L6AS0F7 HWT905-CAN

L6AS0F7 RM3100 HWT905-CAN Industrial-Grade 3-axis Fluxgate Magnetometer User Manual

Model: HWT905-CAN

1. Introduction

This manual provides essential information for the proper installation, operation, and maintenance of the L6AS0F7 RM3100 HWT905-CAN Industrial-Grade 3-axis Fluxgate Magnetometer. This device is designed for precise heading angle and tilt angle measurement, functioning as an electronic compass and geomagnetic sensor.

2. Safety Information

- Read all instructions carefully before operating the device.
- Ensure the power supply voltage matches the device's specifications to prevent damage.
- Avoid exposing the device to extreme temperatures, humidity, or corrosive environments.
- Do not attempt to disassemble or modify the device, as this will void the warranty and may cause damage.
- Handle the device with care to prevent physical impact.

3. Product Overview

The HWT905-CAN is an industrial-grade 3-axis fluxgate magnetometer utilizing the RM3100 sensor. It provides accurate geomagnetic field measurements, enabling precise heading and tilt angle determination. Its robust design and digital CAN bus output make it suitable for various industrial applications requiring reliable electronic compass and tilt angle sensing.

Key Features:

- Industrial-grade reliability
- RM3100 3-axis fluxgate magnetometer
- Electronic compass functionality

- Geomagnetic sensor for heading and tilt angle
- Digital CAN bus output (HWT905-CAN variant)

4. Specifications

Parameter	Value
Model Number	HWT905-CAN
Sensor Type	3-axis Fluxgate Magnetometer, Geomagnetic Sensor
Usage	Heading Angle Measurement, Tilt Angle Measurement
Output	Digital Output (CAN Bus)
Package Dimensions	1.18 x 0.79 x 0.39 inches
Item Weight	1.76 ounces
Manufacturer	L6AS0F7

5. Setup and Connection

5.1 CAN Bus Connection (HWT905-CAN)

The HWT905-CAN model communicates via a CAN bus interface. Connect the device to your system's CAN network using the appropriate wiring. Ensure correct polarity for CAN_H and CAN_L lines. Refer to your system's CAN bus specifications for termination resistor requirements.

5.2 RS485 Multi-device Connection (for compatible variants)

While the HWT905-CAN uses a CAN interface, other variants of this sensor series may utilize RS485 for multi-device communication. The diagram below illustrates a typical RS485 multi-device connection setup, allowing up to 50 simultaneous connections. This configuration involves a master terminal communicating with multiple slave devices over a shared A/B differential pair.

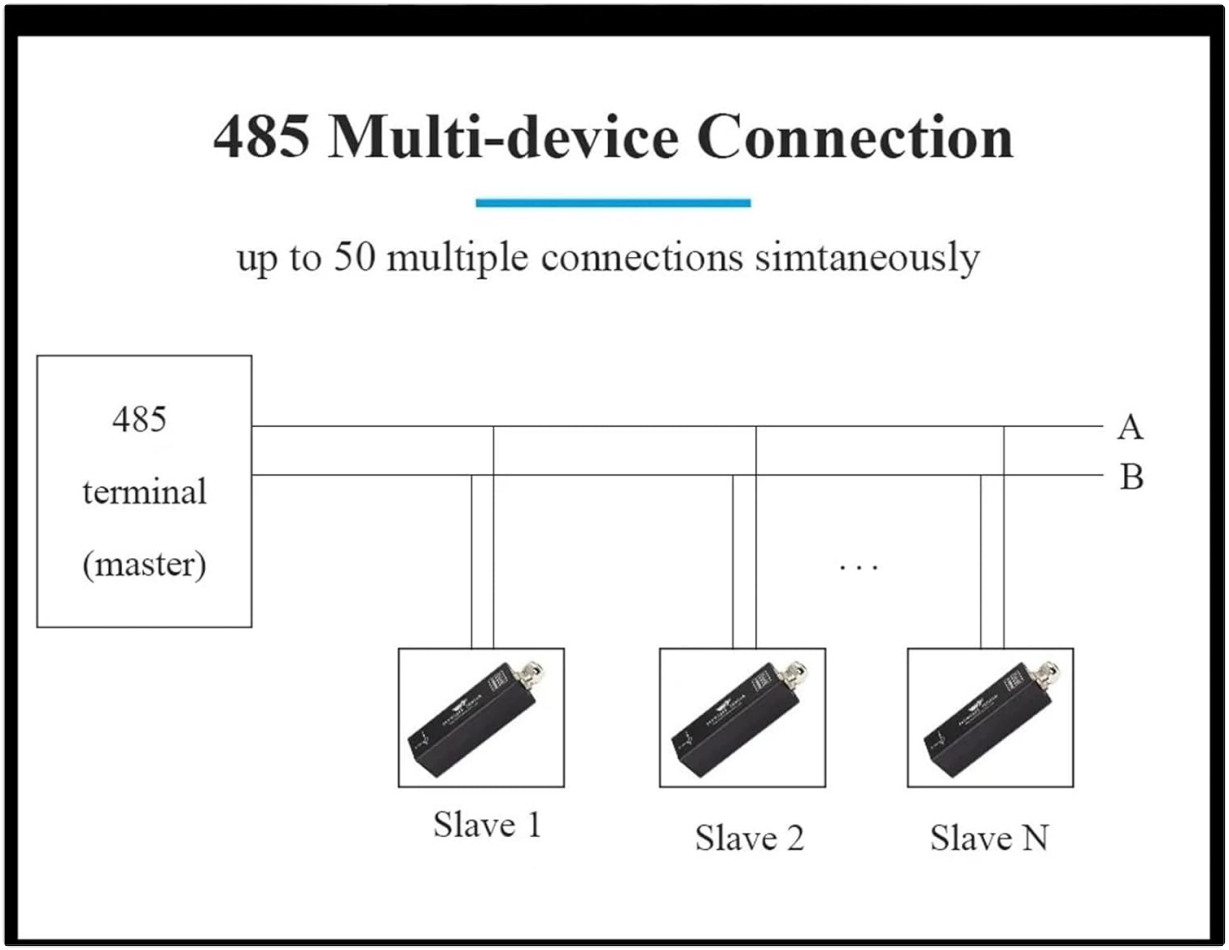

Figure 1: RS485 Multi-device Connection Diagram. This image depicts a master 485 terminal connected to multiple slave devices (Slave 1, Slave 2, ..., Slave N) via a two-wire differential bus (A and B lines). Up to 50 devices can be connected simultaneously in this configuration.

6. Operating Instructions

6.1 Power On

Once connected, apply power to the device. The sensor will typically initiate a self-test sequence.

6.2 Data Acquisition

The HWT905-CAN outputs digital data via the CAN bus. Refer to the specific communication protocol documentation for the CAN message format and data interpretation. Data typically includes 3-axis magnetic field readings, calculated heading, and tilt angles.

6.3 Calibration

For optimal accuracy, especially in environments with varying magnetic fields or when the sensor's orientation changes significantly, calibration may be required. Consult the manufacturer's software tools or documentation for detailed calibration procedures.

7. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the device. Do not use harsh chemicals or abrasive materials.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and strong magnetic fields when not in use.

- **Environmental Conditions:** Ensure the operating environment adheres to the specified temperature and humidity ranges.

8. Troubleshooting

- **No Power:** Check power supply connections and voltage. Ensure correct polarity.
- **No Data Output:** Verify CAN bus connections, termination resistors, and communication settings (e.g., baud rate, CAN ID). Check for bus errors.
- **Inaccurate Readings:** Perform a calibration procedure. Ensure the sensor is not near strong magnetic interference sources (e.g., motors, power lines).
- **Intermittent Connection:** Inspect all wiring for loose connections or damage. Check for electromagnetic interference in the environment.

9. Warranty and Support

This product is covered by a standard manufacturer's warranty against defects in materials and workmanship. For specific warranty terms, technical support, or service inquiries, please contact the manufacturer, L6AS0F7, or your authorized distributor. Do not attempt repairs yourself, as this may void the warranty.