

EchoPulse Radar

Ensures Operational Reliability

(aka, protects against pump 'run-dry' from lost signal)

Prevents Overflow 'Pain'

(aka, overcomes false alarms created by environmental conditions)

Provides Robust Lift-Station or Sump level measurement performance



Fusion⁺

A Flowline & Fusion collaboration. A whitepaper by Flowline.



EchoPulse LR30



EchoPulse Radar Transmitter
Sumpinator
P/N: LR30-0010-10

Configuration module
P/N: LR98-1001

Target Market Application:

- Lift station and environmental level measurement (ie. dams, rivers and retention ponds)
- Range: 30m
- 26 GHz k-band
- Accuracy: ± 0.1968 inch (5mm)
- Temperature Range: -40 to 70°C
- Output: 2-wire, 4-20mA
- Power Supply: 24V DC
- Nylon (PA66) covered horn enclosure
- 316L Stainless Steel Bracket Mount
- Configuration via remote push button LCD display
- Certifications and approvals:
 - cTUVus
 - CE
 - RoHS
 - FCC part 15.256

The North American wastewater treatment industry has expanded in capacity process requirement from 2008 to present as residential and commercial locations have generated more wastewater effluent output during slow economic recovery from the 'great recession'. This industry with estimated revenues of \$43.1 billion is expected to grow at a 0.9% CAGR (Compound Annual Growth Rate). There are currently more than 275,000 municipal (i.e., metropolitan or county) lift-stations in the United States that transfer effluent from residential or commercial facilities by pumping the influent into treatment plants via a network of lift-stations. The installation of a lift station ranges from \$150K @ 20-gpm to \$1.5 million @ 100,000-gpm, based upon waste-treatment plant process capacity and / or treatment complexity (see Flowline level application note(s): flowline.com/level-application-notes/lift-stations.php).

Lift-station designs for waste-water collection handle raw sewage fed via an underground infrastructure of gravity-flow, pipeline networks. The raw sewage transport is contained and controlled via an engineered lift-station configured as either an underground pit or wet-well. Upon the raw sewage level increasing to a specified level, the lift-station control system activates multiple pumps that transports it to the waste-water treatment plant. The specification of a level transmitter technology capable of sustaining reliable, repeatable and accurate influent or effluent measurement and pump control is mission critical to all lift-station designs. Currently, the technology selected to operate either measurement and or control functionality are ultrasonic and / or pressure transmitters. However, the application environment is challenged by condensation, foam and debris which can overcome the aforementioned technology's design reliability based upon unpredictable environmental conditions. Therefore, the selection of a 'mission-critical', level measurement sensor should be focused on sensor technology providing an environmental package, measurement repeatability, nominal maintenance, hassle-free operation, ease of installation-configuration and performance-value enabling the prevention of potential ecological contamination from lift-station overflow.

Flowline today recommends its EchoPulse LR30 Radar Transmitter, 'Sumpinator'.

EchoPulse LR30 Applications



Dartmouth University - Hanover, New Hampshire, United States:

The site is an 8 foot deep concrete lift station (aka 20,000 gallon water collection capacity) for the de-watering of environmental run off and / or rain located at Dartmouth University in New Hampshire. Below grade sumps are subjected to high humidity causing condensation & foam on the surface of the liquid. During heavy rainstorms, the sump can easily fill in a matter of minutes which challenges other contact technologies to enable high-volume pumping.

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EchoPulse LR30 Applications



Basin Marine
Newport Beach, California US

The site utilizes 3 connected wastewater sumps located at a shipyard in California. Once the liquid reaches a specified height, it is pumped into a tank for neutralization treatment.



Cardone Pump
Philadelphia, Pennsylvania US

The site is a 12 foot deep concrete lift station for the collection of environmental runoff / rain located at a manufacturing plant Pennsylvania. Below grade sumps are subjected to high humidity causing condensation & foam on the surface of the liquid. The 40 inch inlet pipe can easily fill the sump with 20,000 gallons in a matter of minutes which challenges other non-contact transmitters.



Jefferson Water Utility
Jefferson, Wisconsin US

The site is a 13 foot wastewater sump located at municipal facility in Wisconsin. Raw sewage is being captured and transferred where foam is often present on the liquid surface. Many non-contact level technologies are limited for their level measurement application due to environmental conditions.



Bio Papel
Prewitt, New Mexico US

The site is an 8 foot concrete sump located at a manufacturing plant in New Mexico. It is an indoor plant wastewater application where the sump is regulated by OSHA with the requirement for level measurement to prevent overflows.

For more information on Flowline 'Level Best' solutions visit

fusionaus.com