

AcquaLink 4.3" TFT  
V1.1 08/16

## Installation Instruction



## Contents

Preliminary Remarks	4
Safety Instructions for Installation	4
Safety Instructions for Maintenance	6
The VDO AcquaLink 4.3" TFT	7
Components	7
VDO Bus	7
VDO Bus Limitations	8
Calculation	8
Installation of the 4.3" TFT	9
Hardware Specification	10
Pinout	13
Technical Data	14
Accessory	15



## AcquaLink 4.3" TFT

### **Preliminary Remarks**

In purchasing a display from the VDO AcquaLink 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 factory in perfect condition.

We thank you for making a good choice, and we are convinced that this instrument will be reliable and a great help to you and keep you safe at sea.

In order to ensure easy and safe handling of your VDO display, 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 requirements of EC and UL 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.**



**Before beginning work the negative Terminal of the battery should be disconnected.**

Use of information provided by the VDO display 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 hair-net. Clothes and hair can get caught in moving and rotating parts.

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

Please note that with disconnection of the battery, all volatile electronic memories lose their input 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 gauge is to be installed.

When selecting the installation position for the gauge, 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 vapors can be formed. Make sure of adequate ventilation and follow the instructions for use of the sealing compound manufacturer.

For the Installation use only approved VDO cables.

If you don't use VDO cables, VDO will not be responsible for warranty claims.

### **Safety Instructions for Maintenance**

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



## The VDO AcquaLink 4.3" TFT

AcquaLink® multifunction TFT display offers a full 16 mio. color optically bonded displays featuring transmissive layer technology for unprecedented and unsurpassed readability even in direct sunlight. TFT displays connect to a VDO Bus backbone for simple installation in any yacht with up to 4 multifunction TFTs in the system.

AcquaLink® displays also feature direct video inputs on the device for cameras and other surveillance equipment. The 4.3" display requires the use of a Nav Control unit for data input and operation.

### Components

In the box:

- 4.3" TFT
- Mounting screws
- Silicone protection cover
- Installation instruction
- Safety Instruction
- Mounting template

### VDO Bus

The VDO Bus is a proprietary CAN Bus system based on NMEA 2000. Heart of the VDO Bus AcquaLink system is the Nav Box. The Nav Box provides a wide range of digital and analogue input possibilities and distributes the received data to all gauges in the VDO Bus network. The VDO Bus uses M12 8 Pin cables and all devices are powered through the network.

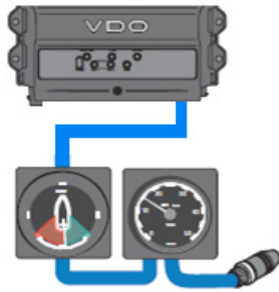
The Nav Box has three VDO Bus ports, so three separate VDO Bus segments can be installed. This helps to reduce the power drop in the system and allows an easy installation in all areas of the vessel.

Every 110mm gauge has two equal VDO Bus connectors in the rear.

### Important:

The VDO Bus network has to be terminated with three 180ohm terminators (delivered with the Nav Box).

The terminators have to be placed on every not used VDO Bus port on the Nav Box and/or on every not used VDO Bus connector.



**Note:**

VDO Bus cables have two female connectors. In order to extend the cable length an optional gender changer connector is needed (A2C38805500).

**VDO Bus Limitations**

The Nav Box provides power to all the 110mm gauges and 4.3" TFTs connected to the system. Due to the power consumption and the resistance of the cables there are limitations of the maximum cable length and number of possible instruments in the system.

In order to have a properly working system the voltage drop of every of the three VDO Bus segments have to be calculated.

The load equivalency number (LEN) for the 4.3" TFT is 12.

1 LEN = 0.05 Ampere.

LEN List for VDO Products:

Product	LEN
Nav Control	4
110mm gauge	4
4.3" TFT	12
52mm gauge	2

**Calculation**

**12V power supply:**

The voltage drop for every segment of the VDO Bus is calculated as follow:



Ohm's Law:  $E$  (voltage drop) =  $I$  (circuit current) x  $R$  (wire resistance)  
 $R = 2/2x$  Cable Length (m) x Power Pair Resistance / 100  
 $I = LEN$  (Load Equivalency Number) x 0.050 amps  
 $L =$  Total length of VDO Bus cables in one segment

$$\rightarrow E = 0.05 \times LEN \times L \times 0.057$$

The voltage drop for each VDO Bus Segment shouldn't be higher than **3V**.

**Note:** VDO BUS has 2x AWG 22 Power/Ground cables → different voltage drop calculation than NMEA 2000.

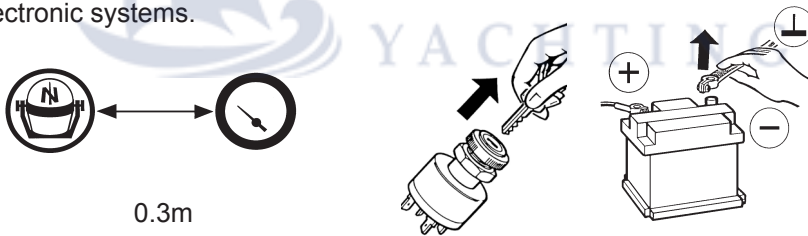
Maximum cable length per segment: 30m

### 24V power supply:

If using a 24V system the voltage drop may not be higher than **9V**.

### Installation of the 4.3" TFT

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.

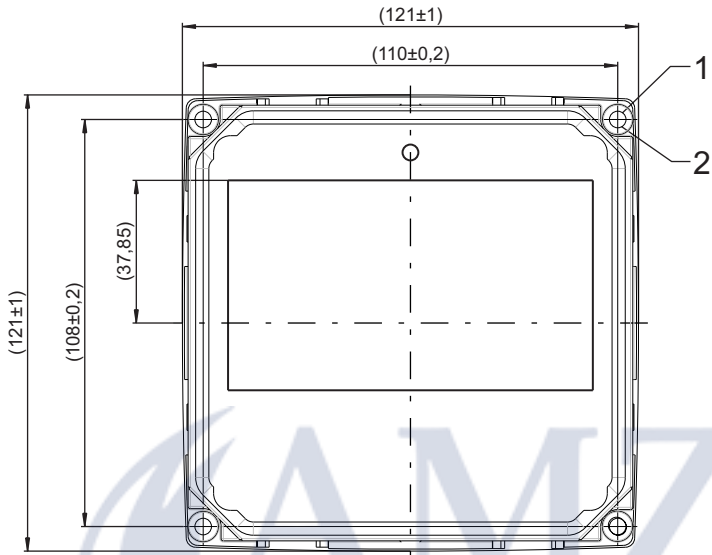


- Do not drill holes or ports in load-bearing or stabilizing stays or tie bars!
- Note the necessary clearance behind the drill hole or port at the installation location. Required mounting depth: 800 mm.
- Drill small ports; enlarge and complete them, if necessary, using taper milling tools, saber saws, keyhole saws or files. Deburr edges. Follow the safety instructions of the tool manufacturer.

### Note:

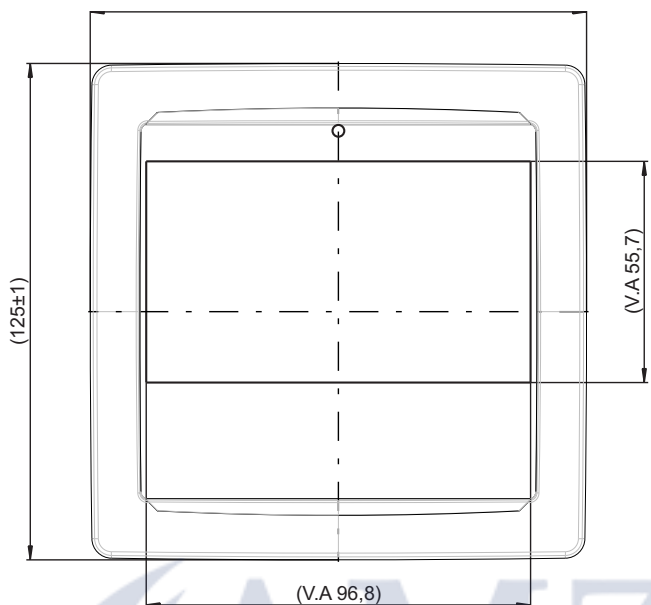
**Please use the mounting template to determine the right hole size and mounting location**

# Hardware Specification

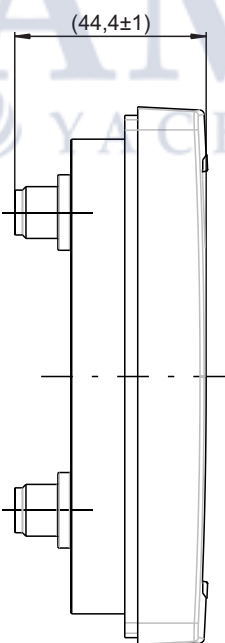


Unit without the bezel

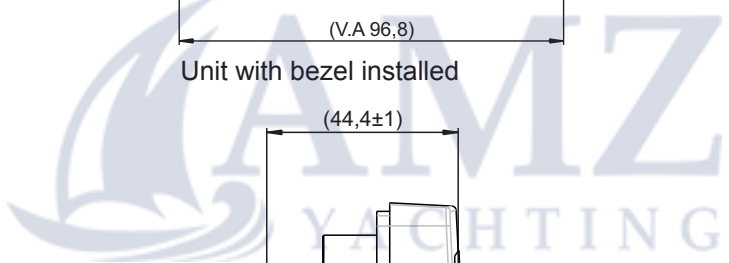
1	Mounting holes
2	tighten the mounting screws by hand

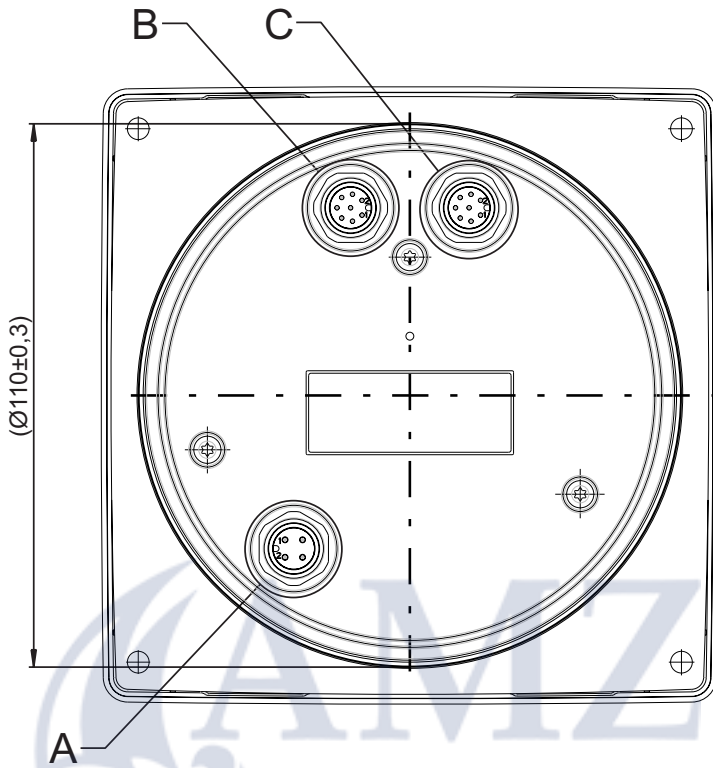


Unit with bezel installed



Side view



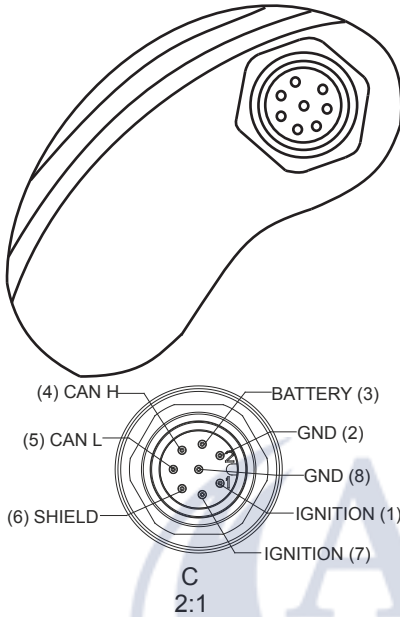


Rear view

A	Video In
B + C	VDO Bus

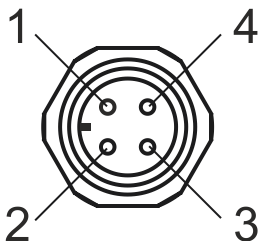
## Pinout

Connector: 2 x VDO Bus M12 Connectors



Pin	Signal
1	Ignition term15
2	GND term 31
3	Battery+ term 30
4	CAN H
5	CAN L
6	Shield
7	Ignition term 15
8	GND term 31

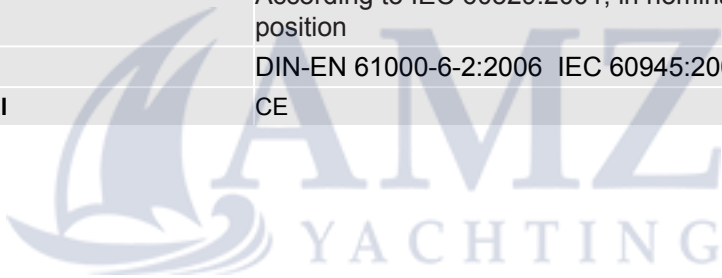
2 x Video Inputs



Pin	Signal
1	Video In 2
2	Video In 1
3	Video GND 1
4	Video GND 2

## Technical Data

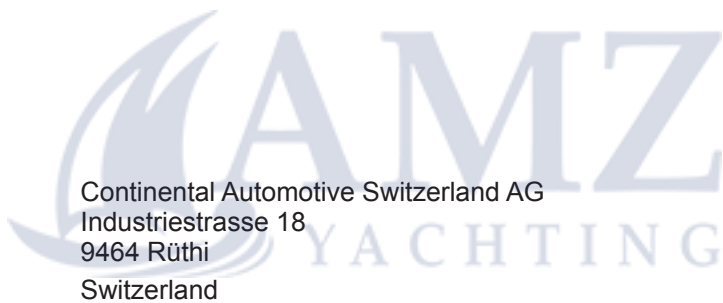
<b>Housing Material</b>	AL Si12 (Fe)/e-coated (epoxy based) black RAL9005
<b>Bezel Material</b>	PC-FR
<b>Display Type</b>	4.3" transmissive colour TFT
<b>Resolution</b>	480x272
<b>Connectors</b>	2 x 8 Pin M12 VDO Bus 1 x 4 Pin M12 Video
<b>Operating temperature</b>	-20° / +70°
<b>Storage temperature</b>	-40 / +85°
<b>Operating voltage range</b>	8 – 28 VDC
<b>Current consumption</b>	< 600mA
<b>Protection Class</b>	IP 67 According to IEC 60529:2001; in nominal position
<b>EMC</b>	DIN-EN 61000-6-2:2006 IEC 60945:2002
<b>Approval</b>	CE



## Accessory

Packed A2C	Description
A2C96244600	VDO Bus Cable 0.5m
A2C96244900	VDO BUS to NMEA 2000 Adapter
A2C38805700	VDO Bus Cable 2m
A2C96245000	VDO Bus Cable 5m
A2C96245100	VDO Bus Cable 10m
A2C38804900	Infield Installation Connector VDO Bus/analogue Wind
A2C99793900	Termination Resistor VDO Bus
A2C38805500	Gender Changer VDO Bus
A2C59501972	Silicon Cover 110mm/4.3TFT
A2C99791100	Video Cable 0.3m





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