



## SERIES: LTU300

## For Liquids

- IDEAL FOR LEVEL / DISTANCE MEASUREMENTS
- BUILT-IN TEMPERATURE COMPENSATION
- TWO, THREE OR FOUR WIRE OPERATION
- ELECTRICAL ISOLATION ON 4-WIRE MODELS
- RS232 OR RS485 COMMUNICATIONS (OPTION)
- REMOTE DISPLAY WITH 2 CONTACTS (OPTION)
- 4-20 mA OUTPUT - USER SELECTS THE DIRECTION
- DIAGNOSTICS & DATA LOGGING SOFTWARE (OPTION)
- PROGRAMMABLE OR PUSH-BUTTON CONFIGURATION



### DESCRIPTION

Ultrasonic level measurement is based on the principle of measuring the time required for the ultrasonic pulse and its reflected echo to make a complete return trip between the non-contacting transducer and the sensed material level. Then, the transceiver converts this signal electrically into distance/level and present it as an analogue and/or digital signal.

Indumart *LTU300 Series* Ultrasonic Level Transmitter is capable of monitoring virtually any short to medium range non-contact ultrasonic level measurements of most liquids. In applications characterized by mist and foam, the instrument demonstrates notable stability by adjusting itself to the severity of the process.

A definite advantage of the *LTU300 Series* is its narrow total beam angle. As a result of narrow beam angle, the emitted ultrasonic signal ensures outstanding focusing and good penetration through foam, and furthermore, provides reliable measurements in narrow tanks with uneven side walls and protruding objects.

The transducer is virtually immune to buildups as condensation is atomized on contact with its highly active closed cell face.

The transceiver provides damping to control the maximum changing rate of the reported level and fluctuation of the output signal. Damping slows down the rate of response of the display especially when the liquid surface is in agitation or the liquid falls into the sound path during filling.

The *LTU300 Series* incorporates current output directly or inversely proportional to the span. Remote programming of and acquiring information, such as viewing of the primary measurement values, from the transmitter are performed by the configuration software (GatewayPC), which runs under Windows®. Programmable system is usually recommended, which gives the opportunity to easily entering all configuration data, such as low and high level precisely without actual simulation, and to declare the severity of the process to optimize level measurements. The optional RS485 with MODBUS® protocol may also be acquired for monitoring, data acquisition and remote programming of the transmitter.

The optional remote display with 2 contacts (DIS300) may also be added to your level measurement system to indicate the process value on its 4-digit display and be used to trigger contacts at desirable material levels.

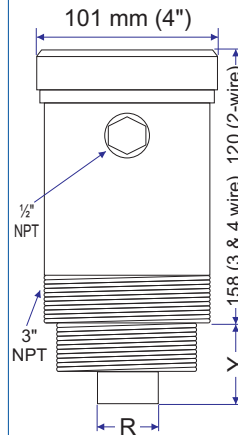
The Automatic Temperature Compensation feature accounts for uniform temperature variances of the sound medium and results in the most accurate level measurement. Other features of the *LTU300 Series* which are available through the optional software include: (1) viewing of the measurement values on a computer via EXCEL® application; (2) diagnosing the system with individual error message; (3) parameters read out, which reports on the operating conditions of the system to facilitate installation and troubleshooting.

## SPECIFICATIONS

Model	Range in Liquid	Resolution	Mounting
LTU315 (52 kHz)	0.3 ~ 15 m	5.7mm (0.23")	3" & 2" NPT
LTU309 (70 kHz)	0.25 ~ 9 m	3.4mm (0.13")	3" & 2" NPT
LTU306 (80 kHz)	0.2 ~ 6 m	2.2mm (0.088")	3" & 2" NPT
LTU305 (81 kHz)	0.2 ~ 5 m	1.8mm (0.07")	3" & 1½" NPT
LTU303 (148 kHz)	0.12 ~ 2.7 m	0.98mm (0.04")	3" & 1" NPT

<b>Accuracy</b>	0.1% of maximum range (in lab) 0.25% of max. range (in field)
<b>Beam Angle</b>	6...12 degrees at -3dB (3 & 4 wire) 10...12 degrees at -3dB (2-wire)
<b>Sensor Material</b>	PVC (std.); PTFE for temperature up to 130°C & sanitary applications
<b>Case Material</b>	PVC (std.); Aluminum
<b>Conduit Entry</b>	½" NPT (PVC conduit only)
<b>Analogue Output</b>	4-20 mA; Direct or reverse; 750 Ω (Isolated on 4-wire system)
<b>Output Resolution</b>	6.1 μA
<b>Loss of Echo Hold</b>	30 sec., 22 mA or 2 mA output
<b>Digital Output</b>	RS232 or RS485 (option) with configuration software
<b>Power</b>	95...135 VAC, 60 Hz 185...275 VAC, 50 Hz
	(3-wire) 12...30 VDC, $R_{load} = (V_s - 6) / 24 \text{ mA}$
	(2-wire) 12...28 VDC, $R_{load} = (V_s - 11) / 23 \text{ mA}$
<b>Power Consumption</b>	1.7 VA for AC; 70 mA for 3-wire model 25 mA for 2-wire model
<b>Process Temperature</b>	-40...+60°C (-40...+140°F) standard -40...+130°C (-40...+266°F) option
<b>Pressure</b>	30 psi (2 bar) Maximum Please consult indumart for applications other than ambient pressure.
<b>Ingress Protection</b>	NEMA 4 (IP65)
<b>Installation Category</b>	Class II
<b>Self Diagnostic</b>	Fully self diagnostic system with individual error message (software)
<b>Data Collection</b>	To be exported to EXCEL (software)
<b>DISPLAY (OPTION)</b>	
<b>Display</b>	4-digit LCD, 14mm high
<b>Display Range</b>	-1999 to 9999
<b>Decimal Position</b>	User programmable
<b>Loop Supply Voltage</b>	3...36 VDC
<b>Environ. Protection</b>	IP65
<b>Operating Condition</b>	-10...+65EC; 0 to 95% RH
<b>Case Material</b>	ABS
<b>Mounting</b>	Wall, Probe; DIN rail (option)
<b>Dimensions</b>	80 x 80 x 60 mm (WxHxD)
<b>Output Type</b>	Transistor gate (open collector NPN)
<b>Switching Current</b>	100 mA maximum
<b>Switching Voltage</b>	40 VDC maximum
<b>Adjustable Parameters</b>	Setpoint, hysteresis, direction and delay time

## DIMENSIONS (mm)



Model	Y (mm)	R (mm)
LTU315	77	56
LTU309	57	46
LTU306	57	46
LTU305	53	38
LTU303	51	28

## ORDER CODE

### ULTRASONIC LEVEL TRANSMITTER FOR LIQUIDS

**Model:** LTU3  -    -

#### RANGE

15 meters (52 kHz)	15
9 meters (70 kHz)	09
6 meters (80 kHz)	06
5 meters (81 kHz)	05
2.7 meters (148 kHz)	03

#### POWER SUPPLY

115 VAC (4-wire)	1
230 VAC (4-wire)	2
12...30 VDC (3-wire)	3
12...28 VDC (2-wire)	4

#### OUTPUT

4...20 mA	0
4...20 mA + RS232	1
4...20 mA + RS485	2

#### BODY MATERIAL

PVC (standard)	0
Aluminum	1

#### SENSOR MATERIAL

PVC (standard)	0
PTFE (high temperature)	1
PVC (sanitary with 2" tri-clamp connection)	2
PTFE (sanitary with tri-clamp connection)	3

#### DISPLAY (option)

Not Required	0
4-digit Display with 2 Contacts (Remote Mount)	1
Alarm Trip Amplifier (2 Relays)	2
Alarm Trip Amplifier (1 Relay)	3



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