

# Installation Drawing: I45

Item number 039-00516, Version 1.0

Power cable connection



This installation drawing is an addition to the original operating instructions.  
Read operating instructions before wiring.



**NOTE!** Select the correct battery type and enter the correct size of the battery bank in the throttle menu! Check the throttle operating manual for further information.

**NOTE!** When using 3rd party batteries, the state of charge (SOC) value is not as accurate as when using Torqueedo batteries. Plan accordingly in reserve to safely reach your destination.

**NOTE!** The power cable connection of the 3rd party battery bank requires specialist knowledge and may only be carried out by qualified personnel.  
If necessary, have the planning and installation carried out by a specialist.

**NOTE!** Applicable national requirements (e.g. DIN EN ISO 16315, DIN EN ISO 13297, ABYC E-11) are to be observed.

**NOTE!** Use the Torqueedo power cable or use an adapter to connect to the busbar.

**NOTE!** Make sure the power supply requirements are maintained. The specifications of the requirements relate exclusively to the terminal to which the Torqueedo system is connected and not to the battery bank. When using additional energy consumers, the battery bank and its wiring must be adjusted accordingly.

**NOTE!** When connecting the Torqueedo system to the battery bank, make sure that the motor is connected diagonally to the battery bank. See exemplary illustrations on next page.

**NOTE!** Note that the lower voltage limit of the technical data specifies the value at which the Torqueedo system switches off. Depending on their properties, 3rd party batteries can switch off earlier or cannot be discharged further than the Torqueedo system allows. Therefore, consider the specifications of your 3rd party batteries when planning the system.

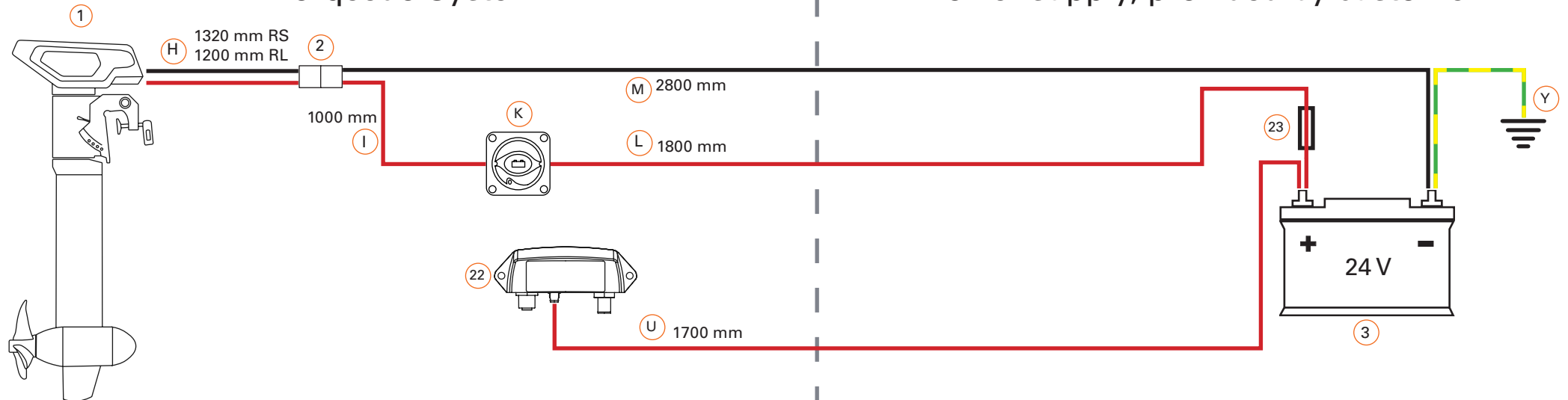
**WARNING!** Risk of short circuit. The supplied 175 ampere fuse (23) has an interrupting rating of 2000 amperes and is designed for battery banks with a maximum short-circuit current capacity of 2000 amperes. When using battery banks with more than 2000 amperes of short-circuit current, the fuse must be replaced with an appropriate one in terms of interrupting rating.

### Operating requirements for the Torqueedo system

|  |  |
|--|--|
| Voltage level in volts lead acid (min. V - max. V) | 18.6 V - 35.0 V                        |
| Voltage level in volts lithium (min. V - max. V)   | 21.1 V - 35.0 V                        |
| Maximum battery current (permanent)                | 135 A                                  |
| Maximum battery current (short-term)               | 140 A                                  |
| Fuse load current cable                            | 175 A                                  |
| Fuse interrupting rating                           | According to battery bank              |
| Cable cross-section for system earthing            | Provision and dimensioning by customer |

## Torqueedo System

## Power supply, provided by customer



- Positive power cable
- Negative power cable
- 25 mm<sup>2</sup> grounding cable

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## Option with busbars (adapter required, not included)



**NOTE!** Select the correct battery type and enter the correct size of the battery bank in the throttle menu! Check the throttle operating manual for further information.

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**NOTE!** When connecting the Torqueedo system to the battery bank, make sure that the motor is connected diagonally to the battery bank. See exemplary illustrations on next page.

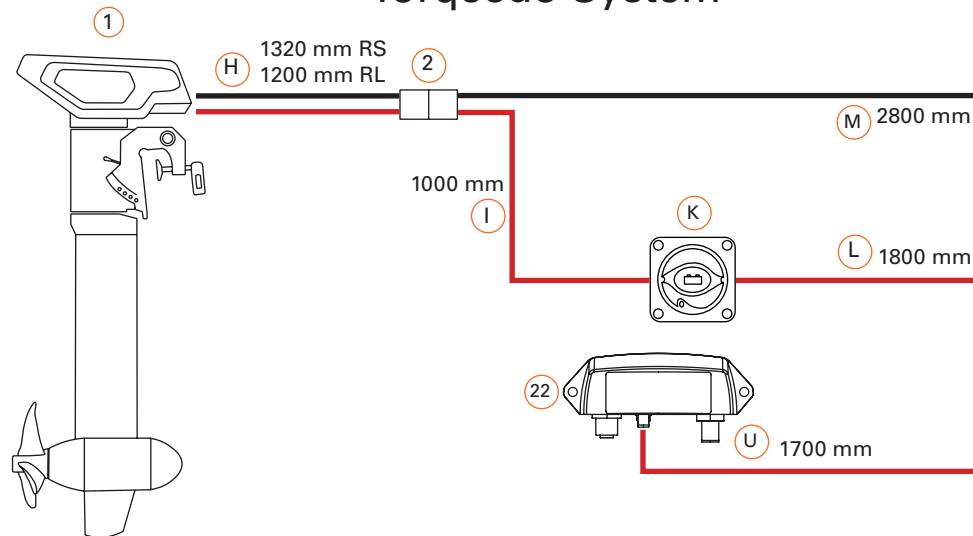
**NOTE!** Note that the lower voltage limit of the technical data specifies the value at which the Torqueedo system switches off. Depending on their properties, 3rd party batteries can switch off earlier or cannot be discharged further than the Torqueedo system allows. Therefore, consider the specifications of your 3rd party batteries when planning the system.

**WARNING!** Risk of short circuit. The supplied 175 ampere fuse (23) has an interrupting rating of 2000 amperes and is designed for battery banks with a maximum short-circuit current capacity of 2000 amperes. When using battery banks with more than 2000 amperes of short-circuit current, the fuse must be replaced with an appropriate one in terms of interrupting rating.

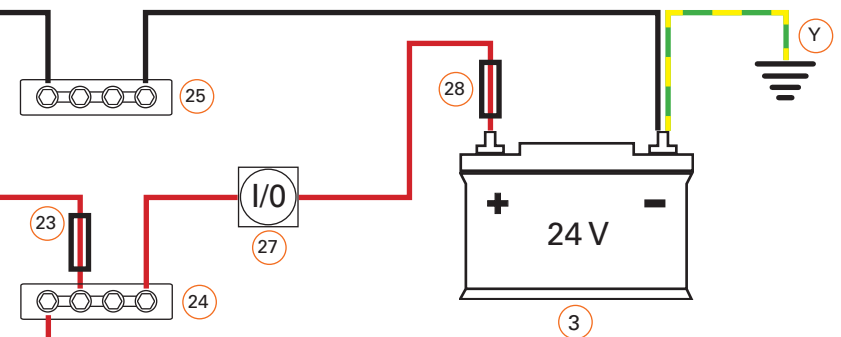
### Operating requirements for the Torqueedo system

|  |  |
|--|--|
| Voltage level in volts lead acid (min. V - max. V) | 18.6 V - 35.0 V                        |
| Voltage level in volts lithium (min. V - max. V)   | 21.1 V - 35.0 V                        |
| Maximum battery current (permanent)                | 135 A                                  |
| Maximum battery current (short-term)               | 140 A                                  |
| Fuse load current cable                            | 175 A                                  |
| Fuse interrupting rating                           | According to battery bank              |
| Cable cross-section for system earthing            | Provision and dimensioning by customer |

### Torqueedo System



### Power supply, provided by customer



- Positive power cable
- Negative power cable
- — 25 mm<sup>2</sup> grounding cable

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## Examples for the wiring of a 24V 3rd party battery bank, provided by customer



**NOTE!** The power cable connection of the 3rd party battery bank requires specialist knowledge and may only be carried out by qualified personnel.

If necessary, have the planning and installation carried out by a specialist.

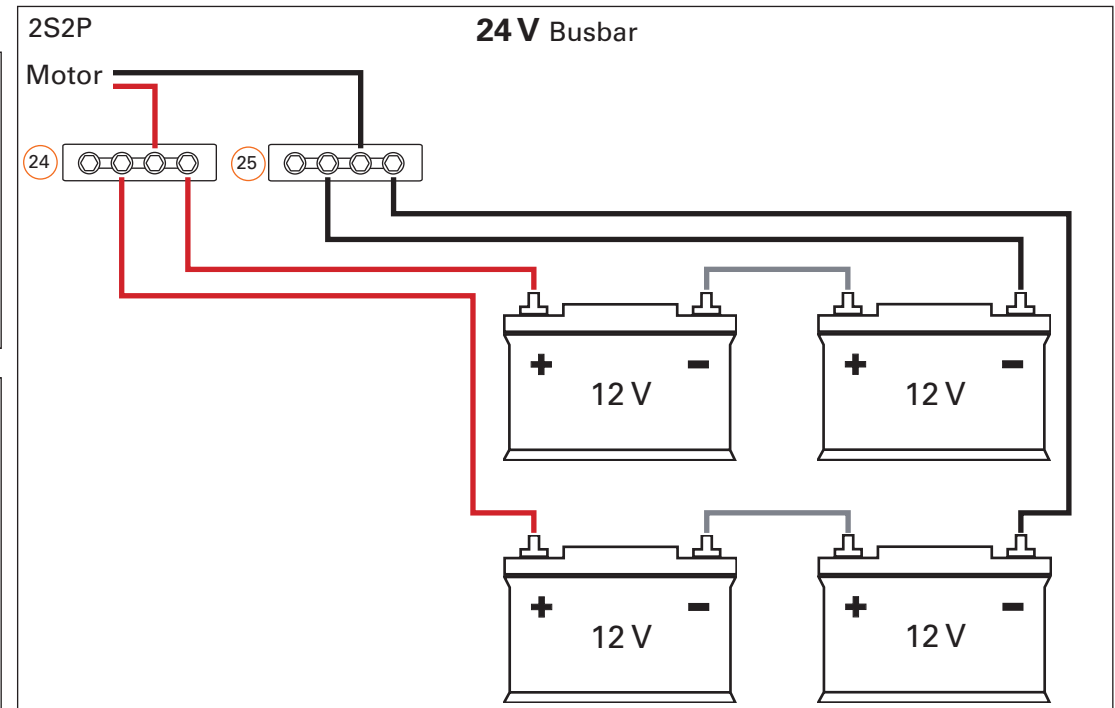
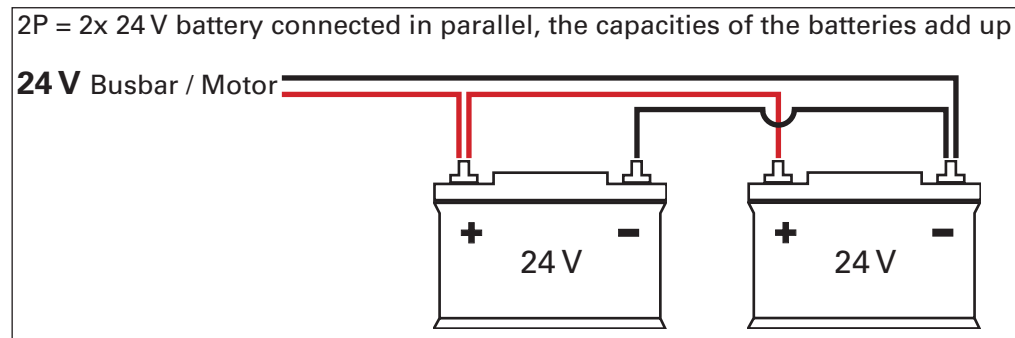
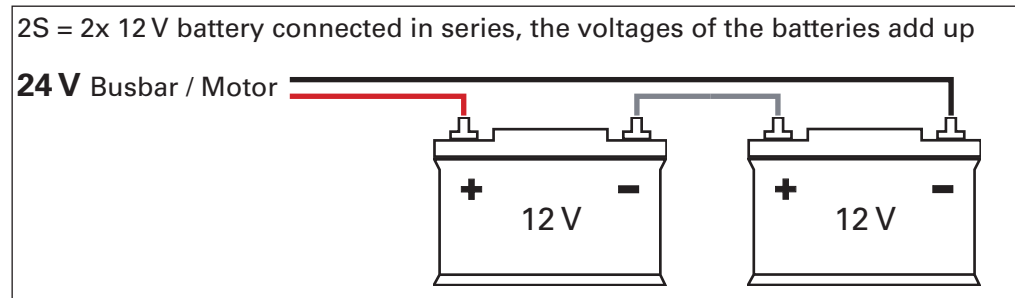
**NOTE!** Applicable national requirements (e.g. DIN EN ISO 16315, DIN EN ISO 13297, ABYC E-11) are to be observed.

**NOTE!** Make sure the power supply requirements are maintained. The specifications of the requirements relate exclusively to the terminal to which the Torqueedo system is connected and not to the battery bank. When using additional energy consumers, the battery bank and its wiring must be adjusted accordingly.

**NOTE!** Illustrations are exemplary, make sure the 3rd party battery bank is wired correctly and conforms to applicable and local standards (e.g. DIN EN ISO 16315, DIN EN ISO 13297, ABYC E-11).

**NOTE!** The illustrations only show the wiring examples of the 3rd party battery bank. Fuses, main switches and other components are not included and must be supplied by the customer.

**NOTE!** Make sure that all power cables from the battery bank to the busbars are of the same length. Also make sure that all cable bridges of the battery bank are of the same length.



— Positive power cable  
— Negative power cable  
— Cable bridge

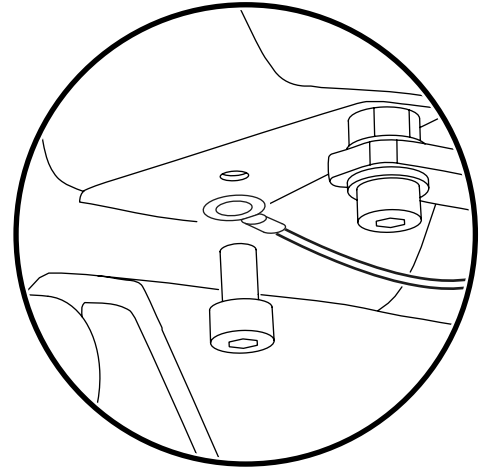
Power cable connection

# Installation Drawing: I45

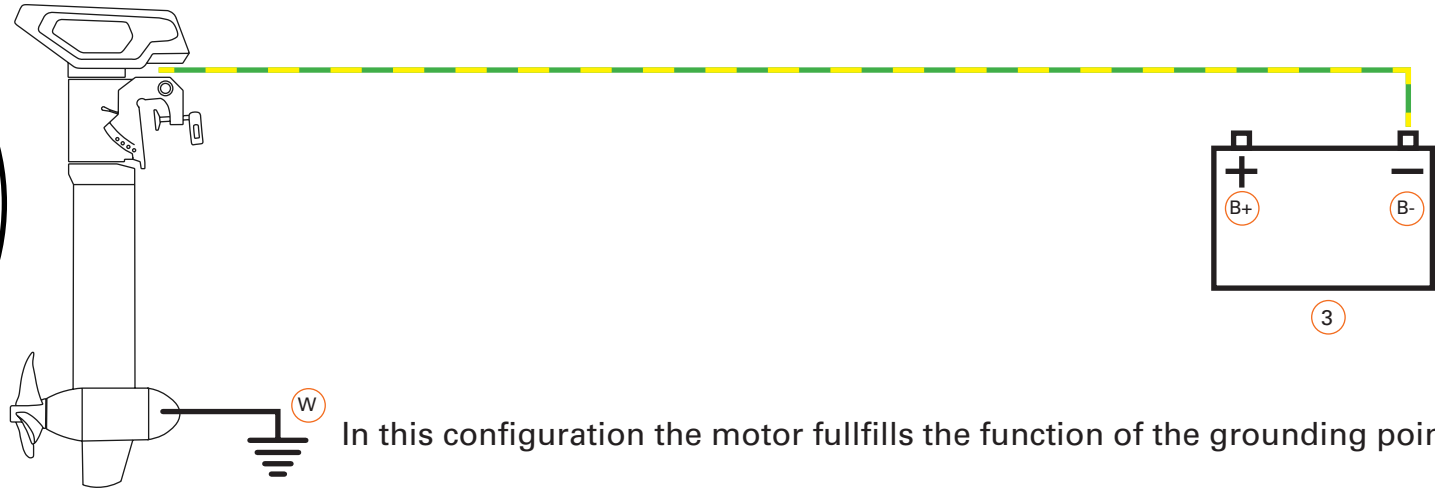
Item number 039-00516, Version 1.0  
System ground connection



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Read operating instructions before wiring.



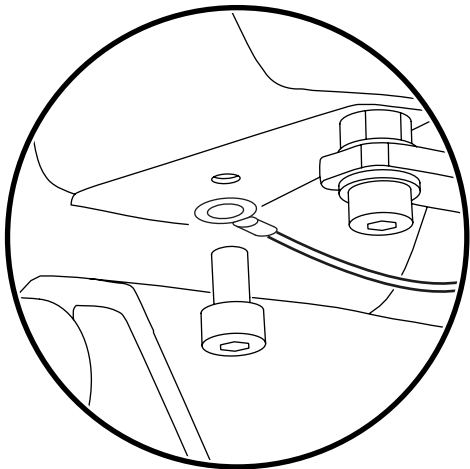
① Use for boats without common point for grounding



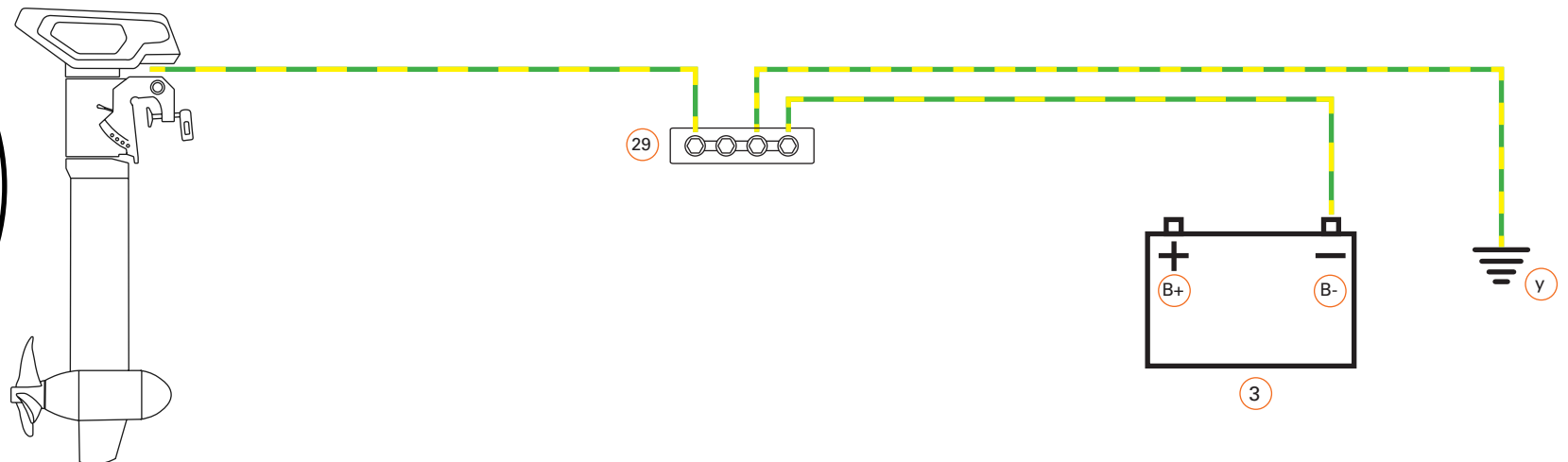
In this configuration the motor fulfills the function of the grounding point

— 25 mm² grounding cable

Use for boats with common point for grounding



① Use for boats with common point for grounding



— 25 mm² grounding cable

System ground connection

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System ground connection



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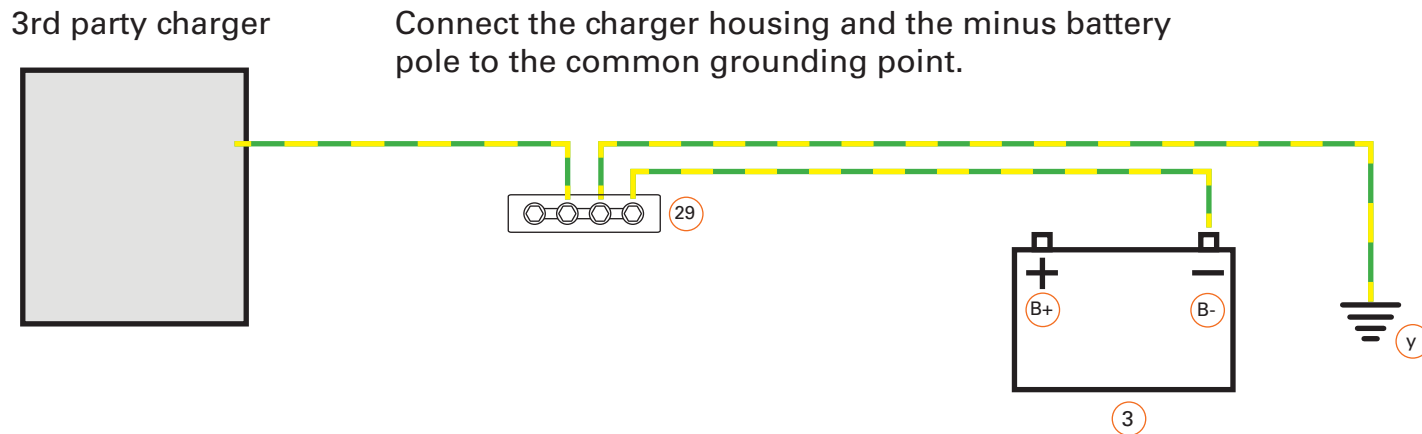


In case using a charger permanently installed in the boat, the charger housing or its AC PE and battery minus pole must be connected to the common grounding point.

The AC connection requires specialist knowledge and may only be carried out by qualified personnel.

If necessary, have the planning and installation carried out by a specialist.

**NOTE!** To charge the batteries in the boat, a land connection in the boat with galvanic isolator or isolation transformer is required according to applicable national requirements (e.g. DIN EN ISO 16315, DIN EN ISO 13297, ABYC E-11).



 25 mm<sup>2</sup> grounding cable

System ground connection

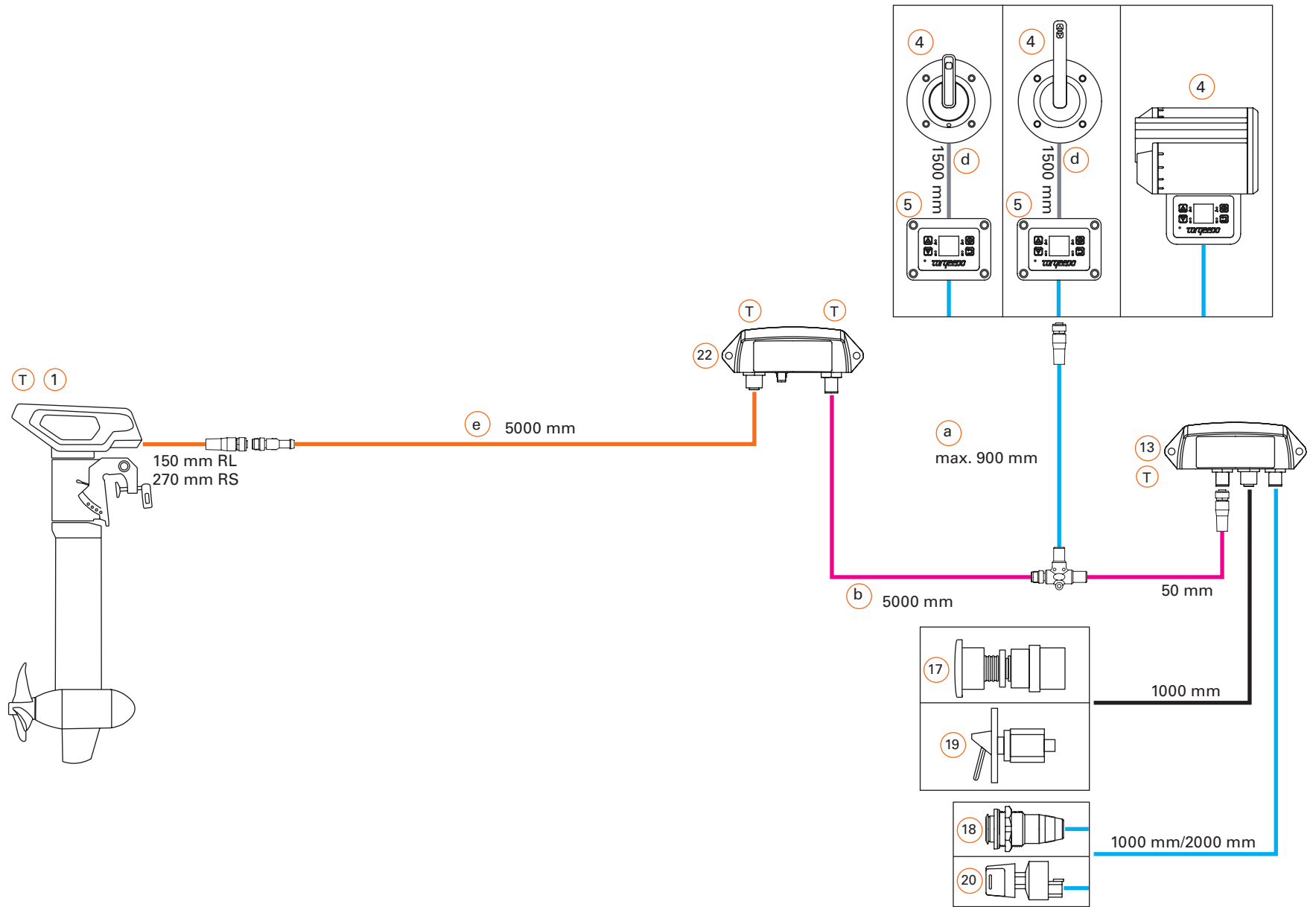
# Installation Drawing: I45

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Data cable connection



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8 pin data cable

5 pin data cable

4 pin data cable

Backbone TorqLink, 8 pin data cable

Backbone 5 pin data cable

Ⓣ Bus system termination resistor

Data cable connection

# Installation Drawing: I45

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Bill of material/Legend/Information



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Read operating instructions before wiring.



| Pos.             | Item number        | Name                                   | Remarks                                |
|------------------|--------------------|--|--|
| 1                | 1260-00<br>1261-00 | Cruise 3.0 R                           |  |
| H, I, K,<br>L, M |                    | Cable set with battery switch          | See picture for cable length           |
| 2                |                    | Power connector                        | max. 175 A                             |
| e                |                    | Backbone cable 5-pin                   | 5000 mm                                |
|                  |                    |  |  |
| W                |                    | Torqueedo system ground                | min. 25 mm <sup>2</sup> , not included |
|                  |                    |  |  |
| 4                | 1949-00            | Throttle Sidemount Sail                |  |
| 5                |                    | Throttle Display                       |  |
| 22               | 000-00858          | Gateway                                |  |
| U                |                    | Gateway Power cable                    | 1700 mm                                |
| b                |                    | Backbone TorqLink cable 8-pin          | 5000 mm                                |
| d                |                    | Data cable 4-pin                       | 1500 mm                                |
| 17               |                    | Emergency switch with cable            | 1000 mm                                |
| 18               |                    | On/Off switch with cable               | 2000 mm                                |
| 13               | 000-00876          | TorqLink Terminator                    | Bus termination resistor               |
| a                |                    | T-Cable 8-pin                          | 900 mm/50 mm,<br>Do not extend!        |
|                  |                    |  |  |
| 4                | 1950-00            | Throttle Sidemount                     |  |
| 5                |                    | Throttle Display                       |  |
| 22               | 000-00858          | Gateway                                |  |
| U                |                    | Gateway Power cable                    | 1700 mm                                |
| b                |                    | Backbone TorqLink cable 8-pin          | 5000 mm                                |
| d                |                    | Data cable 4-pin                       | 1500 mm                                |
| 19               |                    | Kill switch with cable                 | 1000 mm                                |
| 20               |                    | Key switch                             |  |
| g                |                    | Cable for key switch<br>6-Pin to 8-pin | 1000 mm                                |
| 13               | 000-00876          | TorqLink Terminator                    | Bus termination resistor               |
| a                |                    | T-Cable 8-pin                          | 900 mm/50 mm,<br>Do not extend!        |
|                  |                    |  |  |
|                  |                    |  |  |
|                  |                    |  |  |

Bill of material/Legend/Information

| Pos. | Item number | Name                                   | Remarks  |
|------|-------------|--|--|
| 4    | 1951-00     | Throttle Topmount                      |  |
| 22   | 000-00858   | Gateway                                |  |
| U    |             | Gateway Power cable                    | 1700 mm  |
| b    |             | Backbone TorqLink cable 8-pin          | 5000 mm  |
| 17   |             | Emergency switch with cable            | 1000 mm  |
| 20   |             | Key switch                             |  |
| g    |             | Cable for key switch<br>6-Pin to 8-pin | 1000 mm  |
| 13   | 000-00876   | TorqLink Terminator                    | Bus termination resistor   |
| a    |             | T-Cable 8-pin                          | 900 mm/50 mm,<br>Do not extend!  |
|      |             |  |  |
| Y    |             | System ground                          | Provision, dimensioning and correct installation by customer   |
|      |             |  |  |
| 3    |             | Battery bank                           | 24 V; Provided by customer   |
|      |             |  |  |
| 23   |             | Fuse                                   | Use the delivered by Torqueedo if using the original power cable and Torqueedo Batteries or use an 175 A fuse with appropriate interrupting rating value |
|      |             |  |  |
| 24   |             | + Busbar (positive pole)               | M10 connection; Provided by customer   |
|      |             |  |  |
| 25   |             | - Busbar (negative pole)               | M8 connection; Provided by customer  |
|      |             |  |  |
| 27   |             | Battery bank main switch               | Provided by customer   |
|      |             |  |  |
| 28   |             | Battery bank main fuse                 | Provision, dimensioning and correct installation by customer   |
|      |             |  |  |
| 29   |             | Common grounding point                 | Provision, dimensioning and correct installation by customer   |

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Connect the cruise motor and terminator to each end of the backbone.

The TorqLink bus system requires a terminator (terminating resistor) at both ends of the backbone in order to function correctly.

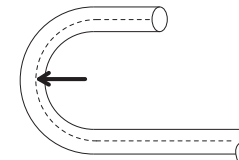
One of the terminators is located in the „Terminator Single“, „Terminator Twin“, „Throttle 1918-00“, „Throttle 1976-00“, the other is built into the cruise motor. Therefore, when installing, make sure that the components „Terminator“ and „Cruise motor“ are each connected to one end of the backbone.

The connection position of the remaining components on the backbone can be freely selected.

Keep the following points in mind when planning:

- An earthing point is required for your Torqueedo system. Take into account the connection and the cables required for this in your planning. The required cable cross-sections can be found in the section Tools, equipment and material.
- First determine and plan the installation positions of all components.
- Measure the required length of the TorqLink backbone.
- Measure the lengths of all required stub lines (cable connection between component and TorqLink backbone).
- When planning, please note that TorqLink drop cables must not be extended. If necessary, plan the TorqLink backbone so that the components can be connected through the TorqLink drop cable without an extension. If necessary, extend the TorqLink backbone to connect a component that is far away; you can find corresponding extensions in our accessories catalogue.
- Cables must be fixed every 400 mm, plan attachment material. In places where fastening is not possible, a scuff guard must be fitted.
- Openly laid cables (e.g. inflatable boat) must be protected with chafing protection, plan sufficient material.
- When planning, please note not to bundle power cables with data or antenna cables (e.g. radios) for other loads.
- Observe the minimum bending radius of the cables when planning.
- If a second earthed onboard power system is available, ensure that both systems use a common earthing point.
- Live parts must be fitted or installed with protection against accidental contact; the necessary installation space must be taken into account during the planning stage.
- Always connect batteries as the last component to the system to avoid short circuits and voltage peaks.
- Do not extend drop cables, extend backbone if necessary.
- Protect plugs and contacts against contamination before installing them.
- Do not pull at the cables.
- Do not twist cables.
- Do not install cables in permanently wet areas such as bilges.
- Install cables free of chafing and not around sharp edges, if necessary, attach chafing protection.
- Maintain bending limits.
- Install plug connections free of tension and load.

Observe the minimum bending radius when laying all cables:



|                       |   |
|-----------------------|---|
| Torqueedo data cable  | 8 x diameter                            |
| Torqueedo power cable | 8 x diameter                            |
| Earth cable           | see cable manufacturer's specifications |
| Other power cables    | see cable manufacturer's specifications |