

## Multi-point Float Level Switch with Cable LCSFC

- ◆ Inside or outside installation
- ◆ Up to 5 floats
- ◆ Up to 15 switching points
- ◆ 135 °C maximum liquid temperature
- ◆ Various float and cable types
- ◆ Vertical adjustment option
- ◆ Temperature measurement option

The operation of COMECO's level probe LCSFC is based on the switching of reed switches by a magnetic float, moving alongside a protective tube. Large variety of versions based on different floats is available. The float can be made of stainless steel or plastic; floats with various dimensions and specific gravity are available for use with liquid density down to 0.45 g/cm<sup>3</sup> and temperature up to 135 °C. Up to 15 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 w/ SS floats															
<b>Specifications</b>																
	<b>Float type</b>	S0 / S1 / S7 / S10	S2	S3/S4	S11	S5	S6	S8 / S9	S20							
<b>Liquid density [g/cm<sup>3</sup>]</b>	> 0.80 <sup>(1)</sup>		> 0.70		> 0.65 / >0.55		> 0.45		> 0.55		> 0.50		> 0.50 / > 0.45		> 0.75	
<b>Number of floats</b>	1...3		1...3		1...4		1...4		1...5		1...5		1...5		1...3	
<b>Ext. tube diameter ('d')</b>	8 mm		10 mm		14 mm		14 mm		16/18 mm		16/18 mm		18/25 mm		8 mm	
<b>Contact type <sup>(2)</sup></b>	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
<b>Maximum wire leads</b>	4		6		8		8		10/12		10/12		12/16		4	
<b>Max. common-lead contacts</b>	3	-	5	2	7	3	7	3	9/10	4/5	9/10	4/5	10/15	5/7	3	-
<b>Max. separated contacts</b>	2	1	3	2	4	2	4	2	5/6	3/4	5/6	3/4	6/8	4/5	2	1
<b>Contact ratings</b>	'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															
<b>Temp. sensor / thermostat</b>	built-in RTD (Pt100, Pt1000) or bimetallic thermostat (see specifications below) <b>(option)</b>															
<b>Probe length ('L0')</b>	100...1000 mm		100...2000 mm		200...3000 mm		80...4000 mm		300...4000 mm		300...5000 mm		300...5000 mm		100...1000 mm	
<b>End-to-float distance ('A')</b>	min. 22/25/29 mm		min. 34 mm		min. 40/39 mm		min. 37 mm		min. 50 mm		min. 70 mm		min. 65/90 mm		min. 36 mm	
<b>Float running distance ('B')</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	
<b>Float-to-float distance ('C')</b>	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	
<b>Process temperature</b>	-20...135 °C															
<b>Ambient temperature</b>	PVC cable: -20...75 °C; silicone or Teflon® cable: -20...150 °C; PUR cable: -20...80 °C															
<b>Max. process pressure</b>	8 / 10 / 30 / 50 bar		30 bar		12 / 30 bar		15 bar		30 bar		10 bar		30 bar		30 bar	
<b>Outside process connection</b>	min. 1" (M33)		min. 1½"		min. 2"		min. 2"		min. 3" or flange		min. 3" or flange		flange		min. ¾" (M27)	
<b>Inside process connection</b>	M10, M12, M14, M16, M18, M20, 1/8", 1/4", 3/8", 1/2"		M12, M14, M16, M18, M20, M27, 1/4", 3/8", 1/2", 3/4"		M16, M18, M20, M27, M33, 1/2", 3/4", 1"		M16, M18, M20, M27, M33, 1/2", 3/4", 1"		M20, M27, M33, 1/2", 3/4", 1"		M20, M27, M33, 1/2", 3/4", 1"		M27, M33, 3/4", 1"		M10, M12, M14, M16, M18, M20, 1/8", 1/4", 3/8", 1/2"	
<b>Wiring</b>	up to 20 m flexible cable: PVC, silicone, or Teflon® (2...16 x 0.25 mm <sup>2</sup> , OD 4...8 mm) or PUR <sup>(3)</sup> (2...16 x 0.50 mm <sup>2</sup> , OD 6...12 mm)															
<b>Wetted parts</b>	stainless steel															
<b>Protection</b>	IP67 (inside installation) or IP65 (outside installation)															

<sup>(1)</sup> > 0.70 g/cm<sup>3</sup> for float type 'S1'

<sup>(2)</sup> Different contact types can be ordered.

<sup>(3)</sup> Ask for compatibility with d=8/10 mm!

Built-in temperature sensor / thermostat (option)		
	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
Wires occupied	2	2 or 1 (+ common)
Probe extension	-	≈ 30 mm

#### How to choose cable:

- Use the above table to calculate the maximum number of wires occupied by the level contacts, by multiplying the number of contacts by the number of leads for the selected type.
- Decide on the need of temperature measurement.
- Add the wires 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!
- Decide on the need of grounding for your probe - it will occupy 1 wire.
- Check the ambient temperature and chemical properties.
- Find the proper cable from the table above.

### Ordering code LCSFC - nG1.G2'2"/G2'2"/.../G2'2".G6.G8.G9.G10.G14 - #1.#2

Code	Feature or option	Code values
G1	Float <sup>(4)</sup> (n' - number of floats)	<b>S0</b> - stainless steel, ø25x25, <b>S1</b> - stainless steel, ø28x28, <b>S2</b> - stainless steel, ø40x42, <b>S3</b> - stainless steel, ø45x55, <b>S4</b> - stainless steel, ø52x52, <b>S5</b> - stainless steel, ø73x73, <b>S6</b> - stainless steel, ø75x108, <b>S7</b> - stainless steel, ø30x28, <b>S8</b> - stainless steel, ø100x100, <b>S9</b> - stainless steel, ø150x150, <b>S10</b> - stainless steel, ø30x32 <sup>(9)</sup> , <b>S11</b> - stainless steel, ø51x61, <b>S20</b> - stainless steel, ø22x40 <sup>(9)</sup>
G2'	Contact function (no float) <sup>(5)</sup>	<b>A</b> - NO (closes at float down), <b>AU</b> - NO (closes at float up), <b>B</b> - NC (opens at float down), <b>BU</b> - NC (opens at float up), <b>C</b> - NO/NC
G2"	Contact ratings	<b>1</b> - 120 V / 0.5 A / 10 W, <b>2</b> - 230 V / 0.5 A / 10 W <sup>(6), (9)</sup> , <b>3</b> - 230 V / 2 A / 50 W <sup>(10)</sup> , <b>4</b> - 230 V / 1 A / 30 W <sup>(6), (9)</sup>
G6	Operating lengths [mm] <sup>(7)</sup>	<b>L0/L1/L2/L3/.../LN</b>
G8	Cable length 'k' [m] and type	<b>1PV...10PV</b> - PVC, <b>1SL...10SL</b> - silicone, <b>1TF...10TF</b> - Teflon®, <b>1PU...10PU</b> - polyurethane
G9	Process connection	<b>X</b> - none, <b>Q0</b> - M16x1.5, <b>Q1</b> - M18x1.5, <b>Q2</b> - M20x1.5, <b>Q3</b> - G3/8", <b>Q4</b> - G1/2", <b>Q5</b> - M27x2, <b>Q6</b> - G3/4", <b>Q7</b> - M12x1.5, <b>Q8</b> - M14x1.5, <b>Q10</b> - 1/2" NPT, <b>Q11</b> - 3/4" NPT, <b>Q12</b> - G1", <b>Q15</b> - 1" NPT, <b>Q18</b> - G1/8", <b>Q19</b> - 1/8" NPT, <b>Q20</b> - M10x1, <b>Q23</b> - G1/4", <b>Q24</b> - 1/4" NPT, <b>Q25</b> - M33x2, <b>Q30</b> - M10x1.5, <b>Z</b> - other (specify!)
	Process connection	<b>X</b> - none, <b>Q5</b> - M27x2, <b>Q6</b> - G3/4", <b>Q11</b> - 3/4" NPT, <b>Q12</b> - G1", <b>Q13</b> - G1½", <b>Q14</b> - G2", <b>Q15</b> - 1" NPT, <b>Q16</b> - 1½" NPT, <b>Q17</b> - 2" NPT, <b>Q21</b> - G3", <b>Q22</b> - 3" NPT, <b>Q25</b> - M33x2, <b>Q27</b> - G1¼", <b>Q28</b> - 1¼" NPT, <b>F</b> - flange (specify!), <b>Z</b> - other (specify!)
G10	Sheath material	<b>M1</b> - 1.4301, <b>M2</b> - 1.4541, <b>M3</b> - 1.4571, <b>M9</b> - 1.4404, <b>M15</b> - 1.4362
G14	Grounding	<b>X</b> - none, <b>G</b> - grounded
#1	Options	<b>X</b> - none, <b>A (SS)</b> - vertical adjustment via stainless steel ferrule installed <sup>(8)</sup> , <b>A (BR)</b> - vertical adjustment via bronze ferrule installed <sup>(8)</sup> , <b>A (TF)</b> - vertical adjustment via teflon ferrule installed <sup>(8)</sup> , <b>OP</b> - electrochemically polished sheath surface
#2	Built-in temperature sensor / thermostat	<b>X</b> - none, <b>D</b> - Pt100, <b>G</b> - Pt1000, <b>T__</b> - thermostat (specify switching temperature in °C!)

<sup>(4)</sup> All the floats on one probe must be of a same type!

<sup>(5)</sup> Specify (function, ratings) and separate with "/" each of the contacts for the 1<sup>st</sup> float, then for the 2<sup>nd</sup>, and so on, separating specifications per each float with '!'; e.g.: LCSFC - 2S1.A2/B1/A3.A1/C3

<sup>(6)</sup> Are not available for certain combinations!

<sup>(7)</sup> 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! 1<sup>st</sup> contact → 'L1'; e.g.: LCSFC - 2S1.A2/B1/A3.A1/C3.500/50/100/200/250/350

<sup>(8)</sup> Only with outside installation!

<sup>(9)</sup> Contact COMECO!

<sup>(10)</sup> May contains mercury!

Model	LCSFC w/ plastic floats											
<b>Specifications</b>												
	<b>Float type</b>	P0	N1	P1	P10	P2	P3	P4				
<b>Float material</b>	PP	NBR	PP	PP	PP	PP	PP	PVDF				
<b>Liquid density [g/cm<sup>3</sup>]</b>	> 0.73	> 0.60	> 0.60	> 0.72	> 0.60	> 0.50	> 0.70					
<b>Number of floats</b>	1	1...3	1...3	1...3	1...4	1...5	1...5					
<b>Ext. tube diameter ('d')</b>	6 mm	8 mm	8 mm	10 mm	12 mm	16 mm	16 mm					
<b>Contact type <sup>(1)</sup></b>	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
<b>Maximum wire leads</b>	2	4	4	6	7	10	10					
<b>Max. common-lead contacts</b>	-	3	-	3	5	2	6	3	9	4	9	4
<b>Max. separated contacts</b>	1	2	1	2	3	2	3	2	5	3	5	3
<b>Contact ratings</b>	'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											
<b>Temp. sensor / thermostat</b>	built-in RTD (Pt100, Pt1000) or bimetallic thermostat (see specifications below) <i>(option)</i>											
<b>Probe length ('L0')</b>	50...500 mm	100...1000 mm	100...1000 mm	50...2000 mm	100...2000 mm	200...4000 mm	200...4000 mm					
<b>End-to-float distance ('A')</b>	min. 18 mm	min. 23 mm	min. 21 mm	min. 15 mm	min. 37 mm	min. 47 mm	min. 47 mm					
<b>Float running distance ('B')</b>	min. 20 mm	min. 27 mm	min. 24 mm	min. 17 mm	min. 52 mm	min. 62 mm	min. 62 mm					
<b>Float-to-float distance ('C')</b>	-	min. 45 mm	min. 42 mm	min. 30 mm	min. 76 mm	min. 86 mm	min. 86 mm					
<b>Process temperature</b>	-20...80 °C	-20...100 °C	-20...80 °C	-20...80 °C	-10...80 °C	-10...80 °C	-30...125 °C					
<b>Ambient temperature</b>	PVC cable: -20...75 °C; silicone or Teflon® cable: -20...150 °C; PUR cable: -20...80 °C											
<b>Max. process pressure</b>	5 bar	0 bar	5 bar	5 bar	3 bar	3 bar	2 bar					
<b>Outside process connection</b>	min. 3/4" (M24)	min. 1/2" (M20)	min. 1" (M33)	min. 1" (M33)	min. 1" (M33)	min. 1 1/4"	min. 1 1/4"					
<b>Inside process connection</b>	M8, M10, M12, M14, M16, M18, M20, 1/8", 1/4", 3/8", 1/2"	M10, M12, M14, M16, M18, M20, M27, 1/8", 1/4", 3/8"	M10, M12, M14, M16, M18, M20, 1/8", 1/4", 3/8", 1/2"	M12, M14, M16, M18, M20, M27, 1/4", 3/8", 1/2"	M14, M16, M18, M20, M27, 1/4", 3/8", 1/2"	M20, M27, M33, 1/2", 3/4"	M20, M27, M33, 1/2", 3/4"					
<b>Wiring</b>	up to 20 m flexible cable: PVC, silicone, or Teflon® (2...16 x 0.25 mm <sup>2</sup> , OD 4...8 mm) or PUR <sup>(2)</sup> (2...16 x 0.50 mm <sup>2</sup> , OD 6...12 mm)											
<b>Wetted parts</b>	stainless steel (except floats)											
<b>Protection</b>	IP67 (inside installation) or IP65 (outside installation)											

<sup>(1)</sup> Different contact types can be ordered.

<sup>(2)</sup> Ask for compatibility with d=8/10 mm!

Built-in temperature sensor / thermostat <i>(option)</i>	
	thermostat
<b>Type</b>	Pt100 or Pt1000
<b>Ratings</b>	2-wire
<b>Set point</b>	40...130 °C (step 5 °C)
<b>Accuracy</b>	class 'B'
<b>Wires occupied</b>	2 or 1 (+ common)
<b>Probe extension</b>	≈ 30 mm

**How to choose cable:**

1. Use the above table to calculate the maximum number of wires 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 wires 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 1 wire.
5. Check the ambient temperature and chemical properties.
6. Find the proper cable from the table above.

COMECO reserves the right of changing specifications without prior notice!

**Ordering code** LCSFC - nG1.G2'2"/G2'2"/.../G2'2".G6.G8.G9.G10.G14 - #1.#2

Code	Feature or option	Code values
<b>G1</b>	Float <sup>(3)</sup> ( 'n' - number of floats)	<b>N1</b> - NBR, $\varnothing$ 17.5x25, <b>P0</b> - PP, $\varnothing$ 19x16, <b>P1</b> - PP, $\varnothing$ 24x22, <b>P2</b> - PP, $\varnothing$ 29x50, <b>P3</b> - PP, $\varnothing$ 38x60, <b>P4</b> - PVDF, $\varnothing$ 38x60, <b>P10</b> - PP, $\varnothing$ 29x11
<b>G2'</b>	Contact function (no float) <sup>(4)</sup>	<b>A</b> - NO (closes at float down), <b>AU</b> - NO (closes at float up), <b>B</b> - NC (opens at float down), <b>BU</b> - NC (opens at float up), <b>C</b> - NO/NC
<b>G2''</b>	Contact ratings	<b>1</b> - 120 V / 0.5 A / 10 W, <b>2</b> - 230 V / 0.5 A / 10 W <sup>(5), (8)</sup> , <b>3</b> - 230 V / 2 A / 50 W <sup>(9)</sup> , <b>4</b> - 230 V / 1 A / 30 W <sup>(5), (8)</sup>
<b>G6</b>	Operating lengths [mm] <sup>(6)</sup>	<b>L0/L1/L2/L3/.../LN</b>
<b>G8</b>	Cable length 'k' [m] and type	<b>1PV...10PV</b> - PVC, <b>1SL...10SL</b> - silicone, <b>1TF...10TF</b> - Teflon®, <b>1PU...10PU</b> - polyurethane
<b>G9</b>	Process connection	<b>X</b> - none, <b>Q0</b> - M16x1.5, <b>Q1</b> - M18x1.5, <b>Q2</b> - M20x1.5, <b>Q3</b> - G3/8", <b>Q4</b> - G1/2", <b>Q5</b> - M27x2, <b>Q6</b> - G3/4", <b>Q7</b> - M12x1.5, <b>Q8</b> - M14x1.5, <b>Q10</b> - 1/2" NPT, <b>Q11</b> - 3/4" NPT, <b>Q12</b> - G1", <b>Q15</b> - 1" NPT, <b>Q18</b> - G1/8", <b>Q19</b> - 1/8" NPT, <b>Q20</b> - M10x1, <b>Q23</b> - G1/4", <b>Q24</b> - 1/4" NPT, <b>Q25</b> - M33x2, <b>Q30</b> - M10x1.5, <b>Z</b> - other (specify!)
	Process connection	<b>X</b> - none, <b>Q2</b> - M20x1.5, <b>Q4</b> - G1/2", <b>Q5</b> - M27x2, <b>Q6</b> - G3/4", <b>Q10</b> - 1/2" NPT, <b>Q11</b> - 3/4" NPT, <b>Q12</b> - G1", <b>Q13</b> - G1½", <b>Q14</b> - G2", <b>Q15</b> - 1" NPT, <b>Q16</b> - 1½" NPT, <b>Q17</b> - 2" NPT, <b>Q21</b> - G3", <b>Q22</b> - 3" NPT, <b>Q25</b> - M33x2, <b>Q27</b> - G1¼", <b>Q28</b> - 1¼" NPT, <b>F</b> - flange (specify!), <b>Z</b> - other (specify!)
<b>G10</b>	Sheath material	<b>M1</b> - 1.4301, <b>M2</b> - 1.4541, <b>M3</b> - 1.4571, <b>M9</b> - 1.4404, <b>M15</b> - 1.4362
<b>G14</b>	Grounding	<b>X</b> - none, <b>G</b> - grounded
<b>#1</b>	Options	<b>X</b> - none, <b>A (SS)</b> - vertical adjustment via stainless steel ferrule installed <sup>(7)</sup> , <b>A (BR)</b> - vertical adjustment via bronze ferrule installed <sup>(7)</sup> , <b>A (TF)</b> - vertical adjustment via teflon ferrule installed <sup>(7)</sup> , <b>OP</b> - electrochemically polished sheath surface
<b>#2</b>	Built-in temperature sensor / thermostat	<b>X</b> - none, <b>D</b> - Pt100, <b>G</b> - Pt1000, <b>T__</b> - thermostat (specify switching temperature in °C!)

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

<sup>(4)</sup> Specify (function, ratings) and separate with "/" each of the contacts for the 1<sup>st</sup> float, then for the 2<sup>nd</sup>, and so on, separating specifications per each float with ' '; e.g.: LCSFC - 2P1.A2/B1/A3.A1/C3

<sup>(5)</sup> Are not available for certain combinations!

<sup>(6)</sup> 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! 1<sup>st</sup> contact → 'L1'; e.g.: LCSFC - 2P1.A2/B1/A3.A1/C3.500/50/100/200/250/350

<sup>(7)</sup> Only with outside installation!

<sup>(8)</sup> Contact COMECO!

<sup>(9)</sup> May contains mercury!!