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Murphy by Enovation Controls EL150EX

Murphy by Enovation Controls EL150EX Liquid Level Swichgage Instruction Manual

Model: EL150EX | Brand: Murphy by Enovation Controls

1. INTRODUCTION

The Murphy by Enovation Controls EL150EX Liquid Level Swichgage is an explosion-proof instrument designed to combine liquid level indication with a low-limit switch function. This device is engineered for reliable operation in various industrial applications, providing both visual level monitoring and an electrical switching circuit upon reaching a predetermined low-level set point.

The EL150EX features a chamber with a pivotal float, an indicating dial with a pointer, and a low-level contact. The float mechanism drives the pointer to display the current liquid level. Should the liquid level drop to the factory-set low-limit, the integrated switch activates, enabling connection to alarm systems or automatic shutdown mechanisms.



Figure 1.1: Front view of the Murphy EL150EX Liquid Level Swichgage. This image displays the robust, red-painted cast aluminum body with the clear tempered glass lens for viewing the internal components and liquid level indicator. The 'DISCONNECT BEFORE OPENING' warning is visible on the housing.

2. IMPORTANT SAFETY INFORMATION

WARNING: Read and understand all instructions before installation, operation, or maintenance. Failure to

follow these instructions may result in serious injury, death, or property damage.

- The EL150EX is designed for hazardous locations and is CSA Listed for Class I, Division I, Groups C & D. Adhere strictly to all local and national electrical codes and regulations for hazardous environments.
- Ensure power is disconnected before performing any installation, wiring, or maintenance procedures to prevent electrical shock.
- This instrument is built for low-pressure systems with a maximum operating pressure of 25 psi (172 kPa) [1.72 bar]. Do not exceed this pressure rating.
- Only qualified personnel should install, operate, and service this equipment.
- Verify that the liquid being monitored is compatible with the 304 stainless steel float and tempered glass lens materials.

3. PRODUCT COMPONENTS

The EL150EX Liquid Level Switchgauge consists of the following primary components:

- **Explosion-Proof Housing:** Sand cast aluminum body, painted for durability and protection in hazardous environments.
- **Pivotal Float:** Made from 304 stainless steel, this component responds to changes in liquid level.
- **Indicating Dial with Pointer:** Provides a visual representation of the current liquid level.
- **Low Level Contact:** A fixed set point switch that activates when the liquid level falls below the specified minimum.
- **Tempered Glass Lens:** Allows for clear viewing of the indicating dial while maintaining the integrity of the explosion-proof enclosure.
- **Terminal Block:** For electrical wiring connections.



Figure 3.1: Side view of the Murphy EL150EX Liquid Level Switchgauge, showing the product label with model information and certifications. This view highlights the robust construction and the threaded conduit entries for electrical connections.

4. SETUP AND INSTALLATION

Proper installation is critical for the accurate and safe operation of the EL150EX Switchgauge. Refer to the detailed diagram below for dimensions and wiring configurations.

1. **Mounting Location:** The unit must be mounted at the exact liquid level where the low-limit set point is required. Ensure the float mechanism has unrestricted movement within the liquid.
2. **Pressure Considerations:** Install the Switchgag in systems operating at or below 25 psi (172 kPa) [1.72 bar].
3. **Mechanical Connection:** Securely mount the device using the provided mounting holes. Ensure all connections are leak-free.
4. **Electrical Wiring:**
 - Disconnect all power before wiring.
 - Wire the snap-switch (SPDT rated 10 A @ 125 VAC; 0.5 A @ 125 VDC; 10 A 30 VDC) to the terminal block.
 - Refer to the electrical diagrams for the EL150EX model shown in Figure 4.1 for correct wiring to your control system (e.g., alarm, shutdown).
 - Ensure all wiring complies with local electrical codes for hazardous locations.
5. **Verification:** After installation, slowly fill the system to verify the pointer indicates the liquid level correctly. Test the low-limit switch function by carefully lowering the liquid level to ensure the contact closes as expected.

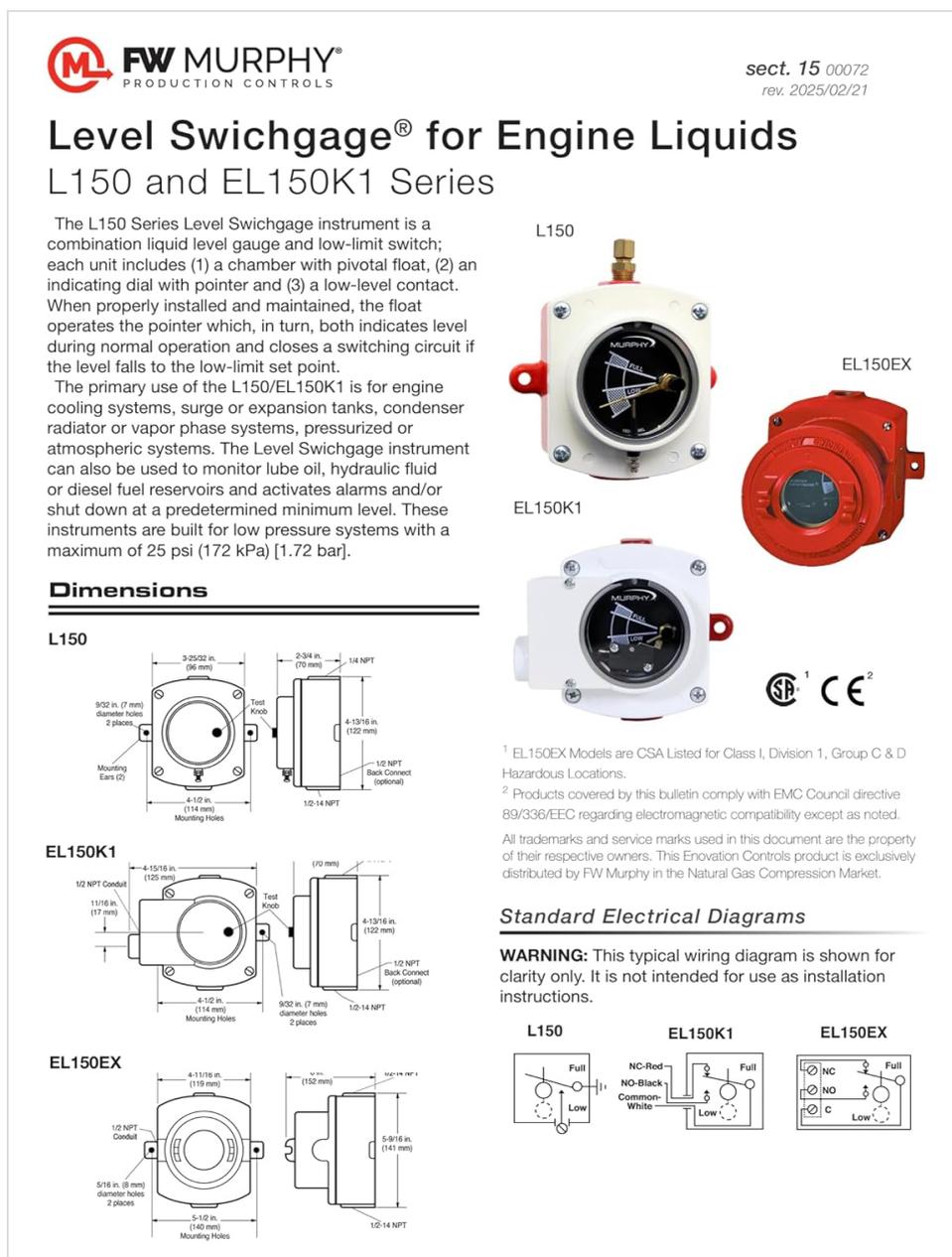


Figure 4.1: Technical diagram illustrating dimensions and standard electrical diagrams for the L150, EL150K1, and EL150EX series. For the EL150EX, refer to the specific dimensions and the electrical diagram labeled 'EL150EX' which shows NC (Normally Closed), NO (Normally Open), and C (Common) terminals. This diagram is crucial for proper physical installation and electrical integration.

5. OPERATING INSTRUCTIONS

The EL150EX Liquid Level Switchgauge operates automatically once properly installed and configured.

- **Level Indication:** The pointer on the indicating dial continuously displays the current liquid level within the system.
- **Low-Limit Switch Activation:** The EL150EX features a fixed set point. When the liquid level falls to this pre-set low-limit, the internal switch activates. This action closes a switching circuit, which can be used to trigger alarms or initiate system shutdowns.
- **Typical Applications:** This instrument is commonly used in engine cooling systems, surge or expansion tanks, condenser radiator or vapor phase systems (both pressurized and atmospheric), and to monitor reservoirs for lube oil, hydraulic fluid, or diesel fuel.

6. MAINTENANCE

Regular maintenance ensures the longevity and reliable operation of your EL150EX Switchgauge.

- **Visual Inspection:** Periodically inspect the unit for any signs of physical damage, corrosion, or leaks. Ensure the glass lens is clean and clear for accurate level readings.
- **Float Mechanism:** Ensure the float mechanism moves freely and is not obstructed by debris or buildup. Depending on the liquid type, periodic cleaning may be necessary.
- **Electrical Connections:** Check electrical connections for tightness and integrity. Ensure no wires are frayed or damaged.
- **Functional Test:** Periodically test the low-limit switch function by simulating a low-level condition (if safely possible) to confirm the alarm or shutdown system activates correctly.
- **Cleaning:** Clean the exterior of the unit with a damp cloth. Do not use abrasive cleaners or solvents that could damage the paint or lens.

7. TROUBLESHOOTING

This section provides guidance for common issues. For problems not listed, contact technical support.

- **No Level Indication / Incorrect Reading:**
 - Verify the unit is correctly mounted at the liquid level.
 - Check for obstructions preventing float movement.
 - Inspect for internal damage to the float or linkage.
- **Low-Limit Switch Not Activating:**
 - Ensure the liquid level has actually dropped below the fixed set point.
 - Check electrical wiring for loose connections or damage.
 - Verify the external alarm/shutdown system is functional.
 - The switch itself may be faulty; professional inspection is recommended.
- **Leaks Around Unit:**
 - Tighten all mechanical connections.
 - Inspect gaskets and seals for damage and replace if necessary.

8. SPECIFICATIONS

Feature	Specification
Model	EL150EX
Operation Mode	Automatic
Operating Voltage	125 Volts
Contact Type	Normally Open (NO)
Terminal	SPDT (Single Pole Double Throw)
Circuit Type	2-way
Actuator Type	Float
Contact Material	Stainless Steel
International Protection Rating	25
Maximum Operating Pressure	25 psi (172 kPa) [1.72 bar]
Housing Material	Sand cast aluminum, painted
Float Material	304 Stainless Steel
Lens Material	Tempered Glass
CSA Listing	Class I, Division I, Groups C & D Hazardous Locations
Snap-Switch Rating	10 A @ 125 VAC; 0.5 A @ 125 VDC; 10 A 30 VDC

9. WARRANTY AND SUPPORT

For specific warranty information, please refer to the documentation provided with your purchase or contact Murphy by Enovation Controls directly. Technical support and service inquiries should be directed to the manufacturer or your authorized distributor.