LSA04 LEVEL SWITCH

RF Capacitance Level Switch

Product Features

- *Microprocessor based electronics*
- *Remote or integral electronics*
- *Heavy duty industrial design*
- *Disregards effects of product build-up on the probe*
- *Detecting a single point, tip sensitive or at any point along the probe, high or low level*
- *Pump control off one relay*
- *Detecting level of liquids, solids, slurries or foam*
- *Detecting the level of any material with dielectric constant greater than 1.5*
- *Operating in any shape of metal type vessel*
- *Operating in applications with temperatures up to 260°C (500°F)*
- *Adjustable time delay for output*
- *LED to indicate output status*
- *Standard fitting 3/4 NPT or special fitting or flange*
- *NEMA rated aluminum or stainless enclosure available*

Description

INTEMPCO LSA04 series RF level switches are highly reliable microprocessor based sensors designed to alarm on the high or low condition of liquids and certain dry bulk media in metal tanks. In non-metalic tanks, a grounding rod, or a concentric probe needs to be installed. The LSA04 includes a transmitter housed in a rugged enclosure, a mounting fitting and a rigid probe up to 20 feet long. Probe material is SS316, supplied bare or Teflon jacketed. Additional standard features include and adjustable time delay, DPDT relay rated at 5A, LED relay status indication, and a simple push button calibration. Optional, DIN Rail Module is available, which can be installed up to 3000 feet away from the process where calibration can be performed.

Operation

The LSA04 senses level using RF capacitance measurement technique together with micro-controller technology for high resolution point level detection. A probe mounted in a vessel forms a capacitor with the vessel wall. The capacitance of the configuration is measured by the LSA04 and is used to provide point level switch control. For vertical probes with a setpoint along the length of the probe, a constant material dielectric will ensure a consistent and repeatable alarm point. Also, Intempco's two set point operation off one relay allows our LSA04 to be used as pump control. HIGH and LOW alarms are easily set with push-button convenience for differential level applications, such as pump control. One set point turns ON a pump and the second set point (which is adjustable over the entire length of the sensing probe) is used to turn a pump OFF. Both functions with one relay.

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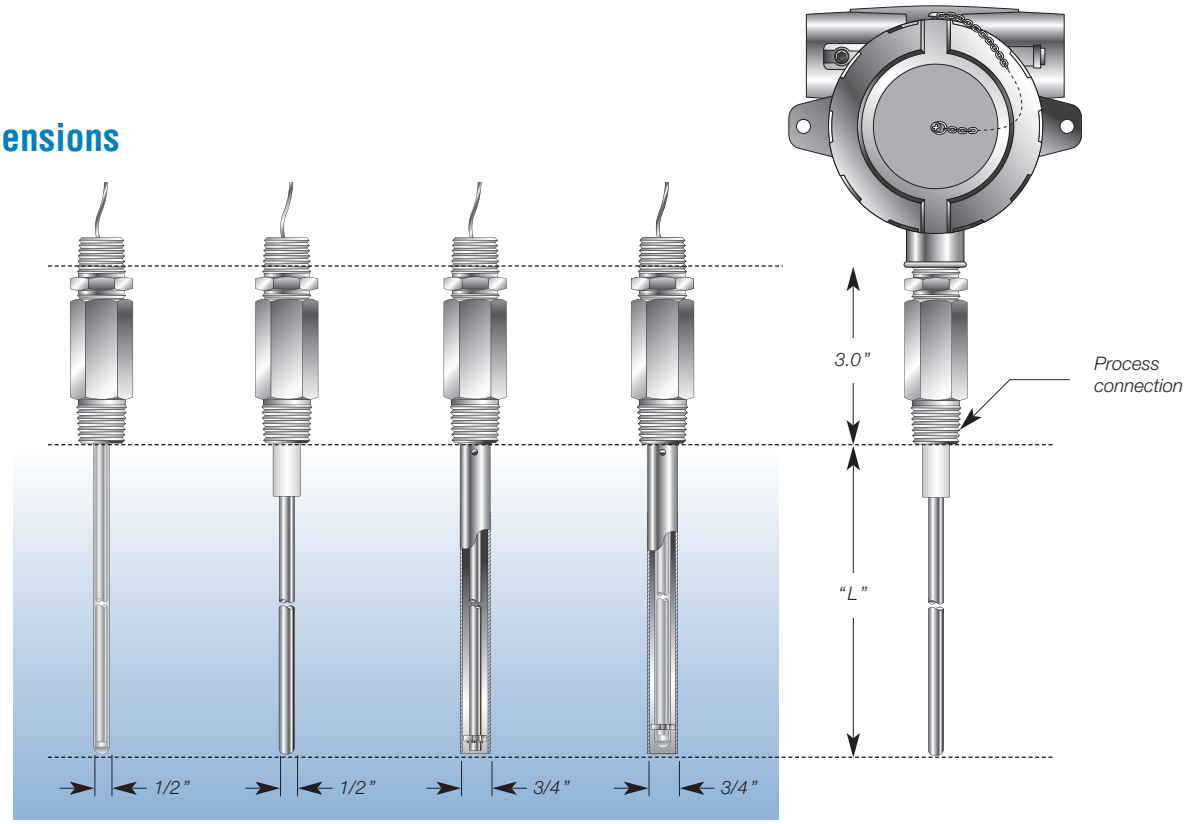
Design & Dimensions



Probe type... **A1 & A2** **B1 & B2** **C1 & C2** **D1 & D2**

Model Ordering

Probe Type	Typical Application	Standard Construction	Standard Mounting	Temperature Pressure Limits
A1	Water-like conductive liquids, thick conductive liquids in metallic tanks	PFA-covered rod, 1/2" OD	1/2", 3/4", 1" NPT	500 PSI (34 bar) @ 25°C (77°F), 250 PSI (17 bar) @ 100°C (212°F), 14.5 PSI (1 bar) @ 200°C (392°F)
A2	Water-like conductive liquids, thick conductive liquids in metallic tanks	PTFE-covered rod, 1/2" OD	1/2", 3/4", 1" NPT	500 PSI (34 bar) @ 25°C (77°F), 250 PSI (17 bar) @ 100°C (212°F), 14.5 PSI (1 bar) @ 200°C (392°F)
B1	Non-conductive liquids such as oils and diesel fuels, low and medium viscosity, in metallic tanks	Bare stainless 316 rod, 1/2" OD	3/4", 1" NPT	500 PSI (34 bar) @ 25°C (77°F), 250 PSI (17 bar) @ 100°C (212°F), 14.5 PSI (1 bar) @ 200°C (392°F)
B2	Non-conductive corrosive liquids, low and medium viscosity, in metallic tanks	Bare Hastelloy C276 rod, 1/2" OD	3/4", 1" NPT	500 PSI (34 bar) @ 25°C (77°F), 250 PSI (17 bar) @ 100°C (212°F), 14.5 PSI (1 bar) @ 200°C (392°F)
C1	Non-conductive liquids such as oils and diesel fuels, low viscosity, in metallic and non-metallic tanks	Concentric tube and bare rod, stainless 316 rod, 3/4" OD	3/4", 1" NPT	500 PSI (34 bar) @ 25°C (77°F), 250 PSI (17 bar) @ 100°C (212°F), 14.5 PSI (1 bar) @ 200°C (392°F)
C2	Non-conductive corrosive liquids, low viscosity, in metallic and non-metallic tanks	Concentric tube and bare rod, Hastelloy C276, 3/4" OD	3/4", 1" NPT	500 PSI (34 bar) @ 25°C (77°F), 250 PSI (17 bar) @ 100°C (212°F), 14.5 PSI (1 bar) @ 200°C (392°F)
D1	Water-like conductive liquids and semi-conductive liquids, low viscosity, in metallic and non-metallic tanks	Concentric stainless 316 tube and PFA coverd rod, 3/4" OD	3/4", 1" NPT	500 PSI (34 bar) @ 25°C (77°F), 250 PSI (17 bar) @ 100°C (212°F), 14.5 PSI (1 bar) @ 200°C (392°F)
D2	Conductive liquids and semi-conductive liquids, corrosive, low viscosity, in metallic and non-metallic tanks	Concentric Hastelloy C276 tube and PFA coverd rod, 3/4" OD	3/4", 1" NPT	500 PSI (34 bar) @ 25°C (77°F), 250 PSI (17 bar) @ 100°C (212°F), 14.5 PSI (1 bar) @ 200°C (392°F)

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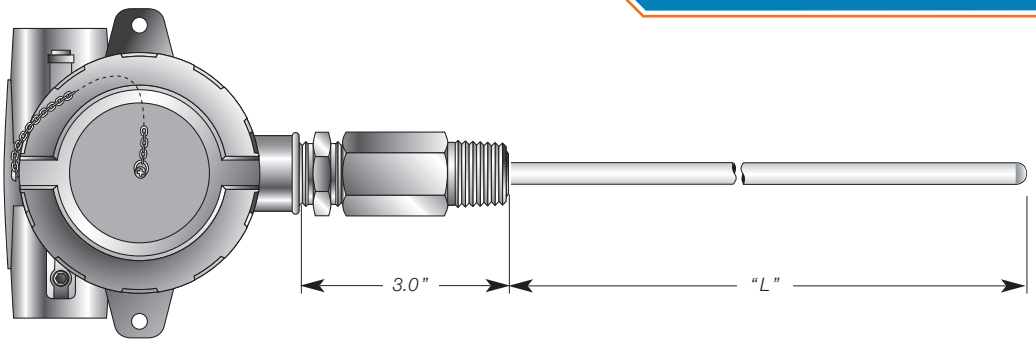

Custom Builder

MODEL	1	2	3	4	5	6	7	8
LSA04 -	__ -	_ -	__ -	_ -	__ -	__ -	__ -	___

BOX1 CODE	Electronic Module
CA	LSACA switch RF, 110 VAC 50/60 Hz (1) DPDT relay
CB	LSACB switch RF, 220 VAC 50/60 Hz (1) DPDT relay
CC	LSACC switch RF, 18-36 VDC (1) DPDT relay

BOX2 CODE	Measurement Type
A	Tip sensitive, actuation at tip
B	Set-point anywhere on probe
C	Pump action, High-Low

BOX3 CODE	Housing
B3	Aluminum housing, with 3/4" NPT conduit

BOX4 CODE	Certificates of Compliance
X	None, for non-hazardous areas

BOX5 CODE	Process Connection
P2	1/2" NPT
P3	3/4" NPT
P4	1" NPT
DA	1", 150 lbs, RF Flange ANSI B16.9
DB	1.5", 150 lbs, RF Flange ANSI B16.9
DC	2", 150 lbs, RF Flange ANSI B16.9
DD	2.5", 150 lbs, RF Flange ANSI B16.9
DE	3", 150 lbs, RF Flange ANSI B16.9
DF	4", 150 lbs, RF Flange ANSI B16.9
DG	6", 150 lbs, RF Flange ANSI B16.9
EA	1", 300 lbs, RF Flange ANSI B16.9
EB	1.5", 300 lbs, RF Flange ANSI B16.9
EC	2", 300 lbs, RF Flange ANSI B16.9
ED	2.5", 300 lbs, RF Flange ANSI B16.9
EE	3", 300 lbs, RF Flange ANSI B16.9
EF	4", 300 lbs, RF Flange ANSI B16.9
EG	6", 300 lbs, RF Flange ANSI B16.9
GA	25 mm, 16 bar, RF Flange
GB	50 mm, 16 bar, RF Flange
GC	80 mm, 16 bar, RF Flange
GD	100 mm, 16 bar, RF Flange
GE	150 mm, 16 bar, RF Flange
JA	25 mm, 40 bar, RF Flange
JB	50 mm, 40 bar, RF Flange
JC	80 mm, 40 bar, RF Flange
JD	100 mm, 40 bar, RF Flange
JE	150 mm, 40 bar, RF Flange

BOX6 CODE	Process Connection Material
SA	Stainless 316/316L (low carbon)

BOX7 CODE	Probe Type
A1	General purpose, PFA fully insulated, 3/8"Stainless 316L rod, 1/2" OD (LTX-C003)
A2	General purpose, PTFE fully insulated, 3/8"Stainless 316L rod, 1/2" OD (LTX-C003)
B1	General purpose, non-insulated rod, Stainless 316L, 1/2" OD (LTX-C004)
B2	General purpose, non-insulated rod, Hastelloy C276, 1/2" OD (LTX-C004)
C1	Concentric shield 0.75" OD w/non-insulated rod, all Stainless 316L (LTX-C005)
C2	Concentric shield 0.75" OD w/non-insulated rod, all Hastelloy C276 (LTX-C005)
D1	Concentric shield 0.75" OD Stainless 316L w/PFA fully insulated rod (LTX-C006)
D2	Concentric shield 0.75" OD Stainless 316L w/PTFE fully insulated rod (LTX-C006)

BOX8 CODE	Probe Length "L"
___	In inches, Ex.: **065** = 65" long

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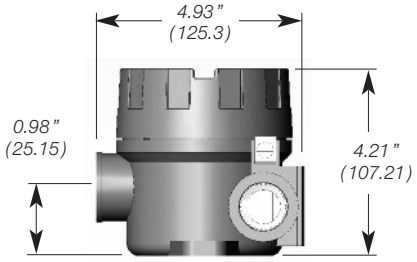
TECHNICAL SPECIFICATIONS

Technology :	RF Capacitance
Calibration :	Via 2 push-button switches
Mode of Operation :	High or Low level, Pump action
Repeatability :	0.08 inch (2 mm) conductive liquids (constant dielectric)
Response time :	Less than 2-3 seconds with no time delay
Time Delay :	0-30 seconds, forward and reverse-acting
Ambient Electronic Temperature :	-40°C to 70°C (-40 to 158°F)
Storage Temperature :	-40°C to 85°C (-40 to 185°F)
Indicators :	LEDs: Green - Power, Red - Relay
Supply Voltage :	18 VDC - 36 VDC, 110 VAC 50/60 Hz, 220 VAC 50/60 Hz
Power Consumption :	2 watts maximum
Relay Contacts :	(1) DPDT , 5 A max @ 250 VAC, 5 A max @ 30 VDC
Maximum Switching Capacity :	2000 VA / 150 Watt
Capacitance Range :	10 pF to 10, 000 pF
Enclosure :	Epoxy-coated aluminum or Stainless steel with 2 cable entries 3/4-inch NPT FM/CSA Ingress Protection IP66 Type 4X
Area Classifications (enclosure only) :	Class I, Gps. B,C & D, Class II, Gps. E,F & G, Class III, CENELEC: EExd IIC, IP66 NEMA 4 & 4X,

Housing Dimensions



Aluminum Housing