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

Small Size – Engineered Plastics

LS-300 Engineered Plastics Series Brings Multi-Point Switching to Shallow Tanks

ORDER IT!

Ordering is Easy! See Page B-6.
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Your most complete line of small, polysulfone liquid level switches...all from Gems Sensors.

- All-Plastic Wetted Parts
- 1 to 4 Actuation Levels
- Lengths to 20 inches (50cm)
- U.L. Recognized; CSA Listed Versions Available

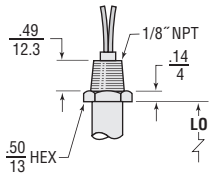
Designed for the high quantity needs of the OEM, LS-300 Series Switches are the ideal level sensor for shallow tanks and reservoirs. Compact and versatile, these low-cost, plastic level switches offer a broad choice of mountings and float materials. The following pages illustrate the various design parameters available to configure custom LS-300 Series Switches.

1. Mounting Types

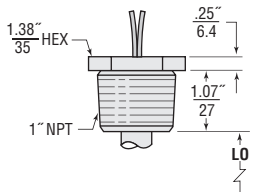
Each mounting type can be configured with stem lengths (L_0) and float materials indicated in this bulletin.

NPT Threads

Type 21
1/8″ NPT

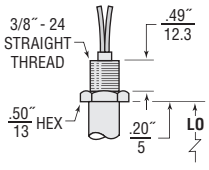


Type 22
1″ NPT

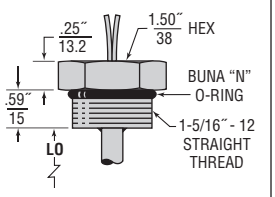


Straight Threads

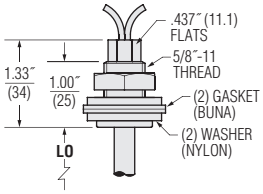
Type 31
3/8″ – 24



Type 32
1-5/16″ – 12

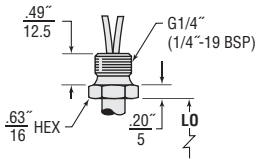


Type 33
5/8″ – 11

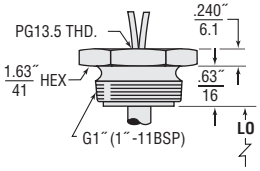


Metric Threads

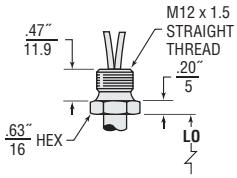
Type 41
G 1/4″ (1/4″ – 19 BSP)



Type 42
G 1″ (1″ – 11 BSP)

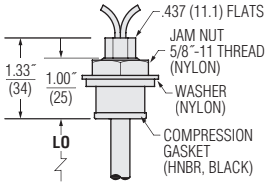


Type 51
M12 x 1.5 Straight Thread

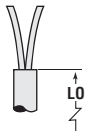


Compression Types

Type 71[1]
5/8″ – 11

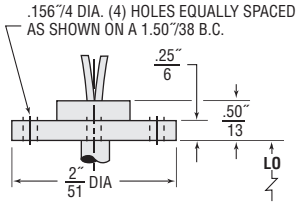


Type 11
No Mounting

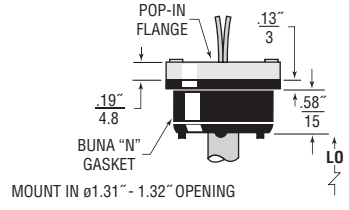


Flange Mountings[2]

Type 61
2″ O.D. Flange



Type 63
Pop Flange



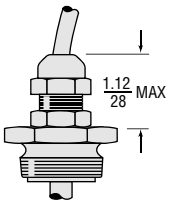
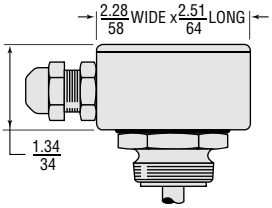
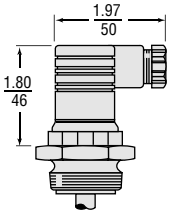
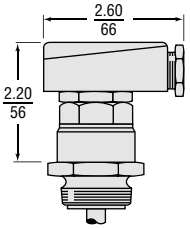
Stem, Mounting and Collar Material	Polysulfone
Max Length (L_0)	20 inches (50 cm) Tolerance of LO = ±1/16″ (2 mm)
Mounting Position	Vertical ±30° Inclination

Notes:
1. Type 71 mounting to be used with 3/4″ diameter float only.
2. Not recommended for pressure applications.

Dimensions expressed as: inches / millimeters

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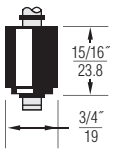
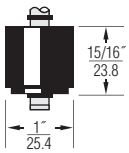
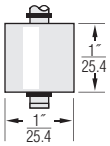
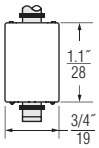
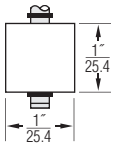
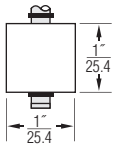
2. Electrical Connections

	Type 1 Leadwire	Type 2 Cable	Type 3 Liquid-Tight Cable	Type 4 Junction Box Assembly	Type 5 DIN43650 Plug	Type 6 DIN43651 Plug
						
Compatible Mounting Type(s)	All		42		42	42
Protection Rating	IP64		IP68	IP65		
Extended Leads	#22 AWG PVC Wire, 24" (610mm) Min.	#22 AWG PVC Jacketed Cable, 24" (610mm) Min.		Terminal Box (7 Terminals)	3 Poles	6 Poles
Max. Number of Levels						
Group I	4				2	4
Group II	2				1	2

* Not CSA Approved
** Not UL or CSA Listed

3. Float Types

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

Float Material	**Buna N**		**Polysulfone**	**Polypropylene**		
	3/4˝	**1˝**		**Solid Foamed**		**Hollow – 20% Glass Filled**
Float Dimensions						
Part Number	**187553**	**39049**	**39005**	**197732**	**119455**	**145730**
Float Material Suitable for…	Oil, Fuels		Water-based Liquids	Broad Chemical Use		Low Specific Gravity Liquids
Operating Temperature[1]	Water: to 180°F (80°C) / Oil: to 300°F (149°C)	Water: to 180°F (80°C) / Oil: -40°F to +221°F (-40°C to +105°C)	-40°F to +221°F (-40°C to +105°C)	-40°F to +212°F (-40°C to +100°C)		-40°F to +221°F (-40°C to +105°C)
Pressure, psi (bar) Max.[2]	300 (21)	250 (17)	50 (3.5)	Atmospheric	150 (10)	50 (3.5)
Min. Media Specific Gravity	.85	.45	.75	.95	.90	.65

Notes:
1. Operating temperature range based on float ratings.
2. When used with mounting Type 21, 32 or 22 only; Mounting Type 61, and 63 are not recommended for pressure applications. Pressures are derated with increasing temperature.

Dimensions expressed as: inches / millimeters

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4. 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.

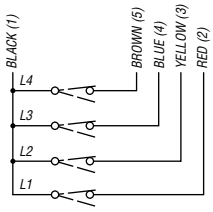
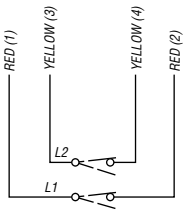
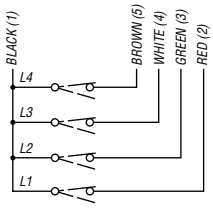
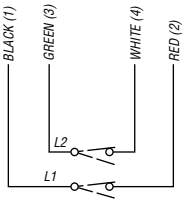
Group II Wiring: 1 or 2 Actuation Levels.

Switch (SPST, N.O. or N.C.): 10/20/50/100 VA.

Approvals: LS-300 Series switches are U.L. Recognized – File No. E45168; CSA Listed – 30200.

Notes:
1. Units with 50 and 100 VA switches are not U.L. Recognized or CSA Listed.
2. Other wiring options available. Consult factory.
3. Consult Factory for load information.

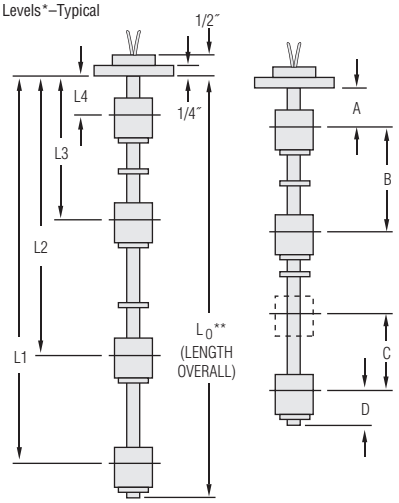
5. Wiring Group

Electrical Connection	Group 1	Group 2
Lead Wire (*)		
Cable (*)		

*Pin correlation of plug connectors shown in parenthesis.

6. Actuation Level Dimensions

Actuation Levels*–Typical



* Actuation level distances and L_0 (overall unit length) are measured from inner surfaces of mounting plug or flange. See mounting types on page 1 for L_0 reference point.

** Length Overall (L_0) = L_1 + Dimension D. See Mounting Types for Maximum Length values.

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 Type	Dimensions			
	A	B	C	D
Buna N – 1″	1″ (25 mm)	1-3/4″ (45 mm)	1/8″ (3 mm) Minimum	11/16″ (18 mm)
Buna N – 3/4″	11/16″ (17 mm)	7/16″ (11.1 mm)		7/8″ (22 mm)
Polysulfone	7/8″ (22 mm)	1-3/4″ (45 mm)		15/16″ (24 mm)
Solid P.P. – 1″	5/8″ (16 mm)			1-1/8″ (29 mm)
Solid P.P. – 3/4″	1/2″ (13 mm)	1-1/2″ (38 mm)		1.19″ (30 mm)
Hollow P.P. – 3/4″	7/8″ (22 mm)	1-3/4″ (45 mm)		7/8″ (22 mm)

Notes:
1. Actuation levels are calibrated on ascending fluid level with water, specific gravity 1.0, as the calibrating fluid, unless otherwise specified.
2. Tolerance on actuation levels is ±1/8″ (3 mm).

LS-350 Integrated Level Switch and Syphon Tube

Designed for use in standard bottles and containers, the LS-350 incorporates the Gems LS-300 level switch with a siphon tube and hose barb. Signals equipment when consumable fluids are gone.

- Stem lengths up to 15 inches.
- Available in NSF approved materials.
- 1-4 actuation levels.
- Two mounting styles available, bottle neck flange or pop-flange for use in 1.310″/1.320″ hole.
- Standard barb fitting for use with 3/16″ hose; other sizes available upon request.



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This is a ☐ Request for a Quote
☐ Order P.O.#_____

Quantity Needed _____

Date Required ____/____/_____

Shipping Method:_____

Partials Accepted: ☐ Yes ☐ No

Name _____

Company _____

Street _____

City_____ State____ Zip_____

Phone (_____) _____

Fax (_____) _____

LS-300 Engineered Plastics Custom Length, Float Type Level Switch Check List

Operational Parameters

This information is essential to the accurate and proper operation of your GEMS configurable sensor. Please complete fully and accurately before ordering.

1. Liquid Media: _____

2. Pressure: Minimum _____ ☐ psig ☐ bar Maximum _____

3. Temperature: Minimum _____ ☐ °F ☐ °C Maximum _____ ☐ °F ☐ °C

4. Specific Gravity: Minimum _____ Maximum _____

5. Viscosity: _____ SSU

6. Tank Material: _____

Tank Depth: _____

7. Unit is Mounted In: ☐ T – Top Mounted ☐ B – Bottom Mounted

Product Parameters

1. Mounting Type:

☐ 11 – No Mounting
☐ 22 – 1˝ NPT
☐ 32 – 1-5/16˝-12
☐ 42 – G1˝ (1˝-11BSP)
☐ 61 – 2˝ O.D. Flange
☐ 63 – Pop Flange
☐ 21 – 1/8˝ NPT
☐ 31 – 3/8˝-24 Straight Thread
☐ 41 – G1/4˝ (1/4˝-19BSP)
☐ 51 – M12 x 1.5 Straight Thread
☐ 33 – 5/8˝-11
☐ 71 – 5/8˝-11 with 3/4˝ floats only

2. Electrical Connections:

✓	Type	Description	Compatible Mountings
	1	Lead Wires, 24" to 26" (610mm, Min.)	All
	2	Cable, 24" to 26" (610mm, Min)	All
	3	Liquid-Tight Cable Fitting	42
	4	Junction Box Assembly	42
	5	DIN43650 Plug Connector, 3 Poles	42
	6	DIN43651 Plug Connector, 6 Poles	42

3. Float Type:

☐ Buna-N – P/N 39049
☐ Polysulfone – P/N 39005
☐ Solid Foamed Polypropylene – P/N 119455
☐ Buna N – P/N 187553
☐ Solid Foamed Polypropylene – P/N 197732
☐ Hollow Polypropylene – P/N 145730

Please contact GEMS Sensors Inc. for any configuration or special requirements not covered on this form. **800-378-1600**

Quote $ _____ Date Quoted ____/____/____

4. Electrical Rating:

☐ 010 – SPST, 10VA
☐ 020 – SPST, 20VA
☐ 050 – SPST, 50VA
☐ 100 – SPST, 100VA

5. Wiring Group:

☐ Group 1 – Common Return
☐ Group 2 – Independent Return

6. Switch Actuation Level:

Actuation Level	Distance to Actuation Level* ☐Inches ☐Millimeters	SPST Switch Operation** (Check Type)	
		N.O.	N.C.
L4			
L3			
L2			
L1***			

* Measured from inner surface of mounting plug or flange. See mounting types on page B-3.
** Switch position is "normal" with unit dry (tank empty).
*** L1 is the distance to the lowest actuation level with mounting "up," and is the distance to the highest actuation level with mounting "down."

B. Length Overall _____ ☐ Inches ☐ Millimeters

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