

Champ Pro PWC

1230, 2420

Adjustable, waterproof battery charger



User Manual




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1 About this Manual

Read this manual carefully and keep it in a safe place. This manual is intended for professionals in the automotive electrical field.

Throughout the manual, you will be alerted to warnings and safety notices about potential hazards associated with handling the device. The colours and signal words indicate the severity of the hazard:

Signal word	Meaning
 DANGER	Warns of imminent danger resulting in death or serious injury.
 WARNING	Warns of a potentially dangerous situation that can result in death or serious injury.
 CAUTION	Warns of a potentially dangerous situation that can result in moderate or minor injuries.
NOTICE	Warns of a potentially dangerous situation that can result in material and environmental damage.

In this manual you will find the following symbols:



Shows you useful tips and information about the device.



Indicates a mandatory requirement for the following instruction.



Shows the result of an instruction.

2 General Safety

This manual supports safe handling of the device. Use the device solely in accordance with its intended use:

The Pro PWC Champ is a trickle and battery charger for permanent installation in vehicles. This charger can be used to charge all types of lead acid batteries.

Any modifications to the device or its components are prohibited and do not conform to its intended use.

Observe the following safety instructions:

- **Danger from damaged, frozen or deformed batteries:** Before charging, make sure that the battery is undamaged and the electrolyte is not frozen.
- Only charge batteries in well-ventilated rooms and away from ignition sources.
- When handling batteries, wear acid-proof clothing.
- **Device defect due to incorrect installation:** Install the device in a dry and cool location.

3 About the battery charger



Number	Details
1	DC cable
2	AC cable
3	Charging characteristic indicator
4	Mode button
5	Charge status indicator
6	Error indicator

4 Package Contents

Package Contents	No.
Battery charger	x1
User manual	x1
Housing protection	x1

5 Technical Specifications

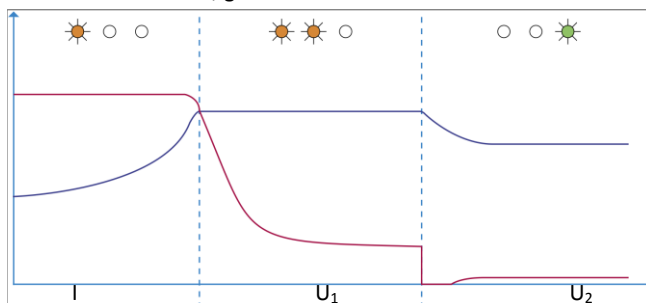
Model	0101143890	0101143891
Model	Champ Pro 1230	Champ Pro 2420
Battery type	Lead acid (wet, gel, AGM, traction)	
Charging characteristics	Choice of 4 charging characteristics	
Battery capacity	90 Ah ... 300 Ah	65 Ah ... 200 Ah
Temperature sensor	Yes	Yes
AC cable	2 m, two-pin earthed plug	2 m, two-pin earthed plug
DC cable	1.5 m with terminal callipers	1.5 m with terminal callipers

Model	0101143890	0101143891
Charging current		
Max. charging current	30 A	20 A
Duration, charge current	30 A	20 A
Ripple	< 3%	
Charge voltage		
Main charging	14.2 V / 14.4 V	28.4 V / 28.8 V
Equalisation charging	16 V	32 V
Trickle charging	13.6 V / 13.8 V	27.0 V / 27.6 V
Power supply voltage	13.7 V	27.4 V
Supply voltage (AC)		
Input voltage	230 V / 50 Hz / 4 A	
Input voltage range	205 V ... 250 V	
Input frequency	40 Hz ... 60 Hz	
Quiescent current (battery)	< 2 mA	
Switching frequency	100 kHz	
Recommended mains fuse	B16 A or C16 A	
Supply voltage (AC)		
Max. degree of efficiency	> 90 %	
Protection class	I	
Operating temperature range	-25 °C ... +40 °C	
IP rating	IP65	
Dimensions (LxWxH)	195 mm x 98 mm x 47 mm	
Weight (without cable)	1.7 kg	

6 Charging characteristics

Charging characteristics: Standard and GEL/AGM

For wet cell batteries, gel and AGM batteries – IU₁U₂



I phase: Charging with constant current

Depending on the battery charge state, the battery is charged with maximum charging current to store as much energy as possible in the battery. After reaching the set main charging voltage, the charger switches to the next charging phase (U₁). If the set main voltage is not reached within max. 10 hours, the device enters the U₂ phase and reports an error.



Deep discharged batteries with a voltage below 6 V for 12 V devices or 12 V for 24 V devices are not charged for safety reasons.

U₁ phase: Main charging with constant voltage

In the main charging phase, the voltage is kept at a constant value. As the battery increasingly charges, the current decreases continuously and approaches a lower limit.

Battery	Model	Main charge voltage
Gel battery	12 V	14.4 V
Wet cell battery	12 V	14.2 V
Gel battery	24 V	28.8 V
Wet cell battery	24 V	28.4 V

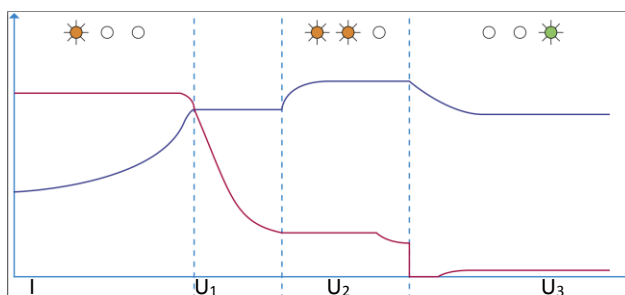
U₂ phase: Trickle charge with reduced voltage

In this phase, the charging voltage is reduced in order to maintain the battery charge for an unlimited period and counteract self-discharge. Additionally connected consumers are supplied via the charger in this phase without loading the battery.

Battery	Model	Charge voltage
Gel battery	12 V	13.8 V
Wet cell battery	12 V	13.6 V
Gel battery	24 V	27.6 V
Wet cell battery	24 V	27.2 V

Charging characteristic: Traction

For traction batteries and maintenance-free and valve-regulated lead acid batteries – IU₁U₂U₃



I phase: Charging with constant current

Depending on the battery charge state, the battery is charged with maximum charging current to store as much energy as possible in the battery. After reaching the set main charging voltage, the charger switches to the next charging phase. If the set main voltage is not reached within max. 10 hours, the device enters the U₂ phase and reports an error.



Deep discharged batteries with a voltage below 6 V for 12 V devices or 12 V for 24 V devices are not charged for safety reasons.

U₁ phase: Charging with constant voltage

In the main charging phase, the voltage is kept at a constant value. As the battery increasingly charges, the current decreases continuously and approaches a lower limit.

Battery	Model	Main charge voltage
Gel battery	12 V	14.4 V
Wet cell battery	12 V	14.2 V
Gel battery	24 V	28.8 V
Wet cell battery	24 V	28.4 V

U₂ phase: Equalisation charging

Following the main charging phase, the electrolyte is stabilised and possible sulphation of the plates is reduced. Depending on the set battery type, the voltage increases with reduced charging current.

Battery	Model	Charge voltage
Gel battery	12 V	15.6 V
Wet cell battery	12 V	15.6 V
Gel battery	24 V	31.2 V
Wet cell battery	24 V	31.2 V

U₃ phase: Trickle charge with reduced voltage

In this phase, the charging voltage is reduced in order to maintain the battery charge for an unlimited period and counteract self-discharge. Additionally connected consumers are supplied via the charger in this phase without loading the battery.

Battery	Model	Charge voltage
Gel battery	12 V	13.8 V
Wet cell battery	12 V	13.6 V
Gel battery	24 V	27.6 V
Wet cell battery	24 V	27.0 V

Charging characteristic: POWER SUPPLY

In the Power Supply setting, Champ Pro chargers can also be connected without the battery connected to supply DC consumers. This setting can be used, for example, when replacing the battery in the vehicle to avoid on board computer and radio data loss due to the loss of power and having to be reprogrammed. It should be noted that the required power must not be higher than the output power of the Champ Pro (see table).

Battery type	Voltage
Champ Pro 1217	200 W
Champ Pro 1230	360 W
Champ Pro 2412	280 W
Champ Pro 2420	480 W


In the Power Supply setting, the Champ Pro gives off a constant voltage. The green LED of the charge status indicator is continuously lit.

Battery type	Voltage
12 V	13.7 V
24 V	27.4 V

The Power Supply setting also allows deeply discharged batteries to be reactivated so that they can be identified and recharged by one of the automatic loaders. After reaching the minimum voltage, switch to the appropriate charging characteristic.

7 Mounting

To mount the device, perform the following steps:

-  • Choose a cool, dry and well-ventilated mounting site.
- Do not mount the device directly next to or above batteries.
- Optimum cooling is achieved by mounting the unit vertically on a flat surface.

1. Fasten the device with screws to the 4 lateral holes (5 mm \varnothing).



The device is mounted.

Setting charging characteristics for the first time

To select a charging characteristic, perform the following steps:

1. Connect the mains plug to a 230 V mains supply.
2. Within 3 to 6 seconds, press the Mode button repeatedly until the LED next to the desired charging characteristic is lit.
3. Disconnect the Champ Pro from the 230 V mains.



The charging characteristic is stored.

You can install the Champ Pro.

8 Installation

The Champ is a battery charger for permanent installation in vehicles.

To install the charger in the vehicle, perform the following steps:

1. Clamp the positive terminal calliper to the positive terminal of the battery.
2. Clamp the negative terminal calliper to the negative terminal of the battery.



The device is installed.

Connection to 230 V mains

To install the device to the 230 V mains, perform the following step:



The charger is only suitable for connection to fused, earthed 230 V mains supplies.

1. Connect the mains plug to a 230 V mains supply.



The charger is connected to the 230 V mains supply.

9 Normal operation

Charging the battery

To unpack the device, perform the following steps:



- The device is installed.
- The charging characteristic is selected.
- The battery is connected.

1. Connect the mains plug to a 230 V mains supply.

- Charging starts automatically, the yellow LED of the charge status indicator lights up.
- If the charging current is 15% below the maximum value, the yellow and green LEDs of the charging status indicator light up.
- When the battery is fully charged, the green LED on the charging status indicator lights up and indicates the trickle charge.



The battery is charged.

Changing the charging characteristic

To change the charging characteristic, perform the following steps:



- The device is installed.
- The battery is connected.

1. Connect the mains plug to a 230 V mains supply.
 - One of the 4 charging LED lights orange while the device is connecting to the battery. There is no voltage output.
2. Press the Mode button repeatedly until the LED next to the desired charging characteristic is lit.
 - After 2 seconds, the LEDs of the charge status indicator flash, the charging process starts.
 - The charging progress is indicated in the charge status indicator via the lit LEDs.
 - If the green LED on the charge status indicator is lit, the charge is complete and the battery can be disconnected from the Champ Pro.



The charging characteristic has been changed.
The battery charges.

10 Maintenance

Check the charger as follows before using it each time:

- Check the mains cable and mains plug for damage.
- Check charging cables and connections for damage.
- Check the charger for external damage.
- Ensure that the wiring between the charging cable and the charger is secure.



For battery maintenance, refer to the battery manufacturer's instructions.

11 Disposal

Dispose of the device in accordance with the Waste Electrical and Electronic Equipment Regulations (WEEE).



The device must not be disposed of with household waste.
Take it to a recycling point or send it to your point of sale.

12 EU Declaration of Conformity

The **LEAB Champ Pro PWC**

models **1230** and **2420**

complies with the requirements of the following directives:

2014/30/EU:	EMC
2014/35/EU:	NRL
2011/65/EU:	RoHS



LEAB

LEAB Automotive GmbH

Thorshammer 6

DE-24866 Busdorf

Germany

Tel.: +49(0) 4621 9 78 60-0

Fax: +49(0) 4621 9 78 60-260

Email: anfrage@leab.eu

Web: www.leab.eu



Nr. 317677