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› Fockety Ultrasonic Water Level Sensor (0-5M) - Digital Liquid Depth Level Meter with LED Display and 4-20mA Analog Output Instruction Manual

Fockety Focketyancdg05giw-11

Fockety Ultrasonic Water Level Sensor (0-5M) Instruction Manual

Digital Liquid Depth Level Meter with LED Display and 4-20mA Analog Output

1. INTRODUCTION

This manual provides essential information for the proper installation, operation, and maintenance of your Fockety Ultrasonic Water Level Sensor. This digital liquid depth level meter is designed for accurate, non-contact measurement of liquid levels in various industrial and environmental applications. Please read this manual thoroughly before using the device to ensure safe and efficient operation.

The sensor features an LED display for real-time readings and provides a standard 4-20mA analog output for integration with control systems. Its robust design and advanced features make it suitable for challenging environments.



Image 1.1: Front view of the Fockety Ultrasonic Water Level Sensor. This image displays the main unit of the sensor, highlighting its compact and durable housing, along with the electrical connection port.

2. PRODUCT OVERVIEW AND FEATURES

The Fockety Ultrasonic Water Level Sensor is a sophisticated instrument designed for precise liquid level measurement. It incorporates several key features to ensure reliability and ease of use:

- **Digital and Humanized Design:** Realizes complete material or liquid level measurement and control, data, and human-machine communication functions.
- **LED Display:** A 4-digit, 8-segment, 0.36-inch LED display provides clear, real-time liquid depth readings.
- **4-20mA Analog Output:** Standard industrial output for seamless integration with existing control systems.
- **Temperature Compensation:** Built-in digital temperature compensation ensures high measurement accuracy across varying environmental conditions.
- **Robust Construction:** Made with engineering plastic ABS shell, ensuring durability and an IP65 proof level.
- **Advanced Functions:** Includes backup and parameter settings, digital filtering, returning recognition, and manually set fixed interference filtering.
- **Wide Application:** Suitable for water and wastewater treatment, pump rooms, collecting wells, power, mining, and various industrial liquid level monitoring tasks.

LCD Display, Easy To Read

Level, liquid level 2 in 1 display at the same time, Chinese readout, more convenient and quick, high-definition LCD display



Image 2.1: Close-up view of the sensor's LED display. This image shows the digital readout indicating liquid level (L) and height (H), demonstrating the clarity and ease of reading the display.

Temperature Compensation Measurement Accuracy



Image 2.2: Diagram illustrating the temperature compensation feature. This graphic highlights how the sensor maintains measurement accuracy by compensating for temperature variations, ensuring reliable data.



Image 2.3: Exploded view showing various components of the sensor. This image details the detachable design for easy installation, the HD LED display, transparent protective shell, fully enclosed casting probe, and shock-proof coil seal.

3. SPECIFICATIONS

Parameter	Value
Item Type	Ultrasonic Water Level Sensor
Material	ABS (Shell), Copper, Plastic
Operating Voltage	DC 24V
Blind Zone	0.25-0.6m (Varies by Range)
Error	±0.25%-0.5%
Display	4 Digit 8 Segment 0.36 Inch LED
Minimum Display Resolution	1mm

Parameter	Value
Keypad	3 Keys Touch
Output Mode	4-20mA Analog Output
Electrical Interface	M20X1.5 (2 Sets)
Installation Interface	M60
Wiring Cable	Built-In Terminal
Operating Environment	Room Temperature, Atmospheric Pressure
Proof Level	IP65
Item Weight	2.53 pounds
Package Dimensions	12.56 x 7.2 x 6.54 inches
Model Number	Focketyancdg05giw-11

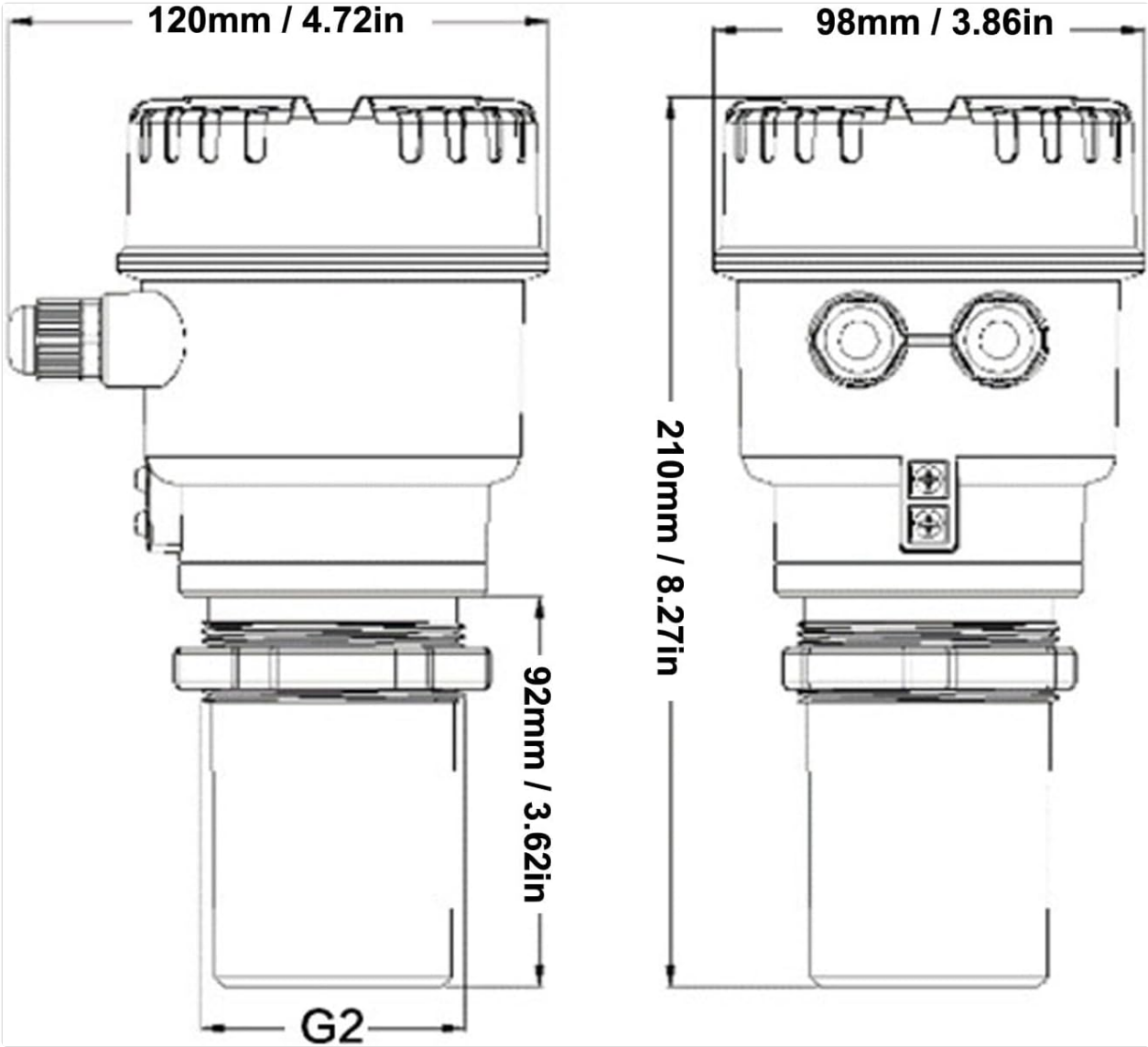


Image 3.1: Technical drawing showing the dimensions of the ultrasonic water level sensor. This diagram provides precise measurements in both millimeters and inches for installation planning.

4. SAFETY INFORMATION

Always observe the following safety precautions to prevent injury and damage to the device:

- Ensure the power supply is disconnected before installation or maintenance.
- Only qualified personnel should perform electrical connections.
- Do not expose the sensor to corrosive substances beyond its specified material compatibility.
- Verify that the installation environment is within the specified operating conditions.
- Avoid physical impact to the sensor, especially the transducer surface.

5. SETUP AND INSTALLATION

Proper installation is crucial for accurate and reliable operation. Follow these steps:

1. **Mounting Location:** Select a mounting location directly above the liquid surface, ensuring the ultrasonic beam has a clear path to the liquid without obstructions. Avoid mounting near inlets, outlets, or agitators that may cause turbulence.
2. **Installation Height:** The sensor should be mounted such that the liquid level remains outside the sensor's blind zone (0.25-0.6m from the transducer face). Refer to the installation diagram for optimal placement.
3. **Secure Mounting:** Use the M60 installation interface to securely mount the sensor. Ensure it is stable and perpendicular to the liquid surface.
4. **Electrical Connections:** Connect the DC 24V power supply and 4-20mA output wiring to the built-in terminals. Refer to the wiring diagram section for detailed instructions. Ensure all connections are tight and insulated.
5. **Power On:** Once all connections are secure, apply DC 24V power to the sensor. The LED display should illuminate.

Installation Diagram

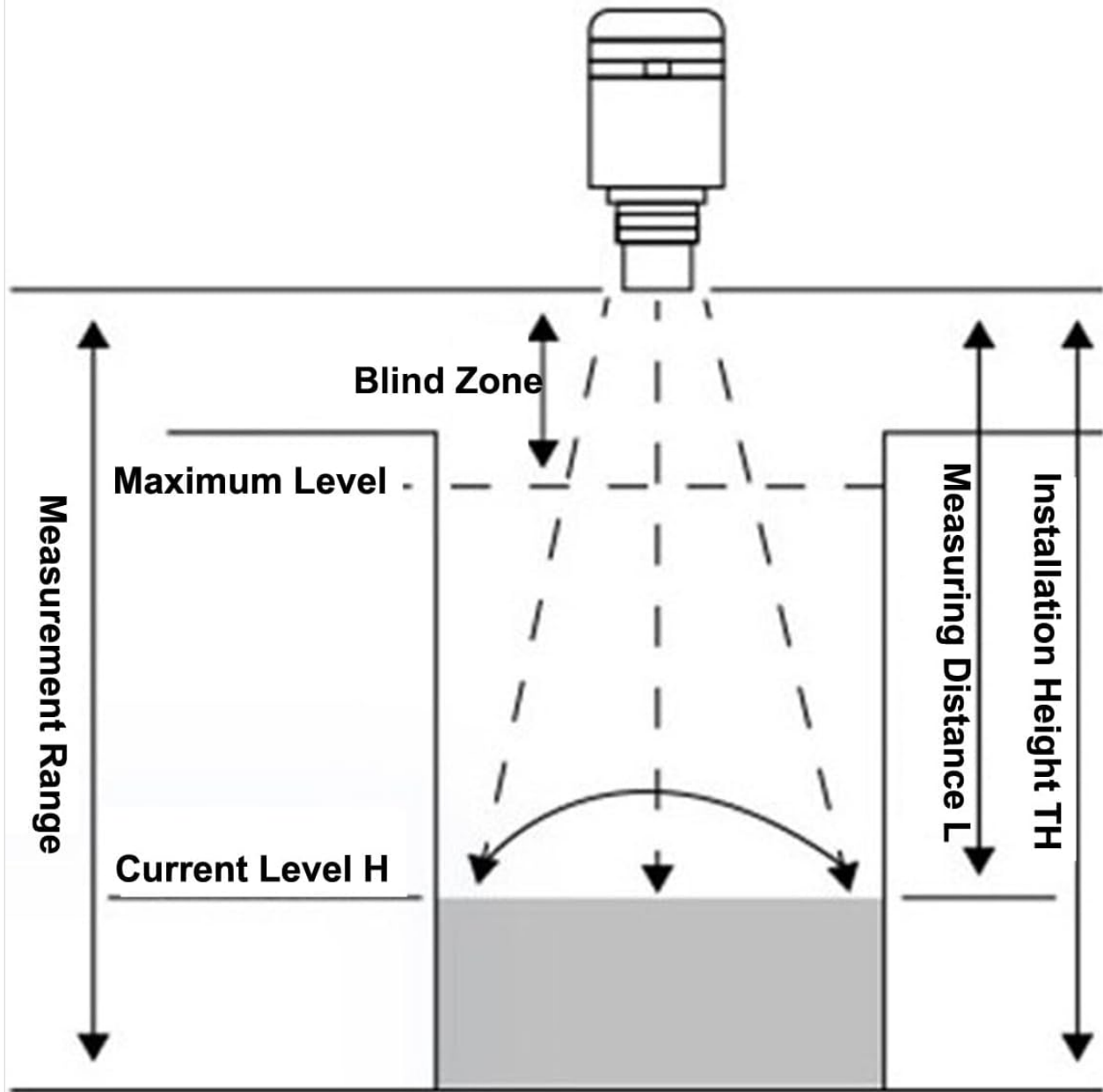


Image 5.1: Diagram illustrating the correct installation of the ultrasonic sensor. This graphic shows the sensor's placement relative to the liquid surface, defining terms like 'Blind Zone', 'Maximum Level', 'Measurement Range', 'Installation Height (TH)', 'Measuring Distance (L)', and 'Current Level (H)'.

6. WIRING DIAGRAM

The sensor features built-in terminals for electrical connections. Carefully follow the wiring instructions below:

- **Power Input:** Connect DC 24V power to the designated terminals (P+ for positive, P- for negative).
- **Analog Output:** Connect the 4-20mA output to your control system or display unit. The terminals are typically labeled I+ and I-.
- **Grounding:** Ensure proper grounding according to local electrical codes.

Refer to the image below for a visual representation of the terminal layout.



Image 6.1: Top-down view of the sensor's control panel, showing the terminal block and LED display. This image clearly labels the power input (P-, P+) and analog output (I-, I+) terminals, along with the touch keys (SET, UP, DOWN, OK) for parameter configuration.

7. OPERATION

Once installed and powered, the sensor will begin measuring the liquid level. The LED display will show the current liquid depth. The 4-20mA output will provide a corresponding analog signal.

7.1. Reading the Display

The 4-digit LED display shows the measured liquid level. The display resolution is 1mm. The display may

show 'L' for liquid level and 'H' for height, depending on the configured display mode.

7.2. Touch Keypad

The sensor is equipped with a 3-key touch keypad for navigation and parameter settings. The keys are typically labeled 'SET', 'UP/DOWN' (or arrows), and 'OK'.

- **SET:** Enters the parameter setting menu or confirms a selection.
- **UP/DOWN (Arrows):** Navigates through menu options or adjusts parameter values.
- **OK:** Confirms a setting or exits a menu.

8. PARAMETER SETTINGS

The sensor allows for various parameter adjustments to optimize its performance for specific applications. These settings include:

- **Blind Zone Adjustment:** Fine-tune the blind zone setting if necessary, though it varies by range.
- **Output Range Calibration:** Calibrate the 4-20mA output to correspond to specific liquid level ranges (e.g., 4mA for empty, 20mA for full).
- **Digital Filtering:** Adjust filtering parameters to stabilize readings in turbulent conditions.
- **Fixed Interference Filtering:** Manually set filters to ignore known obstructions or interference within the measurement path.
- **Custom Mathematical Functions:** Support for custom functions to convert raw measurements into desired units (e.g., volume, weight).
- **Backup and Restore:** Ability to back up current settings and restore them if needed.

Detailed instructions for accessing and modifying these parameters are typically found in the electronic instruction manual provided with the product. Use the touch keypad to navigate and adjust settings.

9. MAINTENANCE

The Fockety Ultrasonic Water Level Sensor is designed for minimal maintenance. However, periodic checks can ensure long-term reliability:

- **Cleaning:** Periodically inspect the transducer face for any buildup of dirt, debris, or residue. Clean gently with a soft cloth and mild detergent if necessary. Do not use abrasive materials or harsh chemicals.
- **Cable Integrity:** Check all wiring and cable connections for signs of wear, corrosion, or damage. Ensure they are securely fastened.
- **Environmental Check:** Verify that the operating environment remains within the specified temperature and pressure ranges.
- **Recalibration:** If measurement accuracy drifts over time or after significant environmental changes, recalibration may be required. Refer to the parameter settings section for guidance.

10. TROUBLESHOOTING

If you encounter issues with your ultrasonic water level sensor, consider the following common problems and solutions:

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
No display/No power	Incorrect power supply, loose wiring, power failure.	Check DC 24V power supply. Verify wiring connections (P+, P-). Ensure power source is active.
Inaccurate readings	Obstructions in beam path, turbulence, incorrect blind zone setting, sensor not perpendicular, transducer dirty.	Clear obstructions. Reduce turbulence if possible. Adjust blind zone. Re-align sensor. Clean transducer face.
No 4-20mA output	Incorrect wiring, faulty receiving device, sensor malfunction.	Check I+ and I- wiring. Test receiving device. Consult electronic manual for output diagnostics.
Intermittent readings	Electrical interference, excessive foam/vapor, unstable mounting.	Check for sources of electrical noise. Apply digital filtering. Ensure stable mounting.

For issues not covered here, please refer to the detailed electronic instruction manual or contact customer support.

11. WARRANTY AND SUPPORT

The Fockety Ultrasonic Water Level Sensor comes with a **24-month warranty** from the date of purchase, covering manufacturing defects. This warranty ensures that the product is free from defects in materials and workmanship under normal use.

For technical support, warranty claims, or further assistance, please contact Fockety customer service through your purchase channel. Please have your model number (Focketyancdg05giw-11) and purchase details ready when contacting support.

12. APPLICATIONS

The versatility of the Fockety Ultrasonic Water Level Sensor makes it suitable for a wide range of applications, including:

- Water and wastewater treatment plants
- Pump rooms and collecting wells
- Industrial process control for liquid level monitoring
- Monitoring levels in tanks, reservoirs, and rivers
- Power generation facilities
- Mining operations (e.g., slurry, coal pulp monitoring)

Suitable for all kinds of places



Sewage Level



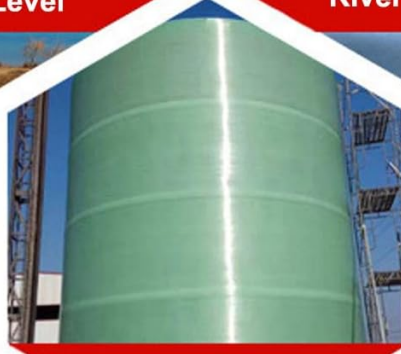
Lake Level



River Level



Tank Level



Acid and Alkali Liquid

Image 12.1: Collage depicting various environments where the ultrasonic sensor can be applied. This image shows examples such as sewage level monitoring, lake level measurement, river level monitoring, tank level detection, and acid/alkali liquid level sensing.