MIAL®
INSTRUMENTS PVT.LTD.
Measuring & Beyond

MULR

MIAL ULTRASONIC LEVEL SENSOR

Measuring & Beyond

CERTIFIED ISO 9001:2015 COMPANY

www.mialinstruments.com

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Mial Ultrasonic Level Sensor

DESCRIPTION

Ultrasonic Level sensor :

MULR- Ultrasonic Level Sensor is a non-contact instrument designed for accurate liquid level measurement. It features a durable ABS engineering plastic waterproof enclosure and a clear LCD display with a high-definition interface. The device supports isolated 4-20 mA output, RS485 communication, and dual relays, along with convenient online output adjustment for easy integration into control systems.

APPLICATIONS

HVAC (Heating, Ventilation, and Air Conditioning):

The Mial MULR Ultrasonic level sensor ensures precise monitoring of liquid levels in heating, ventilation, and air conditioning systems. This helps maintain optimal performance and efficiency of chillers, boilers, and cooling towers, preventing issues like overflow or dry running, which can lead to equipment damage and increased maintenance costs.

Chemical Industry:

The MULR sensor is essential for monitoring liquid levels in various chemical processes. Accurate level sensing ensures safe handling and storage of hazardous chemicals, prevents spillage, and helps maintain the integrity of the processes. The sensor's resistance to acids and alkalis makes it ideal for use in harsh chemical environments.

Oil Industry:

The MULR tracks levels of oil, diesel, and other petroleum products in storage and processing facilities. Reliable level measurement helps in inventory management, prevents overfilling and spillage, and ensures smooth operations. Its robust design and resistance to harsh conditions make it suitable for use in oil refineries and storage tanks.

Water Treatment Plants:

In water treatment plants, the MULR ultrasonic level sensor measures water levels in treatment tanks and reservoirs. This precise monitoring is crucial for managing water resources efficiently, ensuring proper treatment processes, and preventing overflow or shortage in supply. The sensor's easy maintenance and reliable performance are particularly advantageous in this sector.

Pharmaceutical Industry:

In pharmaceutical manufacturing, the MULR ultrasonic level sensor manage liquid levels in various processes, ensuring precision and hygiene. Accurate level measurement is vital for the consistency and quality of pharmaceutical products. The sensor's non-contact measurement method is ideal for maintaining the sterility required in this industry.

MULR Ultrasonic Level Sensor

MULR with Explosion Proof

FEATURES

LCD Display :

A clear and bright LCD screen provides real-time measurement readings and device status. The display is designed for easy viewing in both indoor and outdoor environments, ensuring operators can quickly monitor performance at a glance

Level / Liquid Level Mode Selection :

Users can select between standard level mode and liquid level mode depending on the application. This flexibility ensures accurate and stable measurement for tanks, reservoirs, open channels, and industrial process environments.

Output Range Start and End Points Can Be Set Arbitrarily

The device allows the operator to freely define the **start** and **end** points of the output range. This makes integration easier with PLCs, control systems, and customized process requirements.

Restore Setting Function (Factory Reset Support):

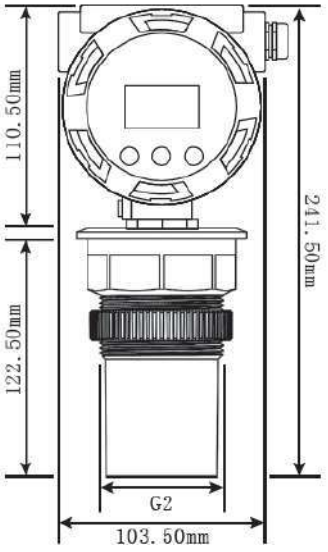
A built-in restore function allows users to quickly return the device to factory default settings. This is especially useful during troubleshooting, reinstallation, or when resetting the unit after configuration errors.

Digital Filtering & Dynamic Echo Recognition

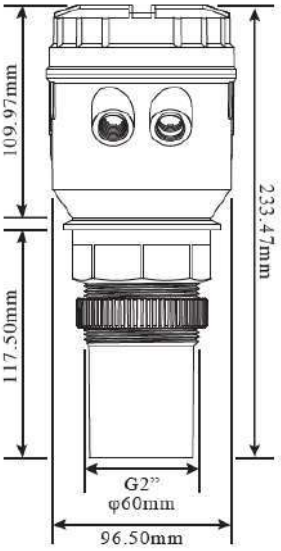
Advanced digital filtering algorithms remove noise and interference, while dynamic echo recognition automatically identifies valid signals. This ensures stable, precise, and reliable level measurements even in challenging environments such as turbulence, foam, or changing conditions.

BENEFITS OF LEVEL SENSORS

- LCD display ensures clear visibility of readings in all conditions.
- Level and liquid level modes support a wide range of industrial and water-related applications.
- Adjustable start/end output points make integration with control systems simple and precise.
- Factory reset function helps restore default settings instantly during configuration issues.
- Digital filtering reduces noise and dynamic echo recognition ensures accurate readings even in harsh environments.



MULR AL



MULR - ABS

MULR specifications*

Operation and performance

Fluid types

Clean liquids

Level Range

0-4m,0-6m,0-8m,0-10 m

Accuracy

0.5% FS

Resolution

1mm

Measurement Parameters

Level, Temperature, Current O/P

Blind zone

40 cm

Display

LCD

Enclosures

Standard :ABS & Aluminum

Optional : Aluminum

Explosion-proof

Power supply

24 VDC

Use 2-amp SMPS when employing AC power

Process Connection

Thread: BSP

Electrical Interface

ABS Model:

M16x1.5

Explosion Proof :

M 20x1.5

Buttons:

3-digit Light Patch buttons

Operating Temperature

-20 - 60°C

Operating Humidity

0-95%RH

Standard output

4-20mA+RS485 Modbus+2 Channel Relay

Probe Materials

Standard: ABS

Enclosure IP rating

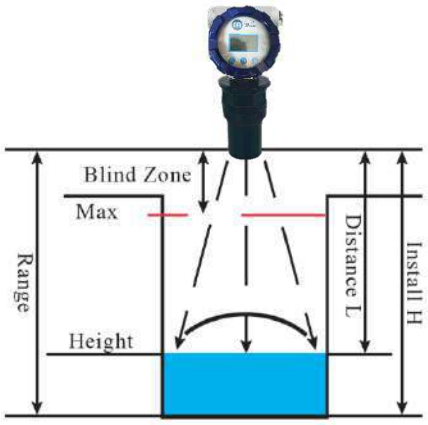
IP65

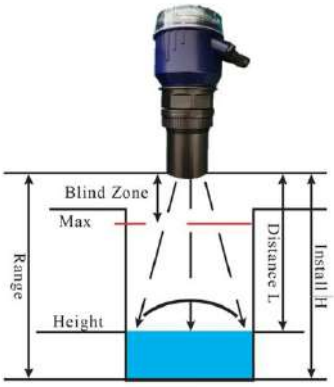
Sensor IP rating

IP68

*Specifications are subject to change without prior notice.

INSTALLATION DIAGRAM





The MULR ultrasonic sensor sends sound waves to the liquid and measures how far the liquid surface is.

- The **blind zone** is the top area where the sensor cannot measure.
- **Distance L** = distance from sensor to liquid.
- **Height** = how much liquid is inside the tank.
- **Install height** = total tank height.

Example

- Tank height = **5 meters**
- Sensor blind zone = **0.4 meter**
- Current distance from sensor to liquid (Distance L) = **2 meters**

Then:

- Liquid height = Tank height – Distance L
  = 5 m – 2 m = 3 meters
- Liquid level is safe because it is **below the blind zone** (0.4 m from top).

As liquid rises:

- If Distance L becomes **1 meter**, then:
  - Liquid height = **5 – 1 = 4 meters**

Note : If the liquid level rises into the sensor's blind zone for example, when the distance between the liquid surface and the sensor's bottom face is less than 0.4 meters, the sensor will provide inaccurate readings

ORDERING CODE

Sensor Model Number Coding = MULR-AA-BB-CDE-F-G

MULR = Mial Ultrasonic Level Sensor

AA =Body Material

Aluminum = 01

ABS = 02

BB= Level Range

4m = 04

6m = 06

8m = 08

10m= 10

C = Power Supply

1 = 24 VDC

D = Display Type

1 = Integral

2 = Remote

E = Probe Type

1 = ABS

F = Output

1 = 4–20mA

2 = Modbus

3 = Both

G = Explosion Proof

1 = Yes

2 = No

All future orders will adhere to the standard specifications outlined in the order code, ensuring consistency and quality across items

MIAL® INSTRUMENTS PVT.LTD.
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