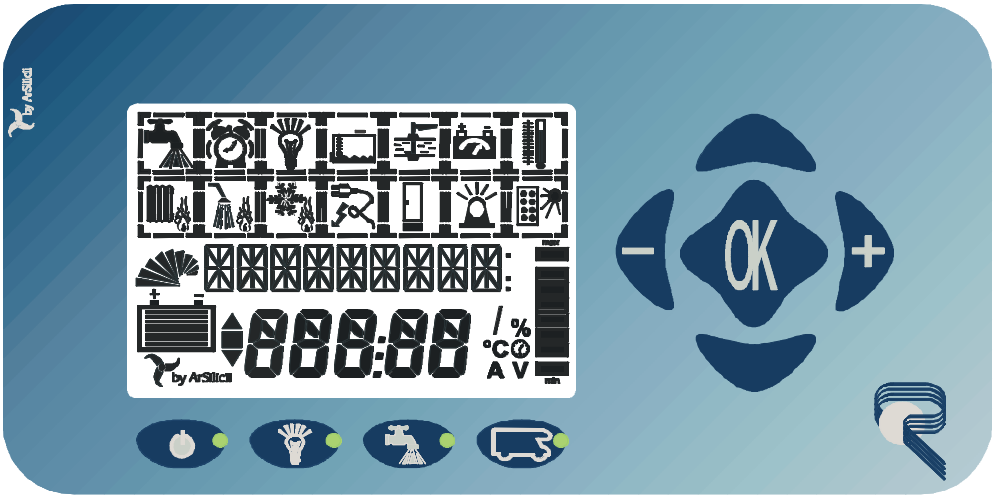
STRUCTURE OF THE CONTROL PANEL AND HOW IT WORKS

The **Control panel** has a liquid crystal display (LCD), which shows the main electrical ratings and the “conditions of health” of the system. It differs from conventional ones because it is connected to the system only through a single 4-lead cable.

The front panel, shown in the following illustration, comprises two keypads, one at the right of the LCD, named *navigation* and one, under the display, named *direct* or *fast*.



MAIN CONTROL PANEL COMPONENTS

Keypads

Navigation Keypad

This has 4 keys (Fig. 1) around a centre OK button on the right of the display and it is illustrated below.

Fig. 1

Their function varies depending on the context and is described below:

Fig. 2

With the buttons of Fig. 2 it is possible:

- To scroll the icons horizontally
- After selecting an icon, to choose from the alternatives of the menus (eg. ON/OFF) or set new values (eg. clock).

Fig. 3

With the buttons of Fig. 3 it is possible:

- to scroll the symbols on the display vertically;
- After selecting a symbol, to scroll the items of the menus associated with each icon

With the button of Fig. 4 it is possible:

- To select a symbol to access the menus associated with it;
- Carry out the command set, and, at the same time, return to the symbol navigation mode.

Fig. 4

Fast Keypad

This comprises 4 buttons (shown in Fig. 5) to be found just under the LCD.

Fig. 5

Each key has a small light (also called LED) which represents the status of the icon shown on it. Now let's take a detailed look at the functions connected with these keys.

P1	Makes it possible to cut off the energy or supply all the services, therefore, it is a true and proper main switch. The light on indicates that there is voltage on the electric system, vice versa all the services are not supplied. If the led flashes it means that there is a failure on a part of the system.
P2	Indicates the main lights switch, it makes it possible to power all the lights on the vehicle home cell ceiling or not. **Green light on** = ceiling distributor ACTIVE, off= CEILING DISTRIBUTOR deactivated, flashing = PROBLEMS.
P3	This is the remote button for turning the pump on and off. Green light on = PUMP ON, off = PUMP OFF, flashing = PROBLEMS.
P4	If the light is on it means that one of the following cases has occurred: service batteries flat, drain water tank in reserve, recovery tank full, pressing the button it is possible to learn in detail which of the previous situations has occurred. This button is active only when not in the navigation mode, i.e. when the time is shown on the display.

LCD display

The structure of the LCD is shown in Fig. 6:

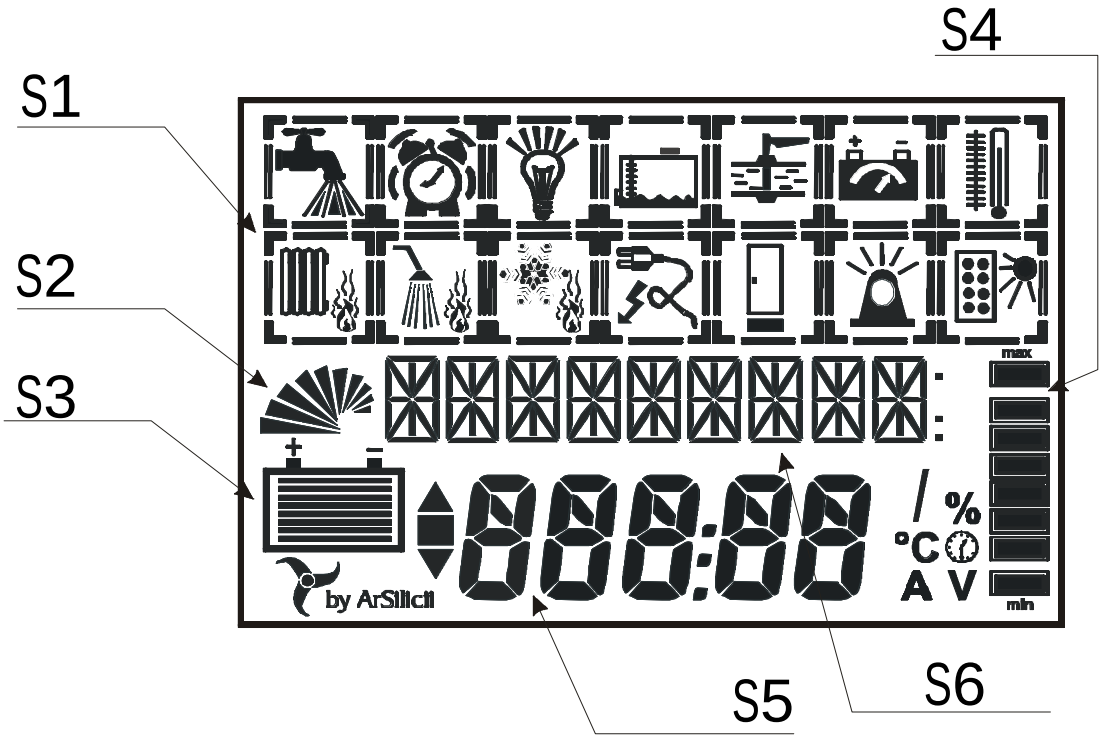


Fig. 6

S1	Icon
S2	Bar No.3
S3	Bar No.2
S4	Bar No.1
S5	Line No.2
S6	Line No.1

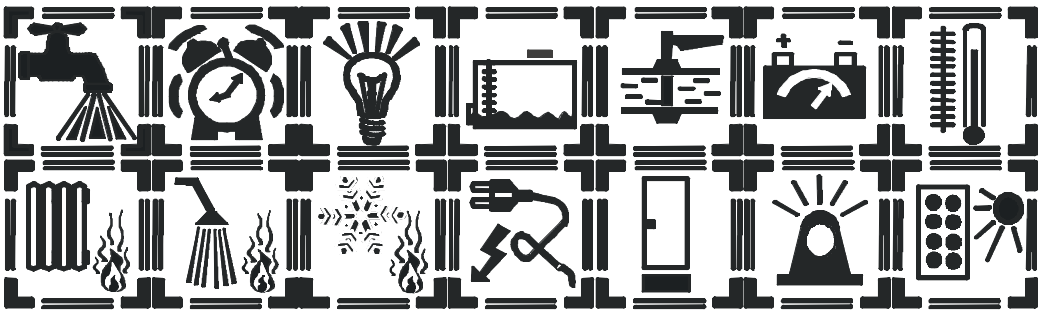
The upper part of the display graphically shows the symbols characterising the main functional areas offered by the system; these are called icons.

Immediately below there are two lines of alphanumerical characters (Line 1 and Line 2) which describe the various items of the menus selected. At the sides of the LCD display, there are graphic bars which make it possible to display the basic ratings immediately and constantly (e.g. service battery level, instantaneous current absorbed by the system, etc.).

Of course, the graphic symbols shown in the figure cannot all be shown at the same time.

Icons

There are fourteen icons and they schematically represent all the functions of the control panel.



Each icon comprises four parts (Main Body, Secondary Body, Corners and Bars, which are visible or not depending on the cases.
The icon shown in the figure, on the top left of the display, refers to the water pump.

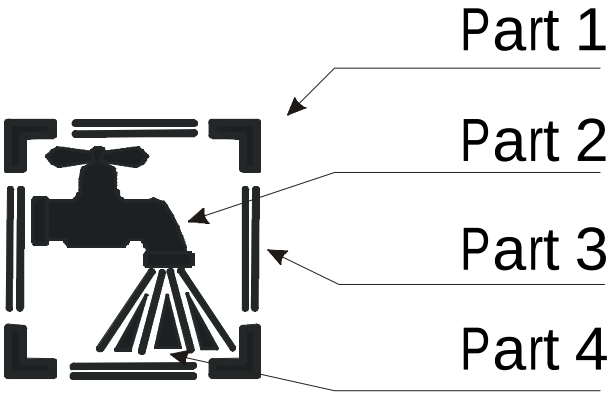


Fig. 7

Part 1	Corners
Part 2	Main body
Part 3	Bars
Part 4	Secondary Body

The parts that form an icon like the one of Fig. 7 are:
The **Main Body**, (the tap) indicates the function, in this case the water pump;
The **Secondary Body**, (water) summarises if the function is active or not. In this case, water can be seen coming out of the tap inside the icon only if the pump is oN.
The **Corners** indicate which icon is selected at the moment through the *navigation keypad.*
The **Bars,** if lit, indicate an alarm status or a fault relating to that function group (in this case, for example, it could be a short circuit on the pump).

Example: Switching the water pump on and off:

Fig. 8

Scrolling the display symbols using the *navigation* keys *(*Fig. 8*)*, we move to above the icon showing the tap. Pressing the OK key (the symbol is selected) additional information is shown in the form of alphanumerical characters. In this case the wording PUMP is shown (line 1) and its ON/OFF condition (line 2).

Fig. 9

Using the *navigation* keys (Fig. 9) scrolls the menu items: PUMP, PROTECTION and PROBLEMS. We are moving to PUMP**.**

Fig. 10

With the *navigation* keys (+ and - of Fig. 10) it is possible to select the condition required on the PUMP: **ON**/**OFF**

Fig. 11

Pressing the OK key (Fig. 11) applies the command chosen to the menu item and at the same time returns to the navigation mode.

GRAPHIC BARS

There are three graphic bars, Fig. 12, which give an evaluation "at a glance" (as they are always shown regardless of the operating mode), of the main ratings of the camper. These can be examined in more detail in the corresponding items of the special menus.

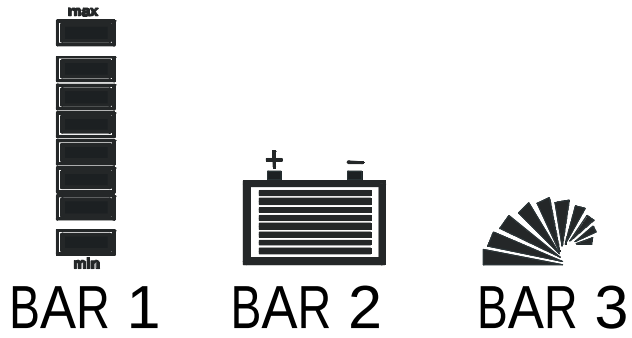


Fig. 12

Bar 1	Bar No.1	**Bar 1** indicates the **level of the drain water** The min. and max levels respectively indicate: drain water tank *Empty* and drain water tank *Full*. For more precise information it is necessary to select the symbol relating to the tanks and consult the special menu
Bar 2	Bar No.2	**Bar 2** indicates the **battery charge remaining in the battery** In this case too, it is possible to obtain more precise information, selecting the special symbol and consulting all the menus it contains.
Bar 3	Bar No.3	**Bar 3** indicates the **instantaneous absorption of the system** from the service battery. Its filling takes place *counter-clockwise*, a higher number of segments indicates higher absorption. It should be noted that if there is a form of outside energy, such as connection to the 200 V mains or solar panel, the bar in question is always "off", as the consumption of the services is supplied by the outside energy sources.

LINE 1 AND LINE 2 (ALPHANUMERICAL CHARACTERS)

The area devoted to representing characters and numbers is subdivided on two lines. Their behaviour changes in relation to whether a symbol is selected or not.

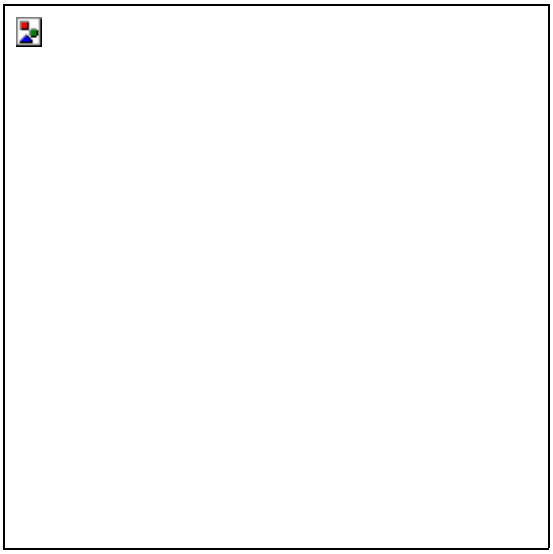
In the navigation mode (no symbol selected), the top line is off completely, while the bottom one shows the time . Otherwise, the top line shows the name of the menu item, while the bottom one shows the alternatives to it. Sometimes, if the symbol selected is associated with a rating (e.g. battery or tank), the top line shows the name of it, the bottom one its value and, at the side of this, the unit of measurement will be shown.

DETAILED DESCRIPTION OF THE FUNCTIONS

In this section we are giving a detailed description of the functions on the control unit. Please remember that some of them might not be present in the model in your possession, or refer to accessories that are not installed. For convenience, the functions are grouped according to the icons that contain them.

Functions

PUMP



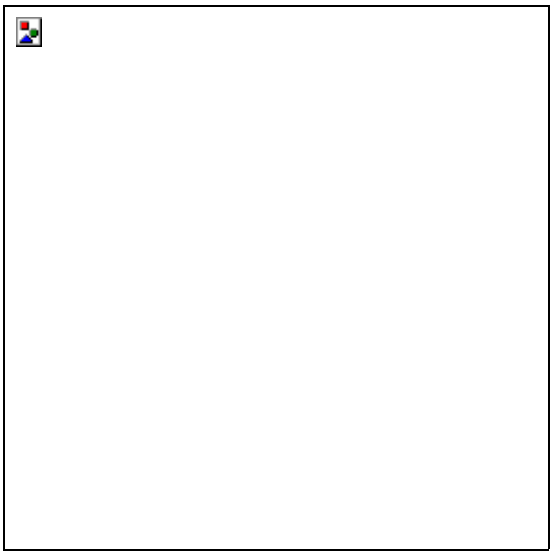
Contains the items of the menu concerning the use and diagnostics of the water pump.
The bars around the symbol are shown only in the event of a Short Circuit on the pump.
The water flowing indicates that the pump is on

PUMP: ON/OFF
This makes it possible to set the on or off condition of the water pump. *Initially this menu item is positioned at OFF.*

PROT. ON/OFF
In addition to electrical protection on the PUMP (which is always activated due to the node), it is possible to set an additional one, This, if activated, prevents the pump from turning on if there is not enough water in the tank. *Initially this menu item is positioned at OFF.*

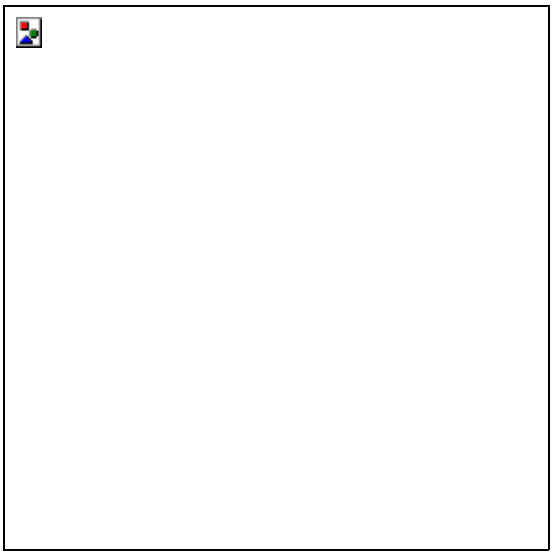
PROBLEMS: NO/SC
Indicates the presence or not of electric problems on the pump (NO = no problem, SC = Short Circuit).

CLOCK



Contains the menu items relating to the clock. It makes it possible to set the current time using the right and left arrow keys.

LIGHTS



Contains the items of the menus concerning the supply of the motorhome ceiling.
The bars around the icon are shown only in the event of an electrical fault concerning the upper part of the electric system. The rays indicate that the lamps on the ceiling, or at any rate all the loads connected to the output of the ceiling distributor, are receiving voltage

LIGHTS: ON/OFF
This makes it possible to supply or cut off power to all the loads connected to the output of the ceiling distributor of the vehicle. *Initially this menu item is positioned at ON.*

PROBLEMS: NO/SC
Indicates the presence or not of electrical problems in the ceiling (NO = no problem, SC = Short Circuit). A symbol next to the wording SC serves for auxiliary information about the location of the short circuit. In particular the following symbols are used (Fig. 13):

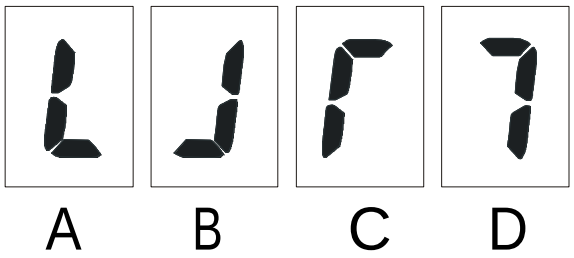
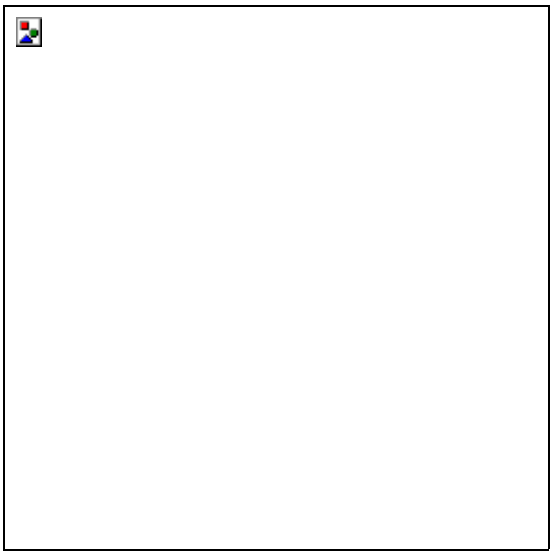


Fig. 13

A	short circuit on the floor distributor left channel
B	short circuit on the floor distributor right channel
C	short circuit on the ceiling distributor left channel
D	short circuit on the ceiling distributor right channel

In the event of more sources of short circuit there will be a combination of the above-mentioned symbols. As mentioned previously, as the cause of the short circuit ceases, the warning ceases and the system resumes correct operation without changing fuses.

LEVELS



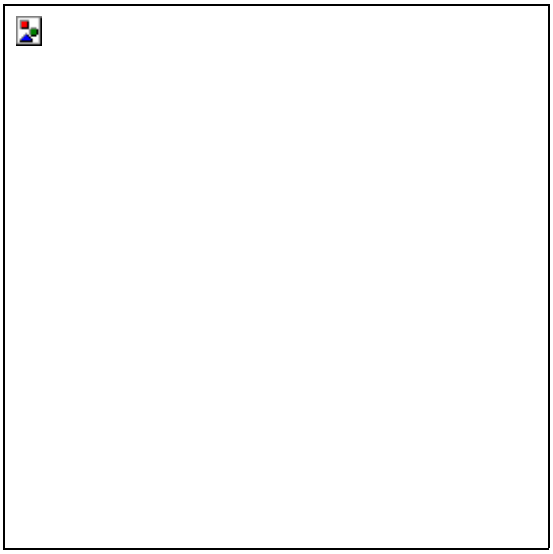
This contains the items of the menus concerning the tanks.
The bars may indicate: the lack of drain water or a recovery tank overflow.

DRAIN: *X* %
This item of the menu gives the level of the drain water tank expressed in percentage of the total volume. (for a 4-level sensor (0%-30%-60%-90%)

SEWAGE 1: NO/FULL
Indicates if sewage recovery tank 1 is full or not.

SEWAGE 2: NO/FULL
Indicates if sewage recovery tank 2 is full or not.

GAS-SOLENOID VALVE



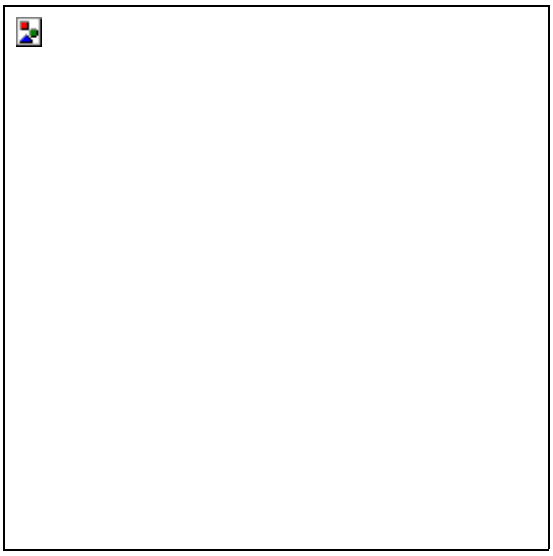
Functions that can be activated only through optional installation kits.

This contains the items of the menus associated with protections against gas leaks and the presence of carbon dioxide and it signals the condition of the gas solenoid valve.

GAS SENS : ON/OFF/GAS/--
The dashes (--) indicate that the sensor is not installed or not working properly. The word ON flashing means that the sensor is warming, and therefore it is unable to detect an alarm situation. After warming, ON stops flashing.
The word GAS appears when an alarm situation has occurred, i.e. a gas leak.

ALR SOUND: ON/OFF/--
The dashes (--) indicate that the sensor is not installed or not working properly. The ON control enables the buzzer on the sensor to sound in the event of an alarm, while OFF disables it.

BATTERIES



This contains the items of the menus concerning the voltage measurements on the two batteries (engine and services), the current delivered and the amount of charge stored.
The bars indicate that the services battery is beginning to undergo damage.

ENG BATT: *X* V
Shows the voltage rating, expressed in Volts, at the engine battery terminals.

SERV BATT: *X* V
Shows the voltage rating, expressed in Volts, at the services battery terminals.

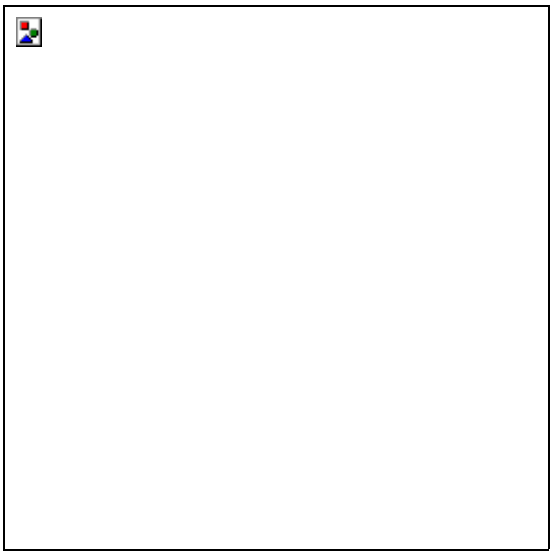
CURRENT: *X* A
Displays the rating of the instantaneous current delivered, **if the rating is positive,** by the services battery. Conversely a **negative rating**, expresses the value of the charge current (of the services battery or both).

AMPERE H: *X*
Indicates the amount of charge, expressed in Ah, used or supplied to the battery from the last reset made.

RESETAMPH
Pressing the OK key resets the ampere/hour (Ah meter) mentioned above.

PROBLEMS: NO/LO
Indicates the presence or not of problems on the services battery (NO = no problem, LO = start of irreversible damage on the services battery).

TEMPERATURES

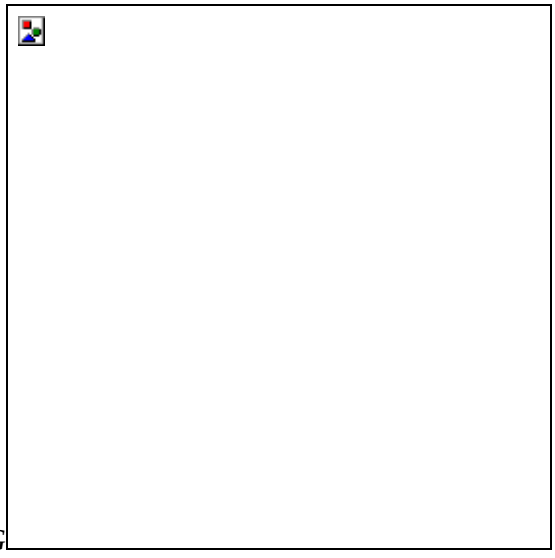


Functions that can be activated through suitable optional kits.

This contains the items of the menus which show the momentary inside and outside temperature.

IN TEMP: X °c / --
Shows the temperature in degrees centigrade, inside the home cell. The dashes indicate that the sensor has not been installed.

OUT TEMP : X °c / --
Shows the temperature in degrees centigrade, outside the home cell. The dashes indicate that the sensor has not been installed.

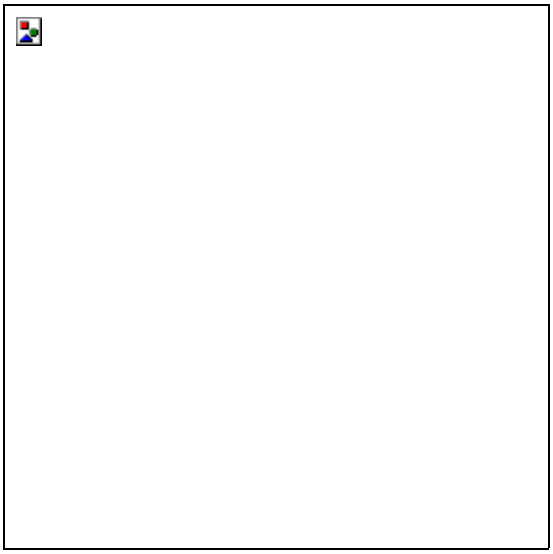


HEATING

Contains the items of the menus for remote control and timing of the electronic stove.

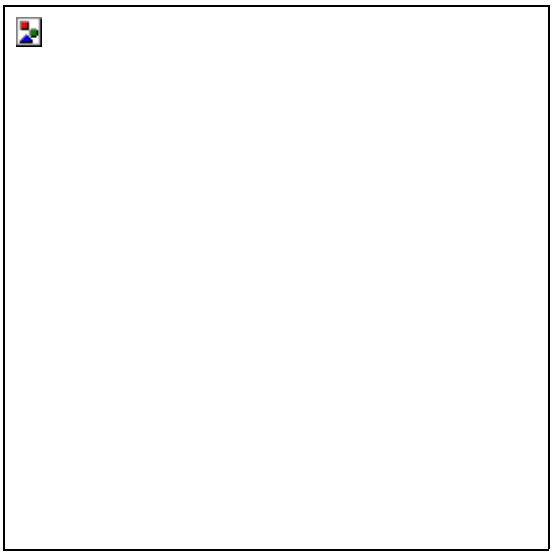
Function not active in this model.

BOILER



Contains the items of the menus for remote control and timing of the boiler.
Function not active in this model.

FRIDGE



Contains the items of the menus controlling the fridge.
Function not active in this model.

220 V MAINS

Contains the items of the menus concerning the presence of the external 220V mains and the power unit.

The bars indicate high internal temperature of the switching power unit.
The lightning flash indicates that the 220V line is connected.

EXT. PWR: ON/OFF
Shows whether the vehicle is connected to the 220V mains or not.

PARALLEL : ON/OFF
Makes it possible to decide, **if the vehicle is connected to the 220V line**, to put the engine battery in parallel with the services battery. *Initially this menu item is positioned at OFF*.

V MAX: *X* V
Shows the maximum voltage rating, expressed in Volt, set at the terminals of the services battery during charging.

PWR TEMP: *X* °C
Gives the temperature inside the power unit, expressed in degrees centigrade.
Readings below 70 °C are acceptable. Beyond this threshold, the situation is abnormal. However, the power unit begins to lower the power delivered in order to prevent damage. As soon as the temperature returns to normal the power unit starts working normally again with no action from outside.

FAST: ON/OFF
This makes it possible to set the charging cycle to be carried out on the battery/ies. *Initially this menu item is positioned at OFF*.
***N.B.**: the use of fast ON is advisable only when the services battery starts having sulphation problems, for partial regenerating, or in cases of extreme need to charge quickly, because the normal charging cycle (fast OFF) has been specially designed for long battery life and is therefore to be preferred*

MAINT. ON/OFF
If an external source of energy is present, this makes it possible to set an alternative charging cycle other than fast. *Initially this menu item is positioned at OFF*.
***N.B.**: this type of charge is to be used only for prolonged stops of the vehicle, as it is not an actual charge but makes up for battery self-discharging and can only be activated in the presence of an outside source of energy (220V mains or solar panels). It has been designed to prevent the battery electrolyte from being consumed during periods of inactivity.*

LANGUAGES

Contains the items of the menus through which it is possible to choose the language (ITALIAN, ENGLISH, FRENCH, GERMAN and SPANISH) , in which all the information is shown.

ALARMS

Contains the items of the menus connected to the alarms present in the motorhome.
The bars and rays indicate the presence of danger.

Functions that can only be activated through suitable optional kits.

SOLAR PANELS

Contains the items of the menus concerning the solar panels.
The sun (top right) indicates that the power delivered by the solar panels exceeds a determinate threshold, which implies the presence of solar panels operating.

SOLAR P: ON/OFF
For turning the solar panels on or off. *Initially this menu item is positioned at OFF*.

POWER: *X*
Shows the power, in Watt, delivered instantaneously by the solar panels.

GENERAL ADVICE ABOUT THE CORRECT USE AND MAINTENANCE OF THE SYSTEM:

- During prolonged halts (over one month), it is always wise to charge the batteries, to prevent discharging that could seriously compromise the storage capacity of the batteries themselves. If solar panels are installed, these keep the batteries under charge, therefore they can be kept in parallel through the special control of the control unit. If connection to the 220V mains is available, the maintenance charging system can be used to compensate for self-discharging of the batteries.
  In systems with the power unit without the main switch in the lack of external sources of energy (220V or solar panels) it is advisable to disconnect the positive terminal of both the engine battery and services battery, so that the batteries reduce their consumption at self-discharging.
- Do not use chemical substances, cleaning solvents or strong detergents for cleaning the control panel. To clean, use a lightly moistened, soft cloth.
- Avoid obstructing the power switching unit cooling vents.
- Prevent the power unit from coming into contact with fluids or anything else that can get inside the container through the air vents.
- Avoid pressing the keys of the control panel with screwdrivers, knives, blades, etc.
- Repairs on the electric system should only be carried out by skilled personnel.
- Should any emergency work be necessary, it is advisable to **disconnect both positive terminals of the batteries and if necessary connect to the 220V mains or solar panels.**