

SERIES: LTU500

For Solids

performs well in heavily dusty environment

- **IDEAL FOR LEVEL / DISTANCE MEASUREMENTS**
- **BUILT-IN TEMPERATURE COMPENSATION**
- **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 *LTU500 Series* Ultrasonic Level Transmitter is capable of monitoring virtually any short to medium range non-contact ultrasonic level measurements of most free flowing solids (granules and powders). In applications characterized by dust, the instrument demonstrates notable stability by adjusting itself to the severity of the process.

A definite advantage of the *LTU500 Series* is its narrow total beam angle of 6° at -3 dB. As a result of narrow beam angle, the emitted ultrasonic signal ensures outstanding focusing and good penetration through dust, and furthermore, provides reliable measurements in narrow silos 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. It operates in extremely hostile environment such as cement, sugar silos, stone crushers, gravel bins, etc.

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 material surface is in agitation or material falls into the sound path during filling.

The *LTU500 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.

To avoid problems caused by repose formation of the solids, aiming (tilting) of the device is required. The aiming device for carrying out the most appropriate level measurement in tanks/silos is offered as an optional feature.

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 *LTU500 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 Solid	Resolution	Mounting
15 (25 kHz)	0.4...15 m	10 mm (0.41")	6" NPT
10 (45 kHz)	0.3...10 m	6.8 mm (0.27")	3" NPT

Frequency	25 or 45 kHz
Accuracy	0.1% of maximum range (in lab) 0.25% of max. range (in field)
Beam Angle	6...12 degrees at -3dB
Sensor Material	PVC (std.); CPVC for high temp.;
Case Material	PVC (std.); PVC case with CPVC sensor for high temp.; Aluminum
Conduit Entry	½" NPT (PVC conduit only)
Analogue Output	4-20 mA; Direct or reverse; 750Ω; Isolated on 4-wire system
Output Resolution	6.1 µA
Loss of Echo Hold	30 sec., 22 mA or 2 mA output
Digital Output	RS232 or RS485 (option) with configuration software
Power	95...135 VAC, 60 Hz 185...275 VAC, 50 Hz 12...30 VDC, $R_{load} = (V_s - 6) / 24 \text{ mA}$
Power Consumption	1.7 VA for AC; 70 mA for DC
Process Temperature	-40...+60°C (-40...+140°F) standard -40...+130°C (-40...+266°F) option
Pressure	-1 bar optional to 10 bar (150 psi) Please consult indumart for applications other than ambient pressure.
Ingress Protection	NEMA 4 (IP65)
Installation Category	Class II
Self Diagnostic	Fully self diagnostic system with individual error message (software)
Data Collection	To be exported to EXCEL (software)

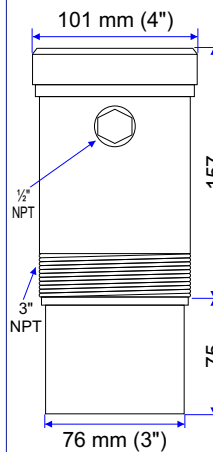
DISPLAY (OPTION)

Display	4-digit LCD, 14mm high
Display Range	-1999 to 9999
Decimal Position	User programmable
Loop Supply Voltage	3...36 VDC
Environ. Protection	IP65
Operating Condition	-10...+65°C; 0 to 95% RH
Case Material	ABS
Mounting	Wall, Probe; DIN rail (option)
Dimensions	80 x 80 x 60 mm (WxHxD)
Output Type	Transistor gate (open collector NPN)
Switching Current	100 mA maximum
Switching Voltage	40 VDC maximum
Adjustable Parameters	Setpoint, hysteresis direction and delay time

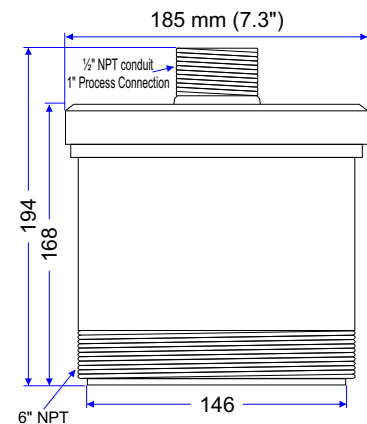
Series *LTU500* Level Transmitters may be used to measure liquid levels, where the measuring range will increase to twice the value stated in this catalogue.

DIMENSIONS (mm)

45 kHz model



25 kHz model



ORDER CODE

ULTRASONIC LEVEL TRANSMITTER FOR SOLIDS

Model: LTU5

RANGE

15 meters (25 kHz)
10 meters (45 kHz)

POWER SUPPLY

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

OUTPUT

4...20 mA
4...20 mA + RS232
4...20 mA + RS485

BODY MATERIAL

PVC (standard)
PVC case with CPVC sensor (up to 130°C)
Aluminum

SWIVEL AIMING (option)

Not Required
Flange Mount

DISPLAY (option)

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



INDUMART INC.

1-15 W. Pearce St., Richmond Hill, Ont. L4B 1H6, Canada
Phone: (905) 707-9998 Fax: (905) 707-8484 E-mail: Sales@Indumart.com