Handbook
LPS260
Low Power Central Battery System
- EN50171 -

Table of Contents

1 Introduction

These instructions are intended exclusively for qualified electricians or persons instructed by qualified electricians. It contains summarized information on installation, operation, testing and maintenance. In order to avoid problems and damage during installation and operation of the device, the instructions must be strictly observed. The following symbols indicate special dangers or facilitate the work to be carried out:

Attention ! The symbol indicates special dangers which can result in damage to persons or property. By observing these instructions, you can also avoid increased effort when carrying out the work.

Note! This sign indicates an advice to simply perform a required action.

2 Intended use

The connected luminaires must be suitable for AC and DC operation. The luminaires must be able to be operated within the specified voltage ranges. The connected load of the luminaires must not exceed 260W in emergency operation (220V DC).

These instructions and the applicable regulations must be observed during assembly/installation and operation of the device. Damages caused by non-observance are excluded from liability, warranty and guarantee.

3 Description

Decentralised safety light unit, arranged in each case within a fire compartment, for supplying a maximum of 4x32 escape sign and/or safety luminaires suitable for direct voltage. The emergency power supply is provided by low-maintenance, sealed lead or lithium batteries (e.g. LifePo4 with BMS).

Operating the batteries at an ambient temperature of <10°C and >25°C will reduce the service life, resulting in loss of capacity and possibly premature failure.

The LPS must be serviced regularly by trained specialist personnel in accordance with the applicable regulations to ensure its operational function. Work on the system must not be carried out under voltage. To change the battery / work on the battery, the installation or the system must be switched off (see item 7.2.6.12 Switch off the System). The mains voltage must then be switched off, so that changing the battery / working on the battery never takes place when mains voltage is present. Always connect the battery first, then the mains !

The protective conductor (PE) must be connected carefully and unambiguously so that the touch protection is fulfilled.

The respective connection load must not be connected to the output terminals while voltage is applied, as the inrush current limitation is not effective in this case and can trigger the output fuses, especially with capacitive loads. **When used as intended, all connectors are allowed neither live nor plugged in or disconnected under load.**

4 Technical Data

4.1 General

Power supply:
Voltage: 230 VAC +-10% 50Hz
Current (without load / high charge): max. 0,85A
Current (with max. load / high charge): max. 3,1A
Output voltage:
230 VAC (AC operation) +-10% / 220VDC (DC operation) + - 6%
Continuous power: DC operation: Max. 260 W/ max. 65 W per group AC operation: Per group max.145VA (Lambda >= 0,45)
Operating time: 1h / 3h or 8h
Battery rated voltage: PB 12V, LiFePO4 12.8V
Permissible ambient temperature:
0°C to +40°C (electronics)
+10°C to +25°C (battery)
Max. Cable length: 500m (per group / cable cross-section >= 1.5mm2)
Minimum connected load: 45W (total)
Charge current: Max. 9A
Deep discharge protection:
10,5V (1,75V per cell)
Fan:
Fan on: Emergency operation / test operation / charging up to 2A
Protection IP:
IP20 housing

4.2 Connection loads rating

The power consumption of some operating devices in DC operation is greater than the limit value of the overload or short-circuit switch-off of the device when switched on. The operation of such luminaires is not permitted. In order to determine the exact operating time, the technical data of the ballasts used must also be observed.

The installed load should be distributed symmetrically among the 4 luminaire groups (Group 1 / Group 2 / Group 3 / Group 4). Otherwise, the maximum connected load of 65W per luminaire group must not be exceeded. The total output of 260W must be maintained in any case.

Pb-Batteries:

Operating time	Pb-Battery 75Ah	Pb-Battery 140Ah	Pb-Battery 280Ah**
1h	333W (27,4A) at 260W AL*	-	-
3h	182W (14,9A) at 141W AL*	333W (27,4A) at 260W AL*	-
8h	87W (7,1A) at 68W AL*	163W (13,4A) at 127W AL*	327W (26,9A) at 255W AL*

***AL = max. connected load of the system / efficiency and 80% DOD were included !**
****Default batteries: Triathlon LL12075 (75Ah) / LL12140 (140Ah) / for 280Ah = 2 x LL12140 parallel.**

LL12075 (75Ah) : Weight 23,0Kg / Dimensions 259mm x 168mm x 208mm (L x W x H).
LL12140 (140Ah): Weight 45,5Kg / Dimensions 345mm x 172mm x 274mm (L x W x H).
For 8-hour operation, an additional battery housing must be ordered !

LiFePO4-Batterie:

Operating time	LiFePO4-Battery 102,4Ah
3h	333W (27,4A) at 260W AL*

***AL = max. connected load of the system / efficiency and 80% DOD were included !**
Default battery: Ronda LFP12-102
LFP12-102 (102,4Ah): Weight 15Kg / Dimensions 342mm x 173mm x 220mm (L x W x H).

Attention ! Other LiFePO4 batteries are subject to approval by the manufacturer of the LPS260. Parallel connection of LiFePO4 batteries is not permitted!

Attention ! A series connection of 12V batteries leads to the destruction of the device !

4.3 Operation modes

The LPS can be used for the following operating modes =>

Current monitoring operation or mixed operation (single monitoring).

Each luminaire group of the LPS can be operated either in current-monitoring mode or mixed mode. The joint operation of luminaires with and without a mixed operation module in one luminaire group is not permitted. The LPS provides 4 luminaire groups. Each luminaire group consists of two circuits (each separately separated by fuses). A total of 8 circuits or outputs are thus available. When logging on, the LPS automatically detects whether current monitoring operation or mixed operation is present within a group. By operating the touch screen, all settings are possible or outputs about the status of the system can be viewed (e.g. messages, protocols).

4.4 Operarting mode current-monitoring

- Max. 32 luminaires per group (at <= 65W connected load per group with DC supply).
- Each luminaire group can be optionally configured in duration or standby.
- Monitoring of the current setpoint applied to each luminaire group when the luminaires are registered.
- Possibility of relative and absolute current measurement.

Absolute current measurement: Error detection with a deviation of >=3W per luminaire. Suitable for systems with luminaires of the same power consumption. In the case of absolute current measurement, it must be ensured during test operation that the lamps are in the same state (standby or continuous light) as when registered (see 7.2.6.2).

Note: Due to ambient conditions (e.g. room temperature, heating of the end lamp by sunlight, control behaviour of the electronics, etc.), the current consumption of the individual luminaires can fluctuate. If the input current changes by only 1mA, this can lead to a deviation of several watts for 128 luminaires. This would indicate a defect in the light source when the end

lights are working. If the corresponding ambient conditions are known, the relative current measurement should be set in order to avoid false alarms.

Relative current measurement: Error detection with a current deviation of +-20% per luminaire group. The system is set to relative current measurement in the factory.

For relative current measurement, it must be ensured that at least 10W connected load is connected to each group so that the percentage error deviation with regard to the evaluation is large enough.

4.5 Mixed mode

- Max. 16 luminaires per outgoing fuse (32 luminaires per group with <= 65W installed load per group with DC supply).
- Individual monitoring of the luminaires with LPS-compliant switching and monitoring modules.
- Standby and continuous light operation within a group with switching and monitoring modules.

Generally valid for current-monitoring operation and mixed operation:

- Display of current error or operating states on the main menu.
- Status display for checking the individual groups.
- Message memory with 250 entries.
- Test or protocol book with fault information per luminaire (mixed operation) and up to 730 possible protocols.
- Setting the rest periods.
- Setting the system defaults.
- Setting the mains observer function.
- Setting of the information display such as device designation and identification.
- Setting the password.
- Setting and allocation of the luminaire texts.
- Setting of automatic test modes (function test, endurance test, manual test).
- Setting of maintenance specifications.
- Possibility of calling up the protocols via a network interface.
- Setting the system language directly via the main menu.

All points are described in detail in chapter 7 "Menu operation of the touch screen".

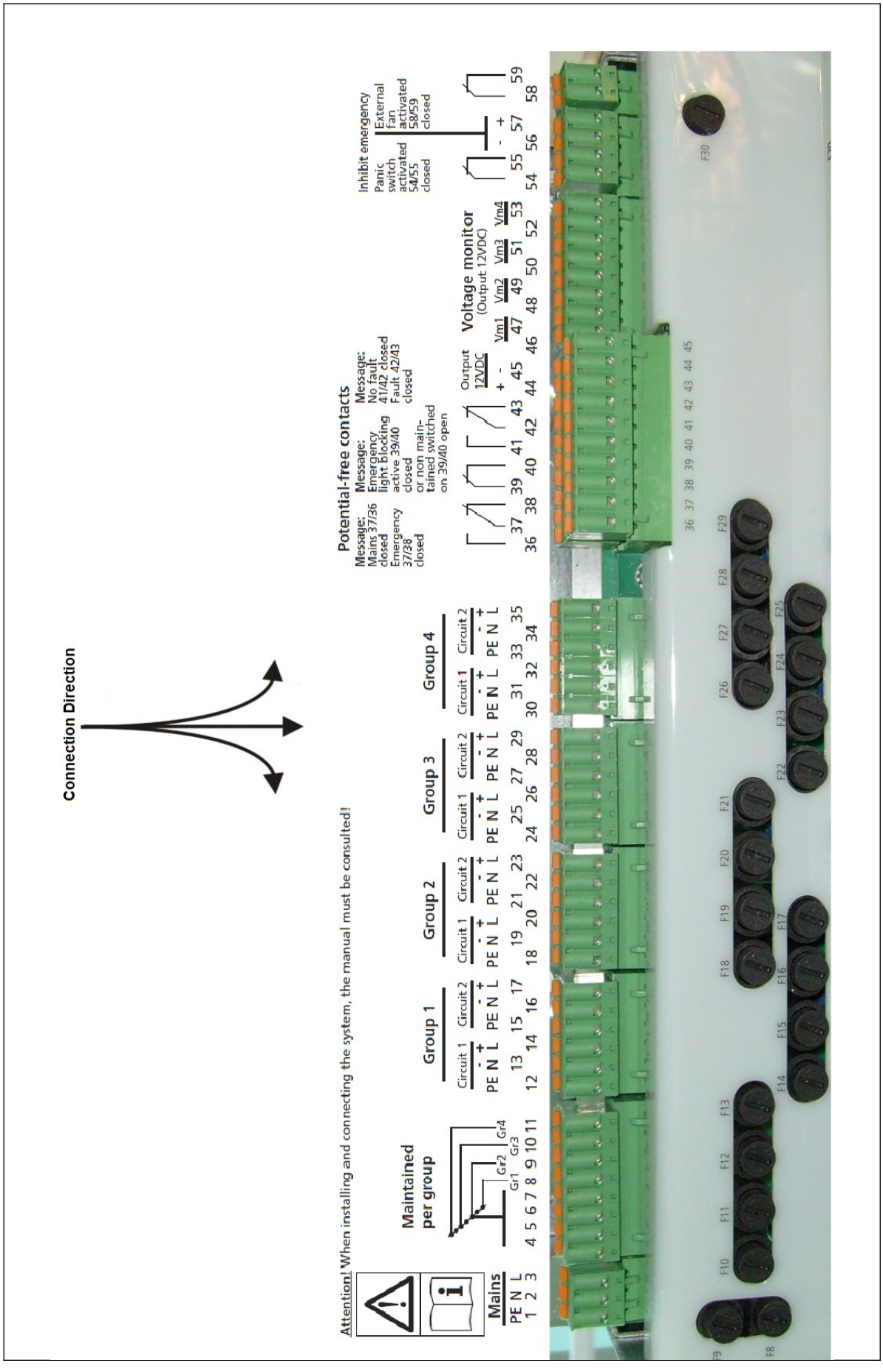
In order to avoid damage to persons or property, most settings or areas are only possible with the input of a password by authorized persons !

After commissioning the system (see Chapter 8 Commissioning), a password should be assigned for the user and the administrator. The factory setting of the password for the user and administrator is "0000".

4.6 Dimming touchscreen

The display brightness is automatically reduced to 40% 3 minutes after the end of operation. Touching the display again resets the brightness to 100%.

5 Terminal plan



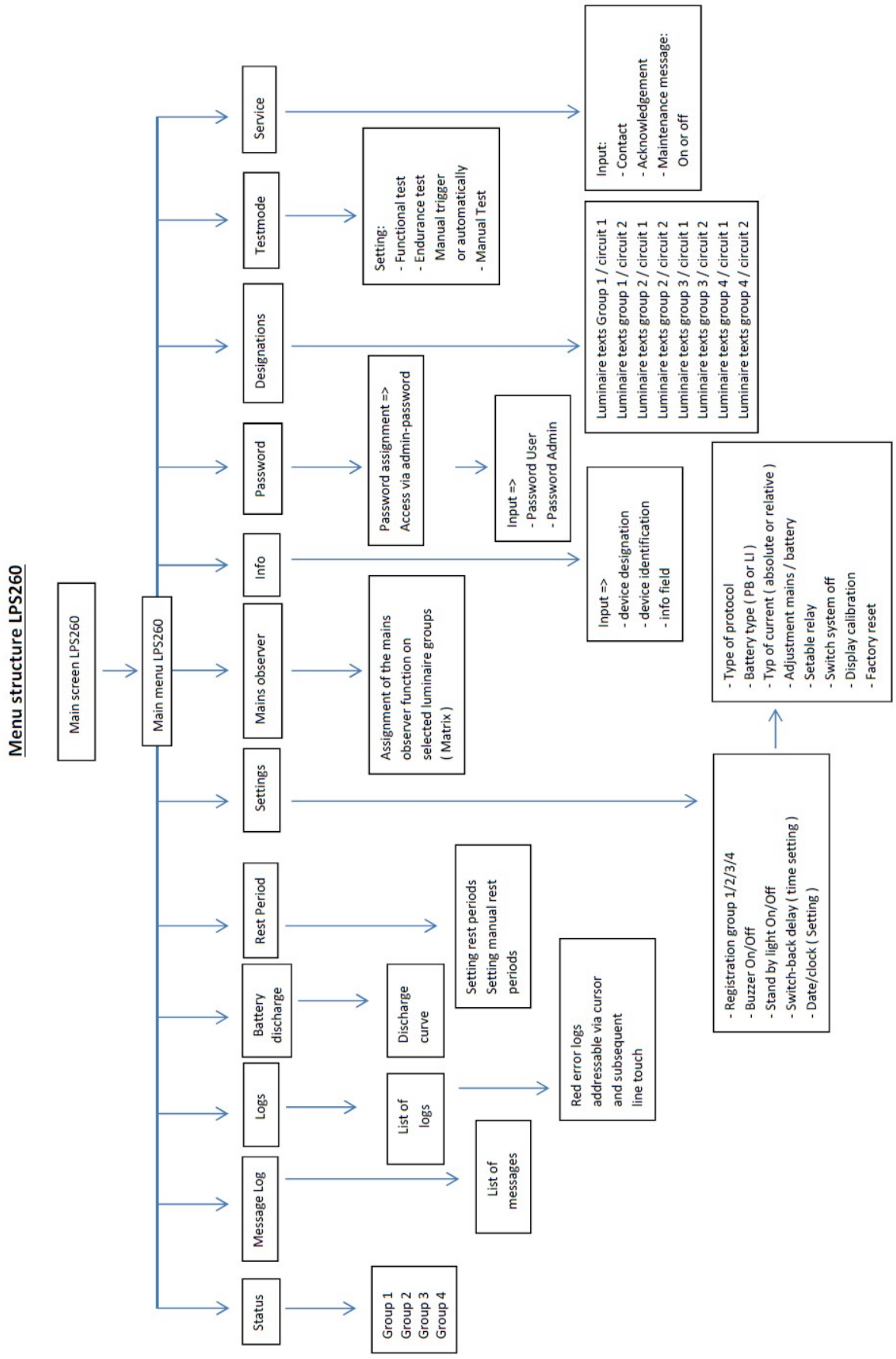
Terminal number	Associated fuse	Description	Note
1/2/3	F8/F9 4AT Siba Article No. 179200.4	Mains connection Charging phase 230V~	If the voltage fails or the fuses fail, the LPS switches to battery operation.
4/5/6/7 8/9/10/11	F10/F11/F12 F13 4AT Siba Article No. 179200.4	Maintained mode 230V~, Switchable maintained mode 230V~, Non-maintained mode,	Mixed operation mode Group 1: Bridging the voltage from terminal 4 to 8 Group 2: Bridging the voltage from terminal 5 to 9 Group 3: Bridging the voltage from terminal 6 to 10 Group 4: Bridging the voltage from terminal 7 to 11 The decision maintained or non-maintained mode must be set on the monitoring module in each lamp Operating mode Current monitoring Group 1 maintained mode: Voltage bridges from terminal 4 to 8 Group 2 maintained mode: Voltage bridges from terminal 5 to 9 Group 3 maintained mode: Bridging the voltage from terminal 6 to 10 Group 4 maintained mode: Bridging the voltage from terminal 7 to 11 No bridging = Non-maintained mode. Group 1 switchable maintained mode: Switch from terminal 4 to 8 Group 2 switchable maintained mode: Switch from terminal 5 to 9 Group 3 switchable maintained mode: Switch from terminal 6 to 10 Group 4 switchable maintained mode: Switch from terminal 7 to 11
12/13/14	F14/F15 1,25AT Siba Article No. 179200.1,25	Luminaire group 1 Circuit 1	You absolutely have to pay attention to correct polarity of consumers(+/-L/N) particularly in case of using mixing modules !
15/16/17	F16/F17 1,25AT Siba Article No. 179200.1,25	Luminaire group 1 Circuit 2	You absolutely have to pay attention to correct polarity of consumers(+/-L/N) particularly in case of using mixing modules !
18/19/20	F18/F19 1,25AT Siba Article No. 179200.1,25	Luminaire group 2 Circuit 1	You absolutely have to pay attention to correct polarity of consumers(+/-L/N) particularly in case of using mixing modules !
21/22/23	F20/F21 1,25AT Siba Article No. 179200.1,25	Luminaire group 2 Circuit 2	You absolutely have to pay attention to correct polarity of consumers(+/-L/N) particularly in case of using mixing modules !
24/25/26	F22/F23 1,25AT Siba Article No. 179200.1,25	Luminaire group 3 Circuit 1	You absolutely have to pay attention to correct polarity of consumers(+/-L/N) particularly in case of using mixing modules !
27/28/29	F24/F25 1,25AT Siba Article No. 179200.1,25	Luminaire group 3 Circuit 2	You absolutely have to pay attention to correct polarity of consumers(+/-L/N) particularly in case of using mixing modules !
30/31/32	F26/F27 1,25AT Siba Article No. 179200.1,25	Luminaire group 4 Circuit 1	You absolutely have to pay attention to correct polarity of consumers(+/-L/N) particularly in case of using mixing modules !
33/34/35	F28/F29 1,25AT Siba Article No. 179200.1,25	Luminaire group 4 Circuit 2	You absolutely have to pay attention to correct polarity of consumers(+/-L/N) particularly in case of using mixing modules !
36/37/38		Signal contact: main operation / emergency	In main mode contact 37/36 is closed In emergency mode contact 37/38 is closed Switching capacity of contacts: 2000VA (8A/250VAC)
39/40		Signal contact: Inhibit emergency Non-maintained mode ON	Contact 39/40 is closed when emergency light blocking is activated. When the mains observer and panic switch are triggered (non-maintained light is switched on) signal contact 39/40 is open. Switching capacity of the contacts: 2000VA (8A/250VAC)
41/42/43		Signal contact: General alarm	Contact 42/43 is closed in the event of the following faults - Battery capacity error in last test

		contact	- Luminaire error in last test - Charging fault - Device switched off - Clock Battery empty Switching capacity of the contacts: 2000VA (8A/250VAC)
44/45	F30 0,5AT 250VAC default	12V DC	Power supply for additional peripherals, e.g. Mimic panel „FMT-02“. Max. current consumption = 100mA ! Terminal 44 = +12V / Terminal 45 = GND
46/47		Mains observer 1 (12V)	Monitoring of a 2 network with the help of a mains observer. In case of failure of this network, a contact (in series with 1K resistor) is established via the Terminals 46/47 interrupted. A short circuit at the terminals is also detected. When the mains observer function is activated, the assigned lighting groups or their non-maintained lights are switched on. Activation / deactivation and assignment takes place via the menu.
48/49		Mains observer 2 (12V)	Monitoring of a 2 network with the help of a mains observer. In case of failure of this network, a contact (in series with 1K resistor) is established via the Terminals 46/47 interrupted. A short circuit at the terminals is also detected. When the mains observer function is activated, the assigned lighting groups or their non-maintained lights are switched on. Activation / deactivation and assignment takes place via the menu.
50/51		Mains observer 3 (12V)	Monitoring of a 2 network with the help of a mains observer. In case of failure of this network, a contact (in series with 1K resistor) is established via the Terminals 46/47 interrupted. A short circuit at the terminals is also detected. When the mains observer function is activated, the assigned lighting groups or their non-maintained lights are switched on. Activation / deactivation and assignment takes place via the menu.
52/53		Mains observer 4 (12V)	Monitoring of a 2 network with the help of a mains observer. In case of failure of this network, a contact (in series with 1K resistor) is established via the Terminals 46/47 interrupted. A short circuit at the terminals is also detected. When the mains observer function is activated, the assigned lighting groups or their non-maintained lights are switched on. Activation / deactivation and assignment takes place via the menu.
54/55		Panic switch	Switch on non-maintained lights centrally : Close switch. Switch off non-maintained lights centrally : Open switch.
56/57		Inhibit emergency (Standard)	Passive: Activation by bridging terminals 56/57.
56/57 - Optional -	---------	Inhibit emergency (to be specified when ordering)	Active: Activation by applying a control voltage. Permissible control voltage 6 to 12V DC.
58/59		External fan	Connection possibility for an external fan (potential-free contact). Switching capacity of the contacts: 2000VA (8A/250VAC)

Attention : The terminals may have voltage!

6 Menu structure of the touchscreen

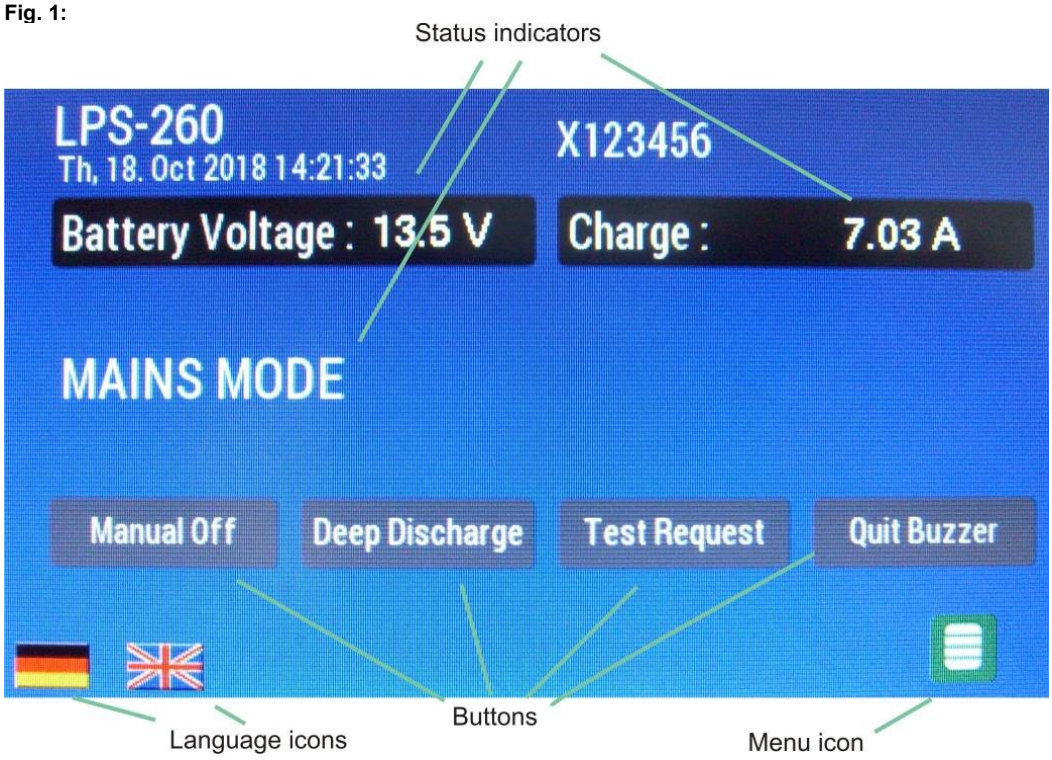
A stylus should be used to operate the touch screen. Manual operation is also possible.



7 Menu operation of the touchscreen

7.1 Main screen

Fig. 1:

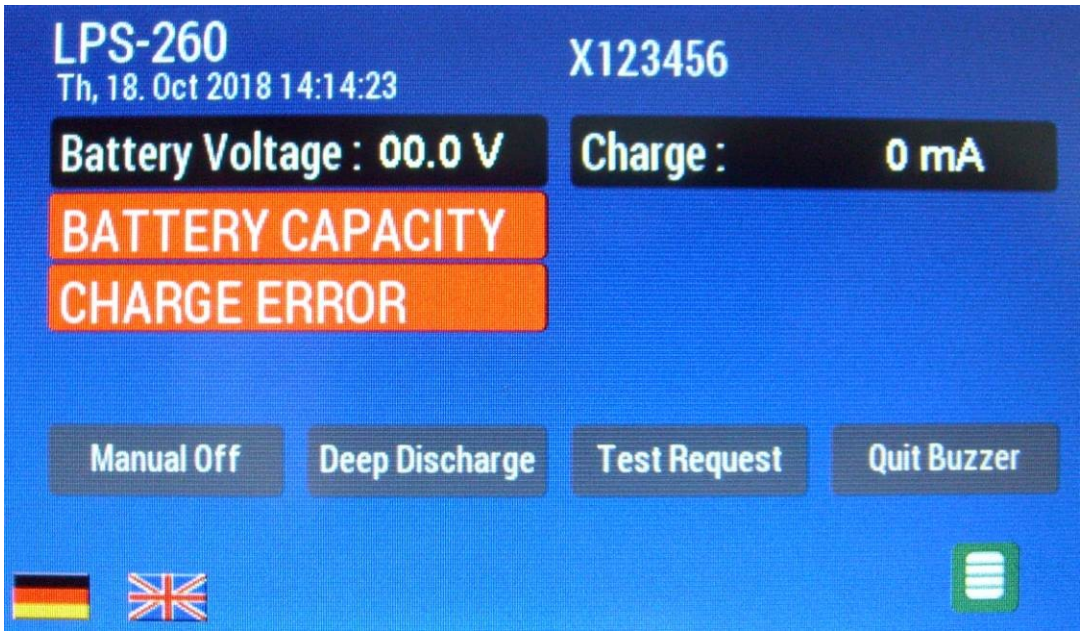


7.1.1 Displays on the screen

In the upper third of the main screen (Fig. 1), the current device designation or device identification, as well as the current date and time are displayed. The battery voltage and charging current are displayed below.

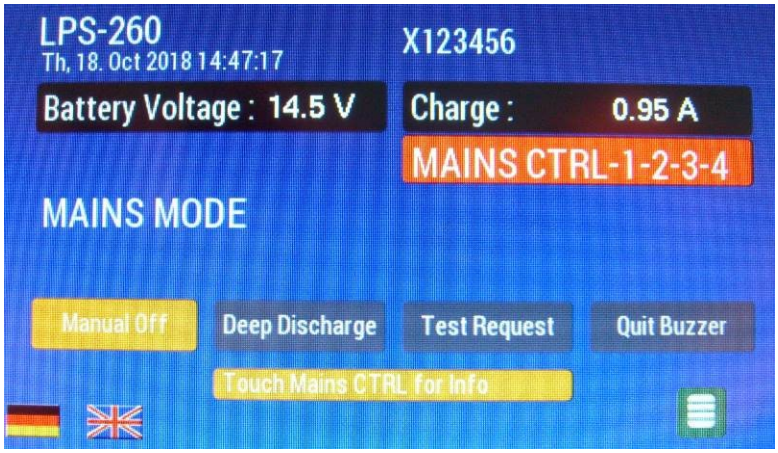
In the middle third of the main screen, the current states of the system are displayed, e.g. mains operation or emergency operation. (see also Fig. 1). Error messages such as charging fault, illuminant and battery capacity faults are also displayed. Error messages are always highlighted in red =>

Fig. 2:



When the mains observer function is triggered, a display is displayed indicating which mains observer has triggered it. In the following figure, all mains observer have triggered, i.e. mains observer 1,2,3 and 4 =>

Fig. 3:



If you touch the red display "Mains observer.-1-2-3-4", you will get further information.

The following buttons are displayed on the main screen:

- Manual Off
- Deep Discharge
- Test Request
- Quit Buzzer

If the buttons are highlighted in yellow, a function can be triggered by touching the respective button. are e.g.:

- Manual Off: Switching off the non-maintained lamps after response and mains return for mains observer or Emergency operation.
- Deep Discharge: Acknowledgement of the deep discharge display after deep discharge has taken place and after mains connection or restart.
- Test Request: Manual triggering of the endurance test.
- Quit buzzer: Switch off the buzzer in case of error message.

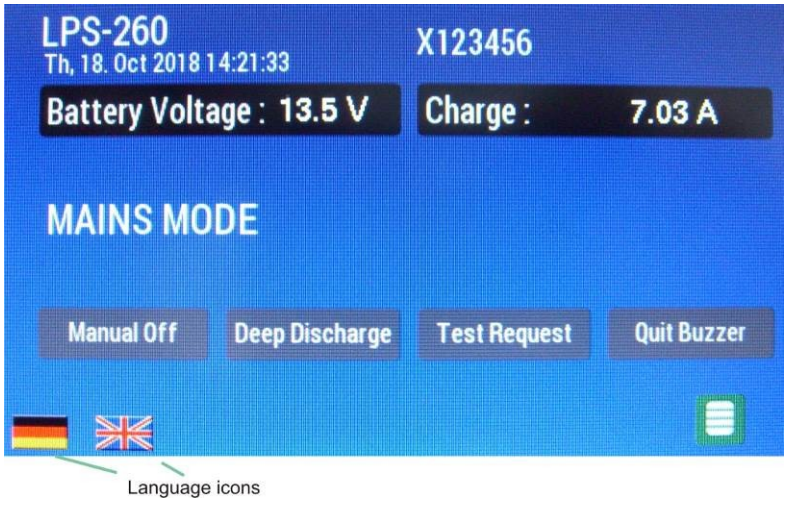
Remark: Some of the buttons only respond if the corresponding settings have been made under "Settings" in the main menu (e.g. Buzzer On).

Battery capacity errors can be generated by any type of test mode. The error is then displayed on the main screen. However, the error can only be reset by a successful endurance or manual test. A successful function test cannot clear the error !

7.1.2 Language change

The language can be changed directly by pressing the respective language icon.

Fig. 4:



7.1.3 Change to the main menu

By pressing the menu icon, the main screen is left and you reach the main menu =>

Fig. 5:

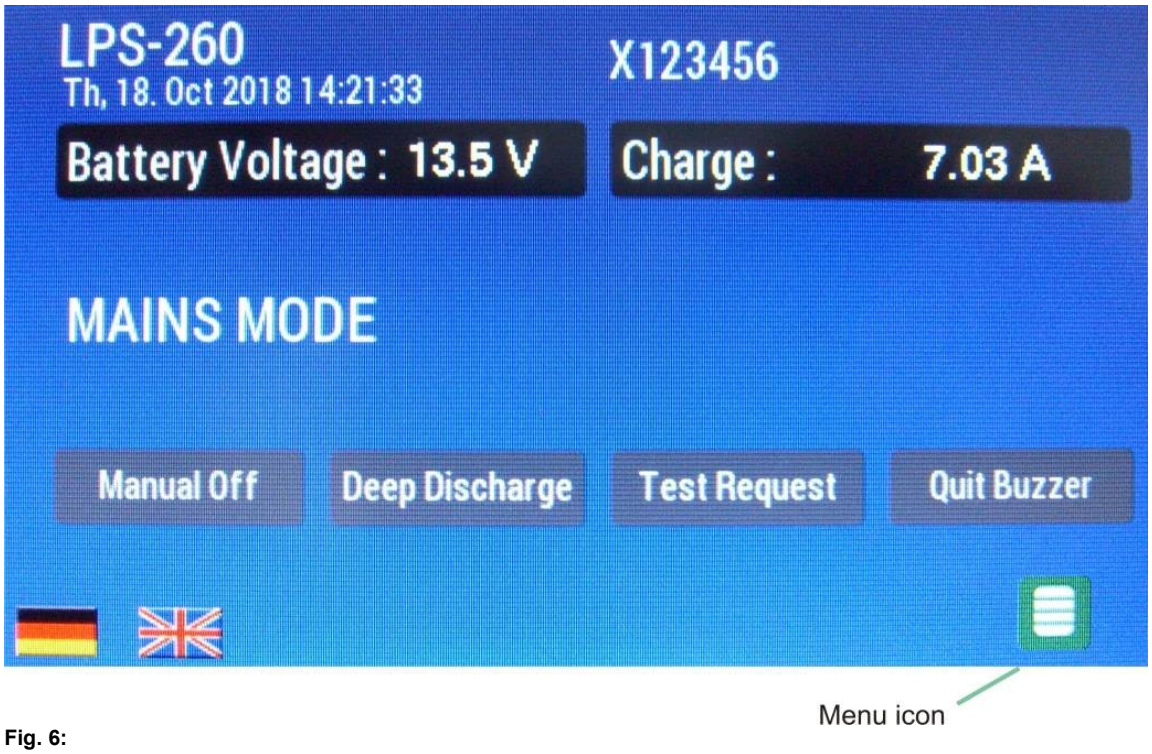
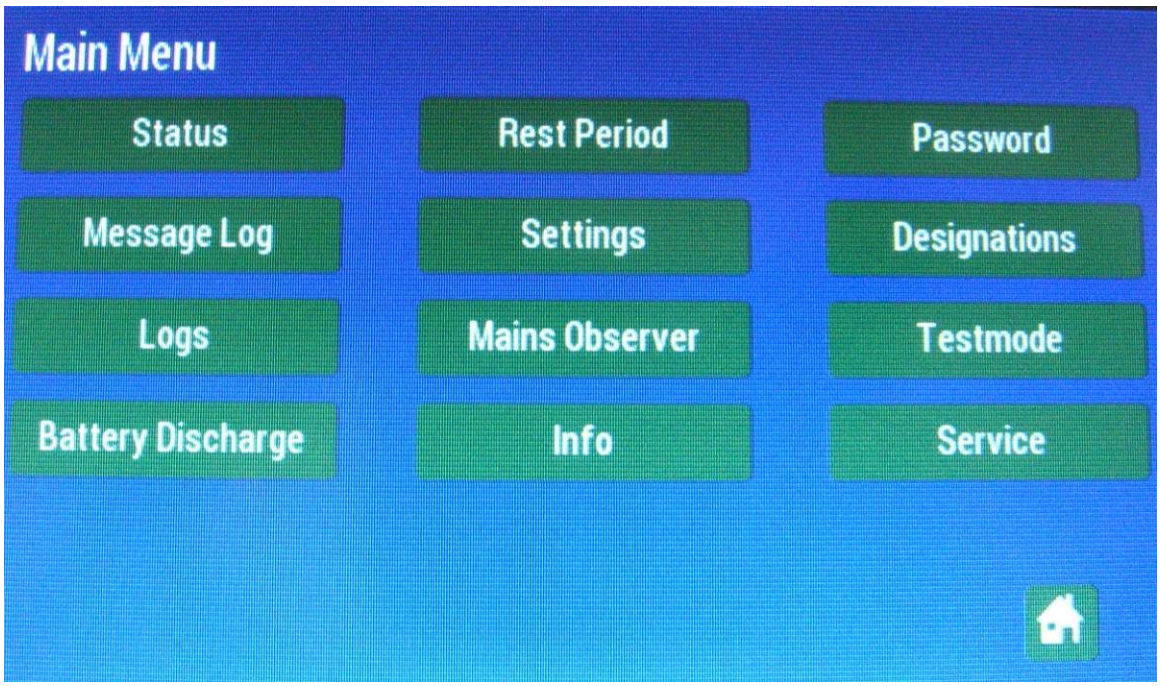


Fig. 6:



7.2 Main menu

The main menu (Fig. 6) consists of the following buttons =>

7.2.1 Status menu (Status)

In the status menu, the current status of the connected luminaires per group is displayed after registration or test operation. The status menu always starts with luminaire group 1. The arrow keys at the bottom right can be used to change to the next higher or lower group. Press the menu icon to return to the main menu.

Fig. 7:

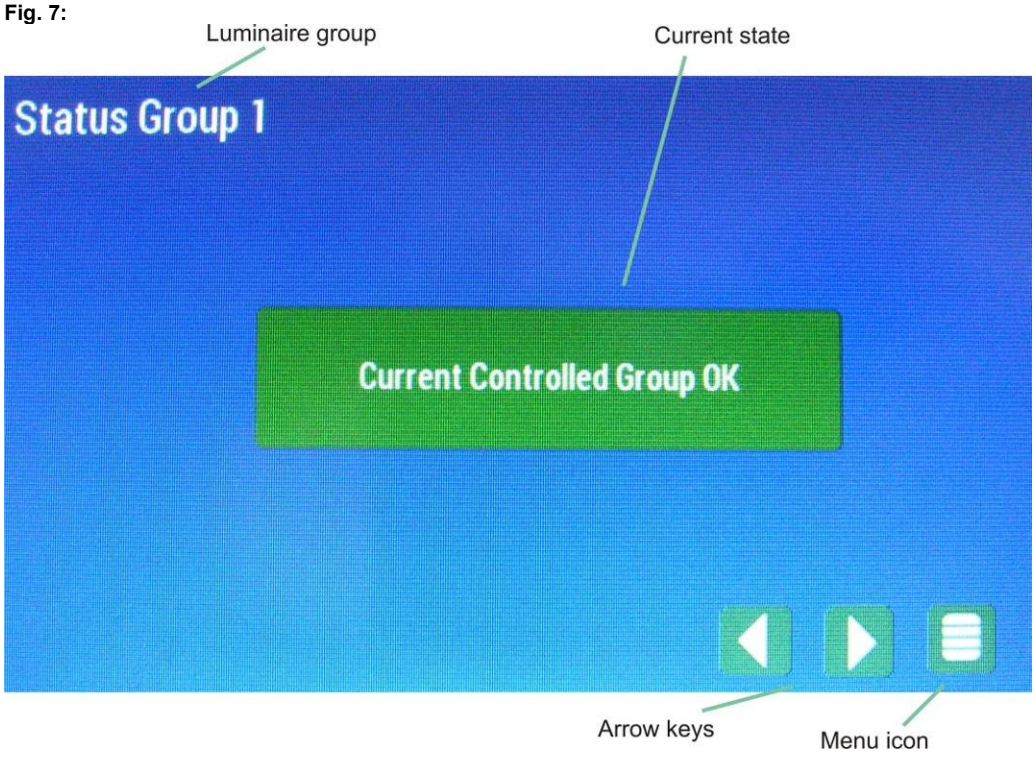
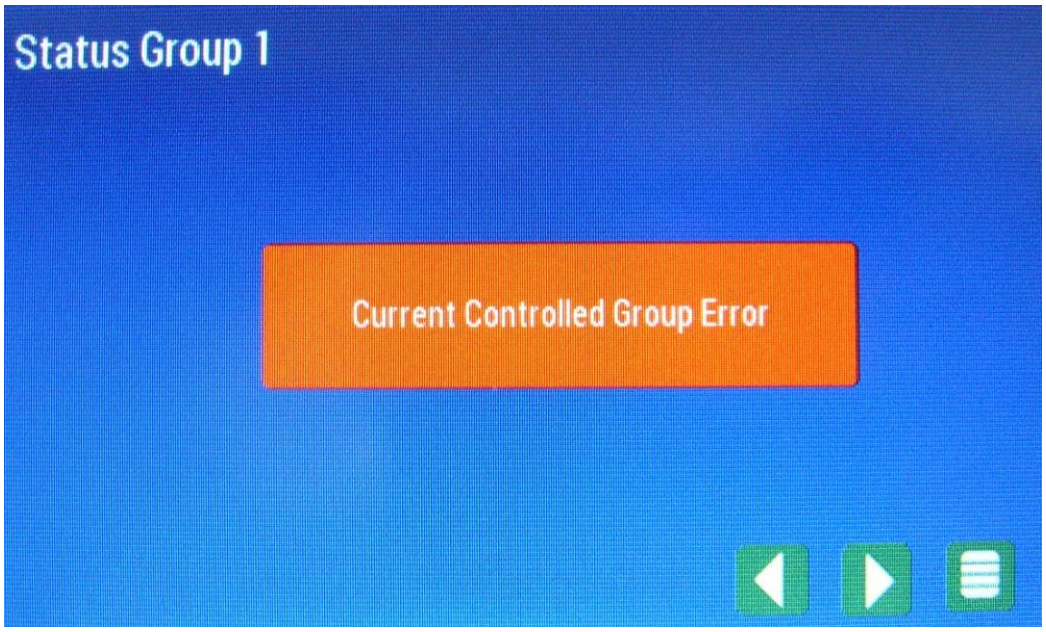


Fig. 8:

If a defective luminaire group is displayed (after test operation), the following message is displayed in the status menu for the current-monitoring version =>



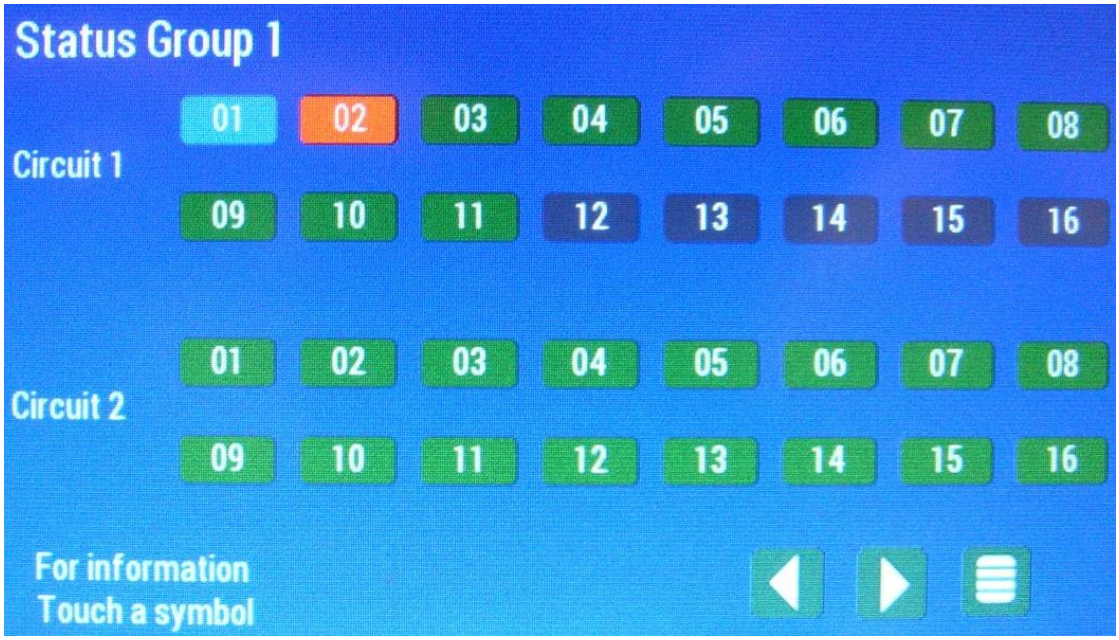
In mixed operation (mixed mode), the number of registered luminaires and their status is displayed. All registered luminaires have a green background (not registered luminaires grey). The display of the respective Group with subdivision into circle 1 and circle 2 and the maximum possible number of 32 luminaires per group. or 16 luminaires per circuit.

In the following example (Fig. 9), a total of 27 luminaires are registered in luminaire group 1. Luminaires 12 to 16 in circuit 1 are not logged in.

Fig. 9:

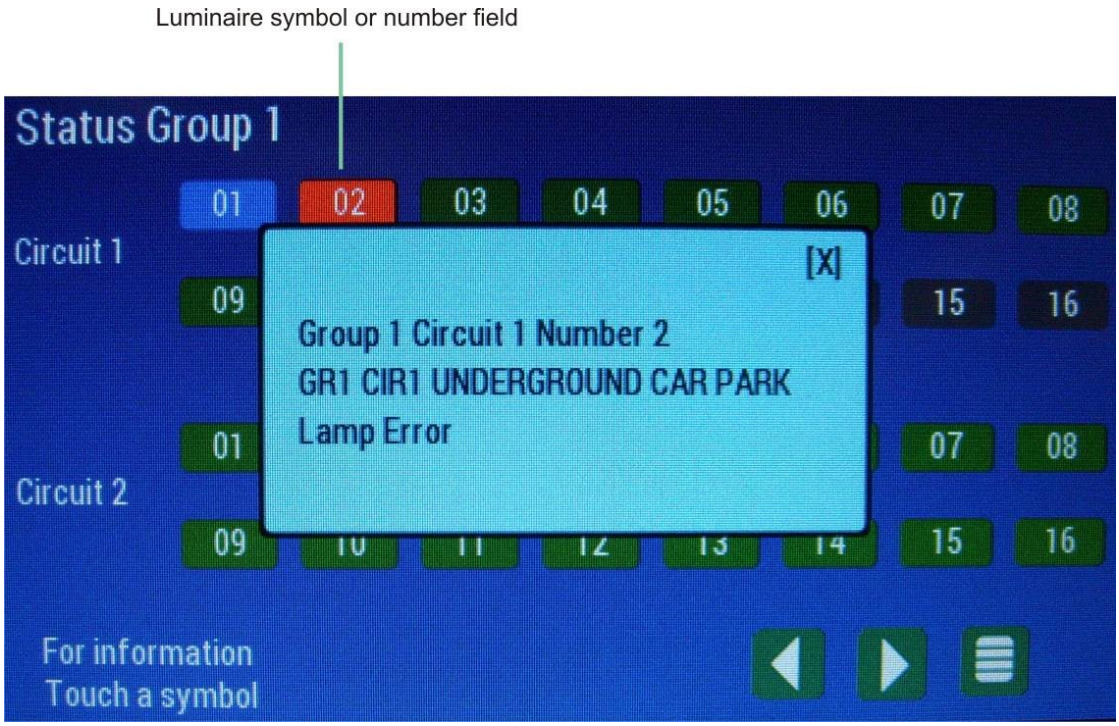
Defective luminaires are highlighted in red after test operation, while missing luminaires are highlighted in blue. In Fig. 10, luminaire 02 in circuit 1 is defective, whereas luminaire 01 is missing.

Fig. 10:



It is possible to obtain more detailed information about the status of the luminaire and the luminaire location by pressing the respective luminaire symbol (or the number field).

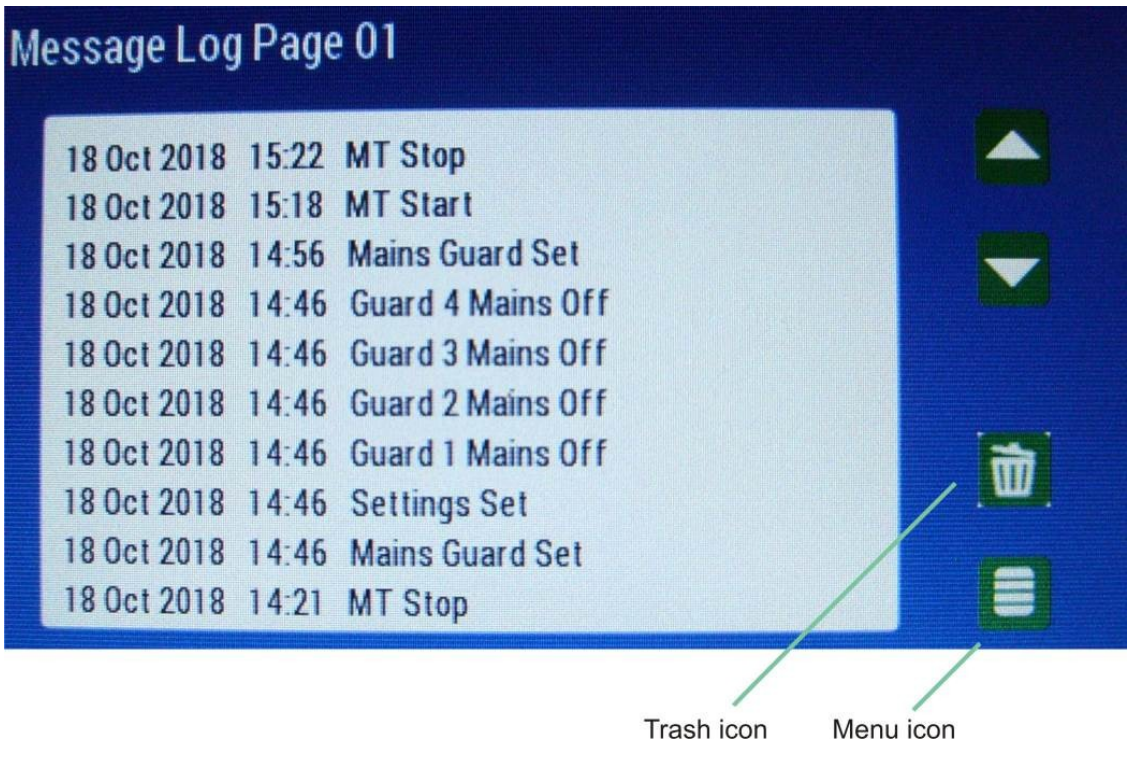
Fig. 11:



7.2.2 Message log menu (Message log)

In the message log menu, all messages or function triggers of the system are logged chronologically by date and time. 250 displays are available. The oldest message is overwritten when a new entry is made. Using the arrow keys, it is possible to "scroll" and read out older entries. The entire message memory can be deleted via the trash icon (after entering the password). Press the menu icon to return to the main menu.

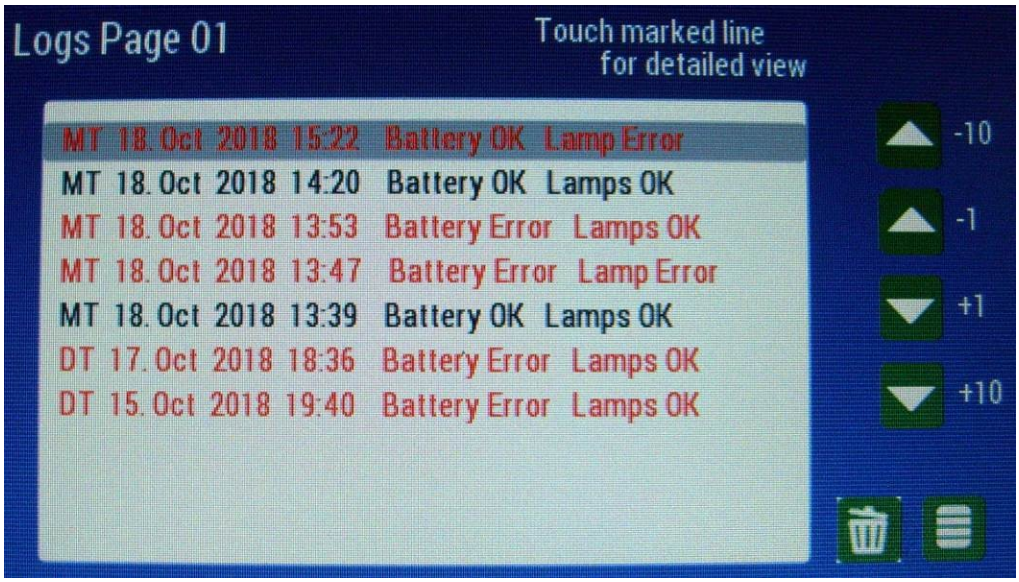
Fig. 12:



7.2.3 Protocol menu (Logs)

Up to 730 possible protocols are stored in the protocol book. The respective protocol is saved with date / time and the type of test (Manual test = MT / Function test = FT / Endurance test = ET / Shifted test = DF). In the case of faulty tests, the text of the respective protocol is displayed in red. Using the arrow keys, you can select the respective line protocol either line by line (-1 / +1) or page by page (-10 / +10). The selected protocol is then highlighted in gray.

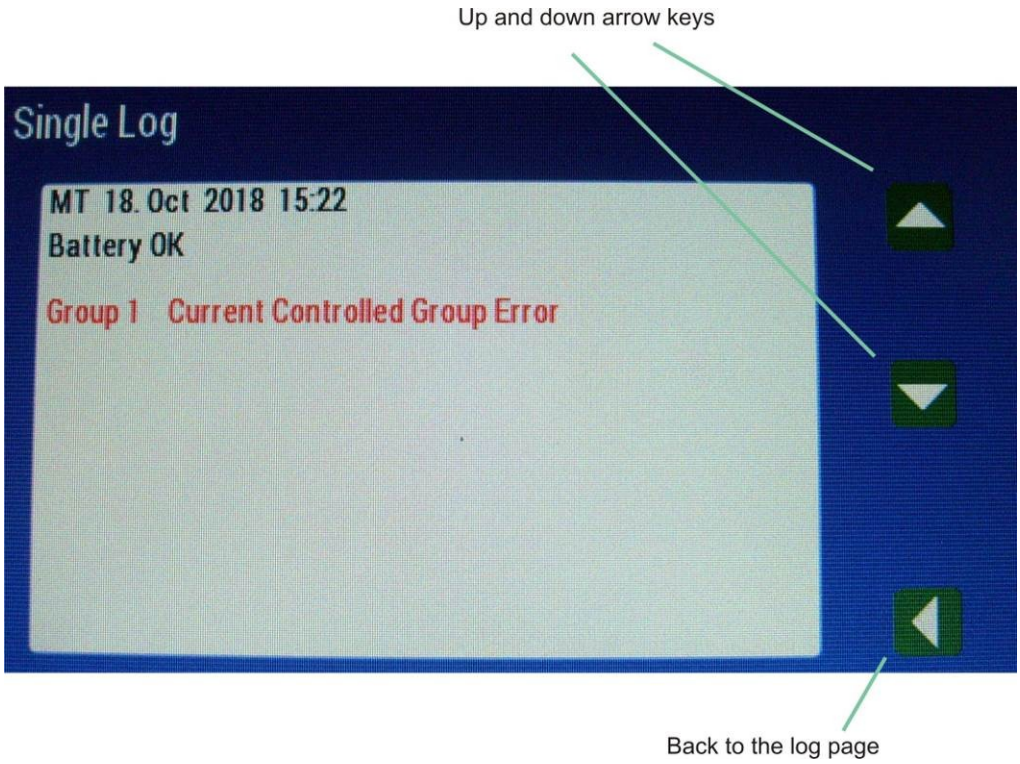
Fig. 13:



Via the trash can icon, the entire log memory can be deleted (after entering the password). Press the menu icon to return to the main menu. By pressing the single grey highlighted line protocol more detailed information about the respective single protocols can be called up =>

7.2.3.1 Indication of defective luminaires during current-monitoring operation

Fig. 14:

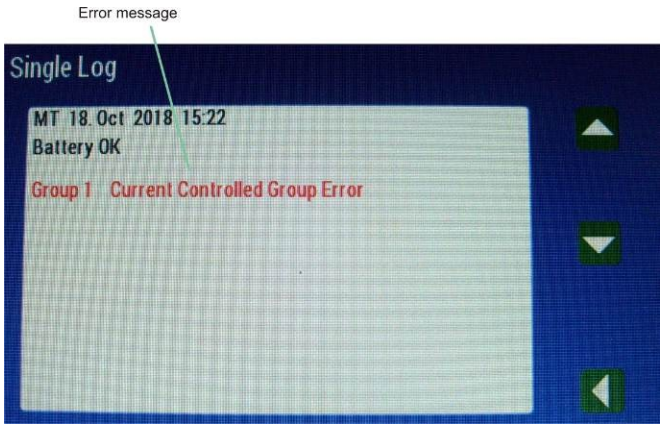


With the up and down arrow keys the respective group 1 to 4 can be called (current monitoring operation).

7.2.3.1.1 Manual entry of defective luminaires

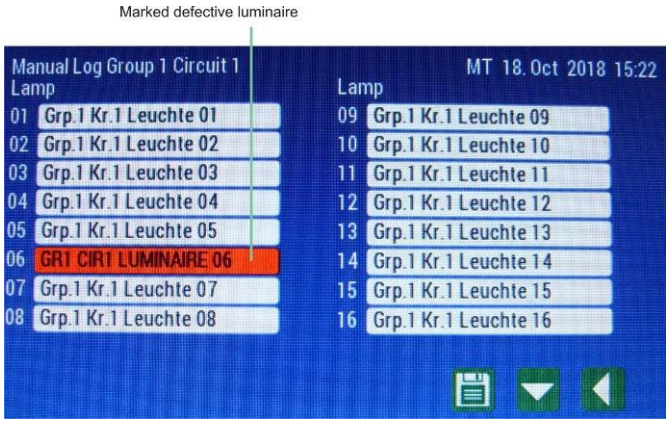
With current-monitoring operation, no faults of individual luminaires are logged. There is always a group error message. In order to still receive meaningful protocols, it is possible to retrofit defective luminaires into the protocol. To do this, press on the error message in red font =>

Fig. 15:



A list of the manual test book appears below. To identify the defective luminaire, simply touch the corresponding line of the luminaire to select it. The line is then highlighted in red and marked as defective. After saving, a clear protocol is available.

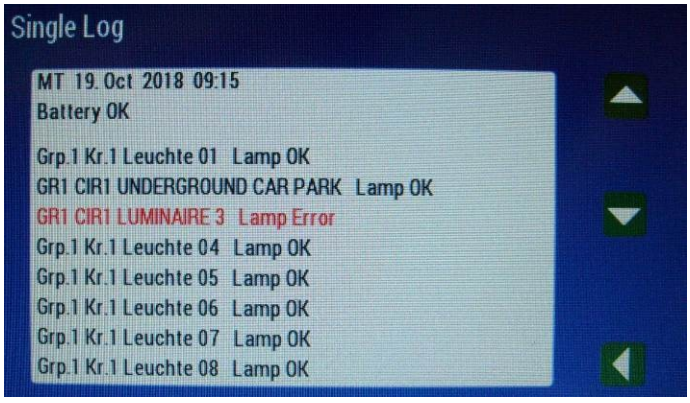
Fig. 16:



7.2.3.2 Display of defective luminaires during mixed operation

In mixed mode, 8 luminaires are automatically installed on each side. The up and down arrow keys can be used to call up the respective group or circuits and their error messages can be displayed =>

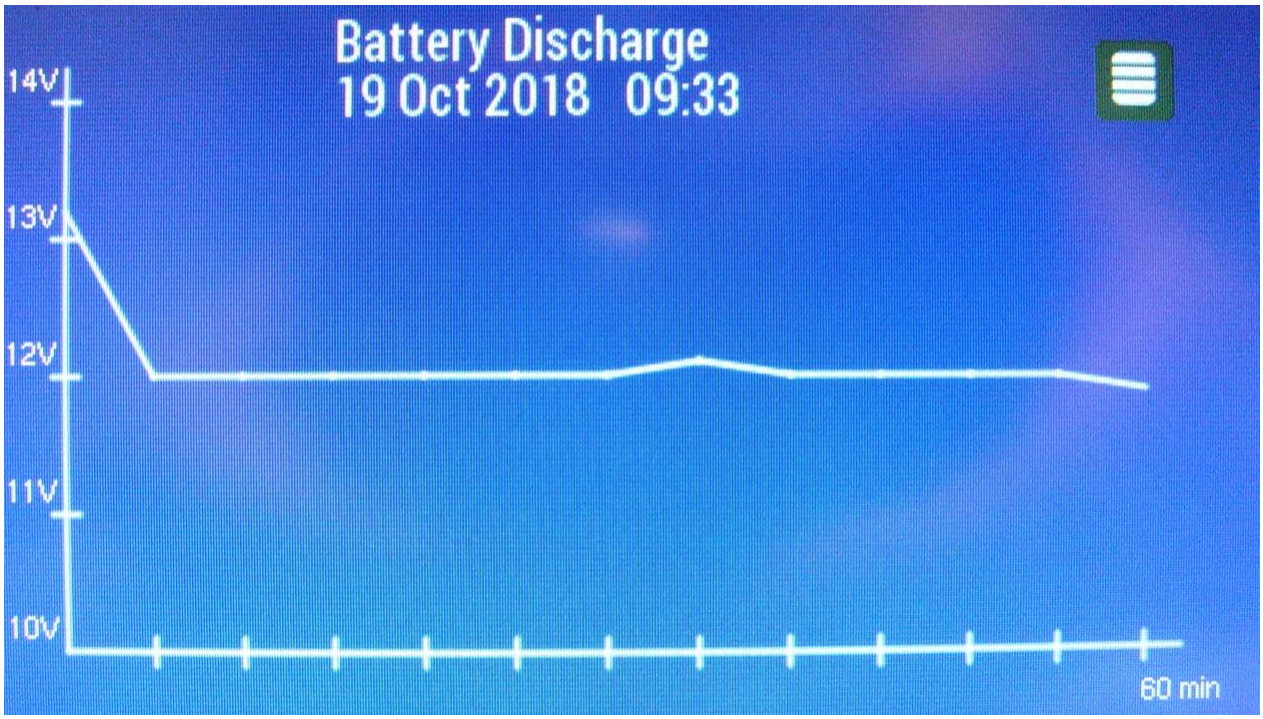
Fig. 17:



Example: Group 1, circuit 1 luminaire 03 with illuminant error.

7.2.4 Battery discharge menu (Battery discharge)

In the battery discharge menu, the discharge curve of a endurance test or manual or maintenance tests is displayed graphically. The last test performed is always displayed. The discharge curve of a function test is not displayed and does not delete the last recording of a endurance test or manual or maintenance tests.



Depending on the setting of the discharge time (e.g. burning time test 180 minutes), the scaling is automatically adjusted with regard to the time axis.

The display of the battery discharge curve is only possible since software version 2.7 (see chapter 7.2.8 Infomenu) !

7.2.5 Rest period menu (Rest Period)

7.2.5.1 Manual rest period

It is possible to switch off the maintained light during rest periods (e.g. holidays, at night) and thus save energy. The maintained light can be switched off manually for an unlimited period of time. To do this, the "Man. Break Inactive" can be pressed. With manual switch-off, all groups are switched off =>

Fig. 18:

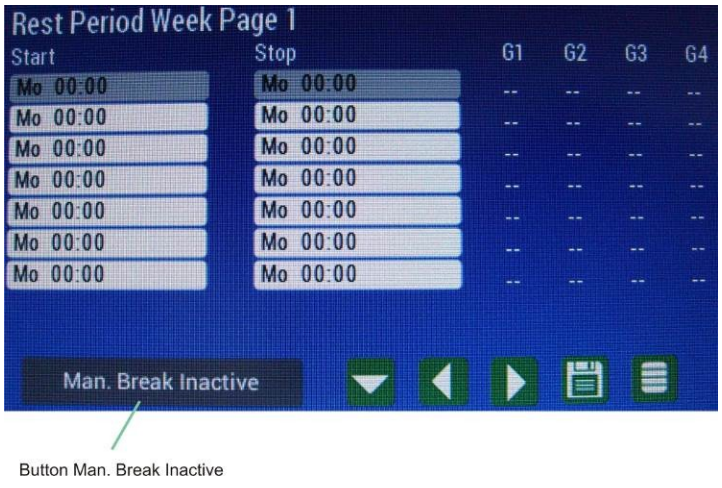


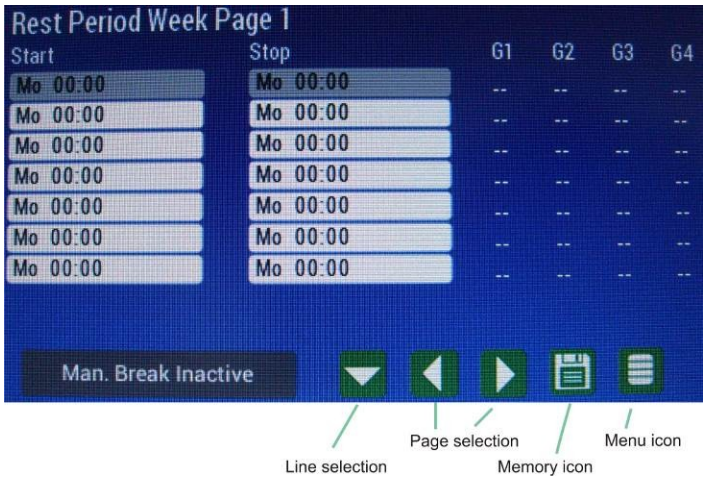
Fig. 19:

Remark: Triggered rest periods are also displayed on the main screen !

7.2.5.2 Rest period week

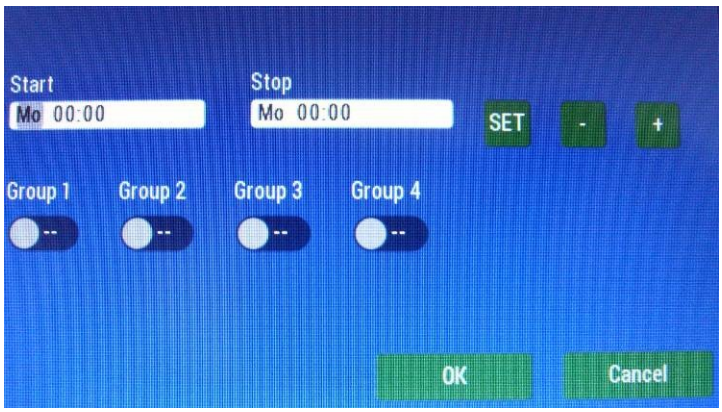
28 memory locations are available for setting the "rest period week" in order to set daily switch-off intervals. The input is spread over 4 pages. These can be selected using the page selection keys. The line selection key must be pressed to select the line. The selected line is then highlighted in grey =>

Fig. 20:



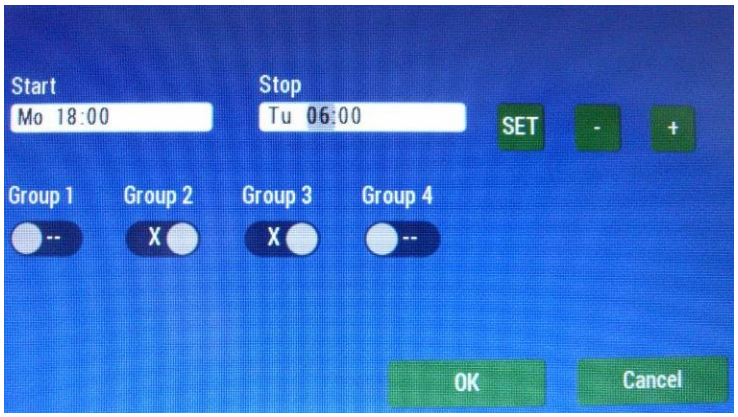
For the respective programming, the grey highlighted line must be pressed and then the start time and stop time as well as the desired group to be switched off must be entered =>

Fig. 21:



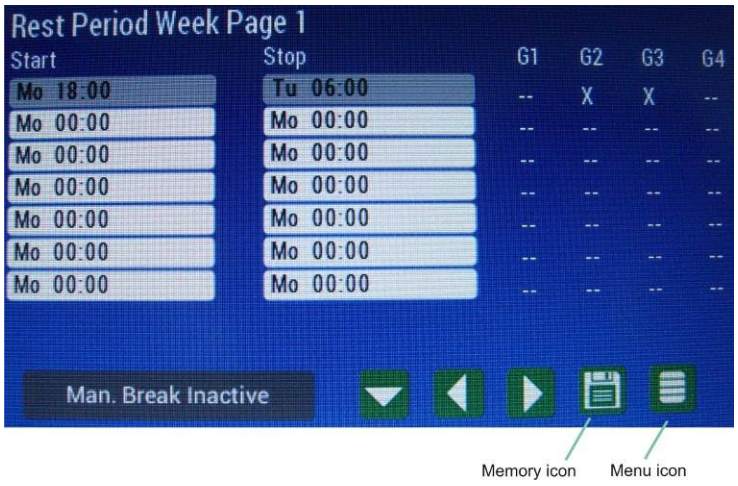
To change the day of the week or the time, use the Plus and Minus icons. The selection is made via the SET icon. The selection is highlighted in grey. The rest period can be set for all days. By pressing the individual group keys, the selected groups are activated for the correspondingly programmed rest periods =>

Fig. 22:



The following is confirmed with the OK icon and you return to the rest period menu with the programming display =>

Fig. 23:



The programming is accepted by pressing the memory icon (password request). Press the menu icon to return to the main menu.

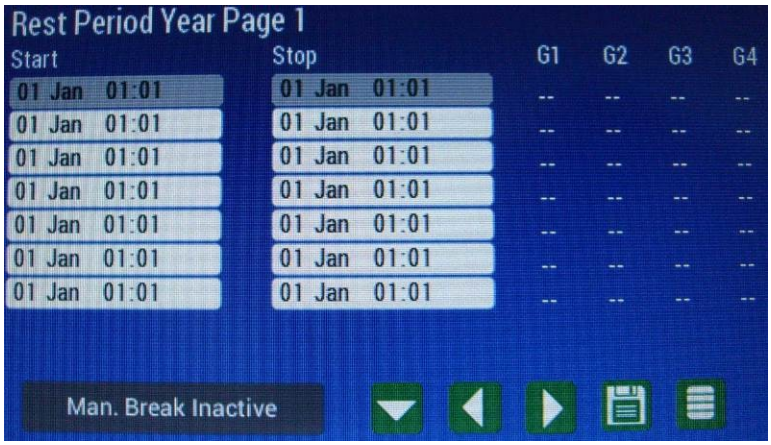
If start and stop time fall on the same weekday, the start time must be smaller than the stop time. The reverse input is not valid e.g. Mo 15:00 to Mo 14:00. If such a time period is really desired, two memory locations with overlapping time periods must be specified e.g. Mo 15:00 to Tu 15:00 and Tu 14:00 to Mo 14:00.

7.2.5.3 Rest period Year

14 memory locations are available for setting the "Rest period year" in order to set switch-off intervals. The input is spread over 2 pages.

Note: If the pages for the "Rest period week" appear first when the rest period menu is called up, the "Rest period year" setting menu can be called up by pressing the page selection keys again.

Fig. 24:



The operation and setting of the "Rest period year" menu is the same as programming the "Rest period week" menu (see also 7.2.5.2 Rest period week).

A manual control has priority over a programmed "rest period year", which in turn has priority over a programmed "rest period week".

During a rest period, a mains observer, if activated, bridges the rest period and switches on the maintained light. The associated group is switched on despite the rest period.

7.2.6 Settings menu (Settings)

7.2.6.1 Basic information about the settings menu

In the settings menu, basic programming and settings are carried out which are essential for the proper functional operation of the system. The menu consists of 2 pages, each of which can be accessed via the arrow keys can be called up. Here, too, the input or setting is mainly made via a password.

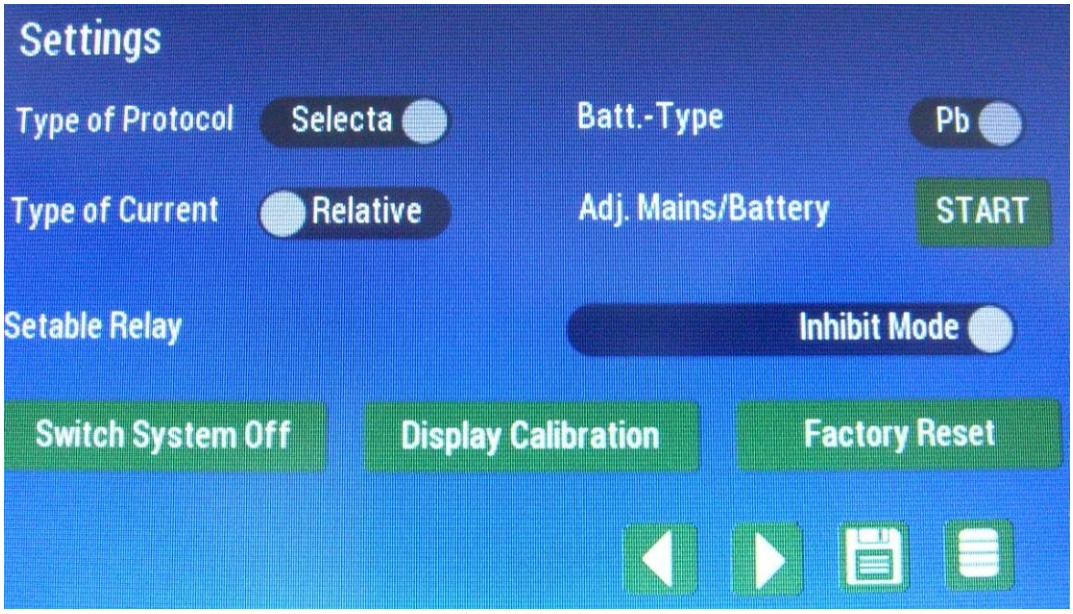
Page 1 =>

Fig. 25:

All settings must be saved via the operation of the memory icon (saving). Press the menu icon to return to the main menu.

Page 2 =>

Fig. 26:



The following settings can be made in the settings menu:

- Registration of groups or selection of groups to be registered
- Buzzer Off/On
- Standby light off (manual or automatic)
- Switch-back delay (setting)
- Date/Clock (Setting)
- Type of protocol type (Selecta or Twin)
- Battery type (PB or LI)
- Typ of current (relative or absolute)
- Adjustment mains / battery
- Setable Relay (inhibit mode or standby light on)
- Switch system off
- Display Calibration
- Factory reset

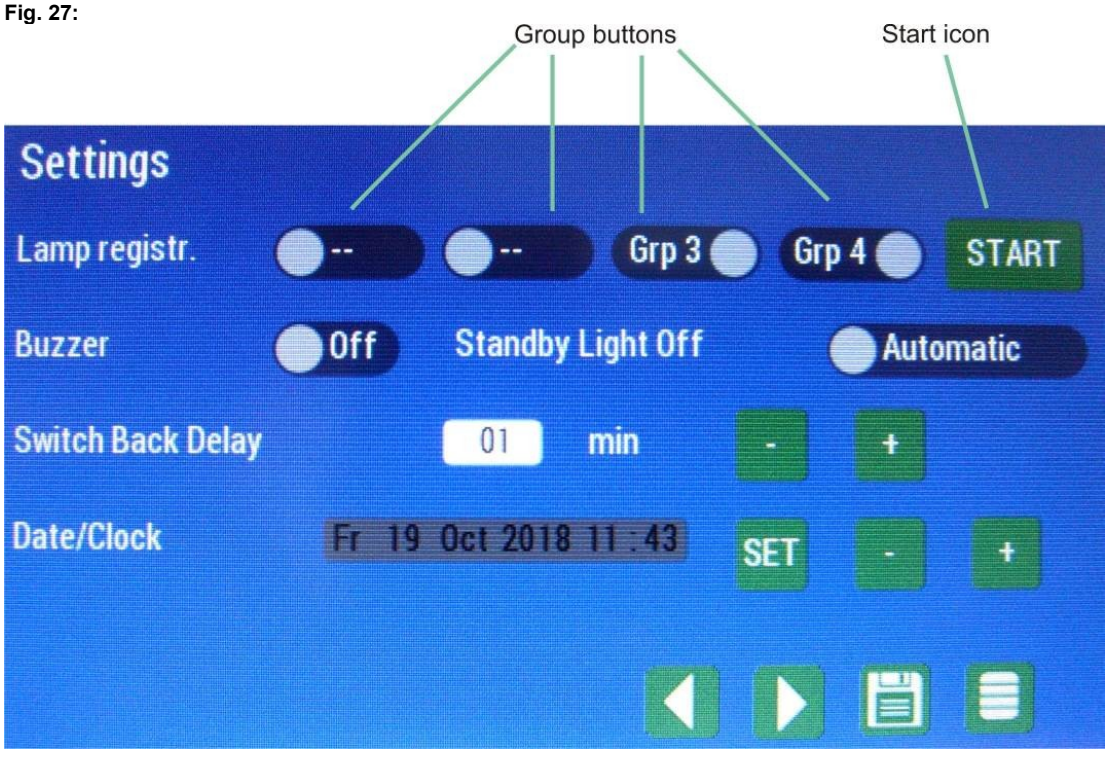
7.2.6.2 Registration of groups or selection of groups to be registered

The groups are registered when the system is put into operation or when, for example, new terminal devices are connected to the system or terminal devices are removed. Each change in the groups therefore requires a new logon. The logon can be selected in groups, so that groups that have not been logged-in are not evaluated during test runs. For each new logon, the following is performed prior to the actual logon Runs through a warm-up time of 3 minutes, regardless of whether mixed mode or not is available.

The groups are selected using the group buttons. The selected groups are then logged in by pressing the start icon (password entry). After completion of the logon, the measured values are automatically stored (manual storage is not necessary) !

Group 1 and 2 are not logged in afterwards =>

Fig. 27:



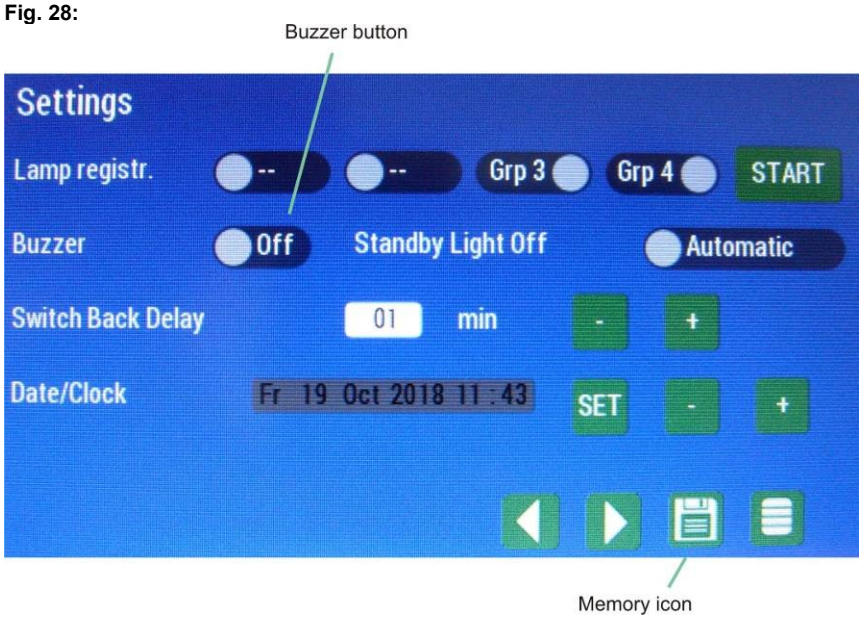
If a new group is selected, the group button is highlighted in red. This serves only as a warning message that the group has been selected but not yet logged in. This warning is reset by pressing the start icon (password input) and subsequent login. Exiting the settings menu without logging in also resets the warning message !

All 4 luminaire groups are activated at the factory.

7.2.6.3 Buzzer Off/On

If the buzzer is to trigger an error message, it must be activated via the buzzer button. In the following, the change must be saved by pressing the memory icon =>

Fig. 28:

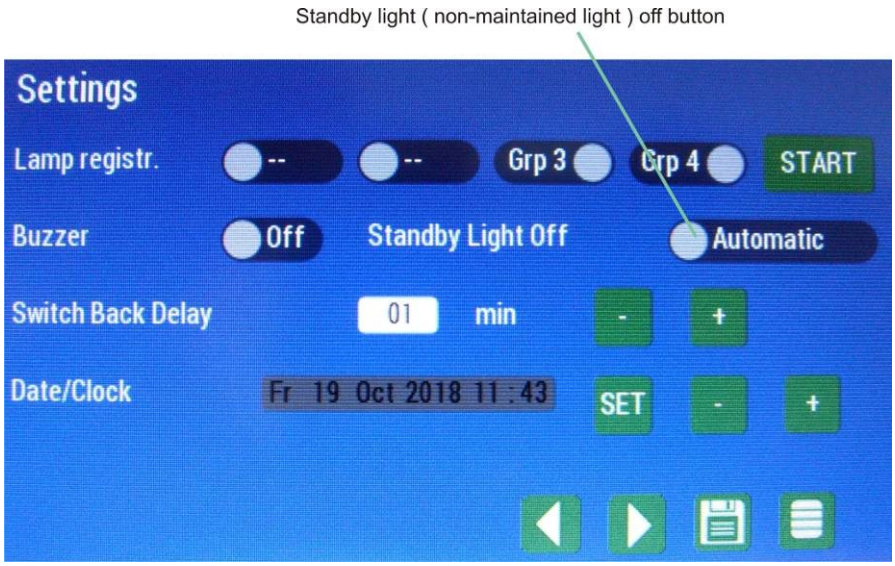


The buzzer is switched off at the factory! A triggered buzzer can be deactivated directly via the main screen (press the button “Quit. Buzzer”, see also chapter 7.1.1). An activated buzzer triggers in case of mains observer / emergency operation / battery fault in test / light fault / charging fault / clock battery empty.

7.2.6.4 Non-maintained light off

If a mains observer responds or the panic switch is actuated, all non-maintained lights are switched on (for mains observer depending on the selected group). It is possible to switch off the emergency lights automatically or manually via the "Standby light off" button after mains return in the sub-distributions (mains guard) or after switching back the panic switch.

Fig. 29:



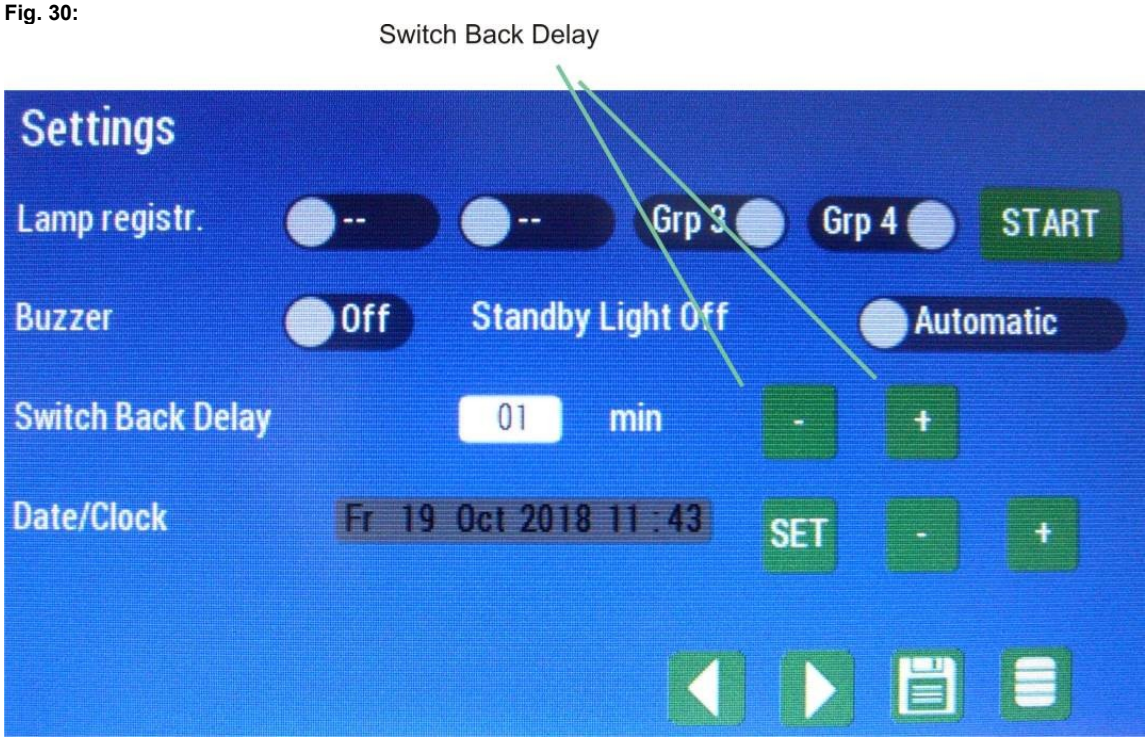
The manual deactivation is to be considered in particular with places of assembly !

The manual switch-off can be carried out directly via the main screen ("Manual off" button, see also Chapter 7.1.1).

7.2.6.5 Switch-back delay

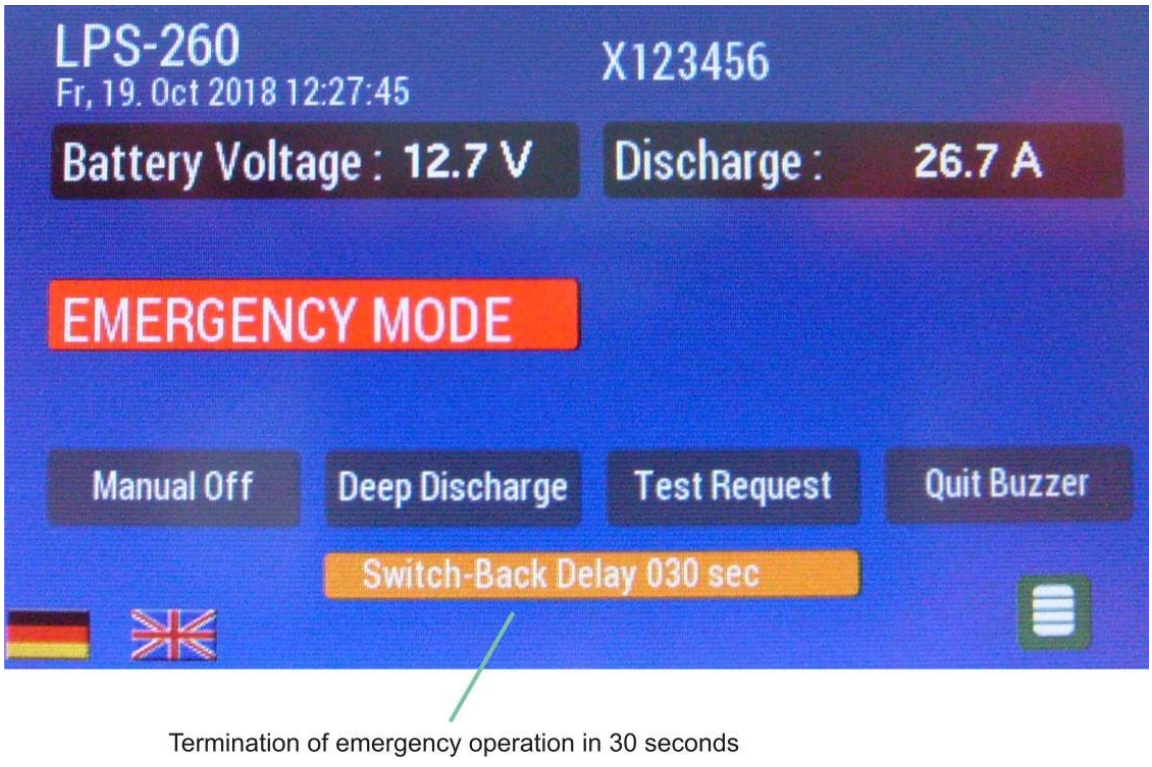
If an emergency operation is terminated or the non-maintained lamps are switched off again after the end of an activated mains observer or panic switch, it is possible to extend the state of the emergency and the connected switched-on lamps slightly despite mains recovery (e.g. in the case of comprehensive fire compartments). The switch back delay is at least 1 minute and can be set to max. 10 minutes by pressing the + and - buttons.

Fig. 30:



In case of emergency operation and mains return, the remaining time until switching back to mains operation is displayed on the main screen =>

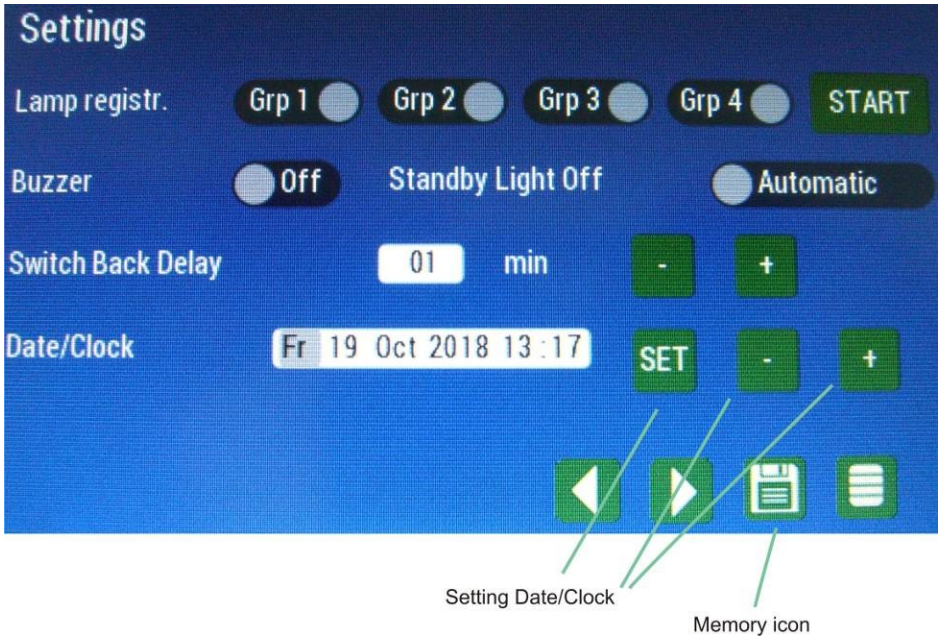
Fig. 31:



7.2.6.6 Date/Time

The SET icon is pressed to set the date and time. The selected range will then be highlighted in grey in the "Date and time" display. The selected range can be changed by pressing the + and - keys. Each press of the SET icon takes you to the next input field, e.g. from weekday to calendar day.

Fig. 32:

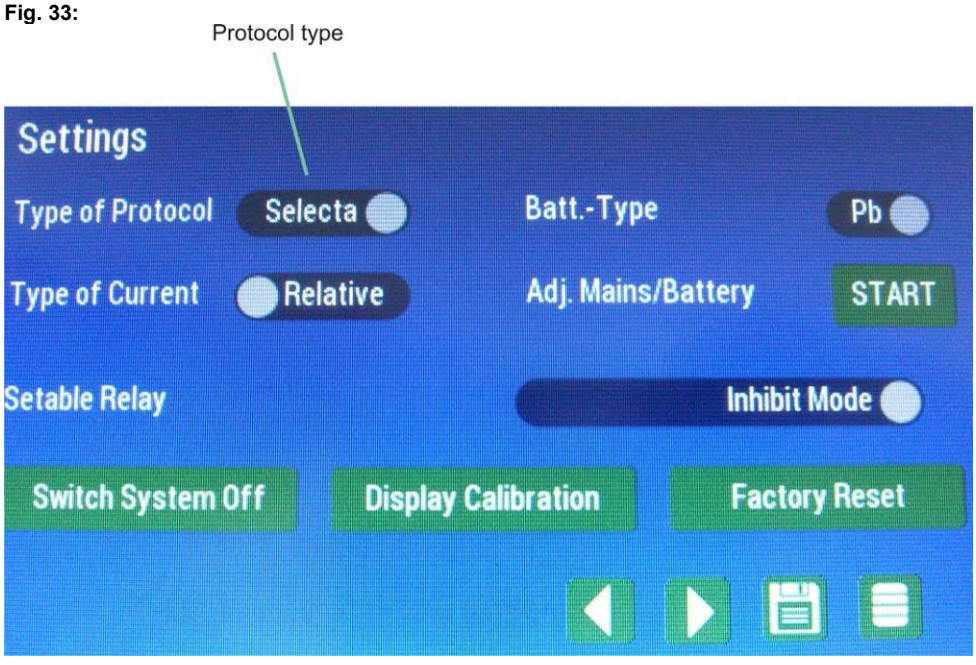


By pressing the memory icon, the entered date or time is saved and displayed on the main screen (see also chapter 7.1.1 Displays on the screen).

7.2.6.7 Protocol type

Page 2 of the settings menu begins with the selection of the protocol type (see also 7.2.6.1 Basic information about the settings menu). The protocol type distinguishes between Selecta and Twin protocols. These distinguish the system is characterized by the different measurement and evaluation of the connected compliant switching and monitoring modules.
By default, the system is set to the Selecta protocol. A current monitoring version of the system is independent of the two protocol types. The choice of the protocol is made by pressing the protocol type icon and the subsequent Storage via the memory icon =>

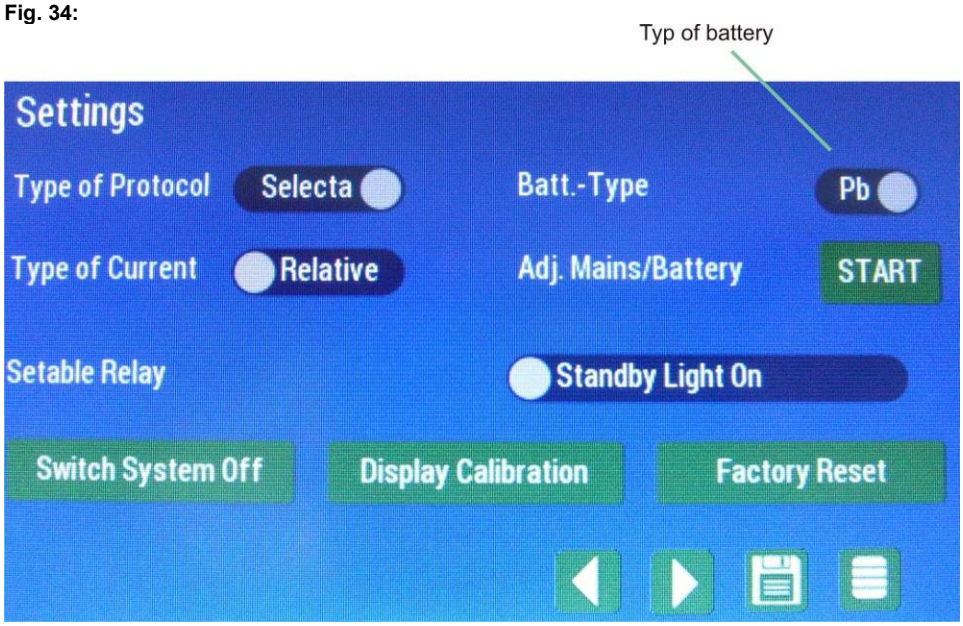
Fig. 33:



7.2.6.8 Type of battery

By pressing the battery type button you can choose between PB (lead battery) and Lithium battery.

Fig. 34:



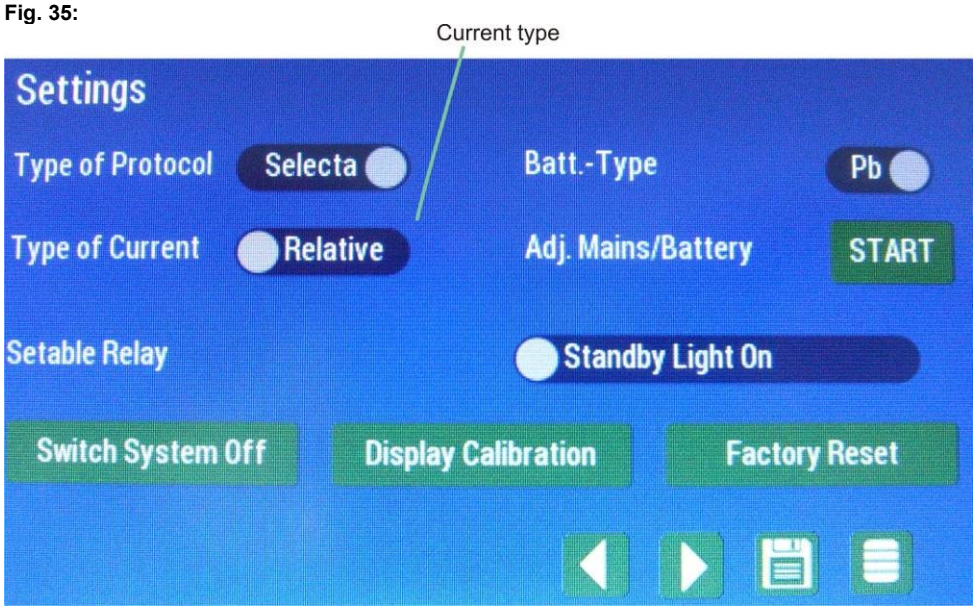
This adjustment must be carried out with caution and care. If the setting is incorrect, there is the possibility of overcharging and the associated premature failure of the battery. Only lithium batteries equipped with a BMS (Battery Management System) may be used.

7.2.6.9 Current type (relative or absolute)

By pressing the "Type of current" button you can choose between relative and absolute current measurement. The setting only influences the current monitoring operation.

Absolute current measurement: Error detection with a deviation of >= 3W per luminaire group !
Relaitve current measurement: Error detection with a current deviation of +-20% per luminaire group !
(see also chapter 4.3.1 Operarting mode current-monitoring).

Fig. 35:



The system is factory set to relative current measurement !

7.2.6.10 Calibration mains/battery

The mains hysteresis and battery calibration are calibrated at the factory as standard. If a new adjustment is carried out, the mains voltage must be applied and the battery (e.g. positive pole) must be disconnected. Only then may an adjustment be carried out =>

Attention! The adjustment may only be carried out with bridged pin guide (see Fig. 36). Before removing the battery, the pin header must be bridged. The pin header is located to the left of the two connectors for temperature compensation. After the adjustment has been carried out, the bridging must be **removed** again. **One Jumper is included with the LPS (bag) !**

Fig. 36:

Bridge pin header during adjustment ! =>

Fig. 37:

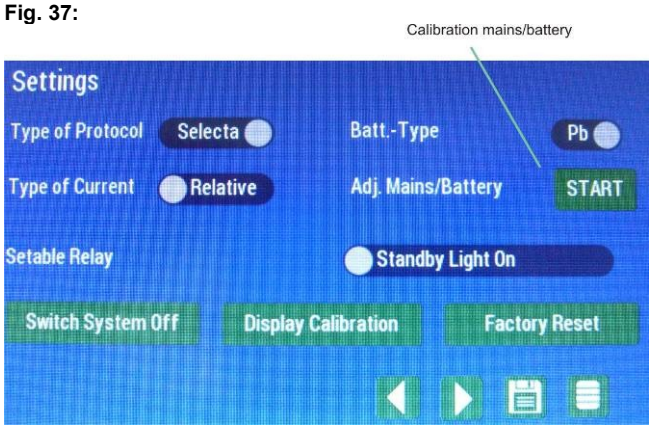
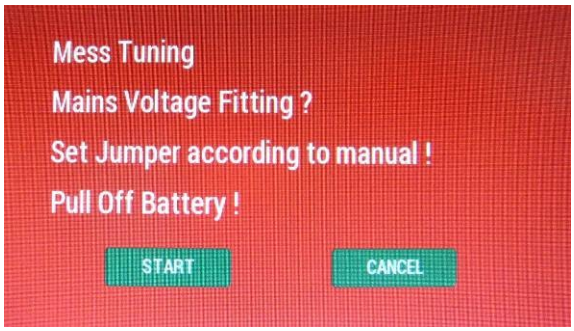
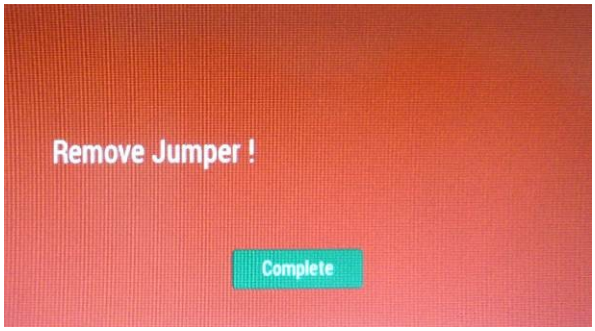


Fig. 37.1: **Fig. 37.2:**

=> the following screen will be displayed:



Press "Start" !



Press "Complete" after removing the jumper !

After pressing the start button, the measured values are automatically saved. After the adjustment the jumper on the pin header has to be removed again !

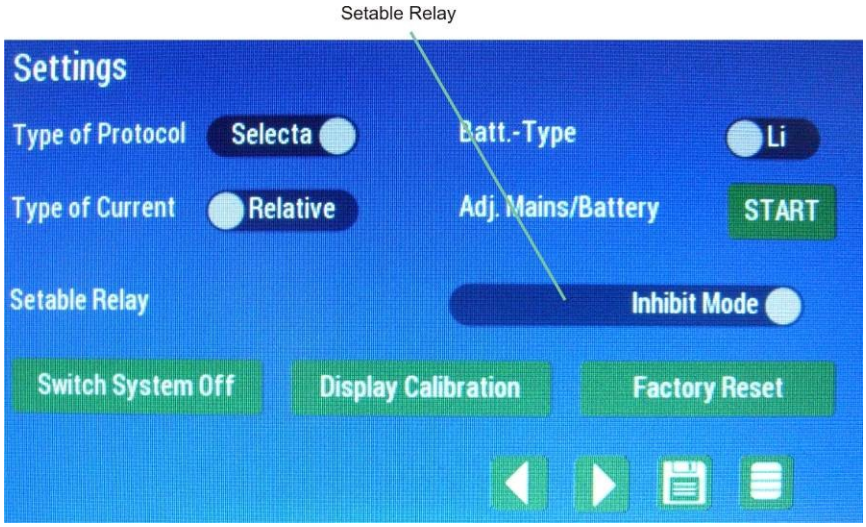
7.2.6.11 Adjustable signaling contact

The potential-free signaling contact (contact 39/40 see also chapter 5 Terminal plan and terminal assignment) can be used for the following messages:

1. Emergency light blocking is activated (signal contact 39/40 closed)
2. Non-maintained light has been switched on (signal contact 39/40 open) due to the triggering of mains or the panic switch.

The selection is made by pressing the "Setable Relay" button and subsequent storage.

Fig. 38:

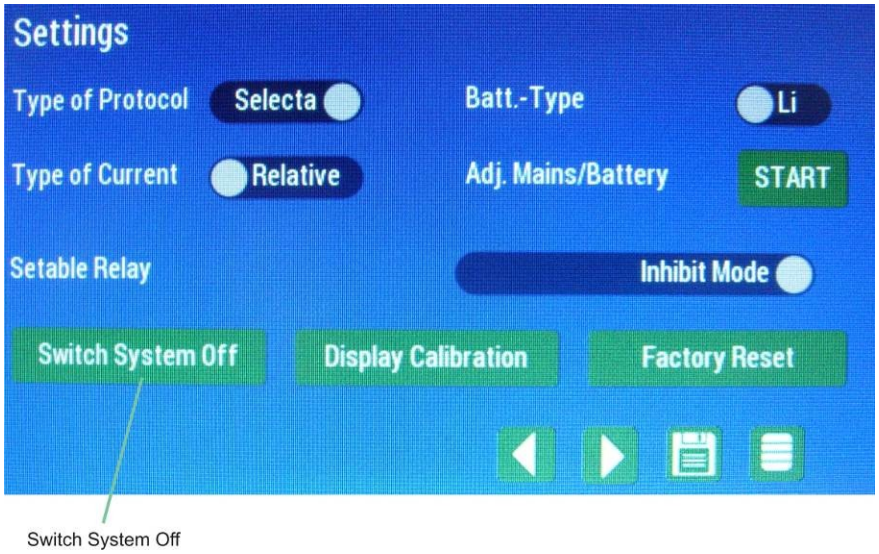


7.2.6.12 Switch off the system (and switch it on again)

By pressing the "Switch system off" button, the system can be brought into a state of rest in which no functions of the system or loads on the battery occur. This can be used, for example, during commissioning and completion of the system in premises where further disconnection of the mains voltage is to be expected due to installation work on other systems.

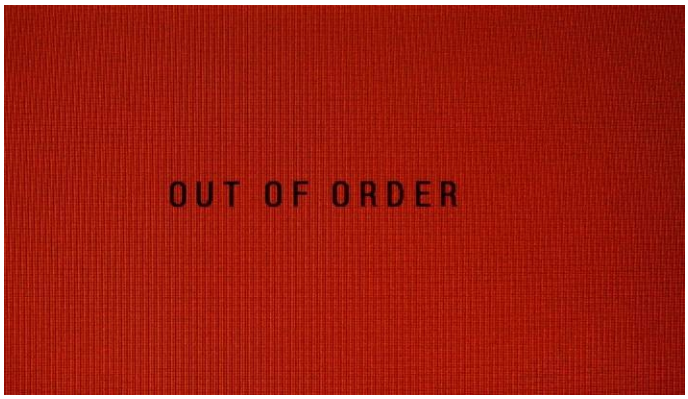
Attention: When the system is switched off, the outputs of the system are de-energized. This does not in any way entitle the user to carry out maintenance or installation work on the assumption that the outputs are actually de-energised. Under certain circumstances, a reset of the system can lead to a short-term connection of voltage to the output terminals!

Fig. 39:



After entering the password, the following message (background red/white flashing) appears on the screen =>

Fig. 40:

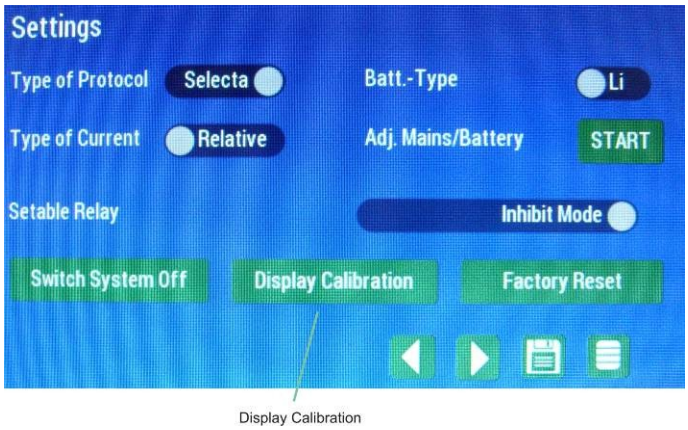


The system can be switched on again by touching or pressing the touch screen and entering the password!
After switching back in DC mode, subsequent operation can be blocked for approx. 3 minutes !

7.2.6.13 Display Calibration

By pressing the button "Display Calibration" a new calibration of the touch screen can be carried out, especially if the pressure on icons or buttons is no longer precise.

Fig. 41:



After entering the password, the following information appears on the touch screen with flashing dots which must be pressed centrically one after the other =>

Bild 42:

The values of the recalibration are then automatically saved.

It is also possible to carry out the calibration when starting the program of the system. To do this, the touch screen must be pressed at startup until the request for calibration appears !

7.2.6.14 Factory settings

The system can be reset using the "Factory reset" button. The following data will be deleted:

- Mains and battery calibration
- passwords
- Protocols and messages
- Luminaire registration data

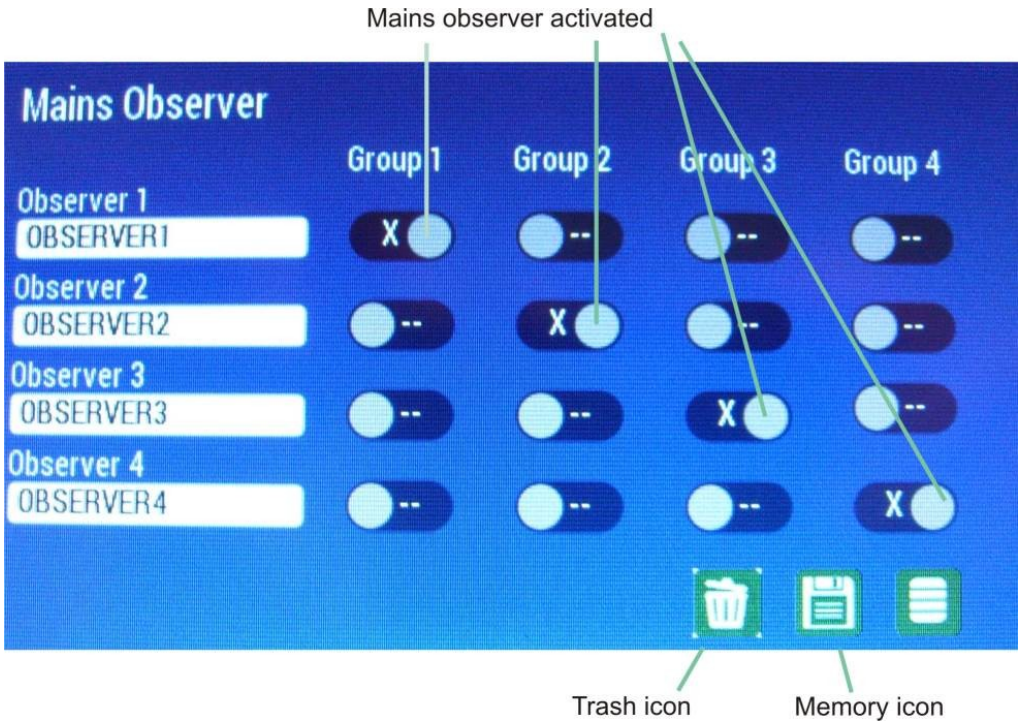
If the system is reset to the factory settings, it must be completely re-commissioned (see Commissioning Chapter 8). **Before putting the system into operation again, it is essential to carry out a mains / battery calibration after resetting the system (see chapter 7.2.6.10).**

7.2.7 Mains observer menu (Mains Observer)

4 mains observer are available in the mains observer menu. Each mains observer can be assigned to any group. So it is possible with only one mains observer and its triggering to assign all groups or separate groups. and switch on their non-maintained lamps.

The assignment is activated (X) by pressing the sliding icons. The assignment is saved via the memory icon. If very many assignments are activated, the entire activation can be deleted via the trash icon.

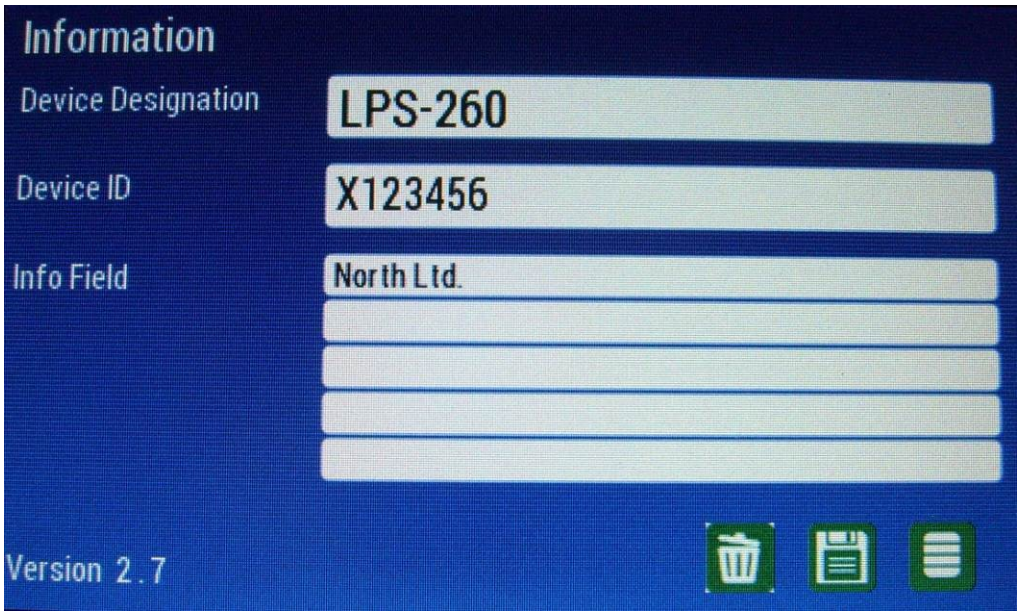
Fig. 43:



7.2.8 Information menu (Info)

Information that is permanently displayed on the main screen of the system can be stored in the Info menu. This includes the device name and device identification. The company address can be stored in the info field, for example, for maintenance work or other information.

Fig. 44:



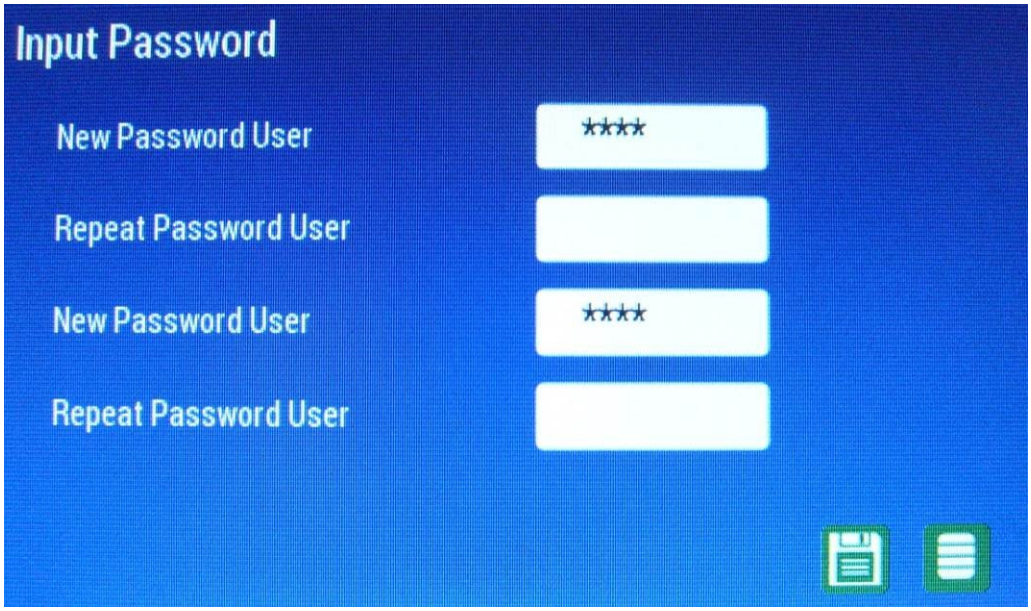
7.2.9 Password menu (Password)

The passwords for the user and the administrator can be assigned in the password menu. Both passwords are set to 0000 in the factory at delivery (see also Commissioning Chapter 8). The user, e.g. janitor, can only access the following functions via his password:

- Deep discharge acknowledgement (main screen)
- Confirm manually off (main screen)
- Test request (manual endurance test - main screen)

All other settings can only be operated by the administrator or persons with setting authorizations. The password is entered by pressing the respective input field. The password for the user and administrator must be repeated and subsequently saved.

Fig. 45:

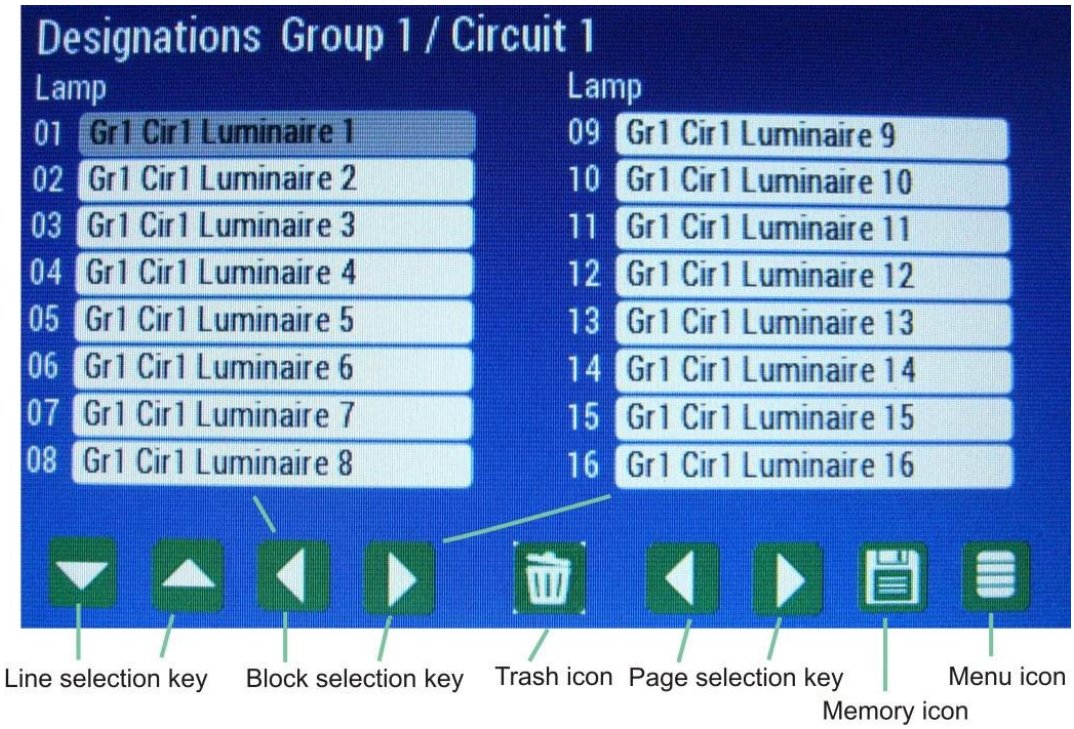


7.2.10 Luminaire text Menu (Designation)

In the luminaire text menu it is possible to give all connected luminaires their own name (e.g. with location). In the protocol menu (see also chapter 7.2.3.1 and 7.2.3.2) all luminaires are then displayed with the name selected in the luminaire text menu.

Remark: If the name of a lamp is changed afterwards, the name is also changed in the existing protocols !

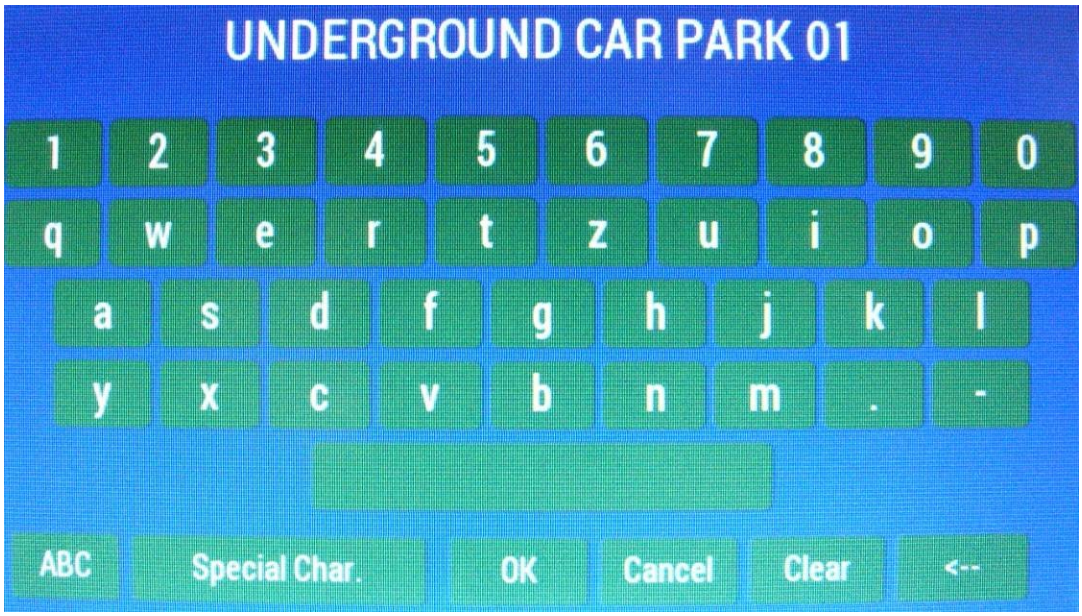
Fig. 46:



The luminaire text menu consists of 8 pages. On each page 16 luminaires are shown with group and circle display. The page called up always consists of 2 blocks with the lights from 1 to 8 and the lights from 9 to 16. You can switch between the blocks by selecting the block selection keys. The next group or the next circle can be called by pressing the page selection keys. The line selection keys are used to control the respective line. The selected line is highlighted in gray. By pressing the selected line, the alphanumeric keyboard is called up =>

Fig. 47:

By entering letters, numbers and special characters, a new name can be assigned to the corresponding luminaire.
The ABC button can be used to switch between upper and lower case =>
Fig. 48:



After the change has been made, the entry is confirmed with the OK button and the changed value appears in the luminaire text menu =>

Fig. 49:

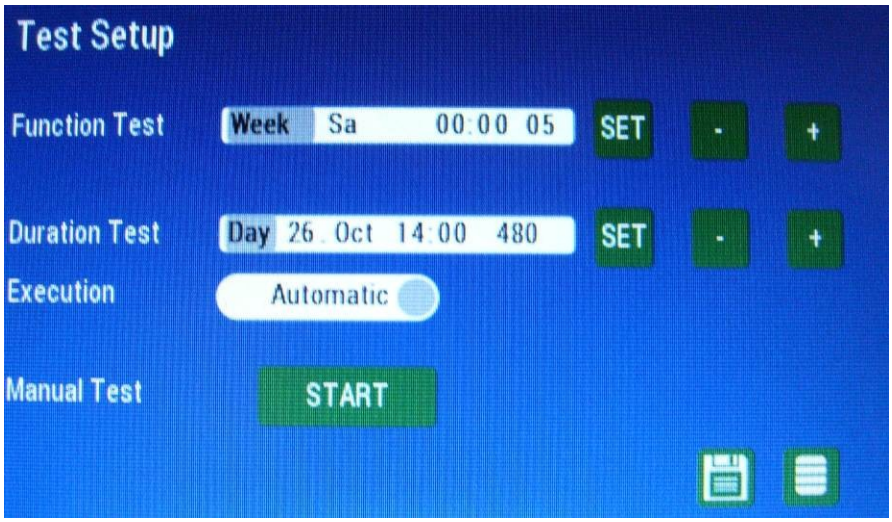
The procedure is completed by saving with the memory icon.

It is possible to delete all entries or name changes. To do this, press the trash icon and enter the password. Subsequently, all lamp names appear again in the factory format (see Fig. 46). The procedure is completed by pressing the memory icon and entering the password.

7.2.11 Testmode menu (Testmode)

In the testmode menu, the timing of the function and endurance tests is set. It is also possible to trigger a manual test =>

Fig. 50:



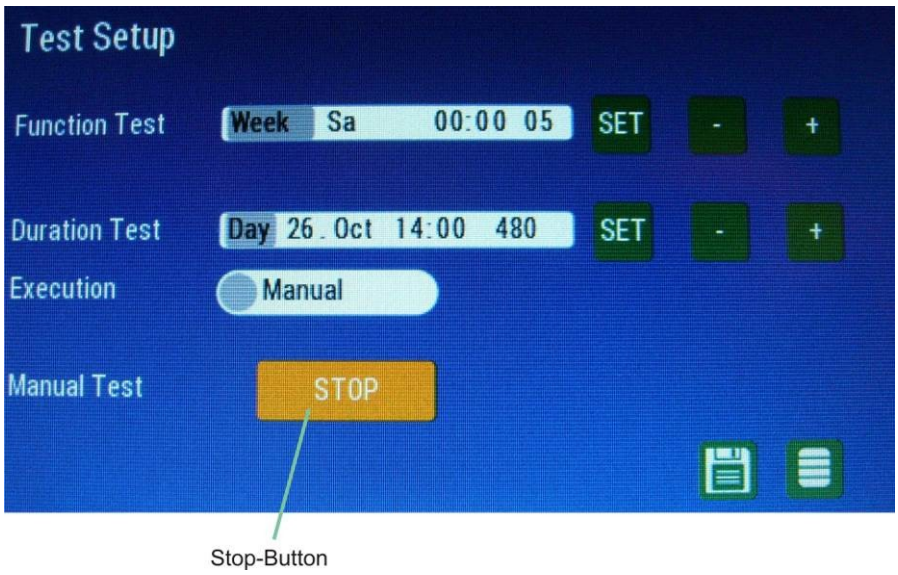
Use the + and - keys to change the position in the white line field highlighted in gray. Press the SET key to change to the next digit to be changed.

Function test:
Daily, weekly, monthly: Min. time setting 5 minutes, max. time setting 15 minutes, selection in 1 minute increments.

Endurance test:
Annual: Time setting => 50 minutes, 60 minutes, 150 minutes, 180 minutes, 400 minutes, 480 minutes. The firing endurance test can be triggered automatically or manually. Manual means that an instructed person manually triggers the endurance test (see also chapter 7.1.1 Displays on the screen).

Manual test:
Direct and immediate triggering of a test operation. The test is unlimited in time and is only terminated when the the permissible battery capacity or voltage is undercut. If you would like to end the test before, you can do this after the warm-up phase and the measuring phase the manual test can be aborted via the stop button =>

Fig. 51:



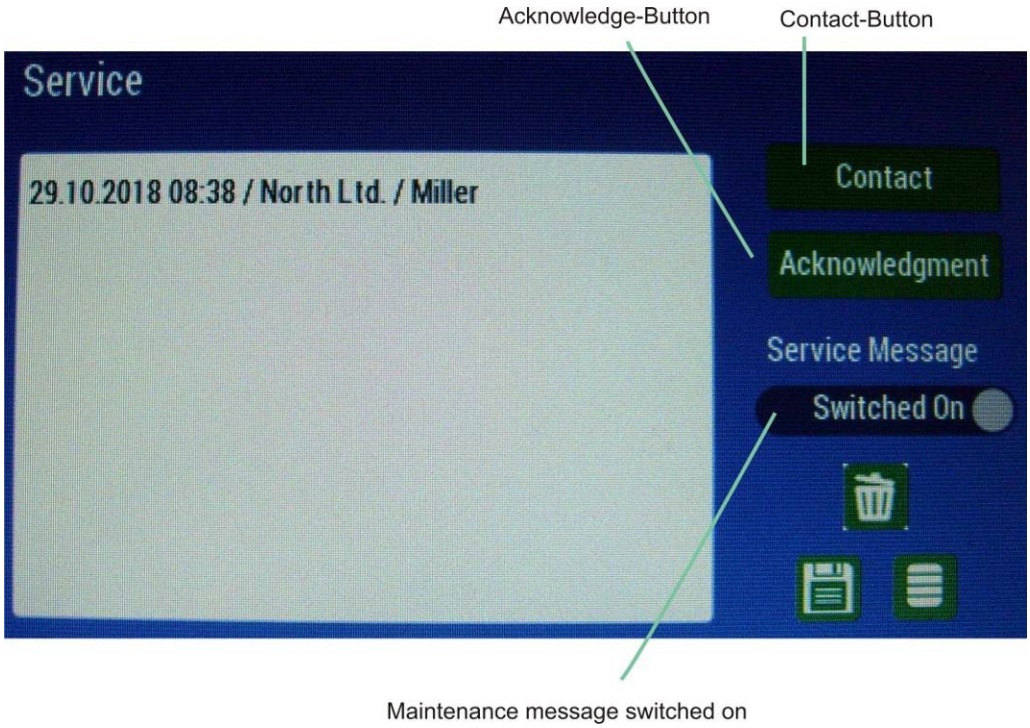
Automatic tests cannot be aborted. Manual and maintenance tests cannot be interrupted during the warm-up phase (3 minutes) and the subsequent measuring phase (150 seconds). Afterwards an interruption is possible.

Do not allow the function and endurance time test to be triggered at the same time. It must also be ensured that there is no overlap in the event of a possible shift of 24 hours.

7.2.12 Service menu (Service)

In addition to the automatic endurance test, it is also possible to perform a manual test as a so-called maintenance test. For this purpose, a maintenance request is generated on the main screen 6 months after the programmed date for a endurance test. To activate the maintenance test, the maintenance message in the service menu must be set to "Switched on" and then saved =>

Fig. 52:

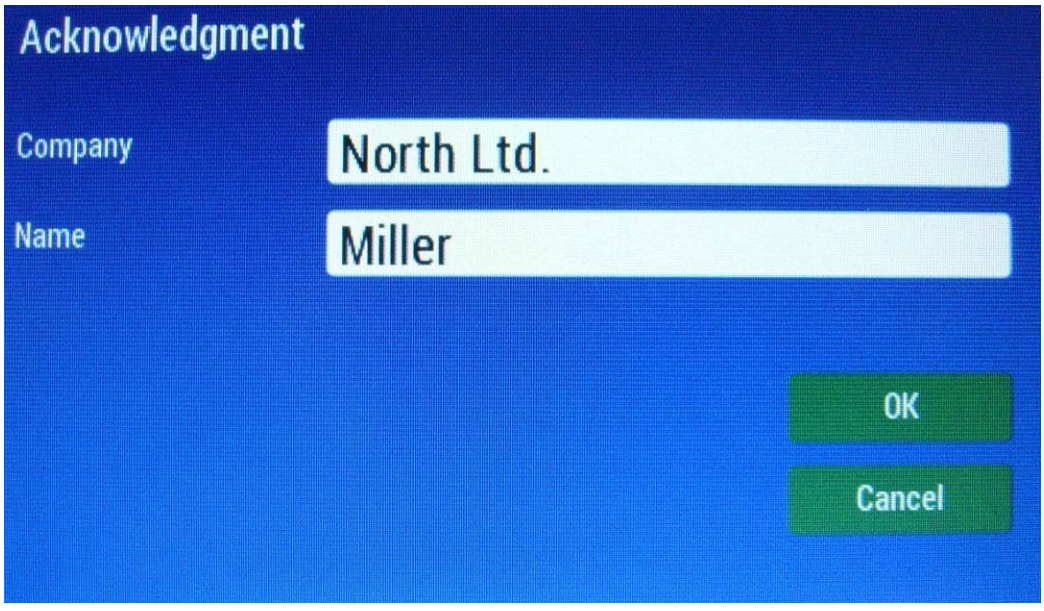


By reprogramming the endurance test, any pending request will be deleted !

If a flashing maintenance request appears on the main screen, touching it automatically opens the service menu. In the service menu, all previously acknowledged maintenance tasks (max. 10 entries) are displayed with date, company name, date and time. and executing person are listed. In addition, the contact button can be used to call up the info menu with the necessary contact information of the maintenance company (if entered in the Infomenu - see also chapter 7.2.8 Information menu).

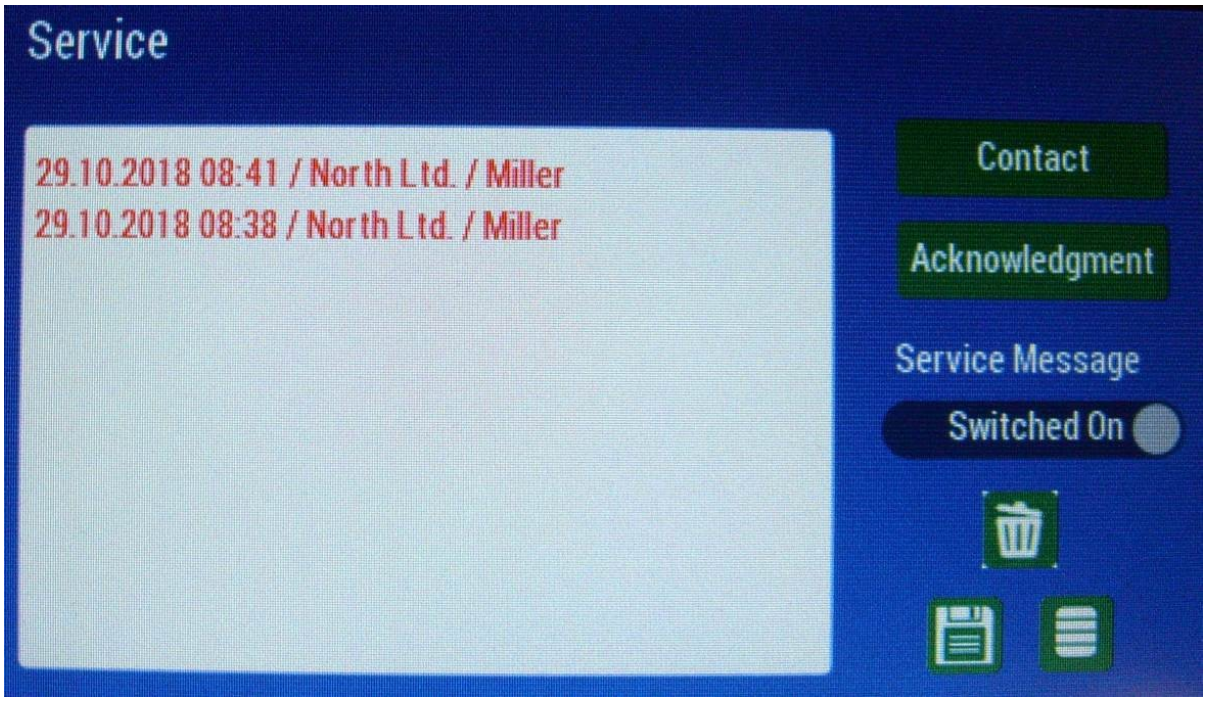
By pressing the acknowledgement button an input mask for company name and name of the executing person appears =>

Fig. 53:



By entering and confirming the data, it is inserted into the first position of the maintenance list =>

Fig. 54:



To identify the changes made to the maintenance list in this way, it is initially displayed in red. The maintenance person receives a message about changes and can check the entered data again. If a maintenance message is not desired, the maintenance message can be switched off at this point. The data and settings are saved with the password.

The actual maintenance carried out beforehand is carried out by triggering a manual test. If the test duration is more than 60 minutes, the test is displayed as a maintenance test and is also stored accordingly in the message and log memory.

8 Commissioning

For error-free operation with automatic testing and reporting of faulty luminaires, step-by-step commissioning in accordance with the following instructions is absolutely essential. Errors arising from omission or faulty commissioning are not covered by the warranty.

In the "current monitoring operation" mode, the load current determined per luminaire group during a test is compared with the load current stored during commissioning. If the LPS registers deviations in the height defined in the system, this will result in the display of a luminaire fault.

In “mixed mode operation” mode, commissioning the luminaires equipped with conforming switching and monitoring modules is logged on to the system.

The commissioning procedure is the same for all operating modes. During commissioning, the operating modes in the respective luminaire groups are automatically identified.

The joint operation of luminaires with and without mixed operating modules in a luminaire group is not permitted. The LPS automatically switches to the "Mixed operation" operating mode for this group during registration when mixed operating modules are detected in a group. Double addressing in a luminaire group with mixed operation is not permitted.

Before commissioning, the correct connection of all supply lines and loads must be checked in accordance with the terminal plan. Damage caused by connection errors is not covered by the warranty. Chapter 10 (non-maintained mode / maintained mode / maintained mode switching) must also be observed here!

Before commissioning (connection to mains voltage) of the system, it must be ensured that a battery has been connected. All settings / adjustments / test operations may only be carried out with a connected battery.

8.1 Switching on the mains supply

- "System Loading" of the system. The main screen of the system appears.
- Press the button "Deep discharge" and enter password (0000 on delivery), confirm with "OK".
- The luminaires of the luminaire group(s) in non-maintained mode are not in operation. (no bridge Group 1: 4-8 / Group 2: 5-9 / Group 3: 6-10 / Group 4: 7-11 see chapter 5 terminal plan).
- The luminaires of the luminaire group(s) in maintained operation are in operation. (Connection group 1: 4-8 / group 2: 5-9 / group 3: 6-10 / group 4: 7-11 closed)
- For setting the non-maintained mode, please refer to chapter 10 "Non-maintained mode / Maintained mode / Maintained mode switching".
- Luminaires with switching & address modules are on or off according to the setting of the operating mode selector switch and depending on the previous operating status. Each lighting group with switching & address modules must have the following closed connection => connection group 1: 4-8 / group 2: 5-9 / group 3: 6-10 / group 4: 7-11.

8.2 Adjustment and registration

- Check the displayed charging voltage - this should be well above 13V. The charging current should be less than 0.5 A to ensure that the battery has sufficient capacity for commissioning.
- Switch to the main menu and press the "Settings" tab. Enter the current date and time in the settings menu under "Date / Clock" (see 7.2.6.6).
- Switch to the main menu and press the "Settings" tab. Select the desired group. Press the start icon (see also chapter 7.2.6.2) to register the groups. Enter the password (at delivery = 0000) and confirm with "OK".
- The device starts a warm-up phase of 3 minutes. Subsequently, the device switches from mains to battery operation and starts the light measurement for 150 seconds.
- Exit the settings menu after completing the luminaire measurement and check the result via the status menu (see Chapter 7.2.1). The number of luminaires registered must correspond to the number of luminaires installed in the individual groups. For luminaire groups without mixed-mode modules, the system automatically switches to the "Current monitoring operation" operating mode. In the "Current monitoring operation" operating mode, it is possible to switch between relative and absolute current monitoring (see also section 7.2.6.9).
- In the "Test mode" menu (see Chapter 7.2.11), program the test times for the function and endurance tests.
- If the above steps have been carried out successfully, you should check the function of the LPS by triggering a manual test (see menu "Test mode" chapter 7.2.11).
- After a successful test, the device is now ready for operation.

When determining the luminaire output, all associated luminaires must be connected. If luminaires are added to the system, removed or replaced, commissioning must be repeated.

8.3 Data backup

After correct configuration of the system, the settings of the system can be saved via Ceres Control (see Ceres Control operating manual). A data backup is only possible from Ceres Control version 2.8 or software version 2.7 of the LPS.

The following data can be saved:

- Device configuration
- Luminaire texts
- Registered luminaires

The data of the protocol (Logs) and message memory (Message Log) cannot be saved !

Stored data can, for example, be transferred to the new system via Ceres Control when a system is replaced, so that there is no need to re-enter luminaire texts. Device configuration and registered luminaires are also retained and do not need to be reconfigured or registered. If no network connection is available, the data can be saved or transferred via the service module (see also chapter 12.2 TCP/IP network interfaces).

After transmission of the data, the system is automatically restarted. Afterwards it is necessary to carry out a mains / battery adjustment (see chapter 7.2.6.10) !

9 Test release

9.1 Manual test release

A manual test must be performed after installation or maintenance.

- For manual test triggering, press the start button in the “Testmode” menu (Manual Test).
- Enter the password and press OK.
- The LPS triggers the test (warm-up phase for systems with groups in "current monitoring operation").
- A manual test is unlimited in time and must be switched off manually. After carrying out the luminaire measurement, the stop button must be pressed. Passwort eingeben und OK drücken.
- The test is finished.

Manual tests can only be activated from the "Testmode" menu.

9.2 Function test

Depending on the time interval set, an automatic function test is triggered daily, weekly (every 7 days) or monthly. The test duration can be freely selected between 5 and 15 minutes.

Shift of the function test in case of power failure:

- Each emergency operation (manual test, function test or endurance test) resets the timer for the minimum charging time. If the charging time has not been at least 20h, the automatic endurance test or function test is shifted by 24h.

When the function test is shifted, it is automatically reprogrammed. After the shifted test has been completed, the original test time is reprogrammed. The shifted tests show the test type "DF" in the protocol.

9.3 Endurance test

If the set triggering date of the endurance time test is reached, the system requests the manual triggering of a endurance time test on the main screen (Test Request).

The endurance test must then be carried out by pressing the "Test Request" button. Depending on the battery connected and the load connected, a endurance test runs depending on the time setting.

According to EN62034 section 6.3.3, a manual release should ensure that the test is performed at a time with low risk. This must also be observed in the case of automatic tripping. The result of the endurance test is logged in the log menu (Logs).

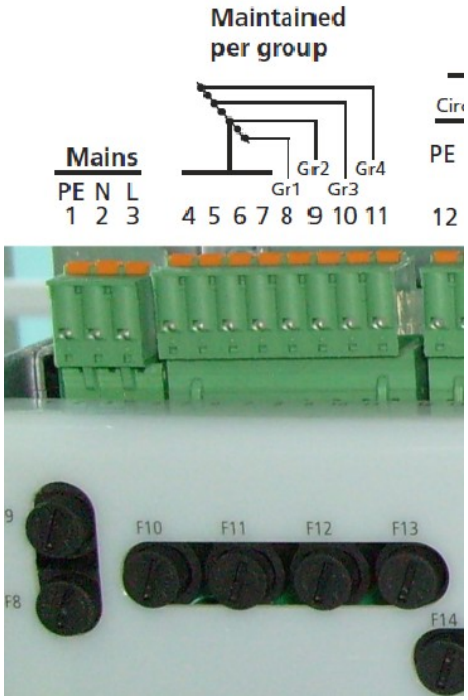
Shift of the endurance test in case of power failures and automatic triggering:

- Each emergency operation (manual test, function test or endurance test) resets the timer for the minimum charging time. If the charging time has not been at least 20h, the automatic endurance test or function test is shifted by 24h.

An automatic shiftment of the endurance test due to a power failure with manual triggering is not planned. The endurance test is triggered manually on the unit. The "Message log" menu must be used to check whether and when a power failure occurred (date and time of the last "power return" is displayed). In the event of a power failure, manual triggering may only be triggered 24 hours later.

10 Non-maintained mode / Maintained mode / Maintained mode switching

Fig. 55: See also chapter 5 Terminal plan !



10.1 Operating mode "Current monitoring operation"

The luminaires can be switched via switches on the terminal "maintained light per group" (see Fig. 55) or supplied permanently with voltage (= maintained light) =>

Group 1: Connection 4-8 closed = maintained light	**Connection 4-8 not closed = non-maintained**
Group 2: Connection 5-9 closed = maintained light	**Connection 5-9 not closed = non-maintained**
Group 3: Connection 6-10 closed = maintained light	**Connection 6-10 not closed = non-maintained**
Group 4: Connection 7-11 closed = maintained light	**Connection 7-11 not closed = non-maintained**

If the lights are switched off via these terminals, they can be switched on via the following functions:

- By closing the panic switch.
- By triggering the mains observer function.

10.2 Mixed mode operating

Prerequisite:

The terminals for maintained light group 1 / maintained light group 2 / maintained light group 3 and maintained light group 4 are bridged as shown in Fig. 55. The mixed operating modules of the switchable luminaire must (if desired) be set to non-maintained mode.

The luminaire can be switched on:

- By closing the panic switch.
- By triggering the mains observer function.

10.3 Manual switch back to non-maintained light (meeting facilities)

For meeting facilities, manual resetting of the non-maintained lights is required after a power failure of the charging phase as well as after activation of the mains observers.
For this purpose, the "Standby light off - Button" in the settings menu must be set to manual (see also Chapter 7.2.6.4).

A manual reset is indicated on the main screen via the "Manual off" button (yellow background). By touching the button and entering the password, the lights are switched off again and switched to non-maintained mode.

11 Emergency light blocking

In emergency operation and with emergency light blocking activated, the connected lights are not switched on in order to conserve battery power. The touch screen, on the other hand, remains switched on and shows the status emergency operation and emergency blocking with a red background. If the mains voltage is not switched on, the system remains in this state until the deep discharge point of the battery is reached. The running time until the deep discharge point is reached varies depending on the capacity of the battery and is approx. =>

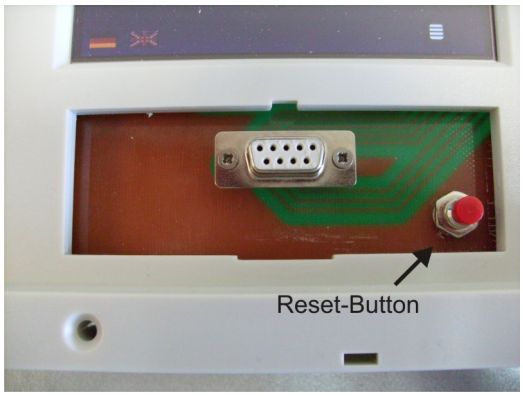
75Ah battery = 9 days
140Ah battery = 18 days

The discharge current is not displayed in this state. After reaching the deep discharge point, the battery **must** be recharged !

12 Reset-Button

If the display (touchscreen) does not function properly, it is possible to briefly press the built-in reset button to restart the device. The display "Deep Discharge" (yellow background) must be confirmed (see also chapter 7.1.1).

The reset button is located behind the cover below the touch screen. To remove the cover, carefully grasp under the recess with a screwdriver. Then press the recess of the screwdriver upwards.



13 Ceres-Control / Network interfaces (web interface / service module)

13.1 Ceres-Control

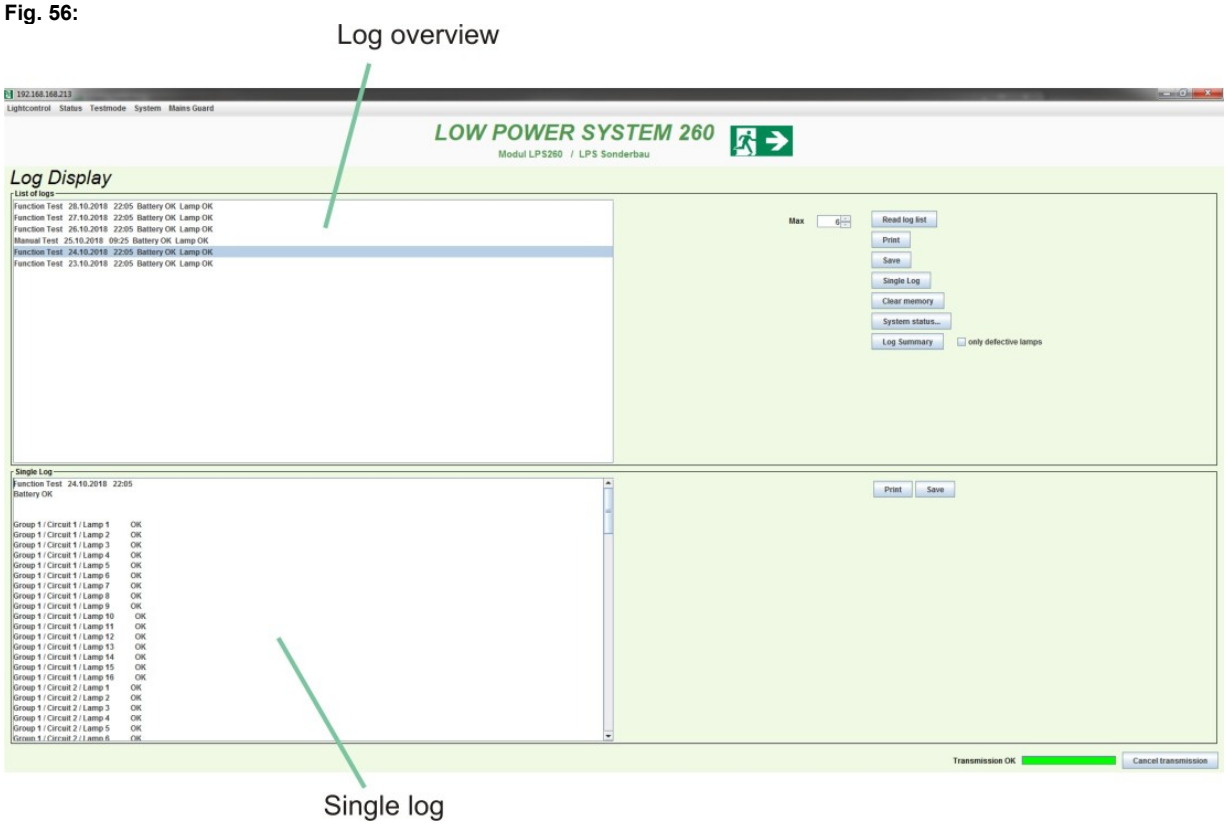
CERES-CONTROL is a background program for configuration and monitoring of up to 256 LPS control panels. The program is installed on a computer and connects to the control panels via a local network or the Internet. For this purpose, the control panels must have a special TCP/IP network interface. Corresponding variants (**web interface or service module**) are available. The software determines the status of selected control panels in adjustable cycles and issues a visual and, if required, an acoustic message in the event of a fault. You can conveniently view the currently programmed test and operating downtimes from your computer workstation and, if desired, also change them. With just a few clicks you will get an overview of the operating status of your system and you can view protocols save and print.

For the operation in a network some configurations of the network connection and some requirements of the used computer are necessary. If you do not have the necessary knowledge or information, consult your system administrator.

When installing or retrofitting in an existing system, the operating instructions - Ceres Control Manual - and the integration of the network interfaces (web interface / service module) are assigned separately.

The "Ceres-Control" software can be downloaded from the download portal.

Fig. 56:



13.2 TCP/IP network interfaces Web interface / Service module

The web interface and the service module are available as TCP/IP network interfaces. Both versions are equipped with an RJ45 connection. The web interface is intended for permanent connection to a computer in the same network. The service module can be used for maintenance work/protocol readouts and data backups and is plugged into the SUB-D connector under the touch screen after removing the cover (see Fig. 60) and connected, for example, to a laptop. The IP address of both modules is set to 192.168.168.200 at the factory.

Note: If a web interface is installed at the factory, the use of the service module is not possible !

Web interface

Fig. 57:

Fig. 58:

Service module

Fig. 59:

Fig. 60:

14 Real Time Clock and Real Time Clock battery

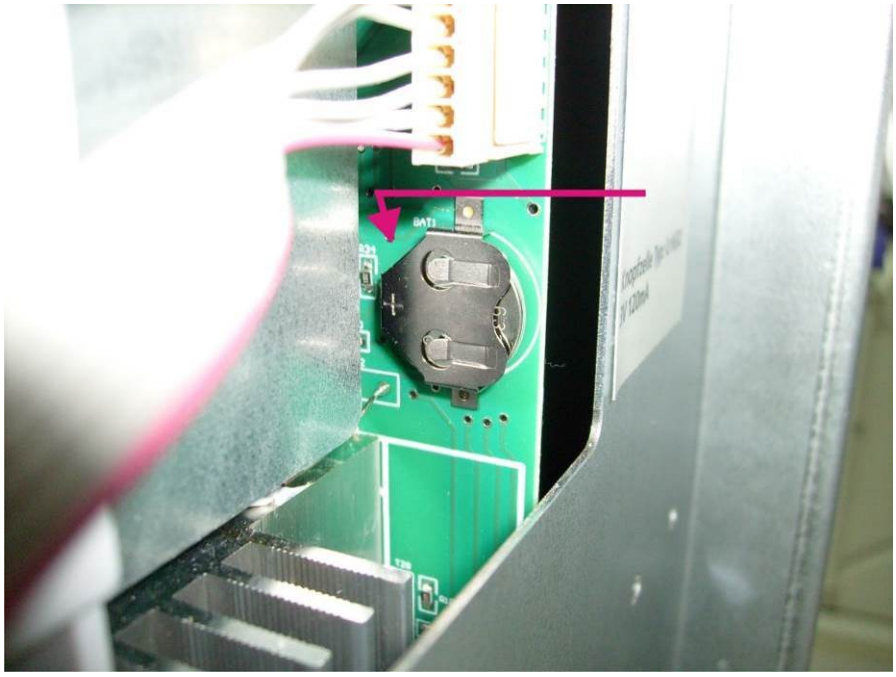
The system is equipped with a Real Time Clock. The Real Time Clock requires a 3V 120mA lithium battery (CR1632) to maintain the stored time or date in the de-energised state of the system. If the battery voltage drops below 2V, a message "Change clock battery" is displayed on the main screen of the system.

The battery must be replaced when the system is switched off (mains switched off / battery disconnected).

Fig. 60:

The battery must be replaced carefully. To push out the battery, it is best to use a plastic angle, which is attached as shown in Fig. 61. The battery is then released from its holder by applying pressure. The new battery must be inserted with the correct polarity (plus = top, see Fig. 61).

Fig. 61:



15 Repair

If a fault is reported after a function or endurance test, it must be rectified immediately by an authorised service technician or a qualified electrician. The only exception to this is the replacement of a lamp. After repair, a functional test must be triggered via the touch screen in order to a) check the operational readiness of the safety lighting and b) acknowledge the fault reported.

When the 40A fuse of the DC-DC converter is tripped, there is a short-circuit or the battery has been connected with the wrong polarity. If the 10A fuse of the charging device is tripped, there is a device fault.

If in both cases the replacement of the fuses does not remedy the problem, contact an authorised service centre (see also chapter 7.2.8 Info menu).

16 Additional information

To avoid damage from deep discharge, the battery must not be stored without charge for longer than 3 months.

If the device is taken out of operation (disconnection of the mains supply), the battery must be disconnected at the latest after 1 month and charged after 3 months.

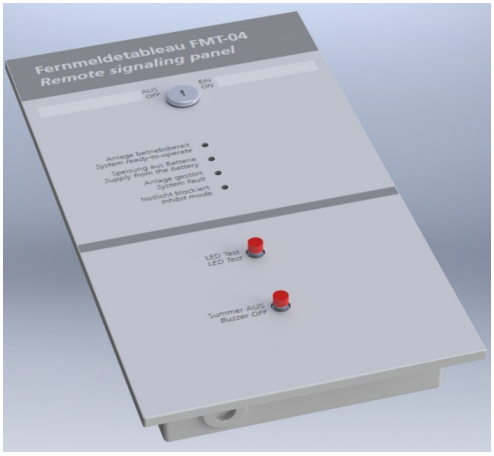
Make sure that the device is not installed in areas where the permanent temperature is above 25°C. Permanent temperatures above 25°C will reduce the battery life. To prevent damage to the battery at temperatures above 25°C, a temperature sensor located on the battery regulates the final charging voltage during the charging process. The full capacity can therefore no longer be reached or guaranteed at temperatures above 25°C. For the temperature sensor to function properly, the battery must be flush with the battery retaining brackets.

The device may only be used for indoor applications.

The touch screen can be cleaned with mild household cleaners (e.g. hand detergents).

17 Remote signaling panel „FMT-04“

The remote signaling panel FMT-04 shows the operating states of the LPS to external authority. The tableau may be used only in conjunction with the LPS. A cross-match or a wrong connection could damage the electronics.



The panel evaluates the switching states of the potential-free contacts.

Following states are displayed:
- System ready-to-operate (LED green)
- Supply from the battery (LED red)
- System fault (LED flashing red)
- Inhibit mode (LED flashing red)

In addition a buzzer is integrated into the fault report.
The buzzer sounds in the case of the following displays (faults):
- System fault
- Inhibit mode

The signal buzzer can be stopped by pressing the button “Buzzer off“. The fault report (optically and acoustically) resets when the fault does not exist anymore.

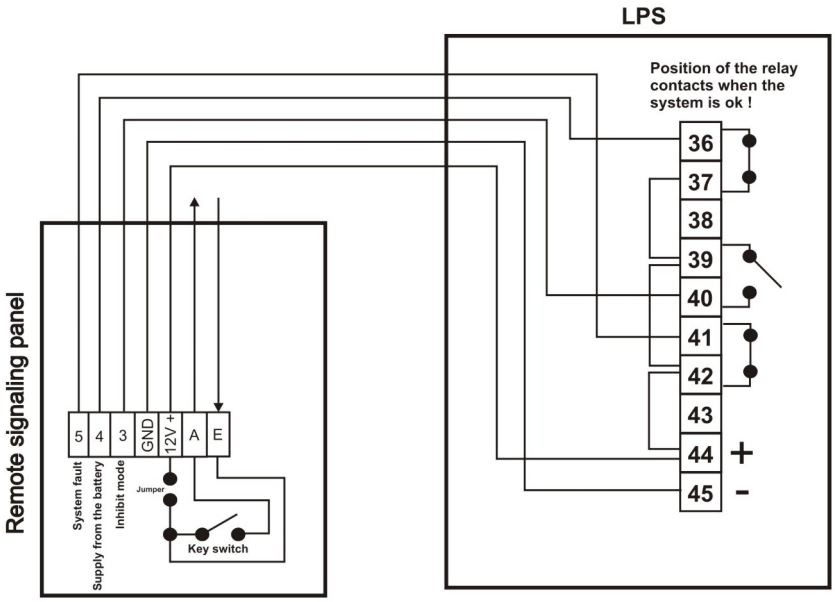
If the display works all right (LEDs OK) can be controlled by the button “LED Test”. When pressing the button all LED light up and the buzzer sounds. When letting the button off display changes back to the current display-status.

A DC low voltage can be switched via the contacts of a key switch (max. 30VDC / 1A). This can be used to control a relay to switch on the continuous light. The associated ground potential must be observed, as only single-pole (plus +) is switched.

Connection:
The power is supplied from the central system. The further connections have to be done according to the below mentioned wiring diagram. Only a correct connection leads to a faultless evaluation.

Attention ! The " Adjustable signaling contact " must be set to "Inhibit Mode" in the menu of the Low Power System when connecting remote signaling panels (see chapter 7.2.6.11 Adjustable signaling contact).

Connection of one LPS to a remote signaling panel



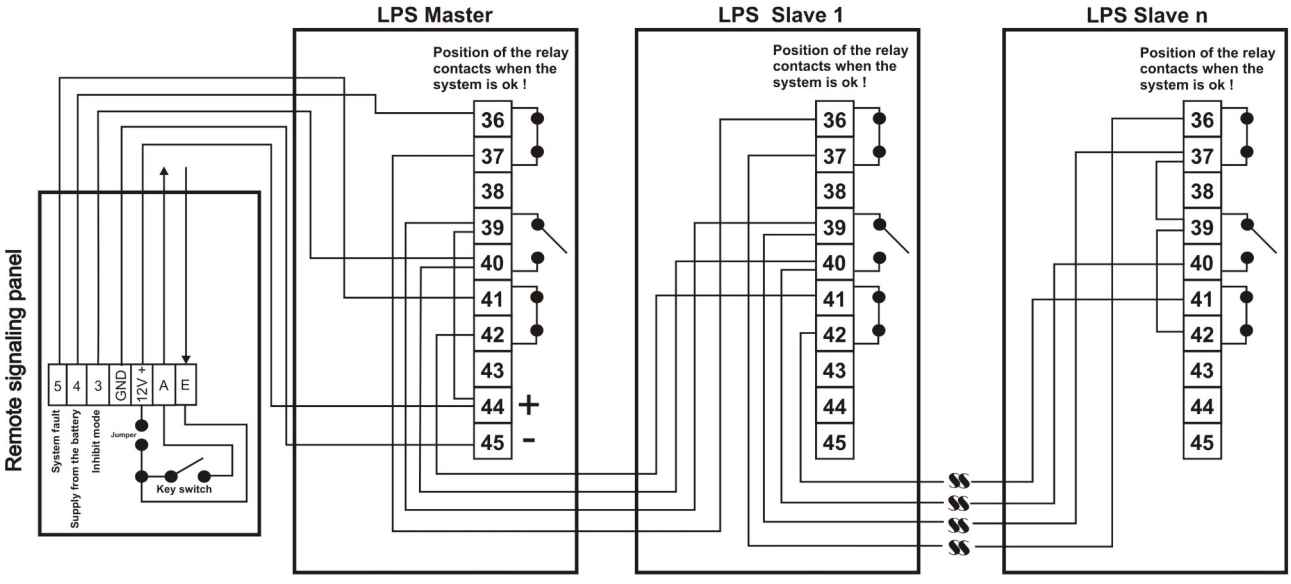
Note: The number fields show the number designations on the terminals of the LPS. The following terminals must be connected to the LPS as illustrated 12V+ (terminal 44) from 44 to 42, 42 to 39, 39 to 37 ! The connection between remote signaling panel and LPS is made via a 5-pin cable. Cable lengths and cross-sections see operating instructions.

Connection of several LPS to a remote signaling panel

The connection between the remote signaling panel and the Master-LPS is made via a 5-pin cable. A 4-pin cable is sufficient for the connection between the individual LPS systems. Cable lengths and cross-sections see operating instructions !

The 12V+ power supply may only be tapped from the Master-LPS (terminal 44) and must be connected to terminal 39 of the Master-LPS.

Remark: Each terminal is 2-pole !



Note: The number fields show the number designations on the terminals of the respective LPS. At the last connected LPS (here LPS Slave n) the following terminals must be bridged as shown => 42 on 39, 39 on 37 !

18 Mains observer

As already mentioned in chapter 7.2.6, 4 mains observers are available in the mains observers menu. Each mains observer can be assigned to any group. Thus it is possible to switch on all groups or separate groups and their non-maintained lights with only one mains observer and its triggering.

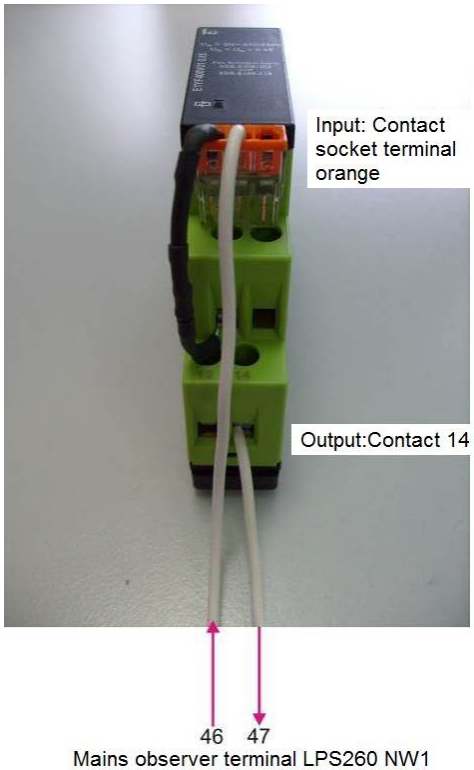
Up to 4 mains observer relays with potential-free contacts must or can be connected to the mains observer connection terminal of the LPS for this purpose. If a power supply fails, this contact (in series with 1K resistor) is connected via the terminals 46/47 (NW1) or 48/49 (NW2) or 50/51 (NW3) or 52/53 (NW4) is interrupted. A short-circuit at the mains observer connection terminals is also detected (1K resistance ~ 0 Ohm).

A monitoring relay is available in which the 1K resistor has already been implemented so that no 1K resistor has to be installed on site =>

Undervoltage monitoring in 3 phase networks. If only one phase is connected, the remaining two phase inputs of the mains observer relay must also be connected to the individual phase !

Connection of the mains observer relay (Enya mains observer):

Connection example to mains observer terminals 46 and 47 (NW1) - see also chapter 5 terminal plan.



Mains observer terminal LPS260 NW1

If another mains observer relay is to be used for the mains observer function, a 1K resistor must be connected in series and close to the potential-free contact of the mains observer relay. If the voltage to be monitored is properly applied, the potential-free contact of the mains observer relay is closed.
4 x 1K resistors are enclosed with the LPS (bag) !

19 Selectivity and shutdown condition of the fuses

1. Output fuse (AC and DC)

Output fuse => fuse 1,25A AC/DC (SIBA article no. 179200.1,25)
Melt integral I^2t according to data sheet = 3.1 at 10*In = 19.84ms

Measured values for short circuit at the end of the output line (LPS260 8 circuits):
Switch-off integral = melting integral + arcing integral (measured at 220V DC)

Cable length in	Fuse	Current	Time	Shutdown condition
m	I^2t (Switch-off integral)	A	ms	ms
$1,5mm^2$	1,25A	1,25A	1,25A	≤ 300
0	4,276	54,12	1,46	complied
100	1,944	17,68	6,22	complied
200	3,058	10,23	29,20	complied
300	2,798	7,89	45,00	complied
400	2,477	6,85	52,80	complied
500	2,818	6,43	68,20	complied

Compliance with the 60% rated current carrying capacity of the fuse at max. 65W or 145VA (cos φ / λ ≥ 0,45) connected load per circuit :

	Voltage	Max. current	Percentage load on the fuse
	V	A	
DC	220	0,296	24%
AC	230	0,628	50%

2. Input fuse (AC)

Input fuse => Fuse 4A AC/DC (SIBA article no. 179200.4)
Melt integral: 37 A^2s at 10 x In
Rated Breaking Capacity: 1500A@AC250V

***Note: The fuse selectivity of the end lights, in particular third-party products, must be observed in conjunction with the fuse links of the Low Power System!**

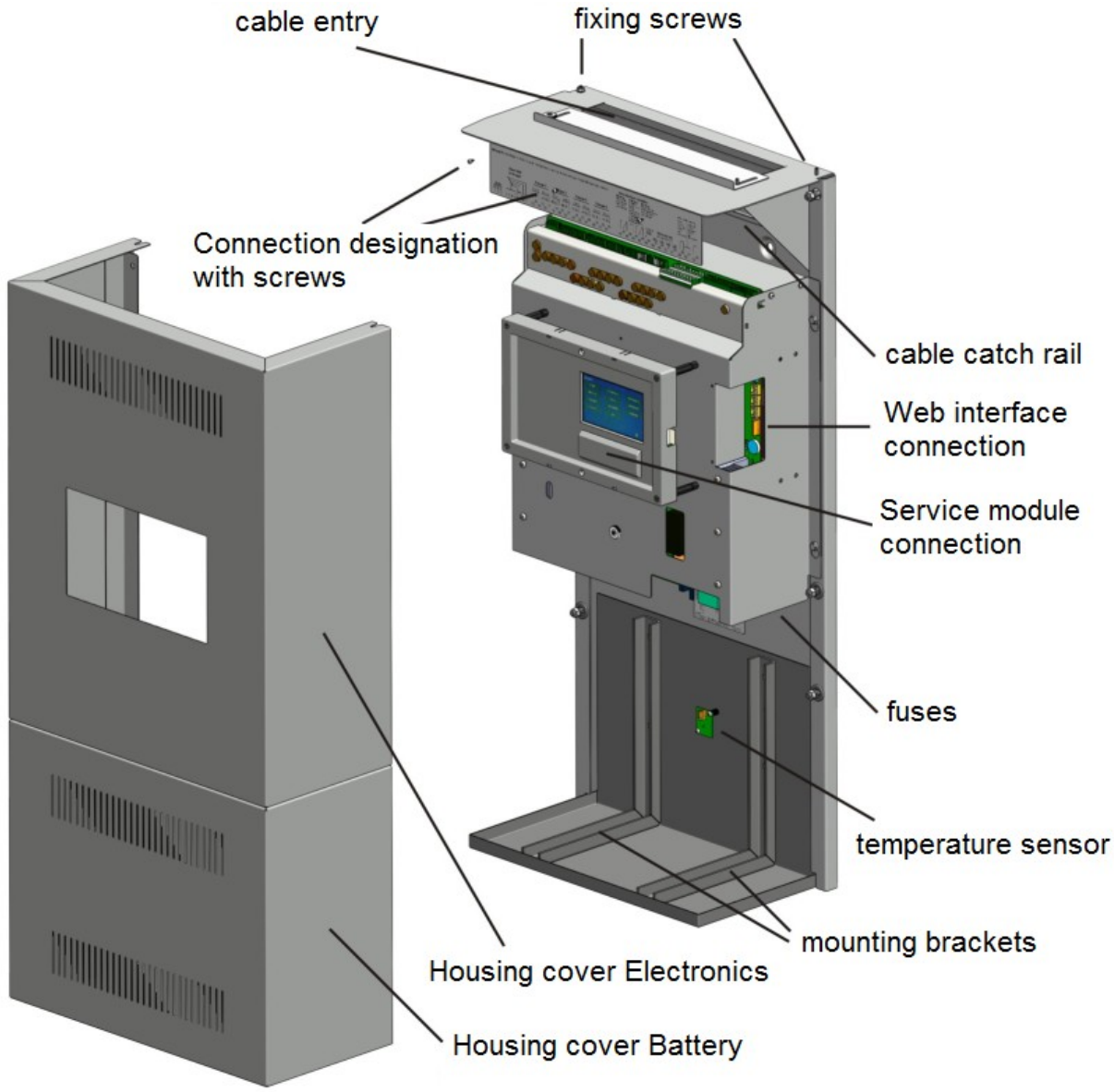
Legend (see also point 5 Terminal plan):

Output fuses: F14, F15, F16, F17, F18, F19, F20, F21, F22, F23, F24, F25, F26, F27, F28, F29 => each SIBA Article No. 179200.1,25

Output fuse F30: 0.5AT 250AC default

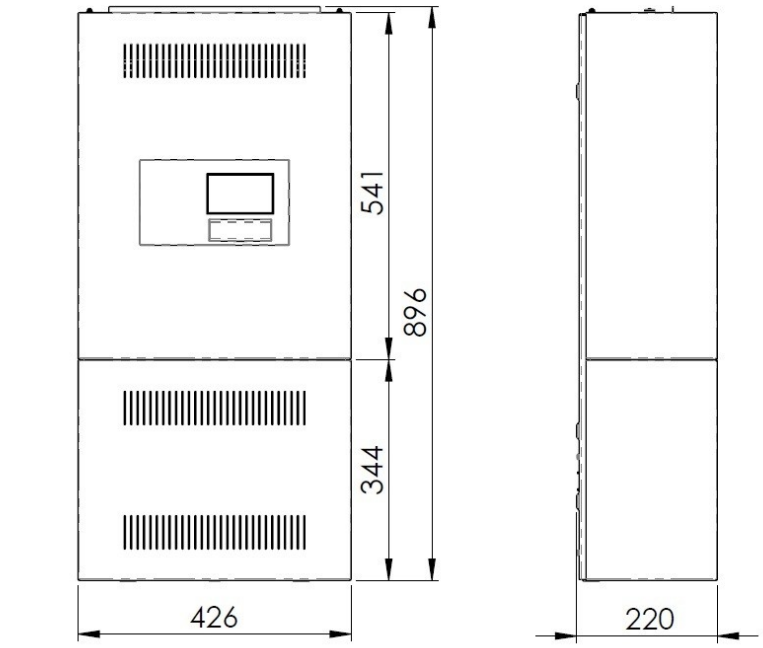
Input fuses: F8, F9, F10, F11, F12, F13 => each SIBA Article No. 179200.4

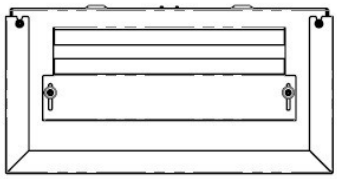
20 Housing assembly and drilling plan

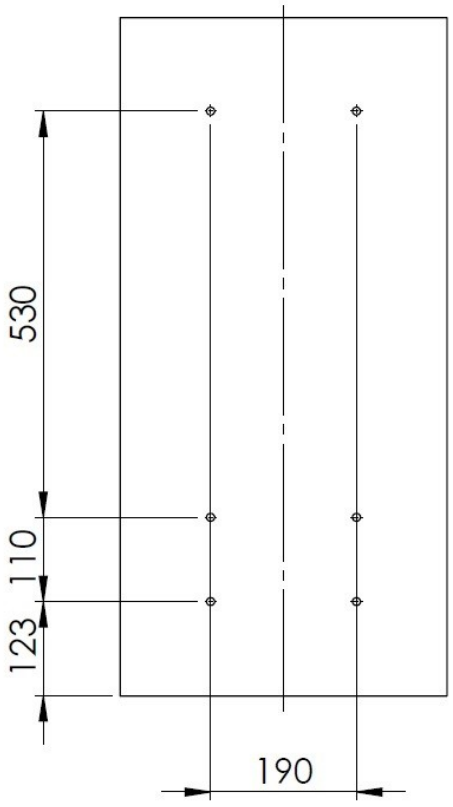


1. Slightly loosen the fixing screws on the LPS housing and remove the electronics housing cover or battery housing cover from the front.
2. Determine the mounting location and drill the mounting holes with a 10 mm drill bit using the dimensions given in the drilling plan.
3. Screw the device to the mounting level using the supplied dowels.
   Attention! Due to the weight of the battery, both battery mounting brackets must be firmly screwed to the mounting level using 2 screws each with long-shaft dowels!
4. Insert the connection cable through the cable entry into the housing and make the electrical connection according to the terminal plan. The cable catch rail serves to relieve the strain of the inserted connection cables.
5. Place the battery on the mounting brackets and make the connection. Screw the battery cables (red = + / black = -) to the corresponding poles using the screws provided.
   Attention! If the polarity of the battery is reversed, the electronics may be destroyed ! This error is not covered by the warranty.
6. After installation, screw the connection designation with the enclosed screws into the holes provided for this purpose.

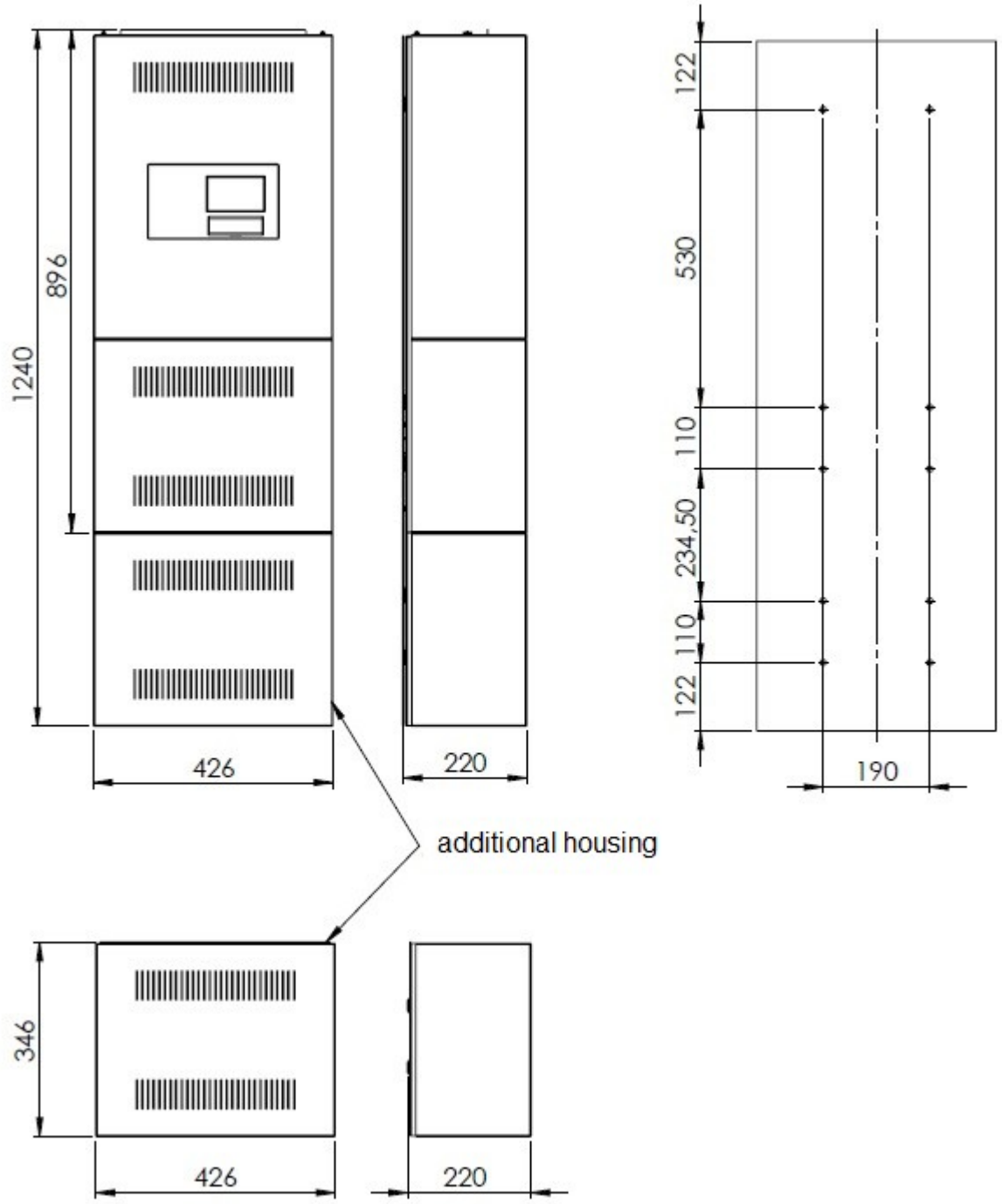
20.1 Drilling plan and dimensions







20.2 Drilling plan and dimensions with additional housing (2 batteries)



Used batteries/rechargeable batteries and electronic devices must not be disposed of with household waste. As a buyer, you are obliged to dispose of batteries/accumulators and electronic devices at local collection points or in local shops.

Technical changes reserved !