

# ENERGY MANAGEMENT BOX

Ref.: 41.74000.00 001

## User manual & repair guide



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## Thanks

Thank you for your purchase and we hope that this product is entirely satisfactory.

Before you begin using the product, we recommend that you read the following instructions carefully. This manual explains how to use and install the product according to the use for which it was intended.

## Safety warnings

### **IMPORTANT: Do not dismantle the device**

Any contact with the components inside the product can cause injuries.  
In the event of a malfunction, only a qualified technician is authorized to repair the device.

### **IMPORTANT: In the event of an impact**

If the product falls or suffers violent impacts, immediately contact a qualified person to make sure that the device is working properly.

### **IMPORTANT: Unpacking the equipment**

After unpacking the product, make sure that it is complete and in good condition: if in doubt, immediately contact someone with the required professional qualification.

### **IMPORTANT: Unpacking the equipment**

Do not leave any part of the packaging within the reach of children or irresponsible people.

## Equipment description

**The Energy Management Box (EMB) is the ideal solution for electrical protection and management of leisure vehicle equipment.**

This 12V all-in-one unit encloses your installation in a single plug&play box (use of car connectors) for quick installation and improved productivity. Thanks to this design the wiring is simplified.

## Related accessories

Name	Reference
IBS sensor	0T.IBS12V (12V)
CAN/USB interface	36.15951.00
CAN CAN Multinetwork interface Management of SUPERB batteries	36.15949.00 000006
WIFI server	36.15946.00
Lighting unit	41.72119.XX XXXXXX
2.4 Ghz receiver	41.72120.XX XXXXXX
Switches	1 button: 0F.INT221-2.4 2 buttons: 0F.INT222-2.4
Interior temperature probe	50.FILTEMPSND.00

## Installation instructions

- This device must be placed in a place protecting it from any risk of water splashing. Install in a ventilated location
- Do not install on supports that are sensitive to heat, such as carpet or PVC flooring, etc.
- The product must be installed away from heat and humidity



## EMB UNIT

<b>REFERENCE</b>	41.74000.00 001
<b>POWER SUPPLY</b>	10Vdc to 15 Vdc
<b>INPUTS</b>	Engine battery B1 (+,-) Auxiliary battery B2 (+,-) Charger (+,-) Clean water probe Waste water probe Exterior temperature probe Pilots? D+ engine Ambient lighting control switch Step control switch Step limit switch Solar panel
<b>PERMANENT OUTPUTS</b>	Car radio power supply (+,-) Heating power supply (+,-) Electronic cooling power supply (+) (AES Model) Satellite antenna power supply (+,-) TV power supply + demodulator (+,-)
<b>CONTROLLED OUTPUTS</b>	Electrical bed (+,-) Cowl lamp (+,-) Position lights (+,-) Info D+ (+) Pump (+,-) Car radio (+,-) Furnace (+,-) USB plug no. 1 (+,-) USB plug no. 2 (+,-) 12V plug (+,-) lighting 1 (+,-) lighting 2 (+,-) ambiance lighting 3 & 4 DIM (+,-) Step (+M1,-M2) Step buzzer (+,-)
<b>CONSUMPTION</b>	
<b>CONNECTIVITY</b>	LIN BUS ALDE/TRUMA BUS Ci FUSION BUS CAN SCHEIBER BUS CAN CAN Open batteries SUPERB
<b>CERTIFICATION</b>	Automotive certification according to regulation no. 10 Certification no. E2*10ROS101*18115*00
<b>ENVIRONMENTAL CONDITIONS</b>	Interior use
<b>OPERATING TEMPERATURE</b>	0 to +50°C
<b>PROTECTION</b>	By fuse
<b>DIMENSIONS (LxIxH)</b>	238 x 185.6 x 110 mm
<b>ATTACHMENT AXLE SPREAD</b>	158 mm
<b>WEIGHT</b>	2.4 kg

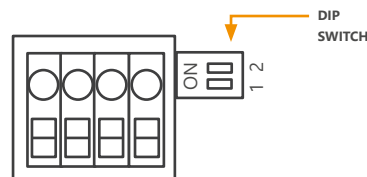
## BUILT-IN SOLAR REGULATOR

<b>MAX POWER PANEL</b>	200W
<b>MAX VOLTAGE</b>	25V
<b>REGULATION VOLTAGE</b>	14.0V
<b>REGULATION TYPE</b>	PWM
<b>MAX CURRENT</b>	14A @ 13.0V 12A @ 14.0V

## BATTERY CHARGER

<b>INPUT VOLTAGE</b>	90 ~ 264VAC
<b>OUTPUT VOLTAGE</b>	14.4V
<b>OUTPUT CURRENT</b>	16A
<b>POWER</b>	230W
<b>BATTERY TYPES</b>	Lead, Frost, AGM and Lithium
<b>OPERATING TEMPERATURE</b>	-30°C to +70°C

## DIP SWITCH



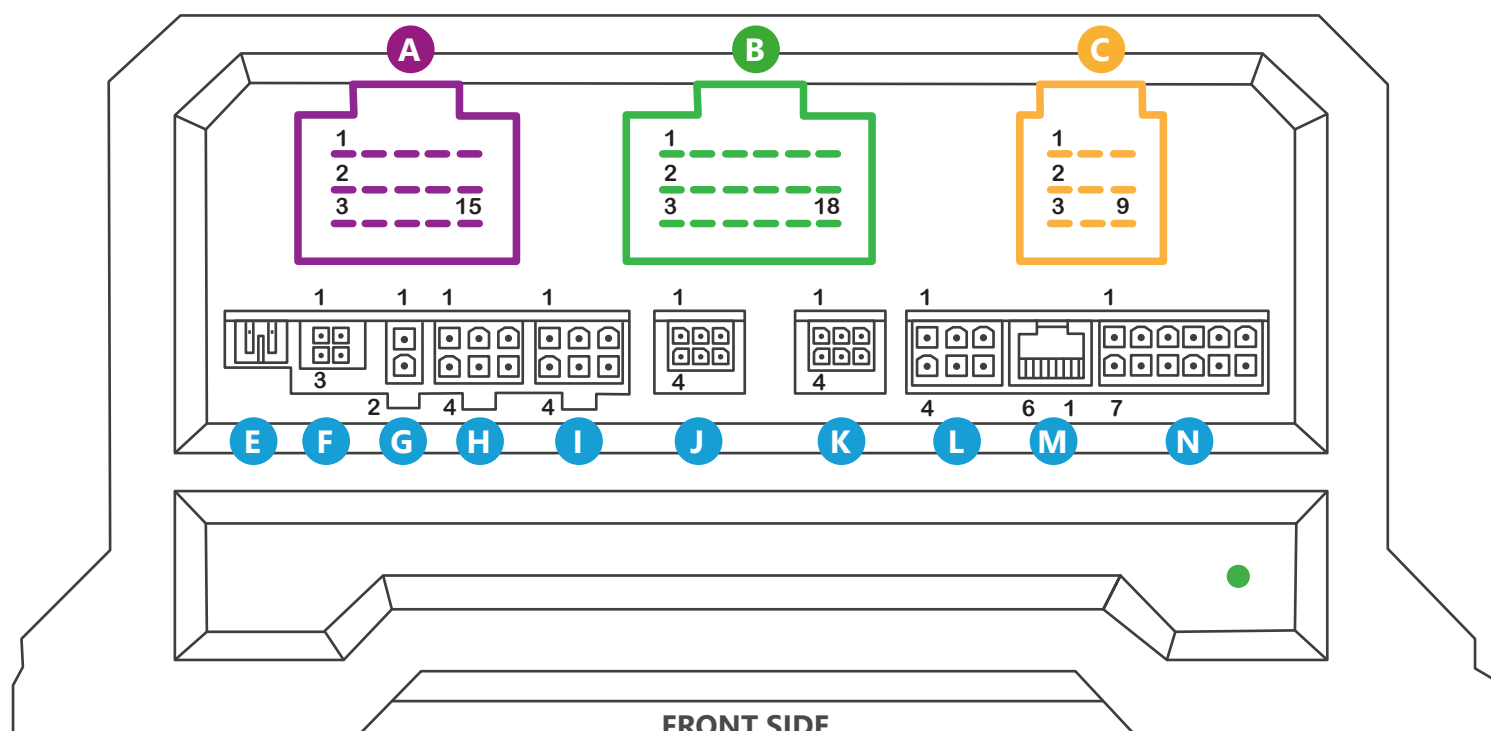
1	2	Description
OFF	OFF	Lithium-ion
ON	OFF	FROST
OFF	ON	Lead
ON	ON	AGM

## COUPLER-SEPARATOR

<b>COUPLING VOLTAGE</b>	13.5Vdc
<b>DECOUPLING VOLTAGE</b>	12.7Vdc
<b>MAXIMUM CURRENT</b>	50A



## Connectors



FRONT SIDE

A MCP 15pts purple	
No.	Description
1	+ Cowl lamp
2	- Cowl lamp
3	+ Info D+
4	+ Position Lights
5	- Position Lights
6	+ Info D+
7	+ Pump
8	- Pump
9	+ Info D+
10	+ Auxiliary 1
11	- Auxiliary 1
12	GND
13	+ Furnace
14	- Furnace
15	GND

B MCP 18pts green	
No.	Description
1	+ lighting 1
2	- lighting 1
3	+ MP Buzzer
4	+ lighting 2
5	- lighting 2
6	Inter-step
7	+ Lighting 3 DIM
8	- Lighting 3 DIM
9	Inter. Down step
10	+ USB plug no. 1
11	- USB plug no. 1
12	Inter. Up step
13	+ USB plug no. 2
14	- USB plug no. 2
15	M1 - Up step
16	+ 12V Plug Kitchen
17	- 12V Plug Kitchen
18	M2 - Down step

C MCP 9pts yellow	
No.	Description
1	+ Audio permanent
2	- Audio permanent
3	+ TV demodulator
4	+ Heating
5	- Heating
6	- TV demodulator
7	+ Satellite antenna
8	- Satellite antenna
9	+ Frig. elec.



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**E**

**JSR 2 pts**

No.	Description
1	Ext. temperature probe
2	Ext. temperature probe

**F**

**Micro-Fit 4 pts**

No.	Description
1	LIN
2	Vbus (+BAT)
3	Ground
4	Recovery

**G**

**Mini-Fit 2 pts**

No.	Description
1	LIN BUS
2	LIN BUS

**H**

**Clean water probe**

**Mini-Fit 6 pts**

No.	Description
1	Clean water - REF
2	Clean water - 25%
3	Clean water - 50%
4	Clean water - 75%
5	Clean water - 100%
6	

**I**

**Waste water probe**

**Mini-Fit 6 pts**

No.	Description
1	Waste water - REF
2	Waste water - 25%
3	Waste water - 50%
4	Waste water - 75%
5	Waste water - 100%
6	

**J**

**SCHEIBER front panel**

**Mini-Fit 6 pts**

No.	Description
1	Recovery
2	Ground
3	Ground
4	+ 12V
5	CAN H
6	CAN L

**K**

**SCHEIBER front panel**

**Micro-Fit 6 pts**

No.	Description
1	Recovery
2	Ground
3	Ground
4	+ 12V
5	CAN H
6	CAN L

**L**

**Mini-Fit 6 pts**

No.	Description
1	CAN H
2	CAN H
3	
4	Ground (not connected)
5	
6	

**M**

**RJ12**

No.	Description
1	
2	
3	CI-BUS/LIN
4	
5	Ground
6	

**N**

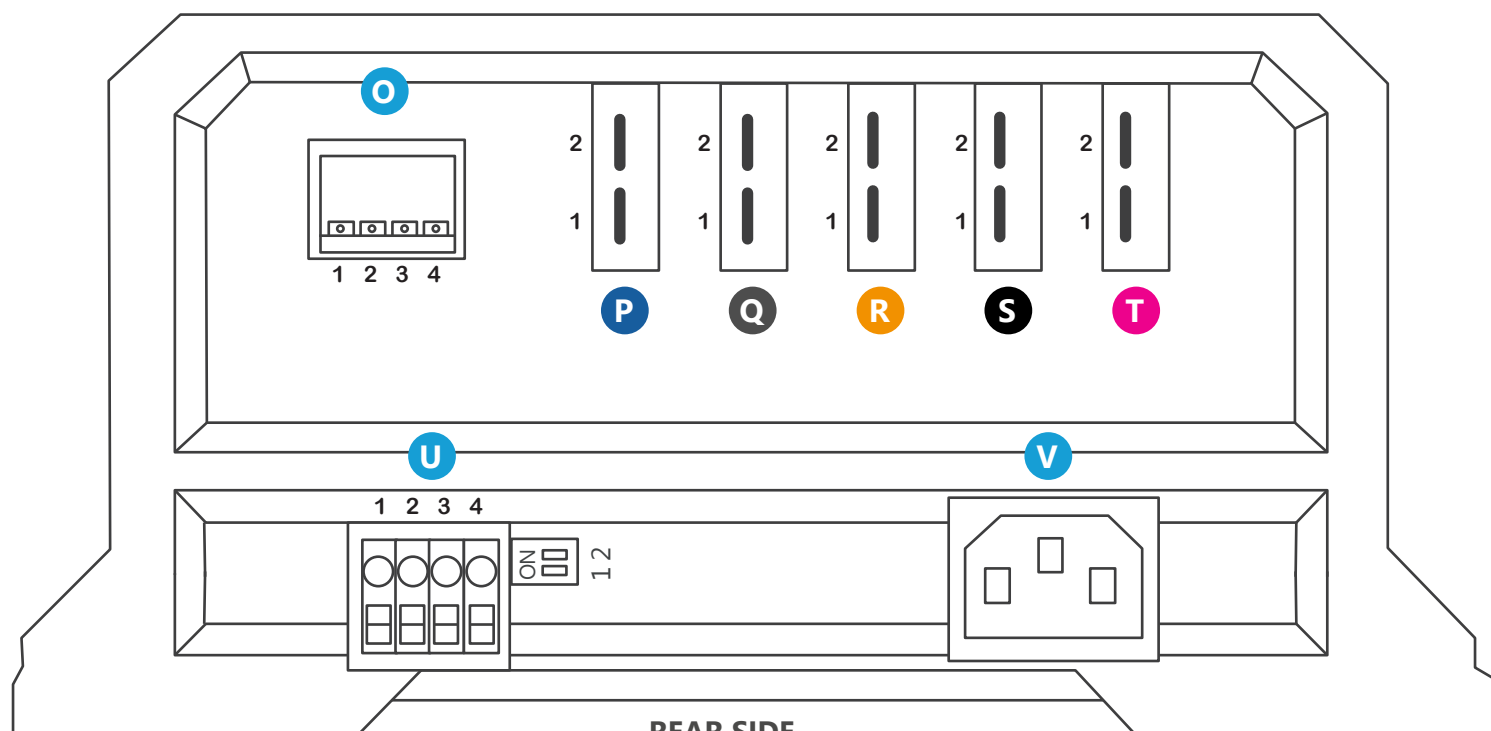
**Mini-Fit 6 pts**

No.	Description	No.	Description	No.	Description
1	D+ (top active +BAT)	5	Pilots (top active +BAT)	9	Inter ON/OFF (NO)
2	Inter ON/OFF (COM)	6	+ ACP (top active +BAT)	10	Step limit switch (COM)
3	D+ (bottom active GND)	7	Pilots (bottom active GND)	11	Step limit switch (NO)
4	Lighting push button 3 & 4 DIM (COM)	8	+ APC (bottom active GND)	12	Lighting push button 3 & 4 DIM (NO)





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REAR SIDE

O PicoMax 5 mm 4 pts	
No.	Description
1	+ Solar 1
2	- Solar 1
3	+ Solar 2
4	- Solar 2

P Clip-holder 8 mm 2 pts	
No.	Description
1	+ Refrigerator
2	- Refrigerator

Q Clip-holder 8 mm 2 pts	
No.	Description
1	+ Electrical bed
2	- Electrical bed

R Clip-holder 8 mm 2 pts	
No.	Description
1	+ Charger
2	- Charger

S Clip-holder 8 mm 2 pts	
No.	Description
1	+ Auxiliary Battery
2	- Auxiliary Battery

T Clip-holder 8 mm 2 pts	
No.	Description
1	+ Engine Battery
2	- Engine Battery

↓  
Connection

U 4 pt charger terminal	
No.	Description
1	+ Auxiliary Battery
2	+ Auxiliary Battery
3	- Auxiliary Battery
4	- Auxiliary Battery

V 3 pt charger AC plug	
No.	Description
1	Phase
2	Earth
3	Neutral





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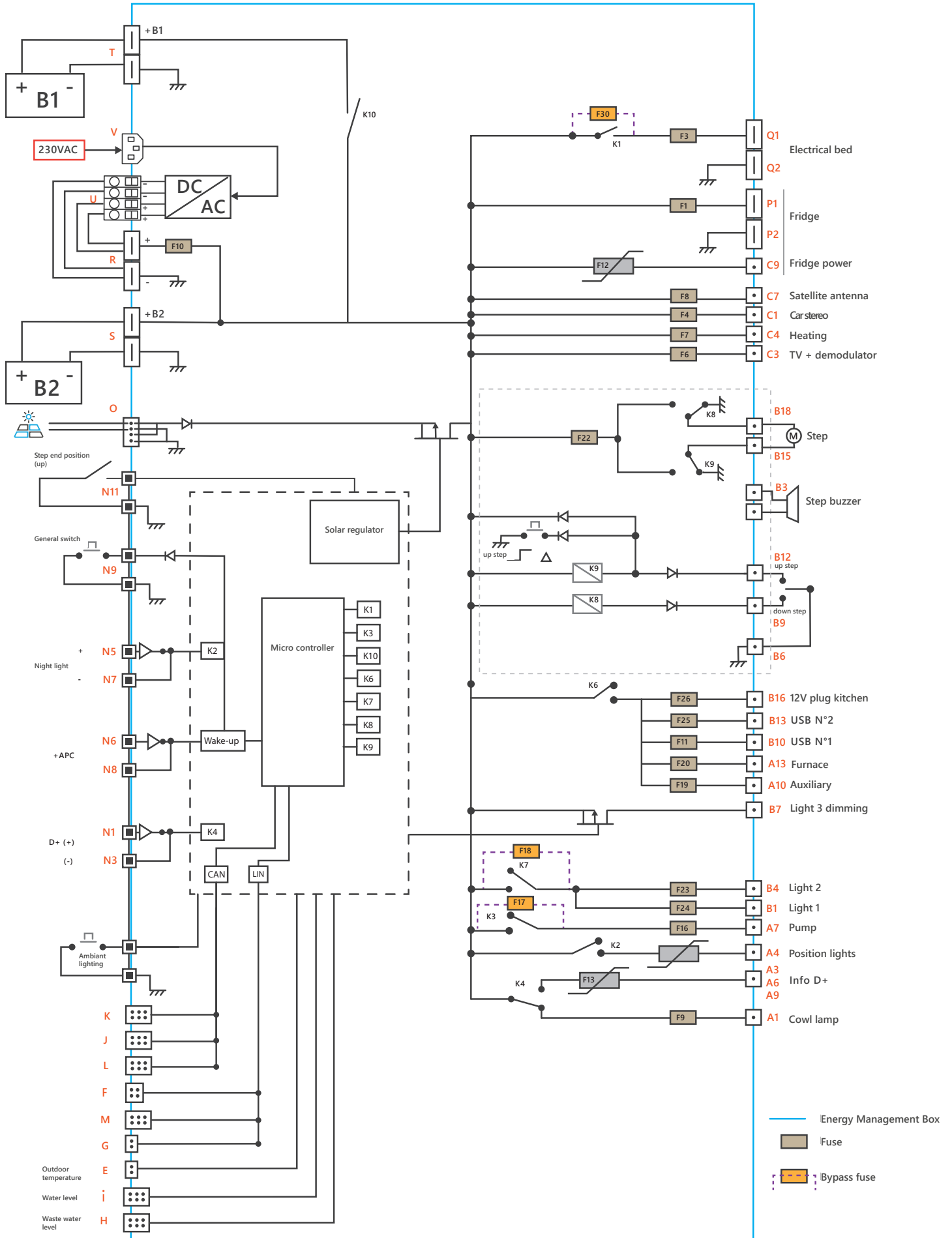
Plastics marker	Rating	Function	Diagram Marker
1	10A	Satellite antenna permanent	F8
2	10A	Heating permanent	F7
3	15A	Car radio permanent	F4
4	10A	TV-Demodulator permanent	F6
5	15A	12V Plug Kitchen	F26
6	20A	Step	F22
7	10A	USB plug no. 2	F25
8	10A	USB plug no. 1	F25
9	15A	Lighting 2	F23
10	15A	Lighting 1	F24
11	10A	Furnace	F20
12	10A	Auxiliary 1	F19
13	7,5A	Pump	F16
14	5A	Cowl lamp	F9
15	20A	Cooling permanent (power)	F1
16	25A	Electrical bed	F3
17	20A	Charger	F10
A		Lighting bypass	F18
B		Pump bypass	F17
C		Electrical bed bypass	F30D
D	25A	Bypass fuse	





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## Wiring







### Activation and extinction of the EMB unit

The unit is activated via:

- the ON button on the general switch
- presence of +APC (ignition key on ACC)
- connection of the vehicles to mains power (230VAC)

The unit is switched off when the following 3 conditions are met:

- absence of +APC (ignition key on OFF)
- the vehicle is not connected to mains power (230VAC)
- pressing the OFF button on the general switch

The unit is switched off if the auxiliary battery voltage is lower than 10V.

### Management of the step (active by default)

- The step may be controlled directly using a button (up/off/down) on dedicated inputs.
- The buzzer output is used to issue a warning when the engine has started and the step has not retracted.
- The "step retract" control and the buzzer stop automatically at the limit switch.
- When info D+ (engine running) appears, the step is automatically retracted.
- A 5-second timer cuts off power to the step (control held for too long, safety if limit switch out of order, etc.)

An emergency button on the unit forces the step to retract.

### Management of the ambient lighting output

This output is protected (5A) and can be used ON or OFF or with lighting variation (of 10% to 100%).

IMPORTANT: this output cannot be paired with an SFSP switch. For this a lighting unit must be added.

The ambient lighting switch input allows the "lighting 3 & 4 DIM" outputs to be controlled in ON/OFF mode and in variation.

### Management of heating connected to the Lin bus:

Heating control connected in Lin lets you switch on/off and switch to different modes according to the type of heating connected. Several parameters may be set:

- Ambient temperature setpoint in increments of 0.5°C (ALDE)/1°C (TRUMA), 0°C to 31.5°C
- Available electrical power thresholds (in increments of 10%), adapts automatically to the heating connected
- Adjustment of power thresholds for hot water (in increments of 10%), adapts automatically to the heating connected
- Adjustment of the type of energy source available (electrical/gas/fuel/multiple, etc.).
- Complete return to status of the heating
- Memorization of the setpoint and of the heating status.

### Automatisms after contact (D+)

Several automatisms are programmed when the engine starts: the antenna is retracted, the step is retracted, the cowl lamp is switched off, the electrical bed is blocked.



## Built-in coupler-separator

The coupler-separator ensures correct charging of the engine (B1) and auxiliary (B2) batteries by switching a switch to place the two batteries parallel according to specific safety rules.

(By definition we will use the term B1 for Engine Battery and the term B2 for Auxiliary Battery)

### **The coupler-separator of the EMB unit is active by default.**

Direction of coupling:

#### **B1 to B2**

Coupling if:

Presence D+ (engine running) AND voltage of B1 > 13.5Vdc  
AND coupling timing B1 passed (2 seconds)

#### **B2 to B1**

Coupling if:

- presence 230Vdc without threshold
- OR
- voltage of B2 > 13.5Vdc

#### **Decoupling if:**

Voltage B1/B2 < 12.7Vdc

AND decoupling timer of the coupler-separator passed (3 seconds)

#### **Safety decoupling:**

Presence of D+ and presence of 230VAC leads automatically to decoupling, in order to avoid placing two charging sources parallel (alternator and charger).

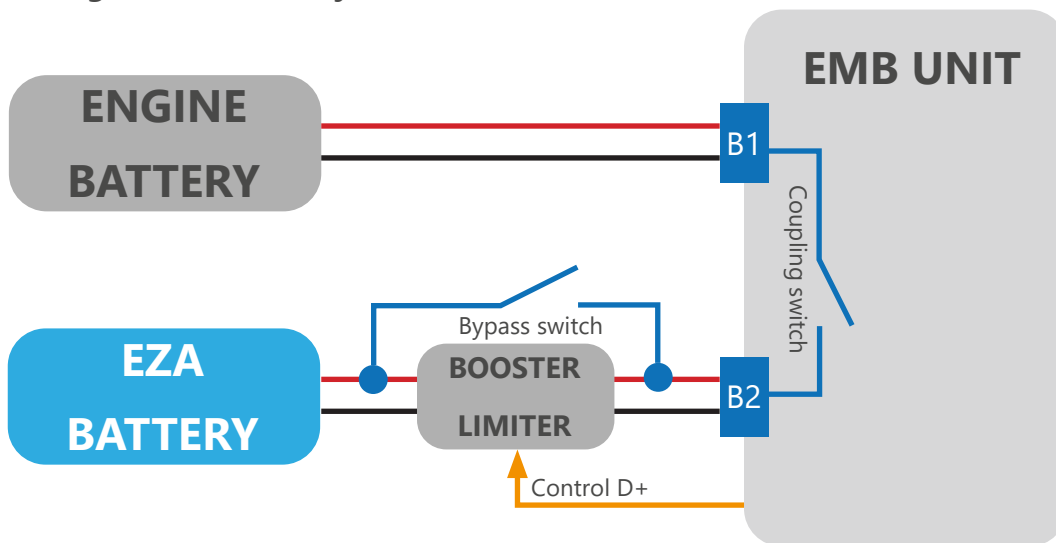
A temperature reading is taken by a temperature probe on the electronic circuit, close to the coupler contacts: heating to more than +70°C causes decoupling.

#### **Protection of the coupling switch:**

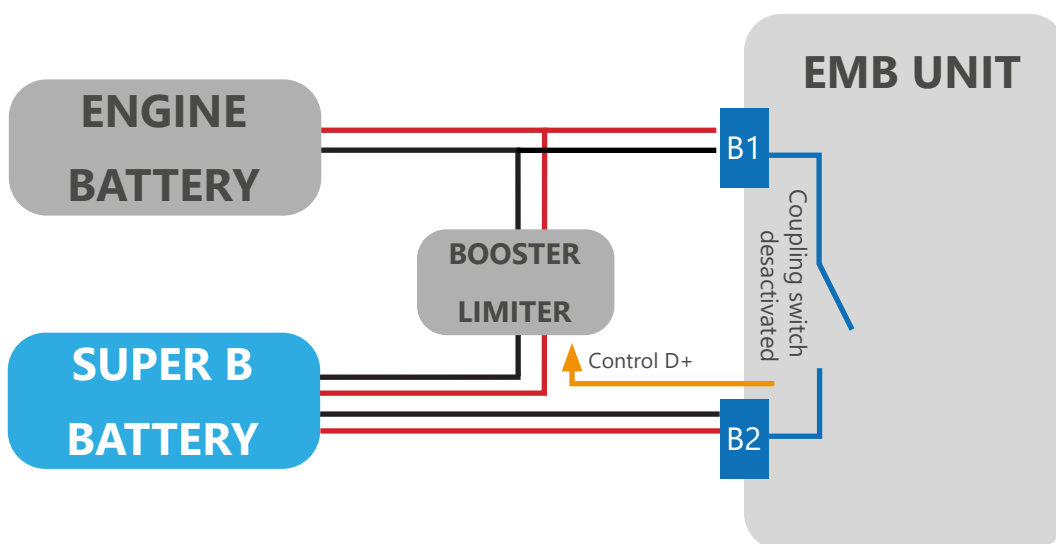
coupling blocked if the voltage of one of the B1 or B2 batteries is less than 8 Vdc.



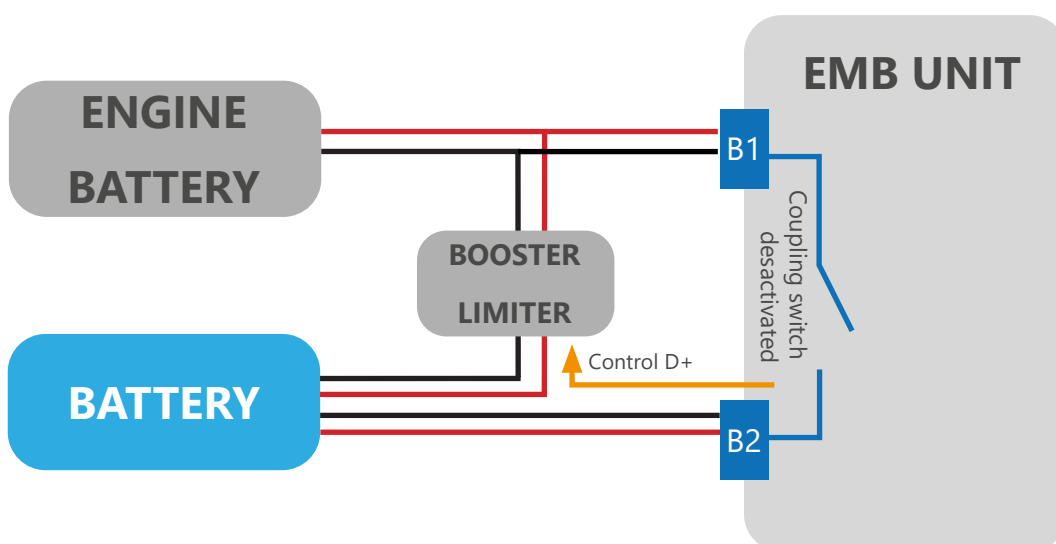
### Fitting the EZA battery



### Fitting the Super B battery



### Fitting the DC-DC converter





## Repair guide

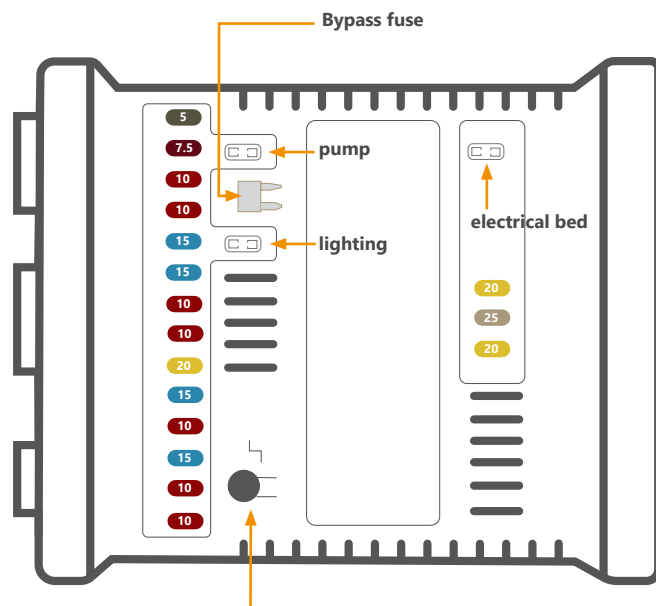
### Bypass functions

If there is a power outage, the main functions remain accessible thanks to the bypass fuse.

Simply take the bypass fuse and insert it into the connector corresponding to the desired function.

### Raising the step

To force the step to raise, press and hold the button intended for this purpose



**BEFORE CARRYING OUT REPAIRS, SWITCH OFF THE EQUIPMENT BY DISCONNECTING THE B1 AND B2 CONNECTORS AS WELL AS THE MAINS POWER SUPPLY.**

If one of the outputs is not working, first check the state of the fuse corresponding to the output (see p. 7). Before any repairs are performed, check the wiring, the state of the equipment and the connectors, the state of the battery and the fuses.

### In the following cases, contact the dealer:

- **Fuse: the defect persists despite the fuse being replaced**

- **Battery charger malfunction**

If the charger is not working, check the status of the light:

- red/orange: charging
- green: charged
- no light: charger not connected to power OR charger malfunction

Also check the fuse and the mains connection.

- **Malfunction of the solar regulator**



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## Legal notices

The manufacturer cannot be considered liable and declines all liability for damages suffered by individuals or property due to improper use and in reference to the warnings given in this manual.

SCHEIBER reserves the right to change the product characteristics in the interests of its customers.

The manuals supplied with this product may not be copied, transferred, transcribed, stored in a search system or translated into any language - in full or in part - in any manner whatsoever, without prior written consent from SCHEIBER.

Although every effort has been made to provide you with accurate and complete information in these manuals, we ask that you inform the SCHEIBER representative in your country of any error or omission that may have escaped our notice.

SCHEIBER reserves the right to change the characteristics of the equipment and software described in these manuals at any time and without notice.

## Our terms of warranty

### **SUBJECT OF THE WARRANTY:**

SCHEIBER guarantees its equipment against faults and hidden defects under the terms set out in articles 1641 et seq. of the French Civil Code. Repairs made during the warranty period do not change the terms and duration of this warranty, which is set at 2 years notwithstanding special cases. The services under the warranty require presentation of the invoice stating the warranty start date. It is up to the user to prove the manufacturing or assembly defect or the hidden defect in the material, according to legislation in force. Industrial warranties of any nature will terminate in all cases, at the latest fifteen months after provision of the equipment in our plants and stores, even if the shipment or assembly is deferred for any reason, but independent of the warranty.

### **WARRANTY EXCLUSIONS:**

This warranty is not applicable in the event of alteration, poor storage conditions before assembly or improper use of connection error devices, fall, impact, replacement of fuses with non-compliant values. It does not cover recalibration due to drift and normal aging of the equipment. Phenomena of corrosion or erosion of devices are not covered by the warranty.

Under no circumstances is SCHEIBER liable for equipment that is transformed, repaired or dismantled, even partially.

Warranty terms: shipping costs are payable by the customer. If the equipment received is non-compliant, the company reserves the right to refuse to repair the equipment free of charge and submits an estimate. For goods, outbound shipping is paid by the sender, and return shipping costs are covered by SCHEIBER if the repair or exchange was under warranty. For all operations the after-sales department covers only parts under specific warranties. Under no circumstances will labor and travel costs be covered.

Repairs, alterations or replacement of parts acknowledged to be defective shall not extend the warranty period.

### **LIMITS OF LIABILITY**

SCHEIBER shall under no circumstances be held liable for direct or indirect damages resulting from the use of the equipment or breakdowns or operating anomalies of the equipment.





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## Questions ?

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## Problem ?

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