KL-6500

MANAGEMENT COMPUTER

Table of contents

Copyright

1 General introduction

The manual is intended for the user of this device. It contains all the information necessary for operating and cleaning this product. Please read all information and instructions carefully before using the product.

Symbols mark warnings, important notes, tips, etc. in this manual.

Stienen has compiled this manual with all due care. If you find any errors, please let us know.

1.1 Symbols and definitions

Risk of injury by dangerous electric shock. Danger to people and animals.

Warning indicating danger to product, people and animals if procedures are not strictly complied with.

Warning indicating damage to products if procedures are not strictly complied with.

Pressure cleaning is not allowed.

Collect as separate flows

Important note

Additional information

Example of a concrete application of the functionality described.

Example calculation

Manual control

Tips and advice

Screenshot

Application note

1.2 Customer service

If you have any questions, please contact your installer. Be sure to have all the necessary data handy. You should also always write down the cause of a fault and the circumstances that occurred during the fault. This will enable you to avoid any ambiguities and it will enable your installer to deal with any faults quickly and effectively.

2 Safety instructions and warnings

Read the general safety instructions in this chapter carefully before using the device. A certified installer must install the device and resolve any faults, in accordance with the applicable guidelines. If this product is installed and used in any other way, the warranty will not apply.

2.1 Sound, independent alarm system

Although we have designed and built our control equipment with the greatest care possible, technical faults can never be ruled out. Insurance requirements in many countries are becoming increasingly stringent. This requires the alarm contacts of the various control computers to be connected a central alarm unit.

⚠ We recommend also installing a sound independent alarm system, for example a min/max thermostat.

❗ We advise you to manually test the alarm at least once a week.

2.2 During use

The people who operate the device have read the manual carefully. They are aware of potential hazards that may arise from improper use and maintenance of the product.

⚡ The device must only be opened by authorised personnel.

⚠ Do not switch off the control computer while the house is empty, but switch it to *Off* mode. This will prevent condensation caused by the equipment cooling down.

⚠ Check the device for any damage at regular intervals. A damaged device is unsafe. Always report any damage to your installer.

⊘ Electronic equipment is splash-proof and must not be cleaned using a pressure cleaner.

❗ If any emergency has occurred, write down: the circumstances under which the emergency occurred, installation settings, software date, software version number and possible causes.

2.3 Disposal

The EU has set up systems for the separate collection of waste electrical and electronic equipment and batteries (Directive 20212/19/EU). If you do not dispose of the device properly, you risk a fine.

♻ Electrical and electronic equipment must be collected separately at the end of its life.

3   Operation

3.1   Selecting the desired language

Available languages: ENG, NLD, DEU, FRA, RUS, POL, HUN, SPA, CES, TUR, ZHO, JAP
✔ ✔ ✔ △ = to select next language
✔ ✔ ✔ ▽ = to select previous language

3.2   Logging in

1. Tap 👤 to open login screen.
2. Tap ⚏ to open numeric keypad.
3. Enter access code and confirm with ✔ .

3.3   Overview of control keys

⌂   Return to overview screen (HOME)

◁ ▷   ○●○○   = select next/previous screen

   001   = select position

   0   = Select option

○●○○   ←👆→   = to next/previous screen

❚   👆   = scroll up/down (the scrollbar is on the right side)

⚏   If this symbol lights up, you can tap it. One of the following keyboards appears on the screen:

Numeric keyboard

| + | - | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

The plus and minus keys can be used to enter positive and negative values.

Alphanumeric keyboard

| < | > | a | b | c | d | e | f | g | h | i | j |
| ^ | # | k | l | m | n | o | p | q | r | s | t |

< >   select previous or next character from character set
^   switch between upper and lower case
#   switch to numbers and alternative characters

▽ △   001   Decrease/increase value of selected position

English ▼   Select an option from the drop down menu.

✘   Cancel the selected option
✔   Confirm the selected option
+ −   Add/remove a breakpoint to/from a list (curve, timer).
➡ ⬅   If a setting is followed by the symbol ➡ , tap it to jump to the next screen.
         In the next screen you will see the symbol ⬅ to return to the previous screen.
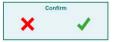
3.4 Confirming a change

Some important settings have to be confirmed after changing.
You will then see the left pop-up window.

3.5 LED bar

Blue, constantly on	⚠ Device out of operation
Green, constantly on	No alarm
Yellow, constantly on	Alarm, alarm delay time not yet expired
Red, constantly on	Alarm
regularly flashing	Main alarm disabled
irregularly flashing	Alarm temporarily disabled

3.6 Room bar
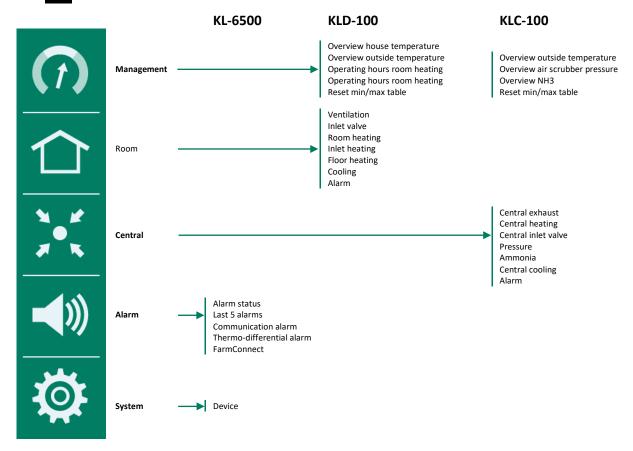
Room alarm status
- Room is in operation, no alarm
- Alarm, alarm delay active
- Alarm, alarm relay active
- Room is out of operation

General room status
- Room is out of operation
- Room is being cleaned
- Room is being warmed-up
- Heating in de room is on

Room name
Room address
Room temperature
Room ventilation
Number of animals in the room
Day number growth curve

3.7 Terminal numbering of inputs and outputs
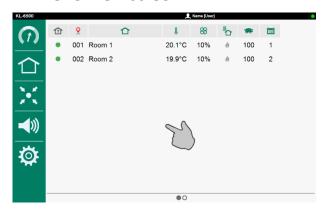
Letter	Input/output type	Description
A	0-10V output	Analog output with a range of 0-10V or 10-0V
B	Relay output	Contact output of relay
K	Temperature sensor	Temperature sensors (N10B, BV10B etc.)
L	0-10V input	Analog input (0-10V)
M	Digital input	These include measuring fans, counter contacts etc.

4 ⌂ Main menu

		KL-6500	KLD-100	KLC-100

Management — Overview house temperature / Overview outside temperature / Operating hours room heating / Operating hours room heating / Reset min/max table

KLC-100: Overview outside temperature / Overview air scrubber pressure / Overview NH3 / Reset min/max table

Room — Ventilation / Inlet valve / Room heating / Inlet heating / Floor heating / Cooling / Alarm

Central — Central exhaust / Central heating / Central inlet valve / Pressure / Ammonia / Central cooling / Alarm

Alarm — Alarm status / Last 5 alarms / Communication alarm / Thermo-differential alarm / FarmConnect

System — Device

4.1 Overview screen

KL-6500						Name [User]	
⌂	📍	⌂	🌡	88	🐷	📅
●	001	Room 1	20.1°C	10%	💧	100	1
●	002	Room 2	19.9°C	10%	🔥	100	2

Tap anywhere on the grey part of the screen or ⌂ (Home key, keyboard). The Main menu appears.

4.2 Adding menu item to favorites bar

1. Select the screen to be added to the favorites bar.
2. Touch the menu item icon until the Add screen appears.
3. Tap ✔ to add the menu item to the favorites bar.

4.3 Removing a menu item from the favorites bar

1. Touch the menu item option to be removed until the Delete window appears.
2. Tap ✔ to remove the menu item from the favorites bar.

5   Management

5.1   KLD-100 room computer

Animal data

	Day number curve
	Current number of animals in the house

Min/Max table

	Min/Max house temperature table
	Min/Max outside temperature table
	Room heating operating hours [*]
	Inlet heating operating hours [*]
	Floor heating operating hours [*]
	Reset min/max value of today (of all room tables)

[*] The operating hours can be deleted by setting the slider at *Delete operating hours* to 1.

5.2   KLC-100 computer for central functions

Min/Max table

	Min/Max outside temperature table
	Central heating operating hours central [*]
	Reset min/max value of today (of all pig house tables)

[*] The operating hours can be deleted by setting the slider at *Delete operating hours* to 1.
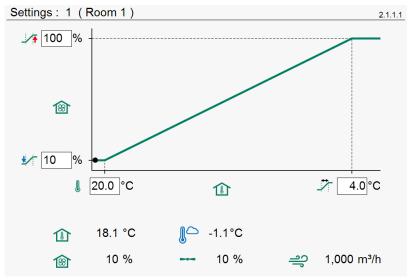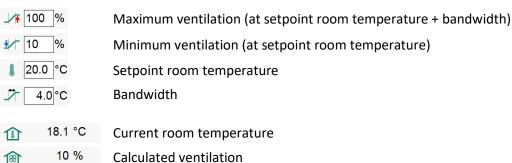
6 ⌂ KLD-100 room computer

6.1 ❀ Room ventilation

⫴ Settings

Settings : 1 (Room 1)   2.1.1.1

⤴ 100 %	Maximum ventilation (at setpoint room temperature + bandwidth)
⤵ 10 %	Minimum ventilation (at setpoint room temperature)
🌡 20.0 °C	Setpoint room temperature
⤴ 4.0 °C	Bandwidth
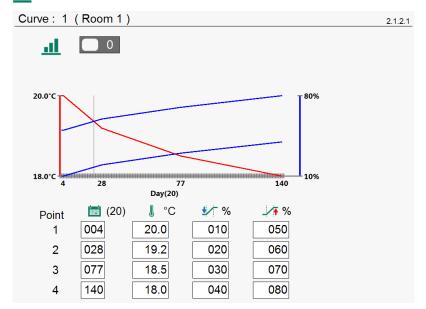
⌂	18.1 °C	Current room temperature
⌂❀	10 %	Calculated ventilation
•••	10 %	Current ventilation
🌡☁	-1.1°C	Current outside temperature
〰	1,000 m³/h	Current ventilation capacity

📊 Growth curve

Point	📅 (20)	🌡 °C	📉 %	📈 %
1	004	20.0	010	050
2	028	19.2	020	060
3	077	18.5	030	070
4	140	18.0	040	080

0	Growth curve OFF
1	Growth curve ON

Point	Breakpoint (max. 7 breakpoints
📅	Day number of the breakpoints (the current day number is shown in brackets)
🌡	Room temperature
📉	Minimum ventilation
📈	Maximum ventilation
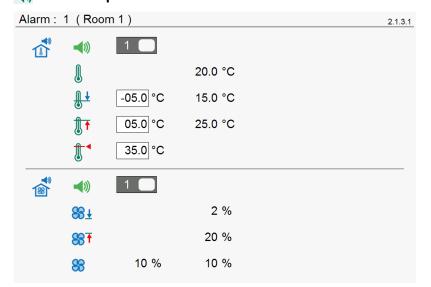
🔊 Room temperature and ventilation alarm

🏠🔊	🔊	1	
🌡			20.0 °C
🌡↓	-05.0 °C		15.0 °C
🌡↑	05.0 °C		25.0 °C
🌡◄	35.0 °C		

🏠🌀	🔊	1	
🌀↓			2 %
🌀↑			20 %
🌀		10 %	10 %
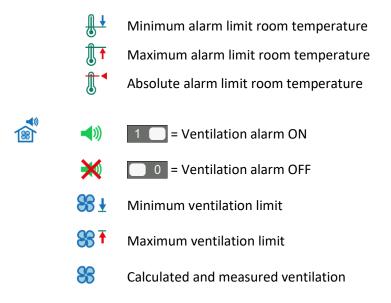
🏠🔊	🔊	1	= Room temperature alarm ON
	✖🌀	0	= Room temperature alarm OFF
	🌡		Current room temperature alarm

Minimum alarm limit room temperature

Maximum alarm limit room temperature

Absolute alarm limit room temperature

1 ⬜ = Ventilation alarm ON

⬜ 0 = Ventilation alarm OFF

Minimum ventilation limit

Maximum ventilation limit

Calculated and measured ventilation
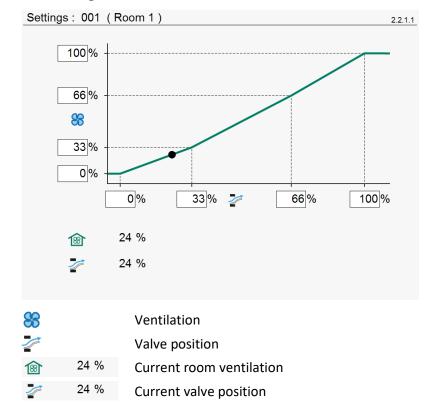
Alarm codes see section 8.6, page 34.

6.2 Inlet valve

Settings

Settings : 001 (Room 1)   2.2.1.1

| | 24 % | Current room ventilation |
| | 24 % | Current valve position |

	Ventilation
	Valve position
	24 %	Current room ventilation
	24 %	Current valve position
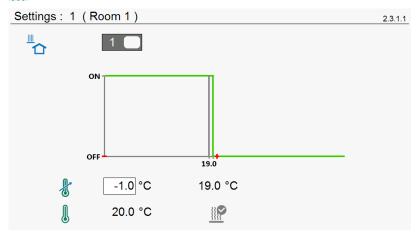
The valve regulates on the basis of ventilation. Under normal conditions, the air inlet opening is directly proportional to the valve position in %. The airflow through this valve is not directly proportional to the valve position. The characteristic curve allows a better relationship between valve position and air flow.
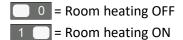
6.3 ░ Heating

░ Room heating

░ Settings

Settings : 1 (Room 1)   2.3.1.1

| 0 | = Room heating OFF |
| 1 | = Room heating ON |

░	-1.0 °C	19.0 °C	Room heating temperature setpoint (differential temperature relative to room temperature setpoint, see screen 2.1.1.x page 8) Calculated room heating temperature
░	░	19.0 °C	Calculated room heating temperature from curve
░	18.5 °C	░	Current room temperature Room heating status: ON (ON/OFF heating)
░	20.0 °C	░	Current room temperature. Room heating status: OFF (ON/OFF heating)
░	18.5 °C	░ 25 %	Current room temperature. Room heating status: ON Current room heating position (%) (controlled heating)
░	20.6 °C	░ 0 %	Current room temperature. Room heating status: OFF Current room heating position (%) (controlled heating)
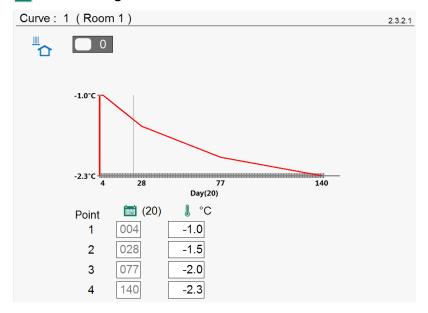
Room heating curve

Curve : 1 (Room 1)   2.3.2.1

Point	📅 (20)	🌡 °C
1	004	-1.0
2	028	-1.5
3	077	-2.0
4	140	-2.3

[0] = Growth curve OFF

[1] = Growth curve ON

Point   Breakpoint (maximum 7 breakpoints)

📅   Day number of breakpoint (the current day number is shown in brackets)

🌡   Room temperature

Inlet heating

Settings

Settings : 1 (Room 1)   2.4.1.1

🌡 12.0 °C	12.0 °C	Inlet heater temperature setpoint Calculated inlet heating temperature
🌡 📊	11.9 °C	Calculated inlet heating temperature from curve
🌡 11.0 °C	♨✓	Current inlet temperature Inlet heating status: ON (ON/OFF heating)
🌡 14.8 °C	♨✓	Current inlet temperature Inlet heating status: OFF (ON/OFF heating)
🌡 11.0 °C	♨✓ 50 %	Current inlet temperature
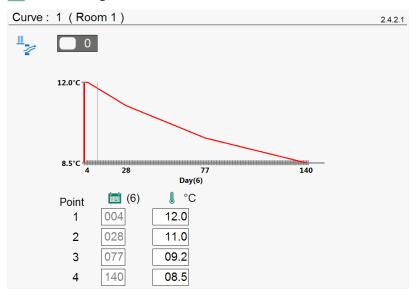
				Inlet heating status: ON
				Current inlet heating position (%) (regulated heating)
🌡	20,0 °C	🔥✓	0 %	Current inlet temperature
				Inlet heating status: OFF
				Current inlet heating position (%) (regulated heating)

📊 Inlet heating curve

Curve : 1 (Room 1)   2.4.2.1

Point	📅 (6)	🌡 °C
1	004	12.0
2	028	11.0
3	077	09.2
4	140	08.5

`[⬤ 0]` = Growth curve OFF

`[1 ⬤]` = Growth curve ON

Point   Breakpoint (maximum 7 breakpoints)

📅   Day number of the kink point (the current day number is shown in brackets)

🌡   Inlet temperature

🔊 Intake heater alarm

Alarm : 1 (Room 1)   2.4.3.1

🌡	11.0 °C	
🌡↓	-05.0 °C	7.0 °C
🌡↑	05.0 °C	17.0 °C
🌡◀	35.0 °C	

`[⬤ 0]` = Alarm OFF

`[1 ⬤]` = Alarm ON

🌡	11.0 °C		Actual temperature of inlet heating
🌡↓	-05.0 °C	7.0 °C	Minimum alarm limit inlet heating
			(Difference temperature compared to set room temperature, see screen 2.1.1.x page 8)
🌡↑	05.0 °C	17.0 °C	Maximum alarm limit inlet heating *
			(Difference temperature compared to set room temperature, see screen 2.1.1.x page 8)
🌡◀	35.0 °C		Absolute alarm limit inlet heating
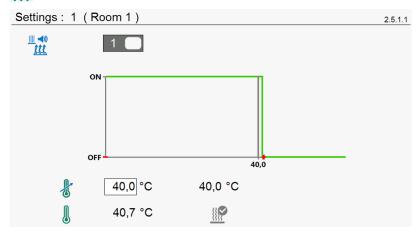
* Due to outdoor temperature compensations, the calculated alarm limit may differ.

Floor heating

Settings

Settings : 1 (Room 1)   2.5.1.1

| 1 0 | = Floor heating OFF |
| 1 | = Floor heating ON |

🌡	40.0 °C	40.0 °C	Set temperature floor heating Calculated temperature floor heating
🌡	📊	40.0 °C	Calculated temperature floor heating off curve
🌡	38.7 °C	✓	Current floor temperature Floor heating status: ON (ON/OFF heating)
🌡	40.7 °C	✓	Current floor temperature Status floor heating: OFF (ON/OFF heating)
🌡	38.7 °C	✓ 26 %	Current floor temperature Status floor heating: ON Actual fire strength of underfloor heating (regulated heating)
🌡	40.7 °C	✓ 0 %	Current floor temperature Status floor heating: OFF Actual fire strength of underfloor heating (regulated heating)
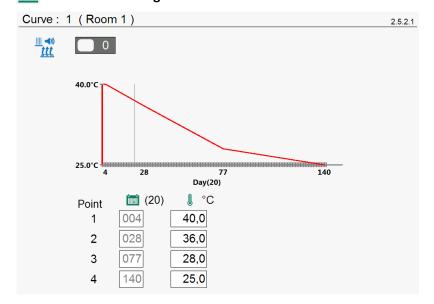
📊 Curve floor heating
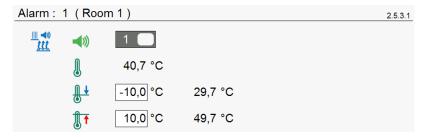
```
Curve :  1  ( Room 1 )                                    2.5.2.1
```


Point	📅 (20)	🌡 °C
1	004	40,0
2	028	36,0
3	077	28,0
4	140	25,0

0 = Growth curve OFF

1 = Growth curve ON

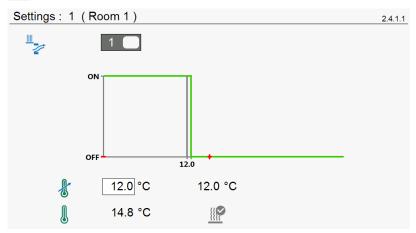*Point* Breakpoint (maximum 7 breakpoints)

📅 Day number of breakpoint (the current day number is shown in brackets)

🌡 Inlet temperature

🔊 Floor heating alarm

```
Alarm :  1  ( Room 1 )                                    2.5.3.1
```


🌡	40,7 °C	
🌡↓	-10,0 °C	29,7 °C
🌡↑	10,0 °C	49,7 °C

0 = Alarm OFF

1 = Alarm ON

🌡	40.7 °C		Actual floor heating temperature
🌡↓	-10.0 °C	29.7 °C	Minimum alarm limit floor heating
🌡↑	10.0 °C	49.7 °C	Maximum alarm limit floor heating

6.4 ❄ Cooling

┇┇ Settings

| Settings : 2 (Room 2) | 2.6.1.1 |

❄ 　1 ⬭

EIN

AUS

24,0

+04,0 °C　　24,0 °C

20,0 °C　　❄✓

ON/OFF cooling

| Settings : 2 (Room 2) | 2.6.1.1 |

❄ 　1 ⬭

0:30 s

0:03 s

24,0 °C　　　　　　　4,0 °C

+04,0 °C　　24,0 °C

25,1 °C　　❄✓　　0:10s

Modulating cooling

⬭ 0 = Cooling OFF

1 ⬭ = Cooling ON
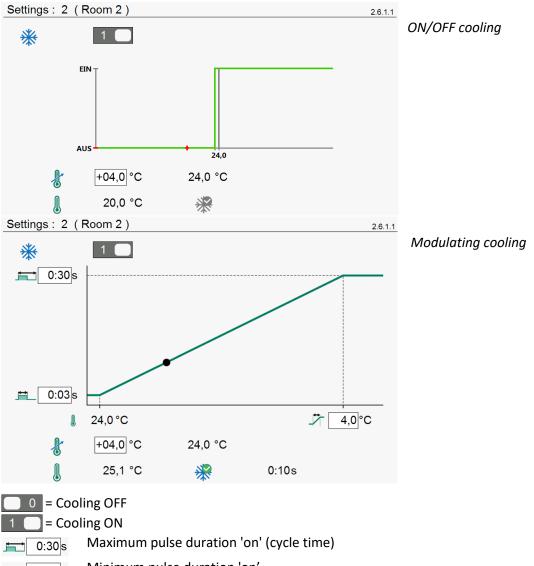
0:30 s　Maximum pulse duration 'on' (cycle time)

0:03 s　Minimum pulse duration 'on'

4,0 °C　Bandwidth

🌡	+04.0 °C	24.0 °C		Cooling temperature setpoint Calculated cooling temperature
🌡	▁▃▅	24.0 °C		Calculated cooling temperature from curve
🌡	25.1 °C	❄✓		Current cooling temperature Cooling status: ON (ON/OFF cooling)
🌡	23.5 °C	❄		Current cooling temperature Cooling status: OFF (ON/OFF cooling)
🌡	25.1 °C	❄✓	0:10s	Current cooling temperature Cooling status: ON Current cooling duty cycle (controlled cooling)
🌡	23.5 °C	❄	0:00s	Current cooling temperature Cooling status: OFF Current cooling duty cycle (controlled cooling)
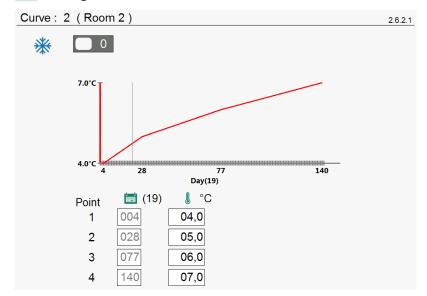
📊 Cooling curve

Curve : 2 (Room 2)   2.6.2.1

Point	📅 (19)	🌡 °C
1	004	04,0
2	028	05,0
3	077	06,0
4	140	07,0

[0] = Growth curve OFF
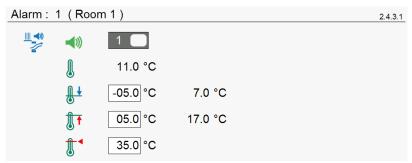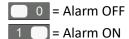
[1] = Growth curve ON
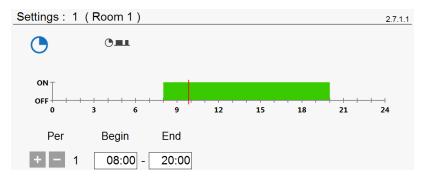
Item   Breakpoint (maximum 7 breakpoints)

📅   Day number of breakpoint (the current day number is shown in brackets)

🌡   Cooling temperature (differential temperature relative to the room temperature setpoint, see screen 2.1.1.x page 8)

6.5 🕐 Timer

⚙ Settings

Settings : 1 (Room 1)   2.7.1.1

You can set up to 24 periods.

Per	Begin	End
+ − 1	08:00 -	20:00

🕐▪▌▌   Timer is active based on the set periods

👉   Timer manually enabled

[0]   Timer disabled

+   Add period

−   Delete period

Start   Start time period
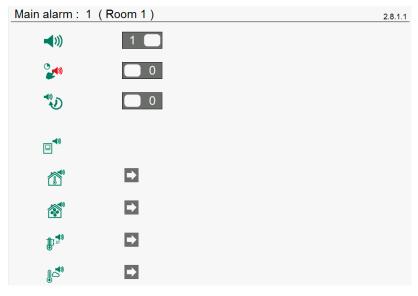
End   End time period

6.6 🔊 Alarm

⦀ Main alarm (settings)

| Main alarm : 1 (Room 1) | 2.8.1.1 |

| Confirm |
| ❌   ✅ |
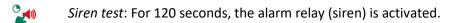
If you change the status of the main alarm, you have to confirm the change once again via a pop-up window.

| 🔊 | 1 ⬜ | Main alarm enabled |
| 🔊 | ⬜ 0 | Main alarm disabled |
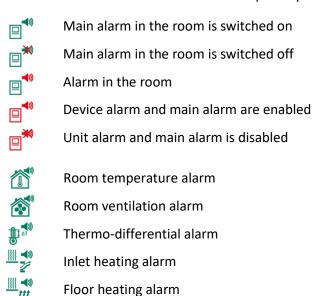
When the main alarm is disabled, the LED bar flashes red regularly. No more alarms will be issued.

Siren test: For 120 seconds, the alarm relay (siren) is activated.

Temporarily deactivate alarm (siren): The main alarm is switched off for 30 minutes. The LED bar flashes irregularly. After 30 minutes the main alarm will be switched on again automatically. If the cause of the alarm is not resolved, the alarm relay will activate again (alarm).
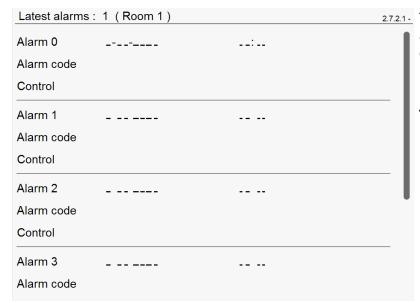
Hardware alarms cannot be temporarily disabled.

Main alarm in the room is switched on

Main alarm in the room is switched off

Alarm in the room

Device alarm and main alarm are enabled

Unit alarm and main alarm is disabled

Room temperature alarm

Room ventilation alarm

Thermo-differential alarm

Inlet heating alarm

Floor heating alarm

Outside temperature alarm

🔔 Latest alarmes

Latest alarms : 1 (Room 1)		2.7.2.1
Alarm 0	-·--·----	--:--
Alarm code		
Control		
Alarm 1	- -- ----	-- --
Alarm code		
Control		
Alarm 2	- -- ----	-- --
Alarm code		
Control		
Alarm 3	- -- ----	-- --
Alarm code		

The alarm history shows the last five alarm situations (with corresponding date and time) that caused the alarm relay to energize.

Alarm 0 is the most recent alarm.

🌡 Thermo-differential alarm

Alarm thermo-differential : 1 (Room 1)	2.7.3.1
🌡 🔔 [1 ⬜]	
🌡ΔT	+4.0°C
🌡◄	58.0°C
#1 🌡	18.1°C
#2 🌡	20.0°C

Every minute the temperature is measured by the sensor concerned and compared to the previous measurement. An alarm is given when:
- the temperature rise is equal to or greater than the relative alarm limit setpoint;
- the temperature measured by a sensor is above the absolute limit.

If the measurement is within its limits, the previous measurement is made equal to the current one. The temperature monitoring alarm will only occur if there is a positive difference.

If you turn the temperature monitoring alarm OFF, the current temperature reading is cleared and the alarm is automatically turned on.

🌡 Outdoor temperature

Outside temperature : 1 (Room 1)	2.7.4.1
🌡 🔔 [1 ⬜]	
🌡☁	20.0°C

If the climate controller has its own outside temperature sensor, you can turn the outside temperature alarm ON and OFF.
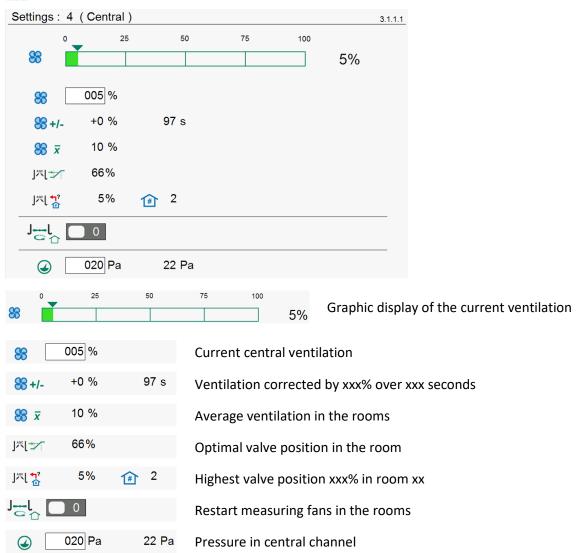
-99,9°C   = Outside temperature sensor defective
???.? °C   = Invalid outside temperature

7 ⊠ KLC-100 computer for central functions

7.1 ⊞ Central ventilation

⦚ Settings

Settings : 4 (Central)   3.1.1.1

	0	25	50	75	100	
⊞						5%

⊞   005 %

⊞ +/-   +0 %   97 s

⊞ x̄   10 %

⌐⫟⫠   66%

⌐⫟⫠   5%   ⌂# 2

⌐⟲⌐   ◯ 0

⦿   020 Pa   22 Pa

	0	25	50	75	100	
⊞						5%

Graphic display of the current ventilation

⊞   005 %   Current central ventilation

⊞ +/-   +0 %   97 s   Ventilation corrected by xxx% over xxx seconds

⊞ x̄   10 %   Average ventilation in the rooms

⌐⫟⫠   66%   Optimal valve position in the room

⌐⫟⫠   5%   ⌂# 2   Highest valve position xxx% in room xx

⌐⟲⌐   ◯ 0   Restart measuring fans in the rooms

⦿   020 Pa   22 Pa   Pressure in central channel

🔊 Alarm

Alarm : 4 (Central)   3.1.3.1

❄	🔊	1 ⬜

🔄	🔊	1 ⬜
	🔽	000 Pa
	🔼	100 Pa
	🔄	22 Pa

❄	🔊	1 ⬜	Central ventilation control alarm ON/OFF
❄	🔊	1 ⬜	

🌀	No ventilation data from climate controls
🔥	No heat demand from climate controls
↗	No valve positions from climate controls
0%	No ventilation (measurement = 0%).

🔄	🔊	1 ⬜	Central ventilation pressure control alarm ON/OFF (input R1)
🔄	🔊	1 ⬜	

⏱	Pressure sensor defective
🔽	Pressure too low
🔼	Pressure too high

🔽	000 Pa	Minimum alarm limit pressure control central ventilation
🔼	100 Pa	Maximum alarm limit pressure control central ventilation
🔄	22 Pa	Current pressure

7.2 ⬚ Central Heating

░ Settings

Settings : 4 (Central)   3.2.1.1

≋🌡↓	05.0	°C
≋🌡	20.0	°C
≋🌡▦	90.0	°C
≋🌡▦↰?	1	

⬚ 💧✓		6 %	Central heating status: ON Actual central heating position (%) (controlled heating)
≋🌡↓	05.0	°C	Minimum heat demand (frost protection). If the temperature in the rooms (which transmit the heat demand to this boiler) drops below the minimum heat demand setpoint, the central heating boiler switches on.
≋🌡	20.0	°C	Current water temperature
≋🌡▦	90.0	°C	Calculated water temperature
≋🌡▦🏠?	1		Room with the highest heat demand
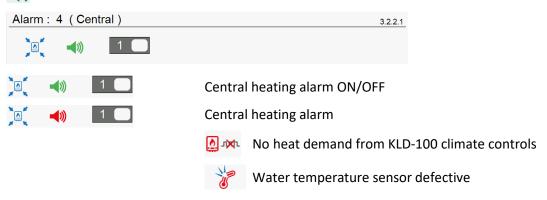
🔊 Alarm

Alarm : 4 (Central)   3.2.2.1

⬚ 🔊	1 ○	

⬚ 🔊	1 ○	Central heating alarm ON/OFF
⬚ 🔊	1 ○	Central heating alarm
	🔥⚡	No heat demand from KLD-100 climate controls
	🌡	Water temperature sensor defective
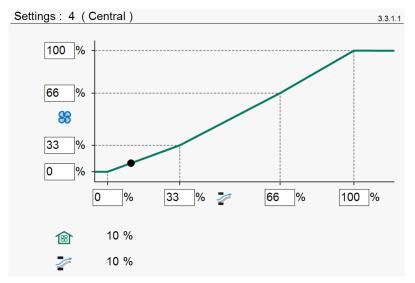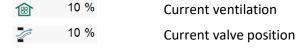
7.3 �* Central inlet valve

⋮⋮ Settings

The valve control is based on ventilation. Under normal conditions, the air inlet is directly proportional to the valve position (%). However, the airflow through this valve is not directly proportional to the valve position. The characteristic curve allows a better relation between valve position and air flow.

⌂	10 %	Current ventilation
⤴	10 %	Current valve position

🔊 Alarm

⚕	🔊	1 ⬜	Central air inlet alarm ON/OFF
⚕	🔊	1 ⬜	Central air inlet alarm
		⤴	No heat demand from KLD-100 climate controls

7.4 ⊘ Pressure measurement

⊞ Settings

Settings : 4 (Central)			3.4.1.1
⊘	⊘	17 Pa	

	⊘	17 Pa	Current pressure (R2)

🔊 Alarm

Alarm : 4 (Central)			3.4.2.1
⊘ 🔊	🔊	1 ⬜	
	⊘↓	000 Pa	
	⊘↑	050 Pa	
	⊘	17 Pa	
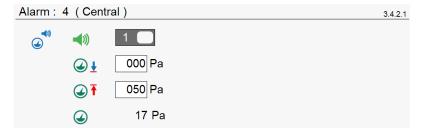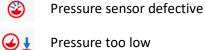
⊘ 🔊	🔊	1 ⬜	Alarm pressure measurement turned OFF
⊘ 🔊	🔊	1 ⬜	

	🔴	Pressure sensor defective
	🔴↓	Pressure too low
	🔴↑	Pressure too high

⊘↓	000 Pa	Minimum alarm limit pressure control central ventilation
⊘↑	050 Pa	Maximum alarm limit pressure control central ventilation
⊘	17 Pa	Current pressure

7.5 NH₃

Settings

Settings : 4 (Central)   3.5.1.1

| | | 18.7 ppm | |
| | | 18.7 ppm | Current ammonia concentration |
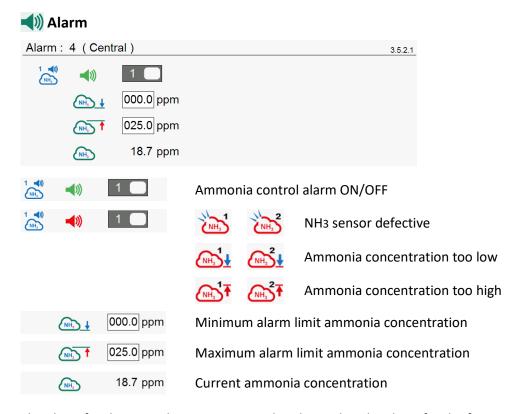
The current value of the second ammonia sensor is displayed in the same way.

Alarm

Alarm : 4 (Central)   3.5.2.1

		1 ⊙	
	NH₃ ↓	000.0 ppm	
	NH₃ ↑	025.0 ppm	
	NH₃	18.7 ppm	

		1 ⊙	Ammonia control alarm ON/OFF
		1 ⊙	NH3 sensor defective
			Ammonia concentration too low
			Ammonia concentration too high

	000.0 ppm	Minimum alarm limit ammonia concentration
	025.0 ppm	Maximum alarm limit ammonia concentration
	18.7 ppm	Current ammonia concentration
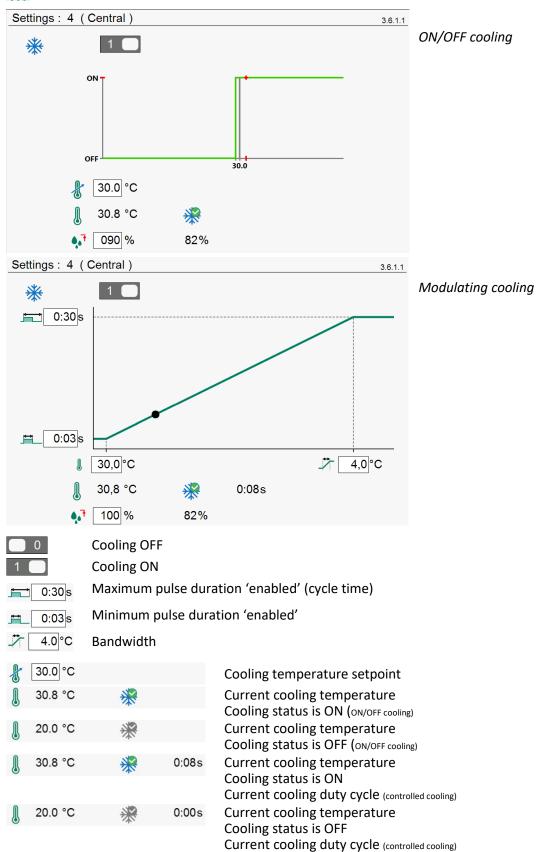
The alarm for the second ammonia control is identical to the alarm for the first ammonia control.

7.6 ❄ Cooling

┃┃┃ Settings

Settings : 4 (Central)	3.6.1.1

❄   1 ◯

ON/OFF cooling

🌡 30.0 °C

🌡 30.8 °C ❄✓

💧↑ 090 %   82%

Settings : 4 (Central)	3.6.1.1

❄   1 ◯

Modulating cooling

0:30 s

0:03 s

🌡 30,0 °C   ⤴ 4,0 °C

🌡 30,8 °C ❄✓   0:08 s

💧↑ 100 %   82%

◯ 0	Cooling OFF
1 ◯	Cooling ON
0:30 s	Maximum pulse duration 'enabled' (cycle time)
0:03 s	Minimum pulse duration 'enabled'
4.0 °C	Bandwidth

🌡 30.0 °C			Cooling temperature setpoint
🌡 30.8 °C	❄✓		Current cooling temperature Cooling status is ON (ON/OFF cooling)
🌡 20.0 °C	❄		Current cooling temperature Cooling status is OFF (ON/OFF cooling)
🌡 30.8 °C	❄✓	0:08 s	Current cooling temperature Cooling status is ON Current cooling duty cycle (controlled cooling)
🌡 20.0 °C	❄	0:00 s	Current cooling temperature Cooling status is OFF Current cooling duty cycle (controlled cooling)

💧⬆ | 090 | %   82%   Cooling off at RH higher than setting (💧⬆)
Current RV

🔊 **Alarm**

| Alarm : 4 (Central) | | | 3.6.2.1 |

❄️ 🔊 | 1 ⬜ |

🌡️   30.8 °C

🌡️⬆ | 05.0 | °C   35.0 °C

🌡️◄ | 35.0 | °C

🔊 | 1 ⬜ |

💧   82 %

💧⬇ | 020 | %

💧⬆ | 090 | %

❄️ 🔊	1 ⬜		Cooling alarm ON/OFF
❄️ 🔊	1 ⬜	🌡️	Temperature sensor defective
		🌡️⬆	Temperature too high
🌡️		30.8 °C	Current cooling temperature
🌡️⬆	05.0 °C	35.0 °C	Maximum alarm limit cooling
🌡️◄	40.0 °C		Absolute alarm limit cooling
💧 🔊	1 ⬜		RH control alarm ON/OFF
💧 🔊	1 ⬜	💧	RH sensor defective
		💧⬇	RH too low
		💧⬆	RH too high
💧		82 %	Current RV
💧⬇	020 %		Minimum alarm limit RH
💧⬆	090 %		Maximum alarm limit RH

7.7 ⏱ Timer

Settings : 4 (Central)   3.7.1.1

You can set up to 24 periods.

⏱▮▮	Timer runs according to set periods
☞	Timer is manually activated
⬜0	Timer is turned OFF
+	Add period
−	Delete period
Start	Start time period
End	End time period

7.8 🔊 Alarm

⦀ Settings

Main alarm : 4 (Central)   3.8.1.1

🔊	⬜1	Main alarm enabled
🔊	⬜0	Main alarm disabled

If the main alarm is switched off, the LED bar flashes red regularly. No more alarms will be issued.
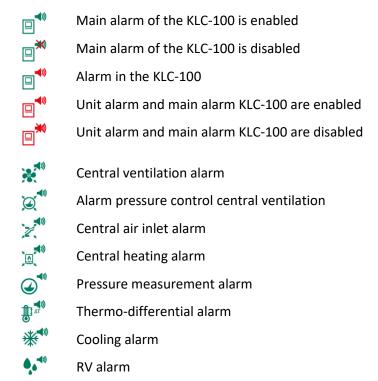
🔊 *Siren test*: The alarm relay (siren) is turned on for 120 seconds.
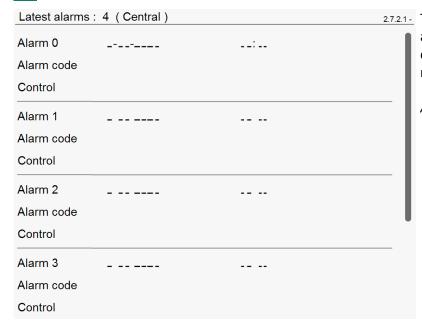
🔊 *Temporarily deactivate alarm (siren)*: The main alarm is switched off for 30 minutes The LED bar flashes irregularly. After 30 minutes the main alarm will be switched on again automatically. If the cause of the alarm is not resolved, the alarm relay will energize again (alarm).

	Main alarm of the KLC-100 is enabled
	Main alarm of the KLC-100 is disabled
	Alarm in the KLC-100
	Unit alarm and main alarm KLC-100 are enabled
	Unit alarm and main alarm KLC-100 are disabled
	Central ventilation alarm
	Alarm pressure control central ventilation
	Central air inlet alarm
	Central heating alarm
	Pressure measurement alarm
	Thermo-differential alarm
	Cooling alarm
	RV alarm

Latest alarmes

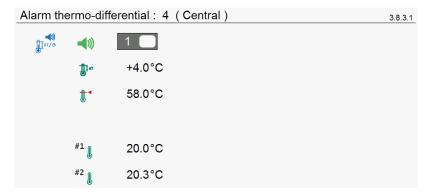| Latest alarms : 4 (Central)		2.7.2.1 -
Alarm 0	_-_-_ _ _ _	_ _ : _ _
Alarm code		
Control		
Alarm 1	_ _ _ _ _ _ _	_ _ _ _
Alarm code		
Control		
Alarm 2	_ _ _ _ _ _ _	_ _ _ _
Alarm code		
Control		
Alarm 3	_ _ _ _ _ _ _	_ _ _ _
Alarm code		
Control		

The alarm history shows the last five alarm situations (with corresponding date and time) that caused the alarm relay to energize.

Alarm 0 is the most recent alarm.

Thermo-differential alarm

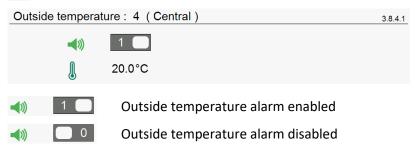| Alarm thermo-differential : 4 (Central)		3.8.3.1
	1	
	+4.0°C	
	58.0°C	
#1	20.0°C	
#2	20.3°C	

Every minute the temperature is measured by the sensor concerned and compared to the previous measurement. An alarm is given when:

- the temperature rise is equal to or greater than the relative alarm limit setpoint (   );
- the temperature measured by a sensor is above the absolute limit (   ).

If the measurement is within its limits, the previous measurement is made equal to the current one. The temperature monitoring alarm will only occur if there is a positive difference.

If you turn the temperature monitoring alarm OFF, the current temperature reading is cleared and the alarm is automatically turned on.
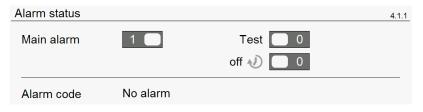
Outside temperature alarm

Outside temperature : 4 (Central)		3.8.4.1
	1	
	20.0°C	

	1	Outside temperature alarm enabled
	0	Outside temperature alarm disabled

8 🔊 Alarm

8.1 Settings

Alarm status		4.1.1
Main alarm	**1** ⬜	Test ⬜ **0**
		off 🌙 ⬜ **0**
Alarm code	No alarm	

Main alarm   **1** ⬜ = ON   ⬜ **0** = OFF

    Test   Set the slider to **1** ⬜ (ON) to activate the alarm relay (siren) for 120 seconds.
Set the slider to ⬜ **0** (OFF) to clear the alarm test time.

    off 🌙   Set the slider to **1** ⬜ (ON) to temporarily disable the main alarm (siren) for 30 minutes. Hardware alarms cannot be disabled.
After 30 minutes, the main alarm is automatically reactivated. If the cause of the alarm situation is not eliminated, the alarm relay will energize again (alarm).

Set the slider to ⬜ **0** (OFF) to clear the delay time.

Alarm code   Display cause and control of the alarm. The terminal number or the address may also appear here.

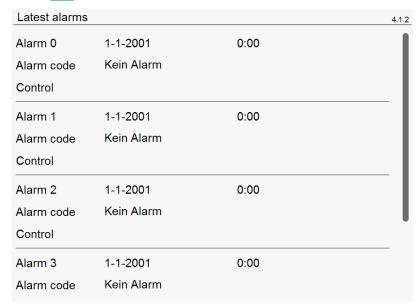*Alarm external device*   There is an alarm at an external device (KLD-100 or KLC-100). Behind this text you see the address of the device concerned.

⚠️ Remember to turn the alarm back ON after troubleshooting.
Preferably use the function to clear a fault 🌙 ⬜ **0** .

8.2 🔊 Latest alarmes

Latest alarms			4.1.2
Alarm 0	1-1-2001	0:00	
Alarm code	Kein Alarm		
Control			
Alarm 1	1-1-2001	0:00	
Alarm code	Kein Alarm		
Control			
Alarm 2	1-1-2001	0:00	
Alarm code	Kein Alarm		
Control			
Alarm 3	1-1-2001	0:00	
Alarm code	Kein Alarm		

The alarm history shows the last five alarm situations (with corresponding date and time) that caused the alarm relay to energize.

Alarm 0 is the most recent alarm.

8.3 Communication alarm

Communication		4.1.3
Alarm	1	
Device address	0	
Alarm status	No alarm	

Here you can switch the communication alarm on and off.

Alarm   Switching the communication alarm ON and OFF.
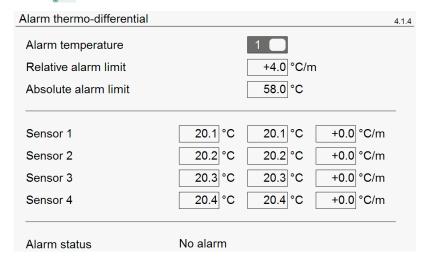   1 = ON   0 = OFF

Device address   The address from which the main station did not receive data.

Alarm status   The current alarm code.

8.4 🌡 Thermo-differential alarm

Alarm thermo-differential				4.1.4
Alarm temperature	1 ⬜			
Relative alarm limit	+4.0 °C/m			
Absolute alarm limit	58.0 °C			
Sensor 1	20.1 °C	20.1 °C	+0.0 °C/m	
Sensor 2	20.2 °C	20.2 °C	+0.0 °C/m	
Sensor 3	20.3 °C	20.3 °C	+0.0 °C/m	
Sensor 4	20.4 °C	20.4 °C	+0.0 °C/m	
Alarm status	No alarm			

The thermo differential alarm can consist of up to 10 sensors.

Every minute the temperature is measured by the sensor concerned and compared to the previous measurement. An alarm is given when:

- the temperature rise is equal to or greater than the relative alarm limit setpoint (🌡);
- the temperature measured by a sensor is above the absolute limit (🌡).

If the measurement is within its limits, the previous measurement is made equal to the current one. The temperature monitoring alarm will only occur if there is a positive difference.

If you turn the thermo-differential alarm OFF, the current temperature reading is cleared and the thermo-differential alarm is automatically turned on.

The thermo differential alarm occurs only when there is a *positive difference.*

8.5 🌐 Alarm FarmConnect

Alarm FarmConnect		4.1.5
Alarm FarmConnect	1 ⬜	
Time no data	01:15 minutes	
Alarm status	No alarm	

Alarm FarmConnect   Switching the FarmConnect alarms ON and OFF

Time no data   If no data transfer between the KL-6500 and FarmConnect takes place during the set time (default 75 minutes), an alarm is generated.

8.6 Alarm codes

	Module 0 not found
	Module not found
	Jumper A on RTCPU is in the lower position. Move this jumper to the upper position. If you do not, the changes will not be saved.
	Communication error between the devices
	Communication error with WEB-485 (FarmConnect)
	No ventilation data from the rooms (central ventilation)
	No valve positions of the wards (central valve)
	No heat demand from the rooms (central heating)
	No outside temperature received via communication
	No ventilation (measurement = 0%)
	Unknown ventilation capacity
	No communication with Danfoss controller
	Ventilation too low
	Ventilation too high
	No outside temperature sensor
	Temperature sensor defective
	Temperature sensor 1 defective
	Temperature sensor 2 defective
	Temperature sensor 3 defective
	Pressure sensor defective
	NH_3 sensor 1 defective
	NH_3 sensor 2 defective
	Temperature too low
	Temperature too high

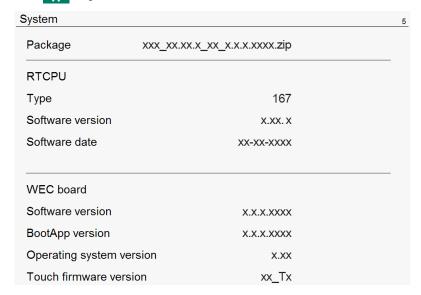|	
🌡ΔT**1**	Measured temperature difference sensor 1 too large within a minute
🌡ΔT**2**	Measured temperature difference sensor 2 too large within a minute
🌡ΔT**3**	Measured temperature difference sensor 3 too large within a minute
⏱↓	Pressure too low
⏱↑	Pressure too high
NH₃**1**↓	NH$_3$ sensor 1 too low
NH₃**1**↑	NH$_3$ sensor 1 too high
NH₃**2**↓	NH$_3$ sensor 2 too low
NH₃**2**↑	NH$_3$ sensor 2 too high
💧	RH sensor defective
💧↓	RH too low
💧↑	RH too high
???	If no icon is linked to the alarm code, the alarm code will appear in a red square. Report this alarm situation to your supplier to prevent it from appearing again in the future.

9 ⚙ System

System	5
Package	xxx_xx.xx.x_xx_x.x.x.xxxx.zip
RTCPU	
Type	167
Software version	x.xx. x
Software date	xx-xx-xxxx
WEC board	
Software version	x.x.x.xxxx
BootApp version	x.x.x.xxxx
Operating system version	x.xx
Touch firmware version	xx_Tx

Package — The package number of the compressed software files

RTCPU
  Type — Device type number (167 = KL-6500)
  Software version — Program version of the embedded software (RTCPU processor board)
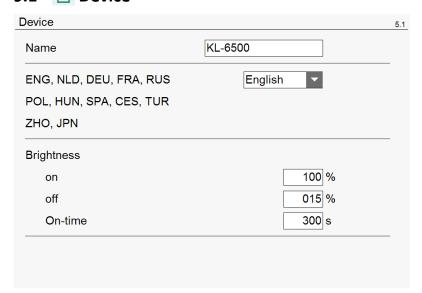 *Software date* — Program date of the embedded software

WEC board
  Software version — Program version of the WEC board software (GuiApp)
  BootApp version — Program version of the BootApp software
  Operating system version — Program version of the GuiApp operating software
  Touch firmware version — Program version of the touch firmware software

9.1 ▣ Device

Device	5.1
Name	KL-6500
ENG, NLD, DEU, FRA, RUS POL, HUN, SPA, CES, TUR ZHO, JPN	English ▼
Brightness	
on	100 %
off	015 %
On-time	300 s

In this screen you can change the device name and the displayed language, among other things.

Brightness

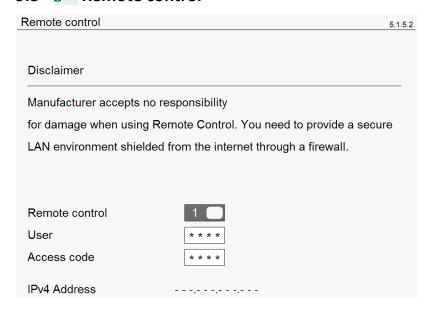|	
on	Brightness (%) of the backlight during the *On-time*.
off	Brightness (%) of the backlight after the *On-time* has elapsed.
On-time	Number of seconds that the backlight continues to illuminate after the last button press in the brightness percentage of the ON position.
	0 seconds = the backlight does not switch off. The *On-time* for the remote control is set to 300 seconds.

9.2 Date/Time

Date/Time   5.1.1

📅   __-__-____

🕐   __:__

Setting the date and time.

9.3 Remote control

Remote control   5.1.5.2

Disclaimer

Manufacturer accepts no responsibility

for damage when using Remote Control. You need to provide a secure

LAN environment shielded from the internet through a firewall.

Remote control   1 ⚪

User   * * * *

Access code   * * * *

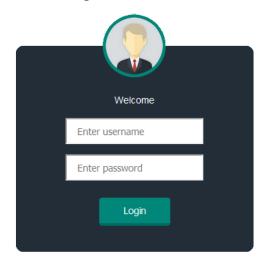IPv4 Address   - - -.- - -.- - -.- - -

If the KL-6500 is connected to a network and you have entered the codes, an IP address (IPv4 Address) is automatically assigned to the controller. This IP address is needed to connect to the device via the browser.

1. Set the *Remote Control* slider to the position 1 ⚪.
2. Enter a user code (not 0000).
3. Enter an access code (not 0000).
4. Write down the IP address.

Remote login

1. Open the Internet browser.
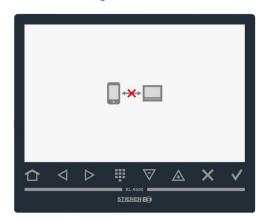2. Enter the IP address in the address bar and press ENTER.
3. Press the TAB key.
4. Enter the user name and press the TAB key.
5. Enter the password and press the TAB key.
6. Press the ENTER key (*Login*).

7. The icon appears at the top of the status bar to indicate that the device is being remotely controlled.
8. If you operate the device locally, the remote connection is disabled and you can only see what is being changed remotely. The coloured icon ( ) changes to grey: .
9. If the device is operated locally (grey icon) and you click with the mouse on one of the fields (keys), the system will automatically log off. You must then log on again.

The input fields and icons are only accessible via the mouse (not via the keyboard).

Automatic logout

If no action is taken during the *ON-time* (default 5 minutes), the device will automatically log off after the *ON-time* has elapsed.

Each time an action occurs, the timer restarts the *ON-time*.

9.4 🌐 FarmConnect

FarmConnect		5.1.7.1
Connected to Ethernet	yes	
Connected to FarmConnect	yes	
Connected to devices	yes	
Data Transfer	yes	
System up time	_ days	__:__:__
Connection up time	_ days	_:__:__
Reconnections FarmConnect	_	
FarmConnect messages received	___	
FarmConnect messages sent	___	

Connected to Ethernet	*Yes* = KL-6500 is currently connected to Ethernet.
Connected with FarmConnect	*Yes* = KL-6500 is currently connected to the FarmConnect server.
Connected to devices	*Yes* = Data transfer is taking place between the KL-6500 management computer and the KLD-100 room computer and/or KLC-100 computer for central functions.
Data transfer	*Yes* = Data transfer is taking place between the KL-6500 management computer and FarmConnect.
System in operation	The total time in *days* and *hh:mm:ss* that FarmConnect has been active since the last reset (or power failure).
Connection time	The duration of the current connection to FarmConnect in *days* and *hh:mm:ss* since the last reset (or power failure).
Reconnections FarmConnect	The total number of successful connections to FarmConnect since the last reset (or power failure).
Receiving FarmConnect messages	The number of messages received from the FarmConnect server.
FarmConnect messages sent	The number of messages sent to the FarmConnect server.

9.5 👤 Logging in and logging out

Login 0000	Enter the correct access code to log in.
Logout 🡢	Tap 🡢 to log out.