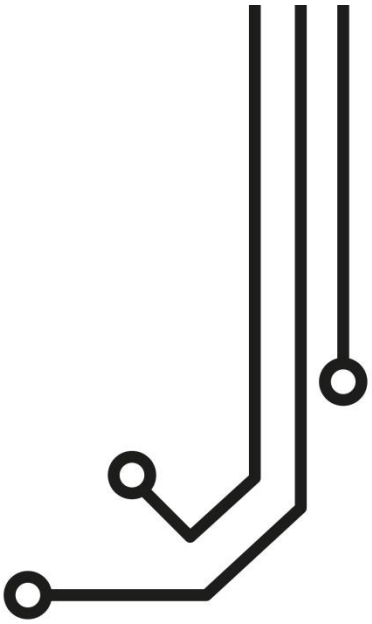
DIGITAL YACHT



NMEA TO USB ADAPTOR CABLE

Installation and instruction Manual

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1. Introduction

Congratulations on the purchase of your NMEA to USB Adaptor Cable. Although the USB 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).

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 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 Marine Navigation Equipment.

The adaptor cable has the interfacing circuitry built-in to the USB 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 the operating system will recognise and install the drivers automatically.

On PCs running Microsoft Windows, the Adaptor cable will be seen as a USB 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.

NMEA to USB Adaptor Cable

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

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 install the USB drivers before plugging in the Adaptor cable. The drivers you need, are included on the “Digital Yacht Software and Drivers CD” supplied with the cable. Simply browse the CD, find the installation program in the “NMEA to USB Adaptor Drivers” folder and then right click it and select the “Run as administrator” option. Follow the on-screen instructions and when finished, plug in the NMEA to USB 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 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* 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 in to whichever navigation software package you will be using with the NMEA to USB Adaptor cable.

3. Installation

The NMEA to USB Adaptor cable features 6 wires, of which only 3 wires are used in the majority of marine installations. The additional three “hand shaking” wires (used by some RS232 devices) are not required for NMEA interfacing. All unused wires should have their bare ends trimmed off and be properly secured and isolated to ensure they cannot touch each other or other electrical circuits.

The USB to NMEA Adaptor features signal status LEDs built-in to the clear plastic USB connector. These are very useful for checking connections to other equipment and flash as data is transmitted (RED) or received (GREEN).

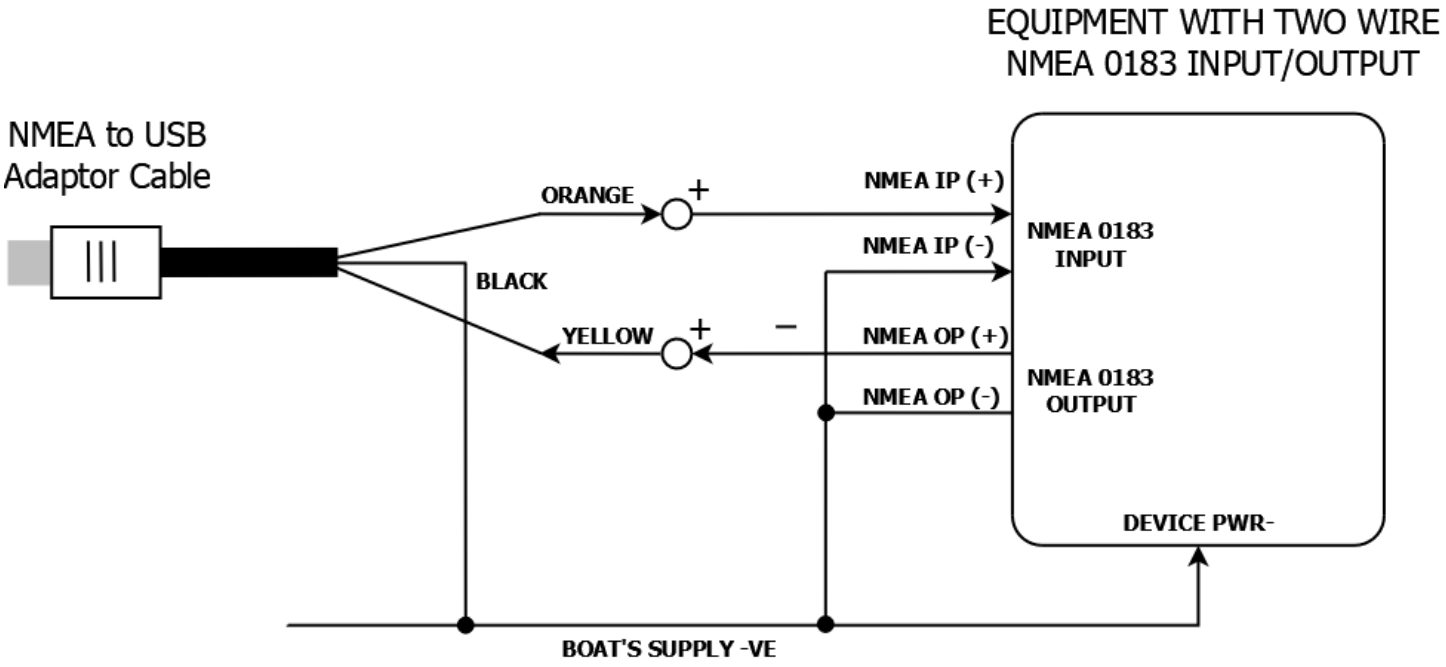
Wiring Colours;

COLOUR	NAME	TYPE	DESCRIPTION
BLACK	GND	GND	Device ground supply pin
ORANGE	TXD	Output	Transmit NMEA0183 Data output
YELLOW	RXD	Input	Receive NMEA0183 Data input

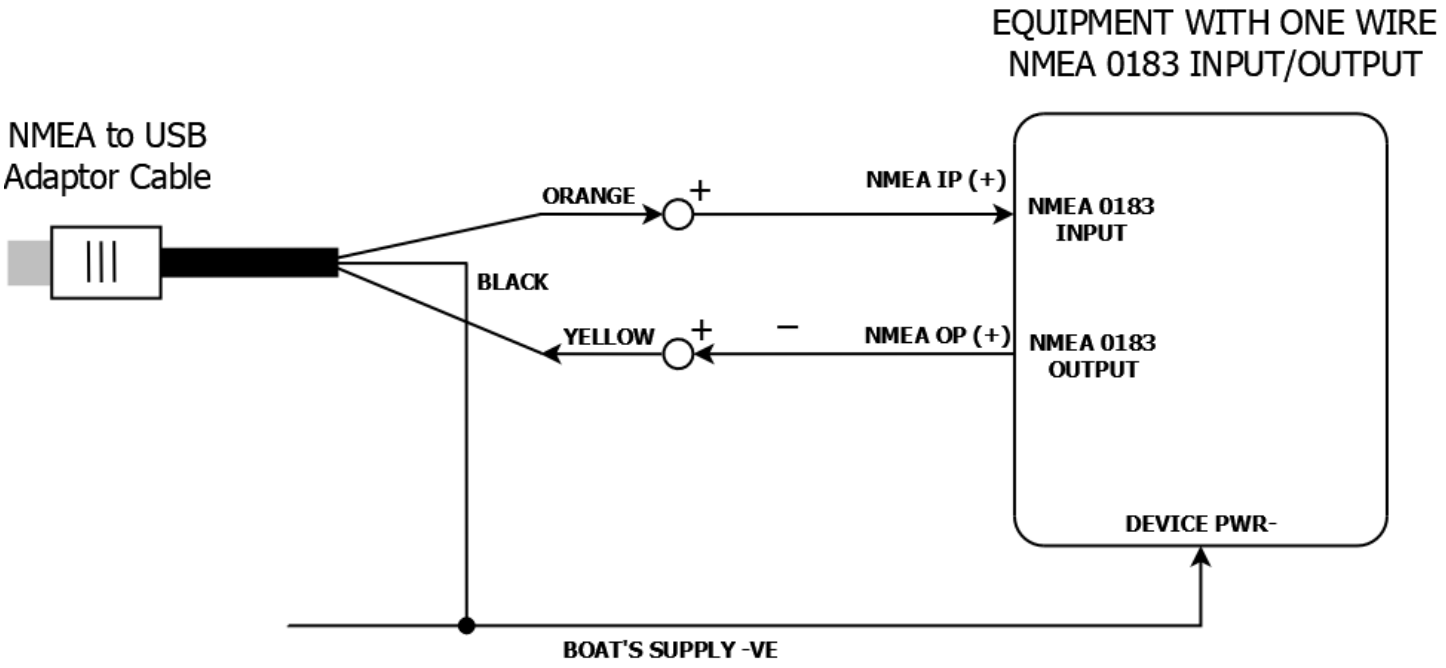
3.1 Connecting to NMEA Equipment

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 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 it up as shown below. It is important that the Input- and Output- are taken to the boat’s negative supply along with the NMEA to USB Adaptor cable’s BLACK wire.



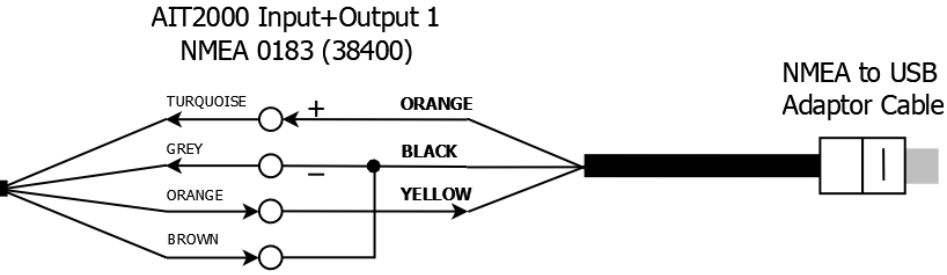
For devices that just have a single positive Input or Output (such as many Garmin or Standard Horizon units) then you should connect it up as shown at the top of the next page. As long as the BLACK wire of the NMEA to USB Adaptor cable is connected to the same DC Supply negative as the device is powered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



The two previous diagrams show how to wire the cable up for bi-directional communication, if you just want to receive data on to the computer, just wire up the Yellow and Black wires.

For owners of our latest Class B AIS Transponders (AIT1500/AIT2000/AIT3000) that wish to permanently connect these transponders to a PC, we recommend using one of our NMEA to USB 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 Adaptor cable. Our AIT1500 and AIT3000 transponders share the same Power/Data Cable and the wiring is the same.



If you are trying to wire the NMEA to USB Adaptor cable to another 3rd party device and are not sure how it should be connected., please email support@digitalyacht.co.uk