

Multi-point Float Level Switch with Connector LCSFK

- ◆ Installation without float removal
- ◆ Up to 5 floats
- ◆ Up to 5 switching points
- ◆ 135 °C maximum liquid temperature
- ◆ Various float and detachable connector types
- ◆ Vertical adjustment option
- ◆ Temperature measurement option

The operation of the COMECO's level probe LCSFK is based on the switching of reed switches by magnetic floats, moving alongside a protective tube. Large variety of versions based on different floats is available. The floats can be made of stainless steel or plastic; 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 5 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.



Technical specifications

Model	LCSFK w/ SS floats													
Specifications														
Float type	S0 / S1 / S7 / S10	S2	S3 / S4	S11	S5	S6	S8 / S9	S20						
Liquid density [g/cm³]	> 0.80 ⁽¹⁾	> 0.70	> 0.65 / > 0.55	> 0.45	> 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 ⁽²⁾	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	NO,NC NO/NC	NO,NC NO/NC	NO,NC NO/NC	NO,NC NO/NC		
Maximum wire leads	4	6	6	6	6	6	6	4						
Max. common-lead contacts	3	-	5	2	5	2	5	2	5	2	5	2	3	-
Max. separated contacts	2	1	3	2	3	2	3	2	3	2	3	2	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; '4': max. 230 VAC, max. 1 A, max. 30 W													
Temp. sensor / thermostat	built-in RTD (Pt100, Pt1000) or bimetallic thermostat (see specifications below) <i>(option)</i>													
Probe length ('L0')	100...1000 mm	100...2000 mm	200...3000 mm	80...4000 mm	300...4000 mm	300...5000 mm	300...5000 mm	100...1000 mm						
End-to-float distance ('A')	min. 22/25/25/29 mm	min. 34 mm	min. 40/39 mm	min. 37 mm	min. 50 mm	min. 70 mm	min. 65/90 mm	min. 36 mm						
Float running distance ('B')	min. 25/30/30/34 mm	min. 40 mm	min. 57/54 mm	min. 60 mm	min. 75 mm	min. 110 mm	min. 102/152 mm	min. 42 mm						
Float-to-float distance ('C')	min. 45/50/50/58 mm	min. 68 mm	min. 82/78 mm	min. 75 mm	min. 100 mm	min. 136 mm	min. 126/157 mm	min. 72 mm						
Process temperature	-20...135 °C													
Ambient temperature	-20...75 °C													
Max. process pressure	8 / 10 / 30 / 50 bar	30 bar	12 / 30 bar	15 bar	30 bar	10 bar	30 bar	30 bar						
Process connection	min. 1" (M33)	min. 1½"	min. 2"	min. 2"	min. 3" or flange	min. 3" or flange	flange	min. ¾" (M27)						
Wiring	up to 4 terminals (contact leads): 4-pin (3+PE) detachable connector DIN 43650 or detachable circular connector M12; up to 6 terminals (contact leads): 7-pin (6+PE) detachable connector DIN 43651													
Wetted parts	stainless steel													
Protection	IP65													

⁽¹⁾ > 0.70 g/cm³ for float type 'S1'

⁽²⁾ Different contact types can be ordered.

Built-in temperature sensor / thermostat <i>(option)</i>		
	RTD sensor	thermostat
Type	Pt100 or Pt1000	NC (under set point)
Ratings	2-wire	max. 250 VAC / 1.6 A
Set point	-	40...130 °C (step 5 °C)
Accuracy	class 'B'	± 5 °C
Terminals occupied	2	2 or 1 (+ common)
Probe extension	-	≈ 30 mm

How to choose connector:

1. Use the above table to calculate the maximum number of terminals occupied by the level contacts, by multiplying the number of contacts by the number of leads for the selected type.
2. Decide on the need of temperature measurement.
3. Add the terminals occupied by the built-in temperature sensor or thermostat (use the table on the left). The resultant sum must not exceed the maximum number of wire leads!
4. Decide on the need of grounding for your probe - it will occupy the 'PE' connector pin.
5. Find the proper wiring connector from the table above.

Ordering code LCSFK - nG1.G2'2"/G2'2"/.../G2'2".G6.G9.G10.G14.G15 - #1.#2

Code	Feature or option	Code values
G1	Float ⁽³⁾ (n' - number of floats)	S0 - stainless steel, ø25x24, S1 - stainless steel, ø28x28, S2 - stainless steel, ø40x42, S3 - stainless steel, ø45x55, S4 - stainless steel, ø52x52, S5 - stainless steel, ø73x73, S6 - stainless steel, ø75x108, S7 - stainless steel, ø30x28, S8 - stainless steel, ø100x100, S9 - stainless steel, ø150x150, S10 - stainless steel, ø30x32 ⁽⁷⁾ , S11 - stainless steel, ø51x61, S20 - stainless steel, ø22x40 ⁽⁷⁾
G2'	Contact function (no float) ⁽⁴⁾	A - NO (closes at float down), AU - NO (closes at float up), B - NC (opens at float down), BU - NC (opens at float up), C - NO/NC
G2"	Contact ratings	1 - 120 V / 0.5 A / 10 W, 2 - 230 V / 0.5 A / 10 W ^{(5), (7)} , 3 - 230 V / 2 A / 50 W ⁽⁸⁾ , 4 - 230 V / 1 A / 30 W ^{(5), (7)}
G6	Operating lengths [mm] ⁽⁶⁾	L0/L1/L2/L3/.../LN
G9	Process connection	X - none, Q5 - M27x2, Q6 - G3/4", Q11 - 3/4" NPT, Q12 - G1", Q13 - G1½", Q14 - G2", Q15 - 1" NPT, Q16 - 1½" NPT, Q17 - 2" NPT, Q21 - G3", Q22 - 3" NPT, Q25 - M33x2, Q27 - G1¼", Q28 - 1¼" NPT, F - flange (specify!), Z - other (specify!)
G10	Sheath material	M1 - 1.4301, M2 - 1.4541, M3 - 1.4571, M9 - 1.4404, M15 - 1.4362
G14	Grounding	X - none, G - grounded
G15	Wiring connector	C1A - angled 4-pin connector M12, C1S - straight 4-pin connector M12, C7 - DIN 43650 4-pin connector, C8 - DIN 43651 7-pin connector
#1	Options	X - none, A (SS) - vertical adjustment via stainless steel ferrule installed, A (BR) - vertical adjustment via bronze ferrule installed, A (TF) - vertical adjustment via teflon ferrule installed, OP - electrochemically polished sheath surface
#2	Built-in temperature sensor / thermostat	X - none, D - Pt100, G - Pt1000, T__ - thermostat (specify switching temperature in °C!)

⁽³⁾ All the floats on one probe must be of a same type!

⁽⁴⁾ 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.: LCSFK - 2S1.A2/B1/A3.A1/C3

⁽⁵⁾ Are not available for certain combinations!

⁽⁶⁾ Specify the exact length (step 50 mm) from the thread or flange 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.: LCSFK - 2S1.A2/B1/A3.A1/C3.500/50/100/200/250/350

⁽⁷⁾ Contact COMECO!

⁽⁸⁾ May contains mercury!

Model	LCSFK w/ plastic floats												
Specifications													
Float type	P0	N1		P1		P10		P2		P3		P4	
Float material	PP	NBR		PP		PP		PP		PP		PVDF	
Liquid density [g/cm³]	> 0.73	> 0.60		> 0.60		> 0.72		> 0.60		> 0.50		> 0.70	
Number of floats	1	1...3		1...3		1...3		1...4		1...5		1...5	
Ext. tube diameter ('d')	6 mm	8 mm		8 mm		10 mm		12 mm		16 mm		16 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
Maximum wire leads	2	4		4		6		6		6		6	
Max. common-lead contacts	-	3	-	3	-	5	2	5	2	5	2	5	2
Max. separated contacts	1	2	1	2	1	3	2	3	2	3	2	3	2
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; '4': max. 230 VAC, max. 1 A, max. 30 W												
Temp. sensor / thermostat	built-in RTD (Pt100, Pt1000) or bimetallic thermostat (see specifications below) <i>(option)</i>												
Probe length ('L0')	50...500 mm	100...1000 mm		100...1000 mm		50...2000 mm		100...2000 mm		200...4000 mm		200...4000 mm	
End-to-float distance ('A')	min. 18 mm	min. 23 mm		min. 21 mm		min. 15 mm		min. 37 mm		min. 47 mm		min. 47 mm	
Float running distance ('B')	min. 20 mm	min. 27 mm		min. 24 mm		min. 17 mm		min. 52 mm		min. 62 mm		min. 62 mm	
Float-to-float distance ('C')	-	min. 45 mm		min. 42 mm		min. 30 mm		min. 76 mm		min. 86 mm		min. 86 mm	
Process temperature	-20...80 °C	-20...100 °C		-20...80 °C		-20...80 °C		-20...80 °C		-20...80 °C		-20...80 °C	
Ambient temperature	-20...75 °C												
Max. process pressure	5 bar	0 bar		5 bar		5 bar		3 bar		3 bar		2 bar	
Process connection	min. ¾" (M24)	min. ½" (M20)		min. 1" (M33)		min. 1" (M33)		min. 1" (M33)		min. 1 ¼"		min. 1 ¼"	
Wiring	up to 4 terminals (contact leads): 4-pin (3+PE) detachable connector DIN 43650 or detachable circular connector M12; up to 6 terminals (contact leads): 7-pin (6+PE) detachable connector DIN 43651												
Wetted parts	stainless steel (except floats)												
Protection	IP65												

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Built-in temperature sensor / thermostat <i>(option)</i>		
	RTD sensor	thermostat
Type	Pt100 or Pt1000	NC (under set point)
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Code	Feature or option	Code values
G1	Float ⁽²⁾ (n' - number of floats)	N1 - NBR, ø17.5x25, P0 - PP, ø19x16, P1 - PP, ø24x22, P2 - PP, ø29x50, P3 - PP, ø38x60, P4 - PVDF, ø38x60, P10 - PP, ø29x11
G2'	Contact function (no float) ⁽³⁾	A - NO (closes at float down), AU - NO (closes at float up), B - NC (opens at float down), BU - NC (opens at float up), C - NO/NC
G2"	Contact ratings	1 - 120 V / 0.5 A / 10 W, 2 - 230 V / 0.5 A / 10 W ^{(4), (6)} , 3 - 230 V / 2 A / 50 W ⁽⁷⁾ , 4 - 230 V / 1 A / 30 W ^{(4), (6)}
G6	Operating lengths [mm] ⁽⁵⁾	L0/L1/L2/L3/.../LN
G9	Process connection	X - none, Q2 - M20x1.5, Q4 - G1/2", Q5 - M27x2, Q6 - G3/4", Q10 - 1/2" NPT, Q11 - 3/4" NPT, Q12 - G1", Q15 - 1" NPT, Q25 - M33x2, Q27 - G1¼", Q28 - 1¼" NPT, F - flange (specify!), Z - other (specify!)
G10	Sheath material	M1 - 1.4301, M2 - 1.4541, M3 - 1.4571, M9 - 1.4404, M15 - 1.4362
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#2	Built-in temperature sensor / thermostat	X - none, D - Pt100, G - Pt1000, T__ - thermostat (specify switching temperature in °C!)

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