



# Quick Start Guide

# NDC-4

# NMEA 0183 Multiplexer

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## Important Notices

The device to which this manual relates complies with the Electromagnetic Compatibility requirements according to EN60945. The unit should always be used in conjunction with appropriately approved, shielded cable and connectors as per NMEA 0400 to ensure compliance. A declaration of conformity is available for download at [www.actisense.com](http://www.actisense.com).

If the device to which this manual relates is to be installed within five metres of a compass, please refer to the 'Compass Safe Distance' section in the 'Technical Specifications' table.

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## Product Registration

Please register your product via the online form at:  
<http://www.actisense.com/product-registration/>

Your product package includes a unit serial number. The serial number is six digits long and can be found below the barcode on the label. Your registration will assist Actisense Support to link your product to your details, simplifying any future assistance you may require.

## 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.

## Technical Accuracy

To the best of our knowledge the information contained in this document was correct at the time it was produced. Active Research Ltd cannot accept liability for any inaccuracies or omissions.

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## Product Guarantee

This product comes with a three year 'return to base' guarantee. If you suspect that the unit is faulty please refer to the Troubleshooting Section of the User Manual before contacting support.

It is a requirement of the guarantee that all installations of electronic equipment follow the NMEA 0400 specification. Any connection to a battery or power supply must meet the mandatory essential safety requirements that may be imposed by local regulatory agencies.

## Introduction & Features

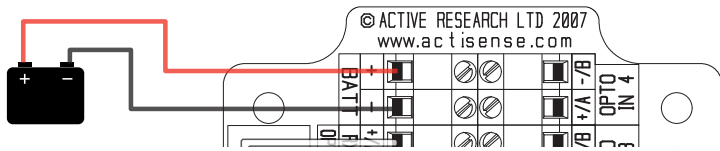
The Actisense EMU-1 is a specialised analogue to NMEA 2000 Gateway which converts data from analogue engine gauges/senders into NMEA 2000 data. Please refer to the FAQs for gauge/sender compatibility details.

The EMU-1 can monitor vital engine parameters such as temperature, pressure RPM and fluid levels from up to two engines.

The EMU-1 has a PC based configuration tool that allows the settings inside the EMU-1 to be changed to best suit the engine it is working with, making it a flexible solution for many engine makes and models. An Actisense PC to NMEA 2000 Gateway (NGT-1) is required to configure the EMU-1.

# Power

## Standard NDC-4 (non-USB)



## NDC-4-USB (or standard NDC-4 used with the 'USB kit' lead)

Plug the USB lead in to your PC. The NDC-4 will be powered and active once the USB drivers are successfully installed.

Depending on your PCs settings, the USB drivers for the NDC-4 should download automatically from Windows Updates. If not, the same USB driver is available on the CD provided or from the NDC-4 'Downloads' web page.

N.B. The USB connection to the NDC-4 must NOT be used at the same time that power is being provided via the 'BATT' terminals. Doing so will damage the USB chip on the NDC-4 which is not covered under the terms of the guarantee. If a PC connection is required while the NDC-4 is connected to a battery, please refer to the 'Serial PC Connection' section of this Quick Start Guide.

## LED Behaviour

### Start up (Self Test Sequence)



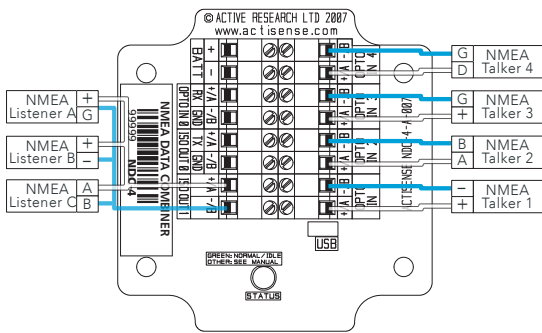
If the LED is off, please check the power connections to the NDC-4.

If the LED flashes amber once every four seconds, there has been an error during the self test sequence. The NDC-4 should be reset.

## Connecting to NMEA 0183 Devices

To change baud rates or to apply data filtering to any of the NDC-4 inputs, please download NDC Control Centre from the NDC-4 'Downloads' web page.

Full instructions for how to use NDC Control Centre are contained in the NDC-4 Full User Manual available from the same web page.

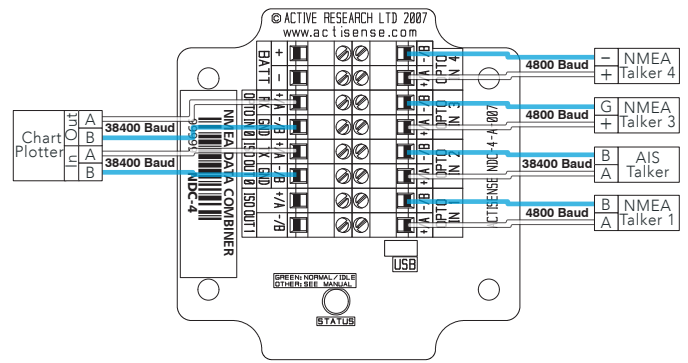


## NDC-4 and NDC-4-ASW default baud rates:

Port	Baud Rate	Configurable
OPTO IN 0	38400	Yes
ISO OUT 0	38400	Yes
OPTO IN 1	4800	Yes
ISO OUT 1	4800	Yes
OPTO IN 2	4800	Yes
OPTO IN 3	4800	Yes
OPTO IN 4	4800	No

# AIS Connections

If using an NDC-4-AIS (or a standard NDC-4 that has been configured for AIS), please follow the instructions below when connecting your AIS Talker.



## NDC-4-AIS default baud rates:

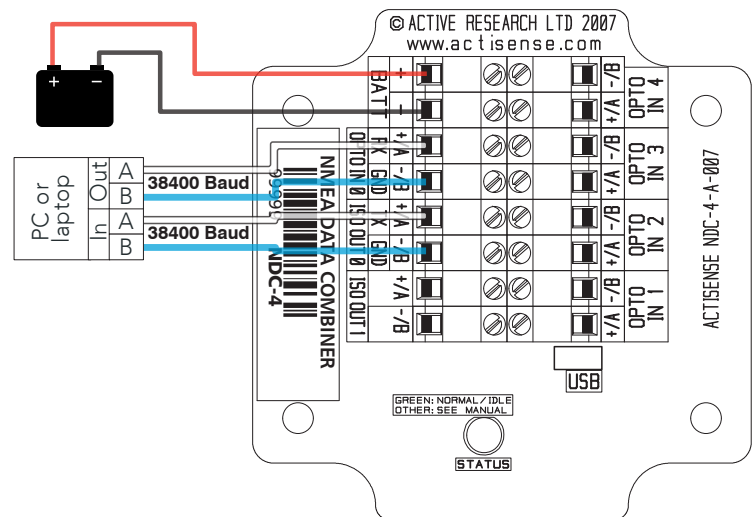
Port	Baud Rate	Configurable
OPTO IN 0	38400	Yes
ISO OUT 0	38400	Yes
OPTO IN 1	4800	Yes
ISO OUT 1	4800	Yes
OPTO IN 2	38400	Yes
OPTO IN 3	4800	Yes
OPTO IN 4	4800	No

## Autoswitch Connections

If using an NDC-4-ASW (or a standard NDC-4 that has been configured for autoswitch), please follow the instructions below when connecting your NMEA 0183 Talkers.

## Serial PC Connection

"OPTO IN 0" and "ISO OUT 0" are primarily for bi-directional connections, such as PCs or chartplotters. Therefore, any data sent to "OPTO IN 0" will not be sent to "ISO OUT 0" to prevent data loops flooding the bandwidth. The default baud rate is 38400.



## Amplified Safety

Use the NDC-4 with the Actisense NBF-3 for even safer NMEA 0183 interfacing.

