

## Multi-point Float Level Switch with Protection Head LCSFT

- ◆ Installation without float removal
- ◆ Up to 5 floats of various types
- ◆ Up to 15 switching points
- ◆ 135 °C maximum liquid temperature
- ◆ Various terminal protection housings
- ◆ Vertical adjustment option
- ◆ Temperature measurement option
- ◆ Local controller available
- ◆ ATEX certified Ex version available

The operation of the COMECO's level probe LCSFT is based on the switching of reed switches by magnetic floats, moving alongside a protective tube. Large variety of versions based on different stainless steel floats is available. Floats with different dimensions and specific gravity are available for liquid density down to 0.45 g/cm<sup>3</sup>, temperature up to 135 °C, and pressure up to 50 bar. Maximum 15 switching points and 5 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 and stainless-steel protective heads as well as ABS plastic enclosure. Various process connections are available as well as an options for vertical adjustment and temperature control.



### Technical specifications

Model	LCSFT 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	
<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	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	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> 4														
<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. 22/25/25/29 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>	aluminum housing: -40...75 °C; stainless steel housing: -40...85 °C; ABS housing: -20...70 °C; Ex housing: -20...60 °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>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>Housing</b>	up to 4 terminals (contact leads): head type "MA" or "MB"; up to 6 terminals (contact leads): head type "B", "G", or "ES" or ATEX head type "EG", "EGW", or "EGS"; up to 16 terminals (contact leads): plastic box (80x80x60mm) or ATEX instrument housing EX														
<b>Wiring</b>	terminal block inside protective housing, accessible through cable gland														
<b>Wetted parts</b>	stainless steel														
<b>Protection</b>	head "B": IP55; head "MB", "G", "ES", plastic box: IP65; head "EGS": IP66; head "EG", "EGW", EX housing: IP68														

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

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

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
Terminals occupied	2	2 or 1 (common)
Probe extension	-	≈ 30 mm

#### How to choose housing:

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 need of ATEX or windowed housing.
5. Find the proper housing from the table above.

### Ordering code LCSFT - G0'nG0".nG1.G2'2"/G2'2"/.../G2'2".G6.G9.G10.G14 - #1.#2.#3 - #4

Code	Feature or option	Code values
G0'	Housing	<b>B</b> - head type "B", <b>MA</b> - head type "MA", <b>MB</b> - head type "MB", <b>G</b> - head type "G", <b>GS</b> - head type "GS", <b>ES</b> - head type "ES" <sup>(8)</sup> , <b>EG</b> - head type "EG", <b>EGS</b> - head type "EGS" <sup>(8)</sup> , <b>EGW</b> - head type "EGW", <b>EX</b> - explosion-proof instrument housing (specify!), <b>D</b> - plastic box 80x80x60 mm
G0"	Electrical entry ('n' - number of entries <sup>(9)</sup> , <sup>(10)</sup> )	<b>G</b> - gland, <b>U2</b> - M20x1.5, <b>U4</b> - G1/2", <b>U6</b> - G3/4", <b>U10</b> - 1/2" NPT, <b>U11</b> - 3/4" NPT
G1	Float <sup>(3)</sup> ( 'n' - number of floats)	<b>S0</b> - stainless steel, ø25x24, <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>S7</b> - stainless steel, ø30x28, <b>S8</b> - stainless steel, ø100x100, <b>S9</b> - stainless steel, ø150x150, <b>S10</b> - stainless steel, ø30x32 <sup>(8)</sup> , <b>S11</b> - stainless steel, ø51x61, <b>S20</b> - stainless steel, ø22x40 <sup>(8)</sup>
G2'	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
G2"	Contact ratings	<b>1</b> - 120 V / 0.5 A / 10 W, <b>2</b> - 230 V / 0.5 A / 10 W <sup>(5)</sup> , <sup>(8)</sup> , <b>3</b> - 230 V / 2 A / 50 W <sup>(11)</sup> , <b>4</b> - 230 V / 1 A / 30 W <sup>(5)</sup> , <sup>(8)</sup>
G6	Operating lengths [mm] <sup>(6)</sup>	<b>L0/L1/L2/L3/.../LN</b>
G9	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, <b>A (BR)</b> - vertical adjustment via bronze ferrule installed, <b>A (TF)</b> - vertical adjustment via teflon ferrule installed, <b>OP</b> - electrochemically polished sheath surface
#2	Incorporated devices	<b>X</b> - none, <b>A</b> - local controller <sup>(7)</sup>
#3	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!)
#4	EX-version	<b>X</b> - none, <b>EX</b> - EX-version

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

<sup>(7)</sup> See controller datasheets and order separately!

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

<sup>(9)</sup> Applicable for the selected head type (see Appendix - Protection Heads)

<sup>(10)</sup> Only for EX-version!

<sup>(11)</sup> May contains mercury!!

Model	LCSFT 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	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	
<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	1	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	-20...80 °C	-20...80 °C	-20...80 °C							
<b>Ambient temperature</b>	aluminum housing: -40...75 °C; stainless steel housing: -40...85 °C; ABS housing: -20...70 °C; Ex housing: -20...60 °C													
<b>Max. process pressure</b>	5 bar	0 bar	5 bar	5 bar	3 bar	3 bar	2 bar							
<b>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>Housing</b>	up to 4 terminals (contact leads): head type "MA" or "MB"; up to 6 terminals (contact leads): head type "B", "G", or "ES" or ATEX head type "EG", "EGW", or "EGS"; up to 16 terminals (contact leads): plastic box (80x80x60mm) or ATEX instrument housing EX													
<b>Wiring</b>	terminal block inside protective housing, accessible through cable gland													
<b>Wetted parts</b>	stainless steel (except floats)													
<b>Protection</b>	head "B": IP55; head "MB", "G", "ES", plastic box: IP65; head "EGS": IP66; head "EG", "EGW", EX housing: IP68													

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

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

**How to choose housing:**

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 need of ATEX or windowed housing.
5. Find the proper housing from the table above.

**Ordering code** LCSFT - G0.nG1.G2'2"/G2'2"/.../G2'2".G6.G9.G10.G14 - #1.#2.#3

Code	Feature or option	Code values
<b>G0</b>	Housing	<b>B</b> - head type "B", <b>MA</b> - head type "MA", <b>MB</b> - head type "MB", <b>G</b> - head type "G", <b>GS</b> - head type "GS", <b>ES</b> - head type "ES" <sup>(7)</sup> , <b>EG</b> - head type "EG", <b>EGS</b> - head type "EGS" <sup>(7)</sup> , <b>EGW</b> - head type "EGW", <b>EX</b> - explosion-proof instrument housing (specify!), <b>D</b> - plastic box 80x80x60 mm
<b>G1</b>	Float <sup>(2)</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>(3)</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>(4)</sup> , <sup>(7)</sup> , <b>3</b> - 230 V / 2 A / 50 W <sup>(8)</sup> , <b>4</b> - 230 V / 1 A / 30 W <sup>(4)</sup> , <sup>(7)</sup>
<b>G6</b>	Operating lengths [mm] <sup>(5)</sup>	<b>L0/L1/L2/L3/.../LN</b>
<b>G9</b>	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!)
<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, <b>A (BR)</b> - vertical adjustment via bronze ferrule installed, <b>A (TF)</b> - vertical adjustment via teflon ferrule installed, <b>OP</b> - electrochemically polished sheath surface
<b>#2</b>	Incorporated devices	<b>X</b> - none, <b>A</b> - local controller <sup>(6)</sup>
<b>#3</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>(2)</sup> All the floats on one probe must be of a same type!

<sup>(3)</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.: LCSFT - B.2P1.A2/B1/A3.A1/C3

<sup>(4)</sup> Are not available for certain combinations!

<sup>(5)</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.: LCSFT - B.2P1.A2/B1/A3.A1/C3.500/50/100/200/250/350

<sup>(6)</sup> See controller datasheets and order separately!

<sup>(7)</sup> Contact COMECO!

<sup>(8)</sup> May contains mercury!!