

### Overview



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

### Benefits

- 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 signaling according to NAMUR NE 43
- Push-button calibration and programming
- Stilling well (ground tube) version for low dielectric media, agitated materials, 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 Active-Shield technology helps in ignoring the effects of buildup or condensation near vessel nozzle.

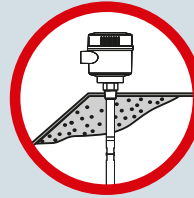
- Key Applications: conductive ( $dK \geq 20$ ) and non-conductive ( $dK < 20$ ) media including: liquids and solids in standard industrial processes, bulk solids applications involving dust, and chemical processes involving vapor

### Probe Applications

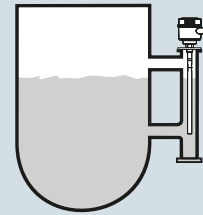
Rod version	Conductive liquids, slurries or solids
Rod version with stilling well	<ul style="list-style-type: none"> <li>• Conductive liquids or slurries in non-conductive tanks</li> <li>• Non-conductive liquids in non-conductive tanks</li> <li>• Tanks with agitation or turbulent liquids</li> <li>• Liquids with a dielectric constant below 2</li> <li>• Non-linear tanks, such as parabolic or spherical tanks</li> <li>• Interface measurements</li> </ul>
Cable version	Non-conductive solids or liquids
PFA coated cable version	Conductive or sticky liquids, slurries or solids

### Configuration

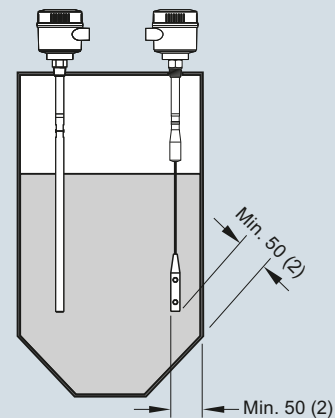
#### Installation



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



Mounting on a bypass



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

SITRANS LC300 installation, dimensions in mm (inch)

## Level Measurement

### Continuous level measurement - Capacitance transmitters

#### SITRANS LC300

#### Technical specifications

Input	
Measuring range	1.66 ... 3 300 pF
Span	Min. 3.3 pF
Output	
Loop current	Continuous signal 4 ... 20 mA/ 20 ... 4 mA according to NAMUR 43
Accuracy (transmitter)	
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
Rated operating conditions <sup>1)</sup>	
Ambient conditions	
• Ambient temperature	-40 ... +85 °C (-40 ... +185 °F) <sup>2)3)</sup>
• Installation category	I
• Pollution degree	4
• Ingress protection	Type 4/NEMA 4/IP65 (optional IP68)
Installation conditions	
• Location	Indoor/outdoor
• Process pressure	-1 ... +35 bar g (-14.6 ... +511 psi g)
• Process temperature	-40 ... +200 °C (-40 ... +392 °F) <sup>4)</sup>
• Min. dielectric constant $\epsilon_r$	1.5
• Min. difference in dielectric constant for interface measurement	5
Design	
Material	
• Enclosure	Aluminum, epoxy-coated
Probe diameter	
• Rod version	19 mm (0.75 inch) with PFA jacket
• Cable version	9 mm (0.35 inch) with PFA jacket, 6 mm (0.24 inch) without PFA jacket
Active shield length	
• Rod version	Threaded: 120 mm (4.72 inch) Flanged: 100 mm (3.94 inch)
• Cable version	Threaded: 125 mm (4.92 inch) Flanged: 105 mm (4.13 inch)
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] 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]
• Threaded cable mounting	1 ... 4" ASME, DN 25 ... 100
• Flange mounting	1 ... 4" ASME, DN 25 ... 100
Enclosure cable inlet	2 x $\frac{1}{2}$ " NPT or 2 x M20 x 1.5

<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 signaling	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/CS</sub> , FM, RCM, KCC, EAC
Dust Ignition Proof (Intrinsically Safe probe circuit)	
• Canada/USA	FM/CSA: Class II, Div. 1, Groups E, F, G Class III T4 ATEX 1/2 D T100 °C
• Europe	ATEX II 1/2 G EEx d [ia] IIC T6 ... T1 ATEX II 1/2 D T100 °C
Flame Proof (Intrinsically Safe probe circuit)	
• Europe	Ex d [ia Ga] IIC T6 ... T4 Gb Ex tb IIIC T85 °C ... T100 °C Db IP65/IP68 EAC Ex
• Brazil	Class I, Div. 1, Groups A, B, C, D Class II, Div. 1, Groups E, F, G Class III T4
• Russia/Kazakhstan	Bureau Veritas Type Approval ABS Type Approval, Lloyds Register, BV
Explosion Proof (Intrinsically Safe probe circuit)	
• Canada/USA	AIB-Vincotte
Marine	Pattern Approval (AQSIQ, China), CRN, PED
Overfill Protection	
Other	

1) When operation is in areas classified as hazardous, observe restrictions according to relevant certificate. See also Pressure/Temperature curves on page 4/330.

2) Thermal isolator is used if process connection temperature exceeds 85 °C (185 °F)

3) Minimum voltage of 15 V DC is required for use at -40 °C (-40 °F)

4) Not suitable for steam environments

Design: Probe			
	Rod version	Stilling well version	Cable version
Length	Min. 300 mm (12 inch), max. 5 000 mm (197 inch)	Min. 300 mm (12 inch), max. 5 000 mm (197 inch)	Min. 1 000 mm (40 inch), max. 25 000 mm (984 inch)
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

Selection and Ordering data	Article No.	Selection and Ordering data	Article No.
<b>SITRANS LC300, rod version</b> An inverse frequency shift capacitance continuous level transmitter for liquids and solids applications. ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	<b>7ML5670-</b> 	<b>SITRANS LC300, rod version</b> An inverse frequency shift capacitance continuous level transmitter for liquids and solids applications.	<b>7ML5670-</b> 
<b>Process connection</b> Threaded, 316L stainless steel ¾" NPT [(Taper), ANSI/ASME B1.20.1] 1" NPT [(Taper), ANSI/ASME B1.20.1] 1¼" NPT [(Taper), ANSI/ASME B1.20.1] 1½" NPT [(Taper), ANSI/ASME B1.20.1] R ¾" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] R 1" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] R 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203] G ¾" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] G 1" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] G 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202] <u>Welded flange, 316L stainless steel, raised face<sup>1)</sup></u> 1" ASME, 150 lb 1" ASME, 300 lb 1" ASME, 600 lb 1½" ASME, 150 lb 1½" ASME, 300 lb 1½" ASME, 600 lb 2" ASME, 150 lb 2" ASME, 300 lb 2" ASME, 600 lb 3" ASME, 150 lb 3" ASME, 300 lb 3" ASME, 600 lb 4" ASME, 150 lb 4" ASME, 300 lb 4" ASME, 600 lb <u>Welded flange, 316L stainless steel, Type A flat faced<sup>1)</sup></u> DN 25, PN 16 DN 25, PN 40 DN 40, PN 16 DN 40, PN 40 DN 50, PN 16 DN 50, PN 40 DN 80, PN 16 DN 80, PN 40 DN 100, PN 16 DN 100, PN 40 Sanitary, hastelloy, duplex or other custom process connections available. Please contact a local sales person for details. For more information, please visit <a href="http://www.automation.siemens.com/aspa_app">http://www.automation.siemens.com/aspa_app</a> .	<b>0 A</b> <b>0 B</b> <b>0 C</b> <b>0 D</b> <b>1 A</b> <b>1 B</b> <b>1 D</b> <b>3 A</b> <b>3 B</b> <b>3 D</b> <b>5 A</b> <b>5 B</b> <b>5 C</b> <b>5 D</b> <b>5 E</b> <b>5 F</b> <b>5 G</b> <b>5 H</b> <b>5 J</b> <b>5 K</b> <b>5 L</b> <b>5 M</b> <b>5 N</b> <b>5 P</b> <b>5 Q</b> <b>6 A</b> <b>6 B</b> <b>6 C</b> <b>6 D</b> <b>6 E</b> <b>6 F</b> <b>6 G</b> <b>6 H</b> <b>6 J</b> <b>6 K</b>	<b>Probe Length (from flange face or including process thread)</b> Add Order code Y01 and plain text: *Insertion length ... mm* 300 ... 1 000 mm (11.81 ... 39.37 inch) 1 001 ... 2 000 mm (39.41 ... 78.74 inch) 2 001 ... 3 000 mm (78.78 ... 118.11 inch) 3 001 ... 4 000 mm (118.15 ... 157.48 inch) 4 001 ... 5 000 mm (157.52 ... 196.85 inch) Bent probes also available. Please contact a local sales person for details. For more information, please visit <a href="http://www.automation.siemens.com/aspa_app">http://www.automation.siemens.com/aspa_app</a> . <b>Thermal isolator</b> Without thermal isolator With thermal isolator [for process connection temperatures over 85 °C (185 °F)] <b>Wetted seals</b> FKM FFKM [for process temperatures above -20 °C (-4 °F)] <b>Probe material</b> 19 mm (0.75 inch) diameter 316L stainless steel, PFA lined rod <b>Approvals</b> General Safety (CSA, FM, CE, RCM) Dust Ignition Proof With IS Probe CE, RCM, ATEX II 1/2 D T100 °C Flame Proof Enclosure With IS Probe CE, RCM, ATEX II 1/2 G EEx d [ia] IIC T6 ... T1, ATEX II 1/2 D T100 °C Dust Ignition Proof With IS Probe CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4 Explosion Proof Enclosure With IS Probe CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4 <b>Enclosure</b> Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP65 Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP65 Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP68 Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP68 Stainless steel, contact local sales person for details. For more information, please visit <a href="http://www.automation.siemens.com/aspa_app">http://www.automation.siemens.com/aspa_app</a> .	<b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b> <b>0</b> <b>1</b> <b>0</b> <b>1</b> <b>0</b> <b>A</b> <b>B</b> <b>C</b> <b>D</b> <b>E</b> <b>A</b> <b>B</b> <b>C</b> <b>D</b>



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

## Level Measurement

### Continuous level measurement - Capacitance transmitters

#### SITRANS LC300

Selection and Ordering data	Order code
<b>Further designs</b>	
Please add <b>"-Z"</b> to Article 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 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	<b>Y15</b>
Manufacturer's Test Certificate: M to DIN 55350, Part 18 and to ISO 9000	<b>C11</b>
Material inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
<b>Operating Instructions</b>	
All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>	
<b>Accessories</b>	
Electronic transmitter kit (includes transmitter and driver)	Article No. <b>7ML1830-1KN</b>
SITRANS RD100, loop powered display - see Chapter 7	<b>7ML5741-...</b>
SITRANS RD200, universal input display with Modbus conversion - see Chapter 7	<b>7ML5740-...</b>
SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7	<b>7ML5744-...</b>
SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7	<b>7ML5750-...</b>
For applicable back up point level switch - see point level measurement section	

Selection and Ordering data	Article No.	Selection and Ordering data	Article No.
<b>SITRANS LC300, stilling well version</b>	<b>7ML5671-</b>	<b>SITRANS LC300, stilling well version</b>	<b>7ML5671-</b>
An inverse frequency shift capacitance continuous level transmitter for liquid applications.	 0	An inverse frequency shift capacitance continuous level transmitter for liquid applications.	 0
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		Dust Ignition Proof With IS Probe CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4	<b>D</b>
<b>Process connection</b>		Explosion Proof Enclosure With IS Probe CSA/FM Class I, Div. 1, Groups A, B, C, D CSA/FM Class II, Div. 1, Groups E, F, G CSA/FM Class III T4	<b>E</b>
Threaded, 316L stainless steel	<b>0 D</b>	<b>Enclosure</b>	
1½" NPT [(Taper), ANSI/ASME B1.20.1]	<b>1 D</b>	Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP65	<b>A</b>
R 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]	<b>3 D</b>	Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP65	<b>B</b>
G 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]		Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP68	<b>C</b>
<u>Welded flange, 316L stainless steel, raised face<sup>1)</sup></u>		Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP68	<b>D</b>
1½" ASME, 150 lb	<b>5 D</b>	Stainless steel, please contact a local sales person for details.	
1½" ASME, 300 lb	<b>5 E</b>	For more information, please visit	
1½" ASME, 600 lb	<b>5 F</b>	<a href="http://www.automation.siemens.com/aspa_app">http://www.automation.siemens.com/aspa_app</a> .	
2" ASME, 150 lb	<b>5 G</b>	<sup>1)</sup> Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1 standard.	
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>	<b>Selection and Ordering data</b>	Order code
DN 40, PN 40	<b>6 D</b>	<b>Further designs</b>	
DN 50, PN 16	<b>6 E</b>	Please add "-Z" to Article No. and specify Order code(s).	
DN 50, PN 40	<b>6 F</b>	Insertion length, specify in plain text: Y01: ... mm	<b>Y01</b>
DN 80, PN 16	<b>6 G</b>	Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]; Measuring-point number/identification (max. 27 characters) specify in plain text	<b>Y15</b>
DN 80, PN 40	<b>6 H</b>	Manufacturer's Test Certificate: M to DIN 55350, Part 18 and to ISO 9000	<b>C11</b>
DN 100, PN 16	<b>6 J</b>	Material inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
DN 100, PN 40	<b>6 K</b>	<b>Operating Instructions</b>	
Sanitary, hastelloy, duplex or other custom process connections available.		All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>	
Please contact a local sales person for details.		<b>Accessories</b>	Article No.
For more information, please visit <a href="http://www.automation.siemens.com/aspa_app">http://www.automation.siemens.com/aspa_app</a> .		Electronic transmitter kit (includes transmitter and driver)	<b>7ML1830-1KN</b>
<b>Probe Length (from flange face or including process thread)</b>		SITRANS RD100, loop powered display - see Chapter 7	<b>7ML5741-...</b>
Add Order code Y01 and plain text: "Insertion length ... mm"		SITRANS RD200, universal input display with Modbus conversion - see Chapter 7	<b>7ML5740-...</b>
300 ... 1 000 mm (11.81 ... 39.37 inch)	<b>A</b>	SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7	<b>7ML5744-...</b>
1 001 ... 2 000 mm (39.41 ... 78.74 inch)	<b>B</b>	SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7	<b>7ML5750-...</b>
2 001 ... 3 000 mm (78.78 ... 118.11 inch)	<b>C</b>		
3 001 ... 4 000 mm (118.15 ... 157.48 inch)	<b>D</b>		
4 001 ... 5 000 mm (157.52 ... 196.85 inch)	<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 inch) diameter stilling well, with 19 mm (0.75 inch) diameter 316L stainless steel, PFA lined rod with PTFE spacers	<b>1</b>		
<b>Approvals</b>			
General Safety (CSA, FM, CE, RCM)	<b>A</b>		
Dust Ignition Proof With IS Probe CE, RCM, ATEX II 1/2 D T100 °C	<b>B</b>		
Flame Proof Enclosure With IS Probe CE, RCM, ATEX II 1/2 G EEx d [ia] IIC T6 ... T1, ATEX II 1/2 D T100 °C	<b>C</b>		

## Level Measurement

### Continuous level measurement - Capacitance transmitters

#### SITRANS LC300

##### Selection and Ordering data

###### SITRANS LC300, cable version

An inverse frequency shift capacitance continuous level transmitter for non-conductive liquids and solids applications.

➤ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

##### Process connection

###### Threaded, 316L stainless steel

1½" NPT [(Taper), ANSI/ASME B1.20.1]

R 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]

G 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]

Welded flange, 316L stainless steel, raised face<sup>1)</sup>

1½" ASME, 150 lb

1½" ASME, 300 lb

1½" ASME, 600 lb

2" ASME, 150 lb

2" ASME, 300 lb

2" ASME, 600 lb

3" ASME, 150 lb

3" ASME, 300 lb

3" ASME, 600 lb

4" ASME, 150 lb

4" ASME, 300 lb

4" ASME, 600 lb

###### Welded flange, 316L stainless steel,

Type A flat faced<sup>1)</sup>

DN 40, PN 16

DN 40, PN 40

DN 50, PN 16

DN 50, PN 40

DN 80, PN 16

DN 80, PN 40

DN 100, PN 16

DN 100, PN 40

Sanitary, hastelloy, duplex or other custom process connections available.

Please contact a local sales person for details.

For more information, please visit

[http://www.automation.siemens.com/asp\\_app](http://www.automation.siemens.com/asp_app).

##### Probe Length

###### (from flange face or including process thread)

Add Order code Y01 and plain text:

"Insertion length ... mm"

1 000 ... 2 000 mm (39.37 ... 78.74 inch)

2 001 ... 4 000 mm (78.78 ... 157.48 inch)

4 001 ... 6 000 mm (157.52 ... 236.22 inch)

6 001 ... 8 000 mm (236.26 ... 314.96 inch)

8 001 ... 10 000 mm (315.00 ... 393.70 inch)

10 001 ... 12 000 mm (393.74 ... 472.44 inch)

12 001 ... 14 000 mm (472.48 ... 551.18 inch)

14 001 ... 16 000 mm (551.22 ... 629.92 inch)<sup>2)</sup>

16 001 ... 18 000 mm (629.96 ... 708.66 inch)<sup>2)</sup>

18 001 ... 20 000 mm (708.70 ... 787.40 inch)<sup>2)</sup>

20 001 ... 22 000 mm (787.44 ... 866.14 inch)<sup>2)</sup>

22 001 ... 24 000 mm (866.18 ... 944.88 inch)<sup>2)</sup>

24 001 ... 25 000 mm (944.92 ... 984.25 inch)<sup>2)</sup>

##### Thermal isolator

Without thermal isolator

With thermal isolator [for process connection temperatures over 85 °C (185 °F)]

##### Wetted seals

FKM

FFKM [for process temperatures above -20 °C (-4 °F)]

Article No.

7ML5672-

0

0 D

1 D

3 D

5 D

5 E

5 F

5 G

5 H

5 J

5 K

5 L

5 M

5 N

5 P

5 Q

6 C

6 D

6 E

6 F

6 G

6 H

6 J

6 K

A

B

C

D

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F

G

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K

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M

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0

1

0

1

##### Selection and Ordering data

###### SITRANS LC300, cable version

An inverse frequency shift capacitance continuous level transmitter for non-conductive liquids and solids applications.

##### Probe material

Bare 316L stainless steel cable and 316L stainless steel cable weight, tinned copper crimp, PTFE backing ring, PEEK isolator and PFA lined active shield

##### Approvals

General Safety (CSA, FM, CE, RCM)

Dust Ignition Proof With IS Probe

CE, RCM, ATEX II 1/2 D T100 °C

Flame Proof Enclosure With IS Probe

CE, RCM, ATEX II 1/2 G EEx d [ia] IIC T6 ... T1,

ATEX II 1/2 D T100 °C

Dust Ignition Proof With IS Probe

CSA/FM Class II, Div. 1, Groups E, F, G

CSA/FM Class III T4

Explosion Proof Enclosure With IS Probe

CSA/FM Class I, Div. 1, Groups A, B, C, D

CSA/FM Class II, Div. 1, Groups E, F, G

CSA/FM Class III T4

##### Enclosure

Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP65

Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP65

Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP68

Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP68

Stainless steel, please contact a local sales person for details.

For more information, please visit

[http://www.automation.siemens.com/asp\\_app](http://www.automation.siemens.com/asp_app).

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

<sup>2)</sup> Cable lengths from 15 000 mm (590.55 inch) to 25 000 mm (984.25 inch) can be used in non-conductive media. Contact Factory for assistance.

Article No.

7ML5672-

0

0

A

B

C

D

E

A

B

C

D

Selection and Ordering data	Order code
<b>Further designs</b>	
Please add <b>"-Z"</b> to Article 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 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	<b>Y15</b>
Manufacturer's Test Certificate: M to DIN 55350, Part 18 and to ISO 9000	<b>C11</b>
Material inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
<b>Operating Instructions</b>	
All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>	
<b>Accessories</b>	
Electronic transmitter kit (includes transmitter and driver)	Article No. <b>7ML1830-1KN</b>
SITRANS RD100, loop powered display - see Chapter 7	<b>7ML5741-...</b>
SITRANS RD200, universal input display with Modbus conversion - see Chapter 7	<b>7ML5740-...</b>
SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7	<b>7ML5744-...</b>
SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7	<b>7ML5750-...</b>
For applicable back up point level switch - see point level measurement section	

## Level Measurement

### Continuous level measurement - Capacitance transmitters

#### SITRANS LC300

##### Selection and Ordering data

Article No.

##### SITRANS LC300, PFA coated cable version

7ML5673-

An inverse frequency shift capacitance continuous level transmitter for liquids and solids applications.

➤ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

##### Process connection

Threaded, 316L stainless steel

1½" NPT [(Taper), ANSI/ASME B1.20.1]

R 1½" [(BSPT), EN 10226/PT (JIS-T), JIS B 0203]

G 1½" [(BSPP), EN ISO 228-1/PF (JIS-P), JIS B 0202]

Welded flange, 316L stainless steel, raised face<sup>1)</sup>

1½" ASME, 150 lb

1½" ASME, 300 lb

1½" ASME, 600 lb

2" ASME, 150 lb

2" ASME, 300 lb

2" ASME, 600 lb

3" ASME, 150 lb

3" ASME, 300 lb

3" ASME, 600 lb

4" ASME, 150 lb

4" ASME, 300 lb

4" ASME, 600 lb

Welded flange, 316L stainless steel, Type A flat faced<sup>1)</sup>

DN 40, PN 16

DN 40, PN 40

DN 50, PN 16

DN 50, PN 40

DN 80, PN 16

DN 80, PN 40

DN 100, PN 16

DN 100, PN 40

Sanitary, hastelloy, duplex or other custom process connections available. Please contact a local sales person for details.

For more information, please visit

[http://www.automation.siemens.com/aspa\\_app](http://www.automation.siemens.com/aspa_app).

##### Probe Length

**(from flange face or including process thread)**

Add Order code Y01 and plain text:

"Insertion length ... mm"

1 000 ... 2 000 mm (39.37 ... 78.74 inch)

2 001 ... 4 000 mm (78.78 ... 157.48 inch)

4 001 ... 6 000 mm (157.52 ... 236.22 inch)

6 001 ... 8 000 mm (236.26 ... 314.96 inch)

8 001 ... 10 000 mm (315.00 ... 393.70 inch)

10 001 ... 12 000 mm (393.74 ... 472.44 inch)

12 001 ... 14 000 mm (472.48 ... 551.18 inch)

14 001 ... 16 000 mm (551.22 ... 629.92 inch)<sup>2)</sup>

16 001 ... 18 000 mm (629.96 ... 708.66 inch)<sup>2)</sup>

18 001 ... 20 000 mm (708.70 ... 787.40 inch)<sup>2)</sup>

20 001 ... 22 000 mm (787.44 ... 866.14 inch)<sup>2)</sup>

22 001 ... 24 000 mm (866.18 ... 944.88 inch)<sup>2)</sup>

24 001 ... 25 000 mm (944.92 ... 984.25 inch)<sup>2)</sup>

##### Thermal isolator

Without thermal isolator

With thermal isolator [for process connection temperatures over 85 °C (185 °F)]

##### Wetted seals

FKM

FFKM [for process temperatures above -20 °C (-4 °F)]

##### Selection and Ordering data

Article No.

##### SITRANS LC300, PFA coated cable version

7ML5673-

An inverse frequency shift capacitance continuous level transmitter for liquids and solids applications.

##### Probe material

PFA coated cable and 316L stainless steel cable weight, PEEK isolator and PFA lined active shield

##### Approvals

General Safety (CSA, FM, CE, RCM)

Dust Ignition Proof With IS Probe

CE, RCM, ATEX II 1/2 D T100 °C

Flame Proof Enclosure With IS Probe

CE, RCM, ATEX II 1/2 G EEx d [ia] IIC T6 ... T1,

ATEX II 1/2 D T100 °C

Dust Ignition Proof With IS Probe

CSA/FM Class II, Div. 1, Groups E, F, G

CSA/FM Class III T4

Explosion Proof Enclosure With IS Probe

CSA/FM Class I, Div. 1, Groups A, B, C, D

CSA/FM Class II, Div. 1, Groups E, F, G

CSA/FM Class III T4

##### Enclosure

Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP65

Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP65

Aluminum epoxy coated 2 x ½" NPT via adapter - cable inlet, IP68

Aluminum epoxy coated 2 x M20 x 1.5 cable inlet, IP68

Stainless steel, please contact a local sales person for details.

For more information, please visit

[http://www.automation.siemens.com/aspa\\_app](http://www.automation.siemens.com/aspa_app).

##### Mounting eye

Without Mounting eye

With mounting eye

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

<sup>2)</sup> Cable lengths from 15 000 mm (590.55 inch) to 25 000 mm (984.25 inch) 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 Article 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 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	<b>Y15</b>
Manufacturer's Test Certificate: M to DIN 55350, Part 18 and to ISO 9000	<b>C11</b>
Material inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
<b>Operating Instructions</b>	
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<b>Accessories</b>	
Electronic transmitter kit (includes transmitter and driver)	Article No. <b>7ML1830-1KN</b>
SITRANS RD100, loop powered display - see Chapter 7	<b>7ML5741-...</b>
SITRANS RD200, universal input display with Modbus conversion - see Chapter 7	<b>7ML5740-...</b>
SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7	<b>7ML5744-...</b>
SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7	<b>7ML5750-...</b>
For applicable back up point level switch - see point level measurement section	

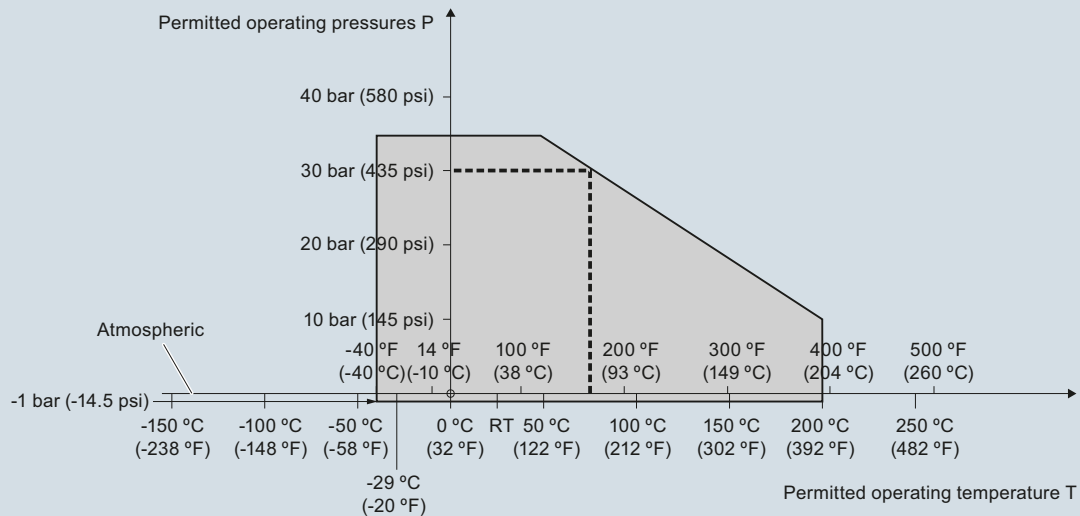
## Level Measurement

Continuous level measurement - Capacitance transmitters

### SITRANS LC300

#### Characteristic curves

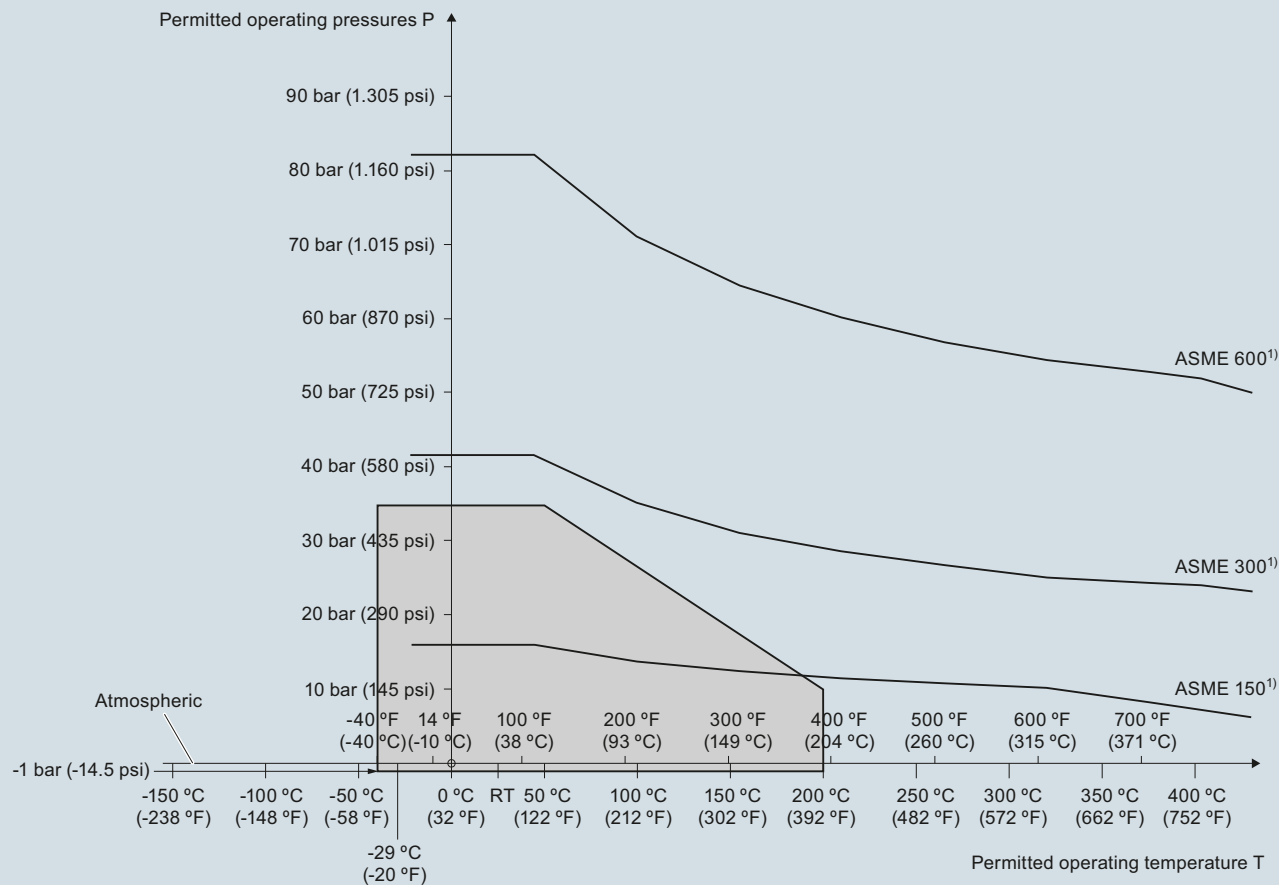
Pressure/temperature curve  
LC300 standard, extended rod and cable probes  
Threaded process connections  
(7ML5670, 7ML5671, 7ML5672 and 7ML5673)



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

SITRANS LC300 process pressure/temperature derating curves (7ML5670, 7ML5671, 7ML5672, and 7ML5673)

**Pressure/temperature curve**  
**LC300 standard, extended rod and cable probes**  
**ASME flanged process connections**  
**(7ML5670, 7ML5671, 7ML5672 and 7ML5673)**



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

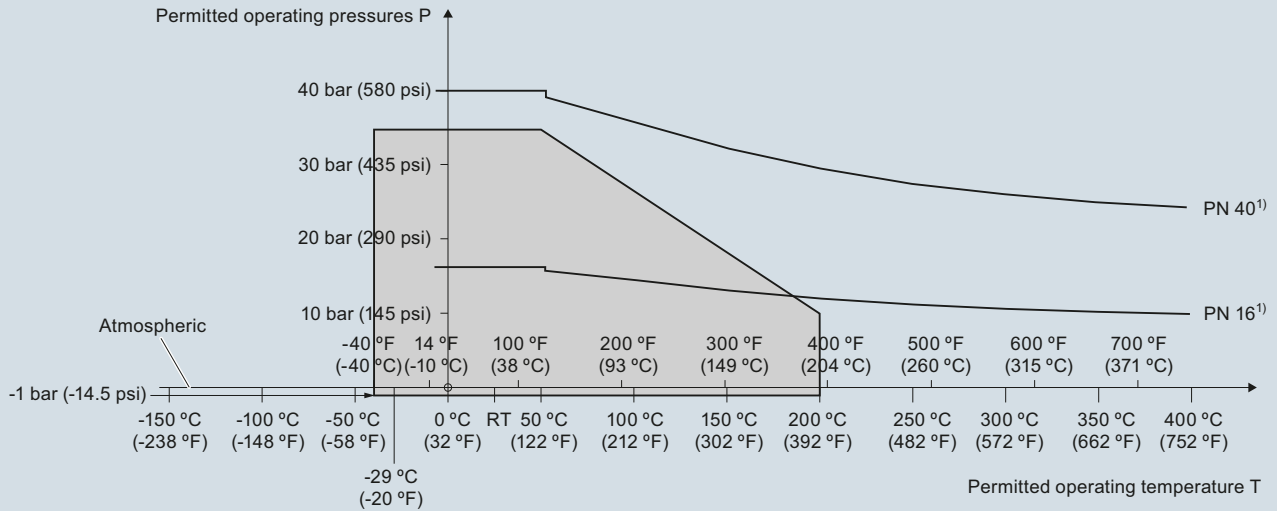
SITRANS LC300 process pressure/temperature derating curves (7ML5670, 7ML5671, 7ML5672, and 7ML5673)

## Level Measurement

Continuous level measurement - Capacitance transmitters

### SITRANS LC300

**Pressure/temperature curve**  
**LC300 standard, extended rod and cable probes**  
**EN flanged process connections**  
**(7ML5670, 7ML5671, 7ML5672 and 7ML5673)**

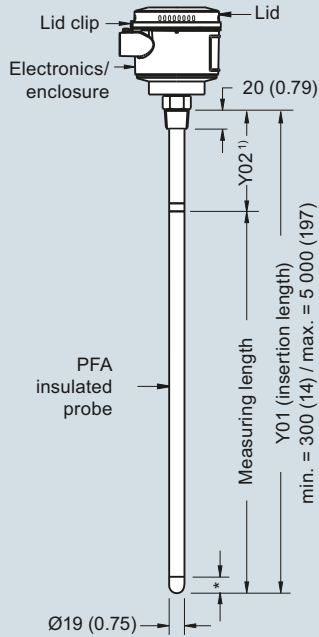


<sup>1)</sup> The curve denotes the minimum allowable flange class for the shaded area below.

SITRANS LC300 process pressure/temperature derating curves (7ML5670, 7ML5671, 7ML5672, and 7ML5673)

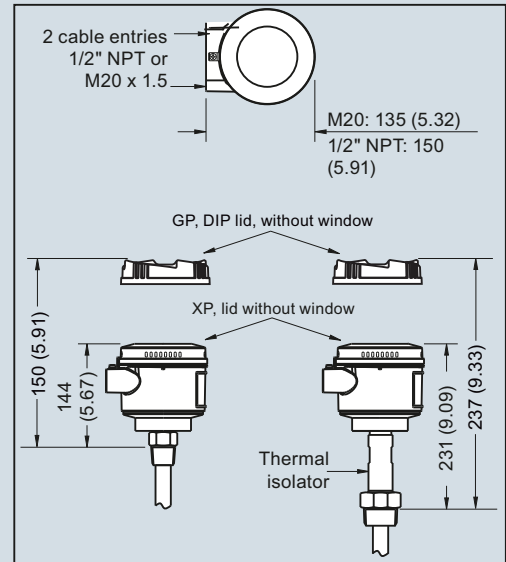
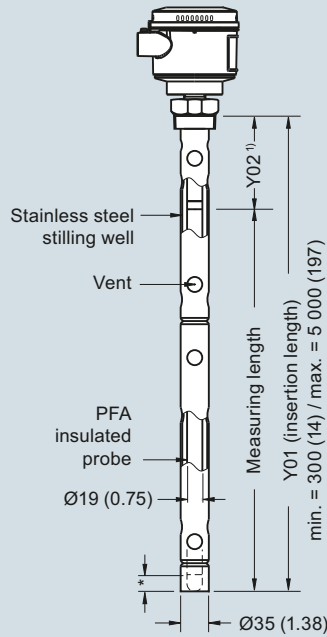
**Dimensional drawings**

**Threaded (7ML5670)**



\* = 30 (1.18) Inactive tip

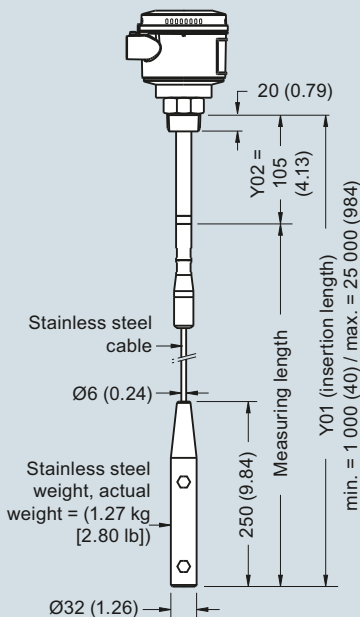
**Threaded (7ML5671)**



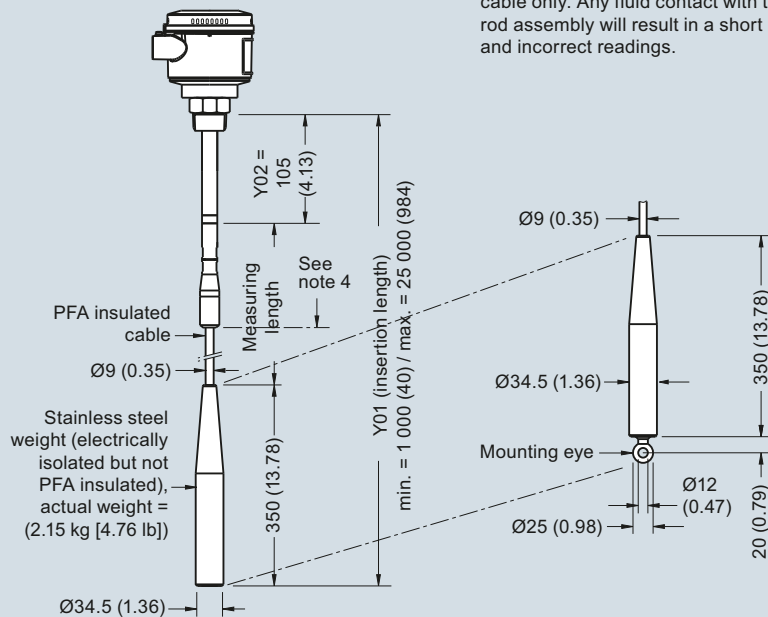
**Note:**

- 1) Rod version, threaded Y02 (including process connection): shield length = 120 (4.7).
- 2) For non-conductive applications only. Non-insulated cable can be shortened on site. Weight is included in measuring length.
- 3) For liquid and solid 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)

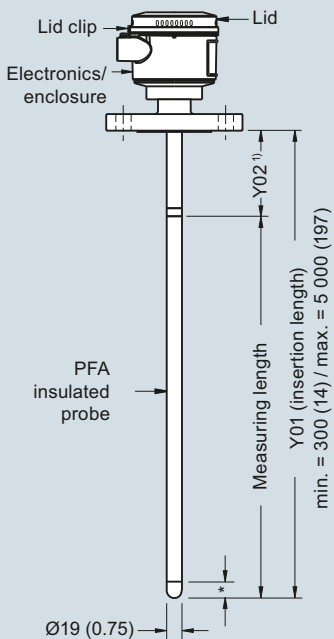
# Level Measurement

## Continuous level measurement - Capacitance transmitters

### SITRANS LC300

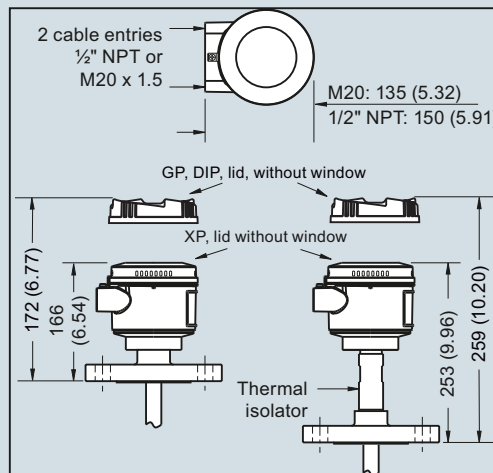
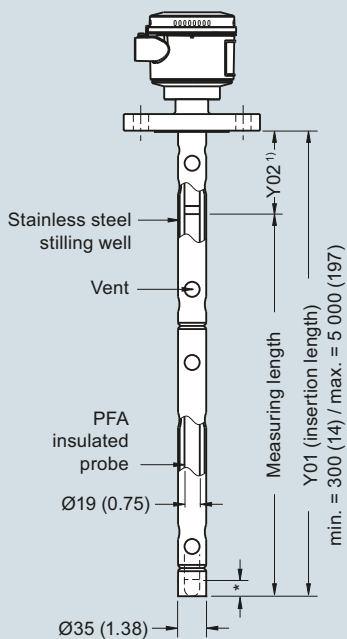
4

#### Welded Flange (7ML5670)



\* = 30 (1.18) inactive tip

#### Welded Flange (7ML5671)



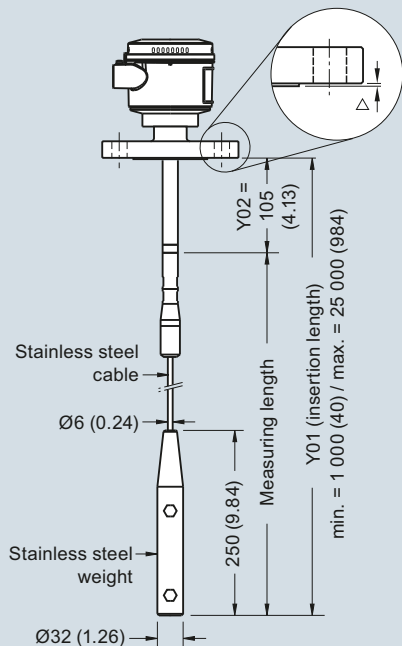
#### Flange Facing (raised face)

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

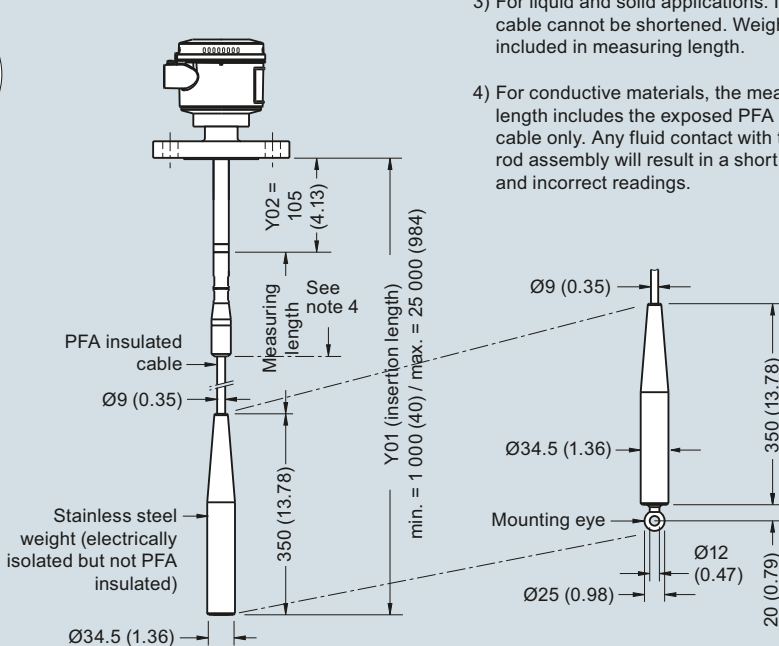
#### Notes:

- 1) Rod version, welded flange Y02: shield length = 100 (3.9).
- 2) For non-conductive applications only. Non-insulated cable can be shortened on site. Weight is included in measuring length.
- 3) For liquid and solid 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)

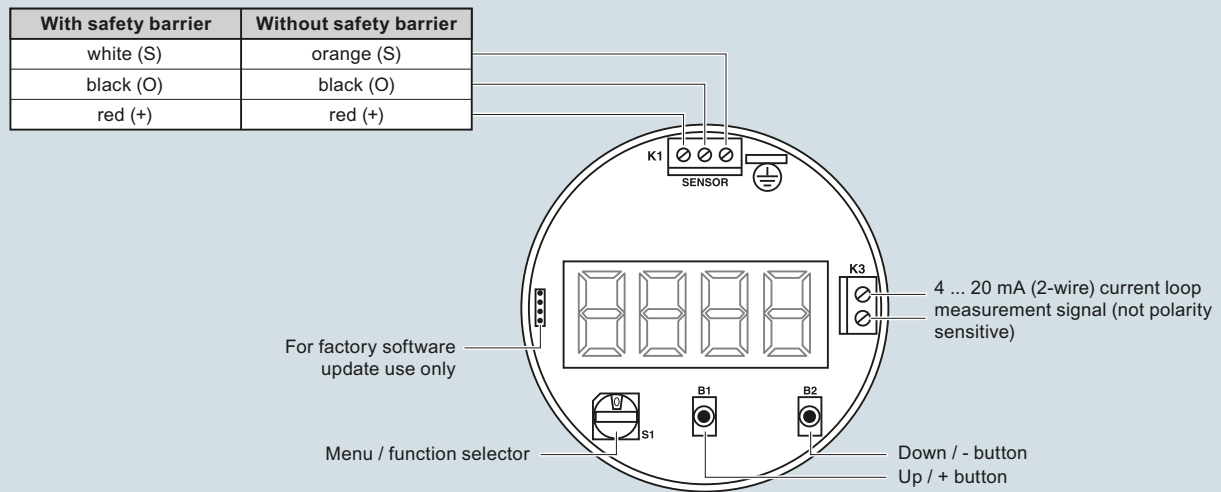


#### Cable version, insulated<sup>3)</sup> Welded Flange (7ML5673)



SITRANS LC300 flanged process connections, dimensions in mm (inch)

## Schematics



SITRANS LC300 connections



## Level Measurement

### Continuous level measurement - Capacitance transmitters


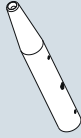
#### SITRANS LC300 Specials

#### Selection and ordering data

##### LC300 Specials<sup>1)</sup>

	Article No.
<b>LC300 Cable Extensions, 316L stainless steel</b>	
Kit, stainless steel cable extension, 1 m, adjustable by customer	<b>A5E01163688</b>
Kit, stainless steel cable extension, 3 m, adjustable by customer	<b>A5E01163689</b>
Kit, stainless steel cable extension, 5 m, adjustable by customer	<b>A5E01163690</b>
Kit, stainless steel cable extension, 10 m, adjustable by customer	<b>A5E01163691</b>
Kit, stainless steel cable extension, 15 m, adjustable by customer	<b>A5E01163693</b>
Kit, stainless steel cable extension, 20 m, adjustable by customer	<b>A5E01163695</b>
<b>LC300 Cable Extensions, 316 stainless steel with PFA coating</b>	
Kit, PFA cable extension, 1 m	<b>A5E01163709</b>
Kit, PFA cable extension, 3 m	<b>A5E01163710</b>
Kit, PFA cable extension, 5 m	<b>A5E01163711</b>
Kit, PFA cable extension, 10 m	<b>A5E01163712</b>
Kit, PFA cable extension, 15 m	<b>A5E01163713</b>
Kit, PFA cable extension, 20 m	<b>A5E01163714</b>

##### LC300 Specials<sup>1)</sup>

	Article No.
<b>LC300 Mounting Eye</b>	
Spare mounting eye (LC300 PFA versions only)	<b>A5E01163717</b>
<b>LC300 Weight Kit, 316L stainless steel</b>	
Kit, Spare stainless steel weight. To be used in any cable version of CLS300, or stainless steel cable version of LC300.	<b>A5E01163727</b>

<sup>1)</sup> Special flange sizes and facings are available. Please contact a local sales person for details.

Customers interested in a custom designed device should consult a local sales person. For more information, please visit [http://www.automation.siemens.com/aspa\\_app](http://www.automation.siemens.com/aspa_app).