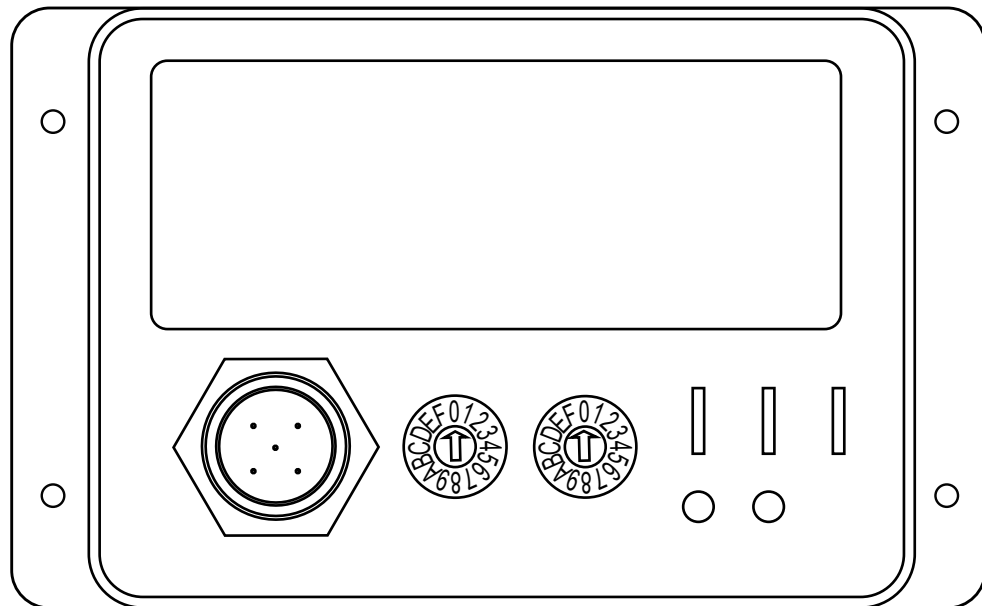


NMEA2000® 4-20mA PRESSURE ADAPTOR
Part Number: 4601
USER MANUAL



Revision 1.01

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INTRODUCTION

The Offshore System's 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 FIRMWARE REVISION

The information in this manual corresponds to firmware revision 1.00

1.2 PRODUCT FEATURES

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

- Convert 4 - 20mA pressure input to digital value with $\pm 2\%$ full scale deflection
- Heartbeat blue LED confirming NMEA transmission.
- Faulty sensor/connection detection (under or over current)
- User selectable pressure range
- User selectable pressure source
- User selectable pressure damping
- IP67 protected
- NMEA2000® micro C interface plug
- Panel mounting

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INSTALLATION

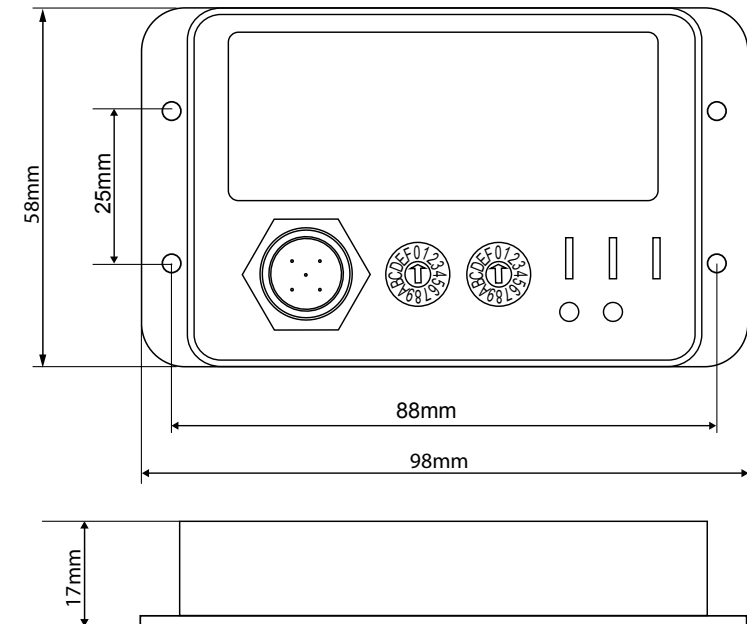
2.1 UNPACKING THE BOX

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

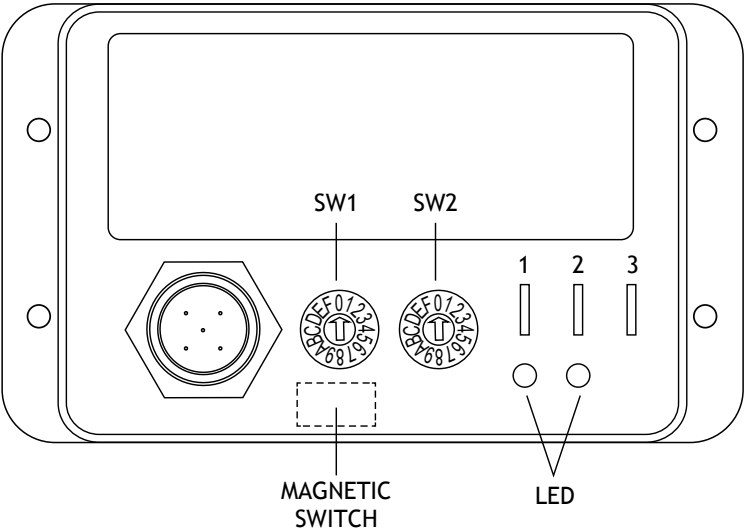
1. The unit should be mounted to a flat surface using 4 mounting screws.
2. The unit dimensions and mounting hole's locations are shown on the following drawing:



2.3 CONNECTING THE NMEA2000® CABLE

1. The unit is connected to the NMEA2000® network by the 5 way micro C socket on the front.
2. Carefully attach the network drop cable to this plug and hand tighten until it is fully seated.
3. Take care to match the orientation of the pin inside the socket to the recess inside the drop cable plug.
4. 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
1	GND
2	4-20mA Sensor Input
3	24V Supply to Sensor

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 switch1 + switch2 with a small screw driver. The device instance is counted from (switch1 value * 256) + switch2 value. Valid Device Instances range from “0x00” through to “0xFD”.

2.5.2 SETTING DAMPING & PRESSURE SOURCE & PRESSURE RANGE

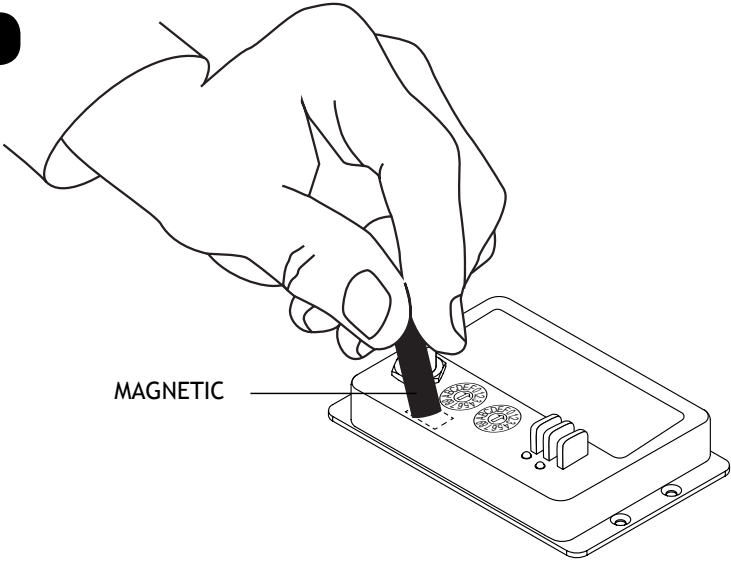
To change the “damping” and “pressure source” settings, hold your magnet on the correct part of the product label as indicated on the label. When the magnet is close enough to the product,

the red LED will start to flash quickly. 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.~~ 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.

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 NMEA network.

Fig 1



Switch Values		
Switch Position	Pressure Source SW1	Damping (seconds) SW2
0	Atmospheric	Off
1	Water	1
2	Steam	2
3	Compressed Air	3
4	Hydraulic	4
5	Filter	5
6	Altimeter Setting	6

7	Oil	7
8	Fuel	8
9	Custom #130	9
A	Custom #131	10
B	Custom #132	15
C	Custom #133	20
D	Custom #134	25
E	Custom #135	Not Used
F	Custom #136	Not Used

Switch Values

Switch Position	Pressure Range SW1	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

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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. If the unit is loose, tighten the mounting screws.
- Check the security of the cables connected to the NMEA2000® connector, tighten if necessary.
- Check the security of the Crimp receptacle to the 4601 Spade Terminals

As Offshore Systems are constantly improving their products, specifications are subject to change without notice. Offshore System's 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.

Design Standard

Parameters	Comment
NMEA2000®	Level B

NMEA2000® Parameter Group Numbers (PGNs)

Parameters	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

Parameters	Value	Comment
Operating Voltage	12 to 24 VDC	
Power Consumption	65mA	Average Operating
Load Equivalence Number	2	LEN
Reverse Battery Protection	Yes	Indefinitely
Load Dump Protection	Yes	SAE J1113
Size	mm	98 x 58 x 17
Weight	gr	140

Environmental

Parameter	Value
IEC 60954 Classification	Protected
Degree of Protection	IP40
Operating Temperature	-20°C to 55°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/s ² 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

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

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- Email: support@osukl.com
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WARRANTY RETURN PROCEDURE

To apply for warranty claims, contact Offshore 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 Offshore Systems Service Location. You are responsible for all shipping and insurance charges. Offshore 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.

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

Up to 16 each type of Sender can be installed on a single network