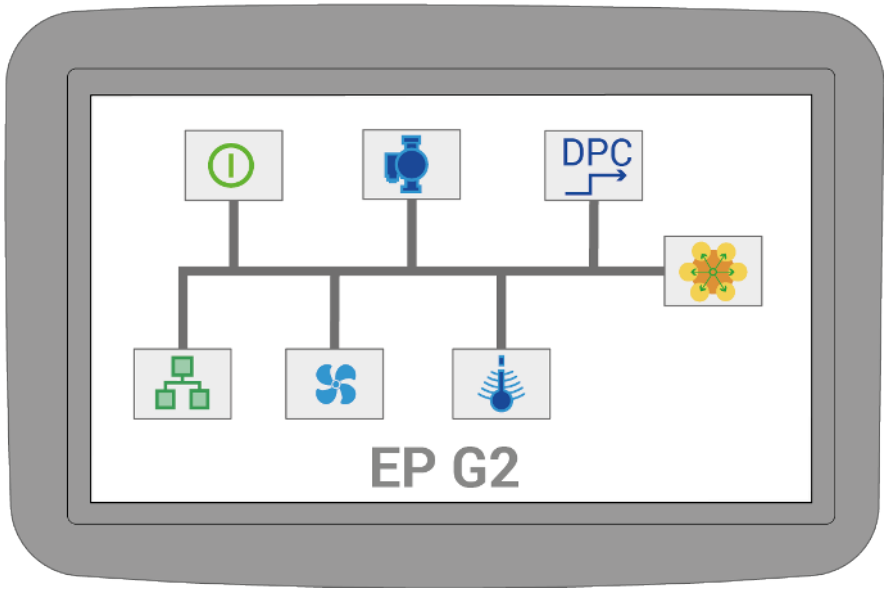
EPG2

Control System and Menus



English - v0.99.1-0 - 20241028

Table of Contents

Quick Start

Minimal steps to get the boiler started:
- Regulation mode
- Set Temperature
- Overtemperature limit
- Log and alerts

Main page

None

Menu System

None

Event log

None

Warnings and Alerts

Simulator Active
alert_simulator_infotext

Load Limiter Active
alert_load_limit_infotext

External Power Limit Active
alert_external_limit_infotext

Regulation is off
alert_regulation_off_infotext

Update current boards
One or more current meter boards can be updated.

Use the ”Update” button in ”Energy and Current/Busbar #”

New Software available
A new version of the software is available.

Go to ”Administration/Software Updates” to download and install.

Check main breakers’ torque
It is time to check the torque on the mains breaker cable clamps. Please refer to the technical manual for further instructions.

Low Water Level
alert_waterlevel_infotext

Overtemperature
alert_overtemp_internal_infotext

Boiler Temp. Sensor Missing
alert_no_temp_sensor_infotext

PCB Temperature High
alert_pcb_temp_infotext

Boiler Tempeature low
alert_temp_low_infotext

No UTK sensor connected
alert_utk_sensor_infotext

Forced Power Stage
alert_force_step_infotext

Overtemperature
alert_overtemp_external_infotext

Pressure High
alert_pressure_high_infotext

Load switch Off
alert_breakers_infotext

Pressure Low
alert_pressure_low_infotext

Zero Voltage Protection
alert_zero_breaker_sw_infotext

alert_phase_missing
alert_phase_missing_infotext

alert_leakage_current_high
alert_leakage_current_high_infotext

Statusbar

BACNet
BACNet is enabled

Log to cloud
Send logs to Värmebaronen

status_dpc
status_dpc_infotext

Fan enabled
The fan is enabled and running

Modbus enabled
Modbus communication is enabled

Ethernet
Ethernet connection status

Pump enabled
Shows pump relay status

Screensharing
Indicates that screensharing is active

Indicates that the boiler simulator is active
status_simulator_infotext

SSL Certificates Missing
SSL Certificates used to secure communication with Värmebaronen AB’s servers are missing. Please contact Värmebaronen’s service department to resolve.

USB Memory Drive
A USB memory drive is inserted

User level
I – Installer
S – Service/admin
P – Production

UTK
Outdoor temperature compensation mode selected

System Update

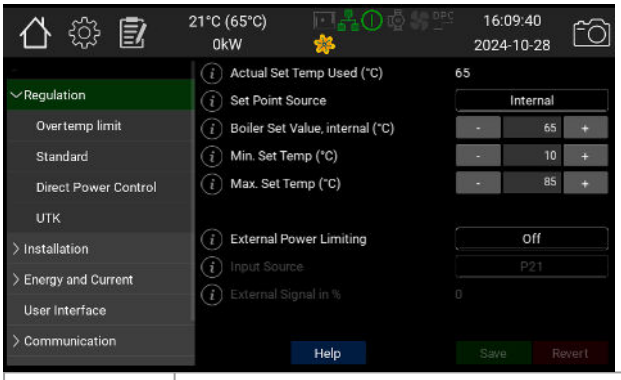
Step by step guide for updating the system software

Overview

None

Regulation

Pleasae note that Min-, Max- and standard values may vary depending on the boiler model and any accessories. Current values can always be read out directly on the boiler.

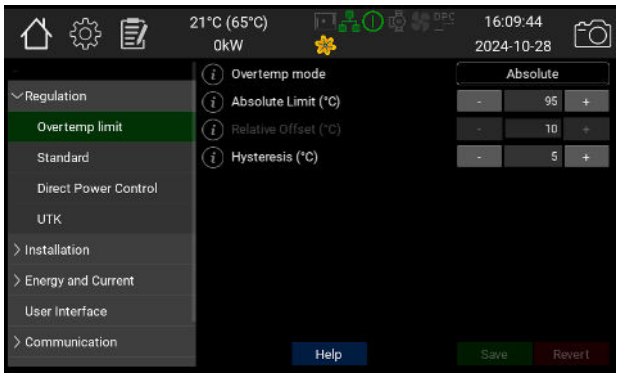


	info_text	default	min	max	mbid
Actual Set Temp Used (°C)	This is the value the boiler will acutally use as set point. It is read from the selected Set Point Source belowe.				40102
Set Point Source	Select the set point source. "Internal" uses the value below. Also select this for control via modbus/BACNet "P20" and "P21" are analog inputs. Select input type under Installation. "UTK" uses the optional outdoor sensor together with an djustable offset curve. See UTK under installation	internal			40101
Boiler Set Value, internal (°C)	Set point to use when Internal mode is enabled	60	10	85	40103
Min. Set Temp (°C)	Minimum value that can be selected above. This is also corresponds to an analog input of 0%	20	10	95	40104
Max. Set Temp (°C)	Maximum value that can be selected above. This is also corresponds to an analog input of 100%	95	10	95	40105
External Power Limiting	"Off" disables external power limiting. "Upper Limit" sets an upper limit that is used at next evaulation cycle (see the regulation method settings for timings). "Upper, fast down" enforces the limit immediately when changed.	off			40111
Input Source	Select the external limit source. "100%" is gives 100% maximum. "P20" and "P21" uses the analog inputs. "P32" is three bit binary from the expansion board. In the previous G1 series this was called EPVP and primarily used together with NIBE’s heat pumps. "Net" is for modbus/BACnet.	none			40112
External Signal in %	The actual power limit level in %				40113

Overtemp limit

The boiler´s overtemperature protection should be set to trip a few degrees below the external overheating protection. When the overtemperature protectione is activated, the contactors are shut off and a yellow warning shows. Normal regulation resumes when the boiler temperature has fallen below the hysteresis. Current limit value can be set to an absolute value or a relative value that follows Actual Setpiont

Used, up and down.

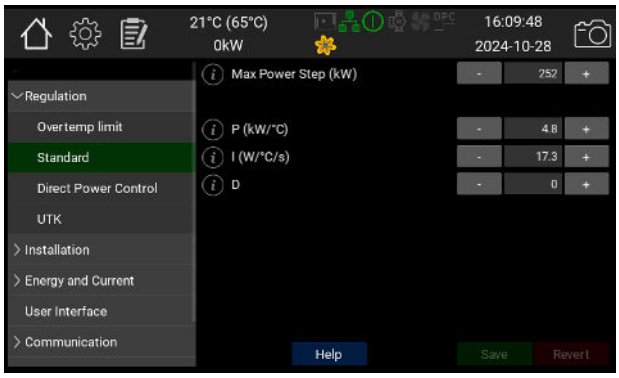


	info_text	default	min	max	mbid
Overtemp mode	The Overtemp limit can be set as Absolute Limit or Relative to Set Temp.	absolute			40121
Absolute Limit (°C)	The overtemp protection is triggered at this temperature.	85	0	95	40122
Relative Offset (°C)	Adds selected number of degrees (°C) to "Boiler Set Value" which is the Overtemp limit.	10	0	30	40123
Hysteresis (°C)	When the boiler temperature has decreased by the set number of degrees (°C) below the Overtemp limit normal regulation resumes.	5	1	10	40124

Standard

In standard mode, the goal is to keep the boiler temperature as close to the setpoint as possible. The boiler regulates best if it is allopwed to jump freely between availabe steps, but it is possible to limit the jump size if the installation requires it.

P,I and D values are factory set for each boiler size and may therefore differ from the values in the manual.



	info_text	default	min	max	mbid
Max Power Step (kW)	Maximum permissible power step. See the boiler's manual for more information about power/stage.	1080	0	1080	40141
P (kW/°C)		4.8	0	20	40142
I (W/°C/s)		17.3	0	100	40143
D		0	0	1000	40144

Direct Power Control

DPC enables direct power control from a superior control system. In this mode, the internal temperature control is switched off. Overheating protection, maximum installed power and any external power limitation apply.

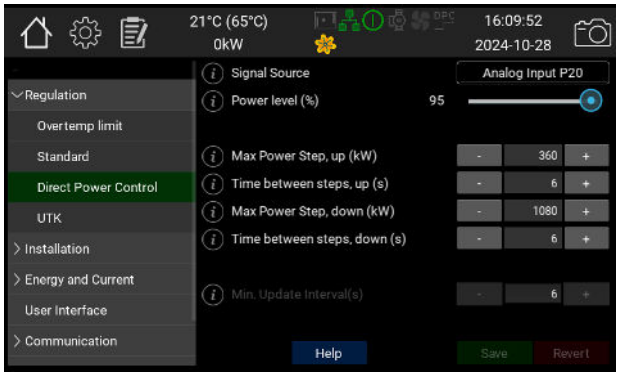
The following signal sources can be used:

- Internal. The desired value can be set directly on the display or via modbus/BACnet. This is the fastest control method.

- P20/P21. Control signal is taken from one of the analog inputs. These are configured separately.
When analog input is selected, the external control signal is run through a filter that does not pass the signal on until it has been stable at the same level for a certain time, normally 0.1s.
The control signal also goes through a hysteresis filter that switches only when the signal has reached 2/3 to the next step.

To avoid overheating in the contactors, the minimum time interval between switching is normally 6s. Other times are available on request.

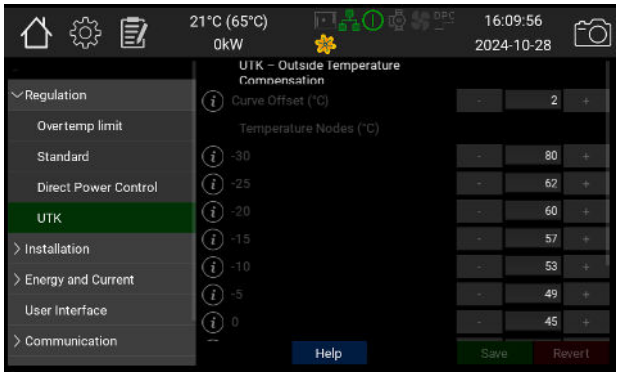
In some cases, it may be desirable to have a smooth ramp-up in steps. This is done by setting the maximum power jump up and down to less than the installed boiler power, as well as specifying a time interval for the change.



	info_text	default	min	max	mbid
Signal Source	Signal source for controlling the DPC power level. Select internal when using modbus and BACNet. If using P20/P21 these also need to be configured on their installation page.	internal			
Power level (%)		0	0	100	40132
Max Power Step, up (kW)	This limits the instantaneous change to a set level	1080	0	1080	40133
Time between steps, up (s)	This is the minimum time between steps when the boiler increases power.	12	6	900	40134
Max Power Step, down (kW)	This limits the instantaneous change to a set level	1080	0	1080	40135
Time between steps, down (s)	This is the minimum time between steps when the boiler decreases power.	12	6	900	40136
Min. Update Interval(s)		6	1	900	

UTK

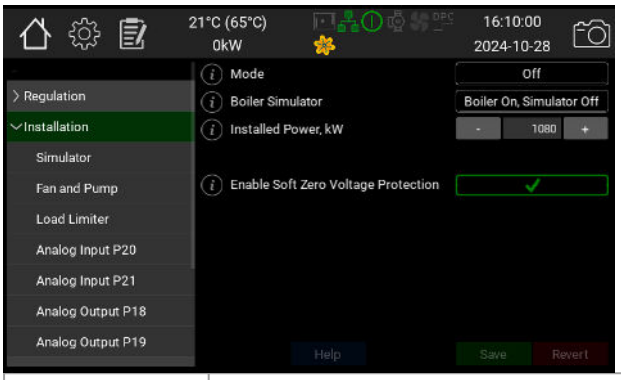
UTK mode allows the set point value to be adjusted in relation to the outside temperature.
A UTK-sensor must be connected to P13 in order for this function to work.
To enable, select UTK as Set Point Source in the main regulation settings.
Button on screen, or via modbus.



	info_text	default	min	max	mbid
UTK – Outside Temperature Compensation					
Curve Offset (°C)	This moves all the points up or down by the value entered	0	-10	10	40162
Temperature Nodes (°C)					
-30		63	20	80	40151
-25		62	20	80	40152
-20		60	20	80	40153
-15		57	20	80	40154
-10		53	20	80	40155
-5		49	20	80	40156
0		45	20	80	40157
5		40	20	80	40158
10		33	20	80	40159
15		27	20	80	40160
20		20	20	80	40161

Installation

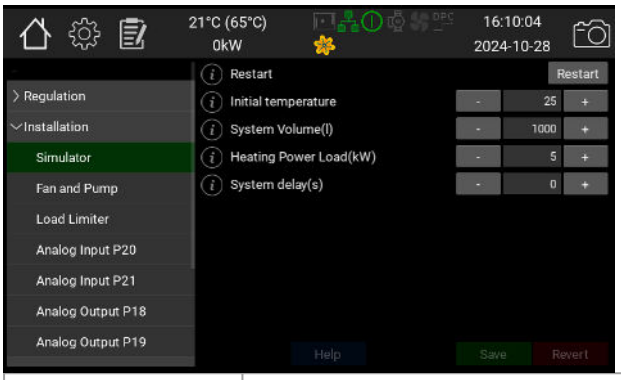
installation_helppage



	info_text	default	min	max	mbid
Mode	Select boiler control mode. "Off" disables all temperature control. "Standard" is the default, predictive temperature control method. "DPC", Direct Power Control, lets an external control system regulate the power. Available options depends on ordered configuration	off			40201
Boiler Simulator	Turn on or off the internal boiler simulator. The simulator can be used fo demoing and is useful for testing input and output signals before deploying the boiler.	off			40202
Installed Power, kW	Limit the boiler to a lower power. The selected level will be considered as 100%	1080	0	1080	40203
Enable Soft Zero Voltage Protection	With this enabled the boiler won't automatically restart the regulator after a power outage or reboot. The user is required to acknowledge the alert on the display. The alert can only be acknowledged by physically being present at the boiler.	0			

Simulator

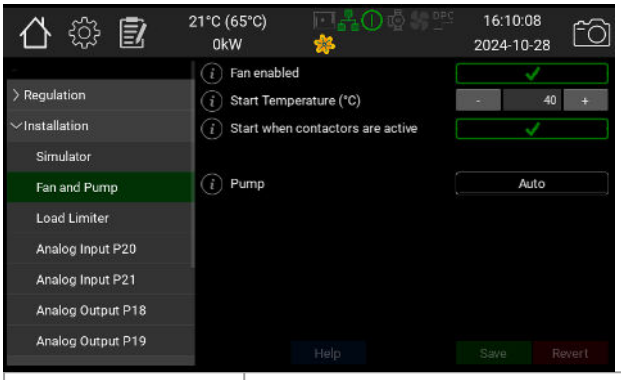
simulator_helppage



	info_text	default	min	max	mbid
Restart		Restart			40211
Initial temperature		25	1	100	40212
System Volume(l)		1000	1	15000	40213
Heating Power Load(kW)		5	0	1500	40214
System delay(s)		0	0	900	40215

Fan and Pump

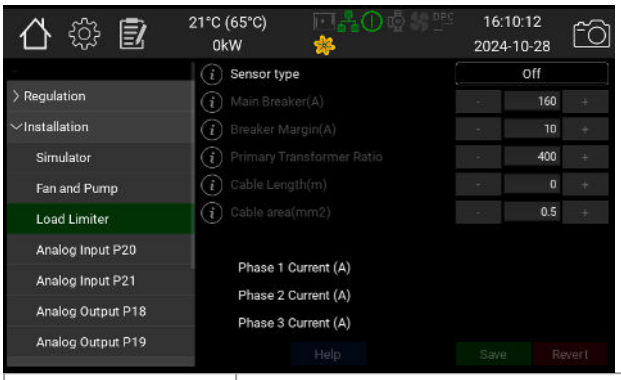
fan_and_pump_helppage



	info_text	default	min	max	mbid
Fan enabled		1			40131
Start Temperature (°C)		40	5	60	40232
Start when contactors are active		True			40235
Pump		off			40241

Load Limiter

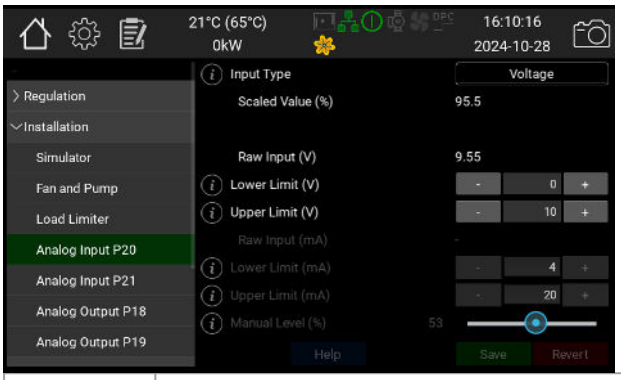
None



	info_text	default	min	max	mbid
Sensor type	Direct modes uses one set of transformers. Secondary mode uses primary transformers at the fuses and secondary to the boiler	off			40221
Main Breaker(A)		160	1	1000	40222
Breaker Margin(A)		10	1	1000	40223
Primary Transformer Ratio	Primary transformer ratio. Example: A stated ratio of 300:5 on the transformers gives 60.	400	1	1000	40224
Cable Length(m)		0	0	250	40225
Cable area(mm2)		0.5	0.5	15	40226
Phase 1 Current (A)					40227
Phase 2 Current (A)					40229
Phase 3 Current (A)					40230

Analog Input P20

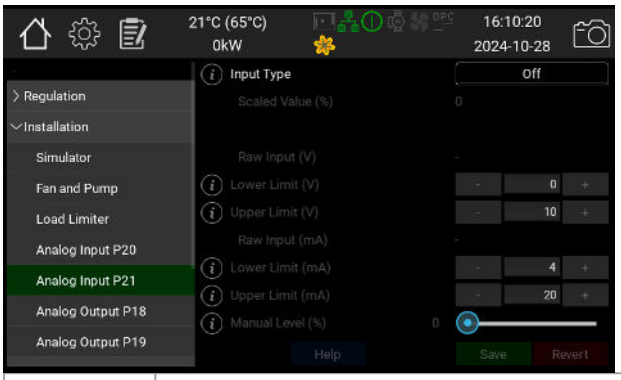
analog_input_p20_helppage



	info_text	default	min	max	mbid
Input Type		off			40251
Scaled Value (%)		0			40252
Raw Input (V)		0			40253
Lower Limit (V)		0	0	10	40254
Upper Limit (V)		10	0	10	40255
Raw Input (mA)		0			40256
Lower Limit (mA)		4	0	20	40257
Upper Limit (mA)		20	0	20	40258
Manual Level (%)		0	0	100	40259

Analog Input P21

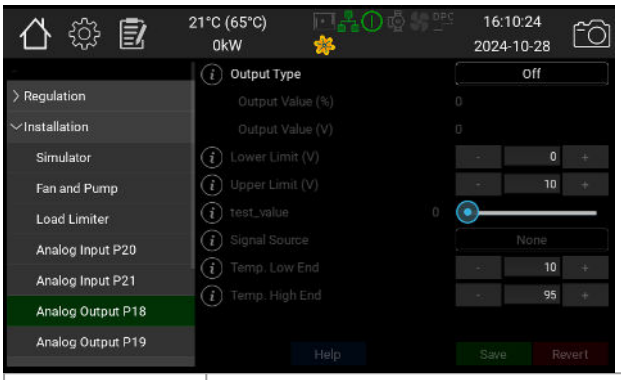
analog_input_p21_helppage



	info_text	default	min	max	mbid
Input Type		off			40261
Scaled Value (%)		0			40262
Raw Input (V)		0			40263
Lower Limit (V)		0	0	10	40264
Upper Limit (V)		10	0	10	40265
Raw Input (mA)		0			40266
Lower Limit (mA)		4	0	20	40267
Upper Limit (mA)		20	0	20	40268
Manual Level (%)		0	0	100	40269

Analog Output P18

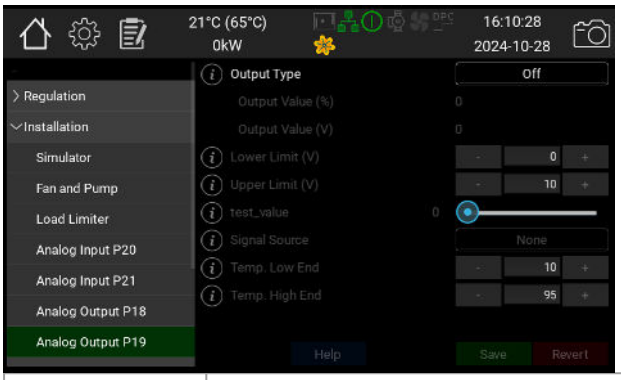
analog_output_p18_helppage



	info_text	default	min	max	mbid
Output Type		off			40271
Output Value (%)		0			40272
Output Value (V)		0			40273
Lower Limit (V)		0	0	10	40274
Upper Limit (V)		10	0	10	40275
test_value		0	0	100	40276
Signal Source		off			40277
Temp. Low End		-10	-10	100	40278
Temp. High End		110	50	160	40279

Analog Output P19

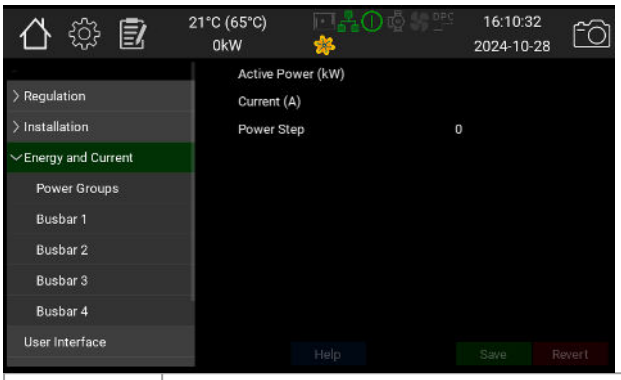
analog_output_p19_helppage



	info_text	default	min	max	mbid
Output Type		off			40281
Output Value (%)		0			40282
Output Value (V)		0			40283
Lower Limit (V)		0	0	10	40284
Upper Limit (V)		10	0	10	40285
test_value		0	0	100	40286
Signal Source		off			40287
Temp. Low End		-10	-10	100	40288
Temp. High End		110	50	160	40289

Energy and Current

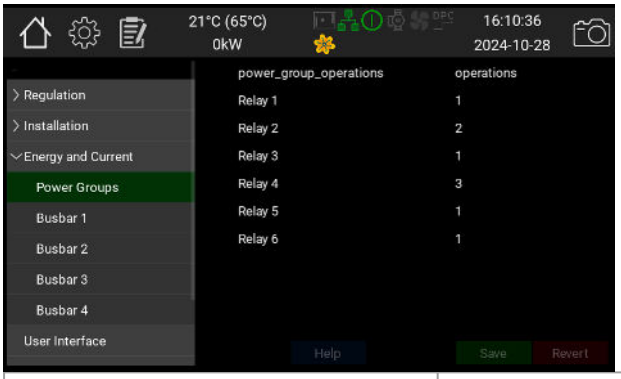
energy_helppage



	info_text	default	min	max	mbid
Active Power (kW)					
Current (A)					
Power Step					

Power Groups

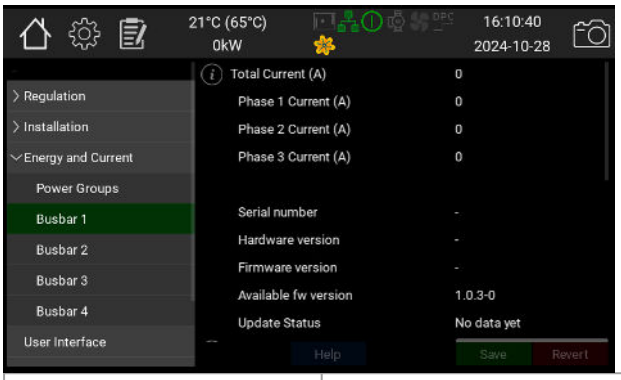
This page shows the number of times the relays controlling the power groups have operated.



	info_text	default	min	max	mbid
power_group_operations					
Relay 1					40411
Relay 2					40412
Relay 3					40413
Relay 4					40414
Relay 5					40415
Relay 6					40416

Busbar 1

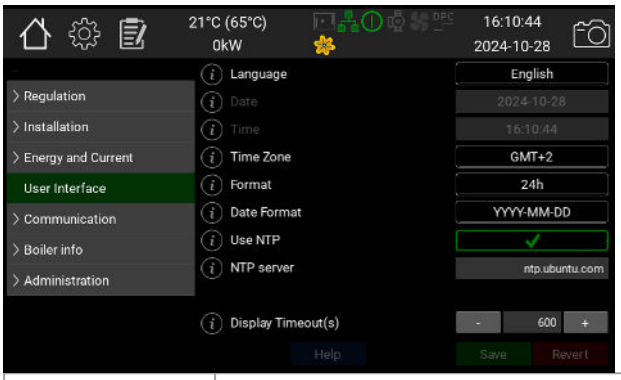
eprog_1_helppage



	info_text	default	min	max	mbid
Total Current (A)	Total current of this busbar, in Amperes				40421
Phase 1 Current (A)					40422
Phase 2 Current (A)					40423
Phase 3 Current (A)					40424
Serial number					
Hardware version					
Firmware version					
Available fw version					
Update Status					
Load Hex File to Board		A			
Board Enabled		False			40426
Indentify Board		False			
eprog_phase_1_k					
eprog_phase_1_m					
eprog_phase_2_k					
eprog_phase_2_m					
eprog_phase_3_k					
eprog_phase_3_m					
eprog_leakage_k					
eprog_leakage_m					
test_version					

User Interface

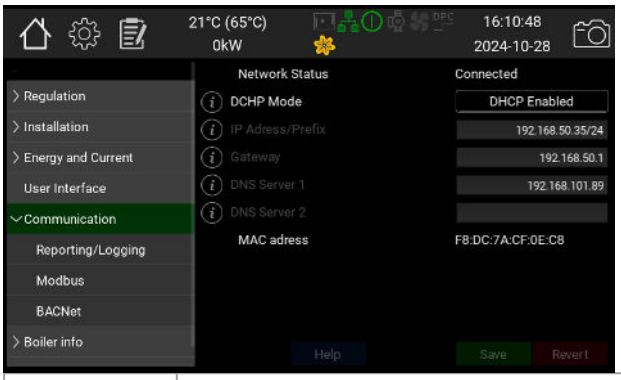
user_interface_helppage



	info_text	default	min	max	mbid
Language		swedish			40301
Date		A			
Time		A			
Time Zone		GMT+1			
Format		24h			
Date Format		YYYY-MM-DD			
Use NTP	Network Time Protocol Enable to automatically synchronize the clock will with the selected time server	True			
NTP server	A valid URI to the NTP server.	ntp.ubuntu.com			
Display Timeout(s)	After this long time of inactivity the system goes back to the main page and the display dims. Active warnings and errors will cause the backlight to blink.	300	30	7200	

Communication

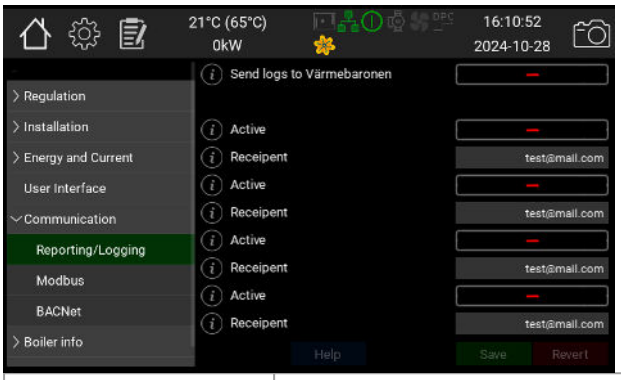
communication_helppage



	info_text	default	min	max	mbid
Network Status					40501
DCHP Mode		auto			40502
IP Adress/ Prefix	The ethernet IP adress should be in the following format: Aaa.bbb.ccc.ddd/pp where pp is the prefix, usually 24	192.168.1.2/24			
Gateway		192.168.1.2			
DNS Server 1		192.168.1.2			
DNS Server 2		192.168.1.2			
MAC adress					

Reporting/Logging

reporting_helppage

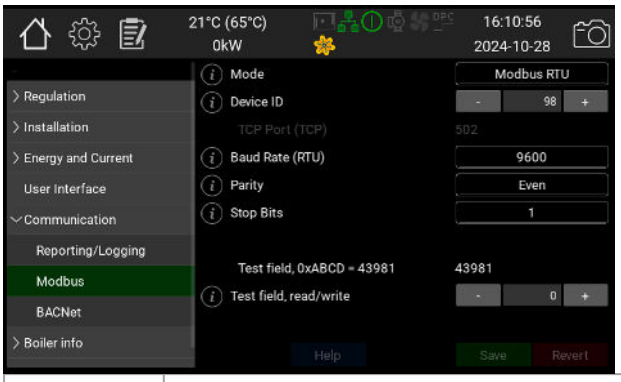


	info_text	default	min	max	mbid
Send logs to Värmebaronen	Enable this option to periodically send logs to Värmebaronen. This allows Värmebaronen to improve the performance and functions of the boiler and helps the service department solve issues faster. The connection is secured with SSL, like all modern web pages, and does not allow external control of the boiler. This requires that the boiler has a working connection to internet. This is required in order to send alarms to email.	False			
Active		False			
Receipent		email@test.com			
Active		False			
Receipent		email@test.com			
Active		False			
Receipent		email@test.com			
Active		False			
Receipent		email@test.com			

Modbus

The optional modbus module allows controlling and monitoring parameters via RS485 or ethernet.

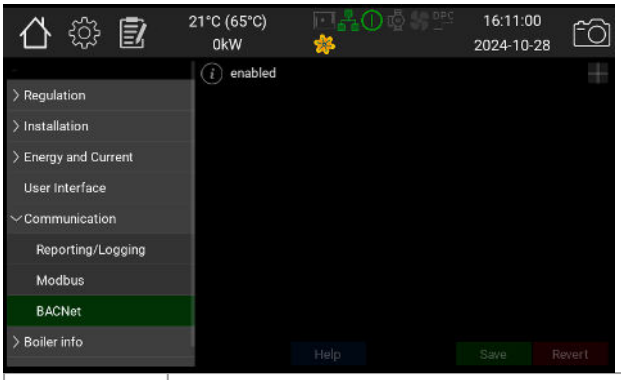
Decimal numbers are written and read as ten times larger. Ex. 46.7°C reads as 467



	info_text	default	min	max	mbid
Mode	Select communication medium: - RTU uses RS485 on connector P22. - TCP uses ethernet on connector P26	off			
Device ID		99	1	254	
TCP Port (TCP)					
Baud Rate (RTU)		9600			
Parity		none			
Stop Bits		1			
Test field, 0xABCD = 43981					40511
Test field, read/ write		0	0	100	40512

BACNet

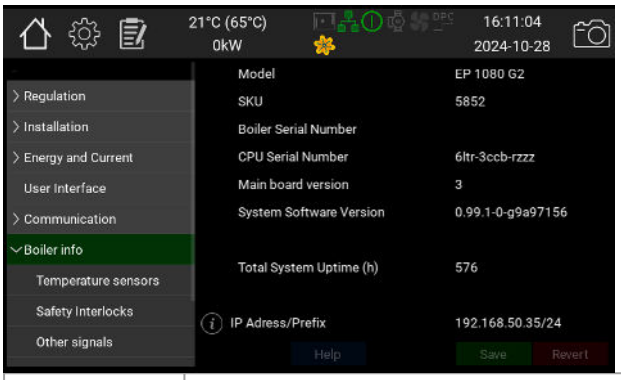
The optional BACNet module allows controlling and moitoring parameters via a network connection.



	info_text	default	min	max	mbid
enabled		False			

Boiler info

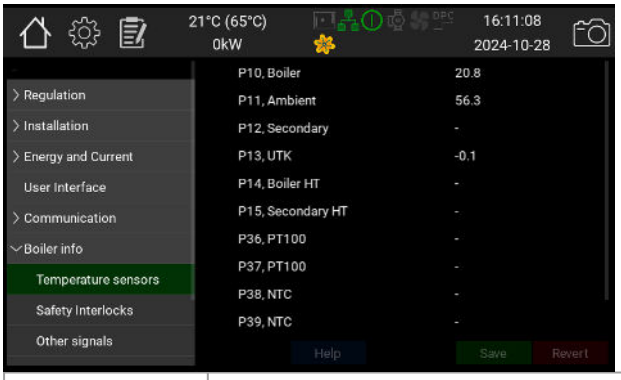
product_helppage



	info_text	default	min	max	mbid
Model					
SKU		5836-1			
Boiler Serial Number					
CPU Serial Number					
Main board version					
System Software Version					
Total System Uptime (h)					
IP Adress/ Prefix	The ethernet IP adress should be in the following format: Aaa.bbb.ccc.ddd/pp where pp is the prefix, usually 24				

Temperature sensors

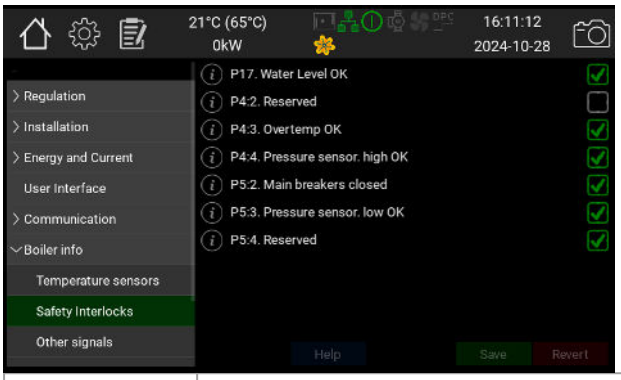
This page shows all connected temperature sensors



	info_text	default	min	max	mbid
P10, Boiler					40002
P11, Ambient					40003
P12, Secondary					40004
P13, UTK					40005
P14, Boiler HT					40006
P15, Secondary HT					40007
P36, PT100					40008
P37, PT100					40009
P38, NTC					40010
P39, NTC					40011
PCB, Interior					40012
Relative Humidity, %					40013

Safety Interlocks

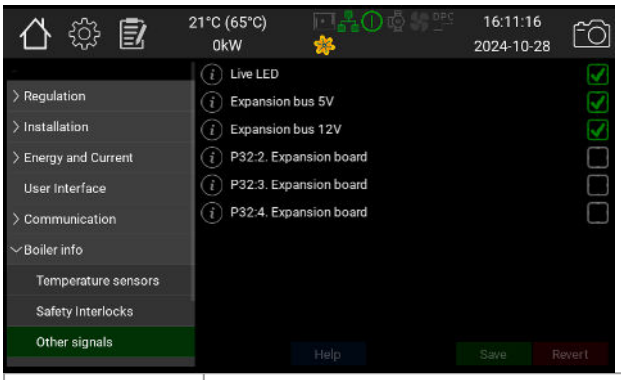
interlocks_helppage



	info_text	default	min	max	mbid
P17. Water Level OK		False			40021
P4:2. Reserved		False			40022
P4:3. Overtemp OK		False			40023
P4:4. Pressure sensor. high OK		False			40024
P5:2. Main breakers closed		False			40025
P5:3. Pressure sensor. low OK		False			40026
P5:4. Reserved		False			40027

Other signals

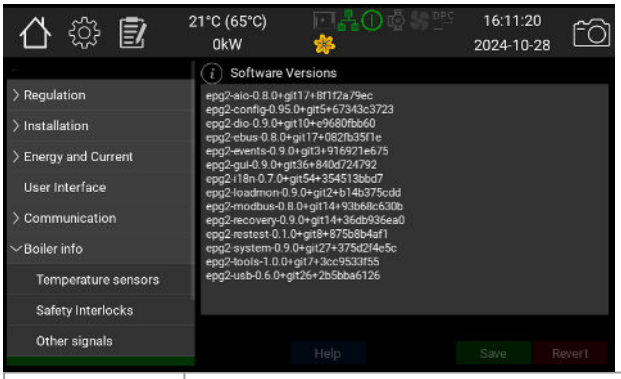
other_ios_helppage



	info_text	default	min	max	mbid
Live LED		False			
Expansion bus 5V		False			40031
Expansion bus 12V		False			40032
P32:2. Expansion board		False			40028
P32:3. Expansion board		False			40029
P32:4. Expansion board		False			40030

Software Versions

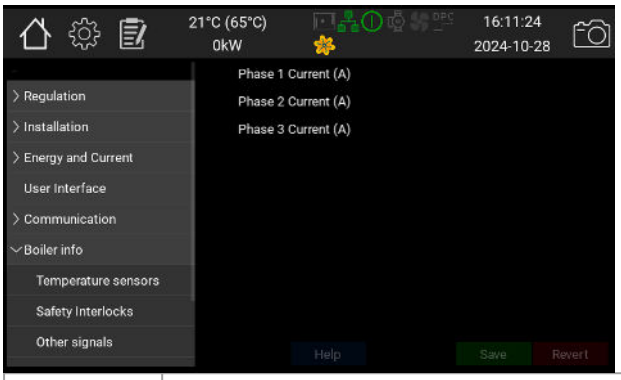
software_versions_helppage



	info_text	default	min	max	mbid
Software Versions					

Load Monitor

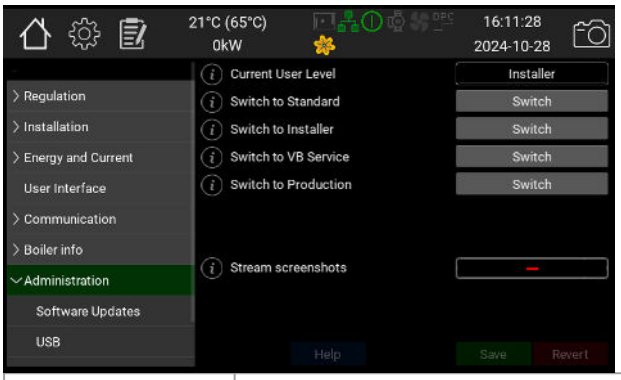
load_monitor_helppage



	info_text	default	min	max	mbid
Phase 1 Current (A)					
Phase 2 Current (A)					
Phase 3 Current (A)					

Administration

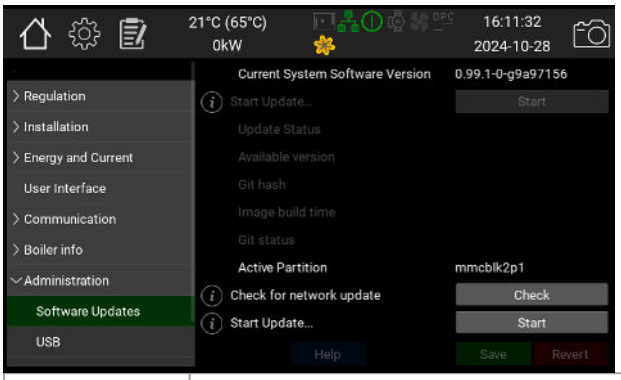
admin_helppage



	info_text	default	min	max	mbid
Current User Level		0			
Switch to Standard		A			
Switch to Installer		A			
Switch to VB Service		A			
Switch to Production		A			
Stream screenshots	When enabled, this will allow the boiler to send a live stream of screenshots to Värmebaronen Service to help installation and troubleshooting. The streaming automatically turns off 20min after the display dims. This requires a working internet connection.	False			

Software Updates

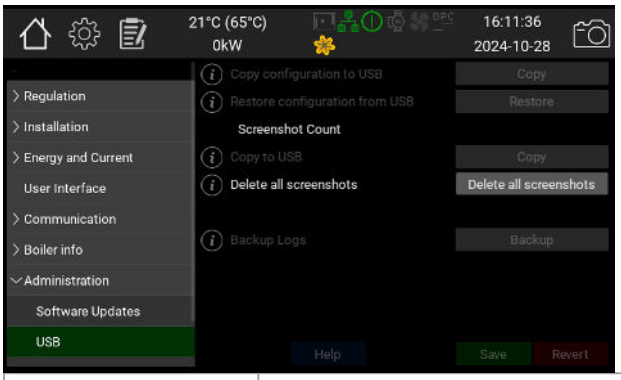
software_update_helppage



	info_text	default	min	max	mbid
Current System Software Version					
Start Update…		A			
Update Status					
Available version					
Git hash					
Image build time					
Git status					
Active Partition					
Check for network update		A			
Start Update...		A			

USB

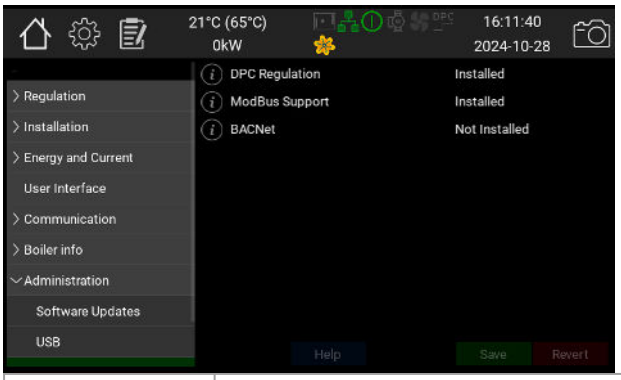
usb_helppage



	info_text	default	min	max	mbid
Copy configuration to USB		A			
Restore configuration from USB		A			
Screenshot Count					
Copy to USB		A			
Delete all screenshots		A			
Backup Logs		A			

Extra Features

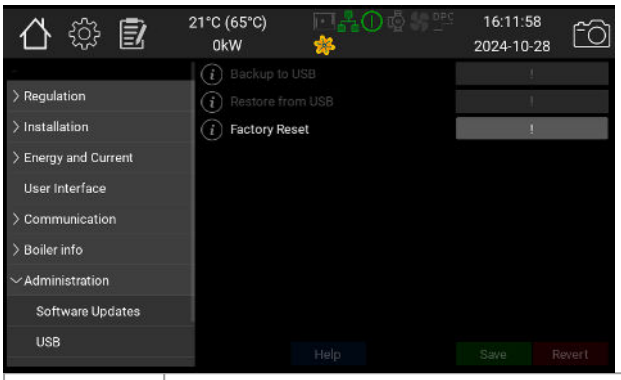
software_features_helppage



	info_text	default	min	max	mbid
DPC Regulation	Set if DPC mode is available				
ModBus Support	Set if modbus is available				
BACNet	Set if BACNet is available				

Configuration

configuration_helppage



	info_text	default	min	max	mbid
Backup to USB		A			
Restore from USB		A			
Factory Reset		A			