

PWC 12/24-70

Professional Workshop Charger

Service Charger for Lead Batteries



User Manual

V 1.0

Important information regarding this documentation

The technical data, information and illustrations have been carefully compiled and correspond to the production status at the time of printing.

However, the manufacturer reserves the right to improve or change products, specifications and documentation at any time without previous notice, should it be deemed necessary for technical or developmental reasons.

Descriptions have been drawn up very carefully and in great detail. Nevertheless, it is never possible to entirely exclude errors. Under no circumstances, however, will the manufacturer be held liable for errors or damage that may result from use or from any misinterpretations.

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Warning!

Failure to comply with this safety instruction may lead to personal injury or material damage or impair the function of the charger.



Danger! High voltage!

Failure to comply with this safety instruction may lead to injury or death, or may damage or destroy the charger.



N.B.

Supplementary information on handling the charger

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Important information on using the battery

To avoid operating errors, please read this manual carefully before installing and first using the charger and follow the corresponding instructions faithfully. Please store this manual near the charger so that it can be referred to later on, enabling operators to inform themselves of the charger's functions.

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1. Scope of Delivery

LEAB's service charger PWC 12-24/70 is a high-quality battery charger that can be used in the workshop or when making service calls. Before using it, please check that the following is included in the box that has been delivered:

- service charger PWC 12-24/70
- power supply cord 230VAC, 1.5 m long, with a Schuko plug (2-pin earthed plug)
- battery charging cable 2x 10 mm², 1.5 m long with charging clips 200 A
- battery charging cable 2x 10 mm², 5 m long with charging clips 200 A*
- English manual (this document)

* optional

Should you find that not all of these items have been included in the scope of delivery, or should the charger or power cord be defective, please contact your dealer or LEAB.

Should you require an additional manual, you can download it free of charge as a PDF document from www.leab.eu or you can change directly to our product site:



Should you require spare parts or accessories for your LEAB workshop charger PWC 12-24/70, please refer to Chapter 2.7 of this manual and send your order by e-mail to bestellung@leab.eu.

Translation to Picture on page 5:

Spannung	Voltage
Strom	Current
Konstanter Strom	Constant current
Konstante Spannung	Constant voltage
Erhaltungsladung	Maintenance charge

2. Technical Features and Functions

The LEAB PWC portable service charger was developed for both mobile and stationary use for charging all types of lead batteries.

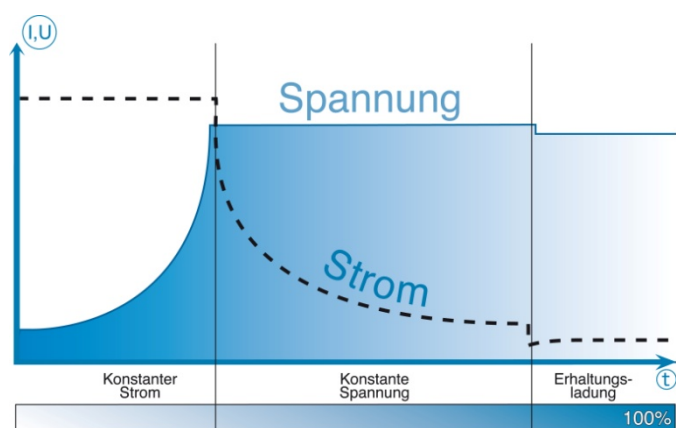
It offers three important types of operation for daily use in workshops and when making service calls:

- **fully automatic charging of 12 V lead batteries (wet cell, gel, AGM)**
- **fully automatic charging of 24 V lead batteries (wet cell, gel, AGM)**
- **power supply function for supplying batteries that have been removed from the vehicle**

It is possible to switch from one type of operation to another simply by pressing a key.

2.1 Charging Process

Batteries are charged fully automatically, monitored by a micro-processor with a three-stage IU_1U_2 charge characteristic for optimum and gentle treatment of the batteries. After connecting the battery to the PWC, the charging parameters for the battery can be adjusted by selecting the type of battery (standard or gel/AGM).



Charging with constant current (I-phase, orange LED lights up)

The maximum charging current is used to charge the battery, depending on its charged status, so as to store as much energy as quickly as possible in the battery. If a battery that has been totally discharged is attached to the charger, the charger will start charging with reduced energy to avoid damaging the battery. Once the main charging voltage has been reached (14.4 (28.8) to 14.7 (29.4) V, depending on the type of battery) the charger switches to the next charging phase.

Charging with constant voltage (U_1 -phase, orange LED lights up)

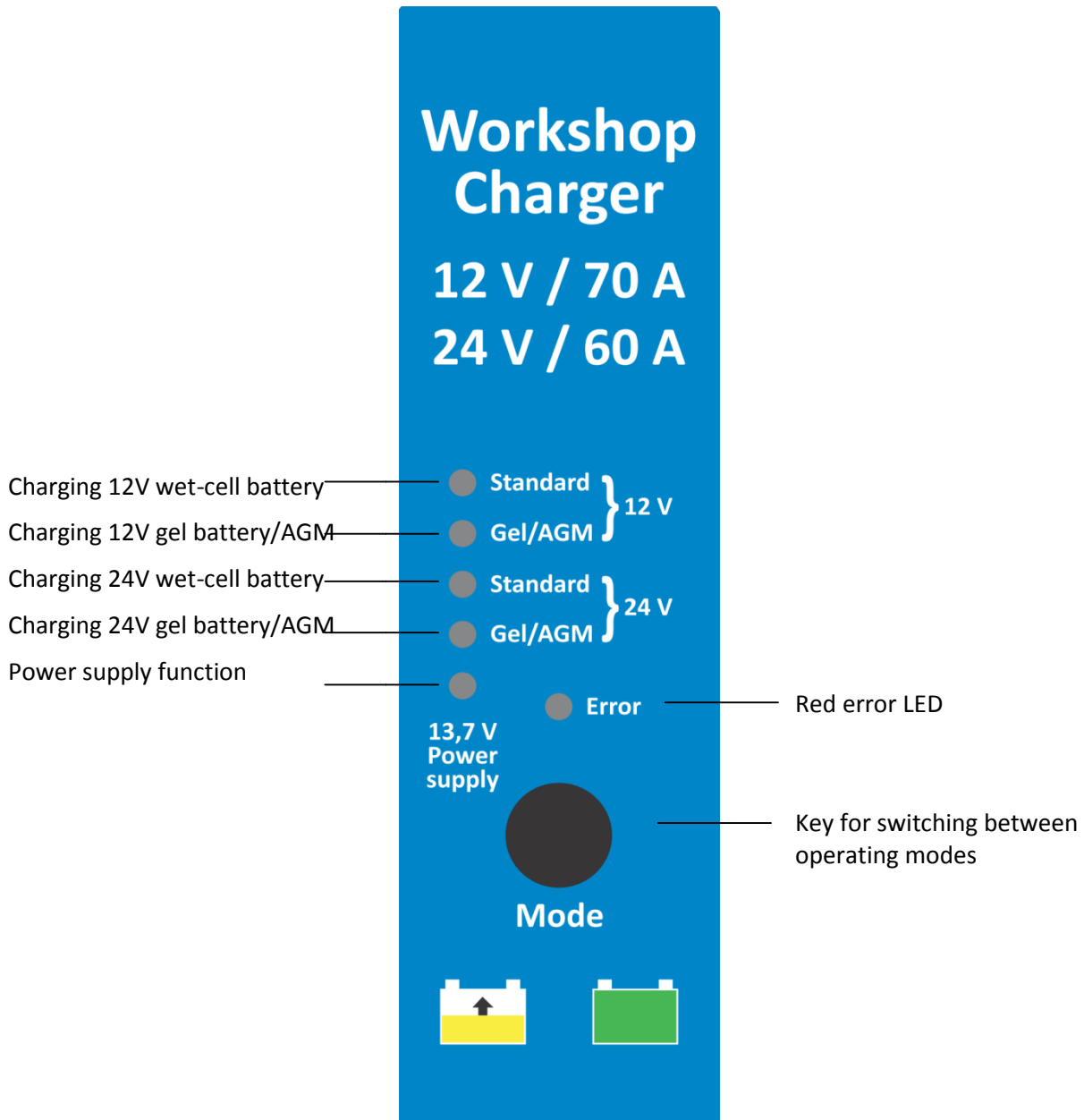
The battery becomes fully charged in this phase. Voltage is maintained at 14.4 (28.8) V (when set to gel/AGM) or 14.7 (29.4) V (when set to standard). As the charge increases, the current continuously decreases and approaches a lower limit that depends on the type and size of the battery. As soon as it drops below this value or exceeds the set minimum charging period the charger switches to phase 3:

Maintenance charging with reduced voltage (U_2 -phase, green LED lights up)

The charging voltage is reduced to 13.6 (27.2) V (when set to gel/AGM) or 13.8 (25.6) V (when set to standard) in order to maintain the charge for an unlimited period of time, whereby the physically induced self-discharge is compensated and the battery is maintained in a fully charged state until it is disconnected.

The values given are for 12 V charge settings (values for 24 V in brackets).

2.2 To Operate



2.3 Charging the Battery

2.3.1 Connecting the Charger

2.3.1.1 Battery in a Vehicle

Attach the two battery clamps mounted to the LEAB PWC as follows:

- the red battery clamp to the positive pole on the battery (marked +). If it cannot be accessed, use the jump-start in the engine compartment;
- the black battery clamp to the negative pole on the battery (marked –) or an earthing point located near the battery for this purpose.

If unsure, check the operating manual for your vehicle or ask the vehicle manufacturer.

2.3.1.2 Battery Outside the Vehicle

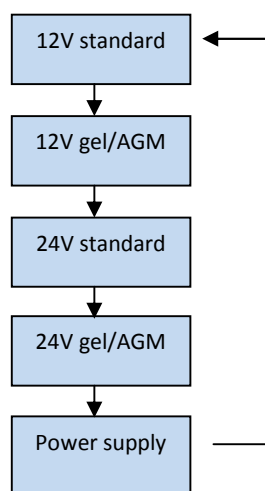
Attach the two battery clamps mounted to the LEAB PWC to the battery terminals as follows:

- the red battery clamp to the positive pole on the battery (marked +);
- the black battery clamp to the negative pole on the battery (marked –).

2.3.2 To Start Charging

Insert the power cable plug into a Schuko socket that is part of your indoor power circuit to switch the PWC charger on. After connection to the mains, one of the five operating LEDs will start to blink, signalling the current status of operation. Press the *Mode* key to switch from one type of operation and battery to another: press and hold the *Mode* key until the LED next to the desired position lights up. Then release the *Mode* key. After a few seconds, the PWC will start in the program that has been selected.

The following steps are carried out in sequence:

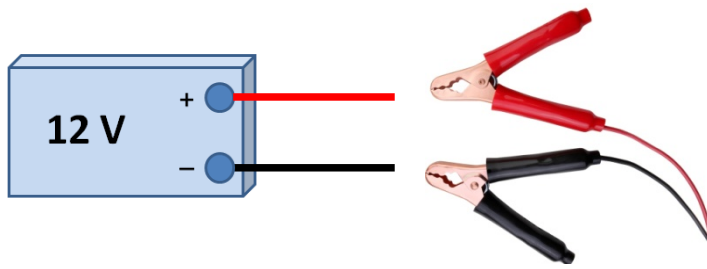


If the LED slowly blinks orange, charging will begin based on this program.

If the orange and red LEDs blink alternately, either an incorrect battery voltage has been selected, no battery is attached, or the battery is completely discharged.

Charging will not be carried out as long as the red LED is lit or blinks.

2.3.2.1 12V Battery (Single Battery)



If the voltage of the connected battery does not match the selection made, the orange LED and the red error LED lights will blink alternately to indicate an error.

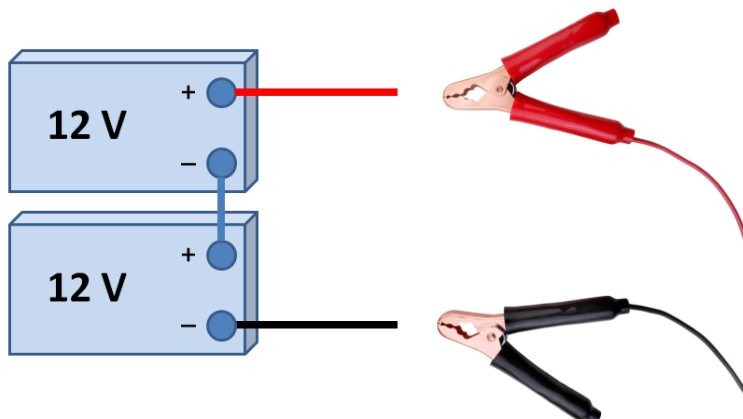
To set the correct voltage, press the *Mode* key and hold it until the LED next to the desired 12V type of battery, i.e. *Standard* or *Gel/AGM* lights up. Then release the *Mode* key. After just a few seconds, the PWC will start the program that has been selected and charge the connected battery until it is fully charged. The program runs fully automatically. As soon as the battery is fully charged, the LED display will switch from orange to green and the charging voltage will be reduced to maintenance charging. The battery can now be disconnected or remain connected to the charger until it is required. During this time, the PWC ensures that the battery remains fully charged, irrespective of how long it stays connected to the charger.



Select the correct type of battery: Standard (for wet-cell batteries) or Gel/AGM (for sealed lead batteries that use gel or AGM technology). This is the only way to ensure that the battery will be charged correctly.

Depending on their charged state and the size of the batteries to be charged, it can take up to 12 hours until the batteries are once again fully charged.

2.3.2.2 Battery Voltage 24 V (Two Batteries in Series)



If the voltage of the connected battery does not match the selection made, the orange LED and the red error LED lights will blink alternately to indicate an error.

To set the correct voltage, press the *Mode* key and hold it until the LED next to the desired 24V type of battery, i.e. *Standard* or *Gel/AGM* lights up. Then release the *Mode* key. After just a few seconds, the PWC will start the program that has been selected and charge the connected battery until it is fully charged. The program runs fully automatically. As soon as the battery is fully charged, the LED display will switch from orange to green and the charging voltage will be reduced to maintenance charging. The battery can now be disconnected or remain connected to the charger until it is required. During this time, the PWC ensures that the battery remains fully charged.



Select the correct type of battery: Standard (for wet-cell batteries) or Gel/AGM (for sealed lead batteries that use gel or AGM technology). This is the only way to ensure that the battery will be charged correctly.

Depending on the charged state of the batteries to be charged, it can take up to 12 hours until the batteries are once again fully charged.

If a 24V battery system consisting of two 12V batteries, for example from a truck, is to be charged outside the vehicle, both batteries must be charged separately, and each as a 12V battery.



If sealed lead batteries (gel or AGM) are charged with too high a voltage over a longer period of time, they can become gas-pressurised and dry out. This will destroy the battery.

Wet-cell batteries require water when charging. This must be refilled regularly.

Please speak to your dealer if you are uncertain about how to charge your batteries.

2.4 Power Supply Function

In order to continue to supply vehicles with power when their battery has been removed so as to avoid the lengthy and arduous reprogramming of your customized settings for an onboard computer and radio system, the LEAB PWC can also be operated as a mains supply circuit without a connected battery.

If, after plugging it into the 230V mains socket, the red error LED lights up, please proceed as follows:

To set the power supply function, press the *Mode* key and hold it until the LED *13.7V Power Supply* lights up. Then release the *Mode* key. After just a few seconds, the PWC will start the selected program and supply the connected devices with a constant voltage of 13.7V up to the maximum current.



The power supply function is only suitable for 12V vehicles.

Although the power supply output is protected against short circuiting and overloading, it is important to avoid longer short circuits to prevent the charging cable and the LEAB PWC from overheating.

2.5 Control Lamps and Error Descriptions

The control lamps on the top of the charger indicate different operating and error statuses:

-  Orange LEDs indicate the selected charger function.
-  Green LEDs indicate that the battery has finished charging.
-  The red LED indicates an error.

The different statuses are indicated by a steady light or blinking. For information on the positions of the LEDs, please refer to Chap. 2.2.

LED display on the charger

LED	Status	Description	Action
	blinking	charger setting for this LED has been selected	
	alternate blinking	incorrect battery voltage has been selected	set the correct battery voltage (Chap. 2.1)
	steady light (orange LED dimly lit)	charging program has been selected, but no battery is connected	connect battery (Chap. 2.1) or set power supply function (Chap. 2.2)
	steady light	battery is fully charged	battery can be disconnected and used

Table 1: LED display on the PWC charger

LED display on the optional remote indicator

If the optional LED remote indicator has been installed (see Chap. 4.5) the statuses of the PWC are displayed there using slightly different coding, because for reasons of space only one three-colour LED is used on the indicator.

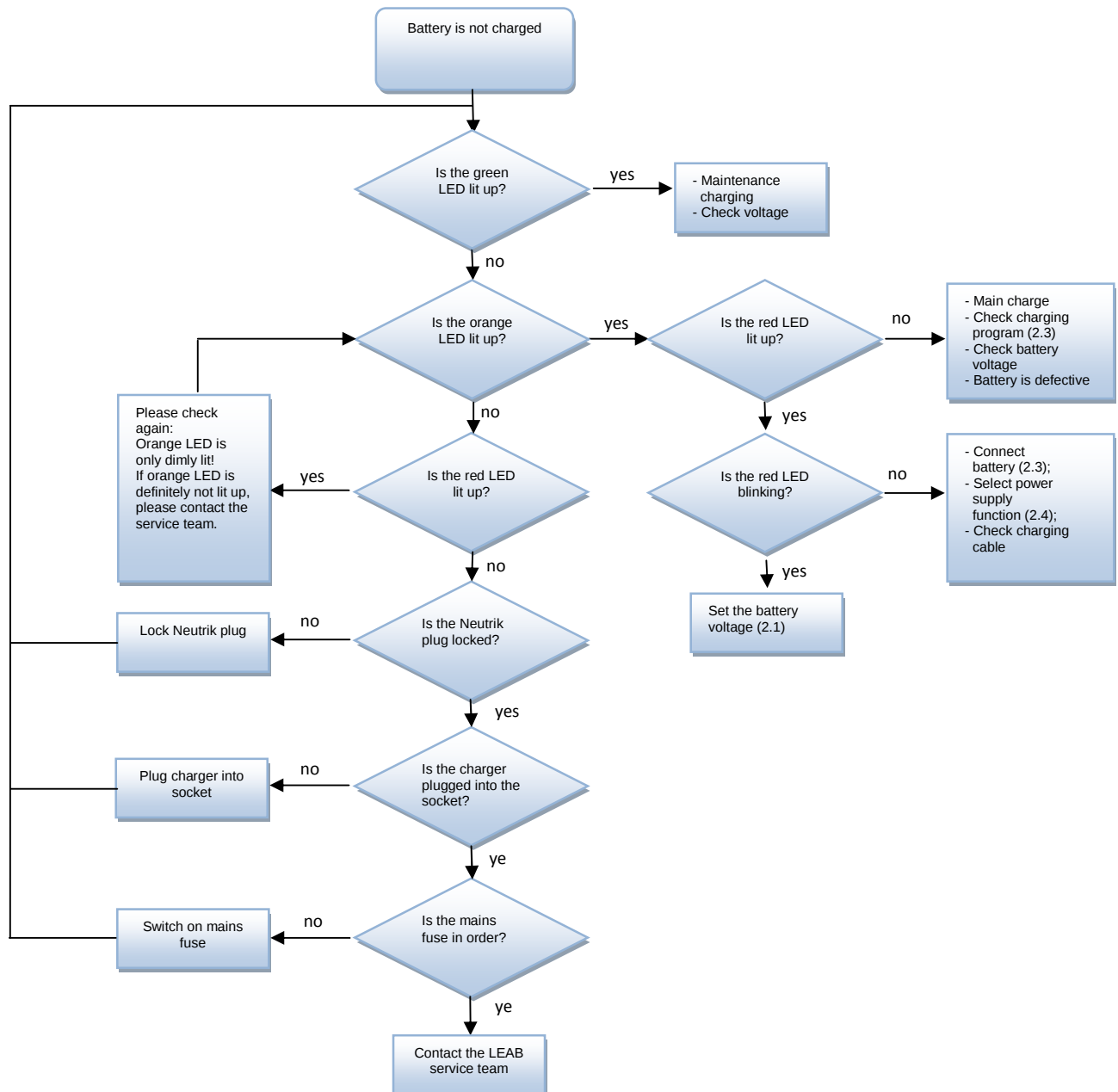
LED	Status	Description	Action
	steady light	charger setting for this LED has been selected	
	blinking	incorrect battery voltage has been selected	set the correct battery voltage (Chap. 2.1)
	steady light	charging program has been selected, but no battery is connected	connect battery (Chap. 2.1) or set power supply function (Chap. 2.2)
	steady light	battery is fully charged	battery can be disconnected and used

Table 2: LED display on the optional remote control

2.6 Searching for Errors

If the LEAB PWC should ever not function as desired, please first try to locate the error by following the steps set out below. If this proves to be unsuccessful, please contact your local dealer or LEAB. Have the serial number and date of purchase at hand and be ready to describe the error in as much detail as possible so that we can provide fast assistance.

LED display on the charger. The figures in brackets refer to the corresponding chapters in this manual.



2.7 Maintenance and Service

Regular inspections

Please check the charger as follows before every use:

- Are mains cable and plug undamaged?
- Are charger cable and charging clips undamaged?
- Is the charging cable securely fastened to the charger?
- Is the charger externally undamaged and unopened?
- Have you ensured that the charger is not in contact with water, oil or other liquids?

If used commercially, the LEAB workshop charger PWC is portable electrical equipment as defined by the accident prevention regulations published by the German Employers' Liability Association (BGV-A3).

In accordance with this guideline, it is mandatory that such devices be tested on a regular basis (generally at least once a year) for electrical safety. If necessary, please check with the Employers' Liability Association to determine whether this or similar regulations must be complied with and undertake suitable measures to ensure the safety of your employees.

The relevant Employers' Liability Association or accident insurer will provide more information.



Always check the charger and the cable for damage each time before using the device!

Do not use a damaged device or a device with a damaged attachment cord. Have this fixed immediately!

Always have the device checked if it has come into contact with liquids!

Have the device checked regularly by a trained electrician!

If necessary, any repairs that are required should only be carried out by LEAB!

Spare parts, accessories

The following spare parts and accessories can be ordered from LEAB's service team at bestellung@leab.eu or in LEAB's shop at <http://shop.leab.eu>. Please include the part number in your order:

Pos.	Description	Part number
1	Charging cable 2x 10 mm ² , 1.5 m with terminal clamps 200 A	1600360063
2	Charging cable 2x 10 mm ² , 5 m with terminal clamps 200 A*	1600360064
3	Charging cable 2x 10 mm ² , 1.5 m with terminal clamps/temp sense	1600360065
4	Power cord 1.5 m Neutrik coupler / Schuko plug D	1601001122
5	Power cord 1.5 m Neutrik coupler / mains plug CH	1601001123
6	Neutrik coupler NAC3FCA blue, individual (set)	0205900023
7	Remote display ABC, LED with 12 m cord, RJ45	1401036730

Table 3 Accessories

* also available in other lengths upon request

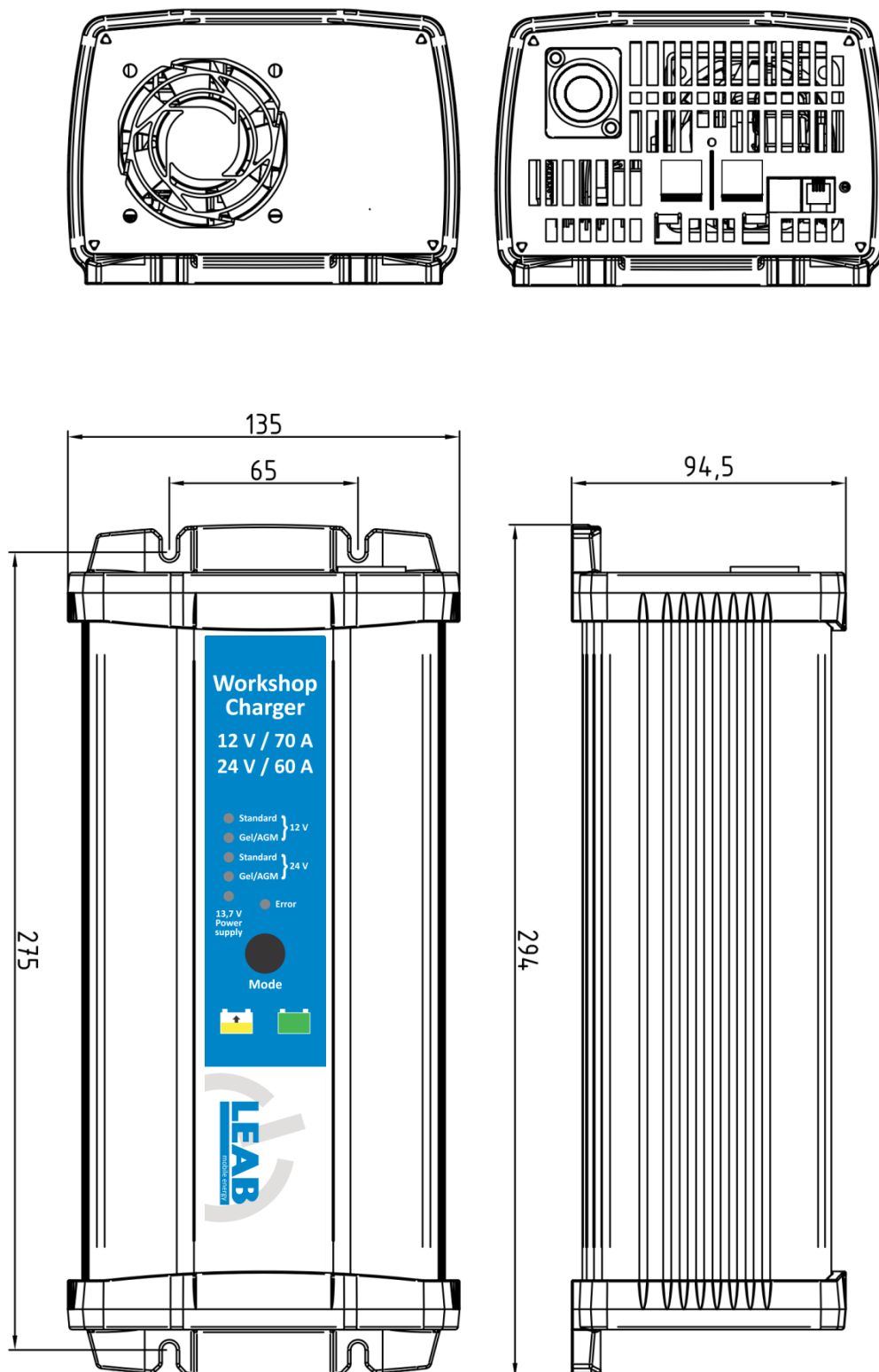
3. Specifications

3.1 Technical Data

Model	PWC 12-24/70	
Part number	0101036830	
Battery		
Type of battery	Wet-cell and sealed lead-acid, lead-gel, AGM batteries	
Charge characteristic	IUoU	
Recommended battery capacity	40 ... 1,000 Ah	
Charging current		
Charging current, maximum	70 A @ 12 V / 60 A @ 24 V	
Charging current, continuous	60 A	
Fluctuation	< 3 %	
Charging voltage	Standard	AGM/Gel
Main charge	14.7 / 29.4 VDC	14.4 / 28.8 VDC
Maintenance charging	13.8 / 27.6 VDC	13.8 / 27.6 VDC
Supply voltage (AC)		
Input voltage (rated values)	230 V / 50 Hz / 8 A	
Input voltage range	90 ... 270 V	
Input frequency range	0 ... 400 Hz	
Standby current (from the battery)	< 2 mA	
Frequency	45 Hz to 65 Hz	
Recommended mains fuses	B16 A or C16 A	
Maximum efficiency	> 88 %	
Type of protection	I	
Operating temperature range	-20 ... +50° C	
IP protection class	IP 20	
Casing measurements (length x width x height)	294 x 135 x 94.5 mm	
Weight (without cord)	2.2 kg	
Accessories	Twinflex charging cable 2x 10 mm², 1.5 m long with terminal clamps 200 A	
	Twinflex charging cable 2x 10 mm², 5.0 m long with terminal clamps 200 A	
	Sense charging cable 2x 10 mm², 1.5 m long with terminal clamps and temperature sense at the terminal clamps	
	Power cord 1.5 m Neutrik coupler / Schuko plug	
Weight (accessories)	0.7 kg (1.5 m) / 1.9 kg (5.0 m) / 1,0 kg (sense) / 0.2 kg (power cord 1.5 m)	

Table 4 Technical Data

3.2 Dimension Drawing



4. Assembly

Basically, the LEAB PWC is intended as a portable charger for use in workshops and on service calls. However, depending on the application and field of use, it may also be practical to mount the LEAB PWC on the wall in order to set up a stationary charging station. For this purpose, the device has feet with appropriate openings for mounting bolts. A 5 m battery charging cable can be delivered as an accessory (or as a special option when purchasing a new charger), which can easily be exchanged with the standard charging cable that may have been part of the original delivery package.

4.1 Converting the Charging Cable

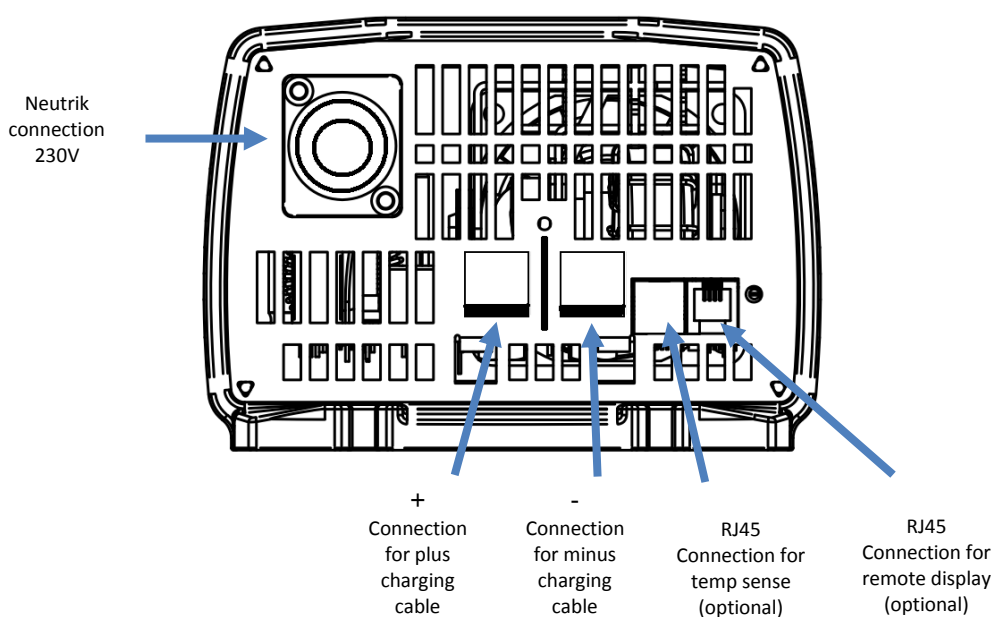
Depending on the application, it may be necessary to replace the charging cable attached to the LEAB PWC. For example, a damaged cable may need to be replaced, or a cable of a length other than the one attached to the charger may be required. LEAB supplies battery charging cables that are 1.5 m and 5 m long as accessories. They can easily be exchanged with the existing standard charging cable.

Specially designed charging cables can be delivered upon request.

To remove the charging cable, disconnect the LEAB PWC from the mains and the battery. Carefully loosen the two M5 screw connections with which the charging cable is connected to the charger output. It is imperative that a 10 mm spanner is held from underneath while loosening the connections in order to avoid unilateral strain on the charger output.

Use the two M5 screws to attach the new charging cable. It is imperative that a 10 mm spanner is again held from underneath in order to avoid unilateral strain on the charger output and to prevent the nuts from rotating. Please note the information regarding polarity on the label next to the charger output. Connect the red charging cable to the output labelled + and the blue or black charging cable to the output labelled –.

If using the charging cable with temperature sense please apply the RJ45 plug into the left housing (see drawing below).



View of PWC from the back, connection side

4.2 Mounting Site

If the charger is to be mounted, please ensure that the following conditions for the surrounding area have been fulfilled:

- Dry, well-ventilated and dust-free assembly site
- Shortest possible distance to the batteries to enable short cable lengths to be used
- Do not install the charger directly next to or above the batteries.
- The charger must be protected against the effects of dust and moisture.
- Ensure that the fan can freely suck in cooling air.
- Do not install the charger directly next to or above flammable materials.

4.3 Mounting the Charger

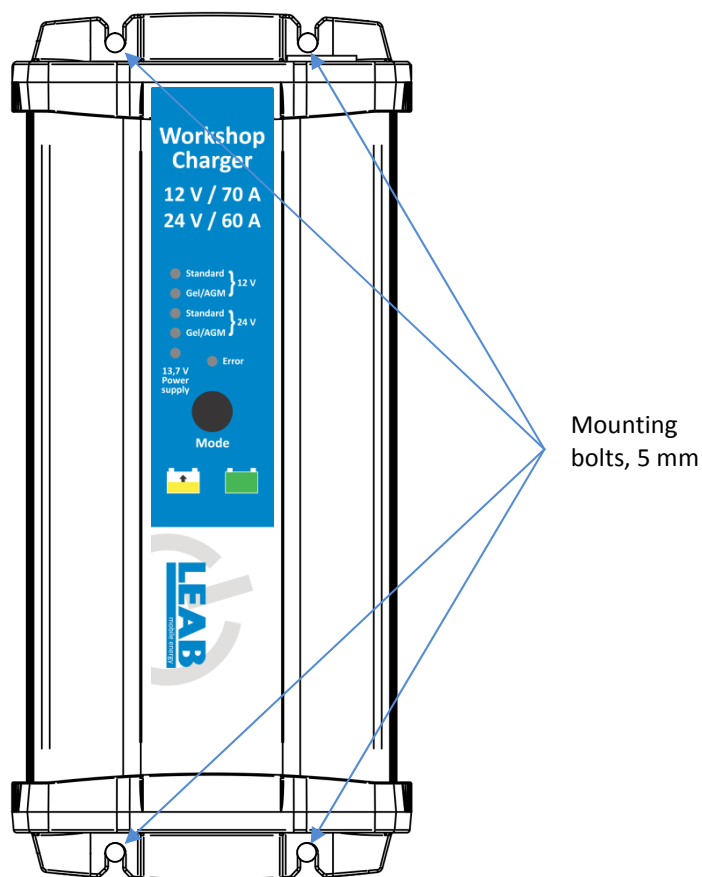
Mount the charger on an even, horizontal or vertical surface. The four openings on the rubber feet are used for mounting the charger. Please use bolts of 5 mm diameter.



Irrespective of whether the charger is mounted horizontally or vertically, the built-in fan ensures optimum cooling.

Diagram drawings can be found in Chap. 3.2.

Mounting the charger vertically

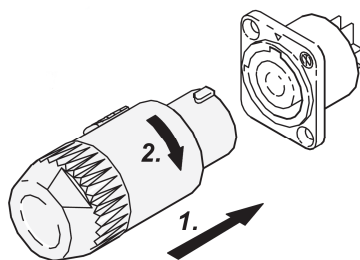


4.4 Connecting and Converting the Mains Supply Cable

When the LEAB PWC is mounted on the wall or used as a portable battery charger, the mains supply cable that is delivered with the charger (1.5 m long) may not be long enough and require replacing. To make this easier to replace, the mains supply cable is attached by means of a detachable Neutrik system power connector. Please refer to Appendix A of this manual for information on how to attach the Neutrik plug.

Please contact LEAB or your dealer if a longer mains supply cable or a mains supply cable that is fitted with a Schuko plug other than the one included in the standard delivery package (250 V/16 A) is required. Upon request, we can produce any kind of made-to-measure cable at a reasonable price. We strongly recommend that you do not change the mains supply cable or produce a new one yourself, nor that you attach other plugs to it.

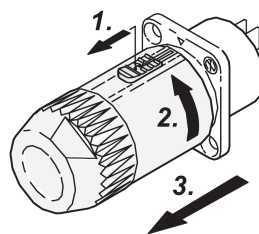
To plug the mains supply cable into the charger or unplug it, please proceed as follows:



To plug in

To plug in

Insert the blue Neutrik plug on the power cord into the connector socket on the back (connection side) of the LEAB PWC (1) and turn the plug to the right (2) until a noticeable click indicates that it has successfully locked into place.



To unplug

To unplug

Pull the silver locking lever towards you (1) and turn the plug to the left (2) until you can pull the plug out of the socket (3).

Official national regulations (e.g. VDE, DIN) or the guidelines of the relevant associations (e.g. German accident prevention regulations/UVV) must be observed before setting up a fixed connection to an existing 230V installation. Such work may only be carried out by a qualified, trained electrician. The LEAB PWC complies with Safety Class I and requires an earthed conductor. For a fixed connection, we recommend a cable cross-section of 3x 1.5 mm².

4.5 Connection of the Remote Display

LEAB can supply an LED remote display as an option for connection to the RJ45 socket on the back of the charger (please refer also to the diagram in Chap. 4.1). This remote display shows the status of the charger's built-in LEDs so that, if necessary, you can also see the charged state and charging parameters close to a fixed battery.

Please refer to Chap. 2.5 for information on the display and depiction of the different LED statuses.



Remote display with attachment cord

Please refer to the spare parts and accessories list in Chap. 2.7 of this Manual for the article number and type of remote display.

General information:



The 12 / 24V charger output is protected against short circuiting: even if the charging clips are directly connected, there is no danger for the charger.

The 12 / 24V charger output is protected against polarity reversal: the battery or PWC will not be damaged if you interchange the battery clamps when you attach them; it is not possible to charge the battery when the clamps have been connected with reversed polarity.

Attaching the terminal clamps to a battery when the charger has already been switched on may cause sparks.

To ensure good electrical contact, clean the battery terminals if necessary before attaching the clamps.

Rubber edges around the circumference of the charger ensure protection of sensitive surfaces on which the charger is placed. In particular, keep the rubber feet free from dirt and solvents so as not to endanger this effect.



If possible, always attach the battery terminal clamps to the battery terminals before connecting the charger to the mains; this prevents sparks!

Always select the charging program on the PWC that matches your battery; if you select an incorrect program, the battery may not be charged correctly or it may be damaged due to overcharging!

Protect the charger against water and moisture!

Inspect the charger regularly for damage and replace a defect or worn attachment cord immediately!

Do not open the charger: there are no components in the charger that can be serviced by users!



Clean the charger's feet regularly and do not expose them to acid, oil and strong cleaning solvents.

Open the lid when charging refillable lead-acid batteries to enable any gases to escape.

Appendix A

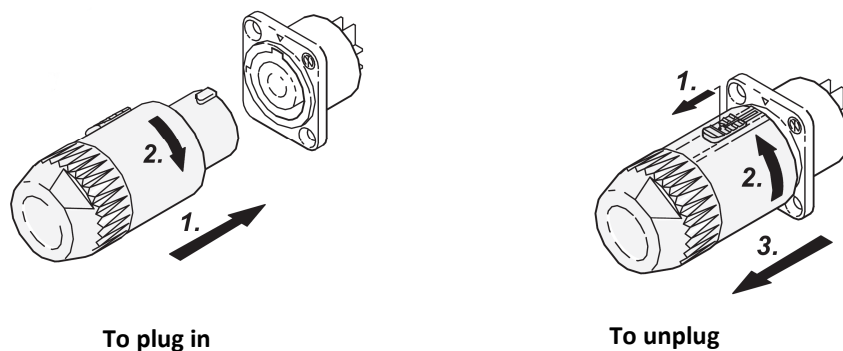
Mains Connector Plug 230V

The following distinctive plug is used for the 230V mains supply cable:

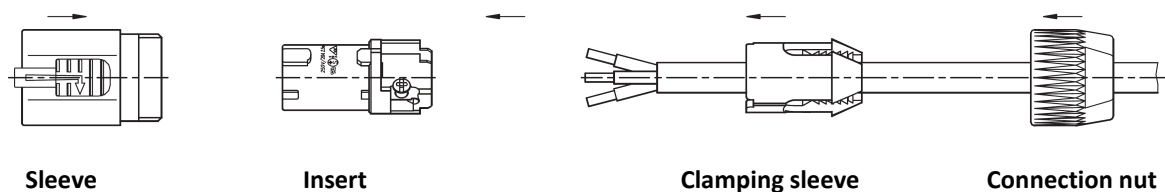
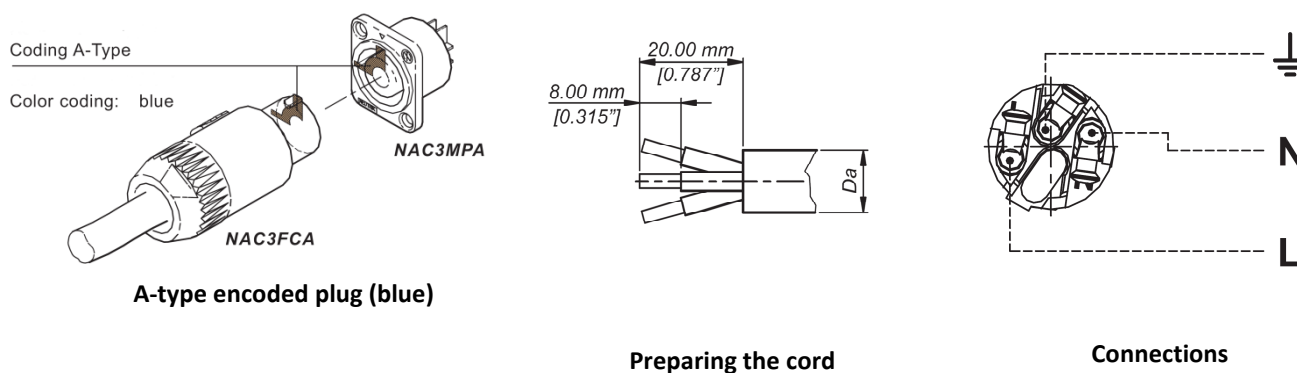
- AC input plug, type: Neutrik NAC3FCA – blue

This plug is available from LEAB as a spare part; please quote article no. 0205900023.

Operating the Neutrik Plug



Assembly Drawing of the Neutrik Plug



Appendix B

Using Lead-Acid Batteries

WARNING



It is dangerous to use lead-acid batteries, because they produce explosive gases!



If you use metal tools when working on batteries, it is important that the positive and negative terminals are never touched simultaneously.

A short-circuit caused by a substantial metal tool can cause the battery to explode. If, as a result of an explosion, acid should be sprayed onto your skin or into your eyes, wash it off immediately, rinse your skin or eyes with clear water and then go to a doctor as quickly as possible.



The area around batteries must be well ventilated.

Smoking and open flames are forbidden when working on batteries.

Regular recharging and maintenance ensure a longer life span for your battery.

Battery Maintenance

Lead batteries, including those not currently in use, must be regularly recharged and maintained. During the warm months of the year, this should be done at least once a month; during the cold months every quarter of a year. Older batteries and those that have been poorly maintained should be inspected every two weeks.

Wet-cell Batteries

The fluid level of wet-cell batteries must be inspected and the acid density must be measured with a hydrometer. Recharge the battery if necessary.

A clean and dry battery surface ensures a longer life span for your battery. Dirt and any acid spots must be removed carefully. This can be done using warm water and a soda solution. Then rinse with clear water and dry the surface carefully. Ensure that the ventilation caps are clean and have been fitted properly.

In addition, check that the terminal clamps fit tightly. Always tighten the clamp bolts.

Ensure that the cell grids are always covered with acid. Only distilled water may be used for refilling the battery. Never use normal drinking water for this purpose!

Do not overfill with too much water as this will reduce the acid density and hence reduce the capacity of the battery (please observe the battery manufacturer's instructions).

Sealed Batteries

Sealed batteries require little maintenance. The acid is bound by a gel or in a fleece (AGM) and therefore cannot evaporate. Inspection is limited to measuring the voltage of the battery.

To obtain representative measurement, do not charge the battery for several hours before measuring. However, measuring only the voltage is not necessarily sufficient, because sulphation can increase the voltage even if the capacity has been reduced. More exact conclusions can only be drawn by using a suitable battery tester, such as a Midtronix MDX.

Summary of Maintenance Items:

- Ensure that batteries are always fully charged (use only suitable, high-quality chargers such as the LEAB PWC). If possible, never partially charge batteries.
- Regular charging reduces the danger of irreversible, permanent sulphation.
- Wet-cell batteries must be topped up regularly with distilled water.
- The surface and terminals of the battery must be clean and dry.
- Cover the connector terminals with Vaseline.
- Do not leave batteries in a hot environment.
- At least once a year, check that the terminal clamps fit tightly.
- Renew batteries if they bulge, have minute cracks or leak.

Storing the Battery

- Always store batteries in a cool but frost-free and dry environment.
- Never store batteries when they are fully discharged. They should be charged at least $\frac{3}{4}$ full.
- Regularly check the battery if it is stored for a longer period of time and, if necessary, recharge it.
- In a very cold environment, continuous maintenance charging prevents the battery from freezing.

Appendix C

Extent of Warranty

Assuming that the charger has been installed by a trained technician and is used for its intended purpose, LEAB offers a legal warranty for a period of 24 months after the date of purchase.

If, during this time and under normal use, the charger should become defective or malfunction, LEAB shall decide whether to repair the charger free of charge or replace it. New or repaired components of matching quality may be used as spare parts.

A warranty claim cannot be accepted under the following circumstances:

- The charger was not used in accordance with the recommendations set out in this manual.
- The charger was used without LEAB's permission for purposes other than general automotive, solar, industrial or maritime fields of application.
- The charger was repaired or modified without LEAB's explicit permission.
- The charger shows damage caused by overcharging, penetration of moisture (water, oil, acid), violent mechanical impact, over- or undervoltage or any other unintended use.

Requirement for Claiming Warranty

Warranty claims can be made at your dealer's or sent directly to LEAB. The following documents are required:

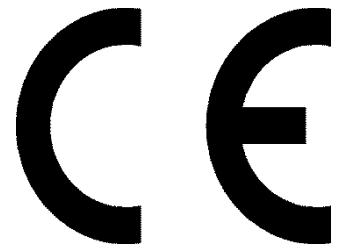
- invoice or delivery note
- model name or type
- serial number
- detailed description of the defect and, if applicable, installation

How to proceed

If the information in this manual does not enable you to resume smooth operation of the charger, or if the defect continues to exist, please contact the service team of your dealer or LEAB.

If the service team is also unable to assist you, please ask for a processing form and a processing number (RMA number) as well as a free UPS return shipping label by phoning us at +49 (0)4621 - 97860-120 or sending an e-mail to service@leab.eu. These documents can then be used to send us the faulty charger free of charge, which we will be pleased to inspect.

CE Declaration of Conformity



The product

LEAB PWC 12-24/70

is consistent with the requirements of the Directives 2006/95/EC, 2004/104/EC and 2005/83/EC as well as the Low Voltage Directive 72/245/EEC.

It is based on the following harmonised standards:

EN 60335-2-29:1996 + A11:97 (IEC335-2-29:2002 modified)

EN 60335-1:1994 + A11:95 + A1:96 + A12:96 + A13:98 + A14:98 + A15:00 + A2:00 + A16:01

as well as

EN 61000-6-2

EN 61000-6-3

EN 61000-3-2

EN 61000-3-3

31 October 2012 in Busdorf, Germany

A handwritten signature in black ink, appearing to read 'B. Westerkamp'.

Bart Westerkamp
Managing Director

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LEAB is certified in accordance with ISO 9001:2008 and 14001:2004