

NETLIGHT

Quattro-Industry



Quattro



Safety lighting - System documentation

- Installation
- Description, operating notes, data
- Principle circuit diagrams
- Commissioning
- Operating instructions
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1. Important information

1.1 Notes for qualified personnel

Attention! Risk of injury or death

Only authorised and trained persons, who take all safety regulations into consideration, may carry out work on the equipment. Wrong or faulty installation may result in personal injury and/or property damage.

- Cable lengths must be taken into account and must not be exceeded.
- Protection type and class must be designed according to the local conditions.
- Ventilation or cooling of the systems and their components must be ensured.
- The environment and work area must be set up in accordance with occupational health and safety regulations or comply with local safety regulations.
- E30 enclosures must be adapted to local conditions and installed horizontally. Particular attention must be paid to the fire resistance duration, compliance with the specimen guidelines according to MLAR 11/2005 and EltBauVO 01/2009.

The depicted views/illustrations shown in this manual may differ from the delivery status. Special or customer-specific versions are listed/described as attachments in the appendix of this manual.

Guidelines/standards

The installation may generally only be carried out in accordance with the relevant guidelines and standards of electrical engineering, for this purpose the national regulations and guidelines of the installation location/country must be observed.

Only luminaires with electronic ballasts that correspond to the respective operating voltages specified in the data sheet may be used on the final circuits of the system. The nominal operating voltage of the system is 230V/50Hz. The use of conventional ballasts will destroy the circuit electronics!

These operating and assembly instructions do not contain all detailed information on all types of the product series and cannot take into account every application of the products. All information is for the sole purpose of describing the product and is not to be understood as warranted characteristics in the legal sense. Further information and data can be obtained from your supplier or directly from the manufacturer.

1.2 Safety instructions



Working on the system

For safety reasons, the system must be disconnected when working on it. (When working on electrical systems, the five safety rules must be observed)

Important note: In systems with battery voltage, switching off the mains supply triggers automatic switching to the battery voltage! The battery may only be disconnected or switched off when it is **not under load (risk of arcing)**. **To do so, follow the sequence in point 6.3.**

Attention! Risk of injury or death

Generally speaking, there is an increased risk of injury or death when working on batteries or with battery voltages, so it is essential to ensure correct operation. Please read the information provided by the battery manufacturer and the instructions of the battery mounting personnel.

The Netlight quattro works internally with 24V DC! (charger, battery, inverter)

1.3 Explanation of symbols

The following symbols indicate technically important safety instructions in this manual. These must be observed since they relate to occupational safety.



Attention! Risk of injury or death

This symbol is used to identify information which, if ignored, may result in injury, health problems or even death.



Caution!

This symbol is used to identify information which, if ignored, may result in system failure or even material damage.



Notes

This symbol provides important information for working with the system or parts of it.

1.4 Intended use

The central power supply system is only suitable for use in safety lighting systems. It is used to monitor and control the safety lighting system with general lighting and emergency lighting. The system is equipped with an automatic testing device. Intended use can only be guaranteed if the setting / programming is carried out exclusively by trained specialist personnel with all the necessary knowledge for safety lighting systems.

1.5 Configuration

Please note that the Quattro is configured via the USB interface, see page 50.



Do not remove the SD card, as it contains the operating system of the system. Changes to the SD card can or will lead to system failure; only the manufacturer or authorised service personnel may make changes.

1.6 VDE instructions for the Netlight system (VDE 0711-400 / EN 62034)



- For the functional test in accordance with EN 62034 3.6, a light test must be carried out in the Netlight system and then a device test.
- The Netlight-quattro control unit with integrated ATS (Automatic Test System) can be used in accordance with EN62034 4.1 for emergency lighting of type ER /PER.
- The maximum system size of Netlight-quattro depends on the setting of the address mode of 99 devices in a module bus in Netlight system. Alternatively up to 32x systems can be operated via the visualization software on an Ethernet network. 4 circuits (max. 80 luminaires) per system
- In accordance with EN 62034 4.1, we point out that **no LB1/LÜ1 luminaire modules** can be used in Netlight quattro!
Current modulating electronic ballasts can be used in systems with MSÜ luminaire modules.
- The timing circuit (EN 62034 4.2) is a component of the Netlight-quattro control unit's firmware. In case of processor crash the system program is reset by a Watch_Dog_IC, which ensures immediate and correct continuation. The switching times are stored in the non-volatile memory.
(Refer to the information in this instruction manual for service under point 8.1)
- During the Netlight-quattro functional test, even a longer one, only approx. 1% of the battery of the Netlight system is used up; this value is far below the 10% required according to EN 62034 5.1, so that it is not necessary to defer a test after power failure. Test operations are blocked in case of battery undervoltage and emergency operation.
- The automatic test of the total measurement duration of the system required under EN 62034 5.2 is not available for the Netlight system, as it cannot be estimated whether an event or other activities requiring the operational readiness of the Netlight system will be carried out at this point in time. Instead, the Netlight system provides a fault message (programmable date) which is activated after a 1-year period (with repeat function) and can only be deactivated by a service technician.
- The Netlight ATS ensures the battery of the Netlight system is hardly used up for testing purposes.
- Netlight timers are operated by quartz-controlled clock circuits and therefore exhibit quartz accuracy.
- The time control function is secured in the Netlight-quattro itself by means of a backup battery, which must be replaced every 5 years as a precaution, see section 8.1.
- The limited endurance test EN 62034 6.3.3.4 is started manually in Netlight-quattro with an endurance test (see section 7.7) and is then terminated after 2/3 of the time by pressing the OK key. Such a termination is not considered an error by the system, but is documented in the test report with date, time and battery data (U/I).
- All defect reports from test operations cannot be deleted by actions, but only by successfully passing the next test. This also applies to luminaire faults. Even if the endurance test is interrupted due to a power failure or deep discharge, the error message is still shown on the display; only a successful new test deletes the error message.

2. System delivery, storage

2.1 Packaging inspection

Upon receipt the goods must be checked to ensure they are **intact and complete**. If the packaging is damaged, it must immediately be opened. Missing items or damages must immediately be reported, **otherwise all claims against the transport company will lapse**. See delivery note for address.

2.2 Damage complaint

Immediately after receipt, check the delivery for completeness and transport damage. Do not accept or accept only under reserve deliveries with visible external transport damage.

2.3 Storage / Battery storage period

The device must not be exposed to building rubble or dusty dirt. The room must be clean and dry. The ambient temperature may vary within a range of -5 to 40°C at most. Condensation must be excluded.

If batteries are supplied with the system, they must also be stored in a clean, dry place. The ambient temperature should be between 0 and 25°C. It must be ensured that the batteries are charged after 6 months at the latest or when the open-circuit voltage drops below 2.08V/Z.

The warranty expires in case of improper or too long storage.

2.4 Upright transport

The systems/devices/distributors should always be transported in an upright position unless otherwise described on the packaging. Use only suitable accessories for transport and make sure no one is at risk.

2.5 Packaging disposal/packaging

Packaging should be separated according to type and size of materials.

Environmentally sound disposal should be considered a matter of course.

A recycling company will be happy to help you with professional disposal.

National guidelines and regulations for batteries and electronic components must also be observed.

3. Installation

3.1 Instructions

The system may only be transported, set up, connected, commissioned, serviced and operated by specialists who are familiar with the currently valid safety and installation regulations. Prior to installation and initial commissioning of the system, the present operating instructions must be read carefully by the personnel who work with or on the system. Some of the diagrams and illustrations contained in these assembly/operating instructions are only intended to illustrate the constellations shown. Illustrations and circuit diagrams must always be adhered to when it comes to special features on site for specially designed emergency lighting systems.

These instructions were compiled in compliance with the applicable regulations and state of the art. All relevant documents must be made available accordingly to persons working on the system.

Should other standards or regulations apply, the respective supplier assumes liability or warranty for any damage/defects resulting therefrom, for his supplied or installed safety lighting systems. In the respective countries in which the systems are operated, all directives, laws and standards should also be taken into account.

Spare parts



Incorrect or defective spare parts can lead to malfunctions, damage or failure. That is why only original parts or spare parts approved by the manufacturer may be used. Claims for damages/service/liability/warranty shall lapse in the event of infringement.

Warnings



Installations or systems such as those described in the manual may only be used in a technically faultless condition and only for the intended purpose. The safety instructions in the manual as well as the operator's instructions must be observed. For the safe operation of the installation or system, it is essential to comply with the information in the data sheet. Failure to observe this information may cause damage to the installation or system and, in the worst case, failure or injury. Any safety-relevant defects or malfunctions of the installation or system must be reported immediately to the person responsible for the installation or system.

3.2 Installation preparation



Electrical systems must be disconnected before starting work on them. If a safety emergency lighting system is already in place, make sure that the system (battery system) switches to battery backup power supply after having been disconnected. The existing system must then be switched off and dismantled in accordance with the manufacturer's instructions.



Consumers, luminaires and ballasts only function properly if they are suitable for the operating voltage of **230V 50Hz**. In emergency operation, the battery power supply supplies the consumers with 230V 50Hz via an inverter. The battery power supply must be connected to the correct pole, wrong pole direction can damage the system and in the worst case cause personal injury.

As a general rule, it should be noted here again that improper handling of electrical systems, whether with battery backup power supply or with other emergency power supply, may result in injury or death due to electric arcs, high currents or sudden discharges.

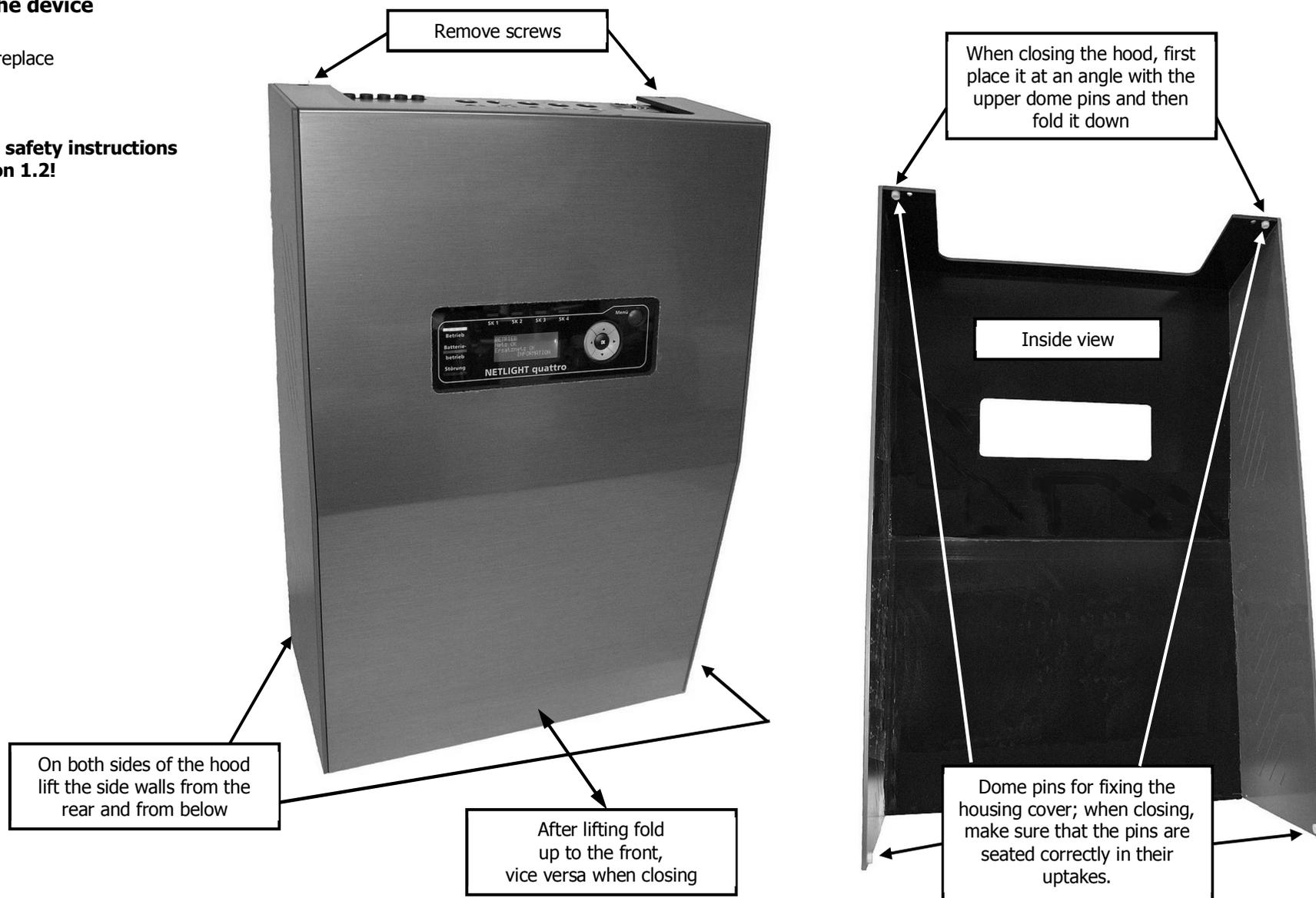
Check whether the installation site (wall) is horizontal/flat and has sufficient load-bearing capacity for the system. Remove covers (keep them safe from damage) and fasten/clip on any components that have been loosened during transport.

3.3 Opening/closing the device

After closing replace the screws.



Observe the safety instructions under section 1.2!



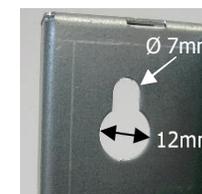
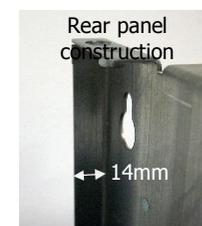
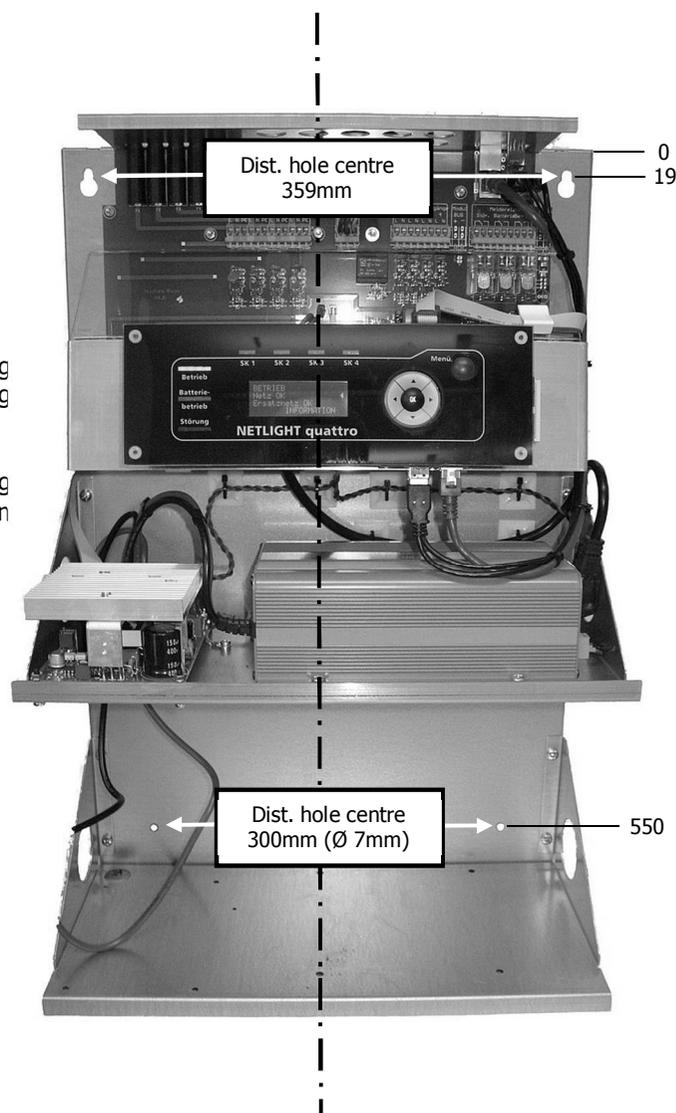
3.4 Wall mounting

Dimensions in mm

Weight without battery approx. 14 kg

250VA 1h / 2x 12V 18Ah	– approx. 25 kg
350VA 1h / 4x 12V 18Ah (36Ah)	– approx. 35 kg
225VA 3h / 4x 12V 18Ah (36Ah)	– approx. 35 kg
250VA 3h / 4x 12V 26Ah (52Ah)	– approx. 48 kg incl. 1x expansion housing
350VA 3h / 2x 12V 65Ah	– approx. 61 kg incl. 1x expansion housing
88VA 8h / 4x 12V 18Ah (36Ah)	– approx. 35 kg
188VA 8h / 2x 12V 65Ah	– approx. 61 kg incl. 1x expansion housing
250VA 8h / 4x 12V 65Ah (90Ah)	– approx. 109 kg incl. 3x expansion housin

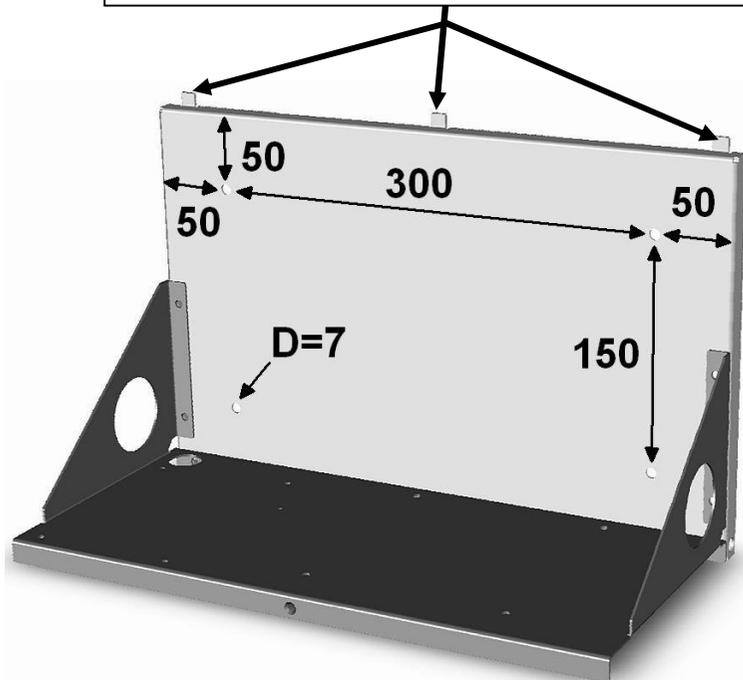
Remove the battery from the battery compartment before mounting.



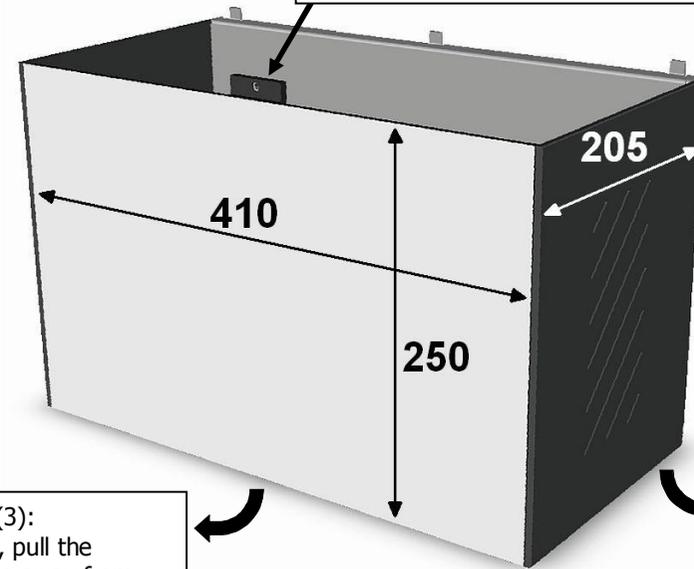
3.5 Expansion housing

Extra battery compartment for additional batteries.

Insert these three lugs underneath the quattro housing or the expansion housing above it and fasten it to the wall using the four holes in the rear panel.



Open (1):
The quattro housing must be open, then remove the screw at the top (bottom of the quattro housing).



Open (3):
Finally, pull the housing away from the front and down.

Open (2):
Next, push the housing outwards from the bottom, left and right.

Close:
The inverted order of "open"

3.6 Cable entry/fuses

15x holes for metric cable gland M20

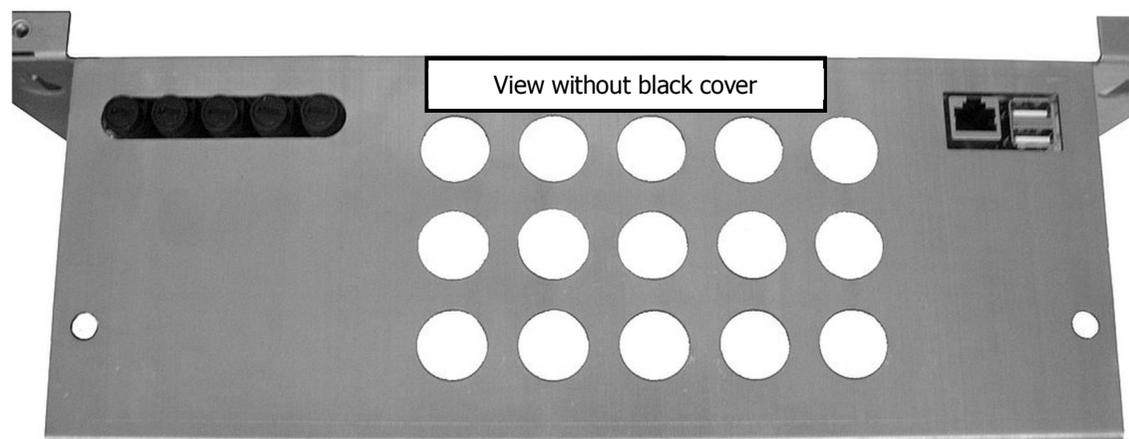
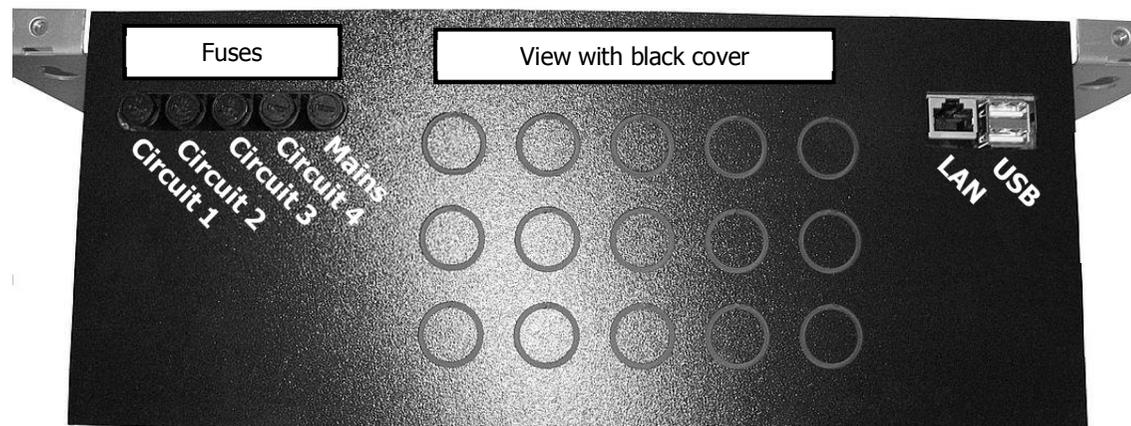
The black cover of the cable entry can be removed from the frame if no cables have been inserted yet. The pre-perforated round entries can be broken out to insert the cables.

Fuses:

F1-4 circuits 1-4 / 6.3x32 T 1.6A

F5 mains fuse / 6.3x32 T 6.3A

For trouble-free operation, we recommend for the cable entry of the measuring and signalling cables the use of EMC cable glands M20 e. g. from Kaiser. Shielded cables should also be used for the measuring and signalling cables.



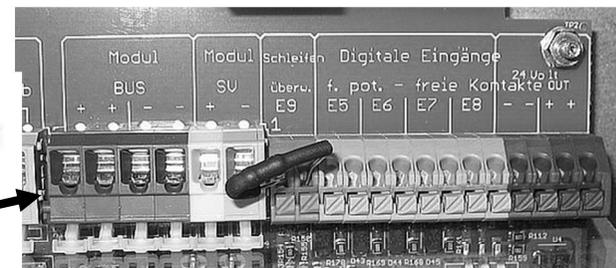
3.7 Connection compartment

Connection compartment

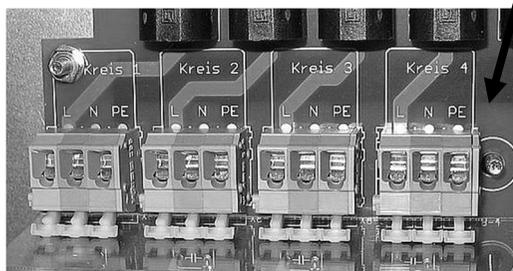
Terminal cross section –X2, X4, X6 to X9:
 0.08-1.5mm² single-wire/fine-stranded wire,
 0.25-1.5mm² fine-stranded with ferrule
 with/without plastic collar.
 Stripping length 5-6mm

Terminal cross section –X5
 0.5-1.5mm² single-wire/fine-stranded wire,
 0.5-1.5mm² fine-stranded with ferrule
 with/without plastic collar.
 Stripping length 7.5-8.5mm

Signalling relay contacts:
 Switching capacity - 1250VA/AC | 150W/DC
 Switching voltage - max. 125V/DC | 250V/AC
 Switching current - max. 5 A
 Nominal load:
 250 V/AC | 5 A
 30 V/DC | 5 A

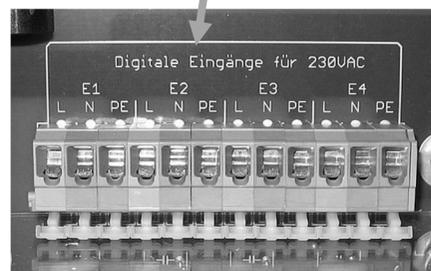


- X4: Module BUS
- X5: 1- 2 Mains monitor connection with loop monitoring
- X5: 3-10 Digital inputs for pot. free contacts
- X5: 11-14 24V OUT (panel supply)
 For connection see chapter 5



-X8 terminals for **4x final circuits** L/N/PE
 Colour grey/ blue/ light green
 230V 50Hz from mains or inverter.
 per circuit - fuse protection 6.3x32 T1.6A
 per circuit max. 200VA
 Total power of circuits 1 to 4 max. 350VA

Final circuits



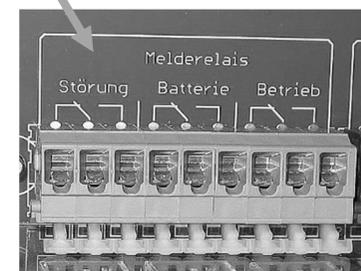
-X6 - 4x Digital inputs
 230V AC for switching or
 local emergency operation or
 three-phase network monitor
 (s. chap. 5)

Digital inputs



-X9 grey/ blue/ light
 green terminals for
mains connection
 L/N/PE 230V 50Hz
 1-phase
 Mains fuse
 6.3x32 T 6.3A

Mains



-X2 / signalling terminals
 There are 3x messages: fault,
 battery operation and ready for
 operation.
 -X5 power supply SV/24V for
 panel (see 5.3)

Signalling terminals

3.8 Battery connection compartment

Use batteries only with AMP 6.3 plug, the connection cables for the battery are included in the unit, battery connectors are only supplied for deliveries which include batteries.

The battery cables are laid or designed to be earth- and short-circuit-proof in accordance with DIN VDE 0100 Part 520.

For the battery, please observe the regulations in accordance with DIN VDE 0510 Part 2 and read the battery manufacturer's data sheets. Before connecting the battery, make sure to compare the set values for trickle charge and boost charge of the charger with the values of the battery.

Legal regulations that exist at the installation site for safety lighting systems must be observed.

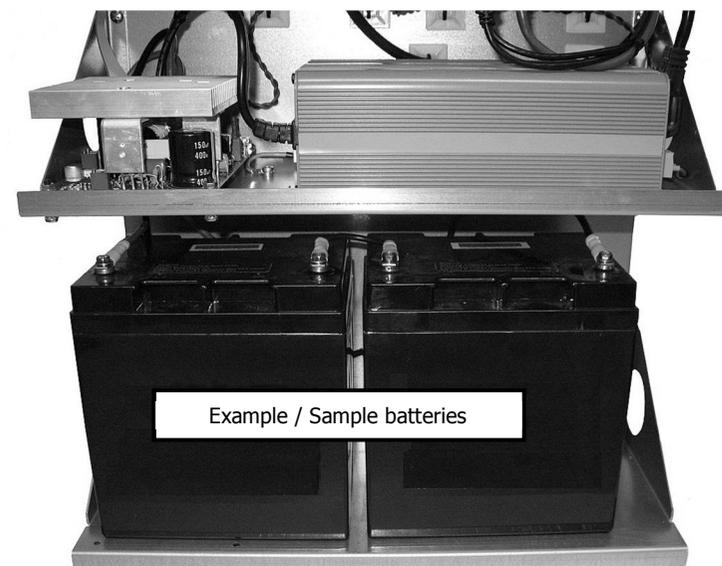
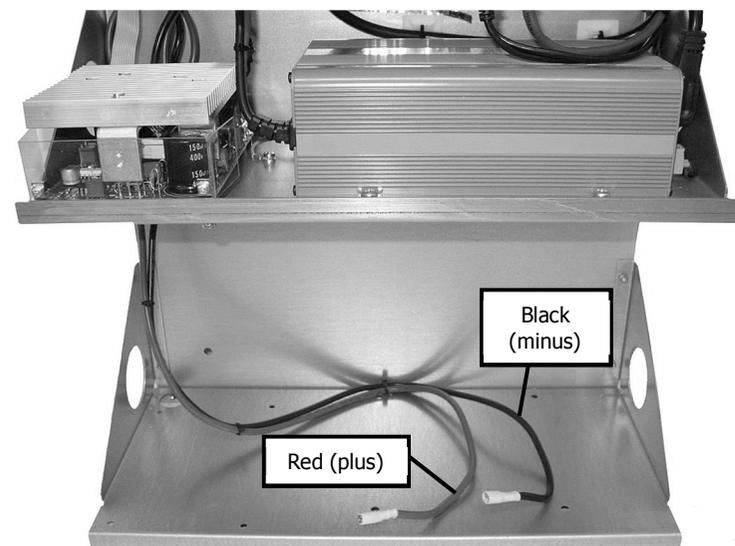


When connecting the battery, pay attention to the polarity, the red wire is plus (+), the black wire is minus (-).

Please note that incorrect polarity, short-circuit or incorrect handling may result in personal injury or damage to the unit or battery.

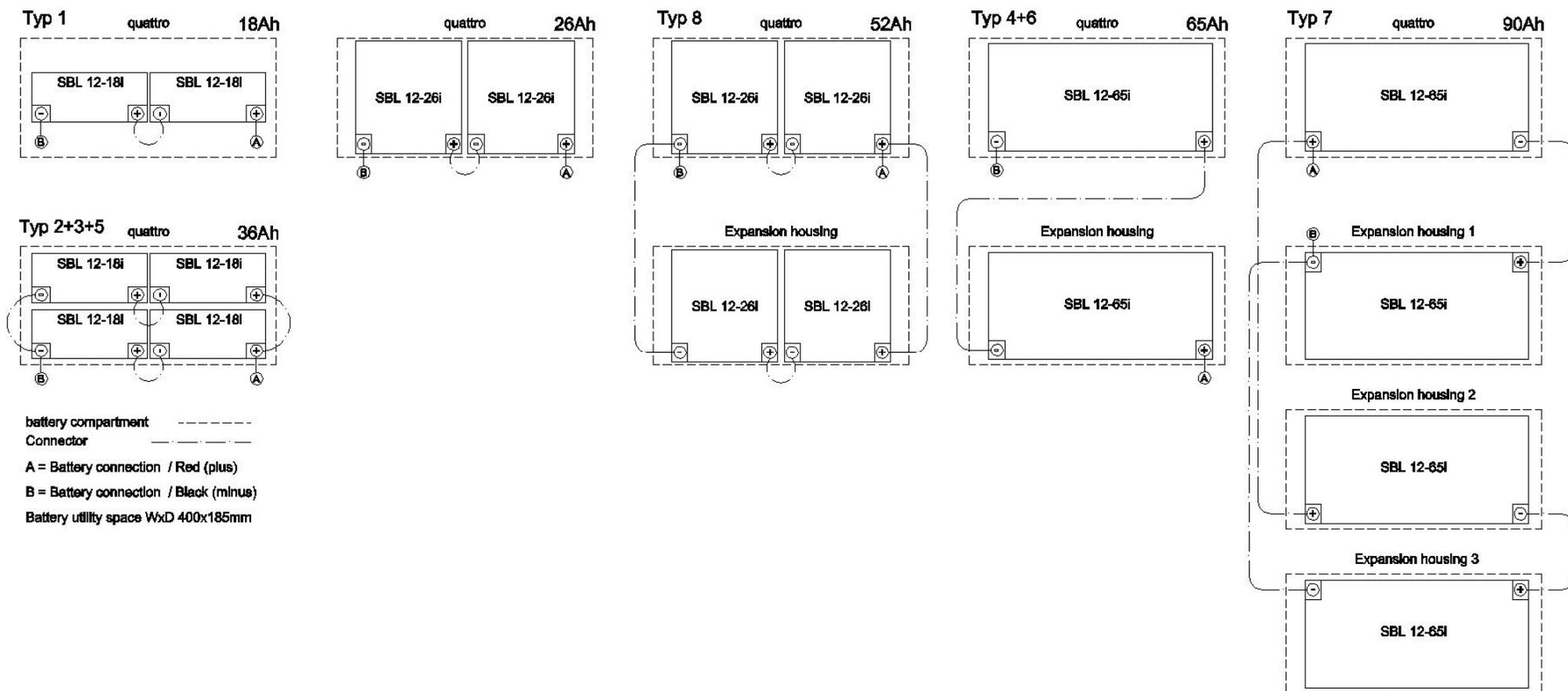


Observe the commissioning instructions!



3.9 Battery installation

(Examples based on the SBL battery series)



3.10 Installation completion tasks

- Make sure that the system is free of dust and that no tools are left behind after installation. **Loose parts and tools lying around are sources of danger!**
- Make sure that the covers are fitted correctly (can only be installed after commissioning)

4. Description, operating notes and technical data

4.1 Quattro overview

Housing dimensions:

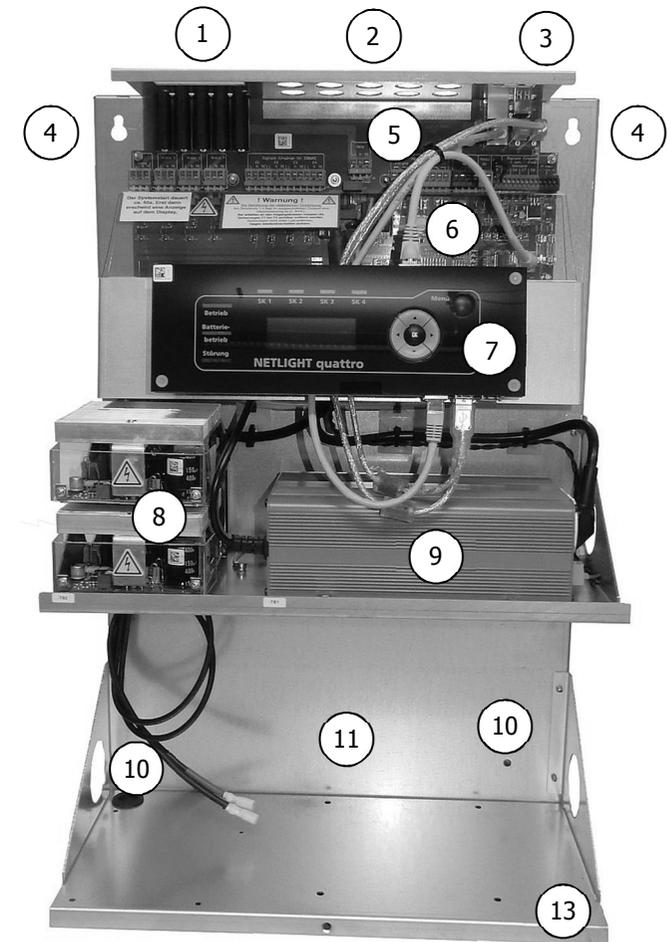
H – 605mm
W – 410mm
D – 205mm

without cable glands
without expansion housing

Expansion housing:

H – 250mm
W – 410mm
D – 205mm

1. Fuses
2. Cable entry
3. USB/network connection
4. Fixing holes (keyhole 12/7 mm)
5. Connection compartment
6. Base board
7. Display and control panel
8. Charging unit (picture shows option with 2nd charg
9. Inverter
10. Mounting holes (7mm hole)
11. Battery compartment for max. 4x 12V 17-18Ah
12. Housing hood
13. Housing frame



4.2 Quattro-Industry overview

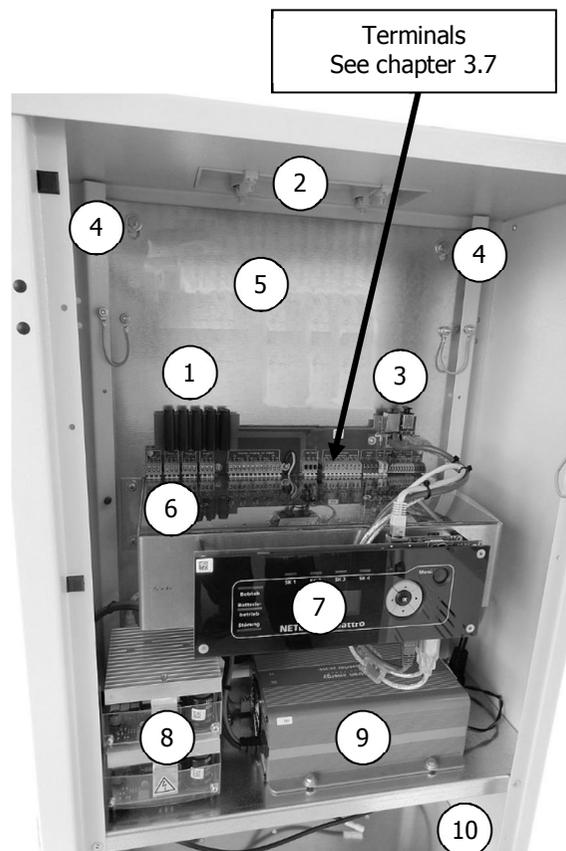
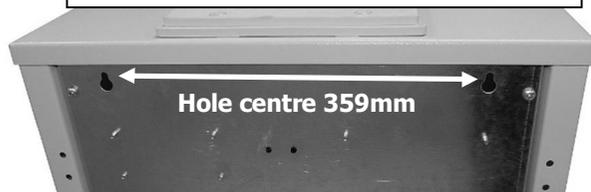
The Quattro-Industry differs from the Quattro only in its housing and that the variant type 7 with 4x 65Ah is not possible.

The advantage of the Quattro-Industry version is the larger connection compartment, the door can only be opened with a corresponding key and 2x battery compartments are already integrated.

Cable entry via membrane gland plate

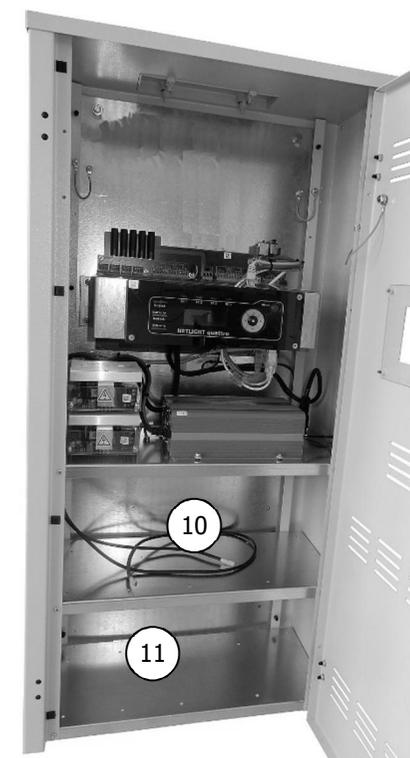


Wall mounting
Distance hole-7mm to top edge of roof 30mm

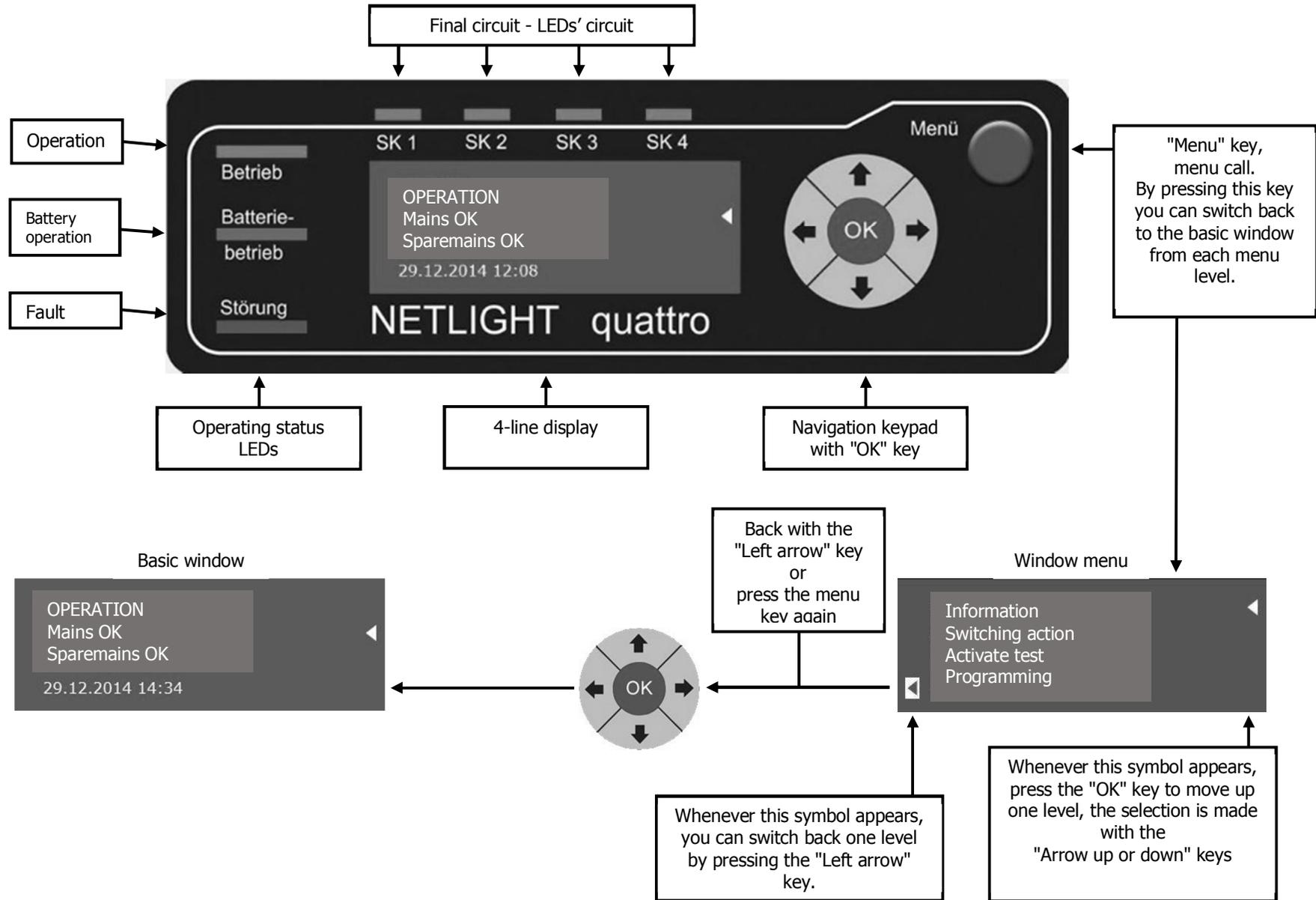


HxWxD
approx.
1000x500x250mm

1. Fuses
2. Cable entry
3. USB/network connection
4. Fixing holes (keyhole 12/7 mm)
5. Connection compartment / Mains connection
6. Base board / Terminals
7. Display and control panel
8. Charging unit (figure shows option with 2nd charging unit)
9. Inverter
10. Battery compartment 1 for max. 4x 12V 17-18Ah or 2x 26Ah or 1x 65Ah
11. Battery compartment 2 for 2x 26Ah or 1x 65Ah



4.3 Operating and display element / Operating notes



4.4 Product description

The low-power-system (LPS) "NETLIGHT quattro" is a decentral safety lighting system for the supply and monitoring of max. 80 escape sign or emergency luminaires on a total of 4 circuits with NETLIGHT MSÜ technology in the circuit types continuous light, ready light and switched continuous light.

The emergency luminaires are operated exclusively with 230 V AC alternating current! The supply voltage in emergency operation is obtained from a maintenance-free, sealed battery system. The integrated battery management system continuously monitors the charge status and functional reliability and controls charging. Emergency operation is triggered by an internal network monitor, which monitors the supply network in single-phase or three-phase mode.

All operating events can be displayed in detailed and comprehensible text in a desired programmable language on the user-friendly control panel with four-line plain text display. The navigation keypad can be used to navigate through the menu. For text input, a standard PC keyboard can be connected via the system's USB port.

The test logbook of the security lighting system is stored in the system memory and can be loaded onto a USB stick (with single-level cell technology) at any time via the USB interface or, if the device is connected to an existing LAN home network on site, directly into the desired PC directory. The LAN home network (browser) can also be used for remote control; the complete control panel of the device is then displayed on the PC and can be operated as if it were operated directly on the device. All screens of the master display are also displayed on the PC screen in real time. On the other screens the status states, measured values from the AC home mains and the battery, as well as incoming messages can be displayed.

The Netlight quattro has three signalling contacts (fault, battery operation and system ready for operation) which can be used to call up the device status and output it to a panel, for example.

The battery system is located in the device housing or additionally in the expansion housing (option). The battery connection cable can be found in the device.

The four final circuits have a selective short-circuit cut-off system. The total device power can be freely allocated to the circuits, depending on the max. output power of 200VA per circuit.

4x control inputs (inputs 1-4) for 230V AC switching voltage and 4x control inputs (inputs 5-8) for potential-free contacts are available, which are optionally programmable for switching operation, local emergency operation, continuous or standby light switching, blockage or manual acknowledgement. Interconnecting two control inputs and the device connection for 230V AC allows for three-phase mains monitoring. Furthermore, a control input (input 9) is available which provides loop monitoring via a 1Kohm resistor.

Control panel with 4-line plain text display, 7x signal LEDs for indication status also easily readable from a distance, 4x timers for time-controlled automatic functions, TCP/IP interface for Ethernet networking, max. up to 255 devices, max. length up to 100m, integrated WEB server for remote control/remote display.

With the optional external module bus option, up to 15x external three-phase network monitors (BUS-capable) can be connected to the system.

4.5 Technical data

Safety power supply according to VDE 0108

Mains voltage/current/frequency	230 V	approx. 2.3 A	50 Hz	1-phase	
Mains fuse	6.3x32	6.3 A	slow-blow		Back-up fuse min. 16A gG

Consumer:

Total supply power	max. 350 VA	acc. to	battery size (see nameplate)		
Output voltage/current/frequency	230 V	max. 1.5 A	50 Hz		
Output circuits	4 pieces	max. 200 VA	per circuit		
Output circuit fuse 1 pole	6.3x 32	1.6 A	slow-blow		

Charging unit (incl. second charging unit):

Mains voltage/current	230 V	approx. 0.6 (1.2) A	1-phase
Charging capacity/current	60(120) VA	approx. 2.5 (5) A	
Smoothing	5%	without battery	
Constant voltage	2.27 V/Z →	27.2 V	
Boost charging voltage	2.35 V/Z →	28.2 V	
Battery	12 pb cells	maintenance-free	

Protection type/class	IP20	/	1
Permissible ambient temperature	0°C	to	+40°C

Housing material:

Supporting elements	galvanised sheet steel
Hood	plastic UL94-HB
Colour - middle section	ABS 24 Alu brushed
Colour – side panels	PS 36 brilliant blue RAL 5007

Cable entry	from above
-------------	------------

Max. consumer power (at cos phi 0.8):

Bridging time 1h

Type 1: Output power	max. 250VA (200W)	e.g. 2x 17Ah BTX12-17LS or 2x 18Ah SBL12-18i
Type 2: Output power	max. 350VA (280W)	e.g. 4x 17Ah BTX12-17LS or 4x 18Ah SBL12-18i

Bridging time 3h

Type 3: Output power	max. 225VA (180W)	e.g. 4x 17Ah BTX12-17LS or 4x 18Ah SBL12-18i	
Type 8: Output power	max. 250VA (200W)	e.g. 4x 28Ah BTX12-28LS or 4x 26Ah SBL12-26i	(Option second charging unit required)
Type 4: Output power	max. 350VA (280W)	e.g. 2x 65Ah SBL12-65i	(Option second charging unit required)

Bridging time 8h

Type 5: Output power	max. 88VA (70W)	e.g. 4x 17Ah BTX12-17LS or 4x 18Ah SBL12-18i	
Type 6: Output power	max. 188VA (150W)	e.g. 2x 65Ah SBL12-65i	(Option second charging unit required)
Type 7: Output power	max. 250VA (200W)	e.g. 4x 65Ah SBL12-65i	(Option second charging unit required)

4.6 Navigation keypad / Operating notes

Symbol in the operating instructions for:

Arrow up 

Arrow left  (back)

Arrow right 

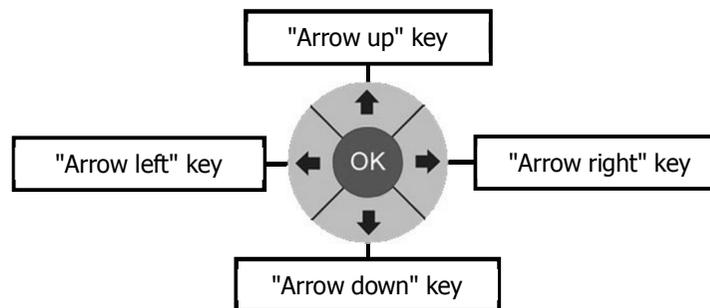
Arrow down 

Values must be set in the display .

Select  in the display.

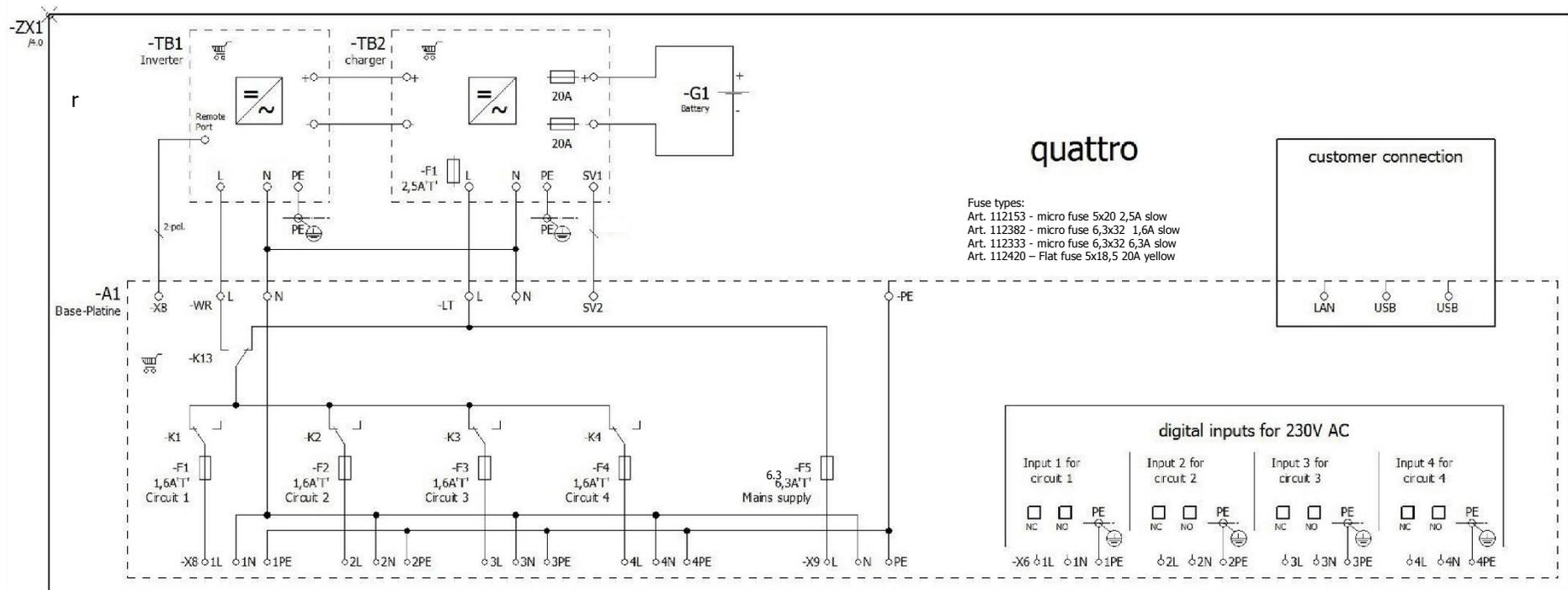
Confirm 

Menu 



5. Principle circuit diagrams, terminal diagram

5.1.1 Circuit diagram – 230V, final circuits 1-4, inputs 1-4, LAN, USB



	Circuit 1	Circuit 2	Circuit 3	Circuit 4
designation				
City				
number of luminaires				
luminaire type				
Power				
	<input type="checkbox"/> CC <input type="checkbox"/> SC <input type="checkbox"/> Mix			

final circuits

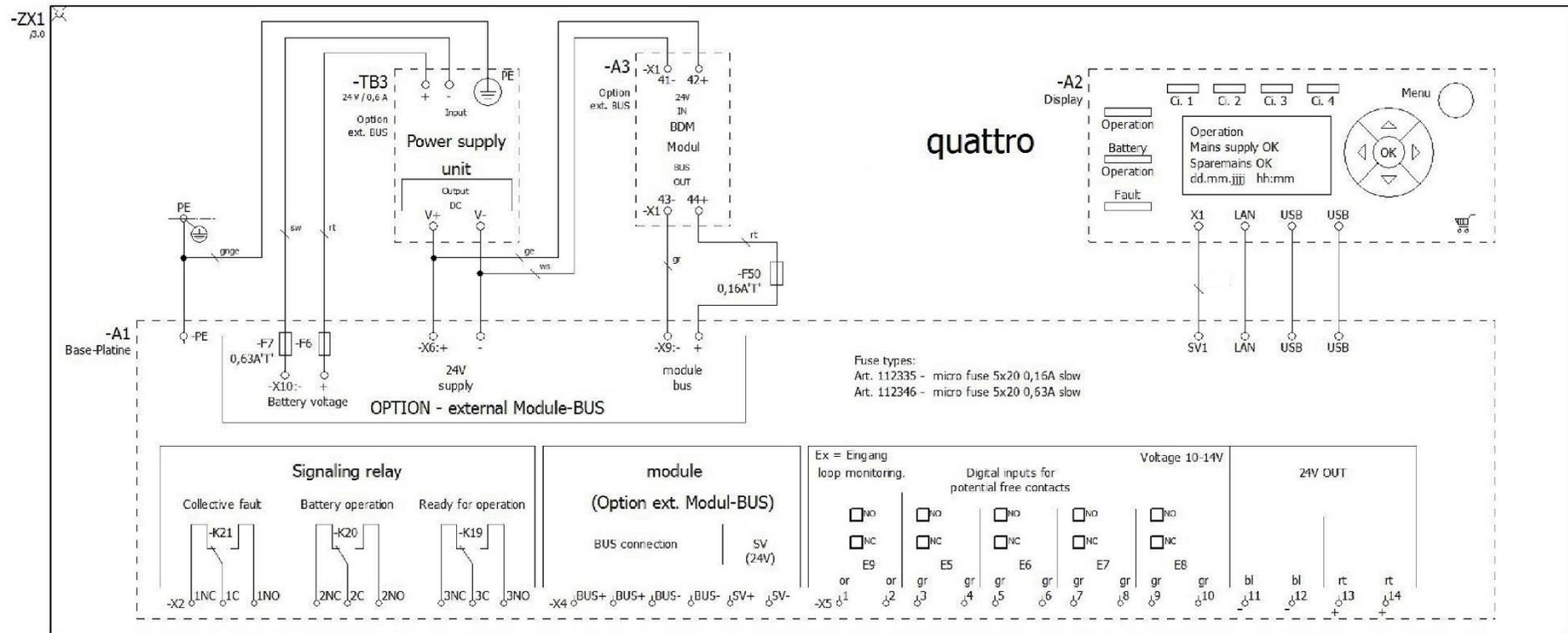
Supply 230V
50Hz

Mains connection

Input 1 (230V AC)	Input 2 (230V AC)	Input 3 (230V AC)	Input 4 (230V AC)

Inputs for co-switching, local emergency operation or phase monitor

5.1.2 Circuit diagram – Messages, inputs E5-9, panel, module BUS



Messages

24V/BUS connection

with loop monitoring

Inputs for co-switching or local emergency operation

24V supply tableau connection

5.2.1 Terminal diagram -X2, -X4, -X5

Strip =+HG-ZX1-A1-X2				Connection point	terminal	potential	Jumper	Target designation External	Page / column
function text	part number	Type	Target designation Internal						
Collective fault N.C. (Fault)	126650	255-409			1NC		.		/4.1
Collective fault COM (fault = not tightened)					1C		.		/4.1
Collective fault N.O. (OK)					1NO		.		/4.1
Battery operation N.C. (OK)					2NC		.		/4.1
Battery operation COM (fault=energized)					2C		.		/4.2
Battery operation N.O. (fault)					2NO		.		/4.2
Ready for operation N.C. (fault)					3NC		.		/4.2
Ready for operation COM (fault = not tightened)					3C		.		/4.2
Ready for operation N.O. (OK)					3NO		.		/4.3

Strip =+HG-ZX1-A1-X4				Connection point	terminal	potential	Jumper	Target designation External	Page / column
function text	part number	Type	Target designation Internal						
Module Bus (option)	126651	255-401			BUS+		.		/4.3
=	126651	255-401			BUS-		.		/4.3
=	126651	255-401			BUS-		.		/4.4
=	126651	255-401			BUS-		.		/4.4
24V supply for module (option)	126651	255-401			SV+		.		/4.4
=	126651	255-401			SV-		.		/4.4

Strip =+HG-ZX1-A1-X5				Connection point	terminal	potential	Jumper	Target designation External	Page / column
function text	part number	Type	Target designation Internal						
Input 9 - 1K Resistance necessary	126661	Serie 412			1	or	.		/4.5
Network monitoring loop					2	or	.		/4.5
Input 5 for final circuits					3	gr	.		/4.5
=					4	gr	.		/4.5
Input 6 for final circuits					5	gr	.		/4.6
=					6	gr	.		/4.6
Input 7 for final circuits					7	gr	.		/4.6
=					8	gr	.		/4.6
Input 8 for final circuits					9	gr	.		/4.7
=					10	gr	.		/4.7
24V supply					11	bl	.		/4.7
=					12	bl	.		/4.7
=					13	rt	.		/4.8
=					14	rt	.		/4.8

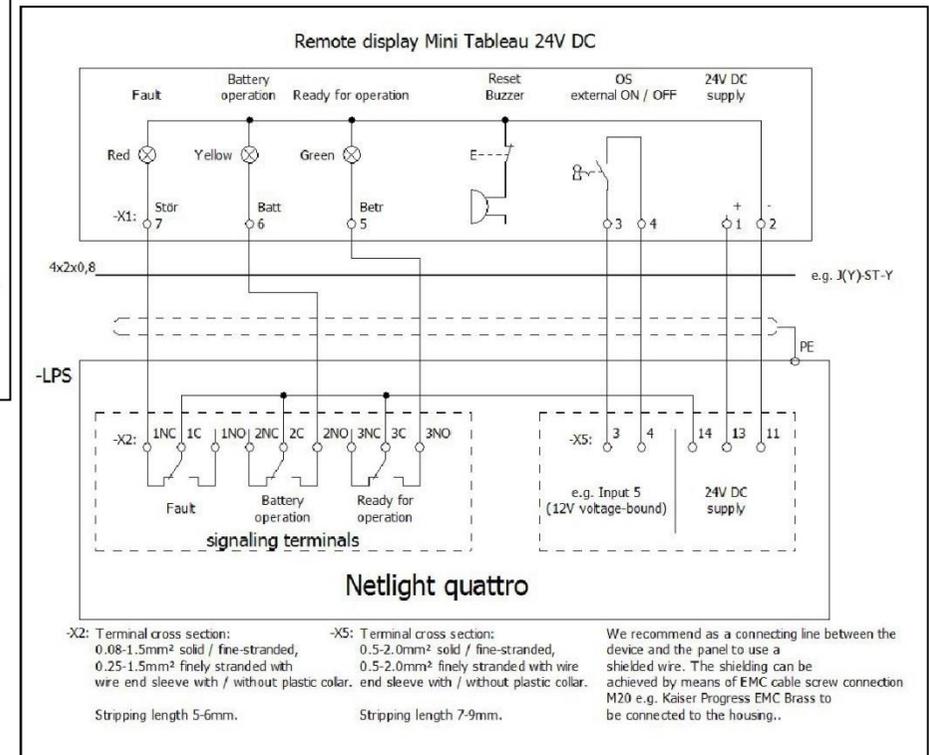
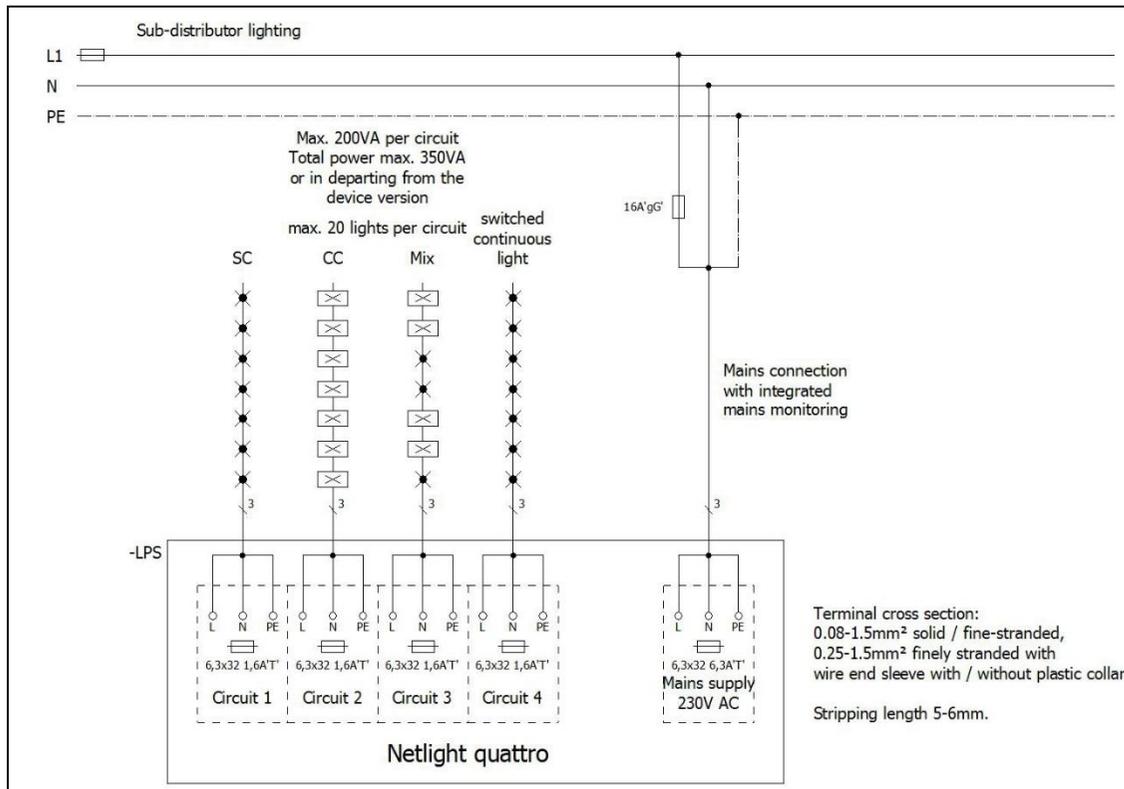
5.2.2 Terminal diagram -X6, -X8, -X9

Strip =+HG-ZX1-A1-X6				Connection point	terminal	potential	Jumper	Target designation External	Page / column
function text	part number	Type	Target designation Internal						
Input 1 (230V AC)	126651	255-401			1L		.		/3.6
=	126653	255-744			1N		.		/3.6
=	126652	255-747			1PE		.		/3.6
Input 2 (230V AC)	126651	255-401			2L		.		/3.7
=	126653	255-744			2N		.		/3.7
=	126652	255-747			2PE		.		/3.7
Input 3 (230V AC)	126651	255-401			3L		.		/3.7
=	126653	255-744			3N		.		/3.8
=	126652	255-747			3PE		.		/3.8
Input 4 (230V AC)	126651	255-401			4L		.		/3.8
=	126653	255-744			4N		.		/3.8
=	126652	255-747			4PE		.		/3.9

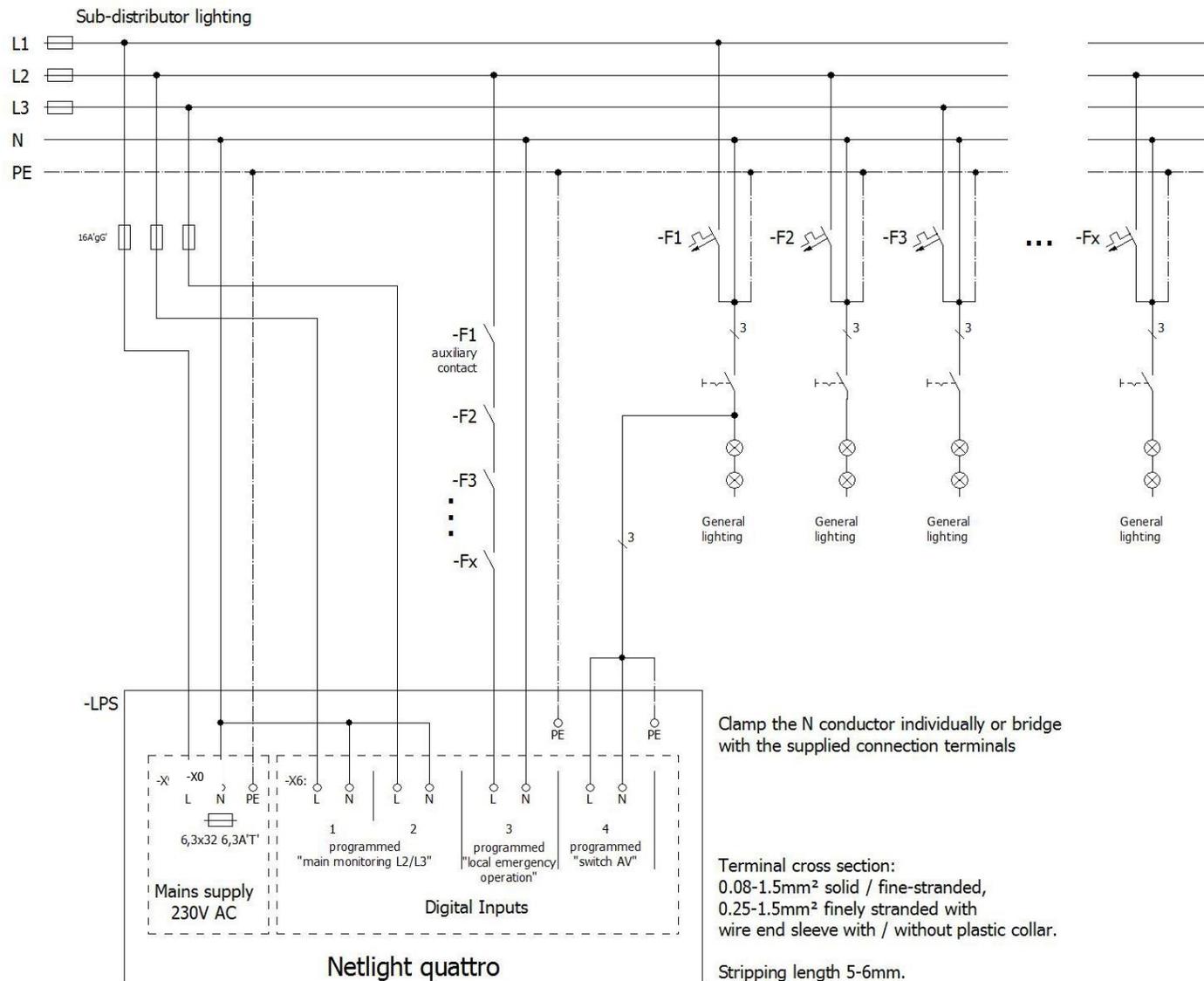
Strip =+HG-ZX1-A1-X8				Connection point	terminal	potential	Jumper	Target designation External	Page / column
function text	part number	Type	Target designation Internal						
Circuit 1	126651	255-401			1L		.		/3.1
=	126653	255-744			1N		.		/3.1
=	126652	255-747			1PE		┌		/3.1
Circuit 2	126651	255-401			2L		└		/3.2
=	126653	255-744			2N		└		/3.2
=	126652	255-747			2PE		└		/3.2
Circuit 3	126651	255-401			3L		└		/3.2
=	126653	255-744			3N		└		/3.3
=	126652	255-747			3PE		└		/3.3
Circuit 4	126651	255-401			4L		└		/3.3
=	126653	255-744			4N		└		/3.4
=	126652	255-747			4PE		└		/3.4

Strip =+HG-ZX1-X0				Connection point	terminal	potential	Jumper	Target designation External	Page / column
function text	part number	Type	Target designation Internal						
Supply 230V 50Hz	220517	862-2593 3-polig	-ZX1-A1-X9	L	L		.		/3.5
=			-ZX1-A1-X9	N	N		.		/3.5
=			-ZX1-A1-X9	PE	PE		.		/3.5

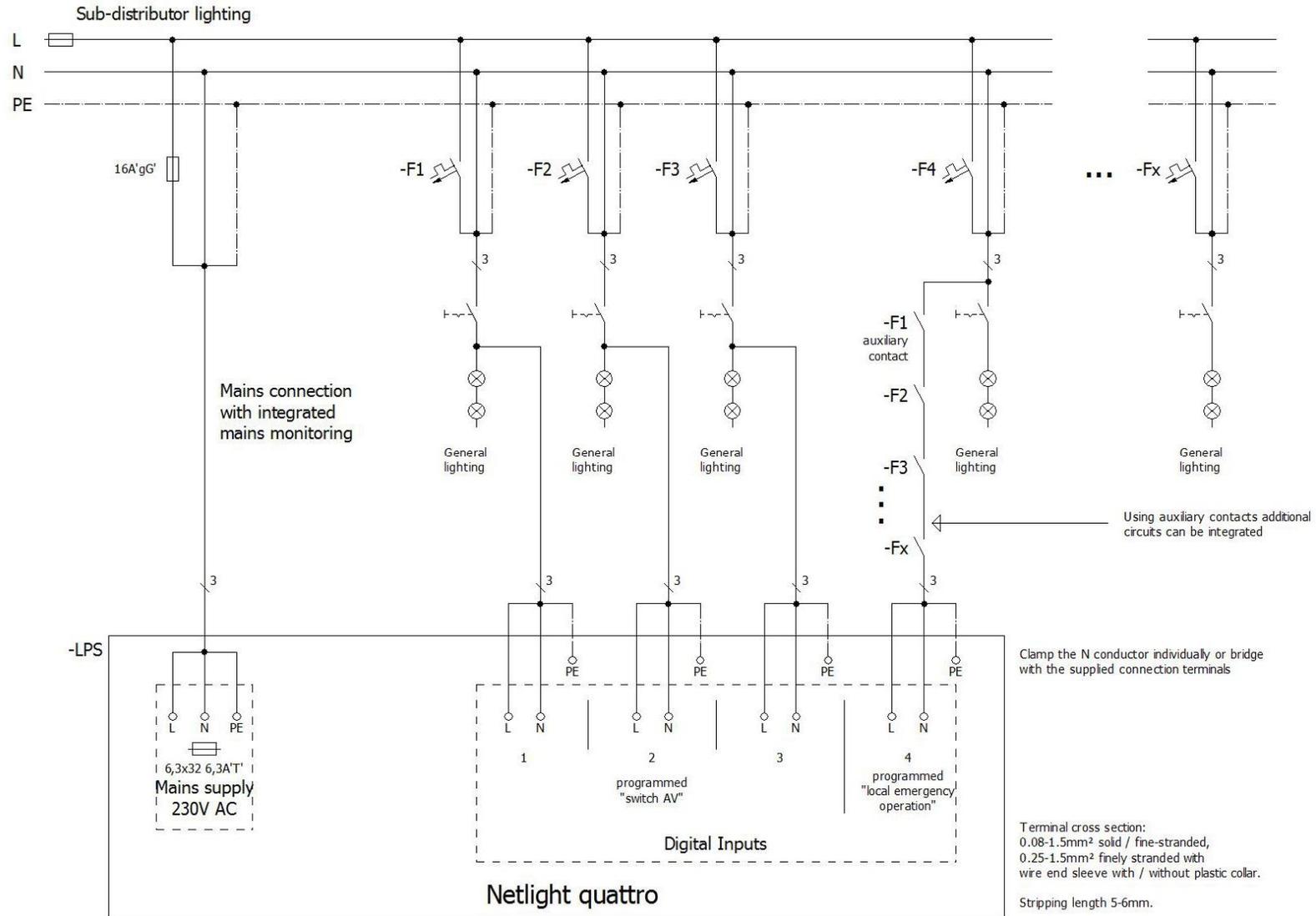
5.3 Mains connection + panel connection



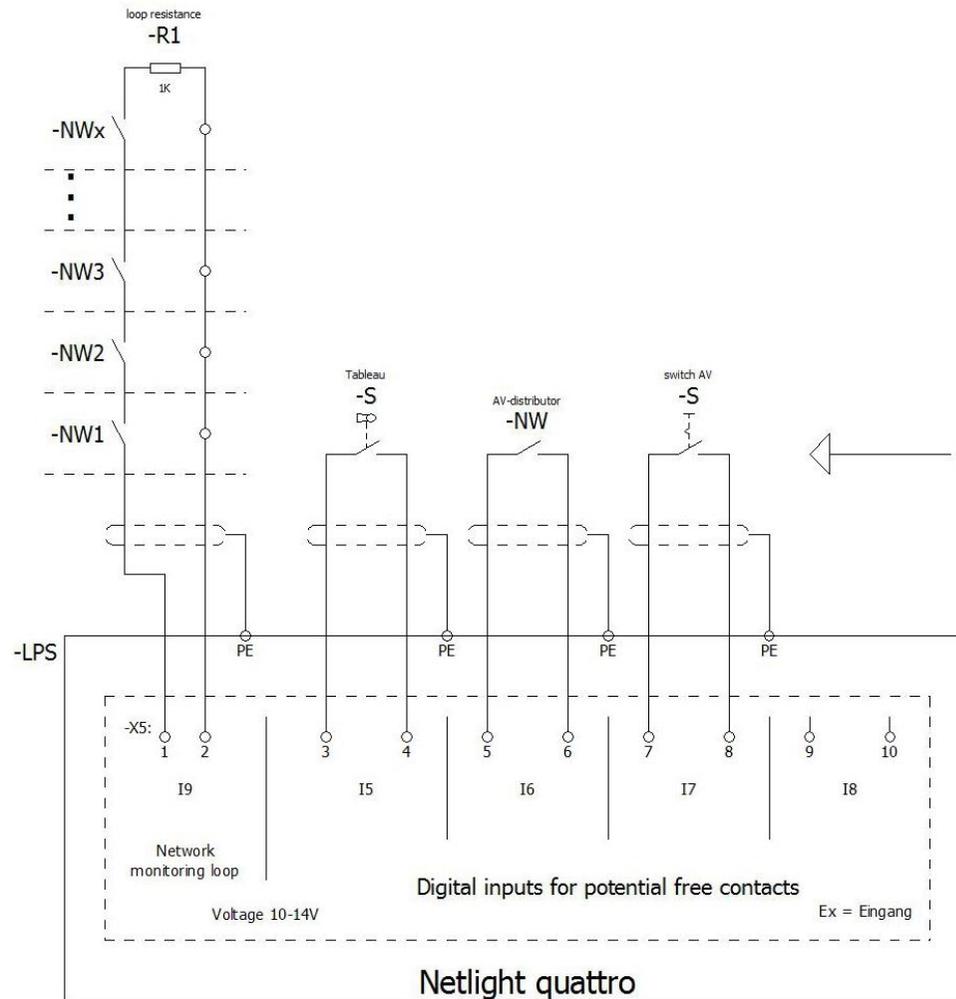
5.4 Three-phase monitoring



5.5 Digital inputs 1-4 / 230V AC



5.6 Network monitoring loop / digital inputs 5-8 for pot. free contacts



← Examples

The inputs E5-E8 are programmable as:
 "local emergency operation"
 "Switch AV"
 "Blocking"
 "SC-Lights"
 "OC-Lights"
 "man.acknowledgment"

The final circuits can be assigned individually..

Terminal cross section:
 0.5-1.5mm² solid / fine-stranded,
 0.5-1.5mm² finely stranded with
 wire end sleeve with / without plastic collar.

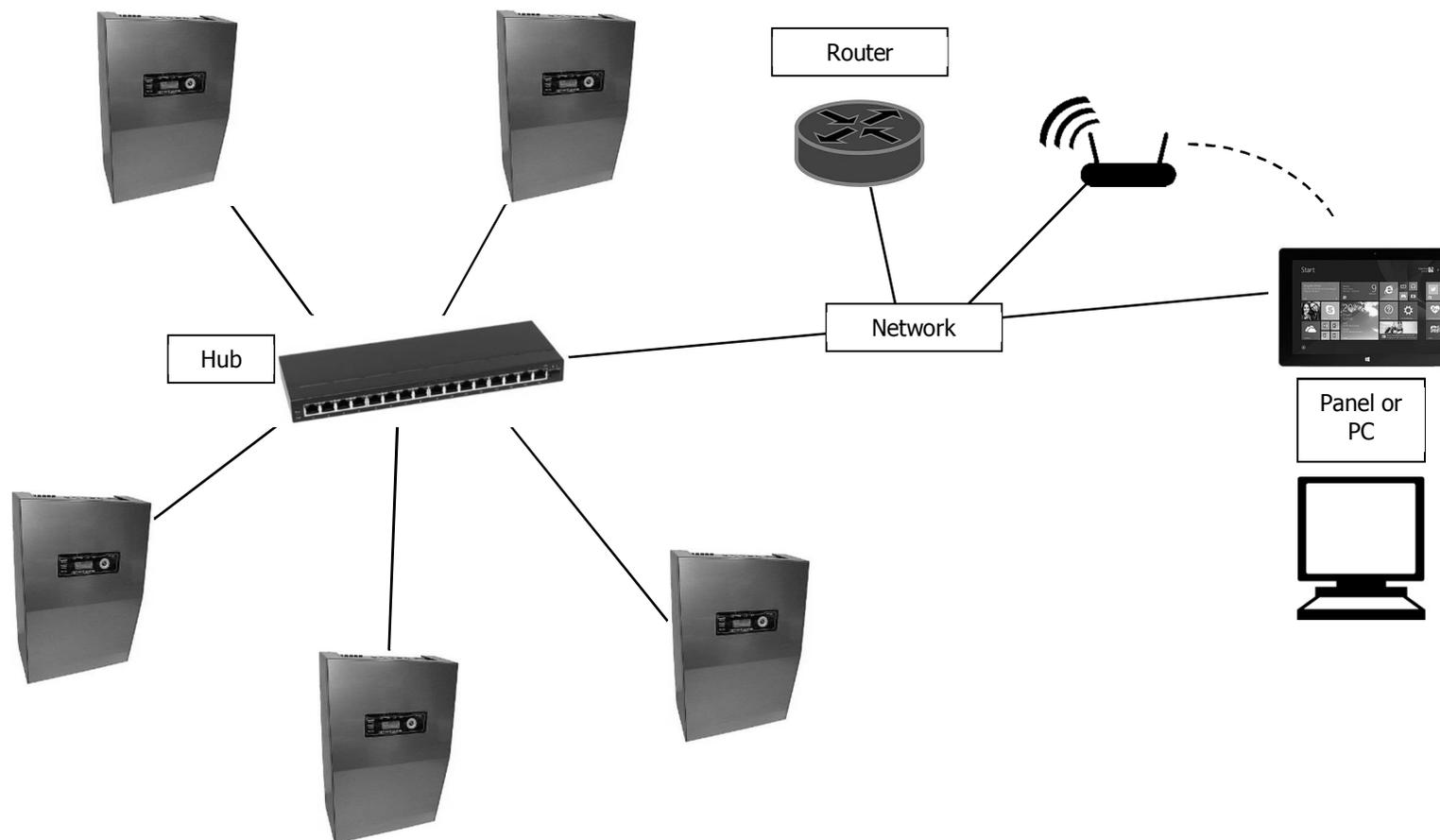
Stripping length 7-9mm.

NW=mains monitor

Connecting cable e.g. J-Y (ST) -Y or YCYM, we recommend the Shielding by means of an EMC cable gland M20 to connect to the housing. (Cable gland not included in the delivery)

5.7 Example of network wiring

Up to 32 Netlight quattro can be visualized by means of the Netlight ProVisu software on the network panel. The cables and cable lengths normally used for networks apply here. For the connection cables we recommend to use CAT7 cables, for connections greater than 100m fibre optic converters and fibre optic cables (max. 2km) must be used.



6. Commissioning

6.1 Checks before commissioning

- Make sure that all connecting cables are de-energised and secure them against unintentional restarting (e. g. by removing all fuses and by securing the distributor of the general power supply with signs and/or locks).
- Remove the fuses F1-5 (mains fuse / final circuit fuses).
- Check that the mains, control and final circuit terminals are firmly seated.
- Check whether the battery connection cables on the charging unit (8) are correctly plugged in. **Do not connect the battery!**
- Check that the memory card is correctly inserted.
- Compare the value of the battery voltage with the nameplate.

6.2 Commissioning

6.2.1 Notes on voltage measurements

- Measurements of the supply voltages and the final circuits must only be carried out by qualified electricians!
- Observe the hazards specific to multiphase power supplies when carrying out measurements on them.
- Only use suitable measuring instruments for voltage measurement.
- Only GfS service personnel may carry out measurements in the internal installation area.

6.2.2 Connection of the mains supply line

Before connecting the supply lines, the value of the mains voltage must be measured and compared with the data on the nameplate.
After the measurement, disconnect the mains cables and secure them! Connect the mains cable to the mains terminals.

6.2.3 Connecting the mains supply and monitoring the system startup

The system is started by inserting fuse F5. **(Do not mix up fuses!)**
Wait for system startup, this usually takes about 45s. The system has started up when the display lights up or when Operation appears in the first line.
The four power circuit LEDs (SK1-4) flash, the operation and fault LED lights up.

6.2.4 Switching on the battery

Before connecting the battery cables, the battery voltage must be measured with a suitable measuring device and must be compared with the value on the nameplate.
If the value is correct, the battery cable can be connected to the battery with correct polarity.

6.2.5 Monitoring of battery voltage and charging current on the master display

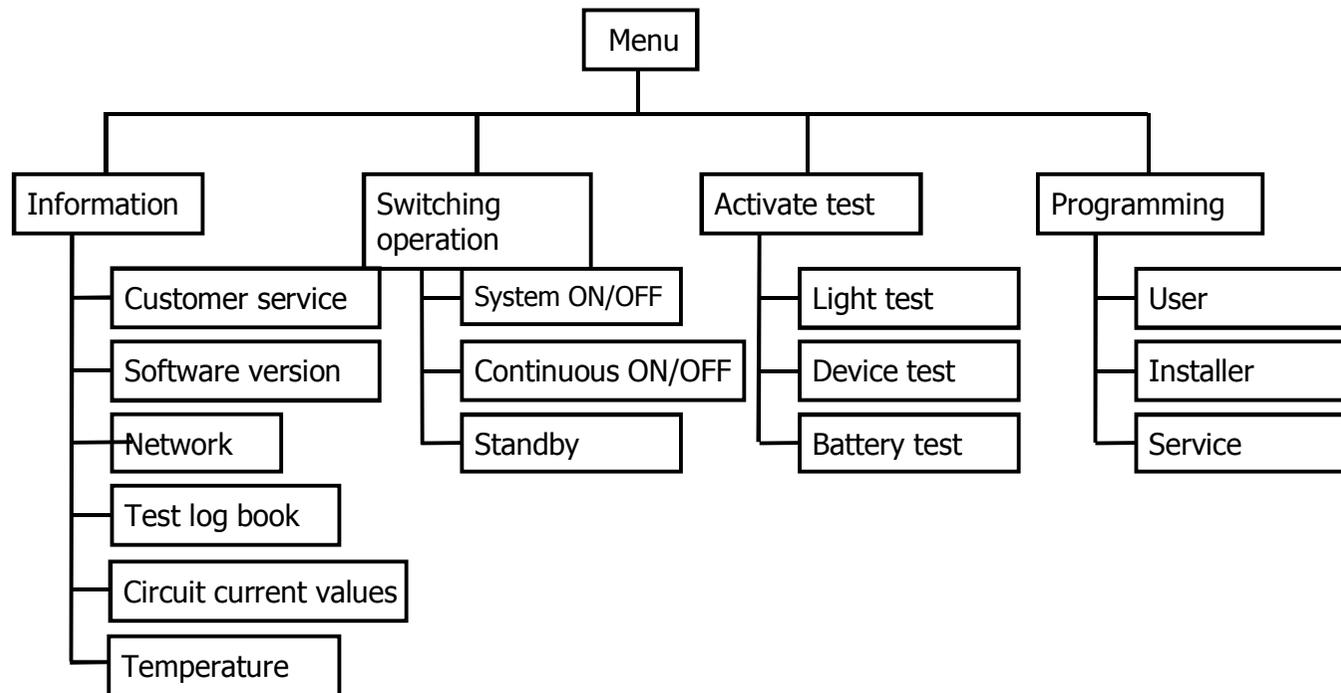
After the mains supply and battery voltage have been switched on, the charging voltage and charging current must be checked in the display under the "Backup supply OK" menu item. To do this, use the navigation keypad to select the backup supply and confirm with the OK key.

6.3 Disconnecting the system from the power supply

- Switch off the system via the operating and display element, see "Section 7.7 User menu – Switch off" (please wait until the LEDs extinguish)
- Remove the hood as described in section 5.6
- Remove the plus or minus cable or both from the battery
- Remove mains fuse F1
- Caution, there is still voltage at the mains terminals!

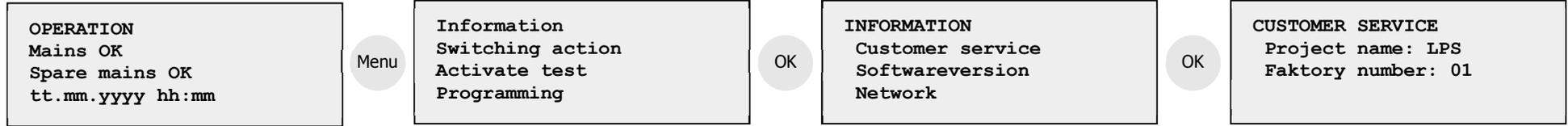
7. Operation of the operating and display element

7.1 Menu overview

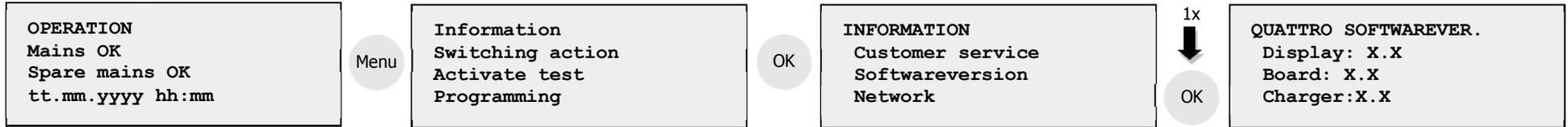


7.2 Information

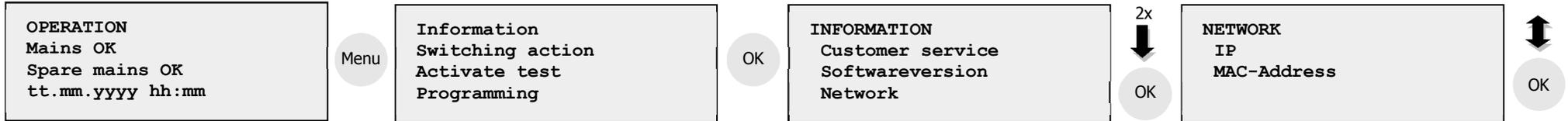
Access Customer service



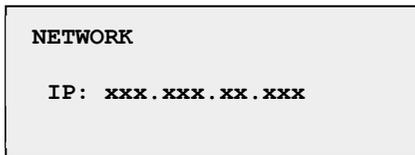
Access Software



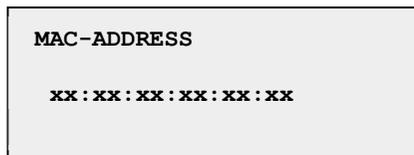
Access Network



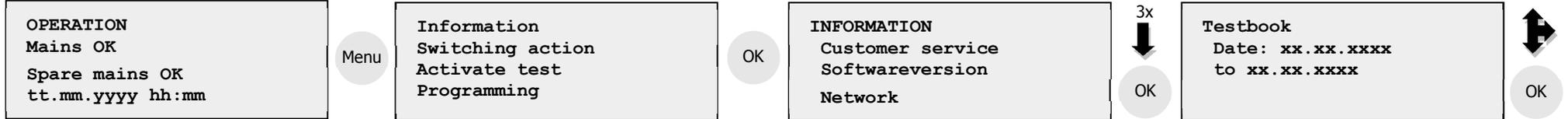
IP-Address



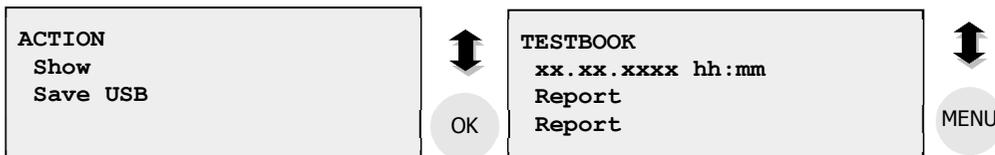
MAC-Address



Testbook

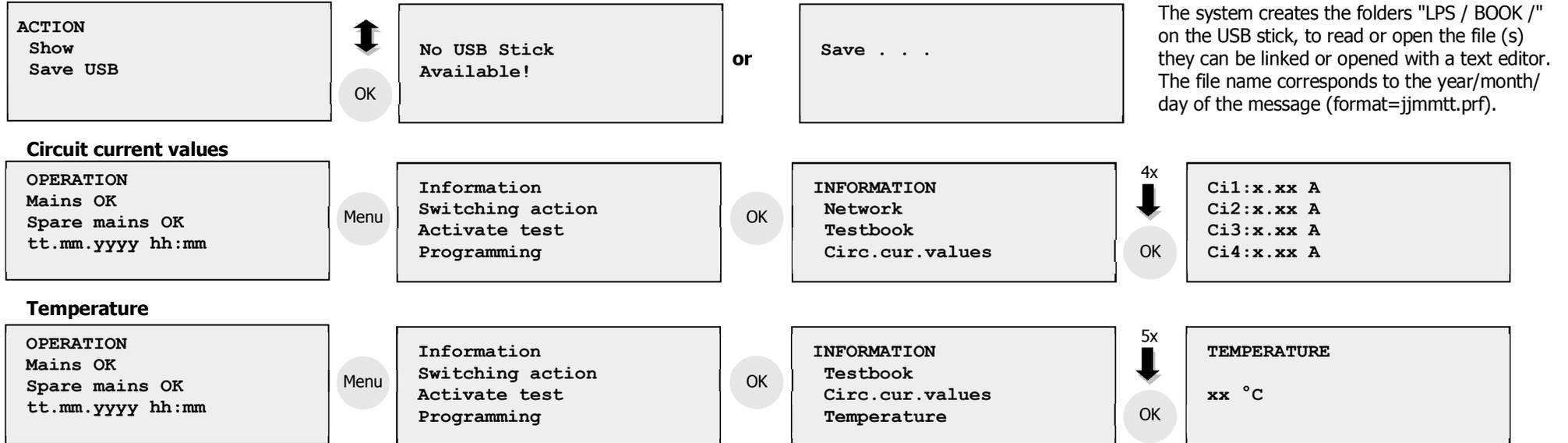


set the desired period

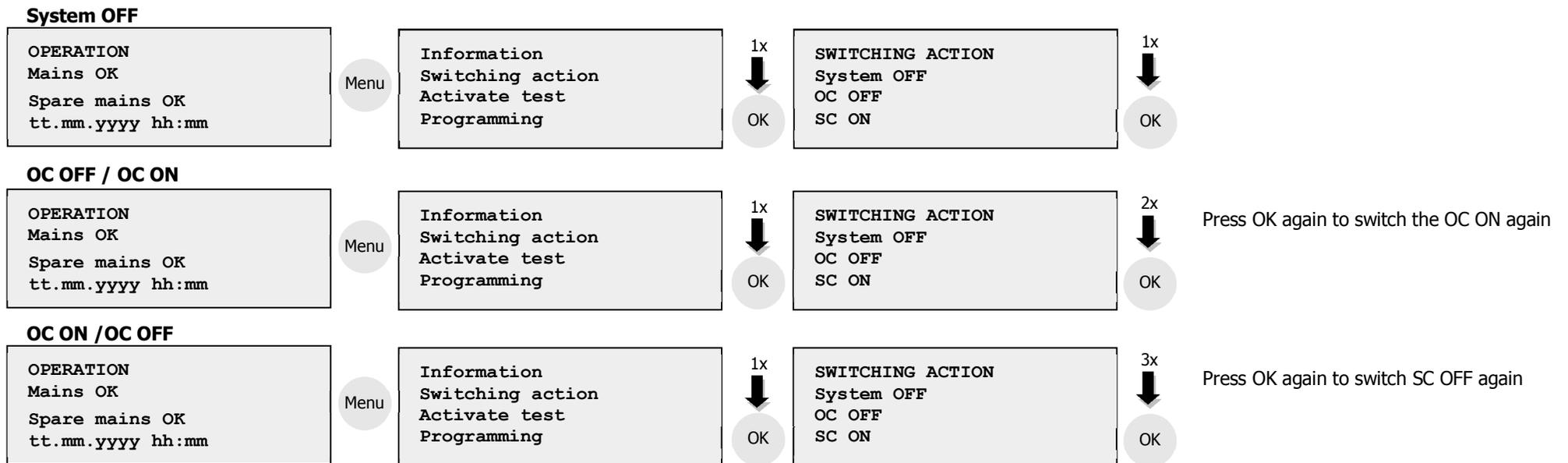


or

Continuation > **Test book**



7.3 Switching action



7.4 Activate Test – Lights Test/ Equipment Test /Battery Test

Lights test manually

```
OPERATION
Mains OK
Spare mains OK
tt.mm.yyyy hh:mm
```

Menu

```
Information
Switching action
Activate test
Programming
```

2x

OK

```
TEST
Lights test
Equipment test
Battery test
```

OK

```
RELEASE SET-UP
manually
```

OK

```
LIGHTS TEST activ
. . . . .
Stop
```

OK

For the premature termination of the test, press the OK button.

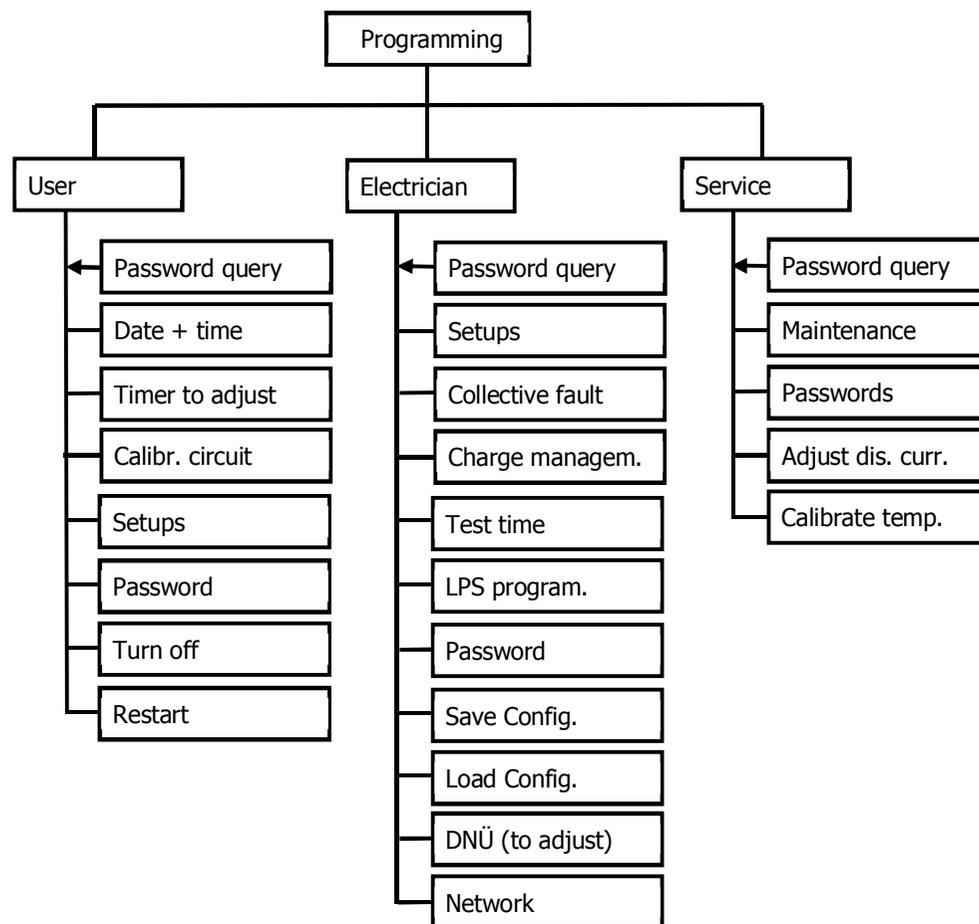


The Equipment test and Battery test are activated manually in the same way as the lights test.

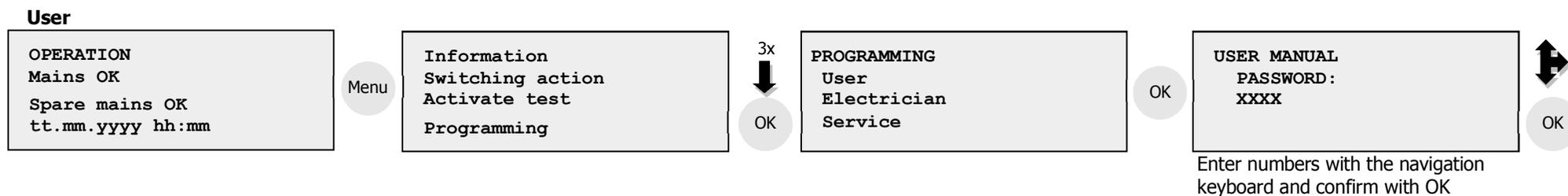
```
EQUIPMENT TEST activ
. . . . .
Stop
```

```
BATTERY TEST activ
xx.xV x.xA xxAh
hh:mm:ss . . .
Stop
```

7.5 Programming + Setups



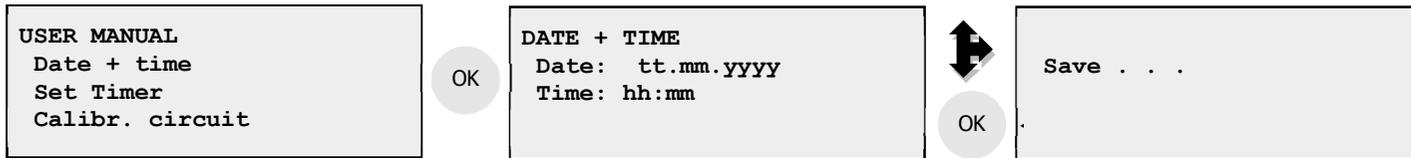
7.6 Input password – User/Electrician /Service



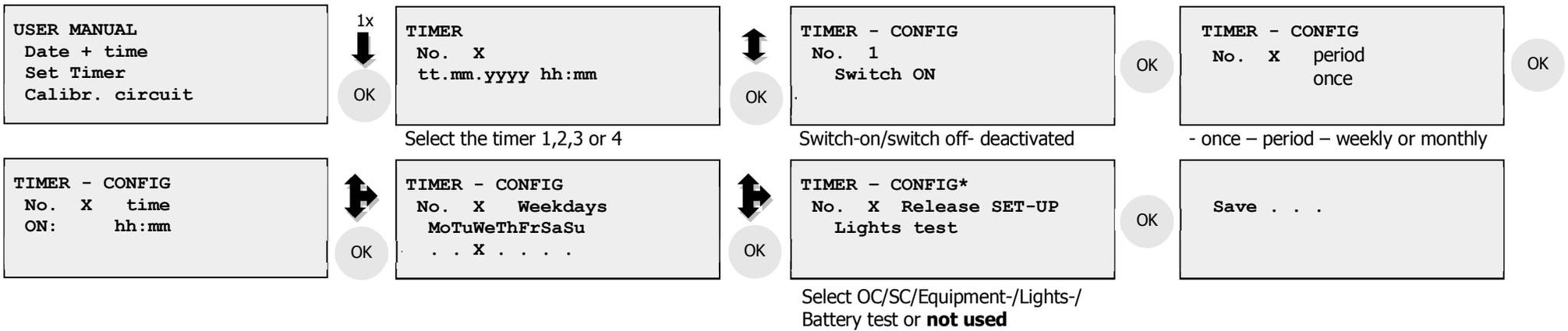
 The password for the electrician and service menu is entered in the same way as the user.
The factory default password for all menu groups is "0000".

7.7 User manual

Date + time

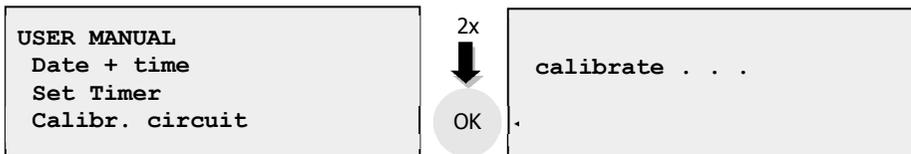


Set timer

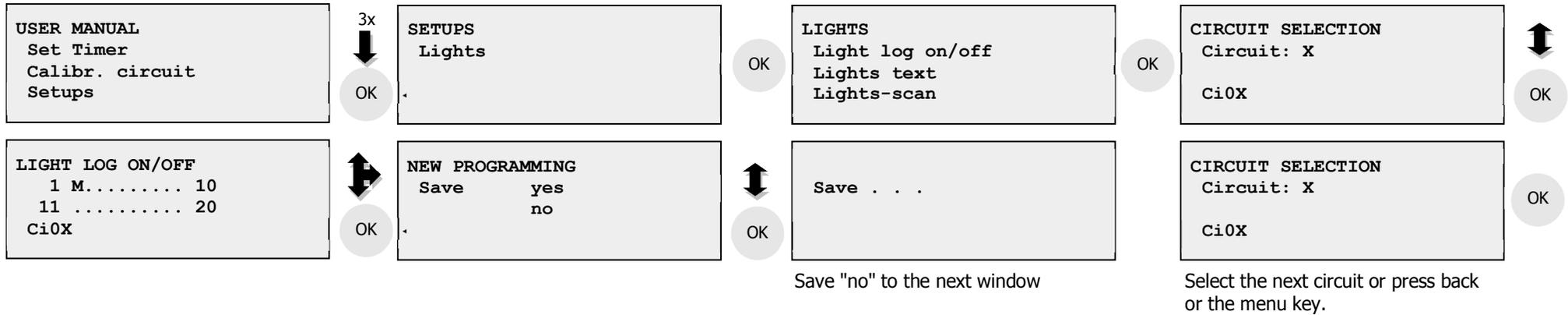


 * Deactivate timer, in order to completely delete a timer, the option "not used" must be selected here.

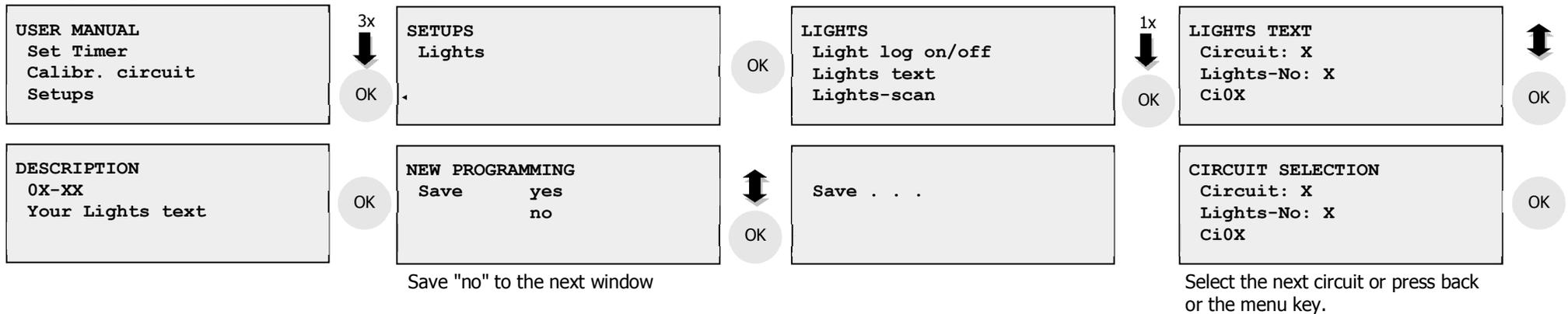
Calibrate circuit



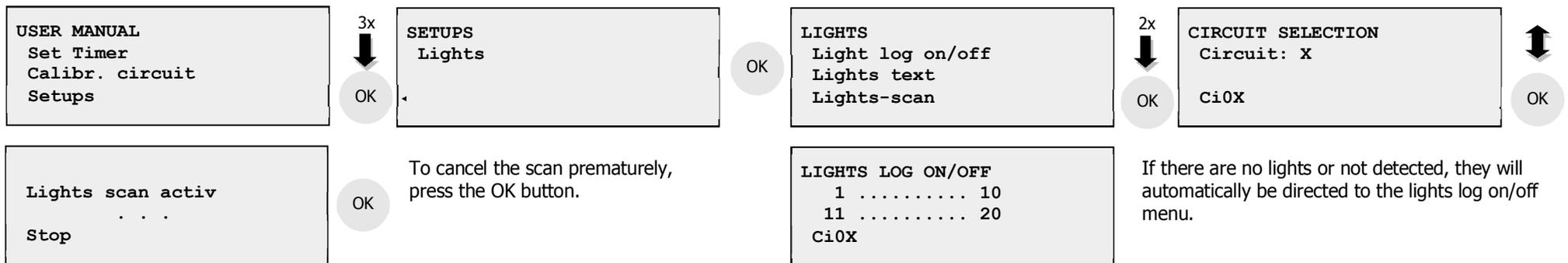
Setups – Light log on/off



Setups – Lights text (USB-Keyboard necessary)

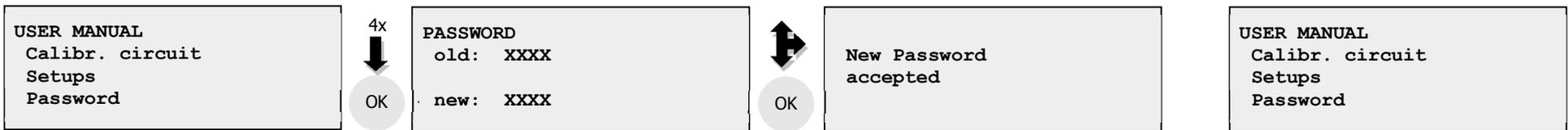


Setups – Lights-Scan

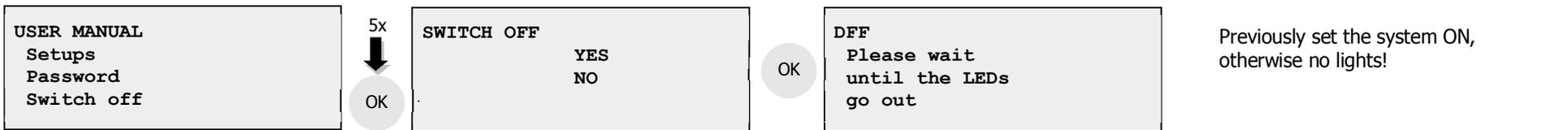


After a successful SCAN, the lights for lights texts are now available.

Change Password

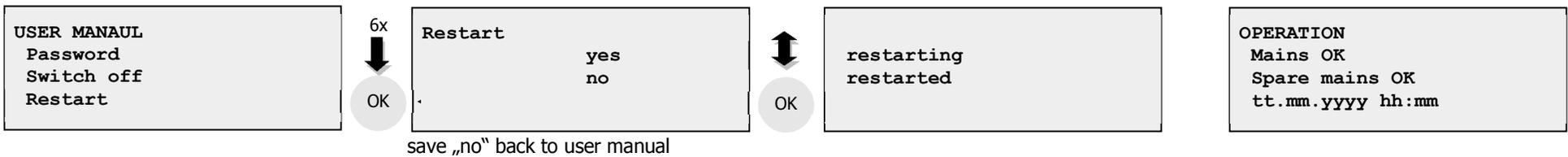


Switch off



After the LEDs have gone out, first disconnect the battery leads from the battery, then remove the mains fuse. Only then is the system really disconnected from power. Switch on again according to point 6 Commissioning.

Restart



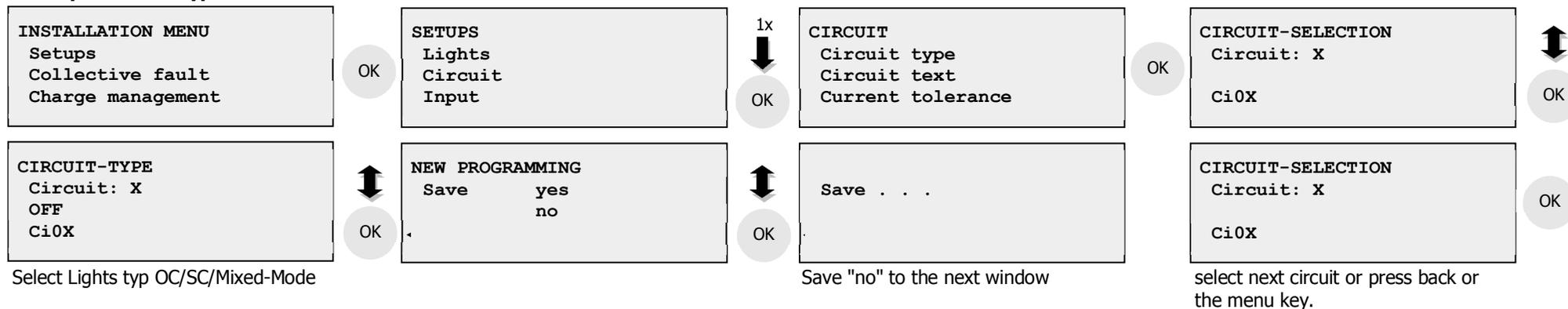
7.8 Installation Menu

 **Note, after completing program changes, the system should always be restarted to update the switching state.**

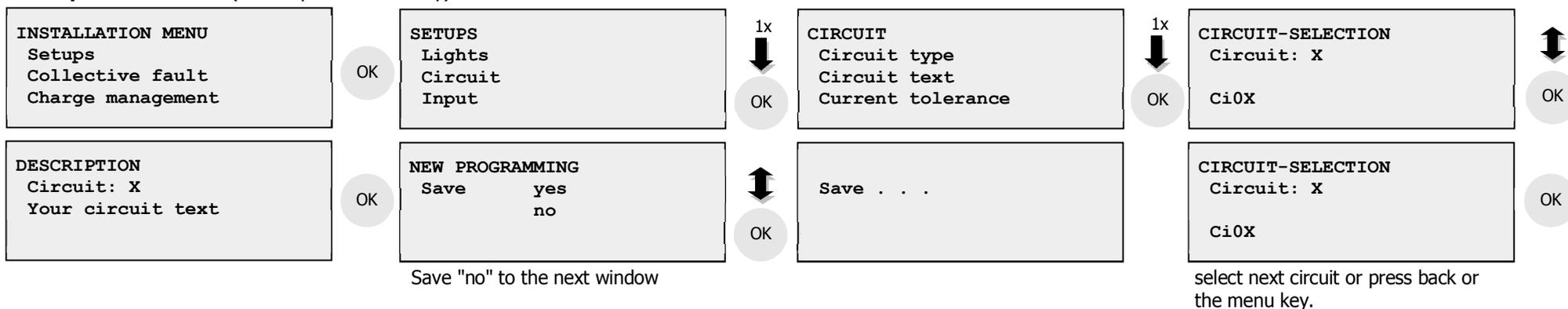
Setups – Lights

See the description under User Menu Setups – Lights log on/off / - Lights text / - Lights scan

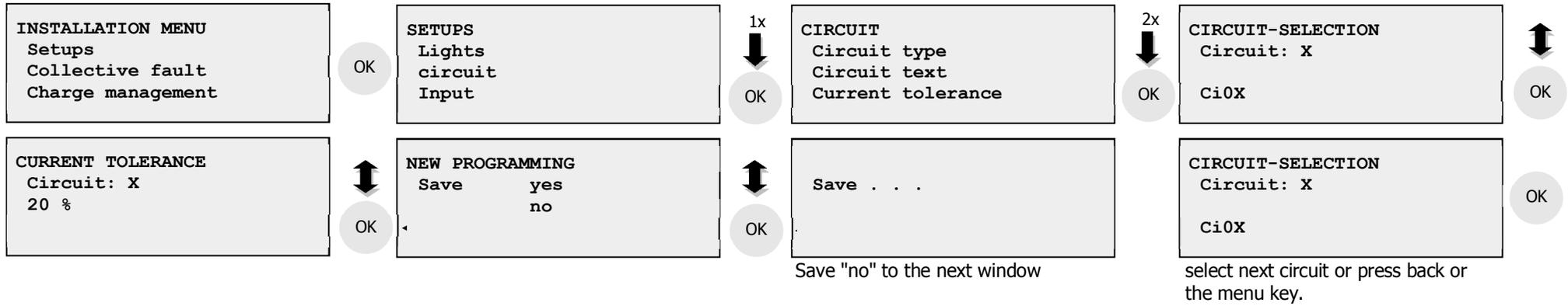
Setups – Circuit type



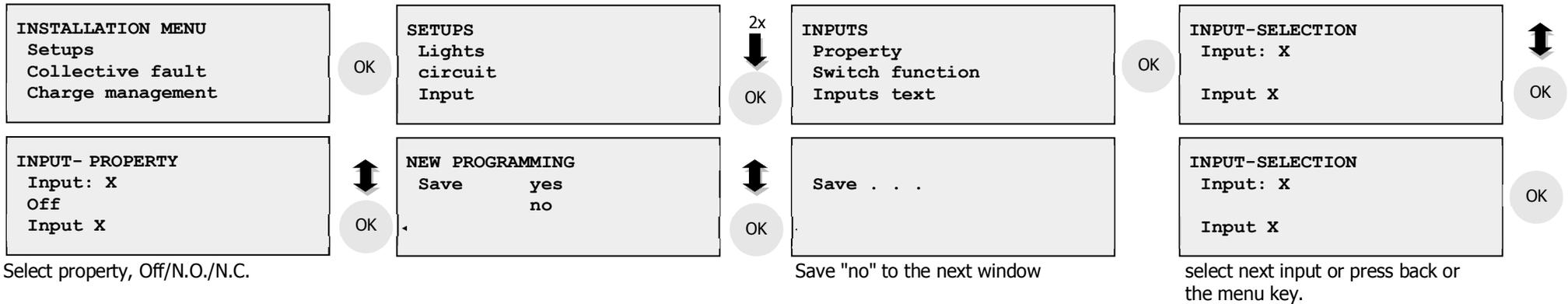
Setups – Circuit text (USB-Keyboard necessary)



Setups – Circuit current tolerance

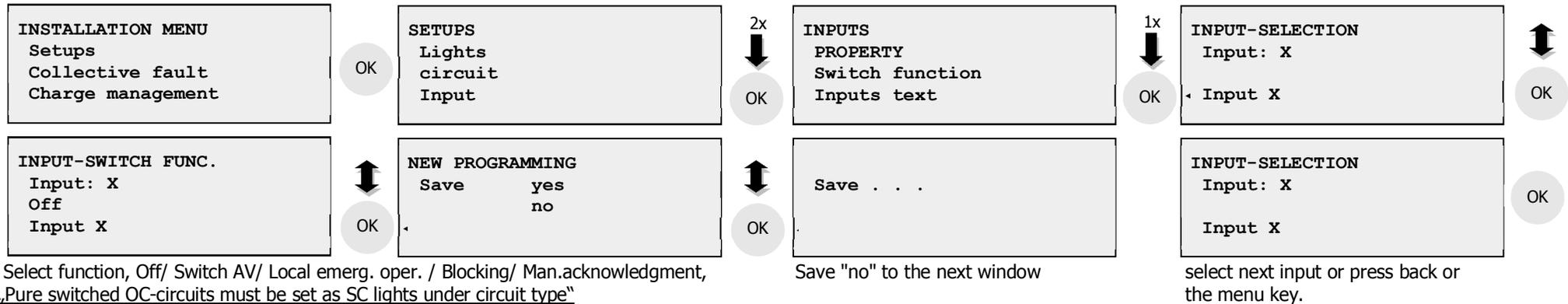


Setups – Inputs Property



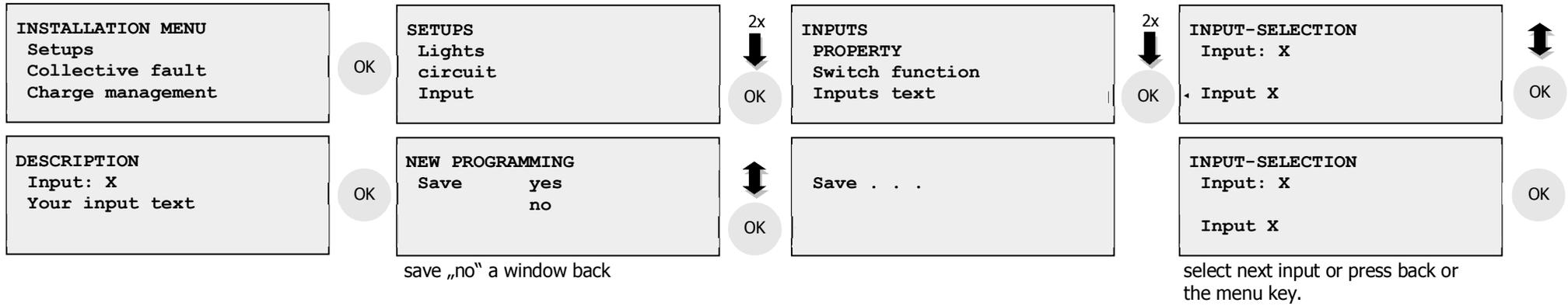
Select property, Off/N.O./N.C.

Setups – Inputs Switch function

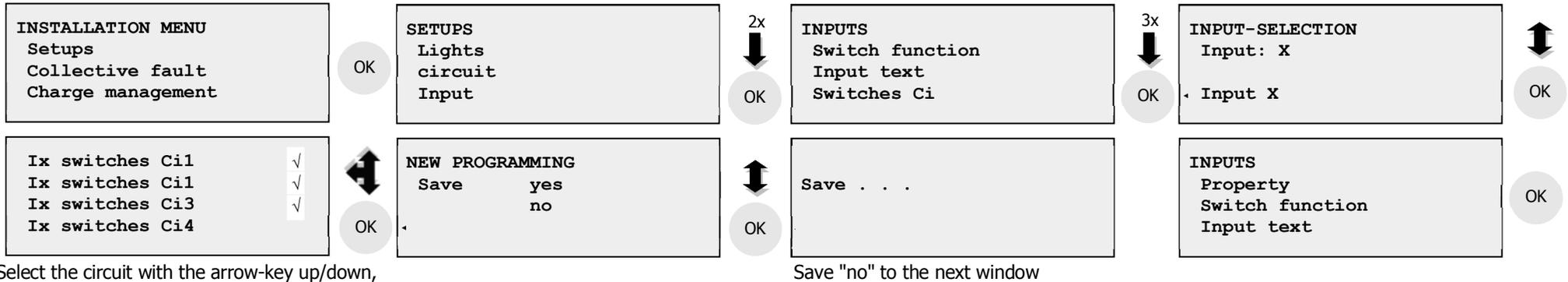


Select function, Off/ Switch AV/ Local emerg. oper. / Blocking/ Man.acknowledgment,
„Pure switched OC-circuits must be set as SC lights under circuit type“

Setups – Inputs text (USB-Keyboard necessary)

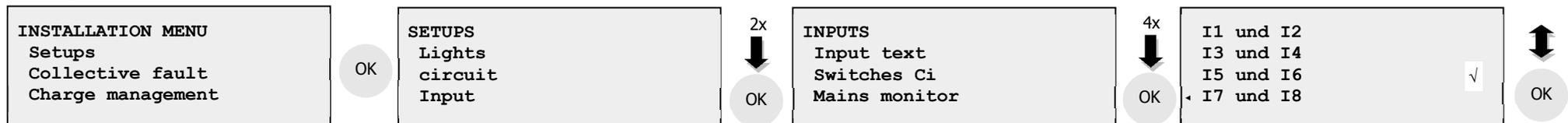


Setups – switches Circuit (Ci)



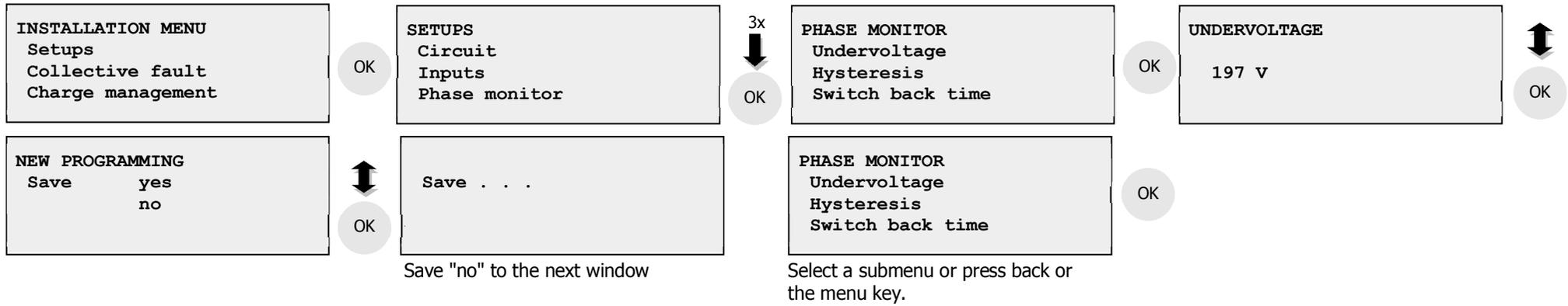
Select the circuit with the arrow-key up/down,
To confirm with „OK“ and to leave with the arrow-key left.

Setups – Mains monitor

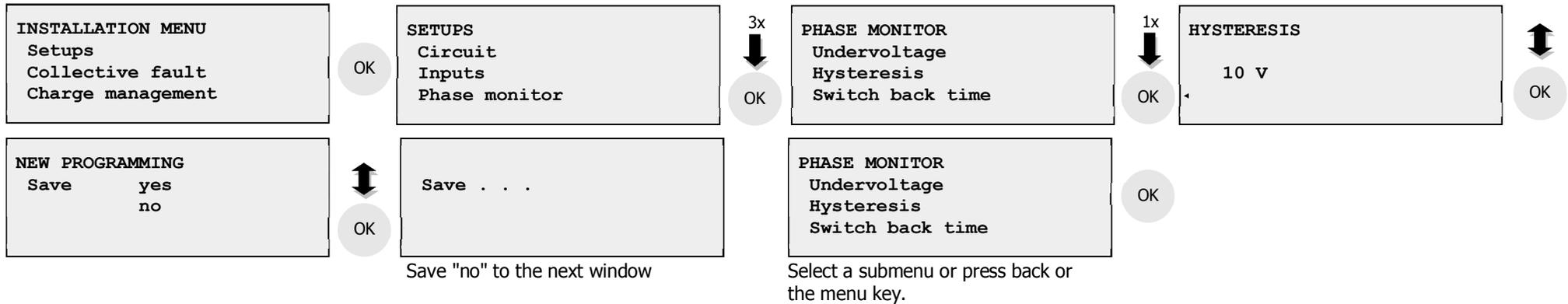


By using the function mains monitor the inputs can be E5 / E6 and E7 / E8 used for mains monitor monitoring, by means of NC / NO link.

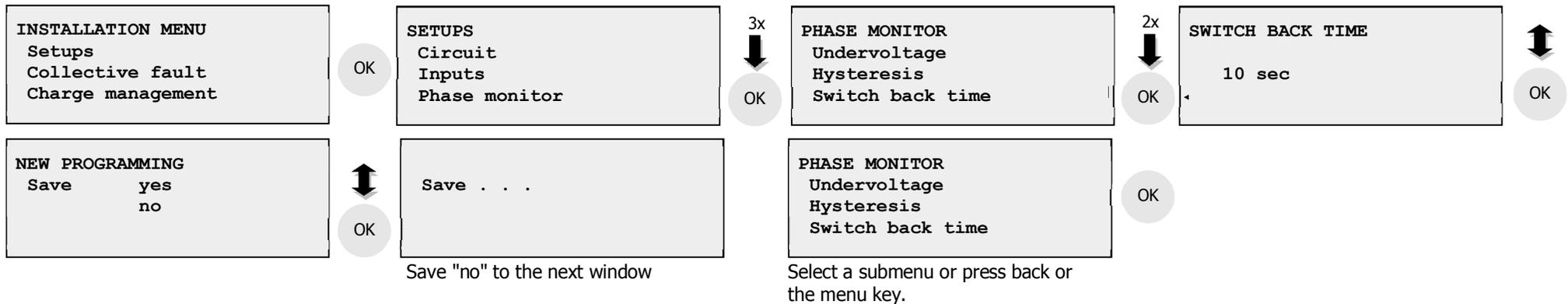
Setups – Phase monitor undervoltage



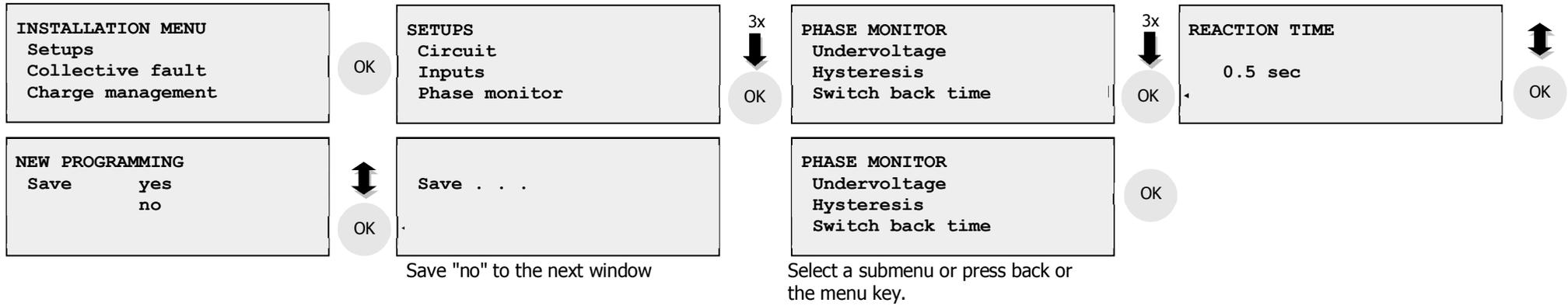
Setups – Phase monitor hysteresis



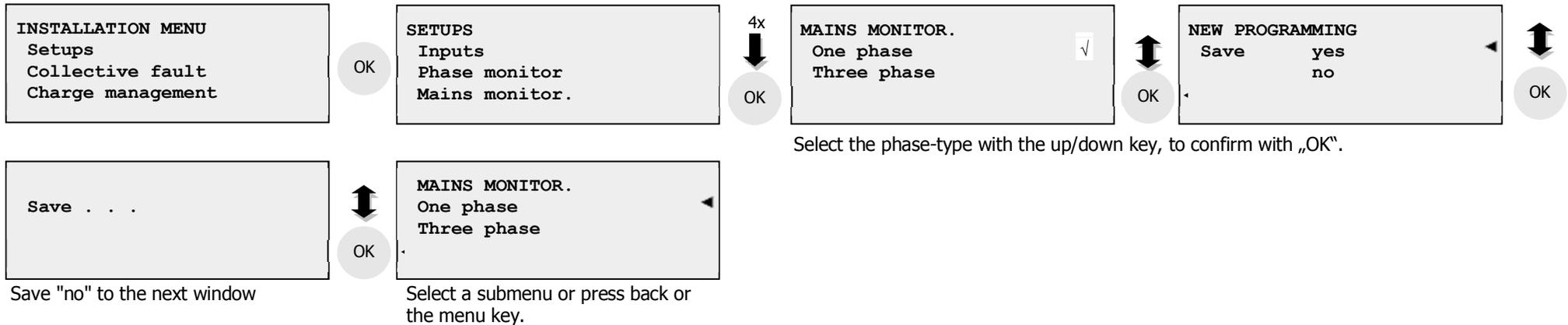
Setups – Phase monitor switch back time



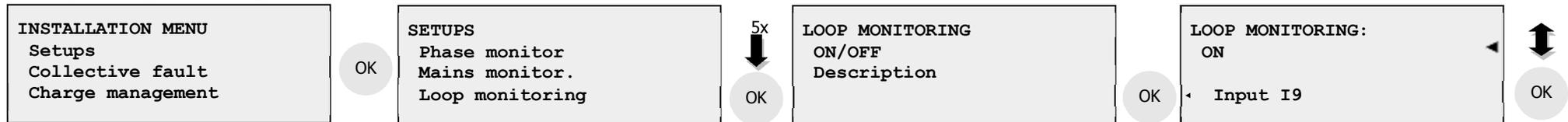
Setups – Phase monitor Reaction time



Setups – Mains monitoring

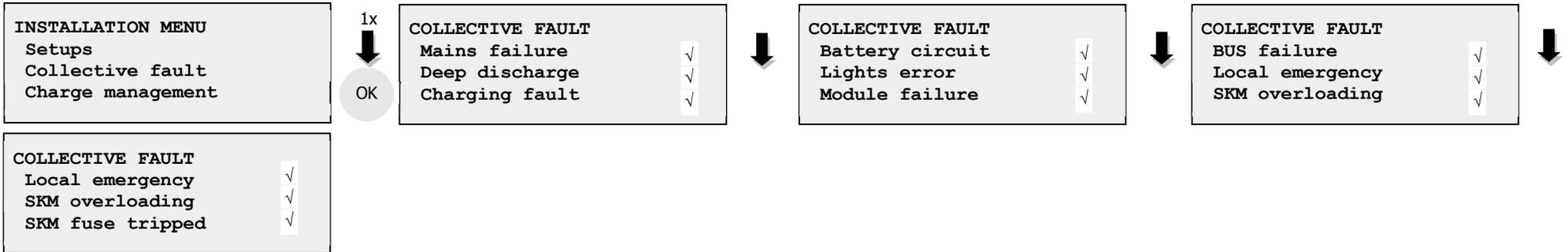


Setups – Loop monitoring

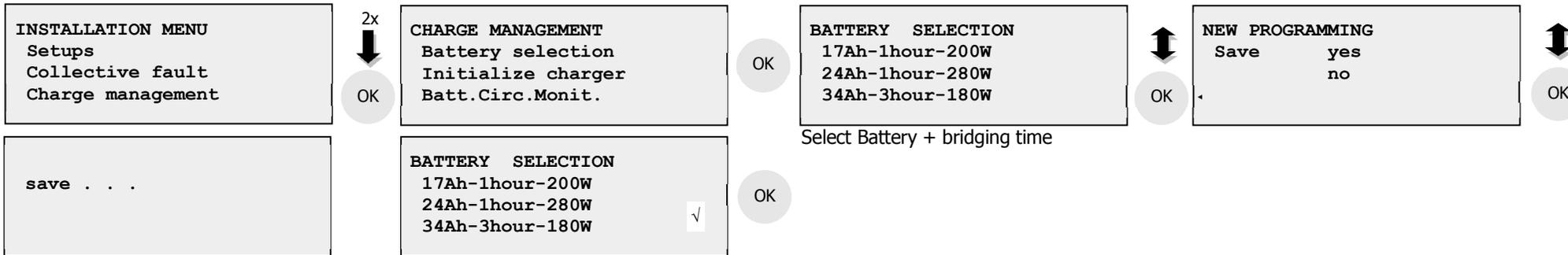


The name of the loop monitoring can be changed by using a USB keyboard. To do this, connect a standard USB keyboard to the USB port on the top.

Collective fault (unchangeable)



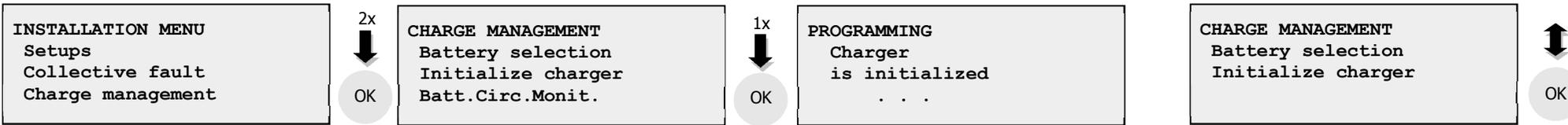
Charge Management – Battery selection



Save "no" to the next window

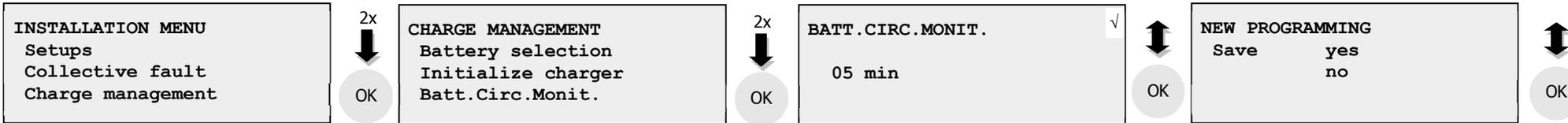
Select again or press back or Menu-key

Charge management – Initialize charger



Select again or press back or Menu-key

Charge management – Battery circuit monitoring



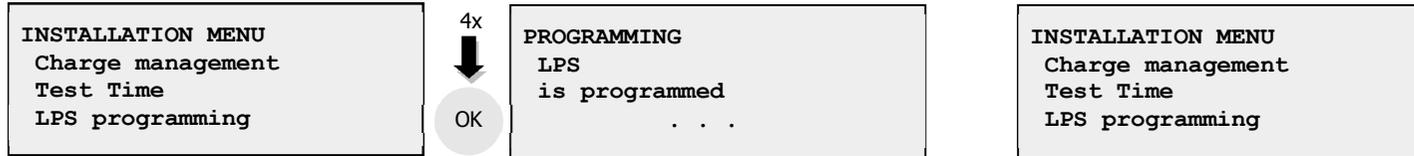
Select Time 5/ 30/ 60min.

Test Time

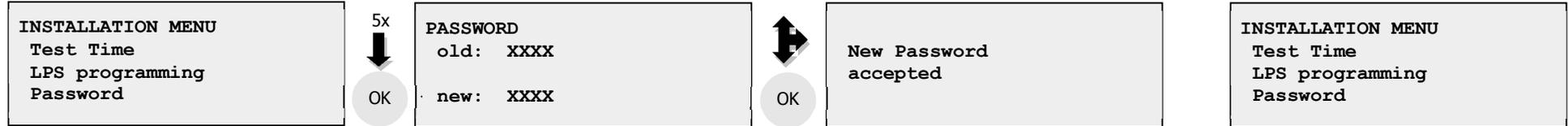


Set the time according to the identification plate

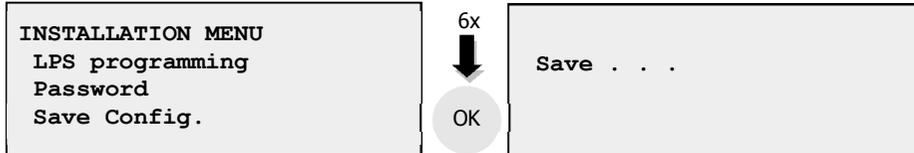
LPS programming



Change Password

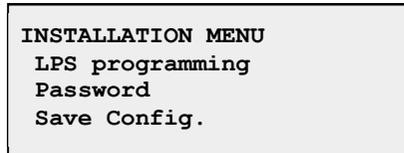


Save Configuration (USB stick necessary, connection see cable entry)

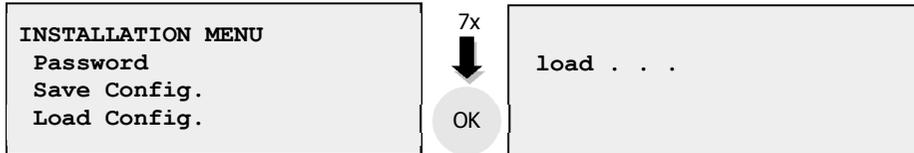


Without USB stick, the following message appears ->

no USB-Stick available!

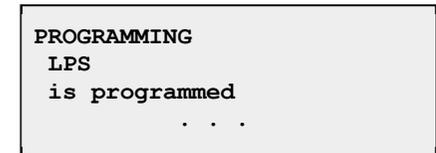
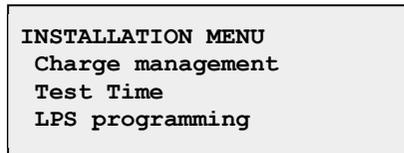


Load Configuration (USB stick necessary, connection see cable entry)



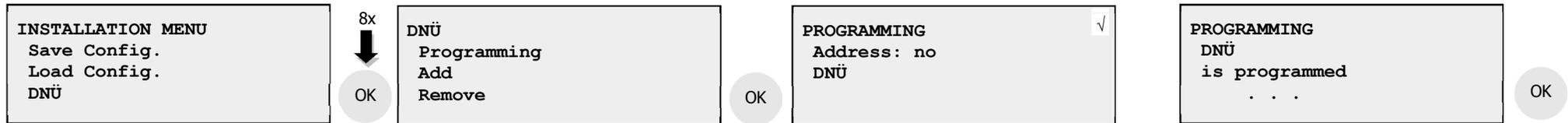
Without USB stick, the following message appears ->

no configuration found !

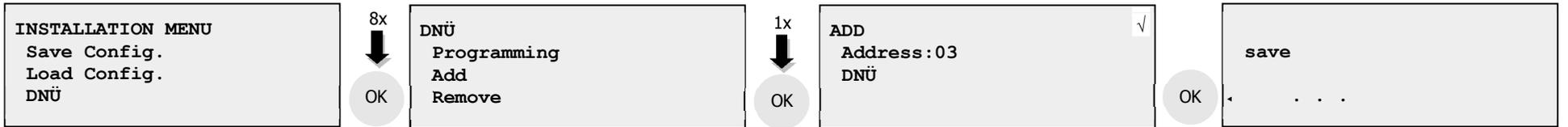


After loading the configuration, the LPS will be programmed automatically.

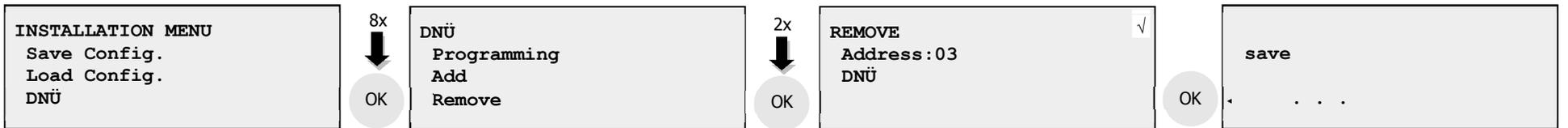
DNÜ



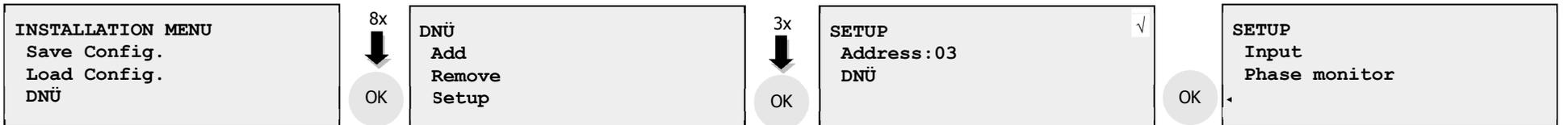
If there is an error or there is no DNÜ, the message "Program error" will be displayed, acknowledge or go back.



Select address and confirm



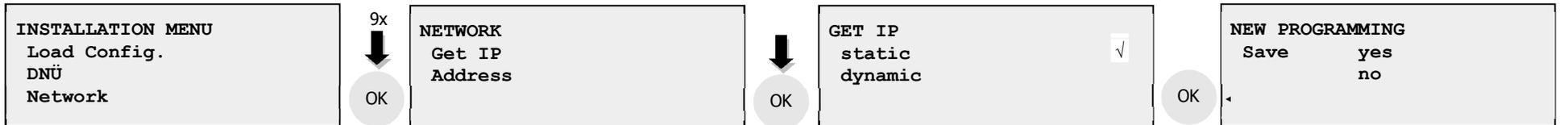
Select address and confirm



Select address and confirm

Select input or. phase monitor, set as under setups – Inputs or setups phase monitor described.

Network



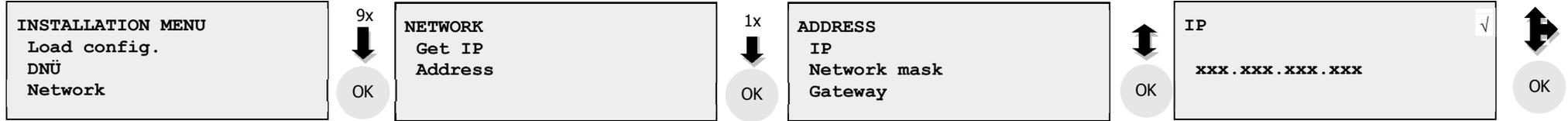
Select und confirm

choose yes or no and confirm

If the dynamic setting is selected, the existing network must be configured accordingly and the IP must be assigned via IP / dynamic / related.

In the case of static selection, the corresponding data (IP / network mask / gateway) must be entered manually via the MENU item "Address". (see the next page)

Network



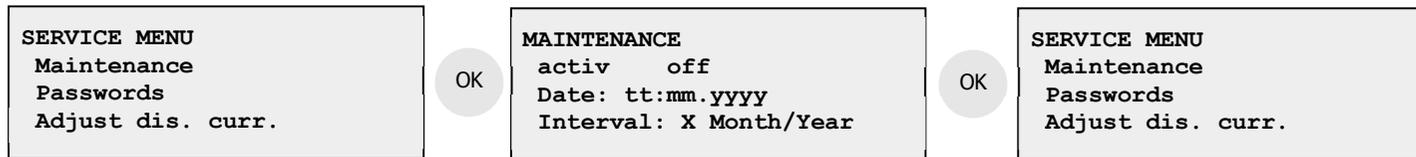
Select and confirm

Use the arrow keys up / down / right to set the corresponding numbers and confirm with OK

The same procedure applies to the items "NETWORK MASK" and "GATEWAY", after which the device is configured for the network.

7.9 Service Menu

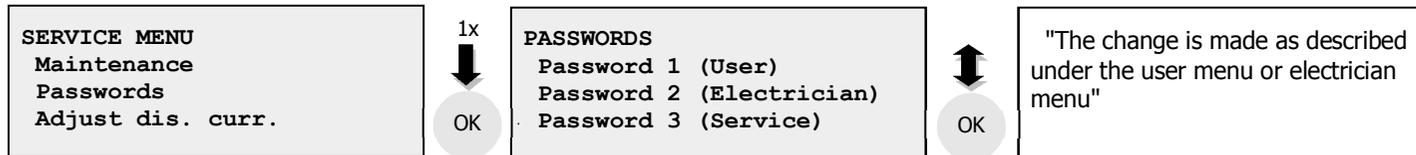
Maintenance



OFF/ON, adjust Date + Interval

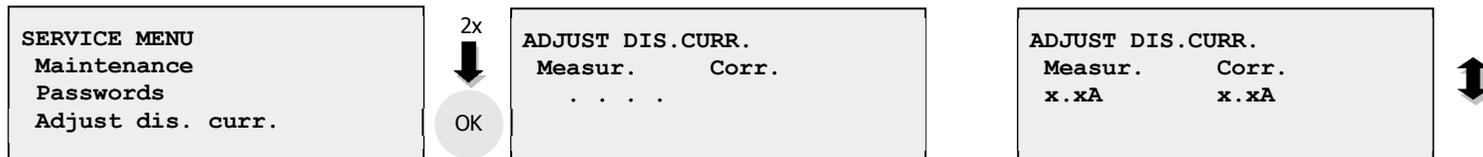
If the period / interval has elapsed, the INFORMATION Acknowledgment is on display plant maintenance. This message can only be acknowledged in the Service menu in the menu item Plant Maintenance by a service employee. To do this simply acknowledge the proposed date or select a new time / interval or deactivate it if not desired.

Passwords (change all Passwords)



Select Password and press OK

Adjust discharge current



the current is determined

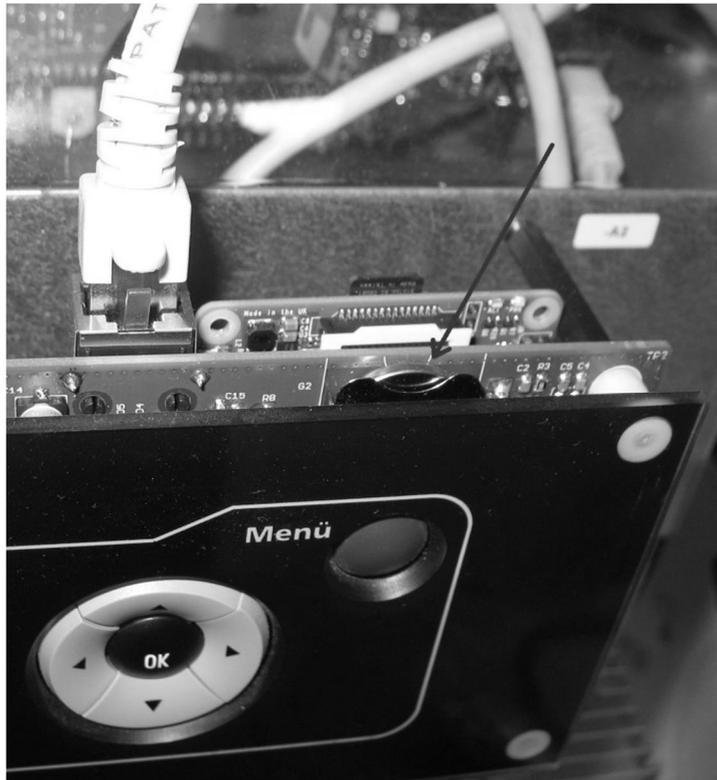
correct current value, end with the left arrow

The current is measured, using a pair of current clamps to measure the current on the plus or minus line and compare it with the left value and, if necessary, correct it with the arrow keys up / down. Confirm with OK and exit via the arrow on the left or the menu key.

8. Manufacturer notes

8.1 Replacing the battery to secure the timer function

The battery (CR 2032) must be replaced every 5 years as a precaution. To replace the battery, switch off the system as described in section 7.7. Then remove the CAT cable at the display -A2 connector -X1. The battery -G2 is located on the upper right-hand side of the display panel. Use plastic tweezers/pin to push the battery up from below and remove it. When inserting the new battery, please note that you should also handle it either with plastic tweezers or with a rubber glove. Never touch the plus and minus pole with your fingers at the same time, the button cell will be permanently discharged.



Appendix 1 – Possible fault indications of the system

Error	Cause	Remedy
Lights missing (Circuit LED flashes after light test)	Lights/lamp defective No or incorrect Lights connected to the output of the circuit module. Incorrect type of Lights in programming	Check Lights Check output terminals Check programming
Fault / mains fault Mains failure	Mains missing or mains fuse defective Network monitor defective	Check mains supply, check mains fuse, Check "SETUP – phase monitor" programming
Fault / local emergency operation / input X	In the program, the network monitor of input X is activated, but no voltage is connected or the voltage is faulty.	Check wiring and programming of the input.
Battery circuit error	No battery connected, battery fuses defective	Check battery connection, check battery fuses
Fuse error (circuit LED flashes and fault lights up)	Output circuit fuse on the circuit module defective	Check connected Lights for short-circuits.
Lights missing e.g. Ci01 – L01	Lights defective Incorrectly coded module. Module defective	Replace Lights Check the coding of the corresponding module. Measure the input and output voltage at the module, replace the module if necessary.
Lights missing e.g. Ci01 – L01 and Ci01 – L01 and.....	Double-coded component. Module not calibrated (only for MSÜ3 and standard module with individual Lights monitoring)	Check the coding of the modules. Perform circuit calibration
Lights in the building do not light up. (No error message on the master display.)	Continuous/backup coding on the module incorrect. DIP switch for lamp output wrong.	Check the coding of the module. Check DIP switch
Lights failure e.g. HG – CI01 (only for SKM-Normal OC/SC)	Lights defective	Check circuit for defective Lights, replace Lights.
Date + time is wrong	Date + time incorrectly set Time control function battery -A2-G2 defective/empty	Set date + time acc. to section 7.7 Replace battery acc. to section 8.2.

Free for Test Report

Free for Test Report