



1074 Kenran Industrial Dr.  
St. Louis, MO 63137  
Phone: 1-800-381-9968

# HUMCO ENGINE ROOM

## Murphy Engine Liquid Instruments



### L150/ EL150K1 Series

- Monitors Level of Coolant, Lube Oil, Diesel Fuel And Hydraulic Fluid.
- Indicating Gauge
- Low Limit Switch
- Float Operated
- Explosion-Proof Model Is Available.



\*\* Products covered by this bulletin comply with EMC Council directive 89/336/EEC regarding electromagnetic compatibility except as noted.

**EL150EX Models are CSA Listed for Class I, Division 1, Group C & D Hazardous Locations.**

### Description

The L150 Series Level Switchage instrument is a combination liquid level gauge and low limit switch; each unit includes (1) a chamber with pivotal float, (2) an indicating dial with pointer, and (3) a low level contact. When properly installed and maintained, the float operates the pointer which, in turn, both indicates level during normal operation, and closes a switching circuit if the level falls to the low-limit set point.

### Applications

The primary use of the L150/EL150K1 is for engine cooling systems, surge or expansion tanks, condenser radiator or vapor phase systems, pressurized or atmospheric systems. The Level Switchage instrument can also be used to monitor lube oil, hydraulic fluid or diesel fuel reservoirs and activates alarms and/or shut-down at a predetermined minimum level. These instruments are built for low pressure systems with a maximum of 25 psi (172 kPa) [1.72 bar].

### L150 Specifications

**Case:** Die cast aluminum, poly-urethane coated; approximate dimensions; 4-1/2 x 4-3/4 x 2-3/4 in. (114 x 121 x 70 mm).  
**Mounting Holes:** (2) 9/32 in. (7 mm) diameter at 4-1/2 in. (114 mm) on center.  
**Float:** Brass.  
**Lens:** Polycarbonate.

**O-rings:** Saturated Nitrile, are suitable for coolant or hydrocarbons. Maximum temperature 250°F (121°C).

**Gasket:** Nitrile.

**Vent Tube:** 1/4 x 5 in. (6 x 127 mm) copper cane with 1/4 NPT x 1/4 in. (6 mm) tube fitting.

**Contact Rating:** 2 A @ 30 VAC/DC.

**Wire:** (1) 16 AWG x 26 in. (1.5 mm<sup>2</sup> x 660 mm) with terminals.

**Shipping Weight:** 29 oz. (0.82 kg.).

**Shipping Dimensions:** 5-1/4 x 5-1/4 x 5-1/2 in. (133 x 133 x 140 mm).

### EL150K1 Specifications

**Case:** Die cast aluminum, poly-urethane coated; approximate dimensions; 5 x 4-3/4 x 2-3/4 in. (127 x 121 x 70 mm).

**Mounting Holes:** (2) 9/32 in. (7 mm) diameter at 4-1/2 in. (114 mm) on center.

**Float:** Brass.

**Lens:** Polycarbonate.

**O-rings:** Saturated Nitrile, are suitable for coolant or hydrocarbons. Maximum temperature 250°F (121°C).

**Gasket:** Nitrile.

**Vent Tube:** 1/4 x 5 in. (6 x 127 mm) copper cane with 1/4 NPT x 1/4 in. (6 mm) tube fitting.

**Snap-Switch:** SPDT rated 10 A @ 125 VAC; 0.5 A @ 125 VDC; 10 A 30 VDC.

**Wire:** (3) 18 AWG x 14 in. (1 mm<sup>2</sup> x 356 mm).

**Shipping Weight:** 42 oz. (1.2 kg.).

**Shipping Dimensions:** 5-1/4 x 5-1/4 x 5-1/2 in. (133 x 133 x 140 mm).

### EL150EX Specifications

**Case:** Sand cast aluminum, painted; approximate dimensions; 6-1/2 x 5-3/4 x 5-1/4 in. (165 x 146 x 133 mm).

**Mounting Holes:** (2) 5/16 in. (8 mm) diameter at 5-1/2 in. (140 mm) on center.

**Float:** 304 Stainless steel.

**Lens:** Tempered glass.

**O-rings:** Saturated Nitrile, are suitable for coolant or hydrocarbons. Maximum temperature 250°F (121°C).

**Gasket:** Nitrile.

**Vent Tube:** 1/4 x 5 in. (6 x 127 mm) copper cane with 1/4 NPT x 1/4 in. (6 mm) tube fitting and 1/2 NPT to 1/4 NPT reducer fitting.

**Snap-Switch:** SPDT rated 10 A @ 125 VAC; 0.5 A @ 125 VDC; 10 A 30 VDC.

**Wire:** Wired to terminal block.

### Laboratory Approvals:

CSA Listed for Hazardous Locations Class I, Division 1, Groups C & D.

**Shipping Weight:** 5 lbs. (2.26 kg.).

**Shipping Dimensions:** 6-1/2 x 6-3/4 x 6-3/8 in. (165 x 171 x 162 mm).



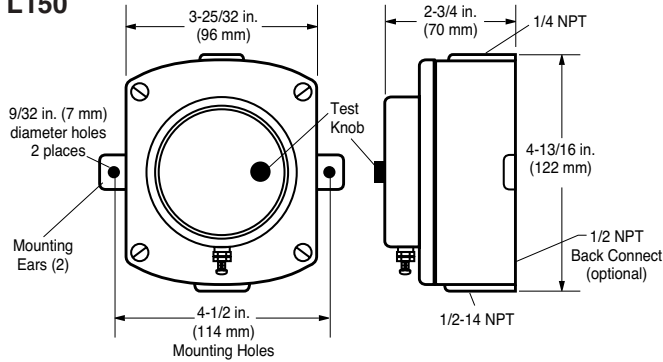
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# HUMCO ENGINE ROOM

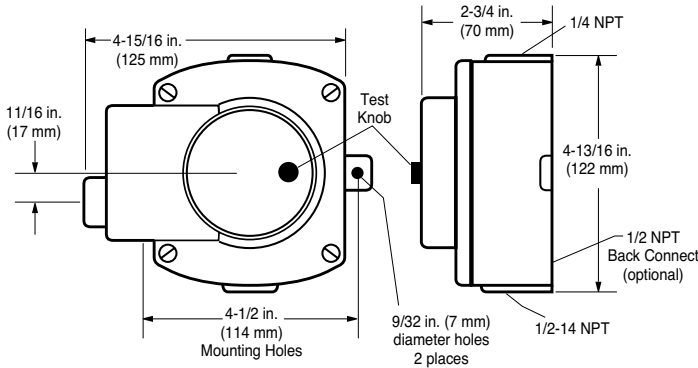
## Murphy Engine Liquid Instruments

### Dimensions

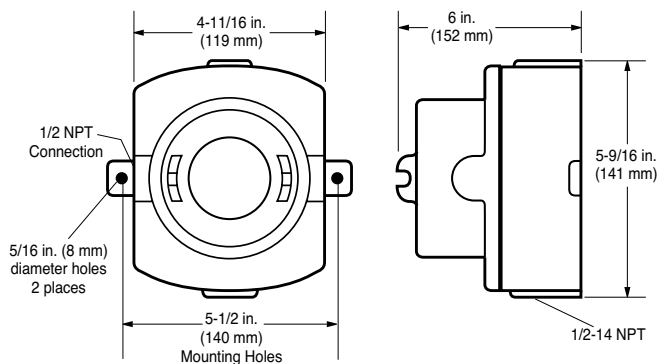
#### L150



#### EL150K1



#### EL150EX



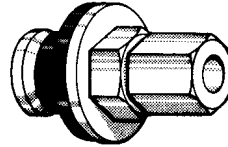
### Warranty

A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to [www.fwmurphy.com/support/warranty.htm](http://www.fwmurphy.com/support/warranty.htm)

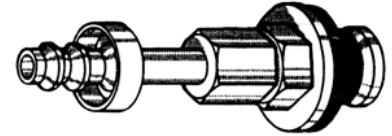
### Radiator Fittings

Murphy PS, PS Barbed and PS-D fittings allow the installation of the L150/EL150K1 to the radiator when a fitting is not available.

- **15-00-0107 (PS)**: thin wall, 1/4 in. (6 mm) tube fitting.
- **15-01-0167 (PS-Barbed)**: thin wall, 1/4 in. (6 mm) tubing or hose.
- **15-01-0202 (PS-D)**: for diesel or oil, thick wall (to 1/4 in. [6 mm]), accepts 1/2 in. (13 mm) I.D. hose or 1/4 in. (6 mm) O.D. tubing.



15-00-0107 (PS)



15-01-0167 (PS Barbed)

### Repair Kits

#### L150

- 15-00-0138 All parts except case and body
- 15-00-0101 Case/body assembly

#### EL150K1

- 15-00-0139 All parts except case and body
- 15-00-0101 Case/body assembly
- 15-00-0100 Lens/switch assembly

#### EL150EX

- 15-00-0110 Cover and float assembly
- 15-00-0108 Lid assembly
- 15-00-0109 Switch/terminal assembly

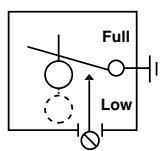
### Accessories

Specify	Description
15-00-0107	Radiator fitting (PS)
15-01-0202	Radiator fitting (PS-D)
15-01-0167	Radiator fitting (PS Barbed)

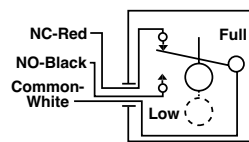
### Standard Electrical Diagrams

**WARNING:** This typical wiring diagram is shown for clarity only. It is not intended for use as installation instructions.

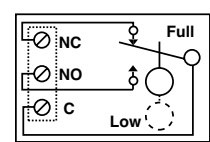
#### L150



#### EL150K1



#### EL150EX



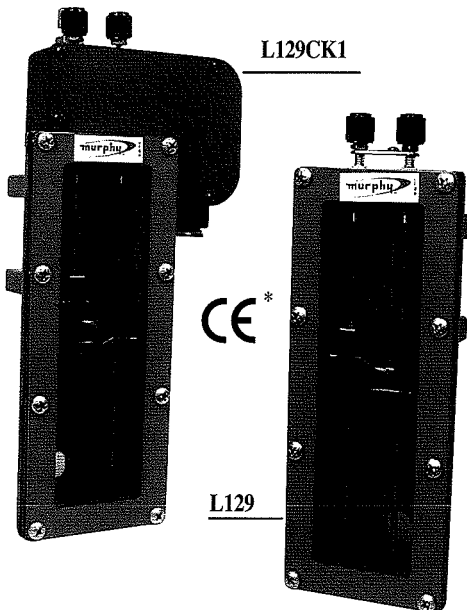
### Fittings Kits Order Separately

- 15010235 FM3
- 15010236 FM4
- 15010237 FM5
- 15010238 FM12
- 15010349 CECO

## Murphy Lube Level Switchgag<sup>®</sup>



# Lube Level SWICHGAGE<sup>®</sup>



### L129 Series

- Check Lube Level Without Shutting Down
- Use On Engines, Pumps, And Compressors
- Combination Indicating Gage with Low and High Limit Switch
- Float Operated

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### Description

The L129 Series Lube Level SWICHGAGE<sup>®</sup> is a combination lube level indicating gage and adjustable low and high limit switches. It provides protection against low oil level or high level caused by overfill or fuel or water seepage into the crankcase.

A 6-3/4 inch (171 mm.) deep sight gauge allows you check the condition and level of your oil without shutting down the equipment. Fingertip adjustable limit contacts, thru 4-7/8 inch (122 mm.) range, make it simple to set high and low limit contacts. If the float touches the high or low limit contact, a normally open circuit will be completed which can activate alarms and/or shutdown the equipment.

There are two models in the L129 Series: L129 and L129CK1. The L129 model is designed for grounded, low voltage electrical systems. It features a one-wire-to-ground electrical circuit. The L129CK1 was designed for applications requiring a three-wire, above ground electrical circuit. It features

ungrounded contacts and a conduit hub to protect electrical wiring.

Options are available for both models.

A flow restrictor plug is available that restricts oil flow from the crankcase to the L129 Series switch and vice versa. It is typically used on applications where the engine is not stationary such as marine and mobile equipment.

The L129 Series Lube Level SWICHGAGE<sup>®</sup>, when properly installed and maintained, can monitor and protect your engines and pumps from improper lubrication level, which can result in extensive damage.

### Applications

The L129 Series is recommended for engines and pumps with larger crankcase capacity. Although designed primarily for stationary engines, the L129 Series is often used in mobile applications such as marine, rail and some large off-highway trucks.

### Specifications

**Case:** Die Cast Aluminum

**Lens:** Trogamid Nylon

**Maximum Working Pressure:**  
10 psi (68.9 kPa)

**Process Connection:** 1/2 NPT

**Float Material:** Brass

**Contact Rating:** 2 A @ 30 VAC/DC, pilot duty

**Shipping Weight:**

L129: 3 lb. (1.4 kg)

L129CK1: 3 lb. 9 oz. (1.6 kg)

**Shipping Dimensions (both models):**

12 x 4-1/2 x 4-3/4 in. (305 x 114 x 121 mm.)

### Warranty

A two-year limited warranty on materials and workmanship is given with this Murphy product. Details are available on request and are packed with each unit.

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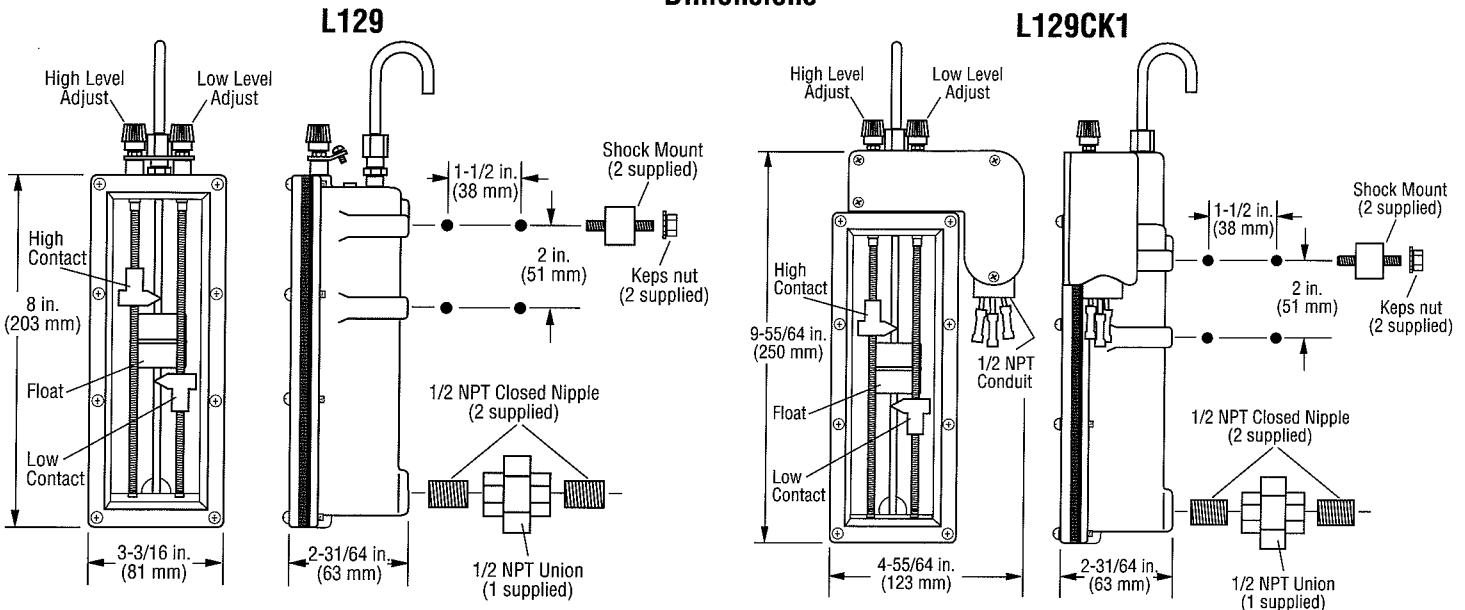
# HUMCO ENGINE ROOM

## Murphy Lube Level Switchgag<sup>®</sup>

# Lube Level SWITCHGAGE<sup>®</sup>



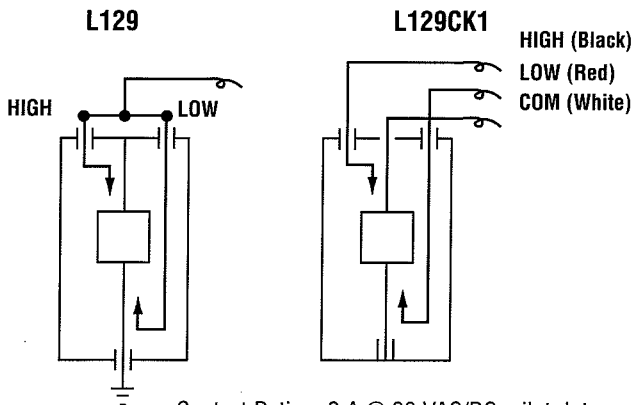
### Dimensions



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### Wiring Diagrams

These diagrams are shown with the float in the "full" position.



Contact Rating: 2 A @ 30 VAC/DC, pilot duty.

### Repair Kits

Specify part number.

#### L129

15000888	For units with date code T2 (Feb '98) through W6 (i.e. T3, T4, U1, U2, etc.)		
15050241	Restrictor plug		
15050245	Glass through W6	15051100	W7 & later
15050246	Gasket through W6	15051099	W7 & later

#### L129CK1

15050241	Restrictor plug		
15050245	Glass through W6	15051100	W7 & later
15050246	Gasket through W6	15051100	W7 & later

## Murphy Bilge Level Switch System



### BLSK1 Series

- Operates Bilge Pumps or Alarms
- Uses Proven “Air Cell” Actuated System
- Remote Switch and Moving Parts Kept Unaffected by Corrosion
- Aluminum Body and Cover
- Includes 3 Assemblies:
  - (1) BLS1 Bilge Level Switch
  - (2) MACT1 Tube Kit (Sensor Line and Fittings)
  - (3) MAC1 “Air Cell” (Volume Cell)

### Description

The BLSK1 Bilge Level Switch System gives you all items and fittings necessary to install in your bilge. Or, you can have only the parts you want and you provide brackets, tubing and mounting hardware.

Using the proven “Air Cell” actuating system, all moving parts and switching are remote from bilge liquids and are thus not affected by corrosion, rust, etc. All wetted parts are of non-corrosive materials.

As bilge level rises a column of air is captured in the MAC1 Air Volume Cell. The rising bilge level compresses the column of air creating pressure against the large diaphragm in the BLS1 Bilge Level Switch and the switch trips. Switch set point is adjustable.

The switch resets as the bilge is pumped out. Air cell recharges itself during normal operation.

The BLS1 is constructed of materials not affected by marine atmospheres; Aluminum or Bronze body and cover, Buna-N diaphragm.

### Specifications

#### BLS1 Bilge Level Switch

*Snap-Switch SPDT (standard)*

- 5 A @ 125, 250, or 480 VAC
- 1/2 A @ 125 VDC, 1/4 A @ 250 VDC

*NOTE: A pilot relay may be used for higher contact ratings (see Typical Wiring Diagram on page 533).*

*Case/Lid:* Aluminum (std).

*Bottom Plate:* Glass-filled Nylon.

*Process Connection:* 1/4 NPTF.

*Max. Pressure:* 25 psi (172 kPa) [1.72 bar].

*Conduit Connection (electrical):* 1/2 NPT.

*BLS1 Weight:* 3 lb. (1.4 kg).

*BLS1 Dimensions:* 6-1/4 x 6-1/4 x 6-1/4 in. (159 x 159 x 159 mm).

#### 15050737 Optional mounting bracket

16 ga., 304 stainless steel (see Dimensions).

#### MACT1 Tube Kit (fittings included)

4 ft. (1.21 m) flexible non-corrosive tubing, 1/4 in. (6 mm) dia. (cut to fit).

*MACT1 Weight:* 0.5 lb. (0.23 kg).

*MACT1 Dimensions:* 6 x 6 x 6 in. (152 x 152 x 152 mm).

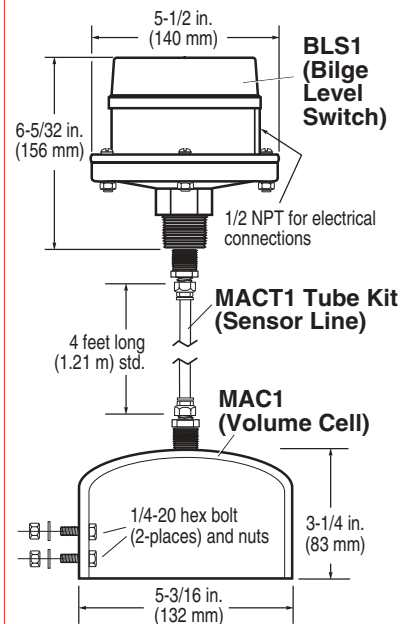
#### MAC1 Air Cell (Volume Cell)

- Made of non-corrosive materials
- (2) 1/4-20 stainless steel hex bolts and nuts.

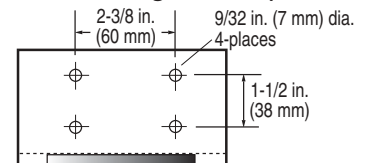
*MAC1 Weight:* 2 lb. (1 kg).

*MAC1 Dimensions:* 6 x 6 x 6 in. (152 x 152 x 152 mm).

### Dimensions



#### Optional Mounting Bracket (15050737)







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## Murphy Bilge Level Switch System

### Installation Instructions



**Before beginning installation of this Murphy product:**

- ✓ Disconnect ALL electrical power to the machine.
- ✓ Make sure the machine CANNOT operate during installation.
- ✓ Follow all safety warnings of the machine manufacturer.
- ✓ Read and follow all installation instructions.

1. Select a mounting location in lower part of the bilge for the MAC1 air cell, but do not mount cell at this time. MAC1 must be placed so that no debris will become trapped inside it. Position the air cell approximately 1-1/2 to 2 in. (38 to 51 mm) below desired operation point and note location for attaching the cell to a stringer or bulkhead, etc. Vertical adjustment may be necessary for final calibration (see step 6).

2. Mount the BLS1 switch via optional mounting bracket 15050737 or one of your supply. Keep the BLS1 switch within 4 ft. (1.21 m) off the MAC1 air cell. Tubing must **NOT** have a loop or flat area for moisture to collect. Always maintain a downward slope.



**CAUTION:** Air cell tubing and connections must remain air tight. Seal any holes placed in the air cell.

3. Attach the MACT1 tubing kit to the air cell and to the BLS1 switch. Any tubing can be used as long as it does not corrode and it provides air tight connections.

4. Wire the SPDT snap-switch according to instructions and your requirements. See typical wiring diagrams, below.

5. The BLS1 trip point is preset to operate when bilge level rises approximately 1-1/2 in. (38 mm) above the bottom of the air cell. It will reset when level falls approximately 3/4 in. (19 mm).

6. Raise or lower the air cell so that the distance from the hull to the trip point level on the side of the air cell is equal to desired level of bilge. Secure the air cell via the 2 hex bolts.

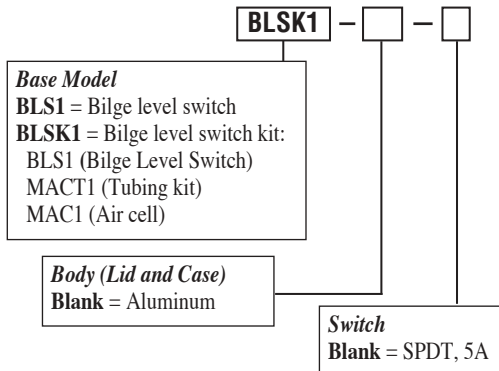
If necessary, adjustment can be made prior to installation by placing the air cell in a bucket of water and adjusting the white knurled knob inside the BLS1 until the snap-switch actuates at the desired level. Or, build a coffer dam around the air cell in the bilge, add the desired amount of bilge water, and adjust the switch trip knob as explained above. **BE SURE** to remove coffer dam prior to placing the BLS1 into service.

7. Verify proper operation at desired levels prior to launch.

**NOTE:** The air cell will automatically recharge itself anytime the bilge level falls below the air cell.

### How to Order the BLSK1

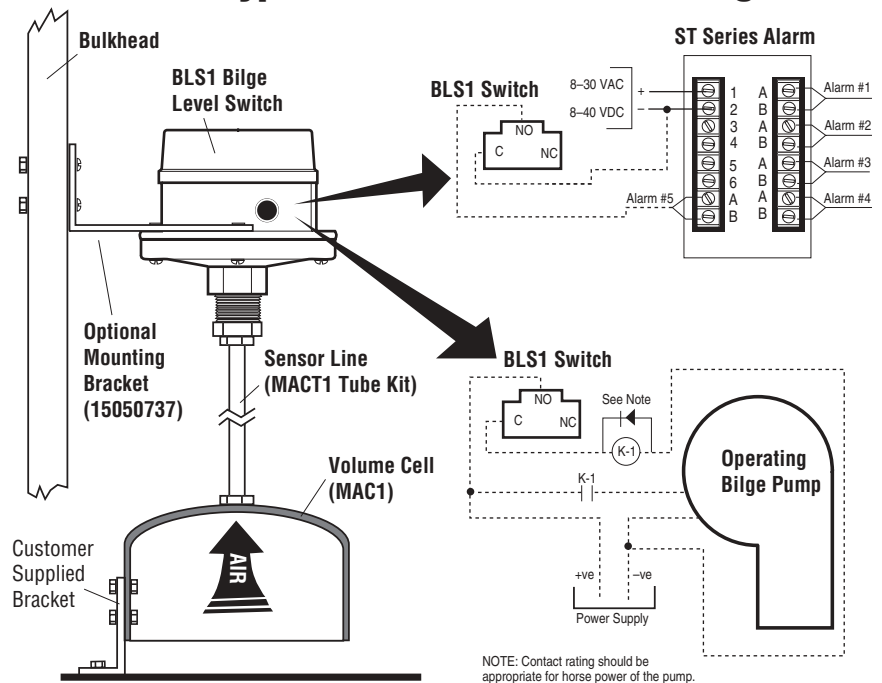
To order use the model number designation diagram below.



### Accessories and Replacement Parts (order separately)

- 15050737: BLS1 mounting bracket.
- 15010205: 5 A snap-switch and movement assembly.
- 15000123: Diaphragm assembly.
- 15050823: Piston.
- 15050824: Knob for limit adjustment.

### Typical Installation and Wiring



**NOTE:** Contact rating should be appropriate for horse power of the pump.

### Warranty

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