starlink.case

Original operating instructions

Please fully charge the battery before first use!

CE

Table of contents

1. general information 3
2 Technical data 5
3. explanation of the symbols 6
4 General safety instructions 7
5 Disclaimer of warranty and liability 10
6. maintenance, troubleshooting and repair 10
7. operation 13
7.1 Permitted environment 13
7.2 Charging the device 14
7.3 Control panel and displays 17
7.4 Preparation for operation 18
7.5 Setting up the system 22
7.6 Utilisation of the antenna base 25
7.7 Operation 27
7.8 Transporting the device 29
7.9 Storing the device 29
8. dispose of the device 31
9 Declaration of Conformity 32

1. general information

Contents:

- Device
- Accessories - see illustration

This must be taken into account:

The device is EMC-certified according to EN55011 Class A - industrial environment. Use in residential areas must be avoided. In the event of interference with radio or television reception, the device must be placed at a greater distance from the object being interfered with.

B&W customer service:

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Purpose of the document:

These operating instructions familiarise the user with

- the way we work,
- the service,
- Familiarise yourself with the safety instructions of the device

Description of authorised users

The appliance is not intended for use by persons - including children - with reduced physical, sensory or mental capabilities, lack of experience and / or lack of knowledge. Unless they are supervised by a person responsible for their safety and have received instructions from this person on how to use the appliance. Children should always be supervised to ensure that they use the appliance properly.

Important note:

These operating instructions are an important document that must be kept in a safe place so that information on the correct use of the appliance is available at all times!

Imprint:

Junkendiek 5
49479 Ibbenbüren
Germany

2. technical data

Compatible Starlink system	REV3 STANDARD ACTUATED
Case type	PP - 6800
Tightness closed	IP65
Tightness when open	IP20
Output power	250W
Connections:	1x 230V Schuko
	2x USB
	2x charging input - on the outside of the device
Charging power	max 200W
Charging options	230V mains adapter (enclosed)
	12V car
	24V LORRY
	Solar cell
MPPT for solar	integrated
Weight:	36kg incl. Starlink antenna and router
Battery	1500Wh LiFePO4
Operating temperature	-20°C to +45°C (charging and discharging)
Display	Membrane keypad

3. explanation of the symbols

The following symbol indicates a hazardous situation which, if not avoided, could very probably result in serious injury or death.

The following symbol indicates a hazardous situation which, if not avoided, could result in serious injury or death.

The following symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

The following symbol indicates a situation which may result in damage to the appliance if not observed.

The following symbol warns of dangerous electrical voltage in addition to any existing symbols.

In addition to any symbols already present, the following symbol warns of a considerable risk of tripping.

4. general safety instructions

These operating instructions contain the most important information on how to use the appliance safely. The safety instructions in this section and throughout the operating instructions apply to all activities carried out on and with the appliance. Safety instructions in the descriptions warn of specific hazardous situations. To protect the respective user, it is very important that these instructions are always followed.

The appliance may only be used for its intended purpose and in a technically safe condition. All faults that could impair safety must be rectified immediately!

Intended use:

The starlink.case is intended for use as a power supply and transport system for the structurally unmodified REV3 STANDARD ACTUATED Starlink system. Please note that the device, including the Starlink system, may only be used outdoors. Intended use also includes the connection and operation of 230V AC consumers with a maximum power consumption of 200 watts and the charging of 5V USB devices with a maximum power consumption of 15 watts each. Inductive loads must not be connected.

Uses other than those listed above are considered improper use! Improper use can result in hazards. Improper use includes, for example, using the appliance as an energy source for loads with voltages and power consumption other than those described in the Technical data chapter, unauthorised modifications or conversions to the appliance, failure to observe the safety instructions, use or operation of the appliance other than described, work on the appliance carried out by unqualified personnel, failure to comply with general safety and operating instructions and health and safety or accident prevention regulations or failure to observe legal requirements.

It is also prohibited to use the appliance to operate pumps that convey flammable liquids or gases and can generate an electrostatic charge. This applies in particular when pumping petrol or diesel. The appliance must also not be operated in potentially explosive atmospheres containing flammable liquids, gases or dust

The appliance must not be used to feed electricity into a fixed installation, such as a house. Furthermore, it is only authorised for the operation of a single consumer.

The 230V charger of the device may not be used outdoors or in a damp environment, the 230V socket of the device may only be used in an absolutely dry condition and in an absolutely dry environment. The device may only be connected to fully functional consumers with all safety devices in perfect condition. In particular, the cable and plug of a consumer unit should be checked before each use! Also, no objects may be inserted into the connection holes of the 230V socket of the appliance!

There is a risk of slight electric shock when touching parts with residual voltage, which in turn can lead to secondary accidents due to shock. Avoid touching the contacts of the plug after the 230 V charger has been disconnected.

The device must not be used to operate inductive loads! This includes relays, coils and electromagnets, for example. Non-observance can lead to failure of the inverter!

5. exclusion of warranty and liability

Warranty claims and liability claims for personal injury and damage to property are excluded if they are attributable to one or more of the following causes:

- Improper use of the device
- Improper installation, commissioning or operation of the device
- Operation of the appliance despite defective safety devices or improper operation attached or non-functioning safety and protective devices
- Failure to observe the instructions in these operating instructions regarding transport, Commissioning, utilisation, repair or dismantling or disposal
- unauthorised structural changes to the appliance
- improperly carried out repairs
- Catastrophes caused by foreign bodies and force majeure

6. maintenance, troubleshooting and repair

The appliance should be cleaned regularly or as required, taking particular care to ensure that the appliance and all connections are properly sealed! A soft, damp but not wet cloth with a little washing-up liquid is recommended for cleaning.

When cleaning, make sure that the appliance is always switched off and disconnected from the 230V charger! There is a risk of fatal electric shock!

It is strongly recommended that the appliance is serviced once a year by the manufacturer!

Fault or fault messages:

1. the red LED in the centre of the warning lights lights up continuously
2. the red LED in the centre of the warning lights flashes
3. the battery level drops very quickly
4. the device no longer emits any power
5. the device can no longer be charged
6. the appliance has switched off after connecting or operating a load
7. the appliance has switched off during operation and an acoustic signal sounds repeated in the form of a sequence of five tones.

Troubleshooting:

1. The device is too hot for operation - Switch off the device using the main switch, disconnect it from any charging devices and connected consumers and allow it to cool down in a cool place.

2. The device is too hot for charging - Switch off the device using the main switch switch it off, disconnect it from any charging equipment and connected Consume and leave to cool in a cool place.

3. fully charge the device and disconnect the charger at the earliest 8 hours after the battery indicator shows 100%.

4. carry out step 3.

5. carry out step 1 or use a different charger

6 Disconnect all connected loads from the appliance, switch it off and restart it after at least 1 minute. If this does not work, the power requirement of the connected appliance is too high and cannot be operated on the appliance.

7 The device's inverter has overheated and switched off. Switch off the appliance and allow it to cool down.

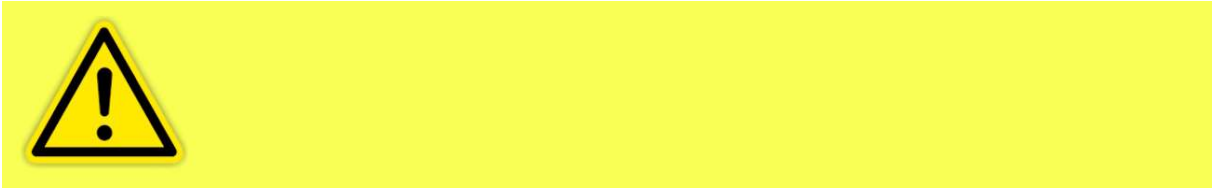
Note: If the fault cannot be rectified, contact the manufacturer immediately.

Repairs may only be carried out by B&W International specialist personnel or by external specialist personnel instructed by B&W International! There is also a risk of injury due to the use of unauthorised spare parts. Incorrect or faulty spare parts can lead to damage, malfunctions or total failure as well as impairing safety. In general: check the appliance for defects before each use, switch off the appliance immediately in the event of defects and arrange for the necessary repairs. It should also be noted that B&W International GmbH's warranty for the safety and function of the appliance is void if: Spare parts are fitted to the appliance that do not correspond to the original parts, repairs are carried out by unqualified personnel, the appliance is not positioned correctly during operation or storage or other instructions in these operating instructions are not observed.

7. operation

7.1 Permitted environment

Firstly, ensure that the environment is suitable for operating the appliance. The surface on which the appliance is placed must be level and stable. The ambient temperature must be between -20°C and +40°C and it must not be a potentially explosive environment. It must also be ensured that the appliance is always positioned horizontally and not upright.



Warning of injury to legs or feet: If the appliance tips over or falls from a table or similar elevation, it may cause injury to legs or feet.

The device must never be placed in direct sunlight, especially for long periods of time. Uncontrolled overheating can lead to serious damage to the batteries.

The appliance may only be operated if all fixed protective devices are fitted correctly. This includes the housing itself as well as all correctly fitted additional insulation for cables and lines and the separate contact protection for electrical components inside. All components, including the protective devices, must always be in perfect condition. Safety signs on the appliance must not be removed and must be replaced immediately by B&W International GmbH specialists or appropriately trained external personnel if damaged or soiled. Safety devices must not be removed or disabled under any circumstances!

7.2 Charging the device

The device can be charged using various energy sources. The system automatically regulates the optimum parameters and power to prevent the car battery from being deeply discharged when charging via a car cigarette lighter, for example. However, it should be noted that the charging power varies, as certain systems can deliver less energy than others. As a result, charging from a car cigarette lighter takes significantly longer than charging with a 230V charger.

Charging with the 230V charger:

The 230V charger is the quickest way to charge the device. It is most gentle on the battery if the device does not release any energy during charging.

ATTENTION: all devices with an output of over 300 watts must be switched on when charging! Otherwise the devices will not absorb any energy.

The 230V charger may only be used in an absolutely dry environment!

The device must never be left unattended while charging!

To prevent damage to the battery, the device should be discharged to approx. 10% at least once a month and then fully charged using the charger supplied!

Charging in the car or lorry

The device can also be charged in the car using the separately available car charging cable. When charging via a cigarette lighter in the car, the system automatically monitors the car battery and thus prevents it from being deeply discharged. However, it should be noted that the charging capacity varies, as certain systems can deliver less energy than others. As a result, charging from a car's cigarette lighter takes significantly longer than charging with a 230V charger.

ATTENTION: all devices with an output of over 300 watts must be switched on when charging! Otherwise the devices will not absorb any energy.

Vehicles can sometimes get very hot! The permissible operating temperatures must always be observed.

The device must never be left unattended while charging!

To prevent damage to the battery, the device should be discharged to approx. 10% at least once a month and then fully charged using the charger supplied!

Charging with a solar cell

The device can also be charged using a solar cell. When setting up the solar cell, it is also essential to ensure that the surface of the solar cell is free of dust and dirt and that as little shadow as possible falls on the solar cell, as even a very small shadow significantly reduces the solar yield. Up to two solar cells can be connected to the Starlink.case at the same time. Under certain conditions, it is therefore possible to operate the device continuously and independently. The device must not be placed in direct sunlight.

Only original B&W solar cells may be used! Other cells can damage the device and cause considerable damage to the control unit!

The device must never be left unattended while charging!

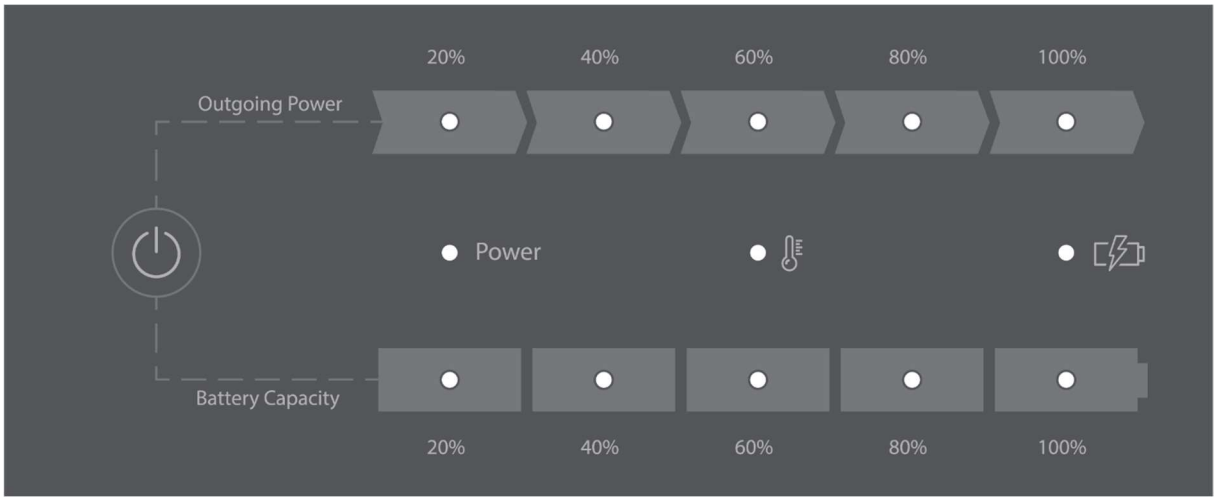
To prevent damage to the battery, the device should be discharged to approx. 10% at least once a month and then fully charged using the charger supplied!

Connected cables for drawing power from external consumers or for charging the device's batteries can be tripping hazards. Care must be taken to ensure safe installation!

7.3 Control panel and displays

The device has various status and warning lights, see also illustration below, which provide information about the operating status during use. The following are explanations of the various displays and LEDs:

- **Green LED for connections:** indicates that voltage is present at the 230V output is present and the inverter is active
- **Battery Capacity:** shows the current battery level in relation to 1500 Wh in per cent
- **Outgoing Power:** shows the utilisation of the system in percent related to the maximum power
- **Power:** Entire system switched on and ready for operation
- **Temperature symbol**: lights up when the temperature for operation or the charging device is too high
- **Flash on battery**: lights up when the device is charging



7.4 Preparation for operation

Before each commissioning, it must be ensured that all safety requirements are met and that the appliance is in perfect condition. The consumers to be connected must also be checked for proper function and safe condition.

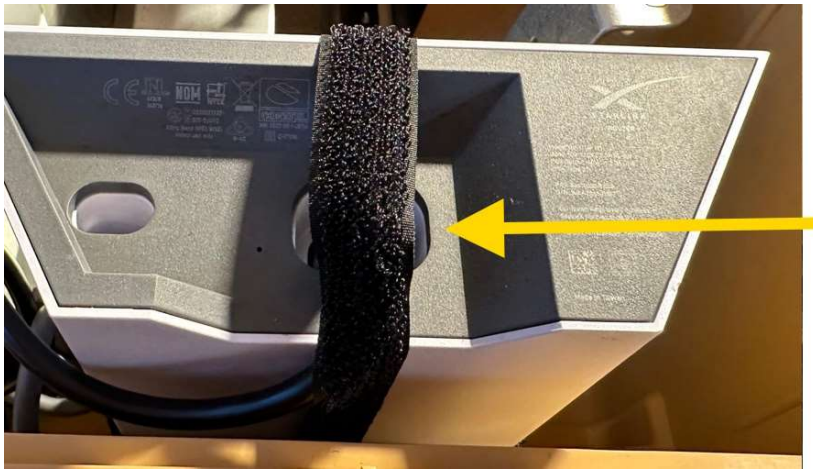
When installing the Starlink system in the device, always ensure that the device is switched off, secured against accidental switching on and that the charger is not connected to the device!

Installing the Starlink system in the appliance

First, the four labelled screws must be loosened and removed using the Allen key. The cover can then be carefully lifted upwards and then carefully placed to one side.

The Velcro straps of the Starlink router bracket must then be loosened. Then open the upper Velcro strap as shown in the following illustrations. The Starlink router can then be inserted from above into the holder provided.

Then plug the pre-installed power cable firmly into the Starlink router and secure the plugged-in cable with the horizontal Velcro strap. Special care must be taken to ensure that the Velcro strap runs over the inserted cable and is carefully tightened. The following illustrations show the procedure and the exact position of the Velcro straps after installation.



All other cables and lines of the starlink.case must not be changed or positioned differently! The following illustration shows the correct installation of the router and the prescribed position of all cables.

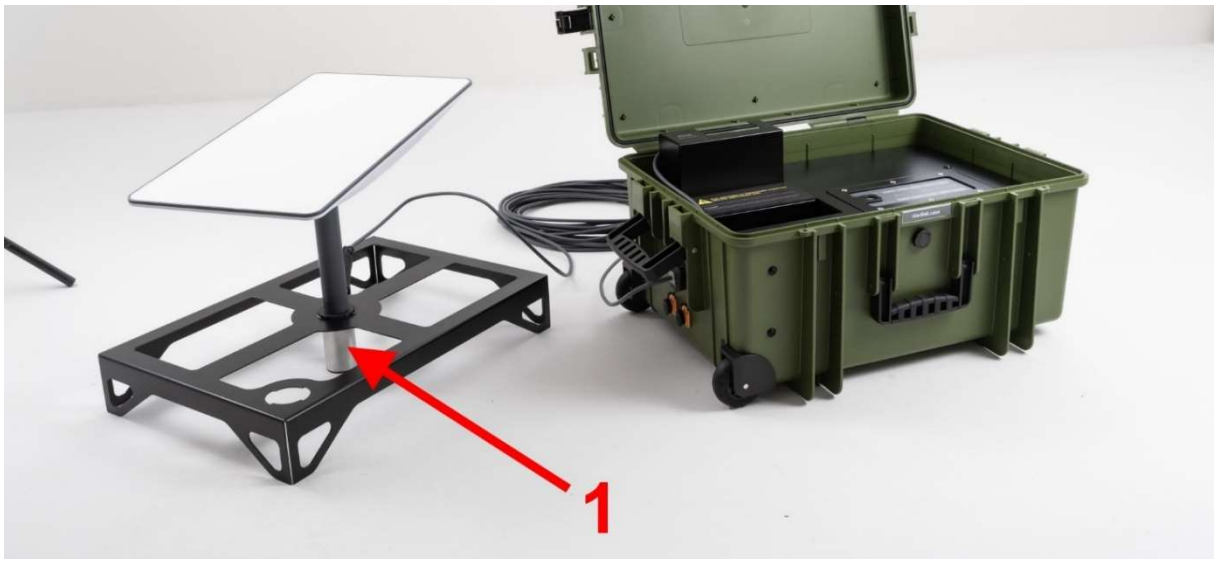
In the next step, the cover can be replaced. Particular care must be taken when screwing in the screws. The screws must not become wedged or jammed when screwing in. It is recommended that the screws are only tightened hand-tight. Tip: The Allen key inserted in the screw can be used to easily press the thread of the holder under the cover into the desired position.

If an RJ45 module has been ordered, the next step is to insert the RJ45 into the holder and connect the cable of the RJ45 module to the Starlink router and stow it away properly. The two illustrations below show where the plug of the RJ45 module is inserted into the Starlink router and how the connection cable of the RJ45 module is best stowed away.

7.5 Setting up the system

First remove the antenna base (1) with the holder (2) for the rigid link antenna. The holder (2) can be released from its transport position by turning it and then inserted in the centre of the antenna base (1).

One side of the cable can then be plugged into the Starlink aerial from below. Caution! Make sure that no dirt gets into the plug connection! Particular care must be taken here! The aerial can then be plugged into the aerial holder (1) as shown in the following illustration. Ensure that it clicks into place and is correctly orientated in the antenna holder.



The next step is to remove the plug (1) attached to the side of the appliance. The plug (1) can then be stored in the compartment of the transport foam. The plastic nut is still required.

The cable with the pre-installed sleeve must then be fed through the now open side hole from the outside. The correct positioning can be seen in the following illustration. From the inside, the plastic nut is guided over the plug of the cable and over the cable up to the thread of the sleeve, fitted and screwed on hand-tight.

Finally, the cable must be routed correctly in the device: the cable comes from position (1) and must be plugged into position (2) on the Starlink router. The main switch (4) can then be pressed to start the system. Only then will power be applied to the socket and the USB ports. Caution: The cable must not be accidentally trapped between the cover and the case at position (3)!

If an RJ-45 module has been ordered, the cable of the Starlink antenna is not plugged into position (2) on the router as described above, but directly into the RJ-45 module at position (5). It is advisable to run the cable behind the panelling of the router. The network cable supplied can be used to route the network signal to the outside. It is plugged in at position (5) and (6). Attention: without a suitable attachment, the connection on the outside of the device is no longer watertight when open! See also the following illustration.

7.6 Utilisation of the antenna base

The antenna base can be securely anchored to the ground using the accessories or attached to the roof of a car or lorry using the magnetic feet. The correct application is explained below.

Use of the pegs

The enclosed pegs can be used to anchor the antenna base in soft ground. To do this, the pegs must be driven in so that the hooks on the head engage in the openings of the antenna base. If fastening with pegs is not sufficient or the ground is too firm for the use of pegs, the antenna base can be weighted down with sandbags or similar.

Using the magnetic feet

The enclosed magnetic feet can be used to place the antenna base securely on the roof of a car or lorry. The car or lorry roof must be made of a magnetic material and the magnetic feet must be properly connected to the antenna base. The following illustration shows the correct installation.

The antenna base fitted with the magnetic feet may only be attached when the vehicle is stationary! Under no circumstances may the antenna base be attached to a moving vehicle!

In order to stow all components correctly in the Starlink.case, the magnetic feet including all screws must be completely removed from the antenna base.

7.7 Operation

To start the appliance, the main switch on the control panel must be pressed briefly and with sufficient pressure. During operation, it is important to always keep an eye on the displays for utilisation and the current battery level. After use, the appliance should always be switched off to save energy and ensure safety.

The connection panel of the device contains all available outputs that can be used for various functions. The black 230V output is positioned on the far right. To the right of this are two blue outputs, which are intended for charging USB devices. The orange charging inputs are on the outside of the device.

ATTENTION: If more than 250W is drawn from the socket while the Starlink system is in operation, the entire device switches off and the Internet connection is interrupted!

Multiple plugs must not be used! The electrical safety system of the appliance is based on galvanic isolation from the environment. Multiple plugs can override this system!

After use, all connections and outlets must always be carefully sealed with the respective caps! Otherwise there is a risk of moisture penetrating the appliance.

If the appliance can be opened, the following must be observed when using it in a cold environment: When changing the appliance from a cold to a warm environment, condensation may form inside. Before commissioning the appliance, make sure that there is no more condensation inside or on the outside of the appliance!

7.8 Transporting the device

The appliance is equipped with several handles and an extendable trolley handle to facilitate transport. It is generally recommended that the appliance is always carried by two people. When transporting it in a vehicle, it should also be securely lashed down to prevent it from slipping.

When transporting in vehicles or other means of transport, the legal regulations and regional requirements must always be observed!

Special care must be taken when using the trolley handle! The appliance must always be handled with care and must not be pulled over uneven ground at high speed! Although the appliance is robustly constructed and has various damping systems, the leverage effect of the long trolley handle can exert considerable forces on the internal components. This can lead to serious damage to the electronics.

7.9 Storing the appliance

The device must always be fully charged before it is stored and should be fully charged after six months at the latest using the 230V charger. It should also be noted that the device may only be stored indoors and must always be securely closed during storage. All caps must also be fitted to the connections.

The device may only be stored within the temperature range specified under technical data. For longer storage periods of more than one month, the maximum temperature must not exceed 30°C!

The device must always be stored horizontally! Storing it upright can damage the battery chemistry in the medium term!
Do not store lying down or standing up!

To prevent damage to the battery, the device should be discharged to approx. 10% at least once a month and then fully charged using the charger supplied!

8. dispose of the device

If it is determined that the appliance has reached its maximum service life, it must be disposed of immediately. We will be happy to take care of the professional disposal of the appliance - free of charge, of course. To do this, the appliance must be handed in at the address given in the legal notice.

The appliance may only be dismantled by specially trained personnel. All safety instructions for operation must be strictly observed.

Old appliances should not be disposed of with household waste. In accordance with the Waste Electrical and Electronic Equipment Directive (2012/19/EU) and national laws, this product must not be disposed of with household waste! This product must be disposed of at a designated collection point.

9. declaration of conformity

The following guidelines were applied:

Low Voltage Directive 2014/35/EU
EMC Directive 2014/30/EU
ROHS 2011/65/EU

The following standards were applied:

EN ISO 12100:2011	Safety of machinery Basic concepts: general principles for design
DIN EN 60204-1:2014	Safety of machinery - Electrical equipment of machines - Part 1: General requirement
DIN VDE 0 100	Part 100, T443 and 534 Protection against overvoltages
DIN VDE 0105-100	Operation of electrical installations
ISO 7010	Graphical symbols - Safety colours and safety signs - Registered safety signs
DIN 4844-2	Warning signs - Prohibition signs
ISO/TR 14121-2	Diagram
DIN EN 61326-1	EMC requirements for electrical equipment for measurement, control and laboratory use
DIN EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use
DIN EN 55011 (A)	Industrial, scientific and medical equipment radio disturbance limits and measurement methods (interference radiation) from 30 MHz to 1 GHZ

The built-in LiFePo4 battery including battery management has been certified according to the following specifications:

UN 38.3	Test standard for safe transport incl. all prescribed tests
UN 3480	Labelling according to the applicable dangerous goods regulations
MSDS	Material Safety Data Sheet" (MSDS)

Manufacturer details

manufacturer	B&W International GmbH Junkendiek 5 49479 Ibbenbüren