



Troubleshooting Tips for the LS300 Line Leak Detection System

The Franklin Fueling System LS300 Line Leak Detection System is a precision electronic line leak detection system designed for installation in petroleum piping systems. This document should be used as a quick reference troubleshooting guide when problems or issues occur during the installation or operation of the LS300. For complete installation and operation information, please consult the *LS300 Auto-Learn User's Guide*.


The following sections will focus on the most common problems seen during the Learning process and in Detection mode. For a complete list of possible conditions, please refer to the *LS300 Auto-Learn User's Guide*.

Learn Mode Troubleshooting

Condition	Definition	Potential Causes	Proposed Action
Transducer Not Seen	The LS300 cannot detect the signal coming from the transducer	<ul style="list-style-type: none"> • Transducer is wired incorrectly • Wiring or connections to the transducer are loose or broken • Transducer is defective 	See the <i>LS300 Auto-Learn User's Guide's</i> Transducer Troubleshooting section for specific troubleshooting information.
Insufficient Pressure	Pump pressure did not exceed 17.5 psi upon pump start-up.	<ul style="list-style-type: none"> • Line pressure was not bled to zero before calibration • Power to STP is off • STP is shutdown due to a fault or alarm condition • Transducer problem • Broken pipe or valve 	<ul style="list-style-type: none"> • Confirm line pressure was bled to zero prior to attempting the Learn process. • Confirm power is on to STP and pump controller is free of alarms. • Possible transducer problem. See the <i>LS300 Auto-Learn User's Guide's</i> Transducer Troubleshooting section for specific troubleshooting information. • Check sump areas for signs of leakage.
No Pressure Loss Detected	Pressure decay was not detected after pump shut-off.	<ul style="list-style-type: none"> • Leak generator not installed or needle valve not opened • Leak generator clogged • Transducer problem 	<ul style="list-style-type: none"> • Confirm that the leak generator is installed and the needle valve is opened completely. • Observe the leak generator during the Learning process. Verify that the fuel flow through the orifice is a steady stream from pump OFF to zero line pressure. If the stream is not steady, or line pressure does not drop to zero, replace the Leak Generating Device, or call Tech Support at 800-984-6266. • Possible transducer problem. See the <i>LS300 Auto-Learn User's Guide</i> Transducer Troubleshooting section for specific troubleshooting information.
Auto-Learn Complete <ul style="list-style-type: none"> • Piping Modulus is out of range for annual (0.1 gph) test. • Piping Modulus is out of range for monthly (0.2 gph) and annual (0.1 gph) tests. 	During the Learning sequence, pressure decay was too slow for the system to accurately detect a .1 gph and, if indicated, a .2 gph leak.	<ul style="list-style-type: none"> • Air is trapped in the pipeline causing slow pressure decay • Leak generator is partially clogged, or needle valve is not opened completely • Pipeline exceeds the maximum pipe length dimensions for precision line testing 	<ul style="list-style-type: none"> • Purge line completely, starting at the dispenser farthest from the pump and working your way toward the pump. Also open Needle valve while pump is running, to remove air from that area. Close the Needle valve and shut off the pump. • Confirm that the Needle valve is opened completely, and the Leak generator emits a constant stream of product. Verify that the leak generator tube is free of air. • Check the bleed orifice on the Leak generator, and look for signs of visible damage. Replace Leak generator if necessary, do not attempt to repair.

Detect Mode Troubleshooting

Condition	Definition	Potential Causes	Proposed Action
Leak Alarm • Gross (3gph) Leak Alarm	The LS300 has detected a pressure loss consistent with a leak of 3gph or greater.	<ul style="list-style-type: none"> Leak in the pipeline Submersible pump check valve not seating properly Leak in the manual pressure relief (FE Petro Pump) 	<ul style="list-style-type: none"> Push the Test/Reset button to clear alarm. Conduct a manual leak test to confirm the line status. If the LS300 again detects a leak after three failed test sessions, shut down the line and troubleshoot the pressure loss. Check valve seating area should be clean and free of debris. Clean area if necessary.
• Monthly or Annual Precision Test Failed	The LS300 has detected a pressure loss consistent with a .2gph leak (one flash) or a .1gph leak (two flashes).	<ul style="list-style-type: none"> Adjustable Functional Element not seating properly/defective. (Red Jacket) 	<ul style="list-style-type: none"> Verify that the manual pressure relief screw (FE Petro) is turned clockwise. Check sump areas for signs of leakage. For further information, see FE Petro Service Bulletin SB007 STP/IST Static Pressure Testing.
Transducer Not Seen	The LS300 cannot detect the signal coming from the transducer	<ul style="list-style-type: none"> Transducer is wired incorrectly Wiring or connections to the transducer are loose or broken Transducer is defective 	<ul style="list-style-type: none"> See the <i>LS300 Auto-Learn User's Guide's</i> Transducer Troubleshooting section for specific troubleshooting information.
Pipeline Failed to Hold Pressure	After the submersible pump shut off, pipeline pressure dropped immediately to 0 psi.	<ul style="list-style-type: none"> Large leak in the pipeline Check valve removed or stuck open 	<ul style="list-style-type: none"> Press Test/Reset button to clear alarm. Conduct a manual 3gph test and confirm line status. Verify that the check valve is installed in the submersible pump and is seating properly. Check sump areas for signs of leakage. For further information, see FE Petro Service Bulletin SB007 STP/IST Static Pressure Testing.
Insufficient Pressure to Conduct Test	Pipeline is not fully pressurizing when the submersible pump is turned on.	<ul style="list-style-type: none"> Power to submersible is OFF Leak in the pipeline Transducer problem 	<ul style="list-style-type: none"> Verify that there is power to the submersible pump. Check sump areas for signs of a large leak. See the <i>LS300 Auto-Learn User's Guide's</i> Transducer Troubleshooting section for specific troubleshooting information.
Calibration is Incomplete	The line will not detect leaks because the line is not Learned	<ul style="list-style-type: none"> Learn sequence was not attempted or was not completed properly 	<ul style="list-style-type: none"> See the <i>LS300 Auto-Learn User's Guide's</i> Line Calibration. Follow the instructions on learning a line.

Warning  Highly flammable vapors or liquids may be present in the environment in which this equipment is installed or serviced. Installing or working on this equipment means working in an environment that presents risks of severe injury or death if instructions and standard industry practices are not followed. Follow all applicable codes governing the installation and servicing of this product and the entire system. Always lock out and tag electrical circuit breakers while installing or servicing this equipment and related equipment. Refer to the *Installation and Owner's Manual* of this equipment and related equipment for complete installation and safety information.