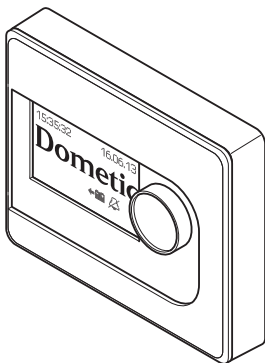


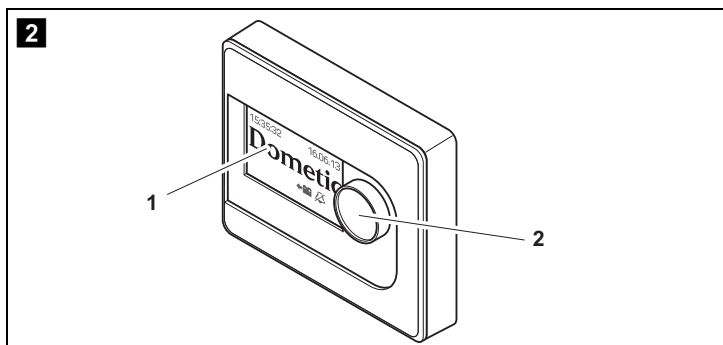
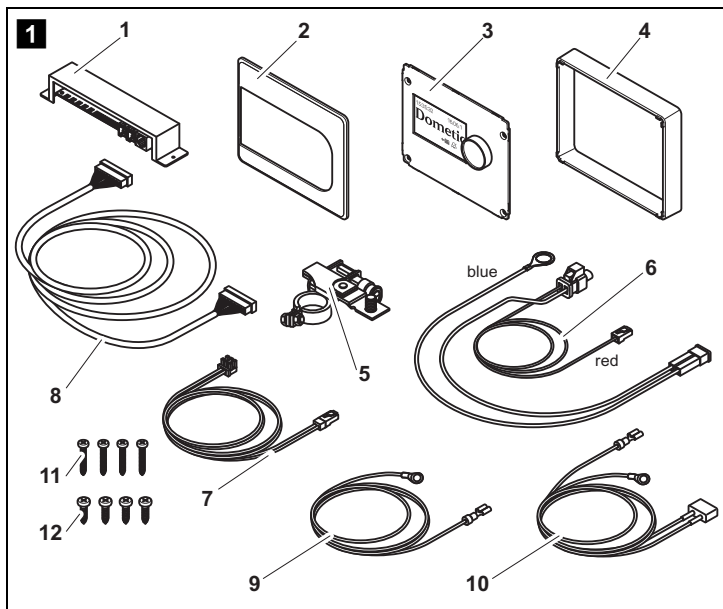
WAECO

by Dometic GROUP

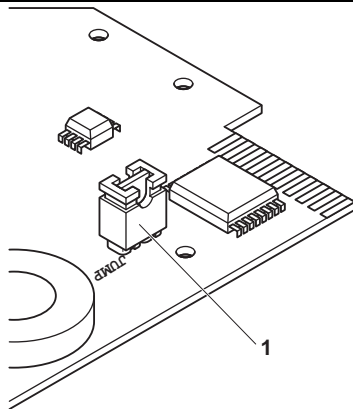


PerfectControl MPC01

EN Battery Management System Installation and Operating Manual

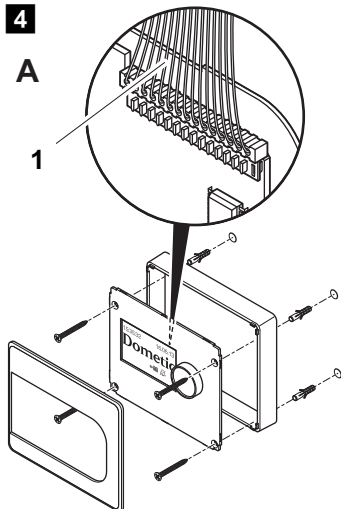


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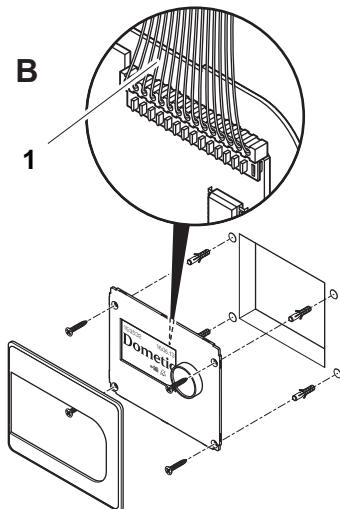


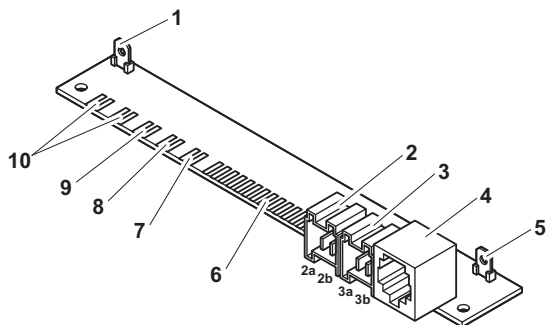
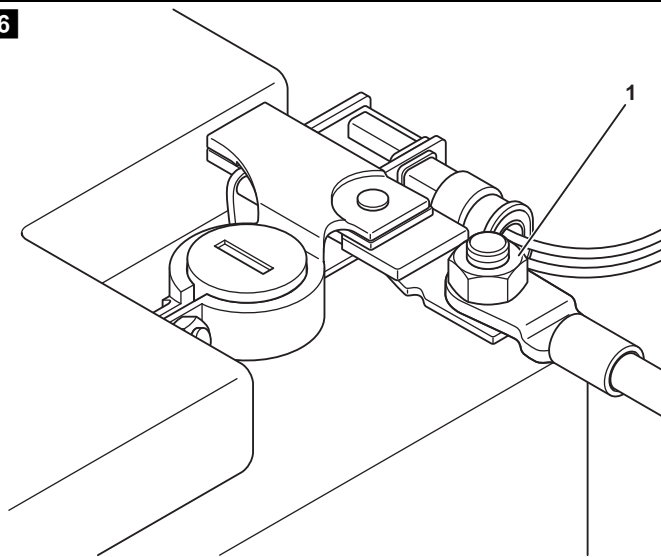
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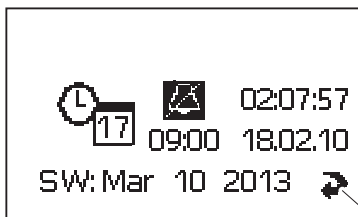


B



5**6**

7



1

8



2

1

Please read this instruction manual carefully before installation and first use, and store it in a safe place. If you pass on the product to another person, hand over this instruction manual along with it.

Contents

1	Explanation of symbols	6
2	Safety instructions	7
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1 Explanation of symbols



WARNING!

Safety instruction: Failure to observe this instruction can cause fatal or serious injury.



CAUTION!

Safety instruction: Failure to observe this instruction can lead to injury.



NOTICE!

Failure to observe this instruction can cause material damage and impair the function of the product.



NOTE

Supplementary information for operating the product.

2 Safety instructions

The manufacturer accepts no liability for damage in the following cases:

- Damage to the product resulting from mechanical influences and excess voltage
- Alterations to the product without express permission from the manufacturer
- Use for purposes other than those described in the operating manual

Please observe the following basic safety information when using electrical devices to prevent:

- Electric shock
- Fire hazards
- Injury



WARNING!

- **Electrical devices are not toys!**

Always keep and use the device out of the reach of children.

- People (including children) whose physical, sensory or mental capacities or whose lack of experience or knowledge prevent them from using this product safely should not use it without the supervision or instruction of a responsible person.
- Only use the device as intended.
- Make sure that the lead has a sufficient cross-section.
- Lay the cables so that they cannot be damaged by the doors or the bonnet. Crushed cables can lead to serious injury.



CAUTION!

- Lay the cables so that they cannot be tripped over or damaged.
- Do not operate the device
 - In salty, wet or damp environments
 - In the vicinity of corrosive fumes
 - In areas where there is a danger of explosions.
- Always disconnect the power supply when working on the device.
- Please observe that parts of the device may still conduct voltage even if the fuse has blown.
- Do not disconnect any cables when the device is still in use.



NOTICE!

- Use ductwork or cable ducts if it is necessary to lay cables through metal panels or other panels with sharp edges.
- Do **not** lay the cable so that it is loose or heavily kinked.
- Fasten the cables securely.
- Do not pull on the cables.

3 Scope of delivery

No. in fig. 1, page 2	Quantity	Designation
1	1	MPC01 CI (caravan industry) bus interface board
2	1	Cover frame
3	1	Display
4	1	Assembly frame
5	1	Battery sensor (MCA-HS1 Hella sensor)
6	1	Battery sensor connection cable (red and blue wire)
7	1	Battery charger connection cable
8	1	Control cable (black)
9	1	Control cable connected mass (black)
10	1	Control cable positive pole (red)
11	4	Screw, long
12	4	Screw, short

4 Accessories

Available as accessories for extra battery connection
(not included in the scope of delivery):

Designation	Item no.
Battery sensor, MCA-HS1 Hella sensor	9102500038

5 Intended use

Dometic MPC01 (item no. 9102500073) is a battery management system which allows the battery charge status of several batteries to be monitored. MPC01 may only be operated with WAECO PerfectCharge MCA chargers.

The device is designed for use in caravans and boats.

6 Technical description

6.1 Function

The current status information for each battery connected via a battery sensor appears on the display: current, voltage, temperature, remaining charge time and remaining capacity (in %) of all batteries connected.

Included with the MPC01 is **one** battery sensor for connecting **one** battery. To connect more batteries you need additional battery sensors (item no. 9102500038) (accessories).

MPC01 enables the charge status of the starter battery and up to three supply batteries to be monitored. To do so, the battery sensors are connected to the negative pole of the batteries. The information read out from them is transmitted to the display via the CI bus interface. The battery sensors measure the voltage, current and temperature of the connected battery. Along with the battery sensor supplied, up to three more battery sensors (accessories) can be connected.

MPC01 features three programmable outputs for switching off consumers should the battery capacity be too low (battery monitor function).

The battery charger is connected to the display via the CI bus interface.

MPC01 features a display mode, and a stand-by mode which is activated after a preset interval.

A programmable alarm function reminds the user of the preset time.

A jumper allows the operating mode to be changed from "caravan" to "boat".

6.2 Display and control elements

No. in fig. 2 , page 2	Designation	Explanation
1	Display	Shows values
2	Selector button	Turn: Navigate through menus or change values Press: Select menu items or values

7 Connecting and installing MPC01

7.1 Notes on installation

When selecting the installation location for the display and adapter board, observe the following instructions:

- The device must be installed in a location that is protected from moisture.
- Do not install the device in a dusty environment.
- The device must be installed on a level and sufficiently sturdy surface.
- Ensure the control cable is 6 m long.
- Install the adapter board in a well-protected location, close to the batteries if possible, to ensure no objects can touch the connection cable and cause it to tear.

7.2 Changing the operating mode

The operating mode is set using the jumper (fig. **3** 1, page 3). The jumper is already plugged in when the device is delivered, and set to the “caravan” operating mode.

- To set the “boat” operating mode: Remove the jumper (fig. **3** 1, page 3).

7.3 Connecting and installing the display

You can install the MPC01 on the wall or in the wall. For installation on the wall, the control cable can either be guided through the wall or affixed on the wall.

Installing the display on a wall (fig. **4** A, page 3)

- Plug the control cable (1) into the connection on the display.
- Guide the control cable through the slot in the installation frame.
- Place the display in the installation frame.
- Affix the installation frame and display insert onto a suitable part of the wall using the four long screws supplied.
- Attach the cover frame so that it latches into place.

Installing the display in a wall (fig. **4** A, page 3)

- Prepare a recess in the wall measuring 11 x 9.9 cm and which is 2.5 cm in depth.
- Plug the control cable (fig. **1** 8, page 2) into the connection on the display.
- Affix the display (fig. **1** 3, page 2) using the four short screws supplied (fig. **1** 12, page 2).
- Attach the cover frame (fig. **1** 2, page 2) so that it latches into place.

7.4 Connecting and installing the CI bus interface board

- Screw the cover and the adapter board in place at a suitable location using two screws.
- Secure the connected cables using suitable fittings, e.g. cable clamps, to ensure the plug cannot be torn from the circuit board.



NOTE

- Supply battery A must be connected to the IBS-B2A connection for the MPC01 to be able to display data.
- Up to three supply batteries (IBS_B2A, IBS_B2B and IBS_B2C) and a starter battery (IBS_B1) can be connected.

- Depending on the number of supply batteries connected, assign the connections as follows:
 - Connecting **one** supply battery: IBS_B2A (fig. 5 10, page 4)
 - Connecting **two** supply batteries: IBS_B2A (fig. 5 10, page 4) and IBS_B2B (fig. 5 7, page 4)
 - Connecting **three** supply batteries: IBS_B2A (fig. 5 10, page 4), IBS_B2B (fig. 5 7, page 4) and IBS_B2C (fig. 5 9, page 4)
- Connect the connection cables as follows:

No. in fig. 5, page 4	Designation	Explanation
1	OUT 1	Switchable output 1 for consumer units
2	OUT 3	Switchable output 3 for consumer units
		2a: +12 V
		2b: connected mass
3		Voltage supply connection
		3a: +12 V
		3b: connected mass
4		Connection for MSI series inverters
5	OUT 2	Switchable output 2 for consumer units
6		Connection for display panel (MPC01)
7	IBS_B2B	Connection for supply battery B
8	IBS_B1	Connection for starter battery
9	IBS_B2C	Connection for supply battery C
10	IBS_B2A CI bus	Connection for supply battery A and MCA battery charger unit

Connecting the battery sensor

In “boat” and “caravan” operating modes, the supply batteries A, B and C can be connected in addition to the starter battery.

In “boat” operating mode, the battery connection IBS_B2C is not factored into the calculation of the total current and voltage shown in “Supply batteries overview”.

- Connect the battery sensor connection cable (fig. **1** 6, page 2) to the battery sensor (fig. **1** 5, page 2).
- Connect the battery sensor to the negative pole of the battery.
- Clamp the blue cable of the connection cable of the battery sensor (fig. **1** 6, page 2) onto the positive pole of the battery (voltage supply).
- Plug the red cable with the white plug connection onto the corresponding CI bus connection on the adapter board (fig. **5** 6–10, page 4).

Calibrating the battery sensor



NOTE

The battery sensor has to be calibrated anew, if

- the battery sensor is disconnected
- the battery sensor's power supply is disconnected

To calibrate the sensor to the charge level of the connected battery, proceed as follows:

- Connect a high current load (20 – 30 A) to the battery for a time of 3 to 5 minutes.
- Repeat this 2 or 3 times.
- Disconnect the load.
- Allow the battery sensor some time to calibrate itself (battery current < 100 mA)



NOTE

The battery sensor requires a rest period of approximately 8 hours for calibration.

If you want to reset the calibration data of the sensor, disconnect the sensor's power supply.

Connecting the MPC01 to the battery terminal

- Plug the cable lug end of the red cable (fig. **1** 10, page 2) onto the **left** contact of the voltage supply connection of the adapter board (fig. **5** 3a, page 4).
- Connect the end of the red cable with the round cable lug to the positive battery pole.
- Plug the cable lug end of the black cable (fig. **1** 9, page 2) onto the **right** contact of the voltage supply connection of the adapter board (fig. **5** 3b, page 4).
- Connect the cable lug eye of the black cable to the consumer unit connection contact of the battery sensor on a negative battery pole (fig. **6** 1, page 4).

Connecting power consuming devices to the battery sensor

- Always connect the negative pole of the power consuming devices to the correct connection on the battery sensor (fig. **6** 1, page 4).

8 Operating the MPC01

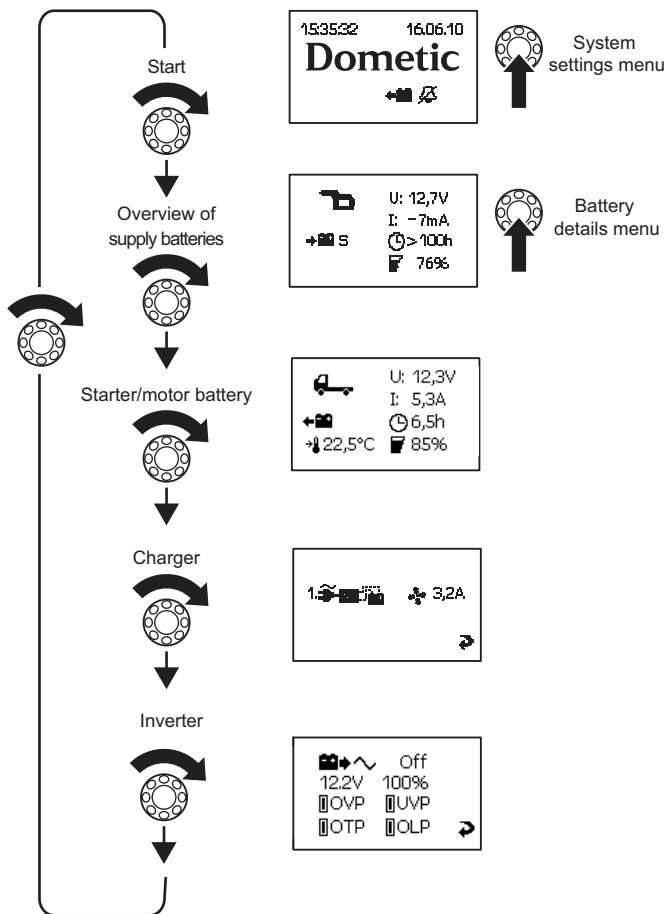
Navigating within the menu

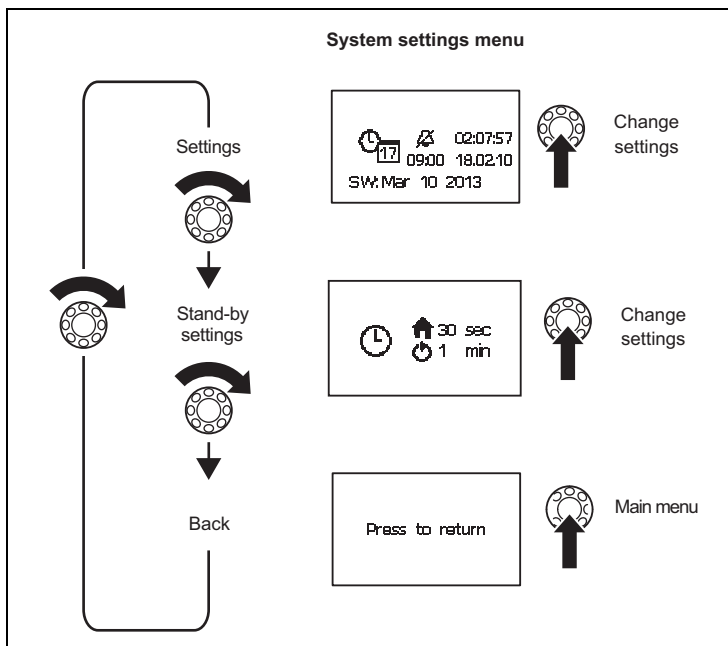
Navigate through the menus as follows:

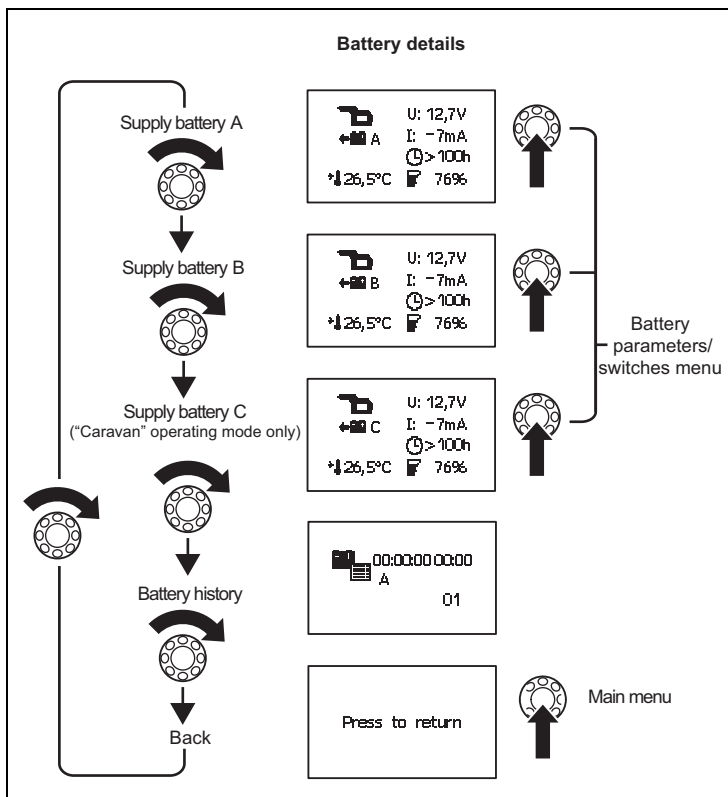
- Turn the selector button (fig. **2** 2, page 2) to scroll through the individual pages in the menu or through the items appearing on one page of the menu.
- Press the selector button to access the sub-menus or change mode.
- Turn the selector button until the message "Press to return" appears and then press the selector button.
- ✓ This will return you to the "Main menu".

The following four figures show how you can navigate within the menu.

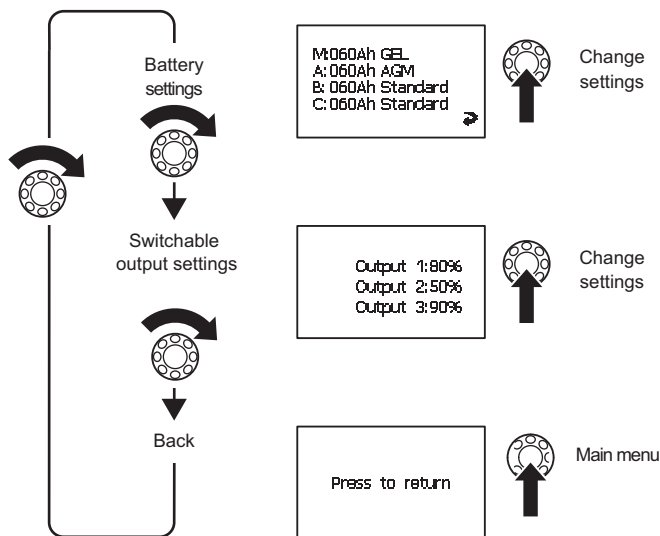
Main menu







Battery parameters/switches menu



Display symbols

Symbol	Explanation
	Caravan starter battery
	Caravan supply battery
	Boat starter battery
	Boat supply battery

Symbol	Explanation
	Battery is charging
	Battery is being discharged by the consumer units connected
S	Summary of all battery values
A	Supply battery A
B	Supply battery B
C	Supply battery C
M	Starter battery
U	Operating voltage
I	Operating current Positive value: Battery is charging Negative value: Battery is discharging
	Fan activated
	Charger 1 connected
	Battery history
	When battery is charging: remaining charge time When battery is discharging: remaining usage time
	Charge capacity in percent
	Battery temperature. This is only shown on the “Detailed view” menu pages for the individual batteries.
	Date, Time, Alarm
	Alarm On
	Alarm Off

Changing values

- Press the selector button so the value can be changed.
- Turn the selector button to set the required value.
- Press the selector button to save the value.

When values are being changed, an arrow appears (fig. **7** 1, page 5).

- Turn the selector button to mark the arrow.
- Press the selector button to exit setting mode.
- Turn the selector button until the message “Press to return” appears and then press the selector button.
- ✓ This will return you to the “Main menu”.

Changing system settings

- Navigate to the “System settings” menu page (page 15), see chapter “Navigating within the menu” on page 13. Set the values for:
 - Date and time
 - Alarm
- Press the selector button.
- Turn the selector button to access the relevant parameter.
- Press the selector button and turn it to set the required value.
- Confirm the value by pressing the selector button.

Setting time intervals

- Navigate to the “Stand-by settings” menu page (page 15), see chapter “Navigating within the menu” on page 13.

Set the interval after which the main menu should appear automatically (fig. **8** 1, page 5) or after which the MPC01 should switch to stand-by mode (fig. **8** 2, page 5). You can choose between the following intervals: 30 sec, 1 min, 2 min, 10 min, “---” (continuous).

- Set the required value, see chapter “Changing values” on page 19.

Reading battery values

- Navigate to the menu page for the battery required, see chapter “Navigating within the menu” on page 13.



NOTE

The “Overview of supply batteries” menu page displays an average value for all supply batteries. The values of the starter battery (IBS_B1 connection) are not taken into consideration on this menu page. They are displayed on the “Starter battery” menu page.

Changing the settings for batteries A, B and C

- Navigate to the “Battery details” menu (page 16), see chapter “Navigating within the menu” on page 13.
- Navigate to the menu page for the battery required.
- Press the selector button to access setting mode.
- Turn the selector button to mark the value to change.
- Set the required value, see chapter “Changing values” on page 19.

Programming the switchable outputs

You can define the switch points for switchable outputs 1–3 on the adapter board (fig. **5** 1, 2, 5, page 4). The set value (10 % – 90 %) is the total capacity of all batteries connected. If the value for the current total capacity is **greater than** the set value, then the output is switched to earth. If the value for the current total capacity is **less than** the set value, then the output is not connected to earth.

- Navigate to the “Switchable output settings” menu page (page 17), see chapter “Navigating within the menu” on page 13.
- Press the selector button to access setting mode.
- Turn the selector button to mark the value to change.
- Set the required value, see chapter “Changing values” on page 19.

Reading charger information and changing settings

- Navigate to the “Charger” menu page (page 14), see chapter “Navigating within the menu” on page 13.
- Press the selector button to access setting mode.
- Turn the selector button to mark the value to change.
- Set the required value, see chapter “Changing values” on page 19.

Reading inverter information

- Navigate to the “Inverter” menu page (page 14), see chapter “Navigating within the menu” on page 13.

Viewing battery history



NOTE

An entry is only generated, if the battery is discharged to less than 5 % (deep discharge) and afterwards charged to more than 95 % capacity (full charge).

The menu page shows the date and time of battery charging and discharging processes. Up to 50 entries are saved.

- Navigate to the “Battery history” menu page (page 16), see chapter “Navigating within the menu” on page 13.

9 Guarantee

The statutory warranty period applies. If the product is defective, please contact the manufacturer's branch in your country (see the back of the instruction manual for the addresses) or your retailer.

For repair and guarantee processing, please send the following items:

- Defect components
- A copy of the receipt with purchasing date
- A reason for the claim or description of the fault

10 Disposal

- Place the packaging material in the appropriate recycling waste bins wherever possible.



If you wish to finally dispose of the product, ask your local recycling centre or specialist dealer for details about how to do this in accordance with the applicable disposal regulations.

11 Technical data

	MPC01
Item no.:	9102500073
Input voltage:	8 – 30 V ₌₌₌
Power consumption:	150 mA in display mode, 10 mA in standby mode
Display dimensions (W x H x D):	130 x 115 x 6 mm
Installation frame dimensions (W x H x D):	150 x 136 x 16 mm
Certification:	  

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