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Operating Instructions

RTC - Remote Tab Control

www.lw-compressors.com

Version: 12/20-D

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Operation and function - APP

Admin rights - APP

Others

General instructions

It is strongly recommended to read these operating instructions thoroughly before use and to follow all safety instructions exactly. Damage caused by deviation from the instructions is excluded from the warranty and liability for this product. Only carry out further steps for commissioning if you have fully understood the following content.
Before commissioning and using the control unit, work and measures that are indispensable for operation in technical and legal terms as well as for safety must be carried out and are described on the further pages of this operating manual.

Description of the information symbols and warning signs

The following warning signs are used in this document to identify and highlight the associated warning texts that require increased attention on the part of the user. The meanings of the warning signs are defined as follows:

Attention
Indicates an imminently hazardous situation. If this is not avoided, serious damage, serious injury or death can occur immediately.

Caution
Indicates a potentially hazardous situation. If not avoided, injury or damage to the product or the environment may occur.

Note
Important and/or additional information on the use of the unit.

General instructions for assembly and use

The control unit is operated with 24V DC safety extra-low voltage. All mains voltage switching contacts are implemented with external switching relays that can be easily replaced at any time if required.

This also applies to the 24V DC power supply which is externally installed by means of a DIN rail power supply unit (24V DC min. 800mA).

The control board must not be supplied with 230V AC at any terminal block. This would result in irreparable damage. Access to the menu function of the control board is only permitted during standstill. This ensures that no impermissible states occur during operation. Function changes via the tablet are also only to be carried out during system standstill.

Before a RESET or restart of the control board, the system must be switched off with the "OFF button".

It is possible to adjust or change all limit values individually. The limit values may only be changed after written agreement with Lenhardt & Wagner. The manufacturer is not liable for personal injury or damage to property resulting from unauthorised changes to the limit values.

The system is also fully functional without a tablet including APP. The control, processing and monitoring, as well as all safety-relevant functions of the relays, pressure transducers and sensors, are carried out exclusively by the control board!

The APP (My L&W) offers a multitude of extra features and serves as a clear, visual representation of all machine parameters, graphs and statistics. Several languages and units are available.

Caution
The control unit must never be operated without a radio antenna on the control board. Otherwise the Bluetooth module may be destroyed. The antenna can be mounted at another location at any time using an antenna cable.

Description

- RTC - Remote Tab Control

Name of APP

- My L&W

APP Search Terms in Play Store

- My L&W
- Lenhardt und Wagner GmbH
- LW Compressors
- L&W
- LW APP
- Wagner
- L&W Compressors
- Kompressoren
- Compressors

Available APP Languages

- German
- English
- Italien
- French
- Spanish
- Russian
- Chinese

Avaiblable APP Unit of Pressure

- Bar
- MPa
- Psi (Option)

Available APP Units of Temperature

- °C
- °F
- Celvin (Option)

Observinig operating instructions

Any handling of the unit requires precise knowledge and observance of these instructions. The unit is only intended for the use described. In addition to this, the special instructions for use for compressors and filling points as well as the associated legal regulations and standards must be observed.

Maintenance

The control system must be subjected to regular inspections (determination of the actual condition) by specialists.

Liability for function and damage

Liability for the function of the control unit is always transferred to the owner or operator if the control unit is improperly maintained or repaired by unauthorised persons or if it is handled in a manner that does not correspond to its intended use.

Lenhardt & Wagner GmbH and its sales partners are not liable for damage caused by non-observance. The warranty and liability conditions of the sales and delivery conditions of Lenhardt & Wagner and its sales partners are not extended by the above information.

Safety regulations

Inspections in accordance with statutory and locally binding regulations on occupational health and safety and accident prevention are carried out by the manufacturer or authorised specialist personnel. The manufacturer is not liable for damage caused or facilitated by non-compliance with these regulations.

Intended use

The system may only be used if it is in perfect technical condition and in accordance with its intended use and in a safety-conscious and hazard-conscious manner, observing the operating instructions. In particular, faults that could impair safety must be rectified immediately.

The unit is intended exclusively for use as described in the chapter "Technical Data". Any other use or use beyond this is considered improper. The manufacturer or supplier is not liable for any damage resulting from this. The risk is borne solely by the user. Intended use also includes observing the operating instructions and complying with the inspection and maintenance conditions.

Modifications and conversions to the system that are not carried out in written agreement with the manufacturer are not permitted. The manufacturer or supplier shall not be liable for personal injury or damage to property resulting from unauthorised modifications.

All supply lines must be clean, free of water/oil, adhesive residues and metal chips.

User (operator) groups

The following target groups are addressed in these instructions for use:

Operator:
Operators are persons who are authorised and instructed in the operation of the compressor.

Specialist staff:
Qualified personnel are persons who are authorised to carry out repairs, service, modification and maintenance work on the system.

Caution

Nur geschultes Personal darf an der Anlage arbeiten.

Caution

Arbeiten an elektrischen Ausrüstungen der Maschine / Anlage dürfen nur von einer Elektrofachkraft durchgeführt werden.

Attention

A damaged component can endanger safety. Damaged units must not be put into operation under any circumstances. The system (IP50) is not splash-proofed.

All components can lead to an irreparable defect if disregarded. In the event of damage caused by incorrect use, the warranty is void.

Technical Data Puracon Stationary Pro BA

Technical Data	Value
Power supply	24V DC
Transformer for main circuit board	24V DC / 800mA
Main circuit board / additional circuit board	24V DC
External circuit	24V DC
Fuse protection of the circuit board (fine-wire fuse)	800mA
Short circuit current per 4-20mA pressure transmitter	50mA
Power consumption max.	17W
Inputs optocoupler isolated	7
Relay outputs	7
4-20mA outputs	7
PT 1000 outputs	4
Protection class	IP 50
Operating temperature	+5°C bis +45°C
Dimensions main PCB incl. bracket (LxWxH)	170 x 100 x 45mm
Dimensions main board + additional board incl. bracket (LxWxH)	250 x 100 x 45mm

CONSTRUCTION AND CONNECTION OF THE CONTROL BOARD

Connecting cables of the components

Depending on the equipment, the following sensors are connected to the system via screw connections. In case of retrofitting/replacement/repair, the following sensors and cables are used:

Temperature Sensor PT1000:
The temperature sensors are already pre-assembled with PVC or silicone cables. The cable cross-section is 0.5mm². You do not have to pay attention to the polarity.

Pressure transducer 4-20mA:
The pressure transducers must be connected with a 2-wire cable. The cable cross-section for the pressure transducers is 0.75mm². It is not necessary to pay attention to the polarity.

Humidity Sensors 0-50mg/m³:
The Puracon Pro humidity sensor is supplied with a sensor cable including a 5-pin plug. The cable cross-section is 0.34mm². It is imperative that the correct polarity is observed.

Enputs and coupling relays 24V DC:
The inputs and coupling relays are connected with H07V-K control cable. The cable cross-section is 0.5mm². It is imperative to ensure correct connection.

Control panel:
The control panel is supplied with 24V DC and 230V AC. The connection cables used for the different voltages are each JZ9G1mm². Eight wires + PE are used for the 230V AC supply and seven wires + PE for the 24V DC supply. It is imperative that the correct connection is made.

Caution

Nur geschultes Personal darf an der Anlage arbeiten.

Caution

Es muss zwingend auf die korrekten Polungen und Anschlüsse geachtet werden.

Control panel

The compressor unit can be controlled via the control panel both in normal operation and in emergency operation.

Red mushroom switch:
Emergency stop to switch off the compressor unit quickly and reliably in an emergency.

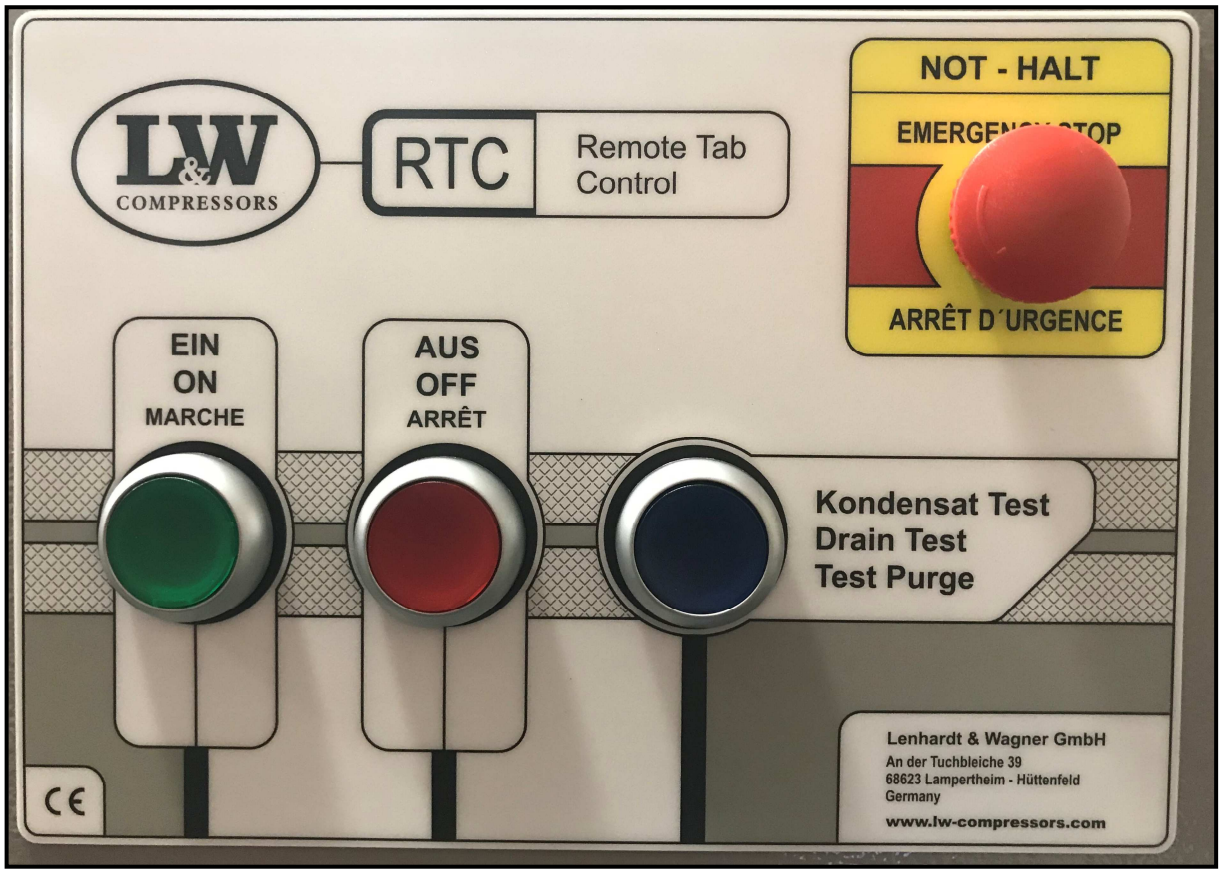
Green push-button (ON):
For starting the compressor.

Red push button (OFF):
For stopping the compressor.

Blue - push button (condensate test):
For activating the solenoid valves. This is for condensate drainage and can be activated during operation or when the unit is at a standstill. The valves are open as long as the button is pressed.

Green LED:
Built into the on button. Indicates that the compressor is in operation.

Red LED:
For activating the solenoid valves. This is for condensate drainage and can be activated during operation or when the unit is at a standstill. The valves are open as long as the button is pressed.



Description of the control board

The control board is equipped with a BCD display that shows the available information. The <UP> and <DOWN> keys can be used to scroll through the individual pages.

The control board has eight digital inputs and eight digital relay outputs.
Furthermore, the board offers the connection possibility for six pressure transducers (4-20mA), one humidity sensor (Puracon Stationary Pro) and four temperature sensors (PT1000), which are all predefined.

The connection is made via screw terminals, which are permanently installed. Next to the terminal for the 24V DC power supply is the 800mA microfuse.

Caution

Die Steuerplatine darf nur mit **24V DC** versorgt und betrieben werden. Dabei muss zwingend auf die richtige Polung (Plus/Minus) geachtet werden.

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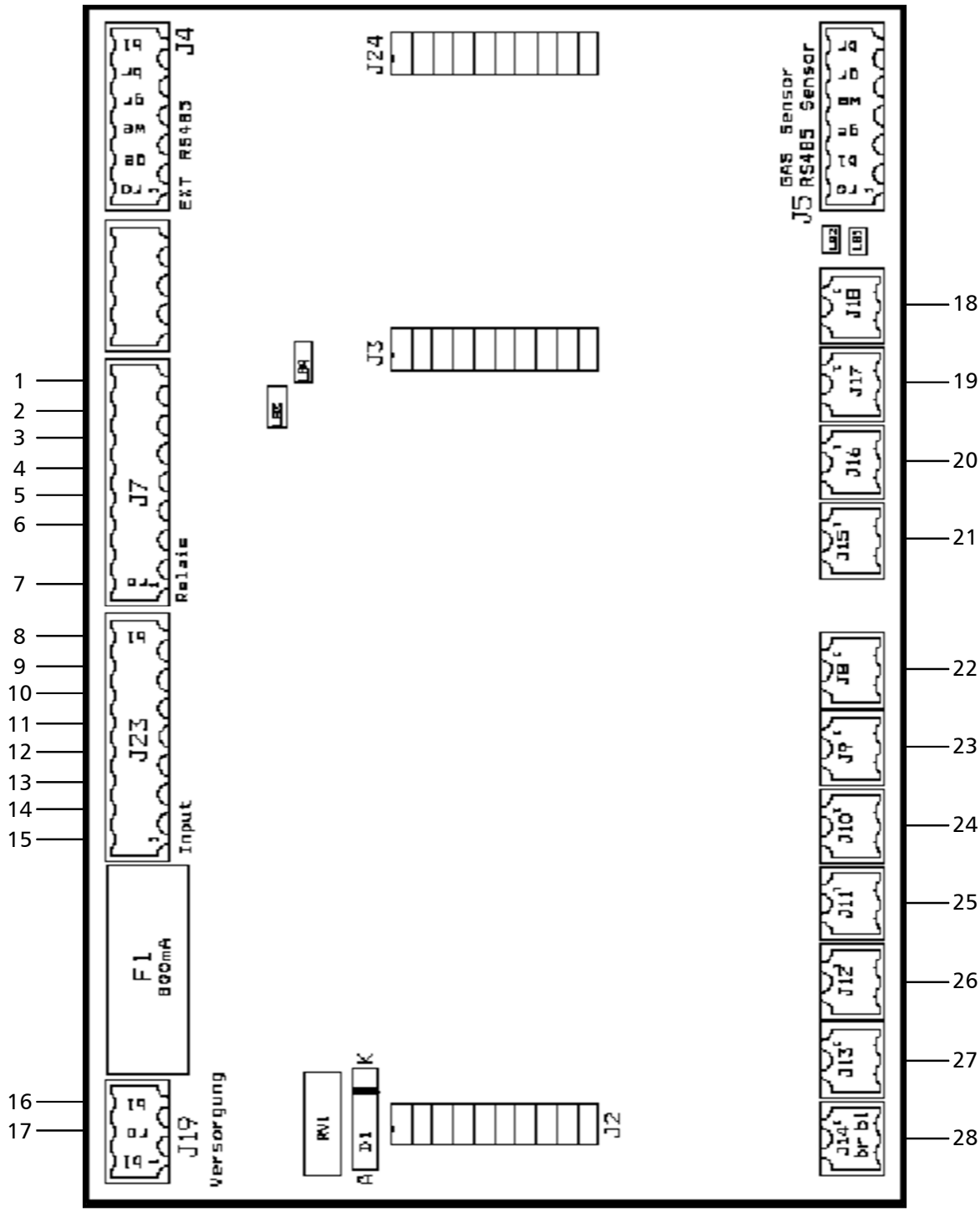
Wiring diagram control board



Definition of control board and plug connection

No.	Plug	Control board connection
1	J7	24V DC coupling relay - emergency operation
2	J7	24V DC coupling relay - alarm
3	J7	24V DC coupling relay - condensate
4	J7	24V DC LED - motor in operation
5	J7	24V DC coupling relay - motor
6	J7	24V DC coupling relay - input pressure
7	J7	24V DC Power supply of the relay outputs - plus
8	J23	24V DC Voltage supply of the inputs - GND
9	J23	Switch - Door
10	J23	Switch - emergency stop
11	J23	Thermal overload switch - Motor protection
12	J23	Shutdown Puracon Stationary Pro CO+CO2 / BA
13	J23	Phase control relay - Rotation direction monitoring
14	J23	Push button - Start
15	J23	Push button - stop
16	J19	24V DC power supply to control board - GND
17	J19	24V DC power supply of the control board - Plus
18	J18	PT1000 temperature sensor - optional
19	J17	PT1000 temperature sensor - ambient
20	J16	PT1000 temperature sensor - oil
21	J15	PT1000 temperature sensor - valve head Output stage
22	J8	4-20mA pressure transducer - filling pressure
23	J9	4-20mA pressure transducer - inlet pressure
24	J10	„Humidity" sensor
25	J11	4-20mA pressure transducer - oil
26	J12	4-20mA pressure transducer - 1st stage
27	J13	4-20mA pressure transducer - 2nd stage
28	J14	4-20mA pressure transducer - 3rd stage

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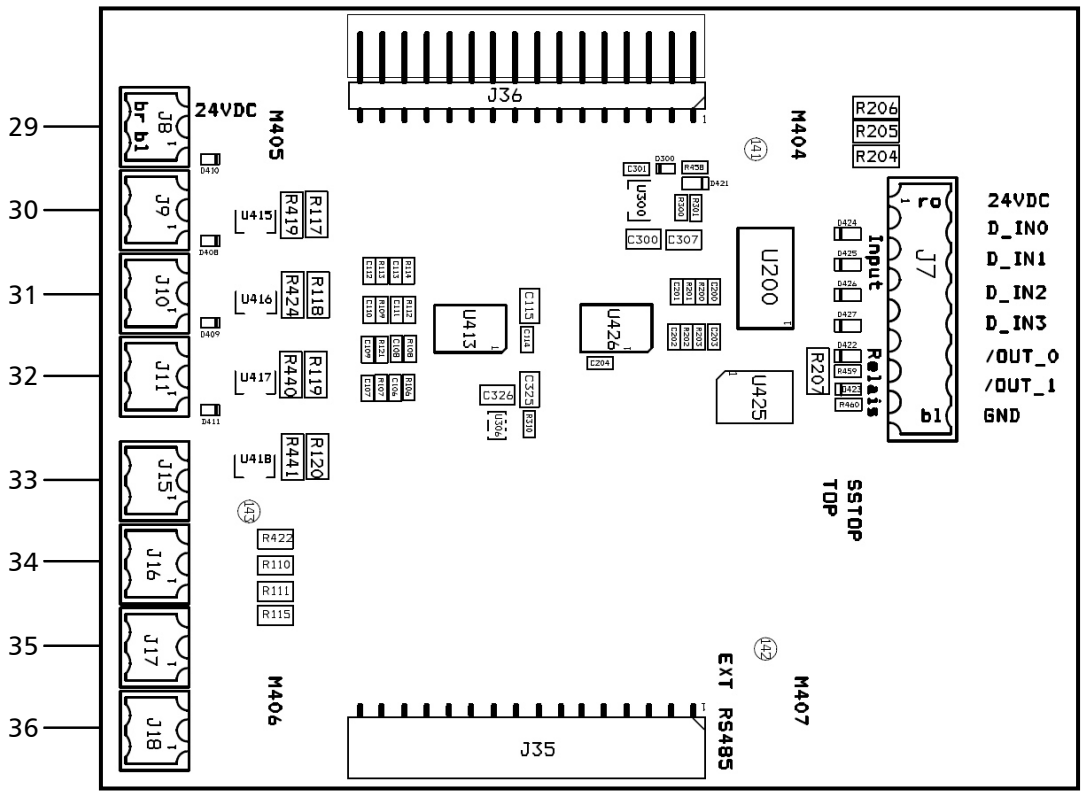
Wiring diagram, additional board



Definition of additional board and plug-in connection

No.	Plug	Connection additional board
29	J8	4-20mA pressure transducer - condensate pressure
30	J9	4-20mA pressure transducer - 2nd stage filling pressure
31	J10	4-20mA pressure transducer - 4th stage
32	J11	Pressure transducer - „storage pressure“
33	J15	PT1000 temperature sensor - valve head 4th stage
34	J16	PT1000 temperature sensor - valve head 1st stage
35	J17	PT1000 temperature sensor - valve head 2nd stage
36	J18	PT1000 temperature sensor - valve head 3rd stage

DESCRIPTION CONTROL BOARD

Calling up the menu

To do this, briefly press the <UP> and <DOWN> keys simultaneously and then press and hold the <ENTER> key until the menu appears. Use the <UP> and <DOWN> keys to select the individual menu items. The currently selected menu item is marked with an arrow on the left edge of the screen. The <ENTER> key is used to call up the targeted menu item or to confirm the setting.

To close and exit the menu items, press RESET.

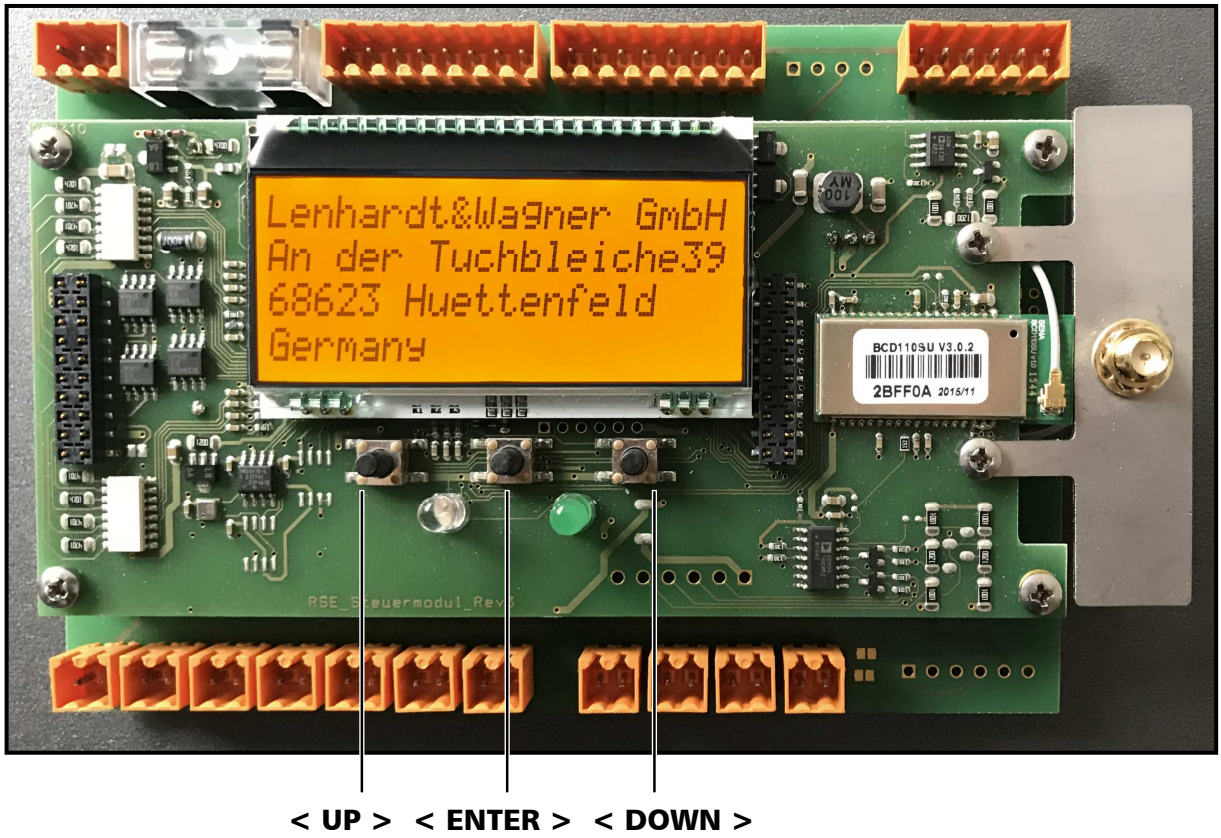
To do this, briefly press the <UP> and <DOWN> keys simultaneously.

RESET (Reboot)

The control board can be restarted at any time using the reset function. This must be done as soon as an alarm message appears on the display.

A reset via the control panel is also possible. To do this, briefly press the <ON> (green) and <OFF> (red) push-buttons simultaneously.

e Steuerplatine kann über die Reset Funktion jederzeit neu gestartet werden. Dies muss durchgeführt werden, sobald eine Alarmmeldung auf dem Display erscheint.



Bluetooth connection

First, a connection must be established between the Bluetooth module of the control board and the tablet. To do this, proceed as follows:

- Open the settings on the tablet
- Select the menu item "Connected devices
- Select "Pair new device" and wait until the Bluetooth module of the control board is displayed (example: BCD110_v3.0.2-2BFF0A). This must be selected and confirmed with "pair".
- Carry out the "pairing process" ("pairing" establishes a link between the Bluetooth devices so that the radio connection is possible. In this case, a link is established between the tablet and the control board).
- If necessary, enter the PIN (usually the PIN is: 1234).
- The process in the settings of the tablet is completed.
- Then open the app and log in
- Select the menu item "Settings" in the app.
- Select "Not connected" once under the item "Bluetooth" and select the appropriate paired device (example: BCD110_v3.0.2-2BFF0A). The Bluetooth connection is established automatically

A functioning Bluetooth connection is signalled by the green, flashing "Data transfer" LED. An interrupted Bluetooth connection is indicated by a black LED. The connection is automatically re-established as soon as all necessary conditions are met.

If an automatic connection cannot be established, the Bluetooth connection can be re-established manually at any time in the app settings. Possible reasons for an interruption of the Bluetooth connection:

- Open menu in the control board.
- Bluetooth is deactivated in the tablet settings
- Distance between the Bluetooth module of the control board and the tablet is too great.
- Interference factors between Bluetooth module and tablet, such as walls, steel doors, intermediate floor, intermediate ceiling, etc.

Operating modes

The control board has two operating modes, automatic mode and semi-automatic mode, which can be selected. Changing the operating mode, as well as setting the limit values for the start and shut-off pressure, can be done on the control board or the tablet. Both changing the operating mode and the limit values must be carried out during interrupted operation. The control board requires approx. 45 seconds for internal processing and the necessary restart.

Semi-automatic mode:
In this operating mode, the compressor compresses the filling pressure up to the set cut-off pressure (**pressure>stop**) and then switches off automatically. The compressor can only be restarted via the control panel or tablet.

Automatic mode:
In this operating mode, the compressor unit compresses the filling pressure up to the set shut-off pressure (Pressure>Stop), switches off automatically, but is in standby mode. As soon as the filling pressure drops below the set start pressure (Pressure>Start), the compressor starts again fully automatically. The automatic start function is deactivated by stopping any shutdown command prematurely. An individual compressor start is possible at any time and is carried out via the control panel or tablet.

Back-up control

Emergency operation:
The so-called back-up control ensures that the compressor unit can continue to be used in the event of a failure of the control board (control board defective, transformer defective).
This is controlled via an external coupling relay, which is always activated when the control board is functioning. As soon as the control board is deactivated, the coupling relay drops out and the "emergency operation" mode is active. No graphics, statistics or settings are available during this operating state.
The "ON"/"OFF" and "Condensate" pushbuttons of the control panel are available for using the system. The thermal overload switch (motor protection) is also active. There is no automatic stage drainage or shutdown.

Description of the coupling relays

Coupling relay - emergency operation:
This coupling relay is always activated when the control board is functioning. As soon as the control board is deactivated, the coupling relay drops out and the "emergency operation" mode is active.

Coupling relay - alarm:
As soon as an alarm is triggered by the control board, the relay switches a red LED through, which signals the alarm status. In addition, a potential-free contact is provided in the event of an alarm shutdown.

Coupling relay - condensate:
The control board forwards the condensate interval command to the relay. This opens and closes the individual solenoid valves.

Coupling relay - motor:
The so-called motor relay controls the drive motor. The start and stop commands are still sent via the control board.

Coupling relay - inlet pressure:
Opens the inlet solenoid valve when the compressor starts. As soon as the compressor unit is switched off, the input solenoid valve closes.

Description of the individual sensors
The sensors must be activated or deactivated in the menu. Activation is carried out under the call: "Menu" -> "Commissioning" -> "Sensor Activate". The sensors are activated with a 1 and deactivated with 0. All desired sensors can be activated/deactivated one after the other.

Breath analysis sensor (SE350) control board:

Humidity (0-50mg/m³):
Indicates the current water content (mg/m³) in real time, downstream of the filter canister. The condition of the cartridge can thus be monitored precisely.

In the menu "Limit values -> Humidity", the limit values, as well as delay times for a limit value switch-off, can be set individually.

Pressure transducer (4-20mA) control board

Filling pressure:
Displays the current filling pressure in real time.
In the "Pressure" menu, the switch-on and switch-off values can be set individually. The maximum pressure indicates the maximum adjustable cut-off pressure.

Oil pressure:
Displays the current oil pressure in real time at the output of the oil pump.
In the menu "Limit values -> Oil pressure", the limit values as well as delay times for a limit value switch-off can be set individually. The limit values of the oil pressure are only monitored during system operation.

1st stage pressure:
Displays the current pressure of the first stage in real time.
In the menu "Limit values -> 1st stage", the limit values as well as delay times for a limit value switch-off can be set individually. In the delivery state, the limit value monitoring of the first stage is deactivated. The limit values of the first stage are only monitored during system operation.

Second stage pressure:
Displays the current pressure of the second stage in real time.
In the menu "Limit values -> 2nd stage", the limit values as well as delay times for a limit value switch-off can be set individually. In the delivery state, the limit value monitoring of the second stage is deactivated. The limit values of the second stage are only monitored during system operation.

Pressure 3rd stage:
Displays the current pressure of the third stage in real time.
In the menu "Limit values -> 3rd stage", the limit values as well as delay times for a limit value switch-off can be set individually. In the delivery state, the limit value monitoring of the third stage is deactivated. The limit values of the third stage are only monitored during system operation.

Upstream pressure:
Displays the current inlet pressure in real time at the inlet tank.
In the menu "Limit values -> Pre-pressure", the limit values as well as delay times for a limit value switch-off can be set individually. In the delivery state, the limit value monitoring of the third stage is deactivated. The "Min. pressure" indicates the lower switch-off value (0.3 bar) of the compressor unit during the overrun function. The limit values of the inlet pressure are only monitored during system operation.

Temperature sensor (PT1000) Control board

Valve head output stage:
isplays the current temperature of the output stage in real time on the valve head.
In the menu "Limit values -> Cylinder", the limit values as well as delay times for a limit value switch-off can be set individually.
The limit values of the output stage are monitored both during system operation and during system standstill.

Oil: ***Bitte überprüfen, ob die Übersetzung für „Oil" auch im Display erscheint***
Displays the current temperature of the oil in real time in the crankcase.
In the menu "Limit values -> Oil temp", the limit values as well as delay times for a limit value switch-off can be set individually. The limit values of the oil are monitored both during system operation and during system standstill.

Environment: ***Bitte überprüfen, ob „Ambient Temp" übernommen wird***
Displays the current temperature of the environment in real time in the cooling air intake area.
In the menu "Limits -> Ambient Temp", the limit values as well as delay times for a limit value switch-off can be set individually. The ambient limit values are monitored both during system operation and during system standstill.

Optional: ***Dito für „Blo. Temp."***
Displays the current temperature in real time under the designation "Optional". No special temperature is defined for this.

In the menu "Limit values -> Blo. Temp" menu, the limit values as well as delay times for a limit value switch-off can be set individually.

The limit values for Optional are monitored both during system operation and during system standstill.

Pressure transducer (4-20mA) add-on board

2nd filling pressure: ***Übersetzung „Filling pressure (Fuelldru)***
Displays the current second filling pressure in real time.
The switch-on or switch-off value can be set in the menu "Limit values -> "Filling pressure".
Can be used for parallel filling operation 200/300bar.

Pressure 4th stage:
Displays the current pressure of the fourth stage in real time.
In the menu "Limit values -> "4th stage" the limit values as well as delay times for a limit value switch-off can be set individually. In the delivery state, the limit value monitoring of the second stage is deactivated. The limit values of the fourth stage are only monitored during system operation.

Condensate pressure:
Displays the current pressure of the last stage before the pressuriser check valve.
In the menu "Limit values -> "K-pressure", the limit values, as well as delay times for a limit value switch-off, can be set individually. In the delivery state, the limit value monitoring of the second stage is deactivated. This monitors the machine pressure upstream of the pressuriser check valve.

Storage pressure:
Displays the current pressure at a desired accumulator in real time.

Temperature sensor (PT1000) Additional board

Valve head 1st stage:
Displays the current temperature in the first stage in real time on the valve head.
In the menu "Limit values -> Zy Temp.1", the limit values as well as delay times for a limit value switch-off can be set individually. The limit values of the first stage are monitored both during system operation and during system standstill.

Valve head 2nd stage:
Displays the current temperature in the second stage in real time on the valve head.
In the menu "Limit values -> Zy Temp.2", the limit values as well as delay times for a limit value switch-off can be set individually. The limit values of the first stage are monitored both during system operation and during system standstill.

Valve head 3rd stage:
Displays the current temperature in the third stage in real time on the valve head.
In the menu "Limit values -> Zy Temp.3", the limit values as well as delay times for a limit value switch-off can be set individually. The limit values of the first stage are monitored both during system operation and during system standstill.

Valve head 4th stage:
Displays the current temperature in the fourth stage in real time on the valve head.
In the menu "Limit values -> Zy Temp.4", the limit values as well as delay times for a limit value switch-off can be set individually. The limit values of the first stage are monitored both during system operation and during system standstill.

OPERATION - CONTROL BOARD

Menu call:

It is only possible to enter the menu when the unit is at a standstill. If the compressor unit is still in operation when the menu is called up, it is switched off by entering the menu.

Menu structure

```
>Pressure
  Mode
  Limit
  Maintenance
  Settings
  Language
  Initial Setup
```

Pressure

```
>Start   : 250.0bar
  Stop    : 315.0bar
  Exit
```

The start and shut-off pressure can be set under the menu item **Pressure**. The shut-off pressure is limited by the "MAX pressure".

Mode

>Manual : 1
Automatic : 0
Ausstieg

Under the menu item **Mode**, the operating mode can be selected and set. The numbers "one" and "zero" indicate the current operating mode.

Manual:
The unit builds up pressure and switches off at the set shut-off pressure (pressure>stop). A restart can only be carried out via the ON button on the compressor or the start function on the tablet.

Automatic:
The system builds up pressure and switches off at the set shut-off pressure (Pressure>Stop). The system starts automatically after the pressure drops below the start pressure (Pressure>Start). The automatic start function can be interrupted by any stop command. The compressor must then be started again once using the ON button on the compressor or the start function on the tablet. The automatic start function is active again.

Limits

Set limit values
Sensor selection
Exit
Press Reset

Under the menu item "Set limit values", the respective minimum and/or maximum limit values as well as optimal special functions of the associated parameters are set or activated/deactivated.

Limit parameter

>LIMIT : 1
LIMIT KOMP. ON: 0
MAX Value : 140.0
MIN Value : 10.0
Purge Time : 0sec
Alert Del : 5
MIN Press : -100.0
Emerg MAX : 1
Emerg MIN : 1
Range low : 0.0
Range high : 400.0
Exit

After the respective sensor selection,the individua parameters can be set in the submenu.

LIMIT:
A "one" means that the limit monitoring is permanently active. This means that an alarm can be triggered even when the compressor unit is at a standstill. With a zero, the values are displayed, but there is no shutdown if the limit value is exceeded.

LIMIT Komp. ON:
"One" means that the limit value monitoring is only active during operation of the unit. In the case of a "zero", the values are displayed, but there is no shutdown if they are exceeded.

Only "LIMIT" or "LIMIT comp. ON" can be activated, never both at the same time. If the limit value is exceeded, the system is switched off or cannot be switched on.

MAX value:
Outputs a signal when the set maximum value is exceeded.

MIN value:
Outputs a signal when the value falls below the set minimum value.

Spuel time:
Without function.

Alarm Delay:
Alarm delay specifies how long the limit value evaluation is suppressed after the system start.

MIN Pressure:
The set value specifies the minimum pressure at which an alarm is issued if the limit value is exceeded. If the pressure falls below this value, the compressor is not switched off.

Emergency stop MAX:
Without function

Emergency stop MIN:
No function

Range low / Range high:
The respective pressure transducers are adjusted to their measuring range here. This must be taken from the data sheet of the pressure transducer.

Exit:
Leads back from the parameters to the sensor selection.

Maintenance

```
>Info displays: 0
  Leak test
  Safety value
  Rel_Alert: 0
  Rel_Motor: 0
  Rel_Condensat: 0
  Rel_Purge: 0
  Rel_Emergency: 0
  Exit
```

Under the menu item "Maintenance", various functions and information can be carried out or displayed individually. If you select a "one" for the respective relays (Rel_), the corresponding relay in the control unit is activated.

Info displays:
Activates an optional info display. Additional data, values and information are displayed. This is used exclusively for error analysis.

Leak test:
For checking the tightness or possible leaks.

Safety valve:
For checking the function of the safety valve and defining the maximum pressure.

Rel_Alert:
Relay for the alarm circuit.

Rel_Motor:
Relay for motor control.

Rel_Condensate:
Relay for the condensate valves. Not assigned.

Rel_Purge:
Not assigned.

Rel_Emergency:
Relay for the emergency shutdown.

Settings

>Time h:m:s	00:00:00
Date d:m:y	00:00:00
Al. Delay:	3sec
K Start ON:	10sec
K ON:	8sec
K OFF:	15min
K Stop ON:	4min
K Press:	10.0bar
MAMI Delay:	60sec
Exit	

Under the menu item Settings, in addition to the time and date, the condensate automatic can be defined precisely in terms of time.

Time h:m:s:
The desired time can be set.

Date d:m:y:
The desired date can be set.

Al. Delay:
Is the general delay of the alarm evaluation, independent of the measured value.

K StartON:
Specifies the time how long the condensate valves remain open during the start of the unit. During this time, the unit does not switch to the operating state.

K ON:
Indicates the time for which the condensate valves are open during operation at intervals.

K OFF:
Specifies the time cycle at which the condensate valves are activated during operation.

K Stop Ein:
Indicates the time for which the condensate valves remain activated after a compressor shutdown.

K Press:
No function (Indicates the maximum condensate pressure before engine start. Is only queried if condensate pressure is activated).

MAMI Delay:
Not assigned.

Languages

>German
English
Italian
Spanish
French
GradC > GradF
GradF > GradC
bar > MPa
MPa > bar
bar > psi
psi > bar
Exit

Under the menu item "Language", you can choose between the languages German and English, as well as degrees Celsius, degrees Fahrenheit, bar and MPa.
This change only affects the control board. All other settings must be adjusted directly in the app.

Commissioning

Under the menu item "Commissioning", all service intervals can be set or counters can be reset. The corresponding sensors are also activated or deactivated under the menu item "Sensor Activate". Access to the menu item "Commissioning" is blocked by a PIN (service code). This is to prevent the unintentional deletion, resetting or deactivation of various parameters or sensors. The menu items "L&W reserved" must not be selected! The selection of these items is recorded internally and can thus be traced. Using one of these items may hinder further use of the compressor unit. This can only be remedied in the main factory of Lenhardt & Wagner GmbH.

>Close_Service	Closes the service menu, PIN entry is required to call it up again.
St FRAM	Function locked. Load user data from FRAM
St Default	L&W reserved! Sets the control to the default values (basic setting).
Clear_Service	Sets the maintenance interval to 25h
Set_Service	Cartridge run time Clear = Value 00 UP Counter
Set_Service_1000	Maintenance interval 1 - Sets maintenance to 1000h and 36 months
Set_Service_2000	Maintenance Interval 2 - Set maintenance to 2000h and 36 months
Set_Service_3000	Maintenance interval 3 - Set maintenance to 3000h and 36 months
Set_Service_4000	Maintenance interval 4 - Setting the maintenance to 4000h and 36 months
Set_Service_25	Maintenance interval 25 - Setting maintenance to 25h (first oil change)
Set_Service_LW1	Not assigned
Set_Service_LW2	Not assigned
Clear_Use_Hour	Can the operating hours be reset or changed
Clear_Ontime	Can the number of On Time counters be reset or changed
Clear_Selftest	L&W reserved! Deletes self-test values
Clear_Error	L&W reserved! Deletes error messages
Setup_Initial !!!	L&W reserved! Initial start on first programming
Setup_Sensor	L&W reserved! Initialisation sensor, stdata of each sensor customisable
Setup_Bluetooth	L&W reserve! Initialisation Bluetooth module
Selftest_Bluetooth	Self test Bluetooth module
Setup_RTC	

Commissioning

>Clear_Con_Counter	The number of condensate cycles can be resetted or changed
Clear_Start_Counter	The number of compressor starts can be resetted or changed
Serial_Nr.	For entering a separate serial number
Clear_Purge_Counter	Self-test
Set_Stop_Press. MAX	Self-test
Selftest 7	Self-test
CUST_MAIN	Basic setting; activates the sensors for filling pressure and cylinder head temperature
CUST_Humi_ON	Activates the humidity sensor for basic setting
CUST_Oil_ON P+T	Activates the sensors for filling pressure, oil pressure, humidity, cylinder head temperature, oil temperature
CUST_2Stage_ON	Activates the sensors for filling pressure, oil pressure, cylinder head intermediate pressure 1st and 2nd stage, humidity, cylinder head temperature, oil temperature
CUST_3Stage_ON	Activates the sensors for filling pressure, oil pressure, cylinder head intermediate pressure, 1st, 2nd and 3rd stage, humidity, cylinder head temperature, oil temperature
CUST_PreePress_Inlet	Activates the sensors for filling pressure, oil pressure, cylinder head intermediate pressure 1st, 2nd and 3rd stage, pre-pressure, humidity, cylinder head temperature, oil temperature
CUST_BF-Graz	Customised setting
CUST_AT1	Customised setting
CUST_AT2	Customised setting
CUST_AT3	Customised setting
CUST_LW1	Customised setting
CUST_LW2	Customised setting
CUST_LW3	Customised setting
CUST_LW4	Customised setting
CUST_LW5	Customised setting
CUST_LW6	Customised setting
CUST_ALL_ON_MAIN	Activates all sensors
CUST_ALL_ONE_EW1	Customised setting
CUST_ALL_ONE_EW2	Customised setting
Sensor Activate	For activating and deactivating the individual sensors
Exit	Exit menu (reset required)

Overview of all sensors (Sensor Activate)

>Test:	0	Locked, must not be used
Humidity:	1	Humidity sensor (Puracon Stationary Pro)
Humidity:	0	Locked, must not be used
Air Temp.:	0	Locked, must not be used
Fin-Press:	1	Filling pressure, real-time display
C-Druck:	0	Locked, must not be used
Cylinder:	1	Cylinder head end stage temperature, real time display
Oil-Press:	1	Oil pressure, real-time display
Oil-Temp.:	1	Oil temperature, real-time display
Stage_1:	1	Pressure 1st stage, display in real time
Stage_2:	1	2nd stage pressure, real-time display
Stage_3:	1	Pressure 3rd stage, display in real time
Silent:	0	Not used
Storage:	1	Accumulator pressure, display in real time (only additional board)
CO:	0	Not used
CO2:	0	Not used
O2:	0	Not used
VOC Oel:	0	Not used
Sensor Te:	0	Not used
PrePress:	1	Pressure Input pressure, display in real time
Inlet T:	0	Not used
Stage_4:	0	Not used
Run after:	0	Not used
Cyl Temp.1:	1	Temperature cylinder head 1st stage, display in real time (only additional board)
Cyl Temp.2:	1	Temperature cylinder head 2nd stage, display in real time (only additional board)
Cyl Temp.3:	1	Cylinder head temperature, 3rd stage, real-time display (additional board only)
Cyl Temp.4:	0	Cylinder head temperature, 4th stage, real-time display (additional board only)
Amb. Temp.:	1	Ambient temperature, real-time display
Blo. Temp.:	1	Temperature Optional, real-time display
Temp.Opti:	1	Temperature Optinal, display in real time (only additional board)
Fill-Press:	1	2nd filling pressure, real-time display (additional board only)

Description of the overrun function

The "overrun" function can only be used in combination with the pressure transducer for upstream pressure monitoring. However, the switch-off due to a "limit overrun" can be deactivated.

Compressor units that are operated with inlet pressure have an overrun function. This means that if the compressor is switched off by the stop button or reaches the shut-off pressure, it will continue to operate until the pre-pressure vessel in the intake area is sucked down to the defined threshold value (0.3 bar). This is necessary to relieve the crankcase.

If this is not the case, various defects may occur in the crankcase.

Caution

Depending on the medium, this can be explosive, harmful to the environment or to people.

Hinweis

Das Gas kann via Rückführung vom Vordruckbehälter in den Speicher geleitet werden.

Description of the test environment (maintenance)

Leak test:

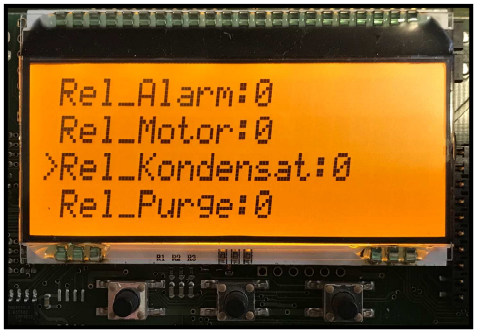
This test can be used to check the tightness of the entire system. The leak test should be carried out at least once a year.

The test is started via the <ENTER> button. The compressor builds up pressure and switches off automatically at 250bar at the latest. The solenoid valves are automatically prevented from opening for a maximum of ten minutes.

The test can be terminated at any time by pressing the exit button on the control panel or by pressing the ENTER button on the control board. After the test is finished, the data is processed in the control board and a restart is carried out. This takes approx. 45 seconds.

Condensate test:

The condensate test is activated via the Rel_Condensate and is used to check the solenoid valves. The solenoid valves are activated via the <ENTER> key. They remain open until the condensate relay is deactivated again via the <ENTER> key (1->0).



Description of the test environment (maintenance)

Safety valve:
The test serves to check the function of the safety valve and should be carried out at least once a year. In addition, this defines the maximum pressure of the system. Therefore, the safety valve test must be carried out

- when the RTC control unit is commissioned for the first time
- replacement of the RTC control board
- or replacement of the safety valve

The maximum pressure defines the maximum adjustable shut-off pressure.

Press the <ENTER> key to start. The entire test is carried out fully automatically. This is signalled by the green LED. The LED flashes during the determination phase. As soon as the value remains constant for five seconds, the determined maximum pressure is stored in the control board and a restart is carried out. This takes approx. 45 seconds.

Caution

Wichtig: Wird der Test vorzeitig beendet, erfolgt keine Speicherung des Maximaldrucks.

Note

If the safety valve test is activated via the control, the maximum pressure is overwritten and stored again. This can be prevented by ending the test before the final storage process via the stop button.

ird der Sicherheitsventiltest über die Steuerung aktiviert, wird der Maximaldruck überschrieben und neu gespeichert. Dies kann verhindert werden, in dem der Test vor dem endgültigen Speichervorgang über die Stopptaste beendet wird.

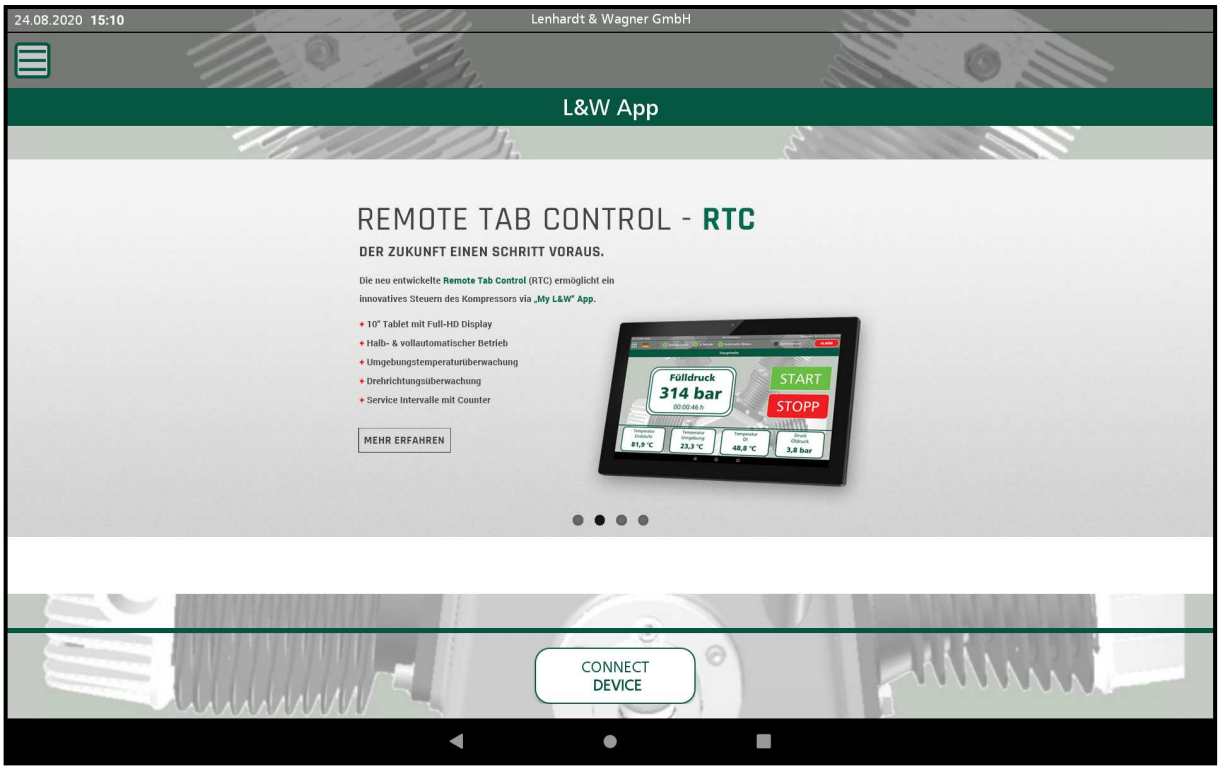
OPERATION AND FUNCTION - APP

Home Screen

On the start page of the APP is the L&W banner (internet connection required), which informs about product updates, news and general messages.

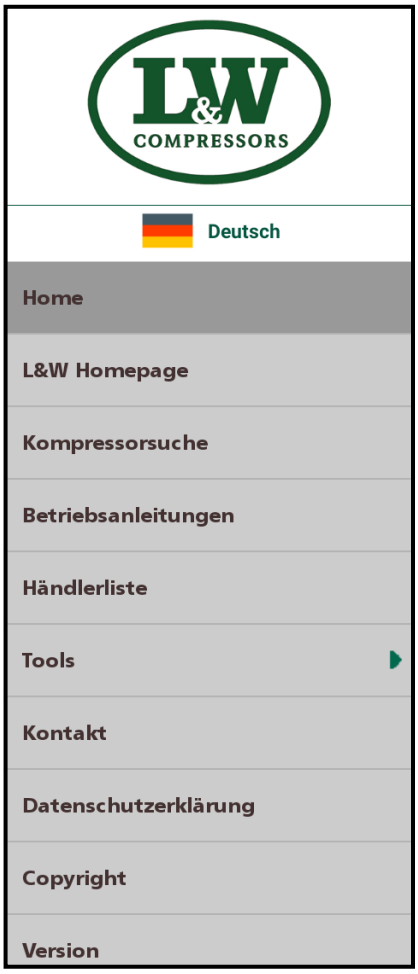
The menu contains various links, tools and certificates. These are called up by selecting the symbol in the top left corner.

Das Menü enthält verschiedene Links, Tools und Zertifikate. Diese werden durch das Anwählen des Symbols in der linken oberen Ecke, aufgerufen.



Menu bar - Home Screen

Selecting the menu symbol on the start page opens the menu bar with the various menu items, which call up the corresponding Internet pages (Internet connection required) or tools.



Home:
Links back to the start page of the APP

L&W Homepage:
Refers directly to the home page of the homepage.

Compressor search:
Refers directly to the L&W product portfolio.

Operating instructions:
Refers directly to the operating instructions of the products.

Dealer list:
Refers directly to the dealer list on the homepage.

Tools:
Various tools such as calculators or certificates can be called up via the tools.

Contact:
Refers directly to the worldwide distribution network.

Privacy policy:
Refers directly to the terms and regulations of Lenhardt & Wagner.

Copyright:
Not documented.

Version:
Indicates the current version of the APP.

Log In

In the "Log In" area, it is possible to choose between four different users. Each has different levels of clearance. The green arrow opens the user field. The desired user is selected here. The corresponding password must be entered in the lower input field. The user interface of the compressor control appears.

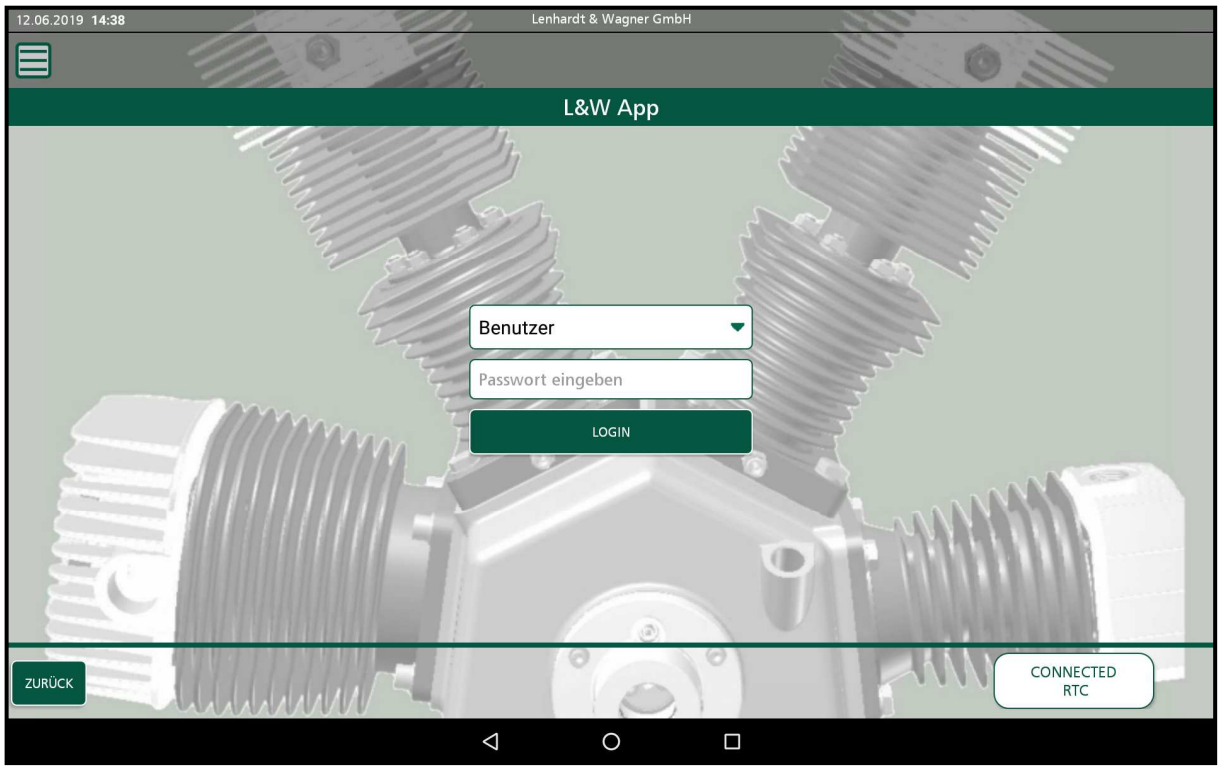
The following four users can be selected:

- **User**
- ***Admin Level 1***
- ***Admin Level 2***
- ***Superadmin***

There is a separate list for the different admin rights in the appendix.

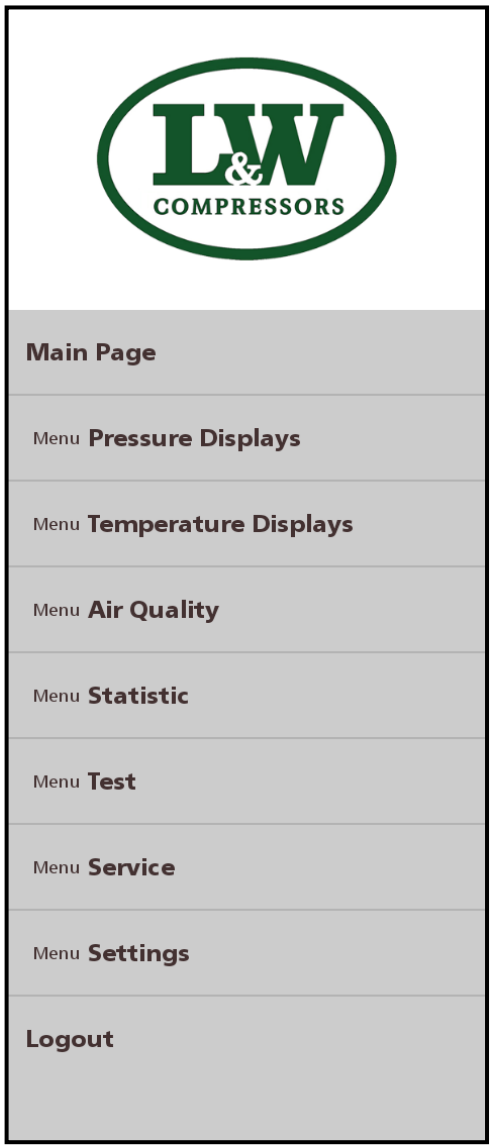
BACK:
Takes you directly back to the Home screen.

CONNECTED RTC:
Displays the activated interface, the "Log In" area. This is a display field only. No settings are possible.



Menu bar - User interface

By selecting the various menu items, the corresponding user interface is called up. The individual menu items contain various parameters and displays for monitoring, checking or recording the compressor. The user interface is closed via the menu item "Logout".



Here you will find the start and stop button, as well as the display of the current filling pressure including the filling time.

All active pressures are displayed.

All active temperatures are displayed.

All active air quality values are displayed.

Different statistics are displayed.

The tests for safety valve, tightness and condensate are carried out.

The currently used maintenance kit is displayed, as well as the period of the next required maintenance.

Provides the option to make various adjustments, changes and settings.

Logs out of the user interface..

Informations and Widges

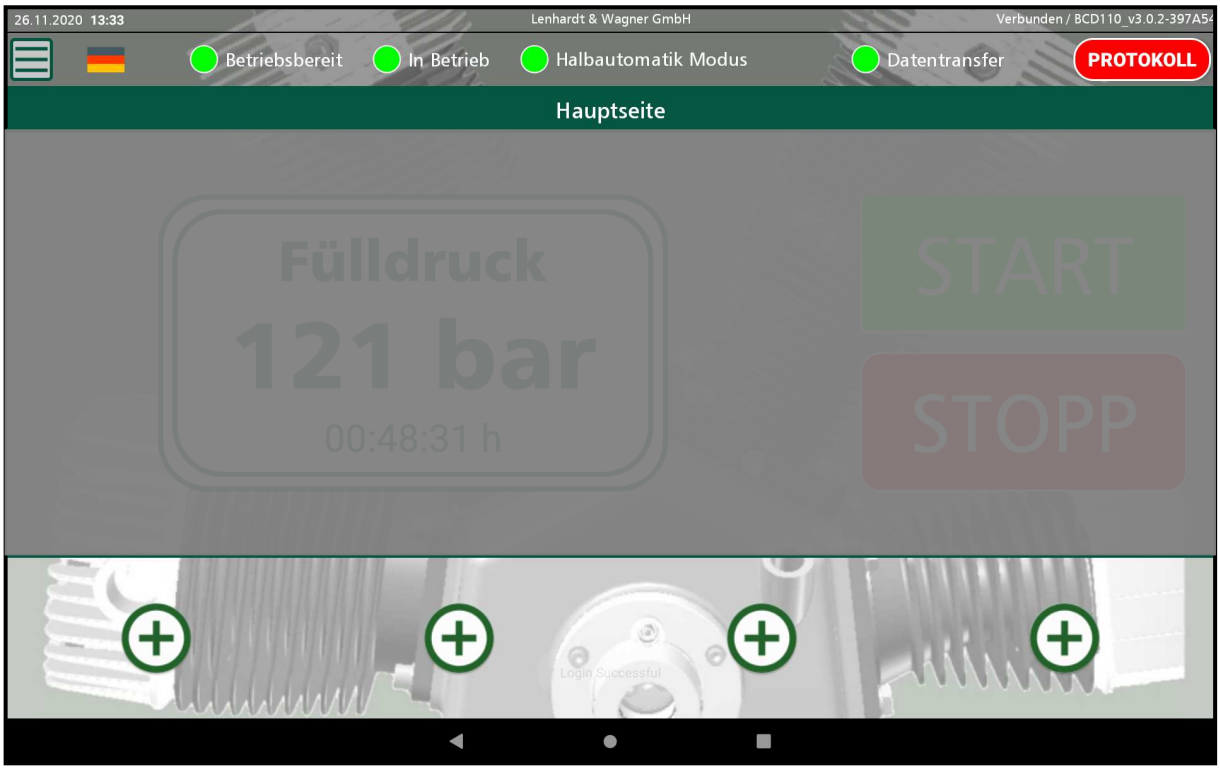
On all interfaces, both the upper section with information and the lower section with the widgets are available. The LEDs provide information on the current operating status, while the log records all activities of the compressor unit with date and time.

Menu:
The desired user interfaces are called up in the menu. The item "Logout" leads back to the home screen.

Country flag:
Displays the language currently in use. You can choose between different languages. Selecting the flag lists them.

Ready for operation:
Indicates whether it is possible to start the compressor unit. A green LED signals that the compressor is ready for operation and can be started. The red LED signals an alarm or error in the compressor unit, the compressor cannot be started until this has been rectified.

In operation:
Informs about the current ACTUAL state of the system. A green LED means that the compressor is in operation. If, on the other hand, the field lights up red, the compressor is in standstill.



Informations and Widges

Mode:
The compressor unit has two different operating modes which can be selected. The "semi-automatic mode" and the "automatic mode". The lettering indicates the operating mode currently in use.

Connected:
Indicates which Bluetooth module of the control board is connected to the tablet. The serial number of the module has an individual serial number.

Example: BCD110_v3.0.2-397A57

Widges:
Four additional display fields can be selected as "permanent displays". These displays are visible in the lower section on all surfaces and can be removed by selecting them for a longer time and then confirming the red X.

Data transfer:
Indicates the information about the connection between the control board and the tablet.

The green flashing LED signals an existing connection. If the LED is constantly grey, the Bluetooth connection is interrupted.

The app has an automatic connection setup that re-establishes the communication between the control board and the tablet.

Note

An interruption of the Bluetooth connection can have the following causes:

- *Distance between antenna and tablet too far*
- *Insurmountable object (steel wall, etc.) between antenna and tablet.*
- *Circuit board is defective or without power*
- *Circuit board is in restart mode (reset)*

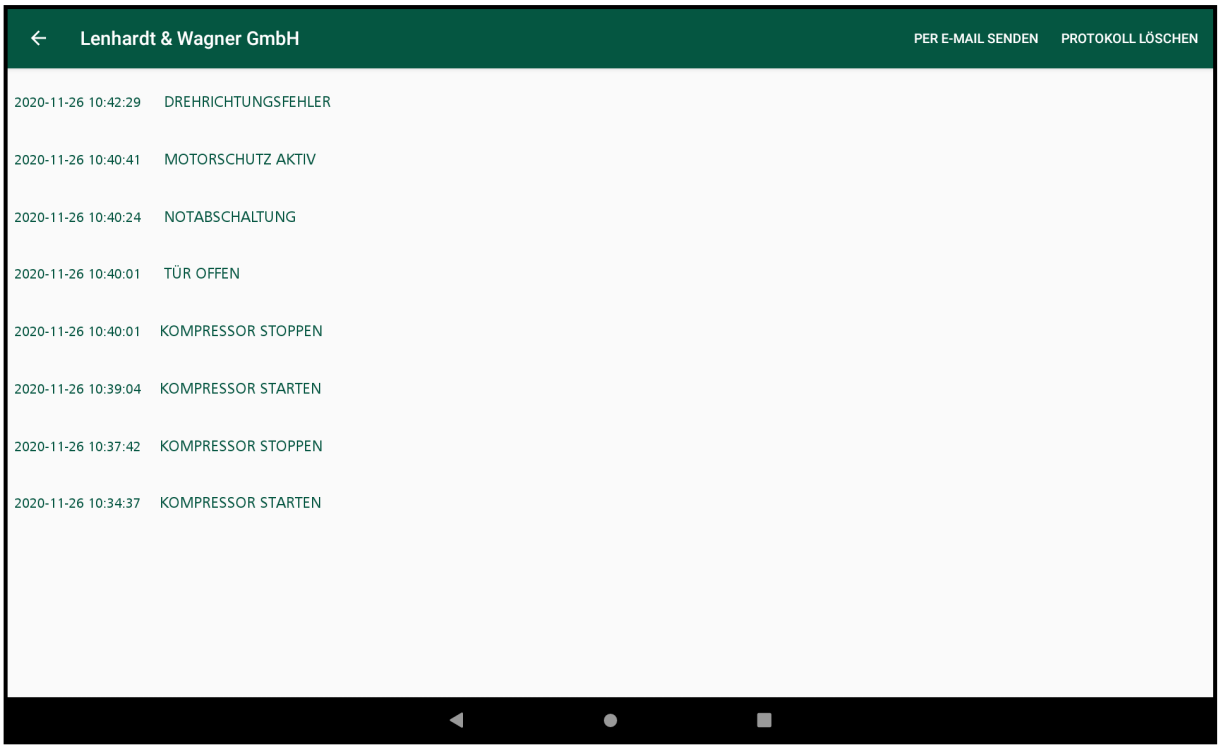
ne Unterbrechung der Bluetoothverbindung kann folgende Ursachen haben:

Protocol

In the protocol, all activities of the compressor unit are recorded in writing, with date and time. This includes information about malfunctions and limit violations for temperature or pressure, as well as all start and stop commands of the compressor.

The protocol can be deleted at any time. To do this, select "DELETE LOG" and confirm the security prompt again.

To send the protocol by e-mail, "SEND BY E-MAIL" is required. After touching the lettering, a selection of different e-mail centres appears. Select the desired service and enter the address of the recipient.



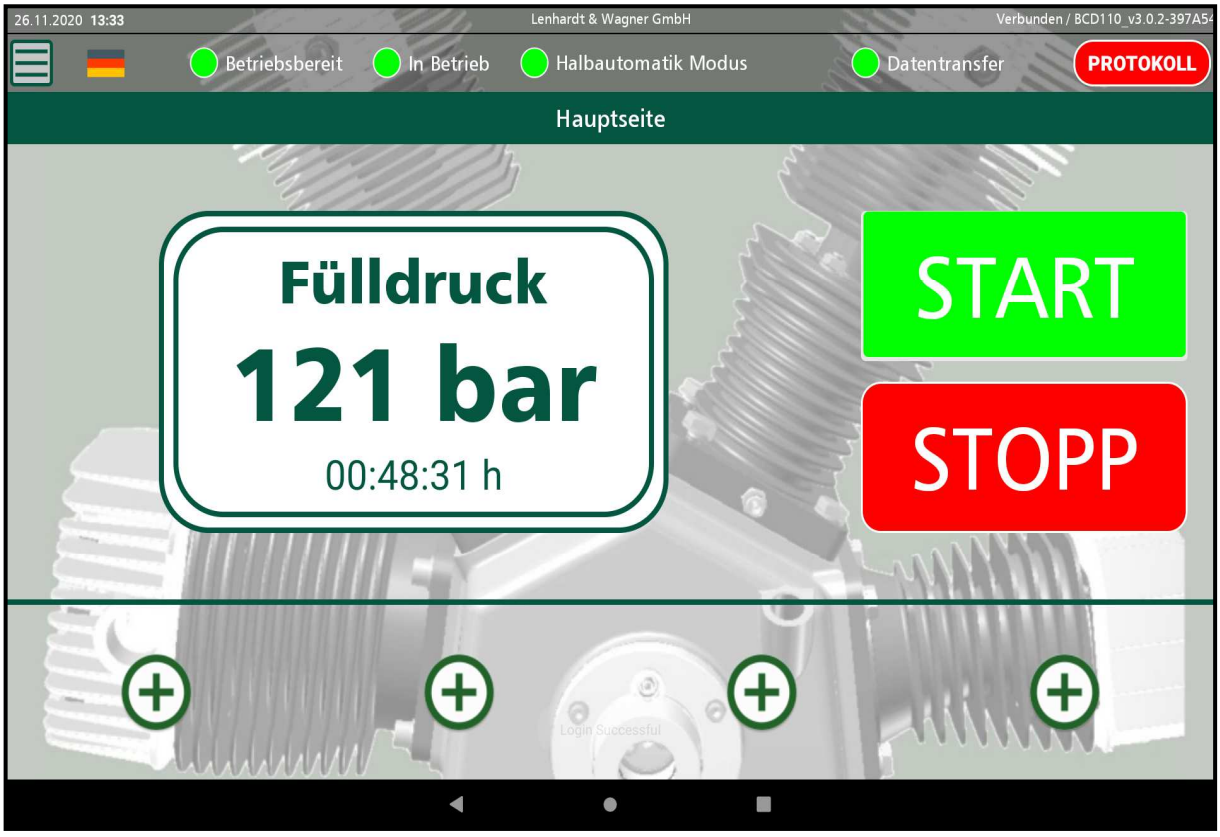
Main page

The compressor unit is controlled on the main page.

Main display field filling pressure:
The display field shows the name, in the upper part of the field, the current filling pressure, which is placed in the middle, and the current filling time, which is shown below.
The filling time is automatically set to zero after the compressor is switched off. Thus, the time of the current filling process is always displayed.

Button - Start:
This button can be used to start the compressor unit. As soon as the start has been made, the button turns from dark to light green and the filling time starts. This may be accepted with a delay of a few seconds.

Button - Stop:
This button is used to stop the compressor unit. The Start button turns dark green again and the filling time counter is set to zero. Under certain circumstances, this can be adopted with a delay of a few seconds.



Menu - Pressure displays

All pressures of the compressor unit are displayed in real time on this interface. The interface is designed dynamically. This means that the display fields are positioned differently on the surface, depending on the number. All active sensors are displayed. Inactive sensors are automatically hidden.

Activation/deactivation of the individual pressure sensors is only possible on the control board. By selecting the individual fields, the submenu of the respective display field is called up. The submenu contains the limit settings and statistics.

Filling pressure display field:
Shows the filling pressure of the system after the pressuriser check valve.

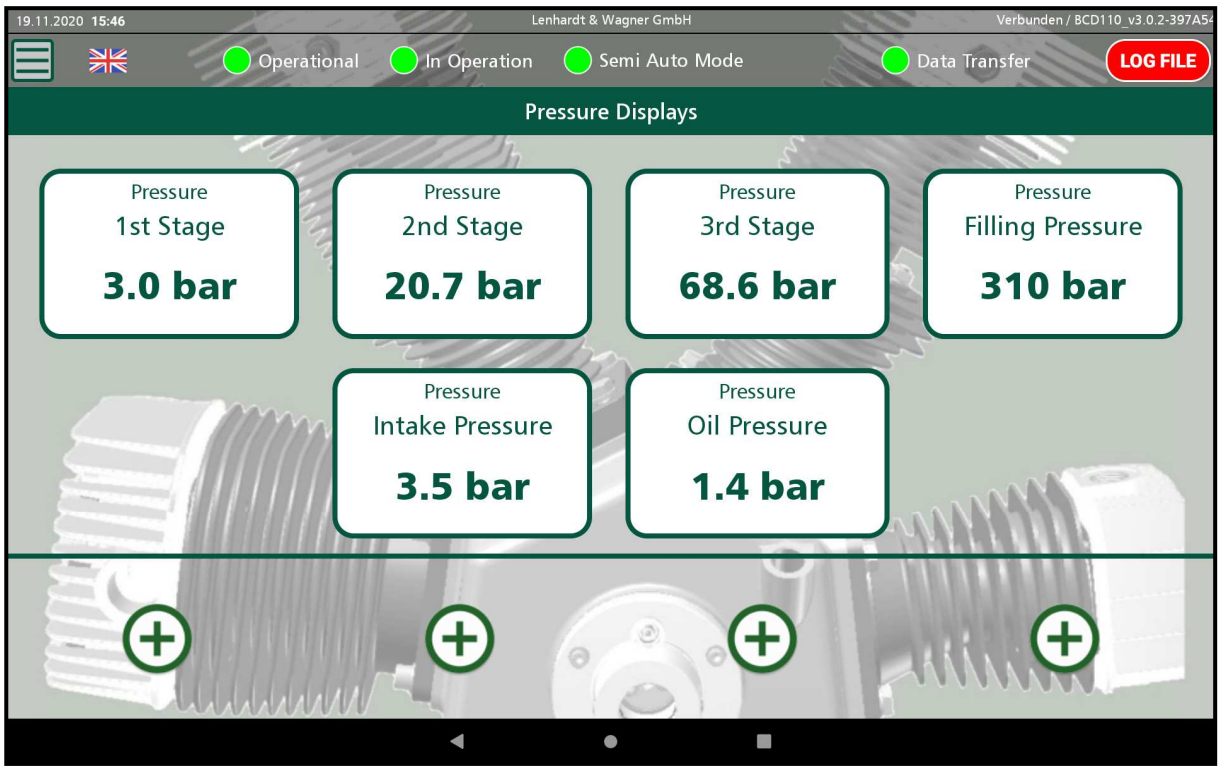
Display field 1st stage:
Displays the pressure of the first stage of the compressor.

Display field 2nd stage:
Displays the pressure of the second stage of the compressor.

Display field 3rd stage:
Displays the pressure of the third stage of the compressor.

Oil pressure display field:
Displays the oil pressure of the compressor.

Pre-pressure display field:
Displays the compressor's inlet pressure.



Menu - Temperature displays

On this interface, all temperatures of the compressor unit are displayed in real time. The interface is designed dynamically. This means that the display fields are positioned differently on the surface, depending on the number. All active sensors are displayed. Inactive sensors are automatically hidden.

Activation/deactivation of the individual temperature sensors is only possible on the control board. By selecting the individual fields, the submenu of the respective display field is called up. The submenu contains the limit settings and statistics.

Output stage display field:
Displays the temperature at the valve head of the last stage.

Oil display field:
Displays the temperature of the oil in the crankcase.

Ambient display field:
Displays the temperature in the intake tract/environment of the compressor.

Optional display field:
Displays an additional temperature with the designation "Optional". This has no fixed assignment and can be used for any application.

uf dieser Oberfläche werden alle Temperaturen der Kompressoranlage in Echtzeit angezeigt. Die sich die Grenzwerteinstellungen und Statistik.

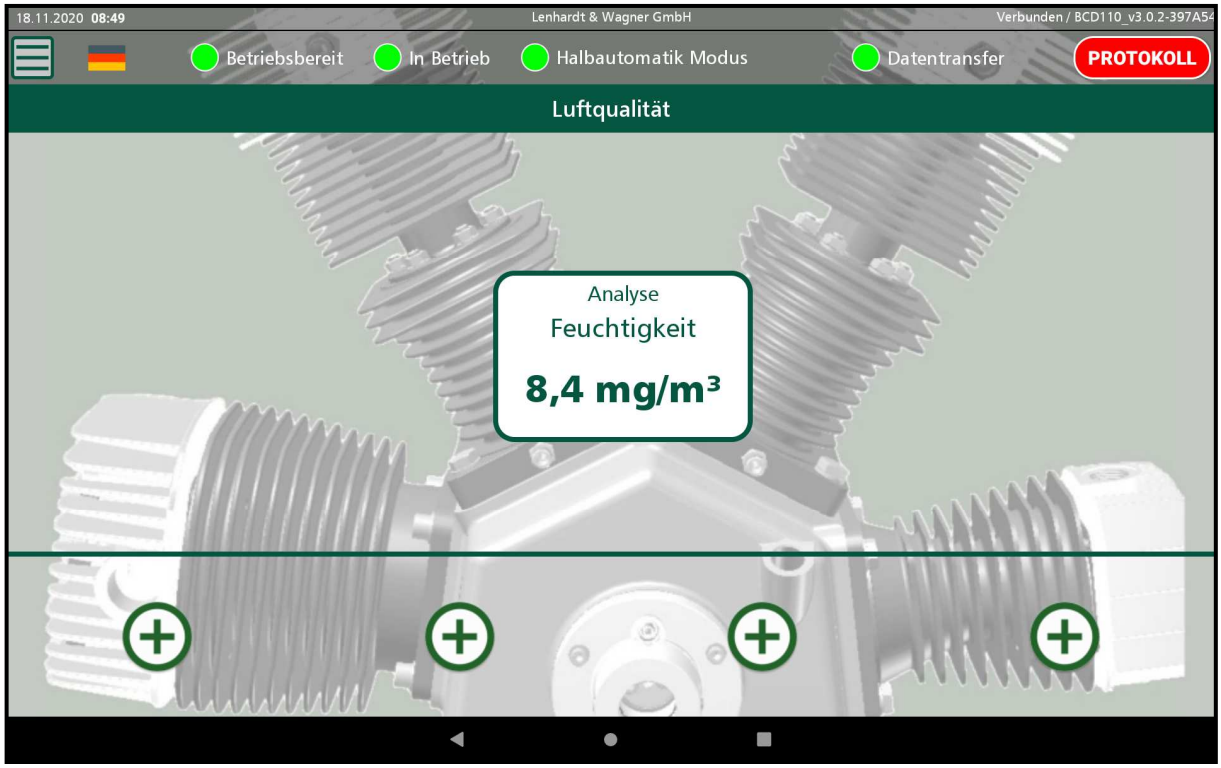
Menu - Air quality

This interface displays the quality of the compressor breathing air after the final filter housing in real time. The surface is designed dynamically. This means that the display fields are positioned differently on the surface, depending on the number. All active sensors are displayed. Inactive sensors are automatically hidden.

Activation/deactivation of the individual pressure sensors is only possible on the control board.

By selecting the individual fields, the submenu of the respective display field is called up. The submenu contains the limit value settings and statistics.

Humidity analysis display field:
Displays the residual humidity after the compressor's final filter housing.



Menu - Statistic

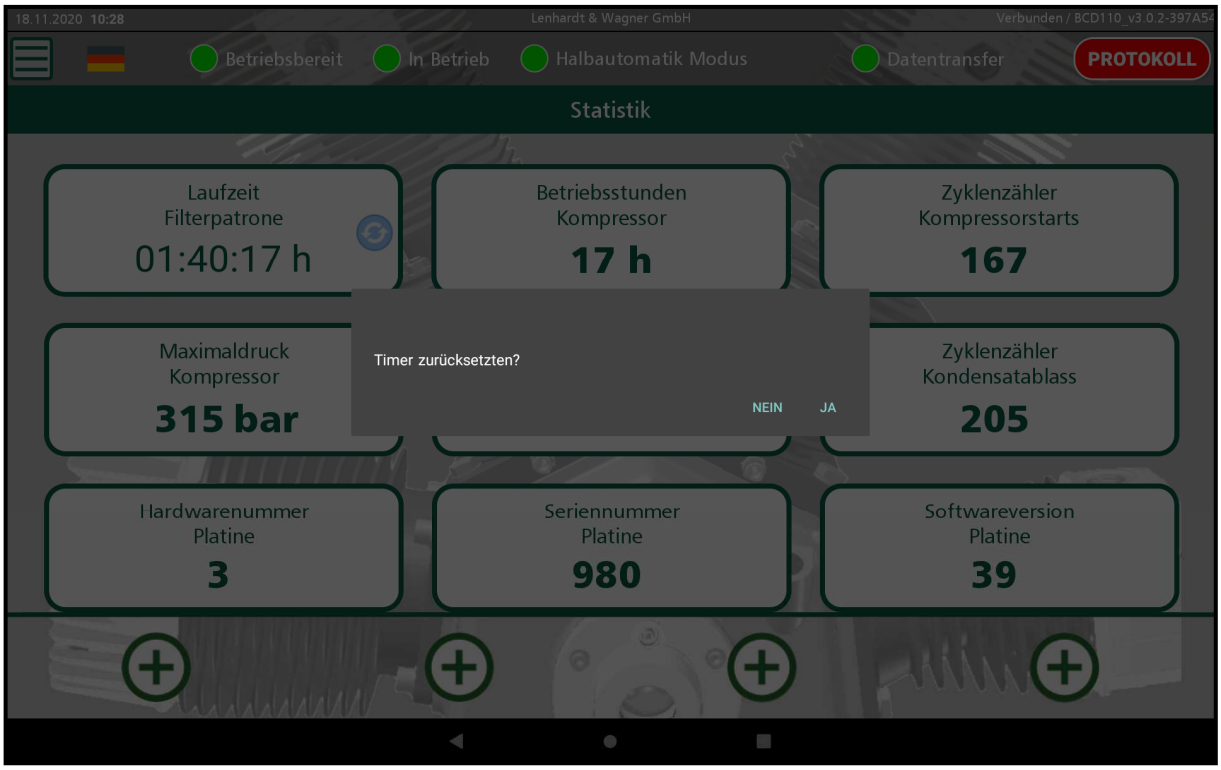
The following data and information are displayed in this interface:

Filter cartridge runtime:
The timer is always activated when the compressor is in operation. The running time of the filter cartridge is recorded exactly. In this way, the service life of the filter cartridge can be monitored. The timer can be manually reset to zero at any time via the reset symbol. The time factor gives no indication of the durability of the cartridge or the quality of the breathing air.

Compressor operating hours:
Indicates the operating hours of the compressor. This is a display field only. No settings are possible.

Cycle counter compressor starts:
Indicates the number of individual starts of the compressor. This is only a display field. No settings are possible.

Maximum compressor pressure:
Indicates the maximum adjustable cut-off pressure. This is only a display field. No settings are possible.



B

Menü - Statistic

The following data and information is displayed on this interface:

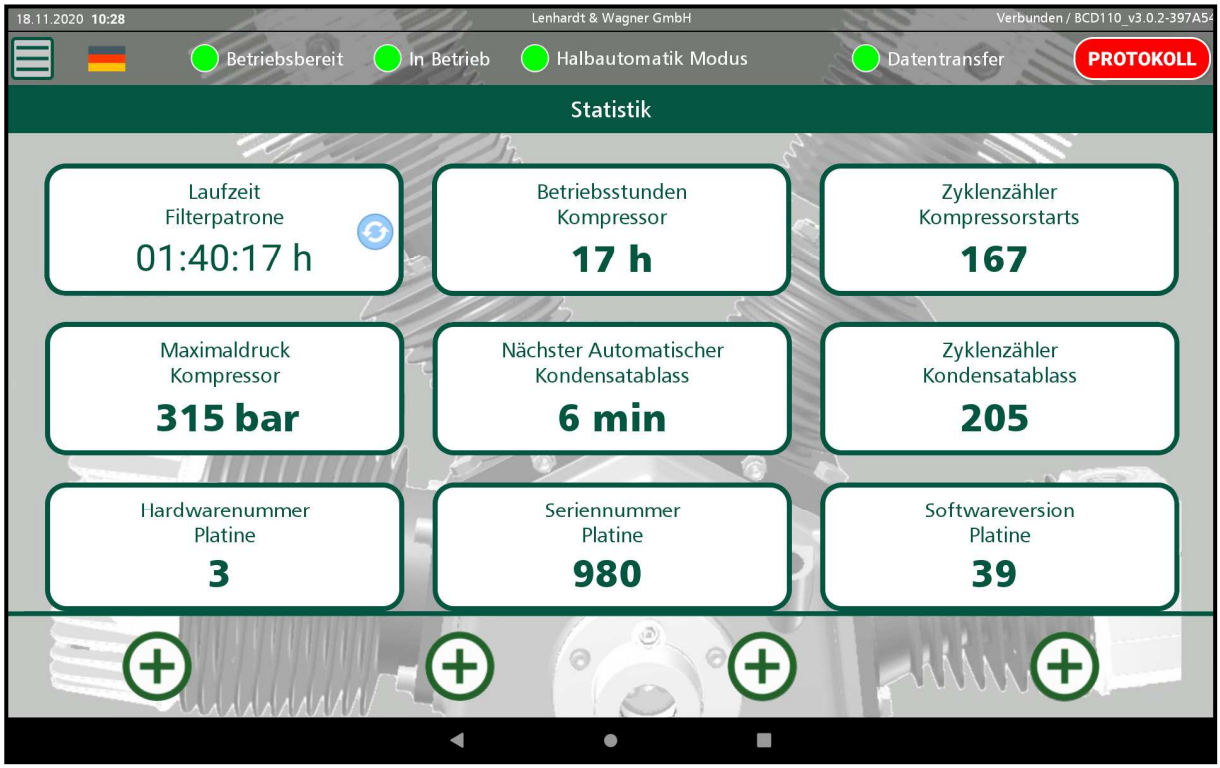
Next automatic condensate drain:
Indicates the remaining time until the next activation of the automatic condensate drain. All solenoid valves are always activated simultaneously. This is exclusively a display field. No settings are possible.

Condensate drain cycle counter:
This information is used to check how often the final filter housing has been depressurised. Each automatic activation of the solenoid valves is recorded. This is only a display field. No settings are possible.

Control board hardware number:
Indicates the production series of the control board. This is only a display field. No settings are possible.

Control board serial number:
Indicates the serial number of the compressor unit. This is only a display field. No settings are possible.

Software version control board:
Indicates the software version of the control board. This is only a display field. No settings are possible.



B

Menu - Tests (Picture inactive state)

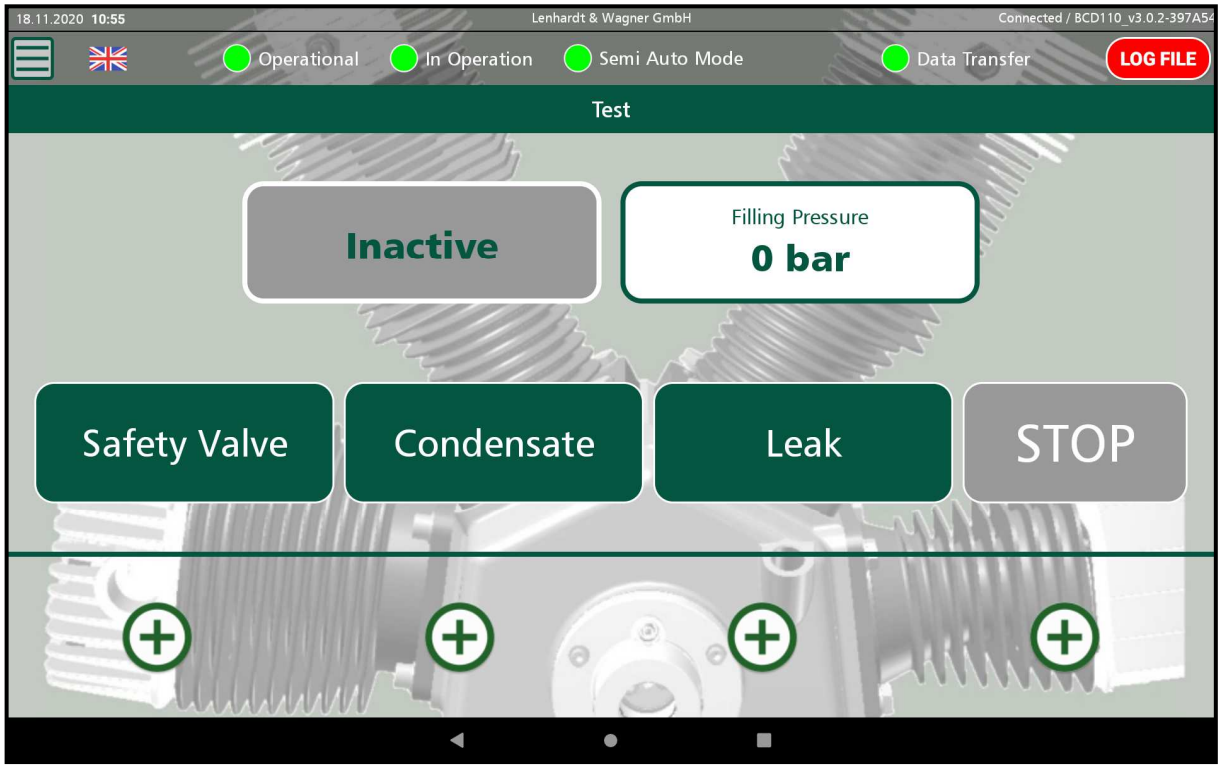
The function of the safety valve test of the app is changed, in contrast to the control board.

The executed test is described in writing in the display field, with the respective designation and the addition "activated". The area of the field is green during the entire execution, the "Stop" button has a red background.
If no test is activated, this is indicated in the display field as "Inactive". Both the display field and the button are marked grey.

The safety valve test and the condensate test must be carried out once a year.

Description Safety valve:
The test is used to check the function of the safety valve. In contrast to the control board, the start via app does not influence the maximum pressure.
The test starts when the "Safety valve" button is pressed and is carried out fully automatically.

The time of the test is 190 seconds. This can be ended at any time using the "Stop" button on the app. After completion, the control board needs approx. 45 seconds for the internal processing and the necessary restart. An early stop has no influence on the system.



Menu - Tests (active state image)

Description Condensate:

The condensate test controls the installed solenoid coils. Thus, the functionality of each individual solenoid valve can be tested.

The test starts when the "Condensate" button is pressed and is carried out fully automatically.

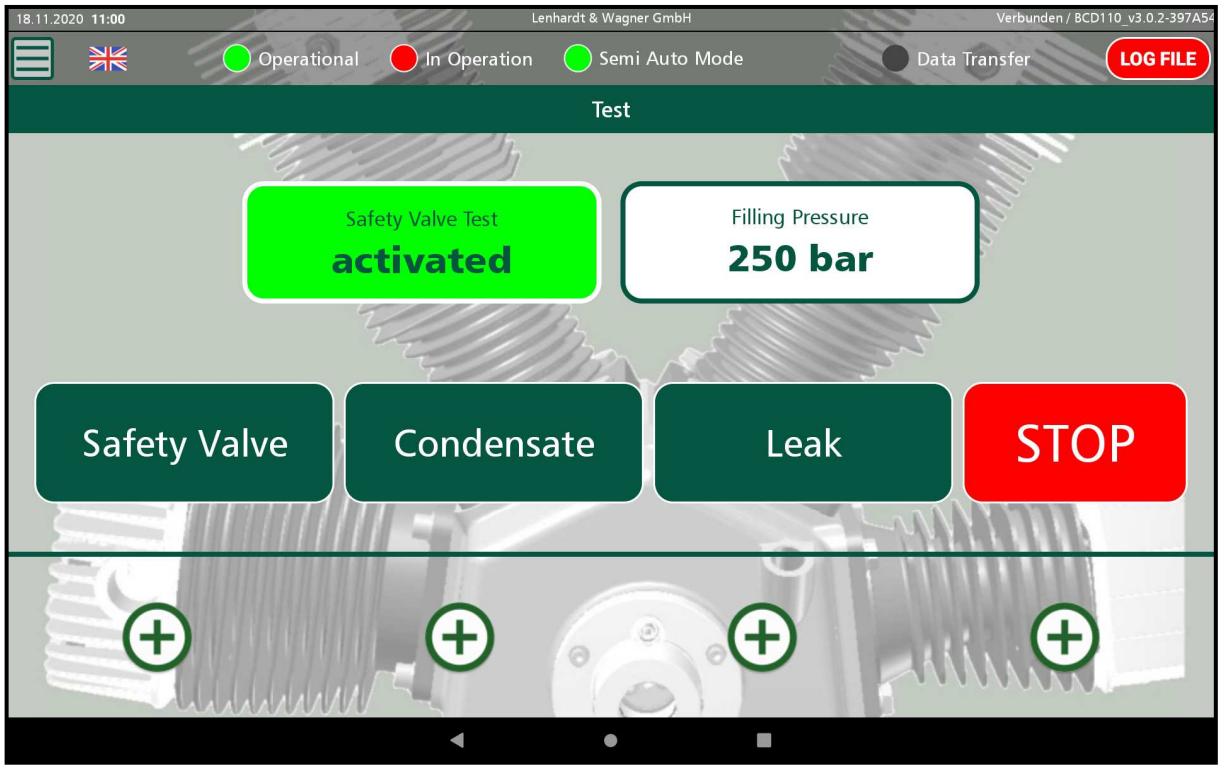
The total duration of the test is 30 seconds. This can be terminated at any time via the stop button in the app. After termination, the control board requires approx. 45 seconds for internal processing and the necessary restart. A premature stop has no effect on the system.

Description Leakage:

This test can be used to check the tightness of the entire system. Opening of the solenoid valves is prevented, the compressor system remains under pressure after shutdown.

The test starts when the "Leakage" button is pressed and is carried out fully automatically.

The total duration of the test is 10 minutes. This can be ended at any time using the stop button in the app. After completion, the control board needs approx. 45 seconds for the internal processing and the necessary restart. An early stop has no influence on the system.



B

Menu - Maintenance

This interface displays the different maintenance intervals, as well as the remaining time of the respective required intervals.

Maintenance interval 1 stands for the 1000 hour maintenance set.

Maintenance interval 2 stands for the 2000 hour maintenance set.

Maintenance interval 3 stands for the 3000 hour maintenance set.

Maintenance interval 4 stands for the 4000 hour maintenance set.

The display fields "Months" and "Hours" indicate the remaining time until the next maintenance. As soon as one of the two timers has expired (months or hours -> 0), an information "Maintenance required" appears on the user interface.

The "Maintenance set" field contains the information for the respective maintenance set required. Depending on the compressor type, different spare parts are required. These can be found in the operating instructions for compressors.

After the maintenance has been carried out, this must be confirmed via the "Maintenance carried out" button. A new setting option for the maintenance intervals is enabled by a new security query "Reset maintenance interval? The request to determine a new maintenance interval follows. By selecting the arrow in the central button, you can choose between the four intervals. The selection must be activated again by a query "Use maintenance interval? The control board needs approx. 45 seconds for internal processing and the necessary restart.

The maintenance interval is now saved and active.

Menu - Settings

Description Operating mode:

The change may only be carried out during interrupted operation.

To do this, select the green square in front of the desired mode. The information is passed directly to the control board without further confirmation. This requires approx. 45 seconds for internal processing and the necessary restart.

Description Language:

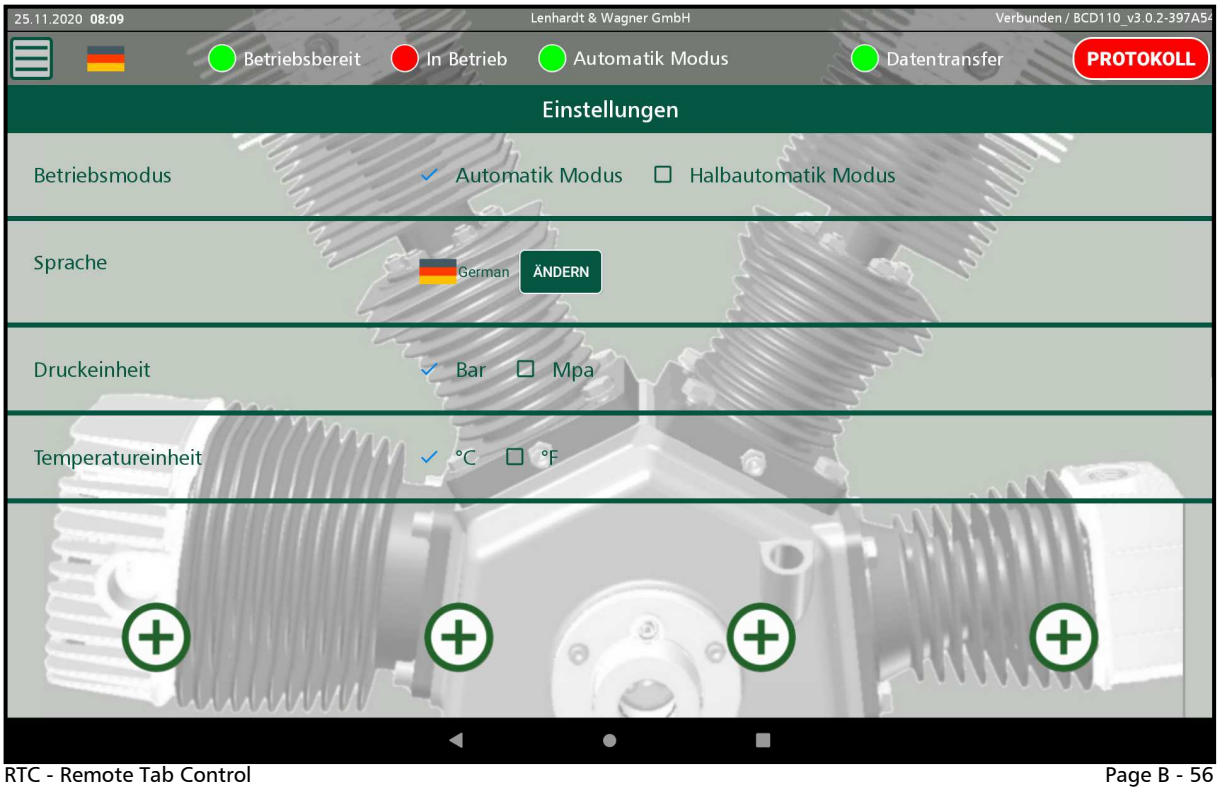
You can choose between different languages for the compressor control of the app. To do this, select the "Change" button and confirm the desired language. This is adopted on the individual interfaces without further confirmation. The change has no influence on the control board. The language table can be exited via the grey white X at the top right, without changing the language.

Description of pressure unit:

For the compressor control of the app, you can choose between different pressure units. To do this, select the green square in front of the desired unit. This is adopted on the affected surfaces without further confirmation. The change has no influence on the control board.

Description Temperature unit:

You can choose between different temperature units for the compressor control of the app. To do this, select the green square in front of the desired unit. This is adopted on the affected surfaces without further confirmation. The change has no influence on the control board.



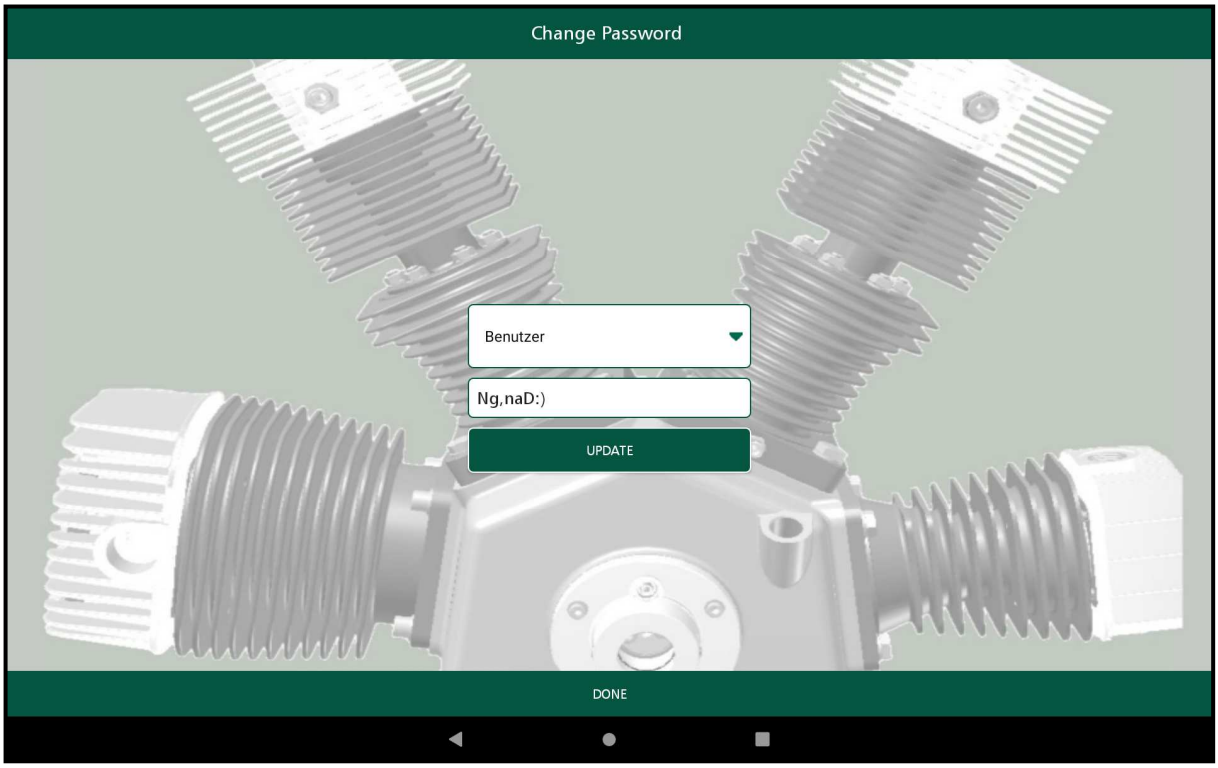
Menu - Settings

Description Polling interval:
Specifies the update time of the display values. This can be changed via the grey arrow in the query field. To accept the desired time value, this must be confirmed via the "SAVE" button.

Description Password:
Only users with a higher release level can change the passwords of the users below them. The password for the superadmin cannot be changed. To go to the next level, select the "CHANGE" button. Select the green arrow in the upper area and confirm the desired user.

First, the currently active password appears. By tapping on the line, the keyboard appears. Now the desired combination can be entered. There are no restrictions regarding the selection or number of individual characters, numbers and letters.

By confirming the "UPDATE" button, the entered password is accepted. The changes are completed via the “DONE” text and automatically switched back to the “Settings” interface.



Menu - Settings

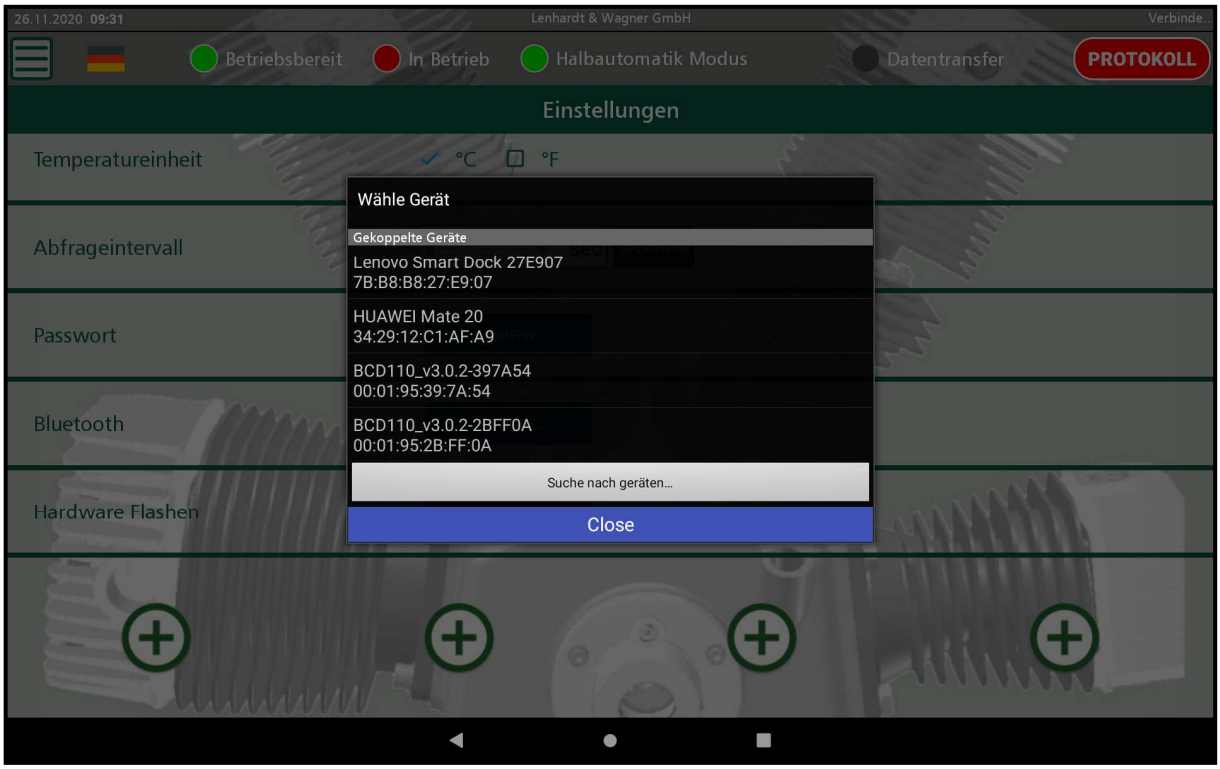
Description Bluetooth:

The "Bluetooth" button shows the connection status between the tablet and the control board. The lettering "Connected" indicates that a Bluetooth connection exists. "Not connected" means that this is interrupted or not paired.

In this case, select the button. A list of paired devices appears. Select the appropriate BCD110 Bluetooth receiver here. The required information is on the control board. If it is not in the list, a search for nearby receivers can help. To do this, tap the grey button "Search for devices". If the Bluetooth receiver is still not listed, there is no paired connection. The Bluetooth pairing must be set up in the settings of the tablet (not in the app).

.

The window is closed via the blue "Close" button.

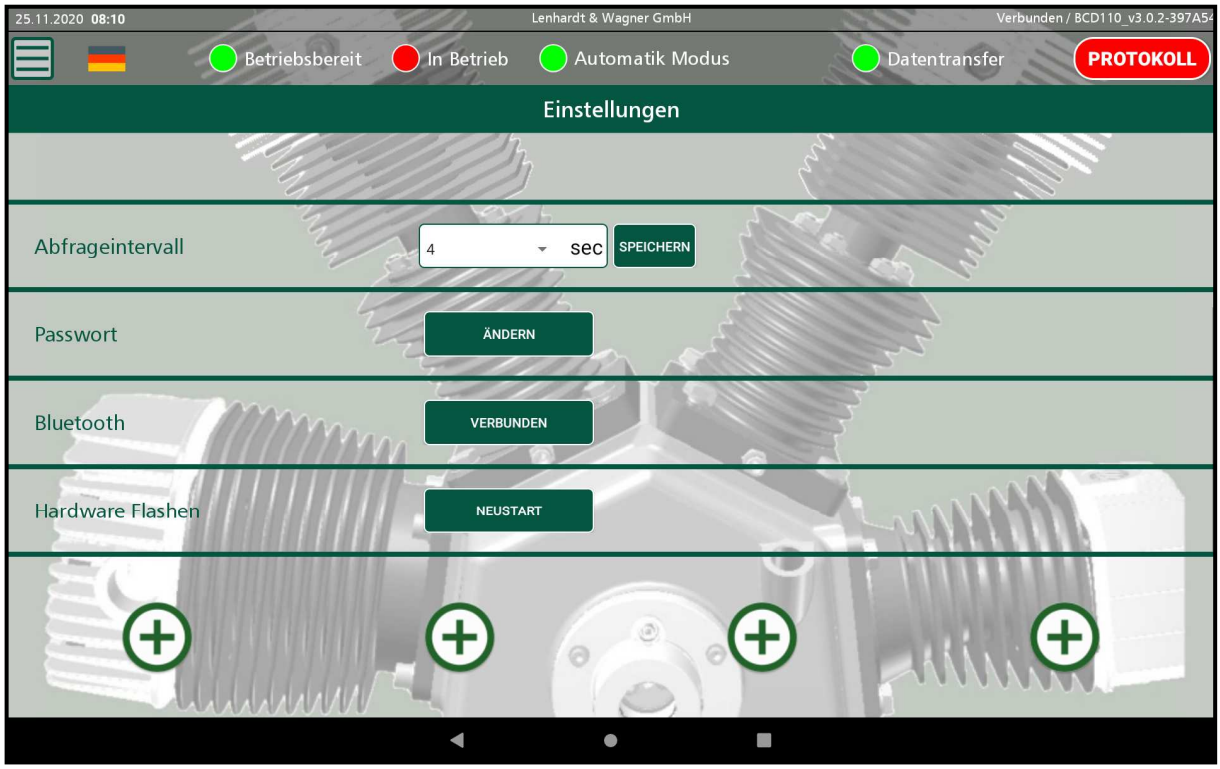


Menu - Settings

Description Hardware:

The control board is reset via the "RESTART" button. During this time, no operation of the compressor unit is possible.

The internal processing time of the control board is approx. 45 seconds.



B

Limit value settings

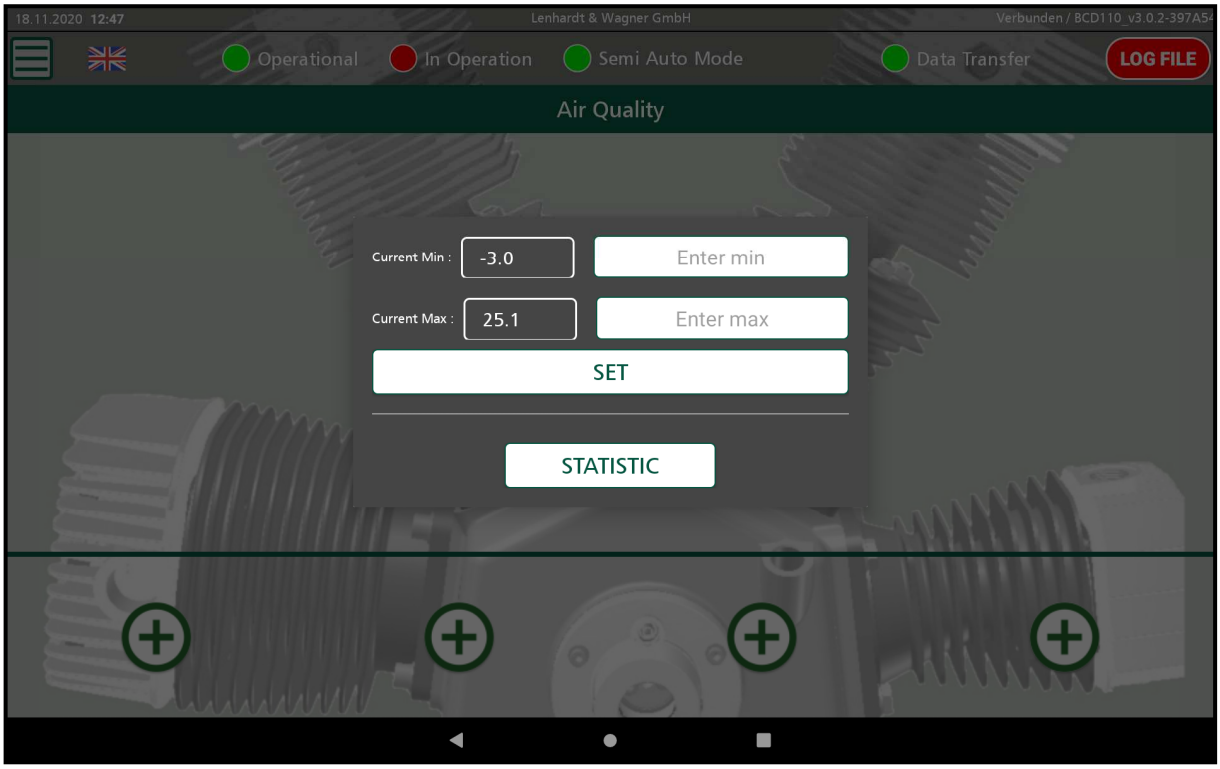
To define the limit values, the desired display field must first be selected.

The Min. and Max. limit values serve to protect the system. In the "Limit value setting" submenu, the factory preset values can be changed at the user's own risk. Lenhardt & Wagner GmbH accepts no liability for changed values that may cause damage to the system.

The limit values indicate the minimum and maximum permitted operating conditions of the respective range. If one of the values is exceeded, an alarm is issued by the control board and the compressor system is switched off. The cause is listed in the log. The deactivation of the limit value switch-off can only be carried out on the control board.

In order for a limit value setting/limit value change to be saved in the control board, a restart is required after the changes. This must be done in the settings (Hardware: RESTART).

The restart takes approx. 45 seconds. It is not necessary to restart after every change. Any number of limit values can be edited before the command of a restart is given.



Limit value settings

To change the factory-set limit values, first select the white input field "Min. input" / "Max. input". A number field appears which must be used for the entry.

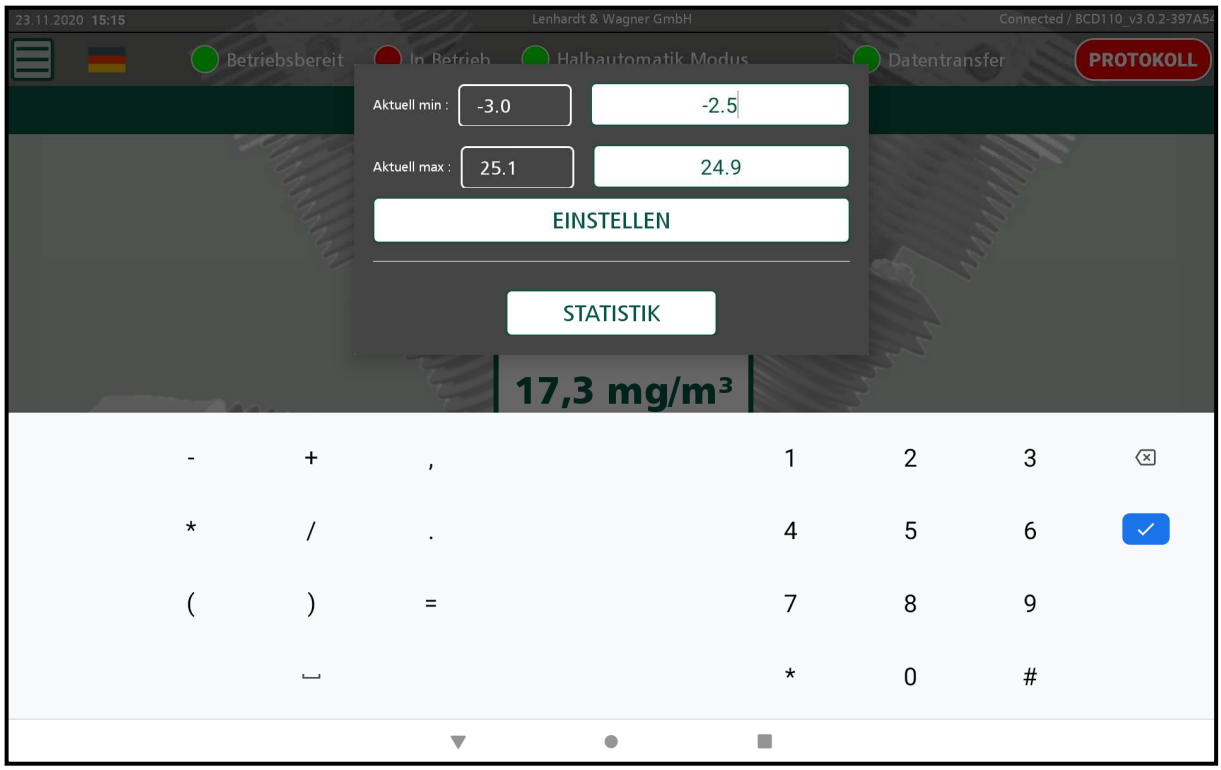
Current value min:
This field indicates the currently set lower limit value.

Current value Max:
This field indicates the currently set upper limit value.

Enter Min:
In this field, the minimum limit value can be set/changed. To do this, select the field and enter the desired value using the keypad. For entering a decimal value (e.g. 44.5) the dot must be used. The new limit value is only displayed after the control board has been restarted.

Max. Enter:
In this field, the maximum limit value can be set/changed. To do this, select the field and enter the desired value with the keypad. For entering a decimal value (e.g. 44.5) the dot must be used. The new limit value is only displayed after the control board has been restarted.

Setting:
By selecting the "SET" button, the newly set limit values are placed in the background memory and the submenu is closed



B

Graph

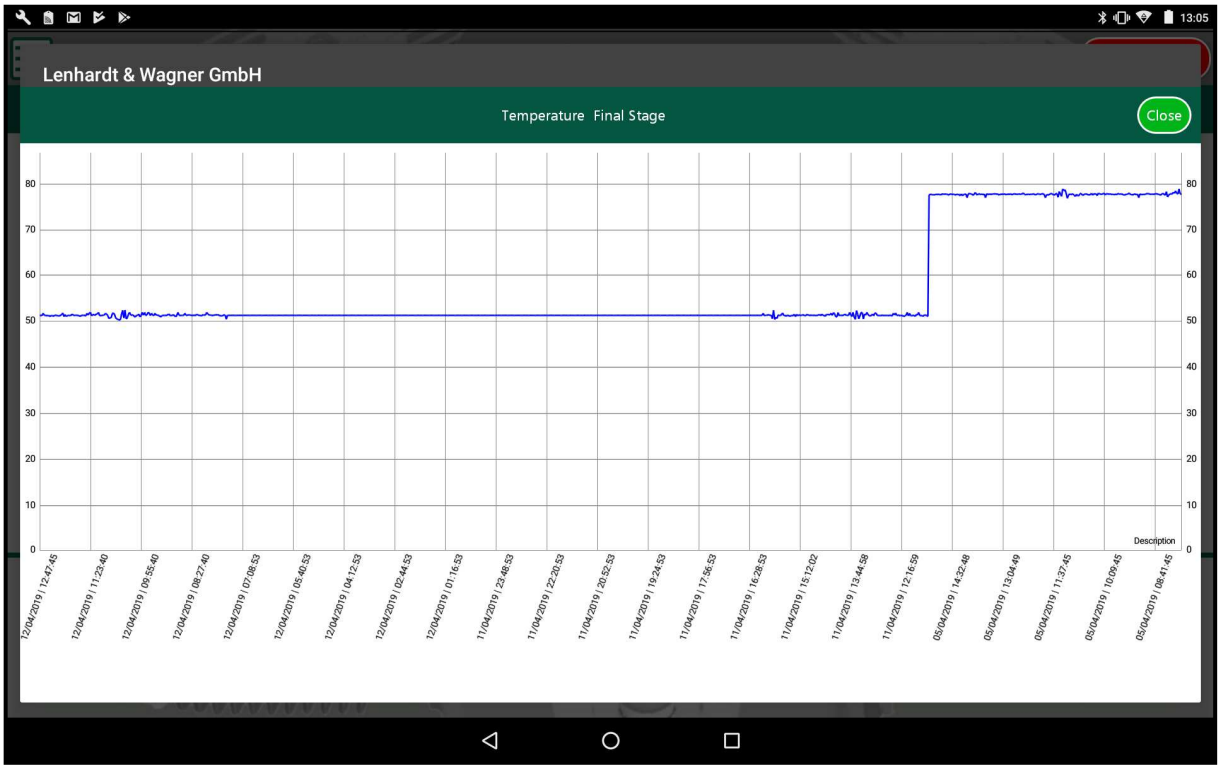
To call up the graph, the desired display field must first be selected. This is hidden under the "Statistics" button.

All active parameters are recorded and displayed on a line graph. The display is dynamically structured. This allows individual sections to be displayed enlarged. The X-axis shows the time stamp, the Y-axis the measured value.

While the line graph is displayed, no real-time recording of the graph takes place. The recording of the measured values continues to take place in the background and is automatically updated when the statistics are called up again.

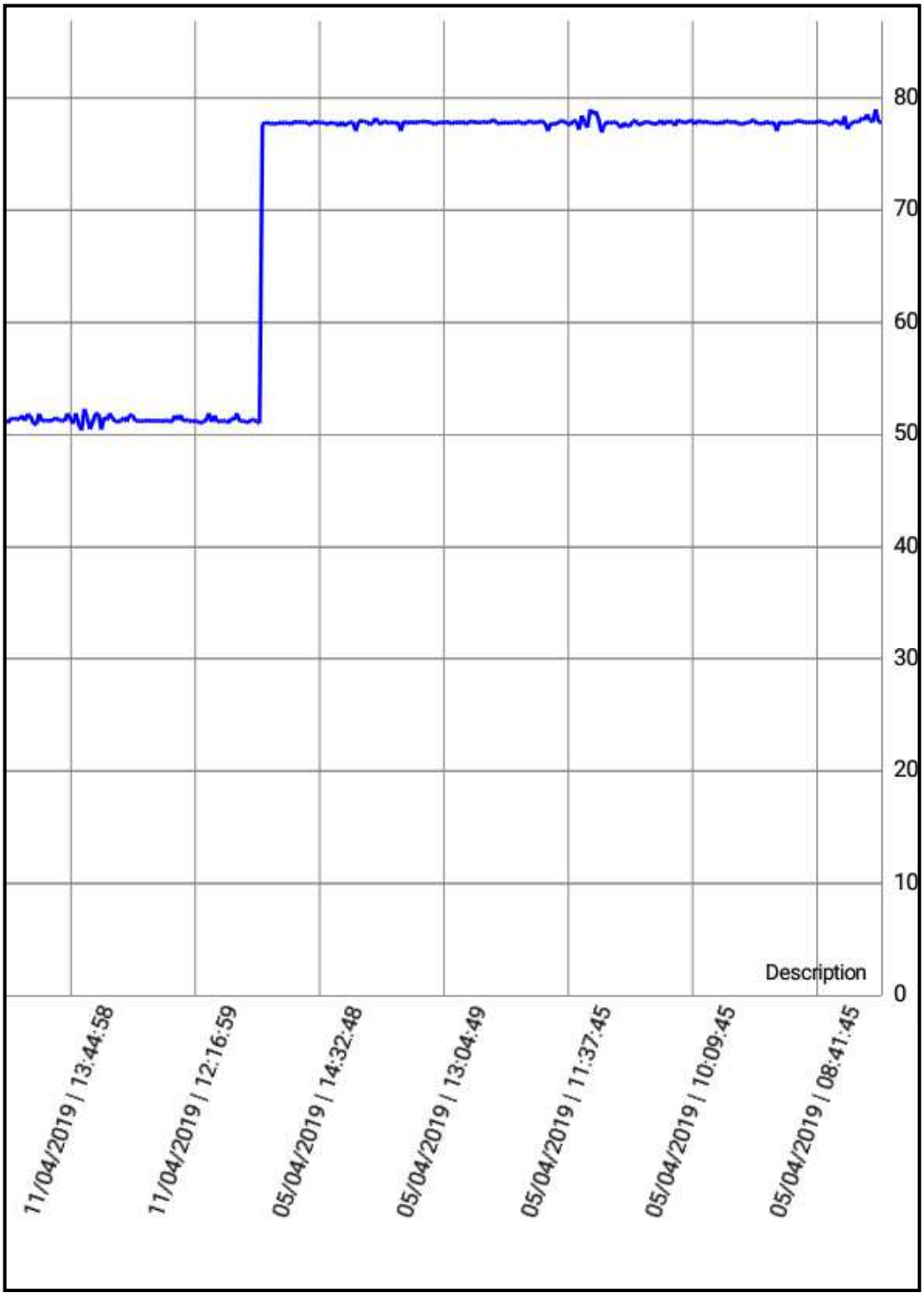
The statistics currently called up are described in the labelling header.

The maximum recording time is 96 hours. After that, the first display value is overwritten by the last value storage.



Graph

Illustration of an enlarged area.



ADMIN RIGHTS - APP

Admin rights "User“

The individual permissions and options for handling and settings are described.

Main page:

Compressor Operation (Start/Stop):	**No**
Open protocol:	**Yes**
Send protocol:	**Yes**
Delete protocol:	**No**

Print displays:

Select display field:	**Yes**
Change limit values:	**No**
View statistics (graph):	**Yes**

Temperature displays:

Select display field:	**Yes**
Change limits:	**No**
View statistics (graph):	**No**

Air quality:

Display field Select:	**Yes**
Change limits:	**No**
View statistics (graph):	**No**

Statistics:

Filter cartridge runtime Reset:	**No**

Tests:

Safety valve test Perform:	**No**
Perform condensate test:	**No**
Leakage test Perform:	**No**

Maintenance:

Maintenance interval Select:	**No**
Reset maintenance interval:	**No**

Settings:

Change operating mode:	**No**
Language Change:	**Yes**
Print unit Change:	**No**
Change temperature unit:	**No**
Select polling interval:	**No**
Change password:	**No**
Establish Bluetooth connection:	**Yes**
Flash hardware:	**No**

Other:

Select widgets:	**No**
Remove Widges:	**No**
Logout:	**Yes**

Admin rights "Admin Level 1“

The individual permissions and options for handling and settings are described.

Main page:	
Compressor Operation (Start/Stop):	**Yes**
Open protocol:	**Yes**
Send protocol:	**Yes**
Delete protocol:	**No**
Print displays:	
Select display field:	**Yes**
Change limit values:	**Yes**
View statistics (graph):	**Yes**
Temperature displays:	
Select display field:	**Yes**
Change limits:	**Yes**
View statistics (graph):	**Yes**
Air quality:	
Display field Select:	**Yes**
Change limits:	**Yes**
View statistics (graph):	**Yes**
Statistics:	
Filter cartridge runtime Reset:	**Yes**
Tests:	
Safety valve test Perform:	**Yes**
Perform condensate test:	**Yes**
Leakage test Perform:	**Yes**
Maintenance:	
Maintenance interval Select:	**Yes**
Reset maintenance interval:	**Yes**
Settings:	
Change operating mode:	**Yes**
Language Change:	**Yes**
Print unit Change:	**No**
Change temperature unit:	**No**
Select polling interval:	**No**
Change password:	**Yes**
Establish Bluetooth connection:	**Yes**
Flash hardware:	**Yes**
Other:	
Select widgets:	**Yes**
Remove Widges:	**Yes**
Logout:	**Yes**

Admin rights "Admin Level 2“

The individual permissions and options for handling and settings are described.

Main page:

Compressor Operation (Start/Stop):	**Yes**
Open protocol:	**Yes**
Send protocol:	**Yes**
Delete protocol:	**Yes**

Print displays:

Select display field:	**Yes**
Change limit values:	**Yes**
View statistics (graph):	**Yes**

Temperature displays:

Select display field:	**Yes**
Change limits:	**Yes**
View statistics (graph):	**Yes**

Air quality:

Display field Select:	**Yes**
Change limits:	**Yes**
View statistics (graph):	**Yes**

Statistics:

Filter cartridge runtime Reset:	**Yes**

Tests:

Safety valve test Perform:	**Yes**
Perform condensate test:	**Yes**
Leakage test Perform:	**Yes**

Maintenance:

Maintenance interval Select:	**Yes**
Reset maintenance interval:	**Yes**

Settings:

Change operating mode:	**Yes**
Language Change:	**Yes**
Print unit Change:	**No**
Change temperature unit:	**No**
Select polling interval:	**Yes**
Change password:	**Yes**
Establish Bluetooth connection:	**Yes**
Flash hardware:	**Yes**

Other:

Select widgets:	**Yes**
Remove Widges:	**Yes**
Logout:	**Yes**

Admin rights "Superadmin“

The individual permissions and options for handling and settings are described.

Main page:

Compressor Operation (Start/Stop):	**Yes**
Open protocol:	**Yes**
Send protocol:	**Yes**
Delete protocol:	**Yes**

Print displays:

Select display field:	**Yes**
Change limit values:	**Yes**
View statistics (graph):	**Yes**

Temperature displays:

Select display field:	**Yes**
Change limits:	**Yes**
View statistics (graph):	**Yes**

Air quality:

Display field Select:	**Yes**
Change limits:	**Yes**
View statistics (graph):	**Yes**

Statistics:

Filter cartridge runtime Reset:	**Yes**

Tests:

Safety valve test Perform:	**Yes**
Perform condensate test:	**Yes**
Leakage test Perform:	**Yes**

Maintenance:

Maintenance interval Select:	**Yes**
Reset maintenance interval:	**Yes**

Settings:

Change operating mode:	**Yes**
Language Change:	**Yes**
Print unit Change:	**Yes**
Change temperature unit:	**Yes**
Select polling interval:	**Yes**
Change password:	**Yes**
Establish Bluetooth connection:	**Yes**
Flash hardware:	**Yes**

Other:

Select widgets:	**Yes**
Remove Widges:	**Yes**
Logout:	**Yes**

OTHERS

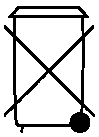
Spare parts list

Article	Article number
Control board including antenna	011048
Antenna	On request
Tablet	On request
Top-hat rail power supply 230/24V AC/DC	007114
Coupling relay 24V DC - 4 change-over contacts	011367
Coupling relay 24V DC - 2 change-over contacts	008420
4-20mA pressure transducer 0-10bar	011391
4-20mA pressure transducer 0-100bar	011392
4-20mA pressure transducer 0-250bar	011393
4-20mA pressure transducer 0-350bar	011764
4-20mA pressure transducer 0-400bar	011394
4-20mA pressure transducer 0-600bar	On request
PT1000 temperature sensor - valve head including 3m silicone cable	011727
PT1000 temperature sensor - oil including 3m silicone cable	011729
PT1000 temperature sensor - ambient including 3m silicone cable	011563

Disposal

The equipment must be disposed of in accordance with national waste disposal regulations or by a suitable disposal company.

Electrical and electronic components



Since August 2005, EC-wide regulations for the disposal of electrical and electronic equipment have been in force, which are laid down in EC Directive 2002/96/EC and national laws and affect this appliance.
Special collection and recycling facilities have been set up for private households. As this appliance is not registered for use in private households, it must not be disposed of through such channels.
It can be returned for disposal to L&W, whom you are welcome to contact if you have any questions about disposal.