

# MUX100 NMEA MULTIPLEXER

Installation and instruction Manual



## 1. Introduction

Congratulations on the purchase of your MUX100 NMEA Multiplexer. It is recommended that this product is installed by a professional installer.



**Before operating the unit you should familiarise yourself with this Quick Start Guide and the user manuals for any equipment you wish to connect it to.**

## 2. Before you start

You will need the following items and tools to complete the installation:

- The MUX100 NMEA Multiplexer
- Suitable cable and connectors to join the MUX100 to your existing NMEA0183 equipment.
- Access to 12V or 24V DC power supply where the unit is to be installed.
- M3 or M4 screws or other fixings appropriate to the mounting location.

When installing and checking NMEA0183 interfaces, it is sometimes useful to have an Light Emitting Diode (LED) for checking the presence of electrical signals (see our Tech Note 00019-2011).

## 3. Installation

Before starting installation select a suitable location for the MUX100. The unit is water resistant; however it should be installed below deck in a dry location. When locating the unit you should consider:

- Routing of power and data cables to the unit.
- Provision of sufficient space below the unit for cable connections.
- Maintaining the compass safe distance of 0.5m.

### Installation Step 1

- Run the power cables from the fuse/circuit breaker panel to the MUX100. **Ensure that the supply is connected via a suitable 1A fuse or circuit breaker (not supplied).** If connecting the MUX100 to the same power circuit as other marine equipment, a suitable in-line 1A fuse should be fitted in the positive power connection to the unit.
- Run the NMEA0183 interfacing cables to the MUX100.
- Do not make any connections yet.



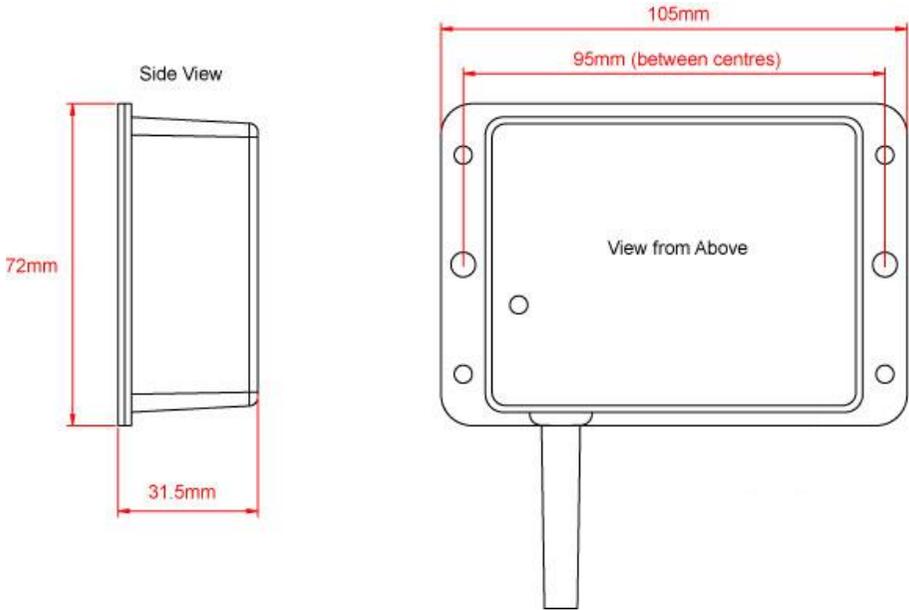
**If you wish to connect the MUX100 to a PC that only has USB connections and no serial COM ports, it will be necessary to use a suitable Serial to USB Adaptor. Digital Yacht can supply a suitable adaptor, please contact the dealer that you purchased the MUX100 from for details.**

### Installation Step 2

- Fix the MUX100 to a bulkhead or flat surface using suitable fixings (not supplied). Note that the unit may be installed in any orientation.



**Fixing location drawing**



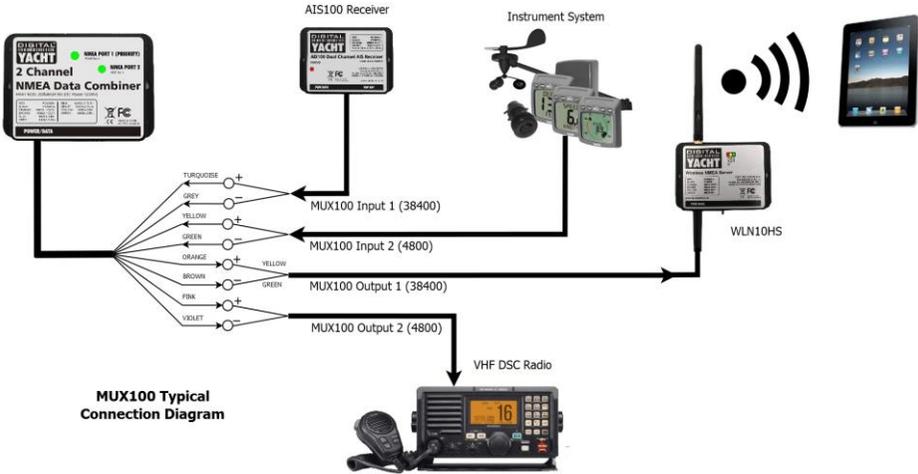
**Installation Step 3**

- Provide power connections to the unit. Power is connected to the PWR/DATA cable on the Red and Black wires. The Red wire is the positive (+) connection. The Black wire is the negative (-) connection.
- Connect the stripped wires to the fused power cables that you routed to the MUX100 in step 1.

**Installation Step 4**

- The MUX100 Multiplexer can now be connected to the other NMEA0183 compatible equipment via the NMEA0183 connections on the PWR/DATA cable. A table showing what each of the wires of the PWR/DATA cable does is printed on the MUX100 and repeated here for your convenience.
- A typical MUX100 installation is shown on the next page.
- Installation is now complete

<b>NMEA Data Co</b>			
PART NOS: ZDIGMUX100 (DC Power 12/24V)			
RED	POWER+	PINK	NMEA 2 OUT+
BLACK	POWER-	VIOLET	NMEA 2 OUT-
ORANGE	NMEA 1 OUT+	YELLOW	NMEA 2 IN+
BROWN	NMEA 1 OUT-	GREEN	NMEA 2 IN-
BLUE	NMEA 1 IN+		
GREY	NMEA 1 IN-		
<b>POWER/DATA</b>			



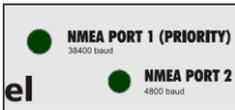
**MUX100 Typical Connection Diagram**

## 4. Operation

Apply power to the MUX100 and the two Port LEDs will quickly flash alternately for about 1 second. Operation of the MUX100 is completely automatic and it will combine all of the data it receives on Input 1 and Input 2 and output this data on Output 1 (38400 baud). Any GPS data it receives will also be output on Port 2 (4800 baud) – useful for driving a DSC VHF or any legacy equipment.

When duplicate data is received, priority is given to the data received on Input 1. In addition the MUX100 checks the GPS positions it receives on both ports and if the GPS position on Port 1 becomes invalid, it will automatically switch (after 4-6 seconds) to the GPS data received on Port 2. As soon as valid GPS positions start to be received again on Port 1, the MUX100 will switch back to using the Port 1 GPS data.

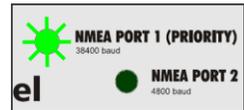
To indicate which Port is currently providing the GPS data, the LEDs will either be ON and flash off every second (●) if the Port is providing the GPS data, or be OFF and flash ON every second (✱) if data is present but GPS data is not currently being used. Below are the LED flashing combinations and what they mean.



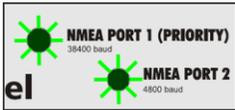
No Data on either port  
(Check wiring and baud rates)



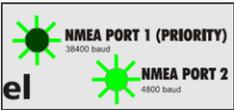
Normal Operation with Data on Both Ports (GPS = Port 1)



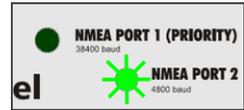
Data OK on Port 1  
No Data on Port 2



Data OK on both ports  
but no valid GPS data



Normal Operation with Data on Both Ports (GPS = Port 2)



No Data on Port 1  
Data OK on Port 2