

Power 26-104
Pilot model

Operating manual
(English)

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2. Important safety and operating information



DANGER

This symbol warns about the risk of injury to yourself or others

This product is designed to operate safely and reliably as long as it is used according to the operating manual. Please read this manual carefully before you start the battery. Ignoring these instructions can cause property damage or personal injury. Torqeedo accepts no liability for any damage caused by actions that contradict this operating manual.

To ensure safe operation of the battery:

- Only allow adults who have been instructed on how to operate the battery to run it.
- If you do not use the battery with Torqeedo products and cable sets, please use suitable cable cross-sections for connecting the equipment (risk of fire).
- Torqeedo cable sets always contain a main switch and suitable fuse. If you are not using a Torqeedo cable set always use a main battery switch that has been authorised for switched current and a fuse for your electrical installation.
- The contacts can take voltages up to 60 V. Avoid contact with hands.
- Even though the Power 26-104 meets the requirements for protection type IP 67 (protection from water penetration for temporary submersion), it should not be exposed to long-term moisture. This avoids the risks of short-circuits if the housing is defective.
- Secure the Power 26-104 against slipping and tipping.
- If you connect several Power 26-104 to one battery bank:
 - Serial and parallel configured batteries must always have the same charge condition. That is why you must use only the same type of batteries in configurations (same capacity, same age, same manufacturer, same charge condition) and fully charge each battery separately in your charger before you connect it up. Differences in the charge condition can lead to extremely high compensatory currents or overloads to the cables and connectors or the battery itself. In extreme cases this could even cause fire or injury.
 - Incorrect configuration of lithium batteries leads to much higher short circuit currents than configurations with lead batteries. Although the Power 26-104 is protected from high equalising currents, we urgently recommend that the configuration of various Power 26-104 batteries is carried out by specialist personnel.

- Do not open the battery casing. Protect the battery from mechanical damage. If the battery casing is damaged:
 - Do not use the battery any more and do not charge it. There is a risk of fire.
 - If electrolytes leak from the damaged battery, avoid skin contact and directly breathing in the gases. If you come into contact with the electrolytes leaking from the battery (e.g. on the skin or eyes), rinse the affected area thoroughly with clear water. Contact a doctor immediately. Contact a Torqeedo service center for appropriate disposal advice for the damaged battery.
- The pilot model is not protected from overcharging. So the pilot model may only be charged with the original Torqeedo 350 W charger.
- Always charge the battery on a non-flammable base under the supervision of an adult.
- Only charge the battery at environmental temperatures between 0°C and 55°C / 32°F and 131°F.
- Keep the batteries away from naked lights.
- Please note that since 2009 lithium batteries with a capacity of >100 Wh may no longer be carried as luggage in passenger planes. This battery exceeds this threshold and may therefore not be transported in the cargo area of passenger planes.
- The battery has been declared a hazardous item in UN Class 9. Transportation companies must use original packaging to transport the product. Private transport is not affected by this rule. When undertaking private transport, ensure that the battery casing is not damaged.
- In addition to these selected warnings, please comply with the complete operating manual.



CAUTION

This symbol warns about the risk of damage to or by your battery.

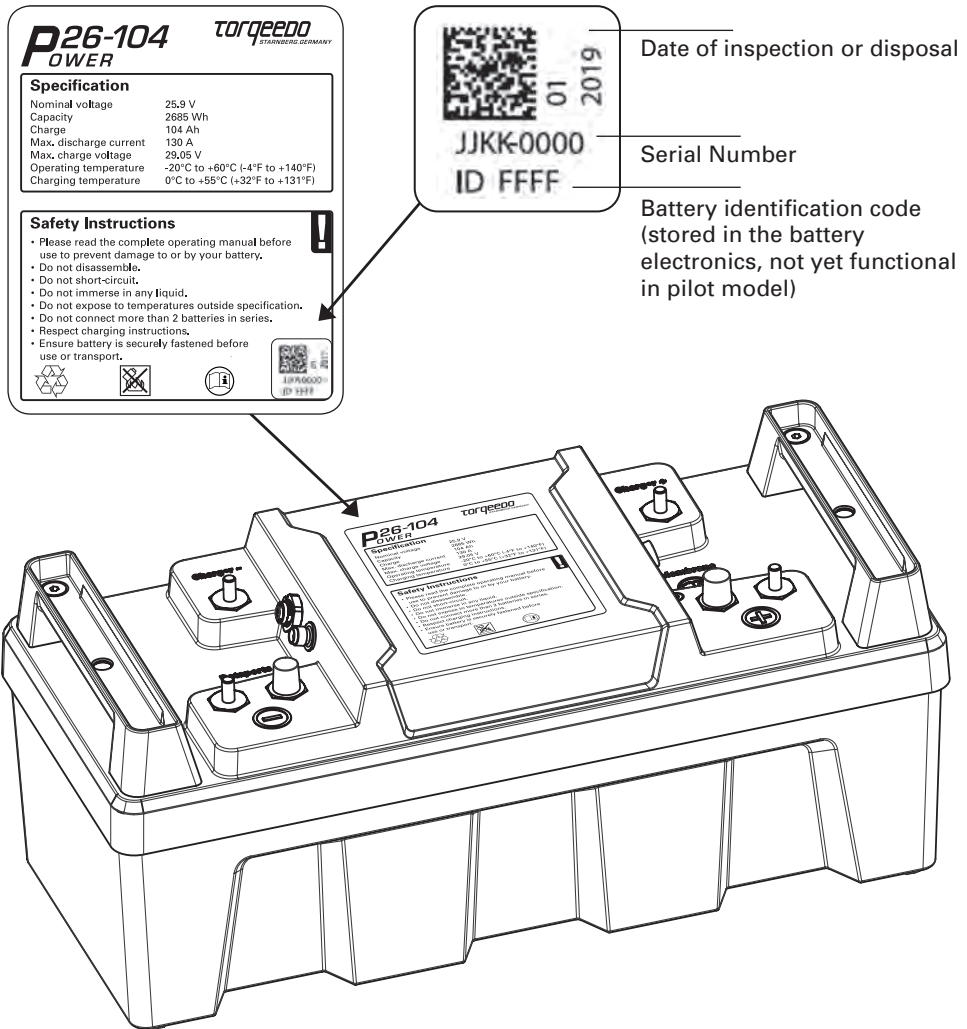
There follows a selection of the most important instructions for handling the Power 26-104 pilot model. Apart from these instructions, please observe the complete operating manual to prevent damage to your battery.

- ***The pilot model is not protected from overcharging. So the pilot model may only be charged with the original Torqeedo 350 W charger.***
 - ***The pilot model is not protected from deep discharge. A complete discharge may result in damage to the battery. Ensure that the battery is not discharged completely by ensuring that the battery voltage remains above 21 V during use. Disconnect the battery after use from the connected equipment using a main switch. When using Torqeedo Cruise outboard motors as the only connected equipment, this warning note is not relevant as the Cruise motors switch off the batteries after they have discharged fully before a cell damaging complete discharge can occur.***
 - ***There is no data communication between the pilot batteries and motors in the Cruise R series. Pilot batteries and motors can be operated jointly and the display functions of the Cruise R motors can be used like any other batteries.***
 - ***The pilot battery does not automatically switch the voltage away from the poles when the battery is immersed in water. Avoid immersing the battery in order to prevent electrolyte effects and the generation of explosive gas.***
-
- Do not use equipment that draws more than 130 amps from the battery (at nominal voltage this represents 3,370 watts). For parallel battery configurations you can draw 130 amps for each of the configured batteries (for 2 batteries in parallel, this represents 260 amps or 6,740 watts). Higher consumption causes the fuse to trip inside the batteries and makes a repair by a Torqeedo service workshop necessary.
 - Note the polarity when connecting the equipment and charger.
 - You extend the lifespan of your battery if you do not expose it to direct solar radiation or hot environments for longer than necessary.
 - If the battery is to be stored for a longer period of time, it should have a 20-40% charging level. Please occasionally check that the voltage is over 21 V in order to avoid a complete discharge.
 - The ideal storage temperature is between 5° - 15°C / 41°F and 59°F.

3. Information required by law

3.1 Identification and technical data

The name plates with the complete product name are found at the locations stated in the diagram.



Specifications		
General characteristics		
Capacity	2,685 Wh	
Nominal Voltage	25.9 V	
Final Charge Voltage	29.05 V	
Final Discharge Voltage	21.0 V	
Nominal Charge	104 Ah	
Max Charge	108 Ah	
Max discharge rate (A)	130 A	Safety feature (power supply not starter battery)
Max discharge rate (W)	3,370 W	
Weight	24.2 kg (53.2 lbs)	
Dimensions	577.5 x 218.5 x 253.5 mm (22.7 x 8.6 x 10.0 in.)	
Volume	32 l	
Battery chemistry	LiNiCoMnO2	
Benchmark information		
Energy density (weight)	111.2 Wh/kg (50.4 Wh/lbs)	
Energy density (volume)	84 Wh/l	
Power density (weight)	225 W/kg (102 W/lbs)	
Power density (volume)	141 W/l	

Specifications

Handling information

Operating cell temperature	-20° to +60°C (-4.0° to 140°F)	
Charge cell temperature	0° to +55°C (32° to 131°F)	
Storage temperature	5° to 15 °C (32° to 59° F)	
Self discharge of cells	4 % per year	
Connection	Max 2S8P or 1S16P (larger banks require authorization)	
Protection class	IP 67	Waterproof, can be submersed @ 1m (3 ft) depth for 30 minutes without damage

Battery composition

Number of cells	336	
Cell housing	Steel cylinder safety cell	
Capacity per cell	2.25 Ah	
Nominal voltage per cell	3.6 V	
Cell connection	7s48p	

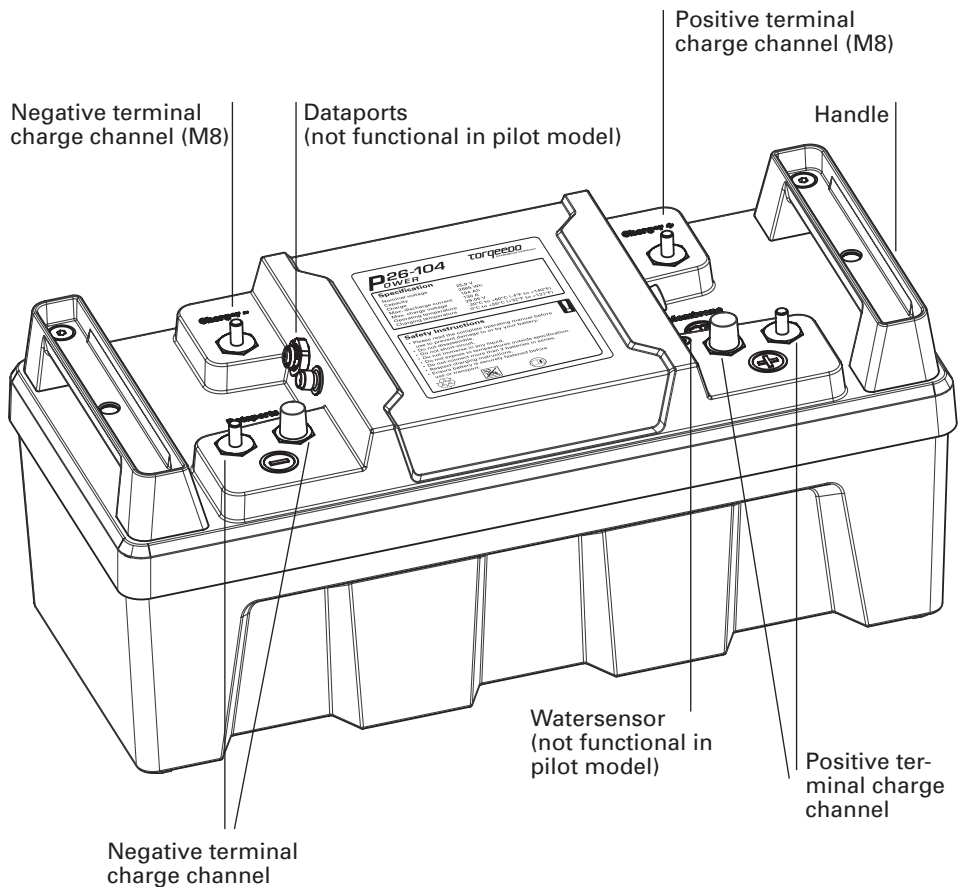
4. Equipment and operating elements

4.1 Items supplied

The following parts are supplied with your Power 26-104 battery:

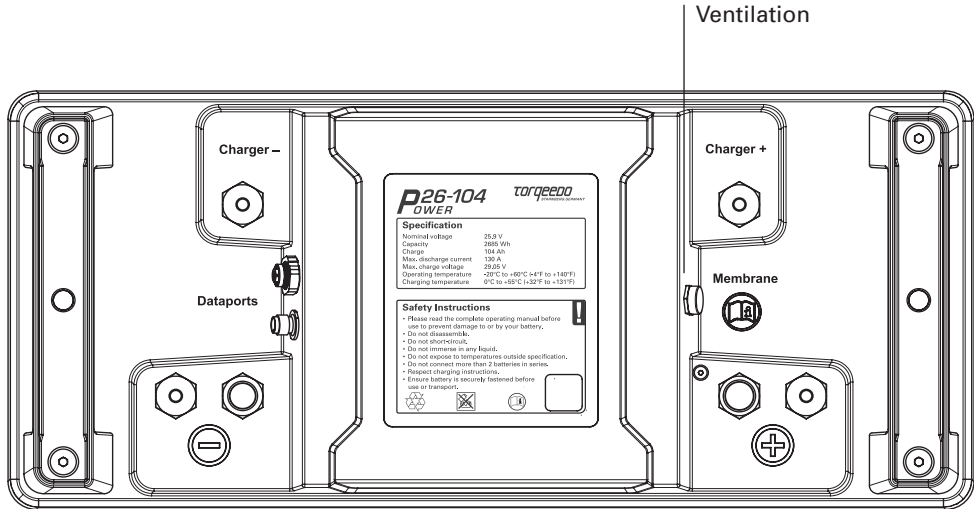
- Battery
- M8 nuts with washers
- Warranty Card
- Operating manual
- Packaging

4.2 Overview of operating elements and components



Ventilation

The ventilation attached to the back automatically ensures that no overpressure is created within the hermetically sealed casing. It is equipped with a hydrophobic membrane.



- During handling and cleaning ensure that you do not damage the ventilation.
- Do not cover the ventilation.
- In case of damage please immediately contact Torqeedo Service.

5. Starting the device

5.1 Connecting Power 26-104 with Torqeedo Cruise outboard motors

- Cruise 2.0 models (Cruise 2.0 with tiller control and Cruise 2.0 R) require at least one Power 26-104 for operation. To improve the capacity of the battery supply several Power 26-104 can be configured in parallel. The details on configuring batteries are found in Chapter 5.3.

- Cruise 4.0 R models need at least 2 Power 26-104 in serial configuration. To improve the capacity of the battery supply several Power 26-104 in serial configuration can be connected to each other in parallel. The details on configuring batteries are found in Chapter 5.3.
- Twin Cruise 2.0 R models require a battery supply from 2 Power 26-104: one battery for each outboard motor. The batteries do not need to be connected with each other. To improve the capacity of the battery supply several Power 26-104 can be configured in parallel. The details on configuring batteries are found in Chapter 5.3.
- Twin Cruise 4.0 R models require a battery supply from 4 Power 26-104 batteries: 2 batteries configured in series for each outboard motor. To improve the capacity of the battery supply several serially configured Power 26-104 configured in series can be connected to each other in parallel. The details on configuring batteries are found in Chapter 5.3.

5.2 Starting individual batteries



- If you do not use the battery with Torqeedo products and cable sets, please use suitable cable cross-sections for connecting equipment (risk of fire).
- Torqeedo cable sets always contain a main switch and suitable fuse. If you are not using a Torqeedo cable set always use a battery main switch that has been authorised for switched current and a fuse for your electrical installation.
- Do not connect discharge contacts (marked on the upper side of the battery with „+“ and „-“) with the battery's charging contacts (marked on the upper side of the battery with „Charger +“ and „Charger -“).
- Clean all contacts before connecting them.
- Ensure that all of the equipment is switched off during the installation. This also applies to chargers if these are connected.
- When connecting the equipment to the Power 26-104 ensure that only the appropriate cable lugs or eyelets are used.
- Please ensure that all connections are tight.
- Note the polarity when connecting equipment and charger. For Torqeedo cable sets (and most common cable sets) the plus cable is coloured red and the minus cable is black. The battery poles (plus and minus) are marked on the top of the battery.



- First connect the plus cable then the minus cable.
- Secure the Power 26-104 against slipping and tipping.
- Do not place or lay anything on the battery.



- The pilot model is not protected from deep discharge. A complete discharge may result in damage to the battery. Ensure that the battery is not discharged completely by ensuring that the battery voltage remains above 21 V during use. Disconnect the battery after using the connected equipment with the aid of a main switch.
- Do not use equipment that draws more than 130 amps from the battery (at nominal voltage this represents 3,370 watts). Higher consumption causes the fuse to trip inside the batteries and makes a repair by a Torqeedo service workshop necessary.

5.3 Using several batteries and installing battery banks

5.3.1 General advice on configuring batteries



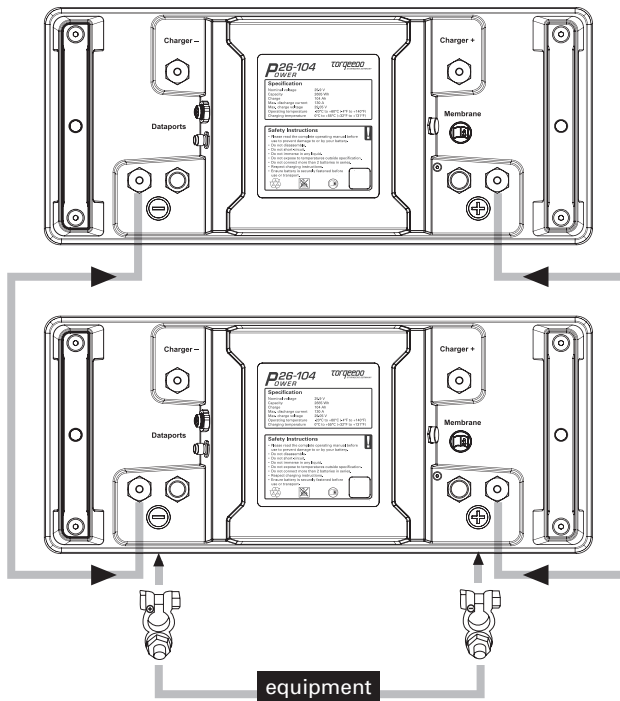
- Comply with the security notes for installing individual batteries (Chapter 5.2).
- Serial and parallel configured batteries must always have the same charge condition. That is why you must use only the same type of batteries in configurations (same capacity, same age, same manufacturer, same charge condition) and fully charge each battery separately in your charger before you connect it up. Differences in the charge condition can lead to extremely high compensatory currents or overloads to the cables and connectors or the battery itself. In extreme cases this could even cause fire or injury.
- Incorrect configuration of lithium batteries leads to much higher short circuit currents than configurations with lead batteries. Although the Power 26-104 is protected from high equalising currents, we strongly recommend that the configuration of multiple Power 26-104 batteries is carried out by specialist personnel.
- Avoid wearing metallic jewellery when working on or near batteries. Also avoid placing tools on the batteries as this could cause a short circuit.



- The pilot model is not protected from completely discharging. Ensure that the battery is not discharged completely by ensuring that the battery voltage remains above 21 V during use. Disconnect the battery after use from the connected equipment with the aid of a main switch.

5.3.2 Parallel configurations

The Power 26-104 is configured in parallel as usual by connecting the plus and minus poles of the batteries with each other. The following diagram shows the parallel configuration of 2 batteries (1S2P configuration). Several batteries can be configured in parallel with each other in the same way.





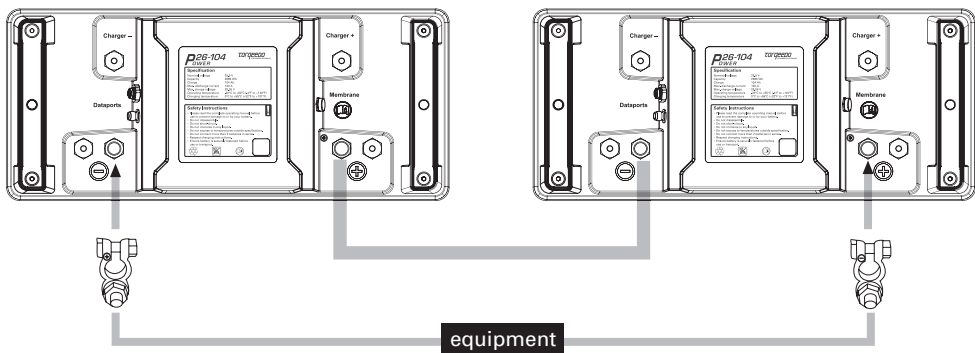
- No more than 16 batteries can be configured in parallel with each other.



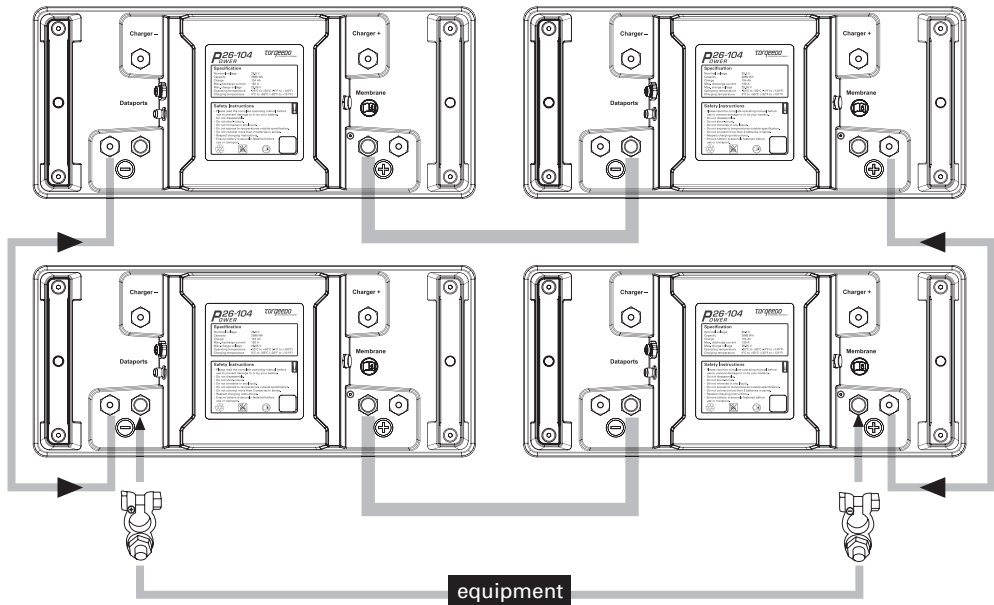
- Do not use a equipment that draws more than 130 amps from the battery (at nominal voltage this represents 3,370 watts). 130 amps can be drawn from each parallel connected battery. For 2 batteries connected in parallel this represents a load of 260 amps or 6,740 watts. This applies as appropriate for configuring several batteries. Higher consumption causes the fuse to trip inside the batteries and makes a repair by a Torqeedo service workshop necessary.

5.3.3 Serial configurations

The Power 26-104 is configured in series as usual by connecting one plus and one minus pole of the batteries with each other. The equipment is then connected to the plus pole of one battery and the minus pole of the second battery. The following diagram shows the serial configuration of 2 batteries (2S1P configuration).



To improve the capacity of the battery supply several serially configured Power 26-104 can be connected to each other in parallel. The following diagram shows 2 serially configured batteries that are connected in parallel with another pair of serially configured batteries (2S2P connection). Up to 8 pairs of batteries configured in series can be connected in parallel to each other in the same way.



- No more than 2 batteries can be configured in series with each other.
- If 2 batteries are connected in series in total a maximum of 8 pairs can be configured in parallel with each other.



- Do not use a equipment that pulls more than 130 amps from the battery (at nominal voltage this represents 3,370 watts). 130 amps can also be drawn from each of the serially connected batteries. As a result of the higher voltage of the battery bank for serial configurations, this does however mean utilising 6,740 watts. Parallel configurations of batteries serially configured in pairs enable the use of higher flows in amps (and watts). Higher consumption causes the fuse to trip inside the batteries and makes a repair by a Torqeedo service workshop necessary.

6. Charging using the charging channel

6.1 General notes

The maximum electricity flow at the charging input is 12 A, which results in a normal charging time of around 9 hours for a completely discharged Power 26-104.



- **Only use chargers authorised by Torqeedo. Do not use any third party chargers, in particular do not use chargers for lead gel or AGM batteries.**
- Always charge the battery on a non-flammable base under supervision.
- Only charge the battery at environmental temperatures between 0°C and 55°C (32° to 131°F).
- During the charging process protect the charger and battery from contact with water.
- Observe the operating manual for your charger.



- If a completely discharged battery can no longer be charged (LED indicator on the Torqeedo 350 W charger is permanently lit), take the battery to Torqeedo Service (address on the back of this operating manual).

6.2 Connecting the charger to a battery (24 V)

Connect the washer on the red cable with the plus pole; insert the washer on the black cable into the minus pole.

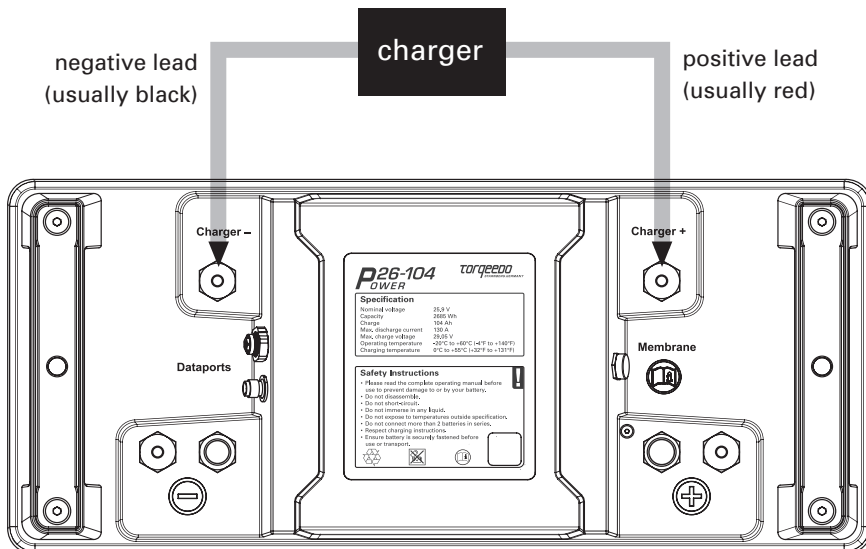
Only then plug the mains plug of the charger into a mains socket.

The charging process now starts automatically and also ends automatically as soon as the battery is fully charged (light permanently on).



- All equipment must be switched off during installation.
- Ensure that the two washers do not touch each other.
- Connect the charger with the correct polarity.
- Only connect the charger with the mains when it has been connected to the battery.

If the battery or charger overheats (e.g. due to sun radiation) the charging time may be extended.

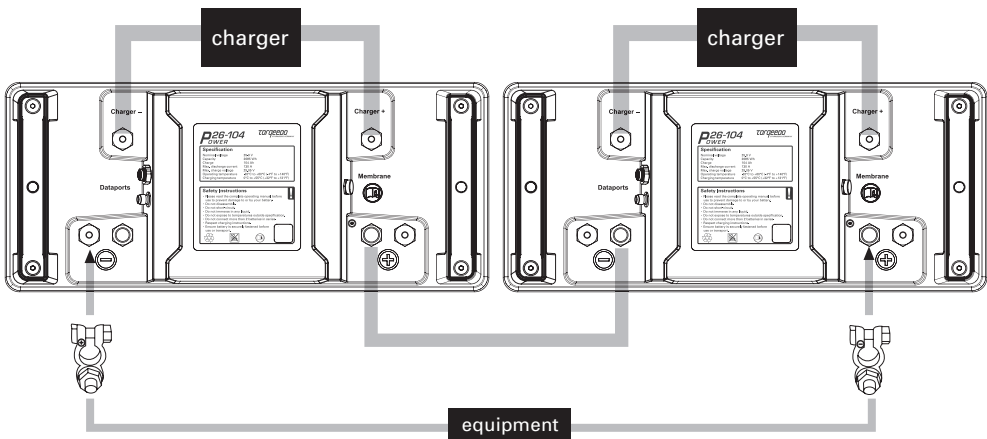


6.3 Charging operation for parallel configured batteries

Torqeedo recommends the use of one charger per battery. It is also possible to use one charger for a maximum of two parallel configured batteries. This doubles the charging time.

6.4 Charging operation for batteries configured in series

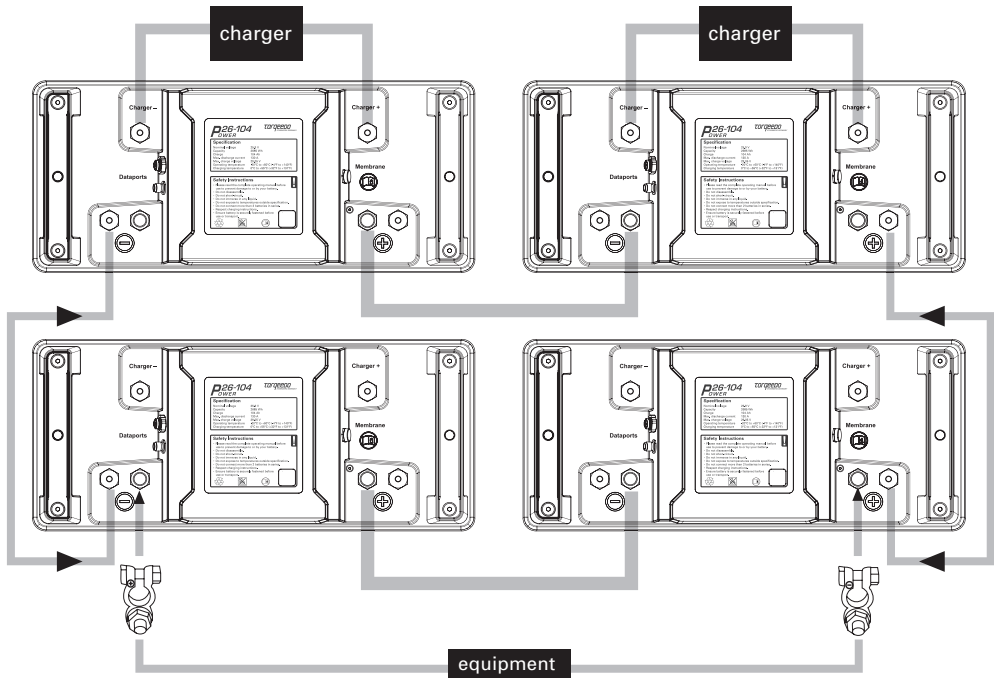
For batteries configured in series, each battery must be charged with its own charger.



6.5 Charging operation for larger battery banks

Torqeedo recommends the use of one charger per battery here too. It is also possible to use one charger for a maximum of two parallel configured batteries. This doubles the charging time.

Example: Charging a battery bank with 2S2P configuration with 2 chargers.



7. Cleaning and care

You can use normal, commercial cleaning agents that are suitable for plastics to clean the battery. Please use contact oil to care for the pole terminals.



- If the battery is to be stored for a longer period of time, it should have a 20-40% charging level. Please occasionally check that the voltage is over 21 V in order to avoid a complete discharge.
- The ideal storage temperature is between 5° - 15°C (32°F - 131°F).
- During handling and cleaning ensure that you do not damage the ventilation.

8. Maintenance

8.1 Maintenance by users

Please spray the contacts with contact spray preferably after each use, but at least every 6 months.

The water detection sensor must be kept free of grease, oil and dirt (water detection sensor in the pilot version does not work yet).

The bus system contacts must be treated 1 x year with appropriate contact oil (bus system in the pilot version does not work yet).

8.2 Maintenance by Torqeedo Service

Every 8 years - no matter how frequently it is used - the seal, condition of the cells, security of the system and content of the error memory must be checked.

9. Warranty terms

9.1 Extent of warranty

Torqeedo GmbH, Petersbrunner Straße 3a in D-82319 Starnberg, Germany, guarantees the final purchaser of a Torqeedo product that the product is free from material and manufacturing faults during the period stated below. Torqeedo will indemnify the final purchaser for any expense for the repair of a material or manufacturing fault. This indemnification obligation does not cover the incidental costs of a warranty claim or any other financial losses (e.g. costs for towing, telecommunications, food, accommodation, loss of earnings, loss of time etc.).

The warranty for series products ends two years after the date on which the product was delivered to the final purchaser. Products that are used commercially or by public authorities - even if only temporarily - are excluded from this two-year warranty. In these cases, the statutory warranty applies. The right to claim under warranty runs out six months after discovery of a fault.

Torqeedo decides whether faulty parts are repaired or replaced. Distributors and dealers who repair Torqeedo products have no authority to make legally binding statements on behalf of Torqeedo.

Normal wear and tear and routine servicing are excluded from the warranty.

Torqueedo is entitled to refuse a warranty claim if

- the warranty was not correctly submitted (in particular failure to contact Torqueedo before sending back goods, failure to present a completely filled-in warranty certificate and proof of purchase, refer to Warranty process),
- the product was not treated in accordance with the instructions,
- the safety, operating and care instructions in the manual were not observed,
- the product was in any way altered or modified or parts and accessories were added that are not expressly permitted or recommended by Torqueedo,
- previous maintenance or repairs were not undertaken by organisations authorised by Torqueedo or parts that were not original spare parts were used unless the end user can prove that the facts that justify rejecting the warranty claim did not favour the development of the fault.

As well as the rights arising from this warranty, the customer also has legal warranty claim rights arising from the purchase contract with the dealer that are not hampered by this warranty.

9.2 Warranty process

Adhering to the following warranty process is a prerequisite to the satisfaction of any warranty claims.

Before dispatching any apparently faulty goods, it is imperative to coordinate the delivery with Torqueedo Services. You can contact us by phone, email or post. You can find the contact details on the back of this manual. **Please understand that we are unable to deal with products of which we have not been notified and will therefore refuse to accept delivery.**

In order to ensure the problem-free processing of warranty cases, we would ask you to follow the following advice:

- You will receive a RMA number after discussion with our Service before the product is sent. **Please affix the RMA number to the outside of the packaging so it is clearly visible.**
- **Please enclose a completed warranty certificate with the shipment.** The print-out is enclosed with this operating manual. The warranty certification information must include such information as the contact details, product details, serial number and a brief description of the problem.

- **Please enclose proof of purchase with the shipment** (till receipt, invoice or other receipt). Proof of purchase must indicate the purchase itself and the date of purchase.

For returning the product to the Service Center, we recommend keeping the original Torqeedo packaging. If this is no longer available packaging that excludes transport damage must be used as this is not included in the warranty.

We are available to answer any questions regarding the warranty process - simply use the details on the back cover.

10. Accessories

Charger 350 W for Power 26-104, Item no. 2206-00

Charging output 350 W, charges the Power 26-104 in around 9 hours from 0 to 100%, is protection class IP 65 (protection from water penetration/jet from any angle).

11. Decommissioning the product / disposal

The Power 26-104 battery is marked pursuant to EU Directive 2002/96. This directive regulates the disposal of electrical and electronic devices to protect the environment. You can hand over the battery to a collection point to comply with regional regulations. From there it will be professionally disposed.



Do not use the battery after the printed inspection date without a Torqeedo Service Center having carried out an inspection.

Torqueedo Service Centers

Kontaktadressen internationaler Servicestellen sind unter www.torqueedo.com in dem Bereich „Service Center“ aufgeführt.

For contact details of international Service Centers, see www.torqueedo.com in the "Service Center" section.

Deutschland, Österreich, Schweiz:

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Please make sure if an updated version of this manual is available on www.torqueedo.com -> downloads -> manuals.