

# Rosemount 3100 Series

Non-contacting Ultrasonic Liquid Level Transmitters



**Reliable and Cost-Effective Level Measurement**

**ROSEMOUNT®**

  
**EMERSON™**  
Process Management

# Rosemount Advanced Ultrasonics



The 3100 Series Ultrasonic non-contacting level transmitters are the latest generation of Rosemount® level measurement instrumentation.

Proven in thousands of applications in many industries, state of the art electronics coupled with time proven ultrasonic transducer technology has resulted in an easy to use instrument with high reliability and quality readings.

Aluminum housing

2" Mounting thread and various flange accessory options

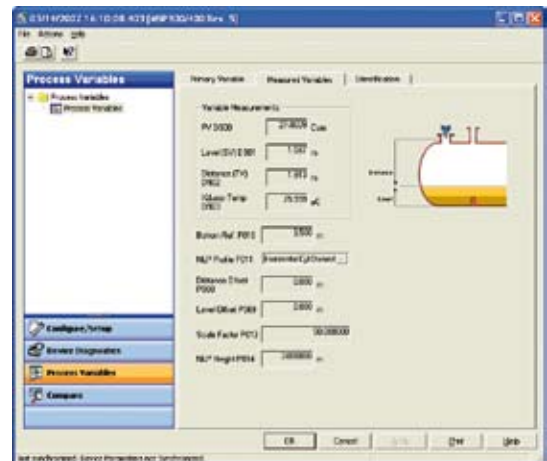
Inert PVDF wetside material  
Suitable for corrosive applications



## Easy programming

The 3100 Series may be configured on site without the need for any additional equipment or software using three integral push buttons and built-in LCD Display under the cover.

The 3102 and 3105 are HART® compatible and may be accessed and programmed remotely with 3490 Series Universal Controller, 375 Field Communicator or AMST™ Suite: Intelligent Device Manager.



## Applications

- Storage tank levels
- Open channel flow
- Effluent pits
- Reservoir level
- Buffer tanks
- Filter bed level

# Choosing The Right Model

Each model in the 3100 Series has been designed for a specific purpose, as shown below:

## Rosemount 3101

The Rosemount 3101 entry level transmitter is designed specifically for use in the many industrial applications where economical liquid level measurement with a 4–20mA output proportional to level is required.

## Rosemount 3102

The 3102 level transmitter offers all the features of the entry level 3101 with the addition of HART digital communications and two integral relays to provide local control functionality over an increased range of 36ft (11m).

## Rosemount 3105

The 3105 level transmitter is intrinsically safe certified for use in hazardous areas. HART digital communications are also provided. With a PVDF wetside, the 3105 can be used in most hazardous and corrosive applications.

Apart from the integral temperature sensor, an optional external temperature sensor may be used with the Series 3102 and 3105 transmitters.

The 3102 and 3105 may be used to measure distance, level or calculate volume or flow in an open channel.



	Model	Range
Simple level measurement	3101	26ft (8m) range
	3102	36ft (11m) range
Level measurement and local relays	3102	36ft (11m) range
Level measurement in a hazardous area	3105	36ft (11m) range
Open channel flow or volume measurement	3102	Safe area
	3105	Hazardous area

## Benefits

- Eliminates problems experienced with contacting instrumentation
- Simple set-up and operation
- Minimal maintenance once installed
- Lost cost of installation and commissioning
- Process downtime minimized

## Features

- Non-contacting measurement with no moving parts
- 2 Integral signal relays
- Corrosion resistant PVDF wetted material
- 2 Wire 24V dc loop powered
- Operating range to 36ft (11m)
- Measures liquid height, distance to liquid, volume or flow in open channels
- Simple push button programming
- Built-in LCD display
- Automatic temperature compensation



# Operation and Accessories

## Operation

Ultrasonic pulses transmitted from the transmitter face are reflected from the surface of the liquid and are received back by the same transmitter.

Measurement of the time delay between the transmit and the receive signals enables the microprocessor controlled electronics to calculate distance to the liquid level.

Once the transmitter is programmed with the bottom reference of the application - usually the bottom of the tank - the liquid depth is calculated. The microprocessor controls the loop current to give a 4-20mA output signal proportional to the level, with the liquid level reading also available on the LCD display inside the enclosure.

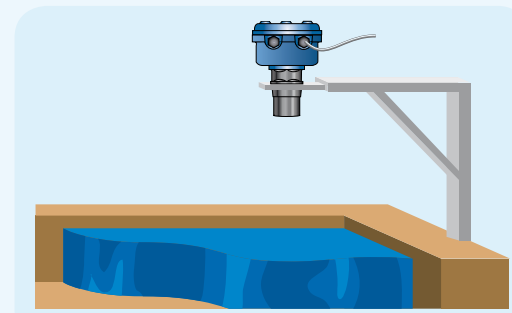
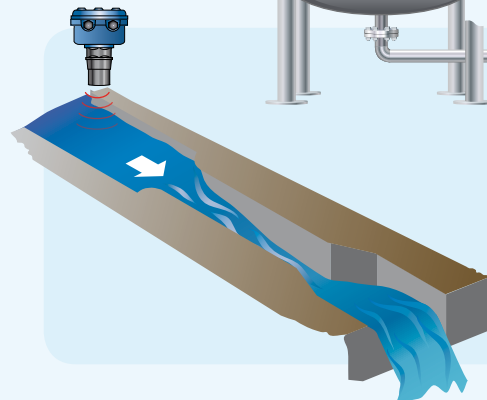
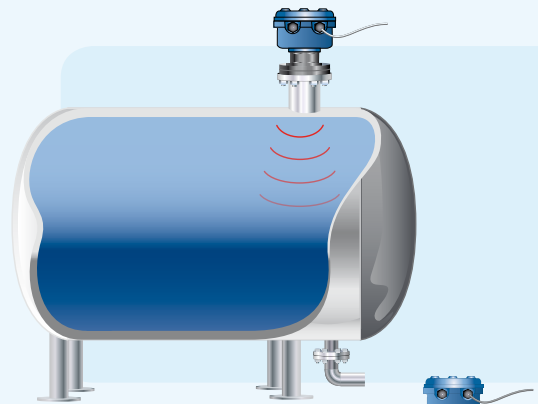
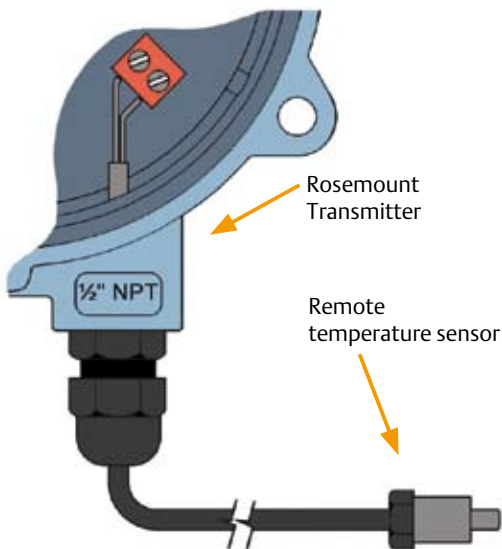
All transmitters have integral temperature compensation to maintain accuracy across the operating temperature range.

## Accessories

### Remote temperature sensor

The remote temperature sensor is designed for use with the 3102 and 3105 transmitters in applications where fast ullage temperature changes or unrepresentative transmitter temperatures are a problem.

When the remote temperature sensor is connected the integral temperature probe is automatically over-ridden.



# Rosemount 3490 Universal Control Unit

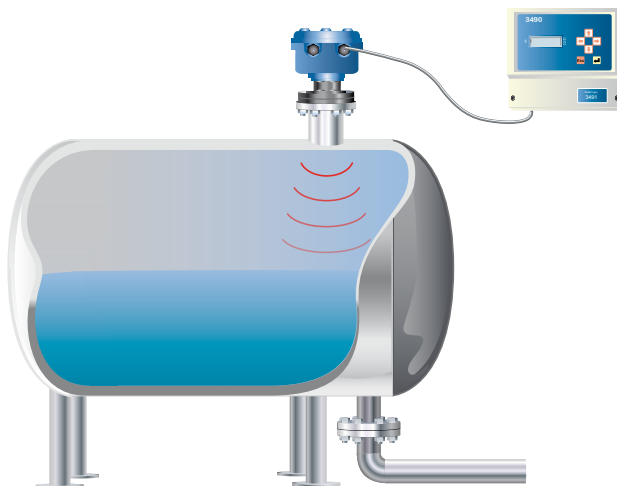
Ideal for programming and control of 3100 Series level transmitters



The 3490 series of wall and panel mounting control units provide comprehensive control functionality for any 4-20mA or HART compatible transmitter. A back-lit display gives clear visual indication of the measured value and status of all inputs and outputs.

The 115/230Vac or 24Vdc powered 3490 provides an intrinsically safe 24V dc power supply to the transmitter.

Five relays are provided and are fully field programmable to perform a wide variety of control, fault indication or alarm duties.



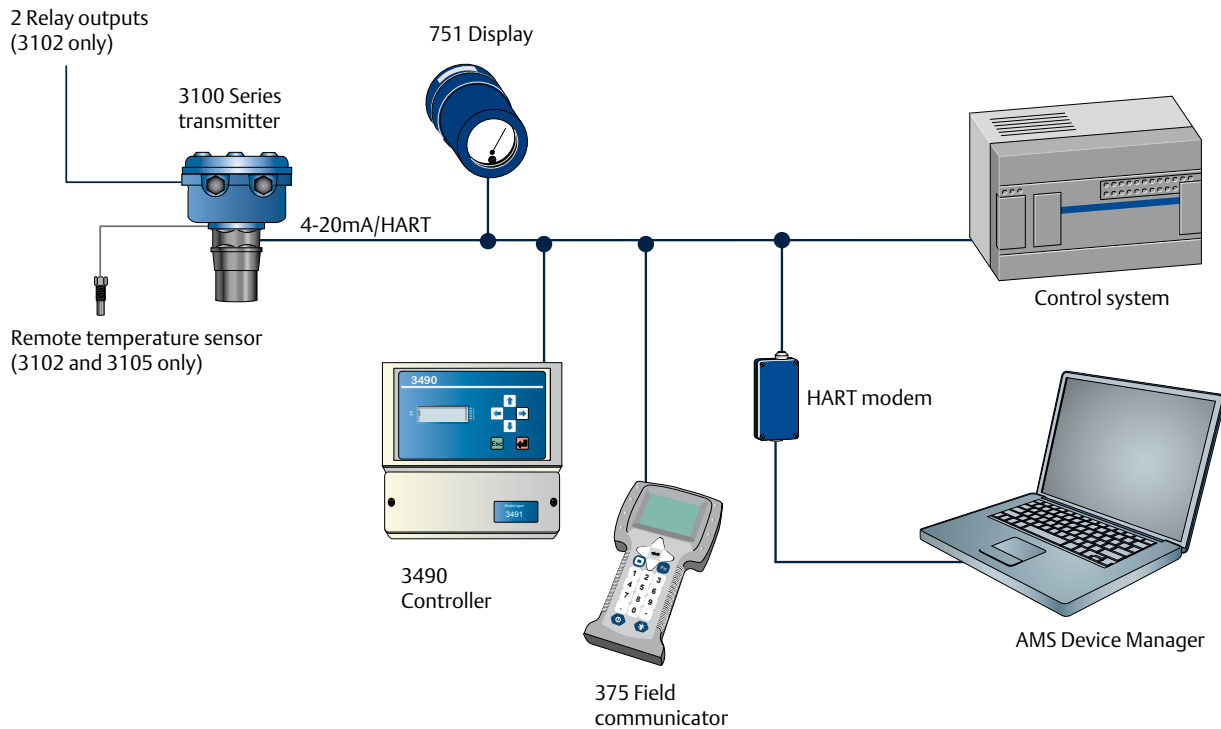
## Features

- Tough weatherproof wall mount enclosure for internal or external mounting
- Accepts any 4-20mA or HART compatible input
- 5 Voltage-free SPDT relays for alarm and control duties
- Supports two voltage free contact closure inputs
- 4-20mA 12 bit isolated current output proportional to calculated value

## Benefits

- Pre-programmed tank shapes, flow algorithms and pump control routines simplify configuration. A 20 point strapping table facility is provided for non-standard applications
- Real time clock allows energy saving routines and pump efficiency calculations

# System Integration



The Rosemount 3100 Series transmitter powers Plantweb® with easier configuration, lower installation costs, higher reliability and device diagnostics that enable predictive intelligence, reduce operating costs and improve plant availability.



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