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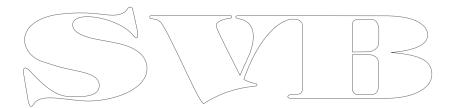
USER MANUAL







2





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Company Information



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The information provided in this document concerning capacity, suitability and performance shall not be considered commercially binding.

Please note that all capacity figures and dimensioning methods are based on EMMI Network's SL own models of how devices behave in a network. The document is intended to be used by professionally trained personnel. It is strongly recommended to involve EMMI Network SL in discussions covering the contents of this document.

Any feedback that may help EMMI Network SL improve the documentation and information methods is welcome.



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 equipment.





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.

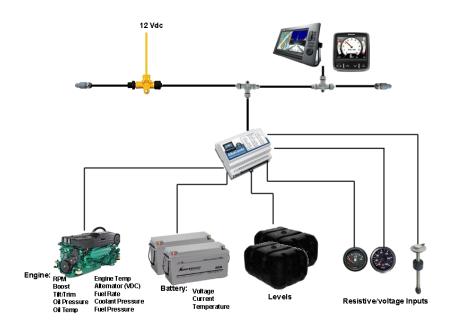
The unit has been designed to connect in parallel to an existing gauge, so existing instruments can still be used.

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 AlbaCombi via Ethernet and you will get to the calibration and testing page. No calibration tools or special interfaces are required. This device is future proof and can be upgraded in the field via its ethernet port.

See the configuration instructions to find which senders and PGNs are supported. The instructions can be found on the website at <u>www.albacombi.com</u>.



 Select mounting location: Ensure the AlbaCombi can be mounted in a suitable location between the NMEA2000 bus and the senders or gauges.

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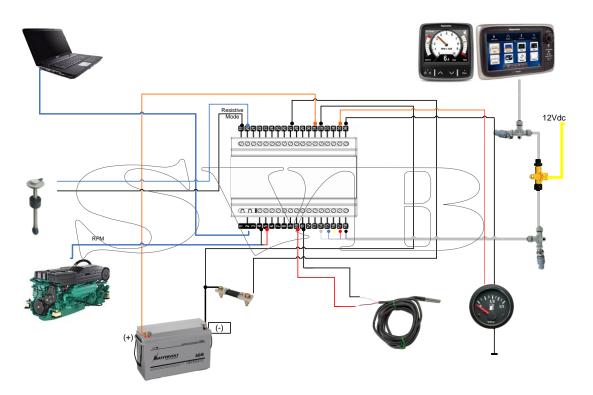
- 2. Connect the AlbaCombi to the NMEA2000 network
- 3. Connect the Gauge inputs
- 4. Connect the Power to the AlbaCombi
- 5. Configure the AlbaCombi



1. INSTALLATION

1.1 Selecting a Mounting Location

The following figure shows an example installation. This gives an idea of the connections that need to be made to install the AlbaCombi. All these connections need to be considered before selecting an installation location.





2. MOUNTING THE ALBACOMBI UNIT

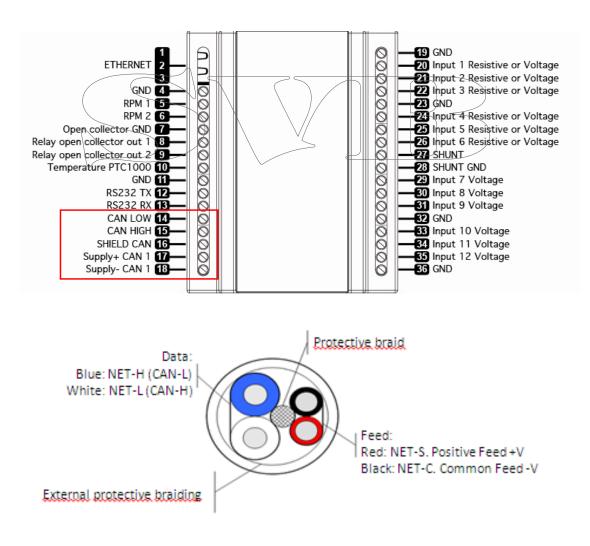
2.1 DIN Rail Mounting

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.

2.2 Connecting to a NMEA2000 Network





2.2.1 NMEA2000 Networks

NMEA2000 devices will only communicate with each other when connected to a powered and correctly terminated NMEA2000 network.

All networks need to be powered and terminated correctly to allow data to be transmitted reliably 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 NMEA2000 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

2.2.2 NMEA2000 Minimum Network Requirements

All NMEA2000 networks require a 12 V 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

All the required network parts can be supplied by Emmi Network S.L





3. TACHO INPUT CONNECTIONS

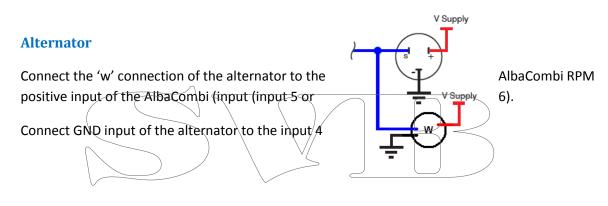
V Supply

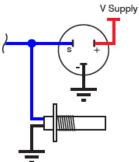
Supply



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

Connect GND to input GND of the AlbaCombi





Hall Effect and Electronic Pulse Senders

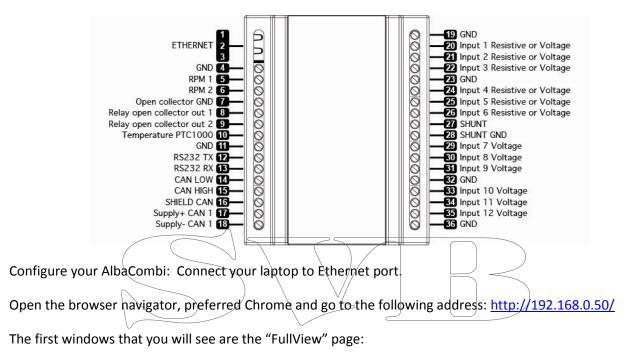
Connect the signal line of the sender to the positive input on the AlbaCombi

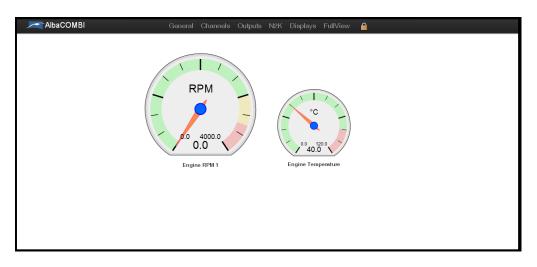
Connect GND to GND input of the AlbaCombi



4. CONFIGURING THE ALBACOMBI DEVICE

Make all connections. See the pin out of your device:





The gauges that you will see are an example



4.1 General Option

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.

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.	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.
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	EMMI Network S.L - www.albacombi.com

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"



4.2 Channel Options

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

AlbaCOMBI	×											l	- 6) 2	3
← ⇒ C' i	192.168.0.50							ŵ	1	3	8	2	0	2	≡
Albatross Alb	aCOMBI	General	Channels	Outputs	N2K	Displays	FullView								^
Select 1 - RPI 2 - RPI 3 - PTi 4 - Voi 5 - Voi 6 - Voi 7 - Voi 7 - Voi 10 - St 11 - Vc 12 - Vc 13 - Vc 13 - Vc 13 - Vc 14 - Vc 15 - Vc	t Channel - t Channel - M 1: Pinout (6) C1000: Pinout (10) VResistive 1: Pinout (20) VResistive 3: Pinout (21) VResistive 3: Pinout (22) VResistive 4: Pinout (24) VResistive 5: Pinout (25) VResistive 5: Pinout (26) inut: Pinout (27:28) intage 7: Pinout (29) intage 7: Pinout (20) intage 7: Pinout (30) intage 9: Pinout (31) intage 10: Pinout (34) intage 12: Pinout (35)	Save													
									$\Big>$						





4.2.1 RPM Channel

You must configure all fields:

1 - RPM 1: Pinou	ut (5)		Save		
	HANNEL		CALIBRA	TION	
Name	RPM 1		Raw	Scaled	4000.0
Signal from	Engine	~			3600.0
Physic Variable	Rotation Rate	~	RAW	Value	
Units	RPM	~	0	0	2800.0
Limit High	10000.000		43	400	2400.0
Limit Low	3.000		83	800	¥2000.0
			122	1200	B2000.0
Filter Level	Low Reduction	*	160	1600	1200.0
Sensor Type	Other	*	201	2000	800.0
			241	2400	
		\wedge	280	2800	400.0
(360	3600	0.0 43.0 83.0 122.0 160 0 201.0 241.0 280.0 360.0 400.
(400	4000	RAW
				-	
			/	/	

- Name: the name of the channel.
- Signal from: In case of RPM signal, the signal is sent by one engine.
- Physic Variable: In case of RPM, the only option is "Rotation Rate".
- Units: RPM
- 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 count with some predefined sensors. You can choose a sensor type and make some changes.

If you press on "Measure", the current value of the input will be shown.

CALIBRA	TION
Measured	Calibrated
183.	8000
Measured	Calibrated
0	0
44000	4000
+	



You can click on RAW 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 (pulse 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 Raw 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.



4.2.2 PTC1000 Option

3 - PTC1000: P	inout (10) 🛛 👻		Save				
CONFIGURE	HANNEL		CALIBRA	TION			
Name	PCT		Raw	Scaled	1000.0		
Signal from	Engine	~					
Physic Variable	Temperature	~	RAW	Value			
Units	°C	~	-1000	-1000			
Limit High	200.000		1000	1000			
Limit Low	10.000				VALUE		
Filter Level	Low Reduction	~			>		
Sensor Type	Other	~					
					-1000.0		
		\wedge			-1000.0		100
						RAV	A

• 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.

Signal from	Engine 💌
Physic Variable	Engine Battery General Temperature

- Physic Variable: In this case, the PTC sensor only works with temperature parameters.
- Units: Select between ^oC 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:

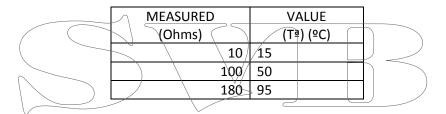


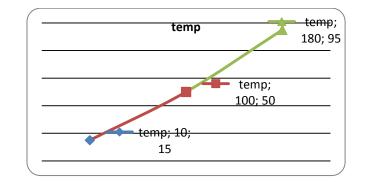
CALIBRA					
Measured	Calibrated				
23.8750					

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 make the test.

Example: You has saved the following calibration table:





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 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



4.2.3 Volt/Resistive Input

You have six inputs like this. In the Channel screen you will see if the input has been configured on voltage o resistive mode

	AlbaCOMB	il	General Channels Outputs N2K Displays FullView	
;	7 - Volts/Ohms 4:	Pin(24)-GND(23)	Save	
	CONFIGURE CH	HANNEL	CALIBRATION	
	Name	Fuel Level 1	Measured Calibrated 100.0	ą
	Signal from	General Fluid 💌		
	Physic Variable	Fluid Level	Measured Calibrated	
	Units	%		
	Alarm Limit High	100.000		
	Alarm Limit Low	0.000	+ GILE Resistence Mode	
	Filter Level	Low Reduction	- CA	
	Sensor Type	- Sensors - 💌		
		0		
			000 100 100	0.0
			MEASURED	
	\bigwedge	\sum		

• 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	General Fluid 🛛 💌
	Engine 🔪 Battery
Physic Variable	
	General Fluid
Units	General Temperature
	General Pressure
Limit High	Switch Bank
-	General Fluid
Limit Low	Engine

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

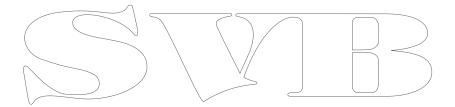
- Limits high and low: these limits will be used to set an alarm.
- Filter Level: please indicate if the level measurement has been made with low, medium or high level.



- Sensor Type: You have some predefined sensors. You can choose a sensor type and make some changes.
- Supply Correction (only on voltage input, not available on resistance mode):

SUPPLY CORRECTION		
Activate Correction		
Calibration Vcc	0.000	
Correction Channel	Voltage 12: Pin(35 💌	

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







4.2.4 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 it supposed to measure.

10 - Shunt: Pin(2	7)-GND(28)	Save	
CONFIGURE C	HANNEL	CALIBRATION	
Name	Battery Current	Measured Calibrated	250.0
Signal from	Battery 💌		
Physic Variable	Current	Measured Calibrated	
Unite	A	0 0	
Alarm Limit High	250.000	100 250	
Alarm Limit Low	0.000		CALIBRATED
Filter Level	Low Reduction		CALI
Sensor Type	- Sensors -		
			0.0 0.0 MEASURED

- 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 makingthe test.



4.2.5 Voltage Input

	l	Genera	al Channels	Outputs	N2K D)isplays	FullView
11 - Voltage 7: Pir	n(29)-GND(32)	Sav	e				
CONFIGURE CH	HANNEL	CALIBRA	TION				
Name	Engine Temperature 2	Measured	Calibrated	120.0			
Signal from	Engine 💌			110.0			
Physic Variable	Temperature 💌	Measured	Calibrated	100.0	\mathbf{a}		
Units	°C 💌	1.07	120	90.0			
Alarm Limit High	120.000	1.32	110				
Alarm Limit Low	40.000	2.02	90	CALIBRATED		R	
Filter Level	Low Reduction	2.44	80	70.0 CAL			R
Sensor Type	-Sensore	2.88	70	60.0			
		3.46	60				
SUPPLY CORRI		4.65	40	40.0			\langle
Calibration Vcc	12.000	'\	\sim	1.1 1.3	3 1.7 2	.0 2.4	2.9 3.5 4.7
Correction Channel	Voltage 12: Pin(3?			لے		M	ASURED

• 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	12.000	
	Correction Channel	Voltage 12: Pin(35 💌	
You can activat	te the supply correction usin	g a voltage input (Correction C	Channel)



4.3 Output Option

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

1 - Output Relay 1: Pinout(8) - Select Output - <u>1 - Output Relay 1: Pinout(8)</u> 2 - Output Relay 2: Pinout(9)	1 - Output Relay 1	: Pinout(8)
	CONFIGURE OU	JTPUT
	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 Timit High

- Name: please write down the alarm's name
- Output Type: you have 3 options: •
 - Manual: You can switch on/off the relay
 - o NMEA2000: allows to act on a device connected to the NMEA network when the alarm is activated
 - \circ $\;$ Alarm: the alarm up and down values are only to be configured on screen.

		_
Output Type	Alarm	M
	Manual	-18
Alarm Channel	NMEA2000	
Alanni Channei	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. •



4.4 N2K Option

In this section you must configure the PGN to send through the NMEA network.

4.4.1 PGN 127488: Engine Rapide Update

	Engine		
	Speed (RPM)		
Ī	Boost Pressure		
Ī	7FFFFF		
PGN127488 (1):Engine Rapic 🗸	Save	
	ENGINE PARAM R		
nstance	Instance 1 - Port - P	rimary	~
Engine Speed	1 - RPM 1: Pinout (5	i)	~
Engine Boost	0 - Empty Field Data	9	~
Engine Tilt/Trim	0 - Empty Field Data	а	~
Active PGN			

- Instance: The instance indicates the engine (port, starboard, forward, etc..)
- Engine Speed: if you have a 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.



4.4.2 PGN 127489: Engine Parameters Dynamic

Engine
Oil Pressure
Oil Temperature
Engine Temperature
Alternator Voltage
Coolant Temperature

	PGN127489 (1):En	gine Parar 🖌 Save	
	CONFIGURE EN		
\int	Instance	Instance 1 - Port - Primary	
V	Oil Pressure	0 - Empty Field Data	~
	Engine Temperature	3 - PTC1000: Pinout (10)	~
	Alternator (VDC)	0 - Empty Field Data	~
	Fuel Rate	0 - Empty Field Data	~
	Coolant Pressure	0 - Empty Field Data	~
	Fuel Pressure	0 - Empty Field Data	~
	Active PGN		

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 muntifunction display on board.



4.4.3 PGN 127508: Battery Status

Battery Instance
Voltage
Current
Temperature
FF

PGN127508 (2):Ba	ttery Status	Save
BATTERY STAT	US	
Voltage	0 - Empty Field Data	
Current	0 - Empty Field Data	
Case Temperature	0 - Empty Field Data	~
Active PGN		

- Instance: this is a very important field. If you have two or more batteries on your vessel, each battery bank 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 multifunction display.



4.4.4 PGN 127505: Fluid Level

Fluid Instance Fluid Type Fluid Level
Tank Capacity
Reserved FF

PGN127505 (1):Flu	uid Level 🔽	Save
FLUID LEVEL Instace Capacity (cu-m)	0	
Туре	Fuel Level	
Level Active PGN	5 - Volt/Resistive 2: Pinout (2	1)
ALLIVE FON		

- **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 ndicates (Fuel, fresh water, waste water, 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.



4.4.5 PGN 130312: Temperature

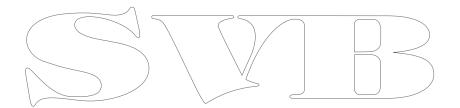
PGN130312 (1):1	emperature	Save
	PERATURE	
Source	Sea Temperature	~
Actual Value	0 - Empty Field Data	×
Active PGN		

- 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	Sea Temperature	k 🔽
	Sea Temperature	~
Actual Value	Outside Temperature	
	Inside Temperature	
Active PGN	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 Theorical Temperature	
	Heat Index Temperature	
	Freezer Temperature	
	Generic Source Temperature	

• Actual Value: Select the correct input.



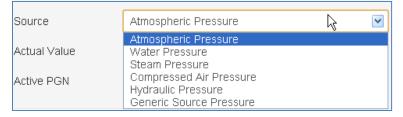


4.4.6 PGN 130314: Pressure

SID
Instance nº
Pressure Source
Pressure (Pa)
Reserved FF

PGN130314 (1):Pre	erusse	Save
GENERIC PRES	SURE 0 Atmospheric Pressure	
Actual Value	0 - Empty Field Data	~
Active PGN		

- 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:



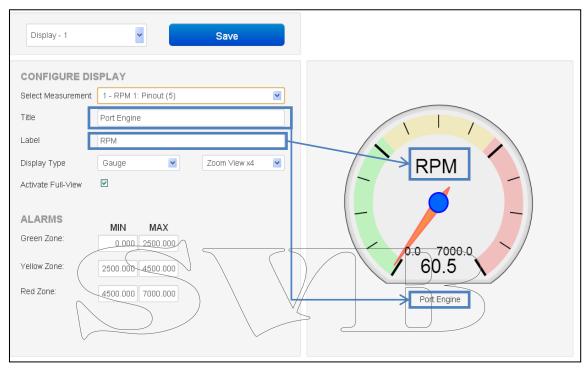
• Actual Value: Select the correct input.



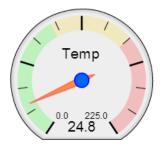
4.7 Displays Option

In this option you will configure the parameters to monitoring in the FullView Option.

Select the first display to configure it:



- 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:



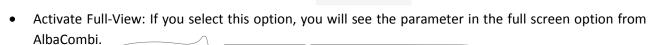


 \circ Graph:

0				Î	
• • • • • • • • • • • • • • • • • • •	 				-0000
				8	
		20:31:00	20:31:30	20:32:00	20:32:30

2135.78

• Display:



- 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

	MIN	MAX
Green Zone	0	<mark>2500</mark>
Yellow Zone	<mark>2500</mark>	4500
Red Zone	4500	7000

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

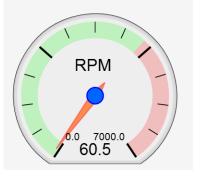


lower limit of the

limits:

In case you wish only two zones, the follows:

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



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

configuration is as

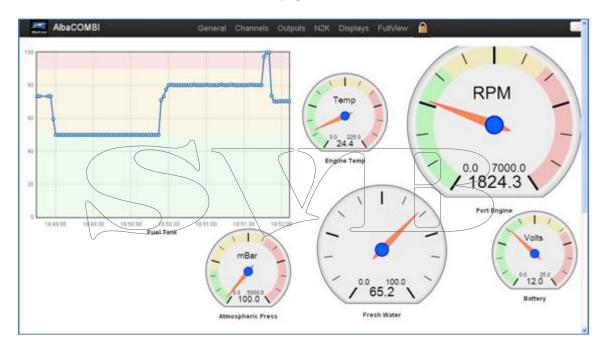


4.8 FULL-SCREEN OPTION

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.

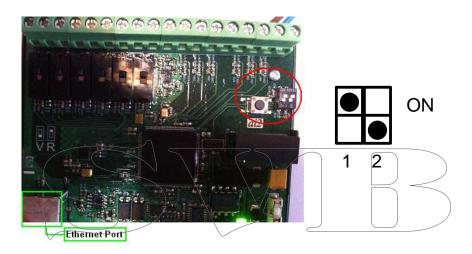


Press on the **padlock** icon to block/unlock the screen. In unlock mode you will can move the indicators.



Before making all connections, please follow the next steps:

 Change the state of the switch on Hardware Test Mode: Switch 1 on, switch 2 off and then press reset button



- 1. Please access the following URL on your PC: <u>http://192.168.0.50/</u>
- 2. You will see the "Hardware Test" Option:

1 2 3 4		REF 270.0	FREF 20.0	CAN 223	
1 2 3	B				
4	ଡ଼ଡ଼ଡ଼ଡ଼ଡ଼ଡ଼ଡ଼ଡ଼ଡ଼ଡ଼ଡ଼ଡ଼			000000000000000000000000000000000000000	13 20 100 21 11940 22 11940 23 100 24 1040 25 100 26 100 27 1040 28 100 29 100 20 000 20 000 23 100 24 100 25 100 26 100 27 100 28 100 29 100 20 00 20 00 21 100 22 100 23 100 24 100 25 100 26 100 29 100 20 100 20 100 20 100 20 100 20 100



If you connect the test board, the device will be a hardware test and in your web page you will see the checkbox marked if the result has been positive.

To update the AlbaCombi device:

- 1. Download the last firmware version from: www.albacombi.com and save it on your PC
- 2. Enter in Installer Mode on your AlbaCombi device.
- 3. Go to: http://192.168.0.50/.
- 3. Select the "Firmware Update" option:

	🕒 AlbaCombi - Advanced Confi 🗙 🚺				
	← → C ☆ 192.168.0.	.50			
	AlbaCOMBI	Firmware Update	Hardware Test		
		VCC VREF 12.0 3675/	RREF 270.0	FREF 0	CAN 223
4.	Select the xin file saved on step 1.	. \			
5.	Press "Update".				



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)			
	PGN127488 Engine Parameters, Rapid Update		
	PGN127489 Engine Parameters, Dynamic		
	PGN127508 Battery Status		
Periodic	PGN127505 Fluid Level		
1 choole	PGN130312 Temperature		
	PGN130314 Actual Pressure		
	PGN127501 Binary Switch Bank Status		
	PGN127502 Binary Switch Bank Control		

ELECTRIC SPECIFICATIONS	
Tension	9-18V DC from the NMEA2000 bus
Consumption	150mA
Equivalent load	3 LEN as per NMEA2000

MECHANICAL SPE	MECHANICAL SPECIFICATIONS		
Size	104mm x 86mm x 588mm (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	-15C to +55⁰C	
	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	