



Albatross[®] control system

ALBACOMBI

ANALOGUE TO NMEA2000 CONVERTER



USER MANUAL (ENGLISH)

V1.0.7 REV. FEBRUARY 2023

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The AlbaCombi has been certified to comply with the European directive for Electromagnetic Compatibility (EN60945) and is appropriately CE marked. Operation of the unit should be in conjunction with appropriate CE approved shielded connectors and cabling used in accordance with the CE directive EN60945. Any EMC related issues should be reported to Emmi Network S.L. immediately to allow the company to rectify or resolve EMC related problems in accordance with its obligations under EN60945.



Product Disposal

Please dispose of this product in accordance with the WEEE Directive. The product should be taken to a registered establishment for the disposal of electronic

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1.PRODUCT OVERVIEW

The new AlbaCombi is a second-generation device, built following our successful Alba line of converters, that translate analogue signals from all over the boat to an NMEA2000 BUS.

The unit has been designed to connect in parallel to an existing gauge, so existing instruments can still be used.

The AlbaCombi can be used to get engine data, tank levels, alarm status, generic pressure, and temperature indications from any 4-20mA sensor.

You get twelve 0V to 32V inputs that can be used for anything from reading voltages of batteries to interfacing with any analogue gauges. Six channels can be configured to measure resistance from any industry standard engine sensor.

Also, there are two RPM inputs, one PTC temperature input, one shunt and two relay outputs.

All twelve resistance and voltage channels have comprehensive calibration that allow you to create an 8-point calibration table or select a predefined industry standard calibration table for most common sensors and gauges.

The AlbaCombi has an Ethernet port that will allow web-based calibration. Just connect your laptop to the Alba-Combi via Ethernet and you will get to the calibration and testing page. No calibration tools or special interfaces required. This device is future proof and can be upgraded in the field via its ethernet port.

1.1 Specifications

SPECIFICATIONS IN / OUT	
Analogue Inputs	6 x Resistive (0 to 600 Ohm) or Voltage (0-32V)
	6 x Voltage (0-32V)
	2 x RPM W signal or magnetic sensor
	1 x Precision temperature PTC1000
	1 x 100mV current shunt
Analogue input precision	1% or better
Relay out	2 x Open collector output
Data in/out	Ethernet port (calibration and monitoring)
	RS232 (module programming)
	Isolated CAN NMEA2000

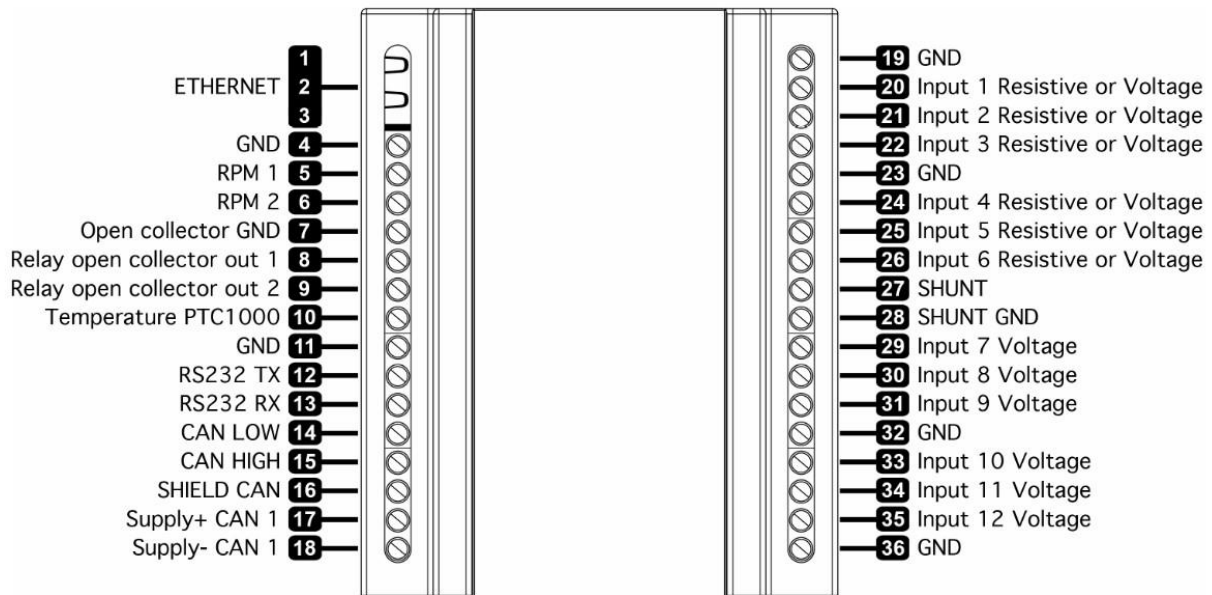
NMEA2000 Parameter Group Numbers (PGN's)	
Periodic	PGN127488 Engine Parameters, Rapid Update
	PGN127489 Engine Parameters, Dynamic
	PGN127493 Transmission Parameters, Dyna.
	PGN127505 Fluid Level
	PGN127508 Temperature
	PGN130314 Pressure
	PGN130316 Temperature
	PGN130576 Trim Tab Status

ELECTRIC SPECIFICATIONS	
Tension	9-32V DC from the NMEA2000 bus
Consumption	150mA
Equivalent load	3 LEN as per NMEA2000

MECHANICAL SPECIFICATIONS	
Size	104mm x 86mm x 59mm (DIN 43880 size 6)
Weight	230g
Mounting	DIN Rail Clip EN 50.022
Case material	Top PC/UL 94-V0, Base PPO / UL 94-V0

ENVIROMENTAL SPECIFICATIONS	
Protection Class EN60529	IP20
Working temperature	-15°C to +55°C
Storage temperature	-25°C to +85°C
Relative humidity	93% HR @ 40°C IEC60945-8.3
Vibration	2-13.2Hz @ ±1mm
	13.2-100Hz @ 7m/s ² IEC60945-8.7
Corrosion	4x7 days @ 40°C, 95%HR after two hour salt spray IEC60945-8.12
E.M.C.	Emission IEC60945-9
	Immunity IEC60945-10

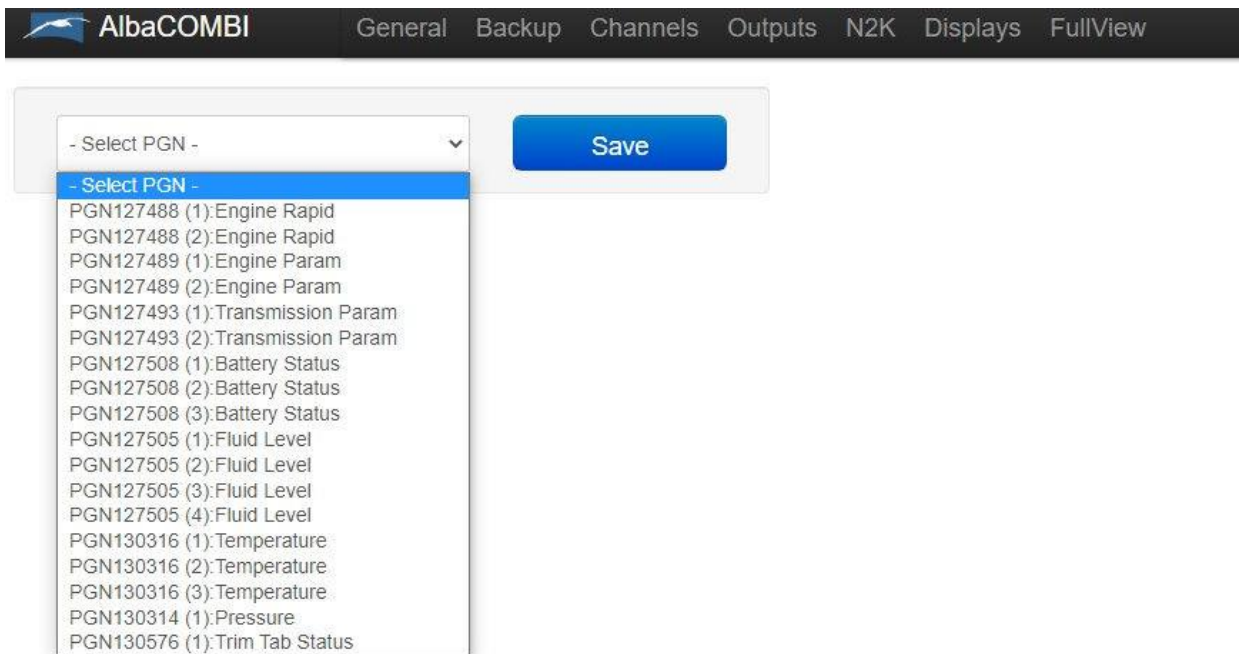
IMPORTANT: In older versions of AlbaCombi maximum Voltage allowed to power supply the AlbaCombi was 9-18V DC. If you have any doubts to know which version, do you have, please contact us



1.2 PGNs Supported

The Alba-Combi will convert all those channels to temperature, pressure, voltage, tank levels, current, engine status, etc. You will be able to use that information to populate all the available 15 NMEA2000 PGNs.

- PGN 127488 – Engine Parameters, Rapid Update (2)
- PGN 127489 – Engine Parameters, Dynamic (2)
- PGN 127493 – Transmission Parameters, Dynamic (2)
- PGN 127508 – Battery Status (3)
- PGN 127505 – Fluid Level (4)
- PGN 130316 – Temperature, Extended Range (4)
- PGN 130314 – Pressure (1)
- PGN 130576 – Trim Tab Status (1)



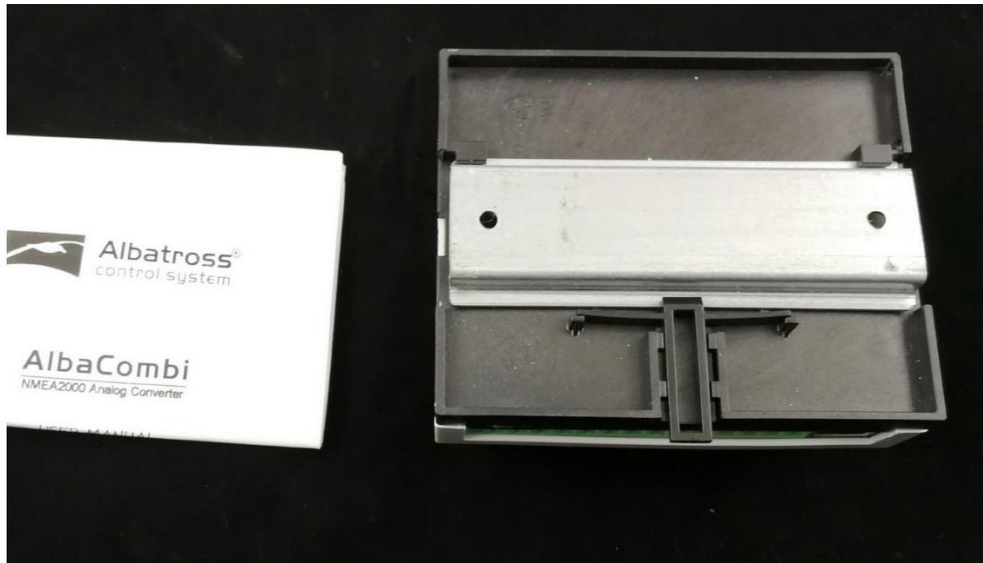
Screenshot from web-interface (N2K Option)

1.3 Din Rail Mounting

Requirements:

A top hat rail, type EN 50 022 or a G section rail, type EN 50 035.

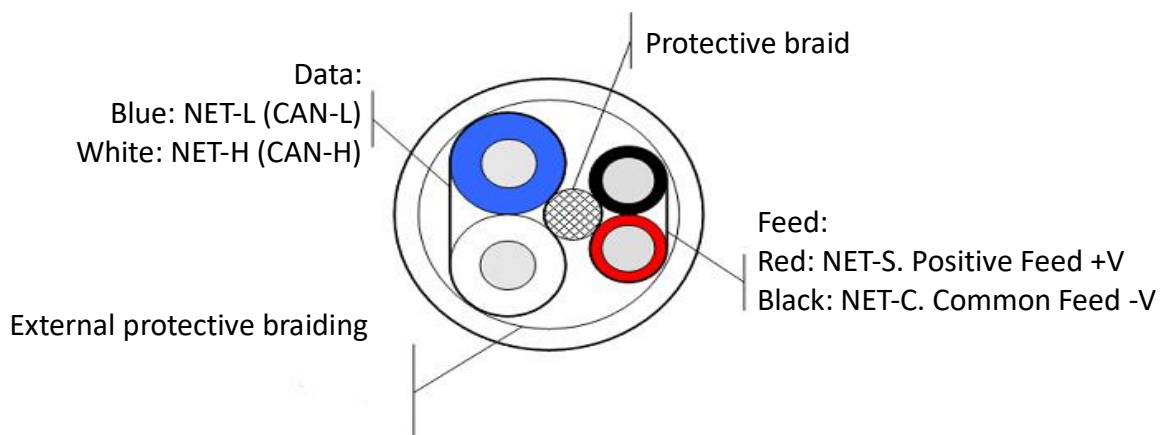
Mounting using a different rail type or an alternative mounting kit may breach the terms and conditions of the guarantee.

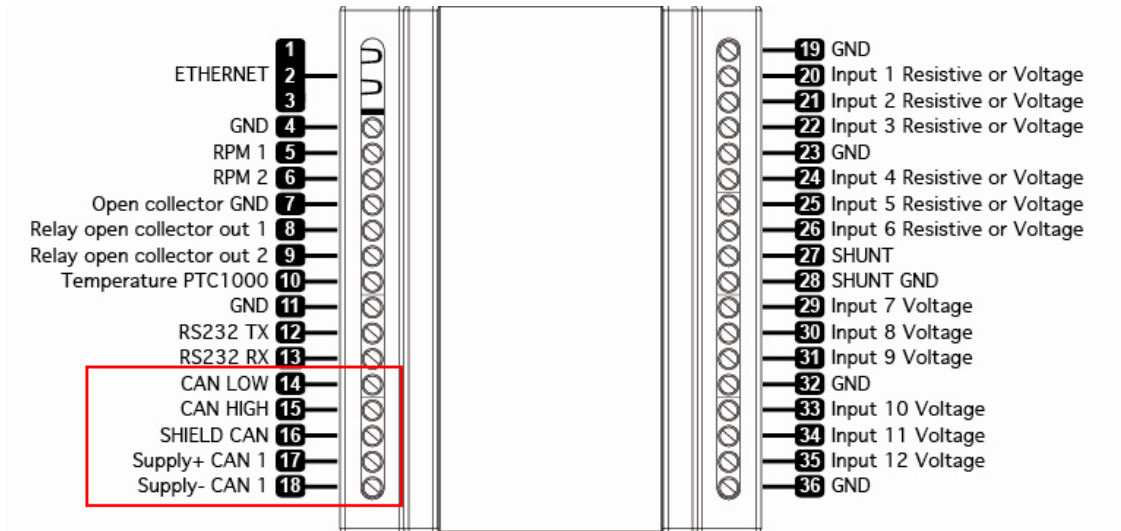


1.4 NMEA2000 Cable Connection

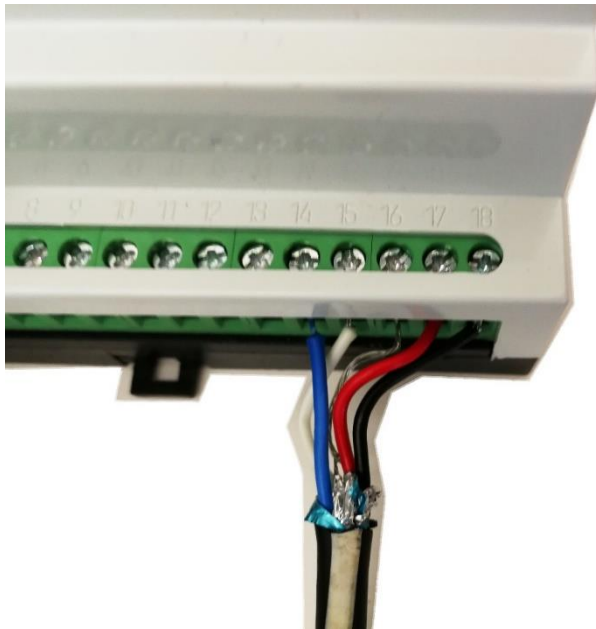


Normal connection with a NMEA2000 Spur Cable





For Raymarine SeataalkNG Network you can use the following:



Connection with a stripped cable SeataalkNG Cable (Raymarine N2K cable).

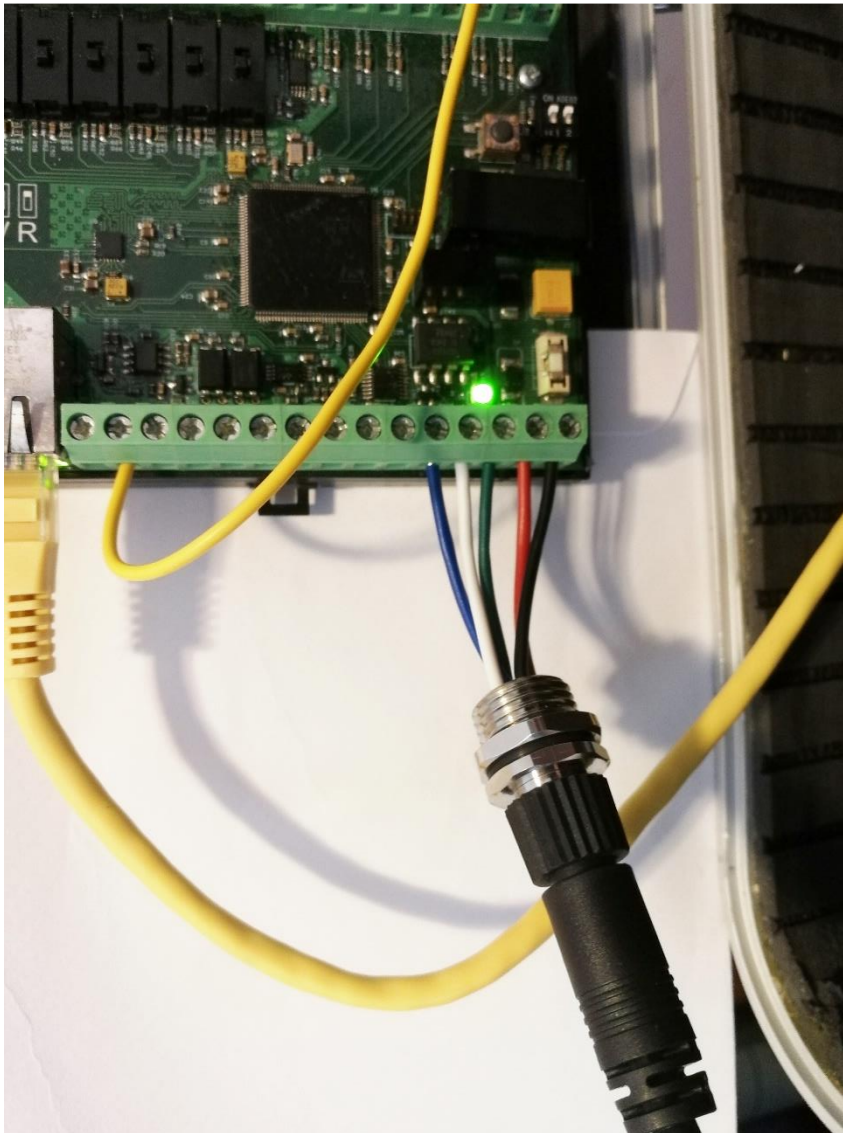


You can use the SeataalkNG Spur Cable (ref: A06043), sold separately . With you can connect directly

Connection alternatives for NMEA Networks



Reference Actisense A2K-PMW-M (sold separately) Spur Connector NMEA2000 Male



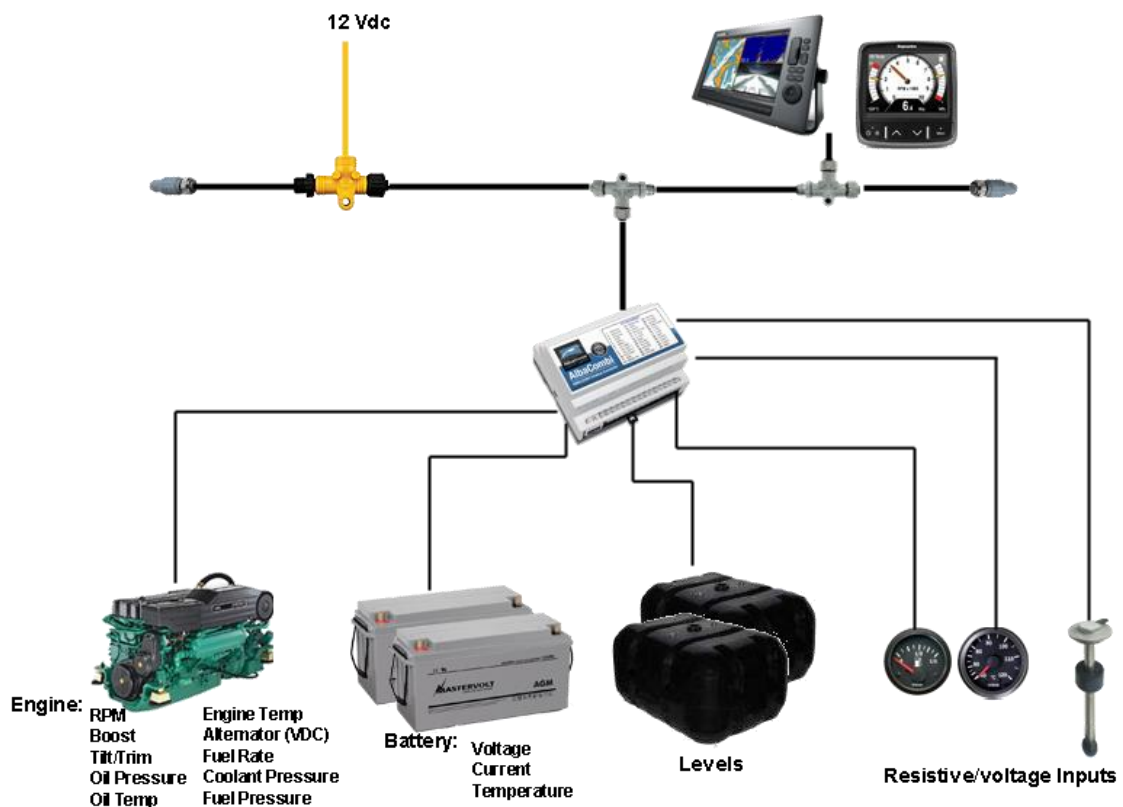
Connection with the accessory A2K-PMW-M (sold separately), easier to connect.

1.5 NMEA2000 Networks

NMEA 2000 devices will only communicate with each other when connected to a powered and correctly terminated NMEA 2000 network.

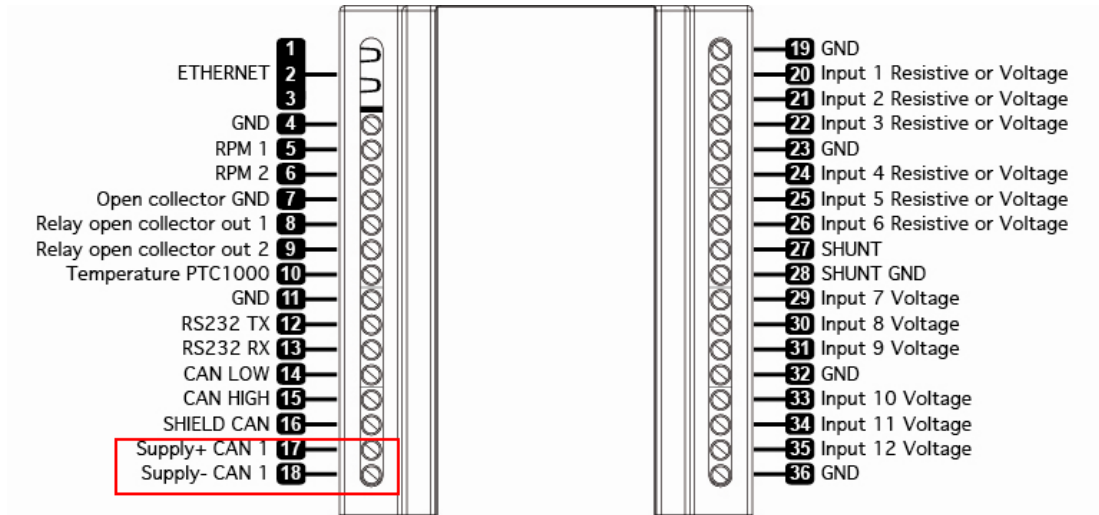
All networks need to be powered and terminated correctly to allow data to be reliably transmitted on the network. T-Pieces are needed to connect each device to the network. Additional cable lengths can be used between any of the connectors to extend the length of the network. Ensure the NMEA 2000 rules for cable length are adhered to.

Cable Type	Max Length
Per drop cable	6 m
Sum of all drop cables	72 m
Micro Backbone (terminator to terminator)	100 m
Mini Backbone (terminator to terminator)	200 m



1.6 Power Supply input of AlbaCombi

To switch the unit on you should connect the 17 and 18 inputs to 9-32Vdc. These inputs are the same as NMEA supply, thus if you supplied the NMEA bus, you don't need to add extra power to the module works.



1.7 NMEA2000 Minimum Network Requirements

All NMEA2000 networks require a 12v DC supply.

In addition, a correctly functioning network will require the following components:

- 1 x Power-T
- 2 x Terminating Resistors
- 2 x T-Pieces (one per connected device)
- 1 x NMEA2000 compatible display

We can supply all these parts, but are sold separately.

2. Installation & Configuration

1. Select mounting location: Ensure the AlbaCombi can be mounted in a suitable and dry location relative to the NMEA2000 bus and the senders or gauges.
2. Connect to the NMEA2000 network
3. Connect the Gauge inputs
4. Connect the Power to the AlbaCombi
5. Configure the AlbaCombi

2.1 First Start and IP Configuration and AlbaCombi Web-Interface

2.1.1 For Windows

AlbaCombi must be configured in the AlbaCombi Web-Interface. To get inside the AlbaCombi Web-Interface you must be well configured your computer IP address and check that the computer and the AlbaCombi are working in the same network.

First of all, you will have to configure a static IP on the PC

1) Access the Control Panel

In the Windows search bar, type in “ncpa.cpl” and then press enter.

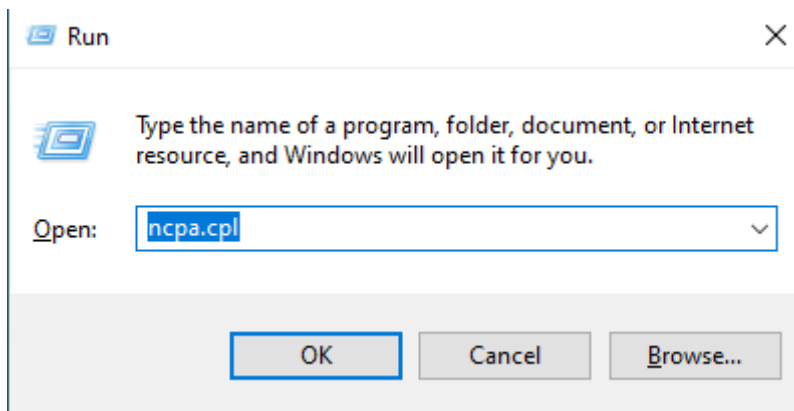


If you are not using Windows 10, follow the steps below instead.

On your keyboard, press the “Windows” and “R” keys at the same time.

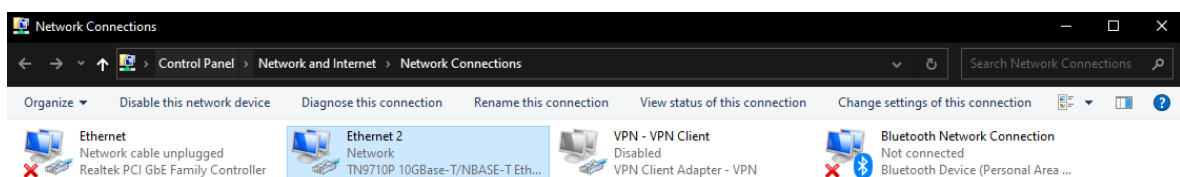
Enter “ncpa.cpl” in the window that pops up.

Note: Network connections will display the network adapters that are currently connected to your computer.



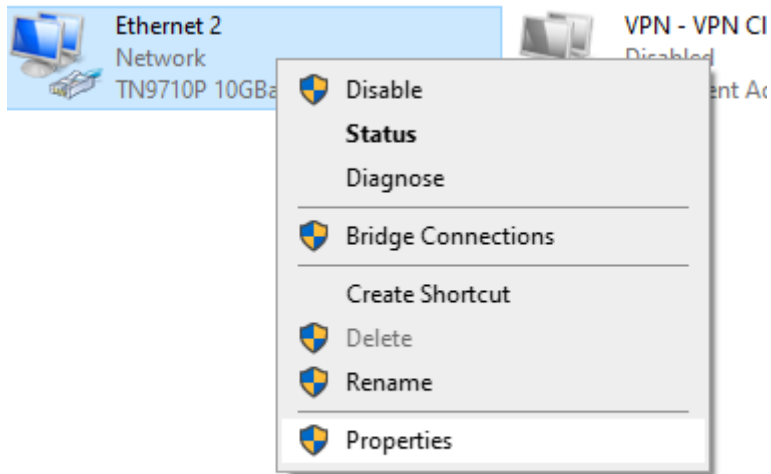
2) Select the Network Adapter

Right click on the network adapter that is currently connected to the device that you are trying to configure. Usually, it will be the adapter with the word “Ethernet” in the name.



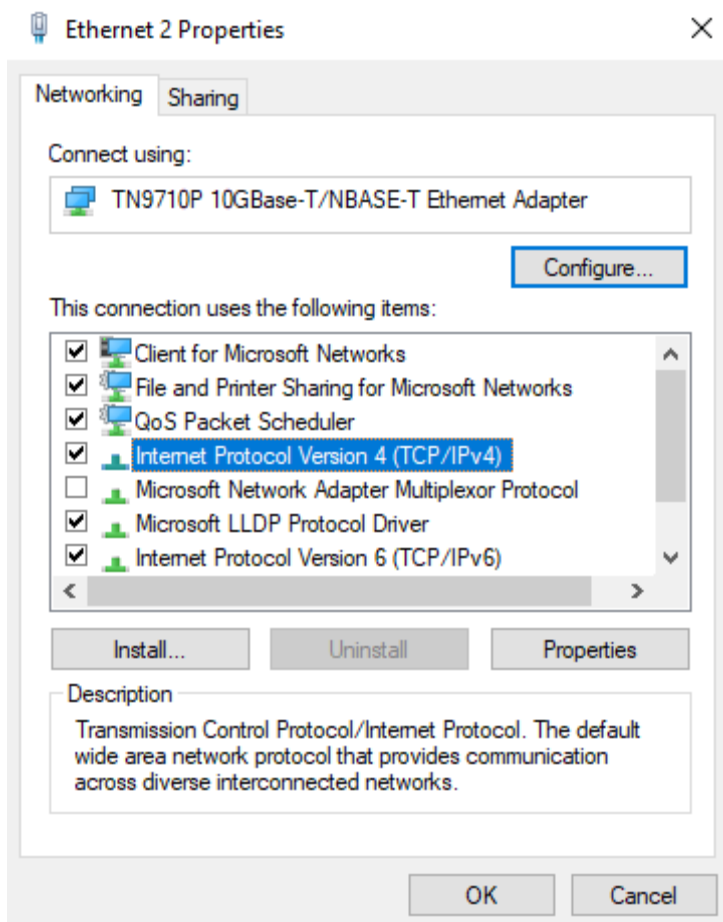
3) Select Properties

Select "Properties" from the drop-down menu.



4) Select Internet Protocol Version 4 (TCP/IPv4)

Double-click on "Internet Protocol Version 4 (TCP/IPv4)".



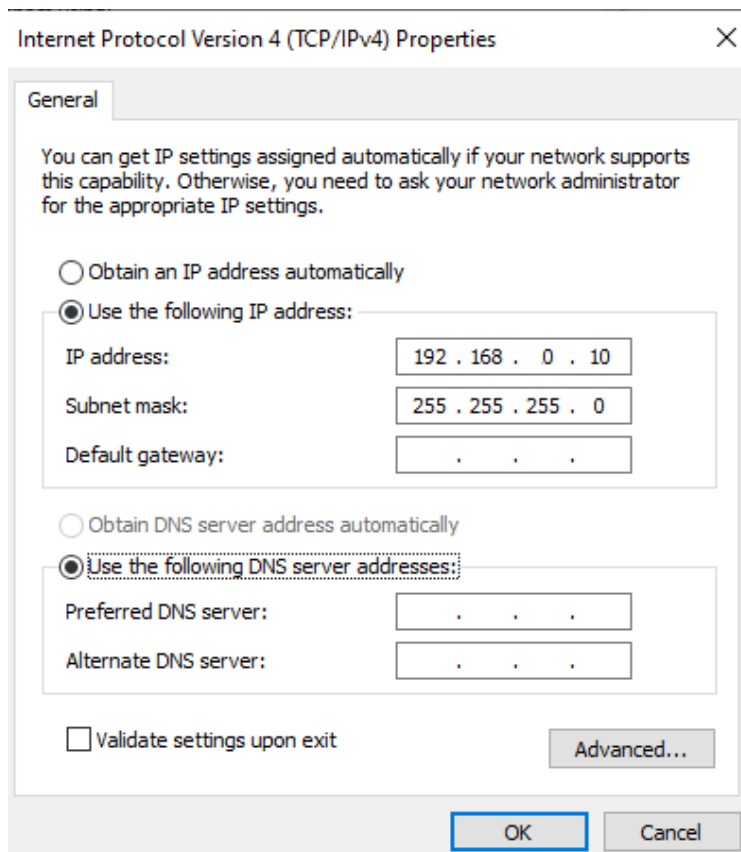
5) Manually enter IP address and subnet mask

Select “Use the following IP Address” and then input the following information in the corresponding fields:

IP address: The first three sets of digits should match. For this tutorial, we will use for example, IP address 192.168.0.10, but it will valid other IPs as long as the first three digits are 192.168.0.XXX. The third value could any from 0 to 255, excluding the value 50 which is the IP of the AlbaCombi.

AlbaCombi works by default in the IP 192.168.0.50

Subnet mask: The subnet mask between the device that you are trying to connect to needs to be the same as your PC. We will use subnet mask 255.255.255.0



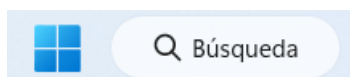
6) Save Settings

Click the OK button on “Internet Protocol Version 4 (TCP/IPv4) Properties” window, and also click the OK button on “Ethernet Properties” window.

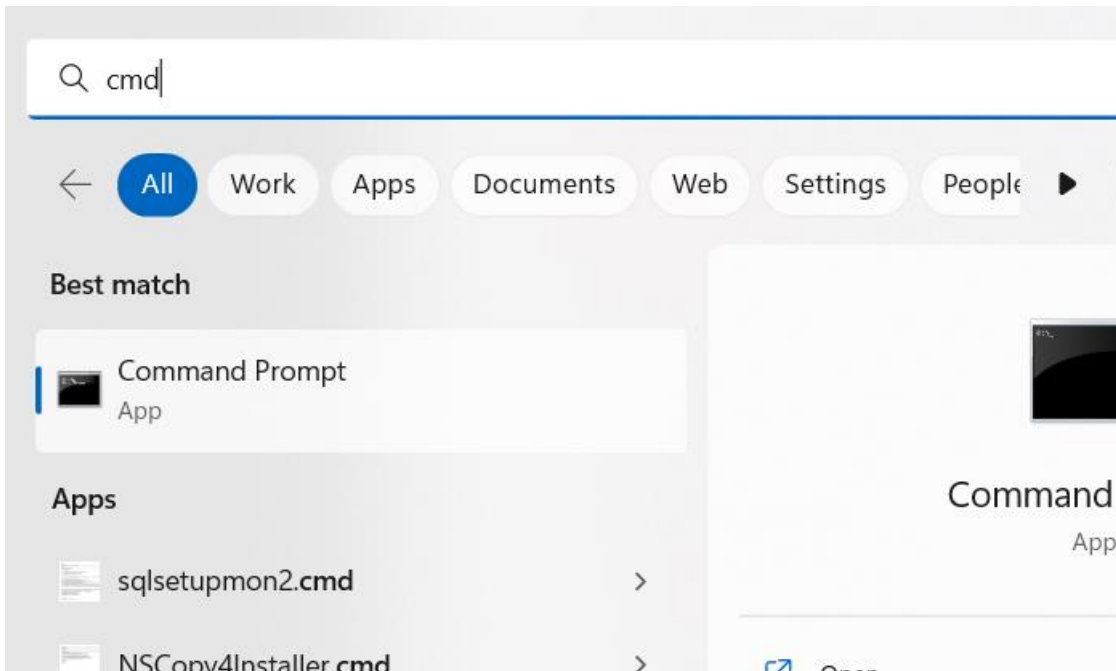
Note: The OK buttons must be clicked in both instances or your settings will not be saved.

7) Check if it has been configured correctly

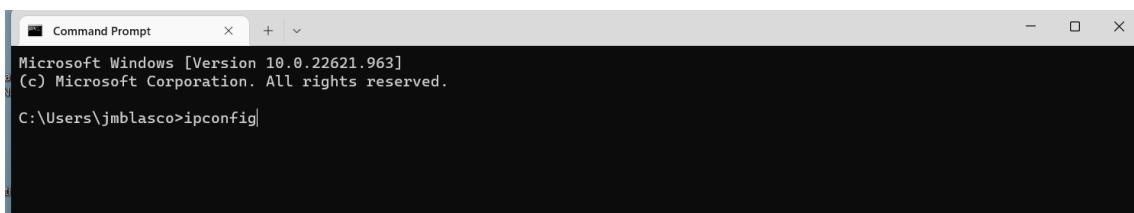
Next to the Start button in Windows, press the Search button (or use the Windows + R shortcut)



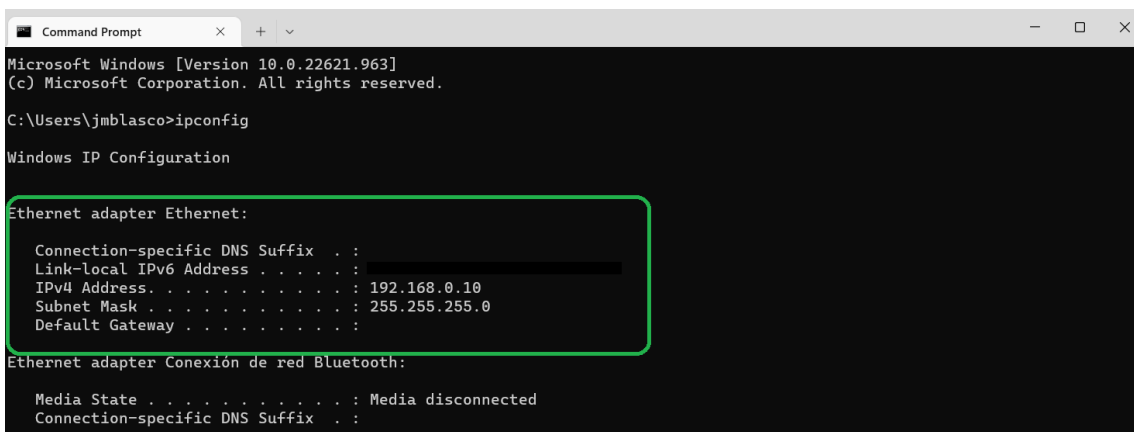
Type cmd or Command Prompt, then press Enter.



In the black window of the command prompt, type the command ipconfig and press Enter.

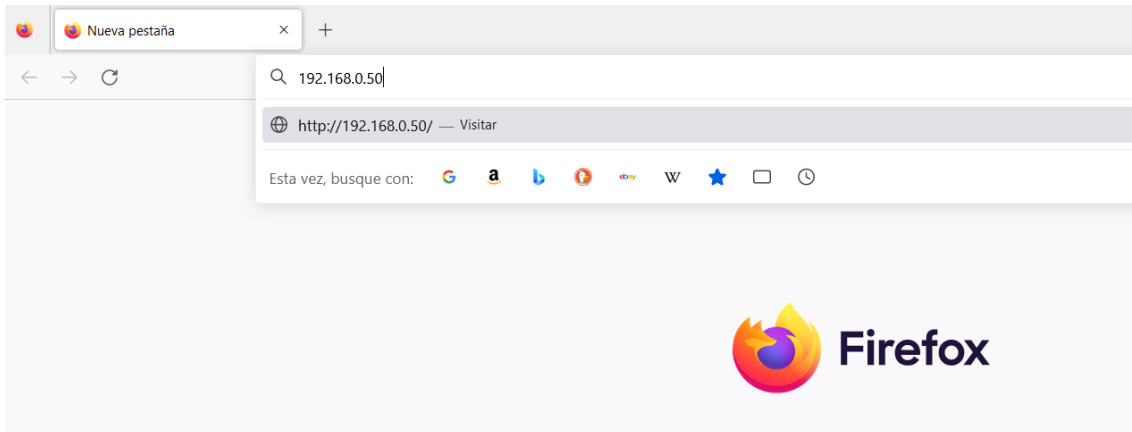


You will see something like this, and you will see your computer IP address in the IPv4. In our case 192.168.0.10

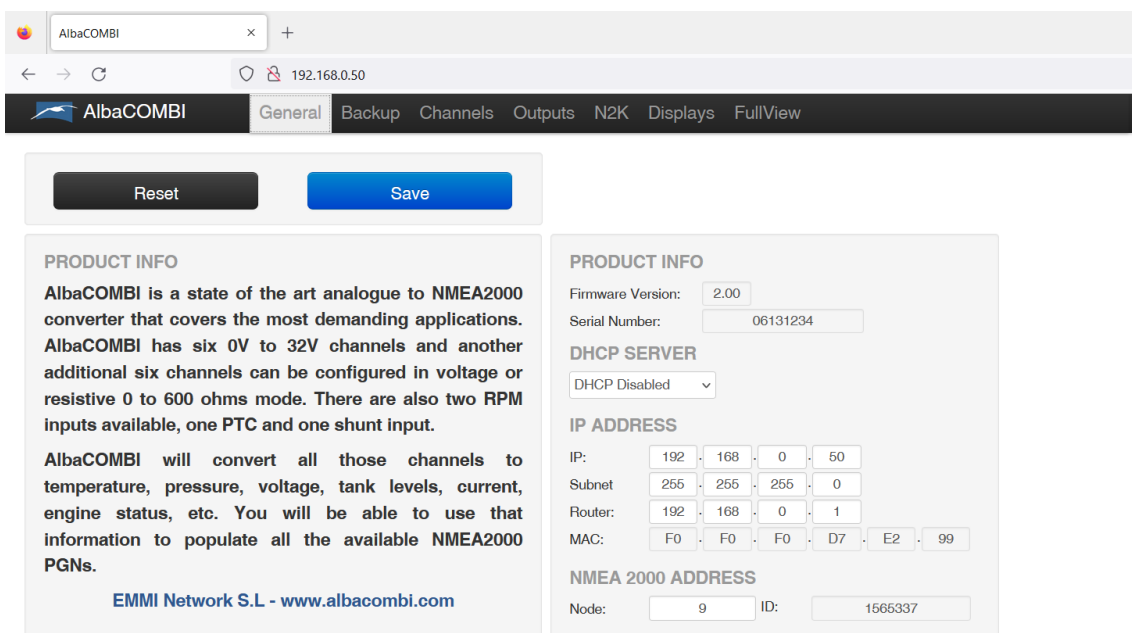


Now, with power supply in the AlbaCombi, connect the Ethernet cable between the AlbaCombi and your computer. You will need a standard RJ45 cable.

Go to your favorite browser (Firefox, Chrome, Edge, Safari) we recommend Firefox and type the IP 192.168.0.50



Press Enter and you will see the AlbaCombi Web-Interface



2.1.2 For Mac

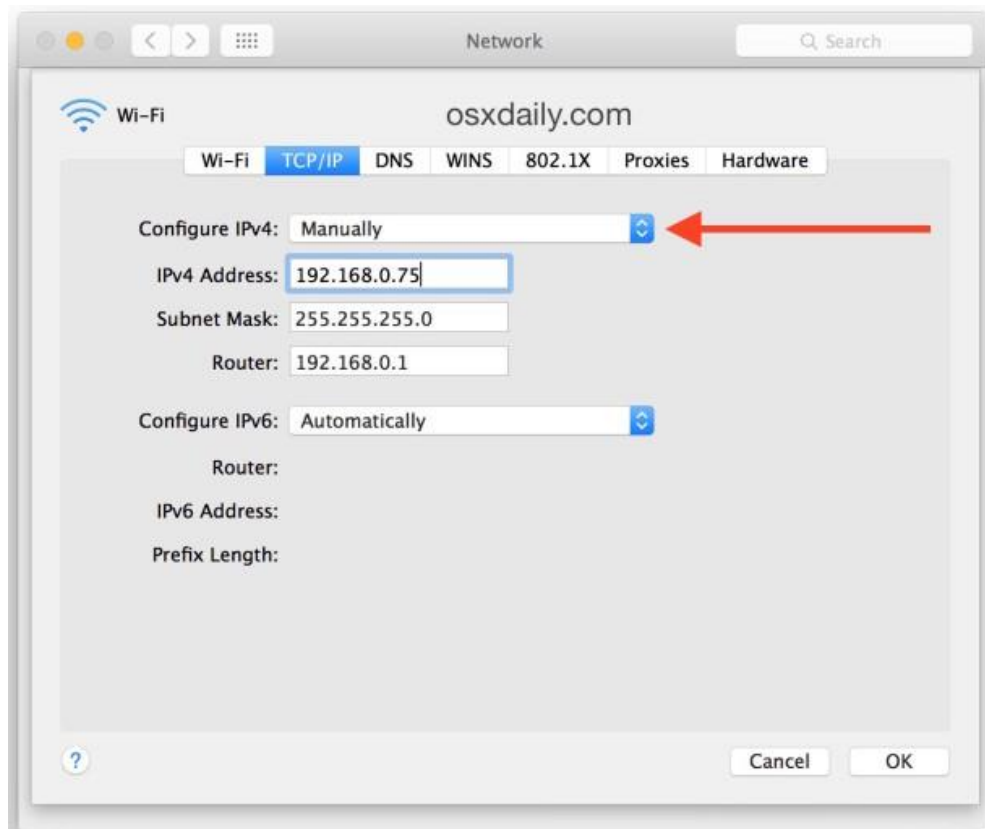
- 1) Launch System Preferences from the Apple menu
- 2) Click on "Network"
- 3) Click on the protocol you are using, let's say we're using Wi-Fi with a wireless connection so click on "Wi-Fi" so that the network interface is selected, and then click on the "Advanced" button in the lower right corner
- 4) Click on the "TCP/IP" tab
- 5) You now have multiple options for manual IP address assignment. For the sake of this exercise, let's assume you want to maintain DHCP but set a manual static IP address, so

- click on the drop-down menu next to “Configure IPv4” and select “Using DHCP with manual address”, but you can also use full manual mode by choosing “Manually”
- 6) Select a static IP that will not conflict with anything else on the network.
 - 7) IPv4 address: The first three sets of digits should match. For this tutorial, we will use for example, IP address 192.168.0.75, but it will valid other IPs if the first three digits are 192.168.0.XXX. The third value could any from 0 to 255, excluding the value 50 which is the IP of the AlbaCombi.

AlbaCombi works by default in the IP 192.168.0.50, you can't use this IP.

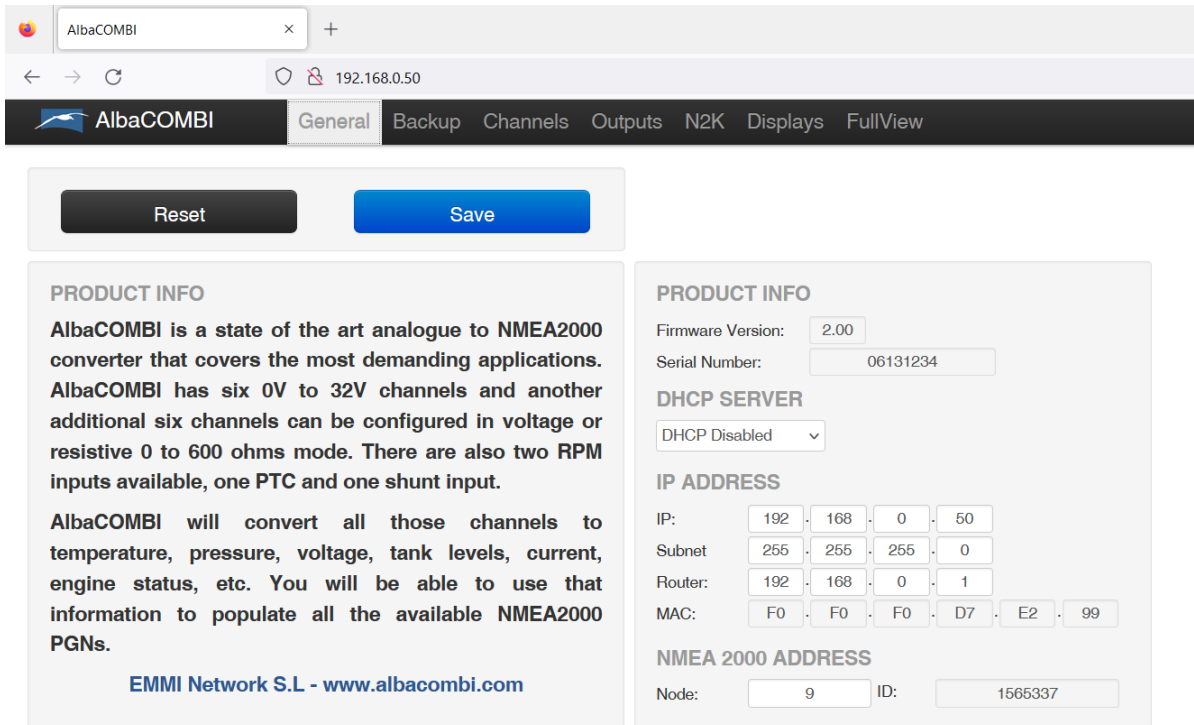
Subnet mask: The subnet mask between the device that you are trying to connect to needs to be the same as your PC. We will use subnet mask 255.255.255.0

Router: 192.168.0.1



3. AlbaCombi Web Interface

3.1 “GENERAL” Option



AlbaCOMBI

192.168.0.50

AlbaCOMBI General Backup Channels Outputs N2K Displays FullView

Reset Save

PRODUCT INFO

AlbaCOMBI is a state of the art analogue to NMEA2000 converter that covers the most demanding applications. AlbaCOMBI has six 0V to 32V channels and another additional six channels can be configured in voltage or resistive 0 to 600 ohms mode. There are also two RPM inputs available, one PTC and one shunt input.

AlbaCOMBI will convert all those channels to temperature, pressure, voltage, tank levels, current, engine status, etc. You will be able to use that information to populate all the available NMEA2000 PGNs.

[EMMI Network S.L - www.albacombi.com](http://www.albacombi.com)

PRODUCT INFO

Firmware Version: 2.00

Serial Number: 06131234

DHCP SERVER

DHCP Disabled

IP ADDRESS

IP: 192 . 168 . 0 . 50

Subnet: 255 . 255 . 255 . 0

Router: 192 . 168 . 0 . 1

MAC: F0 . F0 . F0 . D7 . E2 . 99

NMEA 2000 ADDRESS

Node: 9 ID: 1565337

In this option you can change the Ethernet configuration from the AlbaCombi, enable/disable the DHCP server and configure the IP address.

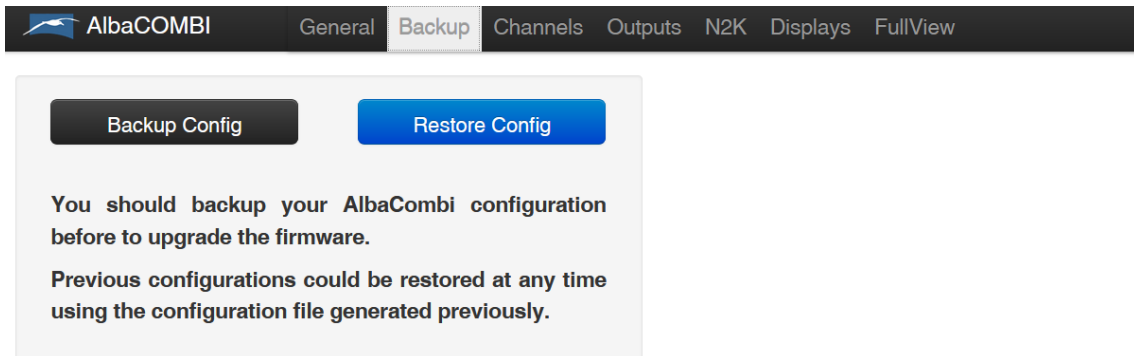
The default configuration is DHCP server disabled and IP address 192.168.0.50.

The default NMEA address is 9.

Note that if you connect two or more AlbaCombi, you must change the NMEA address, for example: you have two AlbaCombi connected on your NMEA network. One will have the NMEA Address 9 and other will be configured with NMEA Address 10.

If you make any change, press “Save” button and then press “Reset”

3.2 “BACKUP” Option

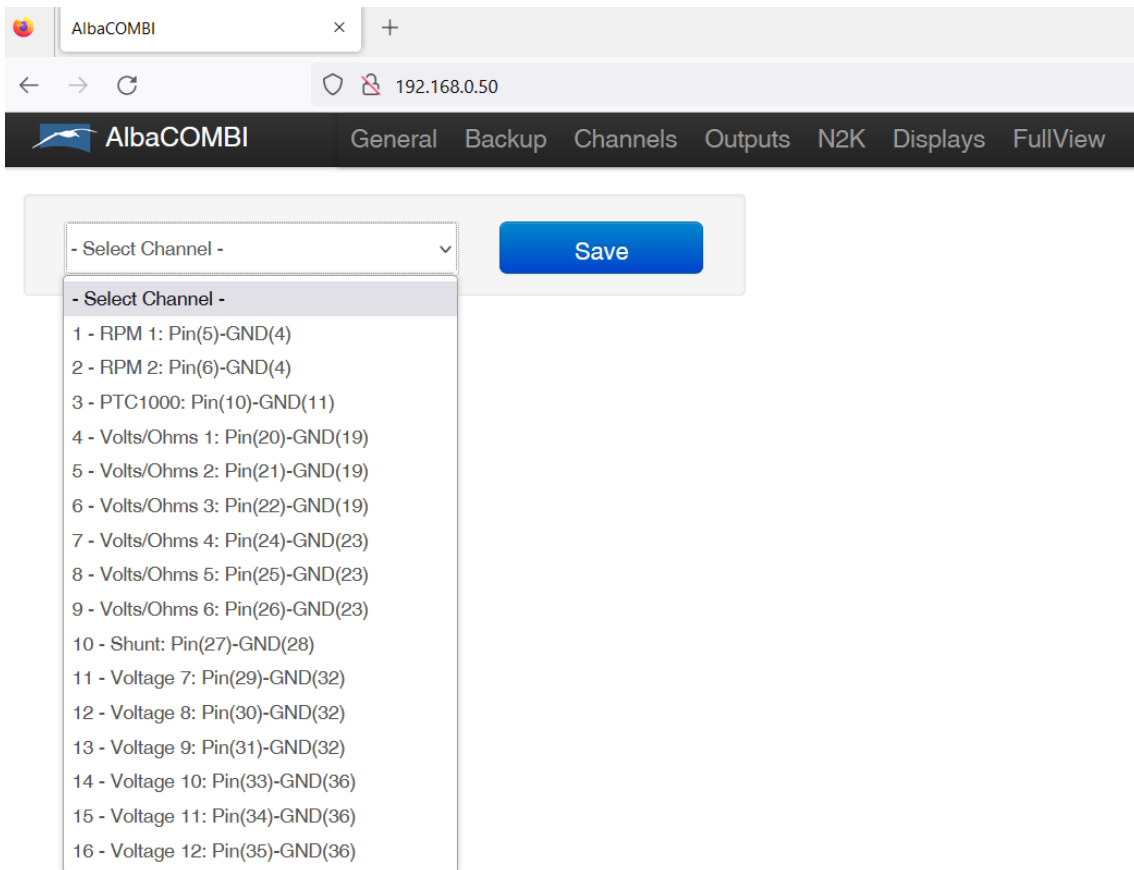


Once you configure everything Channels, Outputs, N2K, Displays and FullView, everything can be saved in a file. Then you can use that file to configure another AlbaCombi units or to recover all your data if needed in your AlbaCombi.

IMPORTANT: Once you have everything set up. We strongly recommend making a Backup.

3.3 “CHANNELS” Option

To configure each connected input, please select the channel, as shown on the following screen. Once selected please configure it.



3.3.1 RPM Inputs

You have the possibility to read the RPMs from 2 engines

You must configure all fields for each engine:

CONFIGURATION CHANNEL

1 - RPM 1: Pinout (5) ▼Save

CONFIGURE CHANNEL

Name:

Signal from:

Physic Variable:

Units:

Limit High:

Limit Low:

Filter Level:

Sensor Type:

CALIBRATION

Raw Scaled

RAW	Value
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="43"/>	<input type="text" value="400"/>
<input type="text" value="83"/>	<input type="text" value="800"/>
<input type="text" value="122"/>	<input type="text" value="1200"/>
<input type="text" value="160"/>	<input type="text" value="1600"/>
<input type="text" value="201"/>	<input type="text" value="2000"/>
<input type="text" value="241"/>	<input type="text" value="2400"/>
<input type="text" value="280"/>	<input type="text" value="2800"/>
<input type="text" value="360"/>	<input type="text" value="3600"/>
<input type="text" value="400"/>	<input type="text" value="4000"/>

- Name: the name of the channel.
- Signal from: the only option is “one engine”.
- Physic Variable: the only option is “Rotation Rate”.
- Units: the only option is RPM
- Limits high and Low: these limits will be used to set an alarm.
- Filter Level: Please indicate the level measurement oscillation. Low, medium or high level.
- Sensor Type: you count with some predefined sensors. You can choose a sensor type and make somechanges.

Sensor Type

- Sensors -

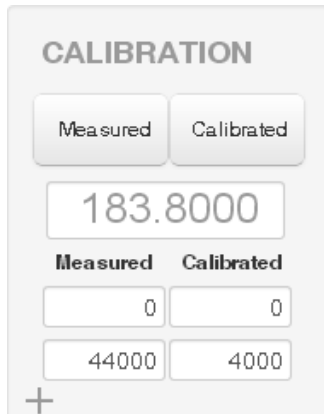
4000 RPM ratio 11

6000 RPM ratio 11

CALIBRATION

Also, you can calibrate your own RPM sensor.

If you press on “**Measured**”, the current value of the input will be shown.



You can click on “**Measured**” and see the current value or you can write the theoretical value of the sensor output which corresponds to the measurement.

The “**Calibrated**” button is used to test if your calibration table is correct. Note that you must click on “**Save**” before doing the test.

Example: If you have saved the following calibration table:

Measured (Pulses per cycle)	RPM
0	0
600	6000

We assume that the sensor manufacturer indicates these values, therefore 3000 rpm we should have a measure of 300 pulses per cycle. You can accelerate to see that you have 300 cycles per second (by pressing on “**Measured**” until that value appears), then press “**Calibrated**” and see the value, if it is about 3000 rpm, the calibration table is correct.

Press “**SAVE**” when all changes have been made.

Maximum RPM Limit

For RPM the Alba-Combi can handle a maximum input signal of 4000hz.

This equates to about 60 pulses per revolution at 4000 rpm, anything higher than that will not be compatible.

For example, if the RPM sensor is reading the teeth of the flywheel and say we have 120 teeth and the max rpm is 4000 rpm, that will equate to $120 \text{ pulses-rpm} * (4000\text{rpm}/60\text{sec}) = 8000 \text{ pulses-per-revolution or } 8000\text{hz}$, this will not be compatible with the Alba-Combi for RPM sensing.

3.3.2 PTC1000 Input

The screenshot shows the AlbaCOMBI web interface for configuring a PTC1000 sensor. The top navigation bar includes 'AlbaCOMBI', 'General', 'Backup', 'Channels', 'Outputs', 'N2K', 'Displays', and 'FullView'. The main content area is divided into three sections:

- Channel Selection:** A dropdown menu shows '3 - PTC1000: Pin(10)-GND(11)' and a 'Save' button.
- CONFIGURE CHANNEL:** Fields for Name (Battery Temperature), Signal from (Battery), Physic Variable (Temperature), Units (°C), Alarm Limit High (1000.000), Alarm Limit Low (-1000.000), Damping (Low Reduction), and Sensor Type (- Sensors -).
- CALIBRATION:** A table with 'Measured' and 'Calibrated' columns. The table contains the following data points:

Measured	Calibrated
684	-20
747	-10
815	0
886	10
961	20
1000	25
1040	30
1122	40
1209	50
1299	60
- Graph:** A line graph showing the relationship between Measured and Calibrated values. The x-axis is labeled 'MEASURED' and ranges from 684.0 to 1299.0. The y-axis is labeled 'CALIBRATED' and ranges from -20.0 to 60.0. The data points from the calibration table are plotted as blue circles connected by a blue line, showing a linear trend.

CONFIGURATION CHANNEL

- Signal from: you can select if the sensor measures the temperature from the engine, battery or it's a general temperature. It is important to select the correct sensor because otherwise when configuring the corresponding PGN you won't have the choice to select this parameter, for instance, if you choose Engine, the value will be sent to the NMEA network though the PGN127488 and PGN127489.
- Physic Variable: In this case, the PTC sensor only works with temperature parameters.
- Units: Select between °C or K.
- Limits high and low: these limits will be used to set an alarm.
- Filter Level: Please indicate if the level measurement has been made with low, medium or high level.
- Sensor Type: you have some predefined sensors. You can choose a sensor type and make some changes on calibration table.

If you press on “Measured” you will see the current value:



You can click on RAW and see the current value or you can write the theoretical value of the sensor output corresponding to the measurement.

The “Calibrated” button is used to test if your calibration table is correct. Note that you must click on “Save” before making the test.

Example: You have saved the following calibration table:

MEASURED (Ohms)	VALUE (T ^a) (°C)
10	15
100	50
180	95

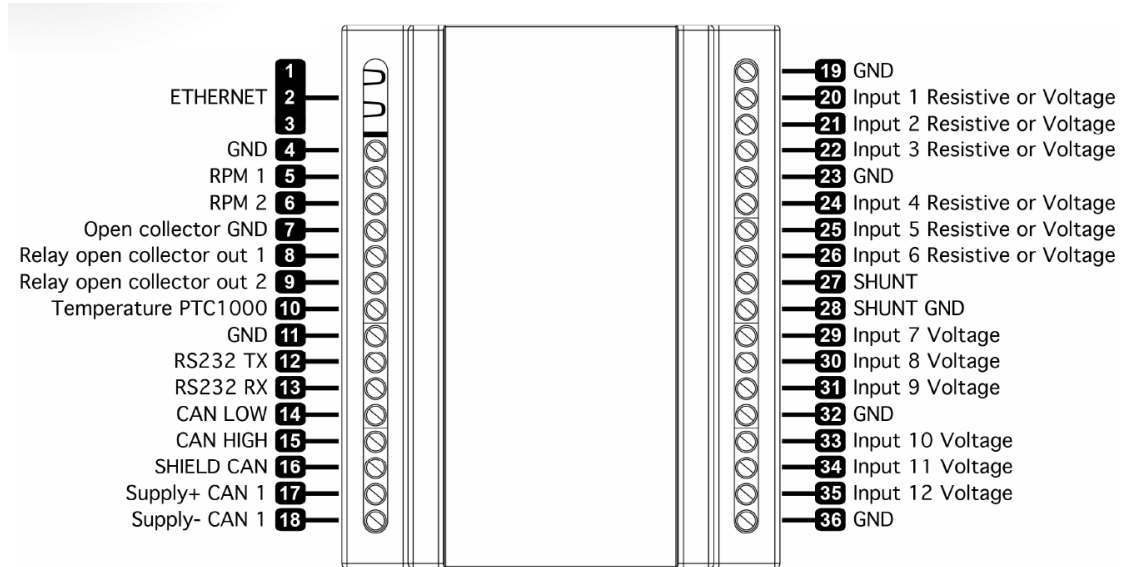
We assume that the sensor manufacturer indicates these values. In this way to 70 °C we must have a measure of 140 Ohms. You switch on the engine that you have 140 Ohms (you are pressing on Measured until that value), then press “Calibrated” and see the value, if it is about 70°C, the calibration table is correct.

Note that X-axis values (MEASURE) must increase, from smallest to largest value

3.3.3 Voltage or Resistive Inputs

Inputs 20,21,22,24,25,26 can be configured in voltage or resistive mode according to your needs.

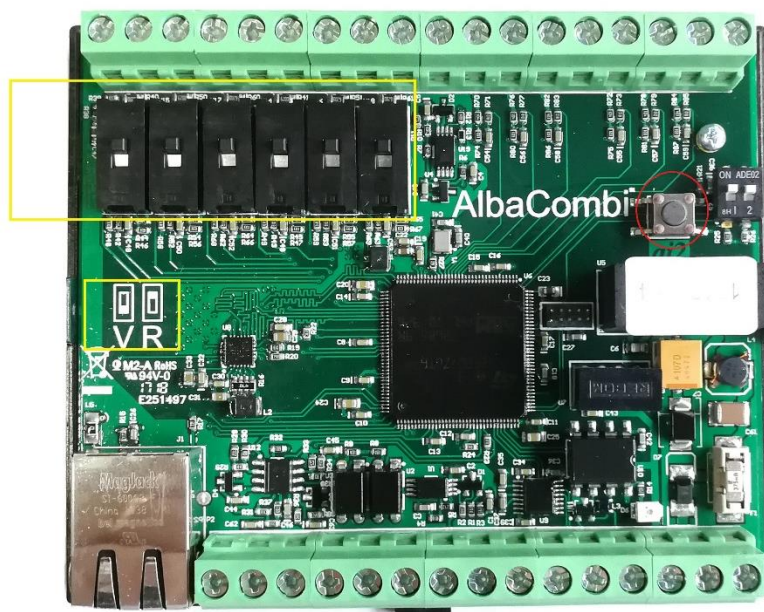
Inputs 29,30,31,33,34,35 can be only configured in voltage.



To change between voltage or resistive mode, you have to open the AlbaCombi case, then you will see six switches. Check the yellow squares in the following image.

The Downwards position is for Voltage measurement, the upwards position Resistive measurement.

IMPORTANT: To get it to work now we must press the Reset Button shown in a red circle.



Just refresh the AlbaCombi Web-Interface and we are done. You can perform this operation just for one switch or the number you wish.

In the Channel screen you will see if the input has been configured on voltage or resistive mode.

The screenshot shows the AlbaCOMBI Channel configuration interface. At the top, there's a navigation bar with 'AlbaCOMBI' and menu items: 'General', 'Backup', 'Channels', 'Outputs', 'N2K', 'Displays', 'FullView'. Below the navigation bar, there's a dropdown menu showing '4 - Volts/Ohms 1: Pin(20)-GND(19)' and a blue 'Save' button. The main configuration area is divided into two columns. The left column is titled 'CONFIGURE CHANNEL' and contains several input fields: 'Name' (Rudder), 'Signal from' (Engine), 'Physic Variable' (Temperature), 'Units' (°C), 'Alarm Limit High' (120.000), 'Alarm Limit Low' (40.000), 'Damping' (Low Reduction), and 'Sensor Type' (- Sensors -). Below this is the 'SUPPLY CORRECTION' section, which includes a checked 'Activate Correction' checkbox, 'Calibration Vcc' (10.000), and 'Correction Channel' (Voltage 7: Pin(29)). The right column is titled 'CALIBRATION' and features a table with two columns: 'Measured' and 'Calibrated'. The table contains several rows of values, and a red circle highlights the 'Voltage Mode' button below the table. To the right of the calibration table is a line graph with 'CALIBRATED' on the y-axis (ranging from 50.0 to 150.0) and 'MEASURED' on the x-axis (ranging from 0.8 to 4.6). The graph shows a downward-sloping curve connecting several data points.

- Signal from: You can select the parameter that the input will measure; engine, battery, general fluid, general temperature, general pressure, switch bank or general fluid.

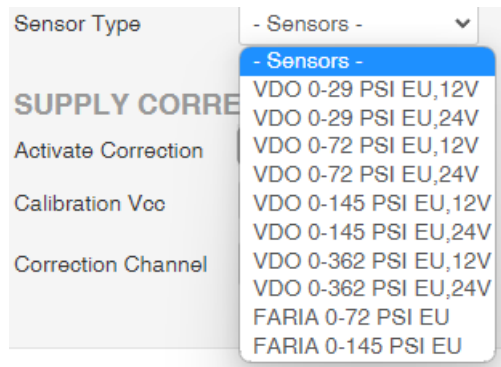
Signal from	Physic Variable
Engine	Rotation Rate
	Pressure
	Engine Tilt
	Temperature
	Voltage
	Fluid flow
Battery	Temperature
	Voltage
	Current
General Fluid	General fluid
General Temperature	General temperature
General Pressure	General Pressure
Switch Bank	Binary

- Limits high and low: these limits will be used to set an alarm.
- Dumping: please indicate if the level measurement has been made with low, medium or high level.

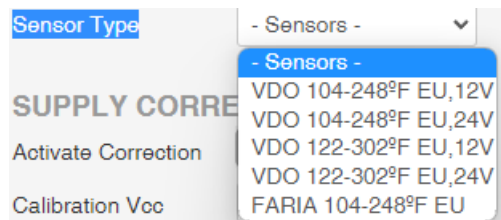
- **Sensor Type:** You have some predefined sensors from VDO and FARIA. You can choose a sensor type and make some changes. Also, you can create and calibrate your own sensor.

These are the predefined:

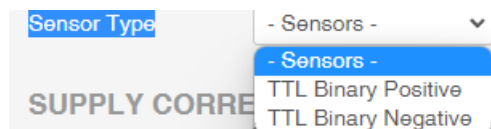
Engine, Pressure



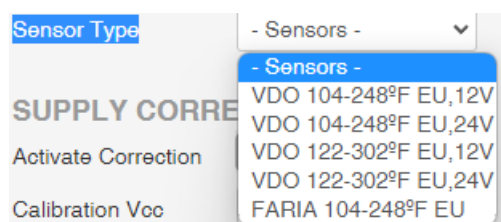
Engine, Temperature



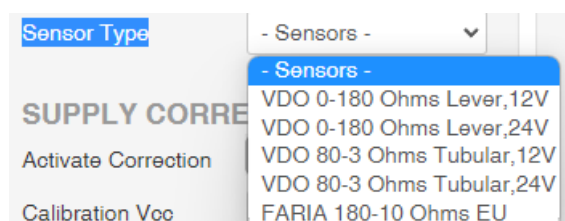
Engine, Bit Status



Battery, Temperature



General Fluid, Fluid Level



General Temperature, Temperature

Sensor Type - Sensors -

SUPPLY CORRECTION

Activate Correction

Calibration Vcc

- Sensors -
- VDO 104-248°F EU,12V
- VDO 104-248°F EU,24V
- VDO 122-302°F EU,12V
- VDO 122-302°F EU,24V
- FARIA 104-248°F EU

General Pressure, Pressure

Sensor Type - Sensors -

SUPPLY CORRECTION

Activate Correction

Calibration Vcc

Correction Channel

- Sensors -
- VDO 0-29 PSI EU,12V
- VDO 0-29 PSI EU,24V
- VDO 0-72 PSI EU,12V
- VDO 0-72 PSI EU,24V
- VDO 0-145 PSI EU,12V
- VDO 0-145 PSI EU,24V
- VDO 0-362 PSI EU,12V
- VDO 0-362 PSI EU,24V
- FARIA 0-72 PSI EU
- FARIA 0-145 PSI EU

Transmission, Pressure

Sensor Type - Sensors -

SUPPLY CORRECTION

Activate Correction

Calibration Vcc

Correction Channel

- Sensors -
- VDO 0-29 PSI EU,12V
- VDO 0-29 PSI EU,24V
- VDO 0-72 PSI EU,12V
- VDO 0-72 PSI EU,24V
- VDO 0-145 PSI EU,12V
- VDO 0-145 PSI EU,24V
- VDO 0-362 PSI EU,12V
- VDO 0-362 PSI EU,24V
- FARIA 0-72 PSI EU
- FARIA 0-145 PSI EU

Transmission, Temperature

Sensor Type - Sensors -

SUPPLY CORRECTION

Activate Correction

Calibration Vcc

- Sensors -
- VDO 104-248°F EU,12V
- VDO 104-248°F EU,24V
- VDO 122-302°F EU,12V
- VDO 122-302°F EU,24V
- FARIA 104-248°F EU

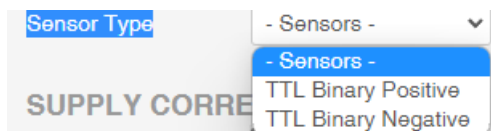
Transmission, Bit Status

Sensor Type - Sensors -

SUPPLY CORRECTION

- Sensors -
- TTL Binary Positive
- TTL Binary Negative

Digital Inputs, Binary



- Supply Correction (only on voltage input, not available on resistance mode):

SUPPLY CORRECTION

Activate Correction

Calibration Vcc

Correction Channel

IMPORTANT:

The supply voltage correction is used when the voltage inputs are used to measure from the gauges (it does not matter the brand), since the voltage that is measured is referenced to the supply voltage. Therefore, if this supply voltage (comes from the alternator or the battery) is not stable, it produces fluctuations in the measurement. This option attempts to compensate the measurement based on the deviation of the supply voltage from the expected nominal value. To do this, the supply voltage must be connected to one of the voltage measurements channels (usually the last one, Input 12 Voltage) and the expected nominal value must be set on the configuration website.

Calibration Curve Example

If your sensor/gauge is not included in the predefined list you will have to create.

We have two options:

- **Using calibration table from the manufacturer of the sensor (Recommended)**

For example, this VDO sender:

Home / Sensors / Engine monitoring sensors / Pressure senders / VDO Pressure sender 0-5 Bar - M14

VDO Pressure sender 0-5 Bar - M14

€89.76 (tax incl.)
€74.18 (VAT Excl.)

Part-number:
VDO 360-081-029-065C

- Pressure range: 0 to 5 Bar
- Thread: M14 x 1.5
- Sender resistance range: 10 - 184 Ohm
- Sensor signal: 1-pole common ground
- No warning contact

Logistical information:
[Due to Covid19, the delivery time may be longer than usual. Click here for detailed information.](#)

- HS Code: 90269000
- Ean Code: 4103590949547
- Weight: 0.13kg

Drucksensor / Pressure Sensors

Kennlinie-Tabelle / Characteristic Curve Table 1

5 bar Kennlinie / Characteristic curve

p [bar]	R- [Ohm]	R [Ohm]	R+ [Ohm]
0	5	10	13
1	44	48	52
2	78	82	86
3	111	116	121
5	154	184	214

You will have to introduce in the Calibration the following values:

Measured (Ohms)	Calibrated (bar)
10	0
48	1
82	2
116	3
184	5

Save

CALIBRATION

Measured Calibrated

Measured	Calibrated
<input style="width: 80%;" type="text" value="10"/>	<input style="width: 80%;" type="text" value="0"/>
<input style="width: 80%;" type="text" value="48"/>	<input style="width: 80%;" type="text" value="1"/>
<input style="width: 80%;" type="text" value="82"/>	<input style="width: 80%;" type="text" value="2"/>
<input style="width: 80%;" type="text" value="116"/>	<input style="width: 80%;" type="text" value="3"/>
<input style="width: 80%;" type="text" value="184"/>	<input style="width: 80%;" type="text" value="5"/>

+
-

“Measured” is the reading of the sender, always will be in Ohms (Resistive senders) or in Voltage (Voltage Senders).

“Calibrated”, will be the value you want, in this case we want the pressure in bars.

Use the symbols “+” or “-“to add or remove more point the calibration curve.

- **Manual calibration (Less accurate)**

If you don't have the resistance/voltage curve from the manufacturer for your sender/gauge, you will have to create your own curve watching your gauge. You will need as much calibration points as you could to be accurate as possible.

For example, with this VDO pressure gauge (Voltage Sender):

Imagine we don't have the voltage table from the manufacturer.

First, we will have to be in a Voltage input. [Check chapter 3.3.3 Voltage or Resistive Inputs](#)

We could take four measurements can be taken, with the rod at 0%, rod at 25%, rod at 50% and rod at 100%.



Rod at 0%, we press "Measured" button in AlbaCombi web interface, and we get value 1.17 volts

Then rod at 25% we get 2.87volts

Then rod at 50% we get 4 volts

Then rod at 100% we get 4.87 volts

In that way, we will introduce 1.17 in the first Measured cell, and in calibrated we know that 0% will be 0 bar

AlbaCOMBI General Backup Channels Outputs N2K Displays FullView

8 - Volts/Ohms 5: Pin(25)-GND(23) Save

CONFIGURE CHANNEL

Name: Motor Pressure

Signal from: General Pressure

Physic Variable: Pressure

Units: bar

Alarm Limit High: 2.000

Alarm Limit Low: 0.000

Damping: Low Reduction

Sensor Type: - Sensors -

SUPPLY CORRECTION

Activate Correction:

Calibration Vcc: 12.000

Correction Channel: Voltage 12: Pin(35)

CALIBRATION

Measured Calibrated

1.1710

Measured	Calibrated
1.17	0
0	0

Voltage Mode

CALIBRATED

MEASURED

Then we will add the 2.87 in the second "Measured" cell, we know that 25% are 0.5 bar, we will set 0.5 in the Calibrated cell

AlbaCOMBI General Backup Channels Outputs N2K Displays FullView

8 - Volts/Ohms 6: Pin(26)-GND(23) Save

CONFIGURE CHANNEL

Name: Motor Pressure

Signal from: General Pressure

Physic Variable: Pressure

Units: bar

Alarm Limit High: 2.000

Alarm Limit Low: 0.000

Damping: Low Reduction

Sensor Type: - Sensors -

SUPPLY CORRECTION

Activate Correction:

Calibration Vcc: 12.000

Correction Channel: Voltage 12: Pin(35)

CALIBRATION

Measured: 1.1710

Measured	Calibrated
1.17	0
2.87	0.5

+ Voltage Mode

And so, on

AlbaCOMBI General Backup Channels Outputs N2K Displays FullView

8 - Volts/Ohms 5: Pin(26)-GND(23) Save

CONFIGURE CHANNEL

Name: Motor Pressure

Signal from: General Pressure

Physic Variable: Pressure

Units: bar

Alarm Limit High: 2.000

Alarm Limit Low: 0.000

Damping: Low Reduction

Sensor Type: - Sensors -

SUPPLY CORRECTION

Activate Correction:

Calibration Vcc: 12.000

Correction Channel: Voltage 12: Pin(35)

CALIBRATION

Measured: 1.1710

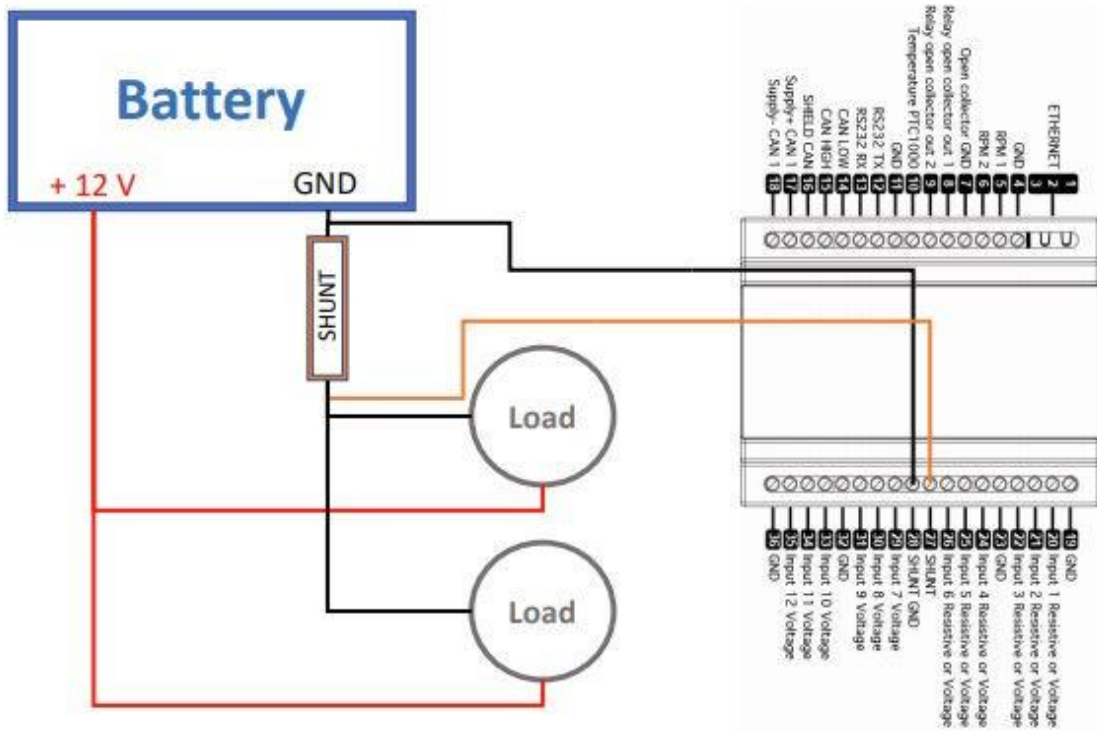
Measured	Calibrated
1.17	0
2.87	0.5
4	1
4.87	1.5

+ Voltage Mode -

Now you have your sensor calibrated!

3.3.4 Shunt Input

The shunt is a sensor that measures the load or unload current in a battery, and it must have the right dimensions to stand the maximum current it supposed to measure.



AlbaCOMBI General Backup Channels Outputs N2K Displays FullView

10 - Shunt: Pin(27)-GND(28) Save

CONFIGURE CHANNEL

Name: Battery Current

Signal from: Battery

Physic Variable: Current

Units: A

Alarm Limit High: 250.000

Alarm Limit Low: 0.000

Damping: Low Reduction

Sensor Type: - Sensors -

CALIBRATION

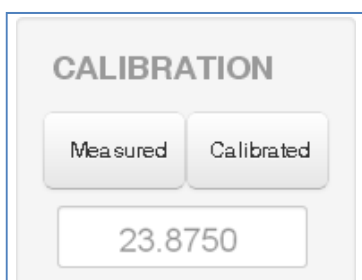
Measured: 0 Calibrated: 0

Measured: 100 Calibrated: 250

+

- Signal from: This parameter can only be obtained from the battery, therefore, will be the only option in the drop-down.
- Physic Variable: the only option is current.
- Units: mA or A
- Limits high and low: these limits will be used to set an alarm.
- Filter Level: Indicate if the measures filter has been made with a low, medium or high level.
- Sensor Type: You have some predefined sensors. You can choose a sensor type and make some changes.

If you press on “Measured” you will see the current value:



You can click on “Measured” and see the current value or you can write the theoretical value of the sensor output corresponding to the measurement.

The “Calibrated” button is used to test if your calibration table is correct. Note that you must click on “Save” before making the test.

3.3.5 Voltage Inputs

Inputs 29,30,31,33,34,35 can be only configured in voltage.

- Signal from: You can select the parameter that the input will measure engine, battery, general fluid, general temperature, general pressure, switch bank or general fluid.

Signal from	Physic Variable
Engine	Rotation Rate
	Pressure
	Engine Tilt
	Temperature
	Voltage
	Fluid flow
Battery	Temperature
	Voltage
	Current
General Fluid	General fluid
General Temperature	General temperature
General Pressure	General Pressure

- Limits high and low: these limits will be used to set an alarm.
- Filter Level: please indicate if the level measurement has been made with low, medium or high level.
- Sensor Type: You have some predefined sensors. You can choose a sensor type and make some changes.
- Supply Correction:

SUPPLY CORRECTION

Activate Correction

Calibration Vcc

Correction Channel

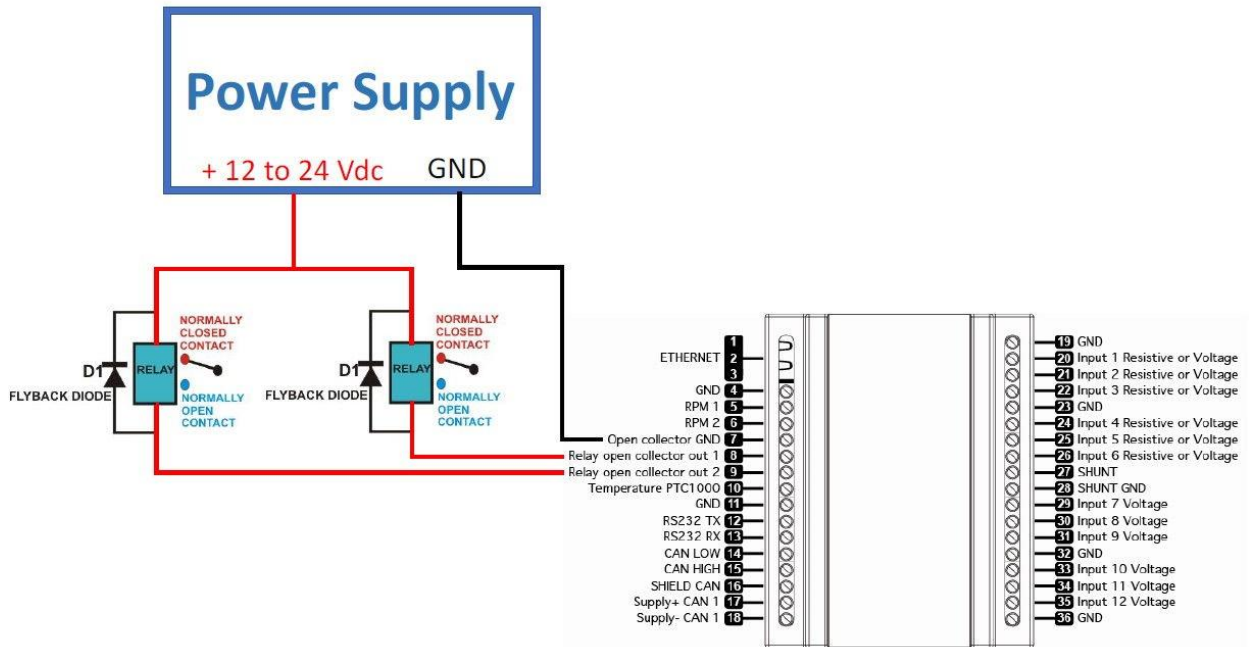
You can activate the supply correction using a voltage input (Correction Channel)

IMPORTANT:

The supply voltage correction is used when the voltage inputs are used to measure from the gauges (it does not matter the brand), since the voltage that is measured is referenced to the supply voltage. Therefore, if this supply voltage (comes from the alternator or the battery) is not stable, it produces fluctuations in the measurement. This option attempts to compensate the measurement based on the deviation of the supply voltage from the expected nominal value. To do this, the supply voltage must be connected to one of the voltage measurements channels (usually the last one, Input 12 Voltage) and the expected nominal value must be set on the configuration website.

3.4 "OUTPUT" Option

AlbaCombi can manage two open collector relays. The max current of the open collector must be 25mA. Therefore, it should only be used with "low power" relays. If you want to switch more power, the relay output must be connected to a contactor or similar to work with larger loads.



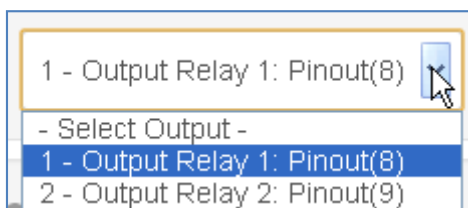
The maximum current of Collector-Emitter is 50mA, so it should only be used with "low power" relays, if you want to switch more power, the relay output must be connected to a contactor or similar to work with larger loads.

For example, we give you the link of two compatible relays for the AlbaCombi, one to work at 12Vdc and other for 24Vdc:

24Vdc: <https://www.phoenixcontact.com/online/portal/es?uri=pxc-oc-itemdetail:pid=2903370&library=eses&tab=1>

12Vdc: <https://www.phoenixcontact.com/online/portal/es?uri=pxc-oc-itemdetail:pid=2903371&library=eses&tab=1>

You have 2 relay outputs. If you wish to configure alarms:



1 - Output Relay 1: Pinout(8) Save

CONFIGURE OUTPUT

Name: Fluid Level Alarm 1

Output Type: Alarm

Alarm Channel: 4 - Volt/Resistive 1: Pinout (20)

Limit High: 90.000

Limit Low: 10.000

Activation Rule: 1 - Higher than limit High

Name: please write down the alarm's name

- Output Type: you have 3 options:
 - Manual: You can switch on/off the relay
 - NMEA2000: allows to act on a device connected to the NMEA network when the alarm is isactivated
 - Alarm: the alarm up and down values are only to be configured on screen.

Output Type: Alarm

Alarm Channel: NMEA2000 Alarm

Limits high/low: these limits have already been configured in the "Channel Option".

- Activation Rule: You can choose the condition for which the alarm is activated.

3.5 "N2K" Option

In this section you must configure the PGN signal you want to send through the NMEA network to your plotter

PGN 127488 – Engine Parameters, Rapid Update (2)

PGN 127489 – Engine Parameters, Dynamic (2)

PGN 127493 – Transmission Parameters, Dynamic (2)

PGN 127505 – Fluid Level (4)

PGN 127508 – Battery Status (3)

PGN 130314 – Pressure (3)

PGN 130316 – Temperature, Extended Range (1)

PGN 130576 – Trim Tab Status (1)

- Select PGN - Save

- Select PGN -
- PGN127488 (1):Engine Rapid
- PGN127488 (2):Engine Rapid
- PGN127489 (1):Engine Param
- PGN127489 (2):Engine Param
- PGN127493 (1):Transmission Param
- PGN127493 (2):Transmission Param
- PGN127508 (1):Battery Status
- PGN127508 (2):Battery Status
- PGN127508 (3):Battery Status
- PGN127505 (1):Fluid Level
- PGN127505 (2):Fluid Level
- PGN127505 (3):Fluid Level
- PGN127505 (4):Fluid Level
- PGN130316 (1):Temperature
- PGN130316 (2):Temperature
- PGN130316 (3):Temperature
- PGN130314 (1):Pressure
- PGN130576 (1):Trim Tab Status

3.5.1 PGN127488 Engine Rapide Update

PGN127488 (1):Engine Raptic Save

CONFIGURE ENGINE PARAM RAPID UPDATE

Instance: Instance 1 - Port - Primary

Engine Speed: 1 - RPM 1: Pinout (5)

Engine Boost: 0 - Empty Field Data

Engine Tilt/Trim: 0 - Empty Field Data

Active PGN:

- Instance: The instance indicates the engine (port, starboard, forward, etc.)
- Engine Speed: if you have an RPM input, please select it.
- Engine Boost: if you have configured a pressure input from engine, please select it.
- Tilt/trim: same as before.
- Active PGN: If you select this option, the AlbaCombi will send this information through N2K network, and the information will be shown on your multifunction display on board.

3.5.2 PGN127489 Engine Parameter Dynamic

PGN127489 (1):Engine Param ▼Save

ENGINE PARAM DYNAMIC

Instance	<input style="width: 90%;" type="text" value="Instance 0 - Port - Primary"/>
Oil Pressure	<input type="text" value="5 - Volts/Ohms 2: Pin(21)-GND(19)"/>
Oil Temperature	<input type="text" value="0 - Empty Field Data"/>
Engine Temperature	<input type="text" value="4 - Volts/Ohms 1: Pin(20)-GND(19)"/>
Alternator (VDC)	<input type="text" value="0 - Empty Field Data"/>
Fuel Rate	<input type="text" value="0 - Empty Field Data"/>
Coolant Pressure	<input type="text" value="0 - Empty Field Data"/>
Fuel Pressure	<input type="text" value="0 - Empty Field Data"/>
Over Temperature	<input type="text" value="0 - Empty Field Data"/>
Low Pressure	<input type="text" value="0 - Empty Field Data"/>
Active PGN	<input checked="" type="checkbox"/>

The following PGNs which are mentioned in the standard NMEA will be displayed:

- Instance: The instance indicates the engine values (port, starboard, forward, etc.)
- Oil Pressure: if you have configured a pressure input from engine, please select it.
- Engine Temperature: If you have configured a temperature sensor from engine, please select it.
- Proceed in the same way with the rest of parameters.
- Active PGN: If you select this option, the AlbaCombi will send this information through N2K network and it will be shown on a multifunction display on board.

3.5.3 PGN127508 Battery Status

PGN127508 (1):Battery Status▼

Save

BATTERY STATUS

Instance	<input style="width: 80%;" type="text" value="0"/>
Voltage	<div style="border: 1px solid #ccc; padding: 2px; display: flex; align-items: center;">15 - Voltage 11: Pin(34)-GND(36)▼</div>
Current	<div style="border: 1px solid #ccc; padding: 2px; display: flex; align-items: center;">10 - Shunt: Pin(27)-GND(28)▼</div>
Case Temperature	<div style="border: 1px solid #ccc; padding: 2px; display: flex; align-items: center;">3 - PTC1000: Pin(10)-GND(11)▼</div>
Active PGN	<input checked="" type="checkbox"/>

- Instance: this is a very important field. If you have two or more batteries on your vessel, each batterybank should be configured with a different distance.
- Range 0 to 250 for valid position fixes.
- Voltage: Select the input where you have connected the battery voltage on your AlbaCombi.
- Current: Select your shunt input channel.
- Temperature: Select the temperature input from battery bank.

Note, enable the “Active PGN” if you wish to display the parameters in your on board NMEA N2K multifunctiondisplay.

3.5.4 PGN127505 Fluid Level

PGN127505 (1):Fluid Level ▼

Save

FLUID LEVEL

Instace

Capacity (cu-m)

Type ▼

Level ▼

Active PGN

- **Instance:** this is a very important field when you have two or more level sensors on your vessel, each sensor should be configured with a different instance.
- **Capacity:** (cubic meters) You must define the capacity of your tank.
- **Type:** You can select the type as NMEA standard indicates (fuel, fresh water, wastewater, live well, oil and black levels).
- **Level:** Select the correct input.

Note, enable the “Active PGN” if you wish to display the parameters in your on board NMEA N2K multifunction display.

3.5.5 PGN130312 Temperature

PGN130312 (1):Temperature Save

GENERIC TEMPERATURE

Instance

Source

Actual Value

Active PGN

- Instance: this is a very important field if you have two or more temperature sensors on your vessel, each sensor must configure with different instances.
- Source: You can select the source type as NMEA standard indicates:

Source

Actual Value

Active PGN

- Sea Temperature
- Outside Temperature
- Inside Temperature
- Engine Room Temperature
- Main Cabine Temperature
- Live Well Temperature
- Bait Well Temperature
- Refrigeration Temperature
- Heating System Temperature
- Dew Point Temperature
- Wind Chill Apparent Temperature
- Wind Chill Theoretical Temperature
- Heat Index Temperature
- Freezer Temperature
- Generic Source Temperature

- Actual Value: Select the correct input.

3.5.6 PGN130314 Pressure

- Instance: this is a very important field if you have two or more pressure sensors on your vessel, each sensor must configure with different instances.
- Source: You can select the source type as NMEA standard indicates:

- Actual Value: Select the correct input.

Configure AlbaCombi N2K into your Plotter

Once you got all your N2K configured in your AlbaCombi web-interface and your AlbaCombi is correctly connected to your N2K network you will be able to visualize these data in your multifunction display.

The visualizations in your multifunction displays will be different depending on the brand and operating system. But basically, the info you will be able to visualize will be the same because they follow the NMEA2000 standards as AlbaCombi do.

We are going to configure one example with PGN127505 in one Raymarine Axiom 7

After we activate the PGN in the N2K Option we will be able to look for in the multifunction display

PGN127505 (1):Fluid Level

FLUID LEVEL

Instage

Capacity (Liters)

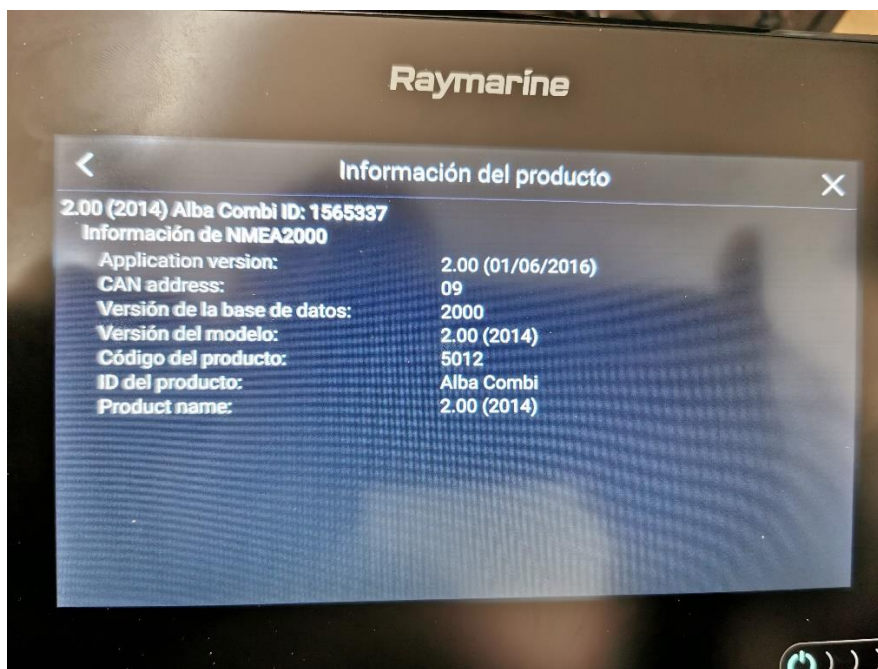
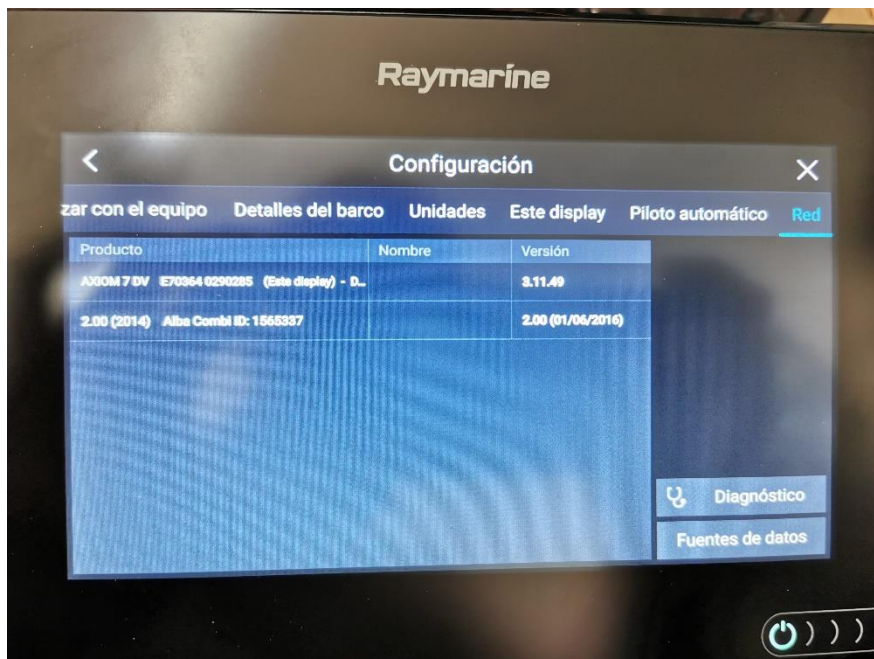
Type

Level

Active PGN

First, we go to "Configuration" and the option "Network". We will see that the AlbaCombi is present





It's ok, AlbaCombi is detected correctly.

Then, we will need to know the name that uses the multifunction display to locate the PGN127505.

If we look in the manual guide of the Axiom, we will see that Raymarine called this by name "Total Fuel".

- Engine load (PGN 127489)
- Alternator (PGN 127489)
- Oil temperature (PGN 127489)
- Oil pressure (PGN 127489)
- Engine RPM (PGN 127488)
- Engine hours (PGN 127489)
- Coolant temperature (PGN 127489)
- Coolant pressure (PGN 127489)
- Boost pressure (PGN 127488)
- Fuel pressure (PGN 127489)
- Fuel flow (inst) (PGN 127489)
- Fuel flow (PGN 127489)
- Tilt position (PGN 127488)

The data items above will be available for each configured engine.
 Engine configuration settings are available in the [Boat details] settings menu: [Homescreen > Settings > Boat details > Num of engines].

Fuel data

The fuel data category include items related to fuel economy.
 The following data items are available in the [Fuel] category:

- Total propulsive fuel (vol)
- Est. fuel remaining (PGN 127496)
- Total fuel (vol) (PGN 127505)
- Fuel (vol)⁽¹⁾
- Fuel (%)⁽¹⁾
- Total fuel (%)
- Engine economy total (PGN 127497)
- Time to empty (PGN 127496)
- Distance to empty (PGN 127496)
- Fuel flow total (PGN 127497 / PGN 127489)
- Fuel used (season) (PGN 127497)

[General information](#)

- Fuel used (trip) (PGN 127497)

The data items above will be available for each configured fuel tank. When more than 1 fuel tank is configured then the data items will be provided in the [All Tanks] category and will combine the fuel data items for all tanks.

Note:

- (1) For systems with multiple fuel tanks these data items will remain available for each individual tank.

Environment data

Environmental data items require connection of compatible sensors and transducers.

The following data items are available in the [Environment] category:

- Exhaust Gas Temperature (PGN 130316)
- True wind chill
- App wind chill
- Set (PGN 129291)
- Max water temp
- Water temp (PGN 130310 / 130311 / 130312 / 130316)
- Max air temp
- Min air temp
- Humidity (PGN 130311 / 130313)
- Drift (PGN 129291)
- Dew point
- Barometric pressure (PGN 130310)
- Air temp (PGN 130310)
- Min water temp
- Sunset Sunrise⁽¹⁾
- Set Drift⁽¹⁾ (PGN 129291)
- Water & Supply⁽¹⁾

Note:

- (1) Data items are only available in the Dashboard app

37

This is the name we will have to search in the Dashboard in the multifunction display

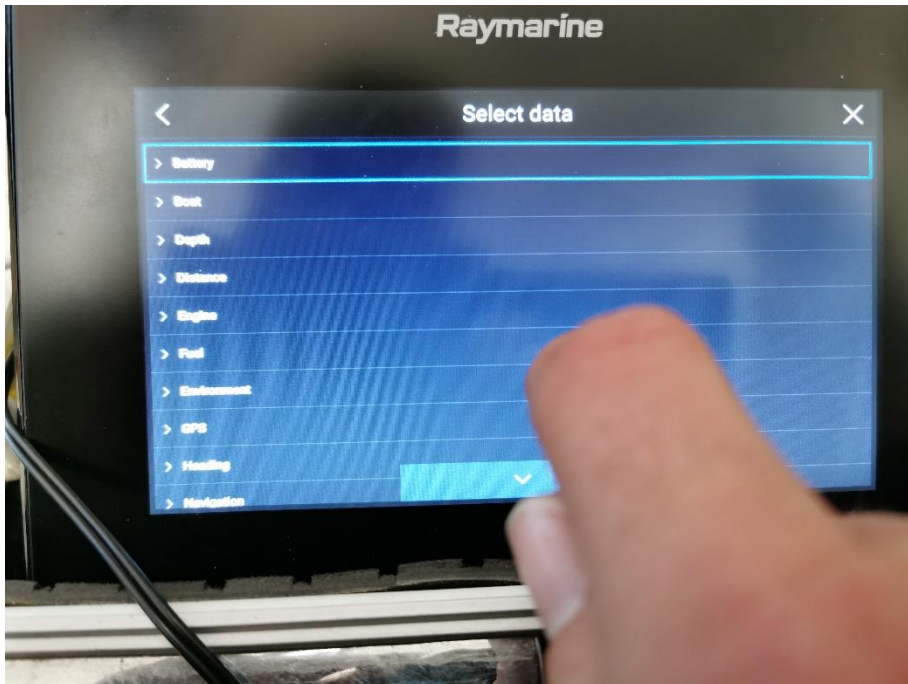
We go to "Dashboard"



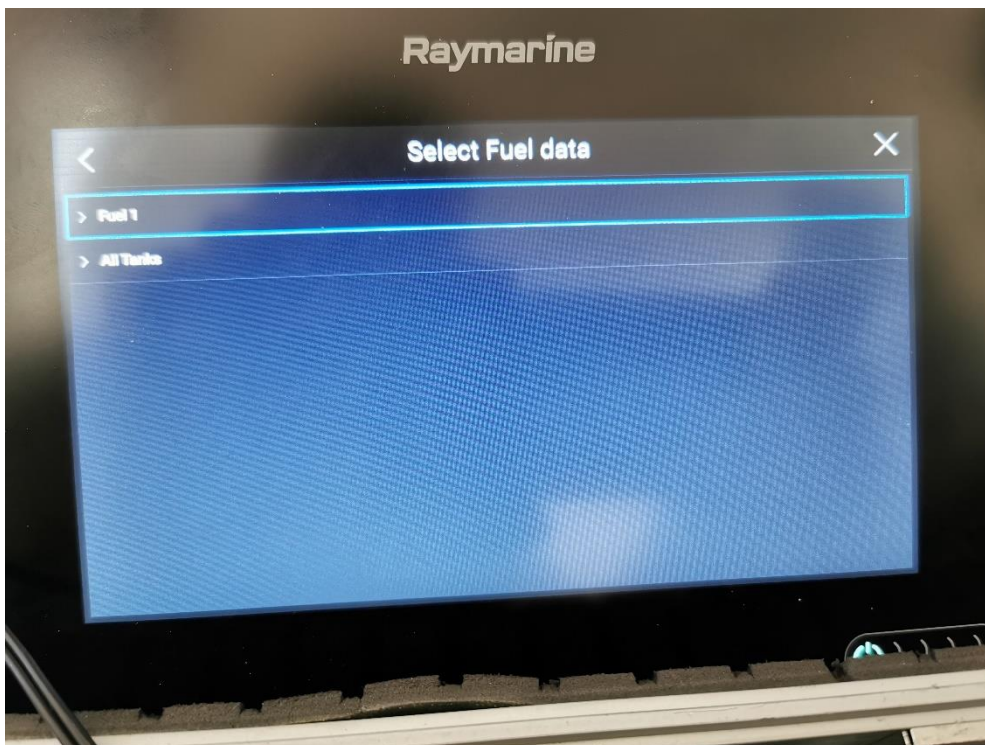
We can create a new page or use the default dashboard pages. In the example we work in a new page.

We keep press in a blank area and we will have the option to “Edit”

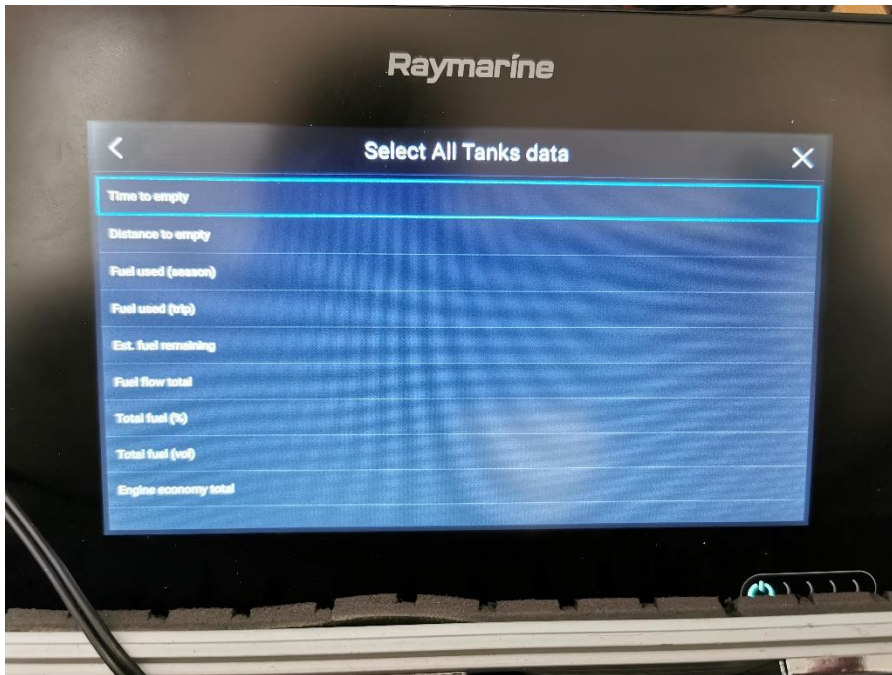
It will appear the following possible data



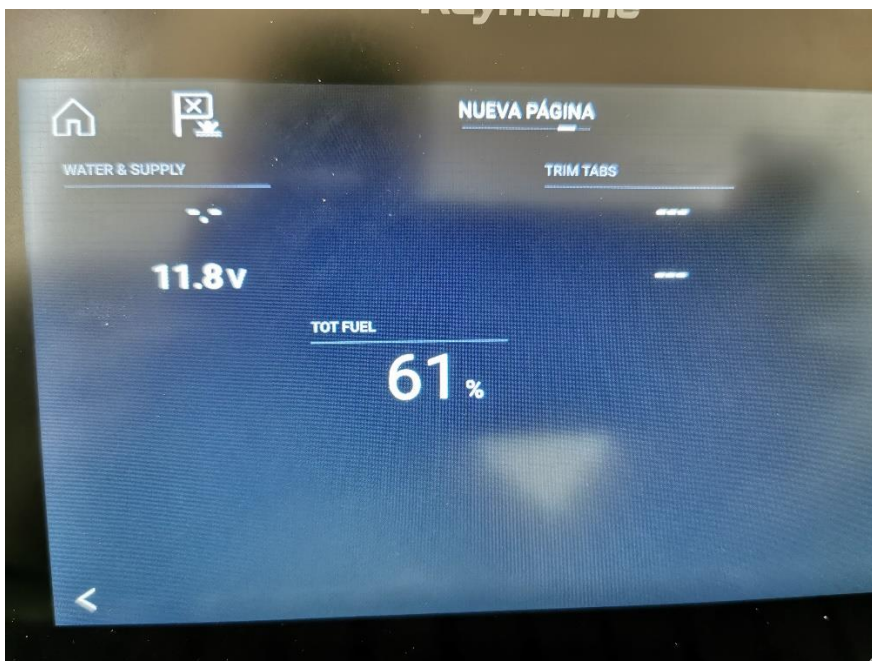
We know that is will be in Fuel Option, press “Fuel” and then All Tanks

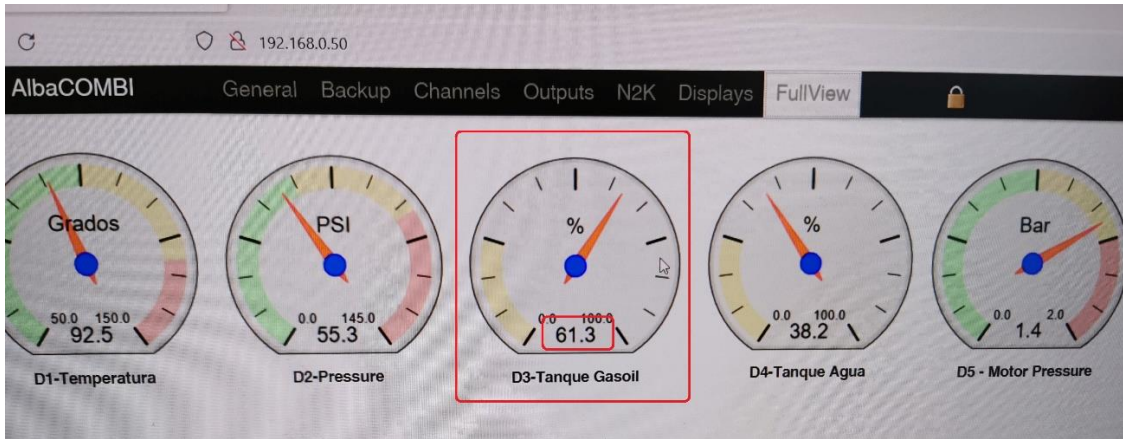


In All Tanks, we will what we are looking for, "Total fuel" we can visualize in % or in liters



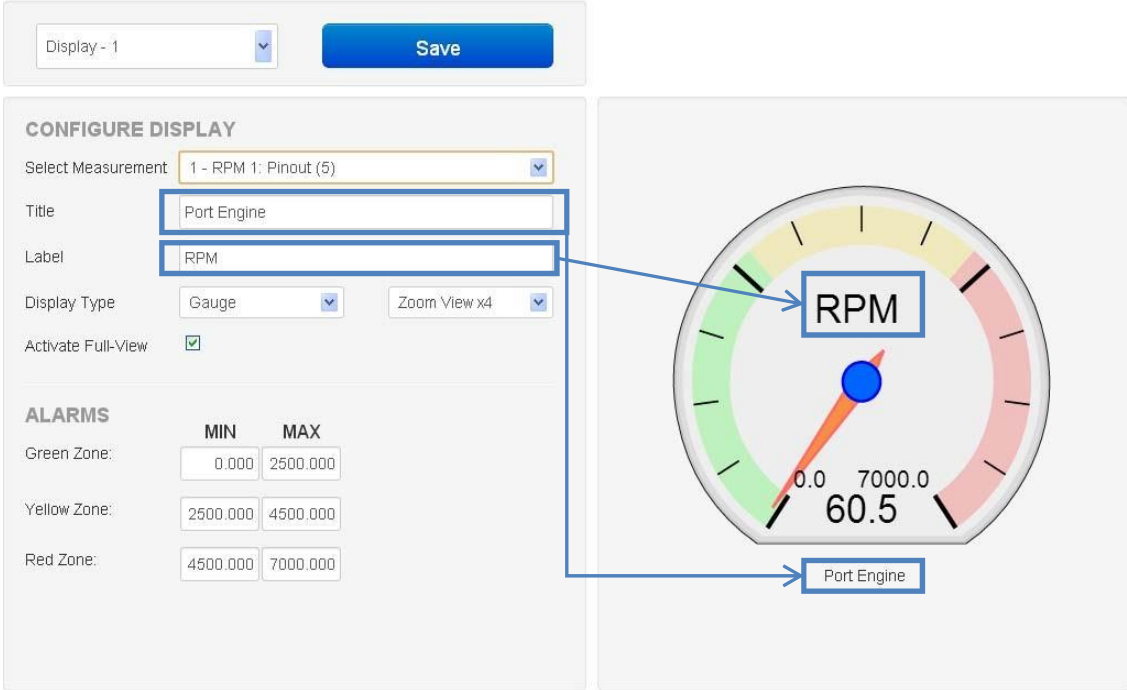
It's done! As you can see, we have same value in the multifunction display, in the web-interface and also in the analogue gauge





3.6 “DISPLAYS” Option

In this option you will configure the parameters to monitoring in the FullView Option. Select the first display to configure it:



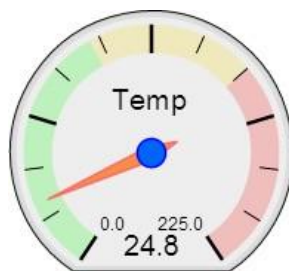
The screenshot shows a configuration window for a display. At the top, there is a dropdown menu set to 'Display - 1' and a blue 'Save' button. Below this is the 'CONFIGURE DISPLAY' section. It includes a 'Select Measurement' dropdown set to '1 - RPM 1: Pinout (5)'. The 'Title' field contains 'Port Engine', and the 'Label' field contains 'RPM'. The 'Display Type' is set to 'Gauge' with a 'Zoom View x4' option. The 'Activate Full-View' checkbox is checked. Below this is an 'ALARMS' section with a table of zones:

	MIN	MAX
Green Zone:	0.000	2500.000
Yellow Zone:	2500.000	4500.000
Red Zone:	4500.000	7000.000

To the right of the configuration fields is a preview of the gauge. The gauge is circular with a needle pointing to 60.5. The scale ranges from 0.0 to 7000.0. The gauge is divided into three zones: green (0-2500), yellow (2500-4500), and red (4500-7000). The needle is currently in the green zone. The text 'RPM' is displayed in the center of the gauge, and 'Port Engine' is displayed at the bottom. Blue arrows point from the 'Title' and 'Label' fields to their respective positions in the gauge preview.

- **Select Measurement:** You will choose any input that you had connected to AlbaCombi
- **Title:** Display name, you will see underneath the gauge.
- **Label:** name on the gauge label.
- **Display Type:** when displaying the information you can select between the following forms:

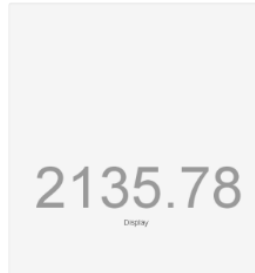
Gauge:



Graph:



Display:



- Activate Full-View: If you select this option, you will see the parameter in the full screen option from AlbaCombi.
- Alarms zone: It is important to set the alarm values as it will define the scale limits on your display.
- Please find hereby examples on how to set these limits:

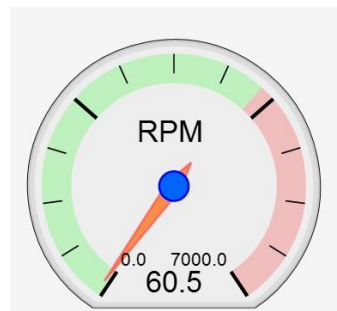
	MIN	MAX
Green Zone	0	2500
Yellow Zone	2500	4500
Red Zone	4500	7000



Note that the upper limit has to be equal to the lower limit of the area above.

In case you wish only two zones, the configuration is as follows:

	MIN	MAX
Green Zone	0	4500
Yellow Zone	4500	4500
Red Zone	4500	7000



- Press "Save" when you have finished configuring the display.

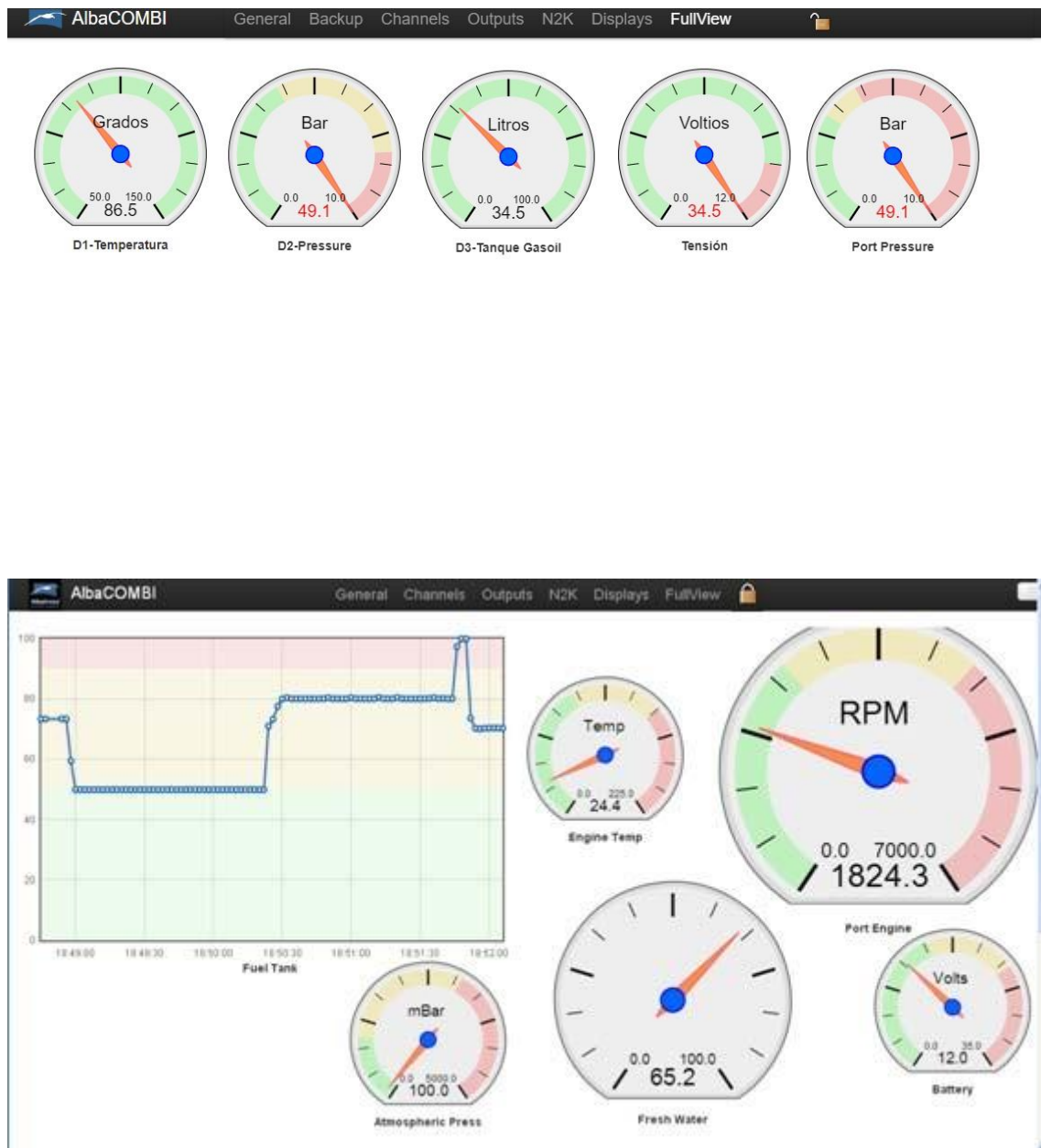
3.7 “FULLVIEW” Option

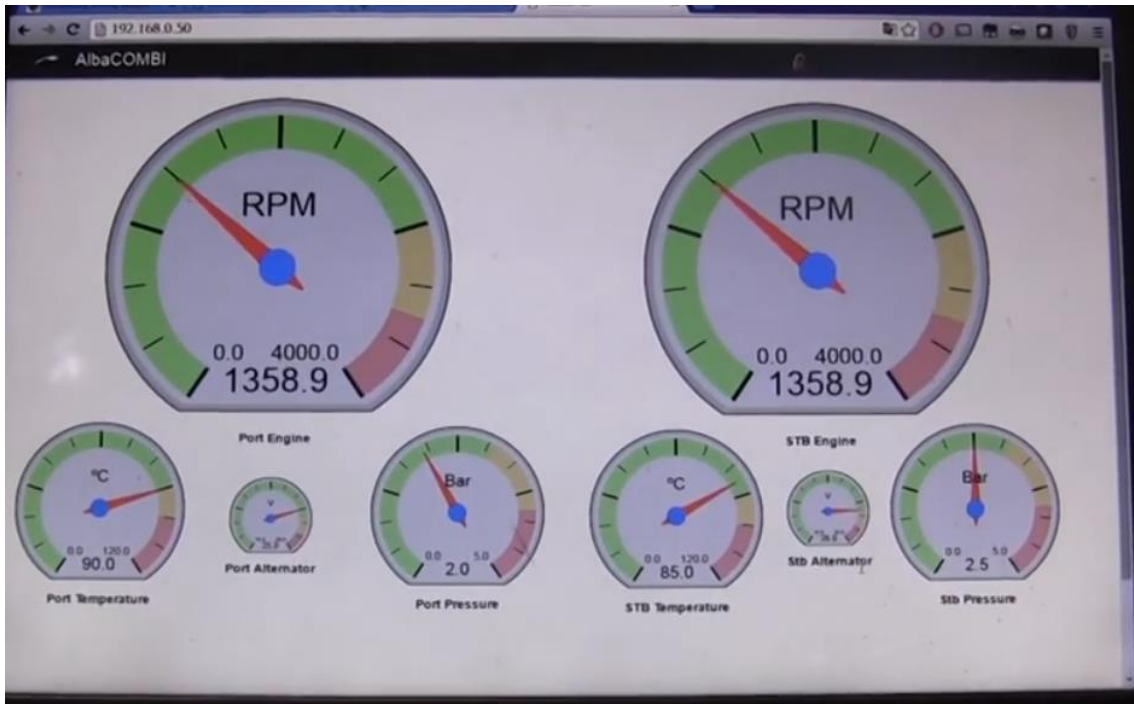
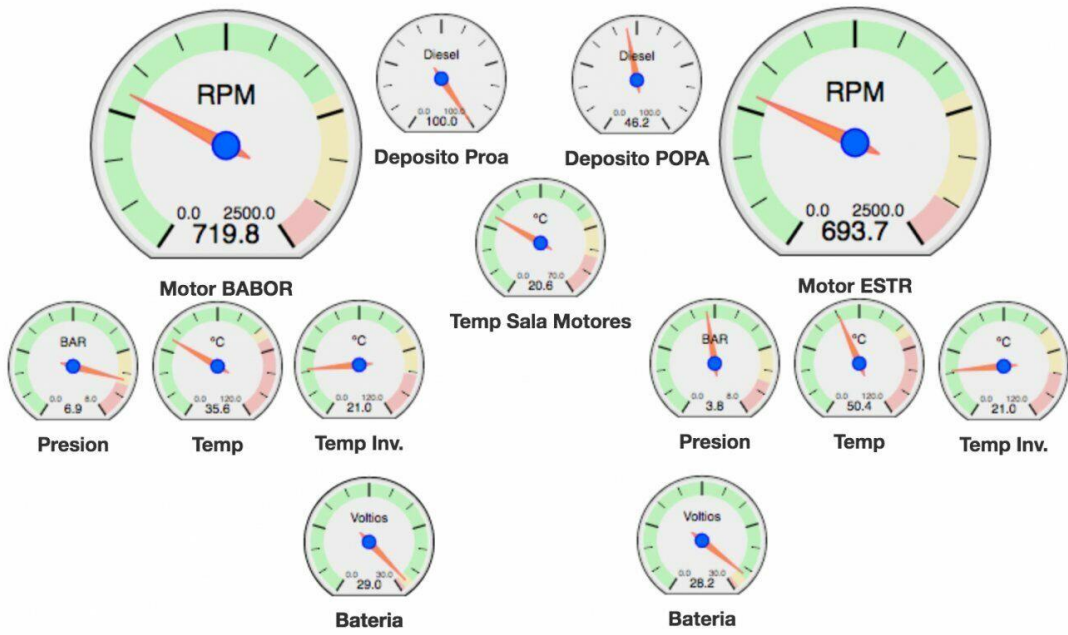
The default page of AlbaCombi will be displayed as shown below.

All displays that you have configured before will be displayed. This option can work in parallel to a NMEA display.

You can view this data in NMEA display installed in your boat, and also from any device connected to the same Ethernet network as the AlbaCombi internet-based page.

Some examples:

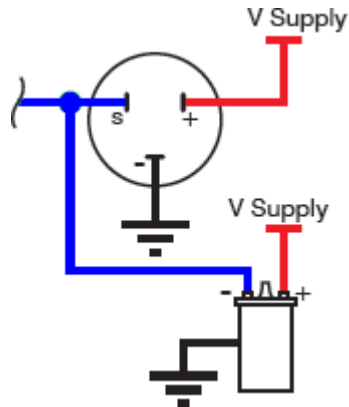




4. Tacho Inputs

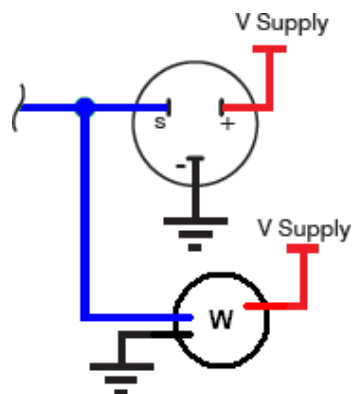
4.1 Ignition Coil

Connect the negative of the ignition coil to the positive RPM input of the AlbaCombi. Connect GND to input GND of the AlbaCombi



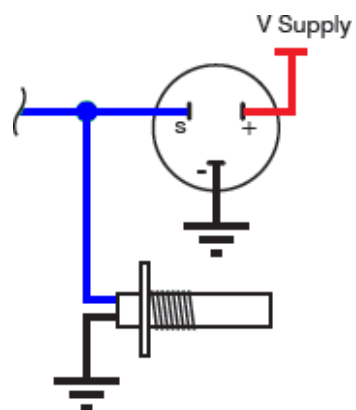
4.2 Alternator

Connect the 'w' connection of the alternator to the AlbaCombi RPM positive input of the AlbaCombi (input (input 5 or 6). Connect GND input of the alternator to the input 4



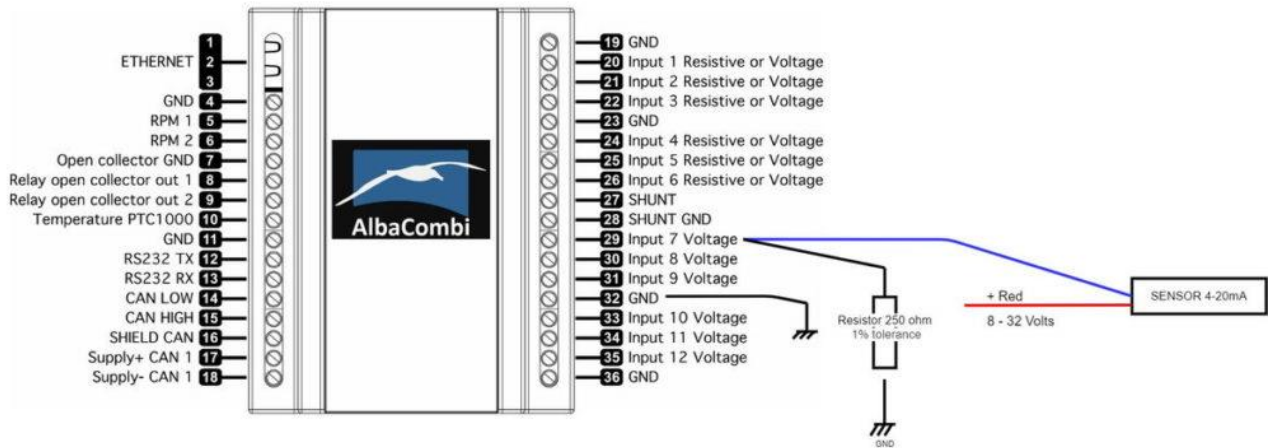
4.3 Hall Effect and Electronic Pulse Senders

Connect the signal line of the sender to the positive input on the AlbaCombi. Connect GND to GND input of the AlbaCombi



5. Sensor 4 to 20mA sensors

You may even interface 4 to 20mA sensors just adding a 250 ohms, 1% tolerance resistor and then create a calibration table with two points, 1 and 5 volts that will correspond with the maximum and minimum values of the sensor.

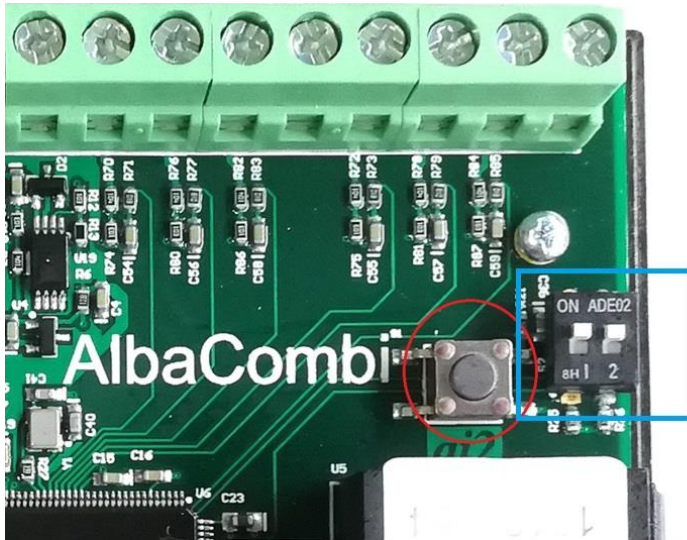


6. Hardware Test Mode and Setup mode

Open the case of the AlbaCombi (watch the following video):

<https://www.youtube.com/watch?v=aVViYz6eIQA>

Locate the switches behind the blue square in the following image:



Work mode (by default):

Two switches in Upwards position (like in the previous image)

Switch n°1	Switch n°2
ON (up)	ON (up)

Used to get inside the AlbaCombi web-interface

Hardware Test Mode:

Switch nº1	Switch nº2
ON (up)	OFF (down)

Important: Press Reset Button

Useful to check all inputs and verify all of them are working. You will see the values taken by the AlbaCombi which work as a multimeter.

AlbaCOMBI
Firmware Update
Hardware Test

Bootloader Version:

Serial Number:

MAC:

VCC 12.0	VREF 3.675	RREF 270.0	FREF 20.0	CAN 223
-------------	---------------	---------------	--------------	------------

1 -

2 -

3 - 1

4 - 1

5 -

6 -

19 -

20 -

21 -

22 -

23 -

24 -

25 -

26 -

27 -

28 -

29 -

30 -

31 -

32 -

33 -

34 -

35 -

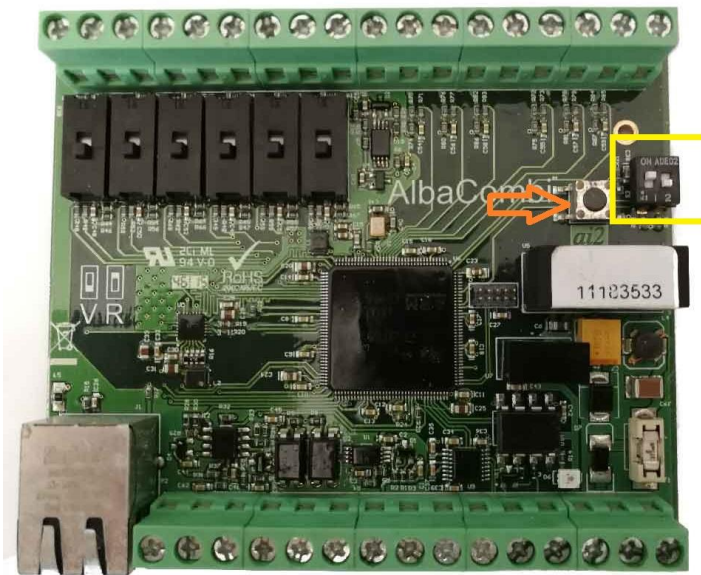
36 -

<ul style="list-style-type: none"> 1 - Ethernet 2 - Ethernet 3 - Ethernet 4 - GND 5 - RPM 1 6 - RPM 2 7 - Open collector GND 8 - Relay open collector out 1 9 - Relay open collector out 2 10 - Temperature PTC1000 11 - GND 12 - RS232 TX 13 - RS232 RX 14 - CAN LOW 15 - CAN HIGH 16 - SHIELD CAN 17 - Supply+ CAN 1 18 - Supply- CAN 1 	<ul style="list-style-type: none"> 19 - GND 20 - Input 1 Resistive or Voltage 21 - Input 2 Resistive or Voltage 22 - Input 3 Resistive or Voltage 23 - GND 24 - Input 4 Resistive or Voltage 25 - Input 5 Resistive or Voltage 26 - Input 6 Resistive or Voltage 27 - SHUNT 28 - SHUNT GND 29 - Input 7 Voltage 30 - Input 8 Voltage 31 - Input 9 Voltage 32 - GND 33 - Input 10 Voltage 34 - Input 11 Voltage 35 - Input 12 Voltage 36 - GND
---	---

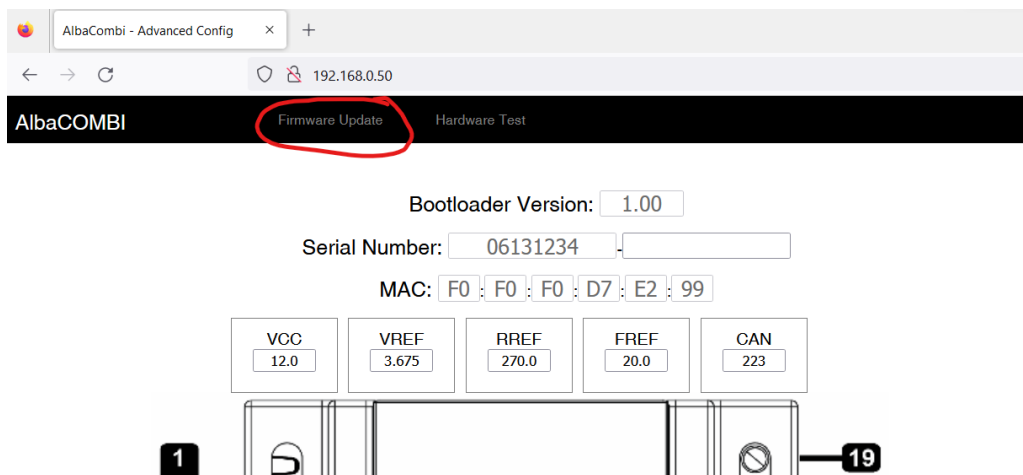
Setup Mode:

Switch n°1	Switch n°2
ON (up)	OFF (down)

Important: Press Reset Button



Press the option Firmware Update



7. Firmware Update

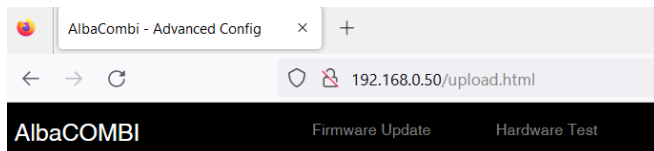
If you have the firmware version 2.0 we don't recommend to update your AlbaCombi. This is a stable version.

IMPORTANT: YOU HAVE MAKE THIS PROCESS **IN FIREFOX BROWSER, DON'T MAKE THIS PROCESS IN CHROME BROWSER**. If you don't have it installed, please install, you can download here:

<https://www.mozilla.org/en-US/firefox/new/>

In case you need to update follow the next steps:

- 1) You must enter in Setup Mode as we have explained in the previous chapter. Then press Firmware Update and you will see the following screen:



Select the new Firmware version for upgrade

- 2) **Go to Firefox** browser (**NOT MAKE THIS PROCESS IN CHROME BROWSER**), press button "update the firmware". You should download from the following link:

<https://www.albacombi.com/downloads/>

4) Decompress the .zip and press browse button in Chrome, select the file ended in .xin and Upload.

5) Press Upload, wait around 10 seconds and wait to receive the upload confirmation message: "Firmware upload succeeded"

6) Turn both switches in ON position

Switch n°1: ON

Switch n°2: ON

And press RESET button

7) Refresh Firefox browser and wait some seconds the unit should work again.

8. Connecting two or more AlbaCombi units

In case you need to send more N2K signal or you require to analyze more info it is possible to connect two or more AlbaCombi units.

You only will have to establish one single IP for each AlbaCombi. For that, first you must connect one albacombi and go to GENERAL and establish the IP 192.168.0.51 and press buttons save and then reset.

The screenshot shows the web interface for an AlbaCOMBI unit. At the top, there's a browser window with the address 192.168.0.50. Below the navigation bar, there are 'Reset' and 'Save' buttons. The main content is split into two panels. The left panel, titled 'PRODUCT INFO', describes the device as an analogue to NMEA2000 converter with six 0V to 32V channels and six additional channels for voltage or resistive mode. It also mentions two RPM inputs, one PTC, and one shunt input. The right panel contains configuration fields: 'PRODUCT INFO' (Firmware Version: 2.00, Serial Number: 06131234), 'DHCP SERVER' (set to Disabled), 'IP ADDRESS' (192.168.0.50), and 'NMEA 2000 ADDRESS' (Node: 9, ID: 1565337).

Then connect the second one which have by default the IP 192.168.0.50.

Now you can manage and configure each AlbaCombi

9. How to visualize AlbaCombi to your Tablet or Smartphone

There are two options to make this.

- **With a remote app like Anydesk or TeamViewer + Raspberry Pi or old laptop**

This is a cheap option to leave opened all the time.

- 1) Install Anydesk in your RaspBerry
- 2) Configure your Raspberry static IP. Same procedure as we did in the IP configuration [Chapter 2.1.](#)
- 3) Open the browser and type 192.168.0.50 to visualize the albacombi web-interface
- 4) Open Anydesk and share that browser screen
- 5) Install Anydesk in your smartphone or tablet and introduce the connection code you see in your rasperry.

Now you are able to see what is showed in your rasperry or a laptop in your tablet or smartphone.

- **Setup a network with an access point unit or a router**

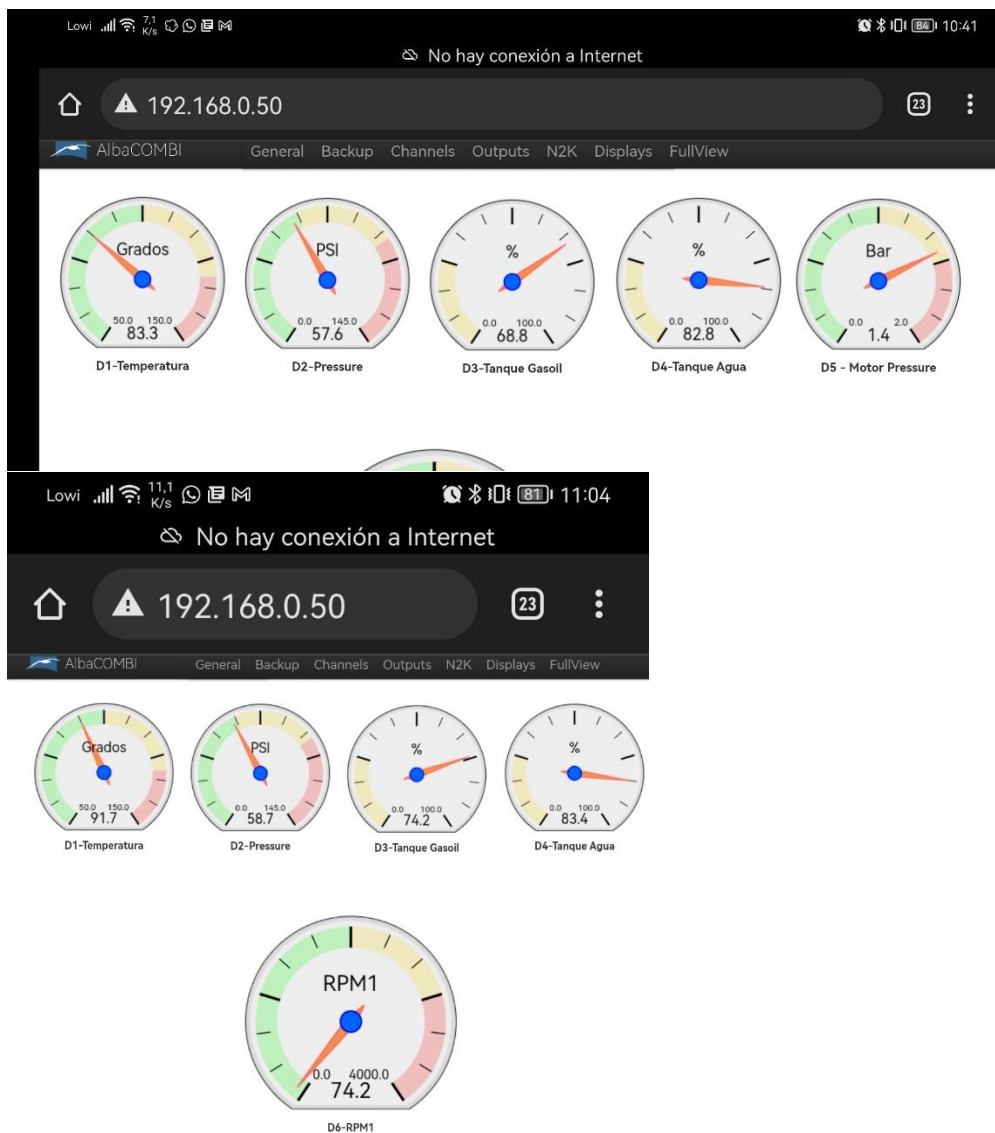
1) Connect your AlbaCombi to your router with ethernet cable.

Important: You must verify your router is working in the IP 192.168.0.1

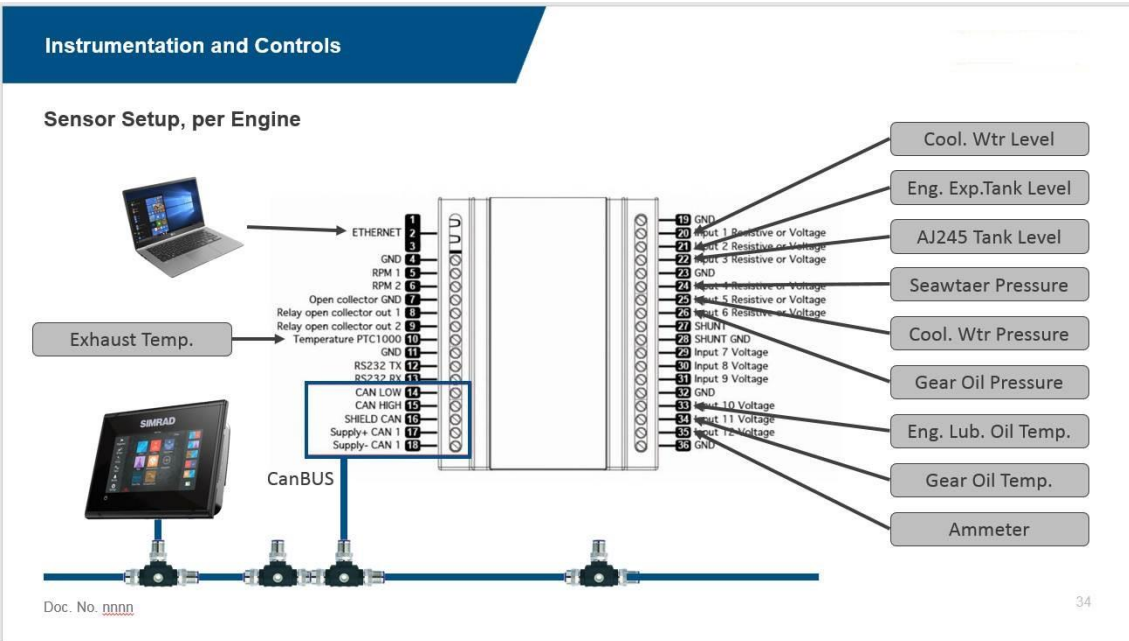
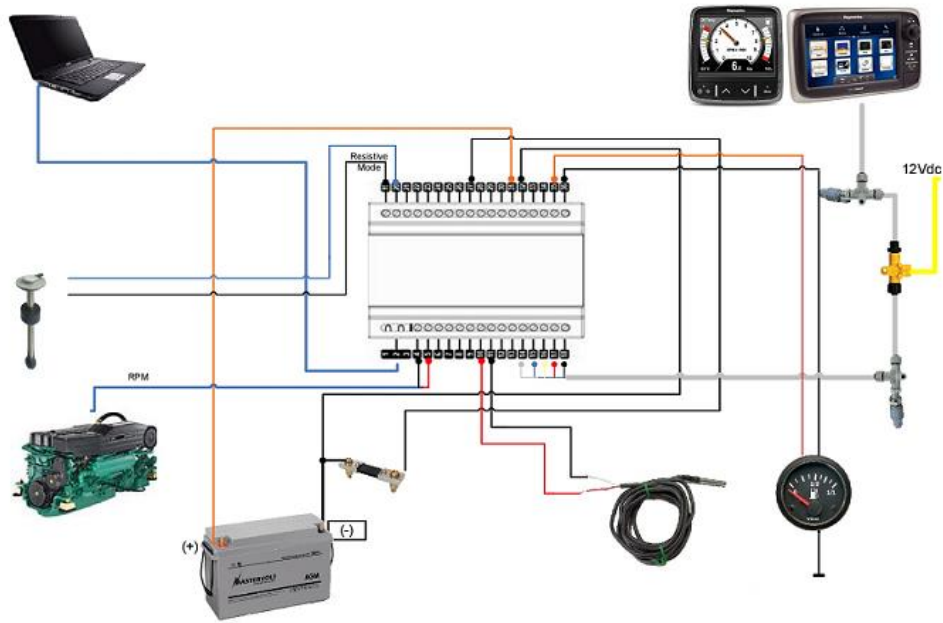
2) Go to your Wi-Fi Configuration in your Smartphone or Tablet and locate the name of your Router Wi-Fi. For example, WLAN_XXXX.

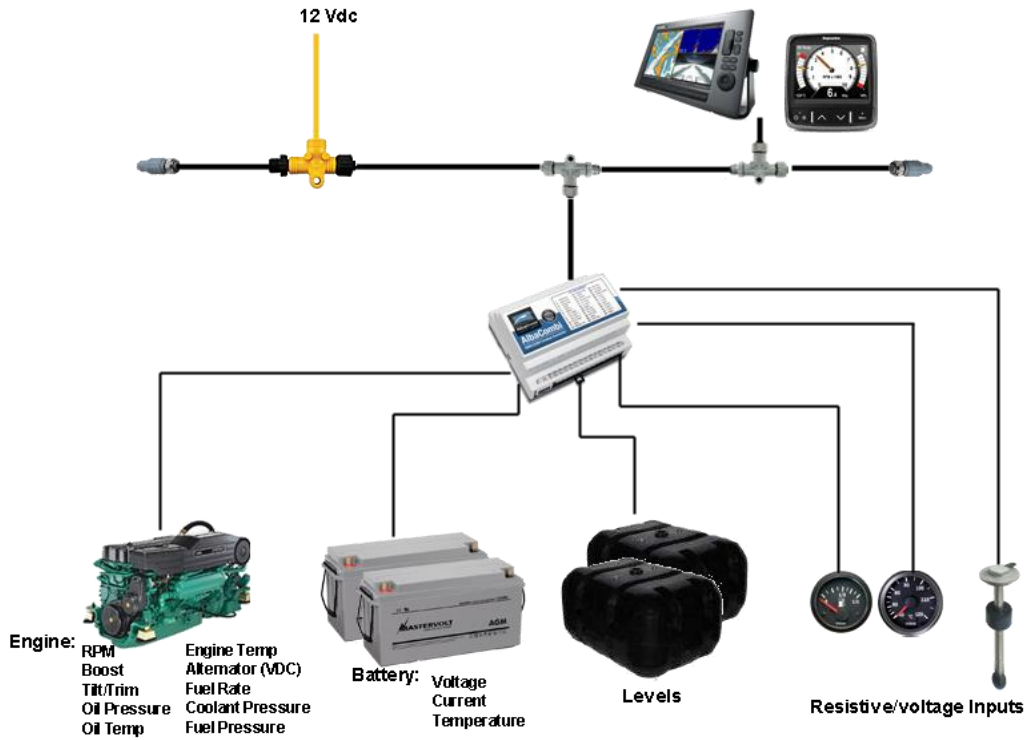
3) Connect to that Wi-Fi (Recommend configuring an static IP for your smartphone inside the range 192.168.0.XXX (where XXX could be 1 to 255, excluding the 50 which is the IP of your AlbaCombi). For example, you can establish: 192.168.0.170 and subnet Mask 255.255.255.0

4) Go to your favorite browser and write the IP of the albacombi, 192.168.0.50 and you will see the web-interface.



10. Basic Configurations



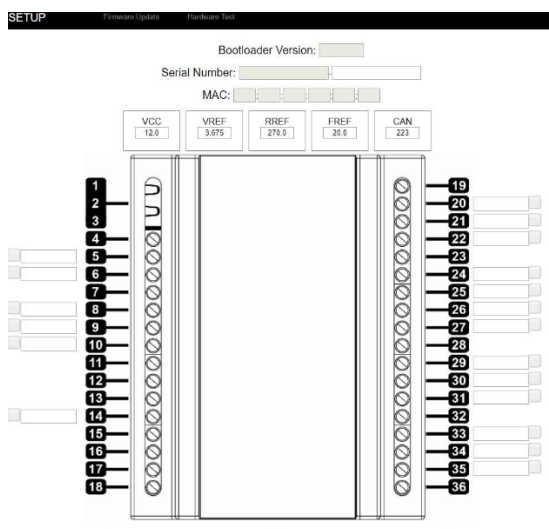


You can download here another configuration keeping old gauges:

<https://www.albacombi.com/wp-content/uploads/2021/05/basic5-1-2.pdf>

11. Troubleshooting

The only problem we have been informed by some people becomes when they have tried to update the firmware of the AlbaCombi from latest versions of Chrome and the unit gets freeze in the following screen:



You can solve this following the next guide:

<https://www.albacombi.com/blog/recover-albacombi-after-firmware-update/>

12. Company Information



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