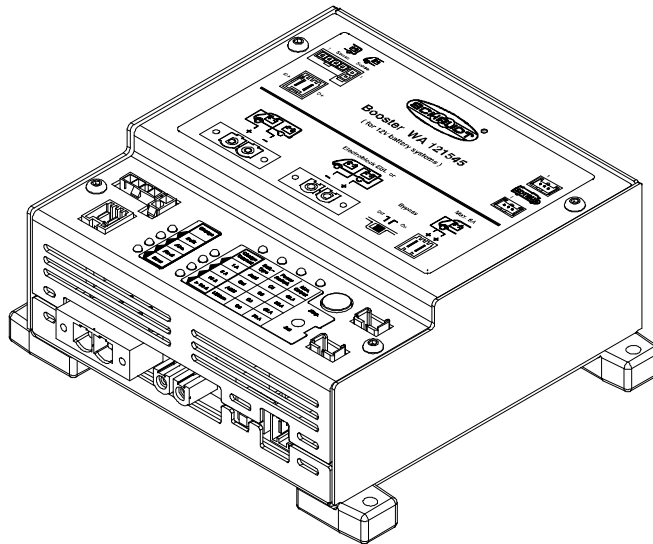


Operating Instructions



Booster WA 121545

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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 consumers.

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
- The mains connection line may only be replaced by an authorised customer service department or by those qualified.



▲ 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)

1.3 Liability limitation

All technical information, details and instructions for installation, operation and maintenance were up-to-date at the time of print, and are provided in good faith and in due consideration of our experience and knowledge gained to date.

No claims can be derived from the specifications, figures and descriptions in these instructions. The manufacturer assumes no liability for damage due to:

- failure to comply with these instructions
- non-intended use
- improper repairs
- technical modifications
- use of non-approved spare parts

Translations are carried out in good faith. We assume no liability for translation mistakes, neither when translations are performed by ourselves nor on our behalf. Only the original German text remains binding.

2 Introduction

This instruction manual contains important information for the safe operation of equipment supplied by Schaudt. 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.



- ▲ This device is not intended to be used by those (including children) with limited physical, sensory or mental aptitude or lack of experience and/or knowledge unless they are supervised by a person responsible for their safety or have received instruction from this person as to how the device is used.

Children must be supervised to ensure they do not play with the device.

This device is intended for installation into a vehicle.

3 Application and functions in detail

The WA 121545 booster is used for optimal charging of leisure area batteries in vehicles whilst they are moving (e.g. in motorhomes) with 12V systems.

The following battery types can be set:

- Lead-acid
- Lead-gel
- AGM
- Lithium



▲ A working 12V battery with a minimum capacity of 80 Ah must be connected for operation.

Generatorvoltages

Generators with energy-saving charge strategies are often fitted in EURO 6 vehicles. The charge voltage for these generators varies greatly depending on the driving state (between 12.6 V and 15.0 V on the MB Sprinter for example).

Without a booster, this prevents optimum charging of the leisure area battery. There is even a risk of discharge for a battery fully charged from the 230 V mains for example.

Given this situation, the use of a booster in such vehicles is an absolute necessity.

Function

The leisure area battery connected is charged independently of the generator voltage. The switchover to trickle charge is automatic, and dependent on current and time. When an optionally available battery temperature sensor is connected, the charge voltages are aligned to the battery temperature.

For conventional generators, leisure area battery charging is also improved greatly by using the WA 121545 booster. The charge current is very much higher, especially for long charge cables. The use of a booster is indispensable for AGM batteries requiring a charge voltage of 14.7 V.

Function

The WA 121545 booster is a clocked upward/downward converter which equalises the fluctuating generator voltage and makes available a high charge current. When generator signal "D+" is applied to the booster, the booster starts working automatically.

The setpoint values for the charge current, the maximum load current and various displays are controlled by a microcontroller using software. A connection to the SDTBUS is also realised via the microcontroller. In an appropriate system environment, it is then possible to display more information, such as "Charge current whilst moving", on an SDTBUS-compatible control panel.

The very high efficiency of the booster means that very compact and lightweight design is possible. The fan fitted is very quiet and only runs at high capacities.

4 Operation

Operation of the booster is not required for daily use.

Only when the battery type is changed (for possible battery types, refer to Section 5.1), during initial start-up or when retrofitting accessories do one-time settings have to be configured (see Section 8).

5 Technical details

5.1 Electrical details

Charging curve	IUoU (time and current-dependent switchover to trickle charge)
Battery types	4 curves can be set from buttons: Lead-acid battery: 14.4V / 13.4V Lead-gel battery: 14.4V / 13.8V AGM battery: 14.7V / 13.7V Lithium battery: 14.4V constant (Voltages without/with temperature sensor at 25 °C)
Temperature compensation	In conjunction with optional temperature sensor (automatic detection): -24mV/°C @ 25 °C Max. charge voltage (U_{Charge}) limited to 15.0V
Input voltage (U_e)	12.0V to 15.0V (for max. charge current) for input curve C1
Max. charge current	The charge current depends on setting "Max. Output" and ratio input voltage U_e to charge voltage U_{Charge} at the output:

Adjustment	Charge Current			
	U_e / U_{Charge} 12.2V / 14.7V	U_e / U_{Charge} 12.2V / 12.5V	U_e / U_{Charge} 14.6V / 14.7V	U_e / U_{Charge} 14.6V/12.5V
45 A	45 A	45 A	45 A	45 A
55 A	45 A	54 A	55 A	55 A
63 A	45 A	54 A	56 A	63 A
70 A	45 A	54 A	56 A	70 A

This means the maximum charge current (**to 70 A**) is possible when the alternator is delivering full voltage (14.6V) and the leisure area battery is discharged (refer to last column).

Measurement: Vehicle with LiMa voltage 12.6V to 15.0V; voltage drop on the cable to the starter battery: 0.4V; Leisure area battery: 14,7 V (almost fully charged) or 12.5V (almost flat)

Maximum input current	60 to 65 A
Efficiency	≥93% (for max. charge current)

Charge current limitation Specified by power limitation characteristics C1 to C4. The maximum charge current is reached for the following voltages:

"Power Reduct."	No charging when	Max. charge current	Suitable for (recommendation):
C1	$U_e \leq 11.2V$	$U_e \geq 11.8V$	Without input voltage sensor: EURO6-Generator with drop down voltage $U_{ab} \geq 12,6 V$
C2	$U_e \leq 11.8V$	$U_e \geq 12.4V$	With input voltage sensor: EURO6-Generator with drop down voltage $U_{ab} \geq 12,6 V$
C3	$U_e \leq 12.0V$	$U_e \geq 12.6V$	With input voltage sensor: EURO6-Generator with drop down voltage $U_{ab} \geq 12,6$ 8 Medium loading of the starter battery circuit
C4	$U_e \leq 12.6V$	$U_e \geq 13.2V$	With input voltage sensor: Conventional generator, low loading of the starter battery circuit

Power limitation characteristics C1 to C4:

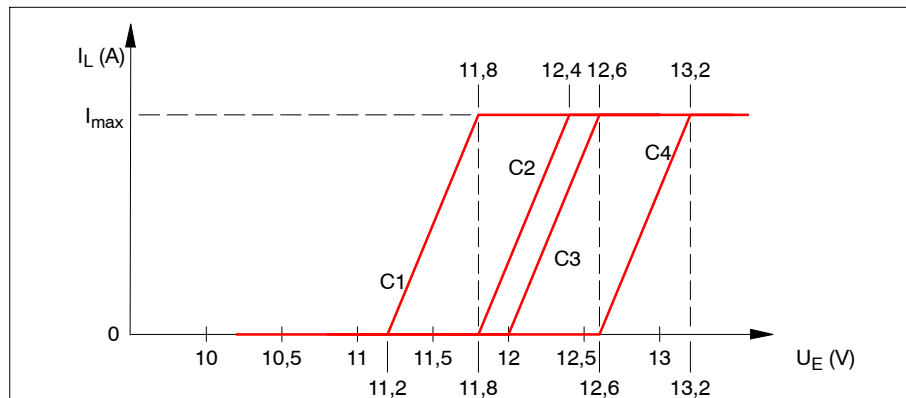


Fig. 1 Charge current limitation characteristics C1 to C4

Back current from battery "Engine OFF": Starter battery: < 0.1 mA
(after cooling) Leisure area battery: < 0.2mA

Control current "Engine ON": D+ connector: < 1mA

5.2 Mechanical details

Connections	Batteries: SPC16- or ISPC16 Phoenix plug connector for connecting wires to max. 16mm ² (connector with tension clamps)
	D+ Connector: Rast 5; code 0G; 2-pin or 6.3 mm AMP flat connector
	SDTBUS 2 Lumberg pin rails Type MSFQ, each 3-pin
	Temperature sensor: SB: VAL-U-LOK; 2-pin WB: VAL-U-LOK; 4-pin Type Tyco AMP 2-pin / 4-pin
Casing	Aluminium, 160 x 79 x 160 mm (W x H x D, without attachment feed); can be screwed to flat surface (D = 186 mm including attachment feet)
Weight	Approx. 1,150 g
Installation position	see Section 6 (Installation)

6 Installation

The device is designed for wall or floor installation.

Environment ► Select a dry place for installation.

- Minimum clearance** ► Ensure a minimum clearance to the surrounding fixtures and fittings:
- Maintain a gap of at least 5 cm on all sides (except mounted side).
 - Keep a gap of at least 80 mm at the front (projection).
 - Whilst in operation, the ambient temperature must not exceed +45 °C, measured 1 cm away from the fans opposite side of the device.

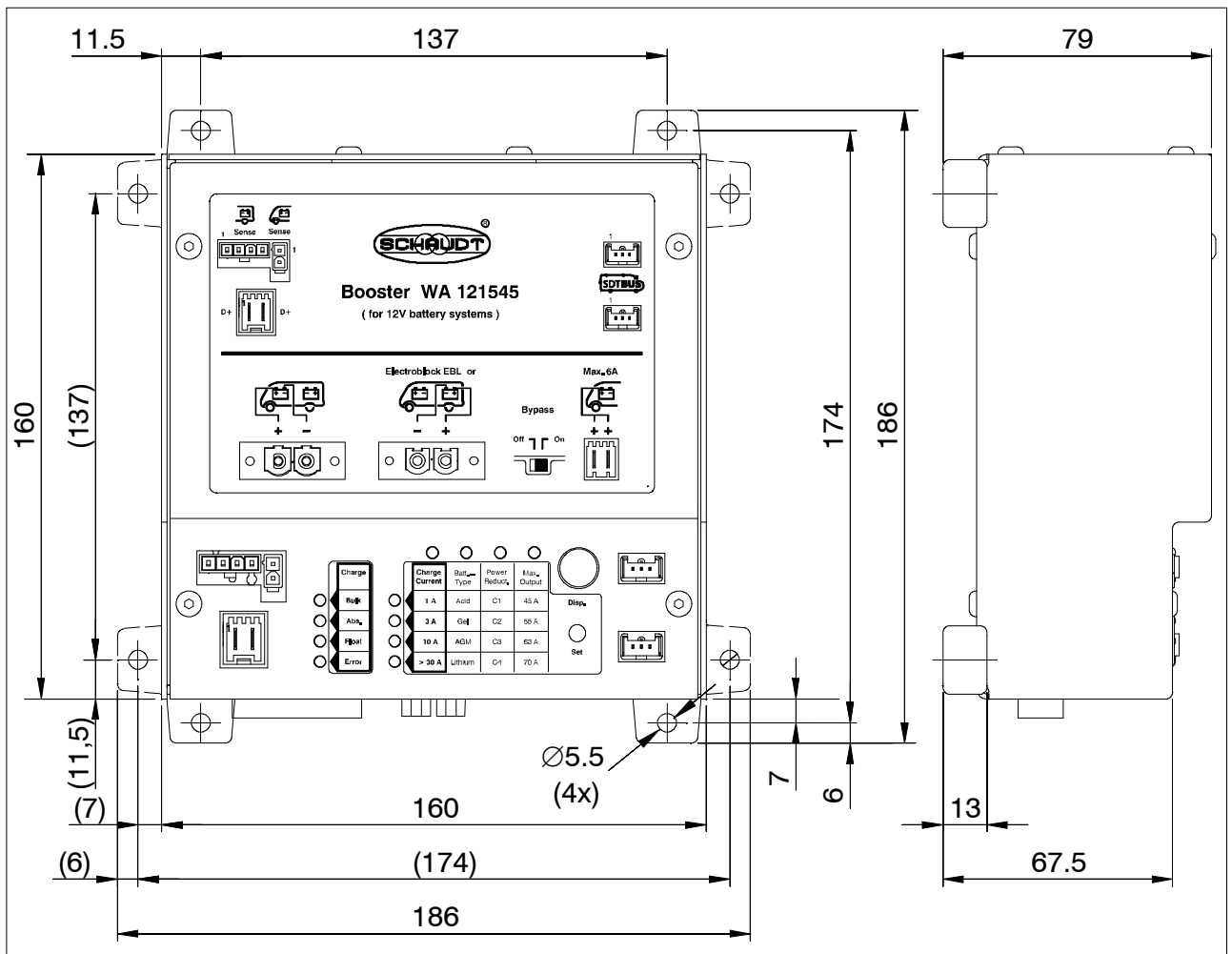


Fig. 2 Dimensional diagram for WA 121545 Booster (the numbers in brackets are for alternative installation of the attachment feet)



- ▲ The attachment feet are either on the side or fitted down/upwards depending on variant. This gives a hole pattern of 174 mm x 137 mm (horizontal alignment as in Figure 2) or 137 mm x 174 mm (vertical alignment).

- Fitting** ► Use the four screws (hole diameter 4 mm, screw diameter max. 3.5 mm) to screw the Booster onto a firm, flat base at the four fitting holes provided.

7 Electrical connection

The connection scenario in the vehicle must be known before the booster is integrated into it. A distinction between the following scenarios is required:

- Vehicles with Schaudt EBL ..., for which the ground cables to both batteries on the EBL ... are accessible individually. Refer also to Section 7.2.



- ▲ The connection shown in Section 7.2 is the preferred scenario for best possible distribution of currents.
 - Vehicles with Schaudt EBL ..., for which the ground connection between the two batteries is in the vehicle itself, and only a single ground cable is connected to the EBL: This single ground cable is usually connected at an inaccessible place at the vehicle-side ground connection of the two batteries. Refer for this to Section 7.2 below.
 - Vehicles with Schaudt EBL ... with SDTBUS. Refer also to Section 7.3.
 - Vehicles with power supplies from other manufacturers. Here the booster is connected directly to the batteries and a D+ signal. Refer also to Section 7.4.



▲ DANGER!

The different connection scenarios have a direct bearing on the maximum currents possible, and so the fusing required. The fusing values specified may never be exceeded.



▲ DANGER!

Every fuse must be connected in the direct vicinity of the voltage source (so the respective battery or terminal D+ on the generator).



- ▲ The temperature sensor also shown in the figures is available as an option. When this sensor is connected, charging of the leisure area battery connected is controlled depending on the temperature of the leisure area battery.

Procedure

The main procedure is essentially the same for all three connection variants:

- ▶ Fully disconnect both batteries (remove all cables from both terminals).
- ▶ Establish all cable connections as in Figure 6, 7 or 8. Ensure the cables have the cross sections required and that the fuses are installed correctly. Do not yet insert the fuses into the sockets.



▲ ATTENTION!

Ensure the plug connectors (not included) are readied properly for connecting the batteries to the booster.

- ▶ Connect the battery temperature sensor (if available) for the two batteries to the negative terminal of the respective battery.
- ▶ Reconnect the battery terminals of both batteries.
- ▶ Finish off as described in Section 7.7.
- ▶ Set the battery type (see Section 8.4).

7.1 Connection sets

Various connection kits are available to connect the booster, which meet different requirements. All parts are included - except the cables - that are required.

7.1.1 Connection set part no. 9990326 - Basic-Set

Use Simple connection of the booster to the vehicle-side system provided the fuses is already present on the vehicle, e.g. in the case of a standard Schaudt EBL ... (see example fig. 6).

Content The set includes the booster itself as well as the two connectors.

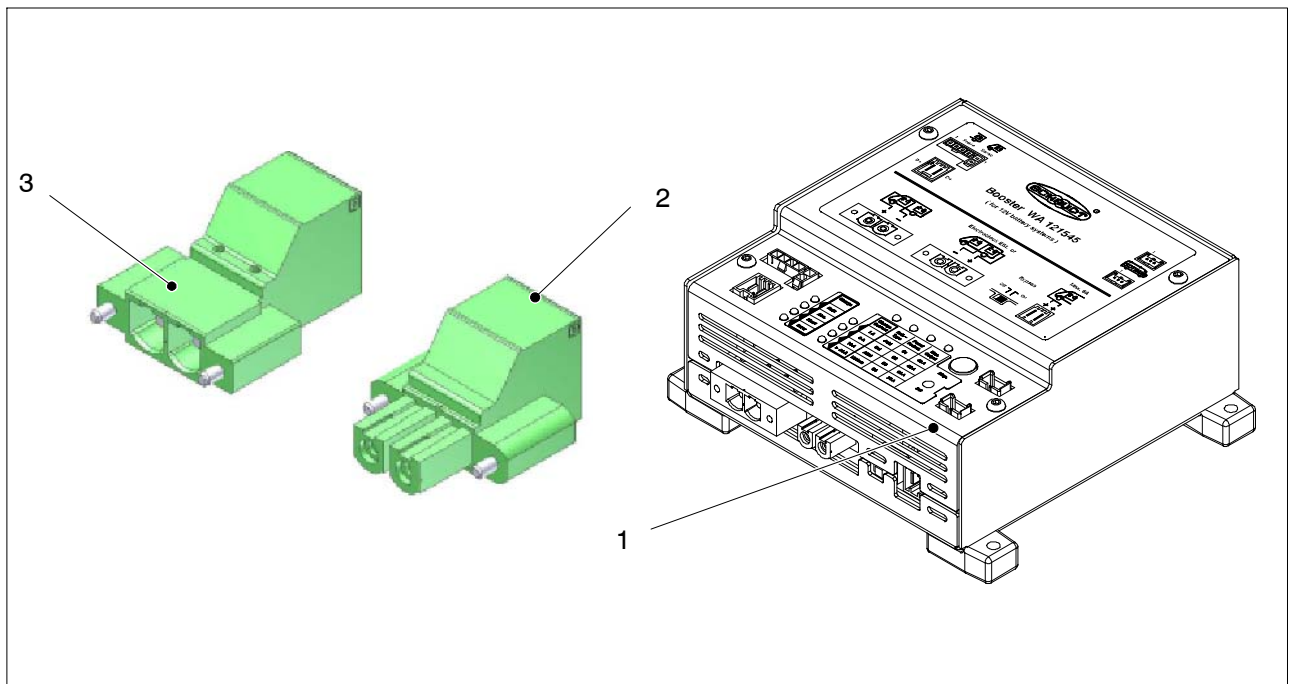


Fig. 3 Set 9990326 - Basic-Set

Pos.	Part no.	Denomination	Use
1	9110510	Booster WA 121545	
2	1420501	Plug SPC16/2 Socket	Connection Booster starter battery
3	1420503	Plug ISPC16/2 Pin	Connection Booster leisure area battery or EBL

7.1.2 Connection set part no. 9990327 - Connection set

Use Direct connection of the booster to the batteries, e.g. in vehicles where external 3rd party systems are installed or for self-construction (see example fig.8).

Content The set contains the connection material with the fuses.

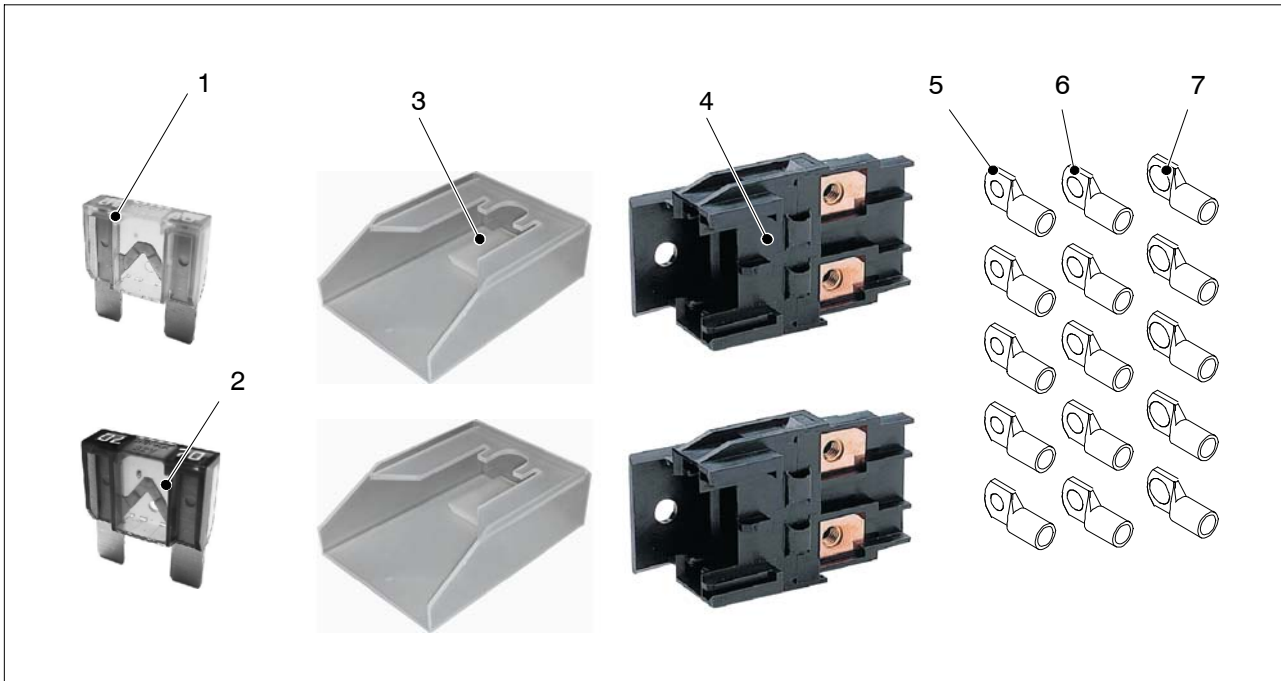


Fig. 4 Set 9990327 - Connection set

Pos.	Part no.	Denomination	Use
1	1320127	Fuse 80 A	Fusing leisure area battery
2	1320128	Fuse 70 A	Fusing starter battery
3	1320309	2 caps for fuse holders	for pos. 4
4	1320308	2 fuse holders	für pos. 1 and 2
5	1490230	5* terminals M5 16 mm ²	for connection fuse holders
6	1490229	5* terminals M6 16 mm ²	for connection to the batteries, depending on the design of the battery terminals
7	1490231	5* terminals M8 16 mm ²	

*one piece as a replacement



▲ ATTENTION!

Observe the following when processing the terminals:

- A special crimping tool is required.
- The terminals must be pressed gas tight onto the cables.

7.1.3 Connection Set part no. 9990328 - Sensor set

Use Extension of the functions of the booster:

- Temperature controlled charging
- Charge with compensation of the voltage drop across the leisure area battery line

Content The set includes two cable sets with leads for a voltage sensor (the cable to the leisure area battery also contains a temperature sensor) and connection material with fuse.

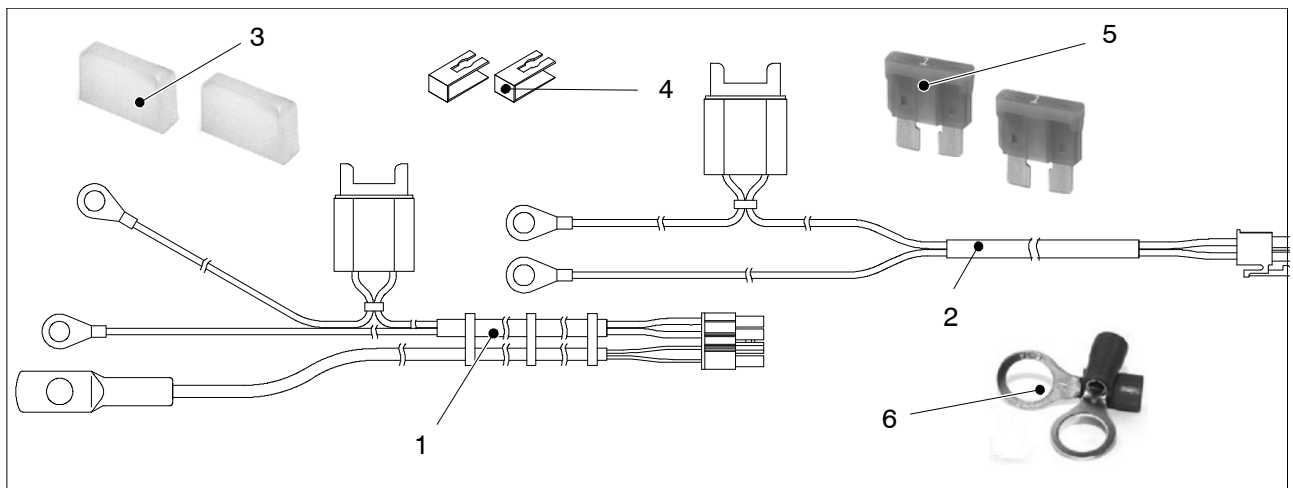


Fig. 5 Set 9990328 - Sensors with connection parts

Pos.	Part no.	Denomination	Use
1	9000110	Sensor cable leisure area battery M6	Voltage and temperature sensor
2	9340225	Sensor starter battery M6	Voltage sensor
3	1320091	2 caps for fuse holders	for pos. 1 and 2
4	1320092	2 mounting brackets for fuse holders	for pos. 1 and 2
5	1320151	2 fuses 1 A	Fusing cables voltage sensor pos. 1 and 2
6	1490204	4 terminals M8	Alternative for the connection of the voltage sensors

7.1.4 Connection set part no. 9990333 - Complete set

Use Complete installations in larger mobile homes.

Content The set includes all parts from the above sets.

7.2 Booster connector for standard EBLs - grounds of both batteries on the booster

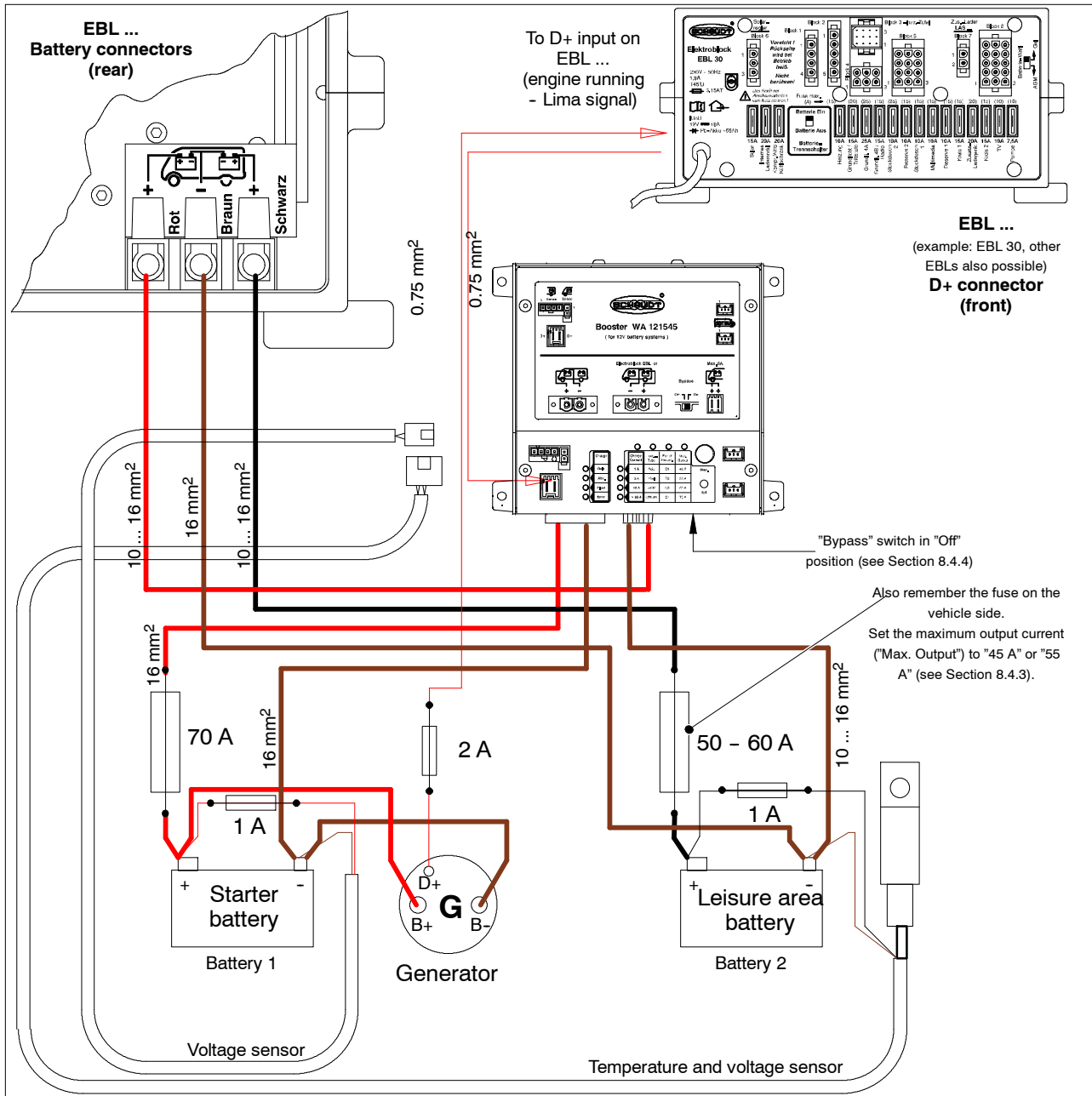


Fig. 6 Vehicles with Schaudt EBL ... - ground on booster

For vehicles in which the cabling can be as shown in Figure 7, the ground connection on the booster between the leisure area battery and the starter battery is an absolute requirement. The two batteries may not be directly connected (e.g. inside the vehicle's cabling). If they are, **the cable between the leisure area battery and the booster is redundant.**



▲ ATTENTION!

The ground cable between the EBL and the leisure area battery (battery 2) must have a cross section of 16 mm² (no smaller).

7.3 Booster connector for EBLs with SDTBUS and appropriate panel - grounds of both batteries on the booster

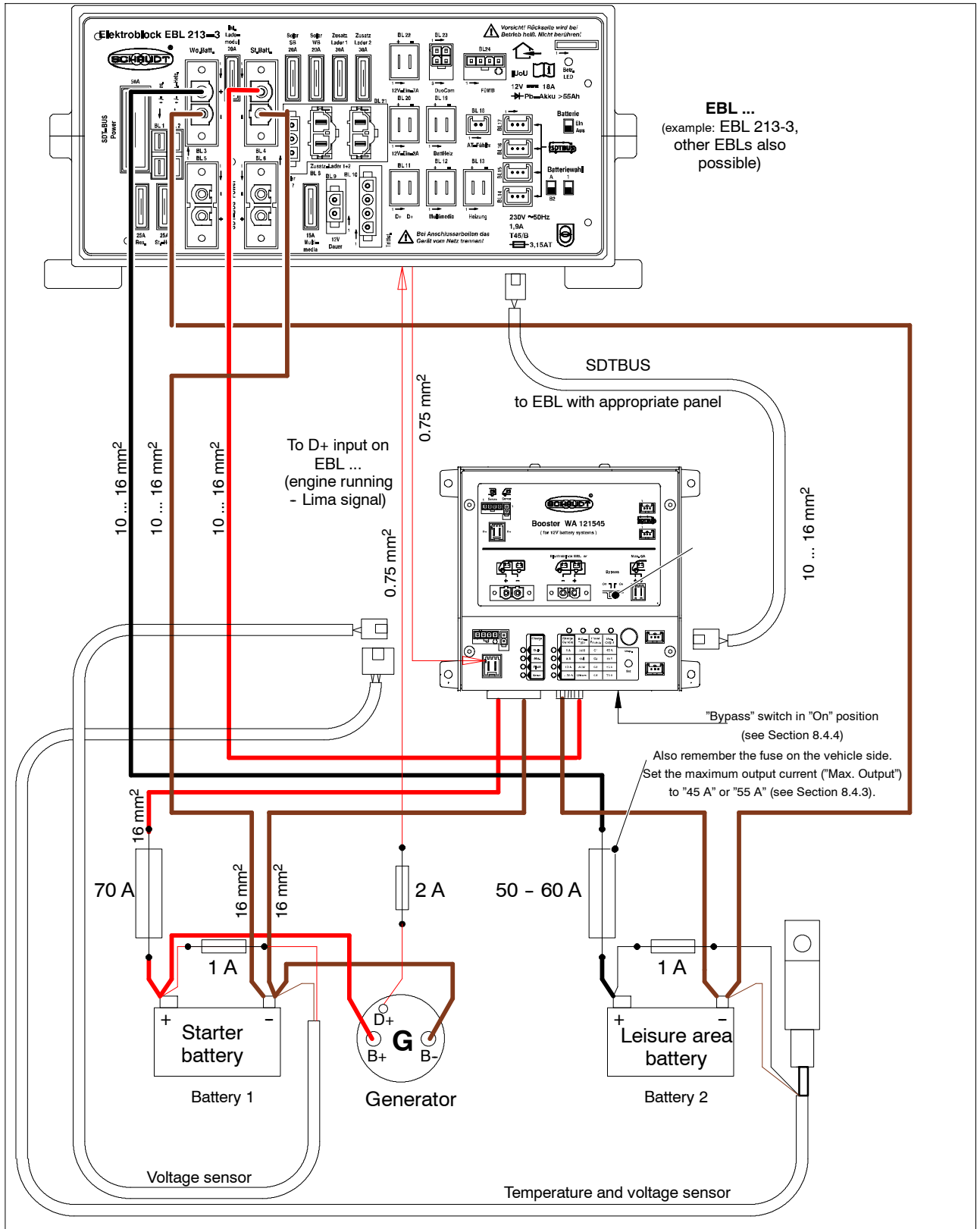


Fig. 7 Vehicles with Schaudt EBL ... with SDTBUS (example: EBL 213-3)

7.4 Booster connector for directly on batteries

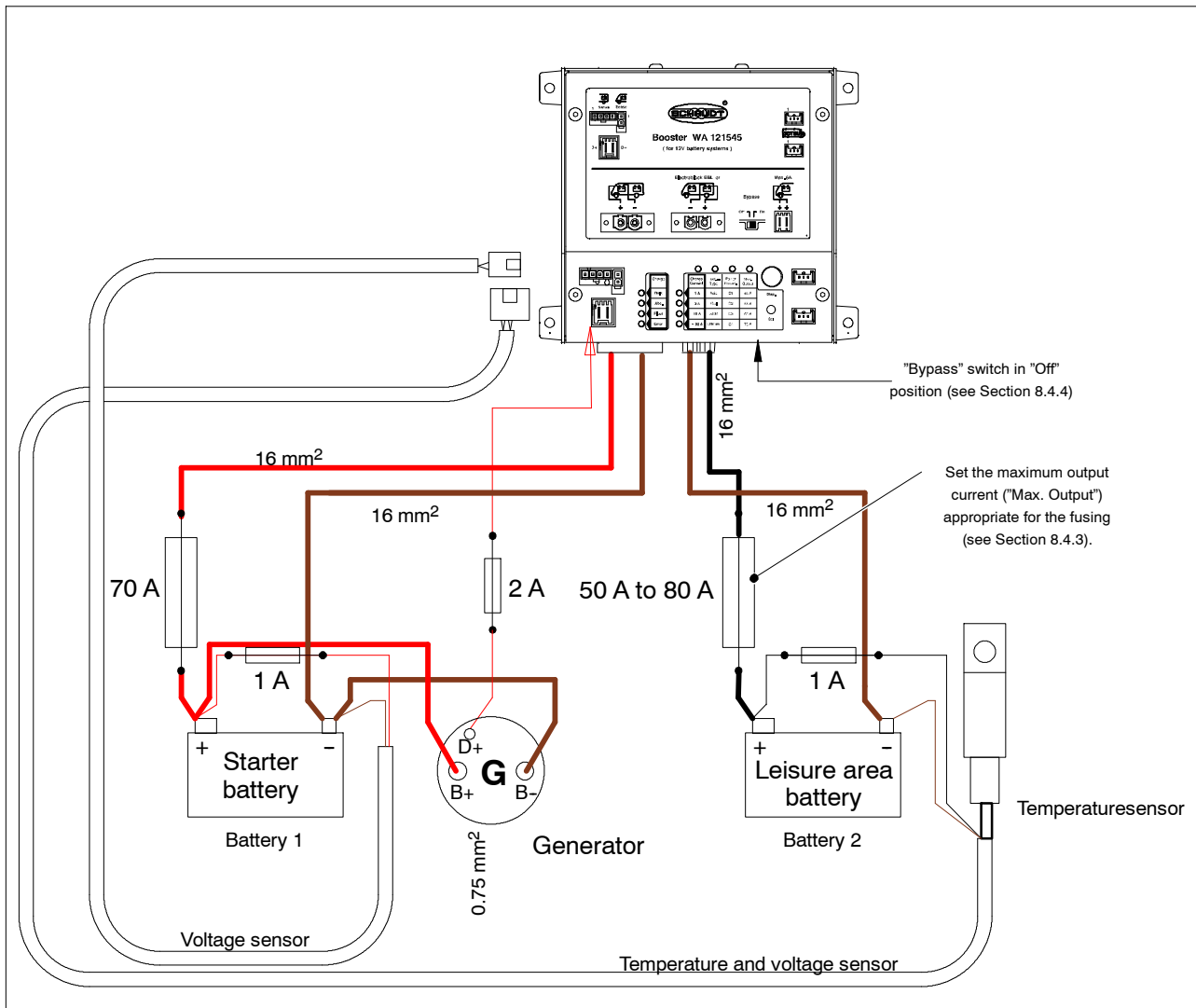


Fig. 8 Vehicles without Schaudt EBL - direct connection to batteries

7.5 Booster connector for directly on batteries with additional chargers

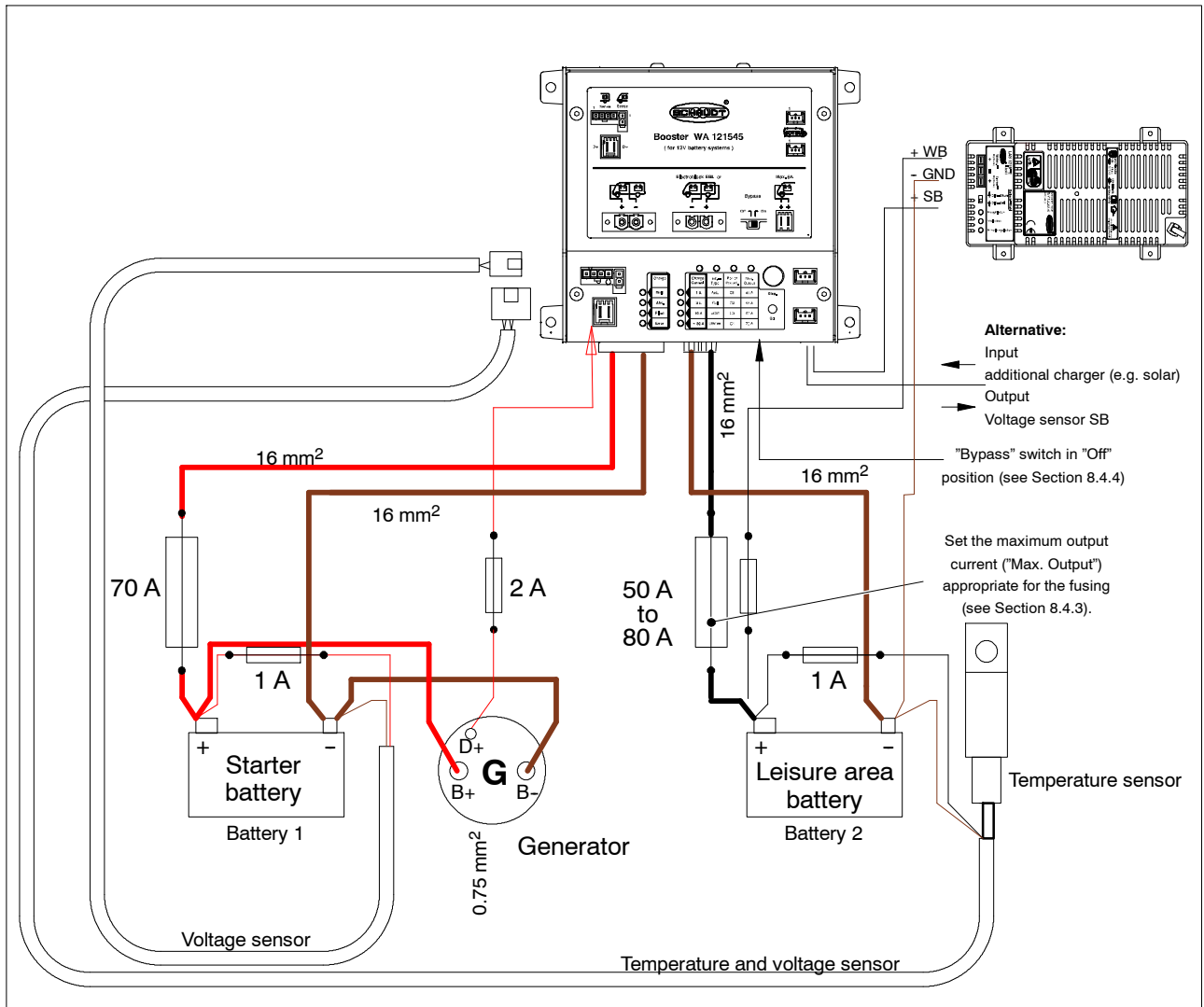


Fig. 9 Vehicles without Schaudt EBL - direct connection to batteries

7.6 Connecting the temperature and battery sensor (optional)

The booster is able to control charging of the leisure area battery by temperature. The optional temperature sensor is required for this.

This function is enabled automatically when the battery temperature sensor is connected.

- ▶ Connect the temperature sensor to the negative terminal of the leisure area battery.
- ▶ Route the temperature sensor cable through the vehicle to the booster.
- ▶ Plug the connector into the booster (Figure 10, Pos. 1).

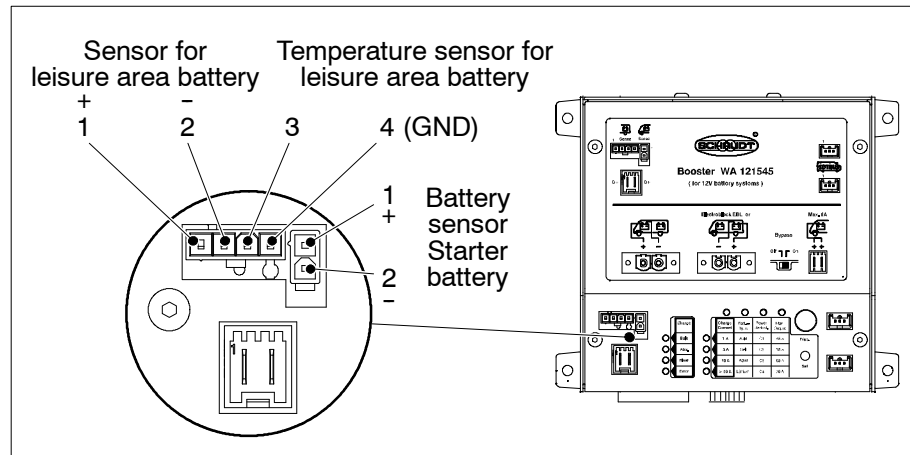


Fig. 10 Temperature sensor: Connection

- ▶ Connect the battery sensor cables to the leisure area and starter batteries.
- ▶ Connect the battery sensor cables to the booster as in Figure 10.



- ▲ If voltage sensor cables and the temperature sensor are connected, the settings required for the evaluation of the measuring signals are performed automatically in the booster. Therefore, the battery voltage sensor cables may only be connected to the booster. A loop from the booster to other devices, or a tap of the signal between the fuse and the booster is not permissible.



▲ ATTENTION!

If the cables of the voltage sensor for the leisure area battery are connected incorrectly or with the wrong polarity:

- the booster has no function.
- a current of about 40 mA flows continually from the starter battery. The battery will discharge.
- a current of about 80 mA flows continually from the leisure area battery. So if the vehicle remains stationary, the battery will discharge totally and might suffer damage as a result.



- ▲ If sensor cables and the temperature sensor are connected, the settings in the booster required to interpret the measurement signals are configured automatically.

7.7 Finishing installation work



▲ ATTENTION!

The 10 mm² and 16 mm² cables to the batteries are relatively heavy and potentially exert high loading on the plug connectors.

- ▶ The cables must be secured with suitable strain relief so that no high tensile forces or pressure loads are exerted onto the plug connectors of the booster.
- ▶ Insert the fuses into the fuse holders (refer to Sections 7.2 to 7.4 for the fuse ratings).
- ▶ Fix the locking screw of both high current plugs ("starter battery" and "leisure area battery" connections).

8 Adjustments

8.1 Control and display panel

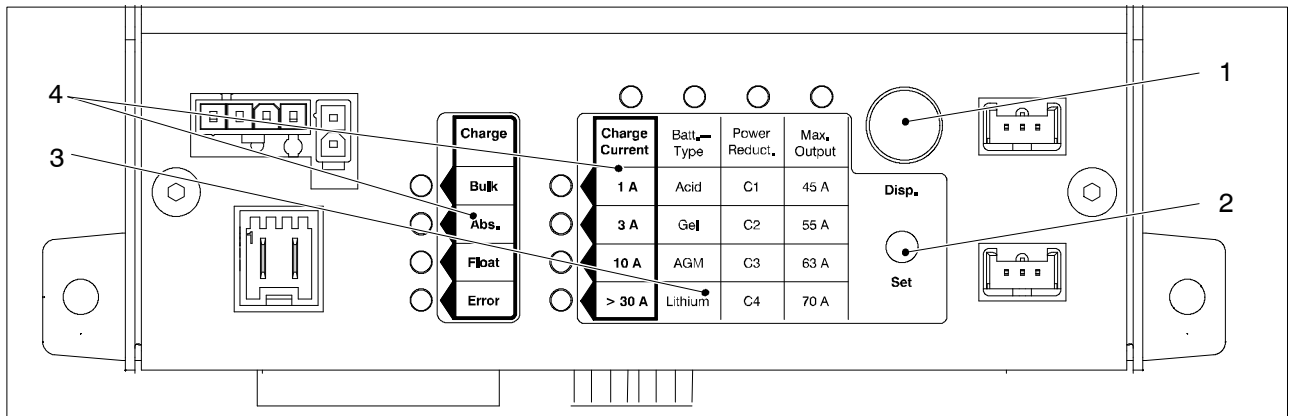


Fig. 11 Control and display panel for adjustments and display

- 1 "Display" button (Disp.)
- 2 "Set" button (with sticker over it when delivered)
- 3 "Adjustments" display panel
- 4 "Charge and device status" display panel

The functions of the control and display panel:

- Display of the current charge and device statuses (Figure 11, Pos. 4), charge cycle and charge current
- On request, display of the current settings (Figure 11, Pos. 3) Battery type "Batt. Type", power reduction characteristic "Power Reduct." and maximum possible output current "Max. Output"
- Change settings



▲ ATTENTION!

Before initial use, the conditions in the vehicle must be determined and taken into account (fuse and cable cross sections). The installation of the boosters requires expert knowledge in the field of vehicle and suspension electronics.

In case of doubt, the booster should be installed by a qualified specialist company.



▲ Default settings when delivered:

See 8200510 AD / DE, EN, FR, IT, SL; download www.schaudt.gmbh



▲ ATTENTION!

To change the settings, use a sharp object made of insulating material (such as a toothpick) to pierce the gummed label above the "Set" button inside the circle, and use it to press the button behind.

8.2 Meaning of the display

When the booster starts up (this is automatic when the vehicle engine starts, D+ is then applied to the booster), the following information is displayed by the LEDs:

- Current charge cycle
- Fault
- Current charge current

The fields in the two columns with bold borders have the following meanings:

Charge	Charge	Charge Current	Charge current	The display for the charge current is only a rough guide.
Bulk	Main charge	1 A	Risen above 1 A	
Abs.	Full charge	3 A	Risen above 3 A	
Float	Trickle charge	10 A	Risen above 10 A	
Error	Error	> 30 A	Risen above 30 A	

8.3 Displaying current settings

The current settings are displayed using the 4 x 4 matrix on the top of the device (Figure 11, Pos. 3). The top LED line specifies which value it is. The left LED column next to the matrix shows which value is currently set.



- ▲ The charge current is displayed during normal operation. The following queries are possible when the vehicle engine is running or stationary.

Proceed as follows to display the other values currently set:

- ▶ Briefly press the "Display" (Disp.) button – Figure 11, Pos. 1.

"Batt. Type"

- The LED above the "Batt. Type" column lights.
- One of the LEDs in the left-hand column lights, e.g. the top LED. This means that battery type "Acid" (so lead-acid) is set.

- ▶ Briefly press the "Display" (Disp.) button again – Figure 11, Pos. 1.

"Power Reduct."

- The LED above the "Power Reduct." column lights.
- One of the LEDs in the left-hand column lights, e.g. the second LED from the top. This means that characteristic C2 is set (refer to Figure 12 for more information on characteristics).

- ▶ Briefly press the "Display" (Disp.) button again – Figure 11, Pos. 1.

"Max. Output"

- The LED above the "Max. Output" column lights.
- One of the LEDs in the left-hand column lights, e.g. the lower LED. This means the maximum charge current can rise to 70 A.

8.4 Adjusting the booster

8.4.1 Setting the battery type, "Batt. Type"



▲ ATTENTION!

Incorrectly setting the device or using unsuitable leisure area battery types can damage the battery or devices connected to the leisure area battery. So therefore:

Changing the battery

- Only ever have batteries changed by qualified personnel
- Follow the battery manufacturer's instructions.
- Only use the booster to connect to 12V power supplies with rechargeable 6 cell lead-gel, lead-acid, AGM batteries or lithium 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 from lead-acid batteries to other battery types. Switching to lead-acid batteries is only possible in certain circumstances. Contact the vehicle manufacturer for more information.



- ▲ Once the battery has been changed, check again which battery type has been inserted and then ensure the battery type is set correctly.



▲ DANGER!

Incorrectly setting the battery type poses a risk of explosion (through the formation of detonating gas).

Setting

- ▶ Turn off the vehicle engine.
- ▶ Briefly press the "Display" (Disp.) button – Figure 11, Pos. 1.
 - The LED above the "Batt. Type" column lights.
 - The LED of the battery type currently set lights in the left-hand column.
- ▶ Within 6 seconds, press the "Set" button (Figure 11, Pos. 2) for longer than 3 seconds.
 - The LED above the "Batt. Type" column flashes.
 - The LED of the battery type currently set flashes in the left-hand column.
- ▶ Keep pressing the "Set" button (Figure 11, Pos. 2) until the LED of the battery type required flashes:

Battery type used	Charge voltage	Trickle charge voltage	Max. time phase	Switchover current for trickle charge (delayed)
Lead-acid batteries	14.4 V	13.4 V	4 hours	Approx. 2.5 A
Lead-gel batteries AGM1 batteries	14.4 V	13.8 V	8 hours	Approx. 2.5 A
AGM2 batteries	14.7 V	13.7 V	4 hours	Approx. 2.5 A
Lithium batteries	14.4 V constant (Curve CCCV)*			
Voltage values apply when no temperature sensor is connected or (with temperature sensor) at 25° C				

* Only LiFePo4 batteries may be charged which have their own battery management system.

- ▶ Press the "Set" button (Figure 11, Pos. 2) for longer than 3 seconds.
 - The LED of the newly set battery type lights permanently.
 - The newly set battery type is saved.



▲ ATTENTION!

Once the setting is complete, check as in Section 8.3 whether the settings have been completed correctly.

8.4.2 Setting the "Power Reduct." characteristic C1 ... C4



▲ ATTENTION!

The correct characteristic selection is dependent on the generator available. So therefore:

- check before adjusting the setting which generator type is fitted in the vehicle (consult with the chassis manufacturer if required)
 - The corresponding characteristic defines the lower voltage threshold from which no more charging takes place (i.e. no more current is drawn from the generator), and the upper voltage value from which the maximum charge current can flow (into the leisure area battery).
- ▶ Turn off the vehicle engine.
 - ▶ Keep pressing the "Display" (Disp.) button (Figure 11, Pos. 1) until the LED above the "Power Reduct." column lights.
 - The LED above the "Power Reduct." column lights.
 - Lighting in the left-hand column is the LED of curve C1 to C4 currently set (Characteristic 1 ... 4).
 - ▶ Within 6 seconds, press the "Set" button (Figure 11, Pos. 2) for longer than 3 seconds.
 - The LED above the "Power Reduct." column flashes.
 - The LED of curve C1 to C4 currently set (Characteristic 1 ... 4) flashes.
 - ▶ Keep pressing the "Set" button (Figure 11, Pos. 2) until the LED of curve C1 ... C4 required flashes:

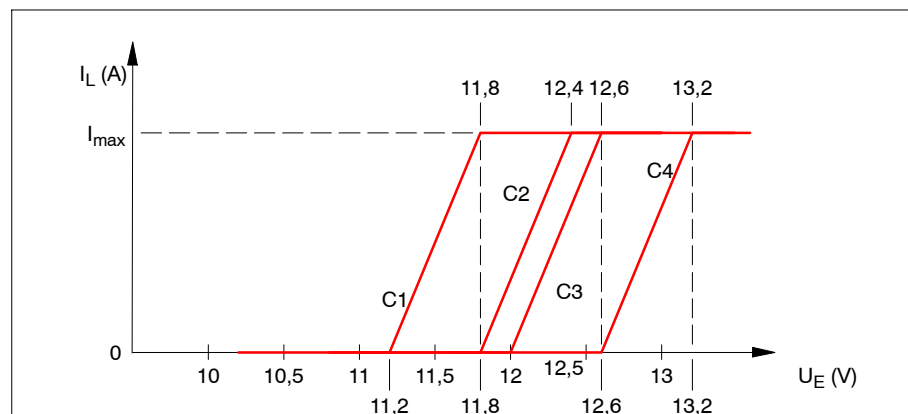


Fig. 12 Charge current reduction characteristic C1 to C4 (values are example and may differ depending on vehicle manufacturer)

- ▶ Press the "Set" button (Figure 11, Pos. 2) for longer than 3 seconds.
 - The LED of the newly set curve lights.
 - The newly set curve is saved.



▲ **Recommendations:**

- C1: EURO6-Generator without input voltage sensor
- C2: EURO6-Generator with input voltage sensor
- C3: Medium loading of the starter battery circuit with input voltage sensor
- C4: Low loading of the starter battery circuit with input voltage sensor

8.4.3 Setting the maximum output current, "Max. Output"

- ▶ Turn off the vehicle engine.
- ▶ Keep pressing the "Display" (Disp.) button (Figure 11, Pos. 1) until the LED above the "Max. Output" column lights.
 - The LED above the "Max. Output" column lights.
 - The LED of the maximum current currently set lights in the left-hand column.
- ▶ Within 6 seconds, press the "Set" button (Figure 11, Pos. 2) for longer than 3 seconds.
 - The LED above the "Max. Output" column flashes.
 - The LED of the maximum current currently set flashes.
- ▶ Keep pressing the "Set" button (Figure 11, Pos. 2) until the LED of the maximum charge current required (45, 55, 63 or 70 A) flashes:
- ▶ Press the "Set" button (Figure 11, Pos. 2) for longer than 3 seconds.
 - The LED of the newly set maximum current lights.
 - The newly set maximum current is saved.



▲ **DANGER!**

The fuse and cabling on the output side must be designed for the maximum charge current set. Otherwise the battery fuse will keep tripping or, for too high a fuse rating and too low a cable cross section, a cable fire will result (also refer to Section 7).

8.4.4 Setting the "Bypass" switch

The "Bypass" sliding switch enables and disables a connection between the starter battery input and the EBL / leisure area battery output on the booster.



▲ This connection is established internally and has a limited current.

When this switch is in the "On" position, there a connection between the starter battery and the booster output (to which about 5 A can be applied) as soon as the engine is turned off (so the D+ signal is no longer being applied).

Mains recharging

- This connection provides mains recharging of the starter battery when the vehicle engine is switched off and a 230 V mains supply is available (made available to its starter battery connector from an EBL with STDBUS for example with bypassing of the cut-off relay).

Charge current display from suitable panel

- Measuring the starter battery voltage when the vehicle engine is turned off and the bypass is established is also possible using the electroblock to assess its condition.

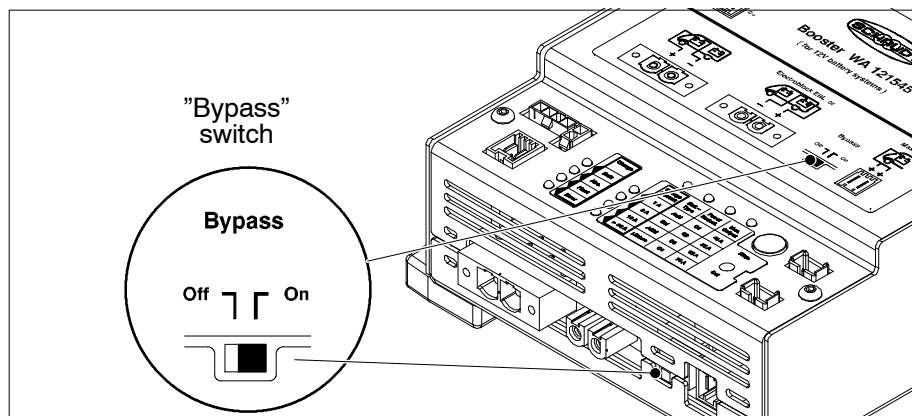


Fig. 13 "Bypass" sliding switch

Only move the "Bypass" sliding switch to the "On" position in the following cases:

- Use of the WA 121545 booster together with an electroblock (EBL ...) in a SCHAUDT SDTBUS system
- For third party systems in which the battery is isolated by a cut-off relay, and the requirement is to measure the starter battery voltage when the engine is stationary



▲ ATTENTION!

When the booster output is connected directly to a leisure area battery and starter battery, the "Bypass" switch **must** be in the "Off" position.

If it is erroneously in the "On" position, the two batteries are connected to each other on "Engine off". This would cause undesired charge equalisation between the two batteries (a discharged leisure area battery would discharge the starter battery for example).

9 Initial use

The booster is switched on automatically as soon as the vehicle engine is started.

► Check the following before trying to start the first time:

- Are all the plug connectors secure?
- Are all the cables connected with the right polarity?
- Are all the cables secured correctly in the tension clamps?
- Are the cables adequately secured?
- Are all the settings correct as per the requirements?
 - Correct battery type set ("Batt. Type")
 - Is the power reduction characteristic suitable for the generator ("Power Reduct.")?
 - Is the maximum current appropriate for the fusing (Max. Output)?

► Start the engine.

► Check the booster display:

- Is a charge mode displayed?
- Is LED "Error" off?



▲ ATTENTION!


If the "Error" LED lights or nothing is displayed, check the cabling and the settings.

10 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 25).

Fault	Possible cause	Remedy
Leisure area battery not charged when vehicle is moving (battery voltage does not rise after some time).	Incorrect battery type set	Set the correct battery type (see Section 8.4).
	The power reduction characteristic set, "Power Reduct." C1 to C4, is not appropriate for the generator.	Set the correct characteristic – refer to the recommendations in Section 8.4.2. Consult with the manufacturer of the base vehicle. Contact customer service or your dealer as required.
	No D+ signal on the booster.	Check whether 12V is applied to booster input D+ when the vehicle engine is running. If not: Check and replace as necessary the 2A fuse. No D+ signal even when the fuse is intact: Contact customer service or your dealer as required.
	Too many consumers are switched on.	Switch off any consumers not required.
	The device has an excessively high temperature.	Improve the ventilation; clean dirty ventilation slots as required.

Fault	Possible cause	Remedy
The voltage rises to far above 15V.	Booster defective.	Immediately disconnect the "Starter battery" and "Leisure area battery" connectors from the booster. Contact customer service or your dealer as required.
No LEDs are on (light up) on the booster.	Vehicle engine idle – no battery charging.	No fault – start vehicle engine as required.
	Vehicle engine running: No input voltage due to defective fuse or defective cabling.	Replace fuse as necessary. Cabling: Call customer service.
	Vehicle engine running: No D+ signal from the generator due to defective fuse or fault in vehicle or in cabling.	Replace fuse as necessary. Cabling/fault in vehicle: Contact customer service.
After a longer period of inactivity, the leisure area battery and the starter battery are fully discharged although the battery has been disconnected. After switching on the LED "Error" lights. The booster has no function.	The leisure area battery voltage sensor or the starter battery voltage sensor is connected incorrectly or with the wrong polarity. In this case, a current of about 80 mA continually flows from the leisure area battery or a current of about 40 mA continually flows from the starter battery.	Correctly connect the leisure area battery voltage sensor. Contact customer service or your dealer as required.
The "Error" LED lights, the other LEDs indicate the current status of the booster.	The temperature sensor cable is short-circuited.	Check the temperature sensor; the booster continues to work with the values for 25° C. Contact customer service or your dealer as required.
The "Error" LED lights, all other LEDs always remain off. The device is not working.	The device has an excessively high temperature.	Improve the ventilation; clean dirty fan as required.
The fuse on the output side (located very close to the positive terminal on the leisure area battery) keeps tripping.	Maximum output current "Max. Output" set too high or fuse with too low a rating.	Set the maximum output current lower or change the fuse value. Ensure to observe the information in Section 8.4.3. 
The "Error" LED flashes at 1 Hz.	The leisure area battery voltage sensor has the wrong polarity or is short-circuited.	Check the connectors and cabling. Contact customer service or your dealer as required.
The "Error" LED flashes at 3 Hz, all other LEDs always remain off.	Overvoltage at the input.	Check the generator.
	Overvoltage at the output.	Check the booster and generator.
	Booster defective.	Check the booster.

11 Maintenance

The WA 121545Booster requires no maintenance.

Cleaning Clean the device with a soft, slightly moistened cloth. Never use spirit, thinners or similar substances. Do not allow liquids to enter the device. If required, clean the ventilation slots with a soft brush.

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Appendix

A Customer service

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

Phone: +49 7544 9577-16

Email: kundendienst@schaudt.gmbh

Website: www.schaudt.gmbh



▲ Before returning a device, we recommend taking a look at the frequently asked questions (FAQs) on website "www.schaudt-gmbh.de". This may give you some pointers towards fault rectification, or perhaps even also incorrect operation.

Send in device Returning a faulty device:

- ▶ If possible: Fill in the pre-registration in the relevant area on the "www.schaudt-gmbh.de" website.
- ▶ Fill in and enclose the 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:

C Layout

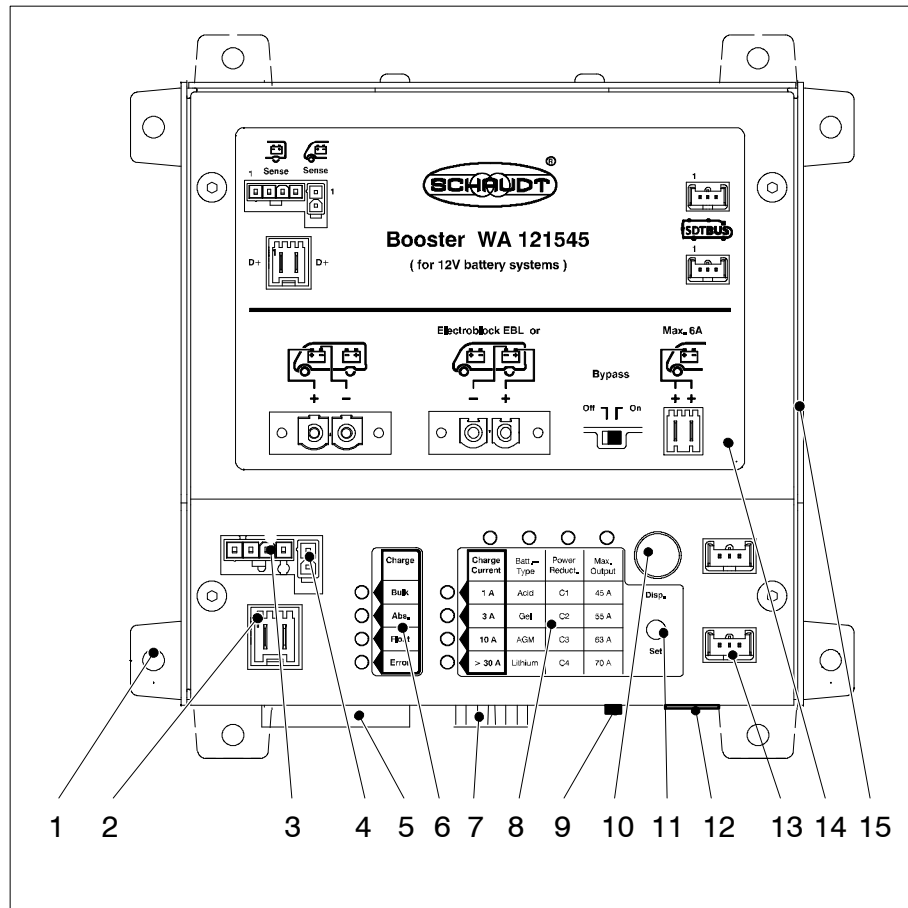


Fig. 14 Layout of the WA 121545Booster

- | | |
|---|--|
| 1 4 x attachment feet | 7 Leisure area battery connector |
| 2 D+ connector | 8 Display matrix for settings |
| 3 Connector for leisure area battery sensor (temperature and voltage) | 10 "Disp." (Display) button |
| 4 Connector for starter battery sensor (voltage) | 11 "Set" button |
| 5 Starter battery connector | 12 Connector for charge starter battery for mains connection |
| 6 Display panel for Charge mode | 13 SDTBUS connector |
| | 14 Metal enclosure |
| | 15 Adhesive label |

D EC Declaration of Conformity

Schaudt GmbH hereby confirms that the design of the WA 121545 booster complies with 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