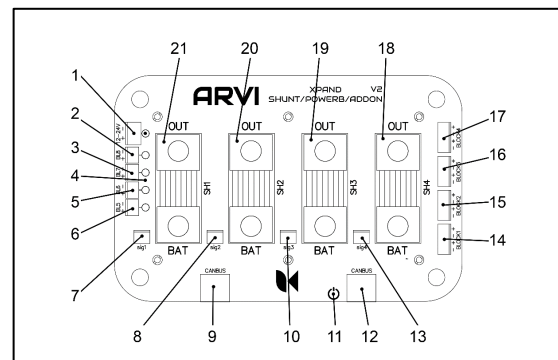
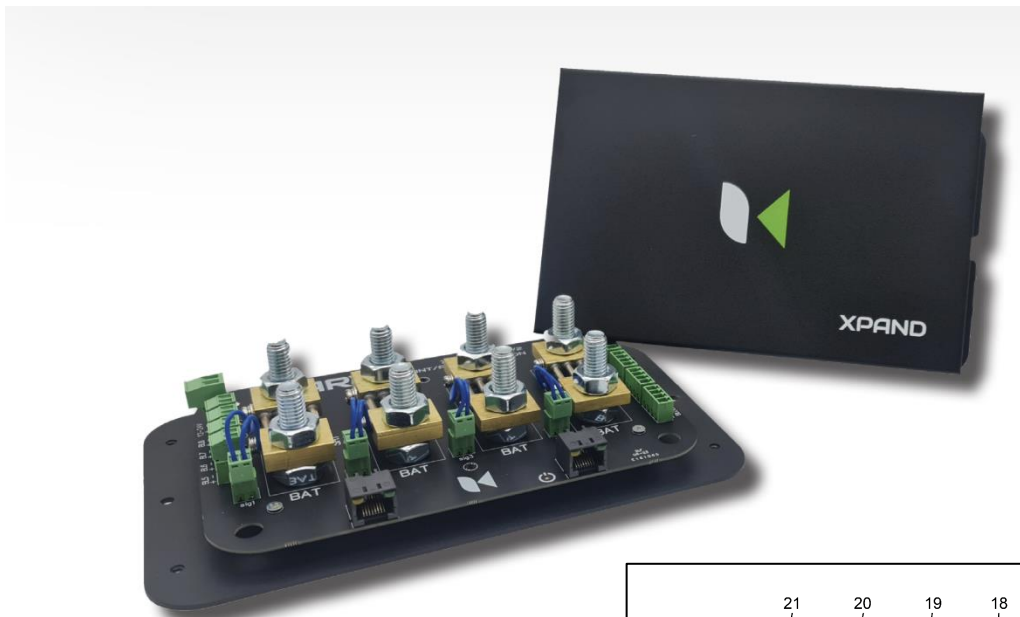




ARVIKON
SMART CARAVANING™

ARVIKON SMART CARAVANING™
XPAND ARVISHUNT
MODE 1 : Power Manager
Installation Manual



V 3.0.1 (August 2023)

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1 INTRODUCTION

1.1 UPDATED DOCUMENTATION

PLEASE NOTE THAT THE CONTENT OF THE MANUAL WILL BE CONTINUOUSLY UPDATED. TO ENSURE THAT YOU HAVE THE LATEST VERSION, DOWNLOAD THE LATEST VERSION AVAILABLE

WWW.ARVIKON.COM/OFFICIALDOCS



1.2 OVERVIEW

The ARVIKON SMART CARAVANING™ system consists of:

- 1) The **ARVIKON SMART CARAVANING™ kit** that contains:
 - ARVICORE electroblock
 - ARVIVIEW multi-touch display (available as 7, 10 or 15")
 - ARVIKON Smart Caravaning™ App (with remote access via ARVINET server)
 - ARVIKON MASTER APP
 - Accessory pack containing:
 - 19x connectors (2-8 pins),
 - 2x temperature probes
 - 10x water probes
 - 4x nuts M6
 - 1x mini-USB cable for connecting ARVIVIEW
 - 1x display jack connector
- 2) **ARVINET** server allowing remote access, updates, remote assistance;
- 3) An **XPAND ARVISHUNT expansion** which is a multipurpose shunt and RV Power manager;
- 4) **Compatible head units or car radios** that can replace the ARVIVIEW display in certain cases (contact dev@arvikon.com for more information).

Nota. ARVICORE is the next generation electroblock from ARVIKON that is designed specifically for digital switching in recreational vehicles. With over 70 inputs, ARVICORE seamlessly connects to more than 160 devices from top-tier manufacturers, allowing for simple yet intelligent control.

ARVICORE is an essential component of the ARVIKON SMART CARAVANING™ kit.

1.3 ABOUT

- This instruction manual contains all the necessary information for the installation of your XPAND ARVISHUNT expansion.

- This expansion is necessary when you want to control power devices with more than 30-40 A or 3000 W.
- For connecting compatible devices to your ARVICORE electroblock please see manual **M02 - Compatible Equipment Installation Guide**. Available at <http://www.arvikon.com/officialdocs>.
- For the activation of the ARVIKON Smart Caravaning™ system please see manual **M03 – System Activation Guide**. Available at <http://www.arvikon.com/officialdocs>.
- Please note that this manual is continuously updated. To ensure you have the latest version please visit <http://www.arvikon.com/officialdocs> or contact us at dev@arvikon.com

THIS MANUAL ALLOWS THE INSTALLATION OF THE ARVISHUNT IN MODE 1 (POWER MANAGER).

This means that this expansion will be used to perform shunt reading of: inverter, charger, booster and solar regulator. In case one of the shunts is not used, it can be used as a generic high power reader.

XPAND ARVISHUNT has other modes which are Smart Battery Manager and Multipurpose Shunt. Contact us for more information.

2 SAFETY AND START-UP INFORMATION

2.1 KNOWLEDGE OF SAFETY SYMBOLS



DANGER!

Failure to comply with this warning may result in danger to life or serious physical injury.



BEWARE!

Failure to observe this warning may result in injury.



ATTENTION!

Failure to observe this warning may cause damage to the equipment and/or connected loads.

2.2 GENERAL SAFETY INSTRUCTIONS

The design of this equipment complies with all applicable safety standards. However, failure to comply with safety regulations may result in injury to persons and even damage to the equipment itself.

Do not use the equipment if there is visible or known damage.

Do not attempt to repair the unit unless authorized by the manufacturer. If damage is observed, the equipment must be repaired immediately at an authorized ARVIKON® service center.



DANGER!

Accessible high current device.

Risk of serious injury or death due to short circuit.

- Do not make connections at the main terminals under voltage.
- If damage to the terminals is observed, disconnect the equipment immediately.
- Never install the product in areas of water or where it may come into contact with liquids.



BEWARE!

High temperatures

- During operation, the equipment reaches high temperatures that can cause burns.
- Never jumper a tripped electronic fuse.

- Do not store objects that can burn near the equipment (clothes, paper, etc.).
- Do not touch the internal components of the board until the power is off.

2.3 INTRODUCTION

This instruction manual contains all the information about the operation of the system and its proper installation. Be sure to follow the manual for installation and in case of doubts contact your distributor or authorized service.

2.4 OPERATION

HANDLING

The equipment is operated exclusively from the ARVIVIEW control unit, and also from a mobile device or PC. It is never operated on the equipment itself except to perform a HARD RESET on the button located for this purpose.



PROFESSIONAL SETTINGS

A number of settings regarding battery type, power supply, etc. must be made in the professional menu. These settings should only be made by personnel authorized by ARVIKON® and taking into account the type of installation in the vehicle.

A wrong adjustment can lead to equipment malfunction and even damage to the equipment or connected equipment. Use the COMPATIBLE EQUIPMENT INSTALLATION manual which can be found at <http://www.arvikon.com/officialdocs>.

2.5 START-UP



ATTENTION!

Failure to observe this warning may result in damage to the equipment and/or connected equipment.

- Ensure that the batteries are correctly installed with fuse protection
- Ensure that all loads are properly connected.
- Access the professional settings menu and configure the equipment accordingly.

3 TECHNICAL INFORMATION

3.1.1 Technical Data

ARVISHUNT

- Working Voltage - 12VDC / 24VDC
- Standby consumption 0.02A

3.1.2 Physical data

DIMENSIONS

- ARVIKON XPAND ARVISHUNT - 230 X 135 X 60 mm (LA/AN/AL) including fixings
- TOTAL WEIGHT - < 1Kg

3.1.3 Environmental parameters

Operating temperature	-20°C to +50°C
Storage temperature	-20°C to +70°C
Humidity	Dry environment only
ROHS	YES

3.1.4 Maintenance



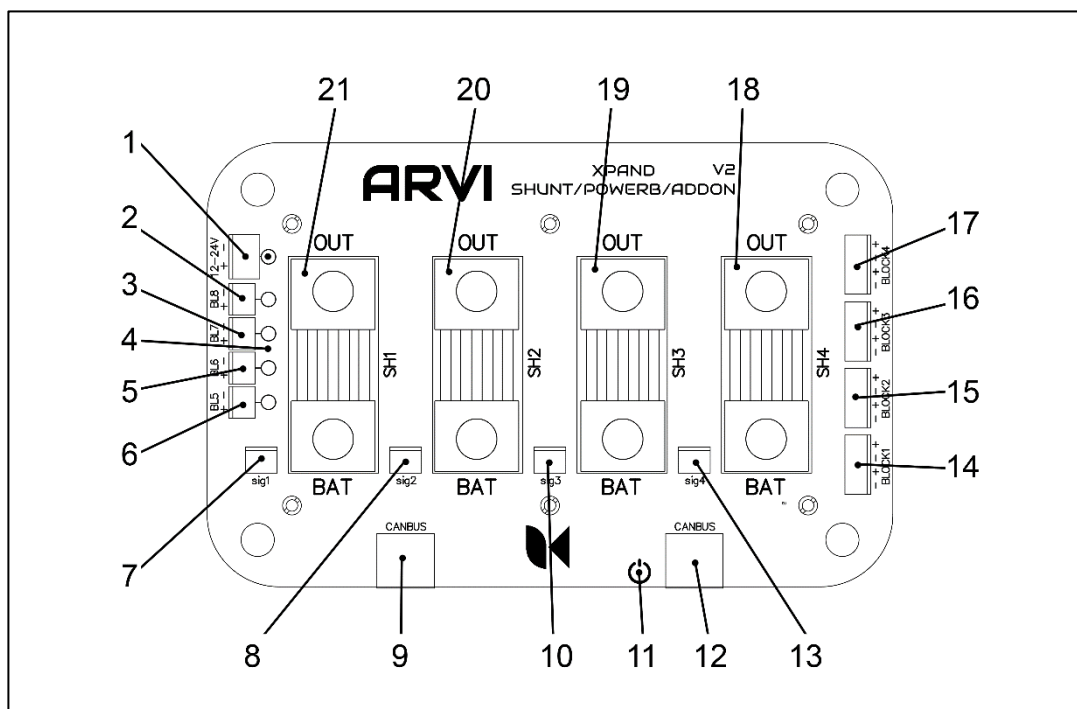
- Visual inspection once a year to make sure that the equipment is clean and dry.
- Dust and lint removal from the heatsink and/or central fan

3.1.5 Installation



- Install the ARVIKON® equipment vertically in order to favor heat dissipation and avoid failures due to accidental metallic contacts.

4 CONNECTOR IDENTIFICATION



ARVISHUNT - TOP VIEW

1	12-24V - POWER SUPPLY FOR RELAYS	12	CANBUS B - ARVI CANBUS CONNECTION
2	BLOCK 8 - BAT 1 RELAY OUTPUT	13	SIG 4 - SHUNT READING SH4
3	BLOCK 7 - BAT 2 RELAY OUTPUT	14	BLOCK 1 - UNUSED
4	LED - LED STATUS RELAYS	15	BLOCK 2 - UNUSED
5	BLOCK 6 - BAT 3 RELAY OUTPUT	16	BLOCK 3 - UNUSED
6	BLOCK 5 - BAT 4 RELAY OUTPUT	17	BLOCK 4 - UNUSED
7	SIG1 - SHUNT READING SH1	18	SH4 - SHUNT 4
8	SIG2 - SHUNT READING SH2	19	SH3 - SHUNT 3
9	CANBUS A - ARVI CANBUS CONNECTION	20	SH2 - SHUNT 2
10	SIG 3 - SHUNT READING SH3	21	SH1 - SHUNT 1
11	LED POWER SUPPLY STATUS		

BLOCK	PIN	SIGNAL	USO	COLOR	SEC.
1	1	+	NO USE	--	--
	2	-		--	
	3	+	NO USE	--	--
	4	-		--	
2	1	+	NO USE	--	--
	2	-		--	
	3	+	NO USE	--	
	4	-		--	
3	1	+	NO USE	--	--
	2	-		--	
	3	+	NO USE	--	
	4	-		--	
4	1	+	NO USE	--	--
	2	-		--	
	3	+	NO USE	--	
	4	-		--	
5	1	+	INVERTER RELAY OUTPUT	--	--
	2	-		--	--
6	1	+	CHARGER RELAY OUTPUT	--	--
	2	-		--	--
7	1	+	BOOSTER RELAY OUTPUT	--	--
	2	-		--	--
8	1	+	SOLAR RELAY OUTPUT	--	--
	2	-		--	--
SH1	--	BAT	BATTERY CONNECTION (+)	RED	--
	--	OUT	CONNECTION TO INVERTER (+)	RED	--
SH2	--	BAT	BATTERY CONNECTION (+)	RED	--
	--	OUT	CONNECTION TO CHARGER (+)	RED	--
SH3	--	BAT	BATTERY CONNECTION (+)	RED	--
	--	OUT	BOOSTER CONNECTION (+)	RED	--
SH4	--	BAT	BATTERY CONNECTION (+)	RED	--
	--	OUT	CONNECTION TO SOLAR (+)	RED	--
CANBUS	A	CAN	CONNECTION WITH ARVICORE	--	--
	B	CAN	CONNECTION TO OTHER ARVI EQUIPMENT	--	--
12-24V	1	+	POWER SUPPLY FOR RELAY ACTIVATION	RED	> 1 mm2
	2	-		BLACK	> 1 mm2

5 CONNECTIONS

5.1 INVERTER

The inverter must be placed in the SHUNT SH1, (OUT) a suitable M10 terminal must be used and wired according to the inverter specifications (see diagram 7.1/7.2).

SHUNT
SH1

- Current limit 400A
- Actual reading limit 320A
- Peak current limit 480A (30 min max)
- Accuracy +- 0.5%.
- This input can be operated from the ARVIVIEW display.

To activate or deactivate the inverter by switching off the power supply, an external relay suitable for its current can be used through the Block 8 output (see title 4).



- Use a suitable tool for crimping the terminals and be sure to correctly calculate all the parameters for wiring, current, etc.
- The shunt can reach high temperatures during use.
- Incorrect installation can cause a fire.

Arvmarine Control Systems SL is not responsible for damages resulting from improper installation or misuse.

5.2 CHARGER

The inverter must be placed in the SHUNT SH2, (OUT) a suitable M10 terminal must be used and wired according to the inverter specifications (see diagram 7.1/7.2).

SHUNT
SH2

- Current limit 400A
- Actual reading limit 320A
- Peak current limit 480A (30 min max)
- Accuracy +- 0.5%.
- This input can be operated from the ARVIVIEW screen.

To activate or deactivate the charger by switching off the power supply, an external relay suitable for its current can be used through the Block 7 output (see title 4)



- Use a suitable tool for crimping the terminals and make sure that all parameters for wiring, current etc. are calculated correctly.
- The shunt can reach high temperatures during use.
- Incorrect installation may cause a fire.

Arvmarine Control Systems SL is not responsible for damages resulting from improper installation or misuse.

5.3 BOOSTER

The inverter must be placed in the SHUNT SH3, (OUT) using an M10 terminal and wiring according to the inverter specifications (see schematic 7.1/7.2).

SHUNT
SH3

- Current limit 300A
- Actual reading limit 240A
- Peak current limit 360A (30 min max)
- Accuracy +- 0.5%.
- This input can be operated from the ARVIVIEW screen.



- Use a suitable tool for crimping the terminals and be sure to correctly calculate all the parameters for wiring, current, etc.
- The shunt can reach high temperatures during use.
- Incorrect installation can cause a fire.

Arvimarine Control Systems SL is not responsible for damages resulting from improper installation or misuse.

5.4 SOLAR REGULATOR

The inverter must be placed in the SHUNT SH4, (OUT) using an M10 terminal and wiring according to the inverter specifications (see schematic 7.1/7.2).

SHUNT
SH4

- Current limit 300A
- Actual reading limit 240A
- Peak current limit 360A (30 min max)
- Accuracy +- 0.5%.
- This input can be operated from the ARVIVIEW screen.

To activate or deactivate the inverter by switching off the power supply, an external relay suitable for its current can be used through the Block 5 output (see title 4).

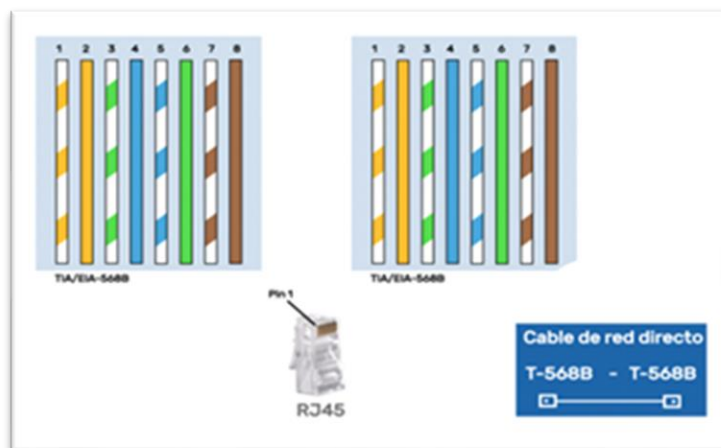


- Use a suitable tool for crimping the terminals and make sure that all parameters for wiring, current etc. are calculated correctly.
- The shunt can reach high temperatures during use.
- Incorrect installation can cause a fire.

Arvimarine Control Systems SL is not responsible for damages resulting from improper installation or misuse.

5.5 CANBUS

In this connector we must connect a RJ45 CAT6 T-568B cable directly between the BL9/1 connector of the ARVICORE board and one of the CANBUS of the ARVICORE board. The other CANBUS connector is left free (*It is not necessary to install a terminator as our hardware has it built-in*).



Attention, the electronics of the ARVISHUNT board itself is powered through the same CANBUS cable, it is not necessary to power this board with any block. If the ARVICORE board is not powered, the ARVISHUNT board will not be powered.

5.6 OUTPUTS OF RELAY ---

This output is only available when the "12-24V" block has been supplied with a voltage in this range.

This output has a LED indicator when the relay is active. *Only from hardware V2 onwards*

When the equipment is turned on from the ARVIVIEW screen, the relay outputs are activated to supply power to your equipment. When the equipment is turned off from the ARVIVIEW screen, the output is de-energized and the relay cuts off the power supply to the equipment.

BLOCK 5

- RELAY OUTPUT FOR SOLAR CONTROLLER
- This output can be operated from the ARVIVIEW screen.

BLOCK 6

- RELAY OUTPUT FOR BOOSTER

BLOCK 7

- RELAY OUTPUT FOR CHARGER
- This output can be operated from the ARVIVIEW screen.

BLOCK 8

- RELAY OUTPUT FOR INVERTER
- This output can be operated from the ARVIVIEW screen.

5.7 RELAY POWER SUPPLY ---

This input is a power supply for the relay operation, it is NOT a power supply for the board, it can be from 12 to 24V depending on the voltage of the relays to be operated. If this block is not supplied, the relays will not work.

BLOCK 12-24V

Power supply for relay control

6 COMBINED EQUIPMENT

6.1 CHARGER - INVERTER (COMBI) WITH INDEPENDENT CABLES _____

If the COMBI equipment has separate wiring for loading and unloading, the connections must be made as separate equipment (5.1, 5.2, 5.3 y 5.4).

6.2 CHARGER - INVERTER (COMBI) WITH A SINGLE WIRING LINE _____

If the COMBI equipment uses the same cables for inverter and charger, the SHUNT SH1 must be used and the following function must be activated in the "professional settings" menu of the ARVIVIEW screen: (INVERTER AND COMBI CHARGER) (See diagram 7.3/7.4).

6.3 BOOSTER - SOLAR REGULATOR (COMBI) _____

If the booster and the solar regulator are a COMBI and share load wiring, it must be connected to the SHUNT SH3 and the system acts automatically as follows:

- When the engine is started, the current reading appears on the alternator.
- When the motor is off, the current reading is solar.

(See scheme 7.3/7.4)

6.4 FREE SHUNTS

If a single line COMBI inverter charger (5.2) is used, the SH2 shunt is free.

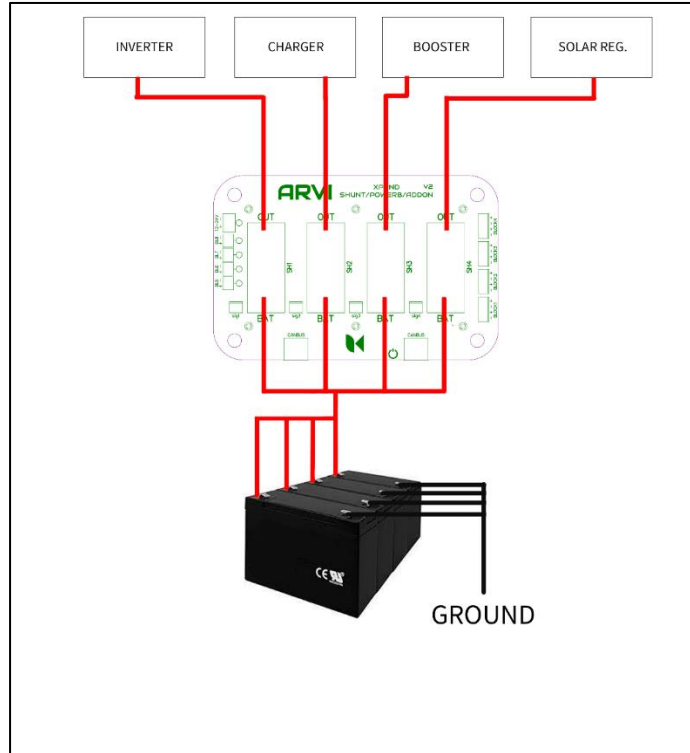
If a booster and solar COMBI (5.3) are used, the SH4 shunt is free.

When these shunts are free, they can be used to measure any consumption of the system that is not contemplated in the general equipment. It is only necessary to connect the BAT side to the auxiliary battery and the OUT side to any load. This consumption will be reflected in the "system consumption" dial.

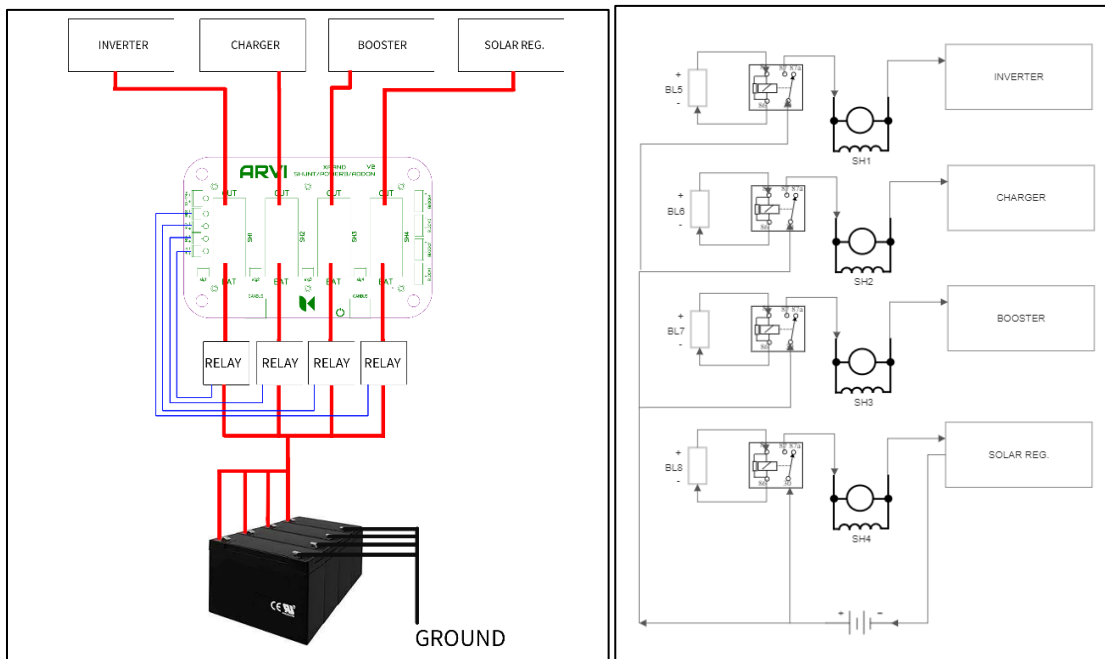
(See diagram 7.5)

7 MOUNTING EXAMPLES

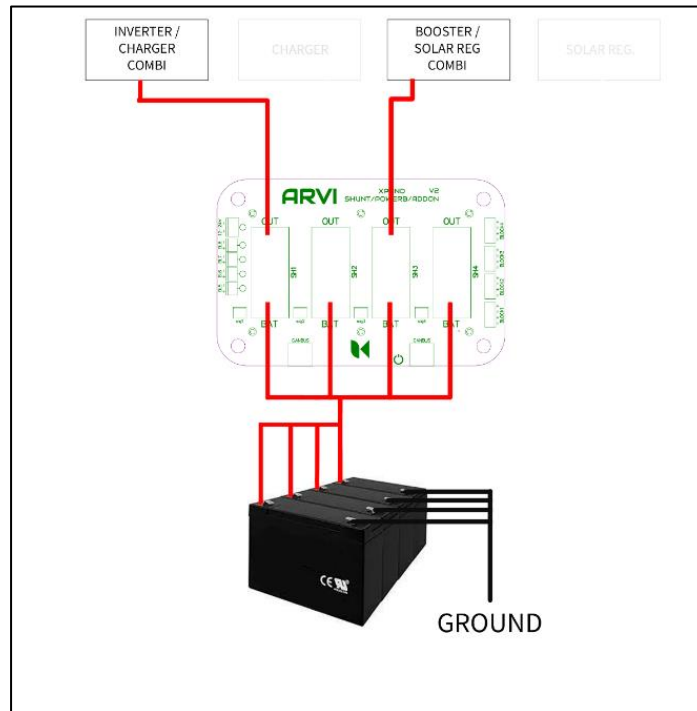
7.1 MOUNTING IN NORMAL MODE



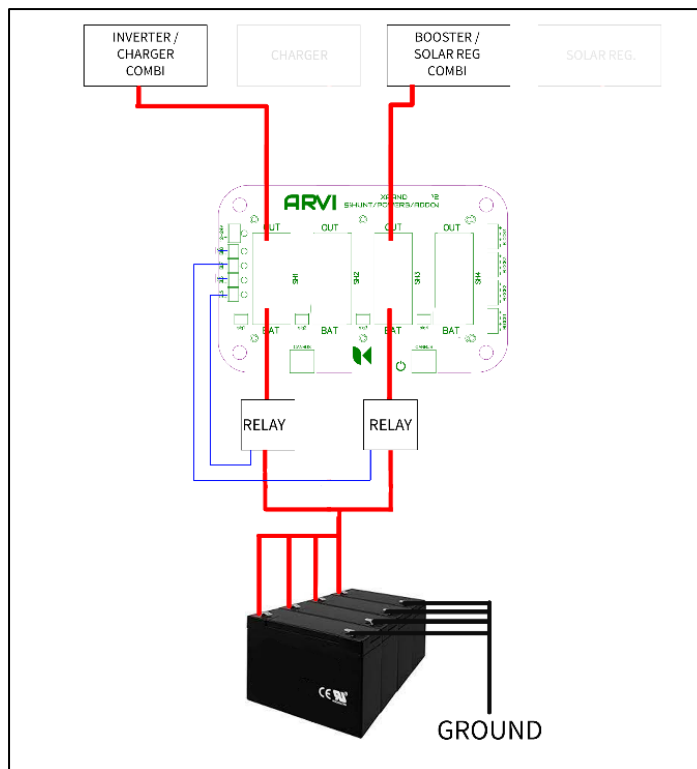
7.2 MOUNTING IN NORMAL MODE WITH RELAYS



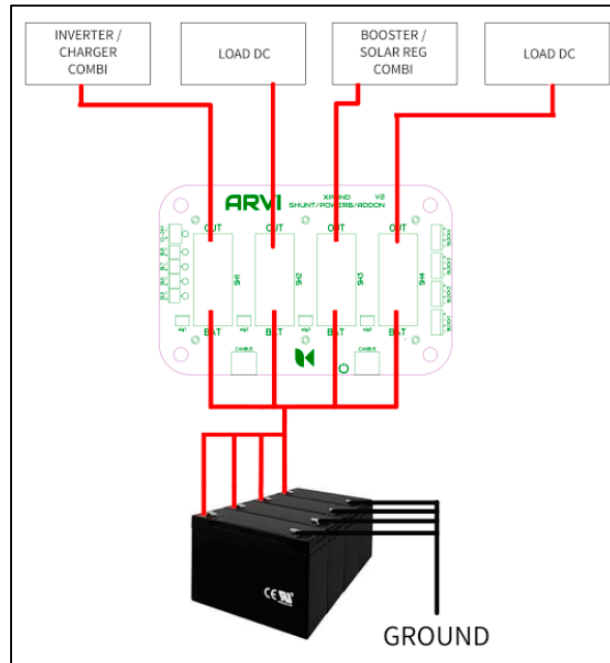
7.3 MOUNTING IN COMBI MODE. IT IS POSSIBLE TO MOUNT ONE OR BOTH COMBINED UNITS.



7.4 MOUNTING IN COMBI MODE WITH RELAYS. IT IS POSSIBLE TO MOUNT A SINGLE COMBINED UNIT OR BOTH.



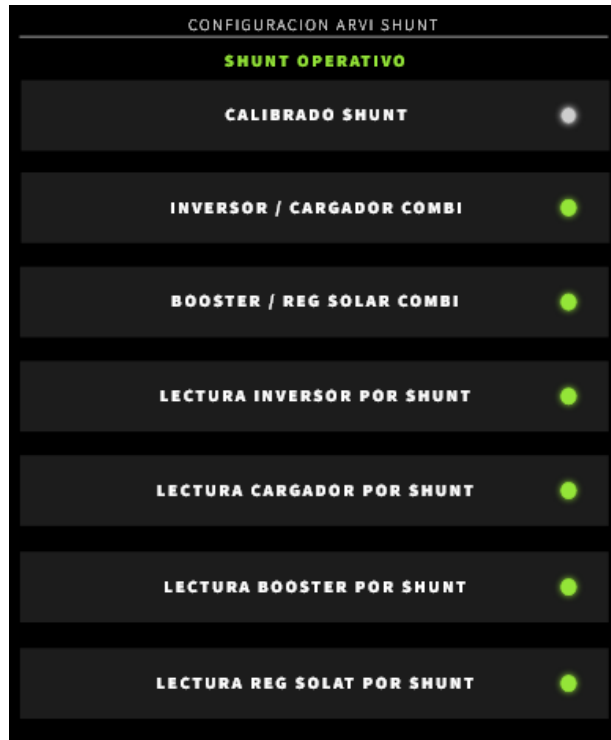
7.5 MOUNTING IN COMBI MODE AND WITH LOAD ON THE FREE SHUNTS.



8 CONFIGURATION IN THE APP

8.1 ARVISHUNT EXPANSION SETTINGS MENU

This is the menu corresponding to the configuration of the ARVISHUNT expansion, it is located under: "**PROFESSIONAL SETTINGS**". All functions are explained below.



8.2 CHECK CORRECT CONNECTION OF THE ARVISHUNT EXPANSION.

Go to "Professional Settings" and scroll down to "**ARVISHUNT SETTINGS**".

In the first field, the state of the expansion is indicated, which has 3 possible states.

- **NOT CONNECTED** - Shunt not detected. Correctly connect the RJ45 cable according to the installation manual and make sure the ARVICORE board is powered.
- **SHUNT OPERATING** - The shunt is functioning properly.
- **SHUNT FAILED** - The shunt is faulty. Disconnect the CANBUS cable, wait a few minutes and reconnect it. If this does not solve the problem, the equipment is faulty.



8.3 SHUNT CALIBRATION



1. Install all the equipment and its wiring
2. Turn off all equipment (They should not be in STAND BY).
3. Click on "CALIBRATE SHUNT".

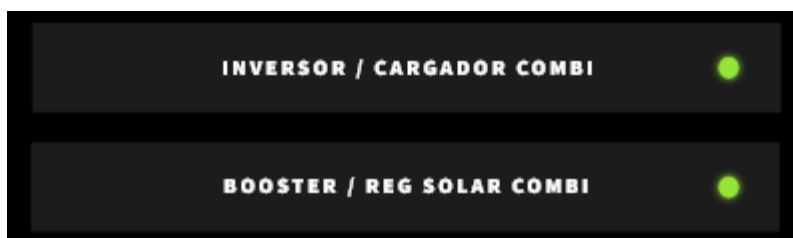
When you click on the "SHUNT CALIBRATE" option, the button will flash 3 times and the calibration will be successful.

WARNING: The inverters consume between 1 and 3 amperes at rest even when the button is turned off, since the internal circuitry is always powered. This consumption is not constant and will depend on the inverter model.

NOTICE: The chargers may deliver a small charge some time after being disconnected from the mains.

NOTICE: The shunts have a margin of +/- 5%, the measurement is calibrated in the laboratory, but may vary with respect to other monitors that have their own calibration and/or their own accuracy margin.

8.4 ACTIVATE READING OF COMBI DEVICES



By means of these options, you select whether the equipment to be measured is COMBI so that the system can read them properly.

When these functions are activated, shunts are free and can be used to measure any system consumption not covered by the general equipment (See 6.4).

8.5 CHOOSING THE CURRENT READING PROVIDER



By means of these options, you can choose where the current readings will come from, since even if you have the shunt board, you can also use the internal readings of the ARVICORE board if the consumptions do not exceed the limits of the ARVICORE board.

For this purpose, 4 buttons are available to activate or deactivate the SHUNT readings.

