

# Level Measurement

## Continuous level measurement - Guided wave radar transmitter

### SITRANS LG200

#### Overview



SITRANS LG200 is a guided wave radar transmitter for short and medium range level, level/interface, and volume measurement of liquids and solids. It is unaffected by changes in process conditions, high temperatures and pressures, and steam.

#### Benefits

- Coaxial, rigid, and flexible single or twin rods for many applications
- Measures accurately on materials with dielectric (dK) as low as 1.4 [including LNG at -196 °C (-320.8 °F)]
- Guided wave radar measurement for up to 2.5 mm (0.12") accuracy
- Measures level and interface on challenging applications including foam
- 3 button programming for quick setup
- Reliable level measurement on harsh applications with pressure up to 430 bar g (6250 psi g) and temperatures as high as +427 °C (+800 °F).
- Suitable for use in SIL-1 and SIL-2 Loops (Full FMEDA report available)

#### Application

SITRANS LG200 provides accurate measurement in level, volume, and interface applications. For short and extended applications, LG200 offers coaxial, single or twin rod probes, and single or twin cable probes up to 22.5 m (75 ft).

SITRANS LG200 measures accurately in liquid or slurry applications of corrosive vapors, foam, saturated steam, high viscosity, quick fill/empty rates, low levels and varying dielectrics and product densities.

Ideal for retrofitting torque tube applications, SITRANS LG200 chamber replacement probe can be mounted in existing chambers or cages for optimal measurement.

- Key applications: hydrocarbon processing, interface/level measurement, low dielectric liquids, high temperature/pressure applications, powdered solids with high angle of repose.

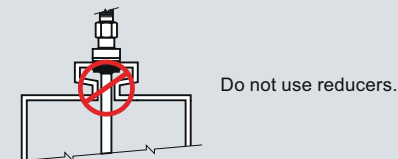
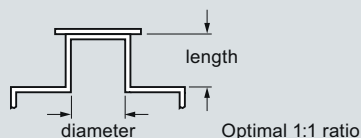
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### Configuration

#### Mounting on a nozzle

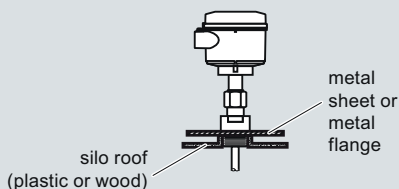


#### Installation in non-metallic silos<sup>1)</sup>

For installation in vessels of a non-metallic construction or possibly open vessels, a suitable launch plate is required to optimize the impedance of the transmitted signal as it travels along the probe. Optimal performance cannot be guaranteed if a suitable transition is not available at the process connection.

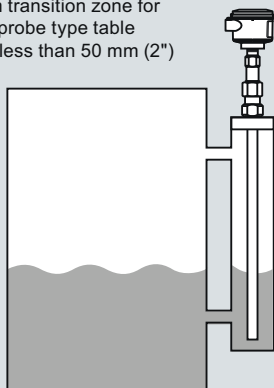
When using single rod versions (flexible or solid) and a threaded process connection, a metal sheet or flange will greatly improve conditions as this provides a suitable launch plate.

A flanged process connection is generally accepted to be provision of this launch plate.



#### Bypass pipe

1. Minimum pipe diameter 50 mm (2")
2. Minimum 25 mm (1") from bottom of the bypass pipe
3. Take note of bottom transition zone for chosen probe, see probe type table
4. For pipe diameters less than 50 mm (2") consult factory

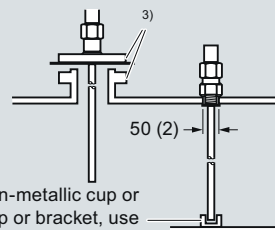


- 1) See Electromagnetic compatibility
- 2) min. 1" - 150 lbs, DN 25 PN 16
- 3) min. 2" - 150 lbs, DN 25 PN 16

- 4) min. 3" - 150 lbs, DN 80 PN 16
- 5) min. 25 mm (1") from any metal object
- 6) min. 25 mm (1") from tank bottom

#### Single Rod mounting

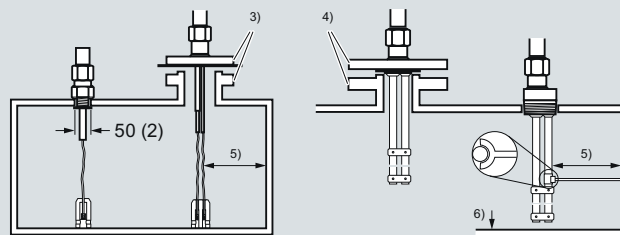
1. Do not mount in nozzles <50 mm (2") in diameter.
2. Mount in applications where ratio of diameter to length is 1:1 or greater. Any ratio less than 1:1 (i.e. 2" x 6" nozzle = 1:3) may require a blanking distance and/or dielectric adjustment.
3. Do not use pipe reducers.
4. Keep conductive objects away from probe to ensure proper performance.



Probe can be stabilized at the bottom with a non-metallic cup or bracket. When mounting into a metallic cup or bracket, use optional TFE bottom spacer (7ML1930-1DJ).

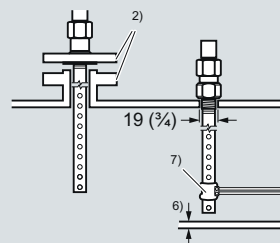
#### Twin Rod mounting 7ML1302-x

1. Active rod must be mounted at least 25 mm (1") away from any obstructions.
2. Minimum stillwell or nozzle diameter for probe is 76 mm (3"), inactive part needs to be flush with inside tank wall.



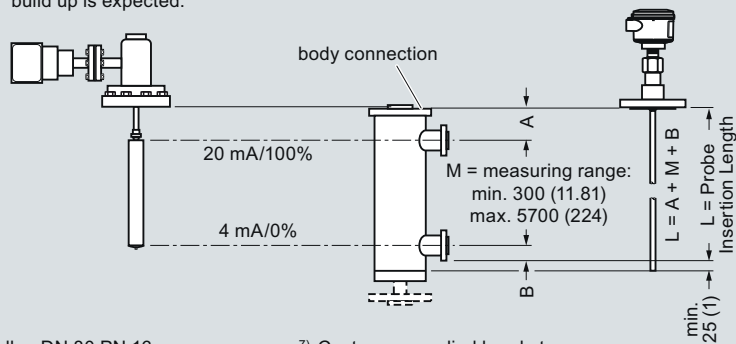
#### Coaxial 7ML1301-x/Coaxial-Interface 7ML1301-6

1. Minimum 25 mm (1") from tank bottom
2. Minimum 2" process connection for enlarged coaxial probe
3. Distance to obstructions not important due to enclosed design



#### Displacer/Torque Tube Replacement

1. With Coaxial Probe 7ML1301-4 there is no top transition zone allowing measurement to the process connection.
2. Minimum pipe size: coaxial probes 2"/DN50, twin rod 3"/DN80, single rod 2"/DN50
3. 22 mm (0.875") Coaxial probes should be used where limited build up is expected.



- 7) Customer supplied brackets Recommended: 1 bracket per 3 m length

SITRANS LG200 installation, dimensions in mm (inch)

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#### Technical specifications

##### Mode of operation

Measuring principle	Guided wave radar measurement
Measuring range	0.15 ... 22.5 m (0.5 ... 75 ft)

##### Output

mA analog output with HART digital signal	Optically isolated 4 ... 20 mA, 620 Ω max.
Output range	
• Analog	3.8 ... 20.5 mA usable
• Start-up current	4.0 mA
Diagnostic alarm	Adjustable 3.6 mA, 22 mA, HOLD
Digital communication	HART Version 5.x and multidrop compatible

##### Performance

	Reference Conditions 1.82 m (72") Coaxial Probe with water at +20 °C (70 °F) and CFD Threshold
Non-linearity	
• Coaxial/twin rod probes	< 0.1 % of probe length or 2.5 mm (0.1"), whichever is greater [(top 60 cm (24") of twin rod probes 30 mm (1.2"))]
• Single rod probes	< 0.3 % or 0.3" (8 mm), whichever is greater
• Interface models	Upper layer: ± 25.4 mm (1") Interface layer: ± 25.4 mm (1") (distinct interface surface required)
Resolution and repeatability	≤ 2.5 mm (0.1")
Accuracy	
• Coaxial/twin rod probes	< 0.1 % of probe length or 0.1" (2.5 mm), whichever is greater [Top 60 cm (24") of twin rod probes 30 mm (1.2")]
• Single rod probes	± 0.5 % of probe length or 0.5" (13 mm), whichever is greater
• Interface models	± 1" (25 mm) (distinct Interface required)
Electromagnetic compatibility	Meets CE requirements (EN 61326-1/2006) (Single and Twin Rod probes must be used in metallic vessel or stilling well to maintain CE compliance.)
• Response time	< 1 second
• Warm up time	< 5 seconds
• Temperature effects	+ 0.02 % of actual probe length/°C for probes ≥ 2.5 m (8 ft)

##### Rated operating conditions<sup>1)</sup>

Ambient temperature for enclosure	-40 ... +80 °C (-40 ... +176 °F)
LCD readable temperature range	-20 ... +70 °C (-5 ... +160 °F)
Location	Indoor/outdoor
Installation category	II
Pollution degree	2
Humidity	0-99 % (non condensing)

##### Medium conditions<sup>1)</sup>

Dielectric constant	dK ≥ 1.4
Process temperature range <sup>2)</sup>	-196 ... +427 °C (-321 ... +800 °F)
Vessel pressure <sup>3)</sup>	Full vacuum to 431 bar g (6250 psi g), probe dependent

##### Design

Weight of transmitter with solid lid	1.28 kg (2.83 lbs)
Weight of transmitter with glass window lid	1.60 kg (3.52 lbs)
Materials	
• Enclosure	Aluminum, epoxy-coated
• Degree of protection	Type 4/NEMA 4, IP65
• Cable inlet	2x M20x1.5 or 2 x ½" NPT
Process connections	
• Threaded	G ¾" [(BSPP), EN ISO 228-1], 1", 1½", 2" NPT [(Taper), ANSI/ASME B1.20.1] and G 2" [(BSPP), EN ISO 228-1]
• Flanged	¾" ... 4", ASME, DIN flanges
• Hygienic	¾" ... 4", Triclover

##### Programming

Local	Three button, menu-driven data entry with security passwords
Remote	SIMATIC PDM via HART
Power	11 ... 36 V DC

##### Certificates and approvals

General Purpose	CSA/FM, CE, C-TICK
Intrinsically Safe	FM Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G T4, Class III, Type 4, IP65 CSA Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G T4, Class III, Type 4, IP65 ATEX II 1G EEx ia IIC T4
Explosion Proof/Flame Proof	FM Class I, Div. 1, Groups B, C, D, Class II, Div. 1, Groups E, F, G T4, Class III, Type 4, IP65 CSA Class I, Div. 1, Groups B, C, D, Class II, Div. 1, Groups E, F, G T4, Class III, Type 4, IP65 ATEX II 1/2 G EEx d [ia] IIC T6 ATEX II 1/2 D IP65 T85 °C
Non-Incendive	FM Class I, Div. 2, Groups A, B, C, D, Class II, Div. 2, Groups F, G T4, Class III, Type 4, IP65 CSA Class I, Div. 2, Groups A, B, C, D, Class II, Div. 2, Groups E, F, G T4, Class III, Type 4, IP65
Non-Sparking	ATEX II 3G EEx nA (nL) IIC T4 to T6 ATEX II 3G EEx nA II T4 to T6
Others	<ul style="list-style-type: none"> <li>• Functional Safety to SIL-1 in accordance with IEC 61508 Safe Failure Fraction (SFF) of 85.5 % (Third party FMEDA Analysis - hardware only)</li> <li>• Functional Safety to SIL-2 in accordance with IEC 61508 Safe Failure Fraction (SFF) of 91 % (Third party FMEDA Analysis - hardware only)</li> <li>• Lloyds Steam Vessel Approval conforming to EN12952-11 &amp; EN12953-9</li> <li>• GOST R</li> </ul>

1) If installation is in areas classified as hazardous, please observe relevant certificates

2) Temperature rating is pressure dependent

3) Pressure rating is temperature dependent

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	<b>Coaxial Probe (7ML1301-1)</b>	<b>Coaxial HT/HP Probe (7ML1301-2)</b>	<b>Coaxial HP Probe (7ML1301-3)</b>	<b>Coaxial Overfill/Flooded Cage Probe (7ML1301-4)</b>
<b>Model reference number</b>	<b>7xA-x</b>	<b>7xD-x</b>	<b>7xP-x</b>	<b>7xR-x</b>
<b>Recommended applications</b>	General purpose: clean, low viscosity liquids < +150 °C (+300 °F)	Clean, high temperature/high pressure liquids > +200 °C (+400 °F); ammonia, chlorine, LNG <sup>1)</sup> , LPG <sup>1)</sup>	Clean, high pressure liquids < +200 °C (+400 °F), ammonia, chlorine, LNG, LPG	General applications, overfill, temperatures to +200 °C (+400 °F), clean, low viscosity liquids, displacer/torque-tube replacement
<b>Not recommended for:</b>	Coating and buildup, foam	Coating and buildup, foam, steam	Coating and buildup, foam, steam	Coating and buildup, foam
Materials/wetted parts	316 L SS, TFE spacers, O-ring <sup>2)</sup>	316L SS, Alumina spacers <sup>3)</sup> , (option PEEK <sup>4)</sup> or TFE <sup>5)</sup> , Borosilicate	316L SS, TFE spacers, Borosilicate	316L SS, TFE spacers, O-ring <sup>2)</sup>
Process seal	O-ring <sup>2)</sup>	Borosilicate (no O-ring)	Borosilicate (no O-ring)	O-ring <sup>2)</sup>
<b>Rod/tube diameter</b>				
Standard	ø 8 mm (0.3125") rod ø 22 mm (0.875") tube	ø 8 mm (0.3125") rod ø 22 mm (0.875") tube	ø 8 mm (0.3125") rod ø 22 mm (0.875") tube	ø 8 mm (0.3125") rod ø 22 mm (0.875") tube
Enlarged	ø 15 mm (0.63") rod ø 45 mm (1.75") tube	ø 15 mm (0.63") rod ø 45 mm (1.75") tube	ø 15 mm (0.63") rod ø 45 mm (1.75") tube	ø 15 mm (0.63") rod ø 45 mm (1.75") tube
Process connection thread				
Standard	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSPP), EN ISO 228-1]	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSPP), EN ISO 228-1]	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSPP), EN ISO 228-1]	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSPP), EN ISO 228-1]
Enlarged	2" NPT [(Taper), ANSI/ASME B1.20.1]	2" NPT [(Taper), ANSI/ASME B1.20.1]	2" NPT [(Taper), ANSI/ASME B1.20.1]	2" NPT [(Taper), ANSI/ASME B1.20.1]
<b>Flange ASME (EN/DIN)</b>				
Standard	1 ... 4" (DN 25 ... 100)	1 ... 4" (DN 25 ... 100)	1 ... 4" (DN 25 ... 100)	1 ... 4" (DN 25 ... 100)
Enlarged	2 ... 4" (DN 50 ... 100)	2 ... 4" (DN 50 ... 100)	2 ... 4" (DN 50 ... 100)	2 ... 4" (DN 50 ... 100)
Length	60 ... 610 cm (24 ... 240")	60 ... 610 cm (24 ... 240")	60 ... 610 cm (24 ... 240")	60 ... 610 cm (24 ... 240")
<b>Transition Zone<sup>6)</sup></b>				
Top	25 mm (1") at dk = 1.4 150 mm (6") at dk = 80	none	25 mm (1") at dk = 1.4 150 mm (6") at dk = 80	none
Bottom	150 mm (6") at dk = 1.4 25 mm (1") at dk = 80	150 mm (6") at dk = 1.4 25 mm (1") at dk = 80	150 mm (6") at dk = 1.4 25 mm (1") at dk = 80	150 mm (6") at dk = 1.4 25 mm (1") at dk = 80
Process temperature maximum	+150 °C at 27 bar g (+300 °F at 400 psi g)	+427 °C at 133 bar g (+800 °F at 2000 psi g) <sup>7)</sup>	+200 °C at 379 bar g (+400 °F at 5500 psi g)	+200 °C at 18 bar g (+400 °F at 270 psi g)
Process temperature minimum	-40 °C at 70 bar g (-40 °F at 1000 psi g)	-196 °C at 430 bar g (-321 °F at 6250 psi g)	-196 °C at 430 bar g (-321 °F at 6250 psi g)	-40 °C at 70 bar g (-40 °F at 1000 psi g)
Process pressure				
• Process pressure maximum	70 bar g at +20 °C (1000 psi g at +70 °F)	431 bar g at +20 °C (6250 psi g at +70 °F)	431 bar g at +20 °C (6250 psi g at +70 °F)	70 bar g at +20 °C (1000 psi g at +70 °F)
• Process pressure minimum/vacuum service	Yes, not hermetic <sup>8)</sup>	Yes, hermetic (<10 <sup>-8</sup> cc/sec at 1 atmosphere)	Yes, hermetic (<10 <sup>-8</sup> cc/sec at 1 atmosphere)	Yes, not hermetic
Dielectric range (dk)	1.4 ... 100	1.4 ... 100 <sup>1)</sup>	1.4 ... 100	1.4 ... 100
<b>Maximum viscosity (cP)</b>				
Standard	500	500	500	500
Enlarged	1500	1500	1500	1500
Coating/buildup	No	No	No	No
Foam	No	No	No	No
Corrosives	Yes	Yes	Yes	Yes
Sanitary	No	No	No	No
Overfill	No	Yes	No	Yes

1) Dependent on spacer option

2) See O-ring Selection Guide for guidance

3) For dk ≥ 2, maximum temperature +427 °C (+800 °F)

4) For dk ≥ 1.4, maximum temperature +343 °C (+650 °F), PEEK spacers standard on enlarged coaxial design

5) For dk 1.4, maximum temperature +288 °C (+550 °F)

6) Transition zone is dielectric dependent: dk = dielectric permittivity. Unit will function but accuracy will decrease in Transition Zone

7) +345 °C (+650 °F) with PEEK spacers

8) Not hermetic: sealing by means of O-ring. Hermetic: sealing by means of borosilicate glass window

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®Hastelloy is a registered trademark of Haynes International.

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# Level Measurement

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	<b>Coaxial Steam Probe (7ML1301-5)</b>	<b>Coaxial Interface Probe (7ML1301-6)</b>	<b>Single Rigid Rod Probe (7ML1303-1)</b>	<b>Single Rigid Rod HT/HP Probe (7ML1303-2)</b>	<b>Single Rigid Rod Probe, PFA rod insulation (7ML1303-1J)</b>
<b>Model reference number</b>	<b>7xS-x</b>	<b>7xT-x</b>	<b>7xF-x</b>	<b>7xJ-x</b>	<b>7xF-4</b>
<b>Recommended applications</b>	Hot water (steam) >+200 °C (+400 °F) (external chamber is required for use in boilers)	Liquid/liquid-interface, temperatures to +200 °C (+400 °F); clean, low-viscosity liquids	Coating and buildup, foam	Coating and buildup, foam	Excessive coating and buildup, foam
Not recommended for	General purpose, coating and buildup, foam	Coating and buildup, foam	Low dielectric media (dK < 10) <sup>1)</sup>	Low dielectric media (dK < 10) <sup>1)</sup>	Low dielectric media (dK < 10) <sup>1)</sup>
Materials/wetted parts	316L SS, PEEK spacers, Aegis PF128 O-ring <sup>2)</sup>	316L SS, TFE spacers, O-ring <sup>2)</sup>	316L SS, TFE, O-ring <sup>2)</sup>	316L SS, TFE, O-ring <sup>2)</sup>	316L SS, PFA, TFE, O-ring <sup>2)</sup>
Process seal	Aegis PF128 O-ring <sup>2)</sup> , PEEK only	O-ring <sup>2)</sup>	O-ring <sup>2)</sup>	Aegis PF128 O-ring only <sup>2)</sup>	O-ring <sup>2)</sup>
<b>Rod/Tube diameter</b>					
Standard	ø 8 mm (0.3125") rod ø 22 mm (0.875") tube	ø 8 mm (0.3125") rod ø 22 mm (0.875") tube	ø 12 mm (0.5") rod	ø 12 mm (0.5") rod	ø 12 mm (0.5") rod ø 16 mm (0.625") insulation
Enlarged	N/A	ø 15 mm (0.63") rod ø 45 mm (1.75") tube	N/A	N/A	N/A
Process connection thread					
Standard	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSPP), EN ISO 228-1]	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSPP), EN ISO 228-1]	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSPP), EN ISO 228-1]	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSPP), EN ISO 228-1]	2" NPT [(Taper), ANSI/ASME B1.20.1], G 2" [(BSPP), EN ISO 228-1]
Enlarged	N/A	2" NPT [(Taper), ANSI/ASME B1.20.1]	N/A	N/A	N/A
<b>Flange ASME (EN/DIN)</b>					
Standard	1 ... 4" (DN 25 ... 100)	1 ... 4" (DN 25 ... 100)	2 ... 4" (DN 50 ... 100)	2 ... 4" (DN 50 ... 100)	2 ... 4" (DN 50 ... 100)
Enlarged	N/A	2 ... 4" (DN 50 ... 100)	N/A	N/A	N/A
Length	60 ... 455 cm (24 ... 180")	60 ... 610 cm (24 ... 240")	60 ... 610 cm (24 ... 240")	60 ... 610 cm (24 ... 240")	60 ... 610 cm (24 ... 240")
<b>Transition Zone<sup>3)</sup></b>					
Top	25 mm (1") at dk ≥ 10	none	Application, installation, and dielectric dependent	Application, installation, and dielectric dependent	Application, installation, and dielectric dependent
Bottom	25 mm (1") at dk ≥ 10	150 mm (6") at dk = 1.4 25 mm (1") at dk = 80	25 mm (1") at dk >10	25 mm (1") at dk >10	25 mm (1") at dk >10
Process temperature maximum	+343 °C at 165 bar g (+650 °F at 2400 psi g) (saturated steam)	+200 °C at 18 bar g (+400 °F at 270 psi g)	+150 °C at 27 bar g (+300 °F at 400 psi g)	+316 °C at 165 bar g (+605 °F at 2400 psi g)	+150 °C at 27 bar g (+300 °F at 400 psi g)
Process temperature minimum	-40 °C at 207 bar g (-40 °F at 3000 psi g)	-40 °C at 70 bar g (-40 °F at 1000 psi g)	-40 °C at 70 bar g (-40 °F at 1000 psi g)	-40 °C at 70 bar g (-40 °F at 1000 psi g)	-40 °C at 50 bar g (-40 °F at 750 psi g)
Process pressure maximum	165 bar g at +343 °C (2400 psi g at +650 °F)	70 bar g at +20 °C (1000 psi g at +70 °F)	70 bar g at +20 °C (1000 psi g at +70 °F)	207 bar g at +20 °C (3000 psi g at +70 °F)	70 bar g at +20 °C (1000 psi g at +70 °F)
Process pressure min. vacuum service	Yes, not hermetic	Yes, not hermetic	Not suitable	Not suitable	Not suitable
Dielectric range	10 ... 100	Upper liquid layer 1.4 ... 5, Interface liquid layer 15 ... 100	1.9 ... 100 <sup>1)</sup>	1.9 ... 100 <sup>1)</sup>	1.9 ... 100 <sup>1)</sup>
<b>Maximum viscosity</b>					
Standard	500 cP	500 cP	10000 cP (consult factory if severe agitation/turbulence)		
Enlarged	N/A	1500 cP			
Coating/buildup	No	No	Yes, maximum error 10 % of coated length; % error related to dielectric of media, thickness of coating and coated probe length above media		
Foam	No	No	Yes	Yes	Yes
Corrosives	Yes	Yes	Yes	Yes	Yes
Sanitary	No	No	No	No	No
Overfill	Yes	Yes	No	No	No

<sup>1)</sup> With dK of 1.9 to 10, the device must be mounted between 50 and 150 mm (2 and 6") of metal tank wall or in chamber/bridle

<sup>2)</sup> See O-ring Selection Guide for guidance

<sup>3)</sup> Transition zone is dielectric dependent: dK = dielectric permittivity. Unit will function but accuracy will decrease in Transition Zone

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Model reference number	Single Rigid Rod Probe, Sanitary (7ML1303-1D) 7xF-E	Single Rigid Rod Probe, PFA faced flange(7ML1303-1E) 7xF-F	Single Flexible Rod Probe (7ML1304-1) 7x1-x	Single Flexible Rod Probe for Bulk Solids (7ML1304-2) 7x2-x
<b>Recommended applications</b>	Applications demanding sanitary specifications	Extreme corrosives, coating/buildup, foam	Coating and buildup, foam; lengths > 6 m (20 ft) head-room	Granular bulk solids applications (powders, grain, dust) 3000 lb pull down force
<b>Not recommended for</b>	Low dielectric media (dK < 10) <sup>1)</sup>	Low dielectric media (dK < 10) <sup>1)</sup>	Low dielectric media (dK < 4)	Solids with dK < 4
Materials/wetted parts	316L SS, TFE, 15 µ-inch (<0.4 µm) R <sub>a</sub>	All PFA - wetted surfaces	316L SS, TFE, O-ring <sup>2)</sup>	316L SS, TFE, O-ring <sup>2)</sup>
Optional	AL6XN SS	N/A	N/A	N/A
Process seal	316L SS, TFE, O-ring <sup>2)</sup>	PFA, no O-ring	O-ring <sup>2)</sup>	Sealant
<b>Rod/Tube diameter</b>	ø 12 mm (0.5") rod	ø 12 mm (0.5") rod ø 16 mm (0.625") insulation	ø 5 mm (0.188") cable	ø 6 mm (0.25") cable
Process connection thread	N/A	N/A	2" NPT [(Taper), ANSI/ASME B1.20.1], G 2" [(BSPP), EN ISO 228-1]	2" NPT [(Taper), ANSI/ASME B1.20.1], G 2" [(BSPP), EN ISO 228-1]
Flange ASME (DIN)	19 ... 100 mm (¾ ... 4") Triclover-style 16 amp fitting	2 ... 4" (DN 50 ... 100)	2 ... 4" (DN 50 ... 100)	2 ... 4" (DN 50 ... 100)
Length	60 ... 610 cm (24 ... 240")	60 ... 610 cm (24 ... 240")	1 ... 22.5 meters (3 ... 75 ft)	1 ... 22.5 meters (3 ... 75 ft)
<b>Transition Zone<sup>3)</sup></b>				
Top	Application, installation, and dielectric dependent	Application, installation, and dielectric dependent	Application, installation, and dielectric dependent	Application, installation, and dielectric dependent
Bottom	25 mm (1") at dk >10	25 mm (1") at dk >10	305 mm (12")	305 mm (12")
Process temperature maximum	+150 °C at 5.1 bar g (+300 °F at 75 psi g)	+150 °C at 27 bar g (+300 °F at 400 psi g)	+150 °C at 27 bar g (+300 °F at 400 psi g)	+66 °C at 3.4 bar g (+150 °F at 50 psi g)
Process temperature minimum	0 °C at 5.1 bar g (+32 °F at 75 psi g)	-40 °C at 13.7 bar g (-40 °F at 200 psi g)	-40 °C at 70 bar g (-40 °F at 1000 psi g)	-40 °C at 3.4 bar g (-40 °F at 50 psi g)
Process pressure:				
• Process pressure maximum	5.1 bar g at +150 °C (75 psi g at +300 °F)	70 bar g at +20 °C (1000 psi g at +70 °F)	70 bar g at +20 °C (1000 psi g at +70 °F)	3.4 bar g +66 °C (50 psi g at +150 °F)
• Process pressure minimum/vacuum service		Not suitable for vacuum applications		
Dielectric range	1.9 ... 100 <sup>1)</sup>	1.9 ... 100 <sup>1)</sup>	4 ... 100 <sup>1)</sup>	4 ... 100
Maximum viscosity (cP)	10000 (consult factory if severe agitation/turbulence)			N/A
Coating/buildup	Yes, maximum error 10 % of coated length; % error related to dielectric of media, thickness of coating and coated probe length above media			
Foam	Yes	Yes	Yes	Yes
Corrosives	No	Yes	No	No
Sanitary	Yes	No	No	No
Overfill	No	No	No	No

<sup>1)</sup> With dK of 1.9 to 10, the device must be mounted between 50 and 150 mm (2 and 6") of metal tank wall or in chamber/bridle

<sup>2)</sup> See O-ring Selection Guide for guidance

<sup>3)</sup> Transition zone is dielectric dependent: dK = dielectric permittivity. Unit will function but accuracy will decrease in Transition Zone

# Level Measurement

## Continuous level measurement - Guided wave radar transmitter

### SITRANS LG200

	<b>Twin Rod Probe (7ML1302-1)</b>	<b>Flexible Twin Rod Probe (7ML1302-3)</b>	<b>Flexible Twin Rod Bulk Solids Probe (7ML1302-2)</b>
<b>Model reference number</b>	<b>7xB-x</b>	<b>7x7-x</b>	<b>7x5-x</b>
<b>Recommended applications</b>	General purpose, foam, minor film coating	Low dielectric media (1.9 ... 10) with lengths > 6 m (20 ft)	Granular light bulk solids applications (powders, grains, dust), 3000 lbs pull-down force
<b>Not recommended for</b>	Media bridging between rods or building up on spacers	Dielectric > 10: media bridging on flexible elements	Media bridging on flexible elements
Materials/wetted parts	316L SS, TFE spacers, O-ring <sup>1)</sup>	316L SS, FEP webbing, O-ring <sup>1)</sup>	316L SS, FEP webbing, O-ring <sup>1)</sup>
Process seal	O-ring <sup>1)</sup>	O-ring <sup>1)</sup>	Sealant
<b>Rod/Tube diameter</b>	Two, ø 12 mm (0.5") rod; 22 mm (0.875") C <sub>L</sub> to C <sub>L</sub>	Two, ø 6 mm (0.25") cables; 22 mm (0.875") C <sub>L</sub> to C <sub>L</sub>	Two, ø 6 mm (0.25") cables; 22 mm (0.875") C <sub>L</sub> to C <sub>L</sub>
Process connection thread	2" NPT [(Taper), ANSI/ASME B1.20.1], G 2" [(BSPP), EN ISO 228-1]	2" NPT [(Taper), ANSI/ASME B1.20.1], G 2" [(BSPP), EN ISO 228-1]	2" NPT [(Taper), ANSI/ASME B1.20.1], G 2" [(BSPP), EN ISO 228-1]
Flange ASME (EN/DIN)	2 ... 4" (DN 50 ... 100)	2 ... 4" (DN 50 ... 100)	2 ... 4" (DN 50 ... 100)
Length	60 ... 610 cm (24 ... 240")	1 ... 22.5 m (3 ... 75 ft)	1 ... 22.5 m (3 ... 75 ft)
<b>Transition Zone<sup>2)</sup></b>			
Top	150 mm (6") at dK > 1.9 Blocking distance: none	150 mm (6") at dK > 1.9 Blocking distance: 12 ... 50 cm (4.8 ... 20")	150 mm (6") at dK > 1.9 Blocking distance: 12 ... 50 cm (4.8 ... 20")
Bottom	150 mm (6") at dK = 1.9 25 mm (1") at dK = 80	305 mm (12")	305 mm (12")
Process temperature max. <sup>3)</sup>	+200 °C at 19 bar g (+400 °F at 275 psi g)		+66 °C at 3.4 bar g (+ 150 °F at 50 psi g)
Process temperature min.	-40 °C at 70 bar g (-40 °F at 1000 psi g)		-40 °C at 3.4 bar g (-40 °F at 50 psi g)
Process pressure max.	70 bar g at +20 °C (1000 psi g at +70 °F)		3.4 bar g at +66 °C (50 psi g at + 150 °F)
Process pressure min./vacuum service	Yes, not hermetic		Not suitable
Dielectric range	1.9 ... 100	1.9 ... 100	1.9 ... 100
Maximum viscosity (cP)	1500	1500	Not suitable
Coating/buildup	Yes, maximum error 3 % of coated length with conductive media Bridging not recommended. <sup>4)</sup>		
Foam	Yes	Yes	Yes
Corrosives	Yes	No	Yes
Sanitary	No	No	No
Overfill	No	No	No

<sup>1)</sup> See O-ring Selection Guide for guidance

<sup>2)</sup> Transition zone is dielectric dependent: dK = dielectric permittivity. Unit will function but accuracy will decrease in Transition Zone

<sup>3)</sup> Refer to Ambient Temperature vs Process Temperature graphs or instruction manual

<sup>4)</sup> Bridging is defined as continuous accumulation of material between the probe elements

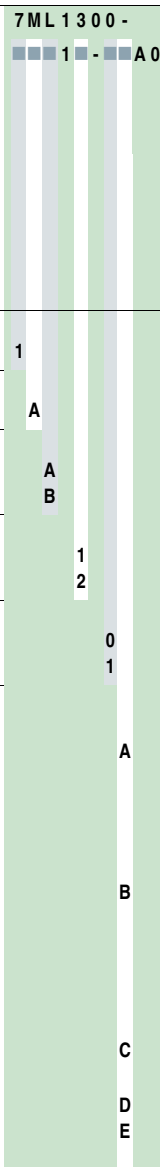
### O-ring and Seal Selection Guide

<b>Material</b>	<b>Recommended for Use in:</b>	<b>Not Recommended for Use In:</b>
<b>Viton GFLT</b>	General purpose, steam, ethylene	Ketones (MEK, acetone), skydrol fluids, amines, anhydrous ammonia, low molecular weight esters and ethers, hot hydrofluoric or chlorosulfuric acids, sour HCs
<b>EPDM</b>	Acetone, MEK, skydrol fluids	Petroleum oils, di-ester base lubricants, propane, steam, anhydrous ammonia
<b>Kalrez (4079)</b>	Inorganic and organic acids (including HF and nitric) aldehydes, ethylene, glycols, organic oils, silicone oils, vinegar, sour HCs	Black liquor, hot water/steam, hot aliphatic amines, ethylene oxide, propylene oxide, molten sodium, molten potassium, anhydrous ammonia
<b>Aegis PF128</b>	Inorganic and organic acids (including HF and nitric) aldehydes, ethylene, glycols, organic oils, silicone oils, vinegar, sour HCs, steam, amines, ethylene oxide, propylene oxide	Black liquor, Freon 43, Freon 75, Galden, KEL-F liquid, molten sodium, molten potassium, anhydrous ammonia
<b>Borosilicate (HT/HP probes only)</b>	General high temperature/high pressure applications, hydrocarbons, full vacuum (hermetic), anhydrous ammonia	Steam, hot alkaline solutions, HF acid, media with pH>12, condensate

# Level Measurement

## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

Selection and Ordering data	Order No.	Selection and Ordering data	Order code
<b>SITRANS LG200 Transmitter</b> A guided wave radar transmitter for short and medium range level, level/interface, and volume measurement of liquids and solids, including high temperature and pressure applications, and steam. <b>Note:</b> <b>In addition to the transmitter, please select a probe configuration to complete the SITRANS LG200 (ordered separately).</b> <b>For orders of 10 or more, please consult factory.</b>	C) <b>7ML1300-</b> 	<b>Further designs</b> Please add <b>"-Z"</b> to Order No. and specify Order code(s). Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000 [Available only when ordered in conjunction with a probe (7ML130x-x). Testing requires transmitter with probe.] <b>Operating Instructions</b> English French German Multi-language Quick Start manual This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	 <b>C11</b>  Order No. C) <b>7ML1998-5KA01</b> C) <b>7ML1998-5KA11</b> C) <b>7ML1998-5KA31</b> C) <b>7ML1998-5XG81</b>
<b>Power</b> 24 V DC, 2-wire	1		
<b>Signal Output</b> 4 ... 20 mA HART	A		
<b>Options</b> SIL-1 Approved (FMEDA analysis) SFF = 85.5 % SIL-2 Approved (FMEDA analysis) SFF = 91 %	A B		
<b>Enclosure/lid</b> Aluminum Aluminum with glass window	1 2		
<b>Cable inlet</b> 2 x ½" NPT, IP65 2 x M20x1.5, IP65	0 1		
<b>Approvals (Please select for your region)</b> <b>North America</b> General Purpose and Intrinsically Safe (CSA/FM Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G T4, Class III); Non-incendive (CSA Class I, Div. 2, Groups A, B, C, D, Class II, Div. 2, Groups E, F, G; FM Class I, Div. 2, Groups A, B, C, D, Class II, Div. 2, Groups F, G) Explosion Proof (CSA/FM Class I, Div. 1, Groups B, C, and D; Class II, Div. 1, Groups E, F, G, T4; Class III); Non-incendive (CSA Class I, Div. 2, Groups A, B, C, D, Class II, Div. 2, Groups E, F, G; FM Class I, Div. 2, Groups A, B, C, D, Class II, Div. 2, Groups F, G)	A B		
<b>Europe</b> General Purpose and Intrinsically Safe (ATEX II 1G EEx ia IIC T4) Explosion Proof (ATEX II 1/2 GD EEx d [ia] IIC T6) Non-sparking [ATEX II 3G EEx nA II/EEx nA (nL) IIC T4 to T6]	C D E		
C) Subject to export regulations AL: N, ECCN: EAR99		<b>Accessories</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 - Guided wave radar transmitters

### SITRANS LG200

Selection and Ordering data	Order No.
<b>SITRANS LG200 Coaxial Probes</b>	R) <b>7ML1301-</b>
SITRANS LG200 coaxial probes are used in most standard applications. Coaxial probes yield robust signal strength even in extremely low dielectric applications (dK 1.4 ... 100).	
<b>Note:</b>	
<b>In addition to the probe, please select a transmitter configuration to complete the SITRANS LG200 (ordered separately).</b>	
<b>For orders of 10 or more, please consult factory.</b>	
<b>Model</b>	
Coaxial <sup>1) 2)</sup>	1
Coaxial, High Temperature/High Pressure <sup>2) 3)</sup>	2
Coaxial, High Pressure <sup>2) 3)</sup>	3
Coaxial, Overfill/Flooded Cage <sup>1) 2)</sup>	4
Coaxial Steam <sup>4) 5)</sup>	5
Coaxial, Interface <sup>1) 2)</sup>	6
<b>Material of Construction</b>	
316/316L (1.4401/1.4404) stainless steel probe and process connection	A
316/316L (1.4401/1.4404) SS probe ASME B31.1 specifications <sup>6)</sup>	D
Enlarged Coaxial, 316/316L (1.4401/1.4404) stainless steel probe and process connection with PEEK Spacers <sup>7)</sup>	E
316/316L (1.4401/1.4404) stainless steel probe and process connection with PEEK HT spacers dk ≥ 1.4 <sup>8)</sup>	H
316/316L (1.4401/1.4404) stainless steel probe and process connection with Teflon <sup>®</sup> spacers dk ≥ 2 <sup>8) 9)</sup>	J
<b>Probe Insertion Length</b>	
<u>Add order code Y01 and plain text:</u> "Insertion length ... mm"	
Model option 1, 4 and Material of Construction option A, E: 60 ... 100 cm (23.6 ... 39.4")	A 1
Model option 1, 4 and Material of Construction option A, E: 101 ... 200 cm (39.8 ... 78.7")	A 2
Model option 1, 4 and Material of Construction option A, E: 201 ... 300 cm (79.1 ... 118.1")	A 3
Model option 1, 4 and Material of Construction option A, E: 301 ... 400 cm (118.5 ... 157.5")	A 4
Model option 1, 4 and Material of Construction option A, E: 401 ... 500 cm (157.9 ... 196.9")	A 5
Model option 1, 4 and Material of Construction option A,E: 501 ... 610 cm (197.2 ... 240.2")	A 6
<u>Add order code Y01 and plain text:</u> "Insertion length ... cm"	
Model options 3, 6 with Material of Construction option A: 60 ... 100 cm (23.6 ... 39.4")	B 1
Model options 3, 6 with Material of Construction option A: 101 ... 200 cm (39.8 ... 78.7")	B 2
Model options 3, 6 with Material of Construction option A: 201 ... 300 cm (79.1 ... 118.1")	B 3
Model options 3, 6 with Material of Construction option A: 301 ... 400 cm (118.5 ... 157.5")	B 4
Model options 3, 6 with Material of Construction option A: 401 ... 500 cm (157.9 ... 196.9")	B 5
Model options 3, 6 with Material of Construction option A: 501 ... 610 cm (197.2 ... 240.2")	B 6
<u>Add order code Y01 and plain text:</u> "Insertion length ... cm"	
Model options 3, 6 with Material of Construction option E: 60 ... 100 cm (23.6 ... 39.4")	C 1
Model options 3, 6 with Material of Construction option E: 101 ... 200 cm (39.8 ... 78.7")	C 2
Model options 3, 6 with Material of Construction option E: 201 ... 300 cm (79.1 ... 118.1")	C 3
Model options 3, 6 with Material of Construction option E: 301 ... 400 cm (118.5 ... 157.5")	C 4

Selection and Ordering data	Order No.
<b>SITRANS LG200 Coaxial Probes</b>	R) <b>7ML1301-</b>
SITRANS LG200 coaxial probes are used in most standard applications. Coaxial probes yield robust signal strength even in extremely low dielectric applications (dK 1.4 ... 100).	
Model options 3, 6 with Material of Construction option E: 401 ... 500 cm (157.9 ... 196.9")	C 5
Model options 3, 6 with Material of Construction option E: 501 ... 610 cm (197.2 ... 240.2")	C 6
<u>Add order code Y01 and plain text:</u> "Insertion length ... cm"	
Model option 2 with Material of Construction options A, E, H, J: 60 ... 100 cm (23.6 ... 39.4")	E 1
Model option 2 with Material of Construction options A, E, H, J: 101 ... 200 cm (39.8 ... 78.7")	E 2
Model option 2 with Material of Construction options A, E, H, J: 201 ... 300 cm (79.1 ... 118.1")	E 3
Model option 2 with Material of Construction options A, E, H, J: 301 ... 400 cm (118.5 ... 157.5")	E 4
Model option 2 with Material of Construction options A, E, H, J: 401 ... 500 cm (157.9 ... 196.9")	E 5
Model option 2 with Material of Construction options A, E, H, J: 501 ... 610 cm (197.2 ... 240.2")	E 6
<u>Add order code Y01 and plain text:</u> "Insertion length ... cm"	
Model option 5 with Material of Construction options A, D: 60 ... 100 cm (23.6 ... 39.4")	F 1
Model option 5 with Material of Construction options A, D: 101 ... 200 cm (39.8 ... 78.7")	F 2
Model option 5 with Material of Construction options A, D: 201 ... 300 cm (79.1 ... 118.1")	F 3
Model option 5 with Material of Construction options A, D: 301 ... 400 cm (118.5 ... 157.5")	F 4
Model option 5 with Material of Construction options A, D: 401 ... 455 cm (157.9 ... 180")	F 5
<b>O-rings</b>	
Viton	1 1
EPDM (Ethylene Propylene Rubber)	1 2
Kalrez 4079	1 3
HSN (Nitrile)	1 4
Buna-N	1 5
Neoprene	1 6
Chemraz	1 7
Polyurethane	1 8
Aegis PF128	2 1
Kalrez 2035	2 2
None (Borosilicate glass seal, not for steam applications) <sup>10)</sup>	2 3
<b>Process Connection (Size/Type)</b>	
<b>Threaded</b>	
¾" NPT [(Taper), ANSI/ASME B1.20.1]	AA
G 1" [(BSPP), EN ISO 228-1]	AB
G 2" [(BSPP), EN ISO 228-1] <sup>11)</sup>	AC
2" NPT [(Taper), ANSI/ASME B1.20.1] <sup>11)</sup>	AD
<b>ASME flanges</b>	
1" 150 lb ASME raised face flange	BA
1" 300 lb ASME raised face flange	BB
1" 600 lb ASME raised face flange	BC
1" 900/1500 lb ASME raised face flange <sup>10)</sup>	BD
1" 2500 lb ASME raised face flange <sup>10)</sup>	BE
1" 900/1500 lb ASME ring joint flange <sup>10)</sup>	BF
1" 2500 lb ASME ring joint flange <sup>10)</sup>	BG
1½" 150 lb ASME raised face flange	CA
1½" 300 lb ASME raised face flange	CB
1½" 600 lb ASME raised face flange	CC
1½" 900/1500 lb ASME raised face flange <sup>10)</sup>	CD
1½" 2500 lb ASME raised face flange <sup>10)</sup>	CE

Selection and Ordering data	Order No.	Selection and Ordering data	Order No.
<b>SITRANS LG200 Coaxial Probes</b>	R) <b>7ML1301-</b>	<b>SITRANS LG200 Coaxial Probes</b>	R) <b>7ML1301-</b>
SITRANS LG200 coaxial probes are used in most standard applications. Coaxial probes yield robust signal strength even in extremely low dielectric applications (dK 1.4 ... 100).		SITRANS LG200 coaxial probes are used in most standard applications. Coaxial probes yield robust signal strength even in extremely low dielectric applications (dK 1.4 ... 100).	
1½" 600 lb ASME ring joint flange	<b>CF</b>	DN 50 PN 64 EN 1092-1	<b>JC</b>
1½" 900/1500 lb ASME ring joint flange <sup>10)</sup>	<b>CG</b>	Type B1 raised faced flange	
1½" 2500 lb ASME ring joint flange <sup>10)</sup>	<b>CH</b>	DN 50 PN 100 EN 1092-1	<b>JD</b>
2" 150 lb ASME raised face flange	<b>DA</b>	Type B1 raised faced flange	
2" 300 lb ASME raised face flange	<b>DB</b>	DN 50 PN 160 EN 1092-1	<b>JE</b>
2" 600 lb ASME raised face flange	<b>DC</b>	Type B1 raised faced flange <sup>10)</sup>	
2" 900/1500 lb ASME raised face flange <sup>10)</sup>	<b>DD</b>	DN 50 PN 250 EN 1092-1	<b>JF</b>
2" 2500 lb ASME raised face flange <sup>10)</sup>	<b>DE</b>	Type B1 raised faced flange <sup>10)</sup>	
2" 600 lb ASME ring joint flange	<b>DF</b>	DN 50 PN 320 EN 1092-1	<b>JG</b>
2" 900/1500 lb ASME ring joint flange <sup>10)</sup>	<b>DG</b>	Type B1 raised faced flange <sup>10)</sup>	
2" 2500 lb ASME ring joint flange <sup>10)</sup>	<b>DH</b>	DN 50 PN 400 EN 1092-1	<b>JH</b>
3" 150 lb ASME raised face flange	<b>EA</b>	Type B1 raised faced flange <sup>10)</sup>	
3" 300 lb ASME raised face flange	<b>EB</b>	DN 80 PN 16 EN 1092-1 Type A flat faced flange	<b>KA</b>
3" 600 lb ASME raised face flange	<b>EC</b>	DN 80 PN 25/40 EN 1092-1	<b>KB</b>
3" 900 lb ASME raised face flange <sup>10)</sup>	<b>ED</b>	Type A flat faced flange	
3" 1500 lb ASME raised face flange <sup>10)</sup>	<b>EE</b>	DN 80 PN 64 EN 1092-1	<b>KC</b>
3" 2500 lb ASME raised face flange <sup>10)</sup>	<b>EF</b>	Type B1 raised faced flange	
3" 600 lb ASME ring joint flange	<b>EG</b>	DN 80 PN 100 EN 1092-1	<b>KD</b>
3" 900 lb ASME ring joint flange <sup>10)</sup>	<b>EH</b>	Type B1 raised faced flange	
3" 1500 lb ASME ring joint flange <sup>10)</sup>	<b>EJ</b>	DN 80 PN 160 EN 1092-1	<b>KE</b>
3" 2500 lb ASME ring joint flange <sup>10)</sup>	<b>EK</b>	Type B1 raised faced flange <sup>10)</sup>	
4" 150 lb ASME raised face flange	<b>FA</b>	DN 80 PN 250 EN 1092-1	<b>KF</b>
4" 300 lb ASME raised face flange	<b>FB</b>	Type B1 raised faced flange <sup>10)</sup>	
4" 600 lb ASME raised face flange	<b>FC</b>	DN 80 PN 320 EN 1092-1	<b>KG</b>
4" 900 lb ASME raised face flange <sup>10)</sup>	<b>FD</b>	Type B1 raised faced flange <sup>10)</sup>	
4" 1500 lb ASME raised face flange <sup>10)</sup>	<b>FE</b>	DN 80 PN 400 EN 1092-1	<b>KH</b>
4" 2500 lb ASME raised face flange <sup>10)</sup>	<b>FF</b>	Type B1 raised faced flange <sup>10)</sup>	
4" 600 lb ASME ring type joint flange	<b>FG</b>	DN 80 PN 16 EN 1092-1 Type A flat faced flange	<b>LA</b>
4" 900 lb ASME ring type joint flange <sup>10)</sup>	<b>FH</b>	DN 100 PN 25/40 EN 1092-1	<b>LB</b>
4" 1500 lb ASME ring type joint flange <sup>10)</sup>	<b>FJ</b>	Type A flat faced flange	
4" 2500 lb ASME ring type joint flange <sup>10)</sup>	<b>FK</b>	DN 100 PN 64 EN 1092-1	<b>LC</b>
<b>EN flanges</b>		Type B1 raised faced flange	
DN 25 PN 16 EN 1092-1 Type A flat faced flange	<b>GA</b>	DN 100 PN 100 EN 1092-1	<b>LD</b>
DN 25 PN 25/40 EN 1092-1	<b>GB</b>	Type B1 raised faced flange	
Type A flat faced flange		DN 100 PN 160 EN 1092-1	<b>LE</b>
DN 25 PN 64/100 EN 1092-1	<b>GC</b>	Type B1 raised faced flange <sup>10)</sup>	
Type B1 raised faced flange		DN 100 PN 250 EN 1092-1	<b>LF</b>
DN 25 PN 160 EN 1092-1	<b>GD</b>	Type B1 raised faced flange <sup>10)</sup>	
Type B1 raised faced flange <sup>10)</sup>		DN 100 PN 320 EN 1092-1	<b>LG</b>
DN 25 PN 250 EN 1092-1	<b>GE</b>	Type B1 raised faced flange <sup>10)</sup>	
Type B1 raised faced flange <sup>10)</sup>		DN 100 PN 400 EN 1092-1	<b>LH</b>
DN 25 PN 320 EN 1092-1	<b>GF</b>	Type B1 raised faced flange <sup>10)</sup>	
Type B1 raised faced flange <sup>10)</sup>		Fisher torque tube flange, carbon steel (249B)	<b>MA</b>
DN 25 PN 400 EN 1092-1	<b>GG</b>	Fisher torque tube flange, 316 stainless steel (249C)	<b>MB</b>
Type B1 raised faced flange <sup>10)</sup>		Masoniilan torque tube flange, carbon steel	<b>MC</b>
DN 40 PN 16 EN 1092-1 Type A flat faced flange	<b>HA</b>	Masoniilan torque tube flange, 316 stainless steel	<b>MD</b>
DN 40 PN 25/40 EN 1092-1	<b>HB</b>		
Type A flat faced flange			
DN 40 PN 64/100 EN 1092-1	<b>HC</b>		
Type B1 raised faced flange			
DN 40 PN 160 EN 1092-1	<b>HD</b>		
Type B1 raised faced flange <sup>10)</sup>			
DN 40 PN 250 EN 1092-1	<b>HE</b>		
Type B1 raised faced flange <sup>10)</sup>			
DN 40 PN 320 EN 1092-1 Type B1 raised faced flange <sup>10)</sup>	<b>HF</b>		
DN 40 PN 400 EN 1092-1	<b>HG</b>		
Type B1 raised faced flange <sup>10)</sup>			
DN 50 PN 16 EN 1092-1 Type A flat faced flange	<b>JA</b>		
DN 50 PN 25/40 EN 1092-1	<b>JB</b>		
Type A flat faced flange			

- 1) Not available with O-ring option 21 (type Aegis PF128)
- 2) Consult factory for these options in Hastelloy C or Monel
- 3) Available with O-ring option 23 only (none)
- 4) Coaxial steam probe must be used with O-ring option 21 only ( type Aegis PF128)
- 5) Available with Material of Construction option A and D only [316/316L (1.4401/1.4404) stainless steel]
- 6) Available with Model option 5 only (coaxial steam probe)
- 7) 2" or DN 50 minimum Process Connection and available with PEEK Spacers for temperature maximum +345 °C (+650 °F)
- 8) Used with Model option 2 only (coaxial High Temperature/High Pressure probe)
- 9) Process temperature maximum +345 °C (+650 °F)
- 10) Available with model options 2, 3, and 5 only (High Temperature/High Pressure, High Pressure, and Steam probes only)
- 11) Available with Material of Construction option E only (enlarged coaxial probe)

R) Subject to export regulations AL: N, ECCN: EAR99I

# Level Measurement

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

Selection and Ordering data	Order code
<b>Further designs</b>	
Please add "-Z" to Order No. and specify Order code(s).	
Enter the total insertion length in plain text description, max. 610 cm (240.2")	<b>Y01</b>
Stainless steel tag. Measuring-point number/identification (max. 16 characters); specify in plain text	<b>Y15</b>
Inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
Manufacturer's test report (Hydrostatic Test)	<b>C18</b>
NACE MR-0175 materials traceability	<b>D07</b>
<b>Operating Instructions</b>	
English	C) <b>7ML1998-5KA01</b>
French	C) <b>7ML1998-5KA11</b>
German	C) <b>7ML1998-5KA31</b>
Multi-language Quick Start manual This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	C) <b>7ML1998-5XG81</b>
<b>Accessories</b>	
Coaxial probe shortening kit with TFE end spacer [for process temperatures < +200 °C (+400 °F)]	C) <b>A5E02455728</b>
Coaxial probe TFE end spacer [for process temperatures < +200 °C (+400 °F)]	C) <b>A5E02479158</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	

## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

Selection and Ordering data	Order No.	Selection and Ordering data	Order No.
<b>SITRANS LG200 Twin Rod Probes</b>	R) 7ML1302-	<b>SITRANS LG200 Twin Rod Probes</b>	R) 7ML1302-
SITRANS LG200 twin rod probes are used in applications where coating and buildup are possible. Used in application with dielectric constant $\geq 1.9$ .	0	SITRANS LG200 twin rod probes are used in applications where coating and buildup are possible. Used in application with dielectric constant $\geq 1.9$ .	0
<b>Note:</b> <b>In addition to the probe, please select a transmitter configuration to complete the SITRANS LG200 (ordered separately).</b> <b>For orders of 10 or more, please consult factory.</b>		Model option 1 and Material of Construction option A: 301 ... 400 cm (118.5 ... 157.5")	AD
<b>Model</b>		Model option 1 and Material of Construction option A: 401 ... 500 cm (157.9 ... 196.9")	AE
Twin rod	1	Model option 1 and Material of Construction option A: 501 ... 610 cm (197.2 ... 240.2")	AF
Flexible twin rod bulk solids probe <sup>1)</sup>	2	<u>Standard lengths<sup>2)</sup></u>	EA
Flexible twin rod probe	3	Model option 2,3 and Material of Construction option A: 1 m (39.4") <sup>2)</sup>	EB
<b>Material of Construction</b>		Model option 2,3 and Material of Construction option A: 2 m (78.7") <sup>2)</sup>	EC
316/316L (1.4401/1.4404) stainless steel probe and process connection	A	Model option 2,3 and Material of Construction option A: 3 m (118.1") <sup>2)</sup>	ED
<b>Process Connection (size/type)</b>		Model option 2,3 and Material of Construction option A: 4 m (157.5") <sup>2)</sup>	EE
2" NPT [(Taper), ANSI/ASME B1.20.1]	A 1	Model option 2,3 and Material of Construction option A: 5 m (196.9") <sup>2)</sup>	EF
G 2" [(BSPP), EN ISO 228-1]	A 2	Model option 2,3 and Material of Construction option A: 6 m (236.2") <sup>2)</sup>	EG
2" 150 lb ASME raised face flange	A 3	Model option 2,3 and Material of Construction option A: 7 m (275.6") <sup>2)</sup>	EH
2" 300 lb ASME raised face flange	B 1	Model option 2,3 and Material of Construction option A: 8 m (315.0") <sup>2)</sup>	EJ
3" 150 lb ASME raised face flange	B 2	Model option 2,3 and Material of Construction option A: 9 m (354.3") <sup>2)</sup>	EK
2" 600 lb ASME raised face flange	B 3	Model option 2,3 and Material of Construction option A: 10 m (393.7") <sup>2)</sup>	EL
3" 300 lb ASME raised face flange	C 1	Model option 2,3 and Material of Construction option A: 11 m (433.1") <sup>2)</sup>	EM
4" 150 lb ASME raised face flange	C 2	Model option 2,3 and Material of Construction option A: 12 m (472.4") <sup>2)</sup>	EN
3" 600 lb ASME raised face flange	C 3	Model option 2,3 and Material of Construction option A: 13 m (511.8") <sup>2)</sup>	EP
4" 300 lb ASME raised face flange	D 1	Model option 2,3 and Material of Construction option A: 14 m (551.2") <sup>2)</sup>	EQ
DN 50 PN 16 EN 1092-1 Type A flat faced flange	D 2	Model option 2,3 and Material of Construction option A: 15 m (590.6") <sup>2)</sup>	ER
4" 600 lb ASME raised face flange	D 3	Model option 2,3 and Material of Construction option A: 16 m (629.9") <sup>2)</sup>	ES
DN 50 PN 25/40 EN 1092-1 Type A flat faced flange	E 1	Model option 2,3 and Material of Construction option A: 17 m (669.3") <sup>2)</sup>	ET
DN 80 PN 16 EN 1092-1 Type A flat faced flange	E 2	Model option 2,3 and Material of Construction option A: 18 m (708.7") <sup>2)</sup>	EU
DN 80 PN 25/40 EN 1092-1 Type A flat faced flange	E 3	Model option 2,3 and Material of Construction option A: 19 m (748.0") <sup>2)</sup>	EV
DN 100 PN 16 EN 1092-1 Type A flat faced flange	E 4	Model option 2,3 and Material of Construction option A: 20 m (787.4") <sup>2)</sup>	EW
DN 100 PN 25/40 EN 1092-1 Type A flat faced flange	E 5	Model option 2,3 and Material of Construction option A: 21 m (826.8") <sup>2)</sup>	EX
Fisher Torque Tube flange, 316SS (249C)	F 1	Model option 2,3 and Material of Construction option A: 22.5 m (885.8") <sup>2)</sup>	
Masoneilan Torque Tube flange, 316SS	G 1		
<u>Carbon Steel</u>			
Fisher Torque Tube flange, Carbon Steel (249B)	K 1		
Masoneilan Torque Tube flange, Carbon Steel	L 1		
<b>O-ring</b>			
Viton	1 1		
EPDM (Ethylene Propylene Rubber)	1 2		
Kalrez 4079	1 3		
HSN (Nitrile)	1 4		
Buna-N	1 5		
Neoprene	1 6		
Chemraz	1 7		
Polyurethane	1 8		
Aegis PF128	2 1		
Kalrez 2035	2 2		
<b>Probe Insertion Length</b>			
<u>Add order code Y01 and plain text: "Insertion length ... cm"</u>			
Model option 1 and Material of Construction option A: 60 ... 100 cm (23.6 ... 39.4")	AA		
Model option 1 and Material of Construction option A: 101 ... 200 cm (39.8 ... 78.7")	AB		
Model option 1 and Material of Construction option A: 201 ... 300 cm (79.1 ... 118.1")	AC		

1) Available with O-ring option 11 only

2) No Y01 needed in order code

R) Subject to export regulations AL: N, ECCN: EAR99I

# Level Measurement



## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

Selection and Ordering data	Order code
<b>Further designs</b>	
Please add <b>"-Z"</b> to Order No. and specify Order code(s).	
Enter the total insertion length in plain text description, max. 610 cm (240.2')	<b>Y01</b>
Stainless steel tag. Measuring-point number/identification (max. 16 characters); specify in plain text	<b>Y15</b>
Inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
Manufacturer's test report (Hydrostatic Test)	<b>C18</b>
NACE MR-0175 materials traceability	<b>D07</b>
<b>Operating Instructions</b>	
English	C) <b>7ML1998-5KA01</b>
French	C) <b>7ML1998-5KA11</b>
German	C) <b>7ML1998-5KA31</b>
Multi-language Quick Start manual This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	C) <b>7ML1998-5XG81</b>
<b>Accessories</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	

## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

Selection and Ordering data	Order No.	Selection and Ordering data	Order No.
<b>SITRANS LG200 Single Rod Rigid Probes</b> R)	<b>7 ML 1 3 0 3 -</b>	<b>SITRANS LG200 Single Rod Rigid Probes</b> R)	<b>7 ML 1 3 0 3 -</b>
SITRANS LG200 single rod rigid probes are used in applications where coating and buildup are likely. Used in applications with dielectric constant $\geq 10$ , or $dk > 1.9$ when installed within 2 ... 6" of a metal tank wall or in cage or bridle.		SITRANS LG200 single rod rigid probes are used in applications where coating and buildup are likely. Used in applications with dielectric constant $\geq 10$ , or $dk > 1.9$ when installed within 2 ... 6" of a metal tank wall or in cage or bridle.	
<b>Note:</b> In addition to the probe, please select a transmitter configuration to complete the SITRANS LG200 (ordered separately). For orders of 10 or more, please consult factory.			
<b>Model</b>			
Single rod rigid probe <sup>1)</sup>	1	DN 50, PN 25/40, EN 1092-1 Type A flat faced flange <sup>11)</sup>	L 2
High Temperature/High Pressure Single rod <sup>2) 3)</sup>	2	DN 80, PN 16, EN 1092-1 Type A flat faced flange <sup>11)</sup>	L 3
<b>Material of Construction</b>		DN 80, PN 25/40, EN 1092-1 Type A flat faced flange <sup>11)</sup>	L 4
316/316L (1.4401/1.4404) stainless steel probe and process connection	A	DN 100, PN 16, EN 1092-1 Type A flat faced flange <sup>11)</sup>	L 5
316/316L (1.4401/1.4404) stainless steel sanitary probe and process connection <sup>1) 4)</sup>	D	DN 100, PN 25/40, EN 1092-1 Type A flat faced flange <sup>11)</sup>	L 6
PFA faced-flange and rod insulation, all PFA wetted parts (316 SS rod) <sup>1) 5)</sup>	E	<b>Higher Pressure rated flanges</b>	
316 AL6XN stainless steel sanitary probe and process connection <sup>1) 6)</sup>	F	<u>ANSI/ASME</u>	
PFA rod insulation (316 SS rod and process connection)	J	2" 600 lb ASME raised face flange <sup>8)</sup>	M 0
<b>Process Connection (size/type)</b>		2" 900/1500 lb ASME raised face flange <sup>12)</sup>	M 1
1 or 1½" Tri-Clover 16 amp sanitary fitting <sup>7)</sup>	A 1	2" 2500 lb ASME raised face flange <sup>12)</sup>	M 2
2" NPT [(Taper), ANSI/ASME B1.20.1] <sup>8)</sup>	A 2	3" 600 lb ASME raised face flange <sup>8)</sup>	N 0
G 2" [(BSPP), EN ISO 228-1] <sup>8)</sup>	A 3	3" 900 lb ASME raised face flange <sup>12)</sup>	N 3
2" 150 lb ASME raised face flange <sup>8)</sup>	A 4	3" 1500 lb ASME raised face flange <sup>12)</sup>	N 4
2" 300 lb ASME raised face flange <sup>8)</sup>	A 5	3" 2500 lb ASME raised face flange <sup>12)</sup>	N 5
2" Tri-Clover 16 amp sanitary fitting <sup>7)</sup>	A 6	4" 600 lb ASME raised face flange <sup>8)</sup>	P 0
¾" Tri-Clover 16 amp sanitary fitting <sup>7) 9)</sup>	A 7	4" 900 lb ASME raised face flange <sup>12)</sup>	P 3
2½" Tri-Clover 16 amp sanitary fitting <sup>7)</sup>	B 0	4" 1500 lb ASME raised face flange <sup>12)</sup>	P 4
3" 150 lb ASME raised face flange <sup>8)</sup>	B 1	4" 2500 lb ASME raised face flange <sup>12)</sup>	P 5
3" 300 lb ASME raised face flange <sup>8)</sup>	B 2	2" 600 lb ASME ring type joint flange <sup>8)</sup>	Q 0
3" Tri-Clover 16 amp sanitary fitting <sup>7)</sup>	B 3	2" 900/1500 lb ASME ring type joint flange <sup>12)</sup>	Q 1
4" 150 lb ASME raised face flange <sup>8)</sup>	C 1	2" 2500 lb ASME ring type joint flange <sup>12)</sup>	Q 2
4" 300 lb ASME raised face flange <sup>8)</sup>	C 2	3" 600 lb ASME ring type joint flange <sup>8)</sup>	R 0
4" Tri-Clover 16 amp sanitary fitting <sup>7)</sup>	C 3	3" 900 lb ASME ring type joint flange <sup>12)</sup>	R 3
DN 50, PN 16, EN 1092-1 Type A flat faced flange <sup>8)</sup>	D 1	3" 1500 lb ASME ring type joint flange <sup>12)</sup>	R 4
DN 50, PN 25/40, EN 1092-1 Type A flat faced flange <sup>8)</sup>	D 2	3" 2500 lb ASME ring type joint flange <sup>12)</sup>	R 5
DN 80, PN 16, EN 1092-1 Type A flat faced flange <sup>8)</sup>	D 3	4" 600 lb ASME ring type joint flange <sup>8)</sup>	S 0
DN 80, PN 25/40, EN 1092-1 Type A flat faced flange <sup>8)</sup>	D 4	4" 900 lb ASME ring type joint flange <sup>12)</sup>	S 3
DN 100, PN 16, EN 1092-1 Type A flat faced flange <sup>8)</sup>	D 5	4" 1500 lb ASME ring type joint flange <sup>12)</sup>	S 4
DN 100, PN 25/40, EN 1092-1 Type A flat faced flange <sup>8)</sup>	D 6	4" 2500 lb ASME ring type joint flange <sup>12)</sup>	S 5
<u>AL6XN<sup>10)</sup></u>		<u>EN flanges</u>	
¾" Tri-Clover 16 amp sanitary fitting <sup>9) 10)</sup>	E 0	DN 50, PN 64, EN 1092-1 Type A flat faced flange <sup>8)</sup>	T 0
1½" Tri-Clover 16 amp sanitary fitting <sup>10)</sup>	E 1	DN 50, PN 100, EN 1092-1 Type A flat faced flange <sup>8)</sup>	T 1
2" Tri-Clover 16 amp sanitary fitting <sup>10)</sup>	E 2	DN 50, PN 160, EN 1092-1 Type A flat faced flange <sup>12)</sup>	T 2
2½" Tri-Clover 16 amp sanitary fitting <sup>10)</sup>	E 3	DN 50, PN 250, EN 1092-1 Type A flat faced flange <sup>12)</sup>	T 3
3" Tri-Clover 16 amp sanitary fitting <sup>10)</sup>	F 1	DN 80, PN 64, EN 1092-1 Type A flat faced flange <sup>8)</sup>	U 0
4" Tri-Clover 16 amp sanitary fitting <sup>10)</sup>	G 1	DN 80, PN 100, EN 1092-1 Type A flat faced flange <sup>8)</sup>	U 1
PFA Coated 316 stainless steel flange <sup>11)</sup>		DN 80, PN 160, EN 1092-1 Type A flat faced flange <sup>12)</sup>	U 2
2" 150 lb ASME raised face flange <sup>11)</sup>	H 1	DN 80, PN 250, EN 1092-1 Type A flat faced flange <sup>12)</sup>	U 3
2" 300 lb ASME raised face flange <sup>11)</sup>	H 2	DN 100, PN 64, EN 1092-1 Type A flat faced flange <sup>8)</sup>	V 0
3" 150 lb ASME raised face flange <sup>11)</sup>	J 1	DN 100, PN 100, EN 1092-1 Type A flat faced flange <sup>8)</sup>	V 1
3" 300 lb ASME raised face flange <sup>11)</sup>	J 2	DN 100, PN 160, EN 1092-1 Type A flat faced flange <sup>12)</sup>	V 2
4" 150 lb ASME raised face flange <sup>11)</sup>	K 1	DN 100, PN 250, EN 1092-1 Type A flat faced flange <sup>12)</sup>	V 3
4" 300 lb ASME raised face flange <sup>11)</sup>	K 2		
DN 50, PN 16, EN 1092-1 Type A flat faced flange <sup>11)</sup>	L 1		

# Level Measurement

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

#### Selection and Ordering data

Order No.

#### SITRANS LG200 Single Rod Rigid Probes

R) 7 ML 1 3 0 3 -

SITRANS LG200 single rod rigid probes are used in applications where coating and buildup are likely. Used in applications with dielectric constant  $\geq 10$ , or  $dk > 1.9$  when installed within 2 ... 6" of a metal tank wall or in cage or bridle.

#### O-ring

Viton	1	1
EPDM (Ethylene Propylene Rubber)	1	2
Kalrez 4079	1	3
HSN (Nitrile)	1	4
Buna-N	1	5
Neoprene	1	6
Chemraz	1	7
Polyurethane	1	8
Aegis PF128	2	1
Kalrez 2035	2	2
None	2	3

#### Probe Insertion Length

Add order code Y01 and plain text:  
"Insertion length ... cm"

Model option 1, 2 and Material of Construction option A: 60 ... 100 cm (23.6 ... 39.4")

Model option 1, 2 and Material of Construction option A: 101 ... 200 cm (39.8 ... 78.7")

Model option 1, 2 and Material of Construction option A: 201 ... 300 cm (79.1 ... 118.1")

Model option 1, 2 and Material of Construction option A: 301 ... 400 cm (118.5 ... 157.5")

Model option 1, 2 and Material of Construction option A: 401 ... 500 cm (157.9 ... 196.9")

Model option 1, 2 and Material of Construction option A: 501 ... 610 cm (197.2 ... 240.2")

Add order code Y01 and plain text:  
"Insertion length ... cm"

Model option 1 and Material of Construction option D: 60 ... 100 cm (23.6 ... 39.4")

Model option 1 and Material of Construction option D: 101 ... 200 cm (39.8 ... 78.7")

Model option 1 and Material of Construction option D: 201 ... 300 cm (79.1 ... 118.1")

Model option 1 and Material of Construction option D: 301 ... 400 cm (118.5 ... 157.5")

Model option 1 and Material of Construction option D: 401 ... 500 cm (157.9 ... 196.9")

Model option 1 and Material of Construction option D: 501 ... 610 cm (197.2 ... 240.2")

Add order code Y01 and plain text:  
"Insertion length ... cm"

Model option 1 and Material of Construction option F: 60 ... 100 cm (23.6 ... 39.4")

Model option 1 and Material of Construction option F: 101 ... 200 cm (39.8 ... 78.7")

Model option 1 and Material of Construction option F: 201 ... 300 cm (79.1 ... 118.1")

Model option 1 and Material of Construction option F: 301 ... 400 cm (118.5 ... 157.5")

Model option 1 and Material of Construction option F: 401 ... 500 cm (157.9 ... 196.9")

Model option 1 and Material of Construction option F: 501 ... 610 cm (197.2 ... 240.2")

Add order code Y01 and plain text:  
"Insertion length ... cm"

Model option 1 and Material of Construction option E: 60 ... 100 cm (23.6 ... 39.4")

Model option 1 and Material of Construction option E: 101 ... 200 cm (39.8 ... 78.7")

Model option 1 and Material of Construction option E: 201 ... 300 cm (79.1 ... 118.1")

#### Selection and Ordering data

Order No.

#### SITRANS LG200 Single Rod Rigid Probes

R) 7 ML 1 3 0 3 -

SITRANS LG200 single rod rigid probes are used in applications where coating and buildup are likely. Used in applications with dielectric constant  $\geq 10$ , or  $dk > 1.9$  when installed within 2 ... 6" of a metal tank wall or in cage or bridle.

Model option 1 and Material of Construction option E: 301 ... 400 cm (118.5 ... 157.5")

Model option 1 and Material of Construction option E: 401 ... 500 cm (157.9 ... 196.9")

Model option 1 and Material of Construction option E: 501 ... 610 cm (197.2 ... 240.2")

Add order code Y01 and plain text:  
"Insertion length ... cm"

Model option 1 and Material of Construction option J: 60 ... 100 cm (23.6 ... 39.4")

Model option 1 and Material of Construction option J: 101 ... 200 cm (39.8 ... 78.7")

Model option 1 and Material of Construction option J: 201 ... 300 cm (79.1 ... 118.1")

Model option 1 and Material of Construction option J: 301 ... 400 cm (118.5 ... 157.5")

Model option 1 and Material of Construction option J: 401 ... 500 cm (157.9 ... 196.9")

Model option 1 and Material of Construction option J: 501 ... 610 cm (197.2 ... 240.2")

Add order code Y01 and plain text:  
"Insertion length ... cm"

(¾" Process Connection only)

Model option 1 and Material of Construction option D and F: 60 ... 100 cm (23.6 ... 39.4")<sup>13)</sup>

Model option 1 and Material of Construction option D and F: 101 ... 180 cm (39.8 ... 72")<sup>13)</sup>

- |  |    |
|--|----|
| Model option 1 with Material of Construction options D, E, F, available with O-ring option 23 only | DD |
| Available with O-ring option 21 only   | DE |
| Available with Material of Construction option A only  | DF |
| Available with Process Connection options A1, A6, A7, B0, B3, C3 only                              | EA |
| Available with Process Connection options H1, H2, J1, J2, K1, K2, L1, L2, L3, L4, L5, L6 only      | EB |
| Available with Process Connection options E0, E1, E2, E3, F1, G1 only                              | EC |
| Available with Material of Construction option D only  | ED |
| Available with Material of Construction options A and J only                                       | EE |
| Available with Probe Insertion Length options FA and FB only                                       | EF |
| Available with Material of Construction option F only  | FA |
| Available with Model option 2 only   | FB |
| Available with Process Connection options A7 and E0 only (¾")                                      |    |

R) Subject to export regulations AL: N, ECCN: EAR99I

# Level Measurement

## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

Selection and Ordering data	Order code
<b>Further designs</b>	
Please add <b>"-Z"</b> to Order No. and specify Order code(s).	
Enter the total insertion length in plain text description, max. 610 cm (240.2')	<b>Y01</b>
Stainless steel tag. Measuring-point number/identification (max. 16 characters); specify in plain text	<b>Y15</b>
Inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
Manufacturer's test report (Hydrostatic Test)	<b>C18</b>
NACE MR-0175 materials traceability	<b>D07</b>
<b>Operating Instructions</b>	
English	C) <b>7ML1998-5KA01</b>
French	C) <b>7ML1998-5KA11</b>
German	C) <b>7ML1998-5KA31</b>
Multi-language Quick Start manual This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	C) <b>7ML1998-5XG81</b>
<b>Accessories</b>	
TFE bottom spacer/endplate	R) <b>7ML1930-1DJ</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	
R) Subject to export regulations AL: N, ECCN: EAR99I	



# Level Measurement

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

#### Selection and Ordering data

##### SITRANS LG200 Single Rod Flexible Probes

SITRANS LG200 single rod flexible probes are used in applications where coating and buildup are possible. Used in applications with dielectric constant  $\geq 10$  or  $dk > 1.9$  when installed within 2 ... 6" of a metal tank wall or in cage or bridle. For solids version only,  $dk > 4$ .

#### Note:

In addition to the probe, please select a transmitter configuration to complete the SITRANS LG200 (ordered separately).

For orders of 10 or more, please consult factory.

#### Model

Single rod flexible probe  
Single rod bulk solids flexible probe<sup>1)</sup>

#### Material of Construction

316/316L (1.4401/1.4404) stainless steel probe and process connection

#### Process Connection (size/type)

316/316L (1.4401/1.4404)

2" NPT [(Taper), ANSI/ASME B1.20.1]

G 2" [(BSPP), EN ISO 228-1]

2" 150 lb ASME raised face flange

2" 300 lb ASME raised face flange

3" 150 lb ASME raised face flange

3" 300 lb ASME raised face flange

4" 150 lb ASME raised face flange

4" 300 lb ASME raised face flange

DN 50 PN 16 EN 1092-1 Type A flat faced flange

DN 50 PN 25/40 EN 1092-1 Type A flat faced flange

DN 80 PN 16 EN 1092-1 Type A flat faced flange

DN 80 PN 25/40 EN 1092-1 Type A flat faced flange

DN 100 PN 16 EN 1092-1 Type A flat faced flange

DN 100 PN 25/40 EN 1092-1 Type A flat faced flange

#### O-ring

Viton  
EPDM (Ethylene Propylene Rubber)  
Kalrez 4079  
HSN (Nitrile)  
Buna-N  
Neoprene  
Chemraz  
Polyurethane  
Aegis PF128  
Kalrez 2035

Order No.

7 ML 1 3 0 4 -

- 0

1

2

A

A 0

A 1

A 2

A 3

B 1

B 2

C 1

C 2

D 1

D 2

E 1

E 2

F 1

F 2

1 1

1 2

1 3

1 4

1 5

1 6

1 7

1 8

2 1

2 2

#### Selection and Ordering data

##### SITRANS LG200 Single Rod Flexible Probes

SITRANS LG200 single rod flexible probes are used in applications where coating and buildup are possible. Used in applications with dielectric constant  $\geq 10$  or  $dk > 1.9$  when installed within 2 ... 6" of a metal tank wall or in cage or bridle. For solids version only,  $dk > 4$ .

#### Flexible Rod Length (To be shortened by customer as required)

1 meter (39.4")

2 meters (78.7")

3 meters (118.1")

4 meters (157.5")

5 meters (196.9")

6 meters (236.2")

7 meters (275.6")

8 meters (315.0")

9 meters (354.3")

10 meters (393.7")

11 meters (433.1")

12 meters (472.4")

13 meters (511.8")

14 meters (551.2")

15 meters (590.6")

16 meters (629.9")

17 meters (669.3")

18 meters (708.7")

19 meters (748.0")

20 meters (787.4")

21 meters (826.8")

22.5 meters (885.8")

<sup>1)</sup> Available with O-ring option 1 1 only (others on request)

R) Subject to export regulations AL: N, ECCN: EAR99

Order No.

7 ML 1 3 0 4 -

- 0

AA

AB

AC

AD

AE

AF

AG

AH

AJ

AK

AL

AM

AN

AP

AQ

AR

AS

AT

AU

AV

AW

AX

#### Selection and Ordering data

##### Further designs

Please add "-Z" to Order No. and specify Order code(s).

Stainless steel tag. Measuring-point number/identification (max. 16 characters); specify in plain text

##### Operating Instructions

English

French

German

Multi-language Quick Start manual  
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.

##### Accessories

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

Order code

Y15

Order No.

C) 7ML1998-5KA01

C) 7ML1998-5KA11

C) 7ML1998-5KA31

C) 7ML1998-5XG81

C) 7ML1998-5KA01

C) 7ML1998-5KA11

C) 7ML1998-5KA31

C) 7ML1998-5XG81

C) 7ML1998-5KA01

C) 7ML1998-5KA11

C) 7ML1998-5KA31

C) 7ML1998-5XG81

C) 7ML1998-5KA01

C) 7ML1998-5KA11

C) 7ML1998-5KA31

C) 7ML1998-5XG81

C) 7ML1998-5KA01

C) 7ML1998-5KA11

C) 7ML1998-5KA31

C) 7ML1998-5XG81

C) 7ML1998-5KA01

C) 7ML1998-5KA11

C) 7ML1998-5KA31

C) 7ML1998-5XG81

C) 7ML1998-5KA01

C) 7ML1998-5KA11

C) 7ML1998-5KA31


C) 7ML1998-5XG81

C) 7ML1998-5KA01

C) 7ML1998-5KA11

C) 7ML1998-5KA31

C) 7ML1998-5XG81

Selection and Ordering data	Order No.	Selection and Ordering data	Order code
<b>SITRANS LG200 Chamber Replacement Probe</b> R)	<b>7ML1305-</b>	<b>Further designs</b>	
Replaces existing aging torque tube transmitters. Proprietary flanges can be used with existing chambers and cages.		Please add "-Z" to Order No. and specify Order code(s).	
<b>Note:</b>		Stainless steel tag. Measuring-point number/identification (max. 16 characters); specify in plain text	<b>Y15</b>
<b>In addition to the probe, please select a transmitter configuration to complete the SITRANS LG200 (ordered separately).</b>		Inspection Certificate Type 3.1 per EN 10204	<b>C12</b>
<b>For this option, please consult factory</b>		NACE MR-0175 materials traceability	<b>D07</b>
<b>Model</b>		<b>Operating Instructions</b>	Order No.
Chamber Replacement Probe <sup>1)</sup>	1	English	C) <b>7ML1998-5KA01</b>
<b>Chamber/Process Connection Material of Construction</b>		French	C) <b>7ML1998-5KA11</b>
316/316L stainless steel (B31.1 construction)	A	German	C) <b>7ML1998-5KA31</b>
Carbon Steel (106 Grade B) <sup>2)</sup>	B	Multi-language Quick Start manual	C) <b>7ML1998-5XG81</b>
Carbon Steel (B31.1 construction)	C	This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	
<b>Process Connection (size/type)</b>		<b>Accessories</b>	
1½" NPT [(Taper), ANSI/ASME B1.20.1] thread	A 0	SITRANS RD100 Remote display - see Chapter 8	
1½", 150 lb ASME raised face flange	A 1	SITRANS RD200 Remote display - see Chapter 8	
1½", 300 lb ASME raised face flange	A 2	SITRANS RD500 Remote display - see Chapter 8	
1½", 600 lb ASME raised face flange	A 3	C) Subject to export regulations AL: N, ECCN: EAR99	
1½" Socket weld	B 1		
2" NPT [(Taper), ANSI/ASME B1.20.1] thread	B 2		
2", 150 lb ASME raised face flange	C 1		
2", 300 lb ASME raised face flange	C 2		
2", 600 lb ASME raised face flange	D 1		
2" Socket weld	D 2		
Other flange sizes available. Please consult factory.			
<b>Level Range</b>			
14" (0.356 meters)	1		
Other level ranges available. Please consult factory.			
<b>Process Connection Configuration</b>			
Top In, Bottom Out	1		
Top In, Bottom Out, with Sight Glass Connections	2		
Other configurations available. Please consult factory.			
<b>Temperature Range</b>			
+316 °C (+600 °F) (Dielectric constant ≥ 10)	A		
+260 °C (+500 °F) (Dielectric constant ≥ 1.4)	B		
<b>Chamber Type</b>			
Fisher 249B	A		
Fisher 259B	B		
Fisher 249	C		

1) Probe is always 316/316L (1.4401/1.4404) Stainless Steel construction regardless of chamber and process connection materials.

2) Available Process Connection Configuration option 1 only

R) Subject to export regulations AL: N, ECCN: EAR99I

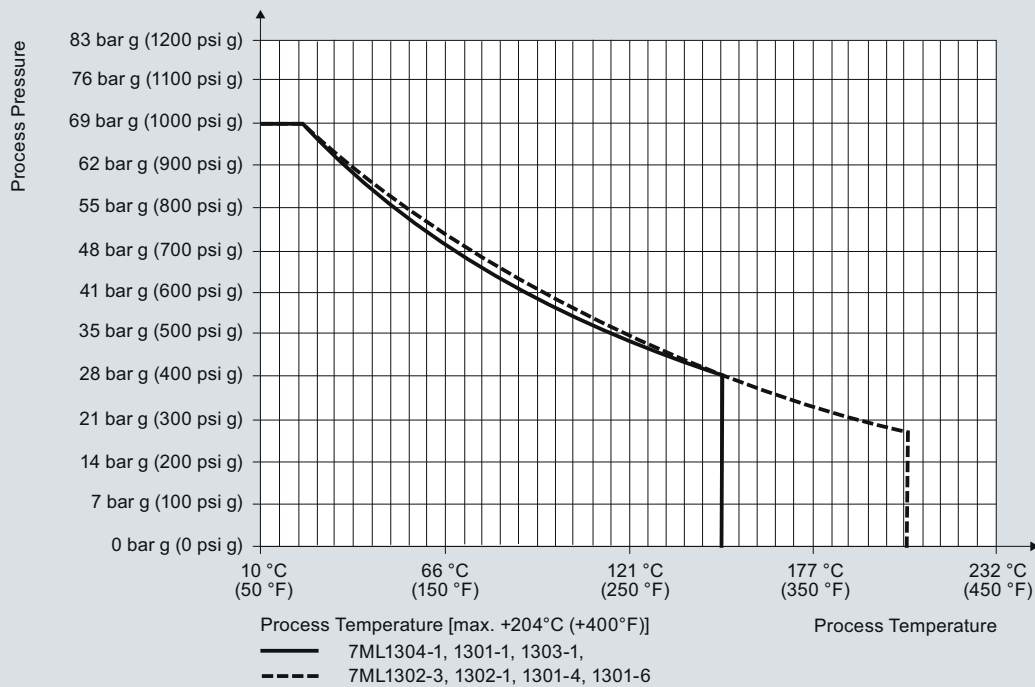
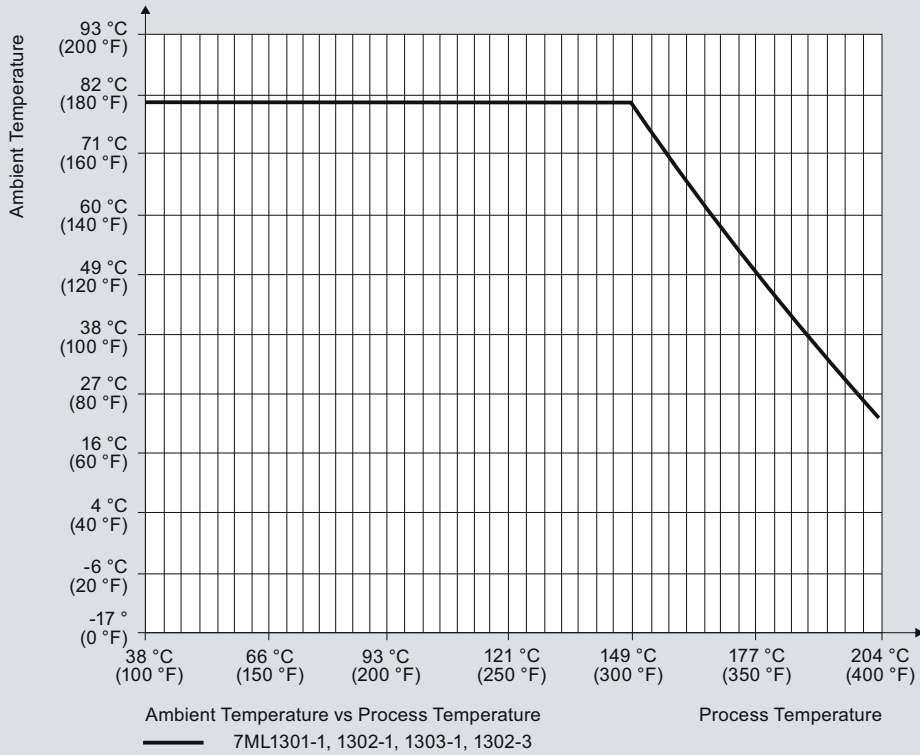
# Level Measurement

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

#### Characteristic curves

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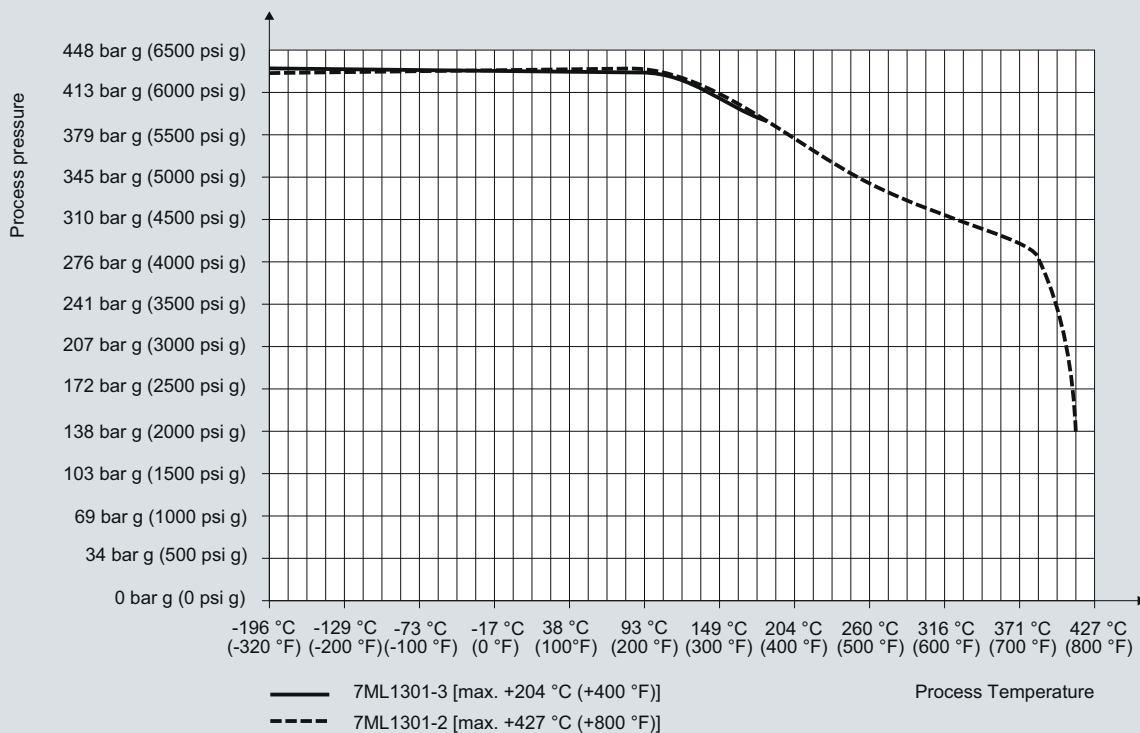
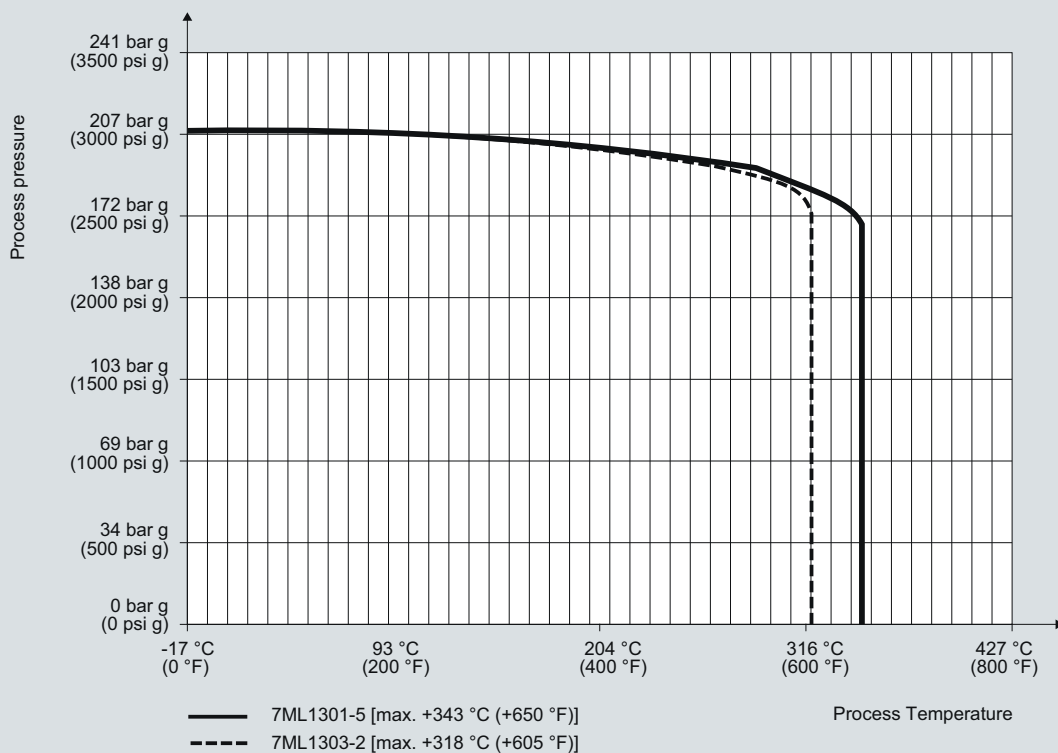
SITRANS LG200 Process Pressure/Temperature derating curves

# Level Measurement

## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

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SITRANS LG200 Process Pressure/Temperature derating curves

# Level Measurement

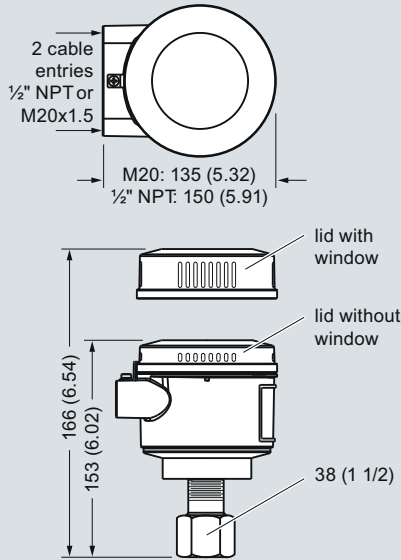
## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

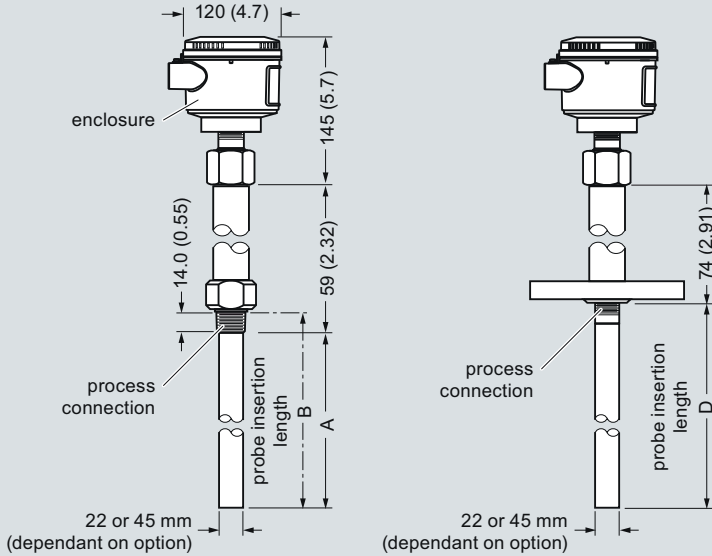
#### Dimensional drawings

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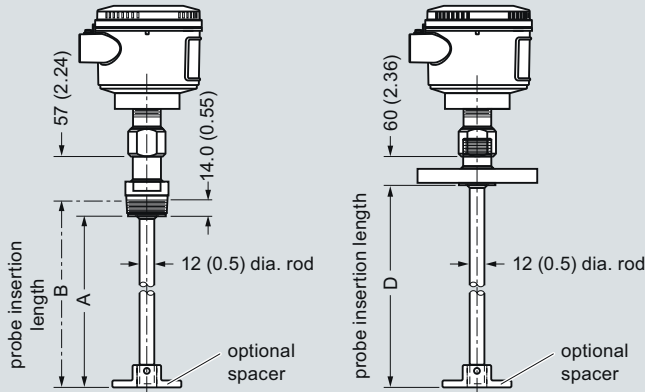
SITRANS LG200 Enclosure 7ML1300



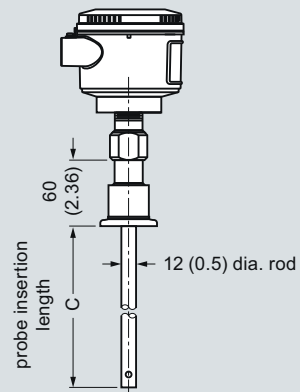
7ML1301-1 (7xA-x) Probe, Threaded and Flanged Connection



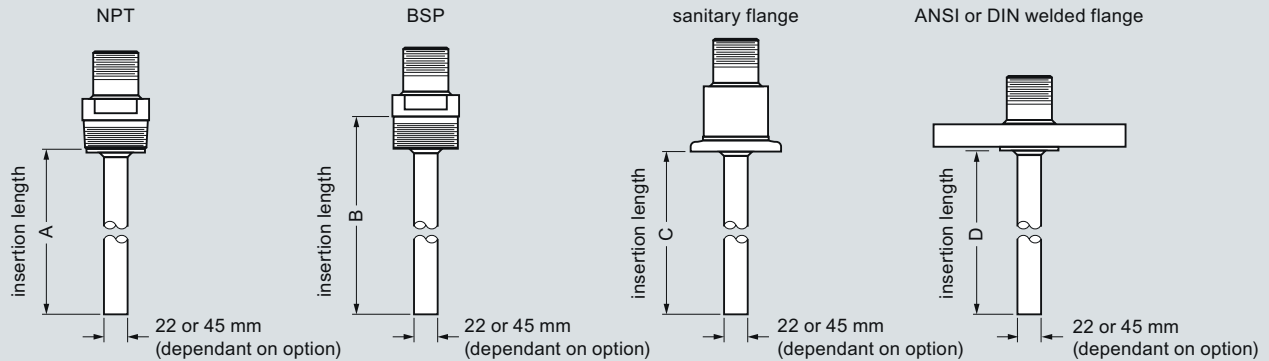
7ML1303-1 (7xF-x) Probe, Threaded and Flanged Connection



7ML1303-1D (7xF-E) Probe, Sanitary Connection



Probe Connections and Insertion Lengths (Note BSP connections differ from NPT)



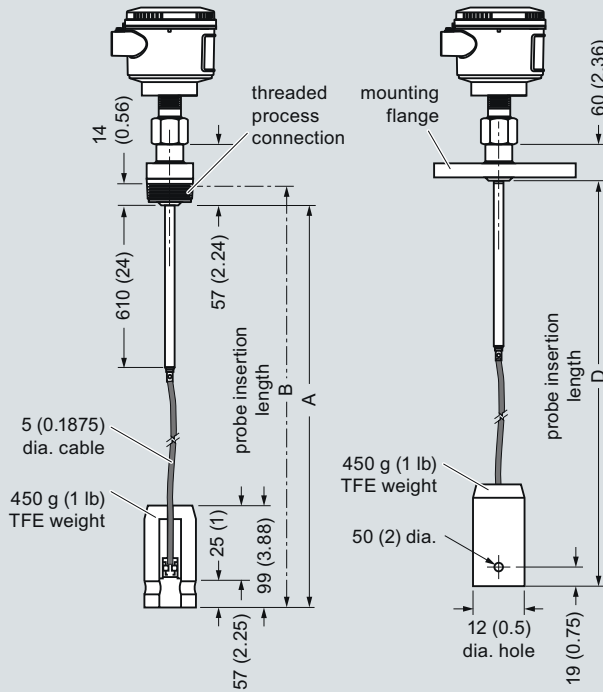
SITRANS LG200 (threaded process connection dimensions shown are NPT connections unless stated otherwise), dimensions in mm (inch)

# Level Measurement

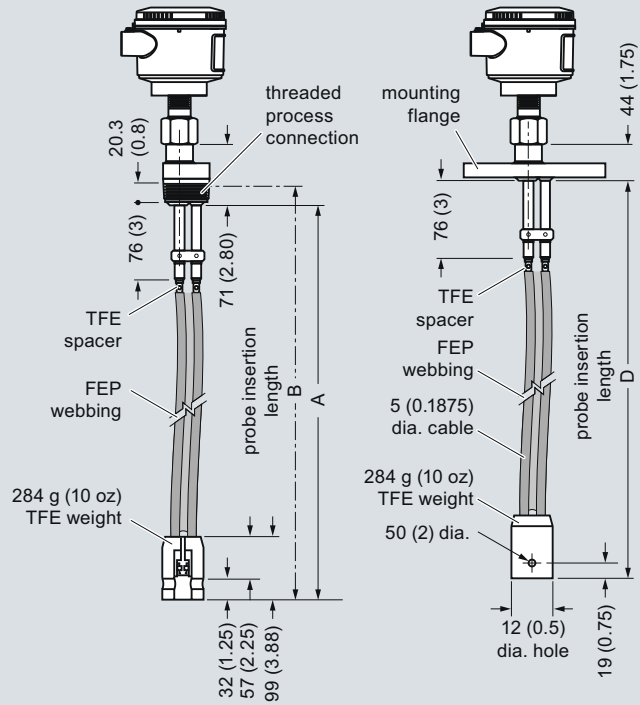
## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

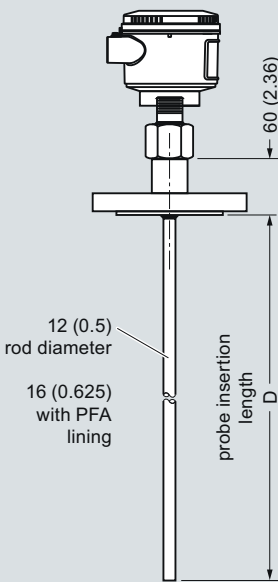
**SITRANS LG200**  
**7ML1304-1 (7x1-x) Flexible Probe,**  
**Threaded or Flanged Connection**



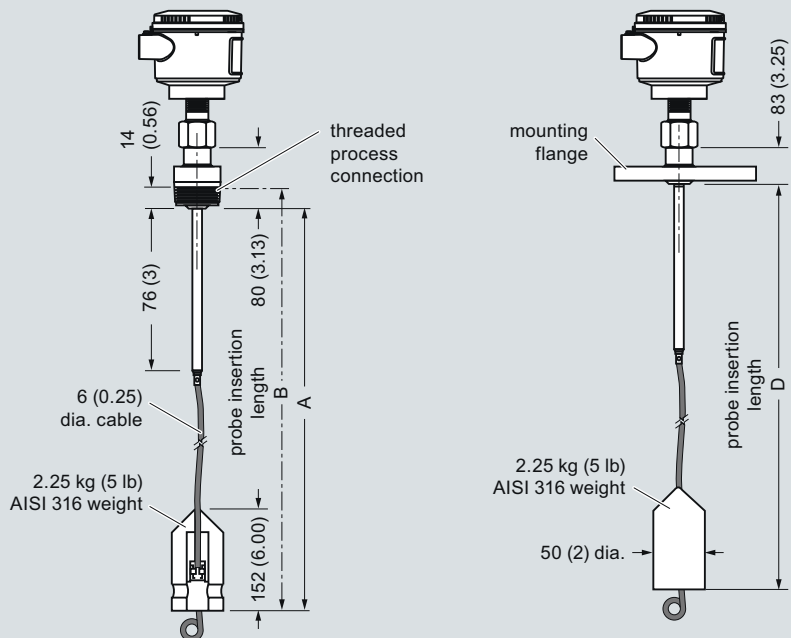
**7ML1302-3 (7x7-x) Twin Rod Flexible Probe,**  
**Threaded or Flanged Connection**



**7ML1303-1E (7xF - F) Probe,**  
**Flat-Faced Flanged Connection**



**7ML1304-2 (7x2-x) Bulk Solids Flexible Probe,**  
**Threaded or Flanged Connection**



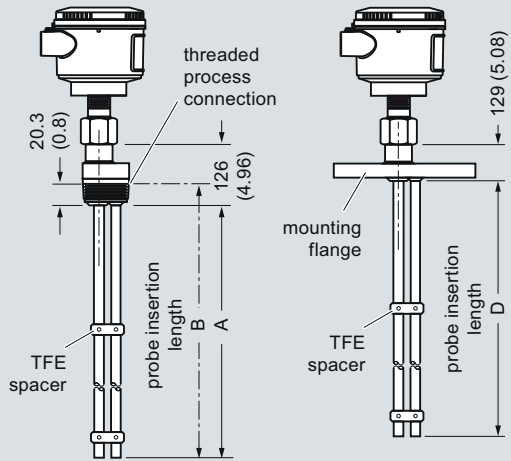
SITRANS LG200 (threaded process connection dimensions shown are NPT connections unless stated otherwise), dimensions in mm (inch)

# Level Measurement

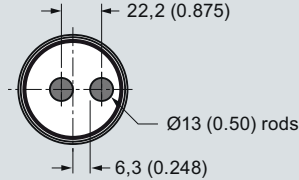
## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

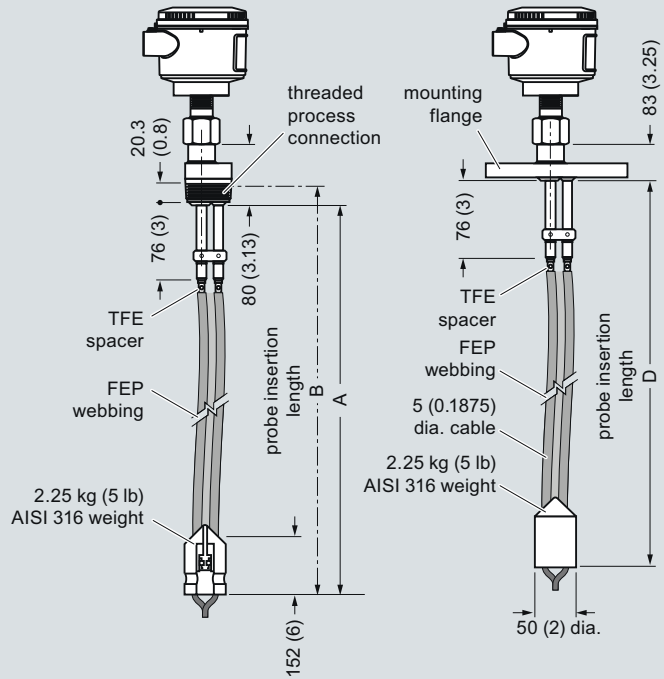
**SITRANS LG200**  
7ML1302-1 (7xB-x) Twin Rod Probe,  
Threaded and Flanged Connection



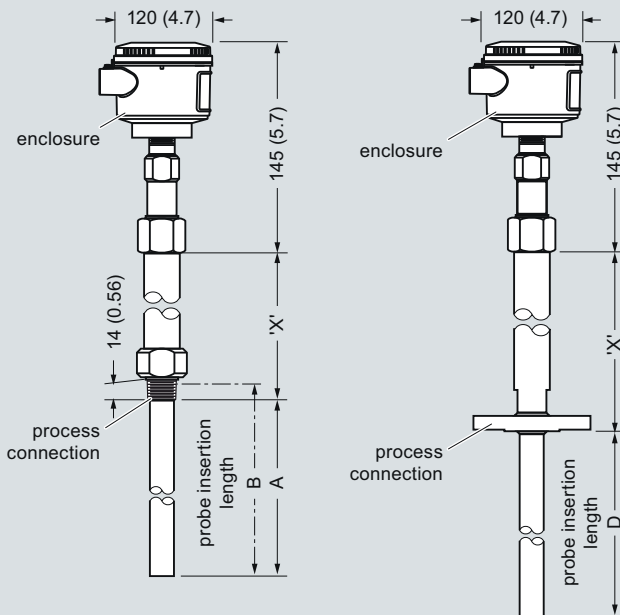
Twin rod end view



**7ML1302-2 (7x5-x) Twin Rod Bulk Solids Flexible Probe**  
Threaded or Flanged Connection



**7ML1301-2 (7xD-x), 7ML1301-3 (7xP-x), 7ML1301-4 (7xR-x), 7ML1301-6 (7xT-x), Threaded or Flanged Connection**



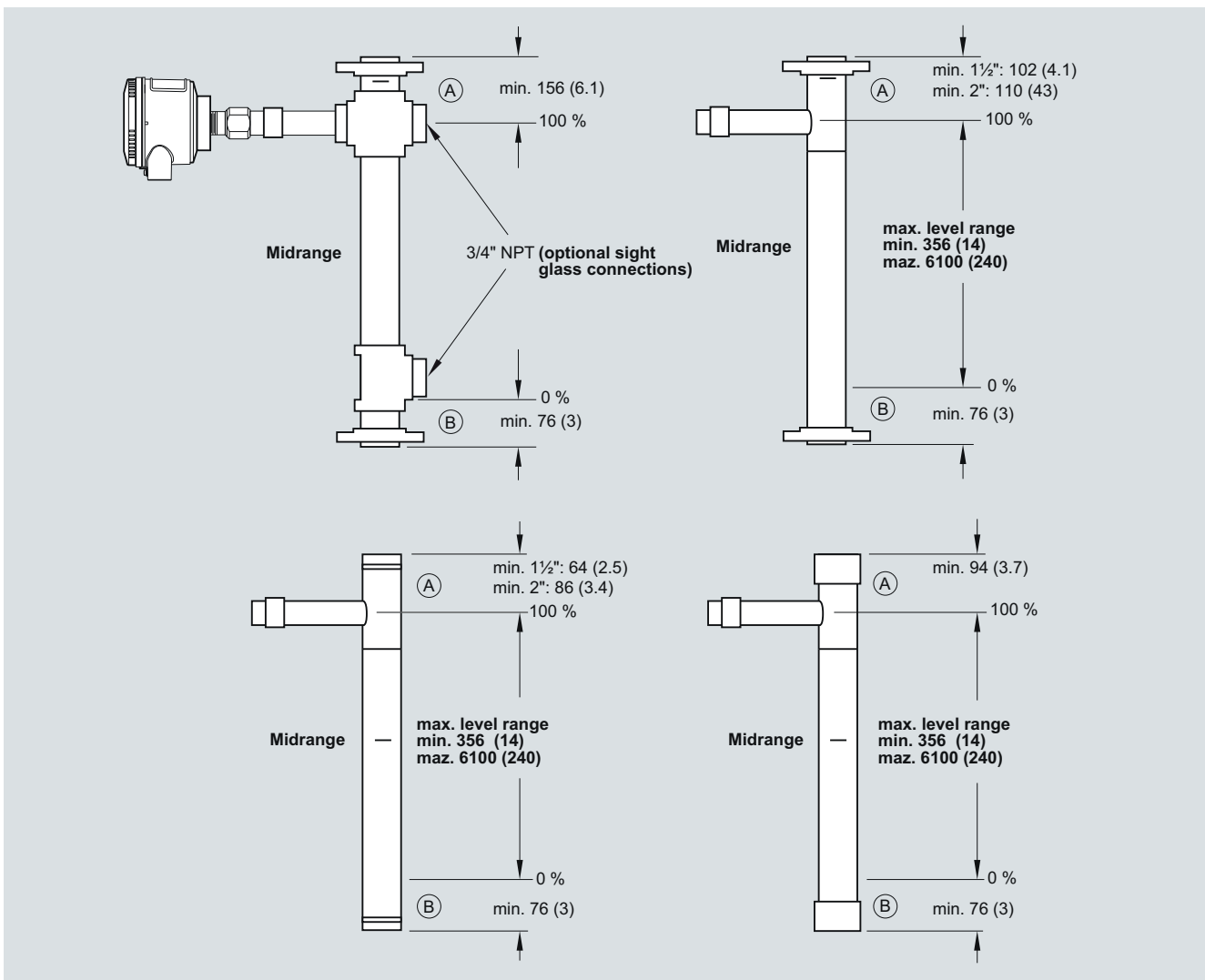
Probes	'X' Dimension (NPT)	'X' Dimension (Flanged)
7ML1301-2 (Coaxial HT/HP Probe)	217 (8.55)	277 (10.91)
7ML1301-3 (Coaxial HP Probe)	106 (4.18)	166 (6.54)
7ML1301-4 (Coaxial Overfill/Flooded Cage Probe), 7ML1301-6 (Coaxial Interface Probe)	150 (5.89)	167 (6.57)
7ML1301-5 (Coaxial HT/HP Steam Probe)	180 (7.10)	242 (9.52)

SITRANS LG200 (threaded process connection dimensions shown are NPT connections unless stated otherwise), dimensions in mm (inch)

# Level Measurement

## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200



SITRANS LG200 - Model 7ML1305-1 Chamber Replacement Probe, dimensions in mm (inch)

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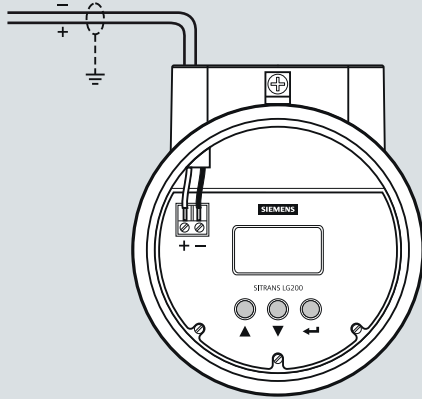
# Level Measurement

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

#### Schematics

##### SITRANS LG200 General Purpose Wiring



##### Intrinsically Safe wiring

When connecting SITRANS LG200 in Intrinsically Safe applications, install an approved IS barrier in the non-hazardous (safe) area.

##### Explosion Proof wiring

When connecting SITRANS LG200 in hazardous areas with explosion hazard, the wiring for the transmitter must be contained in Explosion Proof conduit extending into the safe area. An Explosion Proof conduit fitting is not required within 457 mm (18") of the transmitter. An Explosion Proof conduit fitting is required between the hazardous and safe areas.

SITRANS LG200 connections