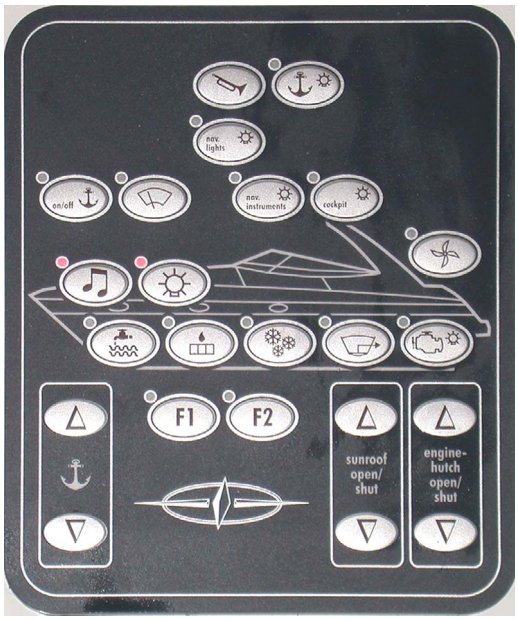
BAVARIA YACHTS



Instruction Manual for Motorboat Panel

305,306, Cockpit and Power Unit

Version 1.0

We have examined the contents of this manual for compliance with the hardware and software described. However, since deviations are still possible, we shall not accept liability for complete compliance. The contents of this documentation are regularly checked and may be subject to corrections in the subsequent issues.

We welcome any suggestions for improvement. If you have any questions about this manual or need more information about specific subjects, please contact your Bavaria dealer.

Issue: 05/2007

Stempel des Bavaria - Vertragshändlers	**Unterschrift / signature**
Stamp by Bavaria dealer	

BAVARIA YACHTS

Contents

1 Introduction and Overview

1.1 About This Manual

This manual supplements the boat manufacturer's operating manual. It describes the function and operation of the individual operating panel and its electrical connections.

1.1.1 Where to Get Information

If you have any questions about this manual or need more information about specific subjects, please contact your Bavaria dealer.

1.2 Introduction

Three panels and one power unit are available for the operation and power supply. For details about the installation position, please refer to the boat manufacturer's operating manual.

Panel 305

Panel 305 is designed for central monitoring and control of all electrical functions in your boat interior.

Panel 306

Panel 306 supplies the 230V devices with power when there is a land connection or optional generator.

Cockpit panel

The **cockpit panel** is designed for central monitoring and control of **all** electrical functions on board a motorboat.

Power unit

The **power unit** serves as an interface to the electrical consumers. It contains electrical connections and the micro fuses for the individual consumers.

1.2.1 The Different Operating Panels

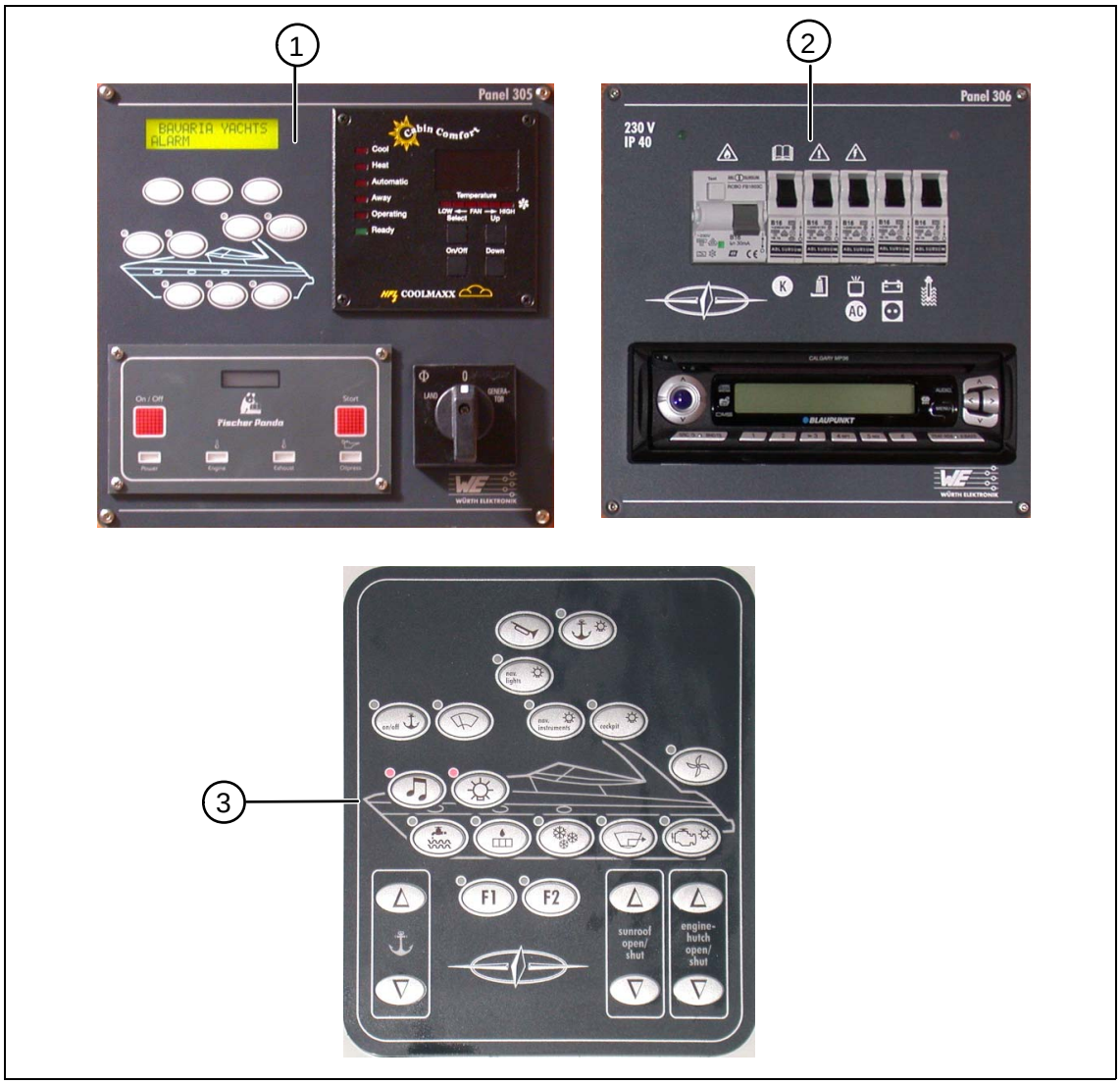


Fig. 1 Overall view - panel 305, 306 and cockpit panel

Key

(1) Panel 305

(2) Panel 306

(3) Cockpit panel

1.2.2 The Power Unit

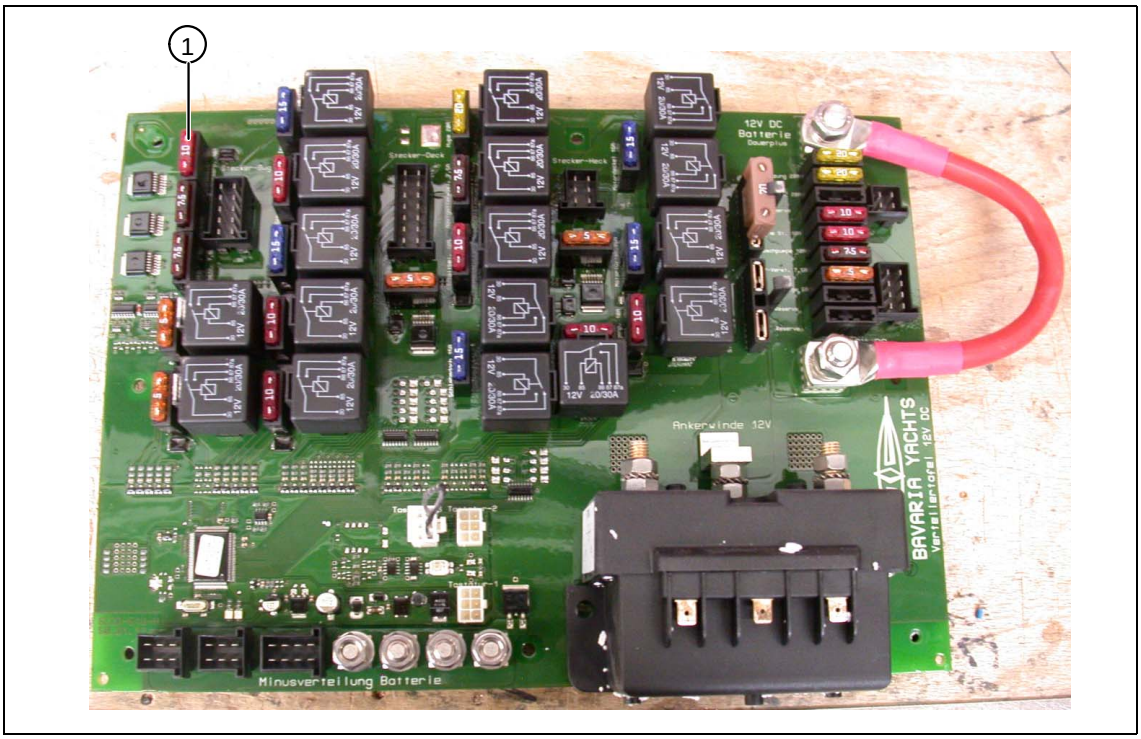


Fig. 2 Overall view - power unit

Key

(1) Example of a micro fuse

For the overview, function and values of all micro fuses, refer to Section 2.4 "Overview of Power Unit".

1.3 Panel 305 Controls

Fig. 3 Overview of panel 305

Key

(1) Display

(2) Scroll and acknowledgment buttons

(3) Function buttons

(4) Operation of generator (optional)

(5) Switch for land connection generator (optional)

(6) Operation of air conditioning (optional)

The current status of the function and lighting buttons is shown by the respective LED.

LED Status	Meaning
Yellow LED on	Button function is switched on
Yellow LED flashes	Malfunction
Yellow LED off	Button function is switched off

1.3.1 Function Buttons

Button	Description/Function
	**Radio** These buttons are used to switch the power supply to the radio on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**Cabin lighting** These buttons are used to switch the cabin lighting on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again.
	**Cockpit lighting** These buttons are used to switch the lighting on the equipment rack on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again.
	**F1** Switches a spare output on and off. This extra output is provided in addition to the functions set by the shipyards and is reserved for the use of other equipment. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again.
	**Fridge** Switches the fridge on and off. Depending on your boat, there may be one or two fridges present. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**Heating** Switches the heating control on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again.
	**Fresh water** Switches the fresh water pump on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. CAUTION: Do not dry run the fresh water pump!

1.3.2 Operation of Air Conditioning (Optional)

For details about the operation and functions, refer to the boat manufacturer's operating manual.

1.3.3 Operation of Generator (Optional)

For details about the operation and functions, refer to the boat manufacturer's operating manual.

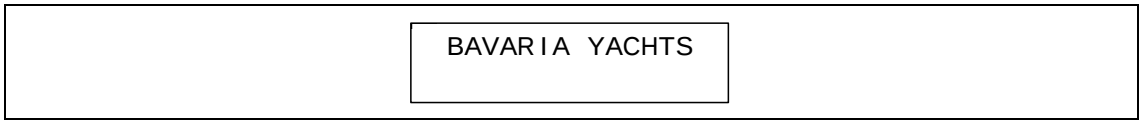
1.3.4 Menu Structure

This section describes how to access the various menu functions and how to change settings.

As soon as the panel is connected to the power source, a function test will be performed and the LEDs will light up for approx. 1 second. After this, the panel is ready for operation.

Alarms will be shown when triggered. See also Abschnitt 1.3.5.1.

After activating the main switch, you will see the following start screen on the display:



With the help of the scroll buttons and the acknowledgment button, you can select and view the various information and menus.

Button	Description/Function
	**Scroll button - up** Navigates up the menu.
	**Scroll button - down** Navigates down the menu.
	**Acknowledgment button** Saves or confirms your entries.

You can now perform the required settings at the panel.

1.3.5 Menu

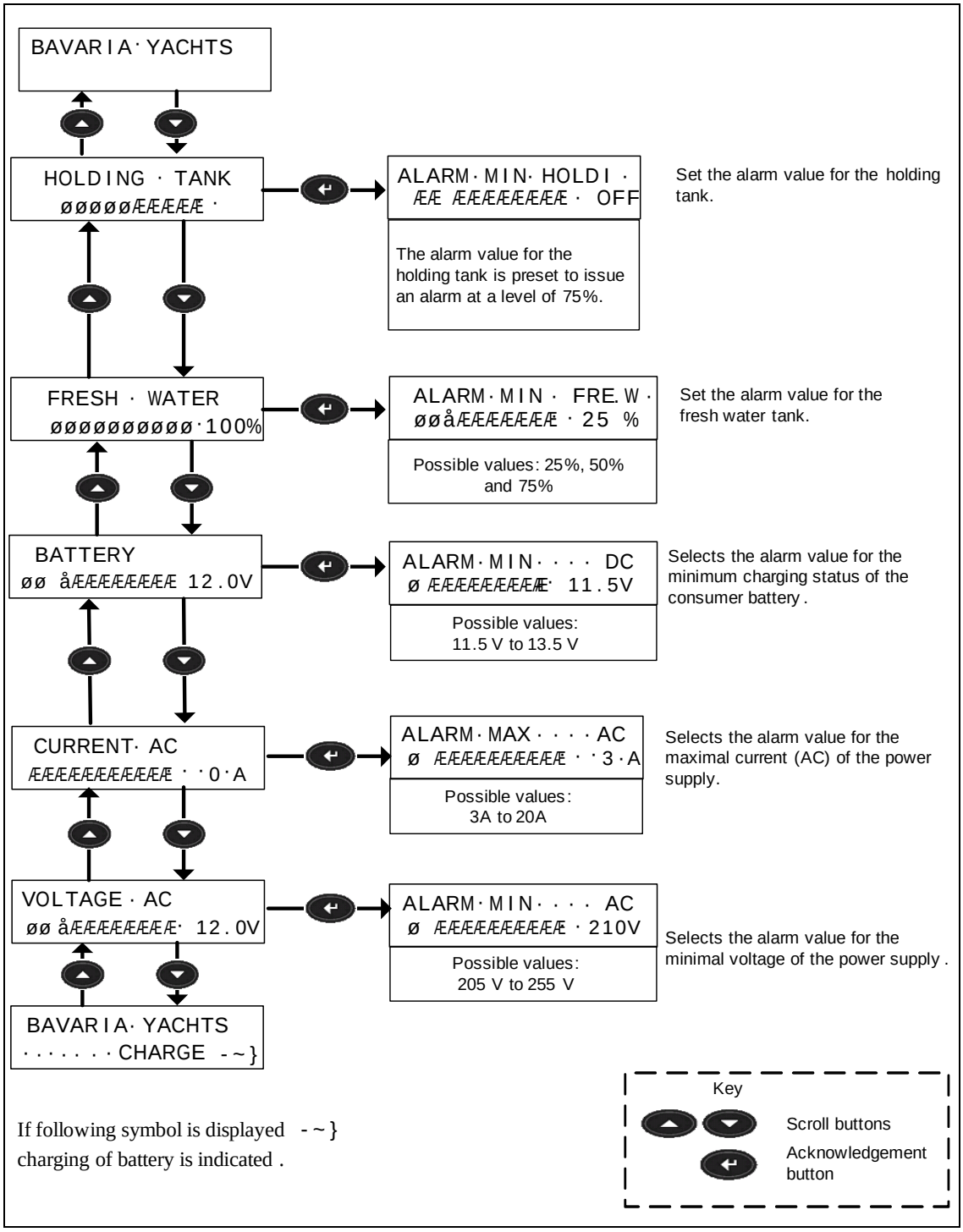


Fig. 4 Panel 305 menu

1.3.5.1 Alarms

If an alarm is triggered, the red LED next to the display will flash. The display will show the menu which has issued the alarm and the alarm itself will be shown by a flashing exclamation mark next to the menu bar. To acknowledge the alarm, press the acknowledgment button for 2 seconds.

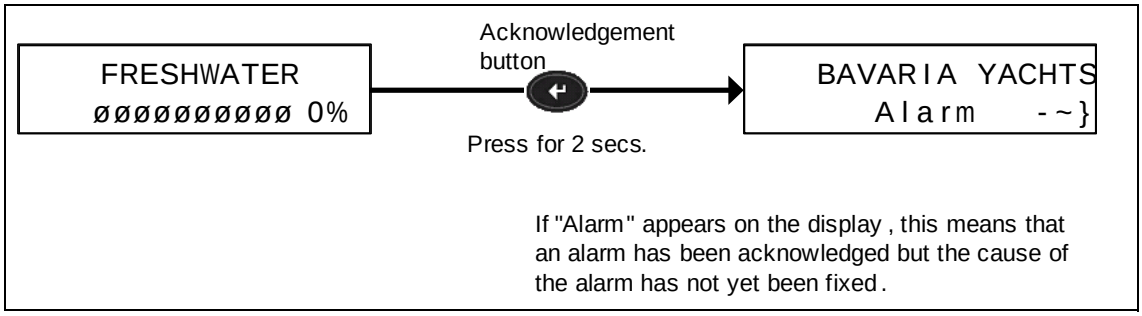


Fig. 5 Alarm display

The red LED extinguishes when you acknowledge the alarm.

1.4 Overview of Panel 306

Panel 306 supplies the 230V devices with power when there is a land connection.

WARNING

Observe the current consumption and power input

– The consumer devices connected must not exceed a **total** power input of 3.600 W and a max. current consumption of 16 A.

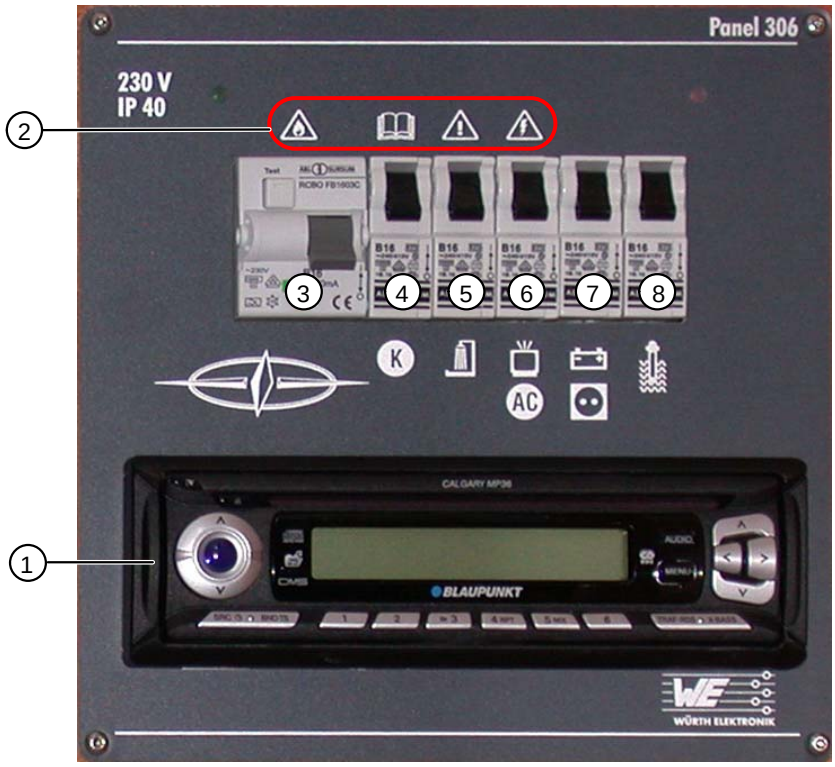


Fig. 6 Overview of panel 306

Key

(1) Radio

(2) Observe warning symbols

(3) Residual current circuit breaker FI / B16

(4) Automatic circuit breaker for cooking (16A)

(5) Automatic circuit breaker - shower socket (16A)

(6) Automatic circuit breaker - TV/air conditioning (16A)

(7) Automatic circuit breaker - battery charger socket (16A)

(8) Automatic circuit breaker - boiler (16A)

Function description

– When the residual current circuit breaker is switched on, a green LED indicates the existing land connection.

– The red LED indicates that the heating boiler is switched on.

– The residual current circuit breaker and fuse B16 are connected upstream of the five automatic circuit breakers (**4,5,6,7,8**).

1.4.1 Warning Symbols on Panel 306

Warning Symbols	Description
	**Fire or heat warning** – Panel 305/306 must be protected against fire and extreme heat.
	**Read the operating instructions** – Read and observe the information in this instruction manual. – The safety instructions and hazard warnings in the boat manufacturer's operating manual take precedence.
	**Warning against unauthorized opening of panels 305/306** – Measurement and service work to panels 305/306 may only be performed by specially qualified personnel.
	**Warning against dangerous voltages.** – Potentially lethal voltages are still present at some parts on the rear of panels 305/306. – Before performing any work, always switch off the residual current circuit breaker (FI) and the main switch of the consumer. For details about the installation position of the consumer main switch, please refer to the boat manufacturer's operating manual. – Disconnect panel 306 from the power supply.

1.5 Cockpit Panel Controls

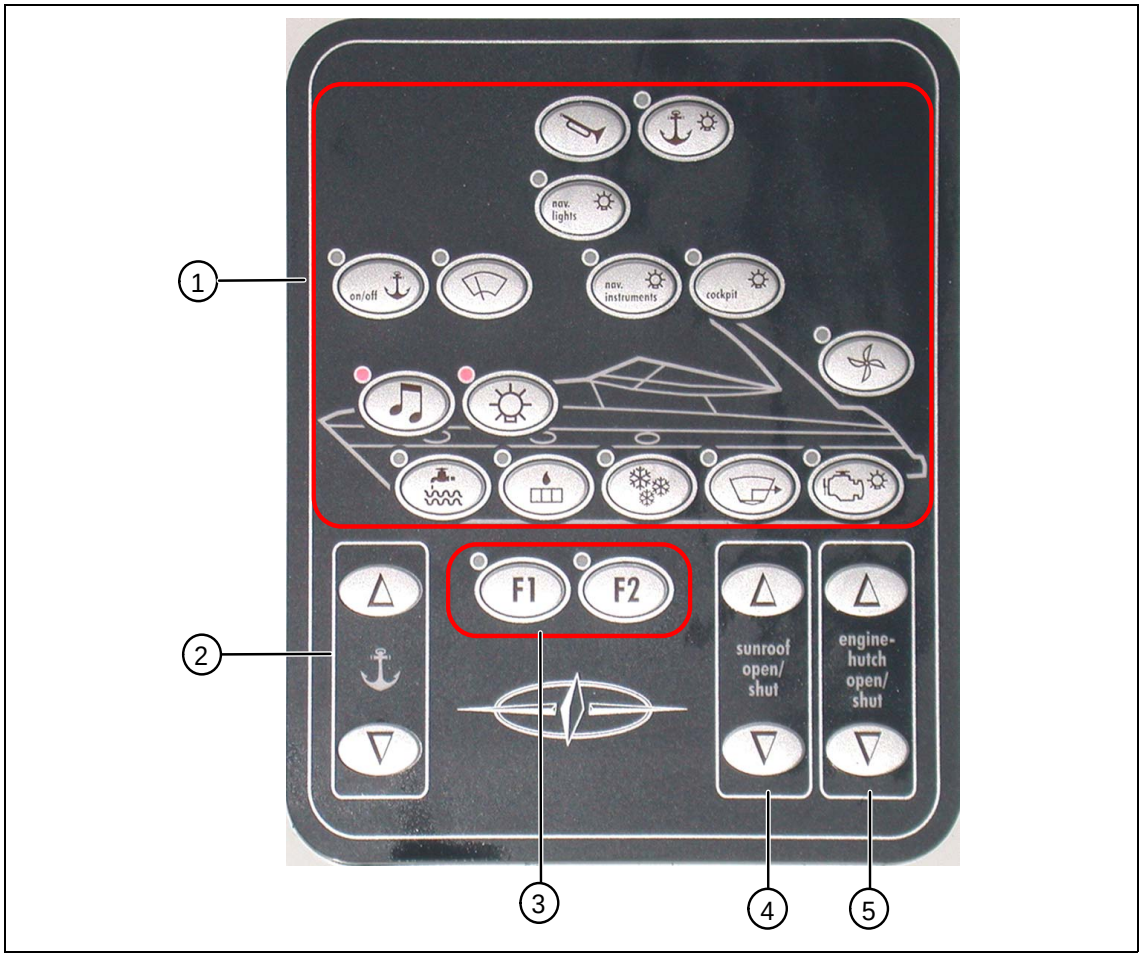


Fig. 7 Overview - cockpit panel

Key

(1) Function buttons

(2) Operation of windlass

(3) Reserve

(4) Operation of sunroof

(5) Operation of engine hutch

The current status of the function and lighting buttons is shown by the respective LED.

LED Status	Meaning
Yellow LED on	Button function is switched on
Yellow LED flashes	Malfunction
Yellow LED off	Button function is switched off

1.5.1 Function Buttons

Button	Description/Function
	**Horn** Switches the horn on and off. The horn remains on as long as the button is pressed.
	**Anchor light** Switches the anchor light on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**Navigation lighting** Switches the navigation lighting on and off. The anchor light is also switched on. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**Windlass** Switches the windlass on and off. This activates the **windlass up/down** function button. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**Windscreen wipers** Switches the windscreen wipers on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**Navigation instruments** Switches the navigation device on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**Cockpit lighting** These buttons are used to switch the lighting on the equipment rack on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again.

Button	Description/Function
	**Radio** Switches the radio on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**Cabin lighting** These buttons are used to switch the cabin lighting on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again.
	**Engine room fan** Switches the engine room fan on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**Fresh water** Switches the fresh water pump on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. CAUTION: Do not dry run the fresh water pump!
	**Heating** Switches the heating control on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again.
	**Fridge** Switches the fridge on and off. Depending on your boat, there may be one or two fridges present. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**Bilge pump** Switches the bilge pump on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed. CAUTION: Do not dry run the bilge pump!

Button	Description/Function
	**Engine room lighting (only for boat type BMB 38 S/HT and BMB 42 S/HT)** These buttons are used to switch the engine room lighting on and off. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again. In the event of a malfunction, the yellow LED will flash until the fault has been removed.
	**F1 to F2** Switches the two extra outputs on and off. These extra outputs are provided in addition to the functions set by the shipyards and are reserved for the use of other equipment. The button status is saved when the power supply has been switched off and is kept until the power is switched back on again.

1.5.2 Operation of Windlass

Button	Description/Function
	**Windlass up/down** Use the arrow buttons to raise or lower the windlass. Before you can use this function, make sure that the **windlass**  button has been switched on first.

1.5.3 Operation of Sunroof

ATTENTION

Risk of trapped limbs in electrical sunroof (e.g. engine room roof; hardtop)!

Button	Description/Function
	**Sunroof open/shut** Use the arrow buttons to open or close the sunroof.

1.5.4 Operation of Engine Hutch

ATTENTION

Risk of trapped limbs in electrical sunroof (e.g. engine hutch; hardtop)!

Button	Description/Function
	**Engine hutch open/shut** Use the arrow buttons to open or close the engine room roof.

2 Electrical Connections

2.1 Safety Instructions

DANGER 

Panel 306 is supplied with 230 V~ ± 5 %, 50/60 Hz line voltage.

– Potentially lethal voltages are therefore still present at some parts on the rear of this panel (input B16/FI) - even when the panel has been switched off at the residual current circuit breaker.

– Measurement and service work to panels 305/306 may only be performed by specially qualified personnel.

– Incorrect usage of panels 305/306 may cause serious or even lethal injuries and considerable damage to property.

– The safety instructions and hazard warnings in the boat manufacturer's operating manual take precedence when using panels 305/306.

– Observe the applicable accident prevention and DIN regulations (particularly DIN EN 60 204, Part 1) or the respective regulations in your country.

– Before performing any work, always switch off the residual current circuit breaker (FI) and the main switch of the consumer. For details about the installation position of the consumer main switch, please refer to the boat manufacturer's operating manual.

– Disconnect panel 306 from the power supply.

– Secure the panel to prevent unauthorized reconnection of the power supply. Touching live parts can lead to serious or lethal injuries.

2.2 Rear View of Panel 305

The connections can be found on the rear of the operating panel 305.

→ Loosen the 4 fastening screws at the front and carefully lift the panel out. Observe how the cables for the cable harness are run.

→ Make sure that you do not damage any of the electrical components on the printed circuit board.

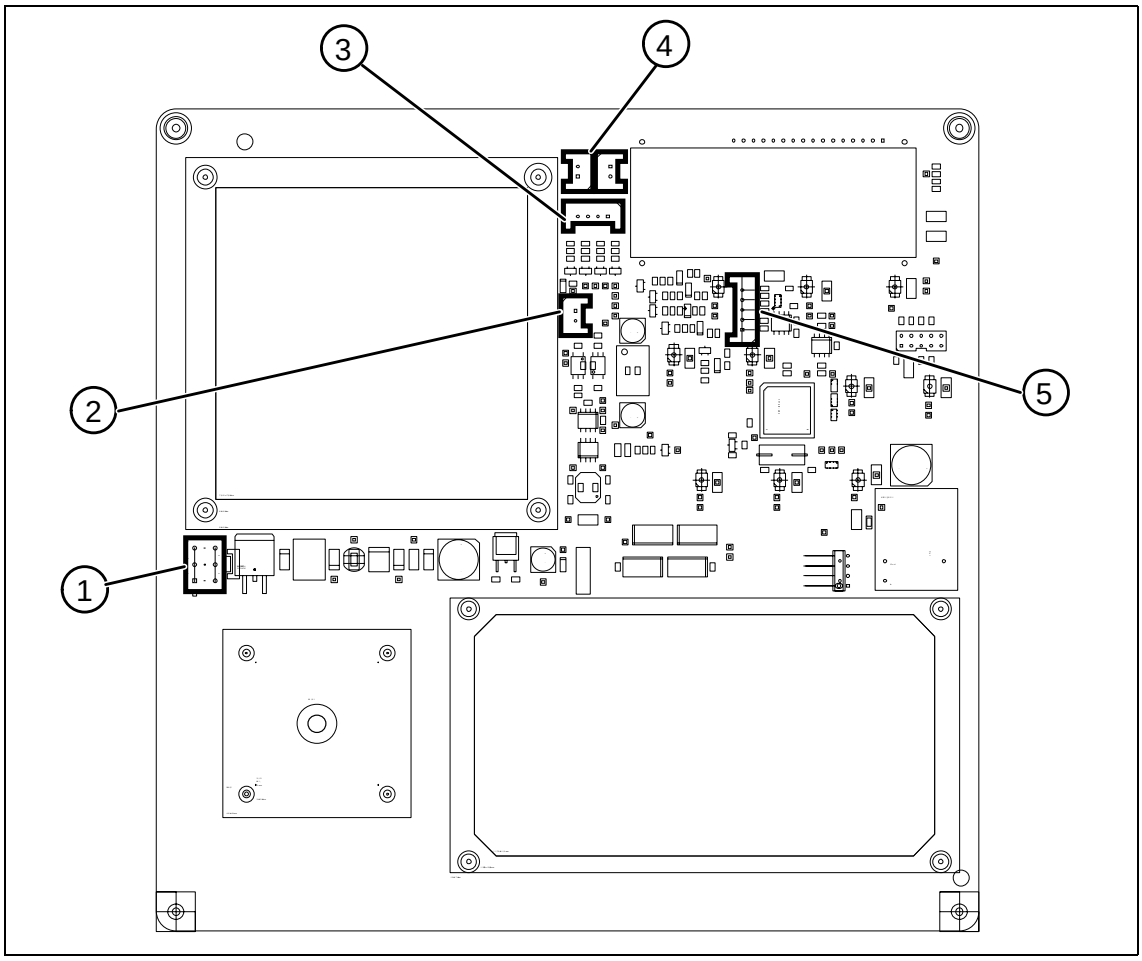


Fig. 8 Rear view of the panel 305 - terminal assignment

Key

(1) Connection to power unit

(2) Connection to charger

(3) Connection to 230VAC supply for panel 306

(4) Connection to waste tank (waste water tank)

(5) Connection to fresh water tank

2.2.1 Terminal Assignment

Pin	[1] Connection to power unit	Cable
1	+12 V battery	
2	Minus battery (GND	
4	CAN_LOW	
5	CAN_GND	
6	CAN_HIGH	

Connector	[2] Connection to charger	Cable
1	Charger, LED connection	
2	COM/GND	

Pin	[3] Connection to 230VAC panel 306	Cable
1	+12 V battery	
2	Minus battery (GND)	
3	Land connection - current	
4	Land connection - voltage	

Connector	[4] Connection to holding tank (waste water tank)	Cable
1	Waste tank 1 (waste water tank 1)	3/4
2	Waste tank 1 (waste water tank 1)	COM/GND
1	Waste tank 2 (waste water tank 2)	3/4
2	Waste tank 2 (waste water tank 2)	COM/GND

Connector	[5] Connection to fresh water tank	Cable
1	Tank	COM/GND
2	Tank	1/4
3	Tank	2/4
4	Tank	3/4
5	Tank	4/4

2.3 Rear View of Panel 306

DANGER

Panel 306 is supplied with 230 V~ ± 5 %, 50/60 Hz line voltage.

– Observe the safety instructions in Section „Safety Instructions“ auf Seite 20.

2.3.1 Terminal Assignment

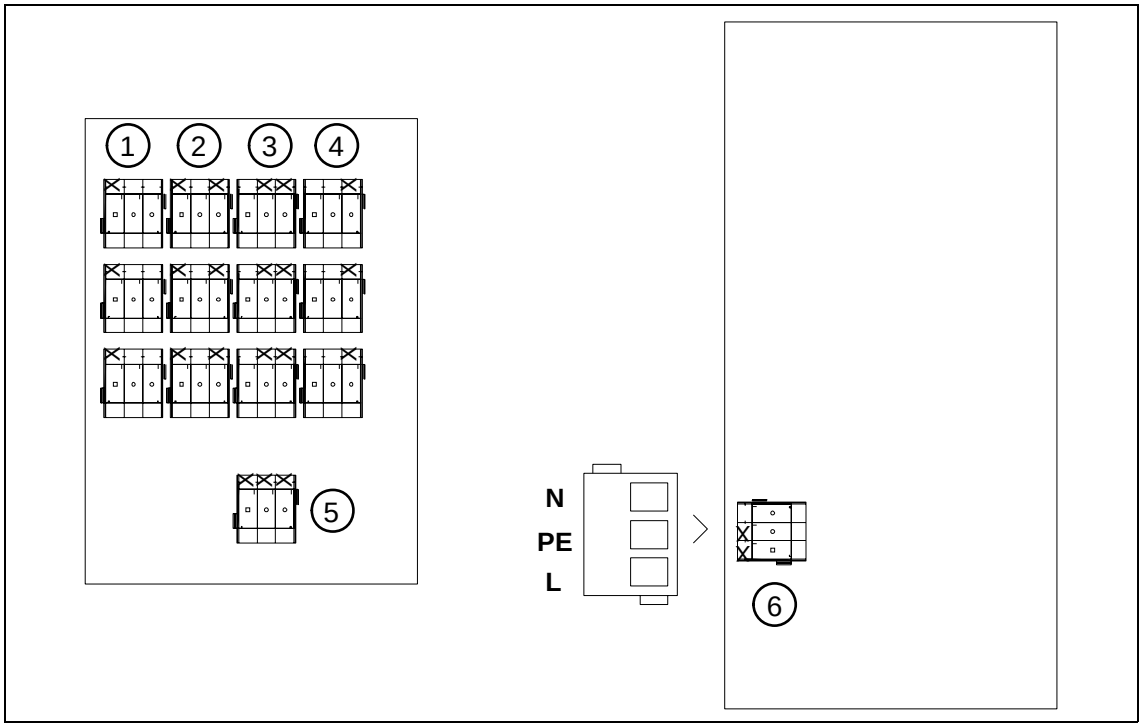


Fig. 9 Rear view of the panel 306 - terminal assignment

Key

(1) 3 x cooking
(2) WC socket + reserve
(3) TV / air conditioning + reserve
(4) Charger / sockets for kitchen + reserve
(5) 1 x Boiler
(6) Land connection

NOTE:
The protective earth conductor (PE) must be attached to the middle pin.

From	To	Color	Cable	Voltage
Land connection socket	Terminal (6)	brown/gnye/blue	1.0	220 V in
Generator (optional)	Distributor switch	brown/gnye/blue	1.1	220 V in
Terminal (5)	Boiler	brown/gnye/blue	2	220 V out
Terminals (1)	Stove	brown/gnye/blue	3	220 V out
Terminals (1)	Microwave (optional)	brown/gnye/blue	4	220 V out
Terminals (1)	Cockpit grill (optional)	brown/gnye/blue	5	220 V out
Terminals (4)	Charger	brown/gnye/blue	6	220 V out
Terminals (4)	Kitchen socket	brown/gnye/blue	7	220 V out
Terminals (2)	WC socket, bow	brown/gnye/blue	8.1	220 V out
Terminals (2)	WC socket, stern	brown/gnye/blue	8.0	220 V out
Terminals (3)	TV (optional)	brown/gnye/blue	9	220 V out
Terminals (3)	Air conditioning (optional)	brown/gnye/blue	11	220 V out

2.4 Overview of Power Unit

2.4.1 Connector Assignment on Power Unit

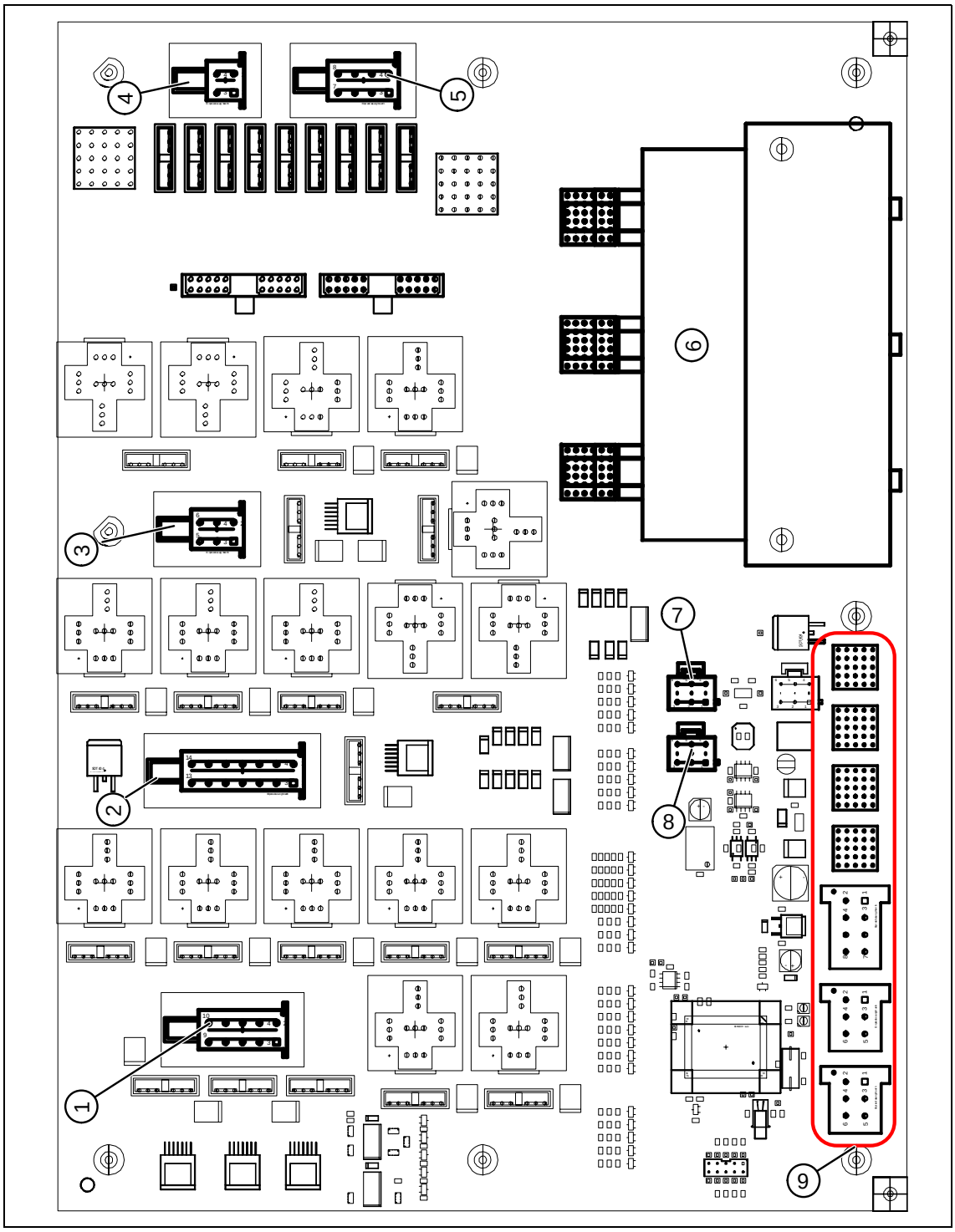


Fig. 10 Overview of power unit - connector assignment

Legend for Fig. 10 "Overview of power unit - connector assignment"

(1) Connector for bow

(2) Connector for deck

(3) Connector for stern

(4) 4 pin connection for unswitched consumers

(5) 8 pin connection for unswitched consumers

(6) Relay box for windlass

(7) Connection to operating panel 305

(8) Connection to cockpit panel

(9) Ground connectors 1 to 3 for distribution of negative for battery

Connector	[1] Connector for bow	Cable	Voltage
2.1	Relax windlass up/down	Black	12V
2.2	Reserve F1	--	--
2.3	Relax windlass up/down	Black	12V
2.4	Radio	Black	12V
2.5	Navigation instrument	Black	12V
2.6	Fridge(s)	Black	12V
2.7	Heating (control lead)	Black	12V
2.8	Windscreen wipers	Black	12V
2.9	Fresh water	Black	12V
2.10	Inside lighting	Black	12V

Connector	[2] Connector for deck	Cable	Voltage
1.1	Do not use - assigned internally.	--	--
1.2	Anchor light	Black	12V
1.3	Do not use - assigned internally.	--	--
1.4	Sunroof open/shut	Black	12V
1.5	Do not use - assigned internally.	--	--
1.6	Cockpit lighting	Black	12V
1.7	Do not use - assigned internally.	--	--
1.8	Sunroof open/shut	Black	12V
1.9	Do not use - assigned internally.	--	--
1.10	Position lamp starboard	Black	12V
1.11	Do not use - assigned internally.	--	--
1.12	Position lamp port	Black	12V

Connector	[2] Connector for deck	Cable	Voltage
1.13	Do not use - assigned internally.	--	--
1.14	Horn	Black	12V

Connector	[3] Connector for stern	Cable	Voltage
3.1	Engine room lighting	Black	12V
3.2	Bilge pump	Black	12V
3.3	Reserve F2	--	--
3.4	Engine room fan	Black	12V
3.5	Engine hutch open/shut	Black	12V
3.6	Engine hutch open/shut	Black	12V

Connector	[4] 4 pin connector for unswitched consumers	Cable	Voltage
4.1	--	--	--
4.2	--	--	--
4.3	QL trim panel	Red	12V
4.4	Heating overrun	Red	12V

Connector	[5] 8 pin connector for unswitched consumers		Voltage
5.1	Electrical WC flush (only for boats of type "42 Sport/HT")	Black	12V
5.2	Electrical WC flush (only for boats of type "42 Sport/HT")	Black	12V
5.3	--	--	--
5.4	--	--	--
5.5	--	--	--
5.6	--	--	--
5.7	TV amplifier	Black	12V
5.8	Shower pump	Black	12V

The windlass relay box has various features and can be installed in various positions, according to the type of boat you have.

Boat type	[6] Windlass relay box	Special features
BMB 27 Sport	12V / 500W / fuse 70A	None
BMB 30 Sport	12V / 800W / fuse 70A	None
BMB 32 Sport/HT	12V / 800W / fuse 70A	None

Boat type	[6] Windlass relay box	Special features
BMB 35 Sport/HT	12V / 800W / fuse 70A	The relay box is installed in the underseat installation box of the stern cabin (port).
BMB 38 Sport/HT	12V / 800W / fuse 70A	The relay box is installed in the underseat installation box of the stern cabin (port).
BMB 42 Sport/HT	12V / 1,000W / fuse 70A	Relay installed on the windlass

Connector	[9] Ground connector 1 to 3	Cable	Voltage
6 pin	Ground connector 1	Blue	12V
6 pin	Ground connector 3	Blue	12V
8 pin	Ground connector 2	Blue	12V
Connection	**Negative distribution battery**	**Cable**	**Voltage**
M8	Negative, consumer battery	Blue	12V
M8	Negative from charger	Blue	12V

2.4.2 Micro Fuses on Power Unit

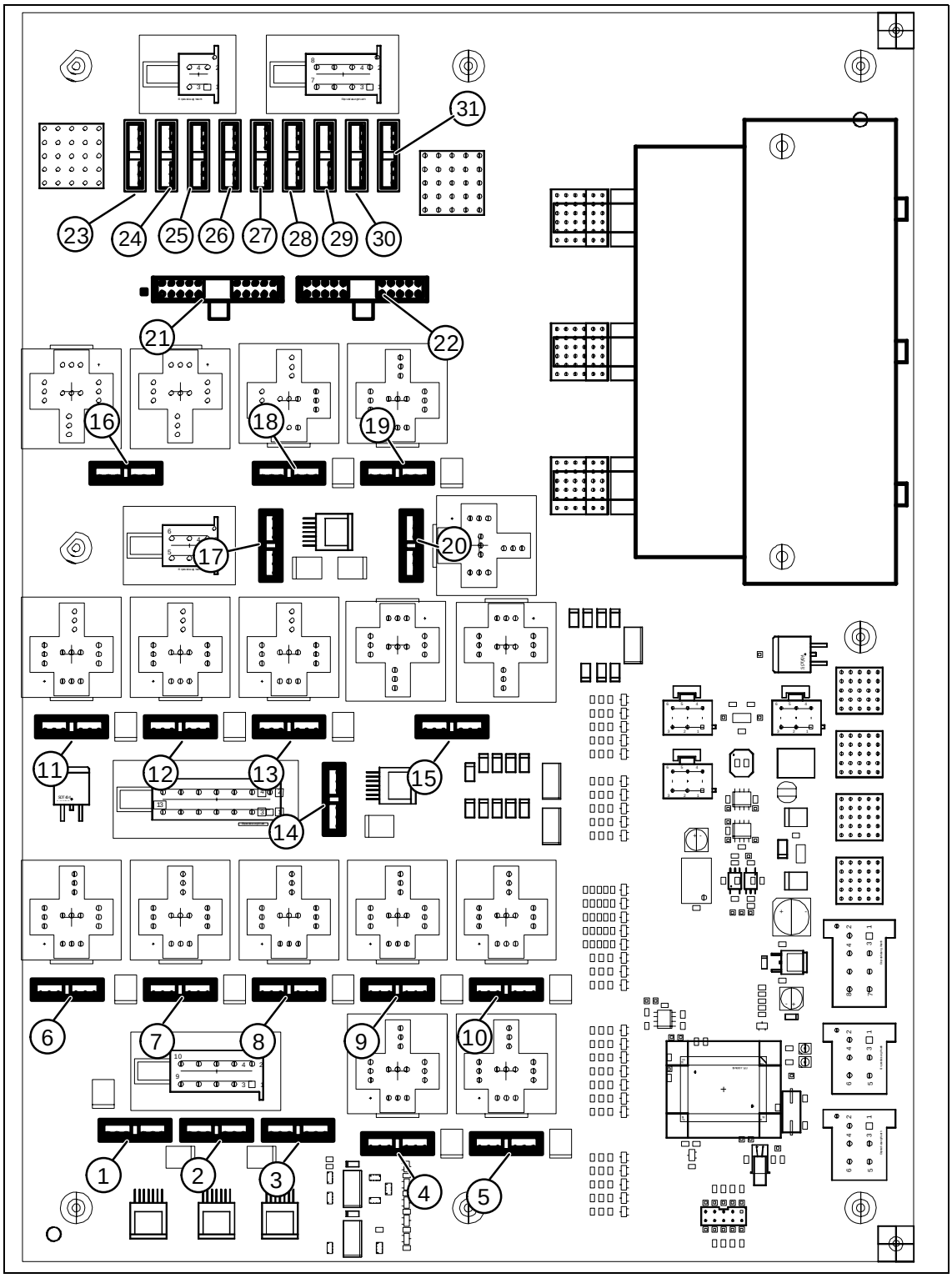


Fig. 11 *Overview of power unit - micro fuses*

Legend for Fig. 11 "Overview of power unit - micro fuses"

(1) Fresh water pump (10A)

(2) Heating (control lead)

(3) Navigation instruments (7.5A)

(4) Windlass "down" (5A)

(5) Windlass "up" (5A)

(6) Inside lighting (15A)

(7) Windscreen wipers (10A)

(8) Fridge (15A)

(9) Radio (10A)

(10) Reserve F1 (10A)

(11) Horn (20A)

(12) Navigation lighting (7.5A)

(13) Cockpit lighting (10A)

(14) Anchor light (5A)

(15) Sun roof (15A)

(16) Engine room roof (15A) (electronic control)

(17) Engine room lighting (5A)

(18) Engine room fan (15A)

(19) Bilge pump (10A)

(20) Reserve F2 (10A)

(21) Main fuse - board power supply (70A)

(22) Fuse - windlass

– For boats of type BMB 27/30 Sport/HT (70A)

– For boats of type BMB 32 Sport/HT (70A)

– For boats of type BMB 42 Sport/HT (70A)

– For boats of type BMB 35 Sport/HT (on the relay box - 70A)

– For boats of type BMB 38 Sport/HT (on the relay box - 70A)

(23) Heating - main cable (20A)

(24) QL trim panel (7.5A)

(25) Reserve

(26) Reserve

(27) Shower pump (10A)

(28) TV amplifier (7.5A)

(29) Reserve

(30) Reserve

(31) Reserve

– Only for boats of type "42 Sport/HT"
  => electrical WC flush (20A)

– The automatic circuit breaker (7.5A) for the **QL trim panel** is located under the flap at the helmstand (with the relay for the external accessories).

2.5 Circuit Diagram

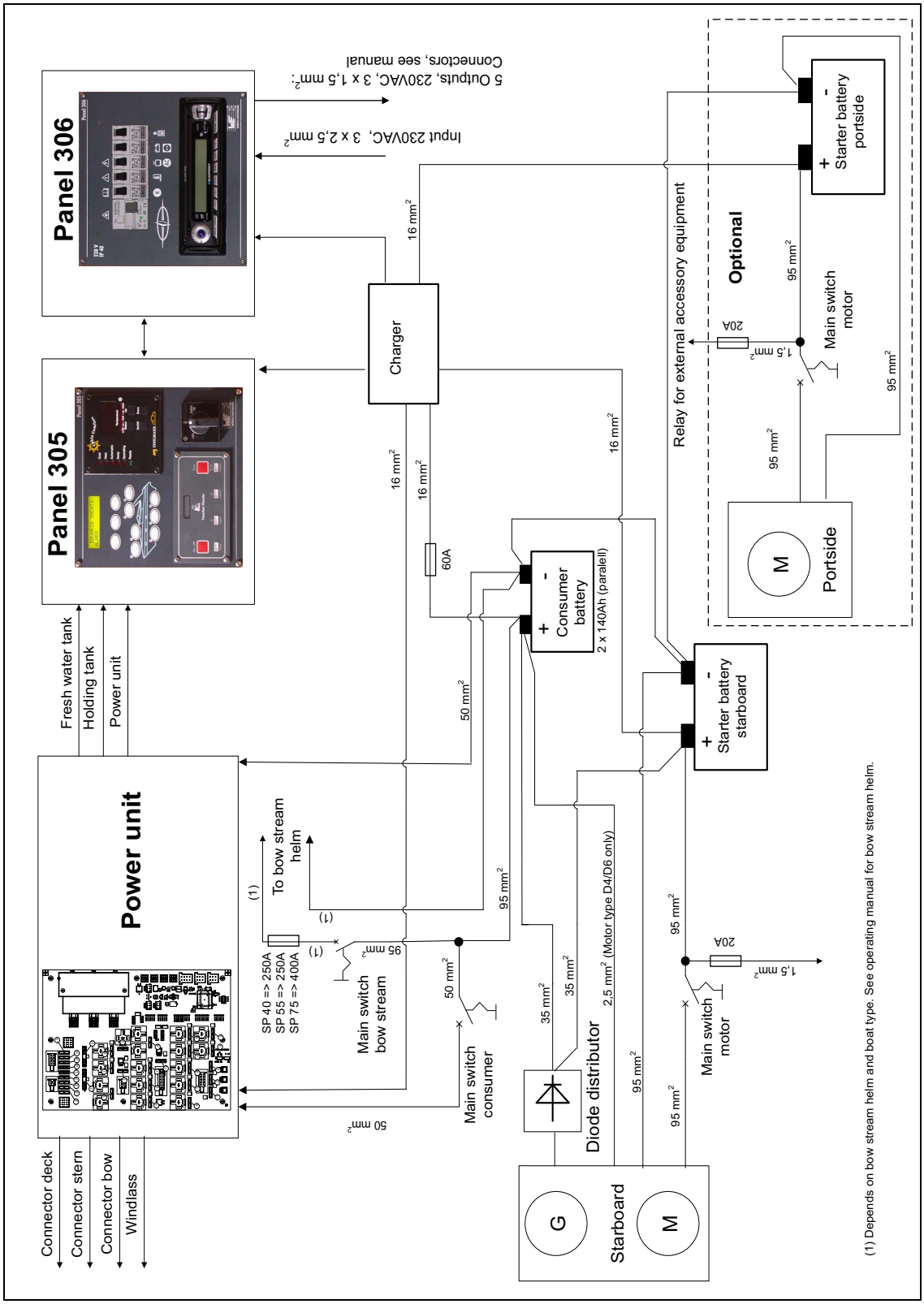


Fig. 12 Circuit diagram 305/306

2.5.1 Circuit Diagram Cables

From	To	Color	Cross-section	Voltage
Starter battery, starboard +	Main switch, engine, starboard	Red	95 mm^2	12V
Main switch, engine, starboard	Engine, starboard +	Black	95 mm^2	12V
Starter battery, starboard -	Engine, starboard -	Blue	95 mm^2	--
Starter battery, port side +	Main switch, engine, port side	Red	95 mm^2	12V
Main switch, engine, port side	Engine, port side+	Black	95 mm^2	12V
Starter battery, port side -	Engine, port side -	Blue	95 mm^2	--
Consumer battery +	Main switch bow stream helm	Red	95 mm^2	12V
Main switch, consumer	Power unit 12V	Black	50 mm^2	12V
Consumer battery -	Power unit 12V	Blue	50 mm^2	--
Main switch bow stream helm	Main switch, consumer	Red	50 mm^2	12V
Main switch bow stream helm	Fuse, bow stream helm	Black	(1)	12V
Fuse, bow stream helm	Engine, bow stream helm	(1)	(1)	12V
Consumer battery -	Engine, bow stream helm	Blue	(1)	--
Main switch, consumer	Main switch, generator	Red	35 mm^2	12V
Main switch, generator	Generator +	Black	35 mm^2	12V
Consumer battery -	Generator -	Blue	35 mm^2	--
Generator	Diode distributor	Red	35 mm^2	12V
Diode distributor	Consumer battery	Red	35 mm^2	12V
Diode distributor	Starter battery	Red	35 mm^2	12V
Generator	Consumer battery (only for boats of type D4/D6)	Yellow	2.5 mm^2	--
Charger	Power unit	Blue	16 mm^2	12V
Charger	Consumer battery	Red	16 mm^2	12V
Charger	Starter battery, starboard +	Red	16 mm^2	12V
Charger	Starter battery, port +	Black	16 mm^2	12V

2.5.2 Other Cables

Cable	From	To	Color	Voltage
6	Tank sensor fuel	Tank display	Brown	12V
--	Main switch, engine, starboard	Relay ext. Accessories	Green	12V
--	Main switch, engine, port	Relay ext. Accessories	Red	12V
11	Relay ext., accessories	Fuel valve	Brown	12V
12	Relay ext., accessories	Fuel valve	Brown	12V