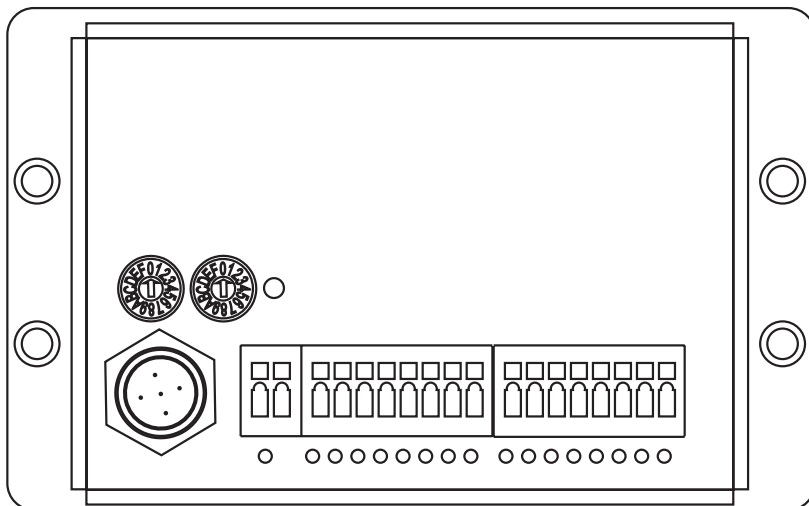


NMEA2000® 16 CHANNEL SWITCH INPUT MODULE
Part Numbers: 4410
USER MANUAL



Revision 1.00

Revision History

Revision	1.0
Description	Original Document

1 Introduction	2
1.1 Firmware Revision	2
1.2 Product Features	2
2 Installation	3
2.1 Unpacking the box.....	3
2.2 Mounting the unit	3
2.3 Connecting the NMEA2000 Cable	3
2.4 Connecting the Power and Switch Input Cables to the WAGO socket	4
2.5 Power and Switch Input Connections	4
3 Configuration.....	5
3.1 NMEA Device Instance	5
3.2 NMEA PGNs and Unit Information	5
4 Technical Support	6
5 Warranty	7

The Offshore Systems 4410 16 Channel Switch Input Module monitors switch closure devices and reports their status over the NMEA2000® network.

These devices can include fire/smoke/carbon monoxide detectors, bilge and flood float detectors, doorway and porthole closure detectors, valve status detectors and many more. With this module and suitable NMEA2000® displays the status of all these items can be viewed anywhere on the vessel.

The unit has PLC quality inputs that are manufactured to IEC 61131 and IEC61000 standards so they are optically isolated and fully protected against ESD, Voltage Surges and Transients to ensure the most reliable operation at all times.

It is compatible with either 12 or 24 Volt systems and requires NO user setup menus but the simple setting of two small rotary address switches so multiple Switch Input Modules can exist on the same network.

The connections to the unit are made via boat builder preferred WAGO Cage Clamp terminal blocks which allow either solid or multistranded wires from 0.08 to 1.5mm² to be connected quickly and securely. Each switch input also has a tell tale green LED to indicate when it is active.

The 4410 can be either panel mounted or din rail mounted using the mounting clips provided. 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 4410, NMEA2000® 16 Channel Switch Input Module has the following features:

- 16 opto isolated input channels
- PLC quality inputs compatible with standard IEC61131-2 Type 1 and Type 3 Inputs
- Protected against ESD, Voltage Surges and Transients to IEC61000-4-2,4 and 5
- Indicator LEDs for each active input
- Switch settable Device Instance
- Boat Builder Preferred WAGO Cage Clamp Terminals
- Compatible with 12 or 24 Volt Systems
- Panel or DIN rail mounting option

2.1 UNPACKING THE BOX

You should find the following items in the shipping box:

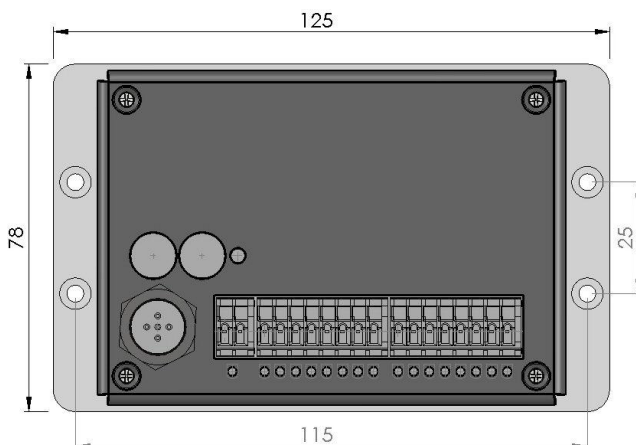
1 x 4410 16 Channel Switch Input Module

1 x Din Rail mounting Kit with 2 rail mounts and 4 countersunk M3 screws for rails

1 x 4410 User Manual (This document)

2.2 MOUNTING THE UNIT

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



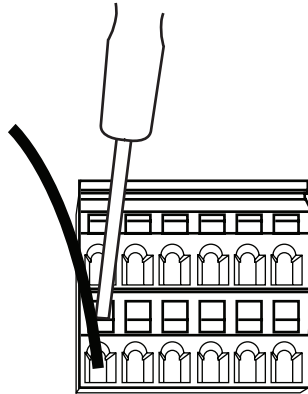
Or the unit can be Din Rails mounted by attaching the Din Rail mounts to the case using the supplied M3 CSK screws and then clipping the unit to the Din Rail

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 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 plug. 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 SENSOR CABLES TO THE WAGO SOCKET

The cables from the vessels power-source and the switch inputs are connected using the WAGO Cage Clamp terminal block. The wire should be stripped for 8mm and then the cage clamp opened with a small screwdriver in the slot above the wire connection. Then simply insert the wire into it's connection slot and release the cage clamp by removing the small screw driver. This will produce a secure gas tight connection on wire sizes from 0.08 - 1.5 mm²



2.5 POWER AND SWITCH INPUT CONNECTIONS

The terminal connections are arranged from left to right as follows:

Terminal 1 + 2	Vessel's 12 or 24 Volt Power Supply
Terminal 3 - 10	Inputs 0 through 7
Terminal 11 - 18	Inputs 8 through 15

These are all clearly marked marked on the unit case.

Please note the unit HAS to be connected to the vessels DC system using terminals 1 and 2. These connections are reverse polarity protected and when the connection is correct and power is applied the green LED by terminals 1 and 2 will illuminate.

The individual inputs are positive active. That is to say the unit recognises a plus 12 or 24 Volt signal to indicate an active switch input which will illuminate the green LED next to that input.

If you require an input to be negative triggered then you simply need to connect the input terminal to the ships supply through an 820 Ohm resistor as well as the input wire. Then the input will be permanently on until the input wire signal is grounded which will turn the input off.

We have available Part Number 4411 which is our 8 channel Negative Input Adaptor which provides a group of eight resistors to allow for multiple negative inputs on a 4410 16 Channel Switch Input Module. If more than 8 negative inputs are required on a 4410 then you will need 2 x 4411.

3.1 NMEA DEVICE INSTANCE

Each 4410 NMEA2000® 16 Channel Switch Input Module connected to the NMEA2000® network needs to have a unique Device Instance Address. The Device Instance of each unit is set by turning the two small rotary switches with a small screw driver. Valid Device Instances range from “00” through to “FD”.

3.2 NMEA PGNS AND UNIT INFORMATION

NMEA2000® Parameter Group Numbers (PGNs)

Type	PGN No	PGN Name
Data PGNs	PGN127501	Switch Bank Status Sent on change plus every 2.5 seconds
Protocol	PGN126464	Tx/Rx PGN List
	PGN126996	Product Information
	PGN059392	ISO Acknowledge
	PGN059904	ISO Request
	PGN060928	ISO Address Claim
	PGN126208	Command/Request Group

Certifications

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

Electrical and Mechanical

Parameter	Value	Comment
Operating Voltage	9 to 32 Volts	DC Voltage
Power Consumption	36mA	At 12 Volts
Load Equivalence Number	1	LEN
Reverse Battery Protection	Yes	Indefinitely
Load Dump Protection	Yes	SAE J1113
Size	mm	125 x 78 x 38 mm
Weight	gr	180

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

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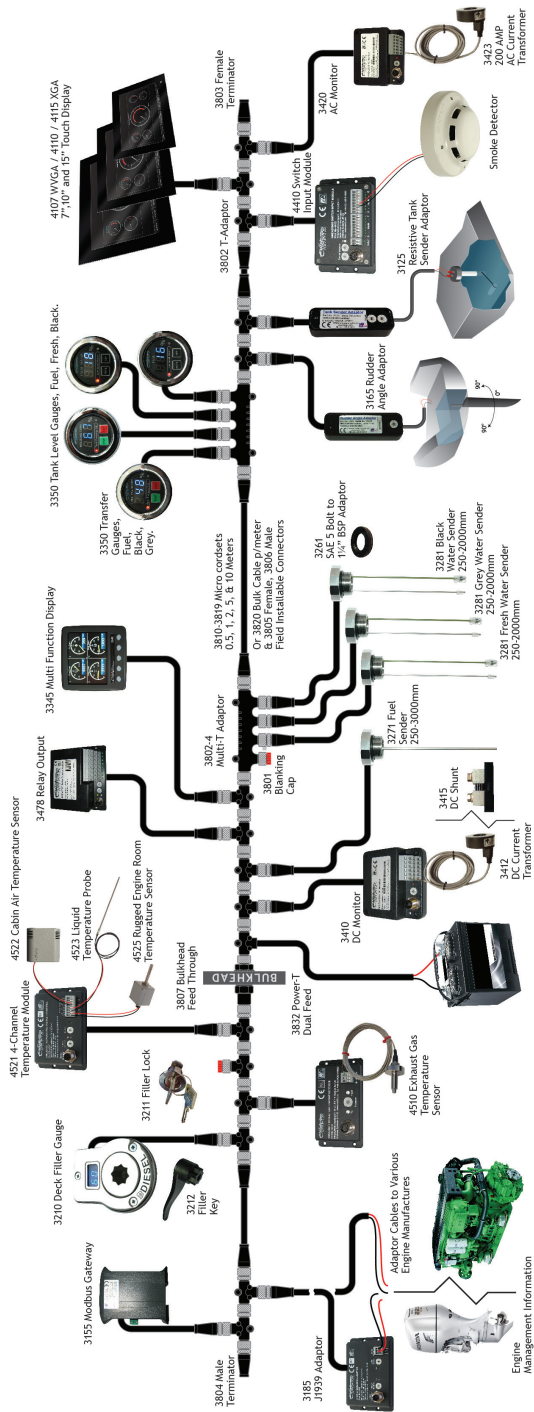
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WARRANTY RETURN PROCEDURE

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.

NMEA2000® VESSEL MONITORING AND CONTROL SYSTEMS



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