DC-DC Charger TS Pro

Quick start guide
30/05/2024
V 1

1 About this Manual

This manual is aimed to Users with previous knowledge in the field of automotive electrics and summarise the most important steps for mounting, installing and operating the product.

2 Safety

This manual will help you to handle the device safely. Use the device solely in accordance with its intended use. Observe the safety instructions.

⚠ WARNING

Risk of injury from damaged, frozen or deformed batteries

Damaged, frozen or deformed batteries can cause injuries.

1. Before using the battery, make sure that the battery is undamaged and the electrolyte is not frozen.

⚠ WARNING

Burns from escaping acid

Acid can leak out when handling batteries.

1. Wear acid-proof clothing when handling batteries.

⚠ WARNING

Risk of fire from overheated battery

Flammable gases can escape if the battery overheats.

1. Always charge batteries in well-ventilated rooms and away from ignition sources.

Notice

Device defects from incorrect installation

Incorrect installation can result in device defects.

1. Install the device in a dry and cool location.

2.1 Intended use

The device is a system for trickle charging and recharging batteries in technical equipment (e.g. starter batteries for portable fire pumps or power generators) and providing a constant DC voltage (power supply mode).

2.2 Foreseeable missuse

The device is operated in the wrong mode by mistake or due to lack of knowledge.

3 Technical Specifications

Technical specifications	
Part number	1041005001
Battery type (selectable)	Standard, EFB, AGM, Gel, Lithium
Battery capacity min/max	10 Ah/50 Ah
Nominal output voltage	12 V
Nominal output current	5 A
Return flow	0.3 mA
Input voltage range	12.5 V ... 30 V (reverse polarity protected)
Power consumption	6 A (12 A for short periods at low input voltage)
Charger output voltage	10 V ... 15 V (short-circuit proof)
Power supply output voltage	12 V DC (short-circuit proof)
Charger switch-on voltage	> 13 V (26 V)
Charger switch-off voltage	< 12.5 V (< 25 V)
Charger switch-off delay	1 minute
Protection class	III
IP rating	IP65
Operating temperature	-20°C ... +45°C
Dimensions (L × W × H)	115 × 83 × 36 mm (without wall bracket) 115 × 101 × 36 mm (with wall bracket)
Weight	0.26 kg

3.1 Pin assignment

"IN" input socket (Weipu SP13, 2-pin)	
Pin 1	12 V power supply (positive terminal of vehicle battery)
Pin 2	Ground (vehicle battery negative terminal)

"OUT" output socket (Weipu SP13, 3-pin)	
Pin 1	Temperature sensor (optional accessory)
Pin 2	10 ... 15 V output voltage (positive terminal of the battery to be charged)
Pin 3	Ground (negative terminal of the battery to be charged)

4 Package Contents

No.	Name
1 ×	Charger TS Pro
1 ×	Mounting material
1 ×	Quick start guide

5 About this Product

The TS Pro charger is specially designed for trickle charging and recharging batteries (standard, EFB, AGM, gel, lithium) in technical equipment (e.g. starter batteries of portable pumps or generators). It is powered by the vehicle battery and has overvoltage, overload, reverse polarity and overheating protection. The integrated undervoltage protection protects the vehicle battery by automatically switching off the charger when the voltage falls below a threshold. When the switch-on voltage is reached, the charger switches on again.

Optionally, a temperature sensor can be connected to the negative terminal of the battery to be charged, which is regularly monitored by the TS Pro charger in order to adjust the voltage in accordance with DIN 14679.

The device also has a power supply mode that enables it to be used as a booster for a constant 12 volt voltage supply.

1	Control and display panel	2	Connection socket for input cable (Weipu SP13, 2-pin)
3	Connection socket for output cable (Weipu SP13, 3-pin)	4	Sealing caps
5	Wall brackets with mounting holes		

LEAB Automotive GmbH // Thorshammer 6 // 24866 Busdorf // info@leab.eu // +49 (0) 4621 - 97860-0

DC-DC Charger TS Pro
Quick start guide
30/05/2024
V 1

LEAB
mobile energy

6 Assembly

To mount the charger, proceed as follows:

✓ Choose a cool, dry and well-ventilated assembly site.

1. Secure the charger with 4 screws (3.5 mm). There are 2 mounting holes in each of the wall brackets on both sides.

⇨ The unit is assembled.

7 Installation

Input lead

To install the input cable for the power supply of the TS Pro DC-DC charger, proceed as follows:

1. Connect the red positive wire in the input lead to the positive terminal of the vehicle battery.
   NOTE! Protect the positive cable as close as possible to the vehicle battery with a 15 A fuse (according to ISO 8820-3).
2. Connect the black ground wire of the input lead to the negative terminal of the vehicle battery.
3. Connect the plug (Weipu SP13, 2-pin) to the connection socket labelled "IN" on the TS Pro DC-DC charger.

⇨ The input cable is connected and the desired operating mode can be set.

Output cable

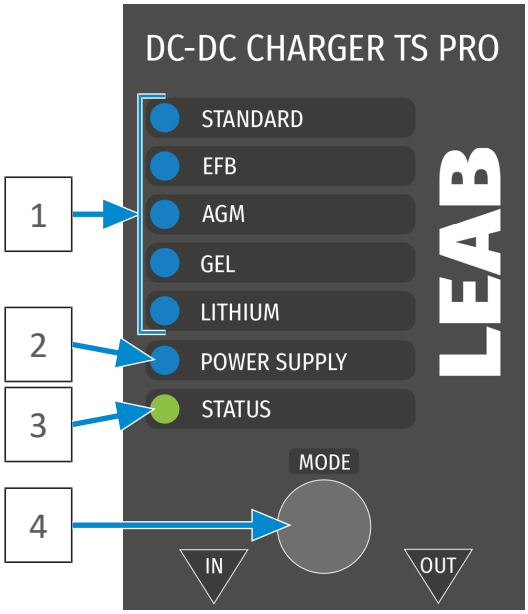
Connect the output cable suitable for the area of application as follows:

1. Connect the output cable to the starter battery/device to be supplied.
   NOTE! Ensure the correct polarity of the connections.
2. If necessary, fit the temperature sensor to the negative terminal of the battery to be charged.
3. Connect the plug (Weipu SP13, 3-pin) to the connection socket labelled "OUT" on the TS Pro DC-DC charger.

⇨ The output cable is connected and ready for operation.

8 Operation

Before you connect the battery to be charged or the equipment to be operated to the Charger TS Pro, it is necessary to select the correct operating mode. To do this, the Charger TS Pro must be connected to the power supply (vehicle battery).



1	Indication of the charging mode	2	Indication of the power supply mode
3	Status indicator	4	Mode selection button

NOTE! The last selected mode will be retained if the supply voltage is interrupted.

8.1 Operation as a battery charger

NOTE! The battery type (mode) can only be selected while the TS Pro charger is not yet connected to the battery to be charged.

To charge, proceed as follows:

✓ The TS Pro charger is connected to the supply voltage (on-board supply system, starter battery of the vehicle).

✓ You know which battery type (standard, EFB, AGM, gel or lithium) is to be charged with the TS Pro charger.

1. Check whether the correct battery type is set. Otherwise, press the 'MODE' button repeatedly until the blue LED next to the battery type to be charged lights up continuously.
2. Connect the output of the TS Pro charger to the battery to be charged.

⇨ The TS Pro charger is ready to charge the connected battery according to the set mode.

Notice

Battery defect due to incorrect charger operating mode

An incorrect mode setting (unsuitable charging curve) on the charger can lead to lower performance or battery failure.

1. Always ensure that the appropriate mode for the battery type is set on the charger.
2. Do not charge any battery types that are not supported by the charger.

Charging process

The charging process starts automatically as soon as the vehicle battery is charged (switch-on voltage exceeded).

A new charging cycle starts when:

- The power supply (input) has been interrupted,
- The battery to be charged has been disconnected from the TS Pro charger for more than 1 minute,
- A new charging mode has been set.

Sleep mode

The charger switches to sleep mode after the vehicle battery has not been charged for more than 1 minute (switch-off voltage fallen below).

8.2 Operation as a booster

In case of unstable or decreasing supply voltage, the Charger TS Pro can be used as a booster. To do this, proceed as follows:

✓ The Charger TS Pro is connected to the supply voltage (vehicle electrical system, starter battery of the vehicle).

1. Press the "MODE" button repeatedly until the blue LED at the position "POWER SUPPLY" lights up continuously.
2. Connect the output of the Charger TS Pro to the equipment to be supplied.

⇨ The Charger TS Pro is enabled for operation as a booster and supplies connected devices with a constant voltage of 12 volts.

8.3 Status indicator

The response of the LEDs has the following meaning:

Mode LED	Meaning
Flashing blue, 1×/5 sec.	Sleep mode: Vehicle battery is not charged / input voltage too low

Status LED	Meaning
Permanently red	Short circuit at the output or internal fault, LEAB service required
Flashing red, 1×/sec.	Only when the temperature sensor is connected: Battery temperature out of range (-20 °C ... +60 °C)
Off	Battery voltage below 8 V or no battery connected
Flashing green, 2×/sec.	Charging phase 1 (main charge)
Flashing green, 1×/1.5 sec.	Charging phase 2 (recharging)
Green permanent	Charging phase 3 (trickle charge), battery full

9 Maintenance

The Charger TS Pro is maintenance-free. If the batteries are not maintenance-free, check the level of the cells at regular intervals.

10 Troubleshooting

Fault	Possible cause and solution
The mode cannot be selected.	A battery to be charged is connected to the output. Disconnect the battery from the charger to select the desired mode.
The device does not switch on.	The supply voltage is below 9 V. Check the connection cables and the charge status of the vehicle battery.

11 Disposal

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

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

12 EU Declaration of Conformity

The TS Pro charger complies with the requirements of the following directives:

- 2014/30/EU: EMV
- 2011/65/EU: RoHS

LEAB Automotive GmbH // Thorshammer 6 // 24866 Busdorf // info@leab.eu // +49 (0) 4621 - 97860-0