

# Level Measurement

## Continuous level measurement - Capacitance transmitters

SITRANS LC300

### Overview



SITRANS LC300 is an inverse frequency shift capacitance continuous level transmitter for liquids and solids applications. It is ideal for standard industrial applications in chemical, hydrocarbon processing, food and beverage, water, wastewater, and mining, aggregate, and cement industries.

### Benefits

- Patented Active-Shield technology so measurement is unaffected by material buildup in active shield section
- Highly accurate and reliable PFA-lined probes
- Integrated local LCD display
- 2-wire (4 to 20 mA) current loop design
- Current signalling according to NAMUR NE 43
- Push-button calibration and programming
- Stilling well (ground tube) version for low dielectric media and non-metallic vessels

### Application

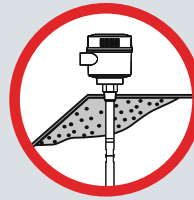
SITRANS LC300 is a 2-wire level measurement instrument combining a sophisticated, yet easy-to-adjust microprocessor with field-proven probes. It is available in four versions: rod, rod with stilling well, cable with PFA insulation, and cable without PFA insulation.

Materials with low or high dielectric properties are accurately measured and patented Active-Shield technology helps in ignoring the effects of buildup or condensation near vessel nozzle.

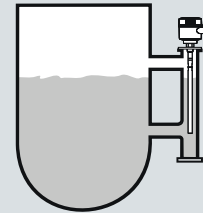
- Key Applications: Conductive and non-conductive media including: liquids and solids in standard industrial processes, bulk solids applications involving dust, and chemical processes involving vapour

### Configuration

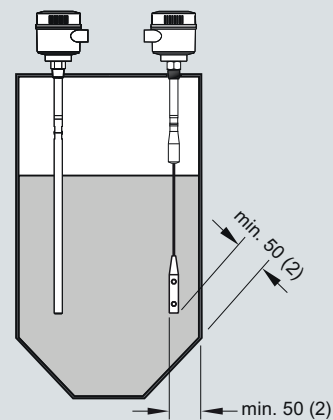
#### Installation



Build up of material in active shield area does not affect switch operation.



Mounting on a bypass area does not affect switch operation.



Install probe at least 50 mm (2") from tank wall.  
Note angle of repose and adjust accordingly.

SITRANS LC300 installation, dimensions in mm (inch)

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#### Technical specifications

<b>Input</b>	
Measuring range	1.66 ... 3300 pF
Span	Min. 3.3 pF
<b>Output</b>	
Loop current	Continuous signal 4 ... 20 mA/20 ... 4 mA according to NAMUR 43
<b>Accuracy (transmitter)</b>	
Temperature stability	0.25 % of actual capacitance value
Non-linearity and repeatability	< 0.4 % of full scale and actual measurement value
Accuracy	Deviation < 0.5 % of actual measurement value
<b>Rated operating conditions<sup>1)</sup></b>	
Ambient conditions	
• Ambient temperature	-40 ... +85 °C (-40 ... +185 °F) <sup>2)</sup>
• Installation category	I
• Pollution degree	4
• Ingress protection	Type 4/NEMA 4/IP65 (optional IP68)
Installation conditions	
• Location	Indoor/outdoor
Process pressure	-1 to +35 bar g (-14.6 ... +511 psi g)
Process temperature	-40 ... +200 °C (-40 ... +392 °F) <sup>3)</sup>
Min. dielectric constant $\epsilon_r$	1.5
<b>Design</b>	
Material	
• Enclosure	Aluminum, epoxy-coated
Probe diameter	
• Rod version	19 mm (0.75") with PFA jacket
• Cable version	9 mm (0.35") with PFA jacket, 6 mm (0.24") without PFA jacket
Active shield length	
• Rod version	threaded: 120 mm (4.72") flanged: 100 mm (3.94")
• Cable version	threaded: 125 mm (4.92") flanged: 105 mm (4.13")
Process connection of probe	
• Threaded rod mounting	$\frac{3}{4}$ ", 1", 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ " NPT [(Taper), ANSI/ASME B1.20.1] R $\frac{3}{4}$ ", 1", 1 $\frac{1}{2}$ " [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] G $\frac{3}{4}$ ", 1", 1 $\frac{1}{2}$ " [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]
• Threaded cable mounting	1 $\frac{1}{2}$ " NPT [(Taper), ANSI/ASME B1.20.1] R 1 $\frac{1}{2}$ " [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] G 1 $\frac{1}{2}$ " [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]
• Flange mounting	1 ... 4" ASME, DN 25 ... 100
Enclosure cable inlet	2 x $\frac{1}{2}$ " NPT or 2 x M20x1.5
<b>Power supply</b>	
	12 ... 30 V DC any polarity, 2-wire current loop circuit
<b>User Interface</b>	
Display	Local LCD, 4 digit, each 0 ... 9 and limited alpha characters

<b>Safety</b>	
Measurement current signalling	According to NAMUR NE 43, signal 3.8 ... 20.5 mA, fault $\leq$ 3.6 or $\geq$ 21 mA (22 mA)
<b>Certificates and approvals</b>	
General	CE, CSA <sub>US/C</sub> , FM, C-TICK
Dust Ignition Proof (Intrinsically Safe probe circuit)	(Europe) ATEX II 1/2 D T100 °C (US/Canada) FM/CSA: Class II, Div. 1, Groups E,F,G Class III T4
Flame Proof (Intrinsically Safe probe circuit)	(Europe) ATEX II 1/2 G EEx d [ia] IIC T6...T1 ATEX II 1/2 D T100 °C
Explosion Proof (Intrinsically Safe probe circuit)	(US/Canada) Class I, Div. 1, Groups A,B,C,D Class II, Div. 1, Groups E,F,G Class III T4
Marine	Bureau Veritas Type Approval ABS Type Approval
Overfill Protection	AIB-Vincotte
Other	Pattern Approval (China)

- 1) When operation is in areas classified as hazardous, observe restrictions according to relevant certificate. See also Pressure/Temperature curves on page 5/277.
- 2) Thermal isolator is used if process connection temperature exceeds +85 °C (+185 °F)
- 3) Not suitable for steam environments

	Design: Probe	Rod version	Stilling well version	Cable version
Length		Min. 300 mm (12"), max. 5000 mm (197")	Min. 300 mm (12"), max. 5000 mm (197")	Min. 1000 mm (40"), max. 25000 mm (984")
Sensor wetted parts		PFA, 316L stainless steel	PFA, 316L stainless steel	316L stainless steel or 316L stainless steel with PFA insulation
O-ring seal material		FKM or FFKM	FKM or FFKM	FKM or FFKM
Thermal isolator		Optional	Optional	Optional
Options		N/A	N/A	Mounting eye for PFA insulated cable version

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Selection and Ordering data	Order No.
<b>SITRANS LC300, rod version</b>	C) 7ML5670 -
An inverse frequency shift capacitance continuous level transmitter for liquids and solids applications.	0
<b>Process Connection</b>	
Threaded, 316L stainless steel	
¾" NPT [(Taper), ANSI/ASME B1.20.1]	0 A
1" NPT [(Taper), ANSI/ASME B1.20.1]	0 B
1¼" NPT [(Taper), ANSI/ASME B1.20.1]	0 C
1½" NPT [(Taper), ANSI/ASME B1.20.1]	0 D
R ¾" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	1 A
R 1" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	1 B
R 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	1 D
G ¾" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	3 A
G 1" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	3 B
G 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	3 D
<u>Welded flange, 316L stainless steel, raised face<sup>1)</sup></u>	
1" ASME, 150 lb	5 A
1" ASME, 300 lb	5 B
1" ASME, 600 lb	5 C
1½" ASME, 150 lb	5 D
1½" ASME, 300 lb	5 E
1½" ASME, 600 lb	5 F
2" ASME, 150 lb	5 G
2" ASME, 300 lb	5 H
2" ASME, 600 lb	5 J
3" ASME, 150 lb	5 K
3" ASME, 300 lb	5 L
3" ASME, 600 lb	5 M
4" ASME, 150 lb	5 N
4" ASME, 300 lb	5 P
4" ASME, 600 lb	5 Q
<u>Welded flange, 316L stainless steel, Type A flat faced<sup>1)</sup></u>	
DN 25, PN 16	6 A
DN 25, PN 40	6 B
DN 40, PN 16	6 C
DN 40, PN 40	6 D
DN 50, PN 16	6 E
DN 50, PN 40	6 F
DN 80, PN 16	6 G
DN 80, PN 40	6 H
DN 100, PN 16	6 J
DN 100, PN 40	6 K
<b>Probe Length (from flange face or including process thread)</b>	
<u>Add order code Y01 and plain text: "Insertion length ... mm"</u>	
300 ... 1000 mm (11.81 ... 39.37")	A
1001 ... 2000 mm (39.41 ... 78.74")	B
2001 ... 3000 mm (78.78 ... 118.11")	C
3001 ... 4000 mm (118.15 ... 157.48")	D
4001 ... 5000 mm (157.52 ... 196.85")	E
<b>Thermal Isolator</b>	
Without thermal isolator	0
With thermal isolator [for process connection temperatures over +85 °C (+185 °F)]	1
<b>Wetted Seals</b>	
FKM	0
FFKM [for process temperatures above -20 °C (-4 °F)]	1
<b>Probe Material</b>	
19 mm (0.75") diameter 316L stainless steel, PFA lined rod	0


Selection and Ordering data	Order No.
<b>SITRANS LC300, rod version</b>	C) 7ML5670 -
An inverse frequency shift capacitance continuous level transmitter for liquids and solids applications.	0
<b>Approvals</b>	
General Safety (CSA, FM, CE, C-TICK)	A
Dust Ignition Proof With IS Probe CE, C-TICK, ATEX II 1/2 D T100 °C	B
Flame Proof Enclosure With IS Probe CE, C-TICK, ATEX II 1/2 G EEx d [ia] IIC T6...T1, ATEX II 1/2 D T100 °C	C
Dust Ignition Proof With IS Probe CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4	D
Explosion Proof Enclosure With IS Probe CSA/FM Class I, Div. 1, Gr. A, B, C, D CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4	E
<b>Enclosure</b>	
Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP65	A
Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP65	B
Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP68	C
Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP68	D
1) Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.	


Selection and Ordering data	Order code
<b>Further designs</b>	
Please add <b>"-Z"</b> to Order No. and specify Order code(s).	
Insertion length, specify in plain text: Y01: ... mm	<b>Y01</b>
Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text	<b>Y15</b>
Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000	<b>C11</b>
Inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
<b>Operating Instructions</b>	Order No.
English	C) <b>7ML1998-5HE02</b>
French	<b>7ML1998-5HE11</b>
German	C) <b>7ML1998-5HE32</b>
Spanish	<b>7ML1998-5HE21</b>
Note: The Operating Instructions should be ordered as a separate line item on the order.	
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	
<b>Accessories</b>	
Electronic transmitter kit (includes transmitter and driver)	C) <b>7ML1830-1KN</b>
SITRANS RD100 Remote display - see Chapter 8	
SITRANS RD200 Remote display - see Chapter 8	
SITRANS RD500 Remote display - see Chapter 8	
C) Subject to export regulations AL: N, ECCN: EAR99	

# Level Measurement

## Continuous level measurement - Capacitance transmitters

### SITRANS LC300

Selection and Ordering data	Order No.
<b>SITRANS LC300, stilling well version</b>	<b>7ML5671-</b>
An inverse frequency shift capacitance continuous level transmitter for liquid applications.	
<b>Process Connection</b>	
Threaded, 316L stainless steel	
1½" NPT [(Taper), ANSI/ASME B1.20.1]	<b>0 D</b>
R 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	<b>1 D</b>
G 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	<b>3 D</b>
<u>Welded flange, 316L stainless steel, raised face<sup>1)</sup></u>	
1½" ASME, 150 lb	<b>5 D</b>
1½" ASME, 300 lb	<b>5 E</b>
1½" ASME, 600 lb	<b>5 F</b>
2" ASME, 150 lb	<b>5 G</b>
2" ASME, 300 lb	<b>5 H</b>
2" ASME, 600 lb	<b>5 J</b>
3" ASME, 150 lb	<b>5 K</b>
3" ASME, 300 lb	<b>5 L</b>
3" ASME, 600 lb	<b>5 M</b>
4" ASME, 150 lb	<b>5 N</b>
4" ASME, 300 lb	<b>5 P</b>
4" ASME, 600 lb	<b>5 Q</b>
<u>Welded flange, 316L stainless steel, Type A flat faced<sup>1)</sup></u>	
DN 40, PN 16	<b>6 C</b>
DN 40, PN 40	<b>6 D</b>
DN 50, PN 16	<b>6 E</b>
DN 50, PN 40	<b>6 F</b>
DN 80, PN 16	<b>6 G</b>
DN 80, PN 40	<b>6 H</b>
DN 100, PN 16	<b>6 J</b>
DN 100, PN 40	<b>6 K</b>
<b>Probe Length (from flange face or including process thread)</b>	
<u>Add order code Y01 and plain text:</u> <u>"Insertion length ... mm"</u>	
300 ... 1000 mm (11.81 ... 39.37")	<b>A</b>
1001 ... 2000 mm (39.41 ... 78.74")	<b>B</b>
2001 ... 3000 mm (78.78 ... 118.11")	<b>C</b>
3001 ... 4000 mm (118.15 ... 157.48")	<b>D</b>
4001 ... 5000 mm (157.52 ... 196.85")	<b>E</b>
<b>Thermal Isolator</b>	
Without thermal isolator	<b>0</b>
With thermal isolator [for process connection temperatures over +85 °C (+185 °F)]	<b>1</b>
<b>Wetted Seals</b>	
FKM	<b>0</b>
FFKM [for process temperatures above -20 °C (-4 °F)]	<b>1</b>
<b>Probe Material</b>	
35 mm (1.38") diameter stilling well, with 19 mm (0.75") diameter 316L stainless steel, PFA lined rod with PTFE spacers	<b>1</b>
<b>Approvals</b>	
General Safety (CSA, FM, CE, C-TICK)	<b>A</b>
Dust Ignition Proof With IS Probe CE, C-TICK, ATEX II 1/2 D T100 °C	<b>B</b>
Flame Proof Enclosure With IS Probe CE, C-TICK, ATEX II 1/2 G EEx d [ia] IIC T6...T1, ATEX II 1/2 D T100 °C	<b>C</b>
Dust Ignition Proof With IS Probe CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4	<b>D</b>
Explosion Proof Enclosure With IS Probe CSA/FM Class I, Div. 1, Gr. A, B, C, D CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4	<b>E</b>

Selection and Ordering data	Order No.
<b>SITRANS LC300, stilling well version</b>	<b>7ML5671-</b>
An inverse frequency shift capacitance continuous level transmitter for liquid applications.	
<b>Enclosure</b>	
Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP65	<b>A</b>
Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP65	<b>B</b>
Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP68	<b>C</b>
Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP68	<b>D</b>

<sup>1)</sup> Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.

Selection and Ordering data	Order code
<b>Further designs</b>	
Please add <b>"-Z"</b> to Order No. and specify Order code(s).	
Insertion length, specify in plain text: Y01: ... mm	<b>Y01</b>
Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text	<b>Y15</b>
Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000	<b>C11</b>
Inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
<b>Operating Instructions</b>	Order No.
English	C) <b>7ML1998-5HE02</b>
French	<b>7ML1998-5HE11</b>
German	C) <b>7ML1998-5HE32</b>
Spanish	<b>7ML1998-5HE21</b>
Note: The Operating Instructions should be ordered as a separate line item on the order.	
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	
<b>Accessories</b>	
Electronic transmitter kit (includes transmitter and driver)	C) <b>7ML1830-1KN</b>
SITRANS RD100 Remote display - see Chapter 8	
SITRANS RD200 Remote display - see Chapter 8	
SITRANS RD500 Remote display - see Chapter 8	
C) Subject to export regulations AL: N, ECCN: EAR99	

# Level Measurement

## Continuous level measurement - Capacitance transmitters

SITRANS LC300

Selection and Ordering data	Order No.	Selection and Ordering data	Order No.
<b>SITRANS LC300, cable version</b>	C) 7ML5672 -	<b>SITRANS LC300, cable version</b>	C) 7ML5672 -
An inverse frequency shift capacitance continuous level transmitter for non-conductive liquids and solids applications.		An inverse frequency shift capacitance continuous level transmitter for non-conductive liquids and solids applications.	
<b>Process Connection</b>		<b>Approvals</b>	
Threaded, 316L stainless steel		General Safety (CSA, FM, CE, C-TICK)	A
1½" NPT [(Taper), ANSI/ASME B1.20.1]	0 D	Dust Ignition Proof With IS Probe	B
R 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	1 D	CE, C-TICK, ATEX II 1/2 D T100 °C	
G 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	3 D	Flame Proof Enclosure With IS Probe	C
<u>Welded flange, 316L stainless steel, raised face<sup>1)</sup></u>		CE, C-TICK, ATEX II 1/2 G EEx d [ia] IIC T6...T1, ATEX II 1/2 D T100 °C	
1½" ASME, 150 lb	5 D	Dust Ignition Proof With IS Probe	D
1½" ASME, 300 lb	5 E	CSA/FM Class II, Div. 1, Gr. E, F, G	
1½" ASME, 600 lb	5 F	CSA/FM Class III T4	
2" ASME, 150 lb	5 G	Explosion Proof Enclosure With IS Probe	E
2" ASME, 300 lb	5 H	CSA/FM Class I, Div. 1, Gr. A, B, C, D	
2" ASME, 600 lb	5 J	CSA/FM Class II, Div. 1, Gr. E, F, G	
3" ASME, 150 lb	5 K	CSA/FM Class III T4	
3" ASME, 300 lb	5 L	<b>Enclosure</b>	
3" ASME, 600 lb	5 M	Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP65	A
4" ASME, 150 lb	5 N	Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP65	B
4" ASME, 300 lb	5 P	Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP68	C
4" ASME, 600 lb	5 Q	Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP68	D
<u>Welded flange, 316L stainless steel, Type A flat faced<sup>1)</sup></u>			
DN 40, PN 16	6 C	1) Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.	
DN 40, PN 40	6 D	2) Cable lengths from 15000 (590.55") to 25000 mm (984.25") can be used in non-conductive media. Contact Factory for assistance.	
DN 50, PN 16	6 E		
DN 50, PN 40	6 F		
DN 80, PN 16	6 G		
DN 80, PN 40	6 H		
DN 100, PN 16	6 J		
DN 100, PN 40	6 K		
<b>Probe Length (from flange face or including process thread)</b>		<b>Selection and Ordering data</b>	Order code
<u>Add order code Y01 and plain text: "Insertion length ... mm"</u>		<b>Further designs</b>	
1000 ... 2000 mm (39.37 ... 78.74")	A	Please add "-Z" to Order No. and specify Order code(s).	
2001 ... 4000 mm (78.78 ... 157.48")	B	Insertion length, specify in plain text: Y01: ... mm	Y01
4001 ... 6000 mm (157.52 ... 236.22")	C	Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text	Y15
6001 ... 8000 mm (236.26 ... 314.96")	D	Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000	C11
8001 ... 10000 mm (315.00 ... 393.70")	E	Inspection Certificate Type 3.1 per EN 10204	C12
10001 ... 12000 mm (393.74 ... 472.44")	F	<b>Operating Instructions</b>	Order No.
12001 ... 14000 mm (472.48 ... 551.18")	G	English	C) 7ML1998-5HE02
14001 ... 16000 mm (551.22 ... 629.92") <sup>2)</sup>	H	French	7ML1998-5HE11
16001 ... 18000 mm (629.96 ... 708.66") <sup>2)</sup>	J	German	C) 7ML1998-5HE32
18001 ... 20000 mm (708.70 ... 787.40") <sup>2)</sup>	K	Spanish	7ML1998-5HE21
20001 ... 22000 mm (787.44 ... 866.14") <sup>2)</sup>	L	Note: The Operating Instructions should be ordered as a separate line item on the order.	
22001 ... 24000 mm (866.18 ... 944.88") <sup>2)</sup>	M	This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	
24001 ... 25000 mm (944.92 ... 984.25") <sup>2)</sup>	N	<b>Accessories</b>	
<b>Thermal Isolator</b>		Electronic transmitter kit (includes transmitter and driver)	C) 7ML1830-1KN
Without thermal isolator	0	SITRANS RD100 Remote display - see Chapter 8	
With thermal isolator [for process connection temperatures over +85 °C (+185 °F)]	1	SITRANS RD200 Remote display - see Chapter 8	
<b>Wetted Seals</b>		SITRANS RD500 Remote display - see Chapter 8	
FKM	0		
FFKM [for process temperatures above -20 °C (-4 °F)]	1		
<b>Probe Material</b>			
Bare 316L stainless steel cable and 316L stainless steel cable weight, tinned copper crimp, PTFE backing ring, PEEK isolator and PFA lined active shield	0		

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### SITRANS LC300

Selection and Ordering data	Order No.
<b>SITRANS LC300, PFA coated cable version</b> C)	<b>7ML5673-</b>
An inverse frequency shift capacitance continuous level transmitter for liquids and solids applications.	
<b>Process Connection</b>	
Threaded, 316L stainless steel	
1½" NPT [(Taper), ANSI/ASME B1.20.1]	<b>0 D</b>
R 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	<b>1 D</b>
G 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]	<b>3 D</b>
<u>Welded flange, 316L stainless steel, raised face<sup>1)</sup></u>	
1½" ASME, 150 lb	<b>5 D</b>
1½" ASME, 300 lb	<b>5 E</b>
1½" ASME, 600 lb	<b>5 F</b>
2" ASME, 150 lb	<b>5 G</b>
2" ASME, 300 lb	<b>5 H</b>
2" ASME, 600 lb	<b>5 J</b>
3" ASME, 150 lb	<b>5 K</b>
3" ASME, 300 lb	<b>5 L</b>
3" ASME, 600 lb	<b>5 M</b>
4" ASME, 150 lb	<b>5 N</b>
4" ASME, 300 lb	<b>5 P</b>
4" ASME, 600 lb	<b>5 Q</b>
<u>Welded flange, 316L stainless steel, Type A flat faced<sup>1)</sup></u>	
DN 40, PN 16	<b>6 C</b>
DN 40, PN 40	<b>6 D</b>
DN 50, PN 16	<b>6 E</b>
DN 50, PN 40	<b>6 F</b>
DN 80, PN 16	<b>6 G</b>
DN 80, PN 40	<b>6 H</b>
DN 100, PN 16	<b>6 J</b>
DN 100, PN 40	<b>6 K</b>
<b>Probe Length (from flange face or including process thread)</b>	
<u>Add order code Y01 and plain text: "Insertion length ... mm"</u>	
1000 ... 2000 mm (39.37 ... 78.74")	<b>A</b>
2001 ... 4000 mm (78.78 ... 157.48")	<b>B</b>
4001 ... 6000 mm (157.52 ... 236.22")	<b>C</b>
6001 ... 8000 mm (236.26 ... 314.96")	<b>D</b>
8001 ... 10000 mm (315.00 ... 393.70")	<b>E</b>
10001 ... 12000 mm (393.74 ... 472.44")	<b>F</b>
12001 ... 14000 mm (472.48 ... 551.18")	<b>G</b>
14001 ... 16000 mm (551.22 ... 629.92") <sup>2)</sup>	<b>H</b>
16001 ... 18000 mm (629.96 ... 708.66") <sup>2)</sup>	<b>J</b>
18001 ... 20000 mm (708.70 ... 787.40") <sup>2)</sup>	<b>K</b>
20001 ... 22000 mm (787.44 ... 866.14") <sup>2)</sup>	<b>L</b>
22001 ... 24000 mm (866.18 ... 944.88") <sup>2)</sup>	<b>M</b>
24001 ... 25000 mm (944.92 ... 984.25") <sup>2)</sup>	<b>N</b>
<b>Thermal Isolator</b>	
Without thermal isolator	<b>0</b>
With thermal isolator [for process connection temperatures over +85 °C (+185 °F)]	<b>1</b>
<b>Wetted Seals</b>	
FKM	<b>0</b>
FFKM [for process temperatures above -20 °C (-4 °F)]	<b>1</b>
<b>Probe Material</b>	
PFA coated cable and 316L stainless steel cable weight, PEEK isolator and PFA lined active shield	<b>1</b>
<b>Approvals</b>	
General Safety (CSA, FM, CE, C-TICK)	<b>A</b>
Dust Ignition Proof With IS Probe CE, C-TICK, ATEX II 1/2 D T100 °C	<b>B</b>

Selection and Ordering data	Order No.
<b>SITRANS LC300, PFA coated cable version</b> C)	<b>7ML5673-</b>
An inverse frequency shift capacitance continuous level transmitter for liquids and solids applications.	
<b>Flame Proof Enclosure With IS Probe</b>	<b>C</b>
CE, C-TICK, ATEX II 1/2 G EEx d [ia] IIC T6...T1, ATEX II 1/2 D T100 °C	
<b>Dust Ignition Proof With IS Probe</b>	<b>D</b>
CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4	
<b>Explosion Proof Enclosure With IS Probe</b>	<b>E</b>
CSA/FM Class I, Div. 1, Gr. A, B, C, D CSA/FM Class II, Div. 1, Gr. E, F, G CSA/FM Class III T4	
<b>Enclosure</b>	
Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP65	<b>A</b>
Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP65	<b>B</b>
Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP68	<b>C</b>
Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP68	<b>D</b>
<b>Mounting eye</b>	
Without Mounting eye	<b>0</b>
With mounting eye	<b>1</b>

- 1) Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.  
2) Cable lengths from 15000 (590.55") to 25000 mm (984.25") can be used in non-conductive media. Contact Factory for assistance.

Selection and Ordering data	Order code
<b>Further designs</b>	
Please add <b>"-Z"</b> to Order No. and specify Order code(s).	
Insertion length, specify in plain text: Y01: ... mm	<b>Y01</b>
Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text	<b>Y15</b>
Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000	<b>C11</b>
Inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
<b>Operating Instructions</b>	Order No.
English	C) <b>7ML1998-5HE02</b>
French	<b>7ML1998-5HE11</b>
German	C) <b>7ML1998-5HE32</b>
Spanish	<b>7ML1998-5HE21</b>
Note: The Operating Instructions should be ordered as a separate line item on the order. This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	
<b>Accessories</b>	
Electronic transmitter kit (includes transmitter and driver)	C) <b>7ML1830-1KN</b>
SITRANS RD100 Remote display - see Chapter 8	
SITRANS RD200 Remote display - see Chapter 8	
SITRANS RD500 Remote display - see Chapter 8	
C) Subject to export regulations AL: N, ECCN: EAR99	

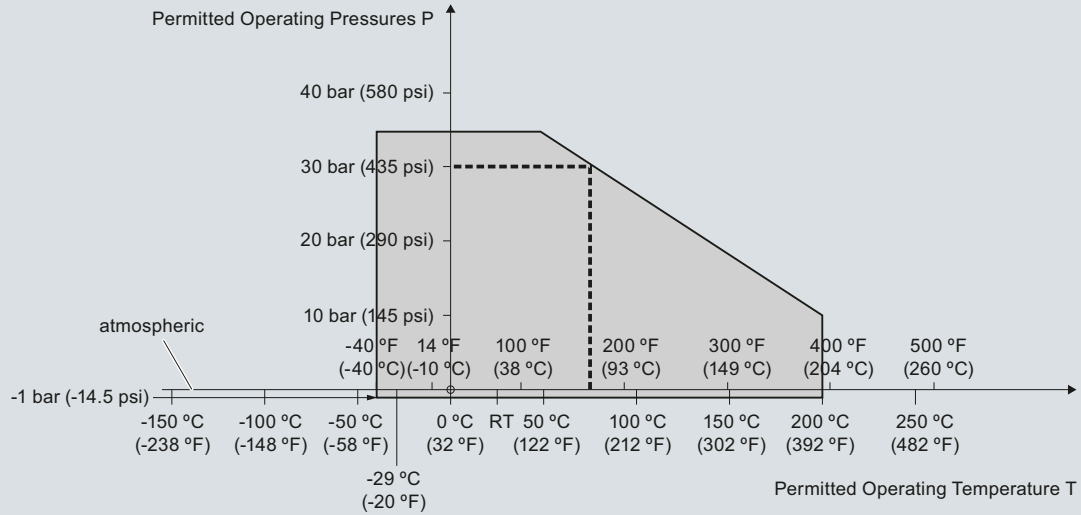
# Level Measurement

## Continuous level measurement - Capacitance transmitters

SITRANS LC300

### Characteristic curves

Pressure/Temperature Curve  
 LC300 Standard, Extended Rod and Cable Probes  
 Threaded Process Connections  
 (7ML5670, 7ML5671, 7ML5672 and 7ML5673)



----- Example:  
 Permitted operating pressure = 30 bar (435 psi) at 75 °C

SITRANS LC300 Process Pressure/Temperature derating curves (7ML5670, 7ML5671, 7ML5672 and 7ML5673)



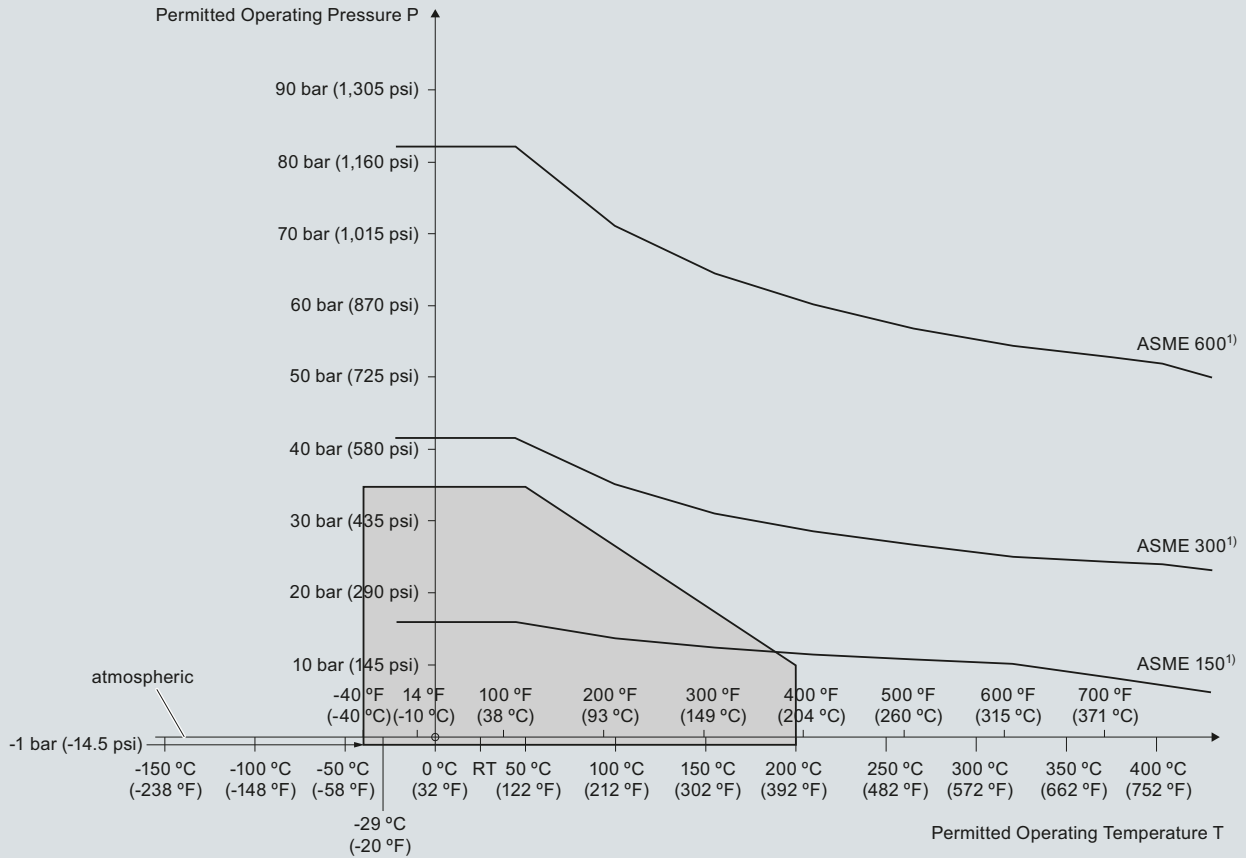
# Level Measurement

## Continuous level measurement - Capacitance transmitters

### SITRANS LC300

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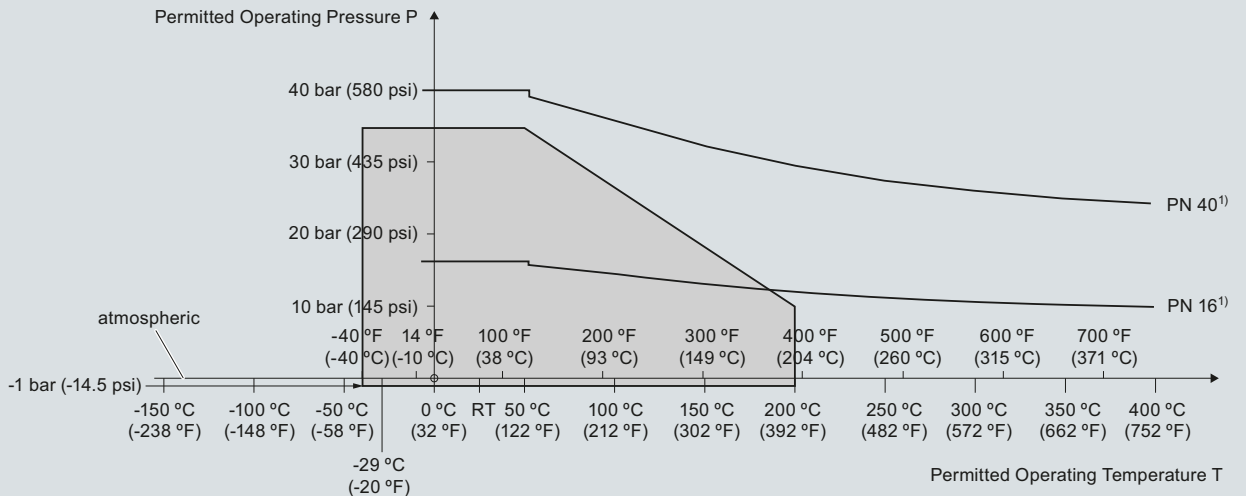
**Pressure/Temperature Curve**  
 LC300 Standard, Extended Rod and Cable Probes  
 ASME Flanged Process Connections  
 (7ML5670, 7ML5671, 7ML5620 and 7ML5673)



<sup>1)</sup> The curve denotes the minimum allowable flange class for the shaded area below.

SITRANS LC300 Process Pressure/Temperature derating curves (7ML5670, 7ML5671, 7ML5672 and 7ML5673)

**Pressure/Temperature Curve**  
 LC300 Standard, Extended Rod and Cable Probes  
 EN Flanged Process Connections  
 (7ML5670, 7ML5610, 7ML5620 and 7ML5670)



<sup>1)</sup> The curve denotes the minimum allowable flange class for the shaded area below.

SITRANS LC300 Process Pressure/Temperature derating curves (7ML5670, 7ML5671, 7ML5672 and 7ML5673)



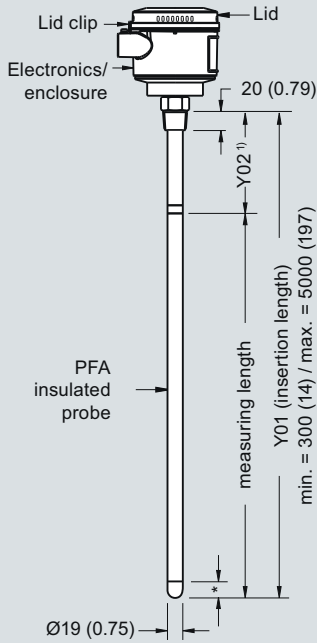
# Level Measurement

## Continuous level measurement - Capacitance transmitters

SITRANS LC300

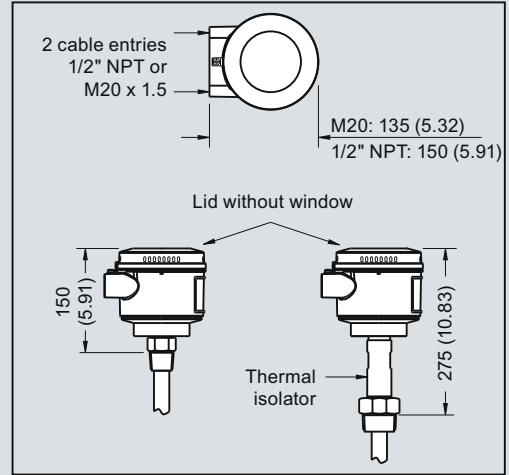
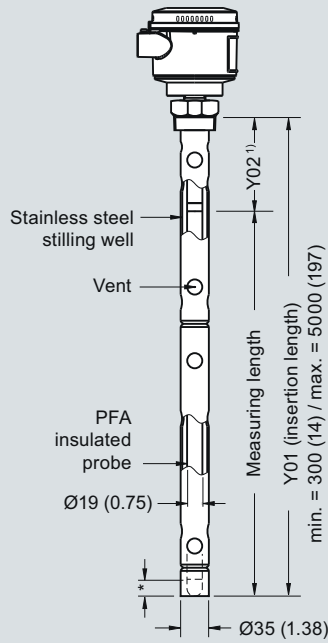
### Dimensional drawings

Threaded (7ML5670)



\* = 30 (1.18) Inactive tip

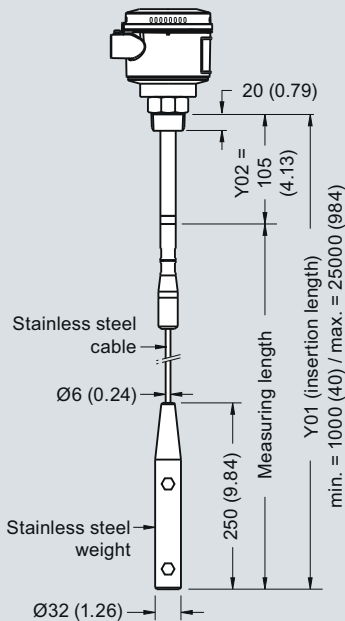
Threaded (7ML5671)



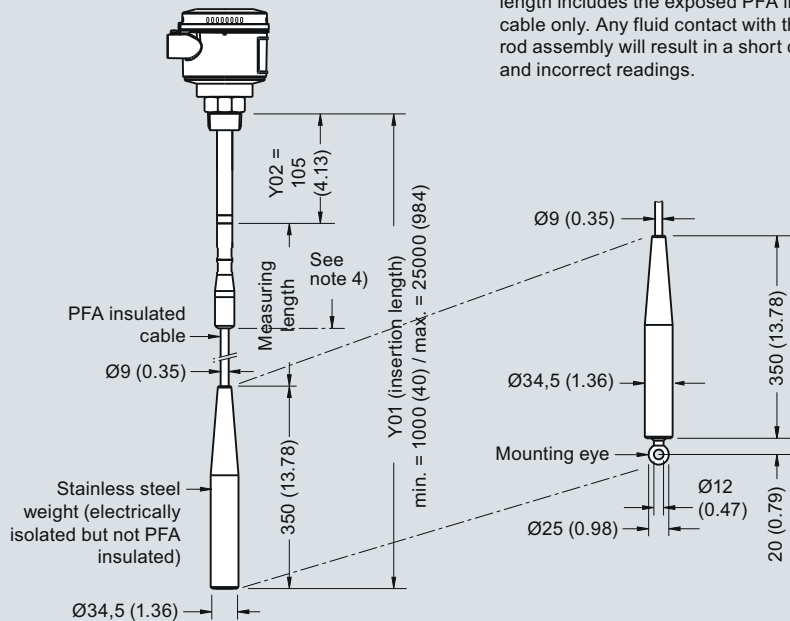
**Note:**

- 1) Rod version Y02: Shield length = 100 mm (3.9") for threaded including process connection thread length, 100 mm (3.9") for welded flange
- 2) For non-conductive applications only. Non-insulated cable can be shortened on site. Weight is included in measuring length.
- 3) For liquids and solids applications. Insulated cable cannot be shortened. Weight is **not** included in measuring length.
- 4) For conductive materials, the measuring length includes the exposed PFA insulated cable only. Any fluid contact with the upper rod assembly will result in a short circuit and incorrect readings.

Cable version, non-insulated <sup>2)</sup>  
Threaded (7ML5672)



Cable version, insulated <sup>3)</sup>  
Threaded (7ML5673)



SITRANS LC300 - Threaded Process Connections, dimensions in mm (inch)

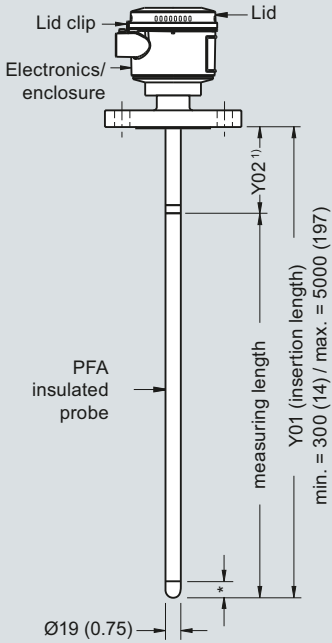
# Level Measurement

## Continuous level measurement - Capacitance transmitters

### SITRANS LC300

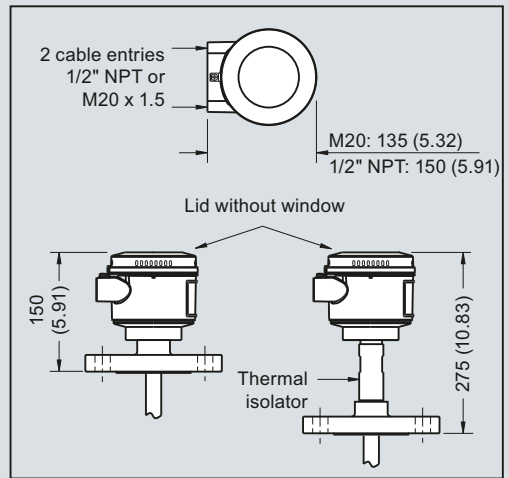
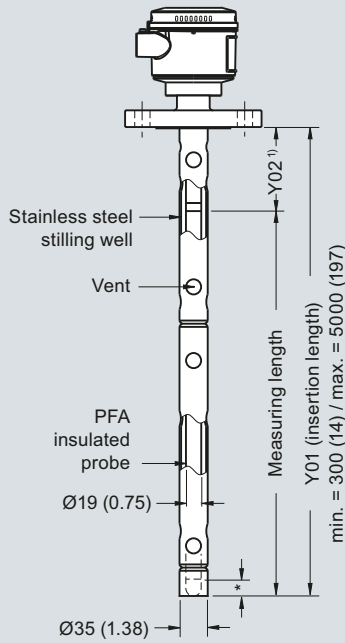
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#### Welded Flange (7ML5670)



\* = 30 (1.18) inactive tip

#### Welded Flange (7ML5671)

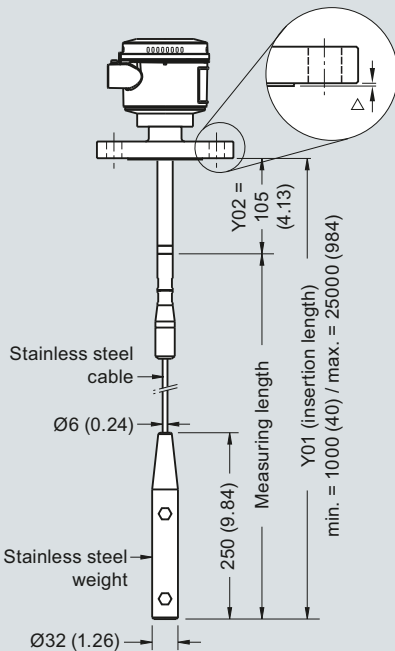


Flange Facing (raised face)	
Flange Class	Facing thickness
△ ASME 150/300	2 (0.08)
△ ASME 600/900	7 (0.28)
△ PN16/40	2 (0.08)

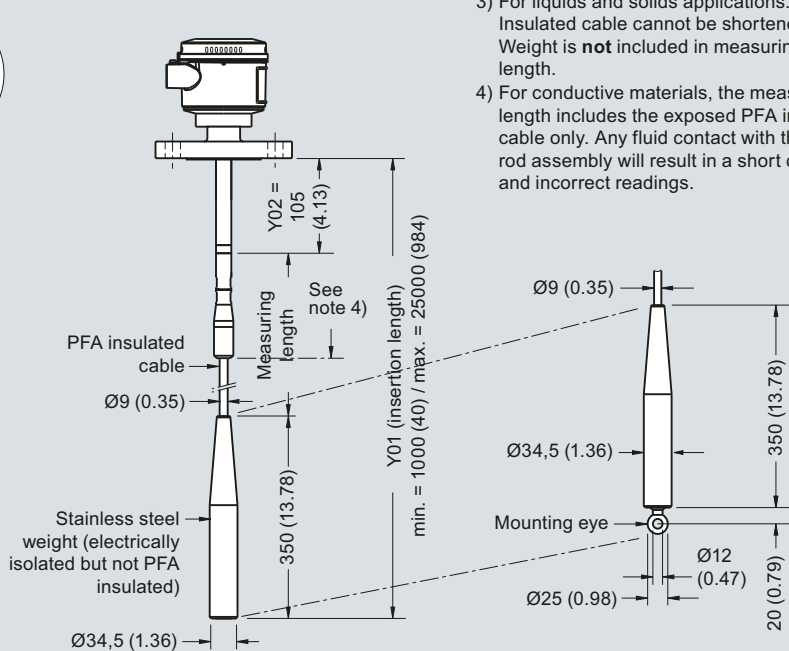
**Note:**

- 1) Rod version Y02: Shield length = 100 mm (3.9") for threaded including process connection thread length, 100 mm (3.9") for welded flange.
- 2) For non-conductive applications only. Non-insulated cable can be shortened on site. Weight is included in measuring length.
- 3) For liquids and solids applications. Insulated cable cannot be shortened. Weight is **not** included in measuring length.
- 4) For conductive materials, the measuring length includes the exposed PFA insulated cable only. Any fluid contact with the upper rod assembly will result in a short circuit and incorrect readings.

#### Cable version, non-insulated<sup>2)</sup> Welded Flange (7ML5672)



#### Cable version, insulated<sup>3)</sup> Welded Flange (7ML5673)



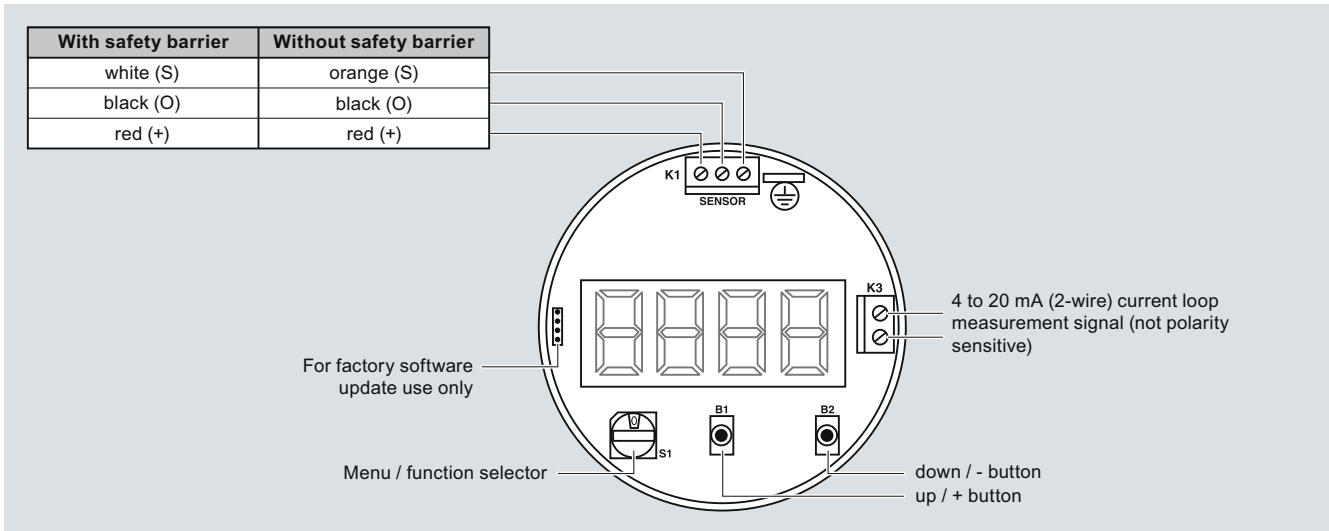
SITRANS LC300 - Flanged Process Connections, dimensions in mm (inch)

# Level Measurement

## Continuous level measurement - Capacitance transmitters

SITRANS LC300

### Schematics



SITRANS LC300 connections

# FINE CONTROLS (UK) LTD



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