

# NMEA TO USB-C ADAPTOR CABLE

Installation and instruction Manual



## 1. Introduction

Congratulations on the purchase of your NMEA to USB-C-C Adaptor Cable. Although the USB-C-C interface is simple “plug and play”, wiring the Adaptor Cable to NMEA0183 equipment requires a level of practical ability and electrical knowledge in 12v DC electrical wiring. If this is not something that you feel comfortable attempting, then we recommend that your cable is installed by a professional installer.

You will need to connect the Adaptor Cable wires to other equipment using suitable electrical connectors, crimps or terminal block (not supplied).

**i** Before operating the unit you should also familiarise yourself again with the user manual of the equipment you will be connecting the cable to and also the PC/Mac navigation software that you will be using it with. Pay particular attention to the correct selection of Input and Output wires, polarity and the software/equipment’s interface settings that need to be configured for correct operation.

## 2. Before you start

This cable is designed to connect conventional NMEA 0183 or RS232 serial ports to a PC via a USB-C-C port. It does not provide any optical isolation and should full opto-isolation be required, then this cable should not be used. However, in most pleasure boat marine installations, opto-isolation is not necessary and this cable will provide good electrical interfacing between the PC and the Navigation Equipment.

The adaptor cable has the interfacing circuitry built-in to the USB-C connector and when plugged in to a computer will be seen as a virtual COM Port. Installation on Macs, LINUX computers (including Raspberry Pi) and some compatible Android Devices, is easy as the drivers are included in the Operating System’s Kernel. Just plug the cable in and it will be recognised and installed automatically.

On PCs running Microsoft Windows, the Adaptor cable will be seen as a USB-C device and will trigger the “Found New Hardware Wizard”. We recommend that you try and ensure your Windows computer is connected to the internet, when you plug the cable in, and then Windows will automatically find the latest drivers online and install them.

If you are going to be installing the Adaptor Cable on a Windows PC onboard the boat, with no internet connection, then it is important that you download and copy the USB drivers on to a memory stick before going down to the boat. The drivers you need, can be found at <https://support.digitalyacht.net> in the “NMEA to USB Adaptor Drivers” folder.

Once you get to the boat it is important that you right click the installer EXE file and select the “Run as administrator” option to give Windows the necessary permissions to install the drivers. Follow the on-screen instructions and when finished, plug in the NMEA to USB-C adaptor cable to complete the operation.

Whichever operating system you are running, you will need to find out what name/number the operating system has given the NMEA to USB-C Adaptor cable. On Windows, you will need to look in the “Ports (COM&LPT)” section in **Device Manager**, on a Mac you need to look in the **USB-C** section of the **System Information** utility (formerly **System Profiler**) and on a LINUX computer you need to use the **ls /dev/ttyU\*** terminal command to find what device name the cable has been given.

It is this device name that you will need to select or enter into whichever navigation software package you will be using with the NMEA to USB-C Adaptor cable.



*NMEA to USB-C Adaptor Cable*

*Green LED = Data Received by PC  
Red LED = Data Transmitted by PC*



## 3. Installation

The NMEA to USB-C Adaptor cable features 4 wires, a pair of output (TX) wires and a pair of input (RX) wires. Normally, you need to connect both the + and – wires to another NMEA 0183 device, although some equipment just have a single Output and Input connection and a common ground (-) connection. Please refer to the relevant connection diagram depending upon whether you are wiring the adaptor cable to a single or two wire NMEA 0183 input/output.

### Wiring Colours;

COLOUR	NAME	TYPE	DESCRIPTION
ORANGE	TX+	Output	Transmit NMEA0183 Data +
BROWN	TX-	Output	Transmit NMEA0183 Data -
YELLOW	RX+	Input	Receive NMEA0183 Data +
GREEN	RX-	Input	Receive NMEA0183 Data -

Please note that the adaptor cable, follows the standard Digital Yacht wire colours i.e. ORANGE and BROWN are the Output wires and YELLOW and GREEN are the Input wires. In NMEA 0183 interfacing you always connect a single Output to one or more Inputs, so the wiring to any other Digital Yacht product will be...

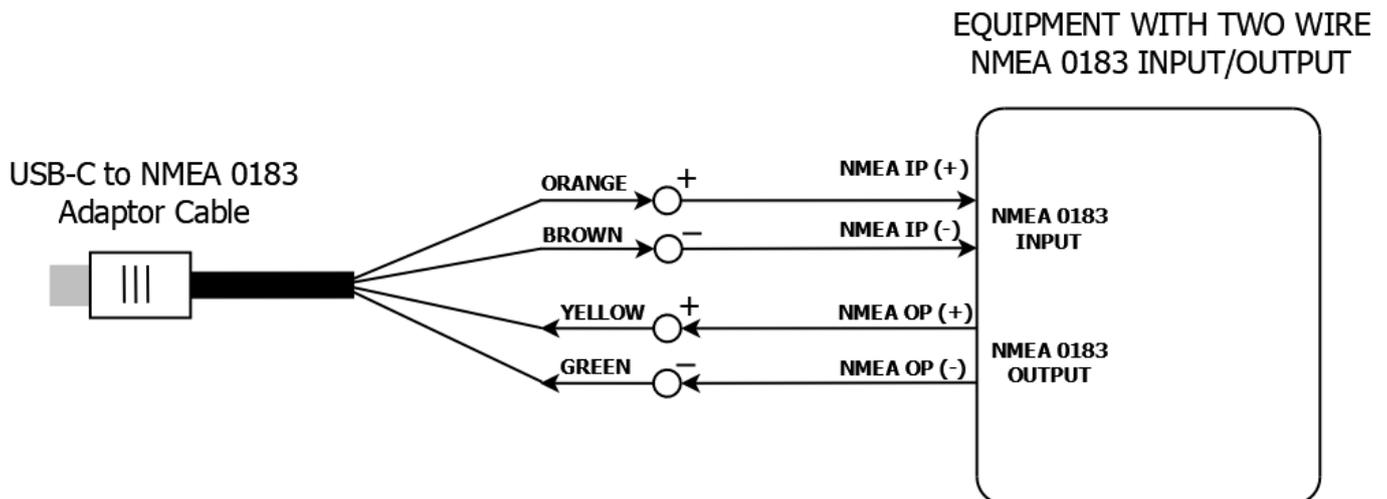
USB-C Cable	Other Digital Yacht Units*
Orange	Yellow
Brown	Green
Yellow	Orange
Green	Brown

\* **NOTE** – Sensors, like our GPS160, HSC100 and WND100 should be wired colour to colour i.e. Yellow to Yellow, Green to Green, etc. Please consult the relevant products user manual for more information.

### 3.1 Connecting to NMEA Equipment

Generally, NMEA0183 interfaces come in two “flavours”; a two wire (RS422 differential) type and a single wire (RS232 common ground) type. The NMEA to USB-C Adaptor cable can be used with both types.

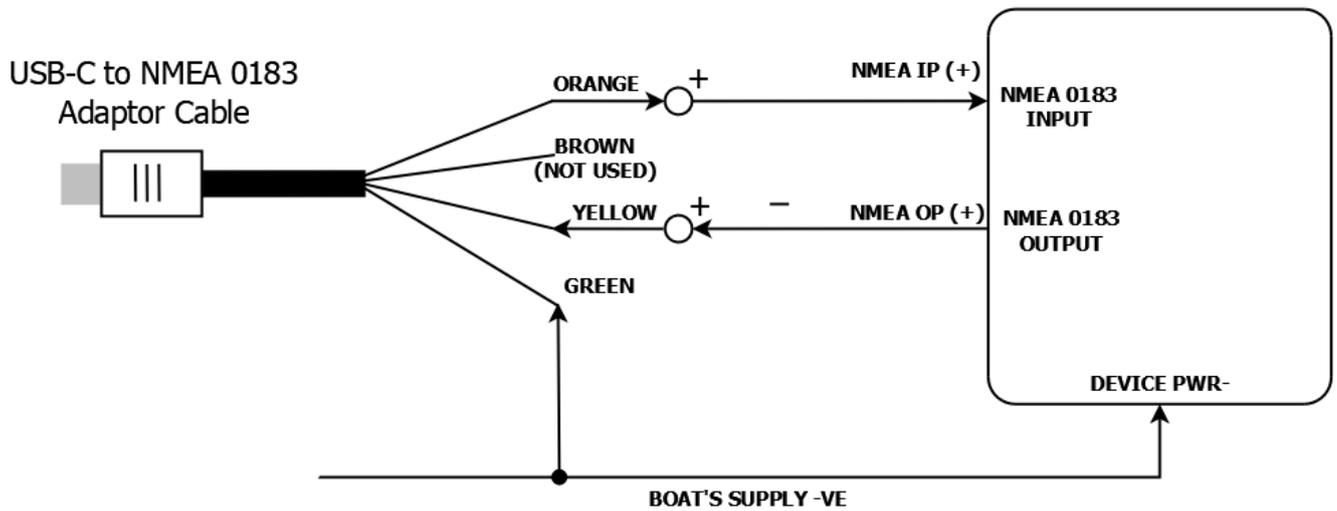
If the device has a Positive and Negative input and/or output, then it has the two-wire differential interface, and you should connect the cable as shown below.



For devices with just a single positive Input or Output (such as many Garmin or Standard Horizon units) then you should connect as shown on the next page. As long as the Green wire of the NMEA to USB-C Adaptor cable is connected to the same DC Supply negative as the device is powered from, then the data will be correctly transmitted and received.

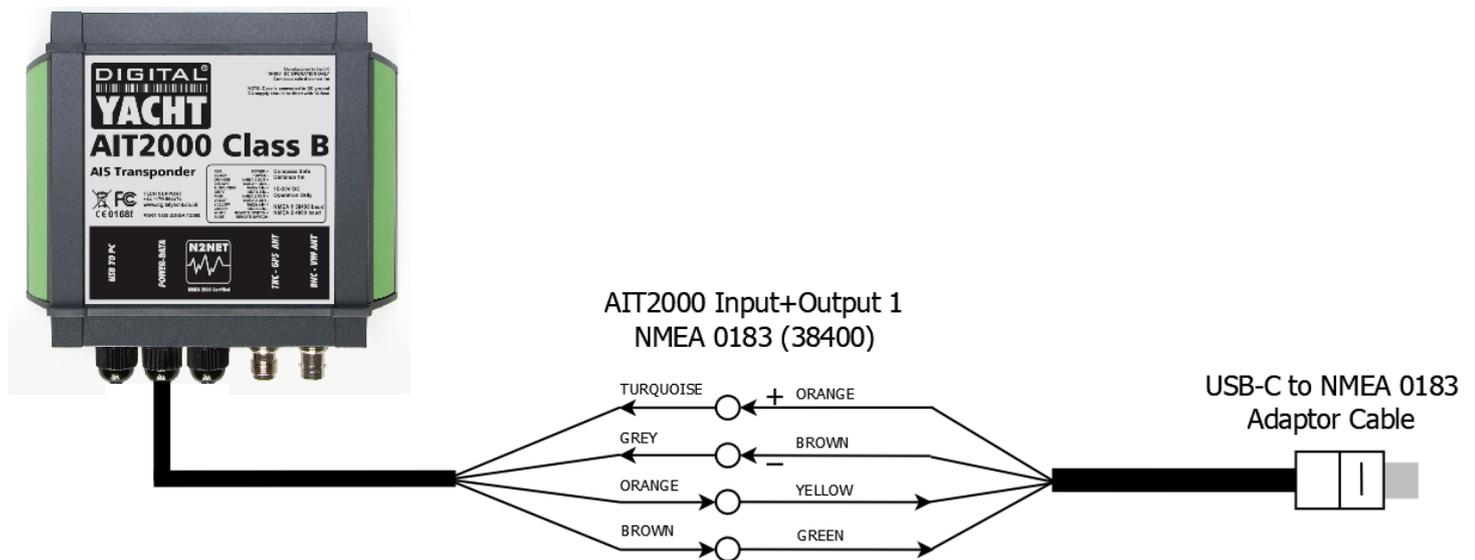


## EQUIPMENT WITH ONE WIRE NMEA 0183 INPUT/OUTPUT



For owners of our latest Class B AIS Transponders (AIT1500/AIT2000/AIT2500/AIT5000) that wish to permanently connect these transponders to a PC, we recommend using one of our NMEA to USB-C Adaptor cables, for extra protection, in installations where the computer and transponder share a different ground or are operated in areas of high static/lightning activity.

The diagram below, shows how to wire up one of our AIT2000 transponders to the NMEA to USB-C Adaptor cable. Our AIT1500, AIT2500 and AIT5000 transponders share the same Power/Data Cable and the wiring is the same.

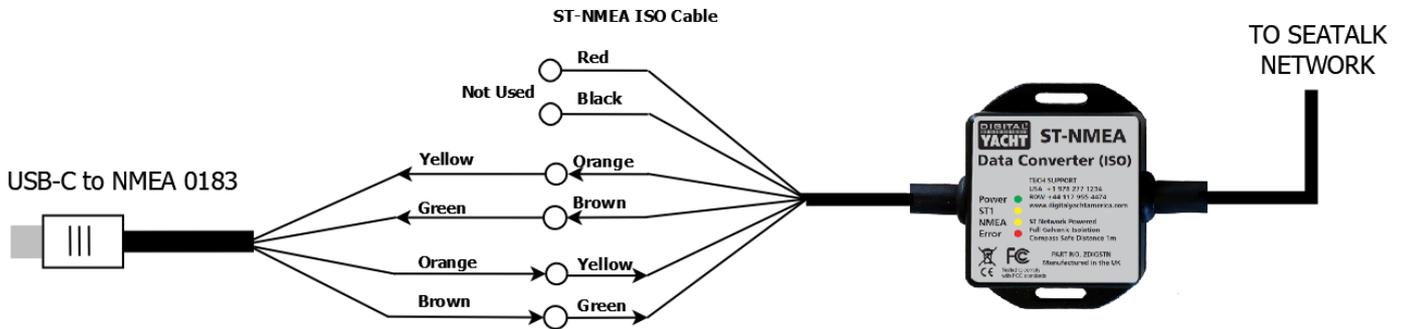


Another common application for our NMEA to USB-C adaptor cable is to connect one of our gateways or sensors to a computer with the latest USB-C connectors. The diagrams on the next page show typical wiring diagrams.

If you are trying to wire the NMEA to USB-C Adaptor cable to another 3<sup>rd</sup> party device and are not sure how it should be connected., please email [support@digitalyacht.co.uk](mailto:support@digitalyacht.co.uk)



This diagram is applicable for our ST-NMEA Converter and iKonvert gateway.



## USB-C to NMEA 0183 Adaptor to ST-NMEA CONVERTER

This diagram is applicable to our GPS160, HSC100 and WND100 sensors.

