

Small Size – Alloys

LS-700 Series Combines Durability of Metal With a Compact Design for Restricted Spaces

- ▶ Stainless Steel or Brass Mountings and Stems
- ▶ 1 to 5 Actuation Levels
- ▶ Lengths to 48 inches

These compact units feature the rugged durability of stainless steel or brass construction in a lightweight package. Ideal for tanks less than 4 feet.

LS-700 Series switches are exceptionally versatile because of the many useful options available. Described briefly below, these options can extend the functionality of your GEMS LS-700 Series custom switch.

Temperature Sensing

To save space and simplify wiring, GEMS can incorporate a temperature sensor in the end of the float stem on any model type LS-700. Two sensor types are available: Transducers for continuous output, and Thermostats for switch actuation. See Page A-43 for details.



Solid-State Relays

Control motors, pumps, valves and other "load" devices with GEMS Solid-State Relays. Intrinsically-safe relays and barriers allow safe operation of level switches in hazardous areas. See Section N for details.



2. Float Types

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

Float Materials	Buna N		Teflon® - Spring Biased	316 Stainless Steel
Compatible Mounting Types	1,3,4,5,6	1,2,3,4,5,6	1,2,3,4,5,6	1,4,6
Float Dimensions				
Part Number	39049	138030	133764	60241
Operating Temperature	Water: to 180°F (82.2°C)		40°F to +300°F (-40°C to +148.9°C)	
	Oil: -40°F to +250°F (-40°C to +121.1°C)	Oil: -40°F to +250°F (-40°C to +121.1°C)		
Pressure, PSI, Max.	300*	250*	1000*	100
Min. Liquid Specific Gravity	.45	.60	.65	.70

*De-rated with increasing temperature.

1. Mounting Types

Each mounting type can be configured with stem lengths (L₀) and float material indicated in the table below.

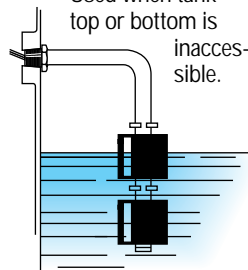
Note: Sanitary flange mountings are also available, but not shown. Please contact factory.

					Type 4 3-5/8" Dia. Flange	
					NEW MOUNTINGS	
Type 1 1/8"NPT	Type 2 3/4"NPT	Type 3 1"NPT	Type 5 1-5/16-12UNF-2A	Type 6 3/8-24		
Stem and Mounting Material					Brass or 316 Stainless Steel	
Max Length					48 inches (121.9 cm) – 21" Max On Bent Stem Versions (Consult Factory)	
Mounting Position					Vertical ± 30° Inclination	
Float Stops*					Brass Units: Beryllium Copper Grip Rings; Stainless Steel Units: S.S. ARMCO PH-15-7MO Grip Rings	
Pressure Rating, PSI, Max.**					See Float Value Below	
					50	

* In some instances, concentrations of chlorine and other corrosive compounds in the media require the use of collar type float stops. Consult factory for details.
 ** Mounting only. Maximum pressure rating for complete unit will be the lower of this pressure or the selected float pressure (see Float Types, below).

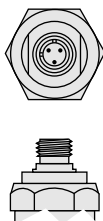
Bent Stem

Used when tank top or bottom is inaccessible.



Integral Receptacle

2-5 Pin miniature receptacle for mounting Type 2 or Type 3; eliminates splicing and eases connections.



Optional Mountings

Please contact Gems Sensors about these mountings or other requirements not seen here.

316 Stainless Steel		304 Stainless Steel	
1,3,4,5,6		1,2,3,4,5,6	
141750	156900	158369	136550
-40°F to +500°F (-40°C to +260°C)			
275	600	150	400
.90	.90	.85	1.10

LS-700 Series – Continued

3. 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 5 Actuation Levels.

Group II Wiring: 1 to 3 Actuation Levels.

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

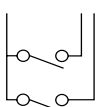
Lead Wires: #22 AWG, 24" L., Teflon.

Approvals: LS-700 Series switches are U.L. Recognized – File No. E45168; CSA Listed – 30200.

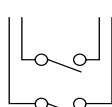
Typical Wiring Diagrams

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

**GROUP I
SPST**

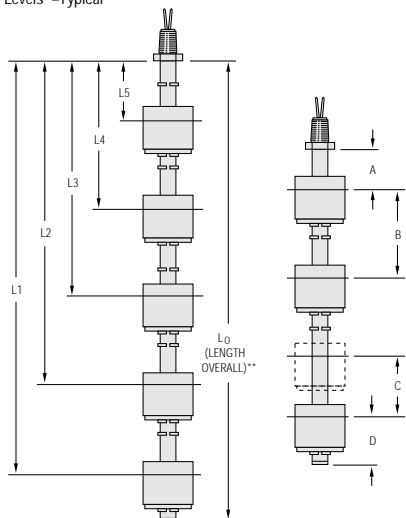


**GROUP II
SPST**



4. 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.

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

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	Blue	Blue
L4	Brown		
L5	Orange		

Notes:

- Units with 100 VA switches are not U.L. Recognized or CSA Listed.
- See "Electrical Data" on Page A-4.

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	7/8" (22.2 mm)	1-3/4" (44.4 mm)	1/8" (3.2 mm) Min.	3/4" (19.1 mm)
156900	3/4" (19.1 mm)	1-7/8" (47.6 mm)		1-1/16" (27.0 mm)
138030	15/16" (23.8 mm)	2-1/16" (52.4 mm)		1" (25.4 mm)
60241	3/4" (19.1 mm)	1-13/16" (46.0 mm)		15/16" (23.8 mm)
141750	13/16" (20.6 mm)	2" (50.8 mm)		1-1/8" (28.6 mm)
158369	13/16" (20.6 mm)	2-7/16" (61.9 mm)		1-7/16" (36.5 mm)
136550	9/16" (14.3 mm)	2-7/16" (61.9 mm)		1-3/4" (44.4 mm)
133764	15/16" (23.8 mm)	1-7/8" (47.6 mm)		7/8" (22.2 mm), N.O. 1-3/16" (30.2 mm), N.C.

Notes:

- A, B and D dimensions based on a liquid specific gravity of 1.0.
- Tolerance on actuation levels is $\pm 1/8"$ (3.2 mm).
- For bent stem versions, please request drawing LS-77700.

ORDERIT!

Photocopy This Form

Use one form for each product type you are selecting.

Page# _____ Name _____

The OrderIt! Order Sheet (Z-4) must accompany this Check List. The Order Sheet is not required for quotes.

Company _____

Street _____

City _____ State _____ Zip _____

Phone (____) _____ Fax (____) _____

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

Quantity Needed _____ Date Required ____/____/____

Shipping Method: _____ Partial Accepted: Yes No

LS-700 Types Custom Length Float Type Level Switches (Pages A-29 to A-33)

Application Environmental Conditions

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

1. **Liquid Media:** _____
2. **Pressure:** Minimum _____ bar Maximum _____ bar
3. **Temperature:** Minimum _____ °C Maximum _____ °C
4. **Specific Gravity:** Minimum _____ Maximum _____
5. **Viscosity:** _____ SSU

6. **Tank Material:** _____
Tank Depth: _____
7. **Unit is Mounted In:** Tank Top Tank Bottom

1. Series (Page No.):

- LS-700 (A-29) LS-700-EP (A-32)

See product page number for available mounting type and materials.

2. Mounting Type:

- Type 1 Type 2 Type 3
 Type 4 Type 5 Type 6

3. Mounting and Stem Material (if choice available):

- Brass Carbon Steel (Flanges Only, in association with stainless steel stems.)
 316 Stainless Steel

4. Mounting Position:

- Tank Top Tank Bottom

5. Float Part Number: _____

Matching floats will be used at each actuation level specified.

6. Switch Type and Rating:

- A. Group I Group II
B. SPST
C. 20 VA 100 VA (Not available on LS-700-EP)

7. Switch Actuation Level

A.

Actuation Level	Distance to Actuation Level – Inches*	SPST Switch Operation** (Check Type)	
		N.O.	N.C.
L5			
L4			
L3			
L2			
L1***			

* Measured from inner surface of mounting plug or flange.
** 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.

8. Lead Wire Length:

- 12" 24" Other: _____ inches.

Options:

- Temperature Switch: _____ °F Temperature Setting;
On rising temperature, switch...
 Opens Closes
 Slosh Shield Collars
 1/2" NPT Conduit Connection

Please contact LICO GmbH for any configuration or special requirements not covered on this form. Tel +43-1-706 43 000

Quote ATS _____ Date Quoted ____/____/____

Additional minimum charges may apply on special orders. LICO GmbH, Fax +43 1 706 41 31



Gems Sensors Inc.
One Cowles Road
Plainville, CT
06062-1198
tel 860.747.3000
fax 860.747.4244
www.gemssensors.com

CUSTOM LENGTH FLOAT TYPE LEVEL SWITCHES

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