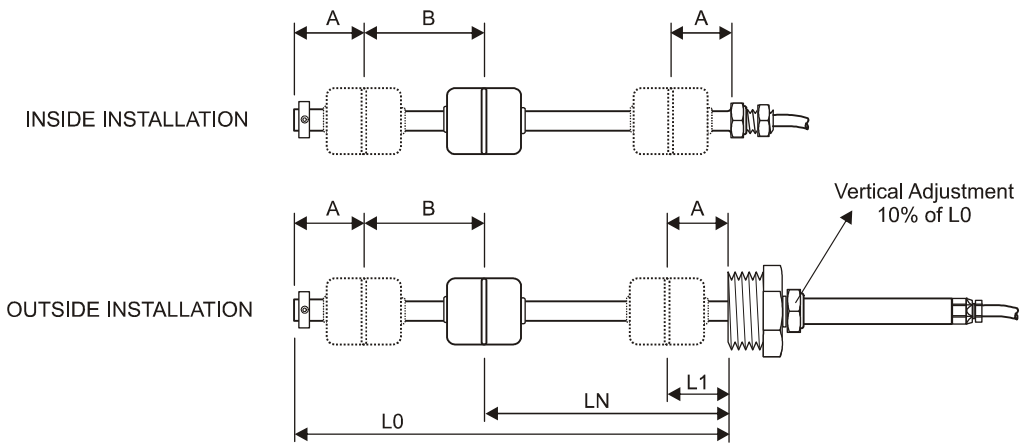
Multi-point Float Level Switch LCSFC

- **Inside or outside installation**
- **Up to 4 switching points**
- **135 ℃ maximum liquid temperature**
- **Various float and cable types**
- **Vertical adjustment option**
- **Wide range of applications**

The operation of level probe LCSFC is based on switching reed switches by a magnetic float, moving alongside a protective tube. A variety of options are available based on floats suited to specific applications. Float options include stainless steel and plastic; floats with various dimensions and specific gravity are available for use with liquid density down to 0.7 g/cm^3 and temperature up to 135 °C. 4 switching points can be mounted in a single probe, and the reed switches are capable of switching directly different loads. Cable wiring is available with various insulations and lengths depending on the application requirements. Various process connections for inside or outside mounting are available as well as an option for vertical adjustment.

Technical specifications

Model	LCSFC											
Specifications												
Float type	N1		P1		P2		S1 / S7 / S10		S20		S2	
Liquid density [g/cm^3]	> 0.80		> 0.70		> 0.70		> 0.80		> 0.75		> 0.70	
Ext. tube diameter ('d')	8 mm		8 mm		10 mm		8 mm		8 mm		10 mm	
Contact type [(1)]	NO, NC	NO/NC	NO, NC	NO/NC	NO, NC	NO/NC	NO, NC	NO/NC	NO, NC	NO/NC	NO, NC	NO/NC
Max. common-lead contacts	3	-	3	-	4	2	3	-	3	-	4	2
Max. separated contacts	2	1	2	1	2	1	2	1	2	1	2	1
Max. cable wires	4	3	4	3	5	5	4	3	4	3	5	5
Contact ratings	'1': max. 120 VAC, max. 0.5 A, max. 10 W; '2': max. 230 VAC, max. 0.5 A, max. 10 W; '3': max. 230 VAC, max. 2 A, max. 50 W											
Probe length ('L0')	100…1000 mm		100…1000 mm		100…2000 mm		100…1000 mm		100…1000 mm		100…2000 mm	
End-to-float distance ('A')	min. 23 mm		min. 23 mm		min. 34 mm		min. 25 / 25 / 29 mm		min. 36 mm		min. 34 mm	
Float running distance ('B')	min. 27 mm		min. 27 mm		min. 47 mm		min. 30 / 30 / 34 mm		min. 42 mm		min. 40 mm	
Process temperature	-20…100 ℃		-20…80 ℃		-20…80 ℃		-20…135 ℃		-20…135 ° C		-20…135 ℃	
Ambient temperature	PVC cable: -20...75 ℃; PUR cable: -20...90 ℃; sil icone or Teflon® cable: -20...135 ℃											
Max. process pressure	0 bar		4 bar		4 bar		10 / 30 / 50 bar		30 bar		30 bar	
Wiring	up to 10 m cable											
Wetted parts	float: NBR, PP, or stainless steel; sheath: stainless steel											
Installation	inside	outside	inside	outside	inside	outside	inside	outside	inside	outside	inside	outside
Protection	IP68	IP65	IP68	IP65	IP68	IP65	IP68	IP65	IP68	IP65	IP68	IP65
Process connection	M10, M12, M14, M16, 1/8", 1/4", 3/8"	min. 1/2"	M10, M12, M14, M16, 1/8", 1/4", 3/8"	min. 1"	M12, M14, M16, 1/4", 3/8"	min. 1"	M10, M12, M14, M16, 1/8", 1/4", 3/8"	min. 1"	M10, M12, M14, M16, 1/8", 1/4", 3/8"	min. 3/4"	M12, M14, M16, 1/4", 3/8"	min. 1½"

[(1)] Different contact types can be ordered.

Delta Controls reserves the right to change specifications without prior notice

Ordering code LCSFC - G1.G2'2"/G2'2"/.../G2'2".G6.G8.G9.G10 - #1#2

Code	Feature or option		Code values
G1	Float		**N1** - plastic, φ17.5x25, **P1** - plastic, φ25x25, **P2** - plastic, φ30x45, **S1** - stainless steel, φ28x28, **S2** - stainless steel, φ41x38, **S7** - stainless steel, φ30x28, **S10** - stainless steel, φ30x32, **S20** - stainless steel, φ22x40
G2'	Contact function (no float) [(2)]		**A** - NO, **B** - NC, **C** - NO/NC
G2"	Contact ratings		**1** - 120V/0.5A/10W, **2** - 230V/0.5A/10W [(3)], **3** - 230V/2.0A/50W
G6	Operating lengths [mm] [(4)]		**L0/L1/L2/L3/L4**
G8	Cable length 'k' [m] and type		**1PV…10PV** - PVC, **1TF…10TF** - Teflon®, **1SL…10SL** - silicone, **1PU…10PU** - polyurethane [(6)]
G9	Process connection	inside installation	**X** - none, **Q0** - M16x1.5, **Q3** - G3/8", **Q7** - M12x1.5, **Q8** - M14x1.5, **Q18** - G1/8", **Q19** - 1/8" NPT, **Q20** - M10x1, **Q23** - G1/4", **Q24** - 1/4" NPT, **Q30** - M10x1.5, **Z** - other (specify!)
		outside installation	**X** - none, **Q4** - G1/2", **Q10** - 1/2" NPT, **Q12** - G1", **Q13** - G1½", **Q15** - 1" NPT, **Q16** - 1½" NPT, **Z** - other (specify!)
G10	Sheath material		**M1** - 304L (1.4301), **M2** - 321 (1.4541), **M3** - 316TI (1.4571), **M9** - 316L (1.4404)
#1	Vertical adjustment		**X** - none, **A** - vertical adjustment via stainless steel ferrule installed [(5)]
#2	RC suppressors [pcs]		**X** - none, **1RC…10RC** - RC suppressors in bulk

[(2)] Specify (function, ratings) and separate with "/" each of the contacts (up to 4); e.g.: LCSFC - S1.**A2/B1/A3**
[(3)] B2 and C2 are not available
[(4)] Specify the exact length (step 50 mm) from the thread bottom to the respective contact according to the limits given in the specification table, strictly observing 'A' and 'B' minimum distances! 1st contact → 'L1'; e.g.: LCSFC - S1.A2/B1/A3.**250/50/150/200**
[(5)] Only with outside installation
[(6)] Contact Delta Controls

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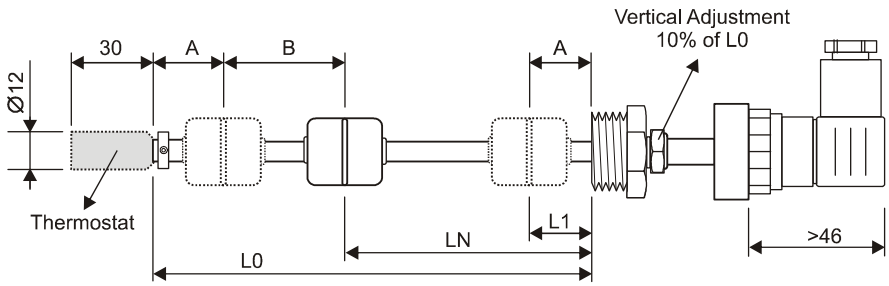
Float Level / Temperature Switch LCSFK

- **Built-in thermostat option available**
- **Up to 4 switching points**
- **135 ℃ maximum liquid temperature**
- **Various float types**
- **Detachable DIN connector**
- **Vertical adjustment option**

The operation of level probe LCSFK is based on switching reed switches by a magnetic float, moving alongside a protective tube. A variety of options are available based on floats suited to specific applications. Float options include stainless steel and plastic; floats with different dimensions and specific gravity are available for liquid density down to 0.7 g/cm³, temperature up to 135 °C, and pressure up to 50 bar. Maximum 4 switching points can be mounted in a single probe, and the reed switches are capable of switching directly different loads. The wiring is attained with convenient detachable DIN connector. Various process connections are available as well as an optional vertical adjustment. Moreover, LCSFK can be equipped with a built-in thermostat with actuation point within 40-30 °C, which additionally expands the probe application area.

Technical specifications

Model	LCSFK															
Specifications																
Float type	N1		P1		P2		S1		S2		S7		S10		S20	
Liquid density [g/cm³]	> 0.80		> 0.70		> 0.70		> 0.80		> 0.70		> 0.82		> 0.82		> 0.75	
Ext. tube diameter ('d')	8 mm		8 mm		10 mm		8 mm		10 mm		8 mm		8 mm		8 mm	
Contact type [(1)]	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC
Max. common-lead contacts	3	-	3	-	4	2	3	-	4	2	3	-	3	-	3	-
Max. separated contacts	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1
Max. level pins (LP)	4	3	4	3	5	5	4	3	5	5	4	3	4	3	4	3
Level contact ratings	'1': max. 120 VAC, max. 0.5 A, max. 10 W; '2': max. 230 VAC, max. 0.5 A, max. 10 W; '3': max. 230 VAC, max. 2 A, max. 50 W															
Thermostat ratings	250 VAC / 1.6 A															
Thermostat set-point	40…130 ℃ (step 5 ℃); tolerance: ± 5 ℃															
Probe length ('L0')	100…1000 mm		100…1000 mm		100…2000 mm		100…1000 mm		100…2000 mm		100…1000 mm		100…1000 mm		100…1000 mm	
End-to-float distance ('A')	min. 23 mm		min. 23 mm		min. 34 mm		min. 25 mm		min. 34 mm		min. 25 mm		min. 29 mm		min. 36 mm	
Float running distance ('B')	min. 27 mm		min. 27 mm		min. 47 mm		min. 30 mm		min. 40 mm		min. 30 mm		min. 34 mm		min. 42 mm	
Process temperature	-20…100 ℃		-20…80 ℃		-20…80 ℃		-20…135 ℃		-20…135 ° C		-20…135 ℃		-20…135 ℃		-20…135 ℃	
Ambient temperature	-20...75 ℃															
Max. process pressure	0 bar		4 bar		4 bar		10 bar		30 bar		30 bar		50 bar		30 bar	
Wiring	detachable connector DIN 43650 (4-pin) or DIN 43651 (6-pin)															
Wetted parts	float: NBR, PP, or stainless steel; sheath: stainless steel															
Protection	IP65															
Process connection	min. 1/2"		min. 1"		min. 1"		min. 1"		min. 1½"		min. 1"		min. 1"		min. 3/4"	

(1) Different contact types can be ordered.

Connector pins (with) without grounding pin					
level pins (LP)	1	2	3	4	5
without thermostat	(4) 4	(4) 4	(4) 4	(6) 4	(6) 6
with thermostat	(4) 4	(6) 4	(6) 6	6	-

How to choose wiring connector:

1. Calculate the maximum number of pins occupied by the level contacts (LP), using the table above.
2. Decide on the need of thermostat.
3. Decide on need of grounding for your probe - it will occupy the 'PE' connector pin.
4. Find the proper wiring connector (4- or 6-pin) inside the table.

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Ordering code LCSFK - G1.G2'2"/G2'2"/.../G2'2".G6.G9.G10.G15 - #1#2#3

Code	Feature or option	Code values
G1	Float	**N1** - plastic, φ17.5x25, **P1** - plastic, φ25x25, **P2** - plastic, φ30x45, **S1** - stainless steel, φ28x28, **S2** - stainless steel, φ41x38, **S7** - stainless steel, φ30x28, **S10** - stainless steel, φ30x32, **S20** - stainless steel, φ22x40
G2'	Contact function (no float) [(2)]	**A** - NO, **B** - NC, **C** - NO/NC
G2"	Contact ratings	**1** - 120V/0.5A/10W, **2** - 230V/0.5A/10W [(3)], **3** - 230V/2.0A/50W
G6	Operating lengths [mm] [(4)]	**L0/L1/L2/L3/L4**
G9	Process connection	**X** - none, **Q4** - G1/2", **Q10** - 1/2" NPT, **Q12** - G1", **Q13** - G1½", **Q15** - 1" NPT, **Q16** - 1½" NPT, **Z** - other (specify!)
G10	Sheath material	**M1** - 304L (1.4301), **M2** - 321 (1.4541), **M3** - 316TI (1.4571), **M9** - 316L (1.4404)
G15	Wiring connector	**C7** - DIN 43650 detachable 4-pin connector, **C8** - DIN 43651 detachable 6-pin connector
#1	Vertical adjustment	**X** - none, **A** - vertical adjustment via stainless steel ferrule installed
#2	Thermostat	**X** - none, **T__** - built-in thermostat (specify switching temperature in ℃!) [(5)]
#3	RC suppressors [pcs]	**X** - none, **1RC…10RC** - RC suppressors in bulk

[(2)] Specify (function, ratings) and separate with "/" each of the contacts (up to 4); e.g.: LCSFK - S1.**A2/B1/A3**
[(3)] B2 and C2 are not available
[(4)] Specify the exact length (step 50 mm) from the thread bottom to the respective contact according to the limits given in the specification table, strictly observing 'A' and 'B' minimum distances! 1st contact → 'L1'; e.g.: LCSFK - S1.A2/B1/A3.**250/50/150/200**
[(5)] Maximum two level contacts with common lead are available

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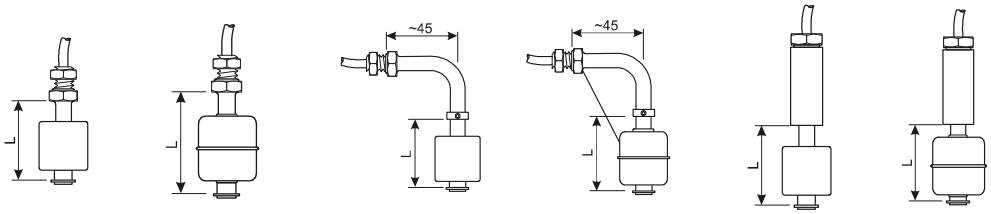
Single-point Float Level Switch LCSF

- **Inside installation**
- **Cost effective**
- **High reliability**
- **135 ℃ maximum liquid temperature**
- **Various float and cable types**
- **Submersible variant**
- **Wide range of applications**

The operation of the Delta's level probe LCSF is based on the switching of a reed switch by a magnetic float, moving alongside a protective tube. A wide variety of options based on different floats are available. To suit numerous applications, floats can be made of stainless steel or plastic; floats with various dimensions and specific gravity are available for use with different liquid density, down to 0.7 g/cm^3 and liquid temperature to include 135 °C. Cable wiring is available with various insulations and lengths. The LCSF switch is available in variants designed for inside vessel mounting and in a special submersible variant with additional weight and forced cable insulation.

Technical specifications

Variant	straight			angled			submersible [1]	
Specifications								
Float type	N1	P1	P2	S1	S2	S7	S10	S20
Liquid density [g/cm^3]	> 0.80	> 0.70	> 0.70	> 0.80	> 0.70	> 0.82	> 0.82	> 0.75
Ext. tube diameter	8(9) mm	8(9) mm	10 mm	8 mm	10 mm	8 mm	8 mm	8 mm
Contact type	reed							
Contact function	NO, NC, or NO/NC							
Contact ratings	'1': max. 120 VAC, max. 0.5 A, max. 10 W; '2': max. 230 VAC, max. 0.5 A, max. 10 W; '3': max. 230 VAC, max. 2 A, max. 50 W							
Probe length ('L')	33 mm	33 mm	60 mm	38 mm	55 mm	38 mm	42 mm	55 mm
Process temperature	-20...100 ℃	-20...80 ℃	-20...80 ℃	-20...135 ℃	- 20...135 ℃	-20...135 ℃	-20...135 ℃	-20...135 ℃
Ambient temperature	PVC cable: -20...75 ℃; PUR cable: -20...90 ℃; sil icone or Teflon® cable: -20...135 ℃							
Max. process pressure	0 bar	4 bar	4 bar	10 bar	30 bar	30 bar	50 bar	30 bar
Wiring	up to 10 m cable							
Wetted parts	float: NBR, PP, or stainless steel; sheath: stainless steel							
Protection	IP67 (IP68 for submersible variant up to 10 m)							
Process connection (incl. nut & washer)	1/8" or 1/4" M10 or M12	1/8" or 1/4" M10 or M12	3/8" M14 or M16	1/8" or 1/4" M10 or M12	3/8" M14 or M16	1/8" or 1/4" M10 or M12	1/8" or 1/4" M10 or M12	1/8" or 1/4" M10 or M12

[1] With additional weight mounted

Ordering code

LCSF✱ - G1.G2'2".G8.G9.G10 - #1

Code	Feature or option	Code values
✱	Variant	**I** - straight, **L** - angled, **U** - submersible [1]
G1	Float	**N1** - plastic, φ17.5x25, **P1** - plastic, φ25x25, **P2** - plastic, φ30x45, **S1** - stainless steel, φ28x28, **S2** - stainless steel, φ41x38, **S7** - stainless steel, φ30x28, **S10** - stainless steel, φ30x32, **S20** - stainless steel, φ22x40
G2'	Contact function (no float)	**A** - NO, **B** - NC, **C** - NO/NC
G2"	Contact ratings	**1** - 120V/0.5A/10W, **2** - 230V/0.5A/10W [2], **3** - 230V/2.0A/50W
G8	Cable length 'k' [m] and type	**1PV…10PV** - PVC, **1TF…10TF** - Teflon®, **1SL…10SL** - silicone, **1PU…10PU** - polyurethane [3]
G9	Process connection	**X** - none, **Q0** - M16x1.5, **Q3** - G3/8", **Q7** - M12x1.5, **Q8** - M14x1.5, **Q18** - G1/8", **Q19** - 1/8" NPT, **Q20** - M10x1, **Q23** - G1/4", **Q24** - 1/4" NPT, **Q30** - M10x1.5, **Z** - other (specify!)
G10	Sheath material	**M1** - 304L (1.4301), **M2** - 321 (1.4541), **M3** - 316TI (1.4571), **M9** - 316L (1.4404)
#1	RC suppressors [pcs]	**X** - none, **1RC…10RC** - RC suppressors in bulk

[2] B2 and C2 are not available
[3] Contact Delta Controls

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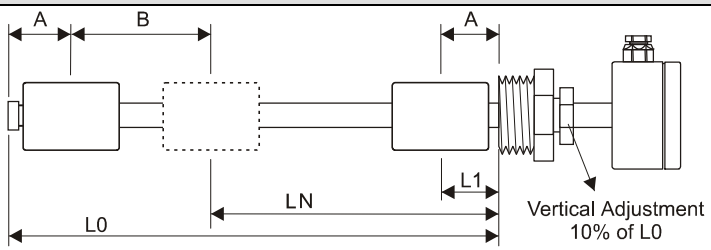
Plastic Multi-point Float Level Switch LCSFP

- **All plastic design - no metal parts included**
- **Installation without float removing**
- **Up to 7 switching points**
- **70 ℃ maximum liquid temperature**
- **Vertical adjustment option**

Technical specifications

Model	LCSFP							
Specifications								
Float type	N1		P1		P2		P3	
Liquid density [g/cm³]	> 0.80		> 0.70		> 0.70		> 0.60	
Ext. tube diameter ('d')	8 mm		8 mm		10 mm		16 mm	
Contact type [1]	NO, NC	NO/NC	NO, NC	NO/NC	NO, NC	NO/NC	NO, NC	NO/NC
Max. common-lead contact	3	-	3	-	4	2	7	4
Max. separated contacts	2	1	2	1	2	1	5	3
Contact ratings	'1': max. 120 VAC, max. 0.5 A, max. 10 W; '2': max. 230 VAC, max. 0.5 A, max. 10 W; '3': max. 230 VAC, max. 2 A, max. 50 W							
Probe length ('L0')	100…1000 mm		100…1000 mm		100…1500 mm		100…2500 mm	
End-to-float distance ('A')	min. 23 mm		min. 23 mm		min. 34 mm		min. 34 mm	
Float running distance ('B')	min. 27 mm		min. 27 mm		min. 47 mm		min. 47 mm	
Process temperature	-20…70 ℃							
Ambient temperature	-20...70 ℃							
Max. process pressure	0 bar		4 bar		4 bar		4 bar	
Housing	ABS box 80x80x60 mm with up to 12 terminals (contact leads)							
Wiring	terminal block inside protective housing, accessible through cable gland							
Wetted parts	float: NBR or PP; tube and stopper: PVC; connection: PVC or POM							
Protection	IP65							
Process connection	min. 1/2"		min. 1"		min. 1"		min. 2" or flange	

[1] Different contact types can be ordered.

Ordering code **LCSFP - G1.G2'2"/G2'2"/.../G2'2".G6.G9 - #1.#2**

Code	Feature or option	Code values
G1	Float	**N1** - plastic, φ17.5x25, **P1** - plastic, φ25x25, **P2** - plastic, φ30x45, **P3** - plastic, φ48x45
G2'	Contact function (no float) [2]	**A** - NO, **B** - NC, **C** - NO/NC
G2"	Contact ratings	**1** - 120V/0.5A/10W, **2** - 230V/0.5A/10W [3], **3** - 230V/2A/50W
G6	Operating lengths [mm] [4]	**L0/L1/L2/L3/L4/L5/L6/L7**
G9	Process connection	**X** - none, **Q4** - G1/2", **Q12** - G1", **Q14** - G2", **Q15** - 1" NPT, **Q17** - 2" NPT, **F** - flange (specify!), **Z** - other (specify!)
#1	Vertical adjustment	**X** - none, **A** - vertical adjustment via silicone ferrule installed
#2	RC suppressors	**X** - none, **RC** - RC suppressor mounted for each NO contact

[2] Specify (function, ratings) and separate with "/" each of the contacts (up to 7); e.g.: LCSFP - N1.**A2/B1/A3**
[3] B2 and C2 are not available
[4] Specify the exact length (step 50 mm) from the thread, flange, or box bottom to the respective contact according to the limits given in the specification table, strictly observing 'A' and 'B' minimum distances. 1st contact → 'L1'; e.g.: LCSFP - N1.A2/B1/A3.**250/50/150/200**

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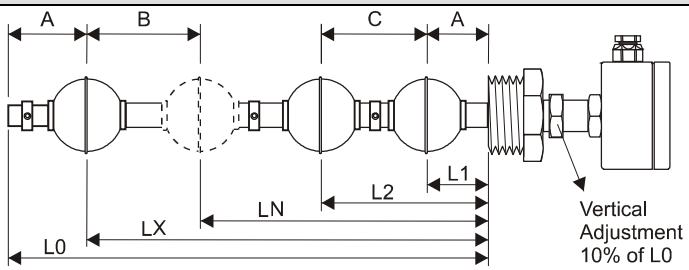
Multi-float Level Switch LCSFT

- **Installation without float removing**
- **Up to 5 floats of various types**
- **Up to 7 switching points**
- **135 ℃ maximum liquid temperature**
- **Vertical adjustment option**
- **Various terminal protection housings**
- **EExd protection head available**

The operation of level probe LCSFT is based on switching of reed switches by magnetic floats, moving alongside a protective tube. A variety of options are available based on floats suited to specific applications. Floats with different dimensions and specific gravity are available for liquid density down to 0.45 g/cm³, temperature up to 135 °C, and pressure up to 50 bar. Maximum seven switching points and five floats can be mounted on a single probe, and the reed switches are capable of switching directly different loads. The probe is available with various aluminum protective heads and with ABS plastic enclosure. Various process connections are available as well as an option for vertical adjustment. In case of Ex applications, an intrinsically safe remote unit (LCI20) must be used.

Technical specifications

Model	**LCSFT**															
Specifications																
Float type	S1 / S7 / S10		S2		S3		S4		S5		S6		S8 / S9		S20	
Liquid density [g/cm³]	> 0.80		> 0.70		> 0.65		> 0.55		> 0.55		> 0.50		> 0.50 / > 0.45		> 0.75	
Number of floats	1…3		1…3		1…4		1…4		1…5		1…5		1…5		1…3	
Ext. tube diameter ('d')	8 mm		10 mm		14 mm		14 mm		16/18 mm		16/18 mm		18/25 mm		8 mm	
Contact type [(1)]	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC	NO,NC	NO/NC
Max. common-lead contacts	3	-	4	2	5	3	7	4	7	4	7	4	7	4	3	-
Max. separated contacts	2	1	2	1	3	2	5	3	5	3	5	3	5	3	2	1
Contact ratings	'1': max. 120 VAC, max. 0.5 A, max. 10 W; '2': max. 230 VAC, max. 0.5 A, max. 10 W; '3': max. 230 VAC, max. 2 A, max. 50 W															
Probe length ('L0')	100…1000 mm		100…2000 mm		200…3000 mm		200…3000 mm		300…4000 mm		300…5000 mm		300…5000 mm		100…1000 mm	
End-to-float distance ('A')	min. 25/25/29 mm		min. 34 mm		min. 40 mm		min. 39 mm		min. 50 mm		min. 70 mm		min. 65/90 mm		min. 36 mm	
Float running distance ('B')	min. 30/30/34 mm		min. 40 mm		min. 57 mm		min. 54 mm		min. 75 mm		min. 110 mm		min. 102/152 mm		min. 42 mm	
Float-to-float distance ('C')	min. 50/50/58 mm		min. 68 mm		min. 82 mm		min. 78 mm		min. 100 mm		min. 136 mm		min. 126/157 mm		min. 72 mm	
Process temperature	-20…135 ℃															
Ambient temperature	aluminum housing: -40...75 ℃; ABS housing: -20...7 0 ℃															
Max. process pressure	10 / 30 / 50 bar		30 bar		12 bar		30 bar		30 bar		10 bar		30 bar		30 bar	
Housing	aluminum head with up to 6 terminals (contact leads); ABS box with up to 12 terminals (contact leads)															
Wiring	terminal block inside protective housing, accessible through cable gland															
Wetted parts	stainless steel															
Protection	head type "B" (IP55); head type "EG" (IP68); other head types or ABS housing (IP65)															
Process connection	min. 1"		min. 1½"		min. 2"		min. 2"		min. 3" or flange		min. 3" or flange		flange		min. 3/4"	

[(1)] Different contact types can be ordered.

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Ordering code LCSFT - G0.nG1.G2'2"/G2'2"/.../G2'2".G2'2"/G2'2"/.../G2'2".G6.G9.G10 - #1#2

Code	Feature or option	Code values
G0	Housing	**B** - head type "B", **MB** - head type "MB", **G** - IP65 head type "G", **D** - ABS box 80x80x60 mm, **E** - IP65 EEx 'd' head type "E", **EG** - IP68 ATEX-approved EEx 'd' head type "EG"
G1	Float [(2)] ('n' - number of floats)	**S1** - stainless steel, φ28x28, **S2** - stainless steel, φ41x38, **S3** - stainless steel, φ45x55, **S4** - stainless steel, φ52x52, **S5** - stainless steel, φ73x73, **S6** - stainless steel, φ75x108, **S7** - stainless steel, φ30x28, **S8** - stainless steel, φ100x100, **S9** - stainless steel, φ150x150, **S10** - stainless steel, φ30x32, **S20** - stainless steel, φ22x40
G2'	Contact function (no float) [(3)]	**A** - NO, **B** - NC, **C** - NO/NC
G2"	Contact ratings	**1** - 120V/0.5A/10W, **2** - 230V/0.5A/10W [(4)], **3** - 230V/2.0A/50W
G6	Operating lengths [mm] [(5)]	**L0/L1/L2/L3/L4/L5/L6/L7**
G9	Process connection	**X** - none, **Q12** - G1", **Q13** - G1½", **Q14** - G2", **Q15** - 1" NPT, **Q16** - 1½" NPT, **Q17** - 2" NPT, **Q21** - G3", **Q22** - 3" NPT, **F** - flange (specify!), **Z** - other (specify!)
G10	Sheath material	**M1** - 304L (1.4301), **M2** - 321 (1.4541), **M3** - 316TI (1.4571), **M9** - 316L (1.4404)
#1	Vertical adjustment	**X** - none, **A** - vertical adjustment via stainless steel ferrule installed
#2	RC suppressors	**X** - none, **RC** - RC suppressor mounted for each NO contact

(2) All the floats on one probe must be of a same type
(3) Specify (function, ratings) and separate with "/" each of the contacts for the 1st float, then for the 2nd, and so on, separating specifications per each float with '.'; e.g.: LCSFT - B.2S1.**A2/B1/A3.A1/C3**
(4) B2 and C2 are not available
(5) Specify the exact length (step 50 mm) from the thread, flange, head, or box bottom to the respective contact according to the limits given in the specification table, strictly observing 'A', 'B', and 'C' minimum distances. 1st contact → 'L1'; e.g.: LCSFT - B.2S1.A2/B1/A3.A1/C3.**500/50/100/200/250/350**

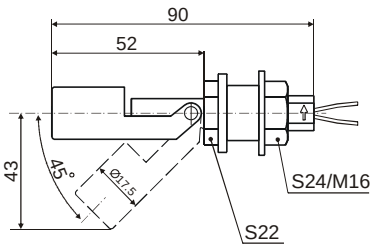
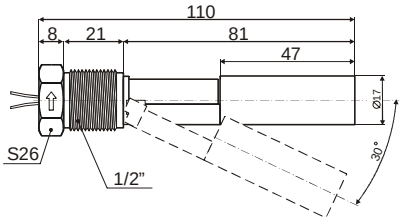
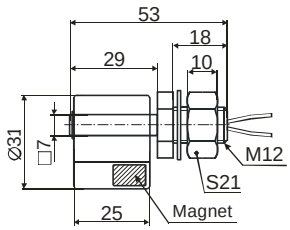
Delta Controls reserves the right to change specifications without prior notice

Float Level Switch for Side Mounting LCSFS

- **Cost effective**
- **Inside or outside installation**
- **Rotating or sliding float**
- **120 ℃ maximum liquid temperature**
- **Stainless and various plastic versions**
- **Cable electrical termination**

The operation of level probe for liquids LCSFS is based on switching a reed switch by a magnetic float, rotating around a fixed point or sliding along a stem. This switch is designed for external or internal mounting on the side vessel walls and is electrically terminated by lead wires. Large variety of versions based on different body and float materials is available for use at operating temperature up to 120 °C, process pressure up to 5 bar, and specific gravity of the liquid down to 0.6 g/cm^3.

Technical specifications

Variant	rotating around fixed point					sliding up-down
Specifications						
Sensor material	polypropylene	nylon	PVDF	polysulfone	stainless steel 1.4301 (304)	polypropylene
Liquid density [g/cm^3]	> 0.65				> 0.85	> 0.60
Contact type	reed switch, NO					
Sensor function	NO or NC (depending on float position)					
Contact ratings	max. 240 VAC (200 VDC), max. 0.5 A (1 A carry current), max. 50 VA					
Process temperature	-20...80 ℃		-20...100 ℃		-20...120 ℃	-20...80 ℃
Ambient temperature	-20...90 ℃					-20...60 ℃
Max. process pressure	4 bar				5 bar	atmosphere
Wiring	30 cm XLPE wires					30 cm PVC wires
Protection	IP67					
Process connection (incl. nut & washer)	M16x1.5				1/2"	M12x1.25

Ordering code **LCSFS✱ - G1**

Code	Feature or option	Code values
✱	Variant	**1** - with float rotating around fixed point, **2** - with float sliding along stem
G1	Material [(1)]	**PP** - polypropylene, **NY** - nylon, **DF** - PVDF, **PSU** - polysulfone, **SS** - stainless steel 1.4301 (304)

[(1)] See table above for compatibility

Delta Controls reserves the right to change specifications without prior notice

Optical Level Switch LCSO

- **Solid-state sensor - no moving parts**
- **Applicable for wide range of industrial liquids**
- **Up to 120 ℃ temperature range**
- **Hygienic applications available**
- **12 - 24 VAC/DC supply voltage**
- **8A/250 VAC direct relay output**

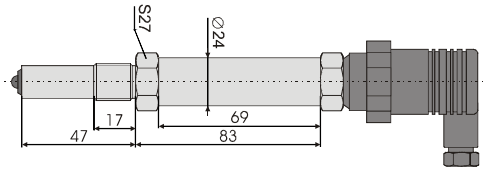
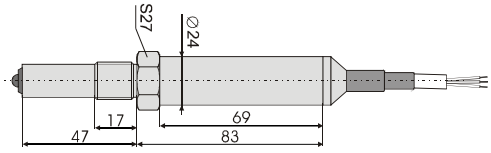
The operation of level probe LCSO is based on changing light reflection when liquid covers an optical sensor, mounted on the top of the probe. This model can be used as a single level switch for sensing presence or absence of liquid. It is applicable for the most of the low-viscous industrial liquids as well as the liquids in food industry. Due to its stainless steel casing and polysulphone light sensor. The LCSO switch can be equipped with either transistor output, or contact relay output, and the power supply voltage can vary from 12 to 24 VDC/AC, providing convenient application. Two options are available according to the electrical connection: connector-type for side mounting and cable-type for side mounting and submersible usage. Due to its operating principle, power output, and economic pricing, LCSO can be beneficial in applications where float and conductive sensors are not applicable and capacitive or pressure sensors are uneconomic.

Technical specifications

Input		
Sensing element		solid-state optical sensor
Sensing parameter		presence or absence of liquid
Liquid type		low-viscose
Repeatability		1 mm
Hysteresis		1 mm (depending on liquid)
Output	relay	transistor
Output type	contact	PNP/NPN or MOS gate [1]
Output action [2]	NO or NC	NO or NC
Switching current	5 A at 250 VAC	0.1 A at 60 V
Consumption (output ON)	max. 100 mA	max. 150 mA
Voltage drop (output ON)	-	max. 2 V
Response time (level ON)		< 100 ms
Response time (level OFF)		< 1 s

Power supply	
Supply voltage	12...24 VAC/DC
Maximum ripple	10% p-p at 50 Hz
Ambient conditions	
Ambient temperature	-20...75 ℃
Storage temperature	-40...85 °C
Relative humidity	0...95%
Design and materials	
Sensing element	polysulfone
Other wetted parts (no cable)	stainless steel
Casing material	stainless steel
Process connection	3/8" or 1/2" (G or NPT)
Other specifications	see table below

[1] MOS gate is optically isolated and can switch AC/DC loads. It is always NO.
[2] NO closes when liquid reaches the sensor; NC opens when liquid reaches the sensor

Variant	**with connector**	**with cable**	
Specifications			
Mounting applications	side mounting	side mounting	submersible
Medium temperature	-40...120 ℃	-40...120 ℃	-20...75 ℃
Medium pressure	max. 25 bar	max. 25 bar	max. 6 bar
Wiring	connector DIN 43650	cable 1...10 m	
Wetted parts protection	IP68	IP68	
Enclosure protection	IP65		

Ordering code LCSO✱ - G5.G8.G9.G10

Code	Feature or option	Code values
✱	Variant	**1** - with connector, **2** - with cable
G5	Relay output	**A** - relay NO, **B** - relay NC, **E** - NPN NO, **F** - PNP NO, **G** - NPN NC, **H** - PNP NC, **M** - isolated MOS gate (NO)
G8	Cable length 'k' [m] and type [3]	**1GL…10GL** - glass fiber, **1SL…10SL** - silicone, **1TF…10TF** - Teflon®, **1PU…10PU** - polyurethane [4], **1PV…10PV** - PVC
G9	Process connection	**Q3** - G3/8", **Q4** - G1/2", **Q9** - 3/8" NPT, **Q10** - 1/2" NPT, **Z** - other (specify!)
G10	Sheath material	**M1** - 304L (1.4301), **M2** - 321 (1.4541), **M3** - 316TI (1.4571), **M9** - 316L (1.4404)

[3] Do not code for variant '1'
[4] Contact Delta Controls

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