IS GY18483

Icstation Digital LED Tachometer (Model GY18483) Instruction Manual

For AC 110V/220V Applications with Hall Proximity Switch Sensor

1. Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of your Icstation Digital LED Tachometer, Model GY18483. This device is designed for precise measurement of rotational speed (RPM) in various industrial applications, including lathes, conveyor belts, and quality inspection machines. It features a 4-bit digital LED display and utilizes a Hall proximity switch sensor for accurate readings.

2. Product Overview

The Icstation Digital LED Tachometer (Model GY18483) is an AC 110V/220V powered device that measures RPM using a Hall effect sensor and a magnet. Its robust design ensures stable and accurate measurements with strong anti-interference capabilities.

Figure 2.1: Icstation Digital LED Tachometer, Hall sensor, and magnet components.

This image displays the main components of the tachometer system: the digital LED display unit, the Hall proximity switch sensor with its cable, and a small circular magnet. The display unit shows "0000" and has connection terminals visible. The sensor is metallic and cylindrical with a blue tip.

2.1 Key Features

- **High Precision Measurement:** Measuring range of 10-9999 RPM with an accuracy of ±0.1%, reading ±1 word.
- **Anti-Interference:** Equipped with a Hall sensor and magnet for stable and accurate induction, designed for reliable performance in various environments.
- **LED Display:** Clear 4-bit digital LED display for easy readability, even in low-light conditions.
- **Over-Range Indication:** Displays "LLLL" for speeds too low and "HHHH" for speeds too high.
- **AC Powered:** Operates on AC 110V or 220V power supply.

3. Specifications

Parameter	Value
Work Voltage	AC 110V-230V
Measuring Range	10-9999 RPM
Measurement Accuracy	±0.1%, reading ±1 word
Display Refresh Rate	>3 times/second
Over-range Display	"LLLL" (low), "HHHH" (high)
Display Screen	4 Bit 0.56 in Red LED
Module Size	7.9cm x 3.9cm x 2.6cm (3.11 x 1.54 x 1.02 inches)
Sensor Length	5.36cm (2.11 inches)
Hall Switch Type	NPN normally open switch with a diameter of 12mm
Product Dimensions	2.8 x 1.54 x 1.02 inches; 3.21 ounces
Material	Plastic

3.1 Package Contents

- 1 x LED Tachometer Display Unit
- 1 x Hall Proximity Switch Sensor
- 1 x Magnet
- Connecting Wires (approx. 10cm cable)

4. Setup and Installation

Careful installation is crucial for accurate and reliable operation. Please follow these steps:

4.1 Wiring Diagram

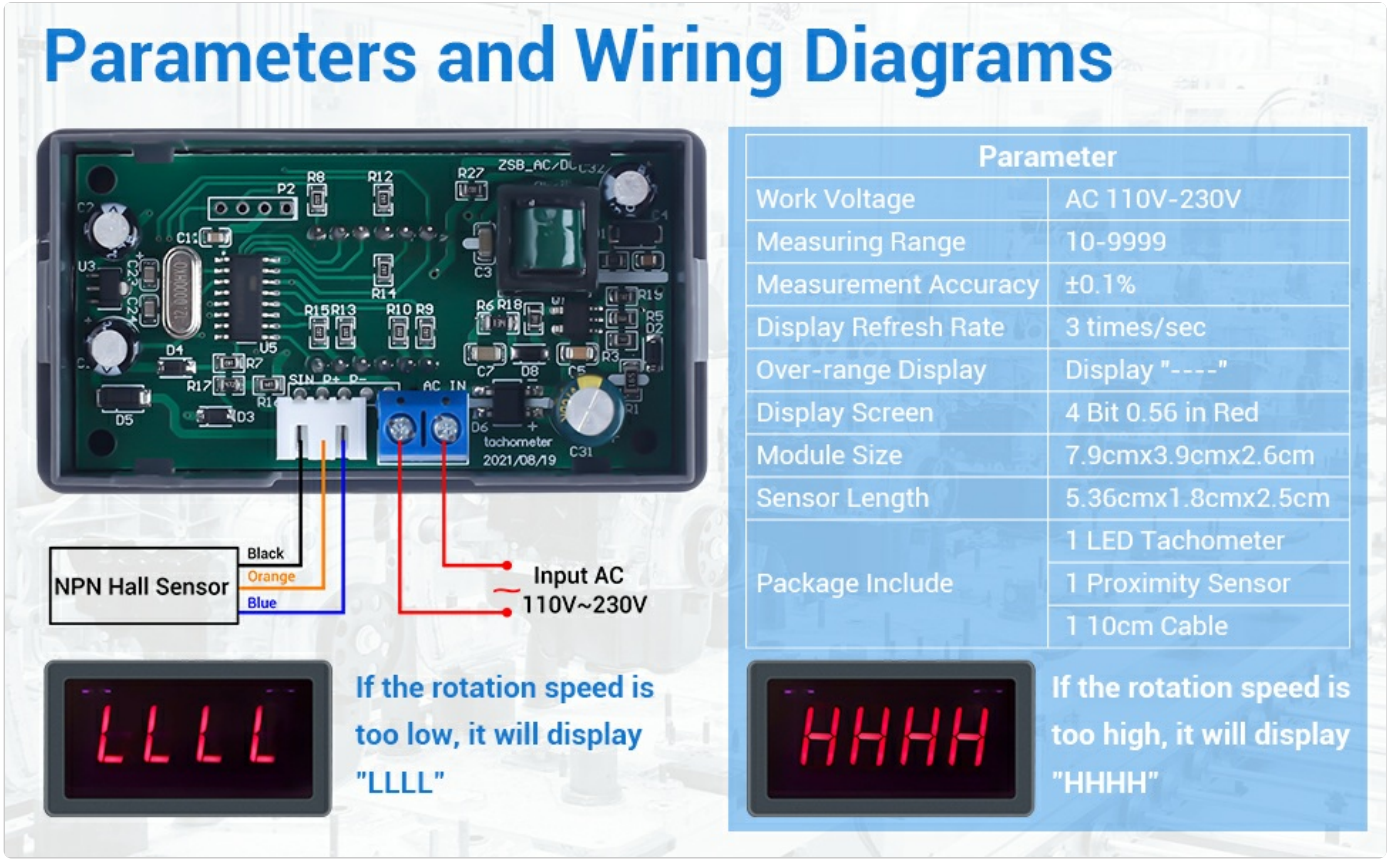

Figure 4.1: Wiring connections for the tachometer and Hall sensor.

This diagram illustrates the wiring connections. The tachometer module has terminals for AC 110V~230V input (labeled AC IN) and a 3-pin connector for the NPN Hall Sensor. The Hall sensor wires are typically Black, Orange, and Blue, connecting to the corresponding pins on the module.

1. **Power Connection:** Connect the AC 110V-230V power supply to the designated AC input terminals on the tachometer module. Ensure proper voltage matching for your region.
2. **Hall Sensor Connection:** Connect the Hall proximity switch sensor to the 3-pin connector on the tachometer module. Typically, the wires are:
    - Black wire: Ground
    - Orange wire: Signal output
    - Blue wire: Power supply for sensor

    Refer to the wiring diagram (Figure 4.1) for precise connections.

4.2 Sensor and Magnet Placement

Figure 4.2: Example of Hall sensor and magnet placement on a rotating shaft.

This image shows the Hall sensor mounted near a rotating shaft, with a small magnet attached to the shaft. The sensor detects the magnet's passage to count rotations. The display unit is shown indicating an RPM value.

1. **Magnet Attachment:** Securely attach the provided magnet to the rotating part whose RPM you wish to measure.
    - *Important:* The magnet cannot be installed on metal material, as this will interfere with detection.
    - *Important:* Pay attention to the front and back when installing the magnet to ensure proper detection by the sensor.
2. **Sensor Mounting:** Mount the Hall proximity switch sensor in a fixed position such that its sensing face is aligned with the path of the magnet.
    - The distance between the Hall switch and the magnet must be within 10mm for reliable detection.
    - Ensure the sensor and magnet are securely fixed during testing to prevent vibration, which can cause unstable or inaccurate readings.

Figure 4.3: Close-up of the Hall sensor and magnet, illustrating the 10mm detection distance.

This image provides a close-up view of the Hall sensor and the magnet, emphasizing the critical distance requirement for accurate detection. Text overlays highlight key installation notes, including avoiding strong electromagnetic interference and ensuring secure fixation.

5. Operation

Once the tachometer and sensor are correctly installed and wired, operating the device is straightforward.

1. **Power On:** Apply AC 110V-230V power to the tachometer module. The LED display will illuminate.
2. **Start Rotation:** Begin the rotation of the machinery or component being measured.
3. **Read RPM:** The 4-bit LED display will show the current RPM value.
4. **Over-Range Indication:**
    - If the rotation speed is too low (below 10 RPM), the display will show "LLLL".
    - If the rotation speed is too high (above 9999 RPM), the display will show "HHHH".

Figure 5.1: Tachometer display indicating low ("LLLL") and high ("HHHH") RPM conditions.

This image shows the digital LED display of the tachometer. One display shows "LLLL", indicating that the detected RPM is below the measurable range. Another display shows "HHHH", indicating that the detected RPM is above the measurable range.

6. Maintenance

The Icstation Digital LED Tachometer is designed for durability and requires minimal maintenance. Follow these guidelines to ensure long-term performance:

- **Cleaning:** Keep the display unit and sensor free from dust and debris. Use a soft, dry cloth for cleaning. Avoid abrasive cleaners or solvents.
- **Connections:** Periodically check all wiring connections to ensure they are secure and free from corrosion.
- **Sensor and Magnet Alignment:** Verify that the Hall sensor and magnet remain securely fixed and properly aligned. Vibrations or shifts can affect accuracy.
- **Environmental Conditions:** Operate the device within its specified environmental conditions. Avoid extreme temperatures, humidity, or direct exposure to water.

7. Troubleshooting

If you encounter issues with your tachometer, refer to the following troubleshooting guide:

Problem	Possible Cause	Solution
Display shows "LLLL"	Rotation speed is below 10 RPM or no signal detected.	◦ Ensure the machinery is rotating above 10 RPM. ◦ Check sensor and magnet alignment and distance (must be <10mm). ◦ Verify sensor wiring connections.
Display shows "HHHH"	Rotation speed is above 9999 RPM or strong interference.	◦ Confirm the RPM is within the 10-9999 range. ◦ Minimize strong electromagnetic interference from nearby devices. ◦ Check sensor and magnet alignment and distance.
Inaccurate or jumping readings	Vibration, electromagnetic interference, or incorrect sensor/magnet placement.	◦ Ensure the Hall switch and magnet are securely fixed to prevent vibration. ◦ Maintain a distance of no more than 10mm between the Hall switch and magnet. ◦ Avoid strong electromagnetic devices near the sensor. ◦ Ensure the magnet is not installed on metal material.
No display/Power issue	No power, incorrect wiring, or faulty unit.	◦ Verify AC 110V-230V power supply is connected and active. ◦ Check all power wiring connections for security and correctness. ◦ If possible, test the power source with another device.

8. Warranty and Support

For warranty information or technical support, please contact Icstation customer service. Refer to your purchase documentation for specific warranty terms and contact details.
You can also visit the official Icstation store for additional resources and support:Icstation Store on Amazon.