

Energy supply in the vehicle

Sortimo electrical expertise





We are pioneers

Electromobility

Sortimo International GmbH is known worldwide as the market leader for van racking systems and intelligent mobility. The company focuses on making its customers' everyday working life more efficient rather than just on vehicle racking and load securing. This also includes the energy supply in the vehicle, something that is indispensable in many sectors. The company has outstanding expertise in this field to be able to offer one-stop-shop services as a reliable partner.

However, the Sortimo brand is also synonymous with future-centric ideas, pioneering spirit, passion and sustainability: that is why the company has taken a bold step into the future and is actively promoting the expansion and further development of electric mobility. However, the idea was about more than just building an electric charging park. It was also about becoming a campus for digitalisation, energy efficiency and innovations and building a sustainable energy management system. In the long term this will lead to carbon-neutral production at Sortimo as well as operating the innovation park.

Find more information on the Sortimo Innovation Park at:
[› sortimo-innovationspark.com](https://sortimo-innovationspark.com)

Energy supply in the vehicle – Sortimo electrical expertise

Expertise in the expansion of electric vehicles

Legislation prescribes training in high-voltage systems for anyone undertaking conversion and installation work on vehicles with high-voltage systems. Sortimo assembly personnel is trained in accordance with the statutory regulations and also for the required qualification levels and has the necessary special equipment to work safely and accident-free on high-voltage vehicles.

As it is attached to our assembly floor, the Sortimo system is assembled without the need to drill through the floor of the vehicle body. This prevents damage to the high-voltage components.



Mobile high-voltage workplace



High-voltage installation sites

Sortimo has high-voltage installation centres that comply with more stringent safety regulations.

Energy supply in the vehicle – Sortimo electrical expertise



Experience and expertise in the handling of vehicle electrical systems

For decades, Sortimo has been supplying a comprehensive, high-quality product range from the installation of perfect lighting in the loading space to mobile power supplies on the road and on site.



Standard range of services

- › Internal and external lighting
- › Power supply (external supply, inverters)
- › Distribution and fuses (socket combinations, power distributor)
- › Beacons and warning lights

Special conversions and customised

solutions

- Mobile offices, power supply, safety concepts, radio and signal systems
- › Official vehicles (police, fire service, survey office, etc.)
 - › Vehicle fleets
 - › Service vehicles, e.g. to repair fleets of electric vehicles



Sortimo expertise

- › Decades of experience in vehicle electronics
- › Qualified and regularly trained technical personnel
- › A product range carefully selected to meet the most exacting expectations
- › Compliance with all legally required tests and regulations

Energy supply in the vehicle – Sortimo electrical expertise



Standards and regulations

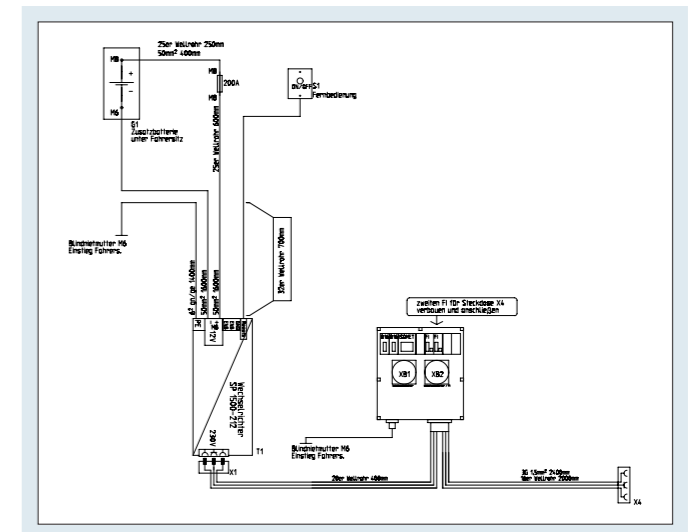
The following standards and regulations must be adhered to in the selection, installation and operation of electrical systems and equipment. The standards, regulations and information listed demonstrate a certain status, which needs to be compared to the currently applicable version before use.

VDE 0100 – complete version		
DIN VDE 0100 – 600 Verification of electrical installations	DIN VDE 0100 – 717 / HD 60364-7-717:2010 / IEC 60364-7-717:2009 Requirements for special installations or locations	DIN VDE 0100 – 410 Protection measures, protection against electric shock
Health and Safety at Work Ordinance – BetrSichV Technical rules governing health and safety at work (TRBS) BGI/GUV-I 600, BGI/GUV-I 608; trade-specific risk assessments, e.g. explosion protection		
DGUV (German Statutory Accident Insurance Association) Information 203-032 Regulates the selection and operation of power generators on construction sites, e.g. inverters or emergency power units		
Regular training of employees (fitters, workshop managers, sales representatives etc.)		

Testing and documentation

All electrical fittings and conversions are tested and documented at Sortimo by trained electrical personnel in accordance with DIN VDE 0100-600 and DGUV (German Statutory Accident Insurance Association) Regulation 3. The following documents and evidence are produced. Instruction on the electrical components installed during handover of the vehicle.

- › Circuit diagram for the components installed
- › Operating instructions for the low-voltage system installed
- › Original operating instructions for all equipment installed
- › Test labels on the equipment
- › Other indications on components that stipulate specific use according to their purpose.



Example of a circuit diagram

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Types of power supply

The respective application is critical first and foremost when it comes to the selection and configuration of the appropriate power supply. The output and number of different units, above all, plays a key role, as do the conditions under which they are to be operated. This has an impact on the selection of the right fuse and the standards and regulations to be taken into account.

1

External power supply

The external power supply is provided by a 230 V power supply from outside in the vehicle via a CEE weatherproof plug. On-site power supply can be provided via a construction site power distributor, a socket operated by the company or a power generator.

- › Independent of the vehicle's power supply
- › Power consumption equates to the maximum load of the power source
- › Use of multiple units
- › No restriction to the operating time of the machines and tools used
- › Tied to a specific place

2

Inverter in the vehicle

In this case, the power supply is provided by the vehicle's own 12 V power supply, which is converted by an inverter into 230 V AC voltage. Either the vehicle's starter battery or an additional battery provides the energy required, depending on the number of consumers connected and their length of use. However, this needs to have a corresponding minimum capacity depending on the output of the consumers (refer to "Selection of the correct inverter according to consumers", on Page 14).

- › Stand-alone solution via a supply feed from the vehicle's battery or a second battery
- › Ideal for short periods of use and minimal power, e.g. chargers for battery-powered tools
- › Limited number of consumers
- › Limited operating period

3

Generator on the vehicle's auxiliary drive

(Special solution – non-standard!)

- › Stand-alone solution
- › Vehicle engine must be running when operating the power consumers
- › Auxiliary drive needs to be ordered at the same time as the vehicle is ordered

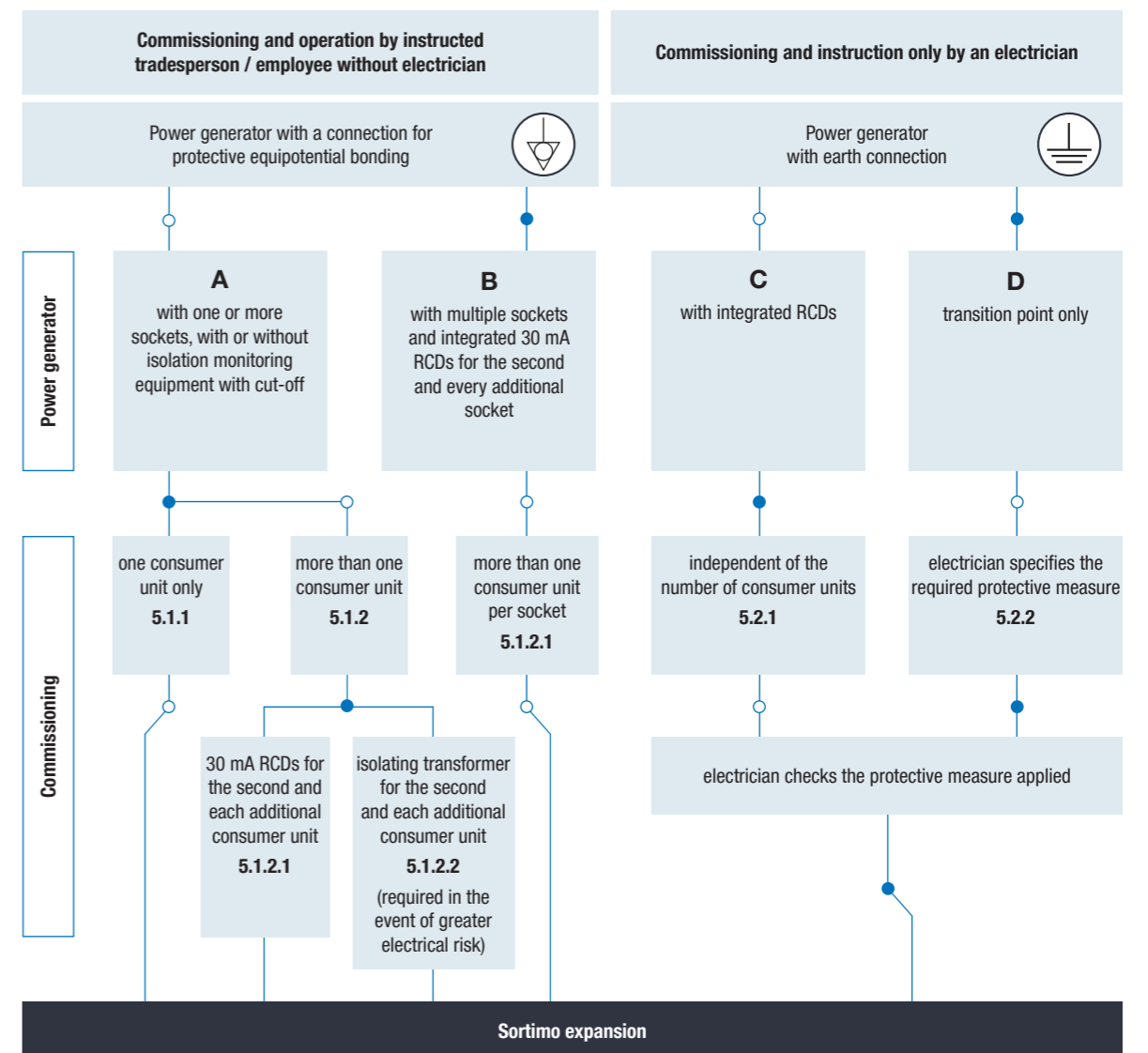


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External supply from power generator

DGUV (German Statutory Accident Insurance Association) Information 203-032 needs to be noted prior to commissioning and using power generators on construction and assembly sites. The following overview outlines the requirements that need to be considered when it comes to selecting the correct protective measure. The specific requirements for particular trades are not covered by this. They need to be requested from the user's electrician who is responsible.*



*The standards, regulations and information listed demonstrate a certain status. Therefore, the currently applicable versions needs to be taken into consideration before use.

Energy supply in the vehicle – Sortimo electrical expertise

Inverter in the vehicle

Selection of the correct inverter depending on the consumer

The inverter generates 230 V AC voltage from the 12 V vehicle power supply, thus also permitting the operation of electrical equipment in the vehicle on the road. All Sortimo inverters are input side protected against reverse connection, overvoltage and undervoltage, and on the output side are protected from short-circuiting, overload and over-temperature. Installation and use inside or outside the vehicle is only allowed after testing and compliance with the required intended purpose.


Consumer / inverter	400 W Art. no. 6000013813	700 W Art. no. 6000000755	1000 W Art. no. 801014816	1500 W Art. no. 6000001007	2000 W Art. no. 6000002831	Additional battery* (min. Ah)
Smartphone / tablet charger	●	×	×	×	×	×
Battery-powered tool charger	●	●	●	●	●	from 700 W 80 Ah
Electrical tools up to 600 watts	×	●	●	●	●	80 Ah
Refrigerators up to 90 watts	×	●	●	●	●	80 Ah
Electrical tools up to 800 watts	×	●	●	●	●	80 Ah
Electrical tools up to 1200 watts	×	×	×	●	●	100 Ah
Refrigerators and freezers up to 140 watts	×	×	●	●	●	80 Ah
Electrical tools up to 1400 watts	×	×	×	●	●	100 Ah
Electrical tools up to 2000 watts	×	×	×	×	●	100 Ah
Electrical pumps up to 1200 watts	×	×	×	●	●	100 Ah
Compressors up to 900 watts	×	×	×	×	●	100 Ah
Air conditioning units up to 900 watts	×	×	×	●	●	100 Ah

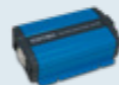
* An additional battery is needed for inverters with 700 watts of power or more. The battery capacity required is dependent on the consumer (see table).


- suitable
 - ×
- not suitable / not needed (in view of additional battery)


Auxiliary battery

If there is no auxiliary battery installed from the vehicle manufacturer, it can be retrofitted using the following parts to ensure a reliable power supply.

Produktbeschreibung	Artikel-Nr.
 <p>Universal second battery set Weight: 33.4 kg This set allows vehicles to be subsequently upfitted with a second battery to supply additional consumers, such as chargers or an inverter. AGM gel battery 12 V 80 Ah with holder, DC/DC charge-booster and vibration sensor with bracket; includes installation and mounting material</p>	1000022067

Product description	Article no.
 <p>Inverter 400 Suitable for smaller electric equipment, such as laptops, TVs, smartphones, tablets and chargers for cordless tools. Input voltage: 10 – 15.5 V DC, Output voltage: 230 V AC 50 Hz, Output power: 400 W, Peak power: 800 W (briefly 1 second).</p>	6000013813
<p>Inverter 700 Suitable for laptops, smartphones, tablets and tools up to 600 Watt. Input voltage: 10 – 15.5 V DC, Output voltage: 230 V AC 50 Hz, Output power: 700 W, Peak power: 1230 W (briefly).</p>	6000000755
<p>Inverter 1000 Suitable for cooling and freezing equipment up to 140 Watt and tools up to 800 Watt. Input voltage: 10 – 15.5 V DC, Output voltage: 230 V AC 50 Hz, Output power: 1000 W, Peak power: 2000 W (briefly).</p>	801014816
<p>Inverter 1500 Suitable for pumps up to 1200 Watt, air conditioners up to 900 Watt and tools up to 1400 Watt. Input voltage: 10 – 15.5 V DC, Output voltage: 230 V AC 50 Hz, Output power: 1500 W, Peak power: 3000 W (briefly).</p>	6000001007
<p>Inverter 2000 Suitable for compressors up to 900 Watt and electric tools up to 2000 Watt. Input voltage: 10 – 15.5 V DC, Output voltage: 230 V AC 50 Hz, Output power: 2000 W, Peak power: 3500 W (briefly).</p>	6000002831

Product description	Article no.
 <p>Cable attachment kit Pre-assembled cable kits for connection of an inverter to the vehicle battery (cables are fitted with cable shoes at one end). Fuse according to the inverter, earth cable: 1 m, Connecting cable: 2.5 m. Inverter cable shoe already crimped, additional crimped cable shoes are included.</p>	
<p>Cable attachment kit WR700 25 mm² Suitable for inverter 700.</p>	6000000999
<p>Cable attachment kit WR1000 35 mm² Suitable for inverter 1000.</p>	6000001000
<p>Cable attachment kit WR1500 50 mm² Suitable for inverter 1500.</p>	6000001001
<p>Cable attachment kit WR2000 70 mm² Suitable for inverter 2000.</p>	6000002832

Product description	Article no.
 <p>Remote control for inverter 700-2000 Practical remote control with on/off control and indicator light for the "ON" function. Suitable for AC inverters 700, 1000, 1500 and 2000.</p>	6000003495

Energy supply in the vehicle – Sortimo electrical expertise

Selection of the correct power supply

The following table shows 230 V power supply options in the vehicle based on typical applications and will help you to find the right Sortimo solution. The power limits and maximum number of units that can be operated per application are also shown alongside the product selection, as are the standards and regulations that need to be observed for installation and operation.

Application Example	Power source				Additional battery	Working within the vehicle	Working outside the vehicle	Max. number of consumers/units	Matching SORTIMO product	Applicable standards
	Power generator/power unit*	Construction site power distributor*	Own/known socket*	Power through the vehicle with inverter						
Charging battery when driving				400 W	not essential	Operation of battery chargers	NO	1 x	Inverter 400 Art. no. 6000013813 + Cable attachment kit WR700 Art. no. 6000000999	DIN VDE 0100 – 717 + DGUV 203-032
Battery charging when stopped				400 W	required	YES	YES, only with one unit plugged into the socket	1 x	Inverter 400 Art. no. 6000013813 + Cable attachment kit WR700 Art. no. 6000000999	DIN VDE 0100 – 717 + DGUV 203-032
Working inside and outside the vehicle with one unit				400 W – 2000 W	required	Units with maximum inverter power	YES, only with one unit plugged into the socket + with units with maximum inverter power	1 x	Inverter and cable attachment kit depending on the power of the consumers (refer to “Selection of the correct inverter depending on the consumers” on Page 14)	DIN VDE 0100 – 717 + DGUV 203-032
Working inside and outside the vehicle with multiple units				400 W – 2000 W	required	YES	YES, with multiple units plugged into the sockets of the power distributor with insulation monitor	2 or 4 x	Inverter and cable attachment kit depending on the power of the consumers (refer to “Selection of the correct inverter depending on the consumers” on Page 14) + power distributor with insulation monitor: 2 sockets Art. no. 6000011119, 4 sockets Art. no. 6000011118	DIN VDE 0100 – 717 + DGUV 203-032
Working inside and outside the vehicle with multiple units and a risk assessment having been carried out				400 W – 2000 W	required	YES	Only if permitted by the trade and a risk assessment has been carried out	4 x	Inverter + cable attachment kit depending on the power of the consumers (refer to “Selection of the correct inverter depending on the consumers” on Page 14) + 4-way socket combination with RCD switch Art. no. 6000001811	DIN VDE 0100 – 717 + DGUV 203-032
Own vehicle operation – power supply used thus tested and approved			●		—	up to max. 3600 W	up to max. 3600 W	4 x	CEE external weatherproof socket Art. no. 807136 + 4-way socket combination with RCD switch Art. no. 6000001811	DIN VDE 0100 – 717
Vehicle use on construction sites by a trained tradesperson		●			—	YES	YES	2 or 4 x	CEE external weatherproof socket Art. no. 807136 + power distributor with insulation monitor: 2 sockets Art. no. 6000011119, 4 sockets Art. no. 6000011118	DIN VDE 0100 – 717
Vehicle use on construction sites by a trained tradesperson	●				—	YES	YES	2 or 4 x	CEE external weatherproof socket Art. no. 807136 + power distributor with insulation monitor: 2 sockets Art. no. 6000011119, 4 sockets Art. no. 6000011118	DIN VDE 0100 – 717 + DGUV 203-032
Vehicle use on construction sites, power supply via tested construction site power generator	●				—	yes	YES, only with one unit plugged into the socket and if a risk assessment has been carried out	4 x	CEE external weatherproof socket Art. no. 807136 + 4-way multisocket with RCD switch Art. no. 6000001811	DIN VDE 0100 – 717 + DGUV 203-032

* note max. load of socket

Energy supply in the vehicle – Sortimo electrical expertise

Protective measures

Parts energised with mains voltage always present a risk of death. Of course, this also applies to 230 V electrical installations in the vehicle. It is therefore the duty of the installer, commissioner and operator to ensure that users are not exposed to danger in the event of damage.

There is a range of different safety equipment that protects people by shutting off in the event of a fault and thus needs to be selected for the respective application. Sortimo offers pre-installed systems for this that include the relevant protective equipment, such as power distributors with integrated insulation monitor and combined RCD / line circuit breakers that offer a high level of safety with professional work.






Safety equipment with shut-off protection:

- › **RCD /residual current circuit breaker**
→ Protection from dangerously high fault currents towards the earth. It is connected upstream of the line circuit breaker.
- › **Line circuit breaker**
→ Protection of cables from damage from overheating in the event of overload or short-circuits
- › **Insulation monitor**
→ Monitors the insulation state of unearthed low-voltage networks (IT network), signals that a minimum insulation resistance has been undershot and disconnects in the event of a fault.

Requirements in accordance with DIN VDE 0100-717 (DGUV V3):



- › Safe disconnection is critical
- › DIN VDE 0100 – 410 requirements must be fulfilled
- › Rated fault current not greater than 0.03 A (30 mA)
- › Rated voltage 230 V
- › Equipment is suitable for use in the vehicle (–25 to +40 °C)

Even the selection of the suitable power distributor involves consideration of many different aspects, and large differences must be taken into account. We therefore recommend being clear about the application in advance to make the correct selection. Sortimo offers a wide range of different options to meet all requirements.

Product description	Article no.
 <p>4-way socket combination with RCD switch WxDxH: 300 x 140 x 140 mm Weight: 2.46 kg Voltage range: 230 V AC 50 Hz, Fuse rating: 16 A, Connection power: 3.6 kVA, Protection rating: IP 44, Switch: RCD/line circuit breaker (25 A / 16 A). Ready for connection and single piece tested to DIN EN 60439-1.</p>	600001811
 <p>Combi-socket dual set 3 RCBO WxDxH: 238 x 125 x 125 mm Weight: 1.87 kg 2 built-in standard European sockets and terminal strip in the housing. Voltage range: 230 V AC 50 Hz, Fuse rating: 16 A, Connection power: 3.6 kVA Protection class: IP 54, 2-pin RCCB per socket and terminal strip Ready for connection and single piece tested to EN 61439-3.</p>	6000014076
 <p>4-way multisolet with RCD switch WxDxH: 483 x 71 x 83 mm Weight: 1.11 kg Voltage range: 230 V AC, Max. fuse rating: 16 A, Max. load: 3600 W, Receptacles: 90° rotated socket receptacles, Cable: 1.4 m connection line (H05VV-3FG1.5 mm²), Switch: RCD/line circuit breaker (B16 A/30 mA), Protection rating: IP 20. Socket rail with increased protection against contact and RCD/line circuit breaker.</p>	801009972

The power distributor for the professional

The power distributors with insulation monitor for working inside and outside the vehicle comply with the DGUV (German Statutory Accident Insurance Association) regulations and offer the highest level of safety in professional use. Having just a single drilled hole and one input line, we create a full-fledged workplace in your vehicle, offering the utmost flexibility and maximum safety, thus saving time and money.

Product description	Article no.
 <p>Power distributor 2-fold insulation monitor 16 A WxDxH: 300 x 145 x 140 mm Weight: 2.6 kg Voltage range: 230 V AC 50 Hz. Max. fuse rating: 16 A, Connection power: 3.6 kVA, Protection rating: IP 44, Switch: RCD/Line circuit breaker (25 A / 16 A), Connecting cable: 5 m (flexible), Earth line: 2 m (flexible), 1x Schuko socket red, 1x Schuko socket blue, 1x line circuit breaker, 1x isometer, 1x installation contactor, 1x RCD. Wired ready for connection and single piece tested to EN 61439-3.</p>	6000011119
 <p>Power distributor 4x insulation monitor 16 A WxDxH: 330 x 310 x 120 mm Weight: 3.4 kg Voltage range: 230 V AC 50 Hz. Max. fuse rating: 16 A, Connection power: 3.6 kVA Protection rating: IP 44, Switch: RCD/Line circuit breaker (25 A / 16 A), Connecting cable: 5 m (flexible) Earth line: 2 m (flexible), 1x Schuko socket red, 3x Schuko sockets blue, 1x line circuit breaker, 1x isometer, 1x installation contactor, 3x RCDs. Wired ready for connection and single piece tested to EN 61439-3.</p>	6000011118

Energy supply in the vehicle – Sortimo electrical expertise

Mounted lights

The useful mounted lights from Sortimo give bright light in the darkness and light up the mobile workplace to ensure that it is illuminated in an optimum way at all times – day or night. Different versions allow perfect adjustment to individual circumstances.

Product description	Article no.
 LED strip 1000 WxDxH: 10 x 1000 x 2.5 mm	801018095
 LED strip 2000 WxDxH: 10 x 2000 x 2.5 mm Voltage range: 12 V DC, Nominal strength: 14.4 W, Protection rating: IP 62, Cable length: 200 mm, Light flux: 390 lm, Installation height: 2.5 mm, On/Off switch: additional option, Installation type: self-adhesive LED strips, Operating temperature: approx. -20° to 50° C, Colour temperature: 6000 K, can be cut into 5 cm sections, 60 LEDs per metre. Please note: The LED strip is only permissible with a suitable back-up fuse on the vehicle electrical system.	801018096
 LED fixing plate, L = 1050 mm Prepare a smooth adhesive surface for the LED strips for installation on the headliner.	100002349
 LED strip support fixing rail SP 1110 WxDxH: 1110 x 72.4 x 8 mm Weight: 0.29 kg	100002254
 LED strip support fixing rail SP 1510 WxDxH: 1,510 x 72.4 x 8 mm Weight: 0.40 kg The LED strip support is used for the optimum attachment of LED strips, at the same time as using a fixing rail for restraint poles. The aluminium support rail is mounted between the restraint pole fixing rail and the roof beam. An LED strip can be fixed to each side of the rail.	100002255

Pre-configured sets for LED strip 1000:

The LED strip sets include the respective number of LED strips, each 1 metre in length, a matching cable attachment kit for two-way switching, two changeover switches, and two yellow signal colour labels to find the changeover switch with ease.

Product description	Article no.
LED strip SET 1, 1 x 1000	1000014041
LED strip SET 2, 2 x 1000	1000013747
LED strip SET 3, 3 x 1000	1000013748
LED strip SET 4, 4 x 1000	1000014042
LED strip SET 5, 5 x 1000	1000014043
LED strip SET 6, 6 x 1000	1000014044






Product description	Article no.
 Mounted light LED 12 V with motion sensor for the vehicle interior WxDxH: 144 x 144 x 11 mm Weight: 0.13 kg Voltage range: 12 V DC, Nominal strength: 6.6 W, Protection rating: IP 65 Line length: 100 mm, Light flux: 450 lm, Installation height: 12 mm On/off switch: Optional Installation type: fixed vehicle connection, Colour temperature: 5700 K Integrated motion sensor, continuous operation is possible and additional output for other consumers.	6000003788
Pre-configured sets for 12 V LED mounted light with motion sensor: Consisting of the respective number of 12 V LED mounted lights with motion sensor, matching cable attachment kit and installation material.	
1x LED mounted light with motion sensor	1000013746
2x LED mounted light with motion sensor	1000014040
 Mounted light LED 12 V dimmable for the vehicle interior WxDxH: 168 x 88 x 9 mm Weight: 0.08 kg Voltage range: 12 V DC, Nominal strength: 5 W, Protection rating: IP 54, Cable length: 100 mm, Light flux: 91 – 600 lm (dimmable); Installation height: 88 mm, On/Off switch, Installation type: fixed vehicle connection, Operating temperature: -20° to +70° C, Colour temperature: 5700 K	6000015752
 Mounted light LED 12 V adjustable for workstation lighting WxDxH: 425 x 42 x 43 mm Weight: 0.32 kg Voltage range: 12 V DC, Nominal strength: 6 W, Protection rating: IP 40, Cable length: 100 mm, Light flux: 420 lm, Installation height: 43 mm, On/Off switch: integrated toggle switch, Installation type: fixed vehicle connection, Operating temperature: -20° to +70° C.	6000001275
 Solid-state relay 15 A WxDxH: 30 x 30 x 30 mm Weight: 0.02 kg Semiconductor relay to switch lamp loads, ohmic and inductive loads. Switching current: 15 A, Operating voltage: 9 – 32 V, IP class: IP53, Switch-on voltage: 6 V, Switch-on time: max. 400 µs, Switch-off time: max. 100 µs, Current consumption: < 20 µA, Fuse: 1 A + load, Idle current: < 20 µA, Operating temperature: -40 °C to +85 °C	6000015909
 Undervoltage protection set WxDxH: 87 x 60 x 33 mm Weight: 0.19 kg With the aid of a battery monitor, the undervoltage set helps to protect your starter battery from deep discharge by promptly shutting off consumers, such as surface-mounted lights, LED strips, etc. It automatically switches back on again when normal voltage is restored. Max. switching power: 20 A, Switch-off voltage: adjustable approx. 10.4 – 13.3 V, including installation and mounting material	1000022066

Energy supply in the vehicle – Sortimo electrical expertise




Flood lamps

To ensure that everything is properly lit, Sortimo also offers portable lamps in various versions alongside the work lamps. In the event of frequent working directly at the vehicle, we recommend mounting a stationary work lamp directly on the vehicle. It will provide optimum illumination of the surroundings so that work on the vehicle can continue regardless of the level of daylight. For flexible use, Sortimo offers the LED magnetic portable lamp that can be mounted anywhere on the vehicle and can be powered from the 12 V vehicle power supply socket via a spiral cable.

	Product description	Article no.
	<p>Flood lamps LED 12/24 V 2000 lm with On/Off switch for workplace lighting</p> <p>WxDxH: 100 x 100 x 76 mm Weight: 0.91 kg</p> <p>LED module with 6 diodes for fixed installation on the vehicle with omega bracket – can be rotated and swivelled. Voltage range: 12 – 24 V DC, Nominal strength: 25 W, Protection rating: IP 68, Light flux: 2000 lm, On/Off switch: no switch Installation type: fixed connection, Colour temperature: 5700–7000 K, Cable length: 0.5 m</p> <p>Pre-configured sets for LED flood lamps for fixed installation: Consists of the respective number of flood lamps, On/Off switch with indicator light, matching cable attachment kit and installation material.</p>	6000003241
	<p>1x flood lamp LED 12/24 V</p>	1000014460
	<p>2x flood lamp LED 12/24 V</p>	1000014461
	<p>LED magnetic portable lamp 12/24 V 1500 lm</p> <p>WxDxH: 76 x 166 x 205 mm Weight: 2.23 kg</p> <p>LED module with 4 diodes for universal fixing using a magnetic holder. Voltage range: 12 – 24 V DC, Nominal strength: 18 W, Protection rating: IP 68, IP 69 K, Light flux: 1500 lm, On/Off switch: hermetic, Connection: Cigarette lighter, Colour temperature: 5700 – 7000 K, Cable length: 8 m spiral cable</p>	6000002830
	<p>LED rechargeable portable lamp 12V</p> <p>WxDxH: 125 x 75 x 300 mm Weight: 1.68 kg</p> <p>Portable lamp including charging station, 3 watt Luxeon-type LED, long lighting duration of up to 30 h, lighting range 300 m, light flux 240 lm, colour temperature 5300 K, durable housing (IP 44), signal function including scattered light disc, weight of potable lamp excluding wall bracket: 1.58 kg</p>	6000016051

Cable attachment kit

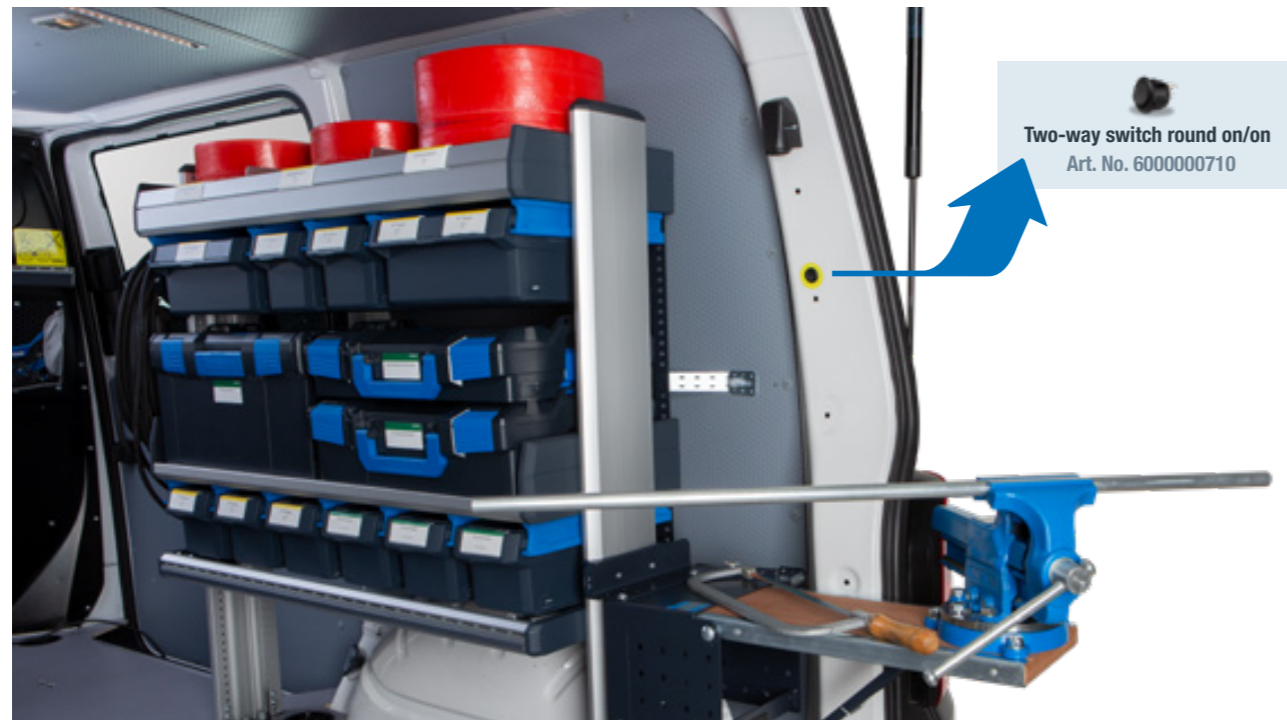
Sortimo offers pre-assembled kits for the connection of LED light two-way switching, interior lighting and various sockets and warning lamps. The cable lengths are designed to fit the most popular current van models. The required fuses and all connectors are included in the scope of delivery and thus we can ensure quick and convenient installation.

	Product description	Article no.
	<p>Cable attachment kit for two-way switching</p> <p>WxDxH: 190 x 120 x 65 mm Weight: 0.58 kg</p> <p>Suitable for LED light two-way switches. 8-metre vehicle line FLYY 2 x 0.75 mm², 10-metre vehicle line FLYY 1 x 1.5 mm², 1 fuse holder ATO floor fixing, 1 flat plug fuse 3 A ATO purple, 1 ring connector for pins M6 0.5 – 1.5 mm² red, 2 flat plug sleeves fully insulated 1.5 – 2.5 mm² 6.3 mm blue, 2 through connectors 0.5 – 1.0 mm² red, 4 flat plug sleeves fully insulated 0.5 – 1.0 mm² 4.8 mm red, 2 flat plug sleeves fully insulated 1.5 – 2.5 mm² 4.8 mm blue.</p>	1000002079
	<p>Cable attachment kit for on/off switches</p> <p>WxDxH: 140 x 120 x 50 mm Weight: 0.39 kg</p> <p>Suitable for LED interior lighting or individual lights in the van. 10-metre vehicle line FLYY 2 x 0.75 mm², 1 fuse holder ATO floor fixing, 1 flat plug fuse 2 A ATO grey, 1 ring connector for pins M6 0.5 – 1.5 mm² red, 2 flat plug sleeves fully insulated 1.5 – 2.5 mm² 6.3 mm blue, 3 through connectors 0.5 – 1.0 mm² red, 2 flat plug sleeves fully insulated 0.5 – 1.0 mm² 4.8 mm red.</p>	1000002080
	<p>Cable attachment kit – universal</p> <p>WxDxH: 125 x 120 x 55 mm Weight: 0.35 kg</p> <p>Suitable for 12 V sockets, beacons and lamps. 8-metre vehicle line FLYY 1 x 2.5 mm² black, 1-metre vehicle line FLY 1 x 2.5 mm² brown, 1 fuse holder ATO wall mounting, 1 flat plug fuse 10 A ATO red, 2 ring connectors for pins M6 - 1.5 – 2.5 mm² blue, 3 flat plug sleeves fully insulated 1.5 – 2.5 mm² 6.3 mm blue, 1 flat connection plug G+H GSK 1 pin (also suitable for original fuse box in MB vehicles).</p>	1000002946






Energy supply in the vehicle – Sortimo electrical expertise

Switches

Sortimo has a series of different switches in its range to suit all applications. With the variants with integrated check lamp you can see at a glance whether the power supply is switched on or off, which is particularly useful when working with warning lamps. With the two-way and push-button switches, pressing the button causes the power supply to be switched on or off, depending on the previous position of the switch. A switch can therefore be positioned on the tailgate as well as on the sliding doors and the light can be conveniently controlled from multiple positions.



Two-way switch round on/on
Art. No. 600000710

Product description	Article no.
 12 V On/Off switch with orange indicator light Suitable for body switch for beacons. Voltage range: 12 V DC, Max. switching power: 8 A, Installation dimension: Ø installation 12 mm, Connection: three flat plug connections 6.3 mm.	801014906
 On/Off switch with indicator lamp, round (orange) Suitable for body switches for beacons. Voltage range: 12 V DC, Max. switching power: 20 A, Installation dimension: Ø installation 21 mm, Connection: three flat plug connections 6.3 mm.	6000002918
 Two-way switch round (on/on) Suitable for light and two-way switching. Voltage range: 12 V DC, Max. switching power: 8 A, Installation dimension: Ø installation 21 mm, Connection: three flat plug connections 4.8 mm.	600000710
 Push-button switch round (off/on) Suitable for controlling the LED mounted light (Art. No. 600000547). Voltage range: 12 VDC, Max. switching power: 8 A, Installation dimension: Ø installation 21 mm, Connection: two flat plug connections 4.8 mm.	600000711
 Switch label round ø 20 Suitable for two-way switch and round push-button switch. Ø outer: 40 mm, Ø inner: 20 mm.	600001305

Body and interior plug sockets

Sortimo offers various different body and interior plug sockets for diverse applications. It enables smaller electrical appliances to be charged, gauges to be operated, as well as a connection to an external power supply from the vehicle.

Product description	Article no.
 12 V standard socket, small WxDxH: 60 x 35 x 25 mm Weight: 0.02 kg Suitable for the charging of testing and measuring equipment with a small plug in accordance with DIN ISO 4165. Voltage range: 12 V DC, Max. load: 16 A, Diameter: 12 mm.	801009981
 12 V standard socket, large WxDxH: 77 x 34 x 53 mm Weight: 0.04 kg Suitable for charging electrical equipment in the vehicle via the cigarette lighter. Voltage range: 12 V DC, Max. load: 16 A, Diameter: 21 mm, the input socket is protected from dust and spray by a rubber closure.	801005397
 Construction of triple socket with power USB set WxDxH: 85 x 95 x 33 mm Weight: 0.56 kg Construction of triple socket with power USB-C/A double plug socket (5 V DC, max. 3.6 A), 2 power sockets 12-24 V for the operation of cool boxes or other equipment, input voltage 8-34 V DC, max. load 20 A with 2.5 mm ² supply line, E1 approval, including mounting material for wall mounting and connecting cable set (2.5 mm ² , 8 m).	1000020322
 CEE external weather proof socket WxDxH: 145 x 130 x 98 mm Weight: 0.31 kg Suitable for all CEE external weather proof sockets. Voltage range: 230 V AC, max. load: 16 A for 6 h, Protection rating: IP 44, Connection: 3-pin or 2-pin + PE, Installation depth: 82 mm, Protective flap with magnetic bracket, therefore no mechanical strain on the electrical socket. Pull protection for CEE coupling.	80713643
 Power adapter cable 230 V CEE/earthed 1.5 m WxDxH: 190 x 190 x 95 mm Weight: 0.56 kg The cable length is 1.5 m.	80713667

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Beacons

The Sortimo beacons raise awareness in the danger area and thus increase safety when used during the day and at night. The yellow flashing light is used specially to warn about hazards (see § 38 StVO). Sortimo offers various different options for construction – fixed in the vehicle, installation on a plug base or telescopic masts and, for flexible use, fixing by magnetic holder.



	Product description	Article no.
	LED warning beacon yellow 12-24 V fixed installation WxDxH: 142 x 142 x 129 mm Weight: 0.81 kg Operating voltage: 12-24 VDC Fixing: Fixed installation on the vehicle roof, degree of protection: IP X5, Operating Temperature: 30 to +65°C Height: 129 mm, Diameter: 142 mm, corresponds to ECE R65 and ECE R10	6000015912
	Pre-configured sets for fixed installation: Consisting of the respective number of LED beacons, yellow, 10-30 V for fixed installation, On/Off switch with indicator light, prescribed warning marking set in accordance with DIN 30710 for vehicles with special rights, matching cable attachment kit and installation material.	
	1x LED beacon, yellow, fixed installation	1000014462
	2x LED beacons, yellow, fixed installation	1000014463
	3x LED beacons, yellow, fixed installation	1000014464
	4x LED beacons, yellow, fixed installation	1000014465
	LED beacon yellow, 12-24 V plug socket WxDxH: 127 x 127 x 202 mm Weight: 0.89 kg Operating voltage: 12-24 VDC Fixing: plug socket type A Ø 24 mm in accordance with DIN 72591 Protection rating: IP X5, Operating Temperature: 30 to +65°C Height: 202 mm, Diameter: 127 mm, corresponds to ECE R65 and ECE R10	6000015913
	Pre-configured sets for the Sortimo TopSystem roof rack system: Consisting of the respective number of LED beacons, yellow, 10-30 V, plug base, On/Off switch with indicator light, prescribed warning marking set in accordance with DIN 30710 for vehicles with special rights, matching cable attachment kit and installation material for connection to Sortimo TopSystem cross members.	
	1x LED beacon, yellow, for Sortimo TopSystem cross members	1000014466
	2x LED beacon, yellow, for Sortimo TopSystem cross members	1000014467
	LED beacon yellow 12-24 V magnetic base WxDxH: 142 x 142 x 129 mm Weight: 1.16 kg Operating voltage: 12-24 VDC Fixing: via magnetic base Protection rating: IP X5, Operating Temperature: 30 to +65°C Height: 129 mm, Diameter: 142 mm, Cable: Spiral cable with plug, the LED light is intended for temporary use only, connection: On-board socket / cigarette lighter (SAE J563), Conforms to ECE R65 and ECE R10	6000015914
	Base for LED beacon WxDxH: 144 x 144 x 15 mm A wedge-shaped underlay for compensating the roof slope during fixed installation. Suitable for all LED beacons yellow 12-24 V fixed installation.	6000015915
	LED beacon, yellow 12- 24 V mini WxDxH: 90 x 90 x 50 mm Weight: 0.2 kg Operating voltage: 12-24 VDC, Fixing: permanently installed on the vehicle roof, simple and fast installation using integrated centre bolts (M12 thread), Protection rating: IP X7, Operating temperature: - 30 to +65 °C, Installed height: only 30 mm, Diameter: 90 mm, complies with ECE R65 and ECE R10, LED Colour: yellow	6000016508

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Made in Germany | Realistic crash tests and proven safety | Best quality and high-grade materials from the market leader | Best service through expansive sales network and Customer Service Center | Attractive financing models | Vehicle management in the *mySortimo* account with an overview of all orders and inventory lists | Communication with van racking system experts and industry colleagues via the *mySortimo* community | Industry-specific, diverse range of accessories in the vehicle and for transport to the work site | Convenient and quick reordering of accessories and services via *mySortimo.com*