Installation Instructions

V1.1 2016

Wind Sensor Analogue and NMEA 2000

Content

VDO Wind Sensor

Preliminary Remarks

In purchasing an sensor from the VDO marine range you have decided on a high value product, which has been manufactured according to acknowledged technical standards. Modern production processes and compliance with currently applicable quality assurance standards guarantee that our products leave the works in perfect condition.
We thank you for making a good choice, and we are convinced that this instrument will be of great help to you and keep you safe at sea.

In order to ensure easy and safe handling of your VDO sensor, you should familiarize yourself with all the features and functions.
Please take the time to read these instructions carefully and completely.

Safety Instructions for Installation

This product has been developed, manufactured and tested in accordance with the basic safety requirements of EC, UL and FCC directives and the acknowledged state of the art.

Please follow all the instructions given in this handbook exactly.

Please pay attention to all text passages labeled with this symbol. These are very important hints for operating and security of the instruments.

The installation of VDO Wind Sensor should be done by your shipyard or by a specialized expert.

Before beginning work the minus pole of the battery should be disconnected.

Use of information provided by the VDO Wind Sensor does not release you from the responsibility over your ship and demands good seamanship. Always use your nautical experience in interpreting the displayed values.

If you carry out this work yourself, wear suitable working clothes. Do not wear wide fitting clothes. If you have long hair, wear a hairnet. Clothes and hair can get caught in moving and rotating parts.

Wearing of metallic or conductive jewelry, such as necklaces, bracelets, rings etc. is not allowed when working on the electrical installation on board.

Before beginning work, the minus pole of the battery should be disconnected, because of danger of short circuit. Short circuits can cause cable fires, battery explosions and damage to other electronic systems.

Please note that with disconnection of battery, all volatile electronic memories lose their inputted values and must be reprogrammed.

Explosion hazard! Before beginning work on the engine compartment of petrol engines, switch on the ventilator of the engine compartment.

Ensure that necessary clearance is provided behind the cable opening, at the position where the sensor is to be installed.

When selecting the installation position for the sensor, take care that no stringers are drilled. Be careful also of furniture, floorboards, superstructure boxes, cables etc.

When carrying out installation work with a sealing compound, solvent vapours can be formed. Make sure of adequate ventilation and follow the instructions for use of the sealing compound manufacturer.

Necessary work without voltage cutoff must be carried out only using insulated tools.

For the installation only use VDO or NMEA approved cables.

If you don't use standard cables, the wires used should be adequately insulated or should have sufficient electrical strength, and the contact point should be protected against electrical shock hazard. The electrical conducting components of the connected consuming devices should also be protected against direct contact trough suitable measures. Installation of bare metallic wires and contacts is not allowed.

Take account of the wire cross section. A reduction of the wire cross section results in a higher current density. This can cause the wire to heat up.
Connect the wires only in accordance with the wiring diagram.

Safety Instructions for Maintenance

The sensor display unit is maintenance-free. Do not use cleaning agents.
Repairs on the sensor should be carried out only by VDO authorized specialists.

The VDO Windensor

The wind vane turns in the direction of the wind and steers the wind in the direction of the gauge. The rotor records the relative wind speed which in turn is displayed on a wind speed gauge.
The Wind Sensor is available in two versions. One version is NMEA 2000 certified and delivers NMEA 2000 wind data to an existing NMEA 2000 network. The second Wind Sensor version has an analogue data output. It can be used with the AcquaLink Nav Box system, or as replacement for legacy VDO Logic or Standard sensors.

Components

In the box:
- Wind Sensor
- Mast mount bracket
- Installation instruction

Installation accessory (must be purchased seperately)

NMEA 2000 Installation Kit
- 30m NMEA 2000 mast cable
- NMEA 2000 inline terminator
- NMEA 2000 field installable connector

Analogue Wind Sensor Installation Kit
- 30m mast cable
- Field installable connector

Versions

Wind Sensor analogue (A2C59501983)

NMEA 2000 Wind Sensor (A2C59501984)

Functions

The Wind Sensor provides following information via analogue or NMEA 2000 signal:

- Wind speed
- Wind direction

Calibration

The Wind Sensor is pre programmed at the factory. When using the AcquaLink Nav Box system please refer to the product manual in order to set damping, offset etc.

The NMEA 2000 Wind Sensor Interface

The NMEA 2000 Wind Sensor version is a NMEA certified sensor. It sends NMEA 2000 data to an existing NMEA 2000 network
The parameter group numbers (PGN) of the data which the sensor sends are given in the table below. More information about NMEA can be found under www.nmea.org

Receiving PGNs

Message Name	PGN
ISO Address Claim	60928
ISO Acknowledge	59392
ISO Request Message	59904
NMEA2K RCA Group	126208

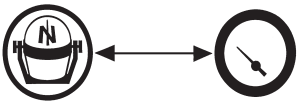
Transmitting PGNs

Message Name	PGN
ISO_AddrClaim	60928
ISO_Acknowledge	59392
NMEA2K RCA Group	126208
NMEA2K HeartBeat	126993

Message Name	PGN
NMEA2K Configuration	126998
NMEA2K Information	126996
NMEA2K PGN List	126464
NMEA2K WindData	130306

NMEA 2000 LEN: 1

Installation of the VDO Wind Sensor



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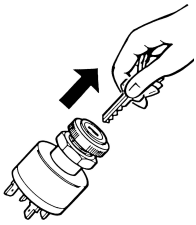
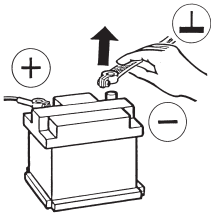
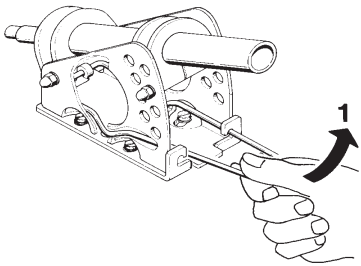
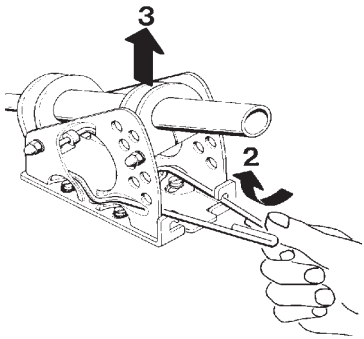




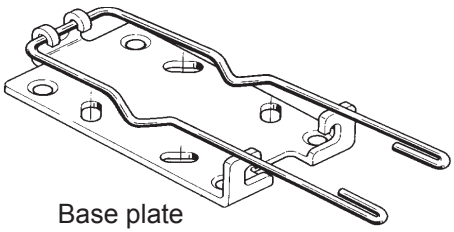
Before beginning, disconnect the negative terminal on the battery, otherwise you risk a short circuit. If the craft is supplied by auxiliary batteries, you must also disconnect the negative terminals on these batteries! Short circuits can cause fires, battery explosions and damages to other electronic systems. Please note that when you disconnect the battery, all volatile electronic memories lose their input values and must be reprogrammed.

First, remove the base plate of the wind sensor. Proceed as following:





Loosen the spring clip by pushing it down and inwards (1), (2), then remove the wind sensor (3).

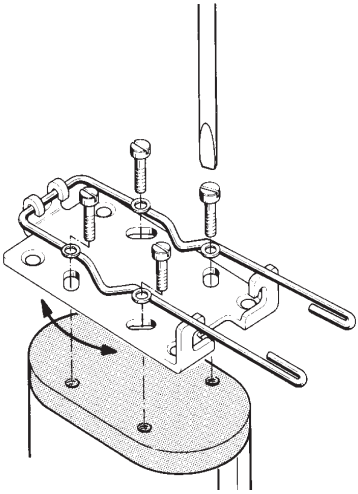


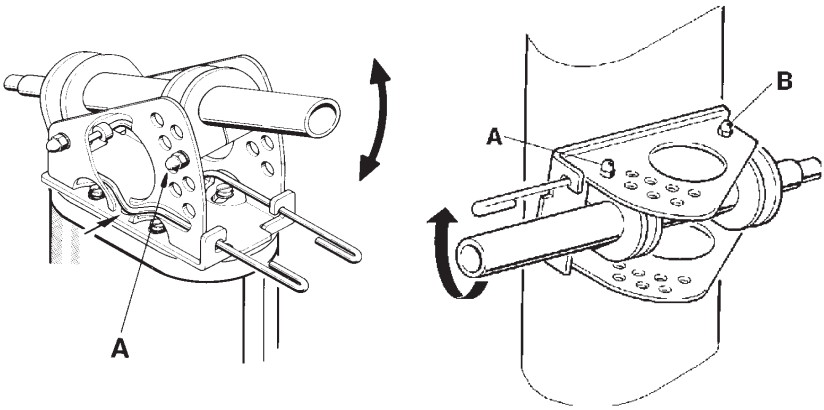
Base plate

Installation at the Mast

When mounting the base plate, the sensor mounting position should be pointing ahead (0°). If other mounting angles are used, please refer to your gauge setup manual.
Please refer to the mounting templete to determine the right screw placement.

Depending on the structure of the mast, fix the base plate on the mast top, using suitable screws. Rotate the base plate over to oblong holes so that its center axis is parallel to the longitudinal ship axis, either to port or starboard. Inclinations of the mast top can be compensated with the sensor footplate.
Lateral mast mounting of the sensor is also possible.





Install the sensor on the base plate. Sensor inclinations can be compensated by changing pin and nut (A). In case of lateral mast mounting loosen the nut (A) and (B) and turn the sensor so it is vertical to the midship axis.

Installing the Mast Cable

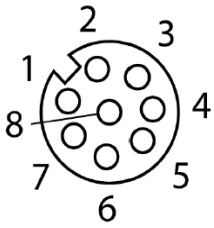
Do not sharply bend the mast cable. Avoid chafing.
Shorten the length of the mast cable to the length of the mast plus 2 meters.
Use existing empty tubes if possible (e.g. from chafing the rakes), and install it with the mast down if possible.

Analogue Wind Sensor Installation

To connect the Wind Sensor to the VDO AcquaLink Nav Box following components are necessary:
- 30m mast cable (A2C99793400)
- Field installable connector (A2C59501953)
- Deck cable (A2C99792900)

1. Push the mast cable (starting at the top of the mast) through the mast.
2. Use an already availble through-deck access, or drill a 15mm dia. hole through the deck near the foot of the mast in order to push the mast cable into the cabin of the boat.

Do not cause damage to the cable or surface of the vessel.



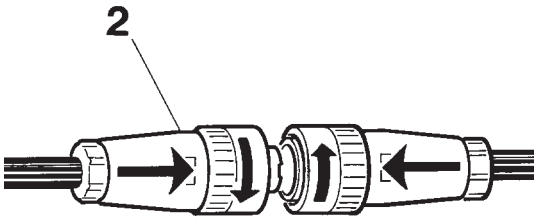
Connector pinout (cable view)

3. Connect the open wires to the field installable connector.
4. Use the deck cable to connect the field installable connector and the Nav Box. Use the WMA labeled Nav Box connection.

5. Connect the mast cable to the sensor (2).

Analogue Pinout

PIN	Function	Color
1	Sensor PWR	red
2	empty	grey
3	COS	green
4	GND	blue
5	SIN	yellow
6	WIND Speed	white
7	empty	
8	empty	



Push and turn the collards in opposite directions

Replacing a Legacy VDO Wind Sensor

If you want to replace an existing VDO Standard or Logic Wind Sensor, you can keep all mounting and cables and just replace the sensor itself. The new analogue Wind Sensor is equipped with the legacy connector.

NMEA 2000 Wind Sensor Installation

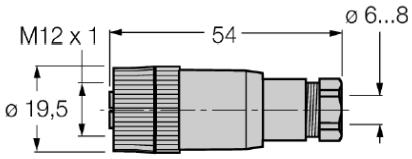
To connect the Wind Sensor to an existing NMEA 2000 network following components are necessary:
- 30m mast cable (A2C38804100)
- NMEA 2000 Field installable connector Male (A2C59501950)
- NMEA 2000 Inline Terminator (A2C39312500)

1. Push the mast cable (starting at the top of the mast) through the mast.

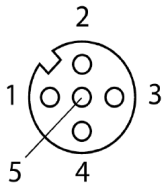
2. Use an already availble through-deck access, or drill a 15mm dia. hole through the deck near the foot of the mast in order to push the mast cable into the cabin of the boat.

Do not cause damage to the cable or surface of the vessel.

3. Connect the open wires to the field installable connector.



Use appropriate tools to assamble the connector



Connector pinout (male connector side)

NMEA 2000 Pinout

PIN	Function
1	Shield
2	NET-S (V+)
3	NET-C (V-)
4	NET-H (CAN H)
5	NET-L (CAN L)

4. Connect the Male NMEA 2000 field installable connector to an existing NMEA 2000 BACKBONE.

Warning: Please follow the NMEA 2000 rules for building the network. The mast cabel has to function as backbone cable. A drop cable may only be 6m long.

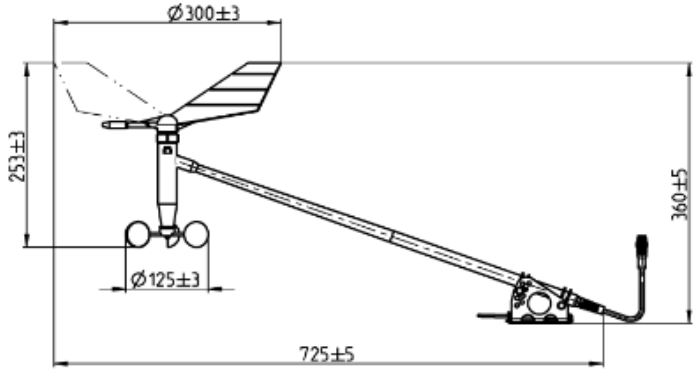
5. Connect the female NMEA 2000 plug at the top of the mast to a NMEA 2000 inline terminator. You can also use a NMEA 2000 T-connector and Male NMEA 2000 terminator instead of using the inline terminator.

Note: Always install second NMEA 2000 terminator at the other end of the backbone.

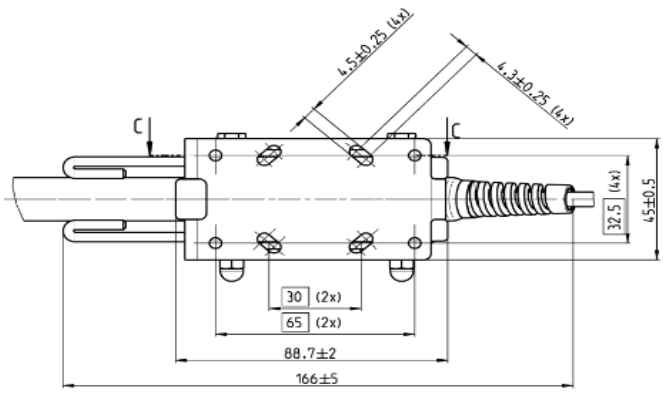
6. Connect the wind sensor to the NMEA 2000 inline terminator or to the drop connection of a T-connector.

Hardware Specification

Sensor



Bracket



Technical Data

Measuring principle (wind direction)	Wind vane with contactless inductive sensor
Measuring principle (wind speed)	impeller with hallchip
Accuracy (direction)	+/-1°
Reading (direction)	1°
Operating range (direction)	+/-180°
Accuracy (speed)	+/-1kn
Reading (speed)	0.1 < 20 (kn, m/s, km/h); 1.0 > 20bft (kn, m/s, km/h)
Operation range (speed)	1.0-68kn; 0.5m/s-35m/s; 1.8-126km/s; 1-12bft
Output range	1 value/sec.
Damping	3 step (No/Lo/Hi)
Power supply	10-15V (NMEA 2000); 10-32V through Nav Box (analogue version)
Current consumption	30mA
Operating temperature	-10° to +65°C
Approval	CE, NMEA 2000 (only NMEA 2000 version)

Accessory and Part Numbers

A2C Numbers	Description
A2C38804900	Infield Installation Connector WIND
A2C96243700	NMEA 2000 Cable 0,5m
A2C96243800	NMEA 2000 Cable 2m
A2C39308500	NMEA 2000 Infield Installation Connector Female
A2C39310500	NMEA 2000 Infield Installation Connector Male
A2C39312700	T Splitter NMEA 2000
A2C39310600	NMEA 2000 Terminator Female
A2C39311000	NMEA 2000 Terminator Male
A2C39312500	NMEA 2000 Inline Terminator
A2C39312900	NMEA 2000 Power cable
A2C59501948	NMEA 2000 Cable 6m
A2C59501949	NMEA 2000 Cable 10m
A2C96244200	NMEA 2000 Cable 30m
A2C59501952	WIND (analog) Cable 10m
A2C99792900	WIND (analog) Cable 30m
N05-800-356	Wind Vane for New Type Masthead 8/93on
N05-801-448	ANEMOMETER CUP ROTOR, NEW
TBD	NMEA 2000 Installation Kit (30m cable, terminator, Connector)
TBD	Analogue Installation Kit (30m cable, connector)

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