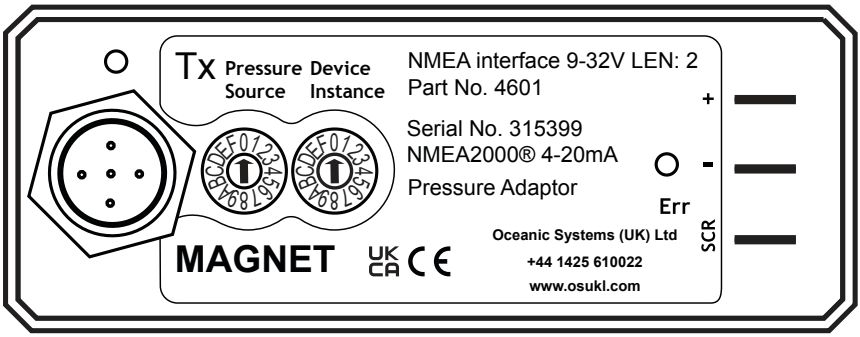
NMEA2000® 4-20mA Pressure Adaptor
Part Number: 4601
USER MANUAL



Revision 4

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1 INTRODUCTION

The Oceanic Systems NMEA2000® 4601 4 – 20mA Pressure Adaptor is designed to monitor any 4 – 20mA pressure source including Atmospheric, Water, Steam, Compressed Air, Hydraulic, Oil & Fuel on the NMEA2000® network.

This unit is designed to operate in a protected marine environment such as an engine room. It is very important that it is installed and set up correctly according to this manual. Please read and follow the installation and setup instructions carefully to achieve the best results.

1.1 PRODUCT FEATURES

The NMEA2000® 4601 4 – 20mA Pressure Adaptor has the following features:

- Convert 4 – 20mA pressure input to digital value with ± 2% full scale deflectio
- Heartbeat blue LED confirming NME transmission.
- Faulty sensor/connection detection (under or over current)
- User selectable pressure range
- User selectable pressure source
- User selectable pressure damping
- NMEA2000® micro C interface plug
- Panel mounting

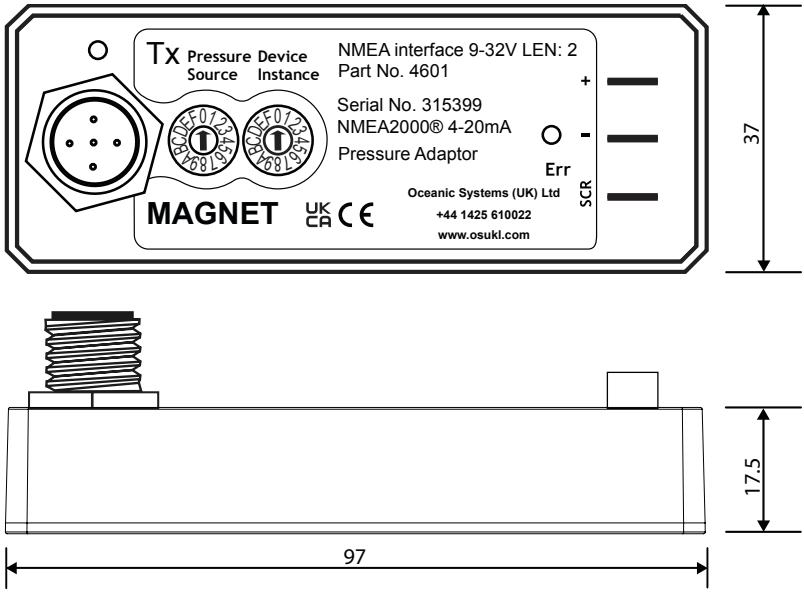
2 INSTALLATION

2.1 UNPACKING THE BOX

You should find the following items in the 4601 shipping box
1 x 4601 NMEA2000® 4-20mA Pressure Adaptor
1 x 4601 User Manual (This document)

2.2 MOUNTING THE UNIT

The Pressure Adaptor is water resistant but NOT waterproof. It is designed to be located in a dry and protected location in the cable run between the NMEA2000® network and the pressure sensor. It does not need to be attached to any surface but should be restrained from free movement by means of cable ties to the rest of the cable run or similar.

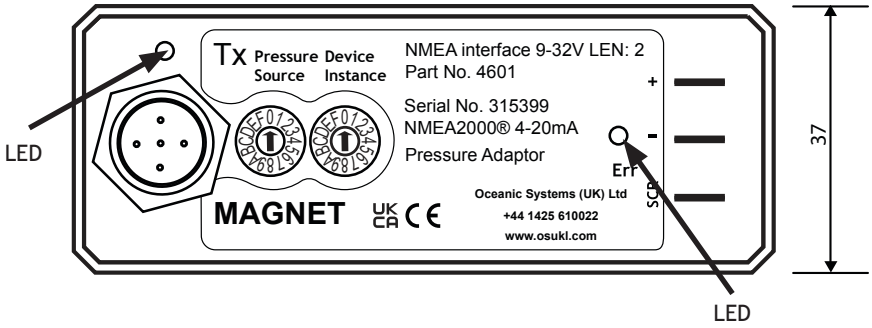


2.3 CONNECTING THE NMEA2000® CABLE

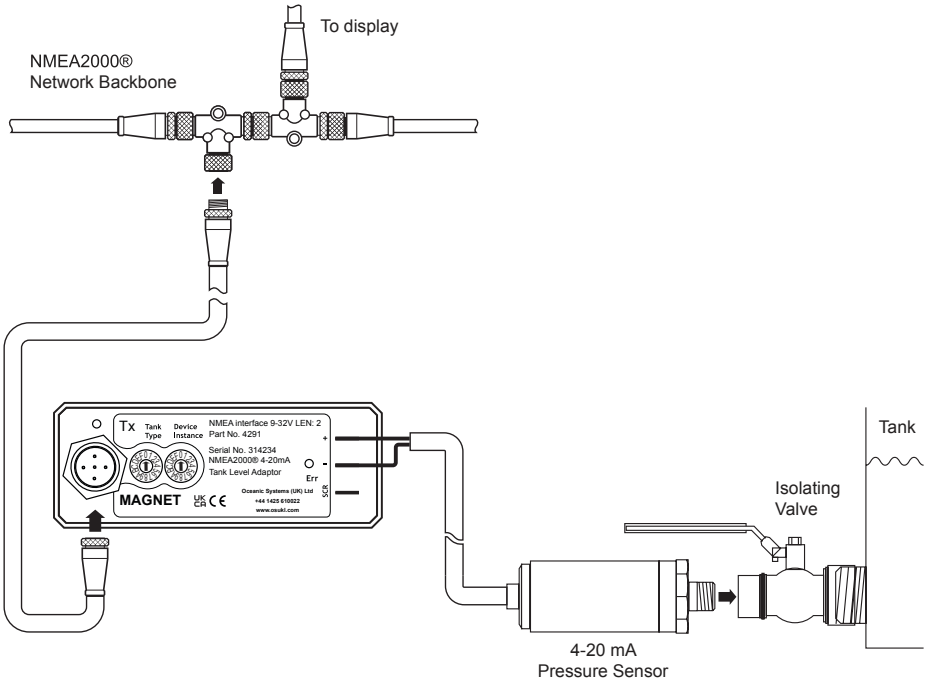
The unit is connected to the NMEA2000® network by the 5 way micro C plug on the front Carefully attach the network drop cable to this plug and hand tighten until it is fully seated. Take care to match the orientation of the pip inside the socket to the recess inside the drop cable socket. The other end of the drop cable should be connected to a suitable Tee connector on the NMEA2000® network backbone cable.

2.4 CONNECTING THE 4 – 20mA SENSOR TO THE 4601 ADAPTOR

The connections for the sensors are as follows:



Connector	Function
+	24V Supply to sensor
–	4 – 20 mA sensor input
SCR	GND (Cable Screen)



2.5 CONFIGURATION

The following items can be configured on the 4601 Adaptor.

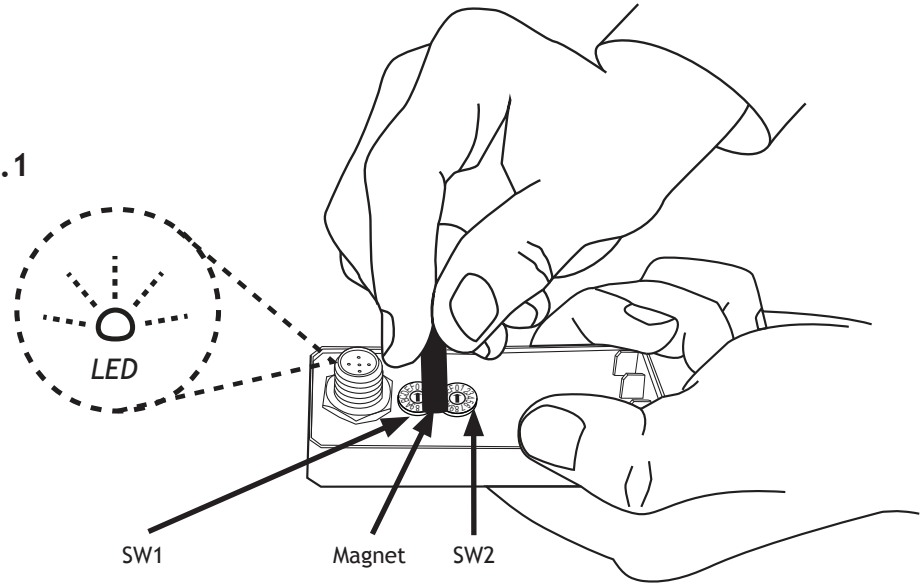
2.5.1 SETTING DEVICE INSTANCE

It is possible to install 253 units of 4601 Pressure Adaptor on a NMEA2000® network so they need to each have a unique Device Instance Address. The Device Instance of each unit is set by turning the small rotary switch (SW1) and (SW2) with a small screwdriver. The device instance is counted from (switch1 value * 16) + switch2 value. Valid Device Instances range from “0x00” through to “0xFD”.

2.5.2 SETTING DAMPING & PRESSURE SOURCE & PRESSURE RANGE

To change the “damping” and “pressure source” settings, hold your magnet on the correct part of the product label as indicated on the label (fig.1). When the magnet is close enough to the product, the red LED will start to flash quickl . After 2 seconds the LED will flash once per second. At this point, turning the rotary switch will change the Damping and Pressure Source settings (fig.2). See the table below for positionings. When the rotary switch is in the desired position, hold the magnet in the same place for a further 2 seconds until the red LED lights for 2.5 seconds, these settings are now saved.

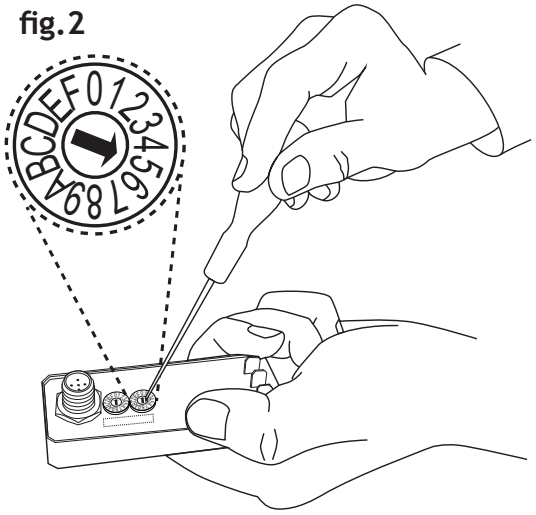
fig.1



Changing the “pressure range” setting is similar; hold the magnet in against the product, this time for 7 seconds until the red LED flashes twice per second. Set the Pressure Range with the rotary switch as per the table below. Then confirm the setting as before, by holding the magnet against the product or 2 seconds.

Once the settings have been successfully saved, remember to change the rotary switch back to reflect the device instance on the NMEA2000® network.

fig.2



Switch Values		
Switch Position	**Pressure Source SW1**	**Damping SW2**
0	Atmospheric	Off
1	Water	1sec Damping
2	Steam	2sec Damping
3	Compressed Air	3sec Damping
4	Hydraulic	4sec Damping
5	Filter	5sec Damping
6	Altimeter Setting	6sec Damping
7	Oil	7sec Damping
8	Fuel	8sec Damping
9	Custom #130	9sec Damping
A	Custom #131	10sec Damping
B	Custom #132	15sec Damping
C	Custom #133	20sec Damping
D	Custom #134	25sec Damping
E	Custom #135	Not Used
F	Custom #136	Not Used

Switch Values		
Switch Position	**Pressure Source SW2**	**SW2**
0	0 – 3 PSI	Not Used
1	0 – 5 PSI	Not Used
2	0 – 10 PSI	Not Used
3	0 - 50 PSI	Not Used
4	0 -100 PSI	Not Used
5	0 – 300 PSI	Not Used
6	0 – 500 PSI	Not Used
7	0 -1000 PSI	Not Used
8	0 – 3000 PSI	Not Used
9	0 – 5000 PSI	Not Used
A	Not Used	Not Used
B	Not Used	Not Used
C	Not Used	Not Used
D	Not Used	Not Used
E	Not Used	Not Used
F	0 – 1 BAR Vacuum	Not Used

3 MAINTENANCE

- Clean the unit with a soft cloth.
- Do not use chemical cleaners as they may remove paint or markings or may corrode the enclosure or seals.
- Ensure that the unit is mounted securely and cannot be moved relative to the mounting surface.
- Check the security of the cables connected to the NMEA2000® connector, tighten if necessary.

4 TECHNICAL SPECIFICATION

As Oceanic Systems are constantly improving their products specifications are subject to change without notice. Oceanic Systems products are designed to be accurate and reliable however they should only be used as aids to navigation and not as a replacement for traditional navigation aids and techniques.

Certifications	
Parameter	**Comment**
NMEA2000	Level B

NMEA2000® Parameter Group Numbers (PGNs)		
Type	**PGN No**	**PGN Name**
Monitor	PGN130314	Actual pressure
Protocol	PGN126464	Tx/Rx PGN List
	PGN126996	Product Information
	PGN059392	ISO Acknowledge
	PGN059904	ISO Request
	PGN060928	ISO Address Claim
	PGN126208	Command/Request Group

Electrical and Mechanical		
Parameter	**Value**	**Comment**
Operating Voltage	12 to 24 VDC	
Power Consumption	71.5mA	Average Operating
Load Equivalence Number	2	LEN
Reverse Battery Protection	Yes	Indefinitel
Load Dump Protection	Yes	SAE J1113
Size	mm	97 x 37 x 17.5
Weight	gr	135

Environmental	
Parameter	**Value**
IEC 60954 Classificatio	Protected
Degree of Protection	IP67
Operating Temperature	-25°C to 50°C
Storage Temperature	-40°C to 70°C
Relative Humidity	93%RH @40° per IEC60945-8.2
Vibration	2-13.2Hz @ ±1mm, 13.2-100Hz @ 7m/s2 per IEC 60945-8.7
Electromagnetic Emission	Conducted and Radiated Emission per IEC 60945-9
Electromagnetic Immunity	Conducted, Radiated, Supply, and ESD per IEC 60945-10
Safety Precautions	Dangerous Voltage, Electromagnetic Radio Frequency per IEC 60945-12

5 TROUBLESHOOTING

Blue LED does not flas	Check power is provided to network. Check cable runs have not been damaged.
Blue LED flashes rapidl	No display equipment connected to receive data.
Red LED lit	Sensor is missing, wired incorrectly or damaged. Check sensor and wiring.
I have multiple pressure sources but only one is displayed	Check each rotary switch is addressed to an individual source instance and the display is set to receive the corresponding pressure instance. Check the display is capable of displaying pressure.
Pressure is not showing correctly	Make sure the pressure range and damping are configured correctl .

6 TECHNICAL SUPPORT

If you require technical support for any Oceanic Systems products you can reach us using any of the following:-

tel: +44 (0)1634 290772

email: sales@energy-solutions.co.uk

web: osukl.com or energy-solutions.co.uk

osukl.com

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energy-solutions.co.uk

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Our policy is one of continuous product improvement, therefore product specifications are subject to change without notice.
Oceanic Systems products are designed to be accurate and reliable. However, they should be used only as aids to vessel monitoring, and not as a replacement for traditional navigation and vessel monitoring techniques.
NMEA2000® is a registered trademark of the National Marine Electronics Association

7 WARRANTY

Oceanic Systems warrants this product to be free from defects in materials and workmanship for one year from the date of original purchase. If within the applicable period any such products shall be proved to Oceanic Systems satisfaction to fail to meet the above-limited warranty, such products shall be repaired or replaced at Oceanic Systems option. Purchaser's exclusive remedy and Oceanic Systems sole obligation hereunder, provided product is returned pursuant to the return requirements below, shall be limited to the repair or replacement, at Oceanic Systems option, of any product not meeting the above limited warranty and which is returned to Oceanic Systems; or if Oceanic Systems is unable to deliver a replacement that is free from defects in materials or workmanship, Purchaser's payment for such product will be refunded. Oceanic Systems assumes no liability whatsoever for expenses of removing any defective product or part, or for installing the repaired product or part or a replacement therefore or for any loss or damage to equipment in connection with which Oceanic Systems products or parts shall be used. The foregoing warranties shall not apply with respect to products subjected to negligence, misuse, misapplication, accident, damage by circumstances beyond Oceanic Systems control, to improper installation, operation, maintenance, or storage, or to other than normal use or service.

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WARRANTY RETURN PROCEDURE

To apply for warranty claims, contact Oceanic Systems or one of its dealers to describe the problem and determine the appropriate course of action. If a return is necessary, place the product in its original packaging together with proof of purchase and send to an Authorized Oceanic Systems Service Location. You are responsible for all shipping and insurance charges. Oceanic Systems will return the replaced or repaired product with all shipping and handling prepaid except for requests requiring expedited shipping (i.e. overnight shipments). Failure to follow this warranty return procedure could result in the product's warranty becoming null and void.

Oceanic Systems reserves the right to modify or replace, at its sole discretion, without prior notification, the warranty listed above