on

The red LED A blinks to indicate a humidifier malfunction. The humidifier shuts off automatically, see Section „Malfunctions and Messages / Conditions“.



7.2 Basic-DS Main PCB

Also see the detailed illustration of the main PCB in chapter: „Basic PCB Connections“

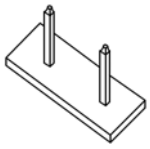
On the main PCB, jumper strip JP1 and two potentiometers are located; control function is determined by how these are set. Descriptions of this appear in the following sections:

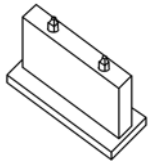
7.3 Parameter Setting with Jumpers

Normally, settings (parameters) for the Basic-DS Control can only be modified using jumpers.

Jumpers are small blocks with two pins over which a circuit plug can be placed, creating an electrical contact inside the plug.

Example: jumper open jumper jumpered

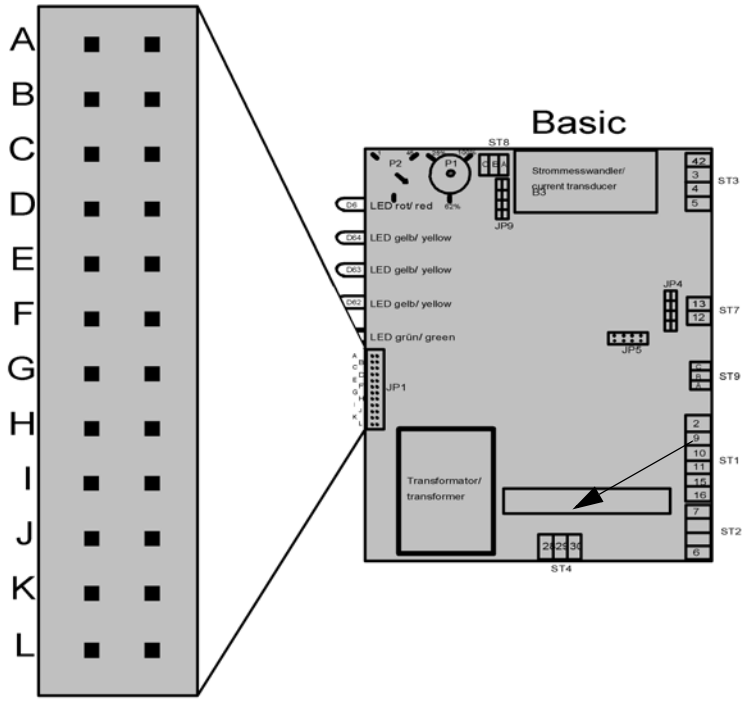




The jumper is referred to as “open” if there is no plug on either pin or if only one of the pins is covered.

Warning: Change jumper settings only when the system is turned off. Otherwise, the control could be damaged or unpredictable functioning could occur.

The jumper strip JP1 has 12 jumper positions, designated by the letters A to L.



7.3.1 Brief Description of Jumpers

Jumper	Jumper Function
A	jumper has to be open
B	jumper has to be open
C	jumper has to be open
D	Stand-by Draining Off
E	Main contactor switched off during blow-down
F	Less frequent partial blow-downs (-50%)
G	More frequent partial blow-downs (+100%)
H	Full blow-down switched off
F+G+H	Fully demineralized feed water
I	(no jumper placed in the factory)
J	(no jumper placed in the factory)
K	(no jumper placed in the factory)
L	(no jumper placed in the factory)

7.3.2 Explanation of Jumper Functions

Jumper A

The standard setting for this jumper is open.

Jumper B

The standard setting for this jumper is open.

Jumper C

The standard setting for this jumper is open.

Jumper D / Stand-By Blow-Down Off

If this jumper is not jumpered, the “stand-by blow-down” function is active.

If the remote switch/safety interlock is open for a long while, an automatic stand-by complete blow-down occurs after a set period (24 hours).

The standard setting for the “stand-by blow-down” function is active.

Jumper E / Main Contactor Switched Off at Blow-Down

(Function only valid for electrode steam humidifiers)

The state of the circuit for the main contactor is specified with Jumper E.

Main contactor on:	Jumper open (standard setting)
Main contactor off:	Jumper jumpered

The setting “main contactor off” specifies that the electrodes are disconnected from the power supply during blow-down. This setting may be advisable if the power line is run through a residual current circuit breaker (FI).

Jumper F / Less Frequent Partial Blow-Down (-50%)

If this jumper is jumpered, the “less frequent partial blow-down (-50%)” function is active.

The control periodically performs a partial draining of the cylinder (partial blow-down) in order to dilute the cylinder water; salt concentrates in it during routine operation because only pure water is evaporated.

If less conductive feed water is used (= lower salt content), it may be advisable to perform partial blow-downs less often to ensure that the humidifier always attains nominal steam output efficiently (only applies to electrode steam humidifiers).

Before modifying this parameter, please consult with HygroMatik.

Jumper G / More Frequent Partial Blow-Down (+100%)

If the jumper is jumpered, the “more frequent partial blow-down (+100%)” function is active.

The control periodically performs a partial draining of the cylinder (partial blow-down) in order to dilute the cylinder water; salt concentrates in it during routine operation because only pure water is evaporated.

If highly conductive feed water is used (= higher salt content), it may be advisable to perform partial blow-downs more often in order to minimize electrode corrosion or remove more calcium build-up.

Before modifying this parameter, please consult with HygroMatik.

Jumper H / Full Blow-Down Switched Off

If this jumper is jumpered, the “full blow-down switched off” function is active.

In addition to partial cylinder drainage (partial blow-down, see above), the control also performs a complete blow-down every 5-8 days of continuous operation.

If feed water with very low conductivity is used (= very low salt content), it may be advisable to deactivate the complete blow-down to ensure that the humidifier always attains nominal steam output efficiently (only applies to electrode steam humidifiers).

Before modifying this parameter, please consult with HygroMatik.

Jumper F+G+H / Fully Demineralized Feed Water

(this function is only valid for heater element humidifiers of Type HeaterLine)

If all three jumper are jumpered, the “fully demineralized feed water” function is active.

No partial and total cylinder blow-downs are necessary when using fully demineralized water. The “fully demineralized water” function prevents blow-downs.

Note: This function should not be activated when using electrode steam humidifiers of Type HyLine, CompactLine or MiniSteam.

Jumper I

The standard setting for this jumper is open.

Note: This jumper may not be jumpered or only jumpered after consultation with HygroMatik.

Jumper J

The standard setting for this jumper is open.

Note: This jumper may not be jumpered or only jumpered after consultation with HygroMatik.

Jumper K

The standard setting for this jumper is open.

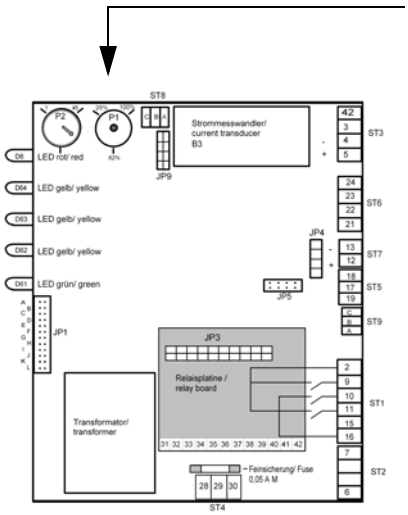
Note: This jumper may not be jumpered or only jumpered after consultation with HygroMatik.

Jumper L

The standard setting for this jumper is open.

Note: This jumper may not be jumpered or only jumpered after consultation with HygroMatik.

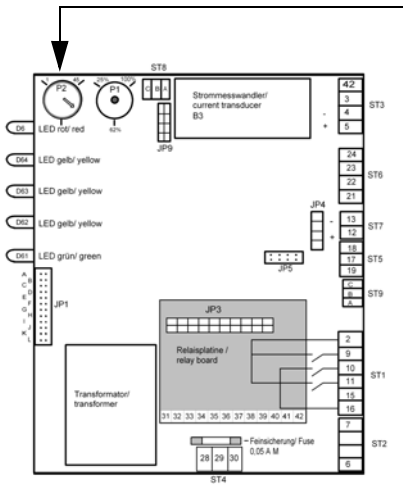
7.3.3 Description of Potentiometer



7.3.3.1 Potentiometer P1 / Steam Generation Output Limitation

The control includes a Potentiometer P1 for setting the steam generation output limitation. Using the steam generation output limitation, the steam output can be set to a value between 25% and 100% of nominal output.

Limitation of steam output may be required for better control.



7.3.3.2 Potentiometer P2 / Pump Run Time

The control includes an additional Potentiometer: Potentiometer P2. This is used to set the pump run time during partial blow-down. The Potentiometer is properly set to the delivered humidifier type.

Depending on water quality, resetting the pump run time may be advisable. The following may apply:

very high conductivity of feed water = longer pump run time

very low conductivity of feed water = shorter pump run time

Please get in contact with HygroMatik before modifying this parameter.

7.3.4 Potentialfree Outputs

The rated load of the relay contact is 250V/8A.

7.3.4.1 Collective Fault - Base Relay

The Basic-DS Control is normally supplied with a base relay programmed for a collective fault i.e. the base relay is triggered in case of a malfunction. The potentialfree contact is shipped as a two-way contact.

The connection terminal is located on the main PCB (normally closed contact: connection terminals 28 and 30; normally open contact: terminals 28 and 29).

The switching signal which switches over the base relay may be modified using Parameter E5 if an optional available LC-display is connected to the board instead of the normal Basic display.

For an overview of possible fault messages, see Section: “Summary Table of Parameters” on Page 52, description of Parameter E5.

The factory setting for the switching signal is “collective fault.”

7.3.4.2 Humidification:

The message “humidification” can be accessed directly on the main contactor as specified in the wiring diagram.

7.3.4.3 Signal Output

On the main PCB, a signal output is located at terminals 12 (+) and 13 (-).

The internal control signal of the humidifier is displayed as a proportional 0 - 10 V DC signal.This 0 -10 V DC signal can be used as „external control signal“ for further humidifiers.

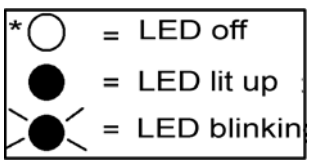
8. Fault Messages (Comfort- DS / Comfort Plus- DS und Basic- DS)

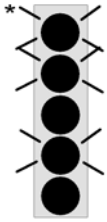
The control Comfort- DS / Comfort Plus- DS and also Basic-DS constantly monitor all important functions of the humidifier. In the case of a fault the humidifier switches off.

In case of a malfunction, the red LED blinks on the display and operating panel and one of the following messages is displayed (depending on unit type):

	Unit Type	
Term for Malfunction	**HyLine, CompactLine**	**HeaterLine**
Fault °C Sensor	x	x
Fault °C Max.	x	x
Fault Blow-down	x	x
Fault thermo sensor		x
Max. Level		x
Fault filling	x	x
Fault Sensor		x
Maintenance	x	
Fault steam down		x
Fault Main Contactor	x	
System Failure	x	x
Lost Ground Control	x	x

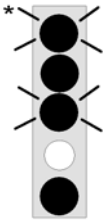
(also see chapter „Faults and Messages“)





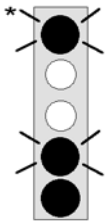
Fault °C sensor

If the recorded temperature remains outside the allowable temperature range of 0° to 130°C (50.4 to 0.42 kOhm) for longer than 5 minutes, the control displays **Fault °C sensor**.



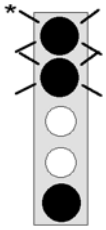
Fault °C Max

If the recorded temperature is higher than the maximum allowed cabin temperature for longer than 60 seconds, the control displays **Fault °C Max** and deactivates the steam generator.



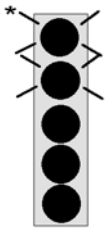
Blow-Down Fault

The control periodically activates the blow-down pump. If no water or insufficient water is flushed out during blow-down, the control displays **Blow-Down Fault**.



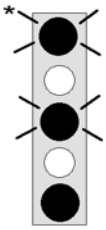
Fault **Thermo sensor**

If a thermo sensor has been tripped, the control registers this with the fault message “**Thermo sensor**.”



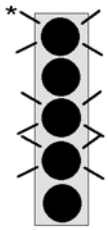
Fault **Max. Level**

If the water level in the cylinder reaches maximum five times within a five hour period, the control displays the fault **Max. Level**.



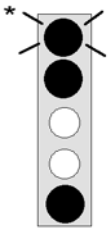
Fault Filling

The control activates the solenoid valve for a maximum of 30 minutes. The water in the cylinder should reach a specified level within this time period. If this is not the case, the control registers a **Fault Filling**.



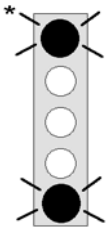
Fault sensor

Water level adjustment in HeaterLine type humidifiers is performed using two float switches amd three reed contacts. If the control registers that the reed contacts have switched on or off in the wrong sequence, the display shows **Fault sensor**.



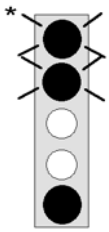
Fault steam-down

When steam is required, the electronics activates the solenoid valve in time intervals. If the electronics has not activated the solenoid valve over a period of many hours, the fault message “**Fault steam-down**” appears in the display.



Maintenance

After one hour of operation at maximum water level, the control switches off the steam generator. The display shows **Maintenance**. In most cases, maintenance on the cylinder is required. The fault message “**Maintenance**” appears on the display.



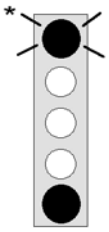
Fault Main Contactor

The control activates the main contactor if steam is required from the humidifier and the safety interlock is closed.

The control switches off the main contactor if the safety interlock is open or if steam is no longer required.

If the control detects current for a minimum of 15 seconds, even though the main contactor should have been deactivated, the control displays "**Fault Main Contactor**."

The maximum water level message is typically displayed only when the main contactor is activated, i.e. if steam is required and the safety interlock is closed. If the control registers maximum water level for longer than 15 seconds, even though the safety interlock is open or no steam is required, the control displays "**Fault Main Contactor**."



System failure

Mainboard is defective.

Lost Ground Control

Communication between main board and display is disturbed.

9. To the Installer

9.1 Temperature Sensor Installation

With steam baths, a temperature sensor must be installed in the cabin. The sensor measures the active temperature and sends the value to the control. The recorded temperature constitutes a control variable for controlling steam production.

Please note:

- Do not install the sensor close to the steam manifold.
- Mount the sensor on the wall and not in or under the wall panel-ing.

Note: The best installation location for the temperature sensor is 800 - 1000 mm above the bench surface (about the head height of the steam bather).

Warning: Do not manipulate steam production by tampering with the temperature sensor (e.g. do not douse with cold water or cover).

9.1.1 Temperature Sensor Connection

Connect the temperature sensor cable to the designated terminals 6 and 7 on the HygroMatik steam generator.

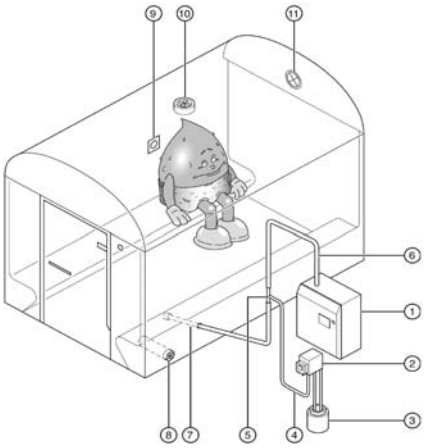
Test using the table below. While the sensor has been calibrated in the factory, subsequent adjustment within a range of -5K to +5K is possible using a 2nd temperature gauge.

Temperature Resistance Table	
Temperature in °C	Resistance in kOhm
10	30,4
20	18,8
30	12,0
40	7,8
50	5,2
60	3,6
70	2,5
80	1,8
90	1,3
100	1,0

9.2 Installation of Essence Injector with Peristaltic Pump (Optional)

Note: The DS-Control only controls the essence injector if the Parameter Essence Injector (D2) is set to On (factory setting=On“).

The HygroMatik Essence Injector with peristaltic pump supplies the steam bath with essence. Its most important parts are the essence reservoir (3) and the peristaltic pump (2). The frequency and pulse duration of essence delivery can be set at the control unit. Essence delivery only occurs during steam production. The essence is injected into the main steam line through an essence feed. HygroMatik supplies the necessary T-piece for this connection.



If the hose is cracked or leaking, liquid is fed back into the steam reservoir via an essence return line.

Please note:

- Place essence feed (5) as close as possible to the steam bath.
- Position the essence feed so that no essence can flow into the HygroMatik steam generator (1).
- Position peristaltic pump (2) above the essence reservoir (3), but no higher than 1.7m.
- The essence feed (5) may be located no higher than 4m above the essence pump.

Installation:

- Install essence reservoir (3) in the proper position.
- Install the peristaltic pump (2) above the essence reservoir (but no higher than 1.7m).
- Install suction pipe between peristaltic pump (2) and essence reservoir (3).
- Install essence return line between peristaltic pump (2) and essence reservoir (3).
- Install line (4) between peristaltic pump (2) and essence feed (5).

9.2.1 Connection for Essence Injector with 24V Peristaltic Pump (Optional)

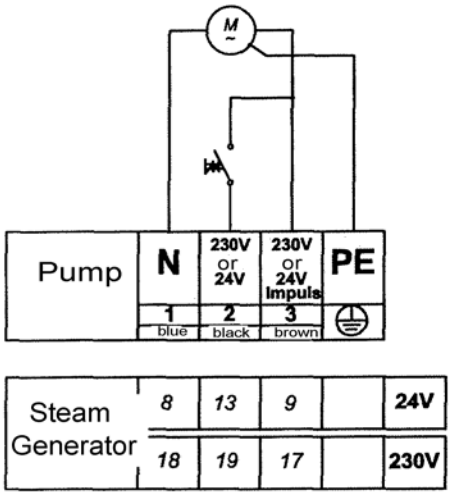
Note: The DS-Control only controls the essence injector when Parameter D2 = On has been selected (=factory setting).

Lay the connection cable from the peristaltic pump to the steam generator at terminals 8, 9 and 13 (with a 24 V peristaltic pump, see connection schematic below). The peristaltic pump is protected by a 3.15 A micro fuse. The maximum contact load is 75 W.

Connection for Essence Injector with 230V Peristaltic Pump (Optional)

Note: The DS-Control only controls the essence injector if Parameter D2 = On has been selected.

Lay the connection cable from the peristaltic pump to the steam generator at terminals 17, 18 and 19 (with a 230 V peristaltic pump, see connection schematic below). The peristaltic pump is protected by a 1.6 A main fuse. The maximum contact load is 75 W.



Connection Schematic for HygroMatik Peristaltic Pump

9.3 Fan Installation (Optional)

In any steam bath, an exhaust fan (10) should be installed. The fan removes warm air from the steam bath in order to ensure continuous steam supply and stable temperature control.

Depending on the configuration of the steam bath, an air supply fan (8) can also be operated.

In the steam bath, the exhaust fan should be installed:

- high up and
- across from the air supply vent.

In the steam bath, the supply fan should be installed:

- down low and across from the exhaust vent.
-

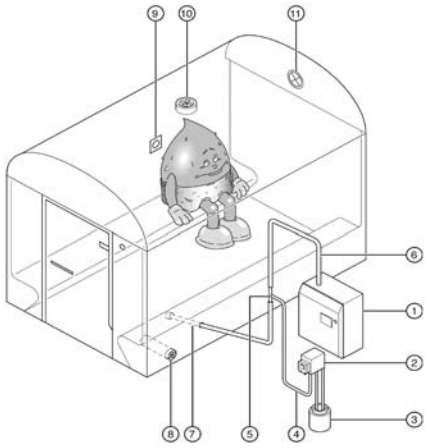
9.3.1 Connection for 24V Steam Bath Exhaust Fan (Optional)

Connect fan cables to the designated terminals 10 and 11 (24V) in the steam generator. The fan is protected by a 1.6 A micro fuse. The maximum contact load is 40 W.

Note: Using Parameter D1, the exhaust fan can be operated in automatic or continuous mode.

9.3.2 Connection for 24V Steam Bath Supply Fan (Optional)

Connect fan cables to the designated terminals 10 and 12 (24V) in the steam generator. The fan is protected by a 1.6 A micro fuse. The maximum contact load is 40 W.



9.3.3 Connection for 230V Steam Bath Fans (Optional)

Warning: Use safe low voltage (24V) for the fans and light in the steam cabin.

When employing 230V fans, ensure sufficient distance between the fans and the steam cabin.

In the steam generator, connect exhaust fan cable to the designated terminals 20 and 21 (230V) and connect supply fan cable to terminals 20 and 22 (230V). The fan is protected by a 1.6 A micro fuse. The maximum contact load per fan is 40 W.

9.4 Cabin Light Installation (Optional)

Cabin lighting may also be connected to the steam generator.

9.4.1 Cabin Light Connection (Optional)

Connect cabin light cable to the designated terminals 13 and 14 (24 V supply voltage) in the steam generator.

The cabin lighting is protected by a 1.6 A micro fuse. The maximum contact load is 40 W. Switch lighting on and off using the software key **L** on the operating panel.

9.5 Remote Switch / Safety Interlock

The steam generator is only allowed to start operation if the contact between terminal 1 and 2 is closed. If neither a Remote Switch nor any safety devices are wired to terminal 1 and 2 an electrical bridge has to be set.

Note: Factory setting is that terminal 1 and 2 are not bridged.

Remote Switch

Terminals 1 and 2 are available if an external on/off switch for the steam generator is desired. If terminals 1 and 2 are bridged, the steam generator can begin operation. If the contact between terminals 1 and 2 is open, the steam generator is idle.

Safety Interlock

Parallel with the function indicated above, the wire between terminals 1 and 2 is used as a safety interlock. Circuit protection devices, for example an emergency shut-off switch or max.-thermostat, can be wired in here.

Warning: Installation of a max.-thermostat in the safety interlock is advised to protect against temperature sensor failure or overheating.

Circuit Protection Device

Humidifier Terminals

Safety Interlock and Remote Switch

If a circuit protection device and a remote switch are employed simultaneously, they are connected in series.

Remote Switch

Circuit Protection Device

Humidifier Terminals

Warning: Contacts connected to terminals 1 and 2 must be potential-free and rated for 230V switching.

Only safe low voltage (24V) may be used in the steam cabin.

10. Potential Free Signal Output

10.1 Base Relay and Signal Relay PCB

The contact load is 250V/5A.

10.1.1 Base Relay and Collective Fault

The base relay (on the PCB) delivers a potentialfree two-way contact (load: 250V/8A) to terminals 28, 29 and 30.

Signal Relay / Contact	Contacts	Parameter for Selecting Switching Signal	Setting	Factory Setting for Switching Signal
Base Relay Normally Closed Contact Normally Open Contact	28, 29, 30 28, 29 28, 30	E5	0	Collective Fault

It is triggered when a specified operational condition is present. The preset operational condition is “Collective Fault.”

It is possible, but not advisable, to assign another operational condition to the base relay / relay circuit (also see Summary Table of Parameters, Parameter E5).

Humidification:

The message **humidification** can be directly accessed from the main contactor as indicated in the wiring diagram.

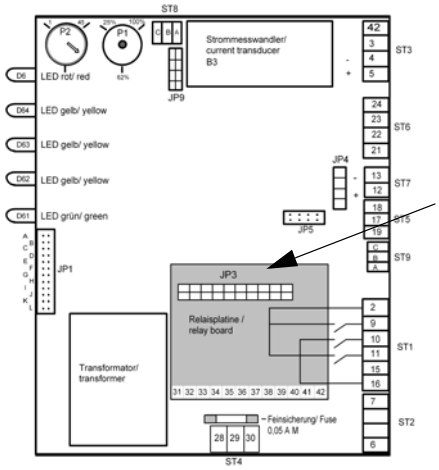
10.1.2 Signal Relay PCB and Steam Bath Operation

The signal relay PCB is optinal attached to the main PCB of the DS-Comfort / Plus Control or the Basic-DS. The signal relay PCB provides four additional signal relays. Each relay is designed to control a specified steam bath component. Below are the factory settings for the relay switching functions:

Signal Relay / Contact	Contacts	Parameter for Selecting Switching Signal	Setting	Factory Setting for Switching Signal
1. Signal Relay	31, 32, 33	E6	14	Essence Injector
Normally Closed Contact	32			
Normally Open Contact	33			
2. Signal Relay	34, 35, 36	E7	13	Steam Bath Exhaust Fan
Normally Closed Contact	35			
Normally Open Contact	36			
3. Signal Relay	37, 38, 39	E8	15	Steam Bath Supply Fan
Normally Closed Contact	38			
Normally Open Contact	39			
4. Signal Relay	40, 41, 42	E9	16	Light
Normally Closed Contact	41			
Normally Open Contact	42			

The switching functions of the relays can be modified using parameters. However, the functions are not intended for modification as the wiring of the humidifier is configured for the factory settings.

Note: Do not modify Parameters E6 and E9 except in consultation with HygroMatik, since this could lead to malfunctions.



Retrofitting a Signal Relay PCB:

Plug the socket connector JP1 of the relay signal PCB into the socket base JP3 on the main PCB, so that the two holes on the signal relay PCB line up with the internal thread bolts (main PCB side).

Secure the signal relay PCB with the two screws provided.

11. Initial Operation

Warning: The unit may only be started up by qualified personnel.

Switch off steam generator:Warning: Before startung up the unit for the first time, you must know how to switch it off.

» Switch off the unit by means of the control switch.

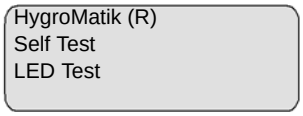
» Close the water supply shut-off valve.

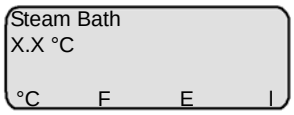
Switch on steam generator:

» Open fresh water shut-off cock.

» Switch on unit by means of the control switch.

The following functions are executed during the start-up routine:





- The unit performs self-tests.
- The LEDs on the control panel light up briefly in succession.
- Subsequently, the blow-down pump is activated for a few seconds. This step checks pump operation and partial water exchange during restart (applies only to electrode steam humidifiers).
- After self-tests are completed, the display reads:

If the cabin temperature is a) below setpoint of **temperature** and b) if the **safety interlock** is closed (please see also chapter „Remote Switch / Safety Interlock)

the humidifier starts to produce steam.

Additional Checks:

☑ All electrically-driven operations must be allowed to run to completion.

As soon as the solenoid valve periodically feeds water, operation with nominal output has been achieved and the cold start-up procedure is completed.

» Monitor the unit and allow to run for 15-30 minutes. If leakage occurs, switch off the unit.

» Repair leaks.

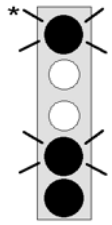
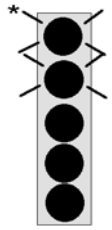
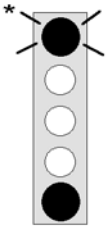
Danger, Hazardous Voltage: Follow safety instructions for work on live components.

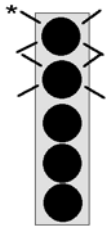
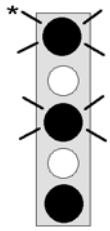
Danger, Hazardous Voltage: The humidifier cover must be closed and secured.

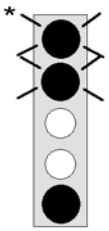
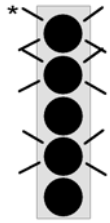
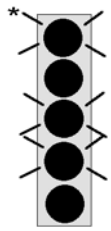
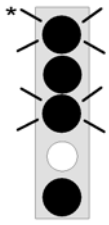
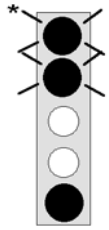
12. Faults and Messages / Conditions

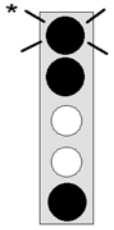
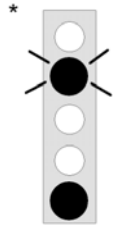
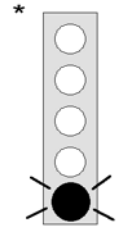
Switch off the steam humidifier immediately if a fault occurs. Faults are only to be remedied by qualified personnel following the proper safety instructions.

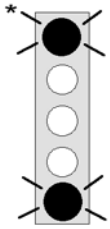
Note: The Section Fault Messages details which fault messages are possible for which humidifiers.

LED Display	HL ***	Hy,C***	Message / Malfunction Displayed*	Probable Cause	Resolution
	X	X	**Fault Blow-Down** Unit shuts off automatically	• Blow-down pump has not been electrically activated - Cable connections are faulty	• Check or replace cable connections
				- The relay on the main PCB is not operating	• Measure voltage at the PCB terminals against N or replace PCB
				• Defective blow-down pump	• Replace blow-down pump.
				• Solenoid valve does not close properly. Water level in the cylinder sinks very slowly even though blow-down pump flushes out water.	• Check solenoid valve.
				• Blow-down pump operates, but no water is pumped out, i.e. the cylinder drain is blocked.	• Thouroughly clean steam cylinder and base to prevent short-term blockage from reoccurring
				• Blow-down pump is blocked up with mineral deposits.	• Check blow-down pump, drain assembly and cylinder for mineral deposits and clean.
	X		Fault **Max.-Level** Unit shuts off automatically.	• If the water level “max. level” is reached, the pump switches on and drains the cylinder until the water level lowers to “operation.” If the “max.-level” is reached five times, “max.-level” is displayed.	
				• Air pressure in the duct is too high. Duct air pressure enters the cylinder via the steam hose. Water is forced into the drain.	• Reduce air pressure or detach vent pipes from the unit and place higher
			**System failure**	• Mainboard is defective	• Check mainboard. If neccessary - change mainboard

LED Display	HL ***	HyC***	Message / Malfunction Displayed*	Probable Cause	Resolution
	X		Fault **Max.-Level** Unit shuts off automatically.	• Solenoid valve does not close properly. Water level in the cylinder rises slowly even though the solenoid valve has not been activated.	• Check solenoid valve.
				• Water is supplied even thoough the steam humidifier is switched off. Solenoid valve remains open.	• Clean solenoid valve.
				• Inlet solenoid valve is receiving a constant electric signal. (If the unit is turned off, water feeding stops.)	• The relay on the main PCB has stuck. Measure voltage at PBC-terminal 10 against N.
				• Large amounts of deposits are interfering with and disrupting the blow-down cycle. Due to extra water entering the flushing mechanism, the max.-level is reached during the blow-down process.	• Clean humidifier, drain assembly and hose to the control cylinder.
	X	X	**Fault filling** Unit shuts off automatically.	• Solenoid valve or feed line is fouled or defective.	• Clean or replace solenoid valve or feed line.
				• Defective coil.	• Measure coil and replace.
				• Water supply is not open.	• Open water supply.
				• Solenoid valve has not been electrically activated. - The cable connections are faulty.	• Check or replace cable connections.
				- The relay on the main PCB is not operating.	• Measure voltage atPCB terminal 11 against N ggf. Platine erneuern.or replace PCB
				• The steam hose has not been laid at enough of an incline, causing a water pocket to form. The steam flow is obstructed.	• Check placement of steam hose. Remove water pocket.
				For Electrode Steam Humidifiers: • Phase L3 is missing (external safety fuse is defective).	• Replace external safety fuse. Check for the reason that caused the fuse blow.
				• defective main contactor.	• replace main contactor.

LED Display	HL ***	Hy,C***	Message / Malfunction Displayed*	Probable Cause	Resolution
		X	**Fault Main Contactor** Unit shuts off automatically	• Main contactor does not drop out. • Relay on the PCB is stuck.	• Replace main contactor. • Replace PCB.
	X	X	**Fault °C sensor** Unit shuts off automatically.	• Temperature sensor or line defective. • Short circuit in sensor wire (no resistance).	• Check temperature sensor and sensor line, replace if needed. • Replace temperature sensor.
	X		**Fault sensor** Unit shuts off automatically.	• Cable connections for the float switch are faulty. • Plug for the float switch is not connected to he control	• Check cable connections, replace if needed. • Connect plug to the control.
	X	X	**Fault °C Max** Unit shuts off automatically.	• Heat buildup in the cabin. • Additional heat source in the steam cabin. • Excessive power retention	• Ensure continuous heat removal. • check Parameter G9
	X		Fault **thermo sensor** Unit shuts off automatically.	• Thermo sensor has been activated.	• Disconnect power supply. Press the blue release pin back down with bent needle-nose pliers a or a screwdriver.

LED Display	HL ***	HyC***	Message / Malfunction Displayed*	Probable Cause	Resolution
	X		**Fault steam-down** Unit shuts off automatically.	• Heater element is defective.	• Measure resistance of the heater element, replace heater element if needed. Heater element resistance at 4.5 kW: ca. 36 Ohm and at 6.75 kW: 24 Ohm
				• Phase failure. (External breaker has been tripped or is defective.)	• Replace circuit breaker and identify cause.
			Fault steam-down Unit shuts off automatically.	• Heater element is not being supplied with current.	• Check cable connections. Measure voltage.
				• Main contactor is not switching correctly.	• Check main contactor, replace if needed..
				• PCB does not activate main contactor.	• Measure voltage at PCB terminals 12, 13, 14 against N. Replace PCB if necessary.
		X	Message **Cylinder Full**	• Nominal current or nominal output not reached although cylinder filled up to maximum-limitations electrode. Water imput is interrupted. Possible causes: - Water conductivity too low. - Cold start - Re-start following full blow-down. - Changing water conductivity. - Electrodes worn out. Unit requires maintenance.	• Continous steam production and increasing water conductivity can cause the control lamp to switch off automatically after a period of operation time. nominal output is reached automatically. Check water values and/or contact HygroMatik. • Replace electrodes.
				• No electrode supply cable fed through current transducer ring.	• Feed a cable through current transducer ring.
	X	X	**Service** 	• The maintenance interval has expired. **Note:** The status of the four upper LED is depending on the momentary operation mode of the humidifier.	• Service or check steam humidifier. Reset the maintenance interval at Parameter P3 “Reset Maintenance Interval”. With Parameter P2, the maintenance interval can be adjusted to the feed water quality.

LED Display	HL ***	Hy.C***	Message / Malfunction Displayed*	Probable Cause	Resolution
			Lost Ground Control	• Communication between main board and display is disturbed	• Check cable between mainboard and display • Check RS485 interface modules
* 		X	**Maintenance** The system switches off after 60 min. in operation in cylinder full condition.	• Unit requires maintenance: - Cylinder full of scale deposits wich limit the electrodes immersion depth. - Electrodes worn out. • Phase defective (external fuse faulty). • With very low water conductivity continuous steam production is insufficient in order to concentrate and raise the water conductivity.	• Clean steam cylinder and electrodes or replace electrodes. • Replace electrodes. (If electrode wear is high, see note in section „Electrode Exchange“ in unit handbook) • Replace fuse. • Establish water values and/or contact HygroMatik about the problem.
			Safety stop	• Parameter D5 for limitation of operating time is activated. The steam generator stopped operation after the safety interlock has been closed for the time programmed under parameter D5.	• By opening and closing the safety interlock the steam generator restarts operation for the programmed hours (D5). Alternatively set parameter D5 to 0 and restart system. The function „limitation of operating time” is deactivated.

LED Display	HL ***	Hy.C***	Possible Conditions	Probable Cause	Resolution
	X	X	Water is collecting on the base plate	• Cylinder improperly assembled after maintenance: -O-Ring has been damaged, has not been replaced, or has not been inserted - Flange (slot / spring) is damaged - Flange has not been sealed properly - Mineral deposits in the flange. • The cylinder is incorrectly placed on the base. • The water cannot drain away during flushing.	• Clean cylinder and install properly. • Lay a moistened new o-ring in the base and then insert the cylinder. • Make sure drain is unobstructed.

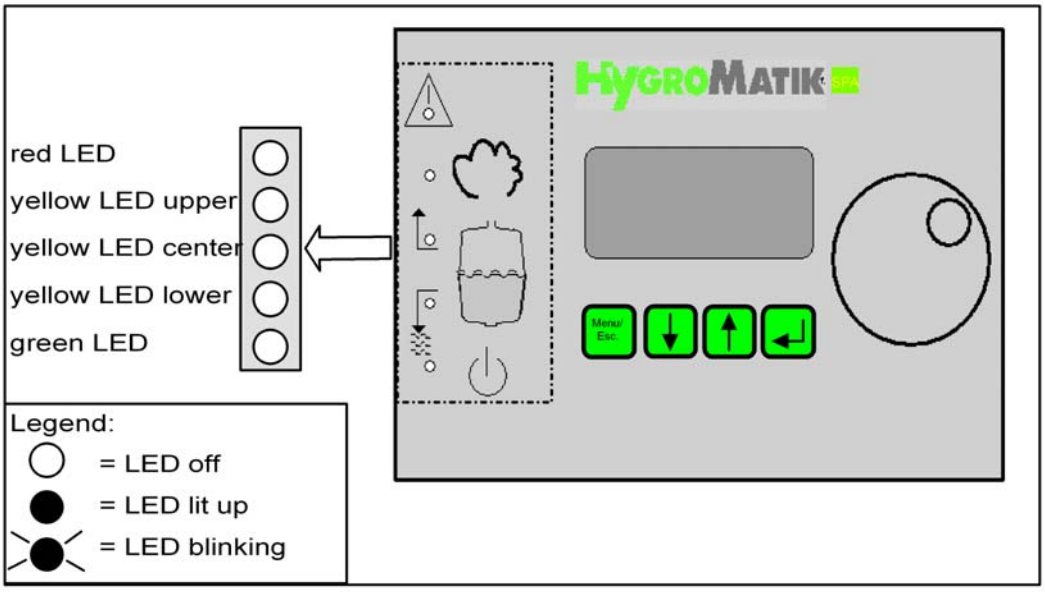
LED Display	HL ***	HyC***	Possible Conditions	Probable Cause	Resolution
	X	X	Water is leaking from upper part of steam cylinder.	• Hose clamps on the steam or condensate hose do not close tightly. • The heater element or thermo sensor has not been properly installed. • Steam hose adapter has not been correctly installed or o-ring has not been changed. • If condensate is not into the steam cylinder, the condensate connection must have a condensate plug.	• Tighten hose clamps. • Install heater element and thermo sensor as specified in the unit manual. • Replace o-ring and correctly install steam hose adapter. • Install condensate plug.
	X	X	**No steam production, even though the steam generator has been activated.** The display is active. **Note:** Performing a signal test and a steam requirement test may give additional information about the cause of the malfunction. See Section System Test.	• If the temperature exceeds the set desired value, no steam demand is present. • The unit has been switched off remotely. (Terminals 1 and 2 in the steam generator are not bridged.) • Poor air circulation, steam bath temperature has remained above the programmed set value for a long period of time.	• Check desired and actual temperature values. • Switch on the unit using the remote switch, or install a jumper between terminals 1 and 2. • Install a fan.
		X	No steam production. Current is supplied to the electrodes, but no water is being fed.	• Water supply is not open or solenoid valve has not been electrically triggered.	• Open water supply. • Also see **Fault Filling**.

LED Display	HL ***	HyC***	Possible Conditions	Probable Cause	Resolution
	X	X	The set temperature has not been reached.	• The unit's steam generation output limitation prevents full output. • The unit is being operated at "cylinder full" (only with electrode steam humidifiers). • Incorrect output estimate. • Phase failure. (external fuse)	• Check steam generation output limitation parameter "P1". • See message **Maintenance / Cylinder Full** • Check output data, steam bath insulation and dimensions. • Install fuse.
	X	X	No visible steam in the cabin.	• Steam bath is too well insulated. • Insufficient air circulation in the steam bath Excessive heat supply (i.e. from heated • benches)	• Provide for removal of heat. • Install exhaust fan or check exhaust fan performance. • Reduce ancillary heat supply
	X	X	Temperature is too high	• Temperature sensor has not been correctly calibrated.	• Check Parameter "Adjustment Actual Temperature Value" (G0)
	X	X	Essence delivery into the steam bath is absent or insufficient	• No essence in reservoir. • Essence injector has not been activated. • Essence delivery duration is too short. • Essence delivery interval is too long. • Fuse or relay in the control for essence delivery is faulty (when employing 24 V). • Tube in peristaltic pump is defective (essence flows back into the essence reservoir through the return line).	• Replenish essence. • Activate essence injector. (Check power supply to the essence solenoid valve and peristaltic pump.) • Increase essence delivery duration. • Shorten essence delivery interval. • Replace fuse. (Check power supply to the essence solenoid valve.) • Replace tube into peristaltic pump.
	X	X	Excessive essence delivery into the steam bath	• Essence delivery duration is too long • Essence delivery interval is too short.	• Reduce essence delivery duration. • Lengthen essence delivery interval.

LED Display	HL ***	HyC***	Possible Conditions	Probable Cause	Resolution
	X	X	No steam production even though the steam generator is on. The display is dark	• Defective fuse F1 1.6 A. • Phase failure L3. (External breaker has been tripped or is defective.)	• Check micro fuse and replace, also see Section „Wiring Diagram“. • Replace external breaker and investigate possible causes.
	X	X	Blow-down pump is working, but no water is being flushed	• Cylinder base or blow-down system is blocked.	• Clean cylinder base or blow-down system.
	X	X	Cylinder has completely drained after a blow-down, even though pump is switched off.	• Vent pipe is blocked.	• Clean or replace vent tube. Replace vent pipe adapter. Also see unit manual.
	X	X	No steam is exiting the steam manifold. Water leaks periodically from the drain hose while the pump is not running.	• false steam direction installation (waterbag) • Excess pressure in duct system (max. overpressure 1200 Pa)	• Lay steam hose as specified in Section “types of installation“ in the unit manual. • Lengthen drain hose, consult with HygroMatik if necessary.
		X	Uneven electrode wear	• Electrode(s) is/are not supplied with power. Breaker has been tripped. • Main contactor does not operate. • Uneven working load • Uneven immersion depth of electrodes. The unit has not been mounted plumb and level.	• Check breaker, replace if necessary • Check main contactor, replace if needed. • Check power supply (measure voltage differential.) • Install unit plumb and lev

LED Display	HL ***	Hy,C***	Possible Conditions	Probable Cause	Resolution
			Light / sparks in the cylinder	• The appearance of light or sparks suggests rapid loss of electrode material (brown-black deposits) and very high water conductivity. In these cases, consult HygroMatik.	• Deactivate the unit immediately to prevent it from being damaged. Perform maintenance: - Replace electrodes - Clean steam cylinder - Check water quality or conductivity, also see Section „Directions for Use“. Increase blow-down frequency and/or blow-down volume.
		X		Blow-down pump is not working properly or is defective. •	Check blow-down pump function and replace blow-down pump if • necessary. See message **Blow-Down Fault**

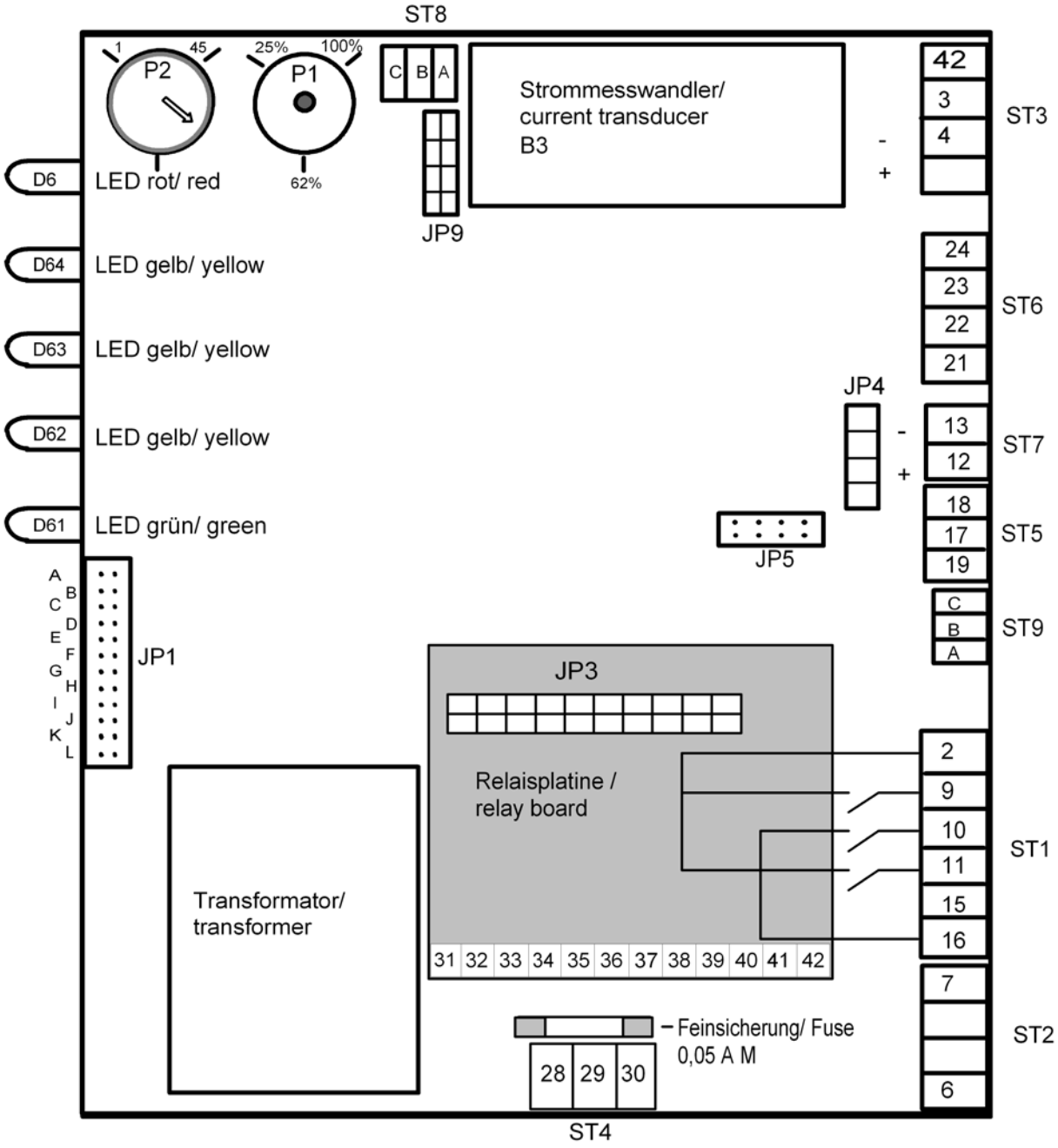
* :



** Only Comfort- DS / Comfort Plus- DS
*** Hy, C = Electrode Steam Generator, HL = Heater Element Steam Generator

13. Basic PCB Connections

	Main PCB
B3	transducer (only Humidifier type HyLine, CompactLine and MiniSteam)
D6	fault indicator lamp (red)
D64	humidify indicator lamp (yellow)
D 63	filling indicator lamp (yellow)
D62	blow-down indicator lamp (yellow)
D61	operating indicator lamp (green)
P1	potentiometer steam generation output limitation; 25 - 100% humidification output
P2	potentiometer pump run time 0 - 45 sec.
6 - 7	sensor electrode input (ST2)
9	main contactor output (ST1)
10	pump output (ST1)
11	solenoid valve output (ST1)
15 - 16	main PCB power supply (ST1)
16	blow-down pump power supply (ST1)
19,17,18	semiconductor relay (ST5) (only Humidifier type Heater-Line)
21 - 24	level switch (ST6) (only Humidifier type HeaterLine)
28 - 30	signal relay (collective fault) (ST4)
31 - 42	4 signal relay ouputs (installed on JP3)
JP1	(not used)
ST 8	COM-Port jack
ST 9	remote control jack
JP 9 / JP 4	jumper socket interface driver
JP 5	jumper socket display
JP 3	base socket signal relay PCB
4 - 42	temperature sensor (ST3)
3	24 V DC
2	Input remote switch / safety interlock


ST8
1
45
P2
25%
100%
P1
62%
C B A
Strommesswandler/
current transducer
B3
JP9
42
3
4
ST3
-
+
D6
LED rot/ red
D64
LED gelb/ yellow
D63
LED gelb/ yellow
D62
LED gelb/ yellow
D61
LED grün/ green
24
23
22
21
ST6
JP4
13
12
ST7
18
17
19
ST5
JP5
C
B
A
ST9
A
C
B
D
E
F
G
H
I
J
K
L
JP1
JP3
Relaisplatine /
relay board
2
9
10
11
15
16
ST1
Transformator/
transformer
31 32 33 34 35 36 37 38 39 40 41 42
7
ST2
6
Feinsicherung/ Fuse
0,05 A M
28 29 30
ST4

14. Terminal Assignments on the Unit Connector Strip and Wiring Diagram Legend

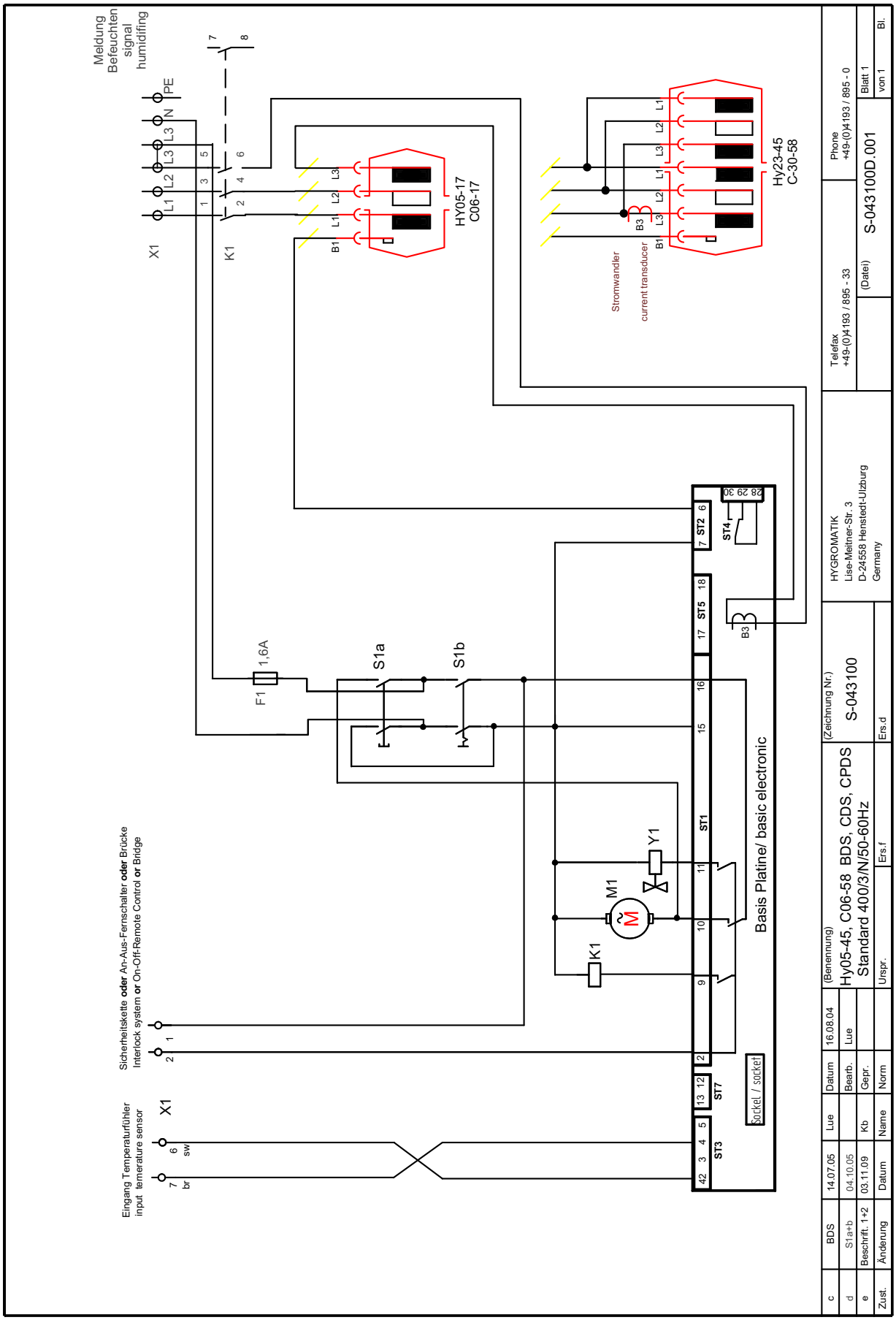
Unit Connector Strip:

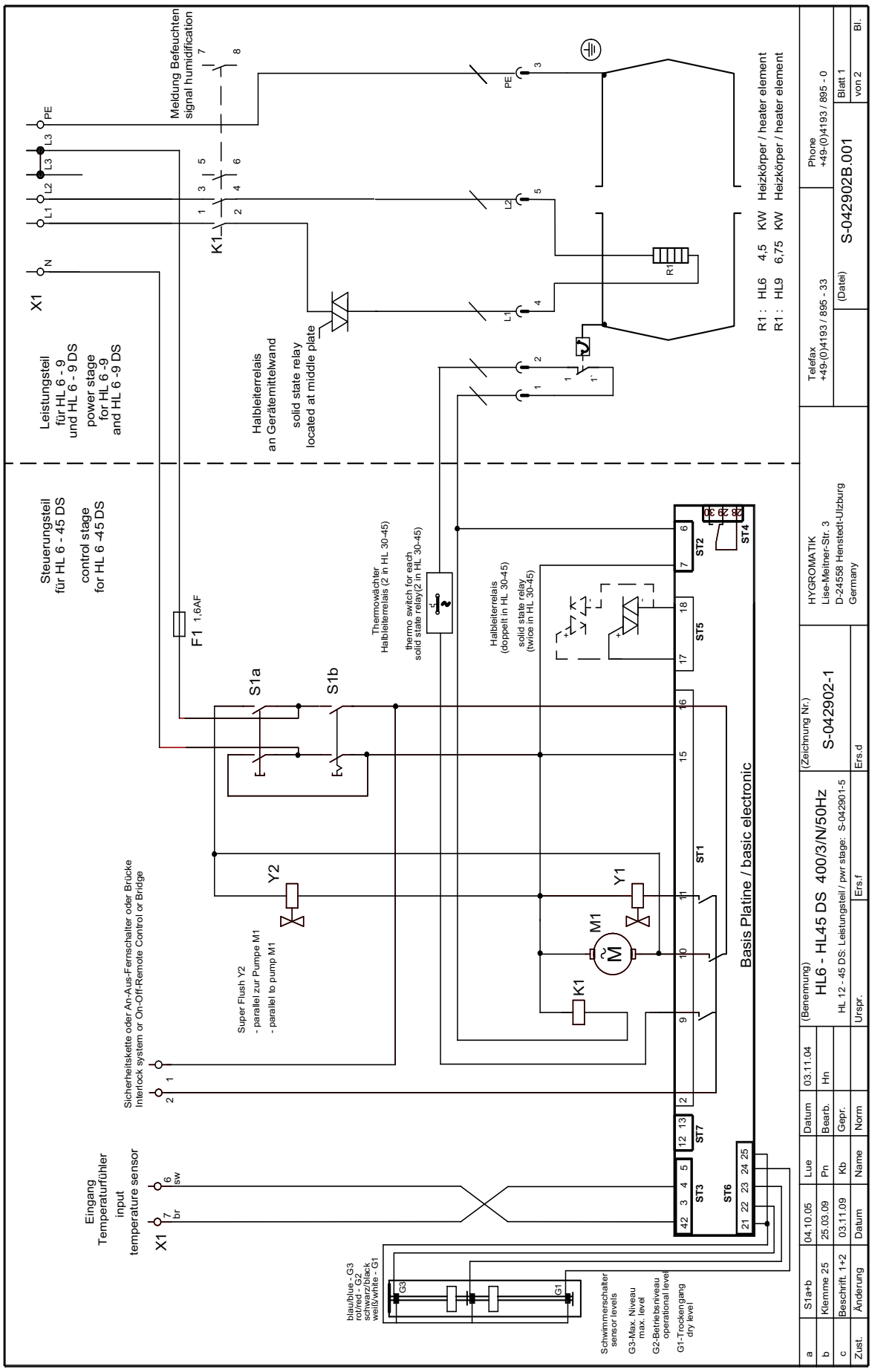
Terminals	Assignment
1 / 2	Remote Switch / Safety Interlock
6 / 7	Temperature Sensor
8 / 9 / 13	Essence Injector max. 70 W / 24 V / 3,15 A
10 / 11	Exhaust Fan max. 40 W / 24 V / 1,6 A
10 / 12	Supply Fan max. 40 W / 24 V / 1,6 A
14 / 15	Light max. 40 W / 24 V / 1,6 A
17 / 18 / 19	Essence Injector max. 70 W / 230 V / 300 mA
20 / 21	Exhaust Fan max. 40 W / 230 V / 175 mA
20 / 22	Supply Fan max. 40 W / 230 V / 175 mA
44 / 45	Light 40 W / 230 V / 175 mA

Wiring Diagram Legend:

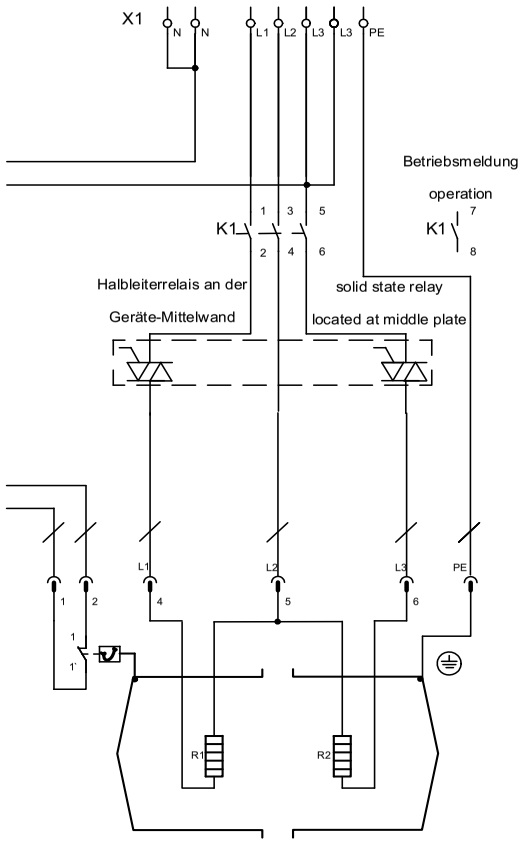
Designation	Specification
B1	Max.-Water Level Electrode
B3	Transducer
F1	Fuse Control 1,6 A
F2	Fuse Transformer 1,5 A
F3	Essence Injector Fuse 2,5 A
F4	Exhaust Fan Fuse 1,6 A
F5	Supply Fan Fuse 1,6 A
F6	Light Fuse 1,6 A
K1	Main Contactor
L1 - L3	Main Terminals
M1	Blow-Down Pump
N	Neutral
PE	Grounding Terminal
S1	Control Switch ON (I) / OFF (0), pumping (II)
X1	Connector Strip
Y1	Solenoid Valve
Y2	SUPER FLUSH (optional)

15. Wiring Diagram




Steuerungsteil
für HL 6 - 45 DS
control stage
for HL 6 -45 DS
Leistungsteil
für HL 6 - 9
und HL 6 - 9 DS
power stage
for HL 6 -9
and HL 6 -9 DS
Halbleiterrelais
an Geräteinnenwand
solid state relay
located at middle plate
Meldung Befeuchten
signal humidification
X1
N
L1
L2
L3
PE
K1
F1 1,6AF
S1a
S1b
Thermowächter
Halbleiterrelais (2 in HL 30-45)
thermo switch for each
solid state relay(2 in HL 30-45)
Halbleiterrelais
(doppelt in HL 30-45)
solid state relay
(twice in HL 30-45)
Sicherheitskette oder An-Aus-Fernschalter oder Brücke
Interlock system or On-Off-Remote Control or Bridge
Super Flush Y2
- parallel zur Pumpe M1
- parallel to pump M1
Y2
Y1
M1
K1
Basis Platine / basic electronic
ST1
ST2
ST3
ST4
ST5
ST6
ST7
Eingang
Temperaturfühler
input
temperature sensor
blau/blue - G3
rot/red - G2
schwarz/black
weiß/white - G1
G3
G2
G1
Schwimmerschalter
sensor levels
G3-Max. Niveau
max. level
G2-Betriebsniveau
operational level
G1-Trockengang
dry level
R1 : HL6 4,5 KW Heizkörper / heater element
R1 : HL9 6,75 KW Heizkörper / heater element
HYGROMATIK
Lise-Meitner-Str. 3
D-24558 Henstedt-Ulzburg
Germany
Telefax
+49-(0)4193 / 895 - 33
Phone
+49-(0)4193 / 895 - 0
(Datei) S-042902B.001
Blatt 1
von 2
(Benennung)
HL6 - HL45 DS 400/3/N/50Hz
HL 12 - 45 DS: Leistungsteil / pwr stage: S-042901-5
(Zeichnung Nr.)
S-042902-1
Urspr.
Ers.f
Ers.d
a S1a+b 04.10.05 Lue
b Klemme 25 25.03.09 Pn
c Beschrift. 1+2 03.11.09 Kb
Zust. Änderung Datum Name
Datum 03.11.04
Bearb. Hn
Gepr.
Norm

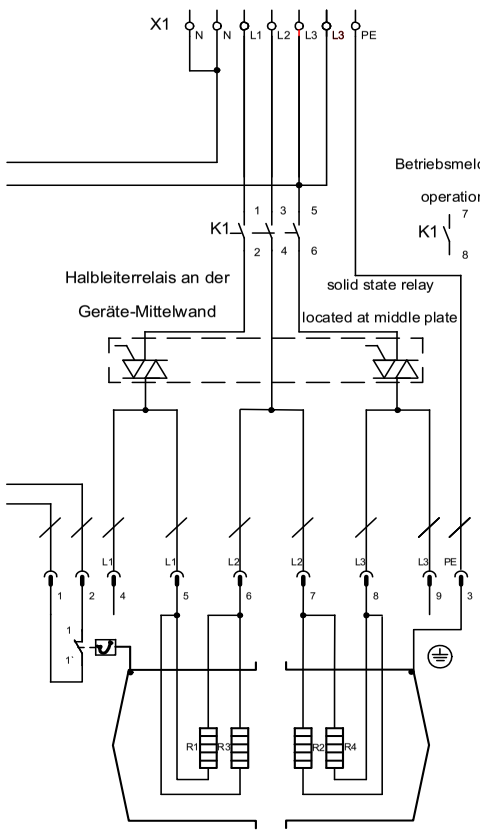
HL 12 / HL 18 (DS)



R1 - R2 in HL12 4,5 KW Heizkörper / heating element

R1 - R2 in HL18 6,75 KW Heizkörper / heating element

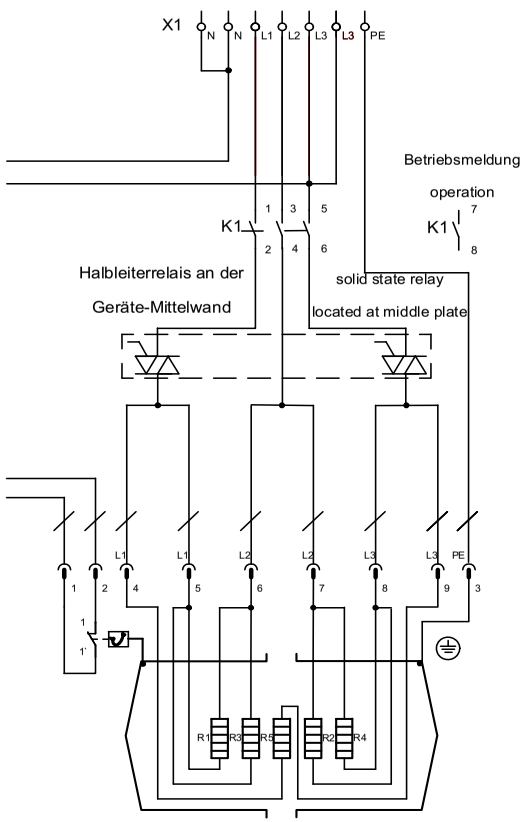
HL 24 / HL 36 (DS)



R1 - R4 in HL24 4,5 KW Heizkörper / heating element

R1 - R4 in HL36 6,75 KW Heizkörper / heating element

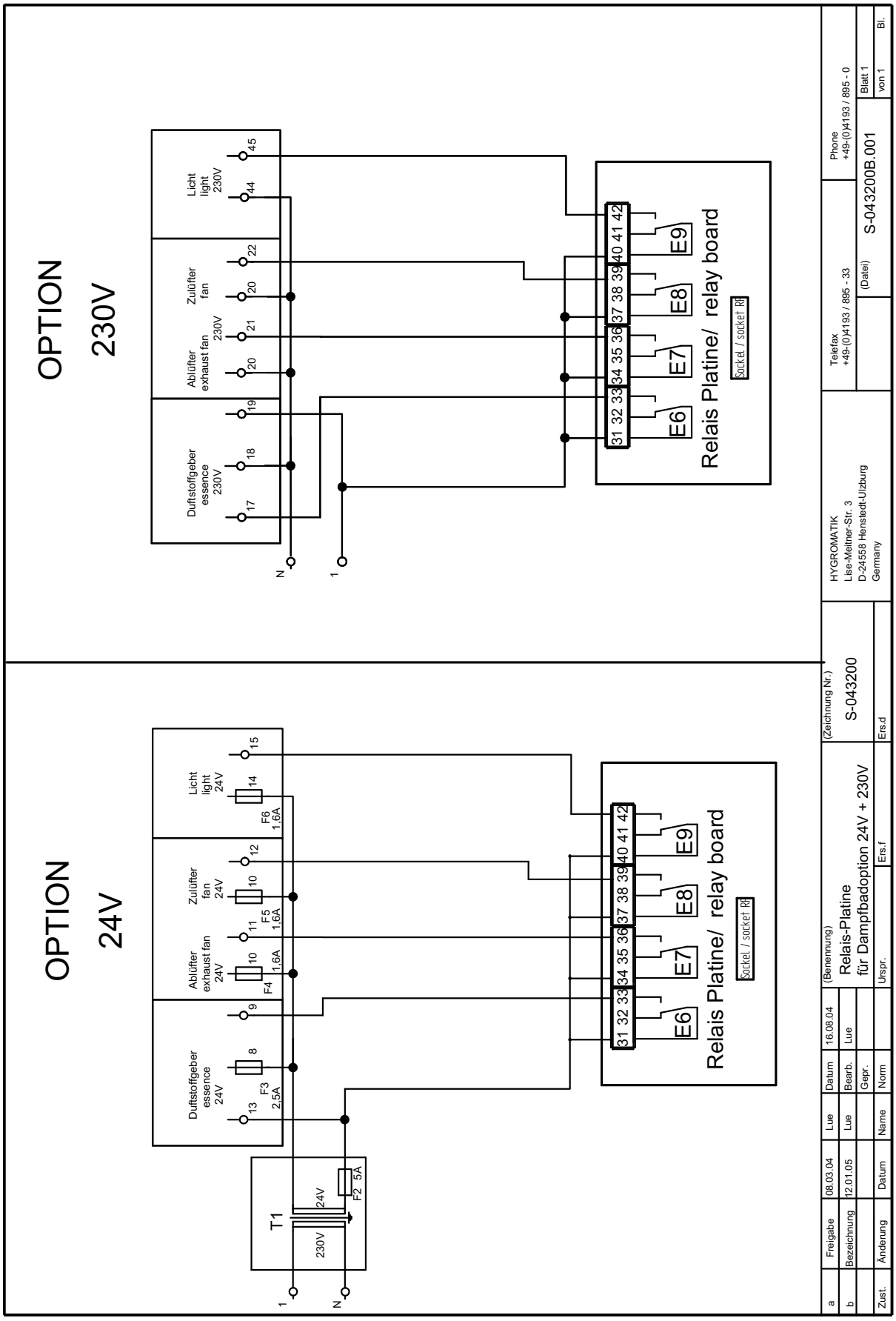
HL 30 / HL 45 (DS)

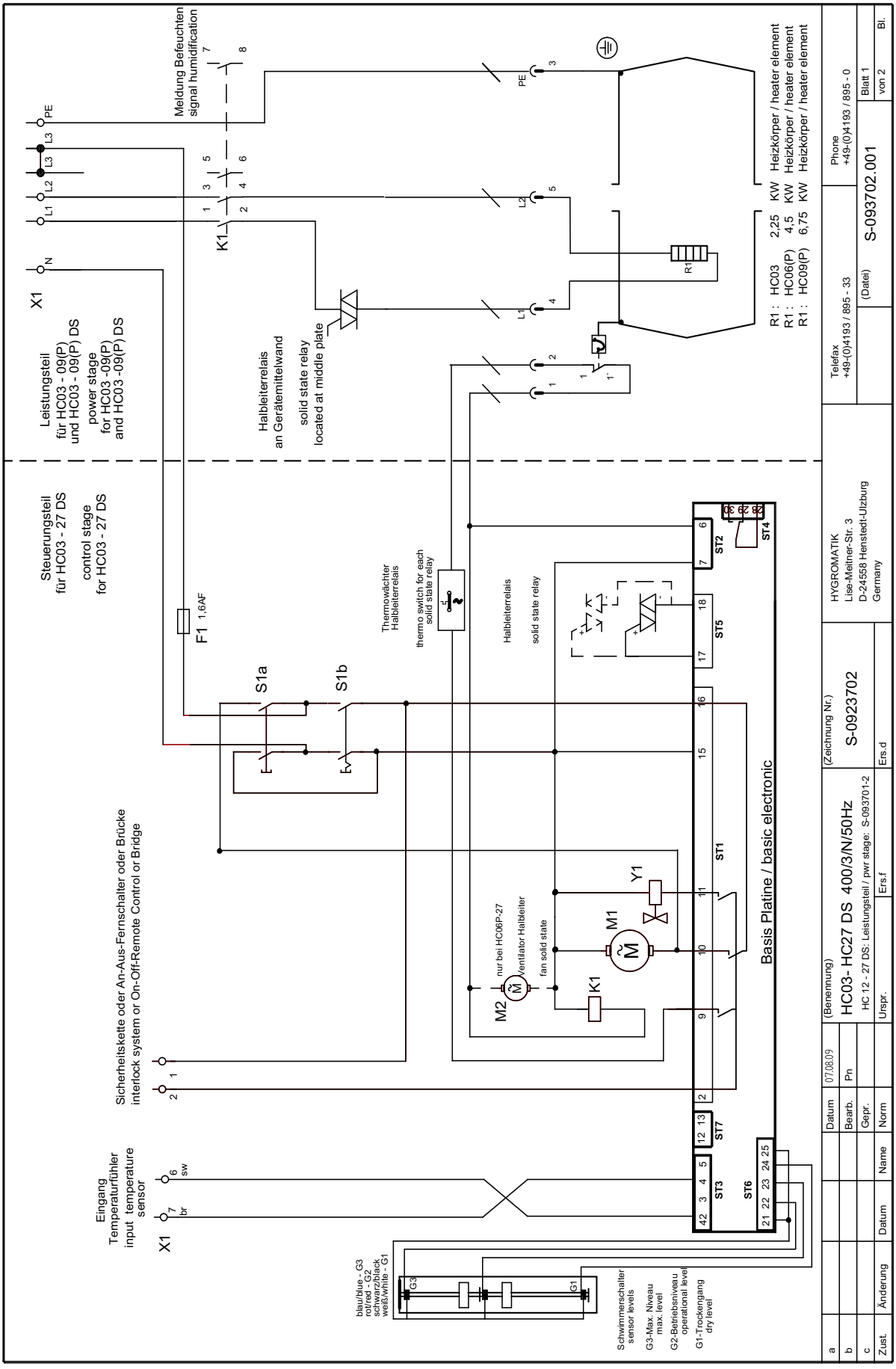


R1 - R5 in HL30 4,5 KW Heizkörper / heating element

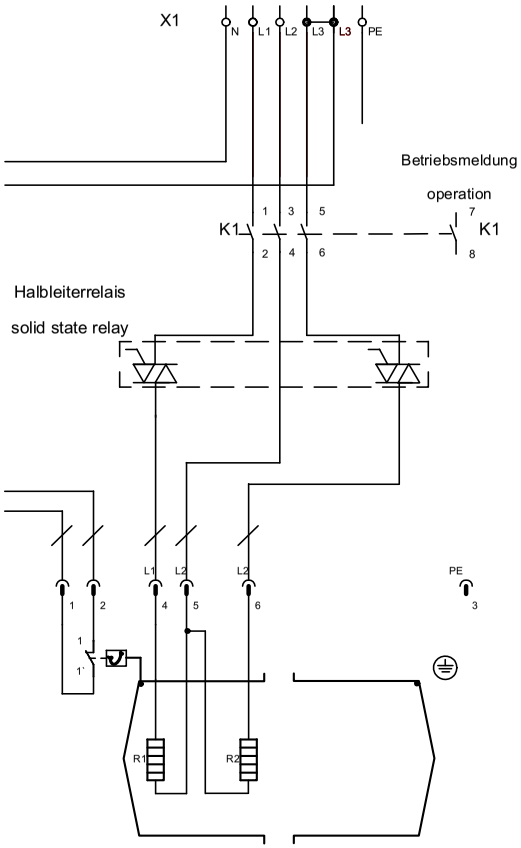
R1 - R5 in HL45 6,75 KW Heizkörper / heating element

a				Datum	03.11.04	(Benennung) Leistungsteil / pwr stage HL12-45 400V/3/N 50-60Hz	(Zeichnung Nr.) S-042901-5	HYGROMATIK Lise-Meitner-Str. 3 D-24558 Henstedt-Ulzburg Germany	Telefax +49-(0)4193 / 895 - 33 / Phone +49-(0)4193 / 895 - 0
b				Bearb.	Lue				
c				Gepr.					(Datei) S-042901.002 / Blatt 2
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers.f	Ers.d	von 2 Bl.


OPTION
230V
Duftstoffgeber essence 230V
Ablüfter exhaust fan 230V
Zuluftfer fan
Licht light 230V
Relais Platine/ relay board
Sockel / socket R4
E6
E7
E8
E9
OPTION
24V
Duftstoffgeber essence 24V
Ablüfter exhaust fan 24V
Zuluftfer fan 24V
Licht light 24V
F3 2,5A
F4 1,6A
F5 1,6A
F6 1,6A
T1
230V
24V
F2 5A
Relais Platine/ relay board
Sockel / socket R4
E6
E7
E8
E9
HYGROMATIK
Lise-Meitner-Str. 3
D-24558 Henstedt-Ulzburg
Germany
Telefax +49-(0)4193 / 895 - 33
Phone +49-(0)4193 / 895 - 0
(Datei) S-043200B.001
Blatt 1
von 1
Bl.
(Zeichnung Nr.) S-043200
(Benennung) Relais-Platine für Dampfbadoption 24V + 230V
Freigabe 08.03.04 Lue
Bezeichnung 12.01.05 Lue
Änderung Datum Name
Datum 16.08.04
Bearb. Lue
Gepr.
Norm
Urspr.
Ers.f
Ers.d


Leistungsteil
für HC03 - 09(P)
und HC03 - 09(P) DS
power stage
for HC03 -09(P)
and HC03 -09(P) DS
Steuerungsteil
für HC03 - 27 DS
control stage
for HC03 - 27 DS
Halbleiterrelais
an Gerätemittelwand
solid state relay
located at middle plate
Meldung Befeuchten
signal humidification
X1
N
L1
L2
L3
PE
K1
F1 1,6AF
S1a
S1b
Thermowächter
Halbleiterrelais
thermo switch for each
solid state relay
Halbleiterrelais
solid state relay
M1
M2
Y1
K1
nur bei HC06P-27
Ventilator Halbleiter
fan solid state
R1
R1 : HC03 2,25 KW Heizkörper / heater element
R1 : HC06(P) 4,5 KW Heizkörper / heater element
R1 : HC09(P) 6,75 KW Heizkörper / heater element
Sicherheitskette oder An-Aus-Fernschalter oder Brücke
interlock system or On-Off-Remote Control or Bridge
Eingang
Temperaturfühler
input temperature
sensor
Basis Platine / basic electronic
ST1
ST2
ST3
ST4
ST5
ST6
ST7
blau/blue - G3
rot/red - G2
schwarz/black
weiß/white - G1
Schwimmerschalter
sensor levels
G3-Max. Niveau
max. level
G2-Betriebsniveau
operational level
G1-Trockengang
dry level
HYGROMATIK
Lise-Meitner-Str. 3
D-24558 Henstedt-Ulzburg
Germany
Telefax
+49-(0)4193 / 895 - 33
Phone
+49-(0)4193 / 895 - 0
(Datei)
S-093702.001
Blatt 1
von 2
Bl.
(Benennung)
HC03- HC27 DS 400/3/N/50Hz
HC 12 - 27 DS: Leistungsteil / pwr stage: S-093701-2
(Zeichnung Nr.)
S-0923702
Ers.d
Ers.f
Ursprung
Datum
Name
Norm
Bearb.
Pn
Gepr.
07.08.09
Änderung
Zust.

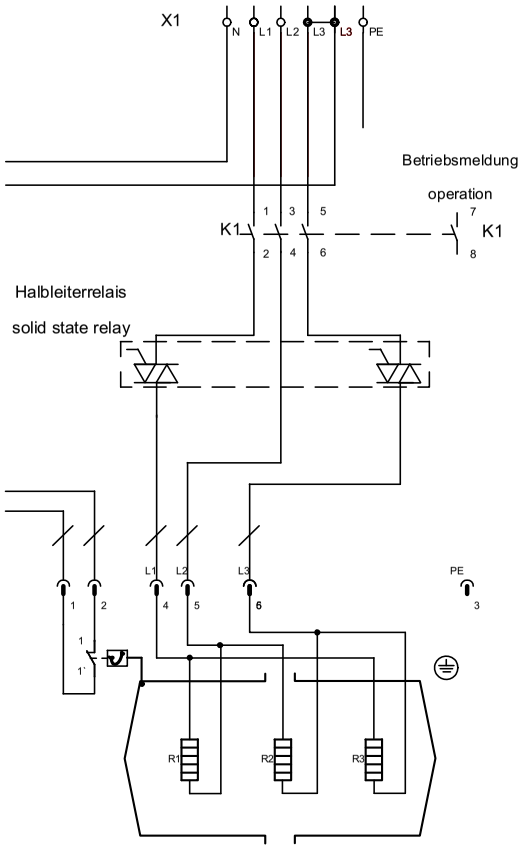
HC12 / HC18 (DS)



R1 - R2 in HC12 (DS) 4,5 KW Heizkörper / heating element

R1 - R2 in HC18 (DS) 6,75 KW Heizkörper / heating element

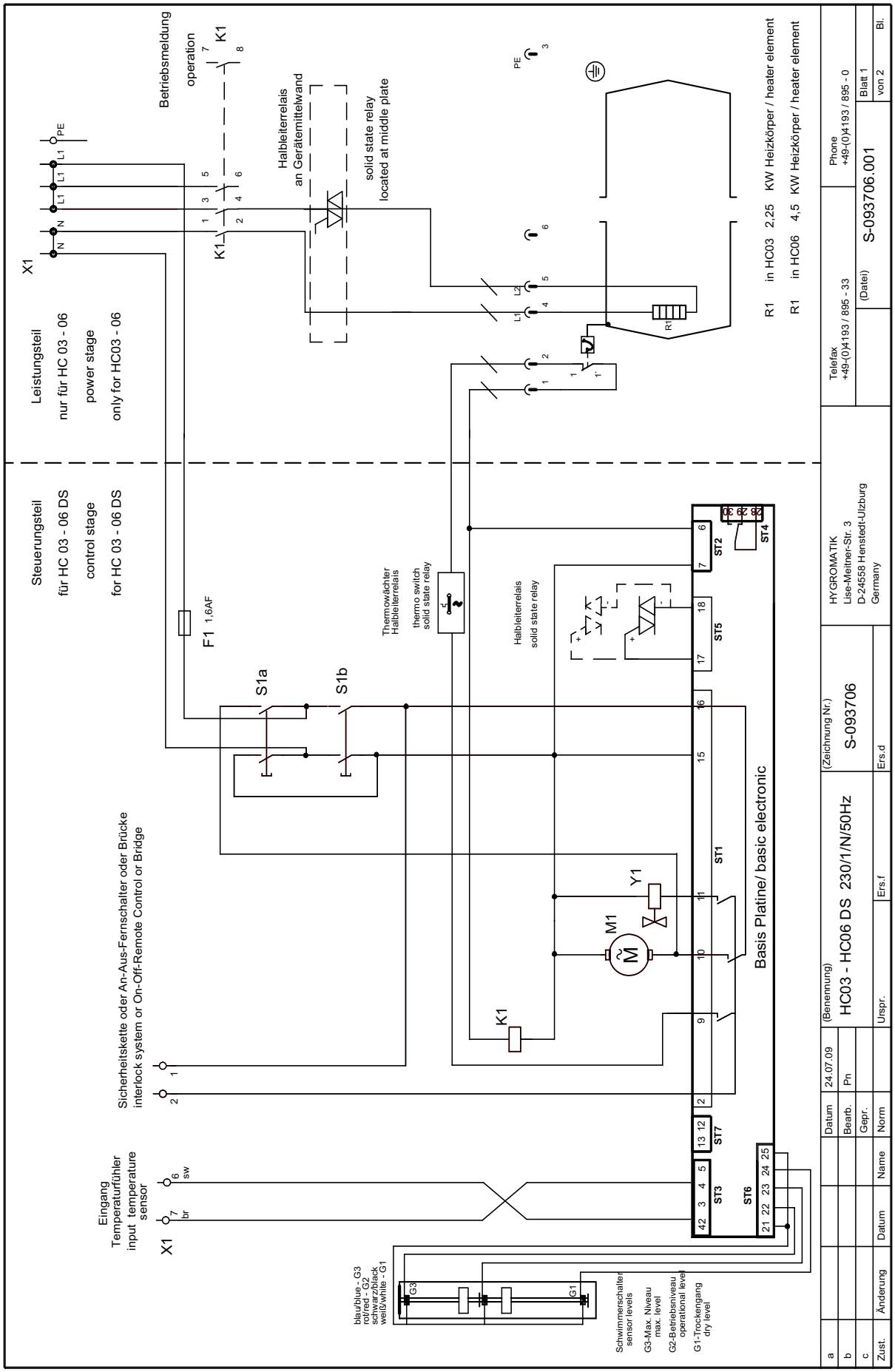
HC27 (DS)



R1 - R3 in HC27 (DS) 6,75 KW Heizkörper / heating element

a				Datum	24.07.09	(Benennung) Leistungsteil HC12-27 (DS) power stage HC12-27 (DS) 400V/3/N 50-60Hz		(Zeichnung Nr.) S-093701-2	HYGROMATIK Lise-Meitner-Str. 3 D-24558 Henstedt-Ulzburg Germany
b				Bearb.	Pn				
c				Gepr.					
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers.f	Ers.d	

Telefax +49-(0)4193 / 895 - 33		Phone +49-(0)4193 / 895 - 0	
	(Datei) S-093701.002	Blatt 2	
		von 2	Bl.


Leistungsteil
nur für HC 03 - 06
power stage
only for HC03 - 06
Steuerungsteil
für HC 03 - 06 DS
control stage
for HC 03 - 06 DS
Betriebsmeldung
operation
Halbleiterrelais
an Gerätemittelwand
solid state relay
located at middle plate
R1 in HC03 2,25 KW Heizkörper / heater element
R1 in HC06 4,5 KW Heizkörper / heater element
F1 1,6AF
S1a
S1b
Thermowächter
Halbleiterrelais
thermo switch
solid state relay
Halbleiterrelais
solid state relay
Sicherheitskette oder An-Aus-Fernschalter oder Brücke
interlock system or On-Off-Remote Control or Bridge
Eingang
Temperaturfühler
input temperature
sensor
Basis Platine/ basic electronic
HC03 - HC06 DS 230/1/N/50Hz
S-093706
S-093706.001
HYGROMATIK
Lise-Meitner-Str. 3
D-24558 Henstedt-Ulzburg
Germany
Phone
+49-(0)4193 / 895 - 0
Telefax
+49-(0)4193 / 895 - 33
Blatt 1
von 2

16. Ordering Information / Table of Options

Ordering is this simple:

Steam generator with exact designation (e.g. HyLine: HY17-CDS)

+ desired optional connection configurations (e.g. Option 24 V: B-0623091 for C06 - C10 or Hy 05 - Hy 08; B-0623093 for C17 - C 45 or Hy 13 -Hy 30)

+ steam bath accessories with article designation and article number (as needed)

Table of Options: Electrode Steam Generator

What connections* does your steam generator need ?							
Essence Pump	**24 Volt**	**x**	**x**	**x**	**x**		
Supply and Exhaust Fans		**x**	**x**	**x**	**x**		
Light		**x**	**x**	**x**	**x**		
Transformer (only needed at 24 V)		**x**	**x**	**x**	**x**		
Essence Pump	**230 Volt**					**x**	**x**
Supply and Exhaust Fans						**x**	**x**
Light						**x**	**x**
When ordering one of these options, your unit comes with the connections marked with the crosses.		Option 24V B-0623095 for C06-10 or HY 05-08 (Basic and Comfort)	Option 24V B-0623097 for C17-45 or HY 13-30 (Basic and Comfort)	Option 24V B-0623099 for C06-10 or HY 05-08 (Comfort-Plus)	Option 24V B-0623101 for C17-45 or HY 13-30 (Comfort-Plus)	Option 230V B-0623091 for C06-10 or HY 05-08	Option 230V B-0623093 for C17-45 or HY 13-30

* Optional connector terminals for the standard HyLine model and CompactLine with DS Control.

Table of Options: Heater Element Steam Generator

What connections* does your steam generator need ?				
Essence Pump	**24 Volt**	**x**	**x**	
Supply and Exhaust Fans		**x**	**x**	
Light		**x**	**x**	
Transformer (only needed at 24 V)		**x**	**x**	
Essence Pump	**230 Volt**			**x**
Supply and Exhaust Fans				**x**
Light				**x**
When ordering one of these options, your unit comes with the connections marked with the crosses.		Option 24 V B-0623105 for Steamgenerator (Basic und Comfort)	Option 24 V B-0623107 for HeaterLine Steamgenerator (Comfort-Plus)	Option 230 V B-0623103 for HeaterLine Steamgenerator

Steam Bath Accessories:

- Peristaltic Pump for Essence 24VB-2604083
- Peristaltic Pump for Essence 230VB-2604091
- Steam Bath Fans, 24V , ø 98mmE-0611205

- Steam Bath Fans, 230V, ø 98mmE-0611208
- T-piece 2 x DN25, 1 x DN6, VA
- for essence feed into the steam hoseB-2604067
- T-piece 2 x DN40, 1 x DN6, VA
- for essence feed into the steam hoseB-2604069
- Angle (elbow) DN25, 90°, VAE-2604030
- Angle (elbow) DN40, 90°, VAE-2604036
- Steam Hose DN25E-2604012
- Steam Hose DN40E-2604013
- Drain Hose DN25E-2420423
- Tube, Silicon, 6x1,5, E-2604070
  for Essence Delivery
- Hose Clamp for DN6E-8501055
- Hose Clamp für DN25E-2404004
- Hose Clamp für DN40E-2604016

Spare Part (should be available as replacement part)

- Pump Tube, Peristaltic Pump, SiliconE-2604074

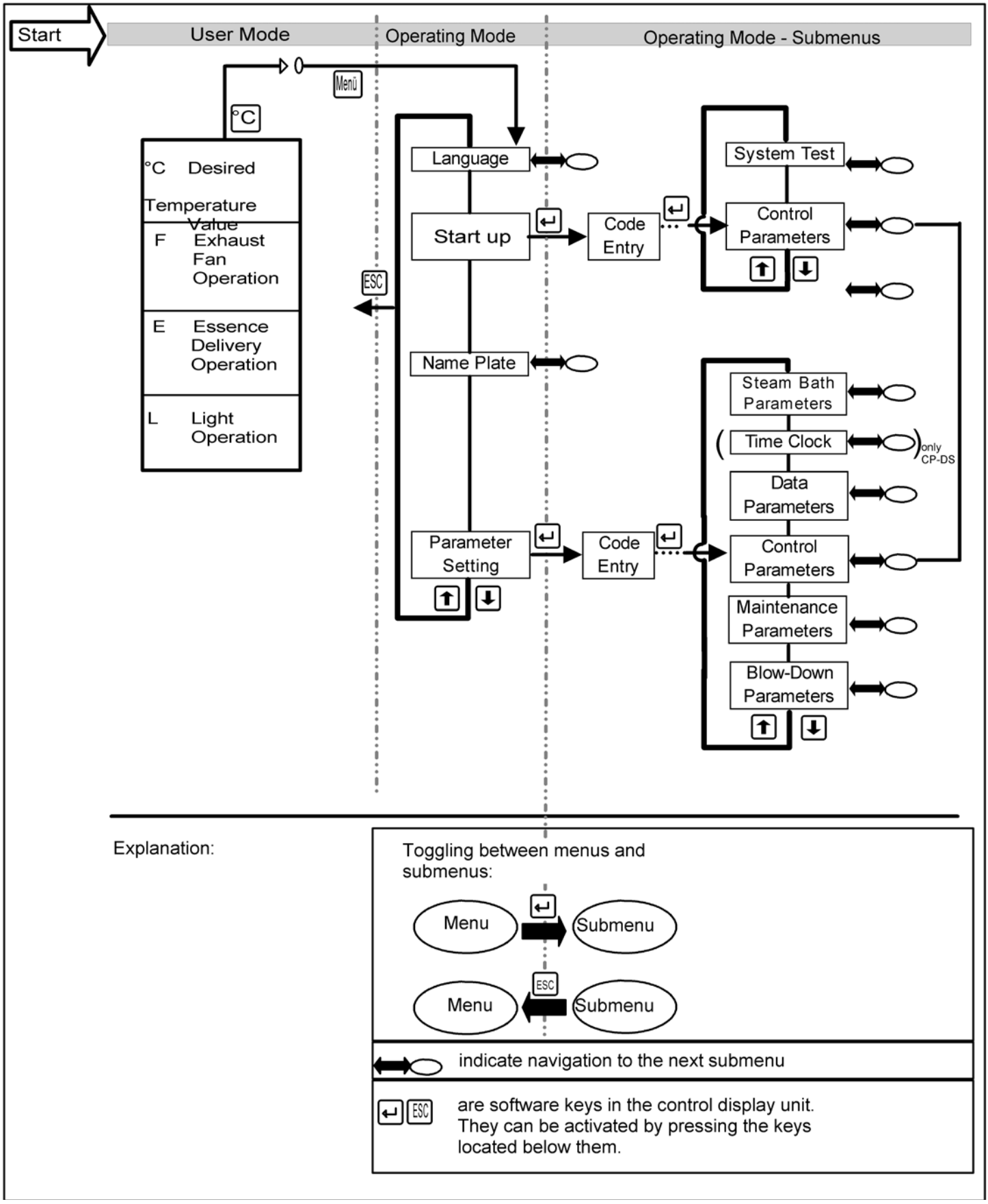
17. Technical Specifications

Heater Element Steam Generator								
Type HeaterLine	**HL06**	**HL09**	**HL12**	**HL18**	**HL24**	**HL30**	**HL36**	**HL45**
Steam Output [kg/h]	6	9	12	18	24	30	36	45
Power Rating [kW]	4,5	6,8	9,0	13,5	18,0	22,5	27,0	33,8
Power Consumption [A]	11,3	16,8	19,5	29,3	39,0	39	58,5	58,5
Circuit Protection [A]	3x16	3x20	3x25	3x35	3x50	3x50	3x63	3x63
Electrical Connection*	400V/3/N 50-60Hz							
Control Voltage	230V/50-60Hz							
*Other voltages upon request.								

Heater Element Steam Humidifier									
Type	**HC03**	**HC06**	**HC06**	**HC09**	**HC06P**	**HC09P**	**HC12**	**HC18**	**HC27**
Steam Output [kg/h]	3	6	6	9	6	9	12	18	27
Power Rating [kW]	2,25	4,5	4,5	6,8	4,5	6,8	9,0	13,5	20,3
Power Consumption [A]	9,8	19,6	11,3	16,9	11,3	16,9	19,5	29,3	29,3
Circuit Protection [A]	1x10	1x20	3x16	3x20	3x16	3x20	3x25	3x35	3x35
Electrical Supply*	230V/1/N		400V/3/N 50-60Hz						
Control Voltage	230V/50-60Hz								
*Other voltages upon request.									

Electrode Steam Generator							
Type HyLine	**HY05**	**HY08**	**HY13**	**HY17**	**HY23**	**HY30**	**HY45**
Steam Output [kg/h]	5	8	13	17	23	30	45
Power Rating [kW]	3,8	6,0	9,8	12,8	17,3	22,5	33,8
Power Consumption [A]	5,4	8,7	14,1	18,4	24,9	32,5	48,8
Circuit Protection [A]	3x6	3x10	3x16	3x20	3x35	3x35	3x63
Electrical Connection*	400V/3/N /50-60Hz						
Control Voltage	230V/50-60Hz						
*Other voltages upon request. ** 1.3-times power consumption after full blow-down. Note overload capacity of automatic breakers. If necessary, select the next higher rating.							

Electrode Steam Generator							
TypeCompactLine	**C06**	**C10**	**C17**	**C22**	**C30**	**C45**	**C58**
Steam Output [kg/h]	6,0	10,0	17,0	22,0	30,0	45,0	58,0
Power Rating [kW]	4,5	7,5	12,8	16,5	22,5	33,8	43,5
Power Consumption [A]	6,5	10,8	18,4	23,8	32,5	48,8	62,8
Circuit Protection [A] **	3x10	3x16	3x20	3x35	3x35	3x63	3x63
Electrical Connection*	400V/3/N/50-60Hz						
Control Voltage	230V/50-60Hz						
*Other voltages upon request. **1.3-times power consumption after full blow-down. Note overload capacity of automatic breakers. If necessary, select the next higher rating.							


Start
User Mode
Operating Mode
Operating Mode - Submenus
Menü
°C
°C Desired Temperature Value
F Exhaust Fan Operation
E Essence Delivery Operation
L Light Operation
ESC
Language
Start up
Code Entry
Name Plate
Parameter Setting
Code Entry
System Test
Control Parameters
Steam Bath Parameters
Time Clock
only CP-DS
Data Parameters
Control Parameters
Maintenance Parameters
Blow-Down Parameters
Explanation:
Toggling between menus and submenus:
Menu
Submenu
Menu
ESC
Submenu
indicate navigation to the next submenu
ESC
are software keys in the control display unit. They can be activated by pressing the keys located below them.

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