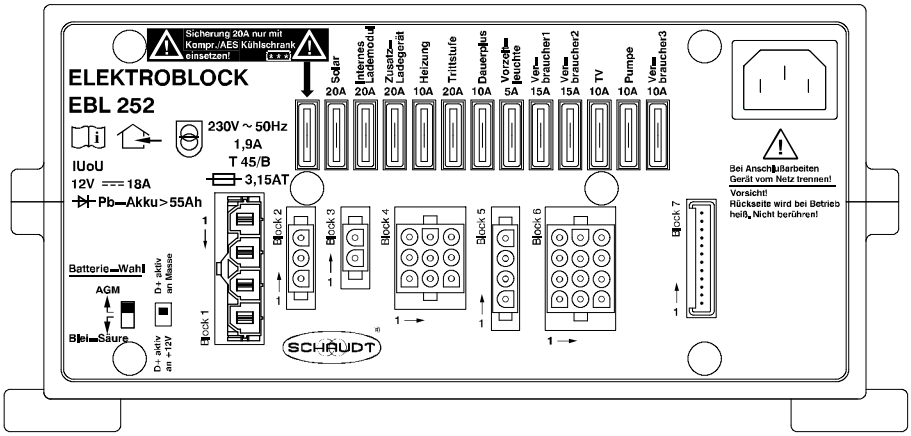
Instruction Manual



Electroblock EBL 252

Contents

1 Safety information

1.1 Meaning of the safety symbols

DANGER!

Failure to comply with this sign may result in danger to life or physical condition.

WARNING!

Failure to comply with this sign may result in injury.

CAUTION!

Failure to comply with the sign may result in damage to equipment or other connected loads.

1.2 General safety instructions

The design of the device is state-of-the-art and complies with approved safety regulations. Failure to observe the safety instructions may nonetheless lead to injury or damage to the device.

Only use the device when it is in perfect technical condition.

Any faults affecting the safety of persons or the proper functioning of the device must be repaired immediately by specialists.

DANGER!

Live parts carrying 230V are inside the device. Danger of death due to electric shock or fire. So therefore:

- Do not carry out maintenance or repair work on the device.
- If cables or the device housing are damaged, no longer use the device and isolate it from the power supply.
- Ensure that no liquids enter the device.

WARNING!

Hot components can cause burns. So therefore:

- Only change blown fuses when the device is fully de-energised.
- Blown fuses may only be replaced once the cause of the fault is known and has been rectified.
- Never bypass or repair fuses.
- Only use original fuses rated as specified on the device.
- Device parts can become hot during operation. Do not touch them.
- Never store heat sensitive objects close to the device (e.g. temperature sensitive clothes if the device has been installed in a wardrobe).

CAUTION!

The electroblock, 12V consumers and connected devices can be damaged if the thresholds for the 230V supply are exceeded. So therefore:

Generator operation and passenger vehicle ferries

- Ensure that a generator complies with the mains connected load values.
- Do not connect the generator until it is running smoothly.
- Do not connect the electroblock to the mains supply on board passenger vehicle ferries (a correct mains supply is not always guaranteed on board these ferries).

2 Purpose

The EBL 252 electroblock is the central power supply unit for all 12V consumers in the vehicle's electrical system.

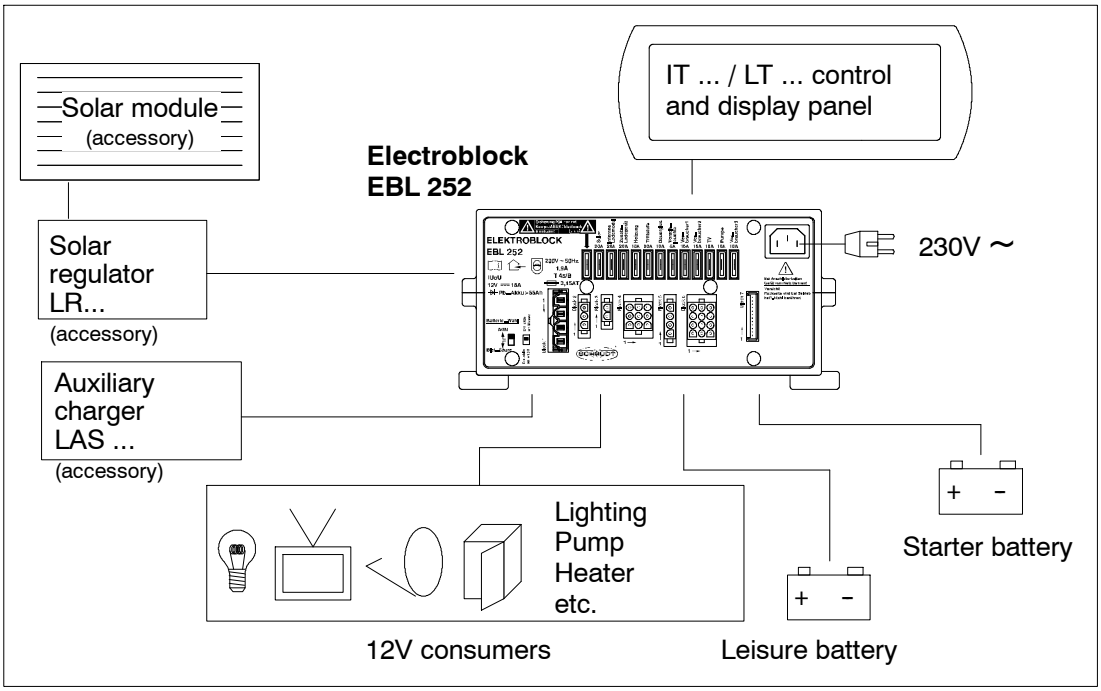


Fig. 1 On-board power supply system

Modules

The EBL 252 electroblock consists of:

- a charge module (18A) for charging all batteries connected
- the complete 12V distribution system
- fuses for the 12V circuits

System devices

An IT ... or LT ... control and display panel must be connected to the EBL 252 for operation. Together these devices control the electrical functions in the vehicle's leisure area, including accessories.

It is also possible to connect an auxiliary charger (LAS ...) and solar regulator (LR ...).

Flat vehicle fuses and resettable fuses (Polyswitch) protect the various circuits.

Protective circuits

The electroblock is protected from:

- Overtemperature of the final charge stage
- Overload of the various outputs
- Short-circuit of the various outputs

3 Layout

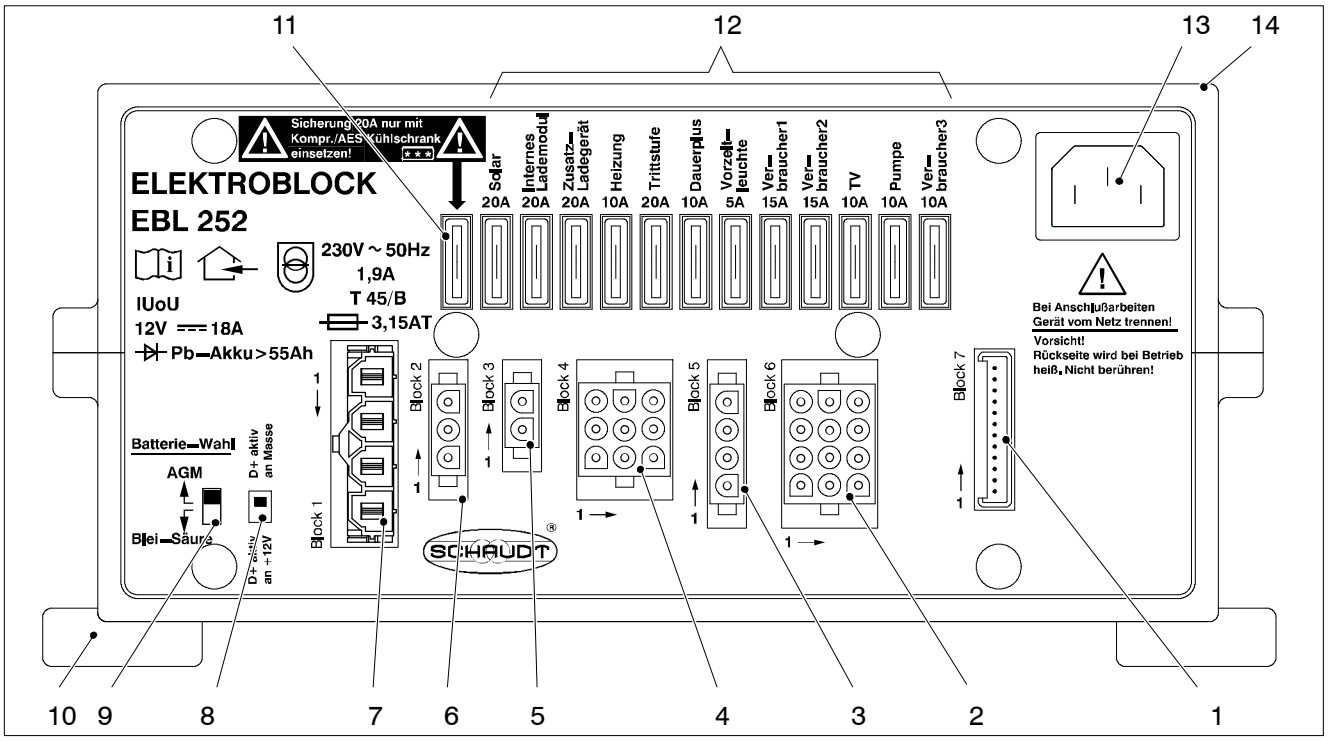


Fig. 2 Layout of the EBL 252 electroblock (front)

1 IT ... / LT ... control and display panel connector
2 Block 6: Output D+, consumer connected*
3 Block 5: Input D+, battery sensor*
4 Block 4: Spare, consumer not connected*
5 Block 3: Auxiliary charger*
6 Block 2: Solar regulator*
7 Block 1: Refrigerator *
8 D+ signal changeover switch
9 Lead-acid/AGM battery selector switch
10 Installation feet
11 Compressor refrigerator fuse
12 Flat vehicle fuses
13 230VAC mains connection
14 Housing
* Also see the block diagram (page 12)

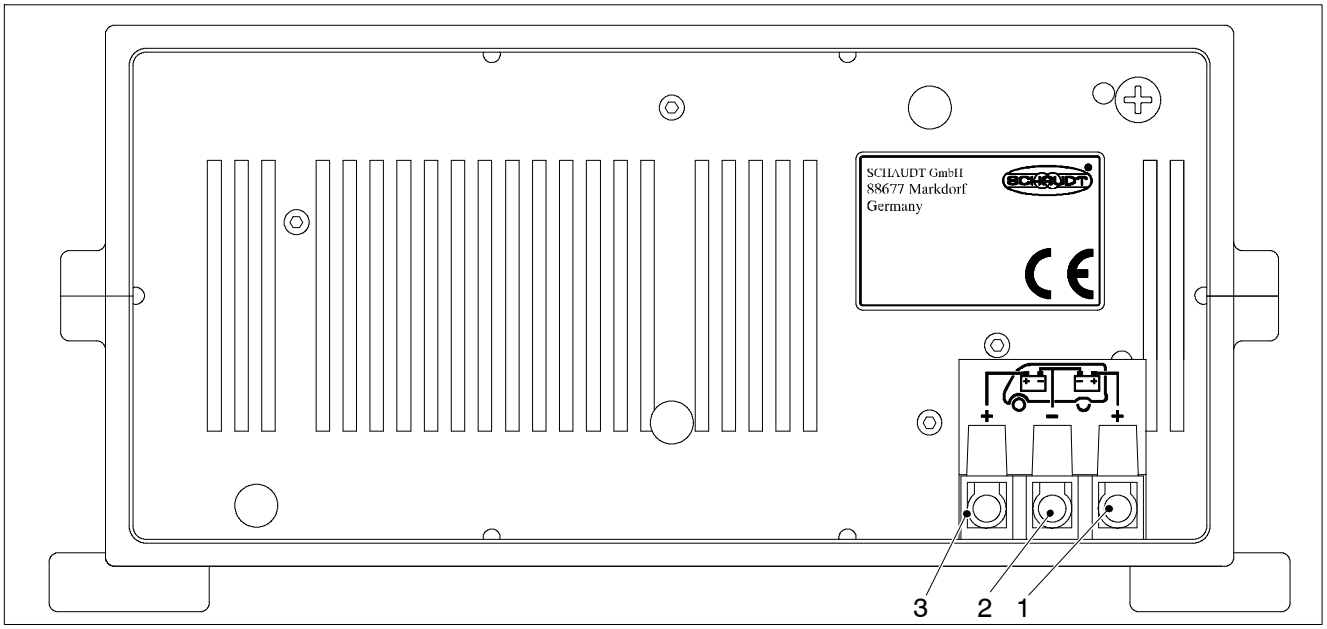


Fig. 3 Layout of the EBL 252 electroblock (rear)

1 + connector, leisure battery
2 Earth connector
3 + connector, starter battery

4 Operation

The EBL 252 electroblock does not require attendance for daily operation.

Initial setting is only needed after the type of battery (lead-acid or AGM) has been changed or during commissioning or when upgrading with accessories (see Section 4.3 and the EBL 252 installation instructions for details).

The "D+ Signal" changeover switch should not be moved.

Operation of the electroblock functions thereafter is then only via the IT ... / LT ... operator and control panel connected .

4.1 Switching on and off the 12V supply for the leisure area

The 12V supply for the leisure area is switched on and off from the IT ... / LT ... connected.

Following the instructions for the operator and control panel.

The following outputs are exceptions:

- Steady plus
- Heater
- Compressor refrigerator
- Additional heater (50 W)
- Step
- Awning light

12V is applied permanently to these outputs. They can only be switched off with a shutdown (see Section 4.2).

4.2 Closing down

The system should be shut down if the motorhome is not being used for a lengthy period (such as during the winter).

A shutdown completely isolates the leisure battery from all consumers in the leisure area – also from these normally powered continuously. The IT ... / LT ... operator and control panel is an exception. .

CAUTION!

The leisure battery may be damaged beyond repair if totally discharged. So therefore:

- Fully charge the leisure battery before and after a shutdown (connect the vehicle to the mains for at least 12 hours and 24 hours for an 80Ah and 160Ah battery respectively).

The shutdown is performed by the operator and control panel connected.

Follow the instructions for the operator and control panel.

4.3 Changing the battery

CAUTION!

Using incorrect battery types or incorrectly rated batteries can result in damage to the battery or devices connected to the electroblock. So therefore:

- Only have batteries changed by qualified personnel
- Follow the battery manufacturer's instructions
- Only connect the electroblock to 12V power supplies with rechargeable 6 cell AGM or lead-acid batteries. Do not use any unsuitable battery types.

Normally only batteries of the same type and rating should be used, i.e. the same as those originally installed by the manufacturer.
It is possible to swap lead-acid batteries with AGM batteries. However, swapping from AGM batteries to lead-acid batteries is only possible in certain circumstances. Contact the vehicle manufacturer for further information.

DANGER!

Incorrectly setting the battery selector switch poses a risk of explosion (through the formation of detonating gas). So therefore:

- Move the battery selector switch to the correct position.

Changing the battery

▶ Electrically isolate the battery from the electroblock – and perform a shutdown on the IT ... / LT ... operator and control panel (see also Section 4.2).

▶ Isolate the electroblock from the mains.

▶ Replace the battery.

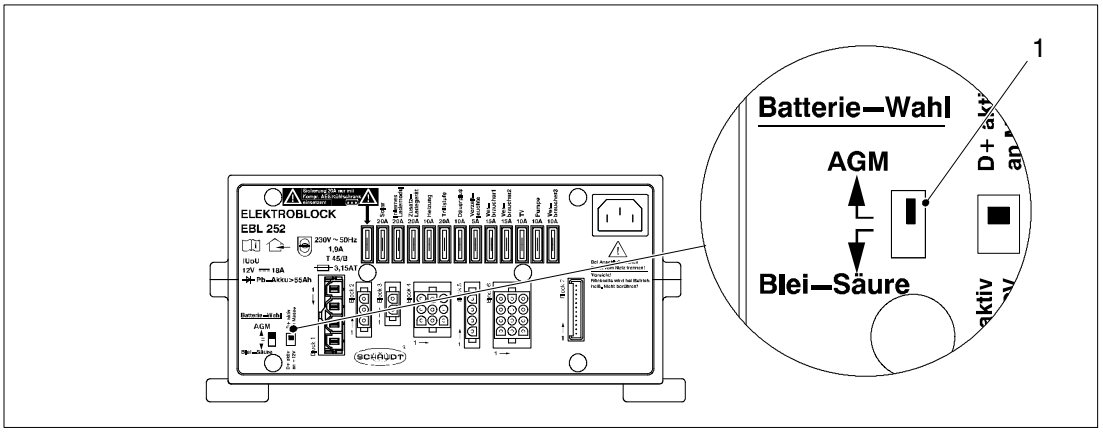


Fig. 4 Battery selector switch

▶ Move the battery selector switch (Fig. 4, Pos. 1) to the correct position using a thin object (e.g. a ballpoint pen):

- AGM battery: Set the battery selector switch to "AGM".
- Lead-acid battery: Set the battery selector switch to "Blei-Säure".

▶ After changing the battery, check again the type of battery used and then ensure that the battery selector switch is in the correct position.

5 Functions

5.1 Battery charge functions

Charging whilst on the move

Simultaneous charging of the starter battery and the leisure battery by the alternator, parallel connection of the batteries via a cut-off relay.

Mains charging

There is also simultaneous charging of the starter battery and leisure battery (up to 18A in total) for a connection to the 230V supply. The switch ensures optimal charging of the lead-acid and AGM battery types.

Charging with solar panel

If a solar regulator is connected to the EBL 252, together with a solar panel, the two batteries are charged automatically given sufficient sunshine.

5.2 Additional functions

AES/ compressor refrigerator

This relay supplies the AES/compressor refrigerator with power from the starter battery when the vehicle engine is running and the D+ connection is live. An AES refrigerator is also powered by the leisure battery when the vehicle engine is not running.

CAUTION!

The ”AES / Compressor refrigerator” fuse (see Fig. 2, Pos. 11) may only be used when the refrigerator installed in the vehicle is a compressor refrigerator. If it is deployed when using an absorber refrigerator, the leisure battery is discharged within a short period.

Awning light

The power supply of this consumer is interrupted automatically as soon as the engine is running. The awning light can still be used even if the 12V supply is switched off.

Additional 50W heater

The power supply of this consumer is automatically switched on as soon as the engine is running. Provided the engine is running, this means an additional electric heater can be operated for the vehicle. The output is enabled instead of the output for the awning light, and hence has common fusing together with the awning light.

Water pump

The power supply for the water pump is switched on and off by a switching stage in the EBL 252 electroblock via the operator and control panel connected.

6 Faults

Flat vehicle fuses

A flat battery or defective fuse is the cause of most faults in the 12V system.

When it is not possible to rectify a fault based on the following table, please contact Schaudt customer service (for address, see Page 11).

Polyswitch fuses

The following signals are protected by a resettable fuse (polyswitch):

- 12V indicator
- Battery 1 sensor (starter battery) on operator and control panel, see block diagram on Page 12
- Output D+

Fault	Possible cause	Remedy
Leisure battery is not charged during 230V operation (battery voltage permanently below 13.3 V)	No mains voltage	Switch on the automatic circuit breaker in the vehicle; check the mains voltage
	Too many consumers are switched on	Switch off any consumers not required
	Defective electroblock	Contact customer service
Leisure battery is overcharged during 230V operation (battery voltage constantly above 14.5 V)	Defective electroblock	Isolate the device from the 230V mains supply and contact customer service

Fault	Possible cause	Remedy
Starter battery is not charged during 230V operation (battery voltage permanently below 13.0 V)	No mains voltage	Switch on the automatic circuit breaker in the vehicle; check the mains voltage
	Too many consumers are switched on	Switch off any consumers not required
	Defective electroblock	Contact customer service
Leisure battery is not charged during mobile operation (battery voltage below 13.0 V)	Defective alternator	Have the alternator checked
	No voltage on D+ input	Have the fuse and cabling chekked
	D+ switch on electroblock is not set correctly.	Set the switch according to the D+ signal from the vehicle (12V or active ground)
	Defective electroblock	Contact customer service
The leisure battery is overcharged during mobile operation (battery voltage permanently above 14,3/14,7 V)	Defective alternator	Have the alternator checked
The refrigerator does not work during mobile operation	No power supply to the refrigerator	Have the fuse (20A of supply; possibly 1A of the D+ signal) and wiring checked
	Defective electroblock	Contact customer service
	Defective refrigerator	Have the refrigerator checked
Solar charging does not work	Solar charge regulator not plugged in	Plug in solar charge regulator
	Defective fuse or cabling	Have the fuse and cabling chekked
	Solar charge regulator defective	Have solar charge regulator checked
12V supply in the leisure area does not work	12V main switch for the leisure battery is switched off	12V main switch for the leisure battery must be switched on
	Not all plugs/fuses are plugged into the electroblock	Pug all plugs and fuses (correct ratings) into the electroblock
	Defective fuse or cabling	Have the fuse and cabling chekked
	Defective electroblock	Contact customer service

The charging current is reduced automatically if the device becomes too hot due to excessive ambient temperature or lack of ventilation. Always prevent the device from overheating nevertheless.

CAUTION!

When the automatic shut-off of the battery monitor is activated (also see the operating instructions for the DT / LT ... operator and control panel) , fully charge the leisure battery.

7 Technical details

Dimensions	130 x 275 x 170 (H x W x D in mm), including attachment feet
Weight	Approx. 2 kg
Casing	PA (polyamide)
Colour	Gentian blue RAL 5010
Front	Aluminium, powder coated, light grey (RAL 7035)
Mains connection	230V ~, ± 10%, 47 to 63 Hz sinusoidal
Max. power consumption 230V ~	1.9 A
Output voltage	12V DC
Max. overall output current, 12V DC	18 A
Storage temperature	- 20° C ... 70° C
Operating temperature	- 20° C ... 45° C
Protection class	I
Protection rating	IP20
Battery types	AGM Lead-acid
Battery rating	55 Ah or greater
Standby current from leisure battery	With DT ... / LT ... control and display panel : approx. 4 mA (depending on operator and control panel used) under the following conditions ● No mains connection ● Leisure battery voltage 12.6V ● 12V main switch "OFF"
Charging for mains connection	
● Leisure battery	
Charging curve	IUoU
Final charge voltage	Lead-acid: 14,3 V / AGM: 14,7
Charging current	18 A in the entire mains voltage range, electronically limited, minus the charging current into the vehicle battery
Voltage for conservation charging	13.7V with automatic switchover
● Starter battery	
charge current, conservation charging	Max. 2.6 A
Alternator D+ loading by EBL	Approx. 1 mA
D+ output loading on EBL	Max. 2 A
Solar regulator connector	MNL 3-pin for batt. 1 and batt. 2; e.g. Schaudt LR 1218
Solar regulator charge current	Max. 20 A
Auxiliary charger connector	MNL 2-pin, e.g. Schaudt LAS 1218
Charge current of aux. charger	Max. 20 A
Renewed charging cycle	For battery voltage below 13.7V
Switchover to main charge	With approx. 5 seconds delay

Charging curve

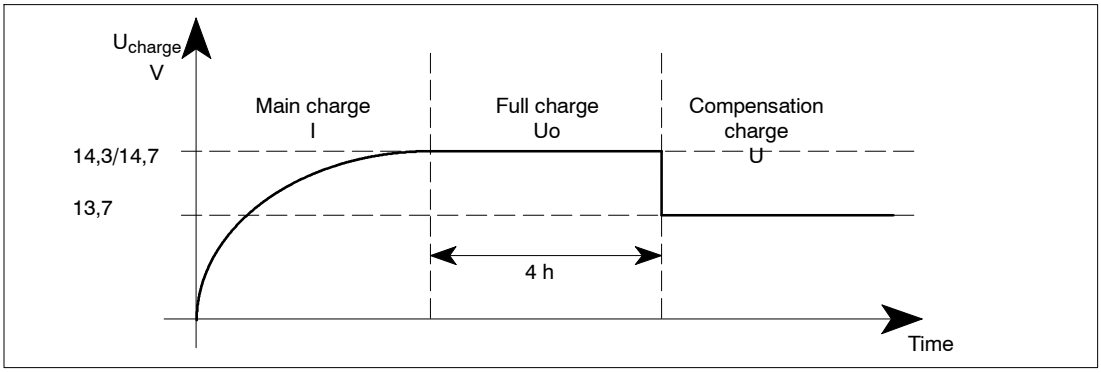


Fig. 5 Example of the charging voltage curve with electroblock EBL 252

I Main charge with maximum 18 A charging current, electronically limited, up to final charging voltage. Start of charge also for totally discharged batteries.

Uo Automatic changeover to full charge with constant 14,3/14,7 V. The duration of the fully charge phase is 4h for both battery types.

U Automatic changeover to compensation charge with constant 13.7V. In the compensation charge phase, the voltage at the output of the charging module is constant.

Start of a new charging cycle by switching over to main charge, if the battery voltage falls below 13.7V for more than 5 seconds when loaded. Start of charge also for totally discharged batteries. The internal charge module can also be operated without leisure battery.

8 Maintenance

The EBL 252 electroblock requires no maintenance.

Cleaning Clean the electroblock with a soft, slightly damp cloth and mild detergent. Never use spirit, thinners or similar substances. Do not allow liquids to enter the electroblock.

Appendix

A Customer service

Customer service address

Schaudt GmbH, Elektrotechnik & Apparatebau
Planckstraße 8
D-88677 Markdorf
Phone: +49 7544 9577-16
Email: kundendienst@schaudt.gmbh
Web: www.schaudt.gmbh

Send in device

Before sending in a device to us for repair, please visit our website www.schaudt-gmbh.de. Under ”Service & Support”, you are able to see a whole array of faults and their rectification in Frequently Asked Questions (FAQs).

If it is not possible here to locate and rectify the fault, the device can be sent in to us for repair. Please proceed as follows:

- ▶ Pre-registration on the www.schaudt-gmbh.de website, see ”Service & Support” – repair registration RMA (if possible)
- ▶ If registration is not possible over the Internet, please enclose the completed fault report, see Appendix B
- ▶ Send it to the addressee (free delivery)

B Fault report

In the event of damage, please fill in the fault report and send it with the faulty device to the manufacturer.

Device type: _____
Item no.: _____
Vehicle: Manufacturer: _____
Model: _____
Own installation? Yes ❑ No ❑
Upgrade? Yes ❑ No ❑
Upstream overvoltage protection? Yes ❑ No ❑

Following fault has occurred (please tick):

- ❑ Electrical consumers do not work – which? (please specify below)
- ❑ Switching on and off not possible
- ❑ Persistent fault
- ❑ Intermittent fault/loose contact

Other comments (use additional sheet if required):

_____

_____

C EC Declaration of Conformity

Schaudt GmbH hereby confirms that the design of the LT 95 F LED panel complies with the relevant regulations.

The original EU conformity declaration is available and can be referred to at any time.

Manufacturer
Address

Schaudt GmbH, Elektrotechnik & Apparatebau
Planckstrasse 8
88677 Markdorf
Germany

D Block diagram