

Actisense EMU-1

Actisense EMU-1 NMEA2000 Analog Engine Management Unit Instruction Manual

1. INTRODUCTION

The Actisense EMU-1 is an Analog Engine Management Unit designed to convert traditional analog engine parameters into NMEA 2000 digital data. This unit allows for seamless integration of engine data with modern marine electronic systems, providing comprehensive monitoring capabilities on compatible NMEA 2000 displays.

The EMU-1 offers a flexible solution for various engine makes and models through its PC-based configuration tool. It measures a wide range of engine parameters, reporting operational data across the NMEA 2000 network. This simplifies the conversion process, reducing the complexity of wiring harnesses by consolidating multiple analog signals into a single digital stream.



An image showing the Actisense EMU-1 device with its clear casing, revealing internal components and screw terminal connections.

2. SETUP AND INSTALLATION

Proper installation of the EMU-1 is crucial for optimal performance. Follow these guidelines for setup:

2.1. Physical Installation

- Mount the EMU-1 in a secure location, protected from direct exposure to harsh elements, although the electronics are waterproof.

- Ensure adequate ventilation around the unit.
- Connect the EMU-1 to the NMEA 2000 backbone using a standard NMEA 2000 drop cable.

2.2. Electrical Connections

The EMU-1 features a two-part screw terminal connection system for easy and secure wiring to the engine harness.

- **Gauge Inputs:** Connect up to 6 analog gauge signals (e.g., oil pressure, water temperature). These connections are common ground referenced.
- **Alarm Inputs:** Connect up to 4 alarm signals.
- **Tacho Inputs:** Connect up to 2 tachometer signals for RPM measurement and total engine time logging.
- **Auxiliary Inputs:** Two additional auxiliary inputs provide flexibility for other sensor types.

2.3. Configuration

The EMU-1 requires configuration using a PC-based tool to match the specific engine parameters. An Actisense NGT-1 NMEA 2000 PC Interface is recommended for this process.

- Connect the NGT-1 to your PC and the NMEA 2000 network.
- Use the Actisense configuration software to customize settings for your engine. This includes setting the engine instance for installations with multiple engines.
- Manual measurements are not required during configuration, simplifying the setup process.

3. OPERATION

Once configured and installed, the EMU-1 operates by continuously monitoring the connected analog engine sensors and converting their signals into NMEA 2000 PGNs (Parameter Group Numbers). This data is then broadcast across the NMEA 2000 network, making it available to compatible displays and other NMEA 2000 devices.

- The unit reports engine operating parameters such as temperature, pressure, and RPM.
- It also supports the conversion of analog transmission parameters and battery status.
- Total engine time is logged using the tachometer inputs, providing valuable operational data.

4. MAINTENANCE

The Actisense EMU-1 is designed for reliability and requires minimal maintenance. However, periodic checks and updates are recommended to ensure continued optimal performance.

- **Firmware Updates:** Firmware can be updated over the NMEA 2000 network using the Actisense NGT-1 and PC software. Regularly check the Actisense website for the latest firmware versions to benefit from improvements and new features.
- **Connection Checks:** Periodically inspect all electrical connections for corrosion or looseness, especially in marine environments. Ensure the screw terminals are secure.
- **Cleaning:** Keep the unit clean and free from excessive dust or debris. Use a soft, dry cloth for cleaning. Avoid harsh chemicals.
- **Environmental Protection:** While the electronics are sealed and waterproof, ensure the unit's

mounting location continues to provide adequate protection from extreme physical impact or prolonged submersion beyond its rating.

5. TROUBLESHOOTING

If you encounter issues with your EMU-1, consider the following troubleshooting steps:

- **No Data on NMEA 2000 Network:**
 - Verify the EMU-1 is powered correctly.
 - Check all NMEA 2000 network connections, including terminators.
 - Ensure the EMU-1 is properly configured using the PC tool and NGT-1.
- **Incorrect Readings:**
 - Confirm that the analog sensors are correctly wired to the EMU-1 inputs.
 - Review the configuration settings in the PC tool to ensure they match your engine's sensor types and ranges.
 - Test the analog sensors directly if possible to rule out sensor malfunction.
- **Configuration Tool Connection Issues:**
 - Ensure the NGT-1 is correctly installed and its drivers are up to date on your PC.
 - Verify the NGT-1 is connected to the NMEA 2000 network and receiving power.
- **Diagnostic Tools:** Utilize the Actisense NGT-1 and NMEA Reader software on a PC for advanced diagnostics. This tool can display raw NMEA 2000 data, helping to identify communication issues or incorrect PGNs.

If problems persist after following these steps, contact Actisense support for further assistance.

6. SPECIFICATIONS

Feature	Description
Brand Name	Actisense
Model Number	EMU-1
Manufacturer	Actisense
Part Number	EMU-1
ASIN	B0F8DY3PK2
Gauge Inputs	6
Alarm Inputs	4
Tacho Inputs	2 (logs total engine time)
Auxiliary Inputs	2




Feature	Description
Connectivity	NMEA 2000
Configuration	PC-based tool (requires Actisense NGT-1)
Waterproof	Yes (sealed electronics)
Date First Available	May 12, 2025




7. WARRANTY AND SUPPORT

For detailed warranty information and technical support, please refer to the official Actisense website or contact your authorized Actisense dealer. Warranty terms typically cover manufacturing defects for a specified period from the date of purchase.

Actisense provides resources and contact information for customer assistance. Ensure you have your product model and serial number available when seeking support.

Related Documents - EMU-1

	<p>Actisense EMU-1 Engine Monitoring Unit Configuration Guide</p> <p>This guide provides comprehensive instructions for configuring the Actisense EMU-1 Engine Monitoring Unit using the Actisense Toolkit software. It covers initial setup, connecting to NMEA 2000 networks, firmware updates, configuring various inputs (gauges, alarms, tachometers), creating custom gauges, and viewing NMEA 2000 data. Essential for marine electronics installers and users.</p>
	<p>Actisense EMU-1 Engine Monitoring Unit Quick Start Guide</p> <p>A quick start guide for the Actisense EMU-1, an analogue to NMEA 2000 Gateway that converts engine gauge data into NMEA 2000 data. Covers mounting, powering, connections, and configuration.</p>
	<p>Actisense Toolkit Basic User Guide: Marine NMEA Configuration & Updates</p> <p>Discover the Actisense Toolkit, a free software for configuring, updating, and managing NMEA 2000 and NMEA 0183 marine networking devices. Learn about device lists, properties, and firmware management.</p>

 <p>NGX-1 Configuration Manual for Actisense Toolkit</p>	<p>Actisense NGX-1 Configuration Manual for Actisense Toolkit</p> <p>This manual provides detailed instructions on configuring Actisense NGX-1 ISO and NGX-1 USB NMEA 2000 gateways using the Actisense Toolkit software. Learn about setup, connection, software features, and device configuration.</p>
<p>NMEA 2000 to Wi-Fi (W2K-2) Install/User Manual</p>  <p>Actisense</p>	<p>Actisense W2K-2 NMEA 2000 to Wi-Fi Gateway Install/User Manual</p> <p>User manual for the Actisense W2K-2, a compact NMEA 2000 to Wi-Fi Gateway with data logging. Learn about installation, configuration, features, and troubleshooting for seamless marine data integration.</p>
<p>NMEA Conversion Gateway Install/User Manual</p>  <p>Actisense</p>	<p>Actisense NGW-1 NMEA Conversion Gateway: Installation and User Manual</p> <p>Comprehensive guide to installing and using the Actisense NGW-1 NMEA 2000 Gateway. Learn about connecting NMEA 0183 and NMEA 2000 networks, firmware updates, configuration, and troubleshooting.</p>