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FLOWLINE™
LEVEL BEST











Liquid and Solids Level Measurement and Control



Why Flowline

Flowline has twenty five years of proven success in level measurement and control applications. We understand your requirements, offer a breadth of measurement technologies, and readily share our application expertise.

RELIABILITY Our advanced level sensing technologies including pulse radar, guided wave and ultrasonic provide accurate and reliable measurement.

EASE OF USE Our intuitive designs, powerful WebCal configuration software and application-solution based website, make our level products easy to use.

AVAILABILITY Our level products are locally stocked, fulfilled and supported by our global network of fluid handling and process distributors.

QUALITY Our ISO 9001 company and team of level experts, stand behind our products and services, and your satisfaction is our highest concern.

HVAC
Textile
Mining
Biofuel
Marine
Oil field
Printing
Cement
Farming
Hospital
Chemical
Lubricant
Aerospace
Agriculture
Water park
Automotive
Animal feed
Pulp & paper
Biotechnology
Environmental
Metal finishing
Transportation
Semiconductor
Paint & coating
Microelectronic
Pharmaceutical
Pool & fountain
Zoo & aquarium
Water treatment
Building material
Food & beverage
Power generation
Commercial laundry
Building automation
Wastewater treatment
Equipment manufacturer



We Do Your Level Best™

Flowline enables industrial manufacturers, chemical distributors, municipalities and energy or food providers to safely and efficiently manage their contained liquid and solid assets. Our quality solutions measure tank inventories, automate tank processes, ensure workplace safety and protect the environment. We design, manufacture and market the best level measurement and control instruments for your chemical, water, wastewater, oil and dry solid applications. Flowline products are sold and supported worldwide through our stocking distribution partners. Our customers include design engineers, system integrators, original equipment manufacturers, facility operations, engineering and maintenance decision makers. The leading criteria for product selection are reliability, ease of use, availability and quality.

CHEMICAL DISTRIBUTION



INDUSTRIAL MANUFACTURING



INDUSTRIAL WATER & WASTEWATER



MUNICIPAL WATER & WASTEWATER

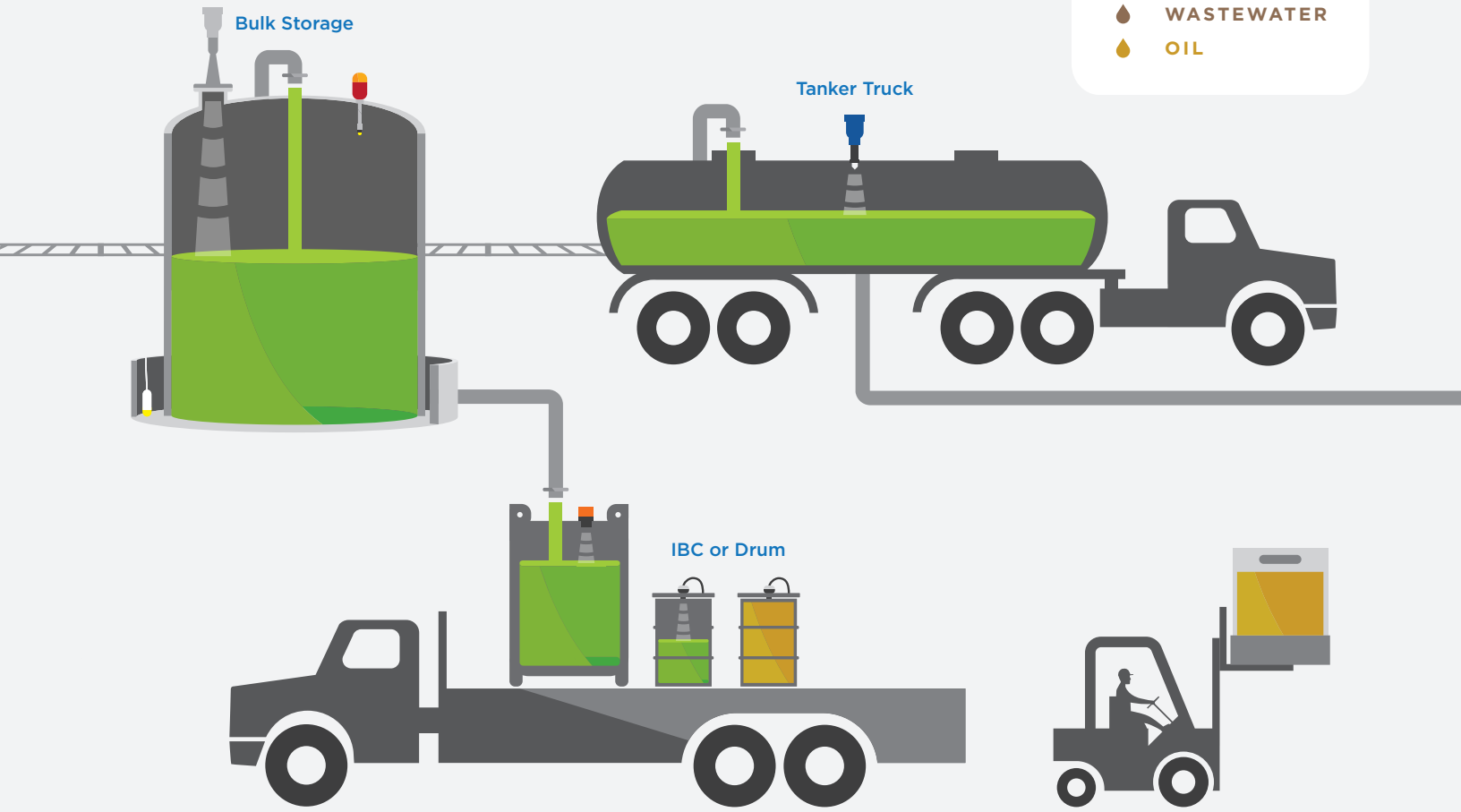


BULK SOLIDS

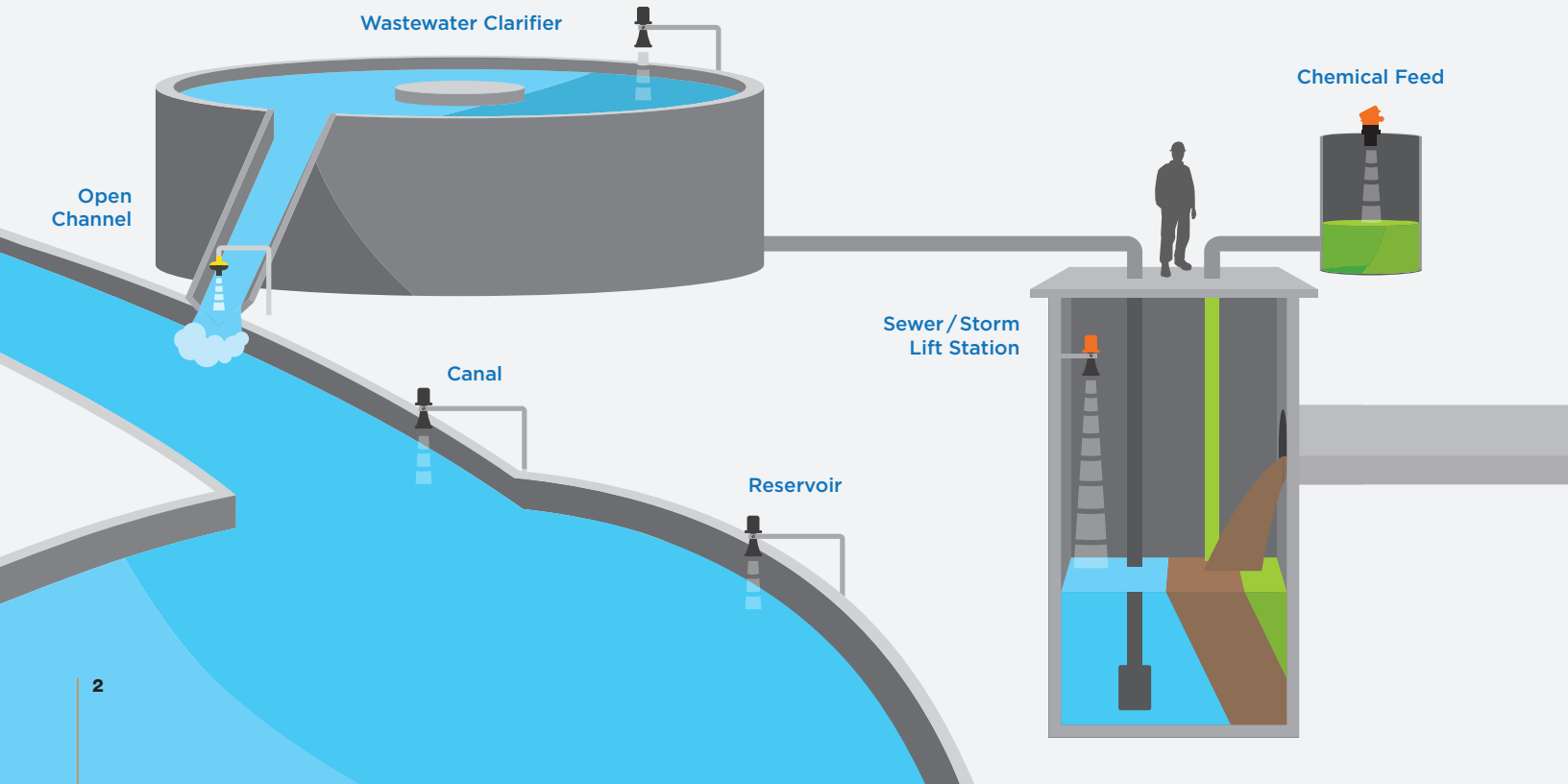




CHEMICAL DISTRIBUTION



MUNICIPAL WASTEWATER



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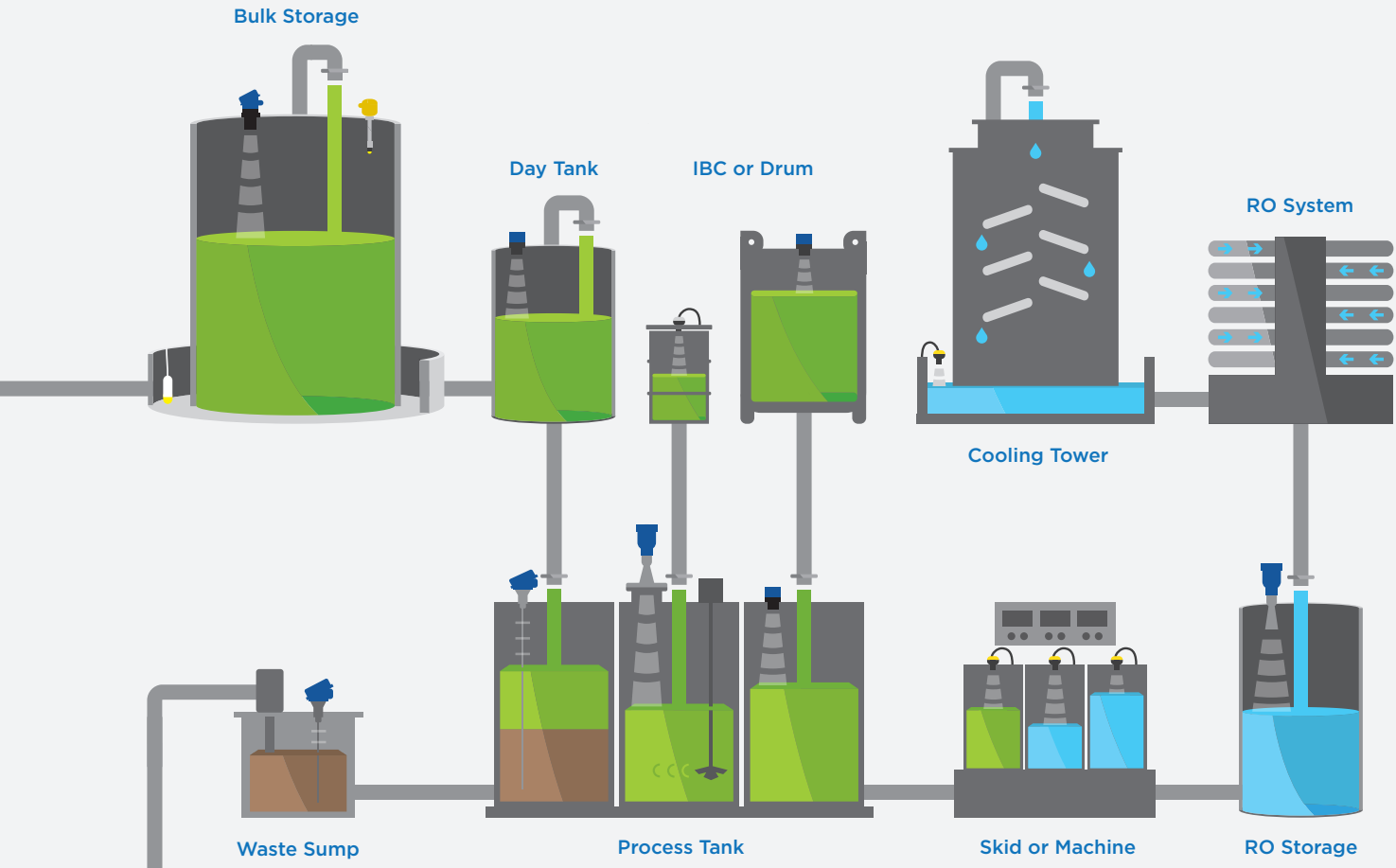
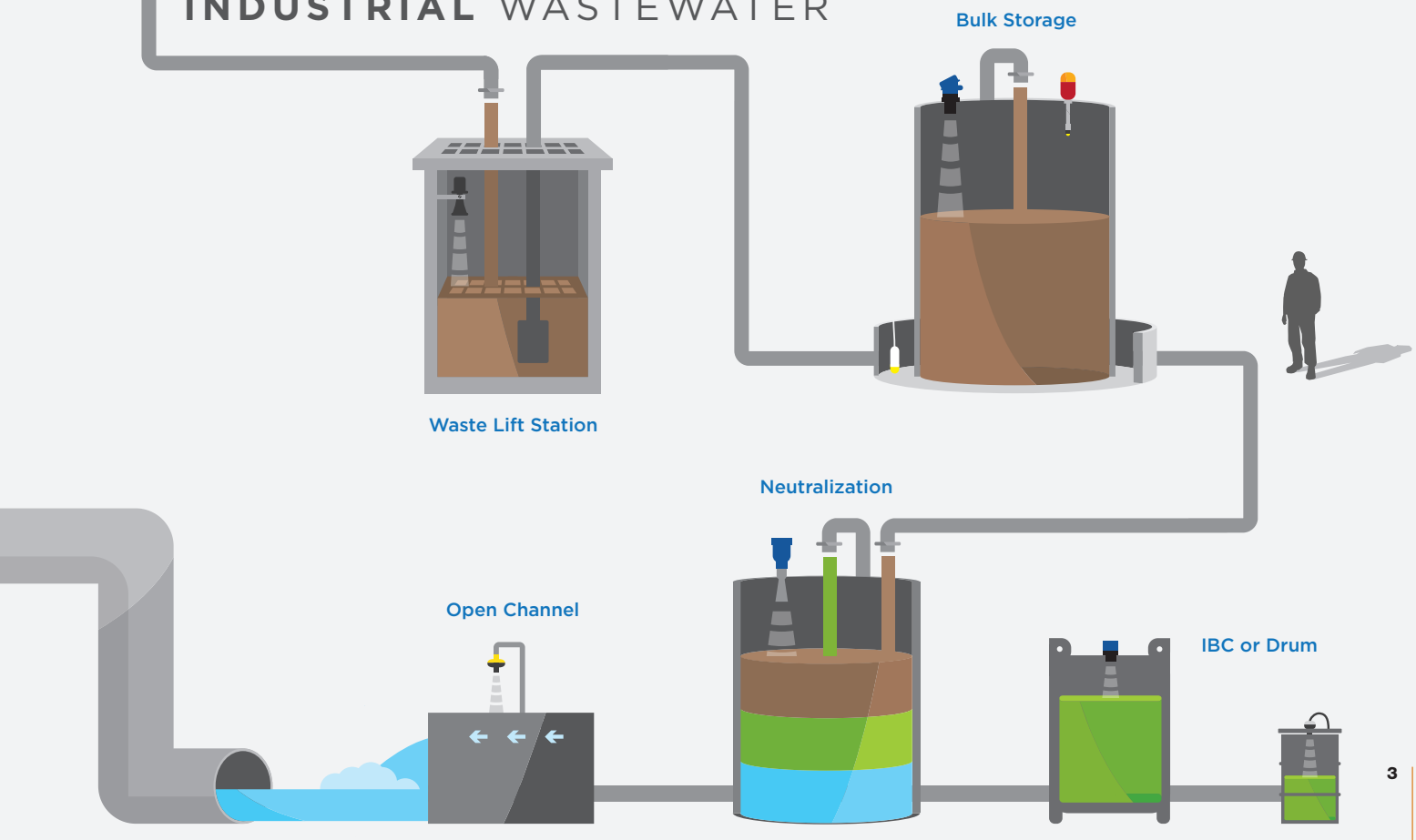


INDUSTRIAL WASTEWATER



EchoPulse® General Purpose Pulse Radar Liquid Level Transmitters

Best for Difficult Bulk Tank, Process or Sump Applications

These non-contact sensors are the reliable level measurement solution for your most demanding storage, process and lift station applications.



The LR30 pulse radar sensor is the reliable level measurement solution for municipal and industrial pump lift stations.

WHY PULSE

Pulse radar is unaffected by process conditions that cause other sensing technologies to fail or require ongoing maintenance. These include foam, vapor, condensation, corrosion, temperature, pressure, vacuum, and coating or scaling liquids.

TECHNOLOGY

The radar sensor emits a 26 GHz or 6.3 GHz RF pulse from the base of the antenna. The pulse travels through the free space, reflects against the liquid dielectric material and returns to the antenna. The sensor measures the pulse time of flight and translates it into liquid level distance.

	LR10	LR15	LR20	LR25	LR30
Classification	General purpose				
Application	Storage	Storage	Storage	Process	Lift station
Proc. condition	Easy	Difficult	Difficult	Extreme	Difficult
Tank location and material	Above grade metal or below grade in any tank material	Above or below grade in any tank material	Above or below grade in any tank material	Above grade metal or below grade in any tank material	Below grade in any tank material
Corrosive	Yes	Diluted	Yes	Yes	Diluted
Range	32.8' (10m)	98.4' (30m)	65.6' (20m)	114.8' (35m)	98.4' (30m)
Output	4-20 mA	4-20 mA	4-20 mA	4-20 mA	4-20 mA
Configuration	Push button	Push button	Push button	Push button	Push button
Installation	Tank adapter or flange		Flange	Flange	Bracket
Mount	1 1/2" NPT	1 1/2" NPT	3", 4" ANSI	4", 6" ANSI	Bolt
Max. temp.	266° F. (130° C.)	302° F. (150° C.)	302° F. (150° C.)	266° F. (130° C.)	212° F. (100° C.)
Max. pressure	43.5 PSI (3 bar)	150 PSI (10 bar)	72 PSI (5 bar)	580 PSI (40 bar)	Atmospheric
Ant. material	PFA	316L	316L & PTFE	316L & PTFE	Nylon

ECHOPULSE® LR10

LR10-0010

1 1/2" NPT, PFA horn



The general purpose 26 GHz. pulse radar 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. The non-contact liquid level sensor is intended for chemical or water storage applications in above grade metal or reinforced concrete tanks or below grade tanks of any material. Select this sensor for easy process conditions with corrosive media, light agitation, condensation or vapor, and installation in a low-profile tank adapter or flange fitting.



ECHOPULSE® LR15

LR15-0010-20
2” (48mm) 316L horn
LR15-0010-30
3” (78mm) 316L horn
LR15-0010-40
4” (98mm) 316L horn

The general purpose 26 GHz. pulse radar transmitter provides continuous level measurement up to 98.4’ (30m) with a 4-20 mA signal output, and is configured via its integral push button display module. The non-contact liquid level sensor is intended for petroleum, water, wastewater and diluted chemical storage or process applications in above or below grade tanks of any material. Select this sensor for challenging process conditions with diluted or non-corrosive media, light surface foam or agitation, higher temperature or pressure, condensation or vapor, and installation in a tank adapter, flange fitting or metal stand-pipe.



ECHOPULSE® LR20

LR20-0310-30
3” ANSI with PTFE shield
LR20-0310-40
4” ANSI with PTFE shield

The general purpose 26 GHz. pulse radar transmitter provides continuous level measurement up to 65.6’ (20m) with a 4-20 mA signal output, and is configured via its integral push button display module. The non-contact liquid level sensor is intended for chemical storage or process applications in above or below grade tanks of any material. Select this sensor for challenging process conditions with corrosive media, light surface foam or agitation, higher temperature or pressure, condensation or vapor, and installation in a flange fitting.



ECHOPULSE® LR25

LR25-0310-40
4” ANSI with PTFE shield
LR25-0310-60
6” ANSI with PTFE shield

The general purpose 6.3 GHz. pulse radar transmitter provides continuous level measurement up to 114.8’ (35m) with a 4-20 mA signal output, and is configured via its integral push button display module. The non-contact liquid level sensor is intended for chemical and petroleum storage or process applications in above grade metal or reinforced concrete tanks or below grade tanks of any material. Select this sensor for harsh process conditions with corrosive or low dielectric media, heavy surface foam or agitation, higher pressure, steam, condensation or vapor, and installation in a flange fitting. Due to the wider beam angle, special attention should be given to ensure that the sensor is located with unobstructed measurement space.



ECHOPULSE® LR30

LR30-0010-10
Nylon sensor, 304 bracket, remote display

The general purpose 26 GHz. pulse radar transmitter provides continuous level measurement up to 98.4’ (30m) with a 4-20 mA signal output, and is configured via its remote push button display module. The non-contact liquid level sensor is intended for industrial wastewater, municipal storm or sewer lift station, reservoir, river, canal or flume applications located below or above grade. Select this sensor for challenging process conditions that may include light surface foam or agitation, small trash or plant material, wind, condensation or vapor. Each comes with a 32.8’ (10m) cable, mounting bracket and display module. The sensor is intended for bracket mount installation suspended above the liquid level.



EchoPro® Intrinsically Safe Pulse Radar Liquid Level Transmitters

Best for Difficult Bulk Tank, Process or Sump Applications

These non-contact sensors are the reliable level measurement solution for your most demanding storage, process and lift station applications.



The LR16 pulse radar sensor delivers reliable level measurement in applications with surface foam.

WHY PULSE

Pulse radar is unaffected by process conditions that cause other sensing technologies to fail or require ongoing maintenance. These include foam, vapor, condensation, corrosion, temperature, pressure, vacuum, and coating or scaling liquids.

TECHNOLOGY

The radar sensor emits a 26 GHz or 6.3 GHz RF pulse from the base of the antenna. The pulse travels through the free space, reflects against the liquid dielectric material and returns to the antenna. The sensor measures the pulse time of flight and translates it into liquid level distance.

	LR11	LR16	LR21	LR26	LR31
Classification	Intrinsically safe				
Application	Storage	Storage	Storage	Process	Lift station
Proc. condition	Easy	Difficult	Difficult	Extreme	Difficult
Tank location and material	Above grade metal or below grade in any tank material	Above or below grade in any tank material	Above or below grade in any tank material	Above grade metal or below grade in any tank material	Below grade in any tank material
Corrosive	Yes	Diluted	Yes	Yes	Diluted
Range	32.8' (10m)	98.4' (30m)	65.6' (20m)	114.8' (35m)	98.4' (30m)
Output	4-20 mA + HART	4-20 mA + HART	4-20 mA + HART	4-20 mA + HART	4-20 mA + HART
Configuration	Push button, HART	Push button, WHART	Push button, HART	Push button, HART	Push button, HART
Installation	Tank adapter or flange		Flange	Flange	Bracket
Mount	1 1/2" NPT	1 1/2" NPT	3", 4" ANSI	4", 6" ANSI	Bolt
Max. temp.	266° F. (130° C.)	302° F. (150° C.)	302° F. (150° C.)	266° F. (130° C.)	212° F. (100° C.)
Max. pressure	43.5 PSI (3 bar)	150 PSI (10 bar)	72 PSI (5 bar)	580 PSI (40 bar)	Atmospheric
Ant. material	PFA	316L	316L & PTFE	316L & PTFE	Nylon

ECHOPRO® LR11

LR11-5421-00

1 1/2" NPT, PFA horn



The intrinsically safe 26 GHz. pulse radar level transmitter provides continuous level measurement up to 32.8' (10m) with a 4-20 mA analog and HART digital signal output, and is configured via its integral push button display module or HART communicator. The non-contact liquid level sensor is intended for chemical or water storage applications in above grade metal or reinforced concrete tanks or below grade tanks of any material. Select this sensor for easy process conditions with corrosive media, light agitation, condensation or vapor, and installation in a low-profile tank adapter or flange fitting.



ECHOPRO® LR16

LR16-5021-20-00
2” horn, 316L
LR16-5021-30-00
3” horn, 316L
LR16-5021-40-00
4” horn, 316L

The intrinsically safe 26 GHz. pulse radar transmitter provides continuous level measurement up to 98.4’ (30m) with a 4-20 mA analog and HART digital signal output, and is configured via its integral push button display module or Hart communicator. The non-contact liquid level sensor is intended for petroleum, water, wastewater and diluted chemical storage or process conditions in above or below grade tanks of any material. Select this sensor for challenging process conditions with diluted or non-corrosive media, light surface foam or agitation, higher temperature or pressure, condensation or vapor, and installation in a tank adapter, flange fitting or metal stand-pipe.



ECHOPRO® LR21

LR21-5321-30-00
3” ANSI, PTFE shield
LR21-5321-40-00
4” ANSI, PTFE shield

The intrinsically safe 26 GHz. pulse radar transmitter provides continuous level measurement up to 65.6’ (20m) with a 4-20 mA analog and HART digital signal output, and is configured via its integral push button display module or HART communicator. The non-contact liquid level sensor is intended for chemical storage or process applications in above or below grade tanks of any material. Select this sensor for challenging process conditions with corrosive media, light surface foam or agitation, higher temperature or pressure, condensation or vapor, and installation in a flange fitting.



ECHOPRO® LR26

LR26-5321-40-00
4” ANSI, PTFE shield
LR26-5321-60-00
6” ANSI, PTFE shield

The intrinsically safe 6.3 GHz. pulse radar transmitter provides continuous level measurement up to 114.8’ (35m) with a 4-20 mA analog and HART digital signal output, and is configured via its integral push button display module or HART communicator. The non-contact liquid level sensor is intended for chemical and petroleum storage or process applications in above grade metal or reinforced concrete tanks or below grade tanks of any material. Select this sensor for harsh process conditions with corrosive or low dielectric media, heavy surface foam or agitation, higher pressure, steam, condensation or vapor, and installation in a flange fitting. Due to the wider beam angle, special attention should be given to ensure that the sensor is located with unobstructed measurement space.



ECHOPRO® LR31

LR31-0021-10-00
Nylon sensor, 304 bracket, remote display

The intrinsically safe 26 GHz. pulse radar transmitter provides continuous level measurement up to 98.4’ (30m) with a 4-20 mA analog and HART digital signal output, and is configured via its remote push button display module or HART communicator. The non-contact liquid level sensor is intended for industrial wastewater, municipal storm or sewer lift station, reservoir, river, canal or open channel applications located below or above grade. Select this sensor for challenging process conditions that may include light surface foam or agitation, small trash or plant material, wind, condensation or vapor. Each comes with a 32.8’ (10m) cable, mounting bracket and display module. The sensor is designed for bracket mount installation suspended above the liquid level.



WebCal® Configuration Software

Best for Fast and Easy Level Sensor Setup

WebCal software is a PC utility program that enables users to easily configure and test compatible Flowline level sensors to their measurement and control requirements. Download your free copy at our website and connect your sensor through our Fob USB® adapter. Sensors are sold with and without Fobs. WebCal makes level configuration simple.



Configure your sensor, update the firmware or demo your configuration prior to installation

View your sensor part number, serial number, description and firmware

Select from preprogrammed drop down menus to create your level configuration

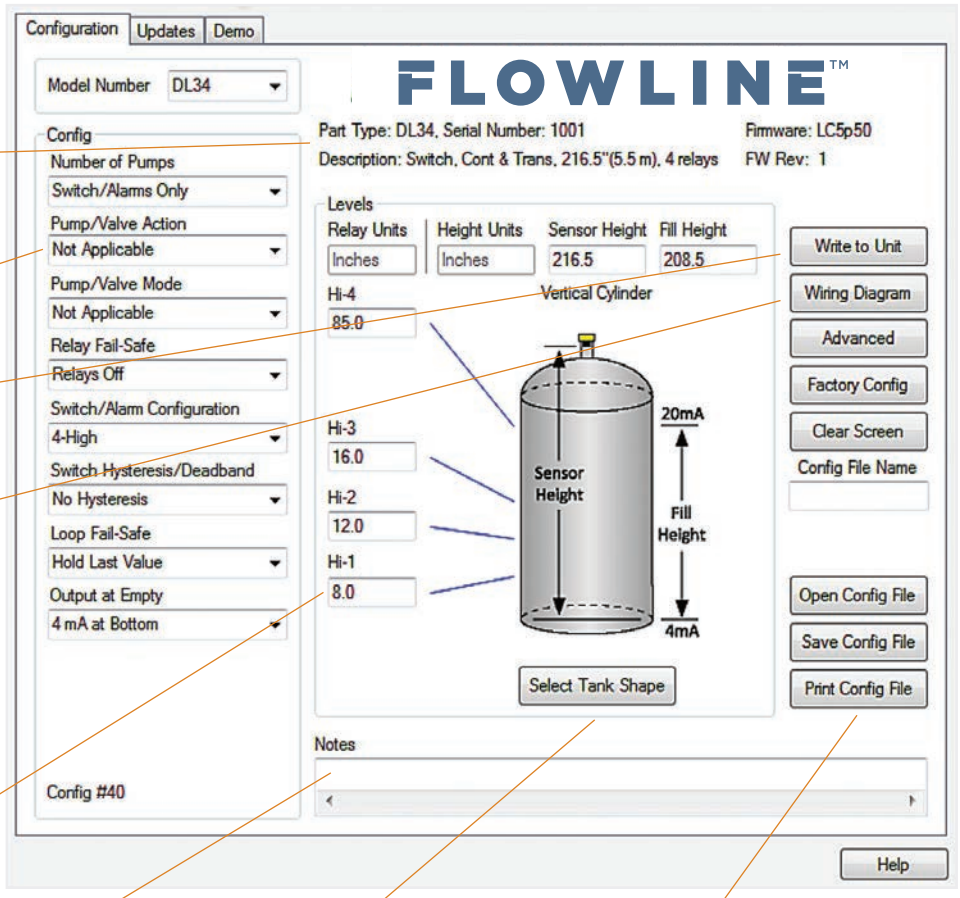
Click to write your level configuration to the sensors non-volatile memory

View, print or email a PDF wiring diagram of your level configuration for use by the installer

Available in both English and Chinese

Supports up to 175 sensor configurations

Customize set points to your level measurement or control requirements



Add notes to your saved configuration file for future reference

Change the proportional signal output from distance to linearized volume using the standard tank shapes or custom strapping table

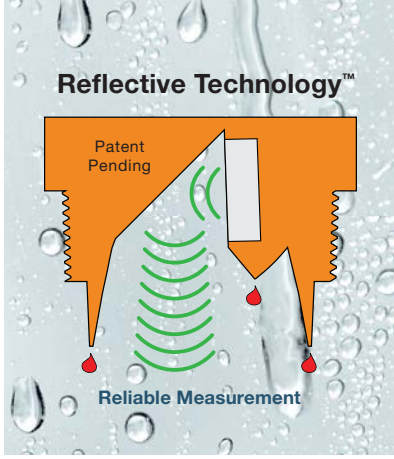
Open an existing file, save a new configuration file, or print a copy of your configuration to document your file revision



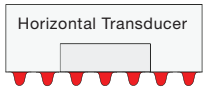
EchoPod® General Purpose Ultrasonic Liquid Level Transmitters

Best for Corrosive Small to Medium Tank or Sump Applications

These non-contact sensors are the reliable level measurement solution for your ambient storage, day tank, chemical feed, skid or machine, sump and neutralization applications.



Unlike horizontal transducers, water droplets naturally shed off the reflective transducer face.



Signal Attenuation

WHY ULTRASONIC

Ultrasonic is unaffected by liquid characteristics that cause contact sensing technologies to fail or require ongoing maintenance. These include corrosive, dirty, coating or scaling type liquids. If you have an ambient, foamless application and require non-contact level measurement, then you want ultrasonic with Reflective Technology™.

TECHNOLOGY

Condensation attenuates the acoustic signal of ultrasonic sensors with horizontal transducers, weakening their signal strength, and substantially reducing their measurement reliability. By orienting the transducer vertically, water droplets run off the transducer, and do not affect sensor performance. The unimpeded transmit and receive signals are reflected to and from the liquid. Thanks gravity.

	DL10	DL14	UG01	UG03	UG06	UG12
Classification	General purpose					
Application	Chemical feed, skid or machine, cooling tower, IBC or drum, small waste sump			Mini bulk, day tank, waste sump	Bulk storage, day tank, waste sump, clarifier, neutralization	Large bulk storage, waste sump
Proc. condition	Easy	Easy	Typical	Typical	Typical	Typical
Range	49.2" (1.25m)	49.2" (1.25m)	4.9' (1.5m)	9.8' (3m)	19.6' (6m)	39.3' (12m)
Output	4-20 mA	4-20 mA + (4) SPST relays	4-20 mA + (4) SPST relays	4-20 mA + (4) SPST relays	4-20 mA	4-20 mA
Configuration	WebCal	WebCal	WebCal	WebCal	Push button, WebCal	Push button, WebCal
Display	No	No	No	No	Yes	Yes
Termination	Cable	Cable	Cable	Cable	Conduit	Conduit
Mount	1" NPT (G)	1" NPT (G)	2" NPT (G)	2" NPT (G)	2" NPT (G)	3" NPT (G)
Temperature	20° F. (-7° C.) to 140° F. (60° C.)		-40° F. (-40° C.) to 176° F. (80° C.)		-40° F. (-40° C.) to 176° F. (80° C.)	
Max. pressure	30 PSI (2 bar)					
Trans. type	Horizontal	Horizontal	Reflective	Reflective	Reflective	Reflective
Trans. material	PVDF					

ECHOPOD® DL10

DL10-00
1.25m, NPT, w/o Fob

DL10-01
1.25m, NPT, w/Fob



The general purpose ultrasonic transmitter provides continuous level measurement up to 49.2" (1.25m) with a 4-20 mA analog signal output, and is configured via our WebCal software. Select this sensor for small tanks with non-foaming, non-condensing or highly vaporous media such as chemical, water, wastewater and oil. Typical applications include chemical feed, skid or machine, IBC or drum and small waste sumps.



ECHOPOD® DL14

DL14-00
1.25m, NPT, w/o Fob
DL14-01
1.25m, NPT, w/Fob

The general purpose ultrasonic multi-function level transmitter provides continuous level measurement up to 49.2” (1.25m) with a 4-20 mA analog signal output and four relays, and is configured via our WebCal software. Each relay can be configured for alarm, automatic fill or empty functions. Select this sensor for small tanks with non-foaming, non-condensing or highly vaporous media such as chemicals, water, wastewater and oil. Typical applications include chemical feed, skid or machine, IBC or drum and small waste sumps.



ECHOPOD® UG01

UG01-0001-40
1.5m, NPT, w/o Fob
UG01-0001-41
1.5m, NPT, w/Fob

The general purpose reflective ultrasonic multi-function level transmitter provides continuous level measurement up to 4.9’ (1.5m) with a 4-20 mA analog signal output and four relays, and is configured via our WebCal software. Each relay can be configured for alarm, automatic fill or empty functions. Select this sensor for small tanks with non-foaming or highly vaporous media such as chemicals, water, wastewater and oil. Typical applications include cooling tower, chemical feed, skid or machine, IBC or drum and small waste sumps.



ECHOPOD® UG03

UG03-0001-40
3m, NPT, w/o Fob
UG03-0001-41
3m, NPT, w/Fob

The general purpose reflective ultrasonic multi-function level transmitter provides continuous level measurement up to 9.8’ (3m) with a 4-20 mA analog signal output and four relays, and is configured via our WebCal software. Each relay can be configured for alarm, automatic fill or empty functions. Select this sensor for mid-sized tanks with non-foaming or highly vaporous media such as chemicals, water, wastewater and oil. Typical applications include mini-bulk storage, day tank and waste sumps.



ECHOPOD® UG06

UG06-0001-00
6m, NPT, w/o Fob
UG06-0001-01
6m, NPT, w/Fob

The general purpose reflective ultrasonic level transmitter provides continuous level measurement up to 19.6’ (6m) with a 4-20 mA analog signal output, and is configured via its integral push button display module or WebCal software. Select this sensor for bulk tanks with non-foaming or highly vaporous media such as chemicals, water, wastewater and oil. Typical applications include bulk storage, day tank, neutralization tank, clarifier and waste sumps.



ECHOPOD® UG12

UG12-0001-00
12m, NPT, w/o Fob
UG12-0001-01
12m, NPT, w/Fob

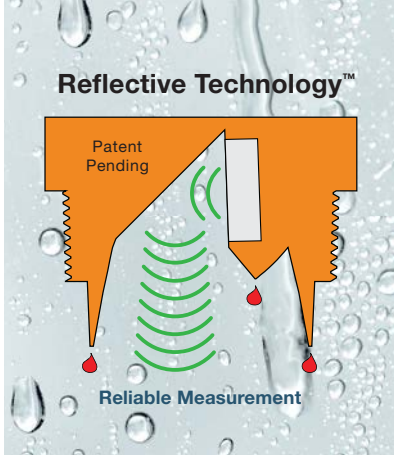
The general purpose reflective ultrasonic level transmitter provides continuous level measurement up to 39.3’ (12m) with a 4-20 mA analog signal output, and is configured via its integral push button display module or WebCal software. Select this sensor for large bulk tanks with non-foaming or highly vaporous media such as chemicals, water, wastewater and oil. Typical applications include bulk storage tanks and waste sumps.



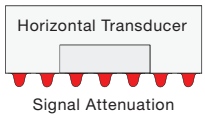
EchoTouch® Intrinsically Safe Ultrasonic Liquid Level Transmitters

Best for Corrosive Small to Medium Tank or Sump Applications

These non-contact sensors are the reliable level measurement solution for your ambient storage, day tank, chemical feed, skid or machine, sump and neutralization applications.



Unlike horizontal transducers, water droplets naturally shed off the reflective transducer face.



WHY ULTRASONIC

Ultrasonic is unaffected by liquid characteristics that cause contact sensing technologies to fail or require ongoing maintenance. These include corrosive, dirty, coating or scaling type liquids. If you have an ambient, foamless application and require non-contact level measurement, then you want ultrasonic with Reflective Technology™.

TECHNOLOGY

Condensation attenuates the acoustic signal of ultrasonic sensors with horizontal transducers, weakening their signal strength, and substantially reducing their measurement reliability. By orienting the transducer vertically, water droplets run off the transducer, and do not affect sensor performance. The unimpeded transmit and receive signals are reflected to and from the liquid. Thanks gravity.

	US01	US03	US06	US12
Classification	Intrinsically safe			
Application	Chemical feed, skid or machine, cooling tower, IBC or drum, small waste sump	Mini bulk, day tank, waste sump	Bulk storage, day tank, waste sump, clarifier, neutralization	Large bulk storage, waste sump
Proc. condition	Typical	Typical	Typical	Typical
Range	4.9’ (1.5m)	9.8’ (3m)	19.6’ (6m)	39.3’ (12m)
Output	4-20 mA	4-20 mA	4-20 mA	4-20 mA
Configuration	WebCal	WebCal	Push button, WebCal	Push button, WebCal
Display	No	No	Yes	Yes
Termination	Cable	Cable	Conduit	Conduit
Mount	2" NPT (G)	2” NPT (G)	2" NPT (G)	3" NPT (G)
Temperature	-40° F. (-40° C.) to 176° F. (80° C.)		-40° F. (-40° C.) to 176° F. (80° C.)	
Max. pressure	30 psi (2 bar)	30 psi (2 bar)	30 psi (2 bar)	30 psi (2 bar)
Trans. type	Reflective	Reflective	Reflective	Reflective
Trans. material	PVDF			

ECHOTOUCH® US01

US01-0001-00
1.5m, NPT, w/o Fob
US01-0001-01
1.5m, NPT, w/Fob



The intrinsically safe reflective ultrasonic level transmitter provides continuous level measurement up to 4.9’ (1.5m) with a 4-20 mA analog signal output, and is configured via our WebCal software. Select this sensor for small tanks with non-foaming or mildly vaporous media such as chemicals, water, wastewater and oil. Typical applications include chemical feed, skid or machine, IBC or drum, cooling tower and small waste sumps.







By eliminating the affects of condensation on ultrasonic sensors, Flowline has achieved a breakthrough in level measurement reliability.

ECHOTOUCH® US03

US03-0001-00
3m, NPT, w/o Fob
US03-0001-01
3m, NPT, w/Fob

The intrinsically safe reflective ultrasonic level transmitter provides continuous level measurement up to 9.8' (3m) with a 4-20 mA analog signal output, and is configured via our WebCal software. Select this sensor for mid-sized tanks with non-foaming or mildly vaporous media such as chemicals, water, wastewater and oil. Typical applications include mini-bulk storage, day tank and waste sumps.



ECHOTOUCH® US06

US06-0001-00
6m, NPT, w/o Fob
US06-0001-01
6m, NPT, w/Fob

The intrinsically safe reflective ultrasonic level transmitter provides continuous level measurement up to 19.6' (6m) with a 4-20 mA analog signal output, and is configured via its integral push button display module or WebCal software. Select this sensor for bulk tanks with non-foaming or mildly vaporous media such as chemicals, water, wastewater and oil. Typical applications include bulk storage, day tank, neutralization tank, clarifier and waste sumps.



ECHOTOUCH® US12

US12-0001-00
12m, NPT, w/o Fob
US12-0001-01
12m, NPT, w/Fob

The intrinsically safe reflective ultrasonic level transmitter provides continuous level measurement up to 39.3' (12m) with a 4-20 mA analog signal output, and is configured via its integral push button display module or WebCal software. Select this sensor for large bulk tanks with non-foaming or mildly vaporous media such as chemicals, water, wastewater and oil. Typical applications include bulk storage tanks and waste sumps.



EchoWave® General Purpose Guided Wave Liquid Level Transmitters

Best for Difficult Small to Medium Tank or Sump Applications

These contact sensors are the reliable level measurement solution for your day tank, process tank, skid or machine and sump applications with challenging process conditions.



The LG10 guided wave sensor is the ideal level measurement solution for oil storage and reclamation applications.

WHY GUIDED WAVE

Guided wave radar is unaffected by most process conditions that cause other sensing technologies to fail or require ongoing maintenance. These include foam, vapor, condensation, temperature, pressure, vacuum, and light coating or scaling liquids.

TECHNOLOGY

The guided wave sensor emits a RF pulse from the base of the probe feed through. The pulse travels down the probe, reflects against the liquid dielectric material and returns to the feed through. The sensor measures the pulse time of flight and translates it into liquid level height.

	LG10-0	LG10-1	LG11-2
Classification	General purpose		
Tank location and material	Above grade metal or below grade in any tank material	Above or below grade in any tank material	Above grade metal or below grade in any tank material
Application	Day tank, IBC or drum, process tank, skid or machine, cooling tower, waste sump		Bulk storage, waste sump
Dirty, coating or crystallizing liquid	Yes	No	Yes
Range	9.8' (3m)	9.8' (3m)	18' (5.5m)
Output	4-20 mA	4-20 mA	4-20 mA
Probe type	Rod	Coaxial	Cable
Probe material	316L	316L	316
Mount	3/4" NPT (G)		
Max. temperature	302° F. (150° C.)		
Max. pressure	250 PSI (17 bar)		

ECHOWAVE® LG10-11

LG10-0003-01-036
.9m rod, NPT, w/Fob
LG10-0003-01-072
1.8m rod, NPT, w/Fob
LG10-0003-01-118
3m rod, NPT, w/Fob
LG10-1003-01-036
.9m coaxial, NPT, w/Fob
LG10-1003-01-072
1.8m coaxial, NPT, w/Fob
LG10-1003-01-118
3m coaxial, NPT, w/Fob
LG11-2003-01-216
5.5m cable, NPT, w/Fob



Offered in three probe types, the general purpose guided wave transmitter provides continuous level measurement up to 18' (5.5m) with a 4-20 mA signal output, and is configured via our WebCal software. This liquid level sensor is applied in non-turbulent environments with foam, vapor, condensation, temperature or pressure. Select the rod or cable probe for use with clean, dirty, coating or crystallizing liquids in above grade metal or below grade tanks of any material. Select the coaxial probe for use with clean, non-coating or crystallizing liquids in above or below grade tanks of any material. Standard probe lengths may be user cut in the field. Typical applications include small bulk storage, day tank, skid or machine, IBC or drum, process tank, cooling tower and waste sumps.



Rod Coaxial Cable


ECHOWAVE™
P/N LG10-1003-00
S/N 150815 728716
NRTL/C

Switch-Tek™ General Purpose and Intrinsically Safe Single and Multi-Point Liquid Level Switches

Best for Corrosive Level Switch or Leak Detection Applications

These contact sensors are the reliable level switch or control, pump protection, spill prevention, leak detection or alarm solution for your chemical, water, wastewater and oil applications.

	AXXX	AX23	AX1X	AX13	LU10	LZ12	LV10	LO10
Classification	Intrinsically safe or gen. purpose	General purpose	Intrinsically safe or gen. purpose	General purpose	Intrinsically safe	General purpose	General purpose	General purpose
Type	Multi-point package		Single-point package		Ultrasonic	Vibration	Buoyancy	Optic
Application	Day tank, skid or machine, cooling tower, waste sump, process tank		Bulk storage, IBC or drum, neutralization tank		Chemical	Wastewater	Water	Secondary containment
Function	Level switches	Auto fill or empty	Level switch	Level shut off	Level switch	Level switch	Level switch	Leak detection
Max. length	10' (3m)	10' (3m)	10' (3m)	10' (3m)	- - -	- - -	- - -	- - -
Supply	12-36 VDC	120/240 VAC	12-36 VDC	120/240 VAC	12-36 VDC	12-36 VDC	- - -	12-36 VDC
Contact	(1-4) SPST relay or SPDT reed	(1) SPDT latching relay	(1) SPST relay or SPDT reed	(1) SPDT relay	(1) SPST relay	(1) SPST relay	(1) SPDT reed	(1) SPST relay
Rating	60 VA or 15 VA	250 VAC @ 10A	60 VA or 15 VA	250 VAC @ 10A	32 VDC (0.5A max)	60 VA (1A max)	15 VA (0.25A max)	60 VA (1A max)
Enclosure	NEMA 4X (IP65)	NEMA 4X (IP65)	NEMA 4X (IP65)	NEMA 4X (IP65)	NEMA 6 (IP68)	NEMA 6 (IP68)	NEMA 6 (IP68)	NEMA 6 (IP68)
Mount	2" NPT (G)	2" NPT (G)	2" NPT (1 1/2" G)	2" NPT (1 1/2" G)	3/4" NPT (G)	3/4" NPT (G)	3/4" NPT (Rp)	3/4" NPT (G)
Temperature	-40° F. (-40° C.) to 176° F. (80° C.)							
Max. pressure	Atmospheric		150 PSI (10 bar)	150 PSI (10 bar)	150 PSI (10 bar)	150 PSI (10 bar)	25 PSI (2 bar)	150 PSI (10 bar)
Material	PP	PP	PP / PVDF	PP / PVDF	PP / PFA	PP-Ryton	PP / PVDF	PP / PFA

SMART TRAK™ AXXX

AV26
Buoyancy, NPT
AU25
Utrasonic, NPT
AZ28
Vibration, NPT

The intrinsically safe or general purpose level switch package provides liquid level detection up to 10' (3m) with 1-4 adjustable level switch points and a compact junction box for wiring termination. Offered in three sensor technologies, choose the type based upon your application media. This PP level switch package is selected for day tank, skid or machine, cooling tower, waste sump or process tank applications, connected to a PLC or remote relay controller.

SMART TRAK™ AX23

AV23
Buoyancy, NPT
AU23
Ultrasonic, NPT
AZ23
Vibration, NPT

The general purpose level switch package provides automatic tank filling or emptying up to 10' (3m) between two adjustable level switch points. The compact relay controller with optional strobe provides one latching 16A relay for pump or valve control. Offered in three sensor technologies, choose the type based upon your application media. This PP level switch package is selected for day tank, skid or machine, cooling tower, waste sump and process tank applications, requiring detection and control.



SWITCH-PAK™ AX1X

AV16
Buoyancy, PP, NPT
AU18
Ultrasonic, PP, NPT
AZ18
Vibration, PP, NPT

The intrinsically safe or general purpose level switch package provides high or low liquid level detection with one relay or reed switch output, and a compact junction box for wiring termination. Available in three level sensor technologies, choose the sensor type based upon your application media. This PP or PVDF level switch package is selected for bulk storage, IBC or drum, and neutralization tank applications, connected to a PLC or remote relay controller.



SWITCH-PAK™ AX13

AV13
Buoyancy, w/o strobe, PP, NPT
AU13
Ultrasonic, w/o strobe, PP, NPT
AZ13
Vibration, w/o strobe, PP, NPT

The general purpose level switch package provides high or low liquid level detection with one 16A compact relay controller for pump or valve shut off. The optional flash alarm brings attention to alarm conditions. Available in three level sensor technologies, choose the sensor type based upon your application media. This PP or PVDF level switch package is selected for bulk storage, IBC or drum, and neutralization tank applications, requiring detection and control.



ULTRASONIC LU10

LU10-1305
PP, short, NPT
LU10-2305
PFA, short, NPT
LU10-1405
PP, long, NPT

CSA approved for use in hazardous locations, the intrinsically safe ultrasonic level switch provides high or low liquid level detection of chemical, solvent or low viscosity petroleum based liquids with a 1A relay output. Media examples include hydrochloric acid, acetone and diesel fuel oil. The submersible PP or PFA level switch sensor is universally mounted through the tank wall or inside the tank, and connected to a PLC or remote relay controller.



VIBRATION LZ12

LZ12-1405
PP-Ryton®, NPT

The general purpose vibration level switch provides high or low liquid level detection of dirty liquids or those with light to medium coating or scaling characteristics with a 1A relay output. Media examples include wastewater, diluted caustic soda and copper sulfate. For optimum performance, the sensor automatically adjusts for coating build up, and if necessary, outputs a proactive maintenance alarm to request cleaning. The submersible PP-Ryton® level switch sensor is universally mounted through the tank wall or inside the tank, and connected to a PLC or remote relay controller.



BUOYANCY LV10

LV10-1301
PP, NPT
LV10-5301
PVDF, NPT

The general purpose buoyancy level switch provides high or low liquid level detection of relatively clean water and chemical solutions with a 15VA reed switch output. Media examples include potable water and boric acid. The baffle body eliminates level switch chatter caused by turbulence. The submersible PP or PVDF level switch sensor is mounted vertically inside the tank, and connected to a PLC or remote relay controller.



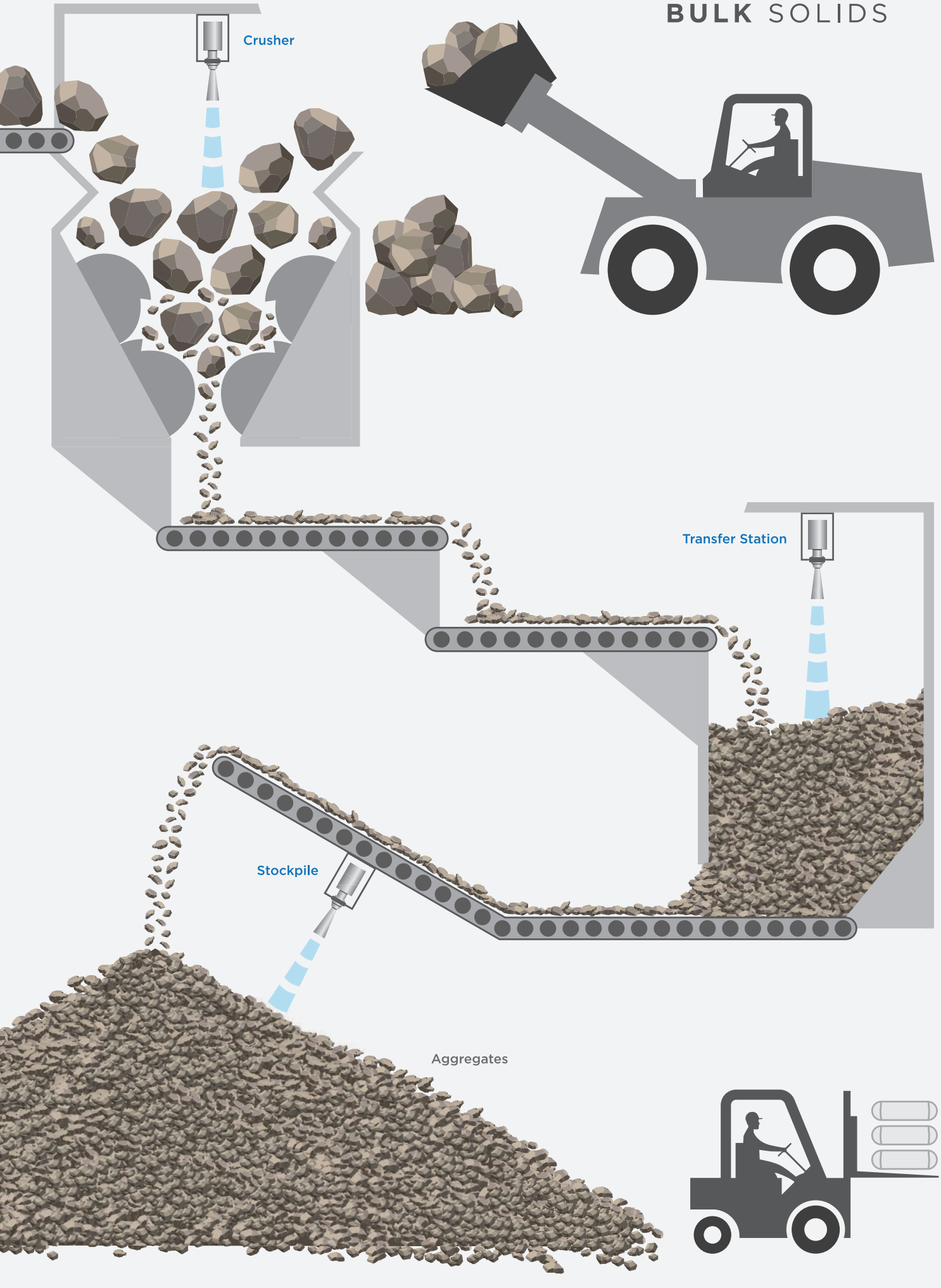
OPTIC LO10

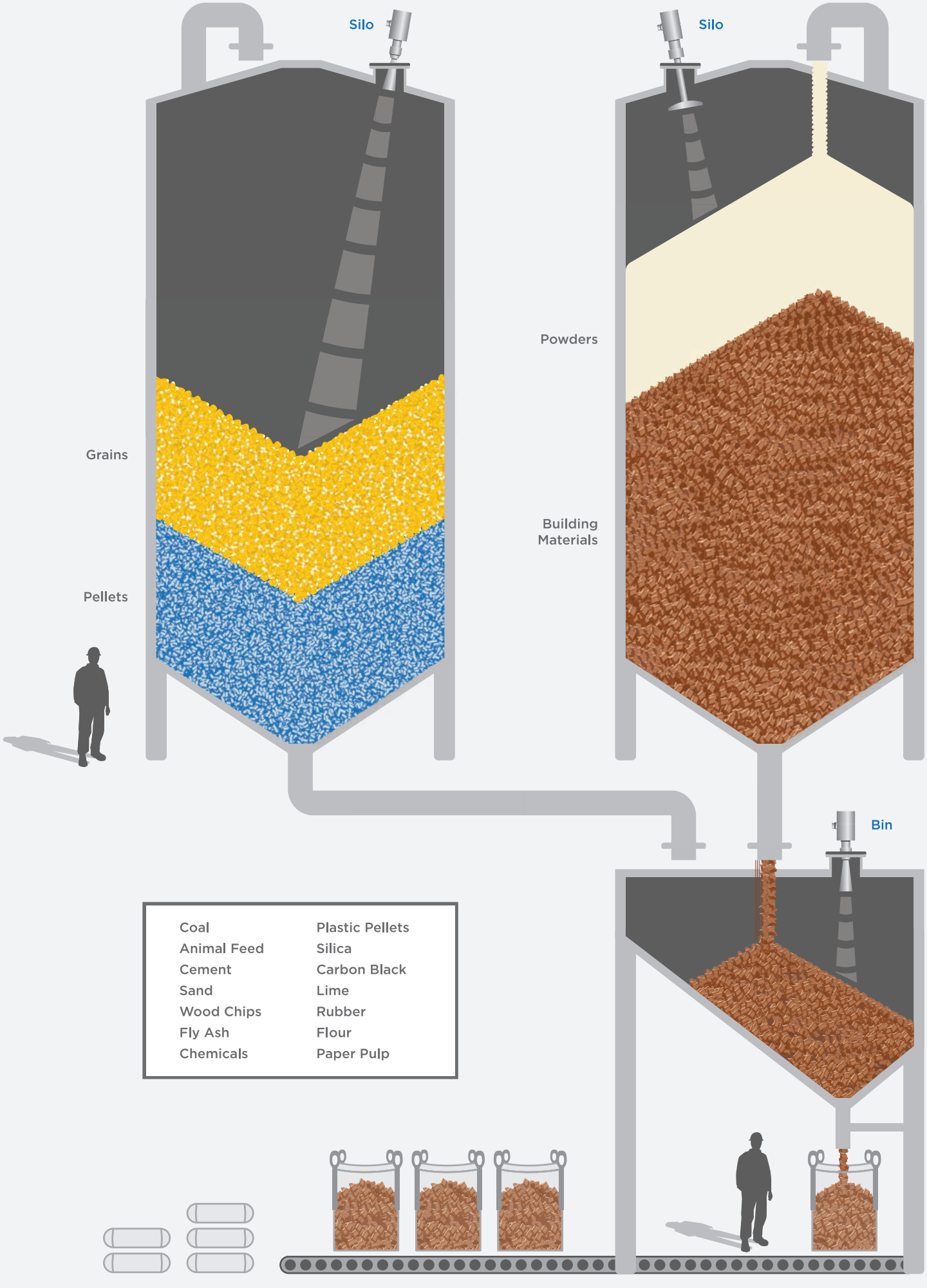
LO10-1305
PP, short, NPT
LO10-2305
PFA, short, NPT

The general purpose optic leak switch provides leak detection in and around secondary containment sumps, tanks and piping systems with a 1A relay output. Media examples include sulfuric acid and sodium hypochlorite. The submersible PP or PFA leak switch sensor is mounted through the containment wall or within the interstitial space, and connected to a PLC or remote relay controller.



BULK SOLIDS




Silo
Silo
Grains
Pellets
Powders
Building Materials
Bin
Coal
Animal Feed
Cement
Sand
Wood Chips
Fly Ash
Chemicals
Plastic Pellets
Silica
Carbon Black
Lime
Rubber
Flour
Paper Pulp

EchoPro® Intrinsically Safe Pulse Radar Solids Level Transmitters

Best for Difficult Storage or Process Applications

These non-contact sensors are the reliable level measurement solution for your most demanding silo, bin, stockpile, crusher and transfer station applications.



The LR36 and LR41 sensors are easily installed with the LR97 adjustable mounting bracket.



WHY PULSE

Pulse radar measures powders, grains, aggregates, building materials or pellets, and properly configured is unaffected by process conditions that cause other sensing technologies to fail or require ongoing maintenance, such as dust, material build-up or temperature.

TECHNOLOGY

The radar sensor emits a 26 GHz RF pulse from the base of the antenna. The pulse travels through the free space, reflects against the solid dielectric material and returns to the antenna. The sensor measures the pulse time of flight and translates it into solids level distance.

SELECTION

To select the appropriate sensor for your application, consider that the stronger the RF signal, the greater the sensors ability to overcome application variables such as process dust, low media reflectivity or dielectric value and material buildup on the antenna. The RF signal strength increases by model and antenna size from the LR36 with a 4” horn for easy process conditions to the LR46 with a 10” parabola for extreme processes.

	LR36	LR41	LR46
Classification	Intrinsically safe		
Application	Bin, transfer station, crusher	Silo, stockpile, bin, transfer station, crusher	Silo
Process dust	Minimal	Moderate	Significant
Range	49.2' (15m)	229.7' (70m)	229.7' (70m)
Output	4-20 mA + HART	4-20 mA + HART	4-20 mA + HART
Configuration	Push button, HART	Push button, HART	Push button, HART
Installation	Bracket or gimbal flange	Bracket or gimbal flange	Gimbal flange
Mount	1 1/2" NPT, 4” or 5” ANSI	1 1/2” NPT, 4” or 5” ANSI	4", 5" ANSI
Max. temp.	392° F. (200° C.)	752° F. (400° C.)	752° F. (400° C.)
Antenna type	4” horn	4” or 5” horn	8” or 10” parabola
Ant. air purge	No	Yes	No
Ant. dust shield	No	Option	No
Ant. material	316L	316L with optional PTFE dust shield	316L

ECHOPRO® LR36

LR36-5021-40-00
NPT, 316L
LR36-5321-44-00
4” ANSI, 316L
LR36-5321-45-00
5” ANSI, 316L

The intrinsically safe 26 GHz. pulse radar transmitter provides continuous level measurement up to 49.2’ (15m) with a 4-20 mA analog and HART digital signal output, and is configured via its integral push button display module or HART commuunicator. The non-contact solids level sensor is intended for dry solid media including aggregates, grains, pellets, powders and building materials. Select this sensor for easy process conditions with minimal dust and installation with an adjustable mounting bracket or gimbal flange. Typical applications include bins, transfer stations and crushers.





For extreme applications with significant dust, long ranges or very low dielectric media, select the LR46 pulse radar sensor. The parabolic antenna, adjustable gimbal flange and high gain RF transceiver deliver reliable level measurement in the most challenging conditions.

ECHOPRO® LR41

LR41-5021-40-00
4" horn, NPT, 316L
LR41-5021-50-00
5" horn, NPT, 316L
LR41-5321-44-00
4" horn, 4" ANSI, 316L
LR41-5321-45-00
4" horn, 5" ANSI, 316L
LR41-5321-54-00
5" horn, 4" ANSI, 316L
LR41-5321-55-00
5" horn, 5" ANSI, 316L

The intrinsically safe 26 GHz. pulse radar transmitter provides continuous level measurement up to 229.7' (70m) with a 4-20 mA analog and HART digital signal output, and is configured via its integral push button display module or WebCal software. The non-contact solids level sensor is intended for dry solid media including aggregates, grains, pellets, powders and building materials. Select this sensor for challenging process conditions with moderate to significant dust, and installation with an adjustable gimbal flange or mounting bracket. Typical applications include silos, stockpiles, transfer stations and crushers.



ECHOPRO® LR46

LR46-5321-84-00
8" parabola, 4" ANSI, 316L
LR46-5321-85-00
8" parabola, 5" ANSI, 316L
LR46-5321-04-00
10" parabola, 4" ANSI, 316L
LR46-5321-05-00
10" parabola, 5" ANSI, 316L

The intrinsically safe 26 GHz. pulse radar transmitter provides continuous level measurement up to 229.7' (70m) with a 4-20 mA analog and HART digital signal output, and is configured via its integral push button display module or WebCal software. The non-contact solids level sensor is intended for dry solid media including aggregates, grains, pellets, powders and building materials. Select this sensor for the most difficult process conditions with significant to extreme dust, and installation with an adjustable gimbal flange. For ease of installation, the parabolic antenna can be unclamped, inserted through the base of a riser, and reattached to the sensor. Typical applications include silos.




EchoPulse

Level Controllers and Indicators

Best for Tank, Sump or Silo Automation

Complete your level measurement solution with a panel or field mount relay controller or indicator.

	LI55	LC52	LI25-1	LI25-2
Classification	General purpose	General purpose	General purpose	Intrinsically safe
Type	Controller	Controller	Indicator	Indicator
Application	Display + control	Display + control	Display only	Display only
Mount	Panel mount	Rail mount	Panel mount	Panel mount
Display	6-digit LED	3.5-digit LED	5-digit LCD	5-digit LCD
Supply	85-265 VAC, 12-24 VDC	120 / 240 VAC	12-30 VDC loop	12-30 VDC loop
Contact	(0, 2, 4) SPDT relay	2 SPDT relays	- - -	- - -
Enclosure	NEMA 4X faceplate	NEMA 1	NEMA 4X faceplate	NEMA 4X faceplate

DATAVIEW™ LI55

LI55-1001
VAC, 0 relays, w/o repeater
LI55-1201
VAC, 2 relays, w/o repeater
LI55-1211
VAC, 2 relays, w/repeater
LI55-1401
VAC, 4 relays, w/o repeater
LI55-1411
VAC, 4 relays, w/repeater

The general purpose AC or DC powered level controller displays engineering units with one 4-20 mA level transmitter and is offered in three configurations with optional two or four programmable relays and an isolated 4-20 mA repeater. Each relay can be configured on a single set point as a high or low level alarm, or latched on two set points for automatic fill or empty control in simplex or duplex modes. Select this panel mount controller for use with general purpose two or three-wire level transmitters. For field mount installation, add a single or double NEMA box.



DATAPOINT™ LC52

LC52-1001
VAC, 2 relays, w/repeater



The general purpose AC powered level controller displays engineering units with one 4-20 mA level transmitter, two programmable relays and an isolated 4-20 mA repeater. Relay one is configurable on a single set point. Relay two can be configured on a single set point or latched on two set points for automatic fill or empty control in simplex mode. Select this DIN rail mount controller for use with general purpose two or three-wire level transmitters. For field mount installation, add a single or double NEMA box.



DATALOOP™ LI23

LI23-1001
GP Indicator
LI23-1201
GP indicator w/2 relays

The general purpose loop powered level indicator displays engineering units connected in series with one 4-20 mA level transmitter, and is available with two optional relays and an isolated 4-20 mA repeater. Select this panel mount indicator for use with general purpose two-wire level transmitters.



DATALOOP™ LI24

LI24-1001
IS indicator
LI24-1011
IS indicator w/repeater

The intrinsically safe loop powered level indicator displays engineering units connected in series with one 4-20 mA level transmitter, and is available with two optional relays and an isolated 4-20 mA repeater. Select this panel mount indicator for use with intrinsically safe two-wire level transmitters.



Fittings and Enclosures

REDUCER BUSHING | THREAD X THREAD

LM51-2S00	2” x 3/4” NPT, 316 stainless
LM52-1400	2” x 1” NPT, PVC, schedule 40
LM52-1800	2” x 1” NPT, PVC, schedule 80
LM53-2400	2” x 1.5” NPT, PVC, schedule 40
LM53-2800	2” x 1.5” NPT, PVC, schedule 80
LM53-2S10	2” x 1.5” NPT, 316 stainless
LM53-3800	3” x 1.5” NPT, PVC, schedule 80
LM52-2400	3” x 2” NPT, PVC, schedule 40
LM52-2800	3” x 2” NPT, PVC, schedule 80
LM52-3800	4” x 2” NPT, PVC, schedule 80





REDUCER BUSHING | SOCKET X THREAD

LM52-1410	2” x 1” NPT, PVC, schedule 40
LM52-1810	2” x 1” NPT, PVC, schedule 80
LM52-2410	3” x 2” NPT, PVC, schedule 40
LM52-2810	3” x 2” NPT, PVC, schedule 80
LM52-3410	4” x 2” NPT, PVC, schedule 40
LM52-3810	4” x 2” NPT, PVC, schedule 80





FLANGE | ANSI X THREAD

LM52-1850	1” x 1” NPT, CPVC, schedule 80
LM52-2850	2” x 2” NPT, CPVC, schedule 80
LM53-3S50	3” x 1.5” NPT, 316 stainless
LM53-3850	3” x 1.5” NPT, CPVC, schedule 80
LM52-3850	3” x 3” NPT, CPVC, schedule 80
LM53-4S50	4” x 1.5” NPT, 316 stainless
LM53-4850	4” x 1.5” NPT, CPVC, schedule 80
LM53-6S50	6” x 1.5” NPT, 316 stainless
LM53-6850	6” x 1.5” NPT, CPVC, schedule 80





TANK ADAPTER

LM52-1890	1” NPT bulkhead, PVC
LM52-2890	2” NPT bulkhead, PVC
LM52-3890	3” NPT bulkhead, PVC



MOUNTING BRACKET

LM50-1001-1	1” NPT bracket, PP
LR97-S006	1 1/2” NPT bracket, 316 stainless
LM50-1001	2” NPT bracket, PP



NEMA ENCLOSURE

LM91-1001	Single NEMA box, non-windowed, 1/8 DIN, PC
LM91-2001	Double NEMA box, non-windowed, 1/8 DIN, PC
LM92-1002	Single NEMA box, windowed, 1/8 DIN, PC
LM92-2002	Double NEMA box, windowed, 1/8 DIN, PC
LM92-1202	Single NEMA box, windowed, 35mm rail, PC
LM92-2202	Double NEMA box, windowed, 35mm rail, PC




TK06

FLOWLINE™
LEVEL BEST









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