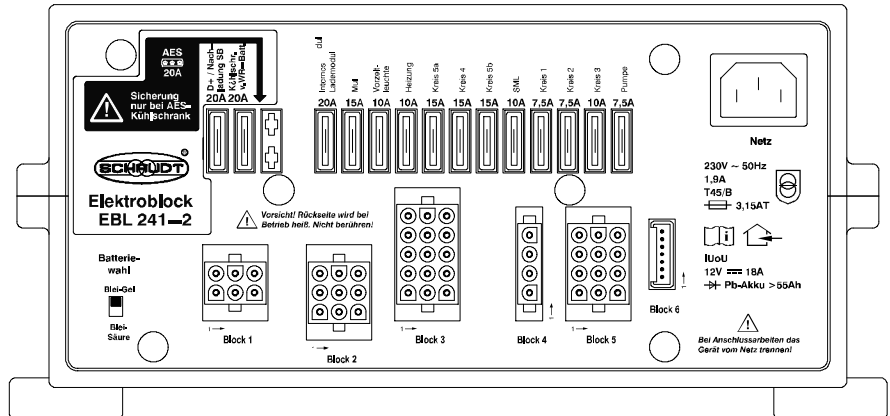


Instruction Manual



EBL 241-2 Electroblock

Table of contents

1	Safety information	2
1.1	Meaning of safety symbols	2
1.2	General safety information	2
2	Introduction	3
3	Operation	3
3.1	Starting up the system	3
3.2	Changing the battery	3
3.3	Operating faults	4
3.4	Closing down the system	6
4	Application and functions in detail	6
4.1	Battery functions	7
4.2	Additional functions	8
5	Technical details	8
5.1	Mechanical details	8
5.2	Electrical details	8
5.3	Environmental parameters	9
6	Maintenance	9
	Appendix	10

1 Safety information

1.1 Meaning of 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.



▲ ATTENTION!

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 individuals or the proper functioning of the device must be repaired immediately by specialists.



▲ DANGER!

230V units carrying mains voltage.

Risk of fatal injury 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 it from the power supply
- Ensure that no liquids enter the device



▲ WARNING!

Hot components

Burns:

- 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)

2 Introduction

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

The operating instructions should always be kept in the vehicle. All safety information must be passed on to other users.

3 Operation

The electrobloc is operated solely from the LT ... operator and control panel connected. .

Operation on the EBL 241-2 electrobloc is not required for daily use.

One-off adjustments only have to be made if the battery type is changed, during initial start-up or when retrofitting accessories (see Section 3.2 and the installation instructions for the EBL 241-2).

3.1 Starting up the system



▲ ATTENTION!

Incorrect electrobloc settings.

Damage to connected devices. Therefore prior to starting:

- Ensure the leisure area battery is connected.
- Ensure that the battery selector switch (Fig. 4, Pos. 10) is set to the correct position for the battery installed.
- Use the main 12V switch (see instruction manual of relevant control and switch panel) to switch on/off all the consumers and the control and switch panel.

The following outputs are exceptions:

- Step
- AES/compressor refrigerator (only when fuse is inserted)
- Refrigerator controller

These outputs are not disabled from the main switch of the LT ... control panel.

Please refer to the operating instructions of the LT ... control and switch panel for further information. .

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



Changing the battery

- ▲ Normally only batteries of the same type and capacity should be used, i.e. the same as those installed by the manufacturer.
- Electrically isolate the battery from the electrobloc. For this, switch off the battery separation switch on the EBL 242 electrobloc (refer also to Section 3.4).
- Replace the 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:

- Move the battery selector switch to the correct position.
- Disconnect the electrobloc from the mains before adjusting the battery selector switch.

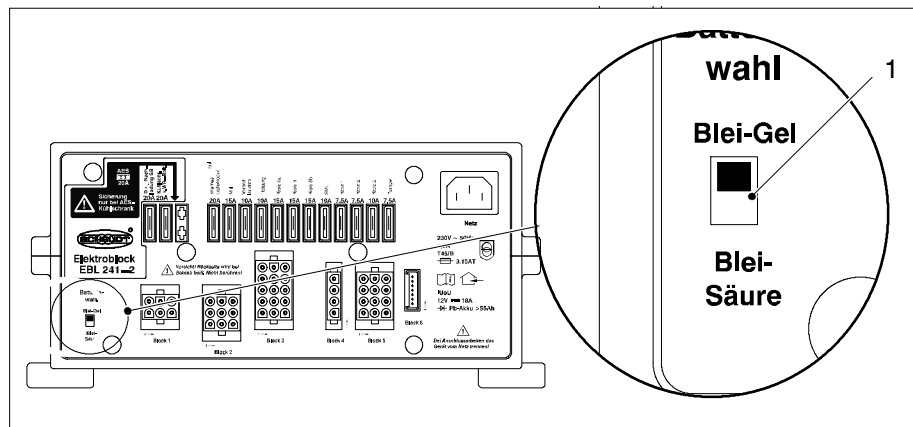


Fig. 1 Battery selector switch

- Move the battery selector switch (Fig. 1, Pos. 1) to the correct position using a thin object (e.g. a ballpoint pen):
 - Lead-gel battery: Move the battery selector switch to "Gel".
 - Lead-acid battery: Move the battery selector switch to "Lead-acid".
- Start up the system as described in Section 3.1.

Starting up the system

3.3 Faults

Flat vehicle fuses

A flat battery or defective fuse is the cause of most faults in the power supply system.

Discharged battery - start motor

If the battery is discharged, consumers can always be powered by starting the engine of the base vehicle.

Please contact our customer service address 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. In this case, you must ensure that the warranty is not invalidated by incorrect repairs being carried out. Schaudt GmbH will not accept any liability for damage resulting from such repairs.

Fault	Possible cause	Remedy
Leisure area battery is not charged during 230V 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 any consumers not required
	Defective electrobloc	Contact customer service
Living area battery is overcharged during 230V operation (battery voltage constantly above 14.5 V)	Defective electrobloc	Contact customer service
Starter battery is not charged during 230V 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 any consumers not required
	Defective electrobloc	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 checked
	Defective electrobloc	Contact customer service
The leisure battery is overcharged during mobile operation (battery voltage permanently above 14.3 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 2A of the D+ signal) and wiring checked
	Defective electrobloc	Contact customer service
	Defective refrigerator	Have the refrigerator checked
12V supply does not work in the leisure area	12V main switch is switched off	12V main switch must be switched on
	Not all plugs/fuses are plugged into the electrobloc	Plug all plugs and fuses (correct ratings) into the electrobloc
	Defective fuse or cabling	Have the fuse and cabling checked
	Defective electrobloc	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.
- ▲ 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 battery terminals.



▲ ATTENTION!

Total discharge.

Damage to the leisure area battery:

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

Closing down

Disconnect the living area battery from the 12V 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.
- Switch off from the main switch on the LT ... control panel.
- Disconnect the terminals of the leisure area battery.

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

4 Application and functions in detail

The EBL 241-2 electroblock is the central power supply unit for all 12V consumers in the vehicle's electrical system. It is usually located in a cupboard or storage area and is accessible from the front in order to change fuses.

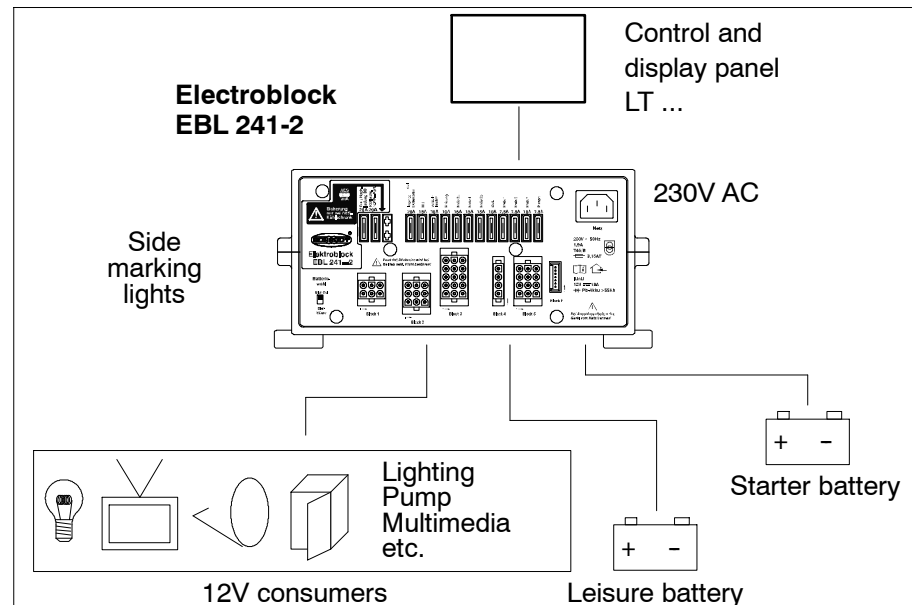


Fig. 2 On-board power supply system

Modules

The EBL 241-2 electroblock contains:

- a charge module for charging all batteries connected
- the complete 12V distribution system
- fuses for the 12V 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 D+ output is an exception.

Protective circuits of the charging module

- Excess temperature
- Overload
- Short circuit

Mains connection

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

Current-carrying capacity

12V 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 whilst moving

Simultaneous charging of the starter battery and the living area battery via the alternator, parallel connection of the batteries via a cut-off relay

This prevents the living area battery from slowly discharging due to closed circuit current while the vehicle is not in use.

Battery charging via mains connector

Leisure battery

Battery selector switch setting	lead-gel	Lead-acid
Charging curve	IUoU	IUoU
Final charge voltage	14,3V	14,3V
Charge current	18 A	18 A
Voltage for float charge	13,8 V with automatic switchover	13,8 V with automatic switchover

Charge current

Within the entire mains voltage range, electronically limited, minus the charge current into the vehicle battery

New charge cycle, Switchover to main charging

with battery voltage below 13.8 V with approx. 5 seconds delay

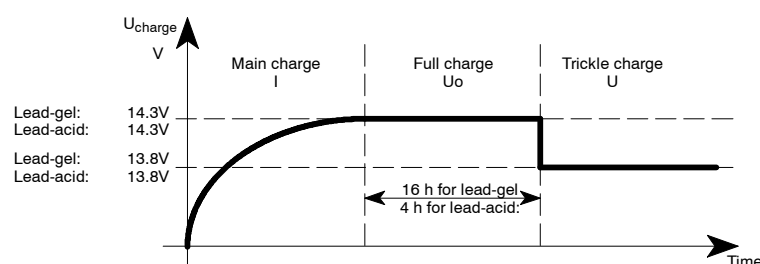


Fig. 3 Example of the charging voltage curve with electroblock EBL 242

- I Main charge with maximum 18 A charging current, electronically limited, up to final charging voltage. Start of charge also for completely discharged batteries.
- Uo Automatic changeover to full charge with constant 14.3 V. The duration of the fully charge phase depends on the type of battery and is set on the device.
- U Automatic changeover to compensation charge with constant 13.8V. 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 13.8V for more than 5 seconds when loaded. Start of charge also for completely discharged batteries. The internal charge module can also be operated without leisure battery.

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.
Mains charging starter battery	This feature provides an automatic max. 2.5 A float charge for the starter battery when the 230V mains is connected to the electrobloc.
Side marking lights	The electrobloc provides power over outputs "Sides ML 1 and 2" to the side marking lights connected here. These two outputs are applied to +12V via controller input "Side marking lights input" (ground switching).
Awning light	The output is intended for the connection of an awning light. It is switched off automatically as soon as the vehicle engine is turned on.

5 Technical details

5.1 Mechanical details

Dimensions	130 x 275 x 170 (H x W x D in mm), including attachment feet
Weight	2.0 kg
Casing	PA (polyamide), gentian blue (RAL 5010)
Front	Aluminium, powder coated, light grey (RAL 7035)

5.2 Electrical details

Mains connection	230V AC $\pm 10\%$, 47 - 63 Hz sinusoidal, protection class I
Current consumption	1.9 A
Suitable batteries	6-cell lead-acid or lead-gel batteries, 55 Ah and above
Standby current from leisure battery	Dependent on the control panel: approx. 5 - 20 mA, plus consumption of controller electronics of refrigerator
Conditions for the measurement:	
<ul style="list-style-type: none"> ● Approx. 10 minutes after mains isolation without mains connection ● 12.6 V battery voltage ● Battery alarm OFF ● Battery cut-off switch ON ● All consumers switched off ● 12V main switch off 	
D+ loading	Loading of the D+ output of the alternator by the electrobloc ca. 0.5 A

Current-carrying capacity	12 V outputs	A maximum of 90% of the nominal current of the relevant fuse may be drawn.
Battery charging of the starter battery	For mains operation, the starter battery is also charged (with maximum charge current of 2.5 A).	

5.3 Environmental parameters

Operating temperature	-20 °C to +45 °C
Storage temperature	-20 °C to +70 °C
Humidity	Operation in dry environment only
CE	CE mark

6 Maintenance

The EBL 241-2 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.
-----------------	---

Appendix

A EC Declaration of Conformity

Schaudt GmbH hereby confirms that the design of EBL 241-2 electroblock complies with the following relevant regulations:

The original EC declaration of conformity is available for reference at any time.

Manufacturer Schaudt GmbH, Elektrotechnik & Apparatebau

Address Planckstraße 8
88677 Markdorf
Germany

B Special fittings/accessories

Panel Schaudt LT ... control and display panel (required for operation)

C Customer service

Customer service Schaudt GmbH, Elektrotechnik & Apparatebau
Planckstraße 8
88677 Markdorf, Germany

Phone: +49 7544 9577-16

Email: kundendienst@schaudt-gmbh.de

Web: www.schaudt-gmbh.de

Send in device Returning a faulty device:

- ▶ Complete and enclose the fault report, see Appendix D.
- ▶ Send it to the addressee (free delivery).

D 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 ☐

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:

E Layout

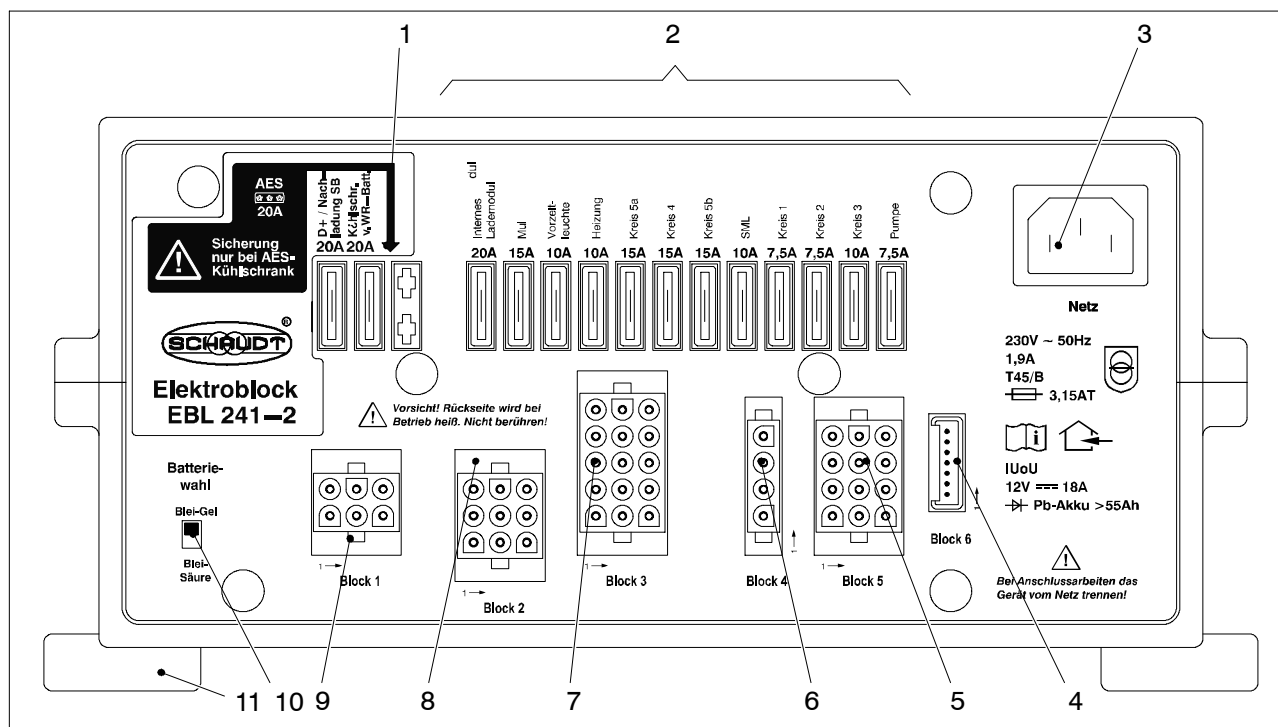


Fig. 4 Layout of the EBL 241-2 electroblock (front)

- | | |
|--|---|
| 1 AES/compressor fridge fuse | 7 Connector block, heating, circuits 4 and 5, side marking lights, awning light |
| 2 Flat vehicle fuses | 8 Connector block, multimedia (radio), pump |
| 3 Low power device socket, 230V AC mains connection | 9 Connector block, fridge power supply, step, fridge controller |
| 4 LT ... control and display panel connector | 10 Lead-gel / lead-acid battery changeover switch |
| 5 Connector block, light circuits 1 to 3 | 11 Attachment feet |
| 6 Connector block, D+, side marking lights battery sensor/control line | |

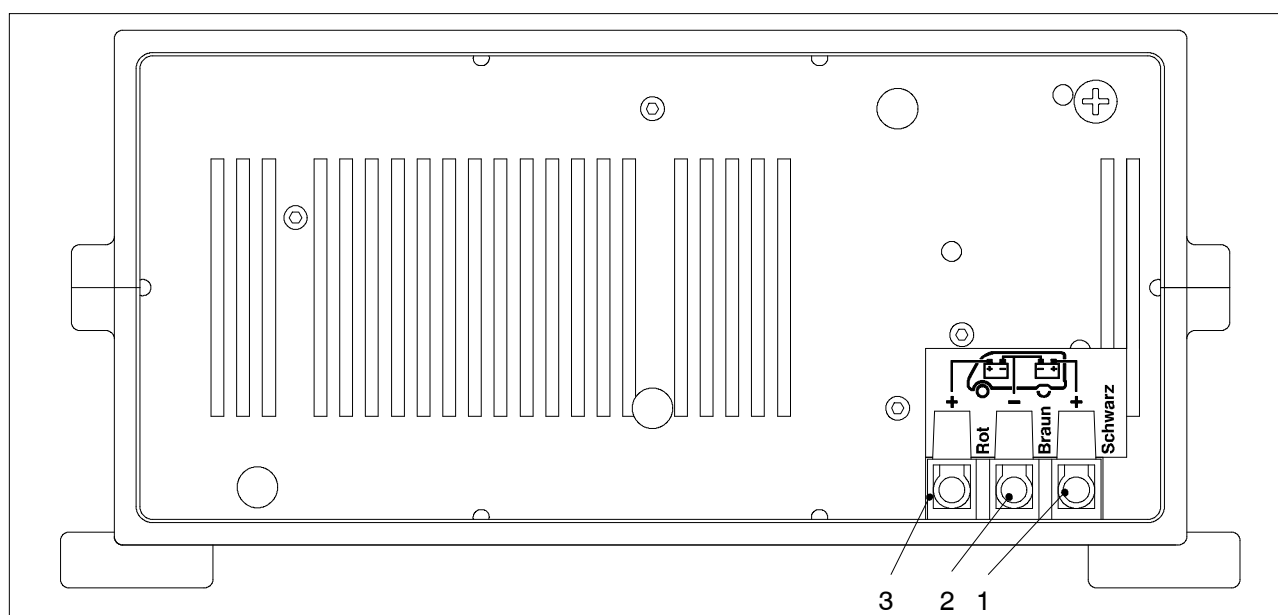
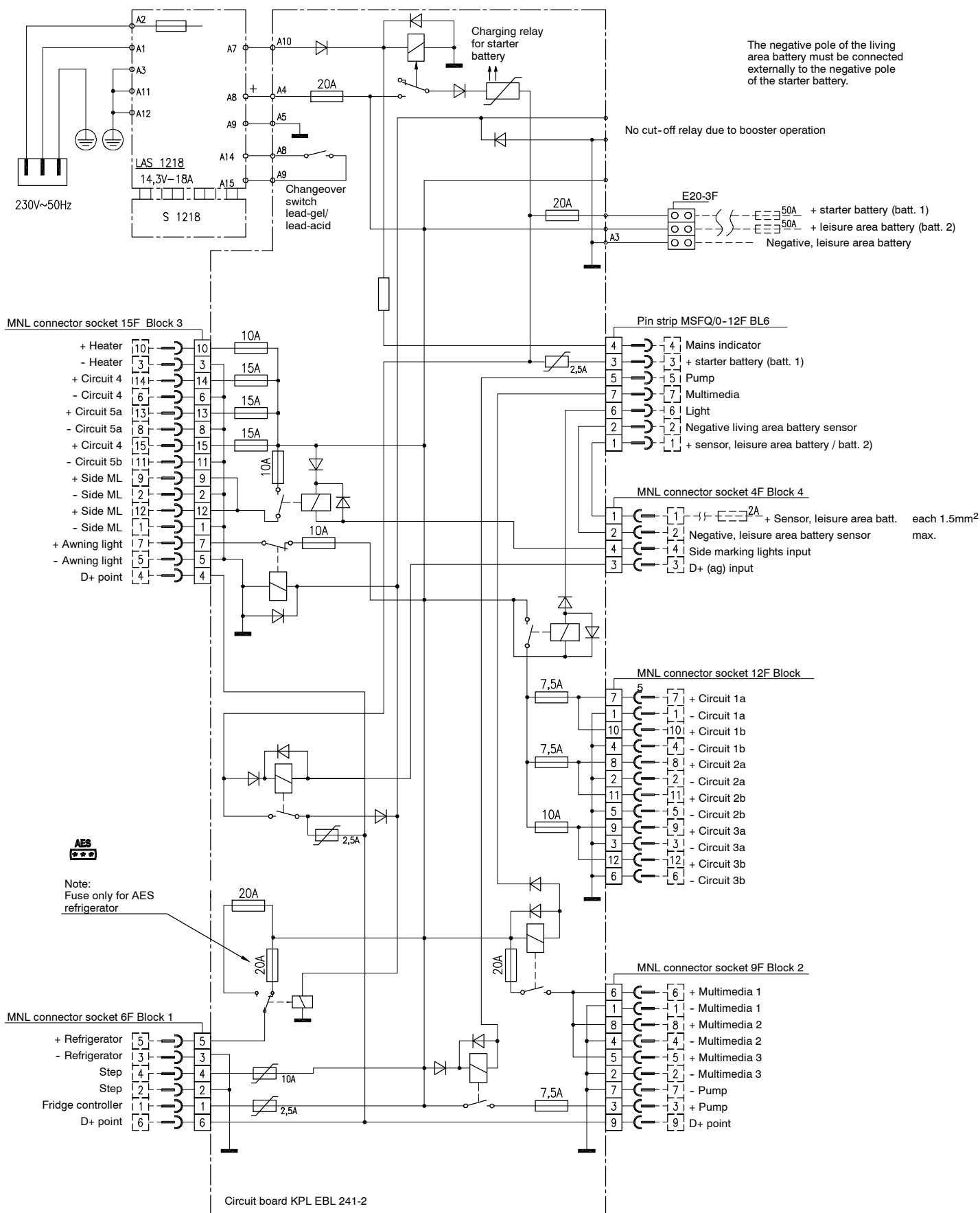


Fig. 5 Layout of the EBL 241-2 electroblock (rear)

- | | |
|-----------------------------------|-------------------------------|
| 1 Connection, living area battery | 3 Connection, starter battery |
| 2 Earth connector | |

F Block diagram/wiring diagram



(blank page)