VDO 40171

VDO Marine Single Station Rudder Angle Sensor User Manual

Model: 40171

1. Introduction

This manual provides essential information for the proper installation, operation, and maintenance of your VDO Marine Single Station Rudder Angle Sensor, Model 40171. Please read these instructions thoroughly before proceeding with installation or use to ensure optimal performance and longevity of the product.

2. Product Overview

The VDO Marine Single Station Rudder Angle Sensor is designed to accurately measure and transmit the position of a vessel's rudder to a compatible display unit. This sensor is suitable for single station marine applications and operates on both 12V and 24V DC systems. It features a robust design for marine environments and provides a 10-180 OHM output signal.

An image showing the VDO Marine Single Station Rudder Angle Sensor, featuring its white housing, metal mounting bracket, and the copper sensing rod with a curved end.

3. Specifications

- **Brand:** VDO Marine
- **Model Number:** 40171
- **Item Dimensions (L x W x H):** 6 x 4 x 3 inches
- **Item Weight:** 4.9 ounces
- **Maximum Supply Voltage:** 24 Volts (DC)
- **Measuring Range:** 10-180 OHM

- **Mounting Type:** Flange Mount
- **Output Type:** Digital
- **Specific Uses For Product:** Marine environments
- **Upper Temperature Rating:** 70 Degrees Celsius

4. Setup and Installation

Installation of the rudder angle sensor requires careful attention to detail to ensure accurate readings and reliable operation. It is recommended that installation be performed by a qualified marine technician.

4.1 Mounting

1. **Location Selection:** Choose a mounting location near the rudder stock that allows for direct mechanical linkage to the sensor's arm. Ensure the location is protected from excessive physical impact and allows for future access for maintenance.
2. **Flange Mounting:** The sensor utilizes a flange mount design. Secure the sensor firmly to a stable surface using appropriate marine-grade fasteners through the designated mounting holes on the flange.
3. **Mechanical Linkage:** Connect the sensor's arm to the rudder stock or an appropriate linkage mechanism. Ensure the linkage allows the sensor's arm to move freely through its full range of motion as the rudder turns from hard-over to hard-over. The sensor's full electrical range (10-180 OHM) should correspond to the full mechanical travel of the rudder.

4.2 Electrical Connections

The sensor operates on 12V or 24V DC power. Refer to the wiring diagram provided with your specific VDO display unit for exact connection details. Generally, the sensor will have three connections:

- **Power (Positive):** Connect to a fused 12V or 24V DC power source.
- **Ground (Negative):** Connect to the vessel's common ground.
- **Signal Output:** Connect to the designated rudder angle input on your VDO display gauge.

Ensure all electrical connections are clean, secure, and properly insulated to prevent corrosion and short circuits in the marine environment.

5. Operating Instructions

Once properly installed and connected, the VDO Marine Single Station Rudder Angle Sensor operates automatically. When the vessel's power is on, the sensor continuously measures the rudder's physical position and converts it into an electrical resistance signal (10-180 OHM). This signal is then transmitted to your compatible VDO rudder angle display gauge, which interprets the signal and shows the rudder's position on the instrument panel.

No user interaction is required with the sensor itself during operation. The accuracy of the displayed rudder angle depends on the correct calibration of the display gauge, if applicable, and the proper mechanical linkage of the sensor during installation.

6. Maintenance

Regular maintenance helps ensure the continued accuracy and reliability of your rudder angle sensor.

- **Visual Inspection:** Periodically inspect the sensor and its mechanical linkage for any signs of wear, corrosion, or damage. Ensure all fasteners are tight and the linkage moves freely without obstruction.
- **Cleaning:** Keep the sensor free from dirt, salt residue, and marine growth. Use fresh water and a soft

cloth for cleaning. Avoid harsh chemicals or abrasive materials that could damage the housing or internal components.

- **Electrical Connections:** Check electrical connections for corrosion or looseness. Clean and re-secure any compromised connections.
- **Lubrication:** If the mechanical linkage involves moving parts, ensure they are adequately lubricated with marine-grade grease as per the vessel's maintenance schedule.

7. Troubleshooting

If you experience issues with your rudder angle sensor, consider the following troubleshooting steps:

- **No Rudder Angle Reading:**
  - Check power supply to the display gauge and the sensor.
  - Verify all electrical connections are secure and free of corrosion.
  - Inspect the sensor's mechanical linkage for disconnections or obstructions.
- **Inaccurate or Erratic Reading:**
  - Ensure the mechanical linkage allows the sensor's arm to move through its full range corresponding to the rudder's travel.
  - Check for any physical interference with the sensor arm or internal mechanism.
  - Verify the display gauge is correctly calibrated according to its own instruction manual.
  - Inspect for loose or corroded wiring that might cause intermittent signals.
- **Sensor Stuck:**
  - Physically inspect the sensor arm and linkage for debris, binding, or damage.
  - Ensure the mounting is not causing undue stress or misalignment.

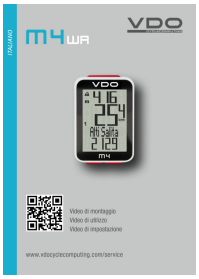
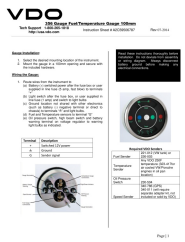
If these steps do not resolve the issue, contact VDO Marine customer support or a qualified marine electronics technician for further assistance.

8. Warranty and Support

For specific warranty information regarding your VDO Marine Single Station Rudder Angle Sensor (Model 40171), please refer to the documentation provided at the time of purchase or visit the official VDO Marine website. Warranty terms typically cover defects in materials and workmanship under normal use.

For technical support, spare parts, or service inquiries, please contact your authorized VDO Marine dealer or the manufacturer's customer service department. When contacting support, please have your product model number (40171) and purchase details readily available.

Related Documents - 40171

	[VDO Viewline 85 mm Rudder Position Display Installation Instructions] Comprehensive installation guide for the VDO Viewline 85 mm Rudder Position Display, covering safety precautions, step-by-step mounting procedures, electrical connections, and a list of accessories and spare parts.
	[VDO M1 WR Cycle Computer User Manual] Comprehensive user manual for the VDO M1 WR cycle computer, detailing installation, operation, settings, functions, troubleshooting, and technical specifications.
	[VDO Product Catalog: Solutions for Fleets and Workshops] Comprehensive product catalog from VDO featuring tachographs, download keys, fleet management solutions, workshop tools, and accessories for commercial vehicles. Includes details on DTCO 4.1, DTCO 3.0a, speed sensors, and VDO Fleet services.
	[VDO M4 WR: Manuale d'Uso Completo per Computer da Ciclismo] Guida dettagliata al computer da ciclismo VDO M4 WR. Scopri come impostare, utilizzare e massimizzare le funzionalità di velocità, altitudine, distanza e tempo per migliorare le tue prestazioni ciclistiche.
	[VDO DTCO 4.0 Digitális Tachográf Kezelési Útmutató - Használati és Telepítési Információk] Részletes kezelési útmutató a VDO DTCO 4.0 digitális tachográfhoz. Fedezze fel a telepítést, funkciókat, adatkezelést és jogszabályi követelményeket járművezetők és vállalkozások számára.
	[VDO 356 Gauge Fuel/Temperature Gauge 100mm Installation and Wiring Instructions] Detailed installation and wiring instructions for the VDO 356 Gauge 100mm Fuel/Temperature Gauge, including sender compatibility and warning light connections.