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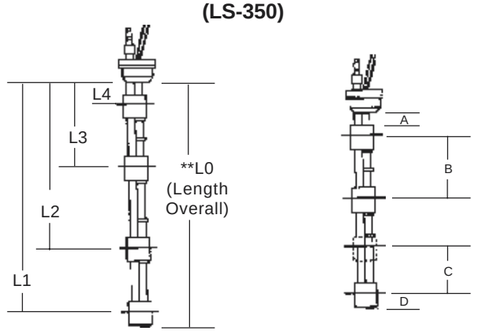
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Find the *Gems Sensors LS-300* at our website: *Click HERE*

*Typical Actuation Levels (LS-350)



* Actuation level distances and L_O (overall unit length) are measured from inner surfaces of mounting.
** Length Overall (LO) = L1 + Dimension D.

Maintenance
(LS-300 and LS-350 Series)

An occasional "wipe-down" cleaning is the only maintenance normally required. Do not disassemble unit.

Return unit to Gems Sensors Division for any service required.

CE This product is suitable for Class I and Class II applications only, per the requirements of standard EN60730 and any additional specific requirements for a particular application or medium being sensed. Class I compliance of metal bodied units requires a ground connection between the metal body and the earthing system of the installation. Class I compliance of plastic bodied units in contact with a conductive medium requires that the medium be effectively earthed so as to provide an earthed barrier between the unit and accessible areas. For Class III compliance, a supply at safety extra-low voltage (SELV) must be provided. Please consult the Factory for compliance information on specific part numbers.

European Pressure Directive

The product is designed and manufactured in accordance with Sound Engineering Practice as defined by the Pressure Equipment Directive 97/23/EC. This product must not be used as a "safety accessory" as defined by the Pressure Equipment Directive,Article 1, Paragraph 2.1.3. The presence of a CE Mark on the unit does not refer to the Pressure Equipment Directive

Actuation Level Dimensions

Switch actuation levels are determined following the guide-lines below.

A = Minimum distance to highest actuation level.
B = Minimum distance between actuation levels.
C = Minimum distance between two actuation levels with one float (Note: One float for two levels can be used only when low level is N.C. dry and high level is N.O. dry.)
D = Minimum distance from end of unit to lowest level

	Dimensions			
Float Type	**A**	**B**	**C**	**D**
Buna N	**13/16"**	**1-3/4"**	**1/8" Min**	**15/16"**
Polypropylene	**1-1/16"**			**1-3/16"**

Notes:

1. Actuation levels are calibrated on ascending fluid level, with water as the calibrating fluid, unless otherwise specified.
2. Tolerance on actuation levels is ± 1/8"
3. Dimensions are based on a liquid specific gravity of 1.0

Switch Ratings - Maximum Resistive Load (LS-300 and LS-350 Series)

VA	Volts	Amps AC	Amps DC
10 General Use	0-50	.2	.13
	120	.08	N.A.
	100	N.A.	.1
20 Pilot Duty	0-30	.4	.3
	120	.17	.13
	240	.08	.06
50 General Use	0-50	.5	.5
	120	.4	.4
	240	.2	.2
100*	120	.8**	N.A.
	240	.4	N.A.

*Level switch units with 100 VA switches are not U.L. recognized.
**Limited to 50,000 operations

Important Points!

Product must be maintained and installed in strict accordance with the National Electrical Code and Gems catalog and instruction bulletin. Failure to observe this warning could result in serious injuries or damages.

For hazardous area applications involving such things as (but not limited to) ignitable mixtures, combustible dust and flammable materials, use an appropriate explosion-proof enclosure or intrinsically safe interface device.

*** **WARNING:** To prevent ignition of flammable or combustible atmo-spheres, disconnect power before servicing.

The pressure and temperature limitations shown on the individual catalog pages and drawings for the specified level switches must not be exceeded. These pressures and temperatures take into consideration possible system surge pressures/temperatures and their frequencies.

Selection of materials for compatibility with the media is critical to the life and operation of GEMS level switches. Take care in proper selection of materials of construction, particularly wetted materials.

Life expectancy of switch contacts varies with applications. Contact GEMS if life cycle testing is required.

Ambient temperature changes do affect switch set points, since the specific gravity of a liquid can vary with temperature.

Level switches have been designed to resist shock and vibration; however, shock and vibration should be minimized.

Filter liquid media containing particulate and/or debris to ensure the proper operation of our products.

Electrical entries and mounting points in an enclosed tank may require liquid/vapor sealing.

Level switches must not be field-repaired.

Physical damage sustained by the product may render it unserviceable.

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P/N 154475
Rev. H

Series LS-300/LS-350 Multi-Station Level Switches

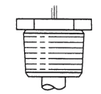
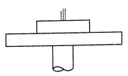
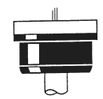
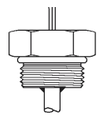
Instruction Bulletin No. 154475

Installation...

Install LS-300 and LS-350 Series switches vertically in tank top (mounting up) or in tank bottom (mounting down). Multi-station level switches will operate normally inclined up to 30°.

LS-300 Series

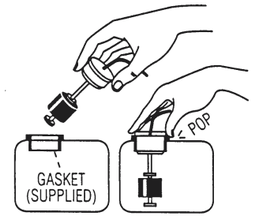
Mounting Types... Each mounting type can be configured with stem lengths (LO) and float materials indicated in table below.

	Type A 1/8" NPT	Type B 3/8" - 24 THD (Internal)	Type C 1" NPT	Type D* 2" O.D. Flange	Type E* Pop Flange	Type F 1-5/16" - 12 THD (External)
						
Stem, Mtg & Collar	Polysulfone				Polysulfone with Buna N Gasket	Polysulfone
Max. Length (LO)	15 Inches					
Mounting Position	Vertical ±30° Inclination					

*Not recommended for pressure applications.

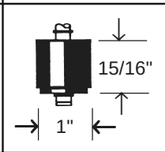
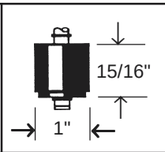
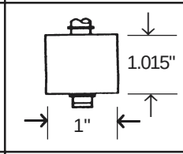
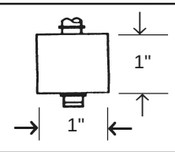
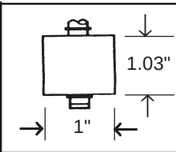
Type E Mounting - The Pop Flange

Designed for quick installation into molded plastic tanks and reservoirs. Units are supplied with a Buna N gasket for positive sealing. Mount into openings 1.31" to 1.32" in diameter.



Float Types...LS-300 Series

A single float type is selected for use at all actuation points.

Float Material	Buna N		Polysulfone	Polypropylene	
Float Dimensions	 15/16" 1"	 15/16" 1"	 1.015" 1"	 1" 1"	 1.03" 1"
Part Number	39049	51974	39005	119455	145730
Operating Temperature	Water: to 180°F (82.2°C) Oil: -40°F to +250°F (-40°C to +121.1°C)	Oil: -40°F to +230°F (-40°C to +110°C)	Oil: -40°F to +225°F (-40°C to +107.2°C)	-40°F to +210°F (-40°C to +98.8°C)	-40°F to +225°F (-40°C to +107.2°C)
Pressure, PSI (Max.)	250	350	50	250	50
Min. Media S.G.	.45	.65	.75	.90	.65

*When used with mounting type A, B, or C only. Mounting types D and E are not recommended for pressure applications. Pressures are derated with increasing temperature.

life and operation of GEMS level switches. Take care in

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LS-300 Series (Cont.)

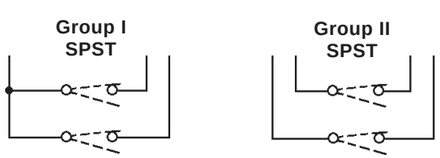
Number of Actuation Levels and Electrical Specifications

Typically, one float is required for each point at which you need a switch action to occur. The number of actuation levels available depends on the Group Type Wiring selected. (See Below)

Group I Wiring: 1 to 4 Actuation Levels
Group II Wiring: 1 or 2 Actuation Levels
Switch (SPST, N.O. or N.C.): 10/20/50/100 VA
Lead Wires: #22 AWG, 24" L., PVC
Approvals: LS-300 Series switches are U.L.Recognized - file No. E45168 and CSA Listed - File #30200

Typical Wiring Diagrams

For clarity, only two actuation levels are shown in each group diagram.



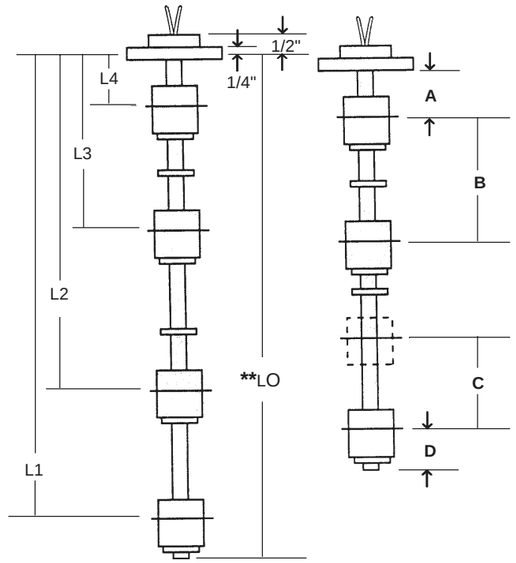
Wiring Color Code

Tinted area designates U.L. recognized wiring configurations.

SPST Switches			
Wiring	Group I	Group II	
Common Wire	**Black**	None	
	NO/NC	Sw. COM	NO/NC
L1	**Red**	**Red**	**Red**
L2	**Yellow**	**Yellow**	**Yellow**
L3	**Blue**		
L4	**Brown**		

Notes:
1. Units with 100 VA switches are not U.L. recognized or CSA listed.
2. See "Switch Rating" on back page.

*Typical Actuation Levels



*Actuation level distances and L0 (overall unit length) are measured from inner surfaces of mounting plug or flange.

**Length Overall (LO) = L1 + Dimension B. See "Mounting Types" for maximum length values.

Actuation Level Dimensions

Switch actuation levels are determined following the guidelines below.

A = Minimum distance to highest actuation level.

B = Minimum distance between actuation levels.

C = Minimum distance between two actuation levels with one float (Note: One float for two levels can be used only when low level is N.C. dry and high level is N.O. dry.)

D = Minimum distance from end of unit to lowest level.

Float Part Number	Dimensions			
	A	B	C	D
39049	1"	1-3/4"	1/8"	11/16"
51974	13/16"			7/8"
39005	7/8"			15/16"
119455	5/8"			1-1/8"
145730	7/8"			7/8"

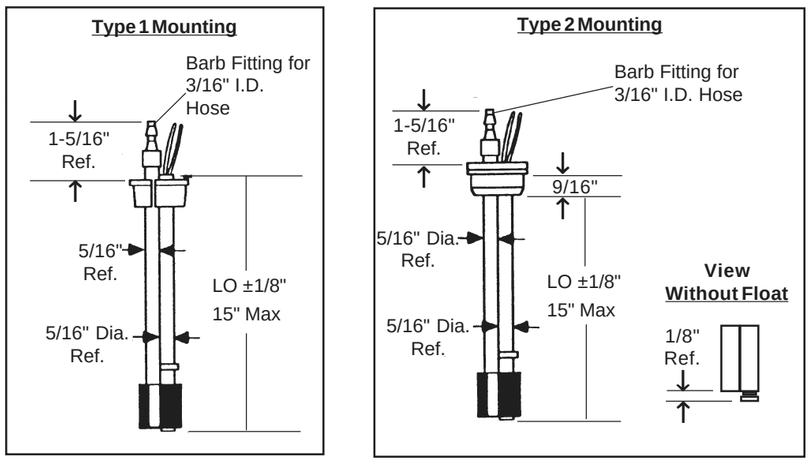
Notes:

1. Actuation levels are calibrated on ascending fluid level, with water as the calibrating fluid, unless otherwise specified.
2. Tolerance on actuation levels is ±1/8"
3. Minimum acceptable overtravel is 1/16"
4. Dimensions are based on a liquid specific gravity of 1.0

- LS-350 Series -

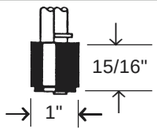
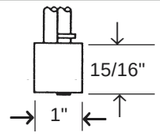
Mounting Types...
Units snap in and out of containers by hand, using Gems' "Pop-Flange" mounting.

Typical Wiring Diagrams...
(Same as for LS-300's on opposite page)



Materials:
Stem and Mounting: Polysulfone
Gasket: Buna N
Max. Length Overall (LO): 15"
Pressure Rating: Not recommended for pressure applications
Mounting Position: Vertical ±30°Inclination

Float Types. . .
A single float type is selected for use at all actuation points.

Float Material	Buna N	Polypropylene
Float Dimensions		
Part Number	128462	130893
Operating Temperature	Water: to 180°F (82.2°C) Oil: -40°F to -250°F (-40°C to +121°C)	-40°F to +210°F (-40°C to +98.9°C)
Min. Media S.G.	.75	.98

Number of Actuation Levels and Electrical Specifications . . .
Typically, one float is required for each point at which you need a switch action to occur. The number of actuation levels available depends upon the Group Type Wiring selected. (See Below)

Group I Wiring: 1 to 4 Actuation Levels
Group II Wiring: 1 or 2 Actuation Levels
Switch (SPST, N.O. or N.C.): 10/20/100 VA
Lead Wires: #22 AWG, 24" L., Polymeric

SPST Switches			
Wiring	Group I	Group II	
Common Wire	Black	None	
	NO/NC	Sw. COM	NO/NC
L1	Red	Red	Red
L2	Yellow	Yellow	Yellow
L3	Blue		
L4	Brown		

Note:
1. See "Switch Rating" on back page.

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