

Level Measurement, Indication & Control

Level transmitters measure liquid height within a specified range and translate this value into a proportional 4-20 mA signal output for interface with external devices such as an indicator, controller, PLC or telemetry device. Flowline level transmitters and indicators are offered in general purpose, intrinsically safe or explosion proof types for use in hazardous locations. A hazardous location is generally defined as an area where flammable gases, vapors or dusts occur in such concentrations that they could explode. Instruments that are installed in these locations are designed and certified to be intrinsically safe or explosion proof to ensure that they cannot cause such an explosion.

Intrinsically Safe

The approach behind intrinsically safe equipment is to limit the electrical and thermal energy available to and generated by devices within the hazardous location. Therefore, intrinsically safe sensors are inherently low voltage designs that cannot cause sparks or ignition. Additionally, the power and signal wires of these sensors are protected by Zener safety barriers which limits their voltage and current.

Explosion Proof

The approach behind explosion proof equipment is to physically isolate potential ignition sources by enclosing them in a case that's capable of withstanding an explosion within the hazardous location. The term case, generally refers to an explosion proof enclosure and associated conduit installation as defined by the National Fire Protection Association and National Electrical Code in the United States.

Hazardous Measurement & Indication

EchoSafe® XP
Ultrasonic
Transmitter



EchoTouch™ IS
Ultrasonic
Transmitter



DeltaSpan® IS
Pressure
Transmitter



FluidWell™ XP
Level
Indicator



DataLoop™ IS
Level
Indicator



	XP88/89	LU20	LD31/32
Type	Ultrasonic		Pressure
Class	XP	IS	
Range	32.8' (10m)	18' (5.4m)	46' (14m)
Output	4-20 mA		
Install	Top Wall		Submersible
Mounting	2" NPT / G		- - -
Configuration	Push Button		Factory
Temperature	140°F (60°C)		176°F (80°C)
Pressure	30 PSI (2 bar)		2x Full Span
Material	PVDF		316 SS

	300400	LI25
Type	Field Mount	Panel Mount
Class	XP	IS
Display	LCD	
Backlight	No	Yes
Input	(1) 4-20 mA	
Supply	10-30 VDC (Loop)	
Function	Display	
Enclosure	NEMA 4, 7, 9	NEMA 4X

General Purpose Measurement, Indication & Control

EchoTouch™
Ultrasonic
Transmitter



LU30

Page 40

EchoSpan®
Ultrasonic
Transmitter



LU8X

Pages 36-37

EchoSonic® II
Ultrasonic
Transmitter



LU2X

Pages 32-35

FloaTek®
Float
Transmitter



LV55

Page 41

DeltaSpan®
Pressure
Transmitter



LD30

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DeltaSpan®
Pressure
Transmitter



LD3X

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	LU30	LU80-84	LU23, LU27-29	LV55	LD30	LD31/32
Type	Ultrasonic			Float	Pressure	
Class	GP					
Range	24.5' (7.4m)	32.8' (10m)		96" (2.4m)	69' (21.1m)	46' (14m)
Output	4-20 mA					
Install	Top Wall				External	Submersible
Mounting	2" NPT / G				1/4" NPT	- - -
Configuration	Push Button		WebCal	Factory		
Temperature	140°F (60°C)			185°F (85°C)	200°F (93°C)	150°F (66°C)
Pressure	30 PSI (2 bar)		2x Full Span	30 PSI (2 bar)	2x Full Span	
Material	PVDF			316 SS		

DataLoop™
Level Indicator



LI25

Page 42

DataView™
Level Controller



LI55

Page 43

Commander™
Multi-Tank Level Controller



LI90

Page 44

DataPoint™
Level Controller



LC52

Page 45

	LI25	LI55	LI90	LC52
Type	Panel Mount			Rail Mount
Class	IS / GP	GP		
Display	LCD	LED	LCD	LED
Backlight	Yes	No	Yes	- - -
Input	(1) 4-20 mA		(2 or 4) 4-20 mA	(1) 4-20 mA
4-20 Repeater	No	Yes (2 Input) / No (4 Input)	No	Yes
Relays	- - -	(4) SPDT	(6) SPDT	(2) SPDT
Supply	12-30 VDC (Loop)	85-265 VAC	10-30 VDC	120-240 VAC
Function	Display	Display, Auto Fill or Empty, High & Low Alarm		Auto Fill or Empty, High & Low Alarm
Enclosure	NEMA 4X Faceplate			- - -

EchoTouch™ IS Ultrasonic Level Transmitter

Application

CSA approved intrinsically safe for use in hazardous locations, the two-wire ultrasonic transmitter provides non-contact level measurement up to 18' or 5.4m, and is ideally suited for challenging corrosive, slurry or waste liquids. Push button calibrated, the transmitter is typically selected for atmospheric bulk storage, day tank and waste sump applications located within a classified area. Media examples include diesel fuel and sulfuric acid.

Features

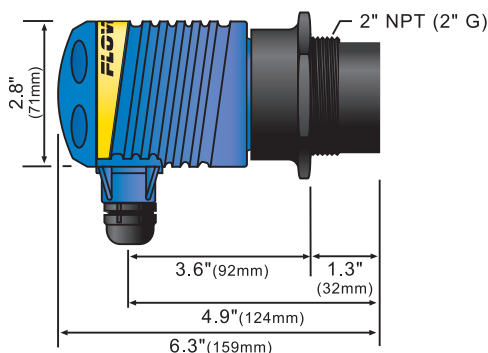
- ✓ Intrinsically safe transmitter for use in hazardous environments
- ✓ LCD digital display indicates level in inches or centimeters
- ✓ EasyCal simple push button calibration for all user set points
- ✓ Polypropylene enclosure rated NEMA 4X with rugged PVDF transducer
- ✓ Adjustable dead band and range filters eliminate false echo returns



LU20-5001-IS



Dimensions



Specifications

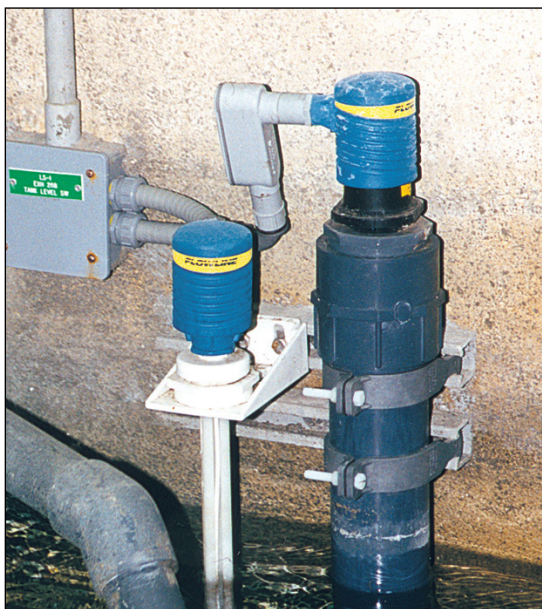
Range:	6" to 18.0' (15cm to 5.4m)
Accuracy:	±0.25% of range
Resolution:	0.125" (3mm)
Dead band:	6" (15cm)
Beam width:	8° conical
Configuration:	Push button
Memory:	Non-volatile
Display type:	LCD, 4-digit
Display units:	Inch or cm
Supply voltage:	12-32 VDC
Loop resist.:	600 Ohms @ 24VDC
Signal output:	4-20 mA, two-wire
Signal invert:	4-20 mA, 20-4 mA
Signal fail-safe:	Reverts to safe state during echo loss
Process temp.:	F: -20° to 140° C: -4° to 60°
Temp. comp.:	Automatic
Ambient temp.:	F: -40° to 140° C: -40° to 60°
Pressure:	30 psi (2 bar) @25° C., derated @1.667 psi (.113 bar) per °C above 25°C
Enclosure rating:	NEMA 4X (IP65)
Encl. material:	PP, UL94VO
Conduit entrance:	Single, 1/2" NPT
Trans. material:	PVDF
Process mount:	2" NPT (2" G)
Mount gasket:	Viton®
Classification:	Intrinsically Safe
Compliance:	CE
Approvals:	CSA: Class I, Groups A, B, C, D; Class II, Groups E, F, G; Class III; T3C
Parameters:	CSA: Vmax < 32.0 V; Imax < 130 mA; Ca = 0 µF; La = 0 µH
Certificates:	CSA: LR 79326

Markets

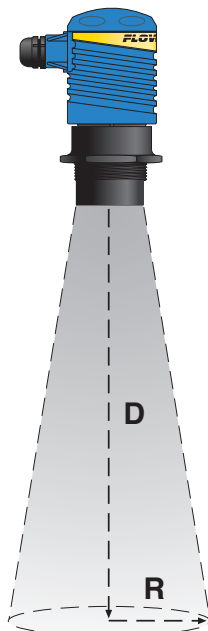
- Oil & gas
- Pulp & paper
- Petrochemical
- Food & beverage
- Municipal wastewater
- Paint & coatings
- Power generation
- Transportation
- Biotech & pharmaceutical

Non-Contact Intrinsically Safe Measurement

Bulk Tank



Beam Width



Depth (Feet)	Width (Inches)
1	1.2
2	2.1
3	2.9
4	3.7
5	4.6
6	5.4
7	6.2
8	7.1
9	7.9
10	8.8
11	9.6
12	10.4
13	11.3
14	12.1
15	13.0
16	13.8
17	14.6
18	15.5

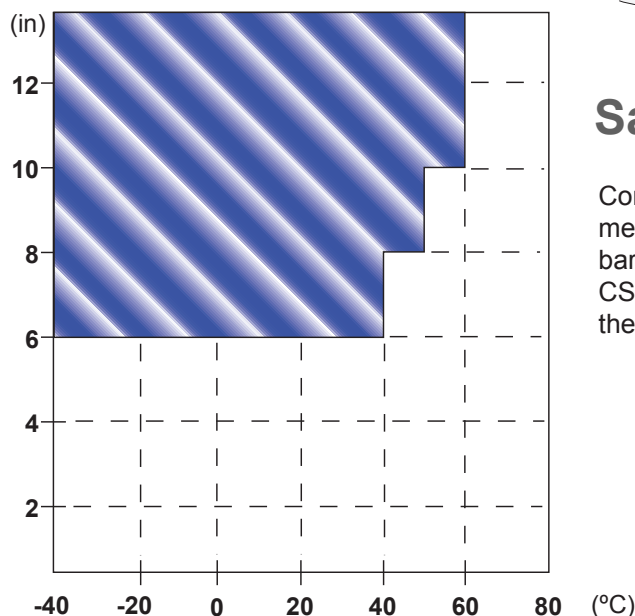
User Friendly

Configuration is fast and easy with our LCD display and EasyCal push button menu. Simply input your 4 mA and 20 mA set points and install. It's intrinsically safe level made simple!



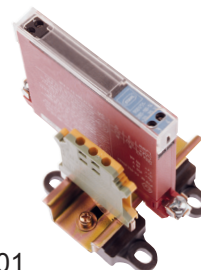
Faceplate

Temp / Minimum Dead Band Derating

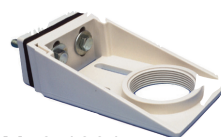


Safety Barrier

Complete your intrinsically safe level measurement package with an appropriate intrinsic safety barrier. The LB11-1001 intrinsic safety barrier is CSA approved to match the entity parameters of the LU20-5001-IS ultrasonic transmitter.



LB11-1001



LM50-1001



EchoTouch IS

LU20-50 1-IS

Process mount (1) (2) (3)

- 0 NPT (US)
6 G (Metric)

Ordering Notes

- 1) Install the level sensor using Flowline installation fittings or equivalents.
- 2) When locating the level sensor in a hazardous environment, order the LB11-1001 intrinsic safety barrier.
- 3) For intrinsically safe level indication, package the level sensor with the DataLoop LI25-2001 indicator.

EchoSafe® XP Ultrasonic Level Transmitter

Application

FM approved for hazardous environments, the explosion proof ultrasonic level transmitter provides continuous level measurement up to 32.8' (10m) with a 4-20 mA signal output, and is configured via the integral push button display module. This non-contact liquid level sensor is ideally suited for corrosive, ultrapure, sticky or dirty liquids, and is widely selected for bulk storage, day tank, lift station and process tank level applications located in a classified area.



XP88 / 89

Specifications

Range:	XP88: 8" to 26.2' (20cm to 8m) XP89: 8" to 32.8' (20cm to 10m)
Accuracy:	± 0.2% of range
Resolution:	0.079" (2mm)
Dead band:	8" (20cm)
Beam width:	3" (7.6cm)
Configuration:	Push button
Memory:	Non-volatile
Display type:	LCD, 6-digit
Display units:	Inch, cm, percent, feet or meter
Supply voltage:	18-28 VDC (loop)
Loop resistance:	250 Ohms max @ 24 VDC
Signal output:	4-20 mA, two-wire
Signal invert:	4-20 mA or 20-4 mA
Signal fail-safe:	4 mA, 20mA, 21 mA, 22 mA or hold last
Process temp.:	F: -4° to 140° C: -20 to 60°
Temp. comp.:	Automatic
Process temp.:	F: -4° to 140° C: -20 to 60°
Pressure:	MWP = 30 psi (2 bar)
Enclosure rating:	Type 4
Encl. material:	Aluminum
Window material:	Glass
Conduit entrance:	Dual, 1/2" NPT
Trans. material:	PVDF
Process mount:	2" NPT
Mount gasket:	Viton®
Classification:	Explosion proof
Compliance:	CE, RoHS
Approvals:	FM: Class I, Div I Groups A, B, C, D Class II, Div I, Groups E, F, G, Class III, Div I

Features

- ✓ Explosion proof level transmitter for use in hazardous areas
- ✓ Offered in 2 measurement ranges from 26.2' (8m) to 32.8' (10m)
- ✓ Configuration is simple via integral push button display module
- ✓ Type 4 aluminum XP windowed enclosure with dual conduit ports
- ✓ LCD display indicates level in inches, centimeters or percent of span
- ✓ Narrow 3" beam width for applications with limited measurement space
- ✓ Rugged PVDF transducer and process mounting plug for corrosive liquids
- ✓ Automatic temperature compensation for accurate measurement

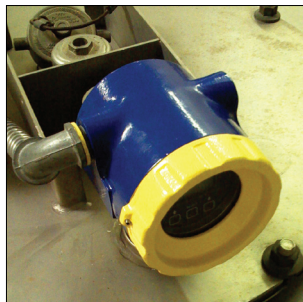
Markets

- Oil & gas
- Pulp & paper
- Petrochemical
- Food & beverage
- Municipal wastewater
- Paint & coatings
- Power generation
- Transportation
- Biotech & pharmaceutical

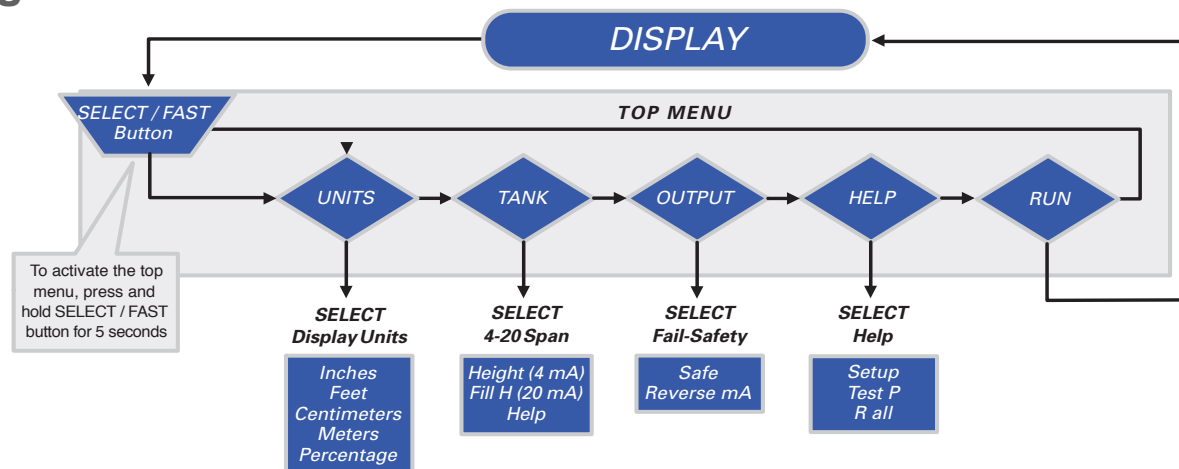


Tech Tip

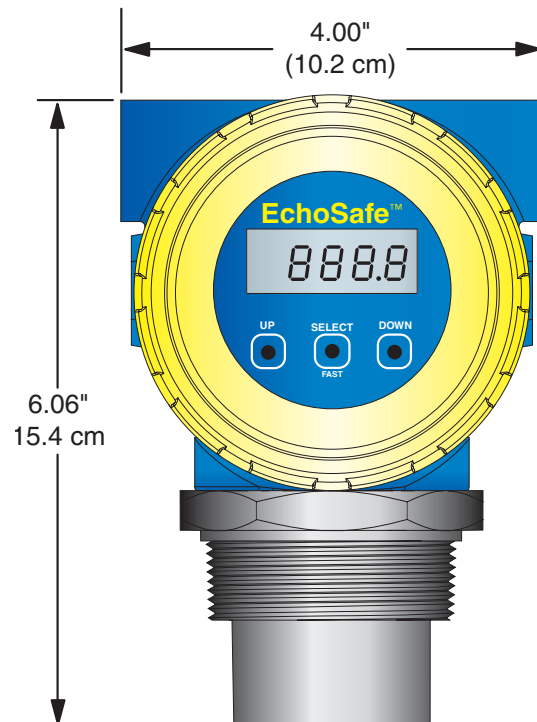
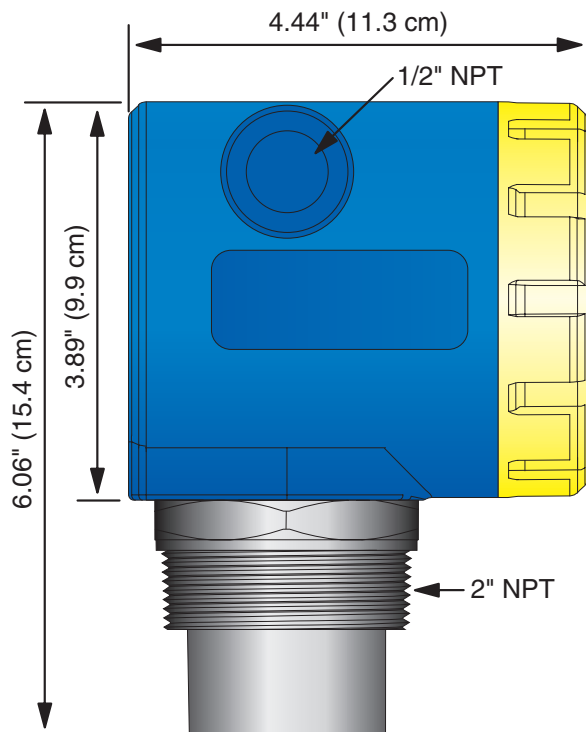
For explosion proof level measurement and indication, package EchoSafe with the Fluidwell level indicator. See page 30 for more information. It's explosion proof indication made simple.



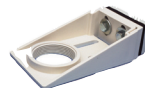
Configuration



Dimensions



LM50-1001


EchoSafe XP
XP8 **-0**
Sensor range (1) (2)

8	8m (26.2')
9	10m (32.8')

Ordering Notes

- 1) Install the level sensor using Flowline installation fittings or equivalents.
- 2) For explosion proof level indication, package the level sensor with the FluidWell indicator.

Application

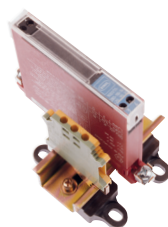
The intrinsically safe submersible pressure level transmitter provides continuous level measurement up to 46' (14m) of water column with a 4-20 mA signal output. Select the LD31 liquid level sensor for relatively clean water, light weight oil or diluted chemical. Application examples include wet wells and water remediation.

Features

- ✓ Corrosion resistant 316 SS transducer with polyurethane or ETFE cable
- ✓ Strong cable design with maintenance free breather tube and vent filter
- ✓ Automatic temperature compensation for accurate measurement

Safety Barrier

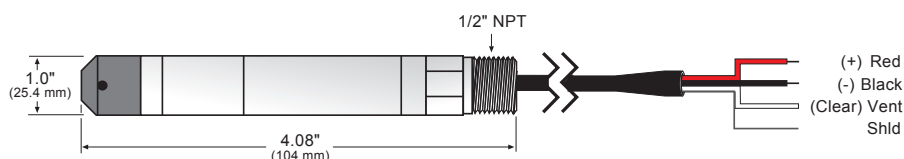
Complete your intrinsically safe level measurement package with an appropriate intrinsic safety barrier. The LB11-1001 intrinsic safety barrier is CSA approved and matches the entity parameters of the LD31 or LD32 pressure transmitter.



LB11-1001



LD31-S301



Specifications

Range:	-SX01: 0 to 5 psi (0.34 bar), 0 to 11' (0 to 3.4m) wc
	-SX11: 0 to 10 psi (0.69 bar), 0 to 23' (0 to 7m) wc
	-SX21: 0 to 15 psi (1.0 bar), 0 to 34' (0 to 10.4m) wc
	-SX31: 0 to 20 psi (1.38 bar), 0 to 46' (0 to 14m) wc

Accuracy: $\pm 0.25\%$ of full scale

Configuration: None, fixed span

Supply voltage: 10 to 28 VDC

Loop resist.: 900 Ohms

Signal output: 4-20 mA, two-wire

Process temp.: F: 0° to 176°
C: -18° to 80°

Temp. comp.: F: 0 to 176°
C: -18 to 80°

Proof pressure: 2 x full scale

Trans. rating: NEMA 6 (IP67)

Trans. material: 316 SS, 316L SS,
Buna-N & PVC

Trans. thread: 1/2" NPT

Cable type: 2-conductor, shielded
with vent tube

Cable length: -SX01 & SX11: 40' (12.2m)
-SX21 & SX31: 60' (18.3m)

Cable material: -S3X1: Polyurethane
-S4X1: ETFE

Classification: Intrinsically safe
Class I Div. 1 Groups A, B,
C & D; Class II Div. 1 Groups
E, F & G; Class III Div. 1
T4 @ 80 °C ambient

Compliance: CE, UL Intrinsically safe
to UL standard 913
IEC 61000-4-2:2001
IEC 61000-4-3:2006
IEC 61000-4-4:2004
IEC 61000-4-5:2005
IEC 61000-4-6:2006
IEC 61000-4-8:2001
CENELEC EN 55011:2003
CENELEC EN 61326:2003
89/336/EEC EMC Directive

Parameters:
Vmax = 28 VDC
Imax = 93 mA
Ci = 0.051_F
Li = 240_H
Pi = 0.651_W

DeltaSpan IS

LD31-S 1

Cable jacket (1) (2)

3 Polyurethane

4 ETFE

Sensor range

0 5 psi (0.34 bar) / 11' (3.4m) wc

1 10 psi (0.69 bar) / 23' (7m) wc

2 15 psi (1.0 bar) / 34' (10.4m) wc

3 20 psi (1.38 bar) / 46' (14m) wc



LD90-1001

Ordering Notes

- 1) To install the level sensor through the tank top with a compact junction box, 2" mounting plug and cable connector, order the LD90-1001 pressure sensor mounting kit.
- 2) Add the LB11-1001 intrinsic safety barrier to complete your intrinsically safe level measurement package.



DeltaSpan™ LD32 IS Pressure Level Transmitter

Bulk Tank

Application

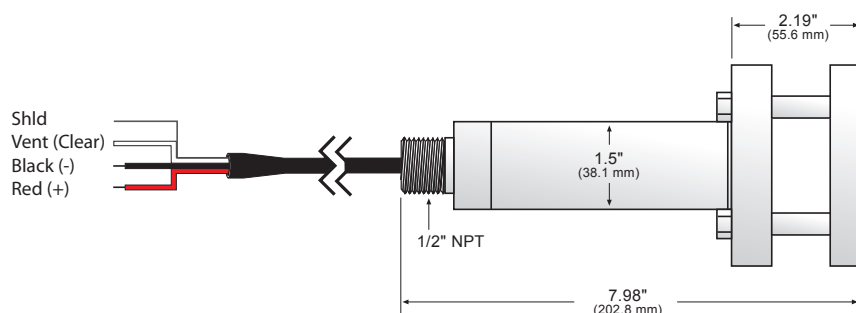
The intrinsically safe submersible pressure level transmitter is offered in two styles for different liquid types and provides continuous level measurement up to 46' (14m) of water column with a 4-20 mA signal output. Select the LD32 liquid level sensor for dirty, foaming or slurry type liquids. Application examples include municipal sewer or storm pump lift stations.

Features

- ✓ Corrosion resistant 316 SS transducer with polyurethane or ETFE cable
- ✓ Strong cable design with maintenance free breather tube and vent filter
- ✓ Rugged clog and damage resistant diaphragm design
- ✓ Automatic temperature compensation for accurate measurement



LD32-S301



Specifications

Range:	-SX01: 0 to 5 psi (0.34 bar), 0 to 11' (0 to 3.4m) wc -SX11: 0 to 10 psi (0.69 bar), 0 to 23' (0 to 7m) wc -SX21: 0 to 15 psi (1.0 bar), 0 to 34' (0 to 10.4m) wc -SX31: 0 to 20 psi (1.38 bar), 0 to 46' (0 to 14m) wc
Accuracy:	± 0.25% of full scale
Configuration:	None, fixed span
Supply voltage:	10 to 28 VDC
Loop resist.:	900 Ohms
Signal output:	4-20 mA, two-wire
Process temp.:	F: 0° to 176° C: -18° to 80°
Temp. comp.:	F: 0 to 176° C: -18 to 80°
Proof pressure:	2 x full scale
Trans. rating:	NEMA 6 (IP67)
Trans. material:	316 SS, 316L SS, Buna-N
Trans. thread:	1/2" NPT
Cable type:	2-conductor, shielded with vent tube
Cable length:	-SX01 & SX11: 40' (12.2m) -SX21 & SX31: 60' (18.3m)
Cable material:	-S3X1: Polyurethane (IS) -S4X1: ETFE (IS)
Classification:	Intrinsically safe Class I Div. 1 Groups A, B, C & D; Class II Div. 1 Groups E, F & G; Class III Div. 1 T4 @ 80 °C ambient
Compliance:	CE, UL Intrinsically safe to UL standard 913 IEC 61000-4-2:2001 IEC 61000-4-3:2006 IEC 61000-4-4:2004 IEC 61000-4-5:2005 IEC 61000-4-6:2006 IEC 61000-4-8:2001 CENELEC EN 55011:2003 CENELEC EN 61326:2003 89/336/EEC EMC Directive
Parameters:	Vmax = 28 VDC Imax = 93 mA Ci = 0.051_F Li = 240_H Pi = 0.651_W

DeltaSpan IS

LD32-5 1

Cable jacket (1) (2)

- 3 Polyurethane
4 ETFE

Sensor range

- 0 5 psi (0.34 bar) / 11' (3.4m) wc
1 10 psi (0.69 bar) / 23' (7m) wc
2 15 psi (1.0 bar) / 34' (10.4m) wc
3 20 psi (1.38 bar) / 46' (14m) wc

LD90-1001



Ordering Notes

- 1) To install the level sensor through the tank top with a compact junction box, 2" mounting plug and cable connector, order the LD90-1001 pressure sensor mounting kit.
- 2) Add the LB11-1001 intrinsic safety barrier to complete your intrinsically safe level measurement package.



FluidWell™ XP Level Indicator

Application

CSA approved explosion proof for hazardous environments, the loop powered level indicator displays engineering units connected in series with one 4-20 mA continuous level transmitter. Select this level indicator for hazardous applications with an explosion proof level sensor. The windowed field enclosure is wall mounted.



300400

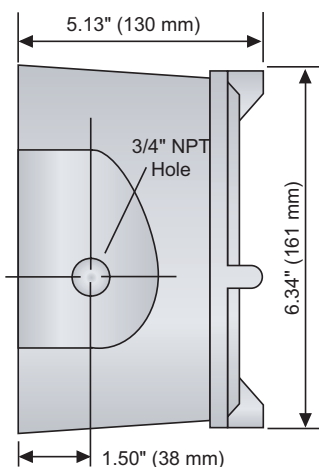
Specifications

Display type:	LCD, 5 1/2 digit
Display units:	Engineering
Display output:	0.001 to 99,999
Display height:	Main: 1" (26mm) Secondary: 0.3" (8mm)
Decimal point:	0, 1, 2 or 3
Configuration:	Push button
Memory:	Non-volatile
Sensor input:	(1) 4-20 mA transmitter
Loop power:	10-30 VDC
Voltage drop:	2.6 VDC @ 20 mA
Ambient temp.:	F: -40° to 176° C: -40° to 80°
Enclosure rating:	NEMA 4, 7 & 9 (IP66)
Enclosure mat'l.:	Aluminum
Window mat'l.:	Glass
Conduit entrance:	Dual, 3/4" NPT
Classification:	Explosion proof
Compliance:	CE, UL
Approvals:	CSA: Class I, Groups C, D; Class II, Groups E, F, G; Class III; T-code = T4

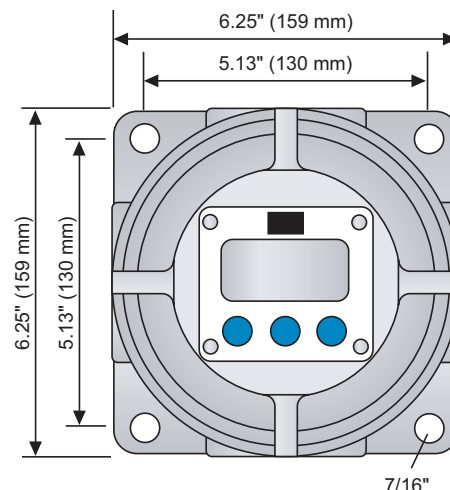
Features

- ✓ Aluminum XP windowed enclosure with dual conduit ports
- ✓ Easy configuration via the push button display module
- ✓ LCD display indicates engineering units and descriptors
- ✓ Non-volatile memory with security password protection
- ✓ Pie graph indicates the percentage of measured span

Side View



Top View



Tech Tip

For explosion proof level measurement and indication, package your meter with the EchoSafe XP ultrasonic transmitter. See pages 26-27 for more details. It's explosion proof measurement made simple.



FluidWell XP

300400₍₁₎

Ordering Notes

- 1) For explosion proof level indication, package the level indicator with the EchoSafe transmitter.

DataLoop™ IS Level Indicator

Bulk Tank



LI25-2001

Specifications

Display type:	LCD, 5-digit
Display units:	Engineering
Display output:	-9999 to 99999
Display height:	0.6" (15mm)
Decimal point:	Floating
Backlight:	LED, orange
Configuration:	Push button
Memory:	Non-volatile
Sensor input:	(1) 4-20 mA transmitter
Loop power:	12-30 VDC
Voltage drop:	2.0 VDC w/o backlight 5.7 VDC w/backlight
Ambient temp.:	F: -22° to 149° C: -30° to 65°
Enclosure type:	1/8 DIN, panel mount
Enclosure rating:	NEMA 4X (IP65) faceplate
Enclosure mat'l:	Polycarbonate
Classification:	Intrinsically safe
Compliance:	CE
Approvals:	FM, CSA: Class I, Div I, Groups A, B, C, D; Class II, Div I, Groups E, F, G; Class II, Div I; Class I Zone 0, Group IIC; T-code = T4

Application

FM and CSA approved intrinsically safe, the loop powered level indicator displays engineering units connected in series with one 4-20 mA continuous level transmitter. Select the LI25-2001 level indicator for hazardous applications with an intrinsically safe sensor. For field mount installation, add a single or two indicator NEMA box.

Features

- ✓ Easy configuration via the push button display module
- ✓ LCD main display with secondary unit and bar graph display
- ✓ DIN enclosure with NEMA 4X faceplate and shallow case
- ✓ Linear, square root and programmable exponent functions
- ✓ Non-volatile memory with security password protection
- ✓ Windowed NEMA box accessory for field installations

Tech Tip

For field mount installation in a NEMA 4X, corrosion resistant polycarbonate enclosure, order the appropriate single or two indicator box. Each enclosure comes with precut panels and mounting hardware. It's intrinsically safe indication made simple.

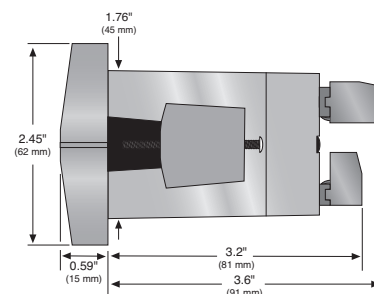


Shown with LM91-1001

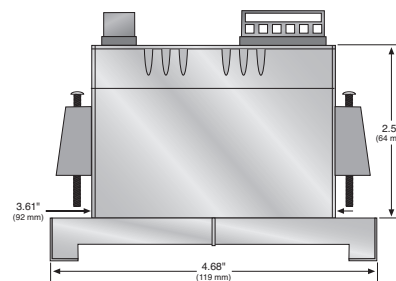


Shown with LM93-1001

Side View



Top View



DataLoop IS

LI25-2001⁽¹⁾

Ordering Notes

- 1) For field mount installation in a NEMA 4X polycarbonate box, order the LM91-1001 (single indicator, non-windowed) or LM91-2001 (two indicator, non-windowed); or LM92-1001 (single indicator, windowed) or LM93-1001 (two indicator, windowed) enclosure.

EchoSonic® II Ultrasonic Level Transmitter



LU28-00



LU27-00

Application

Offered in a type 6P enclosure with cable interface, the general purpose ultrasonic level transmitter provides continuous level measurement up to 32.8' (10m) with a 4-20 mA signal output, and is configured via our free Webcal software. This non-contact liquid level sensor is ideally suited for corrosive, ultrapure, sticky or dirty liquids, and is broadly selected for bulk storage, day tank, lift station and process tank level applications.



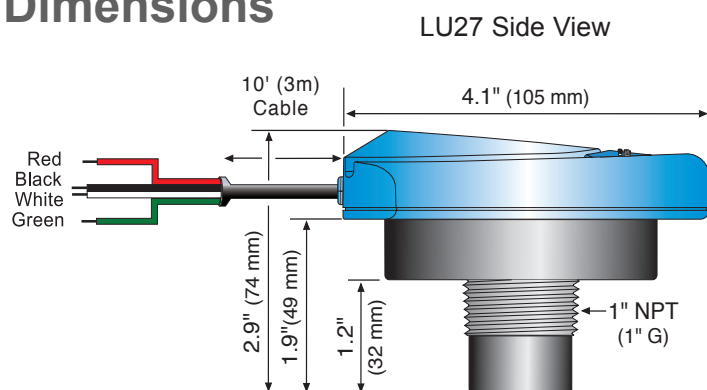
Features

- ✓ Offered in 4 measurement ranges from 9.8' (3m) to 32.8' (10m)
- ✓ DSP auto adaptive filters enable plug and play operation optimizing signal output filtering and obstacle recognition
- ✓ Submersible type 6P enclosure is ideal for sump and below grade installations
- ✓ Configuration is fast and easy via WebCal software and USB adapter
- ✓ Narrow 2" or 3" beam width for applications with limited measurement space
- ✓ Short 4" or 8" dead band maximizes the measurable filling capacity of the tank
- ✓ PVDF transducer and 6P polycarbonate enclosure for corrosive liquids
- ✓ Automatic temperature compensation for accurate measurement

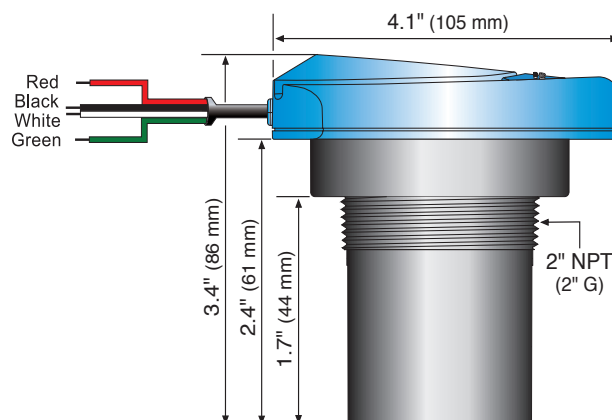
Specifications

Range:	LU27: 4" to 9.8' (10cm to 3m) LU23: 8" to 18.0' (20cm to 5.5m) LU28: 8" to 26.2' (20cm to 8m) LU29: 8" to 32.8' (20cm to 10m)
Accuracy:	± 0.2% of range
Resolution:	LU27: 0.019" (0.5mm) LU23: 0.039" (1mm) LU28/29: 0.079" (2mm)
Dead band:	LU27: 4" (10cm) LU23/28/29: 8" (20cm)
Beam width:	LU27: 2" (5cm) LU23/28/29: 3" (7.6cm)
Configuration:	WebCal® PC Windows® USB 2.0
Memory:	Non-volatile
Supply voltage:	24 VDC (loop)
Consumption:	0.5W
Loop resistance:	500 ohms @ 24 VDC
Signal output:	4-20 mA, two-wire
Signal invert:	4-20 mA or 20-4 mA
Signal fail-safe:	4 mA, 20 mA, 21 mA, 22 mA or hold last
Process temp.:	F: -4° to 140° C: -20° to 60°
Temp. comp.:	Automatic
Ambient temp.:	F: -31° to 140° C: -35° to 60°
Pressure:	MWP = 30 PSI (2 bar)
Enclosure rating:	Type 6P, encapsulated, corrosion resistant & submersible
Encl. material:	Polycarbonate
Trans. material:	PVDF
Cable jacket mat:	Polyurethane
Cable type:	4-conductor, shielded
Cable length:	10' (3m)
Process mount:	LU27: 1" NPT (1" G) LU23/28/29: 2" NPT (2" G)
Mount gasket:	Viton®
Classification:	General purpose
Compliance:	CE, RoHS
Approvals:	cFMus

Dimensions



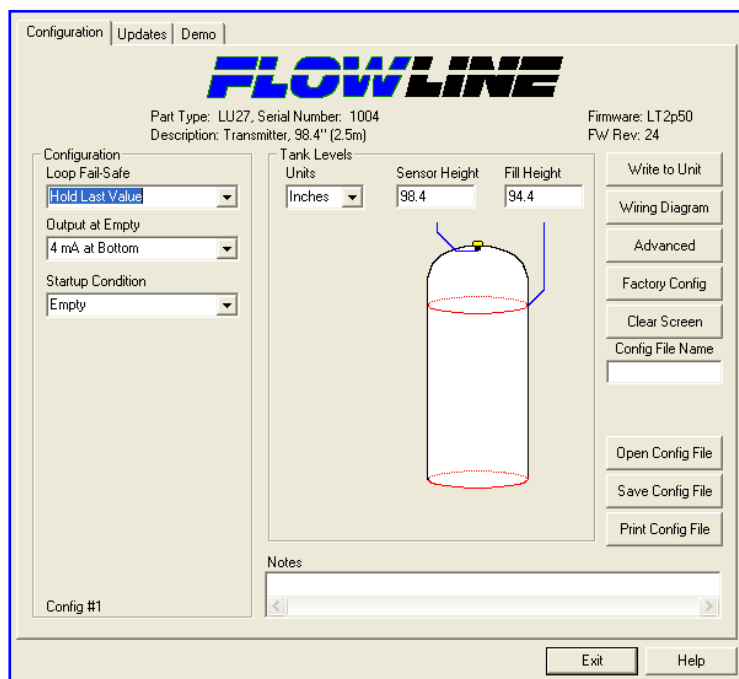
LU27 Side View



LU23/28/29 Side View

Configuration

Our powerful WebCal software makes EchoSonic II configuration fast and easy. Take control of your level process with WebCal's intuitive interface, pre-programmed menus, tank set point graphics and custom wiring diagrams. To configure EchoSonic II, simply create or open a saved configuration file, click Write to Unit, print or email the PDF wiring diagram and install. To get more information and download your free copy, go to www.flowline.com/webcal.php



Easy Configuration

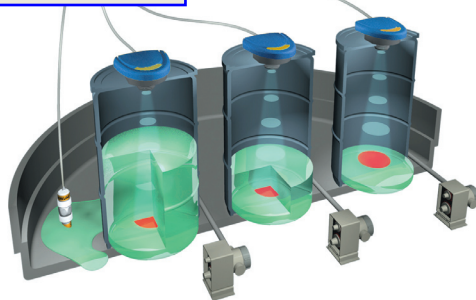
- Easy configurations with pull down menu selection
- Set operational range to match that of your application
- Setup fail-safe, start-up and Empty output settings
- Installs and tests configuration in less than a second
- Available PDF wiring diagram for each configuration
- Technical help menu with FAQ's, tips and glossary
- Rapidly program sensors to the same configuration

Document Control

- Save configuration files for future use or reference
- Print wiring diagrams and configuration text files
- Email configuration files to other remote users



LI99-1001



EchoSonic

LU2 -

Sensor range

- | | |
|---|--------------|
| 7 | 3m (9.8') |
| 3 | 5.5m (18.0') |
| 8 | 8m (26.2') |
| 9 | 10m (32.8') |

Process mount (1)

- | | |
|---|------------|
| 0 | NPT (US) |
| 1 | G (Metric) |

Fob USB adapter (2)

- | | |
|---|-------------|
| 0 | Without Fob |
| 1 | With Fob |

Ordering Notes

- 1) Install the level sensor using Flowline installation fittings or equivalents.
- 2) The level sensor is configured via our WebCal software and one LI99-1001 Fob USB adapter. The level sensor is offered with and without a Fob. Fobs are universal and can be used to configure any WebCal compatible product. WebCal is a free download from our website.

EchoSonic® II Ultrasonic Level Transmitter



LU28-40



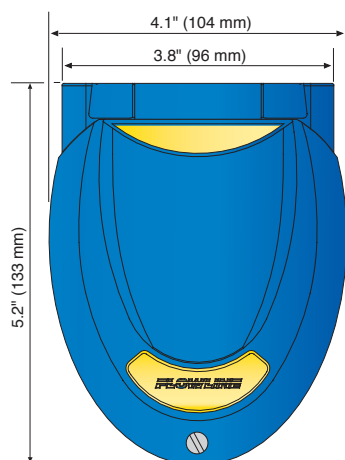
LU27-40

Application

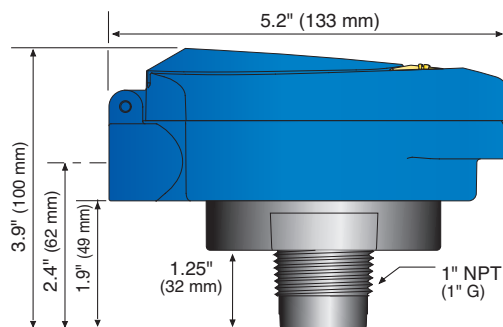
Offered in a NEMA 4X enclosure with conduit interface, the general purpose ultrasonic level transmitter provides continuous level measurement up to 32.8' (10m) with a 4-20 mA signal output, and is configured via our free Webcal software. This non-contact liquid level sensor is ideally suited for corrosive, ultra-pure, sticky or dirty liquids, and is broadly selected for bulk storage, day tank, lift station and process tank level applications.

Dimensions

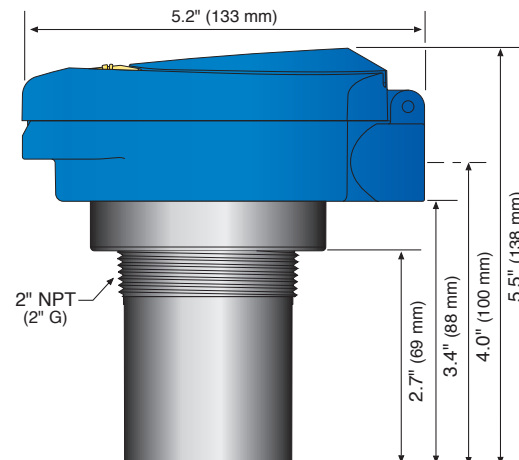
Top View



LU27 Side View



LU23/28/29 Side View



Specifications

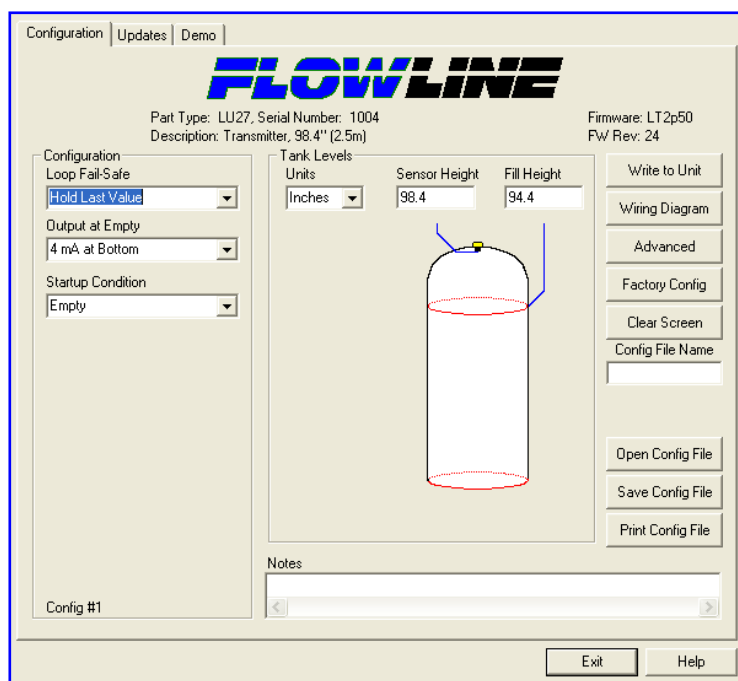
Range:	LU27: 4" to 9.8' (10cm to 3m) LU23: 8" to 18.0' (20cm to 5.5m) LU28: 8" to 24.6' (20cm to 8m) LU29: 8" to 32.8' (20cm to 10m)
Accuracy:	± 0.2% of range
Resolution:	LU27: 0.019" (0.5mm) LU23: 0.039" (1mm) LU28/29: 0.079" (2mm)
Dead band:	LU27: 4" (10cm) LU23/28/29: 8" (20cm)
Beam width:	LU27: 2" (5cm) LU23/28/29: 3" (7.6cm)
Configuration:	WebCal® PC Windows® USB 2.0
Memory:	Non-volatile
Supply voltage:	24 VDC (loop)
Consumption:	0.5W
Loop resistance:	500 ohms @ 24 VDC
Signal output:	4-20 mA, two-wire
Signal invert:	4-20 mA or 20-4 mA
Signal fail-safe:	4 mA, 20 mA, 21 mA, 22 mA or hold last
Process temp.:	F: -4° to 140° C: -20° to 60°
Temp. comp.:	Automatic
Ambient temp.:	F: -31° to 140° C: -35° to 60°
Pressure:	MWP = 30 PSI (2 bar)
Enclosure rating:	NEMA 4X (IP65)
Encl. material:	Polycarbonate
Trans. material:	PVDF
Cable jacket mat:	Polyurethane
Cable type:	4-conductor, shielded
Process mount:	LU27: 1" NPT (1" G) LU23/28/29: 2" NPT (2" G)
Mount gasket:	Viton®
Classification:	General purpose
Compliance:	CE, RoHS
Approvals:	cFMus

Features

- ✓ Offered in 4 measurement ranges from 9.8' (3m) to 32.8' (10m)
- ✓ DSP auto adaptive filters enable plug and play operation optimizing signal output filtering and obstacle recognition
- ✓ Configuration is fast and easy via WebCal software and USB adapter
- ✓ Narrow 2" or 3" beam width for applications with limited measurement space
- ✓ Short 4" or 8" dead band maximizes the measurable filling capacity of the tank
- ✓ PVDF transducer and NEMA 4X polycarbonate enclosure for corrosive liquids
- ✓ Automatic temperature compensation for accurate measurement

Configuration

Our powerful WebCal software makes EchoSonic II configuration fast and easy. Take control of your level process with WebCal's intuitive interface, pre-programmed menus, tank set point graphics and custom wiring diagrams. To configure EchoSonic II, simply create or open a saved configuration file, click Write to Unit, print or email the PDF wiring diagram and install. To get more information and download your free copy, go to www.flowline.com/webcal.php



Easy Configuration

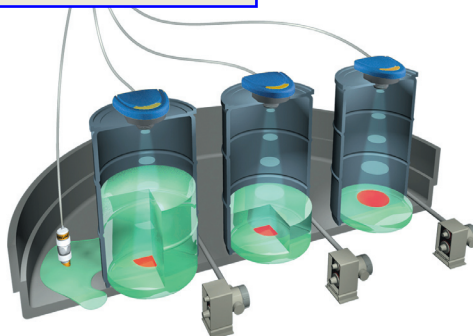
- Easy configurations with pull down menu selection
- Set operational range to match that of your application
- Setup fail-safe, start-up and Empty output settings
- Installs and tests configuration in less than a second
- Available PDF wiring diagram for each configuration
- Technical help menu with FAQ's, tips and glossary
- Rapidly program sensors to the same configuration

Document Control

- Save configuration files for future use or reference
- Print wiring diagrams and configuration text files
- Email configuration files to other remote users



LI99-1001



EchoSonic

LU2 -

Sensor range

7	3m (9.8')
3	5.5m (18.0')
8	8m (26.2')
9	10m (32.8')

Process mount (1)

4	NPT (US)
5	G (Metric)

Fob USB adapter (2)

0	Without Fob
1	With Fob

Ordering Notes

- 1) Install the level sensor using Flowline installation fittings or equivalents.
- 2) The level sensor is configured via our WebCal software and one LI99-1001 Fob USB adapter. The level sensor is offered with and without a Fob. Fobs are universal and can be used to configure any WebCal compatible product. WebCal is a free download from our website.

EchoSpan® Ultrasonic Level Transmitter



Faceplate

LU81-84

Specifications

Range:	LU80: 4" to 9.8' (10cm to 3m) LU81: 8" to 18.0' (20cm to 5.5m) LU83: 8" to 26.2' (20cm to 8m) LU84: 12" to 32.8' (30cm to 10m)
Accuracy:	± 0.2% of range
Resolution:	LU80: 0.019" (0.5mm) LU81/83: 0.039" (1mm) LU84: 0.078" (2mm)
Dead band:	LU80: 4" (10cm) LU81/83: 8" (20cm) LU84: 12" (30cm)
Beam width:	LU80: 2" (5cm) LU81/83/84: 3" (7.6cm)
Configuration:	Push button
Memory:	Non-volatile
Display type:	LCD, 6-digit
Display units:	Inch, cm and percent
Supply voltage:	12-28 VDC
Loop resist.:	500 Ohms @ 24 VDC
Signal output:	4-20 mA, two-wire
Signal invert:	4-20 mA, 20-4 mA
Signal fail-safe:	4mA, 20mA, 21mA, 22mA or hold last
Process temp.:	F: -4° to 140° C: -20° to 60°
Temp. comp.:	Automatic
Ambient temp.:	F: -31° to 140° C: -35° to 60°
Pressure:	MWP = 30 psi (2 bar)
Enclosure rating:	NEMA 4X (IP65)
Encl. material:	Polycarbonate
Encl. hardware:	Brass & stainless
Enclosure vent:	Water tight membrane
Conduit entrance:	Dual, 1/2" NPT
Trans. material:	PVDF
Process mount:	LU80: 1" NPT (1" G) LU81/83/84: 2" NPT (2" G)
Mount gasket:	Viton®
Classification:	General purpose
Compliance:	CE, RoHS

Application

The general purpose ultrasonic level transmitter provides continuous level measurement up to 32.8' (10m) with a 4-20 mA signal output, and is configured via its integral push button display module. This non-contact liquid level sensor is ideally suited for corrosive, ultrapure, sticky or dirty liquids, and is broadly selected for bulk storage, day tank, lift station and process tank level applications.

Features

- ✓ Offered in 4 measurement ranges from 9.8' (3m) to 32.8' (10m)
- ✓ Configuration is simple via integral push button display module
- ✓ LCD display indicates level in inches, centimeters and percentages
- ✓ Narrow 2" or 3" beam width for applications with limited measurement space
- ✓ Fail-safe intelligence and diagnostic feedback for simple troubleshooting
- ✓ PVDF transducer and NEMA 4X polycarbonate enclosure for corrosive liquids
- ✓ Automatic temperature compensation for accurate measurement

User Friendly

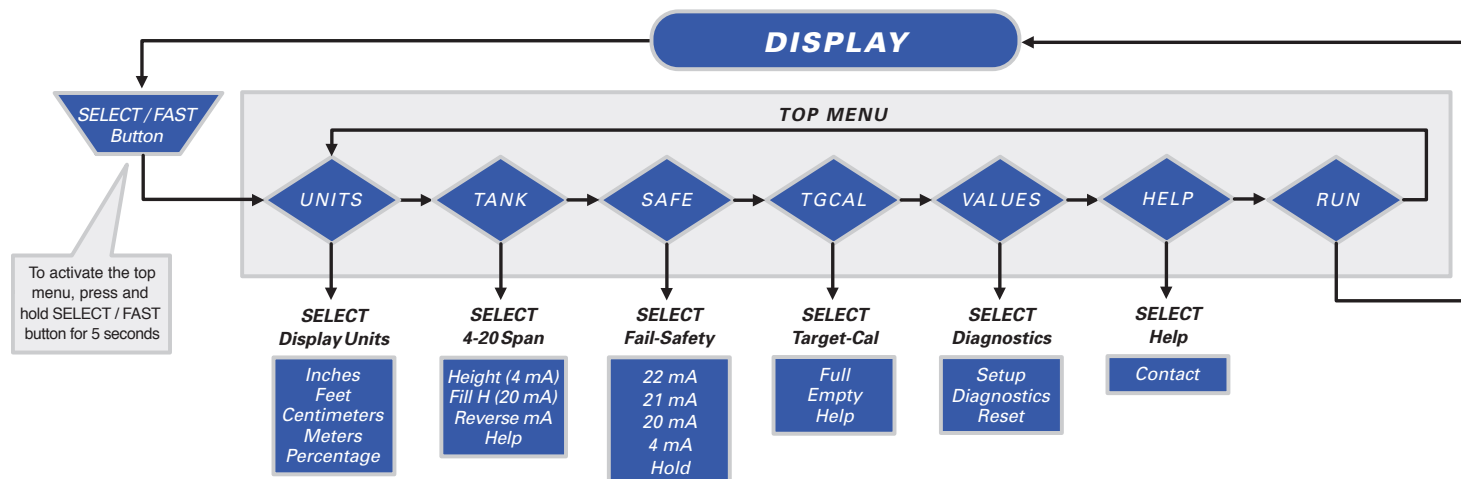
Configuration is fast and simple with the scrolling single layer menu, 3-button interface and 6-segment LCD display. Troubleshooting is easy with our powerful setup and diagnostic modes. Setup displays the transmitter's calibration set points and diagnostics provides users with a snapshot of the installed sensor performance in the application.



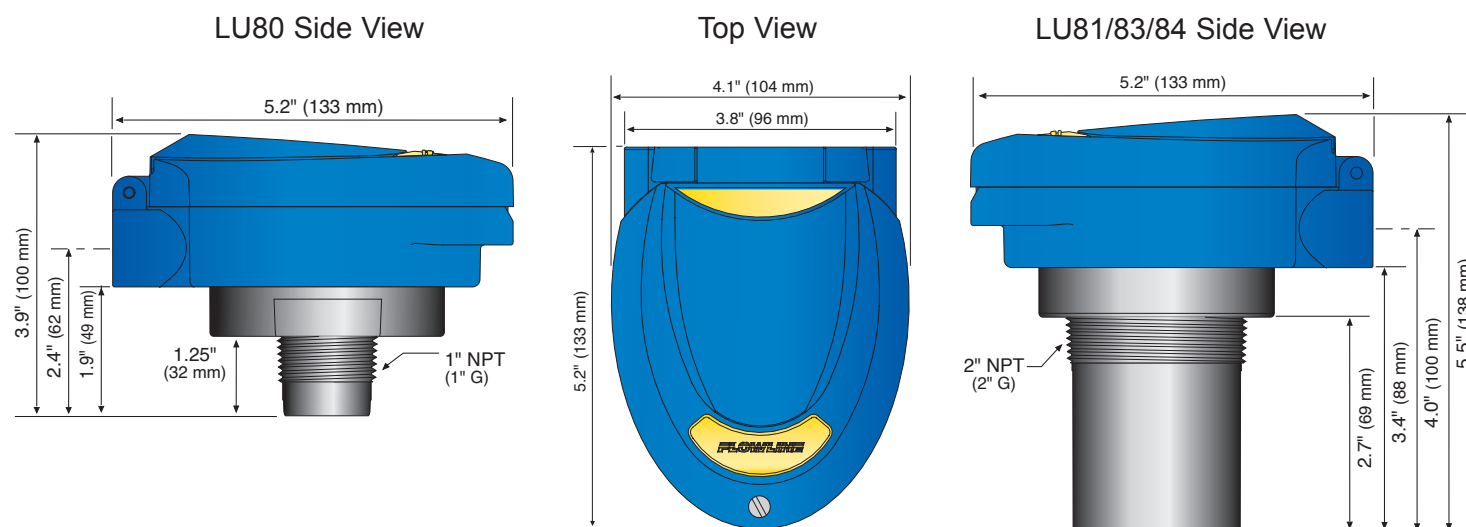
Non-Contact Measurement with Display

Bulk Tank

Configuration



Dimensions



EchoSpan

LU8 -51 1

Sensor range

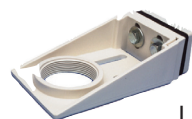
0	3m (9.8')
1	5.5m (18.0')
3	8m (26.2')
4	10m (32.8')

Process mount (1)

0	NPT (US)
6	G (Metric)

Ordering Notes

- 1) Install the level sensor using Flowline installation fittings or equivalents.



LM50-1001



DeltaSpan™ External Pressure Level Transmitter



LD30-S011

Application

The general purpose external pressure level transmitter is offered in two styles of termination and provides continuous level measurement up to 69' (21m) of water column with a 4-20 mA signal output. Select the -S_01 level sensor for cable termination or the -S_11 level sensor for conduit termination with an integral junction box. This liquid level sensor is well suited for clean liquid or gas media. Applications include cutting oil and air.

Features

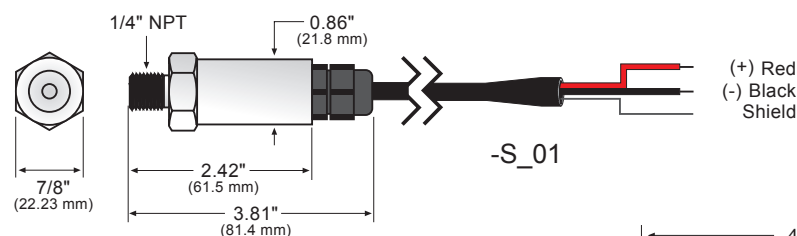
- ✓ Corrosion resistant 316 SS transducer with threaded mount
- ✓ Available with polyurethane cable or junction box termination
- ✓ Automatic temperature compensation for accurate measurement



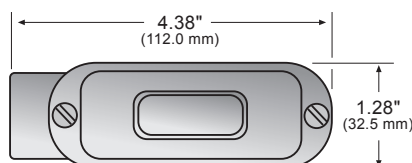
LD30-S001

Specifications

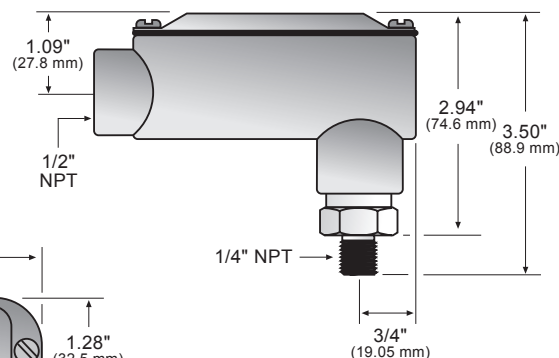
Range:	-S0X1: 0 to 5 psi (0.34 bar), 0 to 11' (0 to 3.4m) wc -S2X1: 0 to 15 psi (1 bar), 0 to 34' (0 to 10.4m) wc -S4X1: 0 to 30 psi (2 bar), 0 to 69' (0 to 21.1m) wc
Accuracy:	± 0.25% of full scale
Configuration:	None, fixed span
Supply voltage:	13-30 VDC
Loop resist.:	1300 Ohms max.
Signal output:	4-20 mA, two-wire
Process temp.:	F: 0° to 200° C: -18° to 93°
Temp. comp.:	F: 0° to 175° C: -18 to 79°
Proof pressure:	2 x full span
Enclosure rating:	NEMA 4X (IP66)
Enclosure mat.:	316 SS
Termination:	-SX1: Cable -SX11: Junction box with 1/2" NPT conduit
Cable type:	-SX01: 2-cond., shielded
Cable length:	-SX01: 9' (2.7m)
Cable material:	-SX1 : Polyurethane
Process mount:	1/4" NPT
Trans. material:	316 SS
Classification:	General purpose
Compliance:	CE



-S_11 Top View



-S_11 Side View



DeltaSpan

LD30-S 1

Sensor range

- 0 5 psi (0.34 bar) / 11' (3.4m) wc
- 2 15 psi (1.0 bar) / 34' (10.4m) wc
- 4 30 psi (2.0 bar) / 69' (21.1m) wc

Termination (1)

- 0 Cable
- 1 Junction box

Ordering Notes

- 1) For level sensor power, order the LC95-1001 AC-DC power supply.



LC95-1001

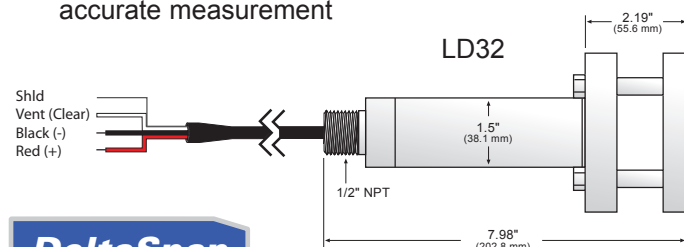


Application

The general purpose submersible pressure level transmitter is offered in three styles for different liquid types and provides continuous level measurement up to 46' (14m) of water column with a 4-20 mA signal output. Select the LD31 liquid level sensor for relatively clean water, light weight oil or diluted chemical. Application examples include water wells and ponds. Select the LD32 liquid level sensor for dirty, foaming or slurry type liquids. Application examples include industrial pump lift stations. The LD34 miniature submersible level transmitter is only 0.63" in diameter making it ideal for level monitoring in well and borehole applications.

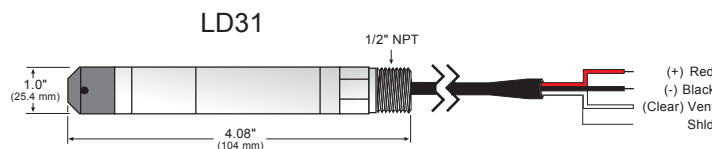
Features

- ✓ Corrosion resistant 316 SS transducer with polyurethane or ETFE cable
- ✓ Strong cable design with maintenance free breather tube and vent filter
- ✓ Enhanced LD32 has rugged clog and damage resistant diaphragm design
- ✓ Automatic temperature compensation for accurate measurement



Specifications

Range:	-SX01: 0 to 5 psi (0.34 bar), 0 to 11' (0 to 3.4m) wc -SX11: 0 to 10 psi (0.69 bar), 0 to 23' (0 to 7m) wc -SX21: 0 to 15 psi (1.0 bar), 0 to 34' (0 to 10.4m) wc -SX31: 0 to 20 psi (1.38 bar), 0 to 46' (0 to 14m) wc
Accuracy:	± 0.25% of full scale
Configuration:	None, fixed span
Supply voltage:	13 to 30 VDC
Loop resist.:	900 Ohms
Signal output:	4-20 mA, two-wire
Process temp.:	LD31: F: 0° to 150° C: -18° to 66° LD32: F: 0° to 200° C: -18° to 93° LD34: F: -4° to 176° C: -20° to 80°
Temp. comp.:	LD31: F: 0 to 140° C: -18 to 60° LD32: F: 0° to 180° C: -18 to 82° LD34: F: 32° to 158° C: 0 to 70°
Proof pressure:	2 x full scale
Trans. material:	LD31: 316 SS, 316L SS, Buna-N & PVC LD32: 316 SS, 316L SS, Buna-N LD34: 316 SS
Trans. thread:	1/2" NPT
Cable type:	2-conductor, shielded with vent tube
Cable length:	-SX01 & SX11: 40' (12.2m) -SX21 & SX31: 60' (18.3m)
Cable material:	-S1X1: Polyurethane -S2X1: ETFE
Classification:	General purpose
Compliance:	CE



DeltaSpan

LD3 **-S** **1**

Liquid type (1) (2)

- 1 Water & light oil
- 2 Wastewater & slurry
- 4 Down-well water applications

Cable jacket

- 1 Polyurethane
- 2 ETFE

Sensor range

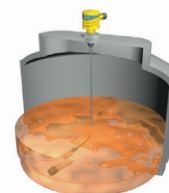
- 0 5 psi (0.34 bar) / 11' (3.4m) wc
- 1 10 psi (0.69 bar) / 23' (7m) wc
- 2 15 psi (1.0 bar) / 34' (10.4m) wc
- 3 20 psi (1.38 bar) / 46' (14m) wc

LD90-1001



Ordering Notes

- To install the level sensor through the tank top with a compact junction box, 2" mounting plug and cable connector, order the LD90-1001 pressure sensor mounting kit.
- LD34 available only in the -S1X1 configuration.



EchoTouch™ 3-Wire Ultrasonic Level Transmitter

Application

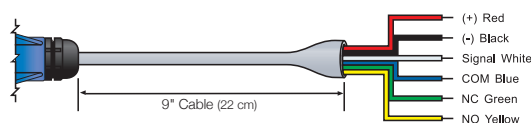
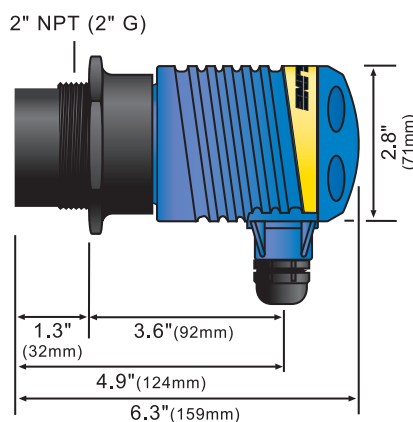
The general purpose 3-wire ultrasonic level transmitter provides continuous level measurement up to 24.5' (7.4m) with a 4-20 mA signal output, and is configured via the integral push button display module. The level sensor has one 10A relay which can be configured on a single set point (high level alarm or low level alarm) or latched on two set points for automatic fill or empty with fail-safe logic. This non-contact liquid level sensor is well suited for corrosive, ultrapure, sticky or dirty liquids, and is widely selected for bulk storage and day tank level applications.

LU30-5003



Features

- ✓ Level measurement up to 24.5' (7.4m) with 1 programmable relay
- ✓ Configuration is simple via integral push button display module
- ✓ LED digital display indicates level in inches or centimeters
- ✓ Programmable relay for alarm or automatic fill-empty control
- ✓ Polypropylene enclosure rated NEMA 4X with rugged PVDF transducer



Specifications

Range:	6" to 24.5' (15cm to 7.4m)
Accuracy:	±0.25% of range
Resolution:	0.125" (3mm)
Dead band:	6" (15cm)
Beam width:	8° conical
Configuration:	Push button
Memory:	Non-volatile
Display type:	LED, 4-digit
Display units:	Inch or cm
LED indication:	Relay status
Supply voltage:	14-36 VDC
Consumption:	200mA max.
Signal output:	4-20 mA, three-wire
Signal invert:	4-20 mA, 20-4 mA
Current flow:	Sourcing or sinking
Contact type:	(1) SPDT relay, latching
Contact rating:	250 VAC @ 10A
Contact logic:	Single point: alarm Two point: latching
Contact fail-safe:	Reverts to safe state during echo-loss
Process temp.:	F: -20° to 140°, C: -4° to 60°
Temp. comp.:	Automatic
Ambient temp.:	F: -40° to 140°, C: -40° to 60°
Pressure:	30 psi (2 bar) @25° C derated @1.667 psi (.113 bar) per °C above 25° C
Enclosure rating:	NEMA 4X (IP65)
Encl. material:	PP, UL94VO
Conduit entrance:	Single, 1/2" NPT
Cable length:	9' (22cm)
Cable type:	Power & signal: 3-conductor Relay: 3-conductor
Cable jacket mat:	Vinyl
Trans. material:	PVDF
Process mount:	2" NPT (2" G)
Mount gasket:	Viton®
Classification:	General purpose
Compliance:	CE

LC95-1001



EchoTouch

LU30-50

Process mount (1)

- 0 NPT (US)
6 G (Metric)

Signal output (2) (3) (4)

- 3 4-20 mA, sourcing
4 4-20 mA, sinking

Ordering Notes

- 1) Install the level sensor using Flowline installation fittings or equivalents.
- 2) The three-wire level sensor is offered with sourcing and sinking signal outputs. Sourcing uses the negative of the power supply as common, and provides internal excitation for use with sinking devices. Sinking uses the positive of the power supply as common, and requires external excitation for use with sourcing devices.
- 3) For level sensor power, order the LC95-1001 AC-DC power supply.
- 4) To special order cable, place the cable length (feet/m) at the end of the part number (i.e.: LU30-5003S-10'). Add \$16 per foot of cable.



FloaTek™ Float Level Transmitter

Bulk Tank

Application

The general purpose float level transmitter provides continuous level measurement up to 6.5' (2m) with a 4-20 mA signal output, and is factory configured to your selected dimension. This stainless steel liquid level sensor is well suited for high temperature or pressure tank level applications with relatively clean liquids such as water, diluted chemicals and light weight oils. Application examples include boilers and process vessels.

Features

- ✓ High pressure or temperature level measurement up to 6.5' (2m)
- ✓ Rugged 316 stainless steel float guide and process mounting plug
- ✓ Assembled to your guide length and measurement span dimensions
- ✓ Polypropylene junction box rated NEMA 4X with conduit port and terminal strip

LV55-S001



Specifications

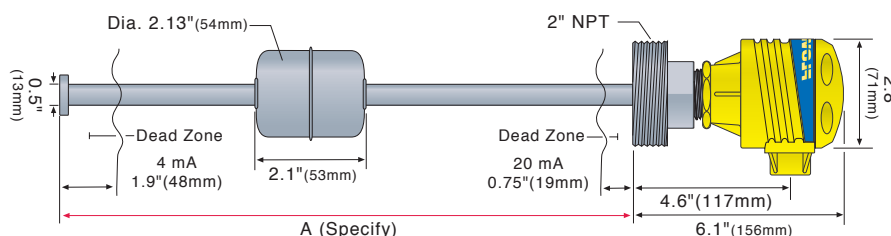
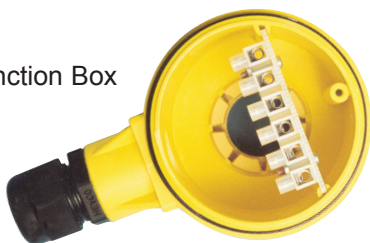
Range:	12" to 6.5' (30cm to 2m)
Accuracy:	0.25% span in water
Configuration:	None, fixed span
Orientation:	± 20° from vertical
Specific gravity:	0.55 minimum
Supply voltage:	10 to 30 VDC
Loop resist.:	600 Ohms @ 24 VDC
Signal output:	4-20 mA, two-wire
Process temp.:	F: -40° to 185° C: -40° to 85°
Ambient temp.:	F: -40° to 140° C: -40° to 60°
Pressure:	200 psi (13.8 bar)
Enclosure rating:	NEMA 4X (IP65)
Enclosure mat.:	PP, UL94VO
Conduit entrance:	Single, 1/2" NPT
Process mount:	2" NPT
Guide-float mat.:	316 SS
Classification:	General purpose
Compliance:	CE

Tech Tip

For level indication and control, package your float transmitter with the DataView level controller. See page 43 for details.



Junction Box



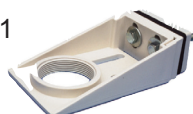
FloaTek

LV55-S001-

Dimensions (1) (2)

- A Specify
- 16" (41cm)
 - 24" (61cm)
 - 32" (81cm)
 - 36" (91cm)
 - 42" (107cm)
 - 48" (122cm)

LM50-1001



Ordering Notes

- 1) Specify the A-dimension at the end of the part number. The level sensor is offered in six standard guide lengths from 16" to 48" (41cm to 122cm). The 20 mA set point is placed at 0.75" (19mm) below the mounting plug, and the 4 mA set point is placed at 1.9" (48mm) above the guide stop. The space above and below these set points are dead zones.
- 2) Custom guide lengths may be specified in 1/2" (1.3cm) increments from 12" to 78" (30cm to 2m). To calculate the custom guide length adder, round up the A-dimension to the next inch (2.5cm), multiply it by \$11 per inch (2.5cm), and add that sum to the custom price.

Orders for this custom built product are non-cancellable and/or non-returnable

DataLoop™ Level Indicator



LI25-1001

Application

The general purpose loop powered level indicator displays engineering units connected in series with one 4-20 mA continuous level transmitter. For field mount installation, add a single or two indicator NEMA box.

Shown with
LM91-1001

Features

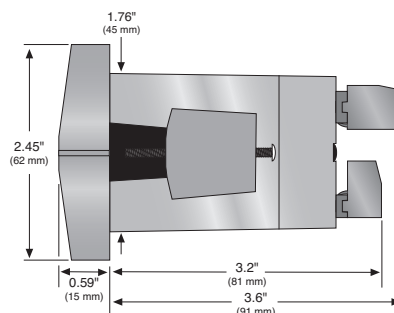
- ✓ Easy configuration via the push button display module
- ✓ LCD main display with secondary unit and bar graph display
- ✓ DIN enclosure with NEMA 4X faceplate and shallow case
- ✓ Linear, square root and programmable exponent functions
- ✓ Non-volatile memory with security password protection
- ✓ Windowed NEMA box accessory for field installations

Shown with
LM93-1001

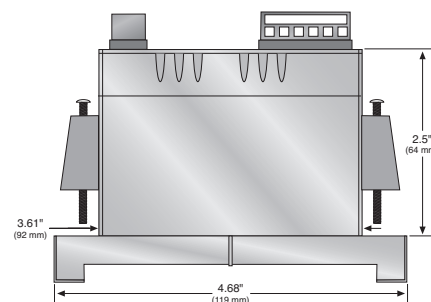
Specifications

Display type:	LCD, 5-digit
Display units:	Engineering
Display output:	-9999 to 99999
Display height:	0.6" (15mm)
Decimal point:	Floating
Backlight:	LED, orange
Configuration:	Push button
Memory:	Non-volatile
Sensor input:	(1) 4-20 mA transmitter
Loop power:	12-30 VDC
Voltage drop:	2.0 VDC w/o backlight 5.7 VDC w/backlight
Ambient temp.:	F: -22° to 149° C: -30° to 65°
Enclosure type:	1/8 DIN, panel mount
Enclosure rating:	NEMA 4X (IP65) faceplate
Enclosure mat'l:	Polycarbonate
Classification:	General purpose
Compliance:	CE

Side View



Top View



Tech Tip

For field mount installation in a NEMA 4X, corrosion resistant polycarbonate enclosure, order the appropriate single or two indicator box. Each enclosure comes with precut panels and mounting hardware. It's indication made simple.

DataLoop

LI25-1001 (1) (2)

Ordering Notes

- 1) For field mount installation in a NEMA 4X polycarbonate box, order the LM91-1001 (single indicator, non-windowed) or LM91-2001 (two indicator, non-windowed); or LM92-1001 (single indicator, windowed) or LM93-1001 (two indicator, windowed) enclosure.
- 2) For battery powered level indication, order the LI25-1001-BO. Powered by two 9V batteries, the indicator comes pre-mounted in a LM92-1001 windowed NEMA box.



DataView™ Level Controller

Bulk Tank



Expansion Card

L155-1001

Specifications

Display type:	LED, 6-digit
Display units:	Engineering
Display output:	-99999 to 999999
Display height:	Main: 0.6" (15mm) high Secondary: 0.46" (12mm)
Decimal point:	Floating
LED indication:	Relay status
Configuration:	Push button
Memory:	Non-volatile
Linearization:	2-32 point function
Sensor input:	(1) 4-20 mA or 0-10 VDC
Supply voltage:	85-265 VAC @ 50-60 Hz.
Consumption:	15 watts max.
Sensor supply:	24 VDC \pm 5% @ 200 mA
Repeater output:	4-20 mA, 24 VDC \pm 5% @ 40 mA supply
Contact type:	-12_1: (2) SPDT relays -14_1: (4) SPDT relays
Contact rating:	3A @ 30 VDC and 250 VAC resistive load
Ambient temp.:	F: -40° to 149° C: -40° to 65°
Enclosure type:	1/8 DIN, panel mount
Enclosure rating:	NEMA 4X (IP65) faceplate
Enclosure mat.:	Polycarbonate
Classification:	General purpose
Compliance:	CE
Approvals:	UL, cUL listed, E160849, 508 industrial control equipment

Application

The general purpose level controller displays engineering units with one 4-20 mA or 0-10 VDC continuous level sensor input and is offered in three configurations with optional 2 or 4 programmable relays, and an isolated 4-20 mA repeater. Each relay can be configured on a single set point (high level alarm or low level alarm) or latched on two set points for automatic fill or empty in simplex (one pump or valve) or duplex (two pumps) level control modes.

Features

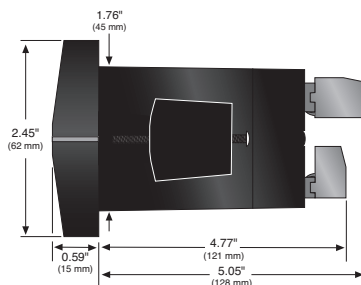
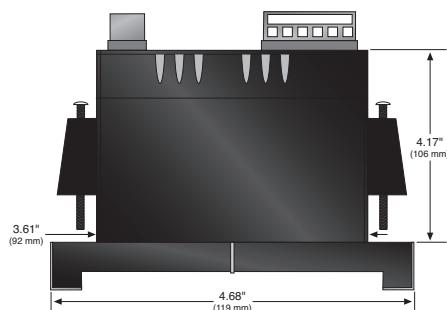
- ✓ LED main display and secondary unit display with relay status
- ✓ Easy configuration via the push button display module
- ✓ DIN enclosure with NEMA 4X faceplate and shallow case
- ✓ Isolated power supply to sensor with 4-20 mA repeater output
- ✓ Non-volatile memory with security password protection
- ✓ 32-point linearization function for volumetric measurement

Tech Tip

For field mount installation in a NEMA 4X, corrosion resistant polycarbonate enclosure, order the appropriate single or two indicator box. Each enclosure comes with precut panels and mounting hardware. It's indication and control made simple.



Shown with LM93-1001



DataView

L155- [] [] [] 1

Supply voltage

- 1 85-265 VAC
- 8 12-24 VDC

Configuration (1) (2)

- 0 Meter only
- 2 Meter with 2 relays
- 4 Meter with 4 relays

Repeater configuration

- 0 No repeater
- 1 4-20 mA repeater

Ordering Notes

- For field mount installation in a NEMA 4X polycarbonate enclosure, order the LM92-1001 (single indicator box) or the LM93-1001 (two indicator box).
- See page 84 for controller expansion cards.



Commander™ Multi-Tank Level Controller



LI90-1001

Features

- ✓ Multi-tank controller with three run mode configurations
- ✓ Easy configuration via the push button display module
- ✓ Graphic LCD display indicates channel span and relay status
- ✓ DIN enclosure with NEMA 4X faceplate and shallow case
- ✓ Easy data logging and retrieval via optional MicroSD card
- ✓ Simulation mode for configuration testing and troubleshooting



MicroSD Card

Specifications

Display type:	LCD, graphic
Display pixels:	128 x 64
Display units:	Engineering
Display output:	0 to 999999
LCD indication:	Relay status
Configuration:	Push button
Backlight:	Yes
Memory:	Non-volatile
Opt. memory:	MicroSD card
Linearization:	Tank shapes
Sensor inputs:	-1001: (4) 4-20 mA -2001: (2) 4-20 mA
Supply voltage:	10-30 VDC
Contact type:	-1001: 6 SPST relays -2001: No relays
Consumption:	130 mA @ 24 VDC
Contact rating:	3A @ 30 VDC or 250 VAC resistance load (-1001 only)
Repeater output:	(2) 4-20 mA, 24 VDC (-2001 only)
Ambient temp.:	F: 32° to 122° C: 0° to 50°
Enclosure type:	1/4 DIN, panel mount with 35mm DIN rail
Enclosure rating:	NEMA 4X (IP65) faceplate
Enclosure mat.:	Polycarbonate
Classification:	General purpose
Compliance:	CE
Approvals:	cULus

Application

The general purpose level controller displays engineering units with four 4-20 mA continuous level sensor inputs and 6 programmable relays. Select from one of three run configurations:

- 1) Multi-tank with 4 level sensor inputs and 4 relays
- 2) Pump control with 1 level sensor input and 6 relays for lift stations in simplex (one pump) or duplex (two pumps) level control modes
- 3) Differential level with 2 level sensor inputs and 4 relays for municipal screen or rake control

Relays can be configured on a single set point (high level alarm or low level alarm) or latched on two set points for automatic fill or empty pump or valve control with selectable time delay. The graphic LCD display indicates span and relay status for each input channel. An optional MicroSD card enables data-logging storage and retrieval.

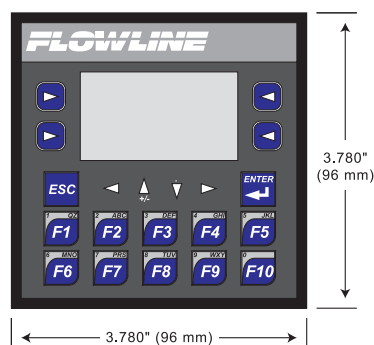
Tech Tip

Package the Commander with our external power supply rated 24 VDC @ 0.6A. The rail mount power supply supports all Flowline transmitters used with the controller.

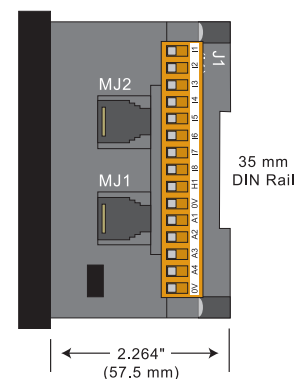


LC95-1001

Top View



Side View



Commander

LI90- 001

Sensor inputs / outputs (1) (2)

- 1 4 inputs / 6 relays
- 2 2 inputs / 2 repeaters



Ordering Notes

- 1) Optional MicroSD cards can be purchased separately from electronic retailers.
- 2) For external loop power, order the LC95-1001 (120-240 VAC) power supply (24 VDC @ 0.6A).

DataPoint™ Level Controller

Bulk Tank



LC52-1001

Application

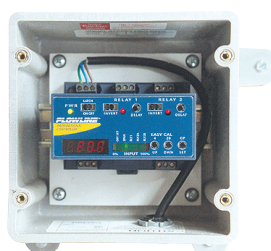
The general purpose controller provides single tank level indication with 2 relays, 1-3 set points and an isolated analog repeater. Relay 1 is configurable on a single set point. Relay 2 can be configured on a single set point or latched on two set points for automatic fill or empty control. Package the controller with any of our level transmitters. The NEMA 4X polycarbonate enclosure is a great choice for field mount installations and comes complete with a DIN rail mounting kit.

Tech Tip

For field mount installation in a NEMA 4X windowed enclosure polycarbonate box, order the appropriate single or two controller enclosure. All necessary mounting hardware is included.

Features

- ✓ 3.5 digit LED display indicates level in custom engineering units
- ✓ Fail-safe relay control of pumps or valves with 0-60 second delay
- ✓ Easy set up with push button calibration for span, display and relay set points
- ✓ 35 mm DIN rail mount polypropylene enclosure with removable terminal strips
- ✓ Invert switch changes relay state from NO to NC without rewiring

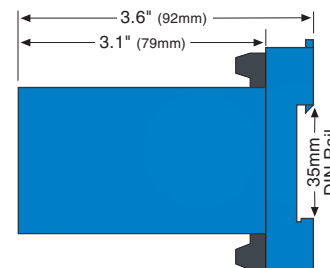


LM94-1001

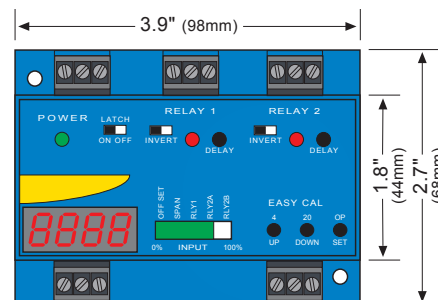
Specifications

Display type:	LED, 3.5 digit
Display units:	Engineering
Display output:	0 to 999
LED indication:	Relay status
Configuration:	Push button
Alarm indication:	Amber: < 4mA Red: > 20 mA
Sensor input:	(1) 4-20 mA
Supply voltage:	Selectable 120 / 240 VAC 50-60 Hz.
Sensor supply:	24 VDC @ 1.5 watts
Loop power:	4-20 mA, 18 VDC
Consumption:	5 watts maximum
Contact type:	(2) SPDT relays (one latching)
Contact rating:	250 VAC @ 10A
Contact output:	Selectable NO / NC
Contact latch:	Selectable ON / OFF
Contact delay:	0-60 seconds
Repeater output:	4-20 mA, 12-36 VDC
Ambient temp.:	F: -40° to 158° C: -40° to 70°
Enclosure type:	35mm DIN rail (EN 50 022)
Enclosure mat.:	PP, UL94VO
Classification:	General purpose
Compliance:	CE

Side View



Top View



DataPoint

LC52-1001 ⁽¹⁾

Ordering Notes

- 1) For field mount installation in a NEMA 4X windowed polycarbonate box, order the LM94-1001 (single controller) or LM95-1001 (two controller) enclosure.