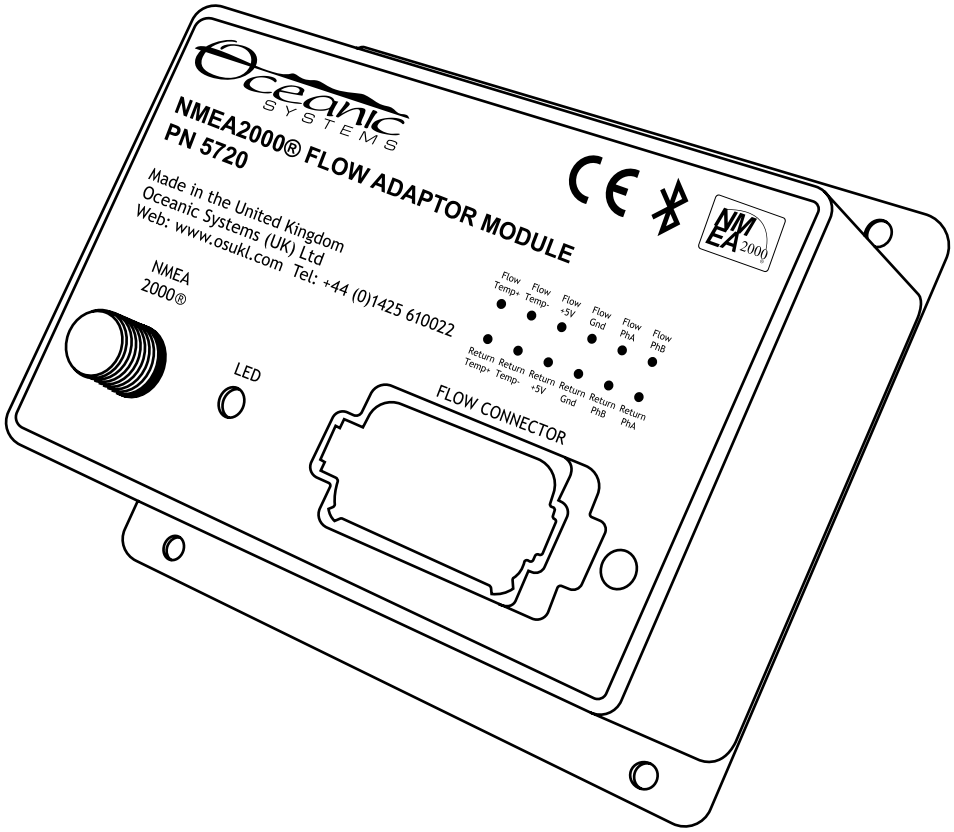
OCEANIC SYSTEMS NMEA2000® FLOW ADAPTOR MODULE USER MANUAL
Part Number: 5720



Document revision 1

1 INTRODUCTION

The Oceanic Systems 5720 Flow Adaptor Module is designed to report fuel flow and usage over the NMEA 2000 (tm) network using positive displacement flow meters.

These high accuracy sensors connect directly to the 5720 using IP68 rated standard Deutsch connectors (mating connector kit available separately as p/n 5099). The 5720 is compatible with sensors having a single pulsed output as well as those with a 2-phase quadrature output (for cases where reverse flow must be considered). Additionally high accuracy PT100 temperature compensated sensors are fully supported.

As required, the 5720 may be set up to measure two individual flow rates, consumption data based on flow and return rates or total fluid transferred. This configuration along with sensor parameters and network instances may be made to the flow adapter over the NMEA network.

1.1 FIRMWARE REVISION

The information in this manual corresponds to firmware revision 1.0.0

1.2 PRODUCT FEATURES

- The NMEA2000® Flow Adaptor Module has the following features:
- Up to 2 flow-meter inputs
- Fuel temperature compensation for greater accuracy
- Accepts quadrature signals to detect reverse flow
- User configurable K-Factor for greater sensor compatiblity
- Bunkering mode measures total fuel flow
- Live mode calculates ongoing fuel usage from flow and return sensors
- Robust environmentally protected enclosure and connections
- Tri-colour LED shows status and network activity

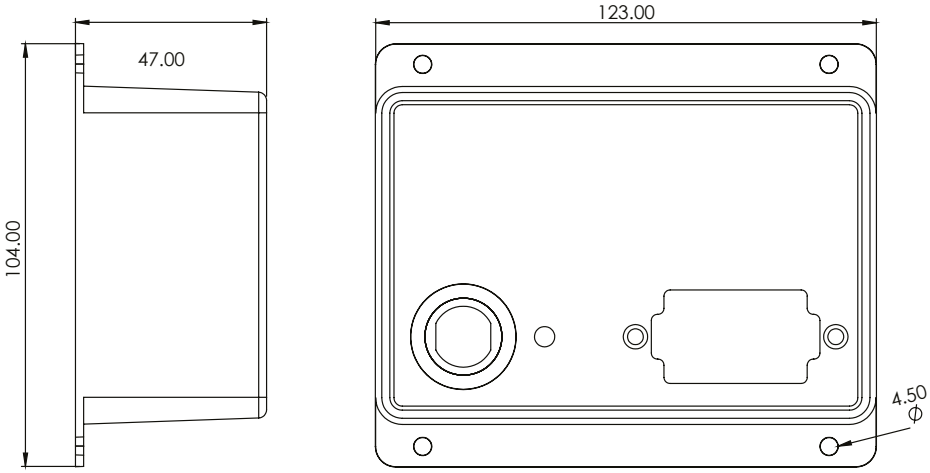
2 INSTALLATION

2.1 UNPACKING THE BOX

You will find the following items in the 5270 shipping box:
1 x 5720 NMEA2000® Fluid Flow Adaptor Module
1 x 5720 User Manual (This document)

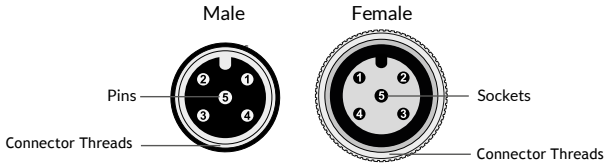
2.2 MOUNTING THE UNIT

The unit should be mounted to a flat surface using 4 M4 mounting screws. The unit dimensions and mounting hole locations are shown on the following drawing.



2.3 CONNECTING THE NMEA2000® CABLE

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

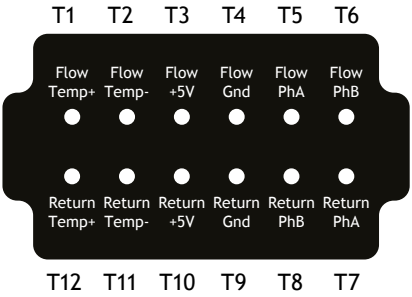


Pin1: Shield
Pin2: NET-S (power supply Positive, +V)
Pin3: NET-C (power supply common, -V)
Pin4: NET-H (CAN-H)
Pin5: NET-L (CAN-L)

2.4 CONNECTING THE SENSOR CABLES TO THE DEUTSCH HEADER

The cables from the flowmeter sensors are wired to the 5720 using 6 x 2 way Deutsch DT connectors. Connection to a mating DT socket housing should be made as in the following table:

Terminal 1	**Outward Flowmeter PT100 Sensor (+ve sensing voltage)**
Terminal 2	**Outward Flowmeter PT100 Sensoer (GND potential)**
Terminal 3	**Outward Flowmeter +ve Power Supply**
Terminal 4	**Outward Flowmeter GND connection**
Terminal 5	**Outward Flowmeter Phase B Signal (for reverse flow capable meters)**
Terminal 6	**Outward Flowmeter Phase A Signal (normal single output hall effect signal)**
Terminal 7	**Return Flowmeter Phase A Signal (normal single output hall effect signal)**
Terminal 8	**Return Flowmeter Phase B Signal (for reverse flow capable meters)**
Terminal 9	**Return Flowmeter GND connection**
Terminal 10	**Return Flowmeter +ve Power Supply**
Terminal 11	**Return Flowmeter PT100 Sensoer (GND potential)**
Terminal 12	**Return Flowmeter PT100 Sensor (+ve sensing voltage)**



3 CONFIGURATION

Before using the 5720 for the first time it needs to be configured with a suitable Oceanic Systems Display Unit.

The following items can be configured on the 5720

3.1 DEVICE INSTANCE

It is possible to install 127 5720 Fluid Flow monitors on a NMEA2000® network. This value must be set to give each a unique address.

3.2 OUTWARD FLOW ENGINE INSTANCE

The flow rate from the flowmeter connected to terminals 1 to 6 of the Deutsch Connector are reported on PGN 127489 (Engine Parameters, Dynamic) with this instance.

3.3 RETURN FLOW ENGINE INSTANCE

The flow rate from the flowmeter connected to terminals 7 to 12 of the Deutsch Connector are reported on PGN 127489 (Engine Parameters, Dynamic) with this instance.

3.4 OUTWARD FLOW TEMPERATURE INSTANCE

The temperature from the PT100 sensor connected to terminals 1 and 2 of the Deutsch Connector are reported on PGN 130316 (Temperatrue, Extended Range) with this instance.

3.5 RETURN FLOW TEMPERATURE INSTANCE

The temperature from the PT100 sensor connected to terminals 11 and 12 of the Deutsch Connector are reported on PGN 130316 (Temperatrue, Extended Range) with this instance.

3.6 OUTWARD FLOW K-FACTOR

This value must be set to correspond with the parameters of the flowmeter connected to terminals 1 to 6 of the Deutsch Connector. Units are pulses per litre.

3.7 RETURN FLOW K-FACTOR

This value must be set to correspond with the parameters of the flowmeter connected to terminals 7 to 12 of the Deutsch Connector. Units are pulses per litre.

4 OPERATION

The 5720 Fluid Flow Adaptor is powered from the NMEA2000® network and transmits data from the flow sensors using the PGNs detailed in the Technical Specifications section.

The LED on the front of the unit flashes blue every second to indicate normal operation or red to indicate an error condition. If the unit is connected to a broken network or one with no other devices, the LED will flash blue in a fast flickering pattern until the network is restored.

5 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 NMEA 2000 connector, tighten if necessary.
- Check the security of the cables connected to the Deutsch connector.

6 TECHNICAL SPECIFICATION

As Oceanic Systems are constantly improving their products specifications are subject to change without notice. Oceanic 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.

Certifications

Parameter	**Comment**
NMEA2000	Level B
Maritime Nav and RadioComm Equipment	IEC60945
CE and FCC	Electromagnetic Compatibility

NMEA2000® Parameter Group Numbers (PGNs)

Type	PGN No	PGN Name
Monitor	PGN127489	Engine Parameters, Dynamic
	PGN127497	Trip Fuel Consumption, Engine
	P GN130316	Temperature, Extended Range
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
CAN Operating Voltage	9 to 32 Volts	
Power Consumption	30mA	Average Operating
Load Equivalence Number	1	LEN
Size	123 x 104 x 47	mm
Weight	350	grm

Environmental

Parameter	Value
IEC 60954 Classification	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

7 TECHNICAL SUPPORT

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

- Tel (UK): +44(0)1425 610022
- Tel (USA): (844)898 6462
- Fax: +44(0)1425 614794
- Email: support@osukl.com
- Web: www.osukl.com
- Post: Oceanic Systems (UK) Ltd
  Unit 10-11 Milton Business Centre
  Wick Drive, New Milton, Hampshire BH25 6RH

Oceanic Systems (UK) Ltd
Unit 10-11 Milton Business Centre, Wick Drive,
New Milton, Hampshire, BH25 6RH, United Kingdom

Tel (UK): +44(0)1425 610022 Tel (USA): (844)898 6462
Fax: +44(0)1425 614794 Email: sales@osukl.com
Web: www.osukl.com

8 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.