



Level Plus[®]

Magnetostrictive Liquid Level Transmitters
with Temposonics[®] Technology

Food & Beverage
Product Information



SANITARY BY DESIGN

Level Plus® LP-Series transmitters have been used in sanitary applications for over 30 years. With our extensive sanitary applications knowledge, we have developed a comprehensive line of options to configure our level transmitters to operate in almost any vessel. Our design has 3-A approval and our wetted parts are available in sanitary polish (Ra 25 µin., 0.64 µm) and electropolished (240 Grit/Ra 15) finish. MTS Sensors also offers numerous sizes of Tri-Clamp process connections as well as four different standard end plug designs. The NEMA housings are designed for cleanability and wash down applications with specially slotted and self-draining screwheads.

Overview

- Output
 - 4 to 20 mA
 - HART®
 - Modbus RTU
- 3-A Approval
- Sanitary Finish (Ra 25 µin., 0.64 µm)
- Electropolished Finish (Ra 15 µin., 0.38 µm)
- NEMA 4X Rated
- Wetted Parts 316L Stainless Steel or Hastelloy C
- Intrinsically Safe and/or Explosion Proof

CIP, SIP & AUTOCLAVE

MTS Sensors has liquid level transmitters installed in applications that utilize clean-in-place (CIP), steam-in-place (SIP), and autoclaves for sterilization. The hygienic design has allowed all of MTS's customers to validate the cleanability of the wetted parts of the level transmitter in their processes. The customers are across multiple sanitary industries including pharmaceutical, biotechnology, and food & beverage. A unique design feature of the LP-Series is the ability to remove all the electronics without removing the wetted parts from the tank or breaking the seal on the tank. With the electronics removed the wetted parts can be kept in the tank at elevated temperatures without any risk to damaging the electronics or having to open the tank and risk contamination.



Fig. 1: SoClean® transmitter

MEASUREMENT IN HARSH CONDITIONS

No other technology offers better accuracy under harsh conditions than magnetostrictive technology. The SoClean® level transmitter is immune to the effects of foaming, misting, steam, condensation, and agitation. MTS is also not affected by changes in dielectric constant as liquids change during a mixing process. The secret to the success is that the sensing element for magnetostrictive technology is isolated from the process inside of the pipe and this allows for better performance in harsh applications. Stop wasting time and money on recalibrating and recommissioning the wrong level technology. Move to a better product and use MTS level transmitter.

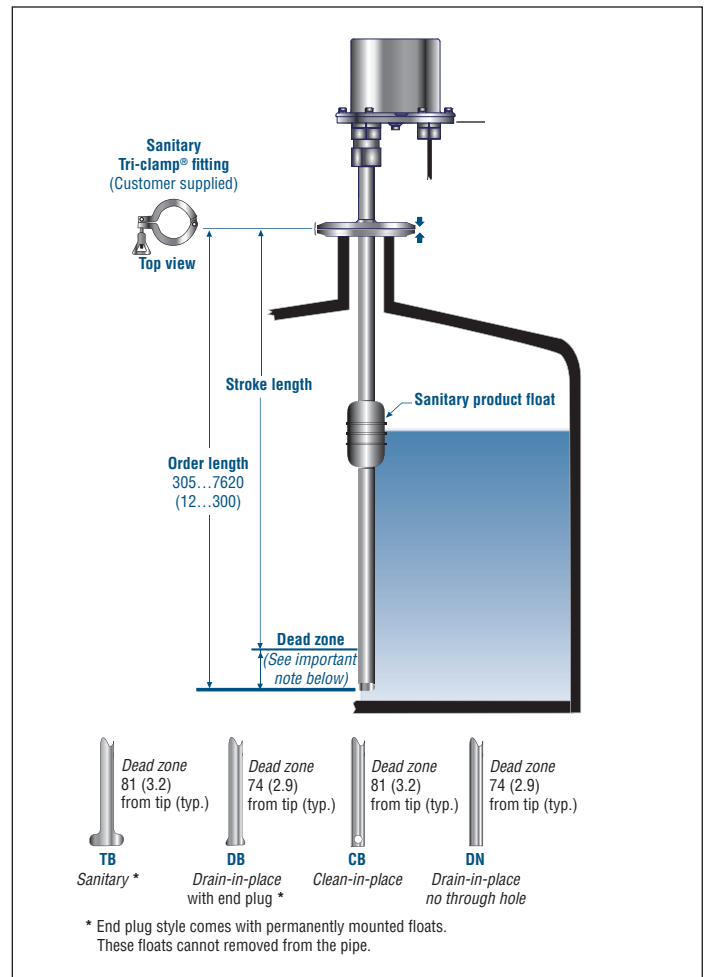


Fig. 2: Sanitary Pipe Installation and Mounting Reference

INVENTORY MONITORING OF SPIRITS

Nobody likes paying taxes and absolutely nobody likes paying more taxes than they need to. Distilleries in the US are required to pay tax on their production volume and not their sales volume. To help minimize taxes the distilleries faced a difficulty of needing an accurate level transmitter that could be used in a hazardous area on large storage tanks. MTS and the Tank SLAYER® were able to meet the requirements by providing an intrinsically safe rating, +/- 1 mm inherent accuracy, and an order length up to 72.2 feet (22 m). The accuracy of the Tank SLAYER was able to help the distilleries to save on wasted product and wasted taxes. The complete construction of 316 stainless steel (1.4404) allowed for a cleanable service and no concerns about product contamination.



Fig. 3: Stainless Steel Wine Barrels (Designed by Bearfotos / Freepik)

LEVEL MEASUREMENT THROUGH FOAM

Beer enthusiasts enjoy a nice head of foam on top of their favorite pint. However, very few level measurement technologies can detect a liquid level under a layer of foam. Magnetostrictive level technology is one of the technologies that can measure through foam and is also approved for use in sanitary applications. Foam is not the only difficulty that has to be overcome in some brewery applications as there can also be carbon dioxide blankets, mixing, and/or outgassing. Despite the difficulties MTS and the SoClean level transmitter can perform with no loss of accuracy.

BOTTLE FILLING MACHINES

MTS level transmitters are installed on different types of bottle fillers including gravity feed flow and piston bottler fillers. On gravity feed flow bottle fillers the level transmitter is used to accurately monitor the liquid level in filler bowl(s). The filler bowl is a holding tank that is used for gravity feed flow control for the dispensing of liquids into bottle based on maintaining a constant liquid level that uses the weight of the liquid to control the dispensing rate and avoid over- or under-filling the bottles. Depending on the liquid being dispensed foam, spray, and mist can be generated in the filler bowl and cause interference with the level measurement but the MTS level transmitters maintain accuracy

because the sensing element is enclosed in the sanitary pipe and does not come in direct contact with the liquid.



Fig. 4: Bottle Filling Machine

MTS level transmitters are also used in piston bottle filling machines. The MTS transmitter is mounted on or in the piston to allow for accurate and repeatable movement of the piston and accurate and reliable filling of the bottle. MTS has an array of transmitters that work in this high-speed application with fast update rates and machine protocols including serial communication (DeviceNet, Profibus DP, SSI) and Ethernet communication (Ethernet IP, EtherCat, ProfiNET, Powerlink).

OTHER APPLICATIONS

MTS has mentioned only a few of the possible applications where level transmitters can be used. There are hundreds of more applications and the only limitation is the creativity in applying the technology. MTS can be used for storage, mixing, dosing, monitoring, overflow prevention, and many other types of applications. If you have an idea and would like to discuss it please contact MTS at the contact information on the back cover.

NO MAINTENANCE

The LP-Series is designed for simplicity and ease of use. Once the level transmitter is installed in the tank it should not have to be removed. MTS does not require recalibration or routine maintenance. If something does go wrong the level transmitters are designed to be fully field replaceable. This means if the electronics or the sensing element becomes damaged, they can easily be replaced from the top of the vessel without removing the pipe assembly. This design has been developed to reduce downtime or draining the tank.



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