SERVICE MANUAL

HEAT PUMP

ZHHS-01-10K-R290-V5-M | ZHHS-01-15K-R290-V5-M

ATTENTION!

BE SURE TO READ THE INSTRUCTION MANUAL BEFORE USE

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Translation of the original manual

1. TABLE OF CONTENTS

1. IDEA OF ACTION

The principle of the heat pump is to collect heat from the so-called low-temperature lower source (-20°C to +35°C) and transfer the heat to the high-temperature upper source (CH and/or DHW system). This process is carried out with electricity supplied to the compressor drive. In systems with a heat pump, it is possible to use both the hot side (upper source), e.g. for heating purposes, and the cold side (lower source - air), e.g. for air conditioning or refrigeration.

In the heat pump settings, we can select the following modes of operation:

- Plant – central heating,
- DHW – domestic hot water,
- Plant + DHW - central heating + domestic hot water.

2. SAFETY

Before using the device, it is essential to read the instruction manual. Failure to do so may lead to improper operation of the device, malfunction, and may endanger the lives of those operating the device.

2.1. Marking system

	Attention - important content. Procedure to which special attention should be paid.
	Caution - a task that requires special attention. Very important information regarding use.
	Electricity - information about the electrical system, tasks related to connecting the device to the electrical network.
	Gloves - activities that require additional personal protection.
	A ban placed on electrical and electronic devices reminding the public not to throw items in trash containers.

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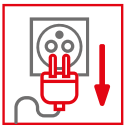
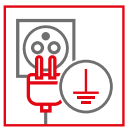
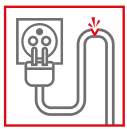
	Caution - hot surfaces.
	Caution - moving parts.
	Warning - harmful substance, risk of suffocation
	Warning – risk of explosion.
	Warning – sudden (loud) noise
	Warning – automatic activation
	Warning – low temperature
	Warning of fire hazard substances in combination with R290 refrigerant.
	Fire, open flame and smoking prohibited.

Tab. 1. Marking system used

2.2. Important warnings

 The device is not intended for use by children.	 Read this manual before use.
 Assembly, disassembly, installation work and maintenance of the device must be performed by qualified personnel. It is forbidden to make any changes to the structure of the unit. Failure to do so may result in injury to persons or damage to the unit.	 Before performing any operations on the unit, make sure that the electrical power to the heat pump unit is turned off. If the power cord becomes loose or damaged, make sure to always call a qualified person to repair it.
 The power supply to the device must be grounded.	 The device should be kept away from environments that are flammable or corrosive.
 A dedicated electrical connection should be used to power the device, otherwise, failure may occur.	 Do not touch the grille of the air exhaust and outlet.
 Do not direct a stream of water directly on the device. Power leakage or product failure may occur.	 When the device is in operation, never cover it with clothes, cloth or other material that blocks the ventilation of the product, as this may lead to low efficiency or even malfunction of the device.
 If the power cord is damaged, take the device out of service and call a qualified person to repair it.	 It is mandatory to use the appropriate heat pump circuit breaker and make sure that the power supply complies with the specifications. Otherwise, the unit may be damaged.

Tab. 2. Important warnings

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2.3. Risks as a result of product changes

- Never remove, bridge or block safety devices.
- Do not tamper with safety devices.
- Do not make any changes to the product, to the supply lines, to the heating circuit safety valve.

2.4. Risks of personal injury and property damage as a result of improper maintenance and repair or failure to do so

- Perform maintenance annually before the heating season.
- Never perform repairs or maintenance work yourself.
- Have an authorized installer perform repairs and maintenance work.
- Adhere to designated maintenance intervals.

2.5. Risk related to improper use

Improper use can lead to damage to the heat pump, danger to those operating the unit and others in the vicinity.

2.6. Risk of burn injury

The pipes from the water exchanger located in the heat pump should be carefully insulated, since the maximum possible temperature of the pipes is 75 degrees Celsius.

2.7. Risk of malfunction due to incorrect electrical supply

Avoid interference with the operation of the product, the electrical supply should be within the specified limits:

- 3-phase: ~400 V (+10%), 50 Hz

2.8. Risk of environmental contamination from leaking refrigerant

The product contains refrigerant R290 called natural refrigerant gas. The GWP rating of this refrigerant is 3.

Only an installer with the proper licenses issued by the manufacturer and protective equipment may perform installation and maintenance work.

In case of repairs, do not use sparking devices or other devices that can cause an ignition of the refrigerant.

Do not use open flames or other devices that can heat up the temperature to 370°C in the heat pump environment.

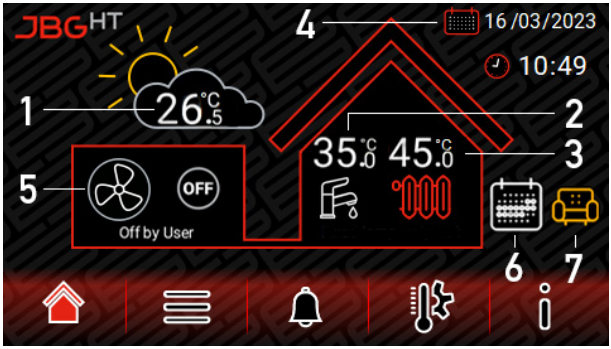
Installation of the unit must be a minimum of 1m away from windows, doors, lighting ducts, roof windows, hatches, drain pipes and ventilation ducts due to possible leakage of flammable gas.

Condensate drainage must not be introduced into the sewer system, as it may create an explosive atmosphere.

In the event of a leak or suspected leak of refrigerant, immediately turn off the unit. Then remove any equipment from the environment that may be a potential source of fire and contact the service department.

3. STARTING UP THE HEAT PUMP

3.1. Controller Main Screen

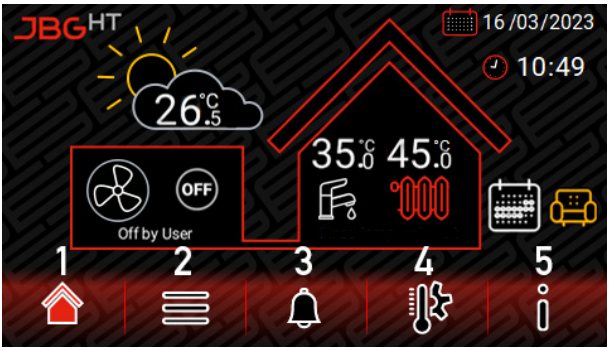


Visualization of pump operation:

- heating mode
- pump off
- stop by alarm
- defrost
- fan operation
- shutdown mode
- standby mode

1 – outdoor temperature
2 – DHW temperature
3 – CH temperature
4 – current date and time
5 – heat pump status (mode)
6 – active calendar
7 – installation operation mode

3.2. Menu Icons



1 – home screen
2 – options and settings
3 – alarm
4 – CH i DHW temperature setting
5 – Info (About)

if there is a number next to the icon it means the number of active alarms

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3.3. Turning on and off

Unit is on

Unit is off

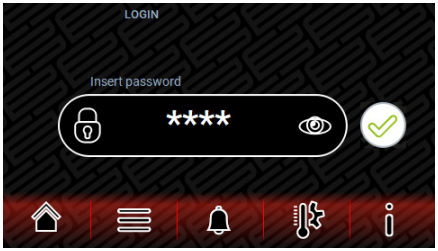
3.4. CH and DHW temperature settings

CH operation point
Measured value

DHW operation point
Measured value

Settings should be made for the various available modes of operation.

3.5. Logging in

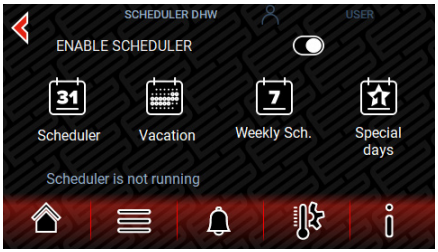


Access to the “Options and Settings” is password-protected.
Default passwords:
- User: 1234

3.6. Options and settings

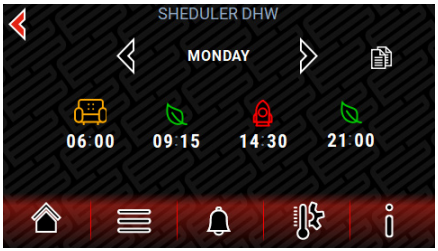
Calendar CWU – DHW schedule
Calendar CH – schedule plant
Device – advanced settings
Parameter – Heater settings
Settings – Date/time and other
Serwis – service technician settings

3.6.1. CH/DHW Calendar



Calendar activation

3.6.2. Calendar

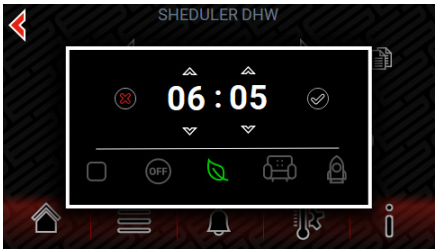


Operation modes of the installation during schedule activity:

- Inactive
- Comfort
- Off
- Boost
- Economic

3.6.3. Setting a schedule

The working day of the unit can be divided into 4 periods, for which you need to set a time interval and assign an operating mode.



The value is changed by operating with the up and down arrows.

Confirm and cancel .

The icon can be used to copy the settings parameters of one day to the next.

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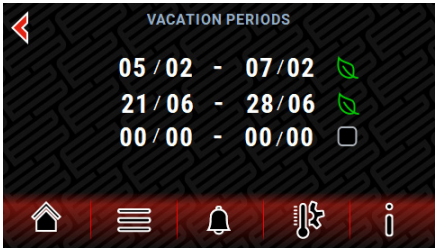
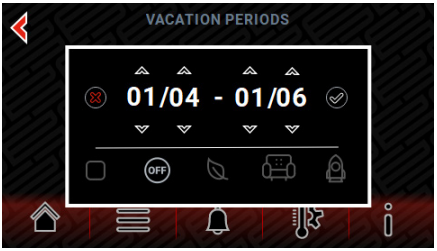
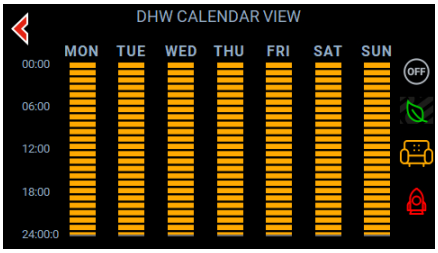
3.6.4. Vacation Periods





Setting vacation periods is implemented by selecting a date range. Within this range, the pump will operate in the selected mode, regardless of the settings of the standard calendar.

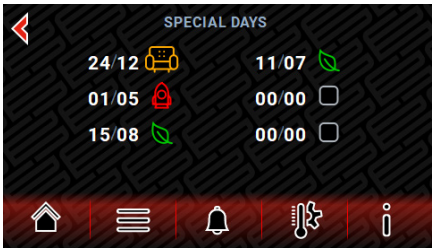
3.6.5. Week view



The weekly calendar is presented in the form of colored bars that show the mode set.

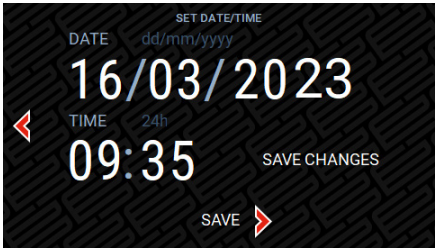
Activities are according to the colors of the mode icons on the right. Clicking on the bar of each day takes you to the day settings.

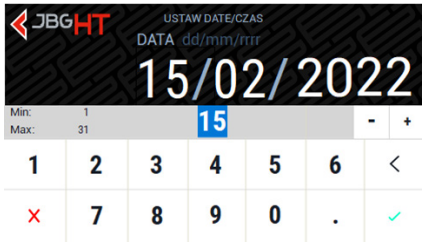
3.6.6. Special days



It is possible to set up to 6 special days on which the heat pump will operate in the selected mode independently of the standard operating calendar. We can freely choose the mode of operation on a given day. Clicking on the date will bring up the setting window.

3.6.7. Date and time





3.6.8. Manufacturer

This option is for the Heat Pump Manufacturer only.

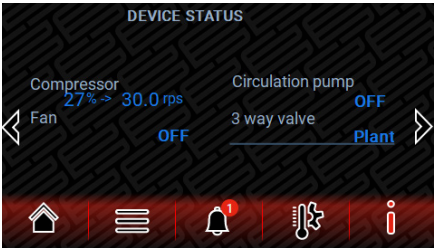
3.6.9. Service

This option is for the Heat Pump Service Technician only.

4. UNIT OPERATION STATUS

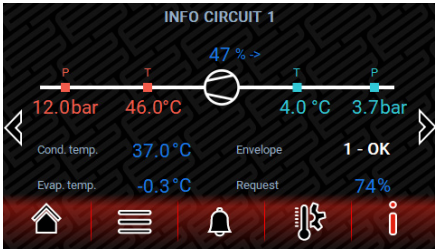
4.1. Equipment Status

Compressor: demand for compressor power is expressed in percentage of (%), rps – obr/s
Fan: Active mode: off/on/accelerated/defrost/preventive(?)/anti-freeze/manual
Circulation pump: on/off
DHW Pump: on/off
Heater: on/off
3DR Valve(?): central heating/ domestic hot water



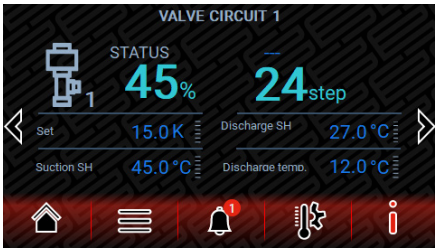
4.2. Other information

Compressor operation



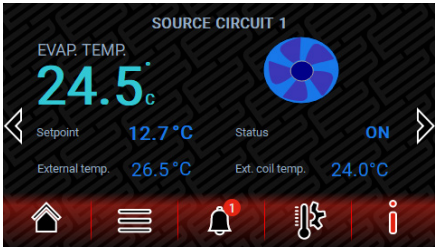
Compressor parameters

Expansion valve operation



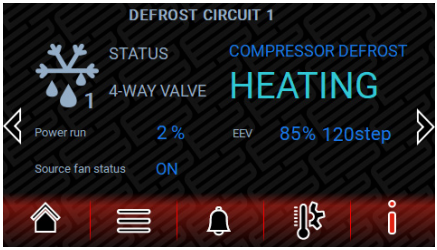
Expansion valve parameters.

Evaporator operation



Air exchanger parameters

Defrost Status



Defrost Mode parameters

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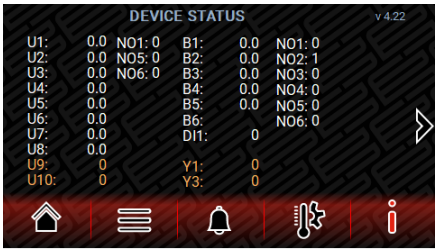


When you press Info, you can see the operating statuses of the devices. The meanings of each abbreviation are explained in the attached table.

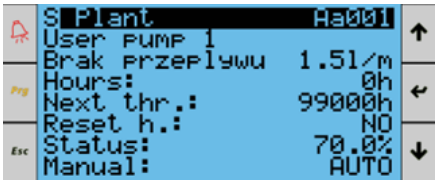
U1	Discharge temperature
U2	External temperature
U3	Suction temperature
U4	Suction pressure
U5	Discharge pressure
U6	Outlet temperature from the exchanger to the unit
U7	Crankcase temperature
U8	Water flow sensor
U9	PWM control of circulation pump
U10	Fan regulation
NO1	Four way valve
NO5	Crankcase heater
NO6	Tray heater

B1	Input temperature to the exchanger of the unit
B2	DHW tank temperature
B3	CH buffer temperature
B4	Secondary external temperature
B5	Heating circuit 2 temperature
B6	Secondary probe
DI1	Heater thermistor breakout sensor
Y1	Three way valve of heating circuit 2
Y3	Pump speed regulation of heating circuit 2
NO1	Three-way valve NO DHW
NO2	Three-way valve NC DHW
NO3	DHW circulation pump
NO4	CWU tank heater
NO5	Plant heater
NO6	Heating circuit 1 pump

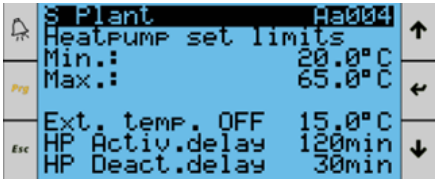
5. PROGRAMMABLE DISPLAY

5.1. Control

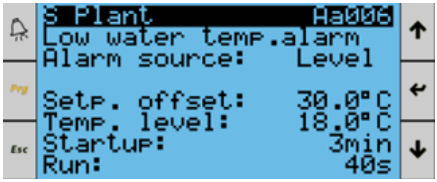
(No-flow): Volumetric flow value below which the no-flow alarm will appear.
Hours: the operating time of the circulation pump since the last reset of the application.
Next thr.: Time after which replacement/maintenance of the component should be performer.
Reset h.: switch that resets the meter
Status: current control setpoint of the circulating pump expressed in percentage
Manual: option to manually task the circulation pump with a constant flow rate expressed in percentage



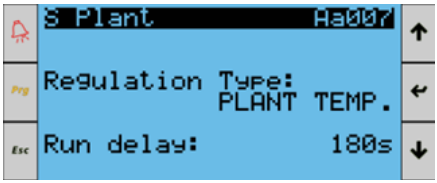
Min: the minimum setpoint temperature that can be set
Max: the maximum setpoint temperature that can be set
Ext. Temp OFF: Ambient temperature below which the unit shuts down and does not start central heating mode
HP Activ. delay: time for which the outside temperature must stay below "Ext. Temp. OFF" for the heat pump to turn on
HP Deact. delay: time for which the outside temperature must remain above the "Ext. Temp. OFF" for the heat pump to turn off



Alarm source: selection between whether the alarm should work according to the Setpoint offset or Temp. level
Setpoint offset: the difference between the set temperature and the measured temperature, above which the cold water alarm will occur
Temp. level: water temperature, below which a cold water alarm will occur
Startup: the time after the start of adjustment, during which the fulfillment of the alarm condition does not cause it to occur
Run: The time value for which the alarm condition must be met to trigger an alarm



Regulation Type: Selection of the adjustment mode (which probe is affected by SetPoint):
Plant Temp – buffer probe
Inlet/Outlet Temp.- inlet/outlet probe
Run delay: Transition delay from adjustment start mode to operation mode



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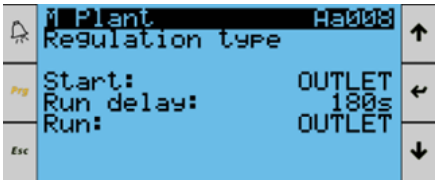
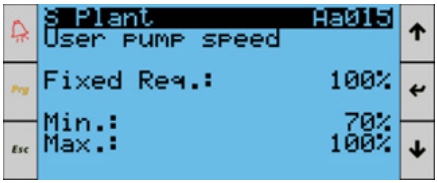
Start: selection of the probe to which SetPoint applies during startup
Run delay: Transition delay from adjustment start mode to operation mode
Run: selection of the probe to which SetPoint applies during operation



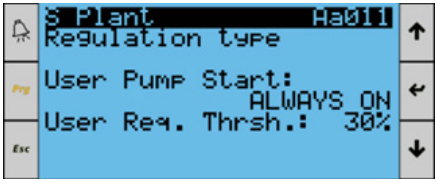
Fixed Req: set control value for the circulation pump expressed in percentage (if the control type is Fixed Speed)
Min: minimum value of circulation pump control for automatic control
Max: maximum value of circulation pump control for automatic control



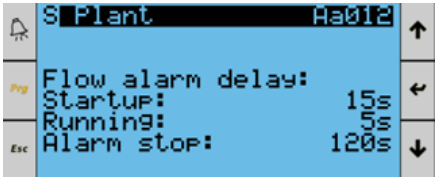
User Pump Start: operation mode of the circulation pump

- ALWAYS ON – always on
- ON UNIT ON – when the heat pump is on
- ON REQUEST – when there is a requirement for heating

User Req. Thrsh: threshold for starting the circulation pump in ON REQUEST mode



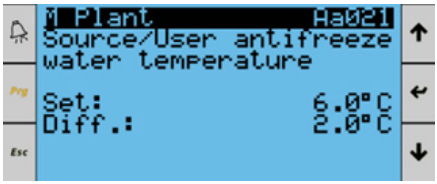
Startup: The time after startup when the lack of flow is not treated as an error
Running: time duration of absence of flow, which will trigger the first alarm
Alarm stop: time duration of absence of flow after the first alarm appears, which will turn off the circulation pump



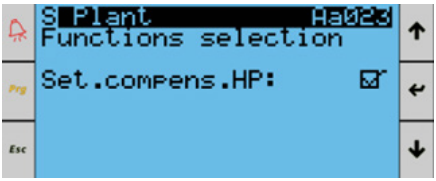
Regulation type: type of the circulation pump regulation:

- Delta Temperature – request to maintain a constant difference in supply and return temperatures, additionally controlling the value of the condensation temperature (when necessary condensation control has priority)
- Fixed Speed – constant flow speed
- Evap/Cond Pressure – operation of the circulating pump that maintains the set evaporation/condensation temperature

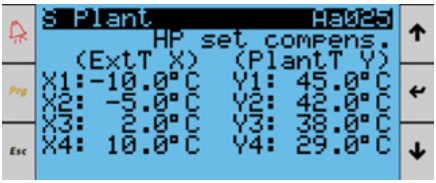
Set: ambient temperature below which the circulating pump will engage an emergency start at maximum speed
Diff.: temperature difference by which the ambient temperature must rise to deactivate the emergency start mode of the circulation pump



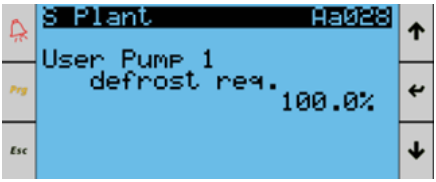
Set.compens.HP: selecting the option allows the heating curve to be started in CH mode.



HP set compens.: four points are set, where X corresponds to the ambient temperature and Y to the water temperature setpoint. The remaining points are calculated by interpolation. The Y value does not change below the first point and above the last point. The Y4 value is equal to the SetPoint set in the main screen.

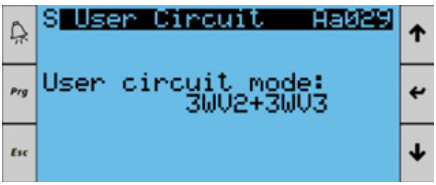


User Pump 1 defrost req: preset constant flow rate during defrost expressed in percentage.

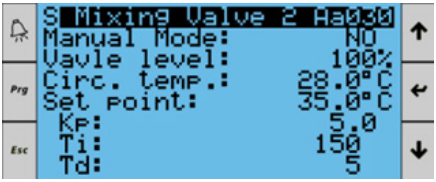


User circuit mode: selection of use of Y1 and Y3 outputs

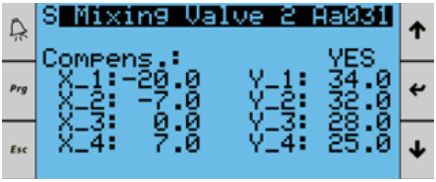
- **3WV2+3WV3** – two outputs for three-way mixer valves controlled by 0-10V signal
- **Pmp2+3WV2** – Y1 output controlled by 0-10V signal, supporting mixer valve; Y3 output controlled by PWM signal, supporting circulating pump



Manual Mode: choice between automatic control and manual setting of the mixer valve
Valve level/Manual set: in the case of automatic mode, displays the current position of the valve, in the case of manual setting - a field for entering the set opening value
Circ. Temp: temperature measurement of the second heating circuit
Set point: Set temperature value of the second heating circuit
Kp: regulator gain
Ti: integration constant of the regulator
Td: differentiation constant of the regulator



Compens.: four points are set, where X corresponds to the ambient temperature and Y to the setpoint of the feed water temperature of the second heating circuit. The remaining points are calculated by interpolation. The Y value does not change below the first point and above the last point.



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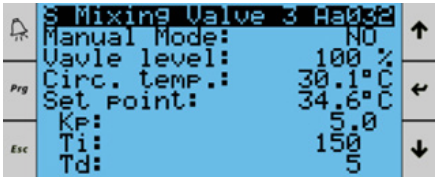
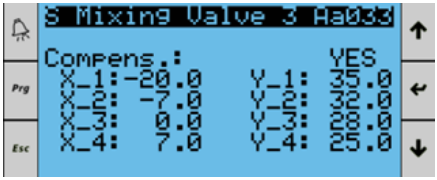
Manual Mode: choice between automatic control and manual setting of the mixer valve
Valve level/Manual set: in the case of automatic mode, displays the current position of the valve, in the case of manual setting - a field for entering the set opening value
Circ. Temp: temperature measurement of the third heating circuit
Set point: set temperature value of the third heating circuit
Kp: regulator gain
Ti: integration constant of the regulator
Td: differentiation constant of the regulator



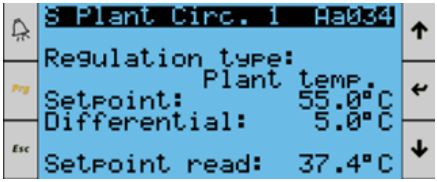
Compens.: four points are set, where X corresponds to the ambient temperature and Y to the setpoint of the feed water temperature of the third heating circuit. The remaining points are calculated by interpolation. The Y value does not change below the first point and above the last point.



Regulation type: type of control of the buffer discharge pump:

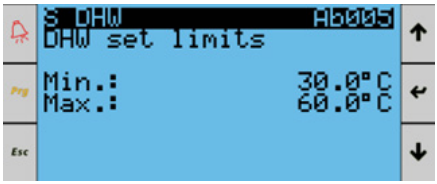
- **Plant temp.:** regulation depending on the current temperature in the buffer
- **UnitON.:** on whenever heat pump is on
- **OFF.:** always off
- **Always ON:** always on

Setpoint: temperature setpoint in the buffer
Differential: hysteresis
If the water temperature in the buffer exceeds the setpoint, then the pump will start and discharge the buffer. The process will continue until the temperature drops below the setpoint - hysteresis value.
Setpoint read: if you set the buffer discharge temperature setpoint in the Setpoint field greater than the actual buffer temperature setpoint, the discharge setpoint will be set to a value 1 degree Celsius less than the buffer temperature setpoint.

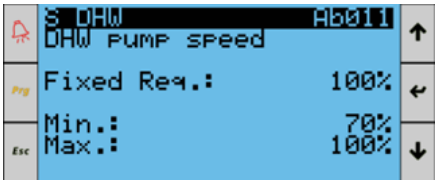


Hours: the amount of time the circulating pump has been running since the last reset of the application
Next thr: Time after which the component should be replaced/maintained
Reset h.: switch to reset the counter
Status: current control value set for the circulating pump expressed as a percentage
Manual: option to manually task the circulation pump with a fixed flow value expressed in percentage

Min: minimum value of the DHW set temperature that can be set
Max: maximum value of the DHW set temperature that can be set

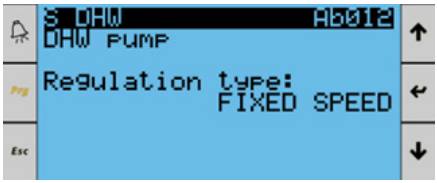


Fixed Req: the set control value for the circulating pump expressed as a percentage (if the control type is Fixed Speed)
Min: minimum circulating pump control value for automatic control
Max: maximum control value for circulating pump for automatic control

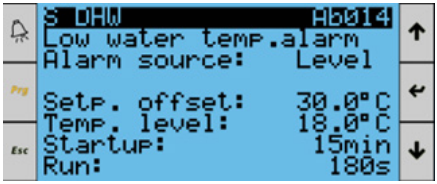


Regulation type: selection of the operation mode of the circulation pump in DHW mode:

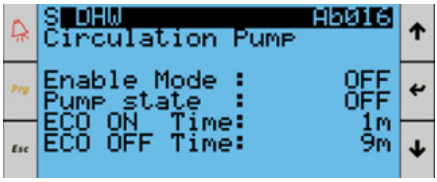
- Fixed speed – constant flow speed
- Cond temp – speed depending on the condensation temperature



Alarm source: selection between whether the alarm is to operate according to the Setpoint offset or Temp. level rules.
Setpoint offset: the difference between the setpoint temperature and the measured temperature above which the cold water alarm will occur
Temp. level: water temperature below which the cold water alarm will occur
Startup: the time after the start of the control in which the fulfillment of the alarm condition does not cause the alarm to occur
Run: the time value for which the alarm condition must be met to trigger the alarm



Enable Mode: operation mode of the circulation pump:
OFF – turned off
Sched. ECO – ECO mode linked to the calendar
Sched. ON – operation mode linked to the calendar
ECO – ECO mode
Always ON – always on
Pump state: - signaling operation of the circulation pump
ECO ON Time: time duration of operating in ECO mode
ECO OFF TIME: time duration of standby in ECO mode



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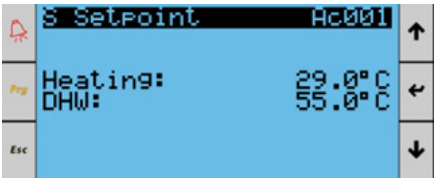
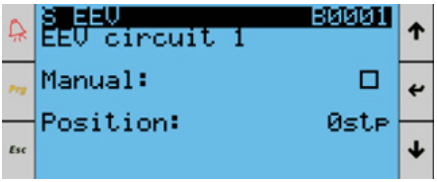
Heating: water temperature setpoint in CH mode
DHW: water temperature setpoint in DHW mode



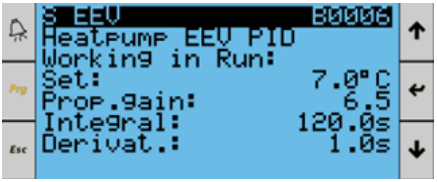
Economy: the value that determines how many degrees the heating curve in the Economy mode should be raised/lowered, set in the Aa025 window
Comfort: the value that determines how many degrees the heating curve is to be raised/lowered in Comfort mode, set in Aa025 window
Boost: value by how many degrees the heating curve is to be raised/lowered in Boost mode, set in Aa025 window
* modes set with the calendar

5.2. EEV

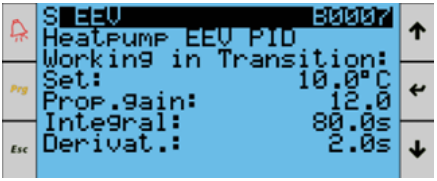
Manual: ability to manually set the opening degree of the EEV valve
Position: manually set value of opening degree



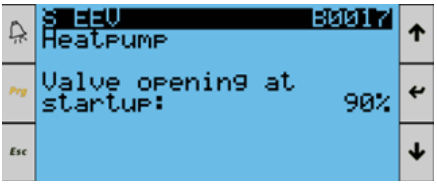
Set: overheat setpoint in operation mode
Prop. gain: regulator gain
Integral: regulator integration time
Derivat: regulator differentiation time



Set: overheating setpoint in transient mode
Prop. gain: regulator gain
Integral: regulator integration time
Derivat: regulator differentiation time

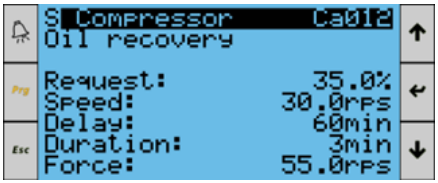


Valve opening at startup: degree of opening of the valve during startup

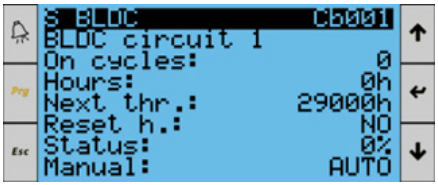


5.3. Compressor

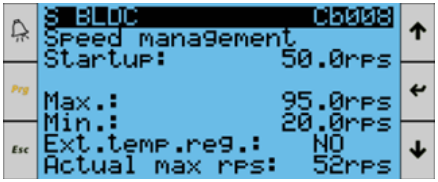
Request: compressor power demand in percent (%) below which oil recovery mode can be activated
Speed: compressor speed below which oil recovery mode can be activated
Delay: time for which conditions must be met for the procedure to start
Duration: duration of the procedure
Force: compressor speed during the procedure



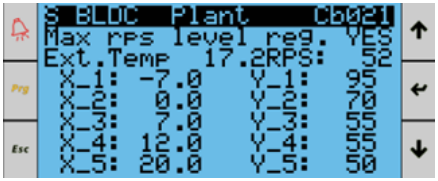
On cycles: compressor run counter
Hours: compressor run time since last application reset
Next thr: Time after which the component should be replaced/maintained
Reset h.: switch to reset the counter
Status: the current control value set for the compressor expressed as a percentage
Manual: option to manually task the compressor with a fixed speed value expressed in percentage



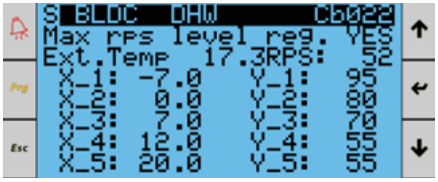
Startup: compressor speed during the first three minutes after startup
Max: overall maximum permissible compressor speed
Min: minimum permissible compressor speed
Actual max rps: maximum permissible compressor speed for the current ambient temperature



Max rps level reg: Option to enable the compressor speed control curve in CH mode. Five points are set, where X corresponds to the ambient temperature and Y to the maximum compressor speed at that temperature. The remaining points are calculated by interpolation. The Y value does not change below the first point and above the last point.



Max rps level reg: Option to enable the compressor speed control curve in DHW mode. Five points are set, where X corresponds to the ambient temperature and Y to the maximum compressor speed at this temperature. The remaining points are calculated by interpolation. The Y value does not change below the first point and above the last point.



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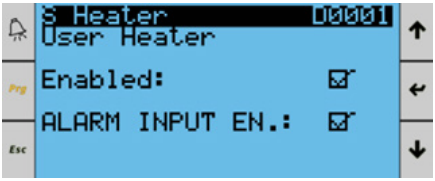
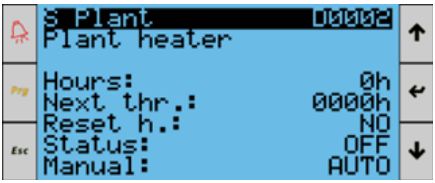
5.4. Heater

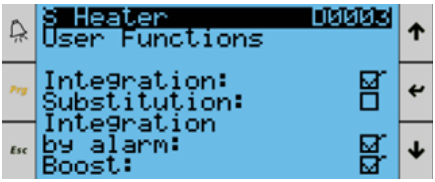
Enabled: enales the heater to operate in CH mode.
Alarm Input EN: enables the display of information about thermal protection.



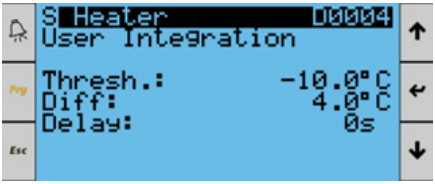
Hours: heater run time
Next thr: Time after which the component should be replaced/maintained
Reset h.: switch to reset the counter
Status: current status of the heater
Manual: option to turn the heater on/off manually, or set automatic mode



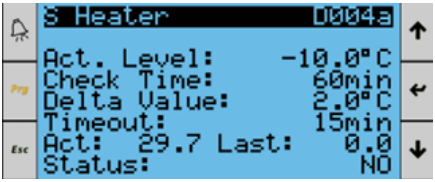
Heater modes:
Integration: continuous support of the compressor in CH mode.
Substitution: replacement of the compressor in CH mode.
Integration by alarm: integration during alarm in CH mode.
Boost: intelligent support of the compressor in CH mode.



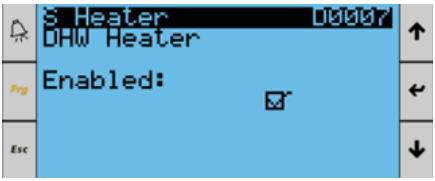
Thresh: the ambient temperature threshold, below which the heater in CH mode can start in compressor support mode
Diff: after returning to the higher Thresh+Diff temperature, the heater cannot start up
Delay: delay for the heater to start



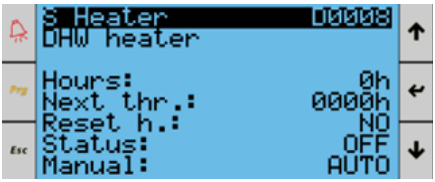
Act. Level: the ambient temperature threshold, below which the heater in CH mode can start in intelligent compressor support mode.
Check Time: the period of time when the temperature increment is tested
Delta Value: the temperature increment during Check Time below which the heater will start for Timeout
Timeout: the time to start the heater if requested
Act: current return temperature value
Last: last measured value of return temperature at the end of Check Time
Status: the status of the heater activation



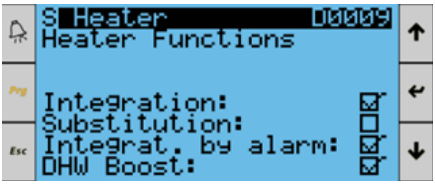
Enabled: allows the heater to operate in DHW mode.



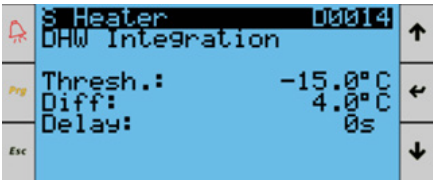
Hours: heater run time
Next thr: Time after which the component should be replaced/maintained
Reset h.: switch to reset the counter
Status: current status of the heater
Manual: Option to turn the heater on/off manually, or set automatic mode



Heater modes:
Legionella: heating water to remove Legionella in DHW mode.
Integration: supporting the compressor in DHW mode
Substitution: replacing the compressor in DHW mode
Integration by alarm: integration during alarm in DHW mode
DHW Boost: intelligent compressor support in DHW mode



Thresh: the ambient temperature threshold, below which the heater in DHW mode can start up
Diff: after returning to the higher Thresh+Diff temperature, the heater cannot start up
Delay: delay for the heater to start



Act. Level: the ambient temperature threshold, below which the heater in DHW mode can start in smart compressor support mode.
Check Time: the period of time when the temperature increment is tested
Delta Value: temperature increment during Check Time below which the heater will start for Timeout
Timeout: the time to start the heater if requested
Act: current return temperature value
Last: last measured value of return temperature at the end of Check Time
Status: the status of the heater activation

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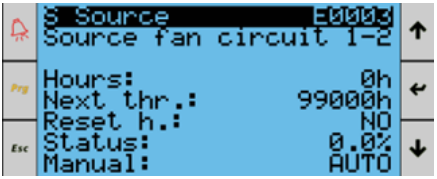
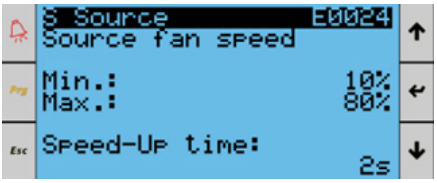
5.5. Source

Hours: the amount of time the fan has been running since the last reset of the application
Next thr: Time after which the component should be replaced/maintained
Reset h.: switch to reset the counter
Status: current control value set for the fan expressed in percentage
Manual: option to manually task the fan with a constant speed value expressed in percentage

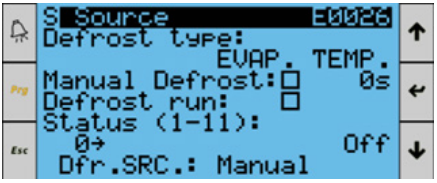


Setpoint: the value of the evaporation temperature for which the fan operates at minimum speed

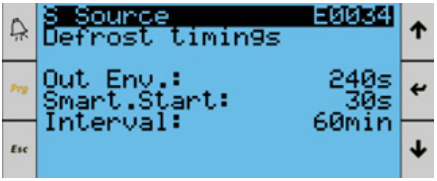
Min: minimum value of fan speed
Max: maximum value of fan speed
Speed-Up time: period of fan operation at 100% speed after start-up



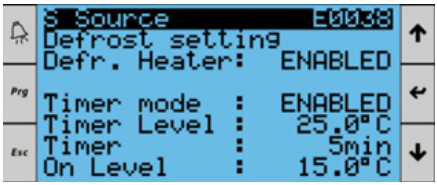
Defrost type: selection of defrost type (default is EVAP. TEMP.)
Manual Defrost: window after selecting which the defrost procedure will start after 10s.
Defrost run: readout of defrost status
Status: readout of defrost stage



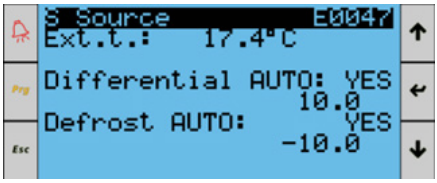
Out Env: allowed time outside the work envelope during defrosting
Smart. Start: time to return to work after the defrost is complete
Interval: time since the previous defrost, during which the next defrost will not occur



Defr. Heater: allow the operation of the heater during defrosting
Timer mode: enables the activation of the timer algorithm for the operation of the heater during defrost. If not enabled, the heater runs throughout the defrost
Timer level: the first threshold of the return temperature, below which the heater will turn on for Timer time
Timer: the time for which the heater will turn on after the Timer Level temperature is exceeded
On Level: the second return temperature threshold, beyond which the heater will run until the defrost procedure is completed



Differential AUTO: enable automatic change of the fan control curve depending on the ambient temperature
Defrost AUTO: enable automatic change of evaporation temperature, below which evaporator defrosting is activated depending on the ambient temperature



5.6. Unit

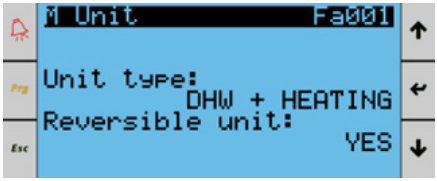
Unit type: heat pump mode selection

- DHW + Heating
- Heating only
- DHW only

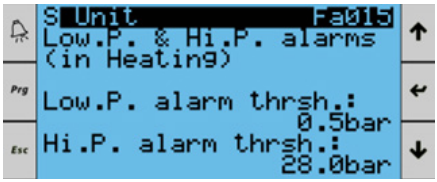
At this time, cooling mode unavailable

- DHW + Heating + Cooling
- Heating + Cooling
- DHW + Cooling
- Cooling only

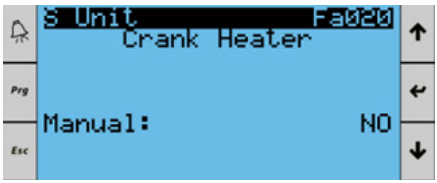
Reversible unit: reverse logic



Low. P. alarm thrsh*.: low suction pressure alarm tripping threshold
Hi. P. alarm thrsh*.: high discharge pressure alarm tripping threshold
* adjust to the pressure switches used



Manual: option to manually activate the crankcase heater



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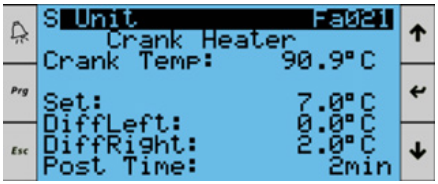
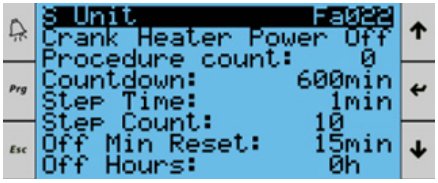
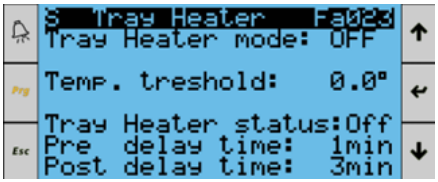
Crank temp: measured crankcase temperature
Set: crankcase heater startup temperature
DiffLeft: crankcase heater starts up when the crankcase temperature is lower than Set-DiffLeft
DiffRight: the crankcase heater turns off when the crankcase temperature is above Set+DiffRight and the set time has passed
Post time: time that determines how long the crankcase heater should remain on after the Set+DiffRight value is exceeded.



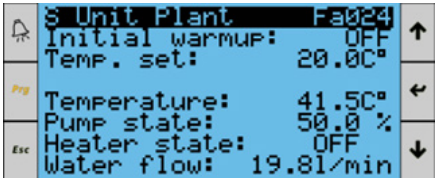
Crank Heater Power: current status of the crankcase heater
Procedure counter: number of completed crankcase heating cycles
Countdown: remaining time until the end of the crankcase heating procedure
Set Time: duration of crankcase heating minicycle
Step Count: number of minicycles constituting one crankcase heating cycle
Off Min Reset: maximum time of the heat pump disconnected from power that will not reset the number of finished crankcase heating minicycles
Off Hours: the minimum time of the heat pump disconnected from power that will make crankcase heating start when power returns.



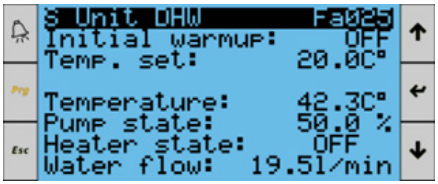
Tray Heater mode: on/off/automatic operation of tray heater
Temp. treshold: ambient temperature below which the condensate tray heater will turn on
Tray Heater status: current state of the heater
Pre delay time: time of condensate tray heater activation before evaporator defrosting countdown begins
Post delay time: time to turn on the condensate heater after the countdown to evaporator defrosting is complete



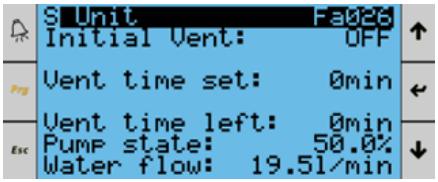
Initial warmup: activation of the initial water heating mode in CH mode.
Temp set: set value of water temperature in CH mode to be heated by the heater
Temperature: current value of buffer/supply water temperature
Pump state: the control value exposed to the circulating pump expressed as a percentage
Heater state: on/off
Water flow: volumetric water flow value



Initial warmup: switching on the mode of initial heating of water in DHW tank
Temp set: set value of DHW tank water temperature to be heated by the heater
Temperature: current value of water temperature in DHW tank
Pump state: the control value exposed to the circulating pump expressed as a percentage
Heater state: on/off
Water flow: volumetric water flow value

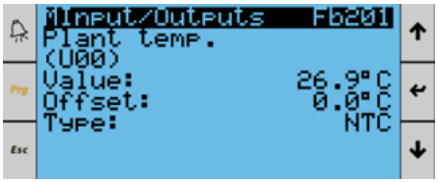


Initial vent: enable the initial vent mode of the system
Vent time set: set duration of venting
Vent time left: remaining duration of venting
Pump state: control value exposed to the circulating pump expressed as a percentage
Water flow: volumetric water flow value



Screed Heat Enable: enable the screed heating mode
Start Day: setting the day from which the mode is to start
Current Day: reading of the current day of the mode
Current SetP: value of current water temperature setpoint
Completed: signaling the end of mode operation

Value: current value of the temperature probe in the CH buffer.
Offset: calibration of the temperature probe in the CH buffer.
Type: selection of the type of temperature probe in the CH buffer (NTC by default)



Value: current value of the return temperature probe
Offset: calibration of the return temperature probe
Type: selection of the type of return temperature probe (NTC by default)

Value: current value of the supply temperature probe
Offset: calibration of the supply temperature probe
Type: selection of the type of the supply temperature probe (NTC by default)

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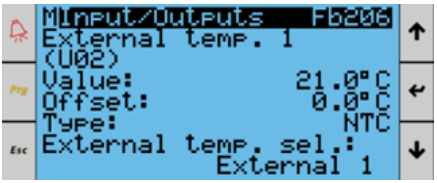
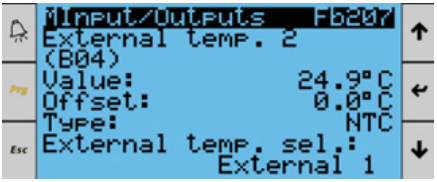
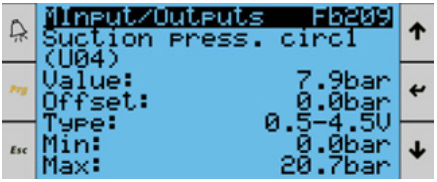
Value: current value of ambient temperature probe 1
Offset: calibration of ambient temperature probe 1
Type: selection of the type of ambient temperature probe 1 (default NTC)
External temp. sel.: selection between using ambient temperature probe 1 or 2



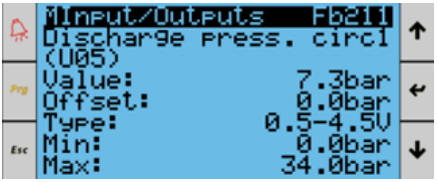
Value: current value of ambient temperature probe 2
Offset: calibration of ambient temperature probe 2
Type: selection of the type of ambient temperature probe 2 (default NTC)
External temp. sel.: selection between using ambient temperature probe 1 or 2



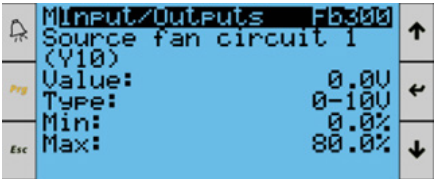
Value: current suction pressure value
Offset: calibration of the suction pressure transducer
Type: selection of suction pressure transducer type
Min: minimum suction pressure value
Max: maximum value of suction pressure



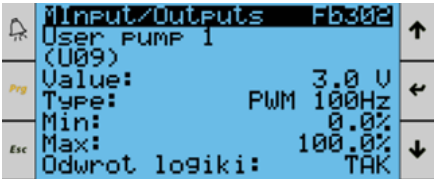
Value: current value of discharge pressure
Offset: calibration of the discharge pressure transducer
Type: selection of discharge pressure transducer type
Min: minimum discharge pressure value
Max: maximum discharge pressure value



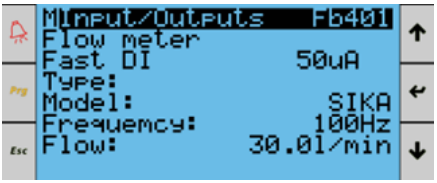
Value: current value of the fan control voltage
Type: selection of fan control signal
Min: minimum value of the fan speed
Max: maximum value of fan speed



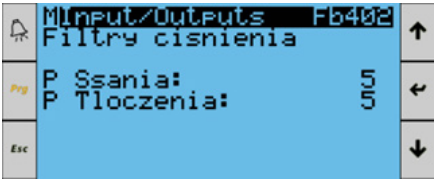
Value: current value of circulating pump control voltage
Type: selection of circulating pump control signal
Min: minimum value of circulating pump speed
Max: maximum value of circulating pump speed
(Reverse logic): YES/NO



Fast DI: digital input selection
Model: selection of flow meter
Circulation pump: on/off
Frequency: current reading frequency value
Flow: current value of volumetric flow rate

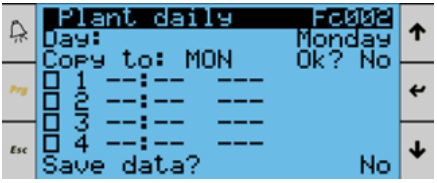


(Suction): width of the filter window moving average on suction pressure
(Discharge): width of the filter window moving average per discharge pressure

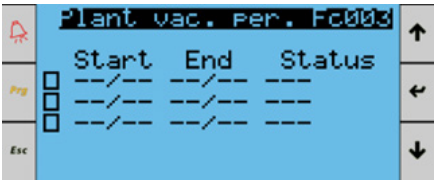


Enable: enable calendar operation for heat pump mode selection in CH mode
Current date and time
Plant status: the mode in which the heat pump is currently operating

Day: selection of a day to set
Copy to: allows to copy settings from the day on the screen to any selected day of the week
1, 2, 3, 4: selection of operation mode and its start time
Save data: field to confirm saving the settings



Vacation period: allows to set a given mode in the period from the start day to the end day



Special Days: allows to set a particular mode for the whole selected day

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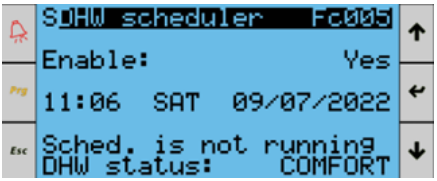
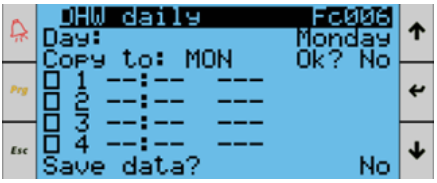
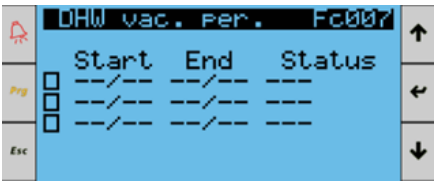
Enable: allow calendar operation to select heat pump mode in DHW mode
Current date and time
Plant status: the mode in which the heat pump is currently operating



Day: selection of a day to set
Copy to: allows to copy settings from the day on the screen to any selected day of the week
1, 2, 3, 4: selection of operation mode and its start time
Save data: field to confirm saving the settings



Vacation period: allows to set a given mode in the period from the start day to the end day

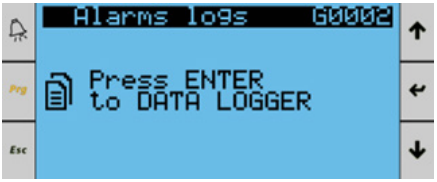


Special Days: allows to set a particular mode for the whole selected day

5.7. Alarm logs

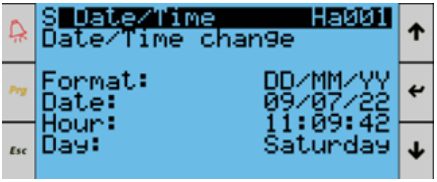
Memory type: selection of the storage medium to which the alarm logs will be exported
File name: selection of the name of the file with the exported alarm logs
Confirm: field to confirm the execution of the action

Press ENTER to DATA LOGGER: enables the view of past alarms

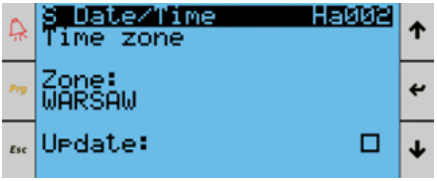


5.8. Settings

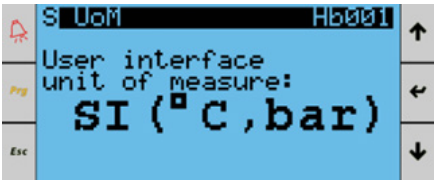
Format: select date display format
Date: setting the date
Hour: setting the time
Day: setting the day of the week



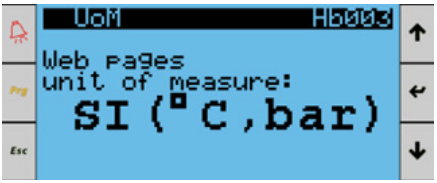
Zone: time zone selection
Update: field for confirmation



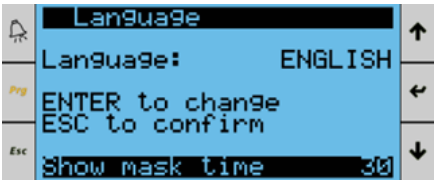
User interface unit of measure: selection of units used in the user interface



Web pages unit of measure: selection of units used on websites



Language: language selection



User: change user password
Service: change of serviceman password

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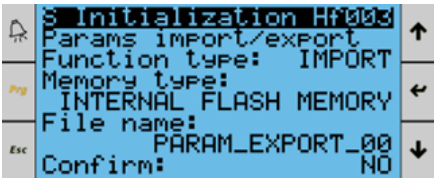
Function type: selection between importing and exporting parameters
Memory type: selection of storage medium for import/export of parameters
File name: file name selection
Confirm: field to confirm the procedure



5.9. Logging out

Press ENTER to Log Out: pressing the ENTER button logs the user out

The device must not be operated and serviced by unauthorized personnel who do not have experience or knowledge in operating the above-mentioned device!

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