PC-200T 4t IH / DS-520AN

GB

MAIN PARTS OF THE ELECTRICAL SYSTEM

- CONTROL PANEL - “PC-200T 4t IH” mains’ control, battery test, tank test, temperature test and clock function.
- 12V DISTRIBUTION BOX “DS-520AN“ - main relais, battery parallel relais (12V - 70A), fridge relais, pump relais, car battery recharging device, amperemeter, protection fuses.
- BATTERY CHARGER - buffer-system battery charger.
- ELECTRONIC TANK PROBE - it measures the content of the water tanks, visualization in “%”.
- TANK PROBE WITH SCREWS “SS/P” - signalization of full waste water tank
- LEISURE BATTERY “B2” - it gives power to all the users
- CAR BATTERY “B1”
- ENGINE ALTERNATOR - it recharges in parallel both the car and the leisure battery
- 230V CUT-OUT board - it powers and protects all the 230V users
- “50A”CAR (B1) AND LEISURE (B2) BATTERY PROTECTION FUSES

ENGLISH

ADVICE AND CHECKS

IMPORTANT
- Maintenance interventions on the electric plant shall be carried out by specialized personnel.
- Before carrying out maintenances works disconnect the battery and the power supply line.

BATTERIES
- Read with care the maintenance and use instructions provided by the manufacturer.
- The acid kept in the batteries is poisoning and corrosive. Avoid any contact with skin and eyes.
- If the battery is completely discharged it needs recharging for almost 10 hours. If discharged for more than 8 weeks it may be damaged.
- Check periodically the level of the liquid of the battery (with acid); the GEL battery does not need any maintenance but a countinuous recharging.
- Check the correct tightening of the connection binding screw and brush off the oxyde.
- If the leisure battery is removed, isolate the positive pole (in order to avoid short-circuits during an accidental car engine starting).
- In case of a longer stop the services battery has to be connected or recharged regularly.

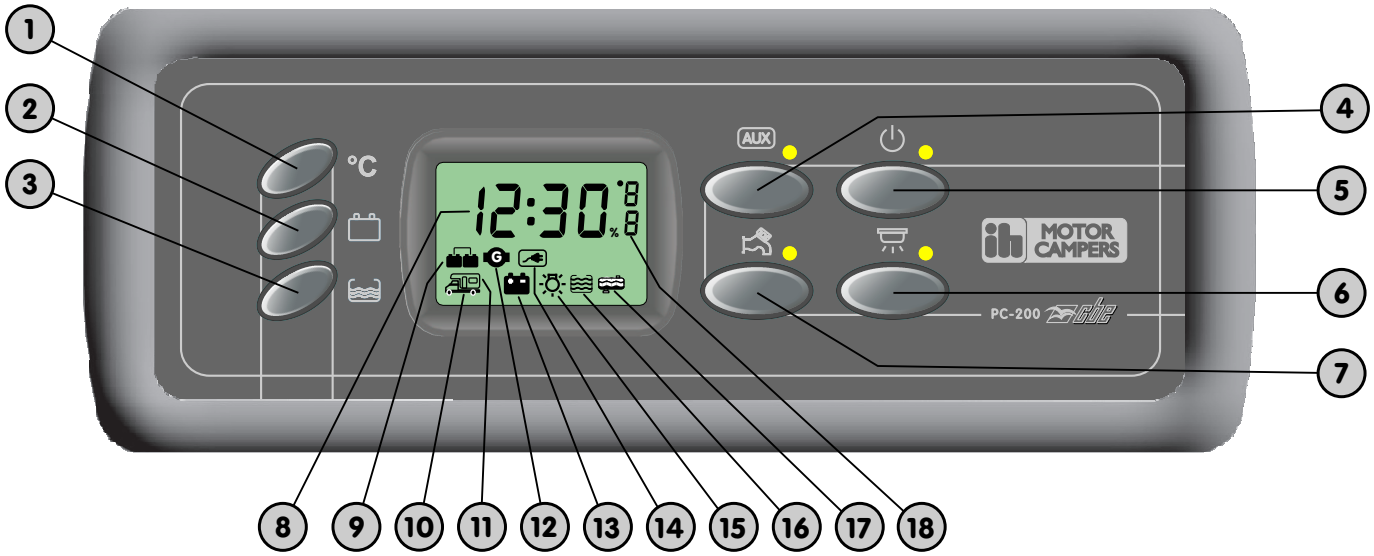
BATTERY CHARGER
- The battery charger must be installed in a dry and ventilated place.
- This device shall be installed by specialized technicians only.
- In the event of battery charger’s misuse, the guarantee shall no longer be valid and the manufacturer declines all responsibility for damages to people and things.
- Do not carry out any maintenance when the battery charger is connected to the 230V power supply net.
- Do not cover air intakes and assure an appropriate ventilation.
- Before disconnecting the battery charger from 230V power supply, turn the safety switch off.

TANK PROBES
- Never let water in the tanks for long time, in order to avoid foulings, especially in the waste water tank.

230V CUT-OUT BOX
- Before taking away the cover, check if the 230V socket is disconnected.
- In order to avoid any damage to the box, check the correct tightening of the connections.
- In order to cut power to the whole 230V system, please take care that the 230V main switch must be on the “0” (OFF) position.
- Connect and disconnect the external 230V net only when the main switch is off.
- In case of automatic switch break, find the damage before giving power again to the electrical system.

FUSES
- Replace the fuses only after finding out the real cause of the damage only.
- If the fuses are replaced observe the value of the amperage established.

CONTROL PANEL “PC-200T 4t IH”



CAPTIONS

1) Test button to check both internal and external temperature and to set the clock.

2) Test button to check the voltage of the leisure battery (B2) and car battery (B1), to check charge and discharge currents of leisure battery and to set the clock.

3) Test button to check the level in % of the drink and waste water tank and to set the clock.

4) Auxiliary output switch.

5) Main switch (see minimum voltage control).

6) Water pump switch.

7) Lights main switch.

8) Digital display of the clock and of the required test

9) It shows the starting up of the battery parallel when the engine is started.

10) It shows the car (B1) battery test, the blinking means run-down battery alarm.

11) It shows the leisure (B2) battery test, the blinking means run-down battery alarm.

12) It shows the batteries recharging through engine alternator.

13) It shows the test or alarm of batteries together with the symbols 10 or 11.

14) It shows the connection to the 230V net.

15) It shows that the minimal voltage device has switched on.

16) It shows the drink water tank test, the blinking means empty tank alarm.

17) It shows the waste water tank test, the blinking means full waste water tank alarm.

18) It shows the unit of measure: U=Volt, A=Ampere, °C and temperature reference I=internal temperature, E=external temperature.

NOTE: The watch is supplied from the leisure battery (B2).
Should B2 be disconnected, the watch is able to keep working, without visualization, for about 2 weeks.

FUNCTIONS

MINIMAL VOLTAGE CONTROL

An electronic device switches all the 12V mains off, when the leisure battery reaches the minimal voltage level of 10V. It is possible to switch on again all the mains for about 1 minute by switching off and then on again the main switch.
They are also automatically switched on again when the voltage is > 12V.
The fridge, the electrical step and the mains powered directly from B2 are excluded from this device.

AMPEREMETER

The amperemeter is inside the DS-520AN module.
- It measures the current of the leisure battery, users' consumption and recharge through battery charger, engine alternator and solar panels.
- Measure range is: -40A ÷ +40A.
- Measure is carried out as difference between charging and discharging currents: a positive value indicates a charging current, a negative value indicates a discharging current.

To measure the charging of a sole source (battery charger, alternator or solar panels), turn off all users and other recharging sources.
To measure the consumption of a sole user, disconnect all recharging sources and all uninterested users.

DRINK WATER TANK REFILLING

This function is used during the drink water tank refilling and it shows the level reached by the water.
You switch on this function by visualizing the drink water tank and by keeping pushed the tank switch for more than 3 seconds.
When this function is on, you see getting lightened, in sequence, the horizontal segments of the number ref. 18 and the panel emits sounds in order to warn that the tank is getting filled:
1 short sound at 75%, 2 short sounds at 85% and 1 long sound at 95%.

ELECTRONIC TANKPROBE

The electronic tankprobe mod. "SPE" is a capacitive tankprobe. It is powered with 5V and a back-signal from 0 to 2,5V.
Each 8 seconds the microprocessor gives power to the tankprobe; it is also powered each time you pust the tank-test button. This was studied in order to avoid useless consumption.
The tank probe has been already programmed by CBE, but it is still possible to check the correct working of the tankprobe and its setting by following these instructions:
- activate the function *"DRINK WATER TANK REFILLING"*
- in this way the tankprobe gets a continue power supply of 5V, so that you can control with a voltmeter the back-signal of 2,5V and you can also adjust, by using the tankprobe's trimmer, possible small variations. (e.g.: value "0 V" = 0 %, value "2,5 V" = 100 %).
- switch the main switch off and then on again.

Attention*: For this test the tank must be full.*

FUNCTIONS

TEMPERATURE

- Internal and external temperatures are measured through sensors which are placed inside and outside of the vehicle.
- The measuring precision is ± 1°C.

CLOCK

When the panel is switched on, the time gets displayed; after every test-function the time gets displayed again.

In order to set the clock, keep pushing for 2 secs the test button ref. 1 while the time gets displayed.

The hours' digits start blinking and by pushing the test buttons ref. 2 e ref. 3 they can be modified.

By pushing the test button ref. 1 again, it is possible to start setting the minutes' digits.

By pushing the test button ref. 1 for the third time, the clock setting is confirmed.

SETUP

To enter the programmation menu turn on the control panel with the switch ref. 5 while keeping pushed the buttons ref. 2 and 3.

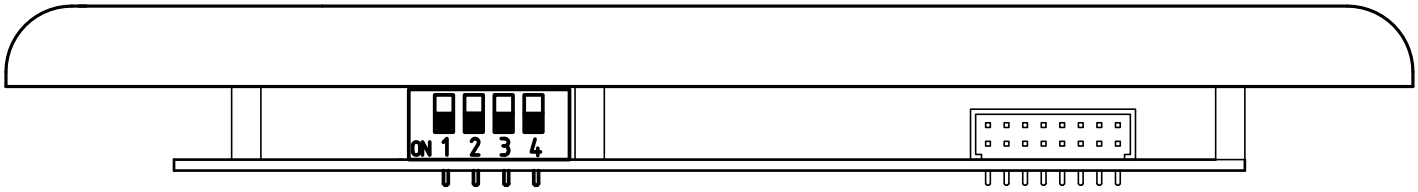
The progammation is sequential: to shift to the next parameter push the button ref. 1.

1. Voltmeter B1. With the buttons ref. 2 and 3 one can modify the displayed value in 0,2V steps
2. Voltmeter B2. With the buttons ref. 2 and 3 one can modify the displayed value in 0,1V steps
3. Amperemeter B2. With the buttons ref. 2 and 3 one can modify the displayed value in 0,5A steps
4. Internal temperature. With the buttons ref. 2 and 3 one can modify the displayed value in 0,5°C steps
5. External temperature. With the buttons ref. 2 and 3 one can modify the displayed value in 0,5°C steps

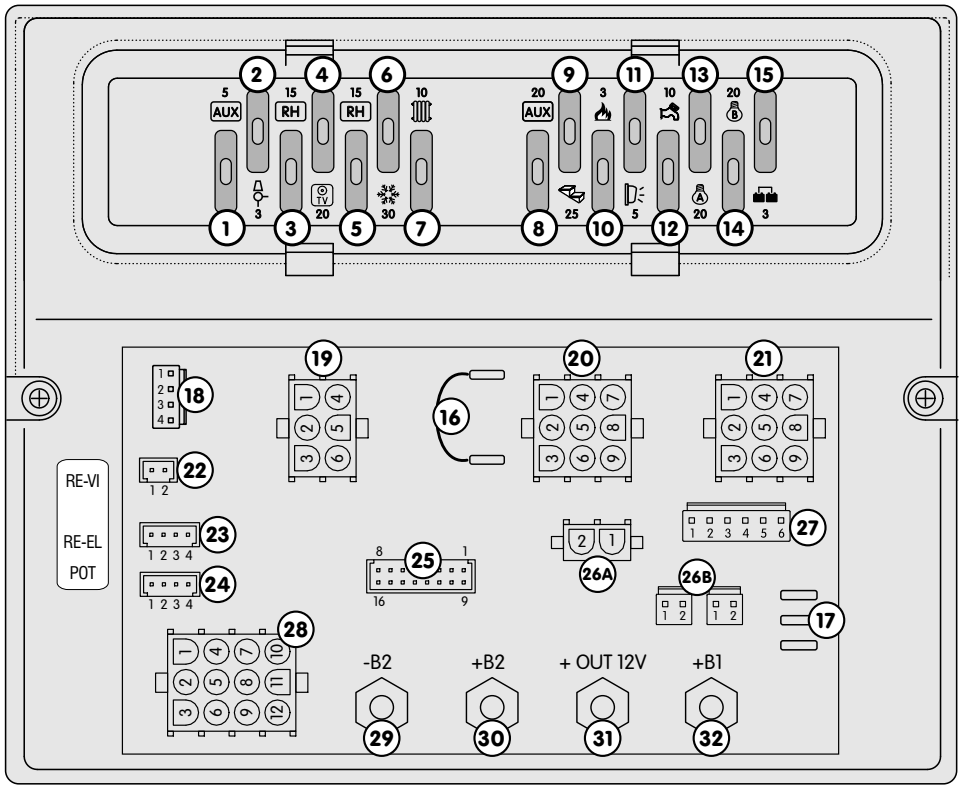
Pushing again the button ref. 1 you exit the programmation menu.

TANKS SETTING

NB: do not modify the dip-switches' position of the picture.



DISTRIBUTION BOX "DS-520AN"



1) 5A fuse to give power the AUX auxiliary exit, it depends on the AUX switch of the control panel "PC-200 4t AN".

2) 3A fuse for the gas pump supply which depends on the general switch.

3) 15A fuse to give power to the RH auxiliary exit, it depends on the main switch.

4) 20A fuse to give power to TV sockets, it depends on the main switch.

5) 15A fuse to give power to the RH auxiliary exit, it depends on the main switch.

6) 30A fuse to give power to 12V AES and 3-way fridge. The 3-way fridge turns off automatically when engine is off.

7) 10A fuse to give power to the heating / boiler, it depends on the main switch.

8) 20A fuse to give power to the AUX direct exit (f.e.: solar regulator), it is connected directly to the leisure battery (B2).

9) 25A fuse to give power to the motorized step, it is connected directly to the leisure battery (B2).

10) 3A fuse to give power to spark ignitions (fridge, oven) and gas valve, it is connected directly to the leisure battery (B2).

11) 5A fuse to give power to the awning light, it depends on the main switch and turns automatically off when engine is on.

12) 10A fuse to give power to the water pump, it depends on the pump switch.

13) 20A fuse to give power to lights group "A", it depends on lights main switch.

14) 20A fuse to give power to lights group "B", it depends on lights main switch.

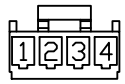
15) 3A fuse to protect the OUT D+ simulated exit.

16) AES fridge connection; It is a bridge, which excludes the 3 way function fridge and is used to connect the AES fridge directly to the B2.

17) Output + for the control of the auxiliary relais (e.g. motorized step, AES fridge, electric water discharge valve, electric antenna motor, etc.) which works only when the engine is started.

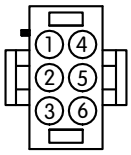
CONNECTIONS

18 **WHITE**



NOT CONNECTED

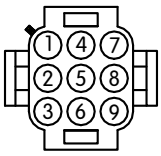
19 **WHITE**



MAINS

1) + exit RH
2) + exit gas valve
3) + exit AUX switch
4-5) + exit TV sockets
6) + exit RH

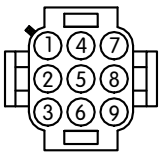
20 **RED**



USERS

1) + exit AUX direct B2
2-3) + exit 3-way fridge / AES
4) + exit motorized step
5-6-8-9) + exit gas ignition (fridge, kitchen, boiler's valve, etc.)

21 **WHITE**



USERS

1) + exit Truma C
2) + exit water pump
3) + exit awning light
4-5-6) + exit lights group "A"
7-8-9) + exit lights group "B"

22 **BLACK**

23 **BLACK**

WASTE WATER TANK PROBE WITH SCREWS (RE-VI)

To connect to the waste water tank probe with screws or to the electronic waste water tank probe.
NB: Don't connect both tank probes!

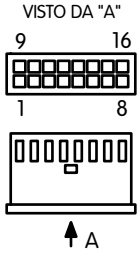
ELECTRONIC WASTE WATER TANK PROBE (RE-EL)

24 **BLACK**

DRINK WATER TANK

To connect to the drink water electronic probe.

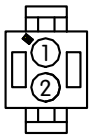
25 **BLACK**



CONTROL PANEL

To connect to the 16 poles connector of the control panel.

26A **WHITE**



SIGNALS (OPTION "A")

1) + input signal contact key engine starting.
2) + input signal "S" net coming from the CBE battery charger

26B

RED

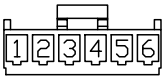
SIGNALS (OPTION "B")

1) N.C.
2) + input signal contact key engine starting.

WHITE

1) + input signal "S" net coming from the CBE battery charger
2) N.C.

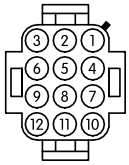
27 **WHITE**



AWNING LIGHT

1) masse
2) + exit awning light direct B2
3) + exit awning light
4-5-6) OUT D+

28 **WHITE**



MASSE

To connect to the mains' masses.

29

MASSE

To connect to the negative pole of the services battery or to the chassis of the vehicle.

30

LEISURE BATTERY

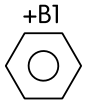
To connect to the positive pole of the leisure battery.

31

EXIT 12V

To connect to the positive pole (battery charger, solar regulator).

32



CAR BATTERY

To connect to the positive pole of the car battery.

FUNCTIONS

CAR BATTERY (B1) RECHARGING

When the battery charger is charging, an electronic device allows a recharging (max 2A) of the car battery (B1), the system gives priority to the leisure battery (B2).

LEISURE BATTERY (B2) RECHARGING

a) by alternator: through the separating relais, when the engine is started. The engine ignition controls electronically a small relais which controls the other relais: parallel, fridge, awning light, etc.
b) by 230V net: buffer system through battery charger (see "*battery charger*").
c) by solar panel: through a solar regulator.

ELECTRONIC BATTERY SEPARATOR

An electronic device, which is controlled by the engine ignition, switches on the battery parallel when the alternator voltage is over 13.3V and switches it off when the engine ignition is off or the voltage is under 12V. The device is not working when the 230V net is connected.
This device controls also the external light's relais, which works only when the engine is off.

BROKEN FUSE ALARM

Under each fuse is positioned a red LED.
The lighting of the LED signals that the fuse is broken and it is necessary to replace it with another fuse with the same value. The alarm is activated only when the control panel is on and the user related to the fuse is switched on.
NOTE: before replacing the fuse find out the problem that determined the intervention of the protection and fix it, necessary with the help of specialized technicians.

SWITCH MODE BATTERY CHARGER "CB 510/516"

The CB 510/516 switch-mode battery charger has been expressly designed for the caravanning and boating sector and can automatically charge 12Vd.c. lead batteries.

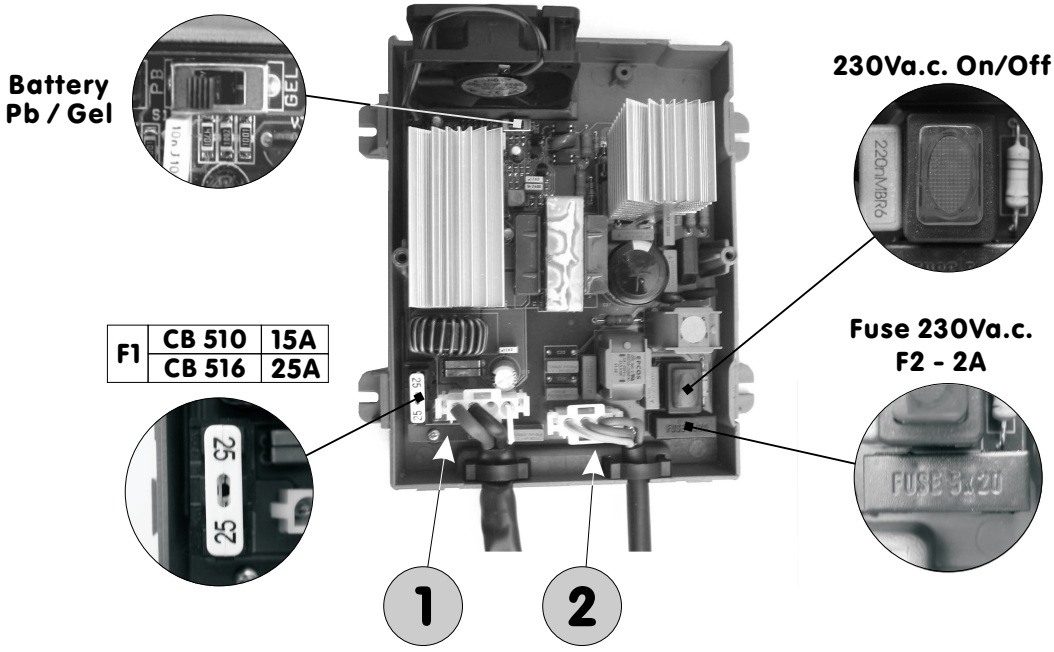
The battery charger is protected against overtemperature and the 12Vd.c. outputs are protected against short circuit and polarity inversion.

The charging system is carried out in 4 stages:

1) **battery charging** with maximum current until the end-charge voltage is reached:
   ***Note**: the end-charge voltage is reached only if the battery is efficient.*
2) when the **end-charge** threshold is reached the charger continues to operate for 90 minutes (lead batteries) or 8 hours (gel batteries) with constant voltage.
3) **Constant** voltage holding 13.8Vd.c.(gel batteries) or 13.5Vd.c. (lead batteries)
4) After 10 hours, the battery charger reaches the **stand-by** mode and begins to operate again only when the battery voltage is lower than 13Vd.c.

The high frequency switching technology allows to have high performances with small dimensions and limited weight.

CONNECTIONS



1 WHITE	12Vd.c. CONNECTION
① ② ③ ④ + - S	1) + 12Vd.c. supply 2) - 12Vd.c. supply 3) N.C. 4) Net signal (+12Vd.c.)

2 WHITE	230Va.c. CONNECTION
① ② ③ ⏚ N L	1) Masse 2) Neutral 3) Line

- Technical data are indicated also in the label inside the cover -

SPECIFICATIONS

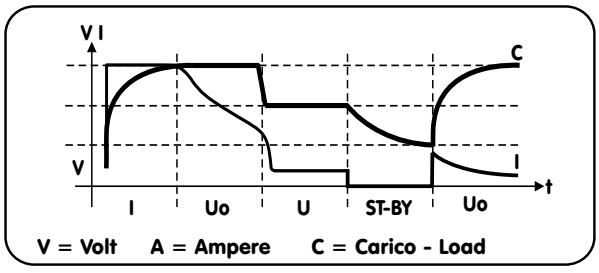
INPUT TECHNICAL DATA		
Nominal voltage	230Va.c. ±10%	
Frequency	50 Hz	
Maximum power	CB510 - 150 W	CB516 - 250 W
Protection fuse ref. F2	2A (glass 5x20)	
Security switch	230Va.c. luminous	

OUTPUT TECHNICAL DATA		
Maximum voltage	14,3 Vd.c. (Pb-Gel) - 14,1Vd.c. (Pb-Acido)	
Maintenance voltage	13,8 Vd.c. (Pb-Gel) - 13,5Vd.c. (Pb-Acido)	
Maximum output current	CB510 - 10A	CB516 - 16A
Charge line	IUoU	
Battery type selector	Pb-Acido / Pb-Gel	
Short circuit and inversion polarity protected ref. F1	CB510 - 15A (car type)	CB516 - 25A (car type)
Thermal protection	Yes	
Net presence signalling (S)	12Vd.c. ; 50 mA	

GENERAL TECHNICAL DATA	
Efficiency	86 %
Room temperature	0 - +50 °C
Ventilation	Automatic regulation variable (only CB-516)
Security directives	73/23/CE, 93/68/CE
EMC directives	89/336/CE, 92/31/CE, 93/68/CE
Net connection	“mate-n-lock" 3 poles
Battery connection	“mate-n-lock" 4 poles
Dimensions	180 x 140 x 85 (mm)
Weight	1kg

ENGLISH

CHARGING LINE “IUoU”



INSTALLATION

Fig.1 - DIMENSIONS (mm):

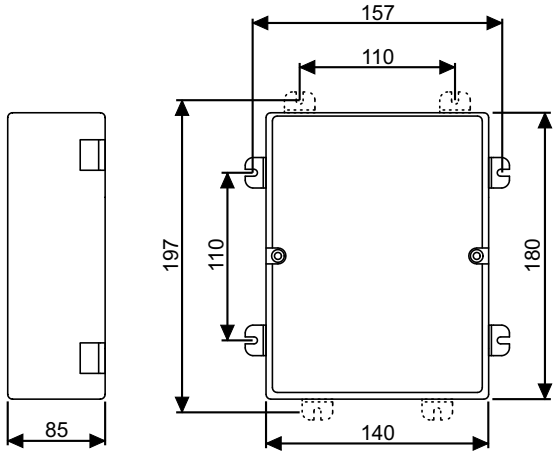


Fig.2 - VERTICAL INSTALLATION

IMPORTANT:
- **The installation of this device must be carried out by specialized technicians.-**
- **Caution, do not connect the battery charger:**
  - **when a generator set with non stabilised output voltage is employed**
  - **with power mains voltage exceeding the rated value (230Va.c. ±10%)**
- **Do not carry out any maintenance when the battery charger is connected to the 230Va.c. power supply net.**
- **In case of battery charger's misuse, the guarantee falls off and the manufacturer declines all responsibility for damages to people and things.**

BATTERY CHARGER

- Install the battery charger in an appropriate housing, dry and ventilated; maximum efficiency can be obtained when the battery charger is installed in vertical position (see figure 2), keeping the front side at minimum distance of 300 mm and the bottom and top side at a minimum distance of 100 mm from the housing sides.
- Do not cover air intakes.
- To guarantee a proper change of air the installation of two air intakes (one placed on the top and one on the bottom, see figure 2) ensuring a working temperature inside the housing not exceeding 40 - + 50 °C.
- Make sure that the 230Va.c. safety switch can be easily reached.
- The connection to power supply mains shall be made in accordance with national installation rules.
- Before disconnecting the battery charger from 230Va.c. power supply, turn the safety switch off.
- The installation requires the fixing of no. 4 pins that can be easily placed on the 4 sides.
- The battery charger can be installed together with CBE 12V and 230V distribution panels, using the appropriate modular joints.

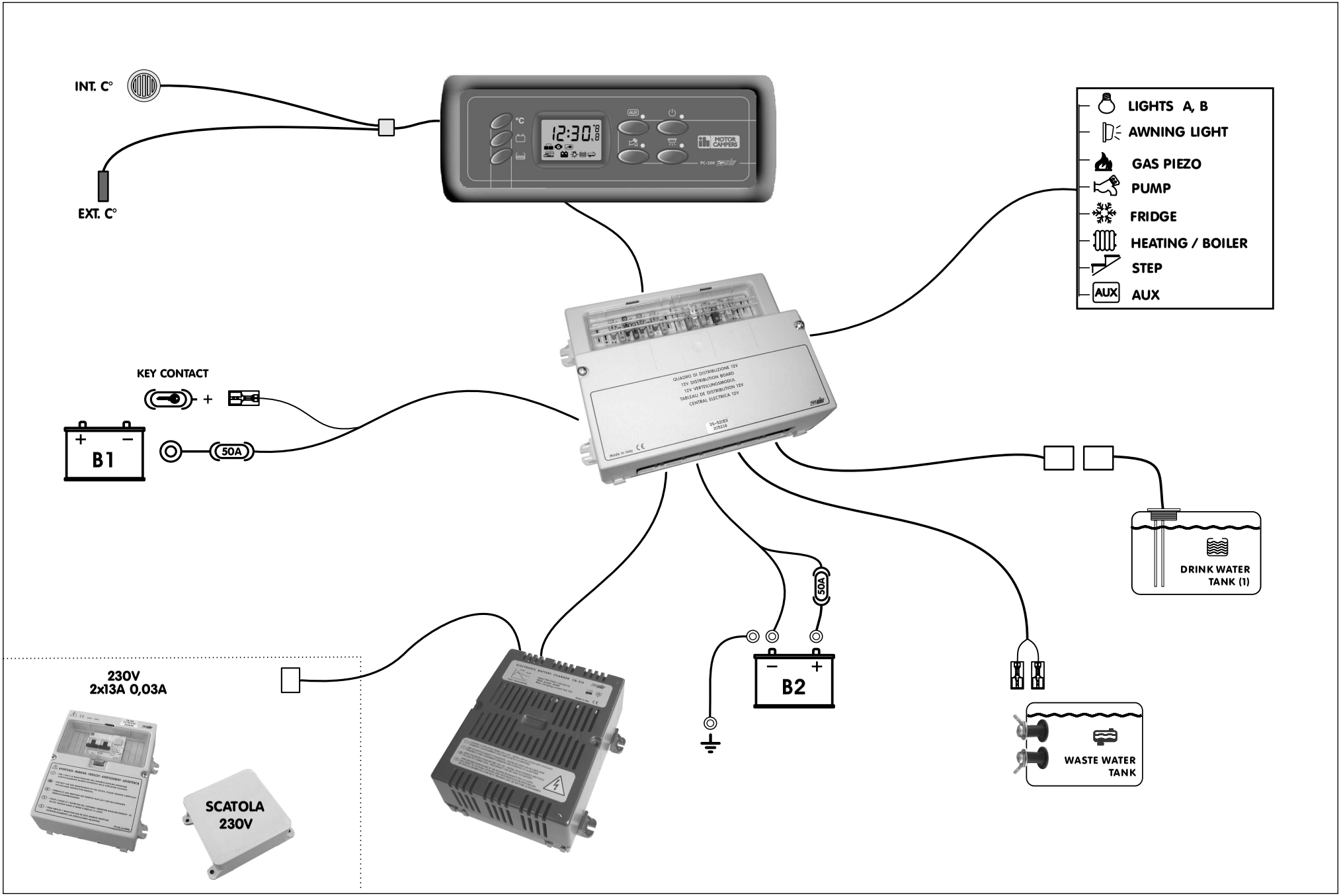
CABLES

- Use cables with appropriate section, minimum cross section area 4 mm².
- Protect cables from any possible damage.

BATTERY

- Lead-acid batteries shall be positioned in a well ventilated place.
- Use only 12Vd.c. rechargeable lead batteries (capacity >40Ah).

  Warning:
  - Do not use "not rechargeable" batteries.
  - Exhausted batteries shall be disposed in accordance with existing environmental protection regulations.



CE 89/336 EMC
73/23 e 93/68 EEC

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