

Leak Detection and Inventory Control Probes

The INCON Model TSP-LL2 Liquid Level Probes are advanced instruments that use magnetostrictive position measurement technology to accurately report inventory levels in storage tanks.



Features

- Easy to use and install.
- Uses innovative, magnetostrictive position measurement technology to report liquid levels.
- Highly stable performance.
- Unparalleled accurate performance when used with the INCON Tank Sentinel® ATG.
- Screw-in electrical connector provides quick installation or removal (eliminates the need to resplice wires).
- Intrinsically safe circuits for hazardous locations.

Theory of Operation

- An electromagnetic field is created inside the probe head and forms around a long waveguide within the probe shaft when position measurements are taken.
- The electromagnetic field interacts with the magnetic field of the float(s) and produces a shock wave in the waveguide that travels at a known speed.
- When the shock wave is detected at the probe head, the probe creates a signal that corresponds precisely to the product level.
- Product expansion calculations are enabled by temperature sensors that are located at various points in the probe shaft.

Capabilities

The TSP-LL2 probe consists of a shaft with one or two magnetic floats that move freely along the probe shaft. Probes use advanced magnetostrictive technology for recording liquid level measurement from the magnetic float position.

- Probes can report the level of one or two floats.
- A TSP-LL2 is capable of precise leak detection and inventory monitoring.
- Use the TSP-K4A or TSP-K4AS installation kits for four inch riser pipes.

Applications

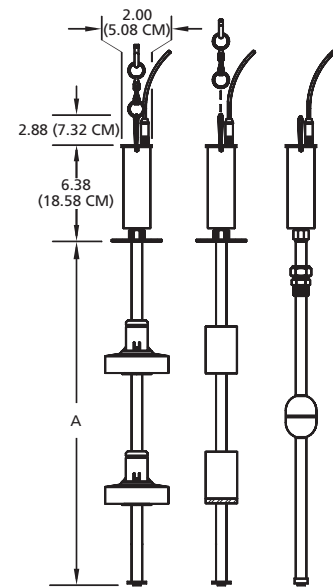
The INCON LL2 series of liquid level probes feature exceptional linearity, resolution and stability and are used in underground storage tanks (USTs) and in aboveground storage tanks (ASTs). Two types of probes are manufactured for use with the Tank Sentinel® Automatic Tank Gauges (ATGs).

- The TSP-LL2 probe is used for UST and petroleum applications.
- The TSP-LL2-I probe is used for AST and inventory only applications.
- Probes are available in many sizes that are suitable for all common tanks.
- The TSP-LL2-I probe is used for AST chemical or waste oil applications (all wetted parts of the probe and float are made of #316 stainless steel).
- Easily installed into 4 inch riser pipes or optionally into 3 or 2 inch riser pipes (with reducer fitting).



TSP-LL2 Specifications

Non-linearity	± 0.025% of full scale								
Repeatability	± 0.001 inches (± 0.0025 cm)								
Temperature sensors	5 thermistors located in shaft								
Temperature resolution	± 0.02° F (± 0.01° C)								
Operating temperature range	-40° to 140° F (-40° to 60° C)								
Storage temperature	-40° to 158° F (-40° to 70° C)								
Safety	Intrinsically safe for Class 1, Div. 1, Group D locations								
Probe pigtail	Two conductor cables with shields, 10 feet long, with a polyurethane jacket								
Interface cable	<table border="0"> <tr> <td>0 to 200 feet</td> <td>Belden 87760</td> </tr> <tr> <td>0 to 400 feet</td> <td>Belden 87761</td> </tr> <tr> <td>0 to 1500 feet</td> <td>Belden 89182</td> </tr> <tr> <td colspan="2">Consult factory for others</td> </tr> </table>	0 to 200 feet	Belden 87760	0 to 400 feet	Belden 87761	0 to 1500 feet	Belden 89182	Consult factory for others	
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Materials - Shaft, E-ring and Washer	Housing	#316 stainless steel Anodized Aluminum MIL-A-8625C, Type 2, Class 2							
	Floats	Nitrophyl, Kynar and nickel-plated brass							



PART NUMBER	DESCRIPTION
TSP-LL2-29	for 2' (0.6 M) diameter tanks
TSP-LL2-41	for 3' (0.9 M) diameter tanks
TSP-LL2-53	for 4' (1.2 M) diameter tanks
TSP-LL2-65	for 5' (1.5 M) diameter tanks
TSP-LL2-69	for 5' 4" (1.6 M) diameter tanks
TSP-LL2-77	for 6' (1.8 M) diameter tanks
TSP-LL2-81	for 6' 4" (1.9 M) diameter tanks
TSP-LL2-89	for 7' (2.1 M) diameter tanks
TSP-LL2-101	for 8' (2.4 M) diameter tanks
TSP-LL2-113	for 9' (2.7 M) diameter tanks
TSP-LL2-125	for 10' (3 M) diameter tanks
TSP-LL2-131	for 10' 6" (3.2 M) diameter tanks
TSP-LL2-137	for 11' (3.4 M) diameter tanks
TSP-LL2-149	for 12' (3.7 M) diameter tanks

Note:

- LL2-XXX - Liquid Level Probe.
- Custom probe lengths are available (contact factory for price and delivery).
- These probes are used with FMS and Tank Sentinel® (full featured, compliance and fixed feature, specialty) consoles.

PART NUMBER	DESCRIPTION
TSP-LL2-29-I	for 2' (0.6 M) diameter tanks
TSP-LL2-41-I	for 3' (0.9 M) diameter tanks
TSP-LL2-53-I	for 4' (1.2 M) diameter tanks
TSP-LL2-65-I	for 5' (1.5 M) diameter tanks
TSP-LL2-69-I	for 5' 4" (1.6 M) diameter tanks
TSP-LL2-77-I	for 6' (1.8 M) diameter tanks
TSP-LL2-81-I	for 6' 4" (1.9 M) diameter tanks
TSP-LL2-89-I	for 7' (2.1 M) diameter tanks
TSP-LL2-101-I	for 8' (2.4 M) diameter tanks
TSP-LL2-113-I	for 9' (2.7 M) diameter tanks
TSP-LL2-125-I	for 10' (3 M) diameter tanks
TSP-LL2-131-I	for 10' 6" (3.2 M) diameter tanks
TSP-LL2-137-I	for 11' (3.4 M) diameter tanks
TSP-LL2-149-I	for 12' (3.7 M) diameter tanks
TSP-LL2-161-I	for 13' (4.0 M) diameter tanks
TSP-LL2-173-I	for 14' (4.3 M) diameter tanks
TSP-LL2-185-I	for 15' (4.6 M) diameter tanks
TSP-LL2-197-I	for 16' (4.9 M) diameter tanks
TSP-LL2-209-I	for 17' (5.2 M) diameter tanks
TSP-LL2-221-I	for 18' (5.5 M) diameter tanks

Note:

- LL2-XXX-I - Liquid Level Inventory Only Probe.
- These probes are used with FMS and Tank Sentinel® (fixed feature and inventory control) consoles.
- Orders for probes larger than 149 can not be canceled and are not returnable.