

Lead Line Pressure Switch



LLS Series

- For Thick/Heavy Liquids
- Corrosion Resistance Sensor
- Field Adjustable Set Point Without Opening the Snap-switch Cover
- Direct or Remote Mount Models
- Explosion-proof Switch Enclosure Suitable for Hazardous Areas
- Heavy-duty Snap-Switch(es)

Description

The LLS Series is a highly reliable pressure switch for tough applications where highly viscous liquids could plug the sensing orifice. Typical application is for oil well lead lines.

The LLS consists of a sealed sensing element connected to our Series 6 pressure switch and filled with a special pressure transmitting fluid.

Model LLS has a 2 NPT male connection which attaches directly into the process line. The Ni-SPAN® sensing diaphragm is self cleaning as the medium flows past the diaphragm, thus there is never any plugging of the sensing orifice.

LLSR model has a remote sensor connected to the

pressure switch by a length of stainless steel capillary and armor (1 NPT female connection). This configuration is ideal for monitoring discharge pressure on oil pipeline plunger pumps.

The pressure switch is housed in a rugged anodized aluminum enclosure, listed for hazardous locations. The snap acting switch is field adjustable and is available in SPDT or DPDT configurations.

Optional for LLSR models is a 1 NPT x 1 NPT pulsation dampener to minimize potentially damaging pressure pulsation.

Features

- Heavy-duty Pressure Switch and Sensor in One Unit
- Field Adjustable Set Point
- Explosion-proof/Weatherproof Enclosure
- Stainless Steel, CRS Chromate Plated, or Nickel Plated Sensor Body
- Low Effect from Temperature Extremes

Applications

- Oil Well Lead Lines
- Crude Processing Plants
- Mud Pump and Asphaltic Compounds
- Plunger Pumps
- Other Highly Viscous or Corrosive Liquids

Sensor Model Selection Table

Base Model	Switch Adjustment Range†			Dead Band Approximate			Max System			Wetted Parts Materials
	psi	kPa/MPa	bar	psi	kPa/MPa	bar	psi	MPa	bar	
LLS	50-450	345 kPa-3.10 MPa	3.45-31.00	5-45	34-310 kPa	0.34-3.10	1500	10.34	103.40	CRS steel sensor-Chromate plated (yellow) body; Ni-SPAN® diaphragm.
	100-1750	689 kPa-12.07 MPa	6.89-120.70	15-100	103-689 kPa	1.03-6.89	2500	17.24	172.40	
	200-2500	1.38 MPa-17.24 MPa	13.80-172.40	20-150	138-1.03 MPa	1.38-10.34	3000	20.69	206.90	
	400-4000	2.76 MPa-27.60 MPa	27.60-276.00	75-450	517 kPa-3.10 MPa	5.17-31.00	5000	34.48	344.80	
LLSB	50-450	345 kPa-3.10 MPa	3.45-31.00	5-45	34-310 kPa	0.34-3.10	1500	10.34	103.40	Thick wall 304 stainless steel sensor body; Ni-SPAN® diaphragm. Meets NACE MR-01-75 standard for direct exposure to H ₂ S.
	100-1750	689 kPa-12.07 MPa	6.89-120.70	15-100	103-689 kPa	1.03-6.89	2500	17.24	172.40	
	200-2500	1.38 MPa-17.24 MPa	13.80-172.40	20-150	138-1.03 MPa	1.38-10.34	3000	20.69	206.90	
	400-4000	2.76 MPa-27.60 MPa	27.60-276.00	75-450	517 kPa-3.10 MPa	5.17-31.00	5000	34.48	344.80	
LLSR	50-450	345 kPa-3.10 MPa	3.45-31.00	5-45	34-310 kPa	0.34-3.10	1500	10.34	103.40	Remote sensor-Nickel plated steel body with stainless steel capillary; Teflon* coated diaphragm .
	100-1750	689 kPa-12.07 MPa	6.89-120.70	15-100	103-689 kPa	1.03-6.89	2500	17.24	172.40	
	200-2500	1.38 MPa-17.24 MPa	13.80-172.40	20-150	138-1.03 MPa	1.38-10.34	3000	20.69	206.90	
	400-4000	2.76 MPa-27.60 MPa	27.60-276.00	75-450	517 kPa-3.10 MPa	5.17-31.00	5000	34.48	344.80	
LLSRB	50-450	345 kPa-3.10 MPa	3.45-31.00	5-45	34-310 kPa	0.34-3.10	1500	10.34	103.40	Remote sensor-AISI 316 stainless steel body; stainless steel capillary and armor; AISI 316L stainless steel Teflon* coated diaphragm.
	100-1750	689 kPa-12.07 MPa	6.89-120.70	15-100	103-689 kPa	1.03-6.89	2500	17.24	172.40	
	200-2500	1.38 MPa-17.24 MPa	13.80-172.40	20-150	138-1.03 MPa	1.38-10.34	3000	20.69	206.90	
	400-4000	2.76 MPa-27.60 MPa	27.60-276.00	75-450	517 kPa-3.10 MPa	5.17-31.00	5000	34.48	344.80	

† See the "How to Order" section (back page).

* Teflon-DuPont Trademark

Specifications

Maximum Ambient Temperature:

-10° to +160°F (-23° to +71°C).

Maximum Process Temperature:

LLS/LLSB: -40° to +160°F (-40° to +71°C).

LLSR/LLSRB: -40° to +400°F (-40° to +204°C).

Temperature Compensation: The volumetric expansion and contraction of the fill may cause a ±3% to ±5% shift of the set point.

Switch Enclosure:

Aluminum anodized (black). NEMA 4, and NEMA 7 and 9 explosion-proof, waterproof and corrosion resistant. Suitable for: Class I, Div. 1 and 2, Groups B, C, D; Class II, Div. 1 and 2, Groups E, F, G.

Sensor Body:

LLS: CRS steel chromate plated (yellow).

LLSB: Thick wall 304 stainless steel sensor.*

LLSR: Remote Sensor; Nickel plated steel with stainless steel capillary.

LLSRB: Remote Sensor; AISI 316 stainless steel with stainless steel capillary and armor.

Diaphragm Material:

LLS and LLSB: Ni-SPAN®

LLSR: Teflon coated steel

LLSRB: 316L Stainless Steel-Teflon coated.

Snap-switch Ratings:

SPDT (Std.): 15 A @ 125, 250 or 480 VAC

DPDT (Std.): 11 A @ 125 or 250 VAC

SPDT (Gold): 100 mA @ 125 VAC;

0.250 A @ 6 VDC

DPDT (Gold): 100 mA @ 125 VAC;

0.250 A @ 6 VDC

Internal Slotted Adjustment Screw:

Can be field-adjusted with blade screwdriver.

LLSR/LLSRB Mount: 4-hole bolt pattern for 1/4 in. dia. (6 mm) bolts, (see Dimensions).

LLS/LLSB Mount: Direct mount into process (2 NPT process connection).

Shipping Weight: LLS/LLSB: 4 lbs. 9 oz. (2.25 kg).

LLSR/LLSRB: 7 lbs. 12 oz. (3.23 kg).

Shipping Dimensions:

LLS/LLSB: 10 x 9-1/4 x 5-3/4 in.
(254 x 235 x 146 mm).

LLSR/LLSRB: 15-3/4 x 11 x 5-1/4 in.
(400 x 279 x 133 mm).

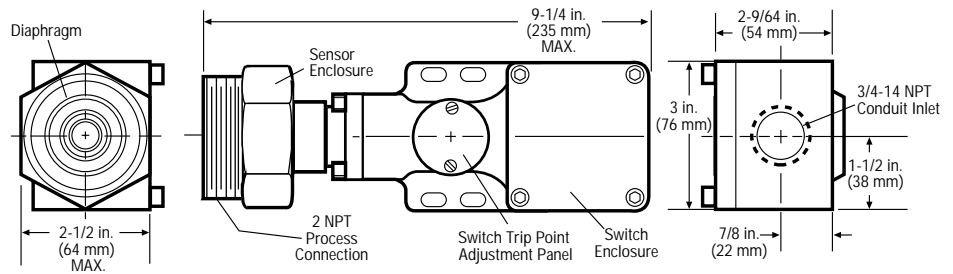
*Meets NACE MR-01-75 standard for direct exposure to H₂S.

Warranty

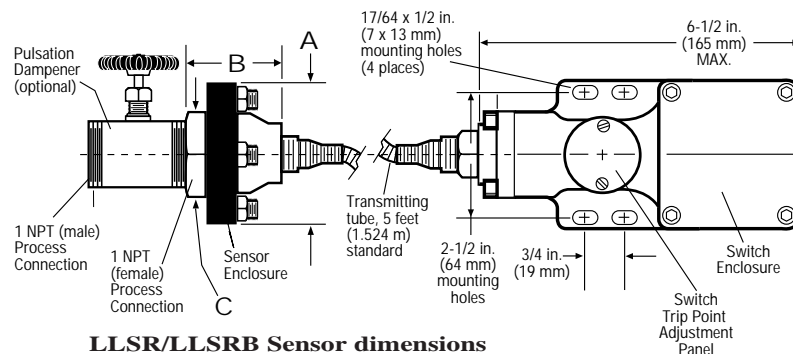
A one-year limited warranty on materials and workmanship is given with this Murphy product. Details are available on request and are packed with each unit.

Dimensions

LLS and LLSB



LLSR and LLSRB



LLSR/LLSRB Sensor dimensions

	A	B	C
LLSR	3-3/4 in. (95 mm)	2-7/8 in. (73 mm)	1-13/16 in. (46 mm)
LLSRB	3-7/8 in. (98 mm)	2-7/8 in. (73 mm)	1-13/16 in. (46 mm)

How to Order

To order your LLS model use the chart below. To order pulsation dampener specify **PD8187**.

LLSR - 5 - 1750 - 7 - 400F

Base Model

LLS: with standard CRS steel chromate plated direct mount sensor; 2 NPT.

LLSB: with 304 stainless steel direct mount sensor; 2 NPT.

LLSR: with remote sensor; 1 NPT.

LLSRB: with stainless steel remote sensor; 1 NPT.

Capillary Length (LLSR and LLSRB only)

Specify capillary length in feet, 5 ft. standard; 50 ft. maximum.

Switch Adjustment Range in psig

450: 50-450 psig

1750: 100-1750 psig

2500: 200-2500 psig

4000: 400-4000 psig (not available for LLSR models)

Factory Preset Switch Trip Point

Specify trip point in psi within the switch adjustment range (see **Switch Adjustment Range** column on page 1), then choose one of the following:

Blank: For NO preset
R: For trip on rising pressure
F: For trip on falling pressure

Optional Contacts

5: SPDT
6: DPDT
7: Gold contact SPDT
8: Gold contact DPDT

In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time.



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