

Leak Monitoring System

Programming

The system must be programmed by a factory trained technician or by the direction of a factory representative. Following parameters will be programmed but not limited to this list.

- System type of test (pressure or vacuum).
- Test target to start a test (PSI or inHG).
- Test duration.
- Maximum loss (PSI or inHG) to fail a test.
- Number of failed test in a row to activate an alarm.
- Number of failed attempts to start a test to activate an alarm.
- Alarm will or will not disable the fuel pump.

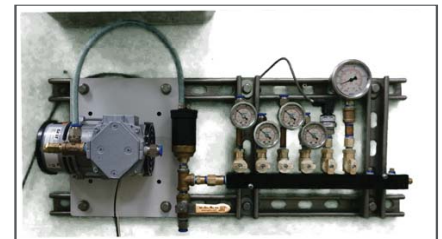


The SafeSite Leak Monitoring System (LMS) is designed to automatically test the interstitial space of double wall pipes and tanks utilizing pressure or vacuum. It bases its results on programmable set points determined specifically for your project.

Automation Programming

The system is designed to run only in the automatic test mode. The system monitors and controls the test media (pressure or vacuum) for the maximum loss for a programmed length of time. When testing the system will perform the following:

- **Prepare for the test.**
 - The vacuum or air pump will start and a solenoid will open to control the test media (pressure or vacuum).
 - The system will stabilize before starting a test.
 - The system will start a test when the test media is stable.
 - The system will monitor the media for changes and either pass or fail a test based on the results.
- **The results of the test.**
 - The system will log the results of a passed or failed test.
 - Activate the alarm and send a signal to a BMS as programmed. If the alarm is activated press the "ALARM ACKNOWLEDGE" button on the front cover to silence the alarm.
 - Disable the fuel pump(s) if programmed to do so.
- **Automatically prepare for the next test as programmed.**



fuel system controls

- A. The pipe leak monitoring system control panel shall consist of, but not be limited to the following:
1. Power requirements – 120 VAC 1 phase with neutral
 2. Enclosure – NEMA 4X (suitable for outdoor and high corrosion areas)
 3. Listings: UL508A listed, CSLA listed and meets NEC (NFPA70), NFPA 30 and NFPA 37 requirements. Suitable for Class 2, Division 2, Groups B, C and D
 4. Display – 6-Inch Micro-Graphic Touch Panel with TFT color LCD, 320 x 240 dot, 32k color display with LED backlight
 5. PLC – Micro-Analog PLC with relay ladder logic programming, real time clock/calendar and battery-backed memory
 6. Outputs to building management (BMS)
 7. System summary alarm (1) dry contact
 8. Modbus RTU communications port (configurable up to 115.2k baud) and TCP/IP.
- B. The pipe leak monitoring system shall consist of, but not be limited to the following components:
1. Vacuum pump – cUL and UL listed, 50 PSIG, 24inHG, 0.52 CFM
 2. Liquid safety barrier
 3. System vacuum setting shall be 10inHG
 4. Pressure gauges – 30inHG, 100PSIG, liquid filled, stainless body with brass intervals
 5. Compound gauges – 30inHG, 100PSIG or sized to 1.5 times the system operating PSIG.
 6. Stainless steel bracket for manifold and pump assembly (4B finish).
- C. The system shall be capable of interfacing with the Building Management System (BMS) via ModBus or a Dry Contact Output (General Fault Alarm).
- D. Bracket option: The bracket and assembly shall be factory assembled and wired to the fuel oil control panel, or may alternately be installed as a standalone unit and certified by a SafeSite Fuel System Controls representative.
- E. The system shall be listed with the National Work Group of Leak Detection Equipment (NWGLDE)
- F. The system operations shall be as follows:
1. Programming: The system must be programmed by a factory trained technician or by the direction of a factory representative. The following parameters will be factory programmed (but not limited to this list).
 - i. System type of test – Vacuum
 - ii. Test target to start a test – 8inHG
 - iii. Test duration – 1 hour increments
 - iv. Maximum loss to fail a test – 2inHG
 - v. Number of failed tests in a row to activate an alarm – 3 failed attempts
 - vi. Number of failed attempts to start a test to activate an alarm – 1 failed attempt
 - vii. Alarm will disable the fuel pump
 2. Automatic Operating: The system is designed to run only in the automatic test mode. The system monitors and controls the test media (vacuum) for the maximum loss for a programmed length of time. When testing, the system will perform the following:
 - i. Prepare for the test
 1. The vacuum pump will start
 2. The system will stabilize before starting a test
 3. The system will start a test when the test media is stable
 4. The system will monitor the media for changes and either pass or fail a test based on the results
 - ii. The results of the test
 1. The system will log the results of a passed or failed test
 2. Activate the alarm and send a signal to a BMS as programmed. If the alarm is activated, press Alarm Acknowledge button on the front cover to silence the alarm.
 3. Disable the fuel pump(s)
 - iii. Types of system failure
 1. If the secondary pipe is compromised, the system will lose vacuum and the alarm is activated.
 2. If the primary pipe is compromised, fuel will leak into the secondary pipe and fill the liquid barrier which will activate the alarm.
 3. Each pipe run shall have an isolation valve to determine the specific pipe that is leaking in the event of a leak condition.
 - iv. Automatically prepare for the next test as programmed.