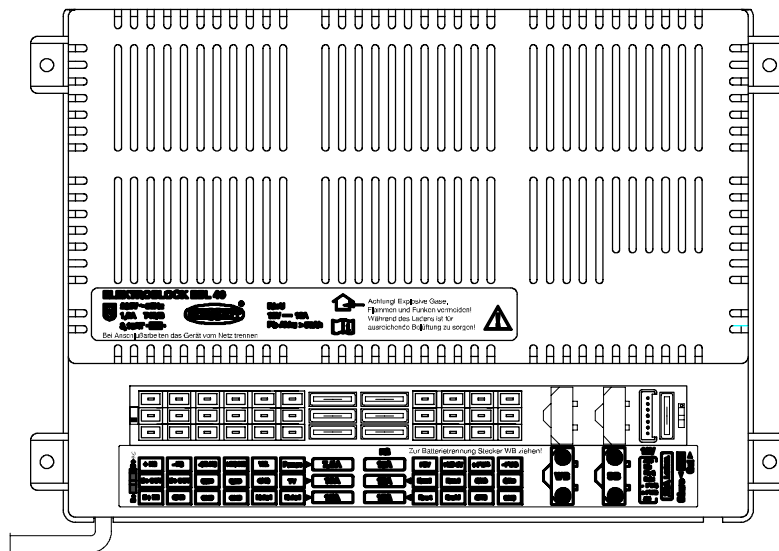


Instruction Manual



Electrobloc EBL 40 B

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1 Safety information

1.1 Meaning of safety symbols



▲ DANGER!

Failure to heed this warning may result in death or serious injury.



▲ WARNING!

Failure to heed this warning may result in personal injuries.



▲ ATTENTION!

Failure to heed this warning may result in damage to the device or connected consumers.

1.2 General safety information

The device is state-of-the-art and complies with approved safety regulations. Nonetheless, personal injuries or damage to the device may occur if the safety instructions contained herein are not followed.

Ensure that the device is in perfect working order before use.

Any technical faults which may impact personal safety or the safety of the device must be rectified immediately by qualified personnel.



▲ DANGER!

230 V mains voltage carrying parts.

Danger of death due to electric shock or fire:

- 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 from the power supply.
- Ensure that no liquids enter the device.



▲ WARNING!

Hot components!

Burns:

- Only change blown fuses when the device is completely de-energised.
- Only replace blown fuses once the cause of the fault has been identified and 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.
- Never store heat sensitive objects close to the device (e.g. temperature sensitive clothes if the device has been installed in a wardrobe).

2 Introduction

This instruction manual contains important information for safe operation of the device. Make sure you read and follow the safety instructions provided.

The instruction manual should be kept in the vehicle at all times. Ensure that other users are made aware of the safety regulations.

3 Operation

The electrobloc is operated exclusively via the IT/LT control and switch panel connected.

The EBL 40 B electrobloc does not require attendance for daily operation.

Initial setting is only needed after the type of battery (lead-acid or lead-gel) has been changed or during commissioning or when upgrading with accessories (see section 3.2 and EBL 40 B installation instructions for details).

3.1 Starting up the system



▲ ATTENTION!

Incorrect electrobloc settings.

Damage to connected devices. Therefore prior to starting:

- Ensure the leisure battery is connected.
- Make sure the battery selector switch (fig. 3, pos. 1) is set to the correct position for the battery inserted.
- Make sure the AES fuse (fig. 3, pos. 6, with 15 A fuse and labelled "KS") is only used in conjunction with a connected AES refrigerator. Otherwise the leisure battery may totally discharge. Damage to the battery is possible.

Use the 12 V main switch (see instruction manual of relevant control and switch panel) to switch on/off all the consumers and the control and switch panel.

The outputs are exceptions:

- Frost protection valve
- Refrigerator controller
- Floor light
- Spare 1
- Awning light
- AES/compressor refrigerator

For further information, see the instruction manual of the IT/LT control and switch panel. .

Generator operation and passenger vehicle ferries



▲ ATTENTION!

Exceeding the threshold values of the 230 V mains supply!

Damage to the electrobloc, 12 V consumers or connected devices:

- It is essential that the generator conforms to the specifications of the mains supply.
- Only connect up the generator when it is running smoothly.
- Do not connect the electrobloc to the mains supply on board passenger vehicle ferries (correct mains supply is not always guaranteed on board these ferries).

3.2 Changing the battery



▲ ATTENTION!

Use of incorrect battery types or incorrectly rated batteries.

Damage to the battery or devices connected to the electrobloc:

- Batteries should only be changed by qualified personnel.
- Follow the instructions provided by the battery manufacturer.
- Only connect the electrobloc to 12 V power supplies with rechargeable 6-cell lead-gel or lead-acid batteries. Do not use any unsuitable battery types.



▲ Only batteries of the same type and capacity should normally be used, i.e. same as those installed by the manufacturer.

▲ It is possible to swap lead-acid batteries with lead-gel batteries. However, swapping from lead-gel batteries to lead-acid batteries is only possible in certain circumstances. Contact the vehicle manufacturer for more information.

Changing the battery

▶ Electrically disconnect the battery from the electrobloc. To do this, enable battery isolation on the IT/LT control and switch panel (also see section 3.1).

▶ Replace battery.

▶ After changing the battery, recheck which type of battery has been inserted.



▲ DANGER!

Incorrect setting of the battery selector switch.

Risk of explosion due to build up of explosive gases:

- Set the battery selector switch to the correct position.

▶ Disconnect the electrobloc from the mains before adjusting the battery selector switch.

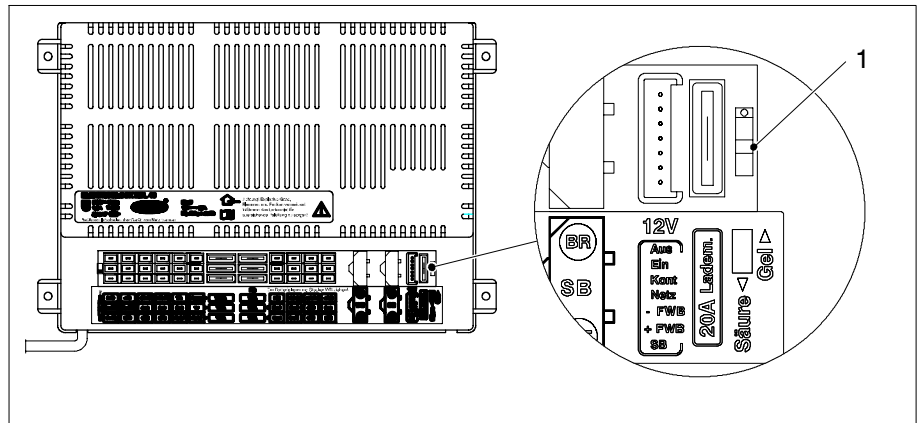


Fig. 1 Battery selector switch

- ▶ Set the battery selector switch (fig. 1, pos. 1) to the correct position using a thin object (such as a ballpoint pen):
 - Lead-gel battery: Set the battery selector switch to "Lead-gel".
 - Lead-acid battery: Set the battery selector switch to "Lead-acid".

Starting up the system

- ▶ Start up the system as described in section 3.1.

3.3 System faults

Flat vehicle fuses

A fault in the power supply system is usually caused by a blown fuse.

Please contact our customer service department if you cannot rectify the fault using the following table.

If this is not possible, e.g. if you are abroad, you can have the electrobloc repaired at a specialist workshop. Please note that the warranty will become void if incorrect repair work is carried out. Schaudt GmbH shall not accept liability for any damages resulting from such repairs.

Polyswitch fuses

The following outputs are protected by a polyswitch fuse:

- Floor light/step
- Awning light

If these outputs are dead, switch off the electrobloc for approx. 1 min. and disconnect it from the 230 V supply. The polyswitch fuses reset automatically during this period.

Fault	Possible cause	Remedy
Living area battery is not charged during 230 V operation (battery voltage constantly 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 consumers not required
	Defective electrobloc	Contact the customer service department
Living area battery is overcharged during 230 V operation (battery voltage constantly above 14.5 V)	Defective electrobloc	Contact the customer service department

Fault	Possible cause	Remedy
Starter battery is not charged during 230 V operation (battery voltage constantly 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 consumers not required
	Defective electrobloc	Contact the customer service department
Living area battery is not charged during mobile operation (battery voltage below 13.0 V)	Defective alternator	Check the alternator
	No voltage on D+ input	Check the fuse and wiring
	D+ switch on the electrobloc is set incorrectly.	Set the switch according to the D+ signal from the vehicle (12 V or active ground)
	Defective electrobloc	Contact the customer service department
The living area battery is overcharged during mobile operation (battery voltage constantly above 14.3 V)	Defective alternator	Check the alternator
The refrigerator does not work during mobile operation	No power supply to the refrigerator	Check the fuse (15 A of supply; possibly 1A of D+ signal) and wiring
	Defective electrobloc	Contact the customer service department
	Defective refrigerator	Check the refrigerator
Certain outputs are dead	Polyswitch fuse has tripped	Completely switch off the electrobloc Determine and rectify the cause Switch on the electrobloc after approx. 1 min.
12 V supply does not work in the living area	12 V main switch for the living area battery is switched off	12 V main switch for the living area battery must be switched on
	Not all the connectors have been connected to the electrobloc	Connect all the connectors to the electrobloc
	Defective fuse or wiring	Check fuse and wiring
	Defective electrobloc	Contact the customer service department
Operation of the electrobloc not possible via the IT/LT control and switch panel.	Defective electrobloc	Contact the customer service department



- ▲ If the device becomes too hot due to excessive ambient temperature or lack of ventilation, the charging current is automatically reduced. Nevertheless, always prevent the device from overheating.
- ▲ If the automatic shutdown mechanism of the battery monitor is triggered, fully charge the living area battery.

3.4 Closing down the system

A battery is isolated by disconnecting the plug connectors.



▲ ATTENTION!

Total discharge.

Damage to the living area battery:

- Fully charge the living area battery before and after closing down the system. (Connect a vehicle with an 80 Ah battery and a vehicle with a 160 Ah battery to the mains for at least 12 and 24 hours respectively).

Closing down the system for up to 6 months

- ▶ Fully charge the living area battery before closing down the system.

The living area battery is then protected against total discharge. This only applies if the battery is intact. Follow the instructions provided by the battery manufacturer.

Closing down the system for more than 6 months

Disconnect the living area battery from the 12 V power supply if the motor-home is not used for a longer period (during the winter for example).

- ▶ Fully charge the living area battery before closing down the system.
- ▶ Disconnect the plug connectors on block 7 and block 10 of the EBL 40 B.

4 Application and functions in detail

The EBL 40 B electrobloc is the central power supply unit for all 12 V consumers in the vehicle's electrical system. It is usually located in a cupboard or storage space and is accessible from the front in order to change fuses.

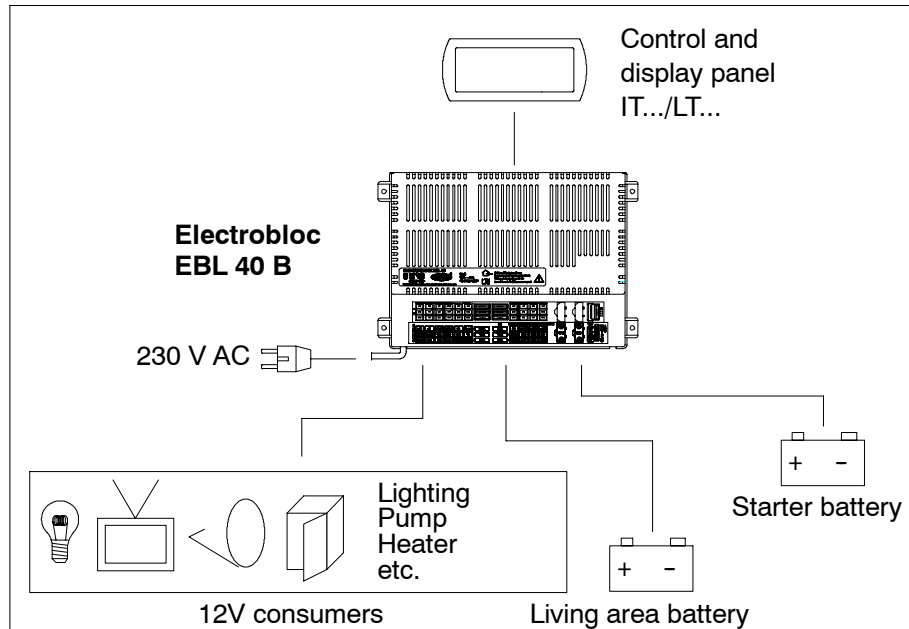


Fig. 2 On-board power supply system

Modules The EBL 40 B electrobloc contains:

- a charger module for charging all connected batteries
- the complete 12 V distribution
- the fuses for the 12 V circuits

System devices An IT ... or LT ... control and switch panel must be connected for operation. These devices control the electrical functions in the vehicle's living area, including accessories.

Flat vehicle fuses protect the various circuits. The exceptions (these circuits are protected by polyswitch fuses):

Step	Refrigerator controller
Floor light	Awning light
Frost protection valve	D+ outputs

Charger module protective circuits

- Excess temperature
- Overload
- Short circuit

Mains connection 230 V AC \pm 10 %, 47 to 63 Hz sinusoidal, protection class I

Current-carrying capacity 12 V outputs may be loaded with max. 90% of the rated current of the respective fuse (also see front panel).

4.1 Battery functions

Suitable batteries	6-cell lead-acid or lead-gel batteries, 55 Ah and above														
Battery charging during mobile operation	Simultaneous charging of the starter battery and the living area battery via the alternator, parallel connection of the batteries via a cut-off relay														
Battery isolation	A battery is isolated by disconnecting the two plug connectors on block 7 and block 10 of the EBL 40 B. This prevents the living area battery from slowly discharging due to closed circuit current while the vehicle is not in use.														
Battery selector switch	The switching option provided by the battery selector switch ensures optimum charging of the two battery types, lead-gel and lead-acid.														
Standby current from living area battery (without consumer currents)	With IT/LT control and switch panel approx. 0.3 ... 3.5 mA (depending on the control and switch panel being used) under the following conditions: <ul style="list-style-type: none"> ● No mains connection ● Living area battery voltage 12.6 V ● 12 V main switch "OFF" ● Without battery alarm (e.g. when using LT410) 														
Battery charging via mains connector	<table border="0" style="width: 100%;"> <tr> <td colspan="2">Living area battery</td> </tr> <tr> <td>Characteristic charging curve</td> <td>IUoU</td> </tr> <tr> <td>Final charge voltage</td> <td>14.3 V</td> </tr> <tr> <td>Charging current</td> <td>18 A</td> </tr> <tr> <td>Voltage for float charge</td> <td>13.8 V with automatic switch function</td> </tr> <tr> <td colspan="2">Starter battery</td> </tr> <tr> <td>Charging current float charge</td> <td>max. 2 A</td> </tr> </table>	Living area battery		Characteristic charging curve	IUoU	Final charge voltage	14.3 V	Charging current	18 A	Voltage for float charge	13.8 V with automatic switch function	Starter battery		Charging current float charge	max. 2 A
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4.2 Additional functions

Automatic switch function for 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 powered by the living area battery when the vehicle engine is not running.
Awning light	The power supply to this consumer is automatically interrupted as soon as the engine starts running (the D+ connection is live in this case or switched to ground, depending on the type of vehicle). The awning light can still be used even if the 12 V power supply is switched off.
D+ signal	The conventional D+ signal (D+ connection is live when the engine is running) is evaluated directly (maximum load 0.2A). An integrated D+ converter enables the connection of vehicles for which the D+ signal is provided as an active ground signal (e.g. FIAT). A selector switch on the electrobloc specifies which D+ signal is to be evaluated.
Mains charging of the starter battery	This feature provides an automatic max. 2 A float charge for the starter battery when the 230 V mains is connected to the electrobloc.

5 Maintenance

The EBL 40 B electrobloc requires no maintenance.

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

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Appendix

A EC Declaration of Conformity

Schaudt GmbH hereby confirms that the design of the EBL 40 B electrobloc complies with the following relevant regulations:

- DIRECTIVE 2006/95/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL from 12.12.2006 for the harmonization of the legal provisions of member states in regard to electrical equipment for use within particular voltage limits
- DIRECTIVE 2004/108/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL from 15.12.2004 for the harmonization of the legal provisions of member states in regard to electromagnetic compatibility and for the annulment of directive 89/336/EEC
- Law on the electromagnetic compatibility of equipment from February 26th 2008

Manufacturer Schaudt GmbH, Elektrotechnik & Apparatebau

Address Planckstrasse 8
88677 Markdorf
Germany

B Special fittings/accessories

Switch panel Schaudt IT/LT switch panel (required for operation)

C Customer service

Customer service address Schaudt GmbH, Elektrotechnik & Apparatebau
Planckstrasse 8
D-88677 Markdorf

tel.: +49 7544 9577-16 e-mail: kundendienst@schaudt-gmbh.de

Office hours Mon to Thurs 08.00 - 12.00, 13.00 - 16.00
 Fri 08.00 - 12.00

Send in the device Returning a defective device:

- ▶ Fill in and enclose the fault report, see Appendix D.
- ▶ Send it to the addressee (free of charge).

D Fault report

In the event of damage, please return the defective device together with the completed fault report to the manufacturer.

Device type: _____
Article 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 remarks:

E Design

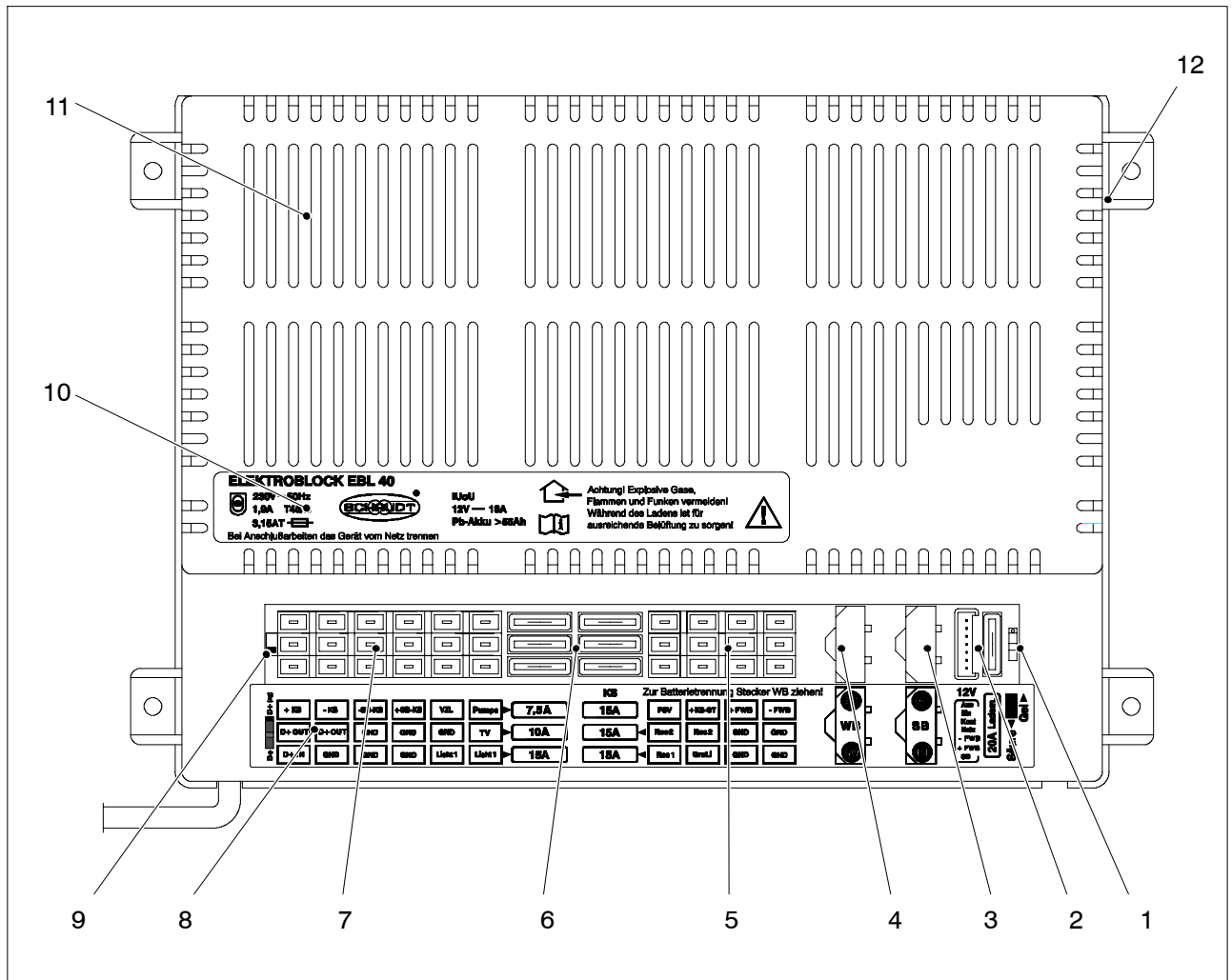


Fig. 3 Layout of the EBL 40 B electroblock

- 1 Selector switch for acid/gel battery
- 2 IT/LT control and switch panel connection
- 3 Starter battery connection
- 4 Living area battery connection
- 5 Terminal block spare/, floor light, battery sensor
- 6 Flat vehicle fuses
- 7 Terminal block D+, consumers, refrigerator
- 8 Adhesive label connections
- 9 D+ signal selector switch
- 10 Type plate
- 11 Housing
- 12 Mounting brackets

F Block diagram/connection diagram

