GB

EXcon handheld terminal

Menus and alarms
VEX5000

VEX4000
RANGE
MODULES

Original instructions

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Symbols and terms

Prohibition symbol

Failure to observe instructions marked with a prohibition symbol may result in serious or fatal injury.

Danger symbol

Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the unit.

Terms

These instructions use the following terms for air flows as given in DS447-2013:

- Supply air
- Extract air
- Outdoor air
- Exhaust air
- Recirculation

Screen displays

These guidelines contain screen displays intended to the help the user and indicate which menu the user is currently viewing.

NB:

The order of screen displays/menus depends on the VEX units settings. Therefore there may be discrepancies between the order of screen displays in the guidelines and in the VEX unit's handheld terminal.

Software version

Software version

These instructions are for use with the following version:

- EXcon Master SW: 3.19
- Handheld terminal SW: 1.04

The current software version for both the EXcon Master and the handheld terminal can be seen in the menu: **User > On control** of the handheld terminal.

1. The handheld terminal

1.1 Operation

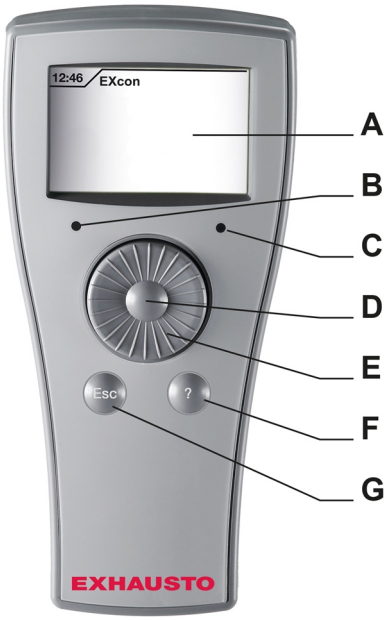
Functional description

Reading, programming and control can be performed from the handheld terminal. The terminal has a graphic display, a button with PRESS and TURN function, a "?" (help)-button and an "Esc" button.

The handheld terminal menu and settings are structured to correspond to the menu and settings found in the EXcon control system's web server. The functionality, settings, etc. of the EXcon control system are described in the EXcon instructions.

Handheld terminal

A	Graphic display
B	Light diode: Green LED which lights up when voltage on the handheld terminal is OK.
C	Light diode: Red LED which flashes in the event of an alarm from the unit or the system alarms.
D	PRESS button
E	TURN button
F	? button
G	ESC button



1.1.1 Operation and functions

TURN function

The TURN function is used to switch between menus and for setting values.

Turn to the right > next menu/increase value

Turn to the left > previous menu/decrease value

PRESS function

The PRESS function is used to enter the menu.

One press > confirm and next value

Two presses > confirm and previous value

ESC button

The ESC button is used to exit a menu.

? button

Press the ? button to bring up help text on the display.

Changing the set value

The hatched field indicates the active value, which can be changed by turning the turn button. Press the press button to confirm the selected choice. Press the ESC button to exit a menu. The following describes a programming sequence.

Handheld terminal TURN/PRESS	Action	
	FIND MENU	Find the desired menu choice in the display by turning the turn button.
	SELECT MENU	Select the desired menu by pressing the press button.
	SEARCH FOR VALUE	Find the value you wish to change by turning the turn button.
	SELECT VALUE	Select the desired value by pressing the press button.
	SET VALUE	Set the desired value by turning the turn button right or left.
	CONFIRM VALUE	Confirm the set value and go to the next parameter.

NB! If the buttons on the handheld terminal are not activated in 30 minutes, the unit automatically logs out to user level.

1.1.2 Operating levels

The menus in the hand terminal are divided into three operating levels:

- User level - free access
- Technician/Installation engineer level - requires password
- Service level - requires password

1.2 Passwords

Login at a higher level also gives access to the underlying levels.

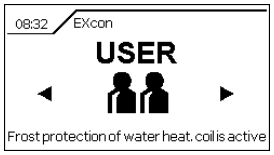
Handheld terminal

Level	Password
User	No password
Technician	1111
Service	1112

It is not possible to change password on the terminal.

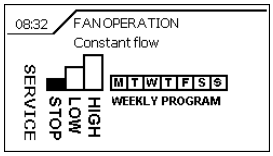
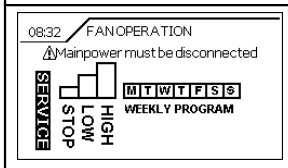
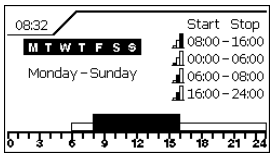
2. User mode

2.1 User menu



The user level menu gives access to operating times, temperature setpoint, clock, alarms, software version and IP address.
No password is required for user level.

2.1.1 Fan operation

User menu		
Fan operation		**Description**
		**FAN OPERATION** Setting operating state.
Submenu	**Submenu**	
		**Set fan operation** ● **SERVICE** ● constant **STOP** ● **LOW** speed ● **HIGH** speed ● Automatic operation according to weekly program
		**SERVICE** The unit in in **Service stop** and can only be started again via this function on the terminal. This prevents the unit being overridden by external systems or accidental start-up and operation during servicing.
		**Shows current "weekly program"**
		**Select type of weekly program** ● Same program all week ● Weekday and weekend ● Individual daily program
		**Set weekly program** 4 periods can be entered for each menu display in the selected weekly program. Set speed (columns) ● **STOP** ● **LOW** ● **HIGH** Set time ● **Start** ● **Stop** **HIGH** speed has priority in case of time overlap. **Number of menu displays/programs** 1 / Whole week 2 / Weekday and weekend 7 / Daily program

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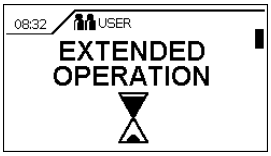
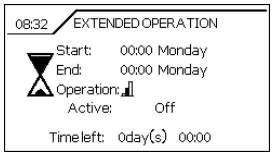
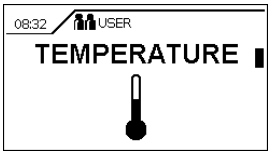
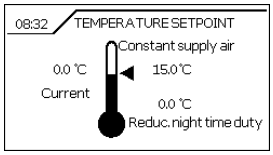
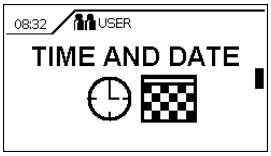
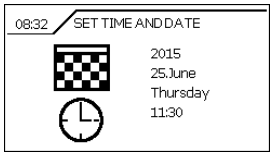
2.1.2 Extended operation

User menu	
Extended operation	**Description**
	**EXTENDED OPERATION** Setup of extended operation period.
Submenu / **Any comments**	
	Extended operation can override the weekly program for an adjusted time period within 7 days. ● Set starting time: [hh:mm weekday] ● Set finishing time: [hh:mm weekday] ● Set operating speed (columns) HIGH/LOW ● Active: Off / On When the period runs out, operation will automatically continue according to the weekly program.

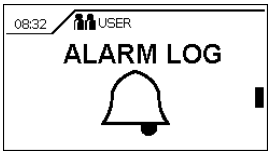
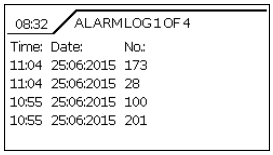
2.1.3 Temperature

User menu		
Temperature		**Description**
		**TEMPERATURE** Setting of the setpoint temperature for the selected regulation type.
Submenu	**Any comments**	
	*Shown if **Temp. set-point offset.** is configured and **External set-point** is selected	**Shows the current temperature and regulation type.** Setting the ● Setpoint temperature ● Night-time reduced duty ● External offset* ● Corrected setpoint*

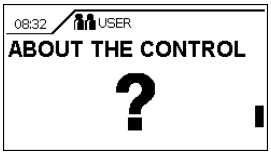
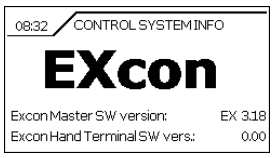
2.1.4 Time and date

User menu	
Time and date	**Description**
	**TIME AND DATE** Entering time and date.
Submenu / **Any comments**	
	**Setting the** ● Year ● Date and month ● Day of the week ● Time EXcon control's built-in clock is among other things used by the weekly program.

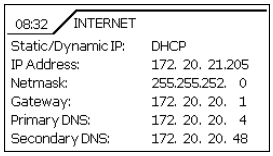
2.1.5 Alarm log

User menu	
Alarm log	**Description**
	**ALARM LOG** Shows the latest alarms.
Submenu / **Any comments**	
	This shows the time, date and alarm no. of the 4 most recent alarms. A corresponding log of 5-16 most recent alarms is shown on the next menu displays. **See alarm list for further information.**

2.1.6 About the control system

User menu	
About the control system	**Description**
	**ABOUT THE CONTROL SYSTEM** Shows the current software version.
Submenu / **Any comments**	
	**Current software version** ● Control (EXcon Master) ● Hand terminal (EXcon Hand terminal)

2.1.7 Internet

User menu		
Internet		**Description**
		**INTERNET** Internet settings - TCP/IP communication
Submenu	**Any comments**	
		**Set IP address.** ● Static: Set network parameters ● Dynamic (DHCP): Address is assigned for the closed network.

3. Installer level

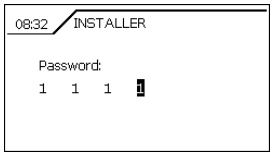
3.1 Installer menu

The menu at installer level gives access to selections and settings for regulation types and integral functions.

Password

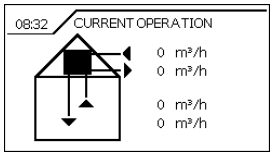
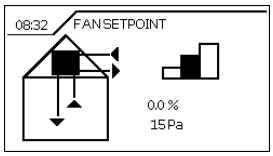
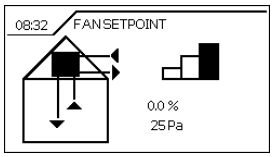
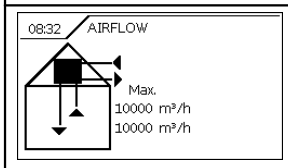
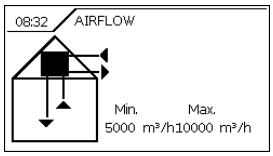
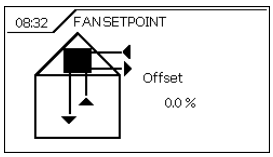
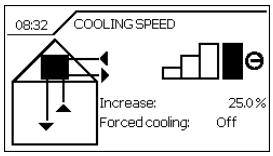
The password for the installer level must be set to allow access to underlying menus.

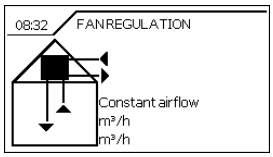
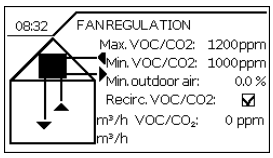
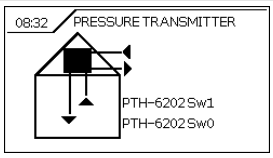
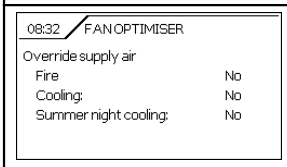
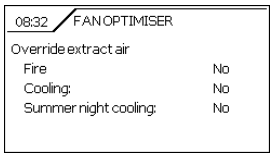
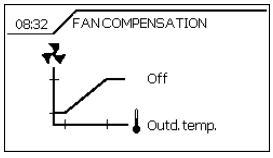
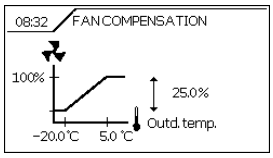
- Code 1111

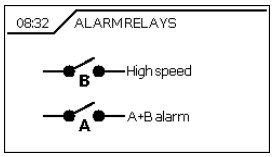
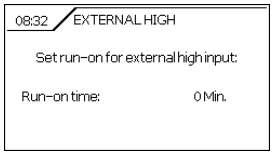


Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the unit.

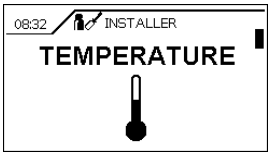
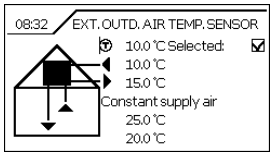
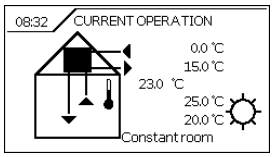
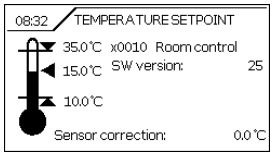
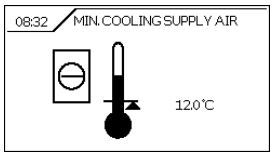
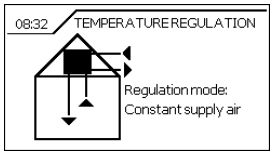
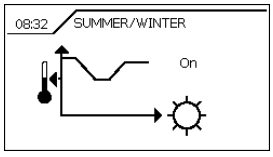
3.1.1 Fan operation

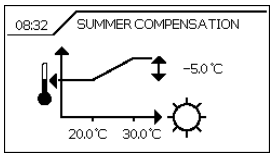
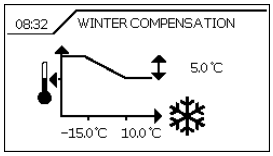
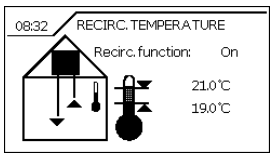
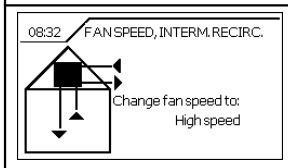
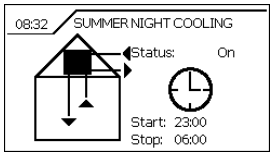
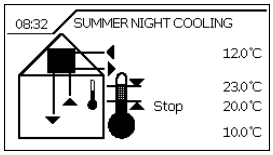
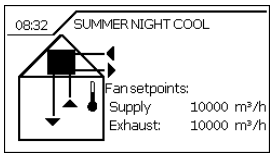
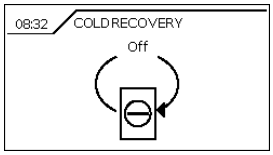
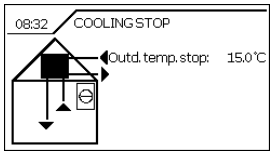
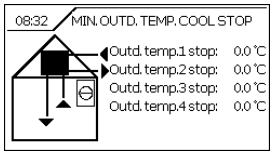
Installer menu		
Fan operation		**Description**
		**FAN OPERATION** Selection of fan regulation type, setpoints and automatic functions.
Submenu	**Any comments**	
		**Shows current operating values** ● Outdoor air [m^3/h] / [l/s] ● Exhaust air [m^3/h] / [l/s] ● Extract air [m^3/h] / [l/s] [Pa] [ppm CO_2] [%] ● Supply air [m^3/h] / [l/s] [Pa] [%]
		**Adjust setpoint - Low speed** ● Extract air [m^3/h] / [l/s] [Pa] [ppm CO_2] [%] ● Supply air [m^3/h] / [l/s] [Pa] [%]
		**Adjust setpoint - High speed** ● Extract air [m^3/h] / [l/s] [Pa] [ppm CO_2] [%] ● Supply air [m^3/h] / [l/s] [Pa] [%]
	Shown for regulation modes: ● Constant pressure ● Extract air slave ● Supply air slave	**Set air quantity** ● Max extract air [m^3/h] [l/s]* ● Max supply air [m^3/h] [l/s]** * Not shown for extract air slave ** Not shown for supply air slave
	Shown for regulation modes: ● Constant VOC/CO_2	**Set min/max airflow** ● Min airflow [m^3/h] ● Max airflow [m^3/h]
	Shown for regulation modes: ● Fan optimiser slave	**Offset** ● Offset extract air [%]
	Shown only if cooling is installed	**Set cooler speed** ● Forced cooling: On/ Off ● % increase of fan speed when cooling is active.

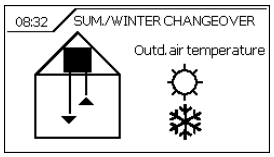
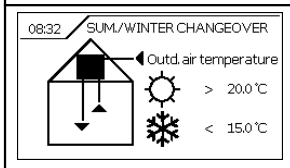
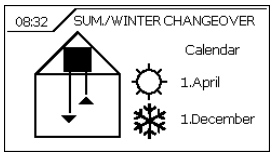
Installer menu		
Fan operation		**Description**
		**Select fan regulation form** ● Constant pressure P [Pa] ● Constant airflow [m^3/h] / [l/s] ● Extract air slave [Pa] & [m^3/h] [l/s] ● Supply air slave [Pa] & [m^3/h] [l/s] ● Constant VOC/CO_2 [ppm CO^2] ● Fan optimiser [m^3/h] [l/s] ● Fan optimiser slave [%] & [m^3/h] [l/s] ● Constant motor speed [%]
	Shown for **modulated circulating air / VOC/CO_2 intermittent circulating air**	**Set fan regulation** ● Set point for max VOC/CO_2 [ppm] ● Setpoint for min. VOC/CO_2 [ppm]* ● Setpoint for minimum outdoor air [%] ● Recirculation air VOC/CO2: On/Off * Shown only if **VOC/CO_2 intermittent circulating air** is selected
		**Read-out of pressure transmitter Modbus addresses** ● Extract air = PTH-6202 SwX ● Supply air = PTH-6202 SwY
	Shown for regulation modes: ● Fan Optimiser	**Override supply air** ● Fire: Yes/No ● Cooling: Yes/No ● Summer night cooling: Yes/No
	Shown for regulation modes: ● Fan Optimiser ● Fan optimiser slave	**Override exit air** ● Fire: Yes/No ● Cooling: Yes/No ● Summer night cooling: Yes/No
		**Set fan compensation** ● Outdoor temperature compensation: On/ Off
	Shown only if outdoor temperature compensation is: **On**	**Set outside temperature compensation** ● Max setpoint reduction [%] ● Outdoor temperature for full compensation [˚C] ● Outdoor temperature for start of compensation [˚C]

Installer menu		
Fan operation		**Description**
		**Set alarm relay function** Set function of B-alarm relay to, for example, operation of extra fan. B-Alarm: ● B Alarm ● Low speed ● High speed ● Summer night cooling A-Alarm: ● A-Alarm ● A + B alarm
		**Set run-on/operating time for digital input External high** E.g. from a connected PIR sensor or an extended operation impulse switch. ● Run-on [min]

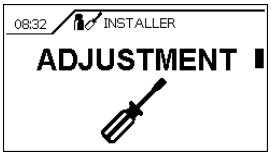
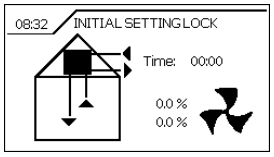
3.1.2 Temperature

Installer menu		
Temperature		**Description**
		**TEMPERATURE** Setting of temperature regulation type, cooling and automatic functions.
Submenu	**Any comments**	
	Shown if **Outdoor air temperature (external sensor)** is configured	**External outdoor temperature sensor** ● Switch on/off external outdoor temperature sensor
		**Shows current operating temperatures** ● Outdoor temperature [°C] ● Exhaust air [˚C] if installed ● Extract air [˚C] if installed ● Supply air [˚C] ● Current regulation form Shown only when room operation is installed. Symbols which are only shown when Summer/Winter changeover is activated: Shown only when the unit is in summer operation. Shown only when the unit is in winter operation.
		**Set temperature setpoint** ● Max. supply air temperature [°C] ● Temperature setpoint [°C] ● Min. supply air temperature [°C] Max. and min. are **not** shown when constant supply air temperature is selected. ● Calibrate room temperature measurement = Setting of sensor offset on room sensor.
	Shown only if cooling is installed	**Minimum input air for cooling requirement** ● Min. supply air temperature [˚C]
		**Set temperature regulation form** ● Constant supply air ● Constant extract air ● Constant room ● Constant supply/extract air difference
		**Summer/winter compensation** ● On/Off Summer/winter compensation

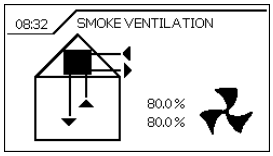
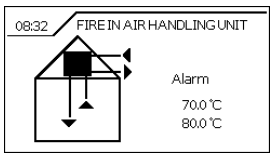
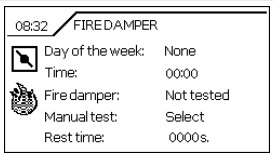
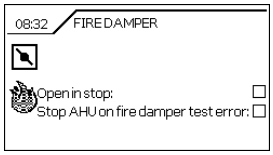
Installer menu		
Temperature		**Description**
	Shown only if summer/ winter compensation is: **On**	**Setting compensation of temperature setpoint** ● Summer temperature difference [˚C] ● Summer start [˚C] ● Summer maximum [˚C]
	Shown only if summer/ winter compensation is: **On**	**Winter compensation of temperature setpoint** ● Winter temperature difference [˚C] ● Winter start [˚C] ● Winter maximum [˚C]
	Shown only if **circulation air** is installed and temperature regulation is set to: **Constant room temperature**	**Set recirculation air function** ● Recirculation function: On/ Off ● Recirculation stop temperature [˚C] ● Recirculation start temperature [˚C]
	Shown only if **VOC/CO_2 intermittent circulating air** is selected	**Fan speed - VOC/CO_2 intermittent recirculation air** ● Alter fan speed to: Low speed/High speed Set fan speed when the system is running minimum night/night heating.
		**Summer night cooling** ● Status: On/ Off ● Start time for summer night cooling ● Stop time for summer night cooling
	Shown if summer night cooling is: **On**	**Set summer night cooling** ● Stop outdoor air temperature [˚C] ● Start room temperature [˚C] ● Stop room temperature [˚C] ● Min supply air temperature [°C]
	Shown if summer night cooling is: **On**	**Summer night cooling, set fan setpoint** ● Supply air [%] ● Extract air [%]
	Shown if cooling is installed	**Cold recovery** ● On/Off cold recovery
	Shown for: ● Water cooling ● External DX	**Set cooling stop on active cooling at low outdoor temperature, so free cooling can be used** ● Cooling stop [˚C]
	Shown for: ● DX cooling	**Minimum outdoor temperature cooling stop** ● Outdoor air temp. 1, stop [°C] (stop cooling step 1) ● Outdoor air temp. 2, stop [°C] (stop cooling step 2) ● Outdoor air temp. 3, stop [°C] (stop cooling step 3) ● Outdoor air temp. 4, stop [°C] (stop cooling step 4)

Installer menu		
Temperature		**Description**
	Shown at following temperature regulations: ● Constant extract air temperature ● Constant room temperature	**Set summer/winter change** Summer ● Room temperature Winter ● Supply air temperature Summer/winter changeover ● Off ● Outdoor air temperature ● Calendar ● Summer ● Winter
	Shown if change is: **Outdoor air temperature**	**Set change, outside air temperature** ● Summer for higher temperature [°C] ● Winter for lower temperature [°C] ● Not changed if the temperature is within the summer/winter limits.
	Shown if change is: **Calendar**	**Set changeover date** ● Changeover to summer operation on this date ● Changeover to winter operation on this date

3.1.3 Initial adjustment

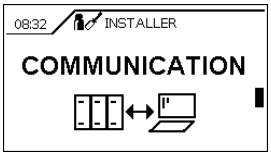
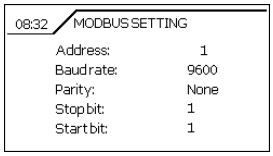
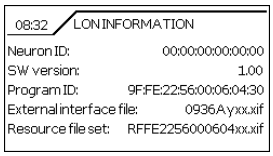
Installer menu		
Initial adjustment		**Description**
		**INITIAL SETTINGS** Lock fan speeds while making manual adjustments to the VAV damper in the ventilation ducts.
Submenu	**Any comments**	
		**Setting of time during which fan speeds are locked at the speed level set in the FIRE menu.** ● Set time: hh:mm The fans are locked at their current speed if the time is set to any value other than 00:00. The time automatically counts down. The lock is deactivated by setting the time to 00:00 and waiting max. 60 s

3.1.4 Fire

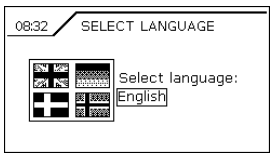
Installer menu		
Fire		**Description**
		**FIRE** Setting of fan speed in case of fire alarm, and temperature limit for internal fire alarm in the machine.
Submenu	**Any comments**	
		**Set fire ventilation** When the fire alarm is activated, the fan is forced to operate at the set speed. ● Extract air fan [%] ● Supply air fan [%]
		**Set the temperature limits for internal fire alarm in the unit** ● Temperature in extract air [°C] ● Temperature in supply air [°C]
	Shown only if a digital input and output are configured for **the fire damper test**	**Set testing of fire damper** ● Setting of fire damper test ● Time of fire damper test ● Result of last test. ● Manual test ● Residual time for this test.
	Shown only if a digital input and output are configured for **the fire damper test**	**Option for fire damper at shutdown** Select whether the fire damper is to open or close in the case of unit shutdown.

NB: The selected fans mode must meet regulatory standards.

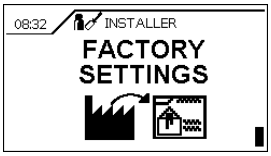
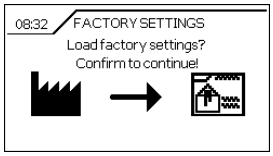
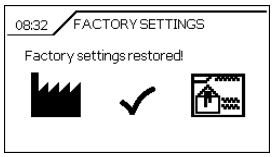
3.1.5 Communication

Installer menu		
Communication		**Description**
		**COMMUNICATION** Modbus/RTU settings
Submenu	**Any comments**	
		**Modbus settings** Settings for remote communication on Modbus RS485 connection. ● Modbus address [1 - 240] ● Baud rate (9600, 19200, 38400) ● Parity[None, Equal, Unequal] ● Stopbit [1, 2] ● Startbit [1, 2]
	Shown only if LON is installed	**Show LON information** ● Neuron ID ● Program ID ● External interface file ● Resource file set

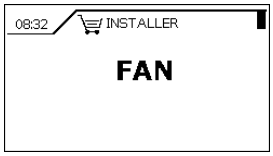
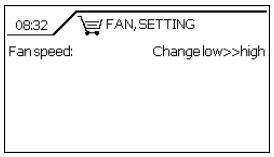
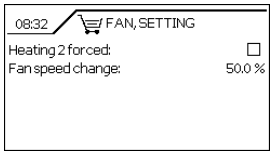
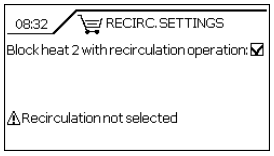
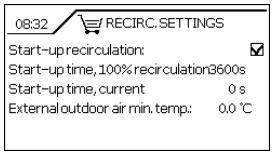
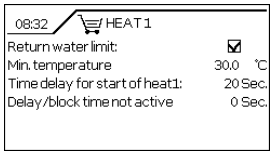
3.1.6 Language

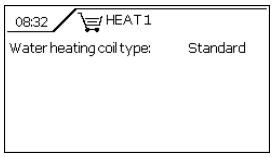
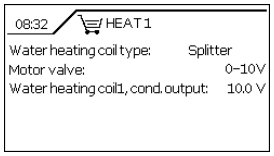
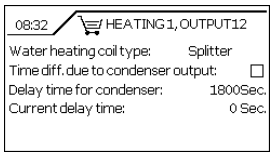
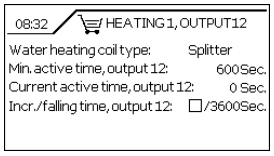
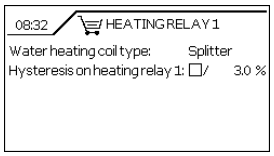
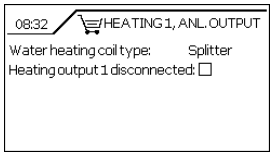
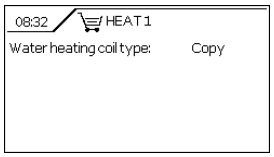
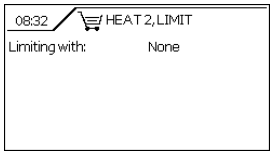
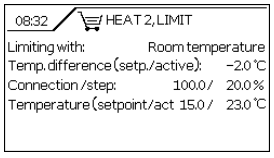
Installer menu		
Language		**Description**
		**SROG** Select language in handheld terminal
Submenu	**Any comments**	
		**Set language** Select language: ● Swedish ● Norwegian ● Danish ● English ● German ● French ● Russian ● Dutch ● Finnish Language will change to the selected option on exiting the menu.

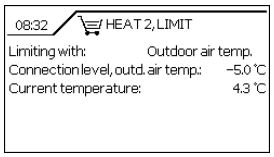
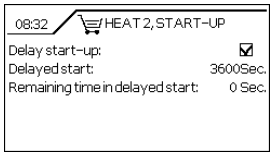
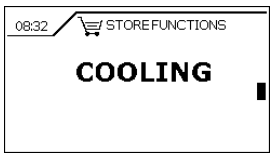
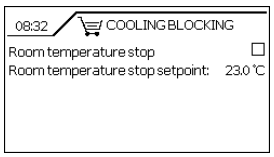
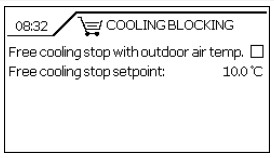
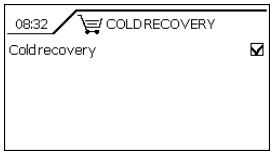
3.1.7 Factory setting

Installer menu		
Factory setting		**Description**
		**DEFAULT SETTINGS** Recreate default settings in control system.
Submenu	**Any comments**	
		**Confirm retrieval of default settings** ESC: aborts OK: Continues
		**Acknowledgement of correct re-entry of default settings.**

3.1.8 Store functions

Installer menu		
Store functions		**Description**
		**SHOP FUNCTIONS** Select on and off settings for energy saving functions. This menu is only available if, under **EXcon modules > configure > SettingsShop functions** is crossed off.
Submenu	**Submenu**	
		**Setting of functions in fan**
		**Set speed change for fans** ● None ● Change Low Low > High ● Change High > Low
		**Set heating 2** Choose whether activation of **Heat2** is to override fan speed. ● Set fan speed change in case of active **Heat2**.
		**Set functions in recirculation damper**
		**Set blocking of Heat2 with recirculation air** ● Mark to activate blocking **Heat 2** is blocked when the unit runs with air recirculation.
		**Set heating with recirculation air** ● Mark to activate the function ● Set heating time [Sec] ● Read off current start-up time [s] ● Set outdoor temperature for activation [˚C] When the function is activated, the unit will operate with recirculation during the early morning heating of the shop if the outdoor temperature is above the set value.
		**Set function for Heat 1** **Heating surface 1** can be set according to various regulation principles.
		**Set min return water limits** ● Mark to activate the function ● Set min. return temperature in **Heat 1**[˚C] ● Set time delay for **heat 1** [Sec] ● Read off current blocking time [s]

Installer menu		
Store functions		**Description**
Shown only if reg. type **Standard** is selected.		**Select Heat 1 regulation type** Select **Standard** if **Heat1** is to be regulated as a single heating surface.
Shown only if reg. type **Splitter** is selected.		**Select Heat 1 regulation type** Select **Splitter** if Heat1 is to be regulated as 2 heating surfaces connected in sequence = **Heat1** and **Heat12** ● Set exit signal **Heat 12** [0-10V/2-10V] ● Read off current exit signal for **Heat 12** [V]
Shown only if reg. type **Splitter** is selected.		**Set reg. parameters for exit Heat 12** ● Mark to activate the function ● Set delay for condenser [s] ● Read off current condenser delay [s]
Shown only if reg. type **Splitter** is selected.		**Set reg. parameters for exit Heat 12** ● Set min active time for **Heat 12** ● Read off current active time for **Heat 12** ● Mark for activation of rise/fall time ● Set min rise/fall time [Sec]
Shown only if reg. type **Splitter** is selected.		**Set reg. parameters for exit Heat 12** ● Mark to activate hysteresis **Heat 1** ● Set hysteresis for relay **Heat 1** [%]
Shown only if reg. type **Splitter** is selected.		**Set reg. parameters for exit Heat 1** ● Mark to deactivate **Heat 1**
Shown only if reg. type **Copy** is selected.		**Select Heat 1 regulation type** Select **Copy** if **Heat 1** is to be regulated as 2 heat surfaces connected in parallel.
		**Set limits for Heat 2** In many cases **Heat2** is an electrically heated surface. To save energy from this heat source, the control system may be set to automatically reduce use of this heat source, depending on the deviation from room temperature or depending on outdoor temperature.
		**Set limits for Heat 2** ● None - no limits for **Heat 2**
Shown only for**Room temperature** limitation		**Room temperature limits** ● Set temperature difference (setpoint/current) [°C] ● Connection degree per step [%] ● Read of Temperature (setpoint/current) [°C]

Installer menu		
Store functions		**Description**
Shown only in case of **"outdoor temperature"** limits		**Outdoor temperature limits** ● Set connection level [°C] ● Read off current outdoor temperature [°C]
		**Delayed start-up Heat 2** ● Mark to activate the function ● Set delayed start **Heat 2** [Sec.] ● Read off current time in delayed start [Sec]
		**Set cooling limits**
		**Limit cooling in case of high room temperature** The function is set to block connection of cooling even though there is an active cooling requirement. ● Mark to activate the function ● Set setpoint for stop of cooling [°C] If the current room temperature exceeds this setpoint, cooling will be blocked.
		**Blocking of cooling** This function is used to limit cooling with fresh air. ● Mark to activate the function ● Set free cooling stop setpoint [°C]
		**Cold recovery** ● Mark to activate the function The function is meant to ensure that when there is a cooling requirement and the outdoor temperature is +1˚C > room temperature, the unit damper will be diverted to minimum fresh air to save cooling energy.

4. Service level

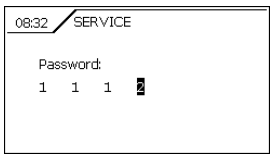
4.1 Service menu

The service level menu gives access to the operating values, settings and forced operation of the unit's components.

Password

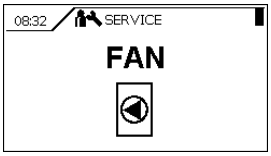
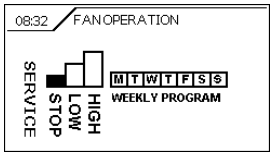
The password must be set to allow access to underlying menus. The password gives automatic access to installer level.

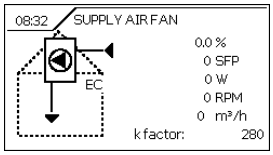
- Code 1112

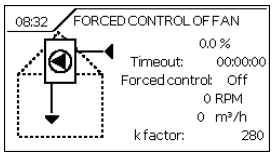


Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the unit.

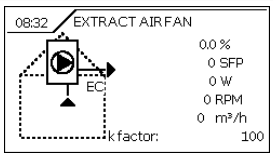
4.1.1 Fan

<table>
<tr><th colspan="3">Service menu</th></tr>
<tr><th colspan="2">Fan</th><th>Description</th></tr>
<tr><td colspan="2"> 
</td><td>FAN
Show current operating status. Set functions and forced fan control.</td></tr>
<tr><th>Submenu</th><th>Any comments</th><th></th></tr>
<tr><td> 
</td><td></td><td>Set fan operation
● SERVICE
● Manual STOP
● Constant LOW speed
● Constant HIGH speed
● Automatic operation according to weekly program

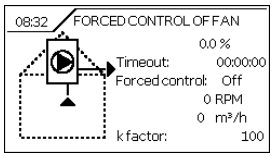
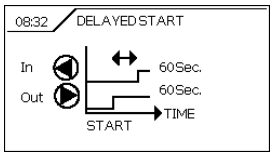
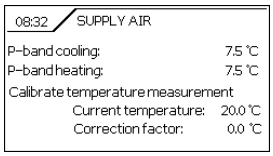
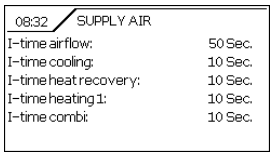
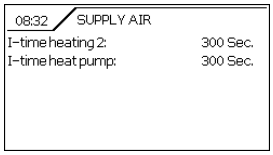
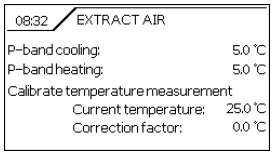
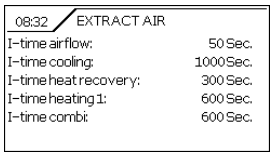
NB! When setting SERVICE , the unit cannot be started from the WEB user interface, but only from the hand-held terminal.</td></tr>
<tr><td> 
</td><td></td><td>Supply air fan operating status
● Current setpoint [%]
● Specific Fan Power SFP [J/m3]
● Current power consumption [W]
● Current rpm [RPM]
● Current ventilation [m3/h] [l/s] [Pa]
● Current k-factor for calculating airflow

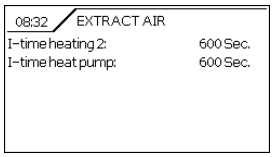
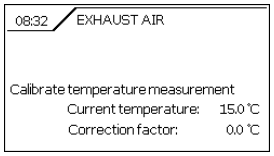
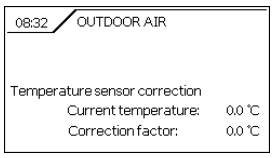
Symbol 🔔 is shown when an alarm from the frequency converter is triggered.</td></tr>
<tr><td></td><td> 
</td><td>Forced control of supply air fan and setting of K factor.
Forced operation is only possible once the unit has startet.

● Set the forced control setpoint [%]
● Setting of remaining time until forced control expires [hh:mm:ss]
● Activate forced control: On/Off
● Current rpm [RPM]
● Current ventilation [m3/h] [l/s] [Pa]
● Setting of k-factor

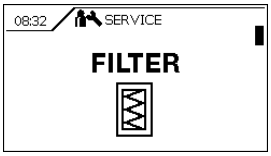
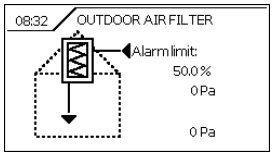
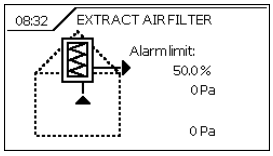
Symbol 🔔 is shown when an alarm from the frequency converter is triggered.</td></tr>
<tr><td> 
</td><td></td><td>Extract air fan operating status
● Current setpoint [%]
● Specific Fan Power SFP [J/m3]
● Current power consumption [W]
● Current rpm [RPM]
● Current ventilation [m3/h] [l/s] [Pa]
● Current k-factor for calculating airflow

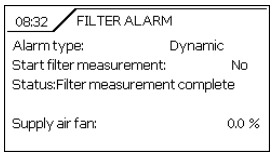
Symbol 🔔 is shown when an alarm from the frequency converter is triggered.</td></tr>
</table>

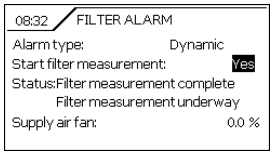
Service menu		
Fan		**Description**
		**Forced control of supply air fan and setting K factor.** Forced operation is only possible once the unit has startet. ● Set the forced control setpoint [%] ● Setting of remaining time until forced control expires [hh:mm:ss] ● Activate forced control: On/Off ● Current rpm [RPM] ● Current ventilation [m3/h] [l/s] [Pa] ● Setting of k-factor Symbol is shown when an alarm from the frequency converter is triggered.
		**Setting of delayed fan start** ● Supply air fan delay [sec] Starts x secs after extract air fan ● Extract air fan delay [sec] Starts y sec. after start of damper opening.
		**Set temperature regulation** ● P-band cooling [°C] ● P-band heating [°C] ● Shows current temperature [°C] ● Correction value [°C]
		**Set regulation parameters for input** ● I-time airflow [sec] ● I-time cooling [sec] ● I-time heat recovery [sec] ● I-time heating 1 [sec] ● I-time combi[sec]
		**Set regulation parameters for input** ● I-time heating 2 [sec] ● I-time heat pump [sec]
		**Set temperature regulation for exit air** ● P-band cooling [°C] ● P-band heating [°C] ● Shows current temperature [°C] ● Correction value [°C]
		**Set regulation parameters for exit air** ● I-time airflow [sec] ● I-time cooling [sec] ● I-time heat recovery [sec] ● I-time heating 1 [sec] ● I-time combi [sec]

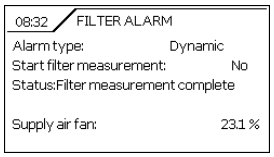
Service menu		
Fan		**Description**
		**Set regulation parameters for exit air** ● I-time heating 2 [sec] ● I-time heat pump [sec]
		**Calibrate temperature measurement for exhaust air (sensor correction/offset)** ● Shows current temperature [°C] ● Correction value [°C]
		**Calibrate temperature measurement for outdoor air (sensor correction/offset)** ● Shows current temperature [°C] ● Correction value [°C]

4.1.2 Filter

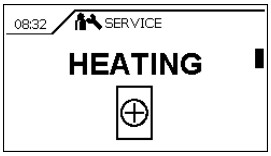
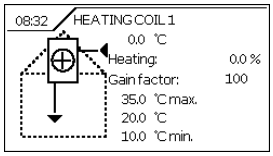
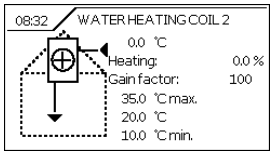
Service menu		
Filter		**Description**
		**FILTER** Show current pressure. Setting of filter alarms.
Submenu	**Any comments**	
		**Set outdoor air filter alarm limit** ● Setting of alarm limit [Pa] [%] ● Current alarm limit [Pa] * ● Current filter pressure [Pa] Symbol is shown when a filter alarm is triggered. * Shown only in the event of a dynamic filter alarm
		**Set exit air filter alarm limit** ● Setting of alarm limit [Pa] [%] ● Current alarm limit [Pa] * ● Current filter pressure [Pa] Symbol is shown when a filter alarm is triggered. * Shown only in the event of a dynamic filter alarm

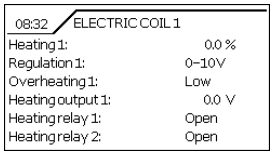
		**Set filter alarm type and measurement of filter pressure reference**
		● Set alarm type: Static/Dynamic
		● Start filter measurement: Yes/No
		● Show status of filter measurement
		  ● Not measured
		  ● Filter measurement in progress
		  ● Filter measurement completed
		
		Static: The alarm limit is fixed and set in Pa
		
		Dynamic: The Alarm limit depends on the current air quantity and is set in % deviation relative to measured filter pressure reference.
		
		Filter measurement: When dynamic alarm type is selected, a filter reference pressure must be measured on a clean filter.
		
		If the filter is changed during servicing, the filter measurement must be repeated.
		When Yes is selected, the unit automatically measures the filter pressure as a function of flow, and the sequence lasts about 10 min. Both filters are measured at the same time.

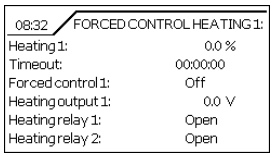
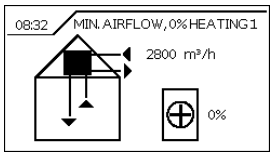
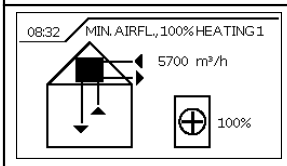
		**Start filter measurement** Confirm to start filter measurement, press **Esc** to abort.

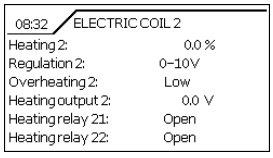
Service menu		
Filter		**Description**
		**Filter measurement complete** Acknowledgement that filter measurement is in progress/is complete.

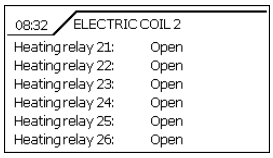
4.1.3 Heating

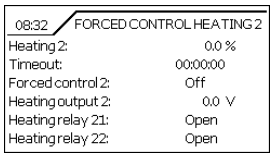
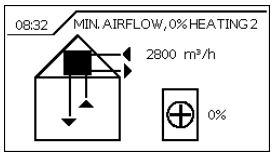
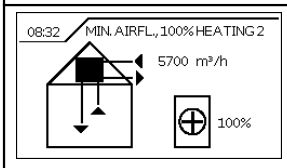
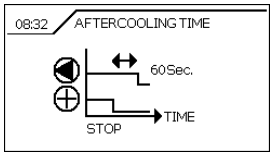
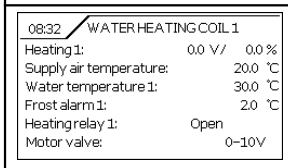
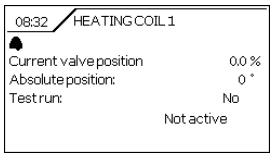
Service menu		
Heating		**Description**
		**HEATING** Show current operating status. Set functions and forced fan control of heating coils.
Submenu	**Any comments**	
		**Show current operating status. Set temperature for heating coil 1** ● Current outdoor temperature [°C] ● Current heating [%] ● Set max supply air temp. [°C] * ● Current supply air temperature [°C] ● Set min supply air temp. [°C] * Symbol is shown when an alarm from the heat interface is triggered. * Not shown for temperature regulation: Constant supply air
		**Show current operating status. Set temperature for heating coil 2** ● Current outdoor temperature [°C] ● Current heating [%] ● Set max supply air temp. [°C] * ● Current supply air temperature [°C] ● Set min supply air temp. [°C] * Symbol is shown when an alarm from the heat interface is triggered. * Not shown for temperature regulation: Constant supply air
Electric heating coil		

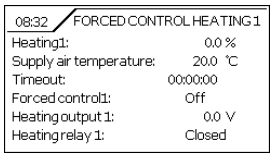
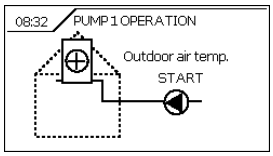
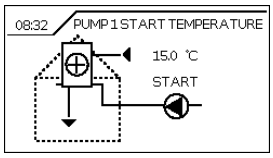
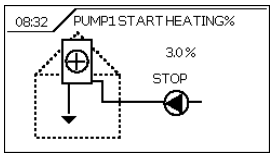
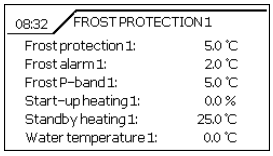
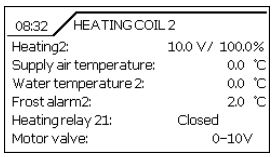
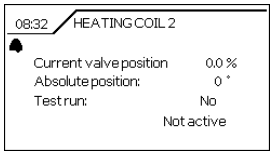
	Shown for the electric heating coil 1	**Show current operating status. Set regulation for current type of electric heating coil 1**
		● Current heating [%]
		● Set regulation form:
		  ● 0–10 V
		  ● 1 step
		  ● 2 step
		  ● 3 step
		  ● 4 step
		  ● 5 step
		  ● 7-step binary
		● Overheating: Low/High
		● Current signal at heat output [V]
		● Current status Heating relay 1: Open/closed
		● Current status Heating relay 2: Open/closed

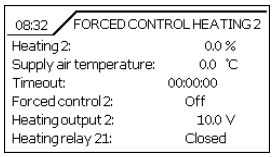
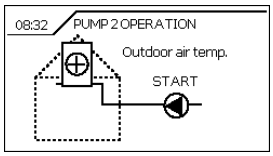
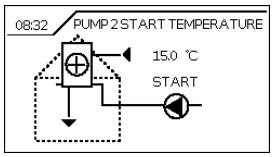
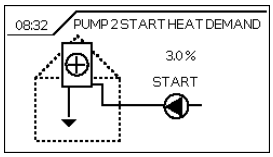
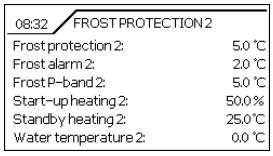
Service menu		
Heating		**Description**
	Shown for the electric heating coil 1	**Forced control of electric heating coil** Forced operation is only possible once the unit has started. ● Set forced operation setpoint [%] ● Set remaining time until forced operation terminates [hh:mm:ss] ● Activate forced operation: On/Off ● Current signal at heating output [V] ● Current status Heating relay 1: Open/closed ● Current status Heating relay 2: Open/closed
	Shown for the electric heating coil 1	**Set min airflow for partially connected electric heating coil 1** ● Set supply airflow [m3/h] [l/s] **Reduced** is displayed if the heating output is reduced due to low airflow.
	Shown for the electric heating coil 1	**Set min airflow for 100% connected electric heating coil 1** ● Set supply airflow [m3/h] [l/s] **Reduced** is displayed if the heating output is reduced due to low airflow.

	Shown for the electric heating coil 2	**Show current operating status. Set regulation for current type of electric heating coil 2.**
		● Current heating [%]
		● Set regulation form:
		  ● 0–10 V
		  ● 1 step
		  ● 2 step
		  ● 3 step
		  ● 4 step
		  ● 5 step
		  ● 7-step binary
		● Overheating: Low/High
		● Current signal at heating output [V]
		● Current status Heating relay 21: Open/closed
		● Current status Heating relay 22: Open/closed

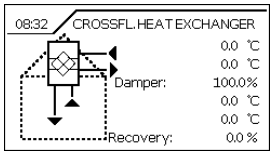
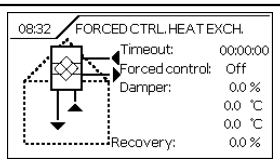
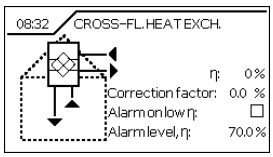
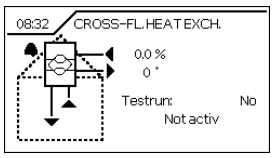
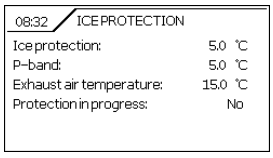
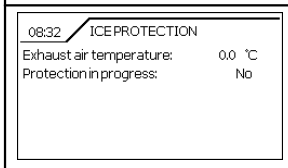
	Shown for the electric heating coil 2	**Current status electric heating coil 2** ● Current status Heating relay 21: Open/closed ● Current status Heating relay 22: Open/closed ● Current status Heating relay 23: Open/closed ● Current status Heating relay 24: Open/closed ● Current status Heating relay 25: Open/closed ● Current status Heating relay 26: Open/closed

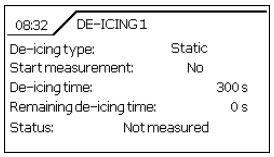
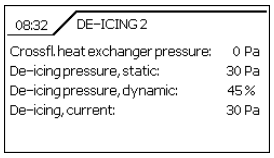
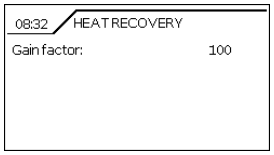
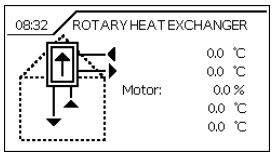
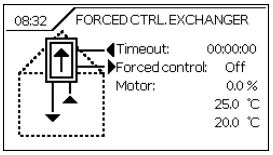
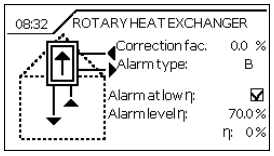
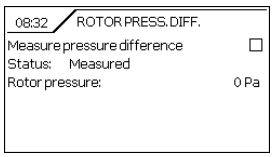
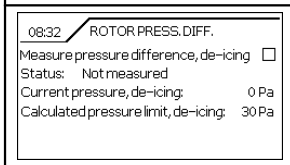
Service menu		
Heating		**Description**
	Shown for the electric heating coil 2	**Forced control of electric heating coil 2** Forced operation is only possible once the unit has started. ● Set forced operation setpoint [%] ● Set remaining time until forced operation terminates [hh:mm:ss] ● Activate forced operation: On/ Off ● Current signal at heating output [V] ● Current status Heating relay 21: Open/closed ● Current status Heating relay 22: Open/closed
	Shown for the electric heating coil 2	**Set min airflow for partially connected electric heating coil 2** ● Set supply airflow [m3/h] [l/s] **Reduced** is displayed if the heating output is reduced due to low airflow.
	Shown for the electric heating coil 2	**Set min airflow for 100% connected electric heating coil 2** ● Set supply airflow [m3/h] [l/s]
	Shown for electric heating coil	**Set after cooling time of electric heating coil** ● Set time [sec] In case of shutdown, the supply air fan continues operation during the aftercooling time.
Water heating coil		
	Shown for the water heating coil 1	**Show current operating status. Set frost alarm on water heating coil 1** ● Current heating 1 [%] ● Current supply air temperature [°C] ● Current water temperature 1 [°C] ● Frost alarm 1 [°C] ● Current status Heat relay 1: Open/closed ● Set motor valve's regulation area [2-10V = VEX4000 standard]
	Shown at Belimo Modbus valve	**Heating coil 1, Modbus** ● Current valve setting [%] ● Absolute position [Feedback] ● Test run: Yes/No ● Communication: Active / Inactive

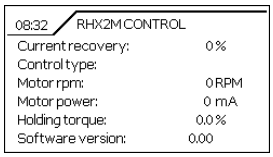
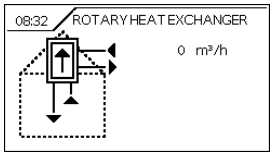
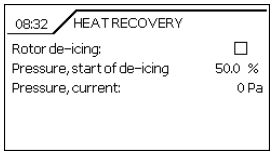
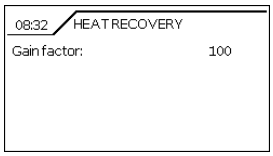
Service menu		
Heating		**Description**
	Shown for the water heating coil 1	**Forced control of water heating coil 1** Forced operation is only possible once the unit has started. ● Set forced operation setpoint [%] ● Current supply air temperature [°C] ● Set remaining time until forced operation terminates [hh:mm:ss] ● Activate forced operation: On/ Off ● Current signal at heating output [V] ● Current status Heating relay 1: Open/closed
	Shown for the water heating coil 1	**Set pump operation 1** Pump operation can be set to: ● Constant operation ● Auto ● Outdoor air temperature ● Heating requirement **Start** appears when pump is in operation.
	Shown at Water heating coil 1 and if **outdoor temperature** is selected	**Set pump 1 start temperature** ● The pump starts when the outdoor temperature is lower than the set value. [°C] **Start** appears when pump is in operation.
	Shown at Water heating coil 1 and if **outdoor temperature** is selected	**Set pump 1 start temperature** ● The pump starts when the outdoor temperature is lower than the set value. [%] **Start** appears when pump is in operation.
	Shown for the water heating coil 1	**Setting of frost protection in hot water interface 1** ● Set temperature for full frost protection [°C] ● Set temperature for frost alarm [°C] ● Set frost protection P-band [°C] ● Set heat boost upon start-up [%] ● Set hot water interface temperature to standby [°C] ● Current water temperature [°C]
	Shown for the water heating coil 2	**Show current operating status. Set frost alarm on water heating coil 2** ● Current heat 2 [%] ● Current input air temperature [°C] ● Current water temperature 2 [°C] ● Frost alarm 2 [°C] ● Current status Heat relay 21: Open/closed ● Set motor valve's regulation area [2-10V = VEX4000 standard]
	Shown at Belimo Modbus valve	**Heating coil 2, Modbus** ● Current valve setting [%] ● Absolute position [Feedback] ● Test run: Yes/No ● Communication: Active / Inactive

Service menu		
Heating		**Description**
	Shown for the water heating coil 2	**Forced control of water heating coil 2** Forced operation is only possible once the unit has started. ● Set forced operation setpoint [%] ● Current input air temperature [°C] ● Set remaining time until forced operation terminates [hh:mm:ss] ● Activate forced operation: On/ Off ● Current signal at heat output [V] ● Current status Heat relay 21: Open/closed
	Shown for the water heating coil 2	**Set pump operation** Pump operation can be set to: ● Constant operation ● Auto ● Outdoor air temperature ● Heating requirement **Start** appears when pump is in operation.
	Shown at Water heating coil 2 and if **outdoor temperature** is selected	**Set pump 2 start temperature** ● The pump starts when the outdoor temperature is lower than the set value. [°C] **Start** appears when pump is in operation.
	Shown at Water heating coil 2 and if **outdoor temperature** is selected	**Set pump 2 start temperature** ● The pump starts when the outdoor temperature is lower than the set value. [%] **Start** appears when pump is in operation.
	Shown for the water heating coil 2	**Setting of frost protection in water heating coil 2** ● Set temperature for full frost protection [°C] ● Set temperature for frost alarm [°C] ● Set frost protection P-band [°C] ● Set heat boost upon start-up [%] ● Set Water heating coil temperature to standby [°C] ● Current water temperature [°C]

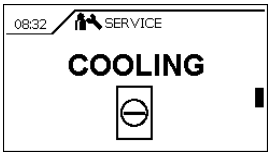
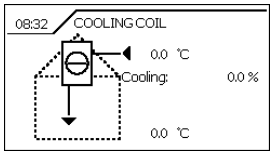
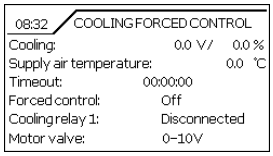
4.1.4 Heating recovery

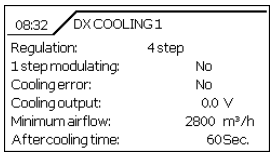
Service menu		
Heating recovery		**Description**
		**HEATING RECOVERY** Show current operating status. Set functions and forced fan control of heat exchanger.
Submenu	**Submenu/Any comments**	
Crossflow heat exchanger		
		**Shows current status of crossflow heat exchanger** ● Current outdoor temperature [°C] ● Current exhaust air temperature [°C] ● Current recovery signal [%] ● Current extract air temperature [°C] ● Current supply air temperature [°C] ● Current heating recovery [%]
		**Forced control of crossflow heat exchanger** Forced operation is only possible once the unit has started. ● Set remaining time until forced operation terminates [hh:mm:ss] ● Activate forced operation: On/ Off ● Set forced operation setpoint [%] ● Current extract air temperature [°C] ● Current supply air temperature [°C] ● Current heat recovery [%]
		**Efficiency crossflow heat exchanger** ● Current efficiency [%] ● Correction factor [%] ● Alarm in case of low efficiency: Yes/No ● Alarm level [%]
	Shown at Belimo Modbus damper	**Bypass damper, Modbus** ● Current damper setting [%] ● Absolute position [Feedback] ● Test run: Yes/No ● Communication: Active / Inactive
	Shown for temperature-controlled ice protection	**Set ice-protection of crossflow heat exchanger** ● Set ice protection temperature [°C] ● Set ice protection P band. [°C] ● Shows current exhaust air temperature [°C] ● Ice protection in progress: Yes/No
	Shown for temperature-controlled ice protection	**Show status of crossflow heat exchanger** ● Shows current exhaust air temperature [°C] ● Protection in progress: Yes/No

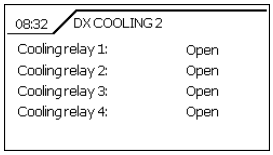
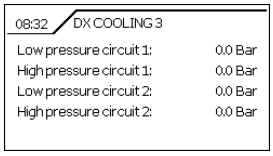
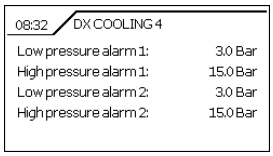
Service menu		
Heating recovery		**Description**
	Shown for temperature-controlled ice protection	**Settings for pressure-controlled de-icing, time** ● De-icing type: Static/Dynamic ● Start measurements: Yes/No ● De-icing time [s] ● Remaining de-icing time [s] ● Measurement status
	Shown for temperature-controlled ice protection	**Settings for pressure-controlled de-icing, pressure** ● Current crossflow heat exchanger pressure [Pa] ● De-icing pressure, static [Pa] ● De-icing pressure, dynamic [Pa] ● De-icing pressure, current [Pa]
		**Gain factor** ● Set gain factor
Rotary heat exchanger		
		**Shows current status of rotary heat exchanger** ● Current outdoor temperature [°C] ● Current exhaust air temperature [°C] ● Current recovery signal [%] ● Current extract air temperature [°C] ● Current supply air temperature [°C]
		**Forced control of rotary heat exchanger** Forced operation is only possible once the unit has started. ● Setting of remaining time until forced control expires: [hh:mm: ss] ● Activate forced control: On/ Off ● Set forced operation setpoint for motor [%] ● Current extract air temperature [°C] ● Current supply air temperature [°C]
		**Efficiency** ● Correction factor [%] ● Alarm type: A or B ● Alarm in case of low efficiency: Select/deselect ● Alarm level [%] ● Current efficiency [%]
	Only relevant if pressure inlet: **Rot. heat exchanger (outdoor/ supply air)** is configured	**Measure pressure reference** ● Measure pressure reference: Select/deselect ● Measurement status ● Current pressure over rotor* [Pa] *Pressure over the rotor's supply air string
	Only relevant if pressure inlet: **Rot. heat exchanger, de-icing (exhaust air/extract air)** is configured	**Dynamic de-icing** ● Measure pressure reference, de-icing: Select/deselect ● Measurement status: Not measured/measured ● Current pressure over rotor [Pa] ● Estimate pressure limit, de-icing* [Pa] *Pressure over the rotor's extract air string

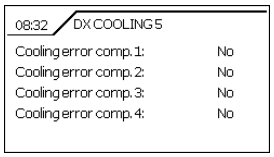
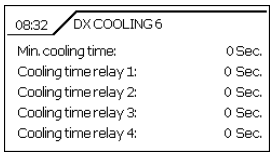
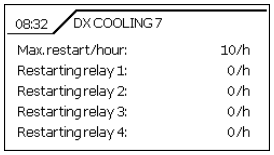
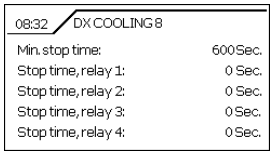
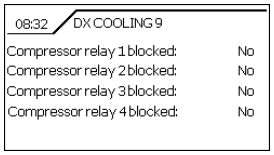
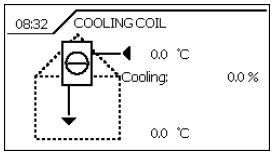
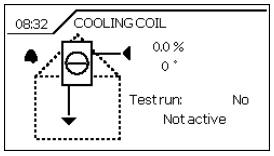
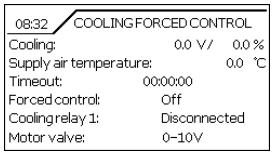
Service menu		
Heating recovery		**Description**
	Shown only in case of RHX2M (Rotor control)	**Show current RHX2M operating status.** ● Current recovery [%] ● Current control type: ● RH2M-1212/1412/1612 ● Motor revs [RPM] ● Motor power [mA] ● Holding torque [%] ● Software version in Master
	Only relevant if a **PTH sensor** and pressure inlet have been mounted **Rot. heat exchanger (otdoor/ supply air)** is configured	**Airflow rotating heat exchanger** ● Shows current air quantity in input air string through heat exchanger [m3/h]
	Only relevant if a **PTH sensor** and pressure inlet have been mounted **Rot. heat exchanger, de-icing (exhaust air/extract air)** is configured	**De-icing rotary heat exchanger** ● Pressure, start of de-icing Select/deselect ● Pressure, start of de-icing [%] ● Current pressure over rotor* [Pa] *Pressure over the rotor's extract air string
		**Gain factor** ● Set gain factor

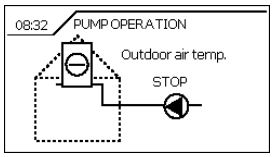
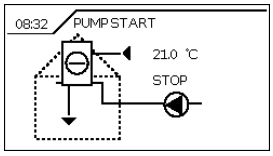
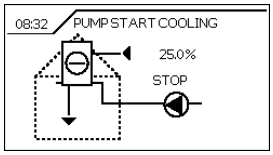
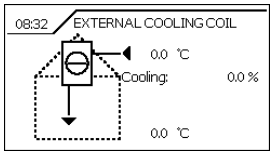
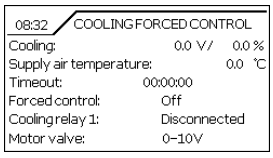
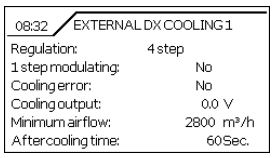
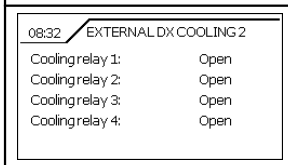
4.1.5 Cooling

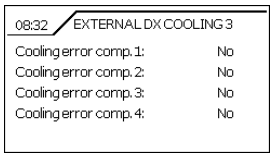
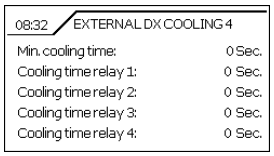
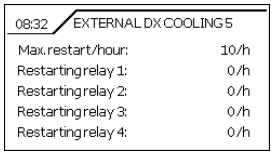
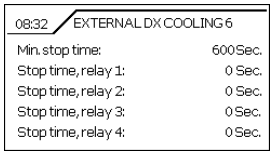
Service menu		
Cooling		**Description**
		**COOLING** Shows current operating status. Set functions and forced fan control of cooling coils.
Submenu	**Any comments**	
DX Cooling		
		**Shows current status of cooling** ● Current outdoor temperature [°C] ● Current cooling [%] ● Current supply air temperature [°C]
		**Forced control of cooling coil** Forced operation is only possible once the unit has started. ● Set forced operation setpoint [%] ● Current supply air temperature [°C] ● Set remaining time until forced operation terminates [hh:mm:ss] ● Activate forced operation: On/ Off ● Current status Cooling relay 1: Open/closed ● Set motor valve's regulation area [2-10V = VEX4000 standard]

		**Set regulation for current type DX cooling.**
		● Set regulation form:
		  ● 1 step
		  ● 2 step
		● 1. Step modulating: Yes/No (Yes = VEX4000 standard)
		● Current cooling error: Yes / No
		● Current signal at cooling output [V]
		● Set min. airflow for cooling [m3/h]
		● Set condenser aftercooling [s]

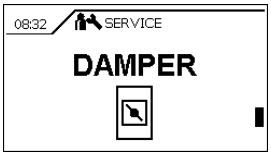
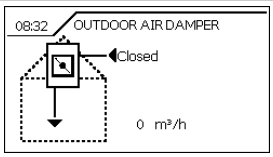
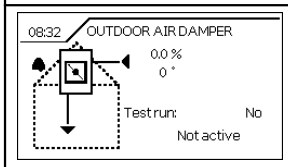
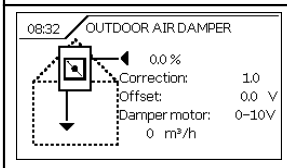
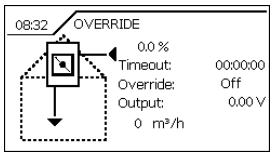
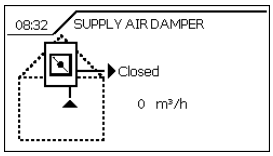
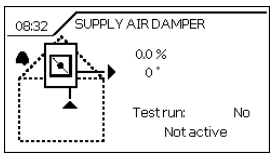
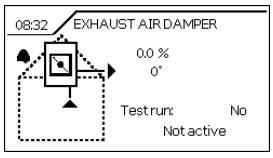
		**Shows current status of cooling relay** ● Current status Cooling relay 1: Open/closed ● Current status Cooling relay 2: Open/closed ● Current status Cooling relay 3: Open/closed ● Current status Cooling relay 4: Open/closed
		**Shows current status of cooling circuit** ● Current status Low pressure circuit 1 [Bar] ● Current status High pressure circuit 1 [Bar] ● Current status Low pressure circuit 2 [Bar] ● Current status High pressure circuit 2 [Bar]
		**Shows current status of pressure alarms** ● Current status Low pressure alarm 1 [Bar] ● Current status High pressure alarm 1 [Bar] ● Current status Low pressure alarm 2 [Bar] ● Current status High pressure alarm 2 [Bar]

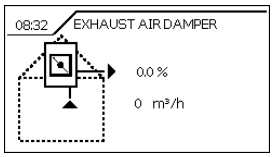
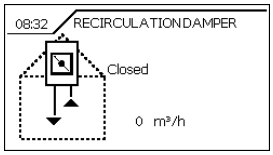
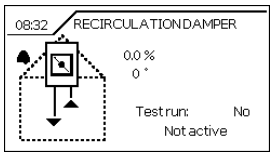
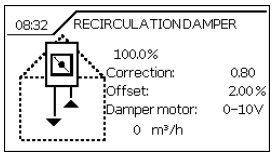
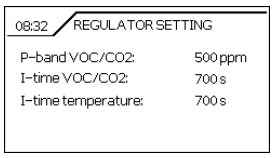
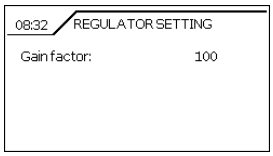
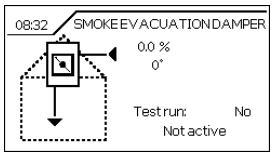
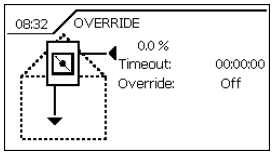
Service menu		
Cooling		**Description**
		**Shows current status of cooling compressors** ● Current cooling errors compressor 1: Yes/No ● Current cooling errors compressor 2: Yes/No ● Current cooling errors compressor 3: Yes/No ● Current cooling errors compressor 4: Yes/No
		**Settings for connection times on cooling relays** ● Set min. cooling time [sec] ● Current cooling time relay 1 [sec] ● Current cooling time relay 2 [sec] ● Current cooling time relay 3 [sec] ● Current cooling time relay 4 [sec]
		**Settings for restart times on cooling relays** ● Set max number restarts per hour ● Current number restarts relay 1 ● Current number restarts relay 2 ● Current number restarts relay 3 ● Current number restarts relay 4
		**Settings for stop times on cooling relays** ● Set min stop time [sec] ● Current stop time relay 1 [sec] ● Current stop time relay 2 [sec] ● Current stop time relay 3 [sec] ● Current stop time relay 4 [sec]
		**Settings for blocking on cooling relays** ● Compressor relay 1 blocked: Yes/No ● Compressor relay 2 blocked: Yes/No ● Compressor relay 3 blocked: Yes/No ● Compressor relay 4 blocked: Yes/No
Water cooling		
		**Shows current status of cooling** ● Current outdoor temperature [°C] ● Current cooling [%] ● Current supply air temperature [°C]
	Shown at Belimo Modbus valve	**Cooling interface, Modbus** ● Current valve setting [%] ● Absolute position [Feedback] ● Test run: Yes/No ● Communication: Active / Inactive
		**Forced control of cooling coil** Forced operation is only possible once the unit has started. ● Set forced operation setpoint [%] ● Current supply air temperature [°C] ● Set remaining time until forced operation terminates [hh:mm:ss] ● Activate forced operation: On/ Off ● Current status Cooling relay 1: Open/closed ● Set motor valve's regulation area [2-10V = VEX4000 standard]

Service menu		
Cooling		**Description**
		**Set pump operation** Pump operation can be set to: ● Constant operation ● Auto ● Outdoor air temperature ● Cooling requirement **Start** appears when pump is in operation.
	Shown if **outdoor temperature** is selected	**Set pump start temperature** ● The pump starts when the outdoor temperature is higher than the set value. [°C] **Start** appears when pump is in operation.
	Shown if **cooling requirement** is selected	**Set pump start cooling requirement** ● The pump starts when the outdoor temperature is lower than the set value. [%] **Start** appears when pump is in operation.
External DX Cooling		
		**Shows current status of external cooling** ● Current outdoor temperature [°C] ● Current cooling [%] ● Current supply air temperature [°C]
		**Forced control of external cooling coil** Forced operation is only possible once the unit has started. ● Set forced operation setpoint [%] ● Current supply air temperature [°C] ● Set remaining time until forced operation terminates [hh:mm:ss] ● Activate forced operation: On/ Off ● Current status Cooling relay 1: Open/closed ● Set motor valve's regulation area [2-10V = VEX4000 standard]
		**Set regulation for current type DX cooling.** ● Set regulation form: ● 1-step (VEX4000 standard) ● 1. Step modulating: Yes/No (No = VEX4000 standard) ● Current cooling error: Yes / No ● Current signal at cooling output [V] ● Set min. airflow for cooling [m3/h] ● Set condenser aftercooling [s]
		**Shows current status of cooling relay** ● Current status Cooling relay 1: Open/closed ● Current status Cooling relay 2: Open/closed ● Current status Cooling relay 3: Open/closed ● Current status Cooling relay 4: Open/closed

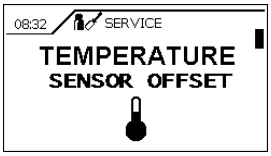
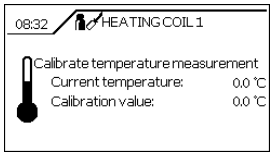
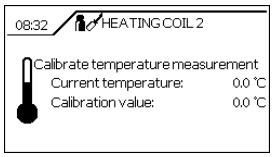
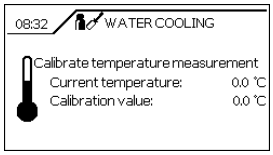
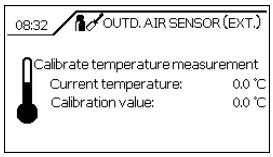
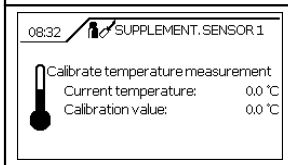
Service menu		
Cooling		**Description**
		**Shows current status of cooling compressors** ● Current cooler errors compressor 1: Yes/No ● Current cooler errors compressor 2: Yes/No ● Current cooler errors compressor 3: Yes/No ● Current cooler errors compressor 4: Yes/No
		**Settings for connection times on cooling relays** ● Set min. cooling time [sec] ● Current cooling time relay 1 [sec] ● Current cooling time relay 2 [sec] ● Current cooling time relay 3 [sec] ● Current cooling time relay 4 [sec]
		**Settings for restart times on cooling relays** ● Set max number restarts per hour ● Current number restarts relay 1 ● Current number restarts relay 2 ● Current number restarts relay 3 ● Current number restarts relay 4
		**Settings for stop times on cooling relays** ● Set min. stop time [sec] ● Current stop time relay 1 [sec] ● Current stop time relay 2 [sec] ● Current stop time relay 3 [sec] ● Current stop time relay 4 [sec]

4.1.6 Damper

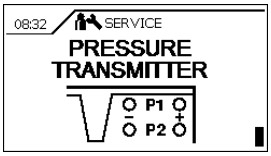
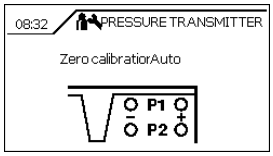
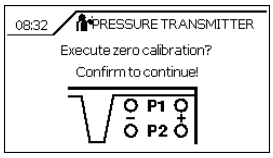
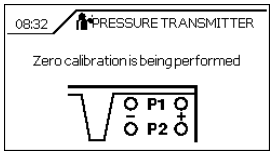
Service menu		
Damper		**Description**
		**DAMPER** Show current operating status. Set functions and forced fan control of damper.
Submenu	**Any comments**	
Outdoor air damper		
		**Outdoor air damper, status** ● Current damper position: Open/closed ● Current supply air [m3/h] [l/s]
	Shown at Belimo Modbus damper motor	**Damper motor, Modbus** ● Current damper setting [%] ● Absolute position [Feedback] ● Test run: Yes/No ● Communication [Active] / [Inactive]
	Shown only in case of modulating damper motor	**Set outdoor air damper** ● Current damper setting [%] ● Set correction factor ● Set offset [V] ● Current supply air [m3/h] [l/s]
	Shown only in case of modulating damper motor	**Override outdoor air damper** Overriding is only possible once the unit has started. ● Set remaining time until overriding terminates [hh:mm:ss] ● Activate override: On/ Off ● Set override operation setpoint [V] ● Current supply air [m3/h] [l/s]
Extract air/Exhaust air damper		
		**Extract air damper, status** ● Current damper position: Open/closed ● Current extract air [m3/h] [l/s]
	Shown at Belimo Modbus damper motor	**Damper motor, Modbus** ● Current damper setting [%] ● Absolute position [Feedback] ● Test run: Yes/No ● Communication [Active] / [Inactive]
	Shown at Belimo Modbus damper motor Shown only if modulated recirculation is configured	**Damper motor, Modbus** ● Current damper setting [%] ● Absolute position [Feedback] ● Test run: Yes/No ● Communication [Active] / [Inactive]

Service menu		
Damper		**Description**
	Shown only in case of modulating damper motor Shown only if modulated recirculation is configured	**Exhaust air damper, status** ● Current damper position: [%] ● Current supply air [m3/h] [l/s]
Recirculation damper		
		**Recirculation damper, status** ● Current damper position: Open/closed ● Current supply air [m3/h] [l/s]
	Shown at Belimo Modbus damper motor	**Damper motor, Modbus** ● Current damper setting [%] ● Absolute position [Feedback] ● Test run: Yes/No ● Communication [Active] / [Inactive]
	Shown only in case of modulating damper motor	**Set recirculation damper** ● Current damper setting [%] ● Set correction factor ● Set offset [V] ● Current supply air [m3/h] [l/s]
	Shown only if modulated recirculation is configured	**Set I-time for modulated recirculation** ● P-band VOC/CO2 [ppm] ● Set I-time VOC/CO2 [sec] ● Set I-time temperature [s]
	Shown only if modulated recirculation is configured	**Set gain factor for modulated recirculation** ● Set gain factor
Smoke-evacuation damper		
		**Damper motor, Modbus** ● Current damper setting [%] ● Absolute position [Feedback] ● Test run: Yes/No ● Communication: Active / Inactive
		**Override smoke-evacuation damper** ● Current damper setting [%] ● Set remaining time until overriding terminates [hh:mm:ss] ● Override: On/ Off

4.1.7 Temperature sensor correction

Service menu		
Temperature sensor correction		**Description**
		**Settings for sensor correction/calibration** For correction of measurement errors, cable resistance and sensor tolerances.
Submenu	**Any comments**	
	Shown if **heating coil 1** is configured	**Calibrate temperature measurement - Heating coil 1** Set sensor offset [+/-3.5°C] ● Shows current sensor temperature [°C] ● Set calibration value [°C]
	Shown if **heating coil 2** is configured	**Calibrate temperature measurement - Heating coil 2** Set sensor offset [+/-3.5°C] ● Shows current sensor temperature [°C] ● Set calibration value [°C]
	Shown if **water cooling** is configured	**Calibrates temperature measurement - Water cooling** Set sensor offset [+/-3.5°C] ● Shows current sensor temperature [°C] ● Set calibration value [°C]
	Shown if **outdoor sensor** is configured	**Calibrates temperature measurement - outdoor temperature sensor** Set sensor offset [+/-3.5°C] ● Shows current sensor temperature [°C] ● Set calibration value [°C]
	Up to 4 **additional sensors** can be configured	**Calibrates temperature measurement - Addition sensor** Set sensor offset [+/-3.5°C] ● Shows current sensor temperature [°C] ● Set calibration value [°C]

4.1.8 Pressure transmitter

Service menu		
Pressure transmitter		**Description**
		**Calibration of pressure transmitters** Zero-calibrate all pressure transmitters in the air handling unit.
Submenu	**Submenu**	
		**Select type 0 calibration** ● Set zero calibration: [Manual/Auto] If Auto is selected, zero calibration is carried out automatically every time the unit stops.
		**Start zero-calibration** Confirm to start zero calibration, or press Esc to abort. During zero calibration the unit will stop for about 5 min. 5 min.
		**Zero calibration is being performed** Acknowledgement that zero calibration is in progress/is complete.

5. Alarm summary

Alarm list manual terminal

Alarm list EXcon SW version 3.13

Alarm no	Alarm type	Alarm delay secs	Alarm limit	Auto reset	Machine stop	Alarm text - Handheld terminal
1	A	3	N/A			Fire alarm
2	A	3	N/A		X	External fire thermostat
3	A	3	N/A		X	Fire alarm
4	B	3	N/A	X	X	External stop
7	A	3	N/A	X	X	Supply air EC controller: No communication
8	A	3	N/A	X	X	Extract air EC Contrl. No communication
9	B	1200	N/A	X		Airflow compensation of filter monitor Not measured
10	B	3	N/A	X		No communication with manual terminal
11	A	3	N/A	X	X	No communication with FanIO 1
12	A	3	N/A	X	X	No communication with FanIO 2
13	A	3	N/A	X	X	No communication with expansion module 1
14	A	3	N/A	X	X	No communication with expansion module 2
15	B	3	N/A	X		No communication with LON gateway
16	A	3	N/A	X	X	No communication with supply air frequency converter
17	A	3	N/A	X	X	No communication with extract frequency converter
18	A	3	N/A	X	X	No communication with rotary heat exchanger
19	A	3	N/A	X	X	Pressure transmitter (PTH): No communication
20	A	10	N/A	X	X	Supply air, temperature sensor triggered
21	A	10	N/A	X	X	Extract air, temperature sensor alarm triggered
22	A	10	N/A	X	X	Room temperature sensor alarm triggered.
23	A	10	N/A	X	X	Exhaust air, temperature sensor alarm triggered
24	A	10	N/A	X	X	Outdoor air, temperature sensor alarm triggered
25	A	10	N/A	X	X	Water heating coil, temperature sensor alarm triggered
26	A	10	N/A	X	X	Heat recovery, temperature sensor alarm triggered
27	A	10	N/A		X	Pump alarm, heating
28	A	3	N/A		X	Frost alarm, Water heating coil
30	A	3	N/A		X	Supply air frequency converter low supply voltage (Vlo)
31	A	3	N/A		X	Supply air frequency converter High supply voltage (Vhi)
32	A	3	N/A		X	Supply frequency converter High output current (Ihi)
33	A	3	N/A		X	Supply frequency converter High temperature (Thi)
34	A	3	N/A		X	Supply frequency converter Loss of supply phase
35	B	3	N/A			Supply frequency converter High internal ripple voltage
37	A	3	N/A		X	Supply air fan, alarm
38	B	600	N/A			Supply air filter, alarm

Alarm no	Alarm type	Alarm delay secs	Alarm limit	Auto reset	Machine stop	Alarm text - Handheld terminal
39	A	10	N/A		X	FanIO 1: +24 VDC overloaded
40	A	3	N/A		X	Extract frequency converter Low supply voltage (Vlo)
41	A	3	N/A		X	Extract frequency converter High supply voltage (Vhi)
42	A	3	N/A		X	Extract frequency converter High output current (Ihi)
43	A	3	N/A		X	Extract frequency converter High temperature (Thi)
44	A	3	N/A		X	Extract frequency converter Loss of supply phase
45	B	3	N/A			Extract frequency converter High internal ripple voltage
47	A	600	N/A		X	Exhaust air/extract air fan, alarm
48	B	10	N/A			Extract air filter, alarm
49	A	3	N/A		X	FanIO 2: +24 VDC overloaded
50	B	3	N/A			Rotary heat exchanger No rotation
51	B	3	N/A			Rotary heat exchanger Low supply voltage (Vlo)
52	B	3	N/A			Rotary heat exchanger High supply voltage (Vhi)
53	B	3	N/A			Rotary heat exchanger High output current (Ihi)
54	B	3	N/A			Rotary heat exchanger High internal temperature
55	B	3	N/A			Rotary heat exchanger Torque overload
58	A	300	N/A		X	Frost alarm heat exchanger
59	A	600	N/A		X	No heat recovery. Low temperature
60	A	600	SP-10℃		X	Low supply air temperature
61	B	600	SP+5°C			High supply air temperature
62	B	1200	SP-10℃			Low extract air temperature
63	B	1200	SP+5°C			High extract air temperature
65	B	300	N/A	X		Heating cut out due to low airflow
66	B	3	N/A			Electric heating coil: Overheating alarm
67	B	3	N/A			Reduced airflow
68	B	3	N/A			Contactor for Electric heating coil is stuck
70	B	1200	N/A	X		High VOC/CO2
71	A	600	SP-10℃		X	Low supply airflow
72	A	600	SP+10%		X	High supply airflow
73	A	600	SP-10℃		X	Low extract airflow
74	A	600	SP+10%		X	High extract airflow
75	B	600	SP-10℃			Low supply air pressure
76	A	600	SP+10%		X	High supply air pressure
77	B	600	SP-10℃			Low extract air pressure
78	A	600	SP+10%		X	High extract air pressure
80	B	3	N/A			Cooling error
81	B	3	N/A			Low cooling pressure circuit 1
82	B	3	N/A			High cooling pressure circuit 1
83	B	3	N/A			Cooling error 1: Compressor 1 overheated circuit 1

Alarm no	Alarm type	Alarm delay secs	Alarm limit	Auto reset	Machine stop	Alarm text - Handheld terminal
84	B	3	N/A			Cooling error 2: Compressor 2 overheated circuit 1
85	B	3	N/A			Low cooling pressure circuit 2
86	B	3	N/A			High cooling pressure circuit 2
87	B	3	N/A			Cooling error 3: Compressor 1 overheated circuit 2
88	B	3	N/A			Cooling error 4: Compressor 2 overheated circuit 2
90	B	3	N/A			Pressure transmitter error: DX low pressure 1
91	B	3	N/A			Pressure transmitter error: DX high pressure 1
92	B	3	N/A			Pressure transmitter error: DX low pressure 2
93	B	3	N/A			Pressure transmitter error: DX high pressure 2
94	B	3	N/A	X		VOC/CO2 sensor not configured
95	B	3	N/A	X		FanOpt. supply air not configured
96	B	3	N/A	X		FanOpt. extract air not configured
100	A	3	N/A	X	X	Pressure transmitter 0 (PTH6202): No communication
101	A	3	N/A	X	X	Pressure transmitter 1 (PTH6202): No communication
103	A	3	N/A	X	X	Pressure transmitter 3 (PTH6202): No communication
104	A	3	N/A	X	X	Pressure transmitter 4 (PTH6202): No communication
105	A	3	N/A	X	X	Pressure transmitter 5 (PTH6202): No communication
106	A	3	N/A	X	X	Pressure transmitter 6 (PTH6202): No communication
107	A	3	N/A	X	X	Pressure transmitter 7 (PTH6202): No communication
108	A	3	N/A	X		Expansion module45 1 (Air2Ext45): No communication
109	A	3	N/A	X		Expansion module45 2 (Air2Ext45): No communication
111	B	3	N/A	X		Pressure transmitter, supply air (PTH6202): No communication
112	B	3	N/A	X		Pressure transmitter, extract air (PTH6202): No communication
113	B	10	N/A	X		VOC/CO2 sensor error: VOC/CO2 sensor disconnected/short-circuited
115	A	3	N/A		X	Supply air EC controller: Alarm stop
116	A	3	N/A		X	Supply air EC controller: Rotor blocked
117	B	3	N/A			Supply air EC controller: Power restriction
118	B	3	N/A			Supply air EC controller: Low supply voltage (Vlo)
119	B	3	N/A			Supply air EC controller: High supply voltage (Vhi)
120	B	3	N/A			Supply air EC controller: High temperature (Thi)
121	B	3	N/A			Supply air EC controller: High internal ripple voltage
122	A	3	N/A		X	Extract air EC Contrl. Alarm stop
123	A	3	N/A		X	Extract air EC Contrl. Rotor blocked
124	B	3	N/A			Extract air EC Contrl. Power restriction active
125	B	3	N/A			Extract air EC Contrl. Low supply voltage (Vlo)
126	B	3	N/A			Extract air EC Contrl. High supply voltage (Vhi)
127	B	3	N/A			Extract air EC Contrl. High temperature (Thi)
128	B	3	N/A			Extract air EC Contrl. High internal ripple voltage

Alarm no	Alarm type	Alarm delay secs	Alarm limit	Auto reset	Machine stop	Alarm text - Handheld terminal
129	B	3	N/A			Supply air EC Contrl. : Loss of supply phase
130	B	3	N/A			Extract air EC Contrl. Loss of supply phase
131	A	3	N/A	X	X	FanIO 1 (Air2FanIO21): No communication
132	A	3	N/A	X	X	FanIO 2 (Air2FanIO21): No communication
133	A	3	N/A	X	X	Damper motor (supply air), ID 130: No communication
134	A	3	N/A	X	X	Damper motor (exhaust air), ID 131: No communication
135	A	3	N/A	X	X	Damper motor (recirculation), ID 132: No communication
136	A	3	N/A	X	X	Damper motor (heat exchanger), ID 133: No communication
137	A	3	N/A	X	X	Damper motor (drying damper), ID 134: No communication
141	A	3	N/A	X	X	Valve motor (Heating), ID 138: No communication
142	A	3	N/A	X	X	Valve motor (cooling), ID 139: No communication
143	A	3	N/A	X	X	Valve motor (Heating2), ID 140: No communication
144	A	3	N/A	X	X	Valve motor (Heat recovery unit), ID 141: No communication
145	A	3	N/A	X	X	Valve motor (pre-heating), ID 142: No communication
146	A	3	N/A	X	X	Valve motor (6), ID 143: No communication
149	B	10	N/A	X		Damper motor (supply air): Unable to reach setpoint
150	B	10	N/A	X		Damper motor (exhaust air): Unable to reach setpoint
151	B	10	N/A	X		Damper motor (recirculation): Unable to reach setpoint
152	B	10	N/A	X		Damper motor (heat exchanger): Unable to reach setpoint
153	B	10	N/A	X		Damper motor (drying damper): Unable to reach setpoint
157	B	10	N/A	X		Valve motor (Heating): Unable to reach setpoint
158	B	10	N/A	X		Valve motor (cooling): Unable to reach setpoint
159	B	10	N/A	X		Valve motor (heating 2): Unable to reach setpoint
160	B	10	N/A	X		Valve motor (Heat recovery unit): Unable to reach setpoint
161	B	10	N/A	X		Valve motor (pre-heating): Unable to reach setpoint
162	B	10	N/A	X		Valve motor (6): Unable to reach setpoint
166	B	360	N/A			Fire damper not closed
167	B	360	N/A			Fire damper not open
168	B	300	N/A	X		Heating 2 cut out due to low airflow
169	B	30	N/A			Electric heating coil 2: overheating alarm
170	B	30	N/A			Contactor for electric heating coil 2 is stuck
171	A	10	N/A	X	X	Temperature sensor error: Water heating coil 2
172	A	10	N/A		X	Pump alarm: Water heating coil 2
173	A	3	N/A		X	Frost alarm: Water heating coil 2
174	A	10	N/A	X	X	Temperature sensor error: combi-coil
175	A	10	N/A		X	Pump alarm: Combi-coil
176	A	3	N/A		X	Frost alarm: Combi interface (heating)
177	A	3	N/A		X	Frost alarm: Combi interface (cooling)
178	B	10	N/A			Alarm from heat exchanger or circulation pump

Alarm no	Alarm type	Alarm delay secs	Alarm limit	Auto reset	Machine stop	Alarm text - Handheld terminal
179	B	10	N/A	X		Temperature sensor error: Heat pump
180	A	10	N/A		X	Frost alarm, Air
194	B	10	N/A	X		No communication, Modbus, HTH-6202, sensor
195	B	10	N/A	X		No communication, Modbus, HTH-6203, sensor
196	B	10	N/A	X		Output, humidifier not configured
197	B	10	N/A	X		Alarm input from humidifier
198	B	1200	N/A	X		High humidity in supply air
199	B	1200	N/A	X		Low humidity in supply air
200	B	1200	N/A	X		High humidity in supply air
201	B	1200	N/A	X		Low humidity in supply air
202	B	10	N/A	X		Supply temp. cooling coil, sensor alarm
203	A	3	N/A	X	X	Expansion module 3: No communication
204	A	3	N/A	X	X	Expansion module 4: No communication
205	A	3	N/A	X	X	Expansion module 5: No communication
206	A	3	N/A	X	X	Expansion module 6: No communication
207	A	3	N/A	X	X	Expansion module 7: No communication
208	B	3	N/A	X		Room control: No communication
209	B	3	N/A	X		VTH-6202, VOC sensor No communication
210	B	600	N/A	X		VTH-6202, VOC sensor error, measured value outside range
211	B	10	N/A	X		No communication, HTH-6204, humidity senor
212	B	10	N/A	X		Dew point sensor error
213	B	300	N/A	X		INACTIVE
214	A	3	N/A	X	X	Expansion module 8: No communication
215	B	30	N/A	X		Contactor for electrical pre-heating coil stuck
216	B	30	N/A	X		Preheater: Overheating alarm
217	A	10	N/A	X	X	Preheater: Water heatin coil, sensor error
218	A	10	N/A		X	Preheater: Pump alarm:
219	A	3	N/A		X	Preheater: Frost alarm
220	A	10	N/A	X	X	Preheater: Airflow sensor error
221	B	300	N/A	X		Preheater: Reduced output
222	B	300	N/A	X		Heat recovery efficiency is less than minimum setpoint
223	A	3	N/A	X	X	Supply air frequency converter (ATV) No communication
224	A	3	N/A	X	X	Extract air frequency converter (ATV) No communication
225	B	10	N/A			ATV supply air frequency converter error
226	B	10	N/A			ATV extract air frequency converter error
231	B	1200	N/A	X		Dynamic pressure control cannot be used
232	B	3	N/A	X		PTH sensor (extract air/exhaust air) rotary heat exchanger not configured
233	B	1800	N/A	X		Rotary heat exchanger iced up

Alarm no	Alarm type	Alarm delay secs	Alarm limit	Auto reset	Machine stop	Alarm text - Handheld terminal
234	B	1800	N/A			Rotary heat exchanger is soiled
235	A	3	N/A		X	Supply air, EC-2 controller: Alarm stop
236	A	3	N/A		X	Supply air, EC-2 controller: Rotor blocked
237	B	3	N/A			Supply air, EC-2 controller: Power restriction
238	B	3	N/A			Supply air, EC-2 controller: Low supply voltage (Vlo)
239	B	3	N/A			Supply air, EC-2 controller: High supply voltage (Vhi)
240	B	3	N/A			Supply air, EC-2 controller: High temperature (Thi)
241	B	3	N/A			Supply air, EC-2 controller: High internal ripple voltage
242	A	3	N/A		X	Extract air, EC-2 controller: Alarm stop
243	A	3	N/A		X	Extract air, EC-2 controller: Rotor blocked
244	B	3	N/A			Extract air, EC-2 controller: Power restriction active
245	B	3	N/A			Extract air, EC-2 controller: Low supply voltage (Vlo)
246	B	3	N/A			Extract air, EC-2 controller: High supply voltage (Vhi)
247	B	3	N/A			Extract air, EC-2 controller: High temperature (Thi)
248	B	3	N/A			Extract air, EC-2 controller: High internal ripple voltage
249	B	3	N/A			Supply air, EC-2 controller: Loss of supply phase
250	B	3	N/A			Extract air EC-2 Contrl.:No supply phase
251	A	3	N/A	X	X	Supply air, EC-2 controller: no communication
252	A	3	N/A	X	X	Extract air, EC-2 controller: No communication
253	B	3	N/A			Temperature sensor (HTH6202): No communication
254	B	3	N/A			Temperature sensor (HTH6203): No communication
255	B	3	N/A			Supply airflow correction, temperature sensor error
256	B	10	N/A	X		Temperature sensor error: Supplementary sensor 1
257	B	10	N/A	X		Temperature sensor error: Supplementary sensor 2
258	B	10	N/A	X		Temperature sensor error: Supplementary sensor 3
259	B	10	N/A	X		Temperature sensor error: Supplementary sensor 4
260	B	3	N/A		X	Supply air motor control has wrong type no or is defective
261	B	3	N/A		X	Supply air motor control 2 has wrong type no or is defective
262	B	3	N/A		X	Supply air motor control 1 has wrong type no or is defective
263	B	3	N/A		X	Supply air motor control 2 has wrong type no or is defective

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