



NMEA CONNECT PLUS

CM11016 User manual

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1 Product overview:¹

Congratulations, you are the owner of a brand new **NMEA Connect Plus**. The NMEA Connect Plus (NCP along the document) product line belongs to a family of gateways and range extenders.

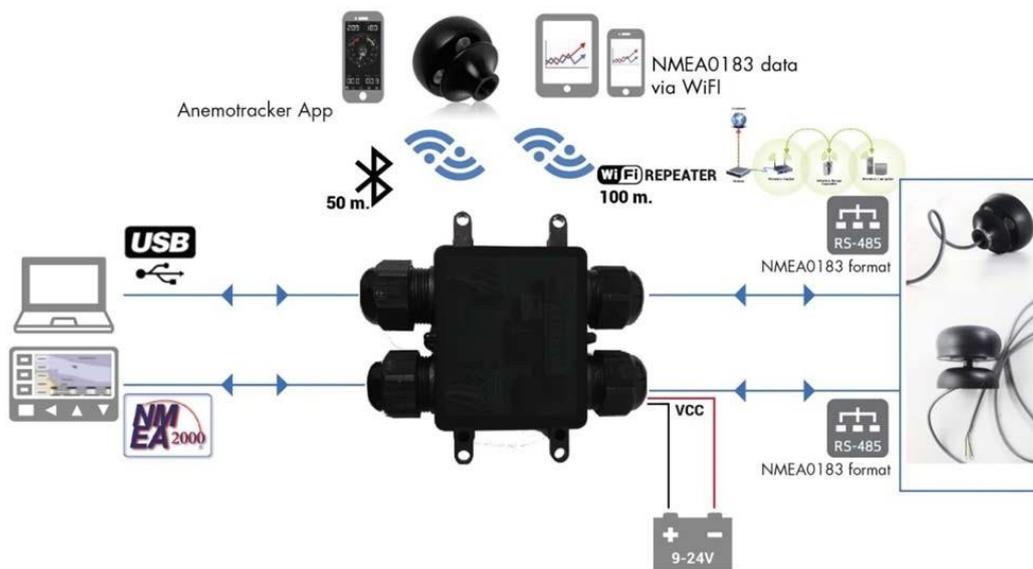
The NCP lets you connect any ultrasonic wind meter (wired or Portable) from Calypso's portfolio to an NMEA 0183 or NMEA 2000 network, and/or extend your Bluetooth and WIFI signal range. It will translate your wind data to the desired output interface.

Moreover, the Bluetooth transmission allows up to two Bluetooth devices to be connected at the same time, considering the NCP a great solution to access your wind data simultaneously in several Bluetooth tablets, smartphones, smart watches, PCs, etc...

The NCP is a very simple device to install and use. You only need to connect the NCP to an NMEA0183 network and the power supply, or only needs to be connected to an NMEA2000 network (in this case the network is already self-powered).

Easy to configure via Webserver and Upgradable via USB.

The following image shows the different connectivity options:



¹Applicable to Hardware Version V5, and for Firmware Version V1.11 and higher.

2 Family models

The high end model of the NCP is a gateway between different interfaces such as NMEA 0183, NMEA 2000, BLE (Bluetooth Low Energy) and WIFI. The NCP product range has been designed to yield maximum versatility; the NCP range offers several models to serve a number of different cases:

- **BT0183 (BLE to NMEA 0183)**: It converts your ULTRASONIC Portable wind data (BLE input) into NMEA 0183 sentences. It also acts as a BLE repeater allowing you to connect up to 2 Bluetooth devices to monitor your wind data at the same time.
- **BT2000 (BLE to NMEA2000)**: You can use your ULTRASONIC Portable (BLE input) in an NMEA 2000 network by converting the BLE data received from your portable to NMEA 2000 PGNs (messages). It also acts as a BLE repeater allowing you to connect up to 2 Bluetooth devices to monitor your wind data at the same time.
- **W2000 (Wired to NMEA2000 + BLE)**: You can use your ULTRASONIC Wired or Ultra Low Power (ULP485) in an NMEA 2000 network by converting the NMEA0183 wind sentences into NMEA 2000 PGNs. Additionally it sends the data through Bluetooth and allows you to connect up to 2 Bluetooth devices at the same time.
- **High End**: The most versatile model. You can receive wind data from any Ultrasonic wind meter within Calypso's range of products (by the NMEA 0183 interface or by Bluetooth signal), and converts the wind data into NMEA 0183 sentences (wired and Wi-Fi), NMEA 2000 PGNs and Bluetooth.

In this model, if it detects correct data (NMEA 0183 wind sentences) in the NMEA 0183 input when it's powered on, this input is selected as input interface and the data is translate to all output interfaces (NMEA 0183, NMEA 2000, BLE, or WIFI). Otherwise, it will search for available ULTRASONIC BLE signal to connect and to be used as input interface.

All models have a Wi-Fi Configuration Webserver-

You can check the functionalities of each model in the following table.

	BT0183	BT2000	W2000	High End
BLE	YES	YES	YES	YES
NMEA 0183	YES	NO	YES	YES
NMEA 2000	NO	YES	YES	YES
WIFI	*	*	*	YES

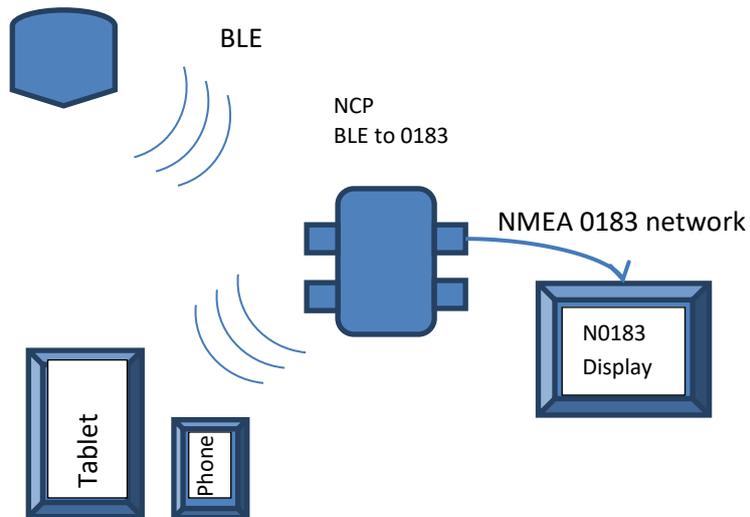
* All models are available with WIFI option in order to have a NMEA 0183 Wi-Fi server.

3 Application areas

3.1 ULTRASONIC PORTABLE to NMEA 0183

If you have a Calypso Ultrasonic Portable and want to communicate to your NMEA 0183 network and displays, the best option is to use the NCP: **BT0183** Model.

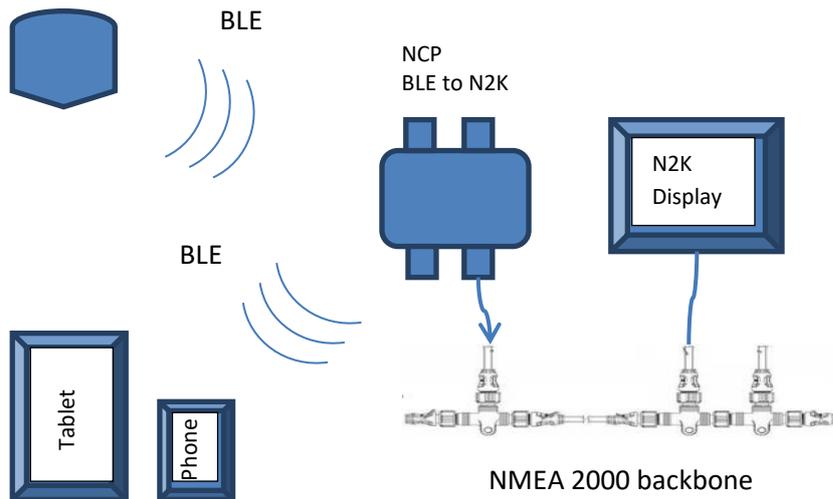
The NCP will receive the wind data from your Ultrasonic via Bluetooth and translate it to NMEA 0183 wind sentences. Moreover, you can monitor the wind data in your mobile phone or tablet using up to 2 Bluetooth devices at the same time.



3.2 ULTRASONIC PORTABLE to NMEA 2000

If you have a Calypso Ultrasonic Portable and want to monitor the wind data in your NMEA 2000 devices, the best option is to use the NCP: **BT2000** Model.

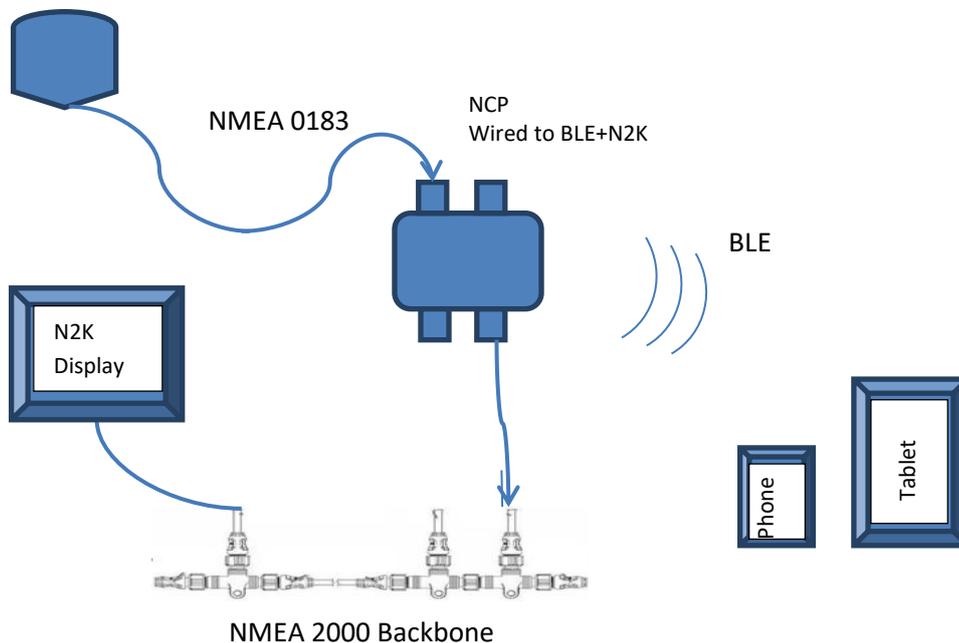
The NCP will receive the wind data from your Ultrasonic via Bluetooth and export it into the NMEA 2000 interface. Moreover, you can monitor the wind data in your mobile phone or tablet using up to 2 Bluetooth devices at the same time.



3.3 ULTRASONIC Wired or ULP485 to BLE and to NMEA 2000

If you have a Calypso Ultrasonic Wired or ULP485 and want to monitor the wind data in your NMEA 2000 navigation instruments and also in your BLE devices the NCP 'W2000' model is your best option.

The NCP will receive the NMEA 0183 wind sentences from your Ultrasonic via cable and export it to the NMEA 2000 network.

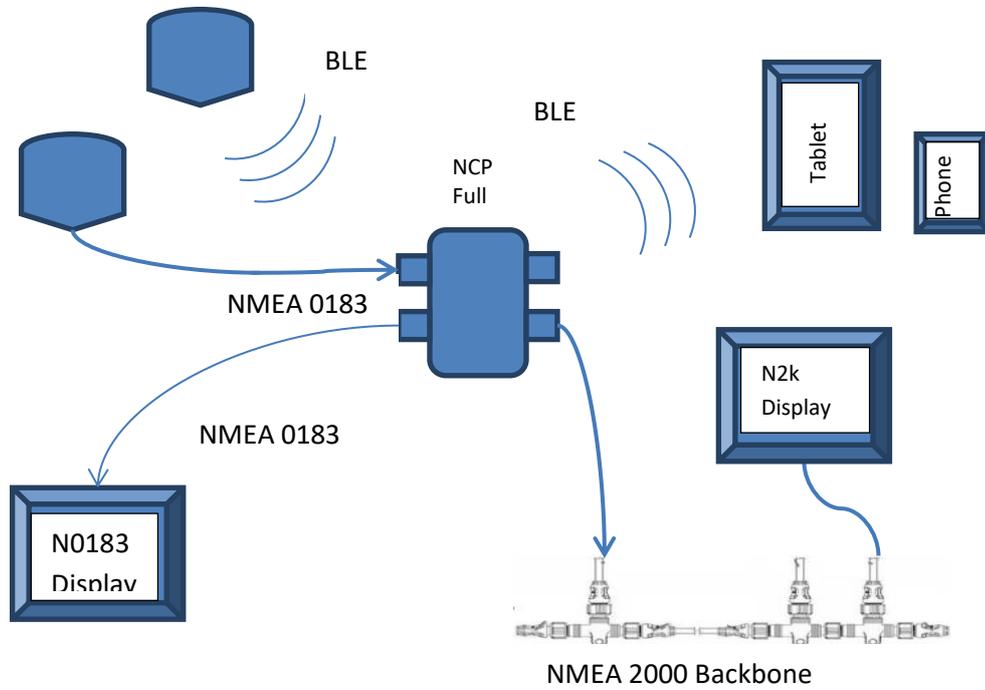


3.4 Flexible interfaces

The most versatile option is to use the **High End**. This gateway will allow you to connect any Ultrasonic within Calypso's range of products to the NCP and convert the wind data into any of the outputs available (NMEA 0183, NMEA 2000, BLE, WIFI).

This model selects the first data stream that comes in (detects a wired data stream and connects otherwise detects BLE and connects) is the one that stays it to all output interfaces (NMEA 0183, NMEA 2000, BLE, or WIFI).

The input data will be broadcasted across all output interfaces.



4 Package content

- NMEA Connect Plus
- MAC, Wifi Access Point SSID and password, Bluetooth Device Address (BD_ADDR), printed on a label inside the black gateway. This information is also available in a label on the packaging.
- Quick Reference Manual is printed on the package, latest version available to download at www.calypsoinstruments.com

*Note: NCP needs some accessories for functioning. These accessories can be purchased on our website at www.calypsoinstruments.com . We remain at your disposal for any other inquiry.

5 Functionalities

The NCP can receive information via NMEA 0183 or BLE.

When several input interfaces are available, the NCP will use the wind data from the interface that first comes to the NCP and select it as receiver (if NMEA 0183 input interface is connected, this one is the first to be detected). The wind data of that interface is converted or repeated to all outputs available.

5.1 POWER

The NCP can be powered from several sources:

- NMEA 2000 backbone power: when connected, the NCP is powered from it. This option is compatible with 12VDC supplies typically using 126mA (3 LEN) at 12 VDC. This power source is isolated from the rest of the circuit.

When the NCP is connected to the NMEA 2000 backbone, no additional power is needed.

- Dedicated VCC input: A dedicated 12VDC input can be used to power the NCP.
- USB power: Available when other sources are not available. When other source is available the USB power drain is minimal.

5.2 USB

USB can be used to power the unit (optional) and to upgrade the Firmware.

In order to use it you need a USB cable with end free wires. Take a look at section 6.1 for further information regarding the connection of the USB.

5.3 NMEA 2000® interface

The NMEA Connect Plus is equipped with an NMEA 2000 interface to connect to an NMEA 2000 backbone.

NCP will translate NMEA 0183 wind sentences into NMEA 2000 PGN's (messages). This feature enables a seamless integration between NMEA 0183 and NMEA 2000 navigation devices.

Also wind data received via BLE is converted into NMEA 2000 protocol and transferred to an NMEA 2000 network.

When connected to the NMEA 2000 backbone, the NCP receives its power from it, no additional power is needed. A correct powered and terminated NMEA 2000 network is required before using this interface.

When the NCP is used on a NMEA 2000 network, the NCP backbone cable with end free wires should be connected through the unit (follow the instructions in section 6.2).

To connect the NCP to the NMEA 2000 network, you should connect the drop cable male connector to the female connector of the NMEA 2000 backbone (note: the key in the male connector and the keyway on the female connector). Make sure the cable is connected securely and that the collar on the cable connector is tightened firmly.

5.3.1 PGNs

Wind data is sent using the PGN 130306.

The following table shows the NMEA 2000 PGNs supported.

NMEA 2000 Parameter Group Numbers (PGNs)

	PGN #	PGN Name
Transmission	59392	ISO Acknowledgment
	60928	ISO Address Claim
	60416	ISO Transport Protocol, Connection Management
	126208	NMEA Acknowledgment Group Function
	126464	PGN List (Transmit and Receive)
	126993	Heartbeat
	126996	Product Information
	126998	Configuration Information
	130306	Wind Data
Reception	59904	ISO Request
	60928	ISO Address Claim
	60160	ISO Transport Protocol, Data Transfer
	60416	ISO Transport Protocol, Connection Management
	65240	ISO Commanded Address
	126208	NMEA Request/Command Group Function

5.3.2 Field programmability of the instance fields

NCP support field programmability of all the system and device instances fields within NAME entity.

This can be done with PGN 126208 Command Group Function.

5.3.3 Load Equivalency Number

Low power – 126mA at 12 VDC (3 LEN) from NMEA 2000 bus.

5.4 NMEA 0183

The NMEA Connect Plus has two RS485 interfaces to be used as NMEA 0183 ports, whereby two wires are used to transmit the NMEA data.

Both baud rate 4800 and 38400 bauds can be used. The default value is 4800 bauds but it can be changed via Webserver. The default baudrate of Calypso ULTRASONICS is:

	Wired Standar	Wired BLE/ Wired WIFI	ULP 485
Baudrate	4800	4800	38400

The NMEA0183 ports can be configured either as input or output (Only one port can be configured as input). By default, Port 1 is configured as input and Port 2 as output.

The NMEA0183 port, receives wind data from the ULTRASONIC wired and exports it to an NMEA 2000 network, NMEA 0183 network and Bluetooth interface. Moreover, it can also send wind data via Wi-Fi using the Wi-Fi NMEA 0183 server.

The NMEA 0183 sentences supported by the NCP are shown in the following section, note that the NMEA 0183 output always send the wind speed in knots.

When the NCP is used on a NMEA 0183 network, the cable with end free wires should be connected through the unit (follow the instructions in section 6.3).

Keep in mind that if the unit is connected to an NMEA 2000 network, you do not need an extra power connection. Otherwise, you must power the device using the dedicated VCC input or the USB power.

5.4.1 NMEA 0183 sentences

NCP is able to receive the following wind sentences (firmware version V1.11 and higher):

\$IIMWV,XX,R,XX.XX,N,A*CR\r\n	Wind speed in knots
\$IIMWV,XX,R,XX.XX,M,A*CR\r\n	Wind speed in meters/sec
\$IIMWV,XX,R,XX.XX,K,A*CR\r\n	Wind speed in Km/Hr

NCP is able to transmit the following wind sentence:

\$IIMWV,XX,R,XX.XX,N,A*CR\r\n	Wind speed in knots
-------------------------------	---------------------

5.5 WIFI NMEA 0183 server

Models with Wi-Fi have a NMEA 0183 Wi-Fi server, that allows sending the input wind data via Wi-Fi, using a TCP socket and sending it with the format of the NMEA 0183 sentences (see section 8.3 to configure the TCP port).

5.6 BLE

The NCP is able to receive wind data from an ULTRASONIC Portable or ULTRASONIC Wired BLE and convert it into NMEA 0183 sentences and NMEA 2000 PGNs, to send it through interfaces NMEA 0183 or NMEA 2000 respectively. It also repeats/replicates same wind data via Bluetooth, and moreover, it can also send wind data via Wi-Fi using the Wi-Fi NMEA 0183 server.

When the unit receives data from several BLE sources, the first one to receive data from, will be the selected wind source to broadcast.

If you want to select the BLE data source you have to configure its BD_ADDR via webserver (look up section 8.1)

Up to two Bluetooth centrals can be connected at the same time to the same NCP, to watch the wind data in several devices.

Keep in mind that if the unit is connected to an NMEA 2000 network, you do not need an extra power connection. Otherwise, you must power the device using the dedicated VCC input or the USB power.

5.7 WIFI-Access Point

The NCP is an Access Point to access the NCP Webserver Configuration Page, or access your Wi-Fi wind data in case your NCP model has this option.

It will broadcast its SSID as “**NMEA+<MAC Address>**”. This ensures that, by default, every NCP has a unique Access Point (e.g. if your MAC address is **a1:a2:a3:a4:a5:a6**, then your SSID will be **Nmea+a1a2a3a4a5a6**).

The SSID and password of your device can be found printed on a label inside the black gateway.

The NCP SSID will be visible using the network settings (show available networks) of your PC, or usually under settings / connections / Wi-Fi on your mobile device. Selecting it will prompt a connection and request the user to enter the Wi-Fi password. Once the password is entered, the Wi-Fi enabled PC or device should connect within a few seconds (depending on the operating system).

Note: The connection manager will report “No Internet” which is correct as your device is now connected directly to the NCP **Access Point** which does not provide internet access.

The NCP built-in configuration can always be accessed by typing in the **IP address: 192.168.4.1** into the address bar of your Wi-Fi enabled PC or devices web browser.

5.8 WIFI-Station

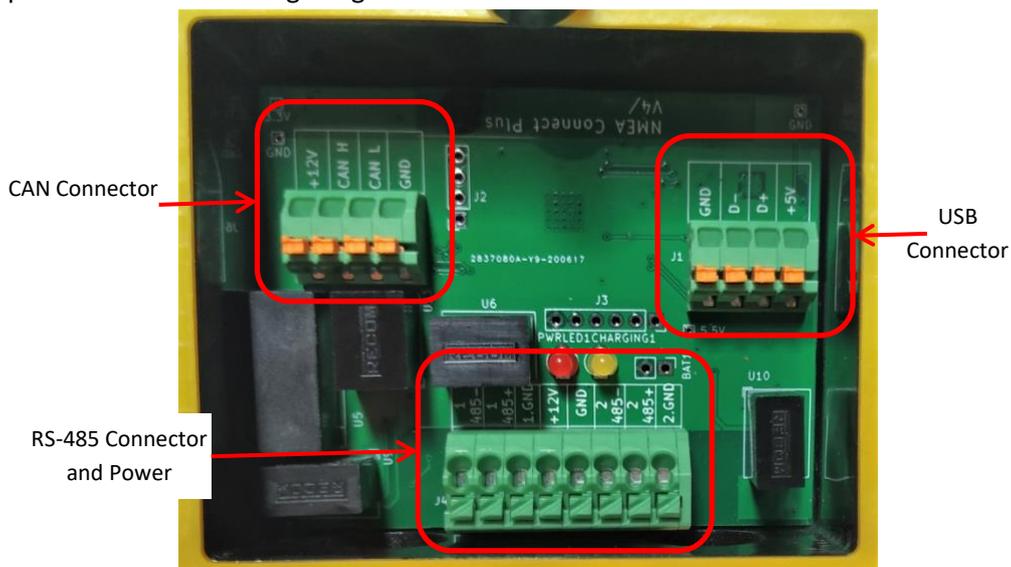
The NCP can be used as Wi-Fi Station to be connected to your Wi-Fi network. This enables you to access the Configuration Webserver and your Wi-Fi wind data from any point of your network. See section 8.1 to configure it.

6 Installation

Before you start the installation make sure all power sources are off!!

To connect a cable to the NCP internal interface follow the steps below:

1. Remove the screws to open the NMEA Connect Plus gateway. The connectors are in the position as the following image shows.



2. Loosen the holder to introduce the cable inside and pass the cable through the hole. Three holders of different diameter are provided; select the one that best fits your cable diameter to ensure the IP68 rating.
3. Connect the wires in the correct position according to the information given in the following sections. To put the wire into the connector, push with your finger or with a tool.



4. Tighten the holder in order to fix the cable and close the gateway with the screws.
(To achieve the IP68 rating, all glands must be occupied by round-section cables of between 4.5mm and 10mm or be replaced by blanking plugs)

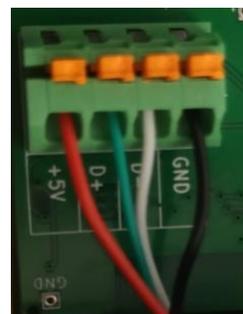


5. Attach the NMEA Connect Plus securely to the vessel.
6. When all wires are connected and the gateway is closed, connect the cables to your network and power them if necessary (when using an NMEA2000 network the NCP will be powered through the NMEA 2000 cable. No additional power is needed)

6.1 Connect USB interface

Identify the USB connector and put the wires in the correct position.

+5V	DATA +	DATA -	GND



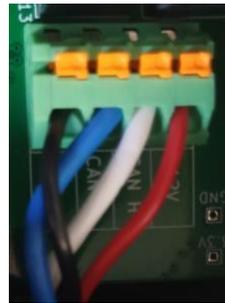
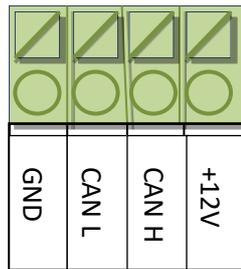
The USB signals and colour code are shown in the following table:

Name	Colour	Description
Vbus	Red	+5V
D-	White	Data -
D+	Green	Data +
GND	Black	Ground
Shield		Not connected

USB cable provided by Calypso Instruments has an additional black wire which is the Shield, and should be left unconnected. This wire is thicker and more matte colour than the previous one.

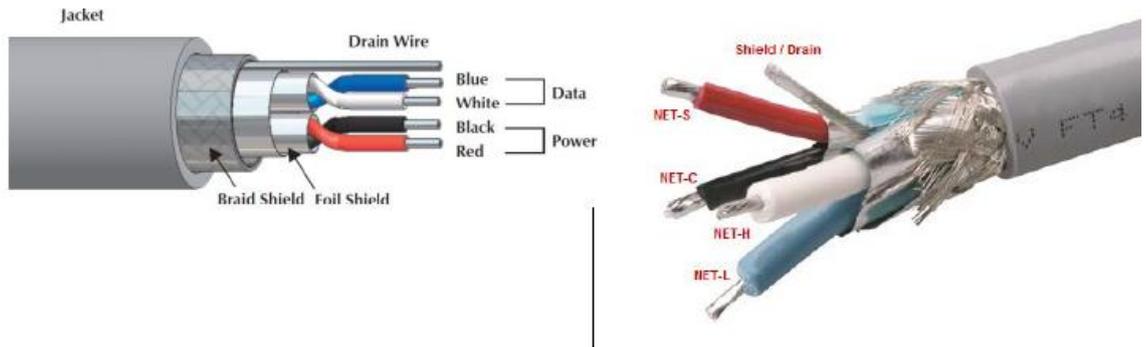
6.2 Connect NMEA 2000 interface

Identify the CAN connector. The wires of the NMEA 2000 cable should be connected to this connector.



The following table shows the signals of an NMEA 2000 cable, their recommended colour codes and the correct position in the CAN connector.

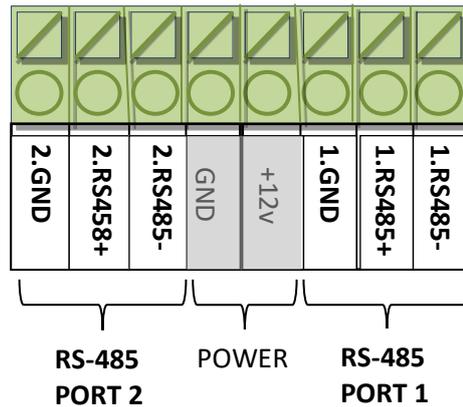
Name	Pair	Colour	CAN Connector
Shield	Drain		Not connected
NET-S	Power	Red	+12V
NET-C	Power	Black	GND
NET-H	signal	White	CAN H
NET-L	Signal	Blue	CAN L



USB cable provided by Calypso Instruments has an additional black wire which is the Shield, and should be left unconnected. This wire has a more matte colour than the GND signal.

6.3 Connect NMEA 0183 interface

Identify the RS-485 and Power connector. You must connect your NMEA 0183 wires to the RS485 ports.



6.3.1 NMEA 0183 Input

To connect the ULTRASONIC Wired use the colour codes shown in the table below.

Wired Standar	Wired BLE/ Wired WIFI	ULP 485	NCP RS485 Input Connector
NMEA OUT B/ -	NMEA OUT B/ -	NMEA OUT A/+	RS485 +
NMEA OUT A/+	NMEA OUT A/+	NMEA OUT B/ -	RS458 -
GND	GND	GND	RS485 GND

The wires of power of the ULTRASONIC, must be connected to an external power supply.

Wired Standar	Wired BLE/ Wired WIFI	ULP 485	External Power
VCC	VCC	VCC	VCC
GND	GND	GND	GND
Config RX+			
Config Rx -			

6.3.2 NMEA 0183 Output

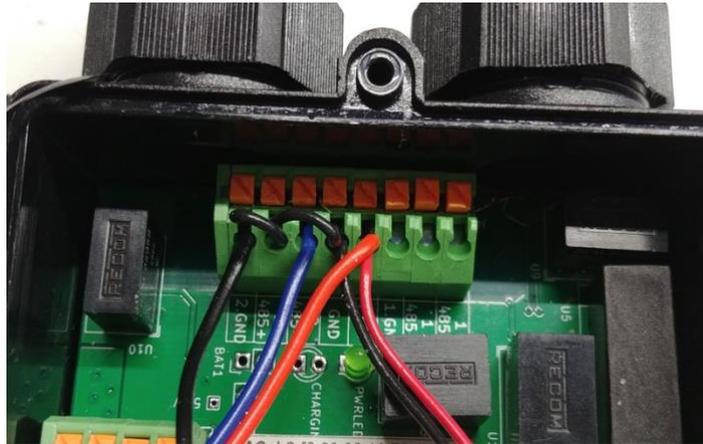
To connect a NMEA 0183 instrument to the NCP NMEA 0183 output, follow next table.

	NCP RS485 Output Connector
NMEA OUT A/+	RS485 +
NMEA OUT B/ -	RS458 -
GND	RS485 GND

Earlier versions of NMEA 0183 (before V2.0) used slightly different connection methods and signals levels. The instruments had just one 'NMEA' data line ('Tx' or 'Out') and used the ground as the other line. It is possible to connect an old type single-ended system by connecting the NMEA -/B output from the NCP to the 'Rx/In' input of the device, and the NMEA +/A output from the NCP to the ground of the single-ended device (not all devices use the same nomenclature, if this doesn't work like this, swap the cables).

Single-ended device	NCP RS485 Output Connector
NMEA Data/Rx/In	RS485 -
GND	RS458 +
GND	RS485 GND

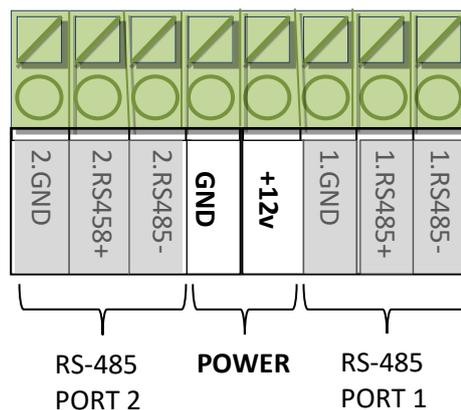
The following image shows the connection of the NCP RS485 output with a single-ended device, in which one power supply is shared between the NCP and the single-ended device.



6.4 Connect Dedicated Power

This input is used to power the NCP with a VDC Power Supply (9-24V).

Identify the RS-485 and Power connector and connect the wires in the corresponding Power pins.



Keep the following in mind:

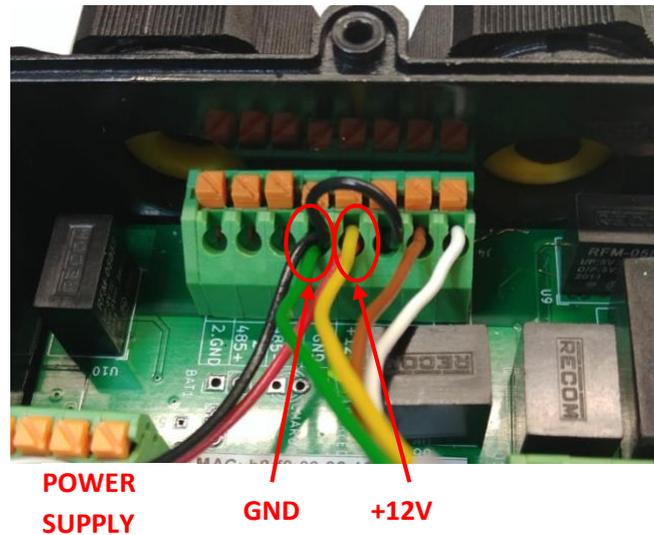
- Signal 1. GND, is the reference ground signal of the RS485 –Port 1.
- Signal 2. GND, is the reference ground signal of the RS485 –Port 2.
- GND, 1.GND and 2.GND are isolated from each other, so the right signal must be connected in each position.

6.5 Shared power between NCP and RS485 device:

If you want to use a single power supply to power the NCP and your Calypso ULTRASONIC, you have to share the GND from the power supply between the GND of POWER and the GND of the RS485 port. But in this case you have to take into account that the **isolation between signals is lost**.

For example, the connection can be done in the following way:

- ULTRASONIC wired BLE connected to the NCP:

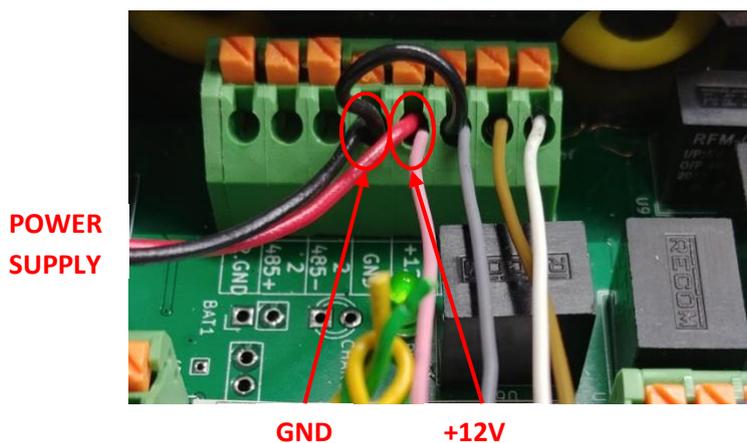


This image shows the connection of a Ultrasonic Wired BLE, using a power supply to power the ULTRASONIC and the NCP.

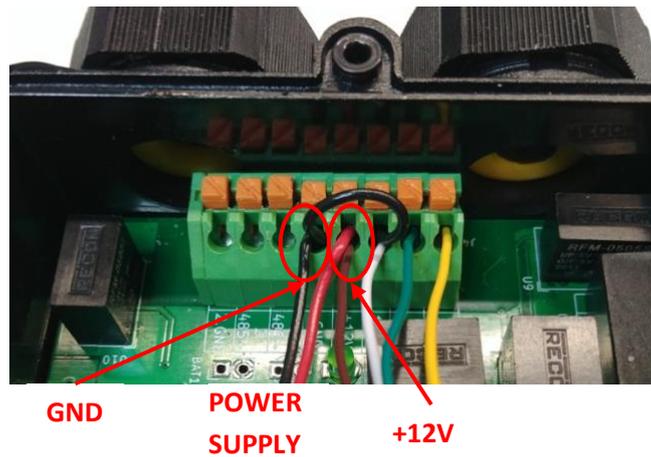
The +12V (red wire) has to be connected to the +12V input of the NCP dedicated input power, and also to the Ultrasonic Vcc (yellow wire), you can put both cables together in the connector (as in the picture) or you can use a screw terminal block to connect them.

The GND (black wire) has to be connected to the GND input of the NCP dedicated input power, to the Ultrasonic GND (green wire) and also to the RS485.GND. In the picture you can see a jumper wire (black) between GND and RS485.GND.

- ULTRASONIC Wired Standard connected to the NCP:



- ULTRASONIC ULP 485 connected to the NCP:



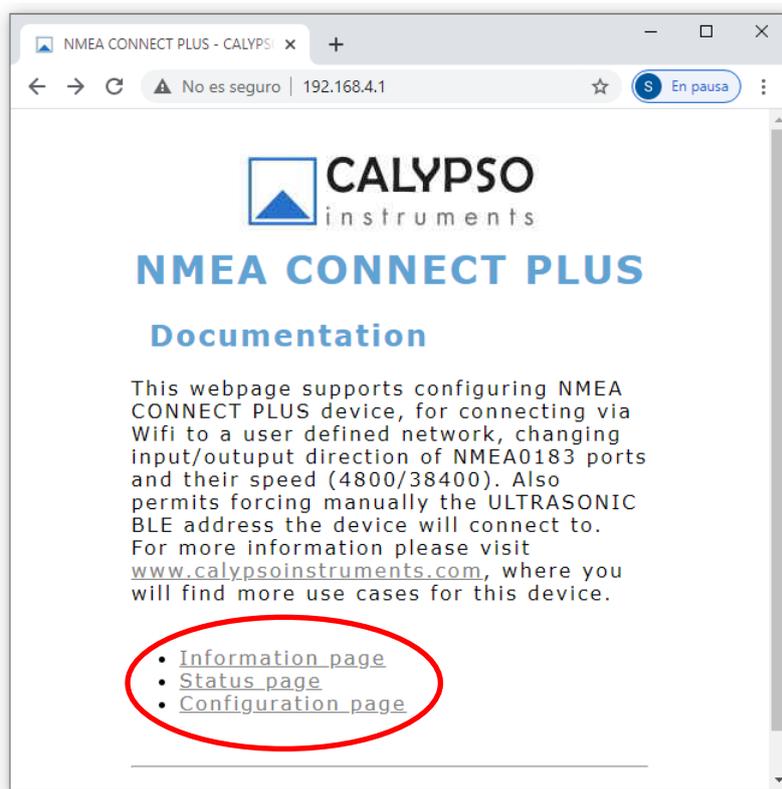
7 Website

The NCP has integrated a Website which allows get information of the device, get the status of the device and configure it.

To access it, make sure you have connected your PC or device to your NMEA Connect Plus Access Point via Wi-Fi (see section 5.7 -WIFI-Access Point- for further details) or the NCP is connected via Wi-Fi to your network (see section 5.8 and 8.1).

When connecting to the NCP Access Point, the NCP IP address is the **192.168.4.1**. If it is connected to your Wi-Fi network, the IP address will be the one you had configured previously.

You can now access the NCP Website from any web browser. Enter the **IP address** into the address bar and you will be shown the NCP home page:

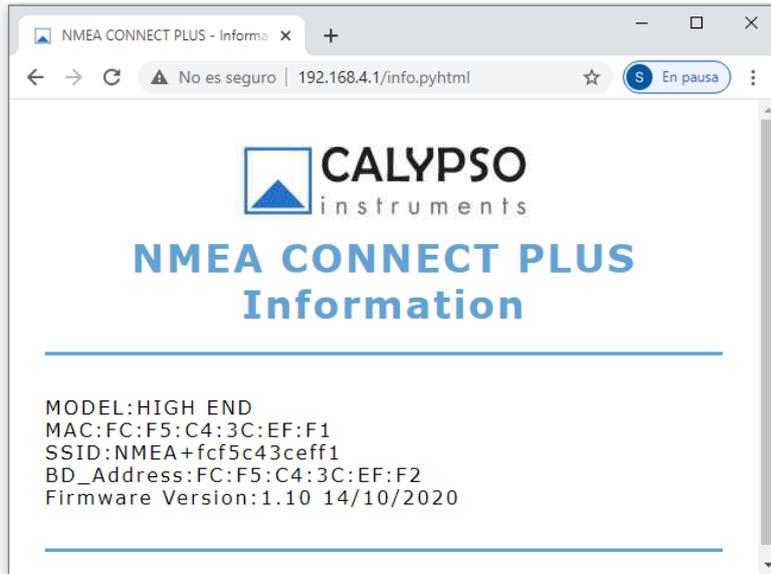


From the main page, you can access the '**Information page**', the '**Status page**' or the '**Configuration page**'. Click the desired page to open it.

7.1 Information page

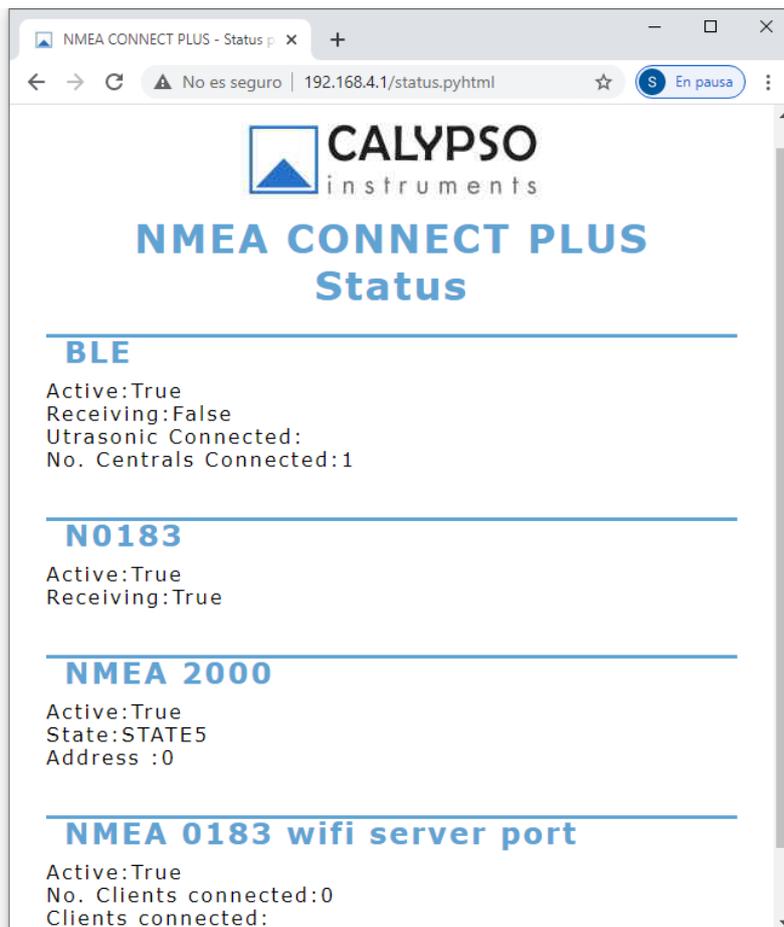
The information page shows the following data:

- NCP Model
- MAC
- SSID
- BD Address (BLE MAC)
- Firmware version



7.2 Status page

The Status page shows information about the current status of the device. This is useful for troubleshooting.



Depending on the NCP Model, the web will show the functionalities that it has active.

In BLE and N0183 sections, if Receiving is True, that shows that this is the Wind source it's receiving data from. Only one wind source can be True.

In BLE section, it also shows the MAC address of the ULTRASONIC connected and used as wind source, and the number of Centrals connected.

In NMEA 2000, it shows the State of this functionality (used for internal information) and the Address of the device in the NMEA 2000 network.

In NMEA 0183 wifi server port, it shows the number of clients connected and their IP address and port.

7.3 Configuration page

The NCP configuration is done from the Configuration page.

The screenshot shows a web browser window with the following content:

- Browser Tab:** NMEA CONNECT PLUS - Configu x
- Address Bar:** No es segü | 192.168... | En pausa
- Page Header:** CALYPSO instruments
NMEA CONNECT PLUS Configuration
- WIFI STATION CONFIG**
 - Wifi ESSID:
 - Wifi Pass:
 -
- IP CONFIGURATION**
 - Manual IP:
 - Netmask:
 - Gateway:
 - DNS server:
 -
- BLE CONFIGURATION**
 - BLE MAC address:
 -
- NMEA 0183 PORTS CONFIGURATION**
 - NMEA 0183 PORT 1
 - Speed 4800 38400
 - Direction Input Output
 - NMEA 0183 PORT 2
 - Speed 4800 38400
 - Direction Input Output
 - NMEA WIFI IP PORT
 -
 -
- MODEL KEY**
 - Model Key:
 -

8 Configuration:

Access the Configuration page to modify the desired parameters.

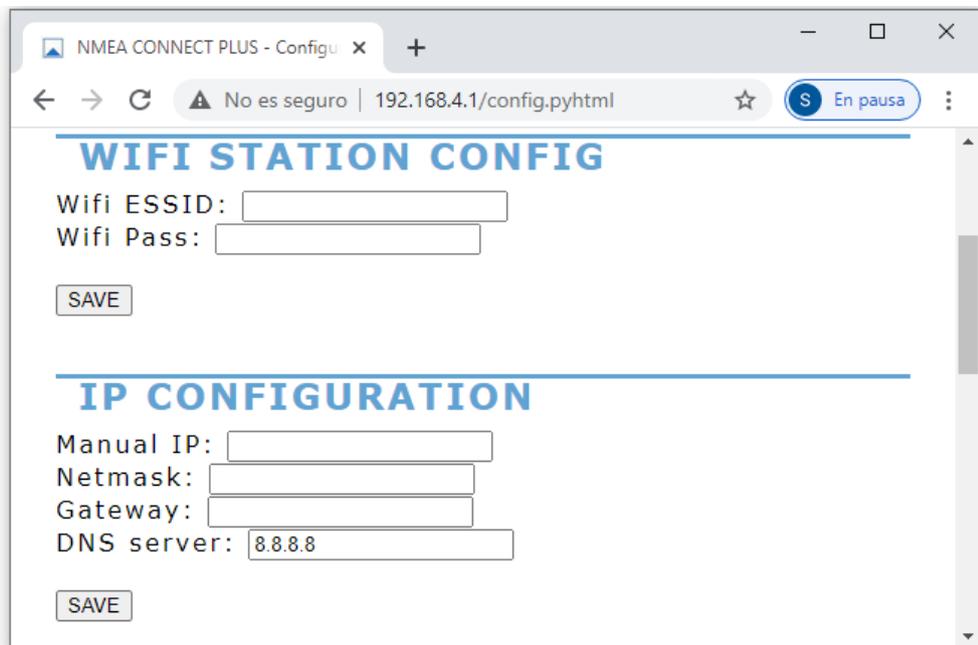
Important: after making any change along the configuration you must click the **SAVE** button and then **RESET** the device.

8.1 WIFI STATION CONFIGURATION, and IP CONFIGURATION

This section is used to configure the NCP to connect to your Wi-Fi network.

The NCP can be configured as Wi-Fi Station to connect your network Access Point.

To configure it you have to introduce the Wi-Fi SSID and password of your Access Point. Also you should assign a manual IP configuration; this will be the IP of the NCP in your Wi-Fi network.



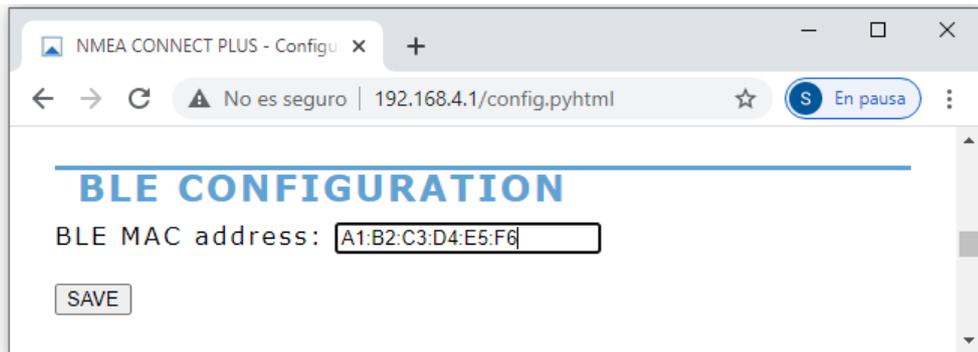
The screenshot shows a web browser window with the title "NMEA CONNECT PLUS - Configu" and the address bar displaying "192.168.4.1/config.pyhtml". The page content is divided into two sections:

- WIFI STATION CONFIG**: This section contains two input fields: "Wifi ESSID:" and "Wifi Pass:". Below these fields is a "SAVE" button.
- IP CONFIGURATION**: This section contains four input fields: "Manual IP:", "Netmask:", "Gateway:", and "DNS server:". The "DNS server" field is pre-filled with the value "8.8.8.8". Below these fields is another "SAVE" button.

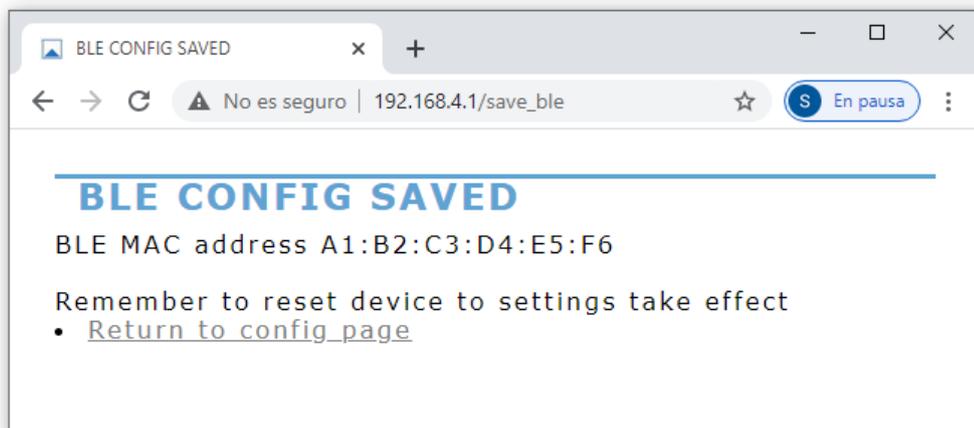
After changing the configuration you must click the **SAVE** button and then reset the device.

8.2 BLE CONFIGURATION

In this section you can select which BLE device you want to connect with. You should introduce the MAC address of your ULTRASONIC BLE with the following format:



After changing the configuration you must click the **SAVE** button and then reset the device. Then the following page will appear:

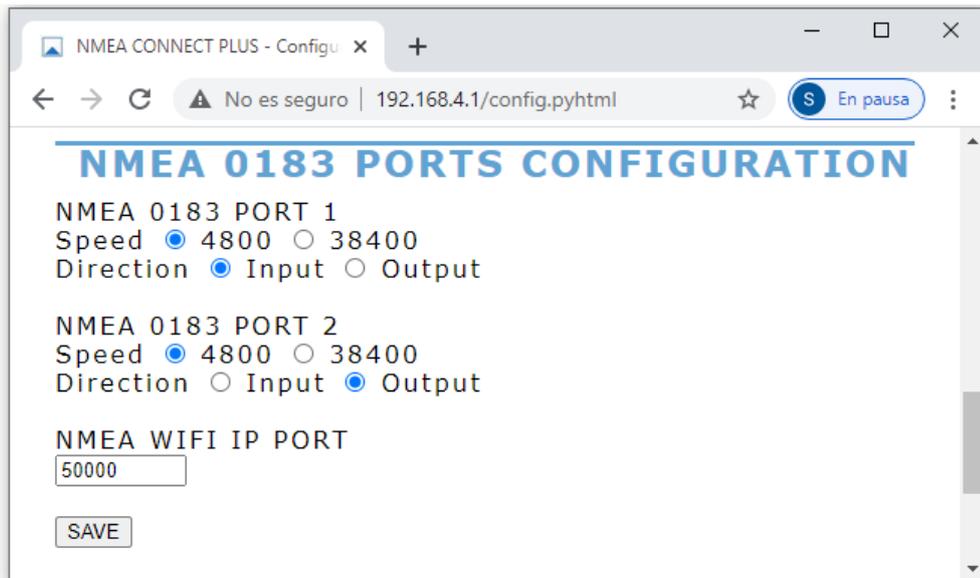


In the case no MAC is configured, the NMEA Connect Plus will connect the first ULTRASONIC BLE device detected.

8.3 NMEA 0183 CONFIGURATION

In this section you can configure each NMEA 0183 port as input or output; also you can select the Baudrate.

In models with Wi-Fi, you can configure here the Wi-Fi TCP port you want to use as NMEA 0183 Wi-Fi server Port.



Make sure that there are no two ports configured as inputs.

After changing the configuration you must click the **SAVE** button and then reset the device. Then the following page will appear:



9 Technical specifications

Certifications:

Fully NMEA 2000 Certified	
RF certification	FCC/CE-RED/SRRC/TELEC
Wi-Fi certification	Wi-Fi Alliance
Bluetooth certification	BQB

Power supply:

Supply Voltage (VCC Port)	9-24V DC
Supply Current (VCC Port)	150mA @12V DC
Supply Current (USB Port)	<200mA @5V DC
Supply Voltage (NMEA 2000 Port)	9-16V DC
Supply Current (NMEA 2000 Port)	126mA @12V DC
Load Equivalent Number (LEN)	3

USB:

Compatibility	USB 1.1 and 2.0
Connectivity	Phoenix contact pitch 3.5mm, 1.5mm ² max, push-in 45°.
Supported Signals	D+, D-, +5V, GND

NMEA 0183:

Data Interface	2x RS-485 port (isolated).
Baudrate	4800/38400 (8N1) bauds
Connectivity	Phoenix contact pitch 3.5mm, 1.5mm ² max, push-in 45°. Termination resistor configurable

NMEA 2000:

Data Interface	CAN-BUS port (isolated)
Compatibility	Fully NMEA 2000 certified
Baudrate	250Kbps
Load Equivalence Number (LEN)	3
Connectivity	Phoenix contact pitch 3.5mm, 1.5mm ² max, push-in 45°

Bluetooth:

Protocol	Bluetooth Low Energy 4.2
Antenna	Internal chip antenna
Radio	NZIF receiver with -97 dBm sensitivity Class-1, class-2 and class-3 transmitter AFH
Range	50 m (open space)

WIFI:

Protocols	802.11 b/g/n (802.11n up to 150 Mbps). Access point and Station
Antena	Internal chip antenna
Frequency range	2.4 GHz ~ 2.5 GHz

Max Output power	20 dBm
Antenna	Integrated internal antenna
Range	100 m (open space)
Security	WPA/WPA2/WEP

Mechanical:

Size	93.3mm x 112.54mm x 35.30mm (LxWxH)
Weight	100gr.
Housing Material	Polycarbonate 94V-2
Cable Diameter	3 holders (4-8mm & 8-12mm & 10-14mm)
Housing Cert	TUV ,CE,ROHS

Environmental

Parameter	Value
IP Rating	IP68 ² (outdoors & underwater)
Operating Temperature	-40°C - 80°C
Electrical rating enclosure	450 V

10 Firmware Upgrade

The NCP is easily upgradable using a simple Microsoft Windows user interface program running on a connected PC. The upgrade can be performed with the unit completely in-situ, via a PC connected to the USB port.

Please contact www.calypsoinstruments.com for more information

11 Troubleshooting

If you find any problem in the installation or operation of the device, please follow the next steps to check it.

11.1 Power

Check the Green led inside the NCP is glowing when the NCP is powered. If not, check the power connections are right.

- If connected to NMEA 2000 network, check the connections are right (section 6.2), the NCP is connected to the NMEA 2000 backbone and this is powered.

²To achieve this level of water integrity all glands must be occupied by round-section cables of between 4.5mm and 10mm or be replaced by blanking plugs.

- If powered by USB, check the connections are right (section 6.1) and it's properly powered.
- If powered by the dedicated power, check the connections are right (section 6.4), and the power supply is connected and turned on.

11.2 Model

Check your NCP Model is the one you need. Connect the Website '**Information page**' (see section 7.1) , get the Model information and check this model has the functionalities you need (section 2).

Also on the '**Status page**' the functionalities that are active are indicated.

11.3 Wind source

Check the NCP is receiving wind data from the desired source, by visiting its Website '**Status page**'.

- If you have connected a **Wired ULTRASONIC** (ULTRASONIC Wired Standard, Wired BLE, Wired WIFI or ULP 485) into N0183 input, the 'Status' should show in the N0183 interface that is receiving in that input:

N0183
 Active: True
 Receiving: True

If not receiving from the N0183 interface, is probably because the Wired ULTRASONIC isn't correctly connected to the NCP or it isn't powered . Make sure the Wired ULTRASONIC is powered, the connection is made at an input RS485 port (visit the '**Configuration page**' to check the NMEA 0183 Ports Configuration), and the cables are properly connected (section 6.3)

You also can look on the '**Status page**', if the NCP is receiving from a BLE source. If true, check the MAC address it's receiving from, maybe if you are using an ULTRASONIC Wired BLE the NCP is connecting the BLE source of the ULTRASONIC or you have any ULTRASONIC PORTABLE near (take into account that PORTABLEs are always on, even if they are unused in their packaging, and can reach distances of 50m)

In case your wind source is a ULTRASONIC Wired BLE, you can check Ultrasonic is sending data by connecting by Bluetooth using the mobile App **Anemotracker**. Keep in mind that to connect the Ultrasonic no other device (NCP, other mobile device, ..) must be connected to it.

- If you are using an **ULTRASONIC BLE** (ULTRASONIC Portable or Wired BLE) , the 'Status' should shown in the BLE interface that is receiving BLE data and

the MAC address from which it receives. Check the MAC address is that of your device.

BLE

Active: True

Receiving: True

Ultrasonic Connected: FD:FD:E4:BE:8C:F5

No. Centrals Connected: 0

If NCP doesn't receive data from BLE interface. Check the Ultrasonic is powered on and sending data and make sure no other device is connected to the Ultrasonic prior to connect the NCP.

You can also try to configure the MAC address of the BLE device you want the NCP connect to. Configure it in the 'Configuration page', see section 8.2.

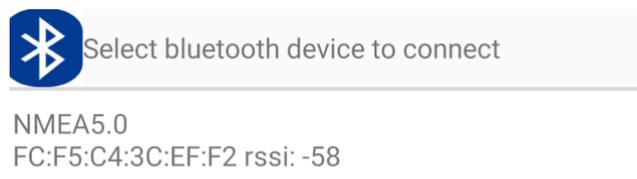
To test your Ultrasonic is sending data, connect by Bluetooth using the mobile App **Anemotracker**. Keep in mind that Ultrasonic only allows one device linked at a time.

11.4 Data output

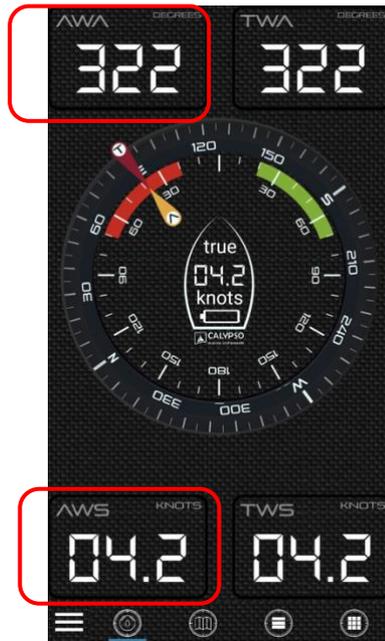
11.4.1 Test output interfaces

Below is a possible way to test the interfaces:

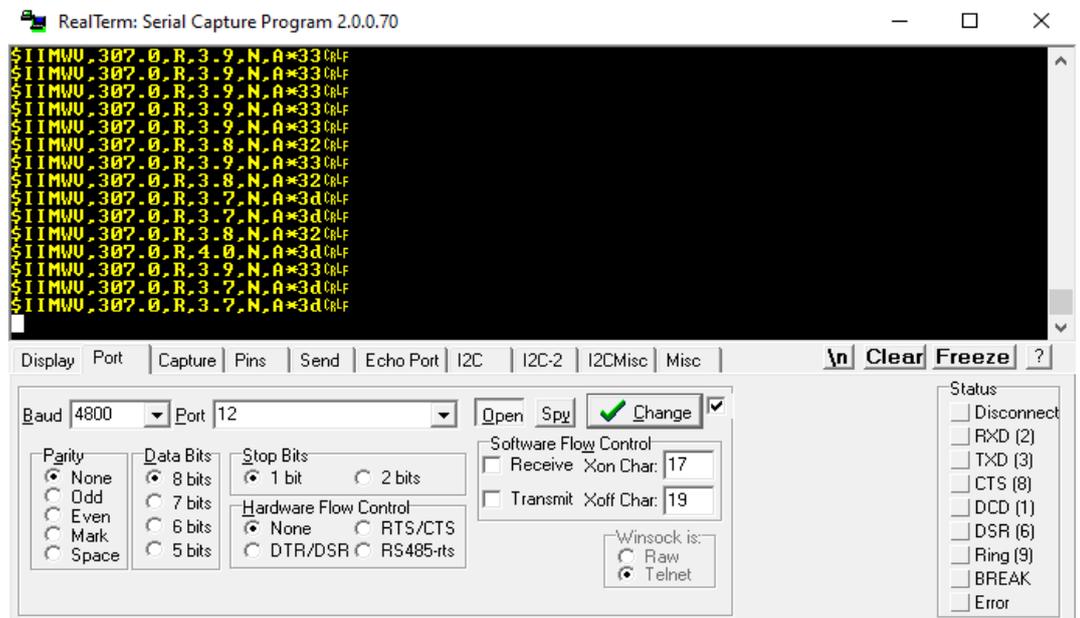
- **BLE:** to check if the NCP is sending data via Bluetooth, connect the NCP with the mobile App **Anemotracker**, test if the NCP is shown when the SCAN is done (it appears as NMEA5.0):



Check if it can connect the NCP and if it receives wind data:

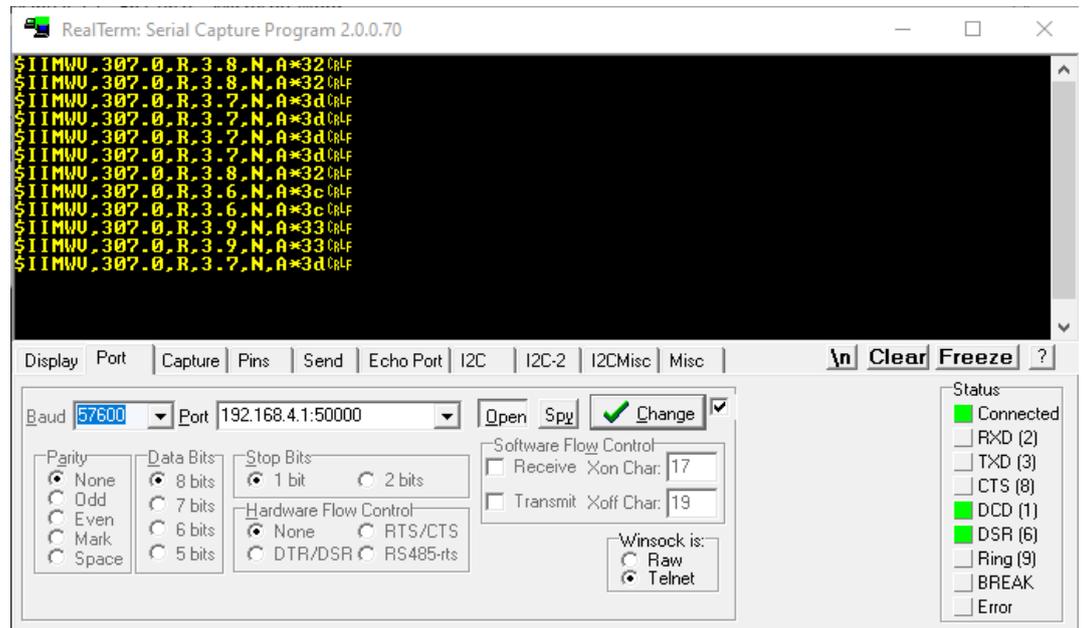


- NMEA 0183:** to check if the NCP is sending data through NMEA 0183 output interface, connect your computer (RS485 connection) to a RS485 output port of the NCP (you will need a RS485 to USB converter). In your computer use a 'Serial/TCP Port terminal' such as 'Realterm', 'TeraTerm', etc.. Open it and configure it with the serial COM port associated to the connection and with the Baudrate configured in the NCP (see Website 'Configuration page' to check the baudrate selected), once the serial connection is open, you should receive the NMEA 1083 wind sentences.



- NMEA 0183 Wi-Fi server:** to check if the NCP is sending data through NMEA 0183 server port, connect your computer and your NCP to the same Wi-Fi network (see section 5.7 and 5.8). In your computer use a 'Serial/TCP Port terminal' such as 'Realterm', 'TeraTerm', etc.. Open it and

configure its TCP connection with IP_addr:Port, where IP_addr is the NCP IP Address and Port is the one configured in NMEA WIFI IP PORT (see 'Configuration page' to check the NMEA 0183 server port), once the TCP connection is open, you should receive the NMEA 1083 wind sentences:



11.4.2 Failure in an output interface

If you want to get data from a NCP output interface but it isn't working properly, follow the next steps:

- Check the NCP is receiving data from any wind source, the 'Status page' shows if any interface (BLE or N0183) is receiving data.
- If possible and your NCP Model allows it, check if the NCP is sending data through any other output interface (BLE, NMEA 0183, NMEA 2000 or NMEA 0183 Wifi server), see section 11.4.1
- **NMEA 0183 output failure:** check the connection is made at an output RS485 port (visit the 'Configuration page' to check the NMEA 0183 Ports Configuration), and the cables are properly connected (section 6.3).
- **BLE output failure:** go to 'Status page' and check in BLE status the number of Centrals connected. Test if the NCP BLE connection can be detected when Scanned with a mobile.
- **NMEA 2000 output failure:** check the cable connection is right (section 6.2) and that the cable is properly connected to your NMEA 2000 backbone and this is powered. Check if the NCP is detected in your NMEA 2000 display or receiver, its ID is 'NMEA CONNECT PLUS'.

Go to 'Status page' and check the NMEA 2000 status, it should have State=STATE5 and an address between 0 and 251.

- **NMEA 0183 Wi-Fi server failure:** make sure your NCP and your PC/mobile are in the same Wi-Fi network and you are connecting the right IP and server port.

If your PC/mobile is connected to the NCP Access point (section 5.7), the IP address of the NCP is 192.168.4.1.

If you have configured the NCP to connect your Wi-Fi Network, check the NCP Wi-Fi Configuration is correct, see section 8.1. In this case the NCP IP address is the one set in 'Configuration page'.

The NCP server port is the one configured in 'Configuration page', NMEA WIFI IP PORT.

To check your PC can access the NCP IP address, you can open the command interface (In Windows search "cmd" on the Start taskbar search field or Start screen, when open, input the **ping IP_addr** command, where the IP_addr is your NCP IP address, press enter and analyze reply to the ping command is received)

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If you want to know more about our new ULTRASONIC ULP 485 wind meter,
please keep reading or visit our website www.calypsoinstruments.com