



All clear on board –
Leisure comfort with system



12V



TRADE PRODUCTS 2011



Electronic systems for recreational vehicles
Supplying – controlling – indicating

All systems under control

Monitoring and controlling systems by Schaudt leading in safety and comfort in recreational vehicles

All systems under control. Clearly laid out, professional and reliable. For more than 30 years we have been well established in the recreational vehicle market. Market leader in Germany and successful in Europe – we have been a close partner of leading manufacturers of recreational vehicles for many years, under our own brand Schaudt or also under the label of the particular vehicle.

Our monitoring and controlling systems provide clear information on board with regard to 12 V

power supply, battery charge, solar supply, water supply and waste water. Innovative systems, intelligently combined keep the user informed on key data – simple to use and check. All modules can be tailored individually to the system requirements of the particular vehicle as well as to the user's comfort desires.

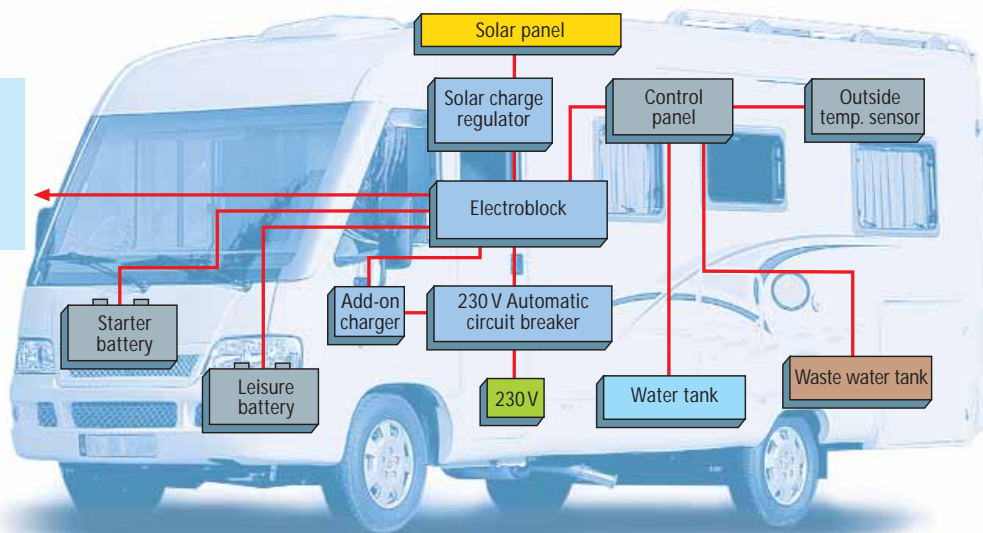
We offer excellent know-how together with a wide product portfolio. Due to the possibility to combine all system components modularly, we can provide a varied range of customer solutions.



Our components can be built in exactly where they are needed. Easy to maintain and fully integrated in the modular system.

12V load:

- Fridge
- Lighting
- Pump
- TV
- Heating ...



Which systems can be controlled and monitored by our modular components and where to find them.

Electroblock:

- Cut-off relay (charging during journey)
- Battery monitor
- 12V fuses
- 12V distribution
- Charging module (charging at mains)
- 12V main switch



Our company in Markdorf near Lake Constance

Additionally to the trade products listed in this brochure we offer customised solutions and series production. We cooperate in partnership with well-known manufacturers as a system supplier in the whole of Europe.

We are a medium-sized company and are based in the popular holiday region around Lake Constance. This region is also internationally renowned as a location for a number of hightech companies in the car and recreational vehicle industry.

Traditional values such as quality standards without compromise and 100% customer orientation play a vital role in our company philosophy. This is the way we can and want to implement our set standards and aims – as a leading manufacturer and partner of our customers.

Battery charger 230V AC / 12V DC application with leisure battery



LAS 1218-2

Battery chargers for charging of 6-cell 12V lead-acid and lead-gel batteries. If being part of the on-board 12V electrical system, they are power supply and battery charger in one unit. The battery charger LAS 1218-2 is designed as a primary controlled switch-mode power supply. This modern circuit technology ensures high power output combined with light weight and compact dimensions. It also increases the charge in systems with an Electrobloc.

Special characteristics LAS 1218-2:

- constant charging current independent of fluctuating mains voltage
- can be used as a power supply without a connected battery
- trickle-charge of starter battery with max. 3A
- weight saving compared to a thyristor-controlled battery charger of approx. 80%
- no ripple voltage at output
- high energy efficiency of approx. 90%

Device	Charging characteristic	Thyristor-controlled Switch mode power supply	Charging current ¹	av = arithmetic mean eff = effective value r.m.s.	recomm. battery capacity in Ah	Charging state indication	Dimensions H x W x D in mm	Weight in kg	Order no.
LA 1210	IWUoU	•	10A _{av} 15A _{eff}		100	•	110 x 135 x 160	2.8	999.139
LAS 1218-2	IUoU	•	18A		180	•	90 x 150 x 250	1.0	999.086
LAS 1218-2*	IUoU	•	18A		180	•	90 x 150 x 250	1.0	999.085
LAS 1218-2**	IUoU	•	18A		180	•	90 x 150 x 250	1.0	999.161

* as add-on charger for an Electrobloc with MNL connection

** as add-on charger for an Electrobloc with Minifit connection

av = arithmetic mean current effective for battery charging

eff = effective value r.m.s. current relevant to calculation of conductor sizes and fuse values

¹Switch mode power supplies have, on account of their filtered output voltage, an arithmetic mean which is equal to the effective value

Battery charging system 230V AC / 12V DC application in motorhome



EBL 40

The Electroblocs EBL 40 and EBL 208 contain a battery-charging module, the complete 12V distribution, the fuse protection of the 12V circuits as well as further controlling and monitoring functions.

Characteristics:

- bistable 12V main-switch relay
- low-current water pump circuit
- suitable for 6-cell lead-acid and lead-gel batteries
- battery cut-off switch for winter shutdown (only for EBL 208)

- battery monitor module (only for EBL 208)
- connector for a solar regulator LR 1218 (only for EBL 208)

Connecting parts and a mains cable are included. Operation requires a control panel including accessories.

Suitable control panels:

EBL 40: LT 410

EBL 208 S: LT 420

Optional accessory:

Solar regulator LR 1218



EBL 208 S

Device	Charging characteristic	Charging current	Dimensions H x W x D in mm	Weight in kg	Order no.
EBL 40	IUoU	18A	111 x 320 x 217	1.9	999.202
EBL 208 S	IUoU	18A	130 x 275 x 170	1.9	999.087

System control panel 12V DC accessory for EBL 40 / EBL 208



LT 410



LT 420

The LED panels LT 410 and LT 420 can be connected to a EBL 40 / EBL 208 and its variants. Indication by LEDs.

Characteristics:

- eight-step voltage indication of leisure and starter battery
- optical battery alarm in case of great drop in voltage of leisure battery
- four-step indication of water tank fill levels for two water tanks

- 12 V main switch with on-indicator
- 230 V mains indicator
- water pump switch with on-indicator (only LT 420)

A connecting cable of 5 m length for connection to the Electrobloc is included. The LED panel is suitable for measuring the fill levels of plastic water tanks. For this purpose, tank sensors or rod-type tank sensors including accessories are required. Please order separately.

Device	Accessory to	Ground colour	Dimensions H x W x D in mm	Order no.
LT 410	EBL 40	Matt silver	106 x 176 x 35	999.204
LT 420	EBL 208 S	Matt silver	106 x 176 x 35	999.188

Control panel 12 V DC application with leisure battery



LT 232

LT 205 for the display of battery voltages



The LT 232 LED panel is connected directly to the batteries, filling level sensors of the water tanks and the pump. Indication by LEDs.

The LT 232 LED panel is suitable for measuring the filling levels of plastic tanks. Either tank sensors or rod-type tank sensors including accessories are required for this. Please order separately.

The LT 205 indicator panel is for separate display of the battery voltages for starter and leisure battery in five steps.

Device	Ground colour	Dimensions H x W x D in mm	Order no.
LT 232	Light grey	75 x 130 x 30	931.184
LT 205	Light grey	75 x 75 x 35 (installation depth incl. connector)	931.126

Battery charging system 230V AC / 12V DC with integrated control panel application in motorhome



The Electrobloc EBL 263-5 contains a battery-charging module, the complete 12V distribution, the fuse protection of the 12V circuits as well as further controlling and monitoring functions. The control panel is integrated in the front panel.

Characteristics:

- battery monitor and optical battery alarm in case of great drop in voltage of leisure battery
- bistable 12V main switch relay and 12V main switch with on-indicator
- 230V mains indicator
- three-step voltage indication for leisure and starter battery

- three-step indication of water tank fill levels for two water tanks
- switch for pump and waste water heating with on-indicator
- float-charging module for starter battery
- fuse protection of 12V circuits with resetting PolySwitch fuses
- suitable for 6-cell 12V lead-acid and lead-gel batteries

The EBL 263-5 is suitable for measuring the fill levels of plastic water tanks. For this purpose, tank sensors or rod-type tank sensors including accessories are required. Please order separately.

Ground colour front panel: matt silver

Device	Charging characteristic	Thyristor-controlled	Charging current	recomm. battery capacity in Ah	H x W in mm Front panel	H x W x D in mm Casing	Weight in kg	Order no.
EBL 263-5	IWUoU	•	10A _{av} 15A _{eff}	100	155 x 290	130 x 275 x 173	4.4	911.056

Solar charge regulator 12V DC application with leisure battery



The solar charge regulator LR 1218 limits and controls the charging voltage of solar modules. It ensures a gentle charging of one or two batteries respectively. Discharging at insufficient charging voltage (e.g. in darkness) is prevented by an integrated reverse diode. Suitable for solar modules with a total current of 18A and for

6-cell 12V lead-acid and lead-gel batteries. IU charging characteristic.

control principle: pulse-width modulated series regulator
 equalize voltage: leisure battery 14.2V
 starter battery 14.2V

Device	Dimensions H x W x D in mm	Weight in g	Order no.
LR 1218	110 x 75 x 56	160	999.219

including fuse protection and connecting material for connection:

- to LR 1218
- to the Electroblock
- to the safety fuse

Control panel Solar 12V DC accessory for LR 1218



The instrument panel IT 300 Solar is connected directly to the solar charge regulator LR 1218. Indication with measuring instrument of accuracy class 2.5.

Characteristics:

- continuous indication of solar-charging current for leisure and starter battery

Delivery including connecting material.

Device	Ground colour	Dimensions H x W x D in mm	Order no.
IT 300 Solar	Graphite black	85 x 85 x 35	999.144

Accessories for fill level measurement of water tanks for all control panels with fill level indication



Tank sensors are simply fitted into the tank wall (only for waste water tanks). For a three-step indication of fill levels, four sensors per tank are needed: one base or reference point and three measuring points (1/3, 2/3 and full). For a four-

step indication of fill levels, five sensors per tank are needed: one base or reference point and four measuring points (1/4, 1/2, 3/4 and full). For the connection to the control panel an additional sensor cable is required. Please order separately.

Tank sensor 1 item	Order no.	933.662
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Rod-type tank sensors are simply fitted into the top of the tank. They are mounted by check nut and seal ring if the water tank does not already have a suitable thread. Tank sensors can be shortened by the customer to match the height of the tank. A check nut, seal ring and a length

shortening table are included with the tank sensor. For the connection to the control panel an additional sensor cable is required. Please order separately.

Rod-type tank sensor M 400 for a total tank height of 150mm to 400mm	Order no.	999.047
Rod-type tank sensor M 600 for a total tank height of >400mm to 600mm	Order no.	999.037

Sensor cables for all control panels with fill level indication

Sensor cables are necessary to connect tank sensors to a control panel. Divisible cables are intended for the connection of two separate tanks. They can be cut in two, according to length. The two open ends are connected to the terminals on the control panel. Please order for adjacent devices:

Device	Sensor	Cable	Dimensions	Order no.
LT 232, EBL 263-5	with tank sensors	1 cable, divisible	4 x 0.5 x 8 m	933.700
	with rod-type tank sensors	sufficient for two tanks	4 x 0.5 x 8 m	933.718
LT 410, LT 411, LT 420	with tank sensors	1 cable for water tank	5 x 0.5 x 5 m	933.774
		1 cable for waste water tank	5 x 0.5 x 5 m	933.766
	with rod-type tank sensors	1 cable for water tank	5 x 0.5 x 6,5 m	933.747
		1 cable for waste water tank	5 x 0.5 x 6,5 m	933.745

Battery monitor 12V DC application with leisure battery



The battery monitor BW 50 monitors the voltage of a connected battery. As soon as the battery voltage falls below the switch-off voltage, all connected load is being turned off to protect the battery. Short falls below the threshold voltage (< 2 seconds), due to high inrush currents of connected load, do not affect the automatic switch-off. The BW 50 is available in two versions with different switch-off voltages.

For separate monitoring of devices with a high current drain, like for example air conditioners, it is recommended to use the model with 11.3V switch-off voltage.

Connecting material and an additional main-switch panel, to operate the power supply of all connected load by remote control, is included with the battery monitor.

Device	Maximum load current	Switch-off voltage	Switch-on voltage	Dimensions H x W x D in mm	Weight in g	Order no.
BW 50	50A	10.8V	11.4V	43 x 100 x 90	140	999.138
BW 50	50A	11.3V	11.9V	43 x 100 x 90	140	999.134

Charge regulator 12V DC application with leisure battery



The charge regulator LR 03 provides an automatic 2A trickle charge of the starter battery from the leisure battery.

The connected starter battery is automatically charged from the leisure battery, until the voltage

of the starter battery has risen to 0.7V below the voltage of the leisure battery.

rated voltage of batteries 12V
maximum charge current 2A

Device	Dimensions H x W x D in mm	Weight in g	Order no.
LR 03 incl. connecting material	95 x 64 x 44	95	999.107

Voltage regulator 12V DC application with leisure battery



The voltage regulator SR 1203 has been designed for use in recreational vehicles with battery backed power supply. It has a stabilized 12V output voltage for sensitive electronic equipment requiring exactly 12V.

input voltage 12V to max. 15V =
output voltage 12V = (< 12V at input voltage of < 13V)
max. allowable load current 3A

Device	Dimensions H x W x D in mm	Weight in g	Order no.
SR 1203 incl. connecting material	110 x 75 x 56	140	999.080

Booster 12 V DC application in the caravan with leisure battery



The booster WA 1208 increases the available charging voltage to a maximum of 14.4 V so that the caravan battery is optimally charged during driving. The booster separates the caravan battery from the starter battery of the towing vehicle when the engine and ignition are switched off.

Input voltage (-load) 9.0 - 14.5V (max. 11A)
Output voltage 14.4V
Power output Approx. 8 A at input voltage of 12 V
Reverse current from caravan battery < 0.5 mA; when ignition is off
Quiescent input current none; when ignition is off

Device	Dimensions H x W x D in mm	Weight in g	Order no.
WA 1208 incl. connecting material	130 x 47 x 90	270	999.109

Power supplies 230V AC / 12V DC application in caravan

Power supplies are used for the supply of 12V devices such as immersion pumps, fans, lamps and others. Suitable for caravans, which are mainly on 230V mains supply and which have to supply the load off the battery for only a short time.

Switching from battery to the preferred 230V current is done automatically when voltage is available. Can be used without a connected battery.



Characteristics CSV 300:

- 5 separate fuse-protected 12V circuits
- 230V distribution fuse-protected by double circuit breaker 13A

Device	Max. allowable output current	Output voltage	Dimensions H x W x D in mm	Weight in kg	Order no.
CSV 300	24A	regulated	84 x 211 x 227	1.5	905.032



The Electroblock CSV 409 is designed for operation in self-sufficient caravans. It contains a battery-charging module, the complete 12 V distribution, the fuse protection of the 12 V circuits as well as further controlling and monitoring functions.

Characteristics:

- bistable 12 V main-switch relay
- charge booster 8 A for battery charge with operation of tow vehicle

- suitable for 6-cell lead-acid and lead-gel batteries
- connector for solar regulator LR 1218
- automatic disconnecting when connecting caravan

Connecting parts are included with the Electroblock incl. switch panel ST 05: 12V on/off.

Suitable control panel:

LED panel LT 411

Optional accessory:

LR 1218

Device	Charging characteristic	Charging current	Dimensions H x W x D in mm	Weight in kg	Order no.
CSV 409	IUoU	28A	111 x 320 x 217	2	999.189

System control panel 12 V DC accessory for CSV 409



The LED panel LT 411 is designed for operation in self-sufficient caravans and can be connected together with a CSV 409. Indication by LEDs.

Characteristics:

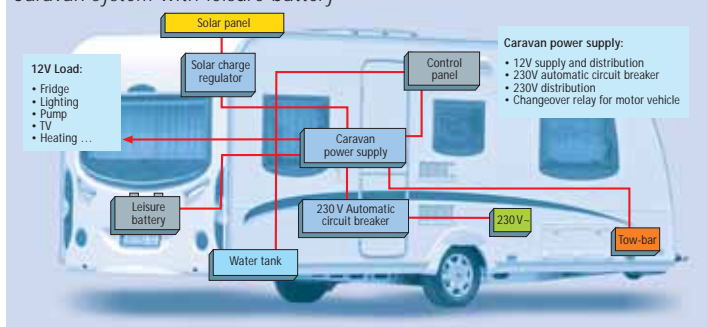
- eight-step voltage indication of leisure battery
- optical battery alarm in case of great drop in voltage of leisure battery
- four-step indication of water tank level

- 12 V main switch with on-indicator
- 230 V mains indicator

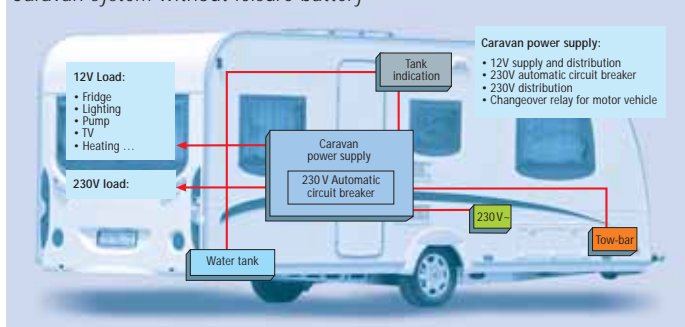
A connecting cable of 5 m length for connection to the Electroblock is included. The LED panel is suitable for measuring the fill levels of plastic water tanks. For this purpose tank sensors or rod-type sensors including accessories are required. Please order separately.

Device	Ground colour	Dimensions H x W x D in mm	Order no.
LT 411	Matt silver	106 x 176 x 35	999.205

Caravan system with leisure battery



Caravan system without leisure battery



Overvoltage protection OVP 01 application with leisure battery



The OVP 01 overvoltage protection device is designed for protecting 230 V devices from the dangers of excess or low voltage.

It is connected between the power supply and the Schaudt devices which need to be protected. When connecting other devices, it must be ascertained whether the input and output to and from the respective devices are compatible. Two users may be connected.

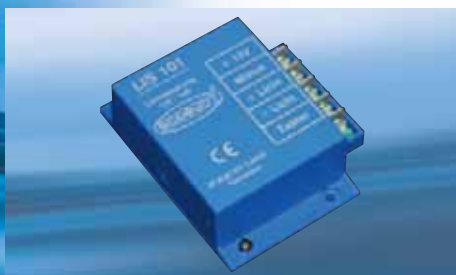
In the event of excess or low voltage the device disconnects the connected devices from the 230V

supply within a few milliseconds. The devices are not switched back on until the power supply has returned to normal.

Connected load:	2000W max.
Switch off threshold for overvoltage:	approx. 265 V ac _{eff.}
Switch on threshold:	> approx. 175 V ac _{eff.}
Switch off delay:	< 10ms
Switch off duration for overvoltage:	> 1s

Device	connection load	switch off threshold	Dimensions H x W x D in mm	Weight in g	Order no.
OVP 01	max. 2000W	ca. 265V _{eff} ~	130 x 47 x 90	200	999.193

Dimmer and remote switch LIS 101

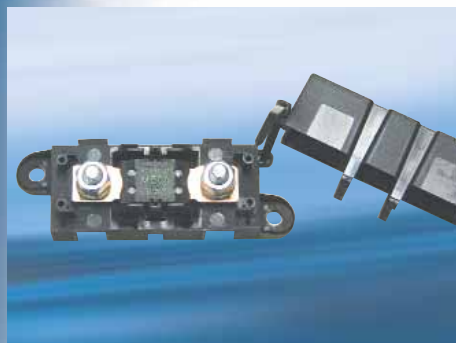


The LIS 101 is a module to control any number of buttons as remote switches and dimmers for lights (also LED lights) with up to 10 A.

Several buttons may also be connected to the LIS 101.

Device	Ground colour	Dimensions H x W x D in mm	Order no.
LIS 101	Blue	57 x 68 x 24	999.230

Connection set for installing an inverter / cut-out relay



Connection material for inverter



Connection material for cut-out relay

Retrofitting a camper van with an inverter represents considerable interference with the energy management of the power supply system.

Because of the frequency of problems arising due to such conversions, Schaudt has developed a concept for the simple and inexpensive installation of such a conversion. The concept requires the use of an additional supply battery (supplementary battery) which supplies the inverter (or other loads with very high current) and which is separate from the standard leisure battery. Only during the journey is the supplementary battery connected, by means of its own cut-out switch, to the dynamo and charged by it.

Apart from that, an additional charger is used to charge the supplementary battery from the mains. This concept has the following advantages: supply battery and inverter battery are separate. The independent inverter supply circuit is therefore not monitored by the battery capacity indicator which avoids malfunctions of the battery indicator being caused by it. Another factor

is that no expensive modifications to the leisure battery condition indicator are necessary.

The supply battery will not be run "into the ground" by over-long operation of inverter-supplied loads, this causing the failure of important pieces of equipment such as the fridge, heating, pumps etc. The battery capacity available to the inverter is lower due to the separate circuits, but it is not necessary to keep an eye on all the other loads.

A selection of connection sets is available for this concept, according to the required application, and they all contain the necessary components for connection of the inverter and the different loads. These include (according to the purpose required): cut-out relay fuses (125 A) with special fuse-holders, cable shoes, special connection material for connecting to Schaudt Electroblocs.

Device	Order no.
Connection material for inverter	999.208
Connection material for cut-out relay	999.207



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