Empire EM105.9

Empire EM105.9 9-inch Magnetic Digital Torpedo Level User Manual

Model: EM105.9

1. Introduction

This manual provides detailed instructions for the safe and effective use of your Empire EM105.9 9-inch Magnetic Digital Torpedo Level. Please read this manual thoroughly before operating the device and retain it for future reference. This digital level is designed for precise measurement applications in various units and features a durable, magnetic design.

2. Safety Information

- Always handle the level with care to prevent damage to the digital display or internal components.
- Keep the device away from strong magnetic fields that are not part of its intended use, as this may affect accuracy.
- Do not expose the level to extreme temperatures or direct sunlight for extended periods.
- Ensure the battery compartment is securely closed to maintain the IP54 dust and water protection rating.
- This tool is not a toy. Keep out of reach of children.

3. Product Overview

The Empire EM105.9 is a 9-inch magnetic digital torpedo level engineered for accuracy and versatility. It features an auto-calibration function, ensuring immediate and precise digital readouts upon power-on. The level offers six distinct measurement display modes and includes rare earth magnets for secure attachment to metal surfaces. Its robust construction is IP54 rated for dust and water protection.



Figure 1: Front view of the Empire EM105.9 Digital Torpedo Level, showing the digital display and control buttons.

Key Features:

- **Auto-Calibration:** Provides immediate and accurate digital readouts upon power-on.
- **Six Measurement Modes:** Includes degree-tenths, mm/M, percentage, and rough-in modes (degrees, in/ft fractions, in/ft decimals).
- **INSPECT Mode:** Allows users to zero out the digital display for specific applications like conduit bending.
- **Rare Earth Magnets:** For strong attachment to most metal surfaces.
- **Durable Display:** Features an industry-largest LED backlit digital display for clear visibility.
- **IP54 Rated:** Protected against dust and water splashes.
- **V-Groove Working Edge:** Designed to fit securely on pipes or conduits.
- **Inverted Overhead Display:** Automatically adjusts display orientation for overhead use.
- **Long Battery Life:** Up to 60 hours run time.



Figure 2: The V-Groove working edge of the level, designed for stability on pipes and conduits.



Figure 3: Underside view of the level, highlighting the integrated rare earth magnets for secure attachment.

4. Setup

4.1 Battery Installation

1. Locate the battery compartment cover on the device.
2. Open the cover by sliding or unscrewing it, as indicated on the device.
3. Insert two (2) AAA batteries, ensuring correct polarity (+/-) as marked inside the compartment.
4. Securely close the battery compartment cover.

4.2 Initial Power-On and Auto-Calibration

Upon first power-on or after battery replacement, the EM105.9 will perform an auto-calibration. This process ensures the digital readout is immediately ready to measure accurately. Place the level on a flat, stable surface during this initial calibration for optimal results.

5. Operating Instructions

5.1 Powering On/Off

- To power on, press the **POWER** button. The backlit display will illuminate, and the device will perform a quick auto-calibration.
- To power off, press and hold the **POWER** button for a few seconds until the display turns off. The device may also feature an automatic shut-off after a period of inactivity to conserve battery life.

5.2 Taking Measurements

1. Place the working edge of the level firmly against the surface you wish to measure.
2. The digital display will show the angle or inclination in the currently selected measurement mode.
3. For metal surfaces, utilize the rare earth magnets on the base of the level for hands-free operation.
4. The inverted overhead display feature automatically adjusts the screen orientation when the level is used upside down, ensuring readability.



Figure 4: The digital display showing an angle measurement, with clear, backlit digits.

6. Measurement Modes

The EM105.9 offers six distinct measurement display modes, selectable via the**MODE** button (refer to device for exact button labels if different). Cycle through the modes to find the one suitable for your application:

- **Degree-Tenths:** Displays angles in degrees with one decimal place (e.g., 0.1°).
- **mm/M:** Displays slope in millimeters per meter.
- **Percentage (%):** Displays slope as a percentage.
- **Rough-in Mode - Degrees:** Displays angles in whole degrees.
- **Rough-in Mode - in/ft Fractions:** Displays slope in inches per foot as a fraction.
- **Rough-in Mode - in/ft Decimals:** Displays slope in inches per foot as a decimal.

6.1 INSPECT Mode

The INSPECT mode allows you to set the current angle as a temporary zero reference. This is particularly useful for applications such as conduit bending, where you need to measure relative angles from a specific starting point. To activate INSPECT mode, press the **INSPECT** button (or equivalent) when the level is at your desired zero reference angle. The display will show '0.0' and subsequent measurements will be relative to this new zero.

7. Maintenance

7.1 Cleaning

- Wipe the level with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- Ensure the display and sensor areas are kept clean for accurate readings.

7.2 Storage

- Store the level in a dry, cool place, away from direct sunlight and extreme temperatures.
- If storing for an extended period, remove the batteries to prevent leakage.

7.3 Battery Replacement

When the battery indicator appears on the display, replace the AAA batteries as described in Section 4.1. Always use fresh, high-quality batteries for optimal performance.

8. Troubleshooting

- **Display Not Turning On:** Check battery installation and ensure batteries are fresh.
- **Inaccurate Readings:** Ensure the level is placed firmly on the surface. Perform a manual re-calibration if available (refer to device specific instructions if a manual calibration option exists beyond auto-calibration). Clean the working edges.

- **Display Flickering:** Replace batteries. If the issue persists, contact customer support.
- **Magnets Not Holding:** Ensure the metal surface is clean and free of debris. The magnets are designed for ferrous metals.

9. Specifications

Model Number	EM105.9
Brand	Empire
Material	Aluminum
Color	Blue
Product Dimensions (L x W)	9"L x 9"W (approx. 22.86 cm x 22.86 cm)
Item Weight	0.43 kg (approx. 0.95 lbs)
Operation Mode	Automatic
Protection Rating	IP54 (Dust and Water Protected)
Power Source	2 x AAA Batteries (Included)

10. Warranty and Support

Empire stands behind the quality of its products. For specific warranty details, please refer to the warranty card included with your purchase or visit the official Empire Level website. For technical support, troubleshooting assistance, or to inquire about replacement parts, please contact Empire customer service through their official channels.

Ask a question about this manual

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Example: How do I reset this device or fix this error?

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