

# Level instruments

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

#### Overview

##### Introduction

Guided Wave Radar transmitters combine TDR (time domain reflectometry), ETS (equivalent time sampling) and modern low power circuitry.

##### Time Domain Reflectometry (TDR)

TDR uses pulses of electromagnetic (EM) energy to measure distances or levels. When a pulse reaches a dielectric discontinuity (created by media surface), part of the energy is reflected. The greater the dielectric difference, the greater the amplitude (strength) of the reflection.

In the SITRANS LG200 transmitter, a waveguide with a characteristic impedance in air is used as a probe. When part of the probe is immersed in a material other than air, there is lower impedance due to the increase in the dielectric. When an EM pulse is sent down the probe and meets the dielectric discontinuity, a reflection is generated.

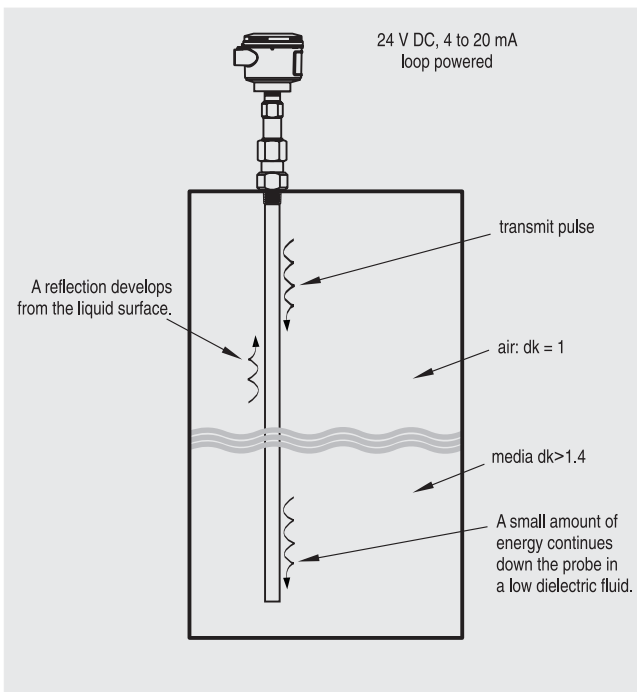
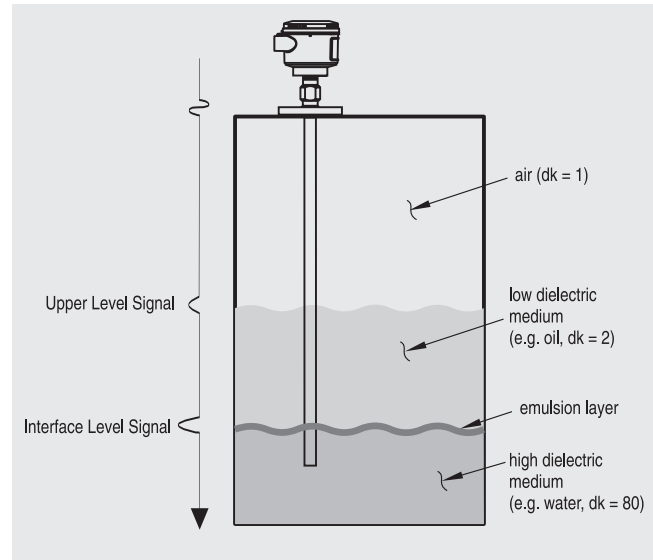
##### Equivalent Time Sampling (ETS)

ETS (Equivalent Time Sampling) is used to measure the high speed, low power EM energy. ETS is critical in the application of TDR to vessel level measurement technology. The high speed EM energy (1000 ft/ $\mu$ s) is difficult to measure over short distances and at the resolution required in the process industry. ETS captures the EM signals in real time (nanoseconds) and re-constructs them in equivalent time (milliseconds), which is much easier to measure with today's technology.

ETS is accomplished by scanning the waveguide to collect thousands of samples. Approximately 8 scans are taken per second; each scan gathers more than 30,000 samples.

##### Interface Detection

The SITRANS LG200, when used with the Model 7ML1301-6 coaxial probe, is a transmitter capable of measuring both an upper level and an interface level. The upper liquid must have a dielectric constant between 1.4 and 5 and the two liquids have a difference in dielectric constants greater than 10. A typical application would be oil over water, with the upper layer of oil being non-conductive with a dielectric constant of approximately 2 and the lower layer of water being very conductive with a dielectric constant of approximately 80. This interface measurement can only be accomplished when the dielectric constant of the upper medium is lower than the dielectric constant of the lower medium.

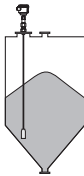
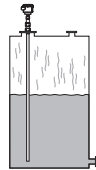


**SIEMENS****Guided Wave Radar (Level) Application Questionnaire****Customer information**

Contact: \_\_\_\_\_ Prepared By: \_\_\_\_\_  
 Company: \_\_\_\_\_ Date: \_\_\_\_\_  
 Address: \_\_\_\_\_ Notes on the Application: \_\_\_\_\_  
 City: \_\_\_\_\_ Country: \_\_\_\_\_  
 Zip/Postal Code: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_  
 E-mail: \_\_\_\_\_ Fax: ( ) \_\_\_\_\_

**Tank/Vessel Information**

(supply sketch where possible)

 Sketch attached Solids Liquids**Tank top:**

- Open  
 Flat  
 Conical  
 Parabolic

**Tank bottom:**

- Sloped  
 Flat  
 Conical  
 Parabolic

**Mounting location:**

- Top mount  
 Thread mount  
 Flange mount  
 Bypass/Sidepipe mount  
 Pipe mount  
 Displacer replacement  
(please supply drawings)

**Tank dimensions:**

Height: \_\_\_\_\_ m/ft  
 Diameter: \_\_\_\_\_ m/ft  
 Nozzle Length: \_\_\_\_\_ cm/in  
 Nozzle Diameter: \_\_\_\_\_ cm/in  
 Process connection type: \_\_\_\_\_  
 Process connection size: \_\_\_\_\_  
 Distance to sidewall: \_\_\_\_\_ cm/in

**Pressure:**

Normal: \_\_\_\_\_  
 Maximum (relief): \_\_\_\_\_

**Material**

Material being measured: \_\_\_\_\_

Material temperature: Norm: \_\_\_\_\_ °C/°F Max: \_\_\_\_\_ °C/°F

Measurement type:  Continuous level  Interface level

Dielectric constant value: \_\_\_\_\_

Coating buildup:  Yes  No Turbulence:  Yes  NoMaximum viscosity: \_\_\_\_\_ Density: \_\_\_\_\_ kg/m<sup>3</sup>Kinematic Viscosity (cSt) = Dynamic Viscosity (cP) / Density (kg/m<sup>3</sup>)

- 1 to 5 cSt (like water)  50 to 100 cSt (like honey)  
 5 to 20 cSt (like machine oil)  100 to 500 cSt (like syrup/molasses)  
 20 to 50 cSt (like cooking oil)  >500 cSt (like tar)

 Liquid  Solid  Slurry**Particle size:**

- Fine dust/powder, <0.5 cm (0.2")  
 Grains (rice, corn), <2 cm (0.8")  
 Small stones/gravel, <2 cm (0.8")  
 Small rocks/chunks, >2 cm (0.8")  
 Large particles, <9 cm (3.5")

**Foam type:**

- None  Wet  
 Dry  Wet/dense

**Installation**

(indicate all that apply)

Power available: \_\_\_\_\_

Communications: \_\_\_\_\_

Outputs required:  4 to 20 mA HART® /4 to 20 mA Other (please specify) \_\_\_\_\_**Products recommended:**

# Level instruments

## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

# SIEMENS

### Guided Wave Radar (Interface) Application Questionnaire

#### Customer information

Contact: \_\_\_\_\_ Prepared By: \_\_\_\_\_  
 Company: \_\_\_\_\_ Date: \_\_\_\_\_  
 Address: \_\_\_\_\_ Notes on the Application: \_\_\_\_\_  
 City: \_\_\_\_\_ Country: \_\_\_\_\_  
 Zip/Postal Code: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_  
 E-mail: \_\_\_\_\_ Fax: ( ) \_\_\_\_\_

#### Tank/Vessel Information

(supply sketch where possible)

 Sketch attached

#### Tank dimensions:

Height: \_\_\_\_\_ m/ft

Diameter: \_\_\_\_\_ m/ft

Nozzle Length: \_\_\_\_\_ cm/in

Nozzle Diameter: \_\_\_\_\_ cm/in

Process connection type: \_\_\_\_\_

Process connection size: \_\_\_\_\_

Distance to sidewall: \_\_\_\_\_ cm/in

#### Tank top:

 Open Flat Conical Parabolic

#### Tank bottom:

 Sloped Flat Conical Parabolic

#### Mounting location:

 Top mount Thread mount Flange mount Bypass/Sidepipe Mount Pipe mount
 Displacer replacement  
(please supply drawings)

#### Pressure:

Normal: \_\_\_\_\_

Maximum (relief): \_\_\_\_\_

#### Interface Data

Upper material: \_\_\_\_\_ Lower material: \_\_\_\_\_ Emulsion layer:  YesUpper material thickness: \_\_\_\_\_ cm/in Lower material thickness: \_\_\_\_\_ cm/in  No (preferred)

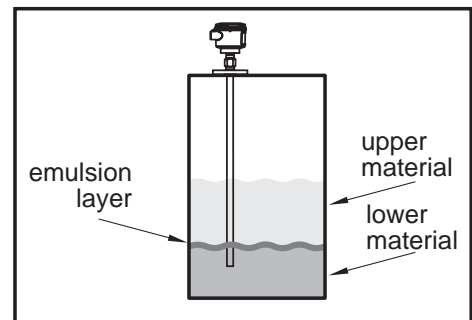
Upper material dielectric: \_\_\_\_\_ Lower material dielectric: \_\_\_\_\_ Emulsion thickness: \_\_\_\_\_ cm/in

#### Material

Material being measured: \_\_\_\_\_

 Liquid  Slurry

Material temperature: Norm: \_\_\_\_\_ °C/°F Max: \_\_\_\_\_ °C/°F

Coating buildup:  Yes  No Turbulence:  Yes  No
 Maximum Viscosity: \_\_\_\_\_ Density: \_\_\_\_\_ kg/m<sup>3</sup>  
Kinematic Viscosity (cSt) = Dynamic Viscosity (cP) / Density (kg/m<sup>3</sup>)
 1 to 5 cSt (like water) 50 to 100 cSt (like honey) 5 to 20 cSt (like machine oil) 100 to 500 cSt (like syrup/molasses) 20 to 50 cSt (like cooking oil) >500 cSt (like tar)

#### Installation

Power available: \_\_\_\_\_

Outputs required:  4 to 20 mACommunications:  HART®/4 to 20 mA Other (please specify) \_\_\_\_\_

#### Products recommended:

**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
- 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).

**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.

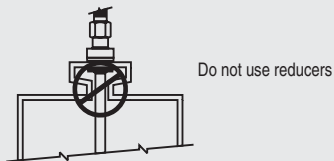
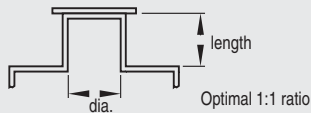
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### SITRANS LG200

#### Configuration

##### Mounting on a nozzle



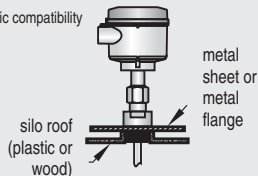
##### Installation in non-metallic silos<sup>1)</sup>

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.

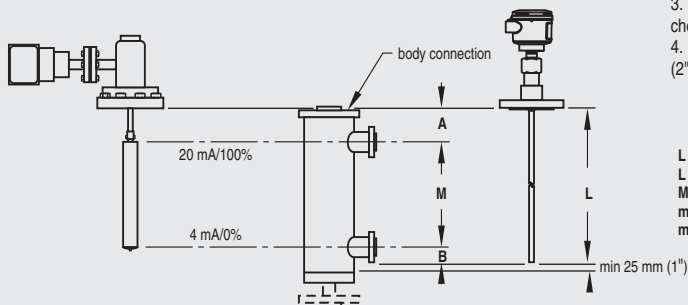
A flanged process connection is generally accepted to be provision of this launch plate.

<sup>1)</sup> See Electromagnetic compatibility



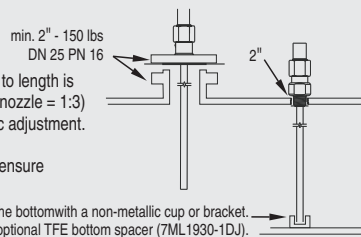
##### Displacer/Torque Tube Replacement

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.



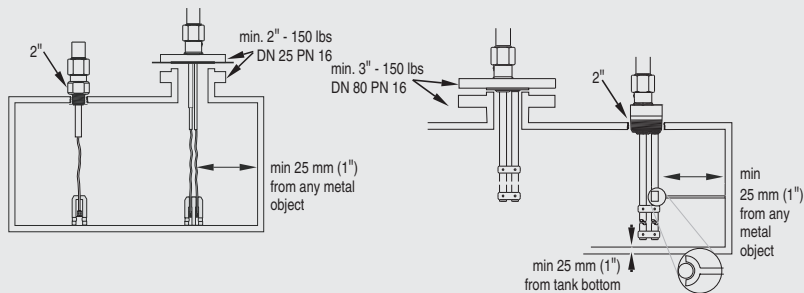
##### Single Rod mounting:

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 (ie: 2"x6" 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.



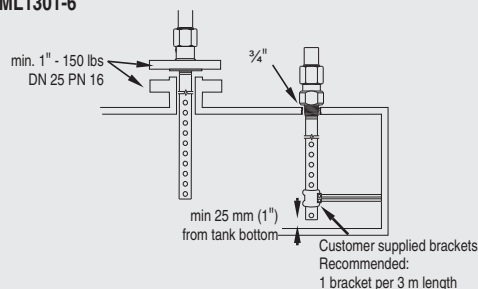
##### Twin Rod mounting 7ML1302-x:

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

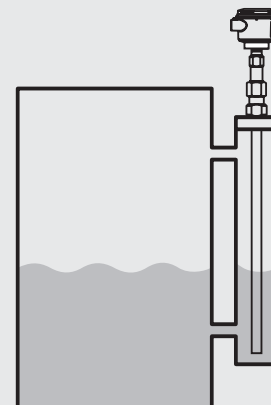


##### Bypass pipe

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

$$L = A + M + B$$

L = probe insertion length  
M = measuring range  
min. 300 mm (11.81")  
max. 5700 mm (224")



SITRANS LG200 installation

## Technical specifications

<b>Mode of operation</b>	
Measuring principle	Guided wave radar measurement
Measuring range	0.15 to 22.5 m (0.5 to 75 ft)
<b>Output</b>	
mA analog output with HART digital signal	Optically isolated 4 to 20 mA, 620 Ω max.
Output range	
• Analog	3.8 to 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
<b>Performance</b>	
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
<b>Rated operating conditions<sup>1)</sup></b>	
• Ambient temperature for enclosure	-40 to +80 °C (-40 to +176 °F)
• LCD readable temperature range	-20 to +70 °C (-5 to +160 °F)
• Location	Indoor/outdoor
• Installation category	II
• Pollution degree	2
<b>Medium conditions<sup>1)</sup></b>	
Dielectric constant	dK ≥ 1.4
Process temperature range <sup>2)</sup>	-196 to +427 °C (-321 to +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 1/2" NPT

## Process connections

- Threaded G 3/4" [(BSPP), EN ISO 228-1], 1", 1 1/2", 2" NPT [(Taper), ANSI/ASME B1.20.1] and G 2" [(BSPP), EN ISO 228-1]
- Flanged 3/4" to 4", ASME, DIN flanges
- Hygienic 3/4" to 4", Triclover

## Programming

Local Three button, menu-driven data entry with security passwords

Remote SIMATIC PDM via HART

**Power** 11 to 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 E, 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 Functional Safety to SIL-1 in accordance with IEC 61508 Safe Failure Fraction (SFF) of 85.5% (Third party FMEDA Analysis - hardware only)  
Functional Safety to SIL-2 in accordance with IEC 61508 Safe Failure Fraction (SFF) of 91% (Third party FMEDA Analysis - hardware only)

<sup>1)</sup> If installation is in areas classified as hazardous, please observe relevant certificates

<sup>2)</sup> Temperature rating is pressure dependent

<sup>3)</sup> Pressure rating is temperature dependent

# Level instruments

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

	<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>
Recommended applications	General purpose: clean, low viscosity liquids < +150 °C (+300 °F)	Clean, high temperature/high pressure liquids > +200 °C (+400 °F), ammonia, chlorine	Clean, high pressure liquids < +200 °C (+400 °F), ammonia, chlorine	General applications, overfill, temperatures to +200 °C (+400 °F), clean, low viscosity liquids, displacer/torque-tube replacement
Not recommended for	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>1)</sup>	316L SS, Alumina spacers (option PEEK or TFE), Borosilicate	316L SS, TFE spacers, Borosilicate	316L SS, TFE spacers, O-ring <sup>1)</sup>
Process seal	O-ring <sup>1)</sup>	Borosilicate (no O-ring)	Borosilicate (no O-ring)	O-Ring <sup>1)</sup>
Rod/tube diameter				
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]
Flange ASME (EN/DIN)				
Standard	1 to 4" (DN 25 to 100)	1 to 4" (DN 25 to 100)	1 to 4" (DN 25 to 100)	1 to 4" (DN 25 to 100)
Enlarged	2 to 4" (DN 50 to 100)	2 to 4" (DN 50 to 100)	2 to 4" (DN 50 to 100)	2 to 4" (DN 50 to 100)
Length	60 to 610 cm (24 to 240")	60 to 610 cm (24 to 240")	60 to 610 cm (24 to 240")	60 to 610 cm (24 to 240")
Transition Zone <sup>3)</sup>				
Top	25 mm (1") @ dk = 1.4 150 mm (6") @ dk = 80	none	25 mm (1") @ dk = 1.4 150 mm (6") @ dk = 80	none
Bottom	150 mm (6") @ dk = 1.4 25 mm (1") @ dk = 80	150 mm (6") @ dk = 1.4 25 mm (1") @ dk = 80	150 mm (6") @ dk = 1.4 25 mm (1") @ dk = 80	150 mm (6") @ dk = 1.4 25 mm (1") @ dk = 80
Process temperature maximum	+150 °C @ 27 bar g (+300 °F @ 400 psi g)	+427 °C @ 133 bar g (+800 °F @ 2000 psi g)	+200 °C @ 379 bar g (+400 °F @ 5500 psi g)	+200 °C @ 18 bar g (+400 °F @ 270 psi g)
Process temperature minimum	-40 °C @ 70 bar g (-40 °F @ 1000 psi g)	-196 °C @ 430 bar g (-321 °F @ 6250 psi g)	-196 °C @ 430 bar g (-321 °F @ 6250 psi g)	-40 °C @ 70 bar g (-40 °F @ 1000 psi g)
Process pressure				
Process pressure maximum	70 bar g @ +20 °C (1000 psi g @ +70 °F)	431 bar g @ +20 °C (6250 psi g @ +70 °F)	431 bar g @ +20 °C (6250 psi g @ +70 °F)	70 bar g @ +20 °C (1000 psi g @ +70 °F)
Process pressure minimum/vacuum service	Yes, not hermetic <sup>2)</sup>	Yes, hermetic (<10 <sup>-8</sup> cc/sec @ 1 atmosphere)	Yes, hermetic (<10 <sup>-8</sup> cc/sec @ 1 atmosphere)	Yes, not hermetic
Dielectric range	1.4 to 100	1.4 to 100	1.4 to 100	1.4 to 100
Maximum viscosity (cP)				
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

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

<sup>2)</sup> Not hermetic: sealing by means of O-ring. Hermetic: sealing by means of borosilicate glass window

<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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®Hastelloy is a registered trademark of Haynes International

®Kalrez is a registered trademark of DuPont Dow Elastomers

®Monel is a registered trademark of Special Metals Corporation

## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

	Coaxial Steam Probe (7ML1301-5)	Coaxial Interface Probe (7ML1301-6)	Single Rigid Rod Probe (7ML1303-1)	Single Rigid Rod HT/HP Probe (7ML1303-2)	Single Rigid Rod Probe, PFA rod insula- tion (7ML1303-1J)
<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>
Recommended applications	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>
Rod/Tube diameter					
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" [(BSP), EN ISO 228-1]	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSP), EN ISO 228-1]	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSP), EN ISO 228-1]	¾" NPT [(Taper), ANSI/ASME B1.20.1], G 1" [(BSP), EN ISO 228-1]	2" NPT [(Taper), ANSI/ASME B1.20.1], G 2" [(BSP), EN ISO 228-1]
Enlarged	N/A	2" NPT [(Taper), ANSI/ASME B1.20.1]	2" NPT [(Taper), ANSI/ASME B1.20.1]	2" NPT [(Taper), ANSI/ASME B1.20.1]	N/A
Flange ASME (EN/DIN)					
Standard	1 to 4" (DN 25 to 100)	1 to 4" (DN 25 to 100)	2 to 4" (DN 50 to 100)	2 to 4" (DN 50 to 100)	2 to 4" (DN 50 to 100)
Enlarged	N/A	2 to 4" (DN 50 to 100)	N/A	N/A	N/A
Length	60 to 455 cm (24 to 180")	60 to 610 cm (24 to 240")	60 to 610 cm (24 to 240")	60 to 610 cm (24 to 240")	60 to 610 cm (24 to 240")
Transition Zone <sup>3)</sup>					
Top	25 mm (1") @ dk ≥ 10	none	Blocking distance: 12 to 91 cm (4.8 to 36"), probe length dependent	Blocking distance: 12 to 91 cm (4.8 to 36"), probe length dependent	Blocking distance: 12 to 91 cm (4.8 to 36"), probe length dependent
Bottom	25 mm (1") @ dk ≥ 10	150 mm (6") @ dk = 1.4 25 mm (1") @ dk = 80	25 mm (1") @ dk >10	25 mm (1") @ dk >10	25 mm (1") @ dk >10
Process temperature maximum	+343 °C @ 165 bar g (+650 °F @ 2400 psi g) (saturated steam)	+200 °C @ 18 bar g (+400 °F @ 270 psi g)	+150 °C @ 27 bar g (+300 °F @ 400 psi g)	+316 °C @ 165 bar g (+605 °F @ 2400 psi g)	+150 °C @ 27 bar g (+300 °F @ 400 psi g)
Process temperature minimum	-40 °C @ 207 bar g (-40 °F @ 3000 psi g)	-40 °C @ 70 bar g (-40 °F @ 1000 psi g)	-40 °C @ 70 bar g (-40 °F @ 1000 psi g)	-40 °C @ 70 bar g (-40 °F @ 1000 psi g)	-40 °C @ 50 bar g (-40 °F @ 750 psi g)
Process pressure maximum	165 bar g @ +343 °C (2400 psi g @ +650 °F)	70 bar g @ +20 °C (1000 psi g @ +70 °F)	70 bar g @ +20 °C (1000 psi g @ +70 °F)	207 bar g @ +20 °C (3000 psi g @ +70 °F)	70 bar g @ +20 °C (1000 psi g @ +70 °F)
Process pressure min. vacuum service	Yes, not hermetic	Yes, not hermetic	Not suitable	Not suitable	Not suitable
Dielectric range	10 to 100	Upper liquid layer 1.4 to 5 Interface liquid layer 15 to 100	1.9 to 100 <sup>1)</sup>	1.9 to 100 <sup>1)</sup>	1.9 to 100 <sup>1)</sup>
Maximum viscosity					
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 to 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 instruments

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

	Single Rigid Rod Probe, Sanitary (7ML1303-1D)	Single Rigid Rod Probe, PFA faced flange(7ML1303-1E)	Single Flexible Rod Probe (7ML1304-1)	Single Flexible Rod Probe for Bulk Solids (7ML1304-2)
<b>Model reference number</b>	<b>7xF-E</b>	<b>7xF-F</b>	<b>7x1-x</b>	<b>7x2-x</b>
Recommended applications:	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
Not recommended for	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
Rod/tube diameter	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 to 100 mm (¾ to 4") Triclover-style 16 amp fitting	2 to 4" (DN 50 to 100)	2 to 4" (DN 50 to 100)	2 to 4" (DN 50 to 100)
Length	60 to 610 cm (24 to 240")	60 to 610 cm (24 to 240")	1 to 22.5 meters (3 to 75 ft)	1 to 22.5 meters (3 to 75 ft)
Transition Zone <sup>3)</sup>				
Top	Blocking distance: 0 to 91 cm (0 to 36"), probe length dependent	Blocking distance: 12 to 91 cm (4.8 to 36"), probe length dependent	Blocking distance: 12 to 91 cm (4.8 to 36"), probe length dependent	Blocking distance: 12 to 91 cm (4.8 to 36"), probe length dependent
Bottom	25 mm (1") @ dk >10	25 mm (1") @ dk >10	305 mm (12")	305 mm (12")
Process temperature maximum	+150 °C @ 5.1 bar g (+300 °F @ 75 psi g)	+150 °C @ 27 bar g (+300 °F @ 400 psi g)	+150 °C @ 27 bar g (+300 °F @ 400 psi g)	+66 °C @ 3.4 bar g (+150 °F @ 50 psi g)
Process temperature minimum	0 °C at 5.1 bar g (+32 °F at 75 psi g)	-40 °C @ 13.7 bar g (-40 °F @ 200 psi g)	-40 °C @ 70 bar g (-40 °F @ 1000 psi g)	-40 °C @ 3.4 bar g (-40 °F @ 50 psi g)
Process pressure:				
Process pressure maximum	5.1 bar g @ +150 °C (75 psi g @ +300 °F)	70 bar g @ +20 °C (1000 psi g @ +70 °F)	70 bar g @ +20 °C (1000 psi g @ +70 °F)	3.4 bar g +66 °C (50 psi g @ +150 °F)
Process pressure minimum/vacuum service	Not suitable for vacuum applications			
Dielectric range	1.9 to 100 <sup>1)</sup>	1.9 to 100 <sup>1)</sup>	4 to 100 <sup>1)</sup>	4 to 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 to 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

	<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 to 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 flexible elements
<b>Materials/wetted parts</b>	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>
<b>Process seal</b>	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>
<b>Process connection thread</b>	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]
<b>Flange ASME (EN/DIN)</b>	2 to 4" (DN 50 to 100)	2 to 4" (DN 50 to 100)	2 to 4" (DN 50 to 100)
<b>Length</b>	60 to 610 cm (24 to 240")	1 to 22.5 m (3 to 75 ft)	1 to 22.5 m (3 to 75 ft)
<b>Transition Zone<sup>2)</sup>:</b>			
<b>Top</b>	150 mm (6") @ dK > 1.9 Blocking distance: none	150 mm (6") @ dK > 1.9 Blocking distance: 12 to 50 cm (4.8 to 20")	150 mm (6") @ dK > 1.9 Blocking distance: 12 to 50 cm (4.8 to 20")
<b>Bottom</b>	150 mm (6") @ dK = 1.9 25 mm (1") @ dK = 80	305 mm (12")	305 mm (12")
<b>Process temperature max.<sup>3)</sup></b>	+200 °C @ 19 bar g (+400 °F @ 275 psi g)		+66 °C @ 3.4 bar g (+ 150 °F @ 50 psi g)
<b>Process temperature min.</b>	-40 °C @ 70 bar g (-40 °F @ 1000 psi g)		-40 °C @ 3.4 bar g (-40 °F @ 50 psi g)
<b>Process pressure max.</b>	70 bar g @ +20 °C (1000 psi g @ +70 °F)		3.4 bar g @ +66 °C (50 psi g @ + 150 °F)
<b>Process pressure min./vacuum service</b>	Yes, not hermetic		Not suitable
<b>Dielectric range</b>	1.9 to 100	1.9 to 100	1.9 to 100
<b>Maximum viscosity (cP)</b>	1500	1500	Not suitable
<b>Coating/buildup</b>	Yes, maximum error 3% of coated length with conductive media Bridging not recommended. <sup>4)</sup>		
<b>Foam</b>	Yes	Yes	Yes
<b>Corrosives</b>	Yes	No	Yes
<b>Sanitary</b>	No	No	No
<b>Overfill</b>	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	Hot alkaline solutions, HF acid, media with pH>12

# Level instruments

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

#### Selection and Ordering data

##### SITRANS LG200 Transmitter

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.

#### Note:

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

For orders of 10 or more, please consult factory.

#### Power

24 V DC, 2-wire

#### Signal Output

4 to 20 mA HART

#### Options

SIL-1 Approved (FMEDA analysis) SFF = 85.5 %  
SIL-2 Approved (FMEDA analysis) SFF = 91 %

#### Enclosure/lid

Aluminum  
Aluminum with glass window

#### Cable inlet

2 x ½" NPT, IP65  
2 x M20x1.5, IP65

#### Approvals (Please select for your region)

##### North America

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)

##### Europe

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/EEEx nA (nL) IIC T4 to T6]

#### Further designs

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

For tagging information see probe configurations (additional option Y15)

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.]

#### Instruction manual

English (C) **7ML1998-5KA01**  
French (C) **7ML1998-5KA11**  
German (C) **7ML1998-5KA31**  
Multi-language Quick Start manual (C) **7ML1998-5XG81**

This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.

#### Accessories

SITRANS RD100 Remote display - see RD100 on page 5/304  
SITRANS RD200 Remote display - see RD200 on page 5/306

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

Order No.

C) **7ML1300-**

■ ■ ■ ■ ■ 1 ■ - ■ ■ A 0

1

A

A

B

1

2

0

1

A

B

C

D

E

Order code

**C11**

Order No.

(C) **7ML1998-5KA01**  
(C) **7ML1998-5KA11**  
(C) **7ML1998-5KA31**  
(C) **7ML1998-5XG81**

#### Selection and Ordering data

##### SITRANS LG200 Coaxial Probes

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 to 100).

#### Note:

For orders of 10 or more, please consult factory.

#### Model

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**

#### Material of Construction

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<sup>7)</sup> **E**  
316/316L (1.4401/1.4404) stainless steel probe and process connection with PEEK HT spacers<sup>8)</sup> **H**  
316/316L (1.4401/1.4404) stainless steel probe and process connection with Teflon<sup>®</sup> spacers<sup>8)</sup> **J**

#### Probe Insertion Length

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

Model option 1, 4 and Material of Construction option A, E: 60 to 100 cm (23.6 to 39.4") **A 1**  
Model option 1, 4 and Material of Construction option A, E: 101 to 200 cm (39.8 to 78.7") **A 2**  
Model option 1, 4 and Material of Construction option A, E: 201 to 300 cm (79.1 to 118.1") **A 3**  
Model option 1, 4 and Material of Construction option A, E: 301 to 400 cm (118.5 to 157.5") **A 4**  
Model option 1, 4 and Material of Construction option A, E: 401 to 500 cm (157.9 to 196.9") **A 5**  
Model option 1, 4 and Material of Construction option A, E: 501 to 610 cm (197.2 to 240.2") **A 6**  
Add order code Y01 and plain text:  
"Insertion length ... cm"

Model options 3, 6 with Material of Construction option A: 60 to 100 cm (23.6 to 39.4") **B 1**

Model options 3, 6 with Material of Construction option A: 101 to 200 cm (39.8 to 78.7") **B 2**

Model options 3, 6 with Material of Construction option A: 201 to 300 cm (79.1 to 118.1") **B 3**

Model options 3, 6 with Material of Construction option A: 301 to 400 cm (118.5 to 157.5") **B 4**

Model options 3, 6 with Material of Construction option A: 401 to 500 cm (157.9 to 196.9") **B 5**

Model options 3, 6 with Material of Construction option A: 501 to 610 cm (197.2 to 240.2") **B 6**

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

Model options 3, 6 with Material of Construction option E: 60 to 100 cm (23.6 to 39.4") **C 1**

Model options 3, 6 with Material of Construction option E: 101 to 200 cm (39.8 to 78.7") **C 2**

Model options 3, 6 with Material of Construction option E: 201 to 300 cm (79.1 to 118.1") **C 3**

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

Order No.

C) **7ML1301-**

■ ■ ■ ■ ■ - ■ ■ ■ 0

## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

Selection and Ordering data	Order No.
<b>SITRANS LG200 Coaxial Probes</b>	C) 7ML1301-
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 to 100).	
<b>Note:</b>	
<b>For orders of 10 or more, please consult factory.</b>	
Model options 3, 6 with Material of Construction option E: 301 to 400 cm (118.5 to 157.5")	C 4
Model options 3, 6 with Material of Construction option E: 401 to 500 cm (157.9 to 196.9")	C 5
Model options 3, 6 with Material of Construction option E: 501 to 610 cm (197.2 to 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 to 100 cm (23.6 to 39.4")	E 1
Model option 2 with Material of Construction options A, E, H, J: 101 to 200 cm (39.8 to 78.7")	E 2
Model option 2 with Material of Construction options A, E, H, J: 201 to 300 cm (79.1 to 118.1")	E 3
Model option 2 with Material of Construction options A, E, H, J: 301 to 400 cm (118.5 to 157.5")	E 4
Model option 2 with Material of Construction options A, E, H, J: 401 to 500 cm (157.9 to 196.9")	E 5
Model option 2 with Material of Construction options A, E, H, J: 501 to 610 cm (197.2 to 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 to 100 cm (23.6 to 39.4")	F 1
Model option 5 with Material of Construction options A, D: 101 to 200 cm (39.8 to 78.7")	F 2
Model option 5 with Material of Construction options A, D: 201 to 300 cm (79.1 to 118.1")	F 3
Model option 5 with Material of Construction options A, D: 301 to 400 cm (118.5 to 157.5")	F 4
Model option 5 with Material of Construction options A, D: 401 to 455 cm (157.9 to 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 <sup>9)</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>10)</sup>	AC
2" NPT [(Taper), ANSI/ASME B1.20.1] <sup>10)</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>9)</sup>	BD
1" 2500 lb ASME raised face flange <sup>9)</sup>	BE
1" 900/1500 lb ASME ring joint flange <sup>9)</sup>	BF
1" 2500 lb ASME ring joint flange <sup>9)</sup>	BG
1½" 150 lb ASME raised face flange	CA
1½" 300 lb ASME raised face flange	CB

Selection and Ordering data	Order No.
<b>SITRANS LG200 Coaxial Probes</b>	C) 7ML1301-
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 to 100).	
<b>Note:</b>	
<b>For orders of 10 or more, please consult factory.</b>	
1½" 600 lb ASME raised face flange	CC
1½" 900/1500 lb ASME raised face flange <sup>9)</sup>	CD
1½" 2500 lb ASME raised face flange <sup>9)</sup>	CE
1½" 600 lb ASME ring joint flange	CF
1½" 900/1500 lb ASME ring joint flange <sup>9)</sup>	CG
1½" 2500 lb ASME ring joint flange <sup>9)</sup>	CH
2" 150 lb ASME raised face flange	DA
2" 300 lb ASME raised face flange	DB
2" 600 lb ASME raised face flange	DC
2" 900/1500 lb ASME raised face flange <sup>9)</sup>	DD
2" 2500 lb ASME raised face flange <sup>9)</sup>	DE
2" 600 lb ASME ring joint flange	DF
2" 900/1500 lb ASME ring joint flange <sup>9)</sup>	DG
2" 2500 lb ASME ring joint flange <sup>9)</sup>	DH
3" 150 lb ASME raised face flange	EA
3" 300 lb ASME raised face flange	EB
3" 600 lb ASME raised face flange	EC
3" 900 lb ASME raised face flange <sup>9)</sup>	ED
3" 1500 lb ASME raised face flange <sup>9)</sup>	EE
3" 2500 lb ASME raised face flange <sup>9)</sup>	EF
3" 600 lb ASME ring joint flange	EG
3" 900 lb ASME ring joint flange <sup>9)</sup>	EH
3" 1500 lb ASME ring joint flange <sup>9)</sup>	EJ
3" 2500 lb ASME ring joint flange <sup>9)</sup>	EK
4" 150 lb ASME raised face flange	FA
4" 300 lb ASME raised face flange	FB
4" 600 lb ASME raised face flange	FC
4" 900 lb ASME raised face flange <sup>9)</sup>	FD
4" 1500 lb ASME raised face flange <sup>9)</sup>	FE
4" 2500 lb ASME raised face flange <sup>9)</sup>	FF
4" 600 lb ASME ring type joint flange	FG
4" 900 lb ASME ring type joint flange <sup>9)</sup>	FH
4" 1500 lb ASME ring type joint flange <sup>9)</sup>	FJ
4" 2500 lb ASME ring type joint flange <sup>9)</sup>	FK
<b>EN flanges</b>	
DN 25 PN 16 EN 1092-1 Type A flat faced flange	GA
DN 25 PN 25/40 EN 1092-1 Type A flat faced flange	GB
DN 25 PN 64/100 EN 1092-1 Type B1 raised faced flange	GC
DN 25 PN 160 EN 1092-1 Type B1 raised faced flange <sup>9)</sup>	GD
DN 25 PN 250 EN 1092-1 Type B1 raised faced flange <sup>9)</sup>	GE
DN 25 PN 320 EN 1092-1 Type B1 raised faced flange <sup>9)</sup>	GF
DN 25 PN 400 EN 1092-1 Type B1 raised faced flange <sup>9)</sup>	GG
DN 40 PN 16 EN 1092-1 Type A flat faced flange	HA
DN 40 PN 25/40 EN 1092-1 Type A flat faced flange	HB
DN 40 PN 64/100 EN 1092-1 Type B1 raised faced flange	HC
DN 40 PN 160 EN 1092-1 Type B1 raised faced flange <sup>9)</sup>	HD
DN 40 PN 250 EN 1092-1 Type B1 raised faced flange <sup>9)</sup>	HE

# Level instruments

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

#### Selection and Ordering data

Order No.

#### SITRANS LG200 Coaxial Probes

C) 7ML1301 -

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 to 100).

#### Note:

For orders of 10 or more, please consult factory.

DN 40 PN 320 EN 1092-1 Type B1 raised faced flange<sup>9)</sup>

HF

DN 40 PN 400 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

HG

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

JA

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

JB

DN 50 PN 64 EN 1092-1  
Type B1 raised faced flange

JC

DN 50 PN 100 EN 1092-1  
Type B1 raised faced flange

JD

DN 50 PN 160 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

JE

DN 50 PN 250 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

JF

DN 50 PN 320 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

JG

DN 50 PN 400 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

JH

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

KA

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

KB

DN 80 PN 64 EN 1092-1  
Type B1 raised faced flange

KC

DN 80 PN 100 EN 1092-1  
Type B1 raised faced flange

KD

DN 80 PN 160 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

KE

DN 80 PN 250 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

KF

DN 80 PN 320 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

KG

DN 80 PN 400 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

KH

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

LA

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

LB

DN 100 PN 64 EN 1092-1  
Type B1 raised faced flange

LC

DN 100 PN 100 EN 1092-1  
Type B1 raised faced flange

LD

DN 100 PN 160 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

LE

DN 100 PN 250 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

LF

DN 100 PN 320 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

LG

DN 100 PN 400 EN 1092-1  
Type B1 raised faced flange<sup>9)</sup>

LH

Fisher torque tube flange, carbon steel (249B)

MA

Fisher torque tube flange, 316 stainless steel (249C)

MB

Masonilan torque tube flange, carbon steel

MC

Masonilan torque tube flange, 316 stainless steel

MD

#### Selection and Ordering data

Order No.

#### SITRANS LG200 Coaxial Probes

C) 7ML1301 -

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 to 100).

#### Note:

For orders of 10 or more, please consult factory.

#### Further designs

Order code

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")

Y01

Stainless steel tag. Measuring-point number/identification (max. 16 characters); specify in plain text Inspection Certificate Type 3.1 per EN 10204

Y15

Manufacturer's test report (Hydrostatic Test)

C12

NACE MR-0175 materials traceability

C18

#### Instruction manual

English

C) 7ML1998-5KA01

French

C) 7ML1998-5KA11

German

C) 7ML1998-5KA31

Multi-language Quick Start manual

C) 7ML1998-5XG81

This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.

#### Accessories

Order No.

Coaxial probe shortening kit with TFE end spacer [for process temperatures < +200 °C (+400 °F)]

C) A5E02455728

Coaxial probe TFE end spacer [for process temperatures < +200 °C (+400 °F)]

C) A5E02479158

SITRANS RD100 Remote display - see RD100 on page 5/304

SITRANS RD200 Remote display - see RD200 on page 5/306

- 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
- 8) Used with Model option 2 only (coaxial High Temperature/High Pressure probe)
- 9) Available with model options 2, 3, and 5 only (High Temperature/High Pressure, High Pressure, and Steam probes only)
- 10) Available with Material of Construction option E only (enlarged coaxial probe)

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



## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

Selection and Ordering data	Order No.
<b>SITRANS LG200 Twin Rod Probes</b>	C) 7 ML 1 3 0 2 -
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>For orders of 10 or more, please consult factory.</b>	
<b>Model</b>	
Twin rod	1
Flexible twin rod bulk solids probe <sup>1)</sup>	2
Flexible twin rod probe	3
<b>Material of Construction</b>	
316/316L (1.4401/1.4404) stainless steel probe and process connection	A
<b>Process Connection (size/type)</b>	
2" NPT [(Taper), ANSI/ASME B1.20.1]	A 1
G 2" [(BSPP), EN ISO 228-1]	A 2
2" 150 lb ASME raised face flange	A 3
2" 300 lb ASME raised face flange	B 1
3" 150 lb ASME raised face flange	B 2
2" 600 lb ASME raised face flange	B 3
3" 300 lb ASME raised face flange	C 1
4" 150 lb ASME raised face flange	C 2
3" 600 lb ASME raised face flange	C 3
4" 300 lb ASME raised face flange	D 1
DN 50 PN 16 EN 1092-1 Type A flat faced flange	D 2
4" 600 lb ASME raised face flange	D 3
DN 50 PN 25/40 EN 1092-1 Type A flat faced flange	E 1
DN 80 PN 16 EN 1092-1 Type A flat faced flange	E 2
DN 80 PN 25/40 EN 1092-1 Type A flat faced flange	E 3
DN 100 PN 16 EN 1092-1 Type A flat faced flange	E 4
DN 100 PN 25/40 EN 1092-1 Type A flat faced flange	E 5
Fisher Torque Tube flange, 316SS (249C)	F 1
Masonellan Torque Tube flange, 316SS	G 1
<u>Carbon Steel</u>	
Fisher Torque Tube flange, Carbon Steel (249B)	K 1
Masonellan 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 to 100 cm (23.6 to 39.4")	AA
Model option 1 and Material of Construction option A: 101 to 200 cm (39.8 to 78.7")	AB
Model option 1 and Material of Construction option A: 201 to 300 cm (79.1 to 118.1")	AC

Selection and Ordering data	Order No.
<b>SITRANS LG200 Twin Rod Probes</b>	C) 7 ML 1 3 0 2 -
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>For orders of 10 or more, please consult factory.</b>	
Model option 1 and Material of Construction option A: 301 to 400 cm (118.5 to 157.5")	AD
Model option 1 and Material of Construction option A: 401 to 500 cm (157.9 to 196.9")	AE
Model option 1 and Material of Construction option A: 501 to 610 cm (197.2 to 240.2")	AF
<u>Standard lengths<sup>2)</sup></u>	
Model option 2,3 and Material of Construction option A: 1 meter (39.4") <sup>2)</sup>	EA
Model option 2,3 and Material of Construction option A: 2 meters (78.7") <sup>2)</sup>	EB
Model option 2,3 and Material of Construction option A: 3 meters (118.1") <sup>2)</sup>	EC
Model option 2,3 and Material of Construction option A: 4 meters (157.5") <sup>2)</sup>	ED
Model option 2,3 and Material of Construction option A: 5 meters (196.9") <sup>2)</sup>	EE
Model option 2,3 and Material of Construction option A: 6 meters (236.2") <sup>2)</sup>	EF
Model option 2,3 and Material of Construction option A: 7 meters (275.6") <sup>2)</sup>	EG
Model option 2,3 and Material of Construction option A: 8 meters (315.0") <sup>2)</sup>	EH
Model option 2,3 and Material of Construction option A: 9 meters (354.3") <sup>2)</sup>	EJ
Model option 2,3 and Material of Construction option A: 10 meters (393.7") <sup>2)</sup>	EK
Model option 2,3 and Material of Construction option A: 11 meters (433.1") <sup>2)</sup>	EL
Model option 2,3 and Material of Construction option A: 12 meters (472.4") <sup>2)</sup>	EM
Model option 2,3 and Material of Construction option A: 13 meters (511.8") <sup>2)</sup>	EN
Model option 2,3 and Material of Construction option A: 14 meters (551.2") <sup>2)</sup>	EP
Model option 2,3 and Material of Construction option A: 15 meters (590.6") <sup>2)</sup>	EQ
Model option 2,3 and Material of Construction option A: 16 meters (629.9") <sup>2)</sup>	ER
Model option 2,3 and Material of Construction option A: 17 meters (669.3") <sup>2)</sup>	ES
Model option 2,3 and Material of Construction option A: 18 meters (708.7") <sup>2)</sup>	ET
Model option 2,3 and Material of Construction option A: 19 meters (748.0") <sup>2)</sup>	EU
Model option 2,3 and Material of Construction option A: 20 meters (787.4") <sup>2)</sup>	EV
Model option 2,3 and Material of Construction option A: 21 meters (826.8") <sup>2)</sup>	EW
Model option 2,3 and Material of Construction option A: 22.5 meters (885.8") <sup>2)</sup>	EX

# Level instruments

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

#### Selection and Ordering data

##### SITRANS LG200 Twin Rod Probes

SITRANS LG200 twin rod probes are used in applications where coating and buildup are possible. Used in application with dielectric constant  $\geq 1.9$ .

#### Note:

For orders of 10 or more, please consult factory.

#### Further designs

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") (**Not needed for standard lengths, insertion length options EA to EX**)

Stainless steel tag. Measuring-point number/identification (max. 16 characters); specify in plain text Inspection Certificate Type 3.1 per EN 10204

Manufacturer's test report (Hydrostatic Test)<sup>3)</sup>

NACE MR-0175 materials traceability<sup>3)</sup>

#### Instruction manual

English

French

German

Multi-language Quick Start manual

This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.

#### Accessories

SITRANS RD100 Remote display - see RD100 on page 5/304

SITRANS RD200 Remote display - see RD200 on page 5/306

Order No.

C) **7ML1302-**

**0**

Order code

**Y01**

**Y15**

**C12**

**C18**

**D07**

Order No.

C) **7ML1998-5KA01**

C) **7ML1998-5KA11**

C) **7ML1998-5KA31**

C) **7ML1998-5XG81**

<sup>1)</sup> Available with O-ring option 11 only

<sup>2)</sup> No Y01 needed in order code

<sup>3)</sup> Available with Model option 1 only

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>	C) 7ML1303-	<b>SITRANS LG200 Single Rod Rigid Probes</b>	C) 7ML1303-
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 to 6" of a metal tank wall or in cage or bridle.	0	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 to 6" of a metal tank wall or in cage or bridle.	0
<b>Note:</b> For orders of 10 or more, please consult factory.		<b>Note:</b> For orders of 10 or more, please consult factory.	
<b>Model</b>			
Single rod rigid probe <sup>1)</sup>	1	DN 80, PN 16, EN 1092-1 Type A flat faced flange <sup>11)</sup>	L 3
High Temperature/High Pressure Single rod <sup>2) 3)</sup>	2	DN 80, PN 25/40, EN 1092-1 Type A flat faced flange <sup>11)</sup>	L 4
<b>Material of Construction</b>		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 probe and process connection	A	DN 100, PN 25/40, EN 1092-1 Type A flat faced flange <sup>11)</sup>	L 6
316/316L (1.4401/1.4404) stainless steel sanitary probe and process connection <sup>1) 4)</sup>	D		
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</u> <sup>10)</sup>		<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
<u>PFA Coated 316 stainless steel flange</u> <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	<b>O-Ring</b>	
DN 50, PN 25/40, EN 1092-1 Type A flat faced flange <sup>11)</sup>	L 2	Viton	1 1
		EPDM (Ethylene Propylene Rubber)	1 2
		Kalrez 4079	1 3



# Level instruments

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

#### Selection and Ordering data

Order No.

#### SITRANS LG200 Single Rod Rigid Probes

C) 7ML1303 -

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 to 6" of a metal tank wall or in cage or bridle.

#### Note:

For orders of 10 or more, please consult factory.

HSN (Nitrile)  
Buna-N  
Neoprene  
Chemraz  
Polyurethane  
Aegis PF128  
Kalrez 2035  
None

1 4  
1 5  
1 6  
1 7  
1 8  
2 12  
2 2  
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 to 100 cm (23.6 to 39.4")

AA

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

AB

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

AC

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

AD

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

AE

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

AF

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

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

BA

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

BB

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

BC

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

BD

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

BE

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

BF

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

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

CA

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

CB

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

CC

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

CD

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

CE

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

CF

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

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

DA

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

DB

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

DC

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

DD

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

DE

#### Selection and Ordering data

Order No.

#### SITRANS LG200 Single Rod Rigid Probes

C) 7ML1303 -

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 to 6" of a metal tank wall or in cage or bridle.

#### Note:

For orders of 10 or more, please consult factory.

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

DF

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

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

EA

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

EB

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

EC

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

ED

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

EE

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

EF

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 to 100 cm (23.6 to 39.4")<sup>13)</sup>

FA

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

FB

#### Further designs

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

Order code

Enter the total insertion length in plain text description, max. 610 cm (240.2")

Y01

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

Y15

Inspection Certificate Type 3.1 per EN 10204

C12

Manufacturer's test report (Hydrostatic Test)

C18

NACE MR-0175 materials traceability

D07

#### Instruction manual

English

C) 7ML1998-5KA01

French

C) 7ML1998-5KA11

German

C) 7ML1998-5KA31

Multi-language Quick Start manual

C) 7ML1998-5XG81

This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.

#### Accessories

TFE bottom spacer/endplate

C) 7ML1930-1DJ

SITRANS RD100 Remote display - see RD100 on page 5/304

SITRANS RD200 Remote display - see RD200 on page 5/306

- 1) Model option 1 with Material of Construction options D, E, F, available with O-ring option 23 only
  - 2) Available with O-ring option 21 only
  - 3) Available with Material of Construction option A only
  - 4) Available with Process Connection options A1, A6, A7, B0, B3, C3 only
  - 5) Available with Process Connection options H1, H2, J1, J2, K1, K2, L1, L2, L3, L4, L5, L6 only.
  - 6) Available with Process Connection options E0, E1, E2, E3, F1, G1 only
  - 7) Available with Material of Construction option D only
  - 8) Available with Material of Construction options A and J only
  - 9) Available with Probe Insertion Length options FA and FB only
  - 10) Available with Material of Construction option F only
  - 11) Available with Material of Construction option E only
  - 12) Available with Model option 2 only
  - 13) Available with Process Connection options A7 and E0 only (¾")
- C) Subject to export regulations AL: N, ECCN: EAR99

## Continuous level measurement - Guided wave radar transmitters

SITRANS LG200

Selection and Ordering data	Order No.
<b>SITRANS LG200 Single Rod Flexible Probes</b>	C) 7 ML 1 3 0 4 -
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 to 6" of a metal tank wall or in cage or bridle. For solids version only, $dk > 4$ .	0
<b>Note:</b>	
<b>For orders of 10 or more, please consult factory.</b>	
<b>Model</b>	
Single rod flexible probe	1
Single rod bulk solids flexible probe <sup>1)</sup>	2
<b>Material of Construction</b>	
316/316L (1.4401/1.4404) stainless steel probe and process connection	A
<b>Process Connection (size/type)</b>	
316/316L (1.4401/1.4404)	
2" NPT [(Taper), ANSI/ASME B1.20.1]	A 0
G 2" [(BSPP), EN ISO 228-1]	A 1
2" 150 lb ASME raised face flange	A 2
2" 300 lb ASME raised face flange	A 3
3" 150 lb ASME raised face flange	B 1
3" 300 lb ASME raised face flange	B 2
4" 150 lb ASME raised face flange	C 1
4" 300 lb ASME raised face flange	C 2
DN 50 PN 16 EN 1092-1 Type A flat faced flange	D 1
DN 50 PN 25/40 EN 1092-1 Type A flat faced flange	D 2
DN 80 PN 16 EN 1092-1 Type A flat faced flange	E 1
DN 80 PN 25/40 EN 1092-1 Type A flat faced flange	E 2
DN 100 PN 16 EN 1092-1 Type A flat faced flange	F 1
DN 100 PN 25/40 EN 1092-1 Type A flat faced flange	F 2
<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>Flexible Rod Length (To be shortened by customer as required)</b>	
1 meter (39.4")	AA
2 meters (78.7")	AB
3 meters (118.1")	AC
4 meters (157.5")	AD
5 meters (196.9")	AE
6 meters (236.2")	AF
7 meters (275.6")	AG
8 meters (315.0")	AH
9 meters (354.3")	AJ
10 meters (393.7")	AK
11 meters (433.1")	AL
12 meters (472.4")	AM
13 meters (511.8")	AN
14 meters (551.2")	AP
15 meters (590.6")	AQ
16 meters (629.9")	AR
17 meters (669.3")	AS
18 meters (708.7")	AT

Selection and Ordering data	Order No.
<b>SITRANS LG200 Single Rod Flexible Probes</b>	C) 7 ML 1 3 0 4 -
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 to 6" of a metal tank wall or in cage or bridle. For solids version only, $dk > 4$ .	0
<b>Note:</b>	
<b>For orders of 10 or more, please consult factory.</b>	
19 meters (748.0")	AU
20 meters (787.4")	AV
21 meters (826.8")	AW
22.5 meters (885.8")	AX
<b>Further designs</b>	Order code
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	Y15
<b>Instruction manual</b>	Order No.
English	C) 7ML1998-5KA01
French	C) 7ML1998-5KA11
German	C) 7ML1998-5KA31
Multi-language Quick Start manual	C) 7ML1998-5XG81
This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.	
<b>Accessories</b>	
SITRANS RD100 Remote display - see RD100 on page 5/304	
SITRANS RD200 Remote display - see RD200 on page 5/306	

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

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

# Level instruments

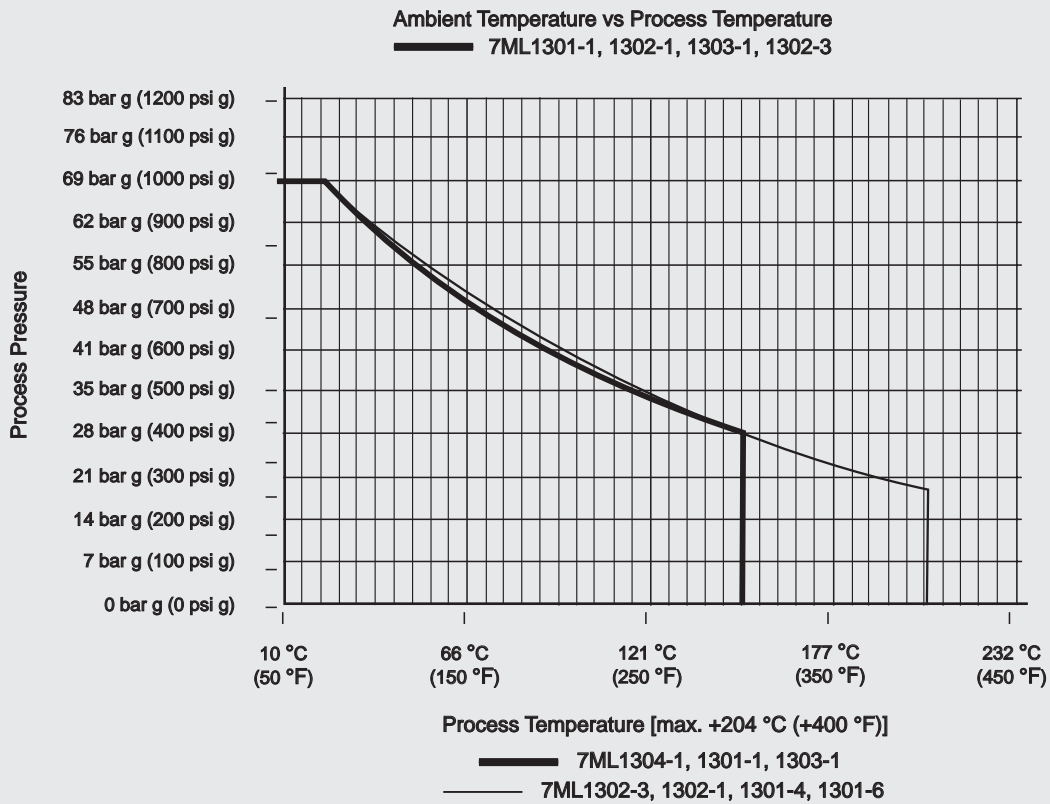
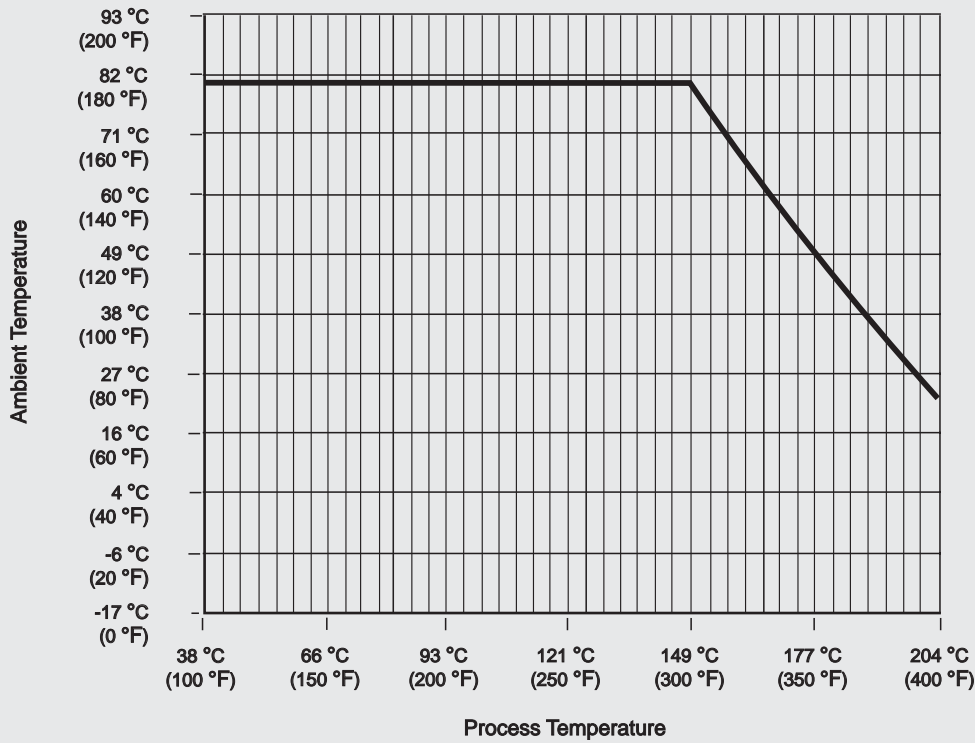
## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

Selection and Ordering data	Order No.
<b>SITRANS LG200 Chamber Replacement Probe</b> C) 7ML1305-	
SITRANS LG200 Chamber Replacement Probe replaces existing aging torque tube transmitters. Proprietary flanges can be used with existing chambers and cages.	
<b>Note:</b> <b>For this option, please consult factory</b>	
<b>Model</b> Chamber Replacement Probe <sup>1)</sup>	1
<b>Chamber/Process Connection Material of Construction</b> 316/316L stainless steel (B31.1 construction) Carbon Steel (106 Grade B) <sup>2)</sup> Carbon Steel (B31.1 construction)	A B C
<b>Process Connection (size/type)</b> 1½" NPT [(Taper), ANSI/ASME B1.20.1] thread 1½", 150 lb ASME raised face flange 1½", 300 lb ASME raised face flange 1½", 600 lb ASME raised face flange  1½" Socket weld 2" NPT [(Taper), ANSI/ASME B1.20.1] thread 2", 150 lb ASME raised face flange 2", 300 lb ASME raised face flange 2", 600 lb ASME raised face flange 2" Socket weld Other flange sizes available. Please consult factory.	A 0 A 1 A 2 A 3  B 1 B 2  C 1 C 2  D 1 D 2
<b>Level Range</b> 14" (0.356 meters) Other level ranges available. Please consult factory.	1
<b>Process Connection Configuration</b> Top In, Bottom Out Top In, Bottom Out, with Sight Glass Connections Other configurations available. Please consult factory.	1 2
<b>Temperature Range</b> +316 °C (+600 °F) (Dielectric constant ≥ 10) +260 °C (+500 °F) (Dielectric constant ≥ 1.4)	A B
<b>Chamber Type</b> Fisher 249B Fisher 259B Fisher 249	A B C
<b>Further designs</b>	Order code
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 Inspection Certificate Type 3.1 per EN 10204	Y15 C12
NACE MR-0175 materials traceability	D07
<b>Instruction manual</b>	Order No.
English	C) 7ML1998-5KA01
French	C) 7ML1998-5KA11
German	C) 7ML1998-5KA31
Multi-language Quick Start manual	C) 7ML1998-5XG81
This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.	

Selection and Ordering data	Order No.
<b>SITRANS LG200 Chamber Replacement Probe</b> C) 7ML1305-	
SITRANS LG200 Chamber Replacement Probe replaces existing aging torque tube transmitters. Proprietary flanges can be used with existing chambers and cages.	
<b>Note:</b> <b>For this option, please consult factory</b>	
<b>Accessories</b> SITRANS RD100 Remote display - see RD100 on page 5/304 SITRANS RD200 Remote display - see RD200 on page 5/306	
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	
C) Subject to export regulations AL: N, ECCN: EAR99	

Characteristic curves



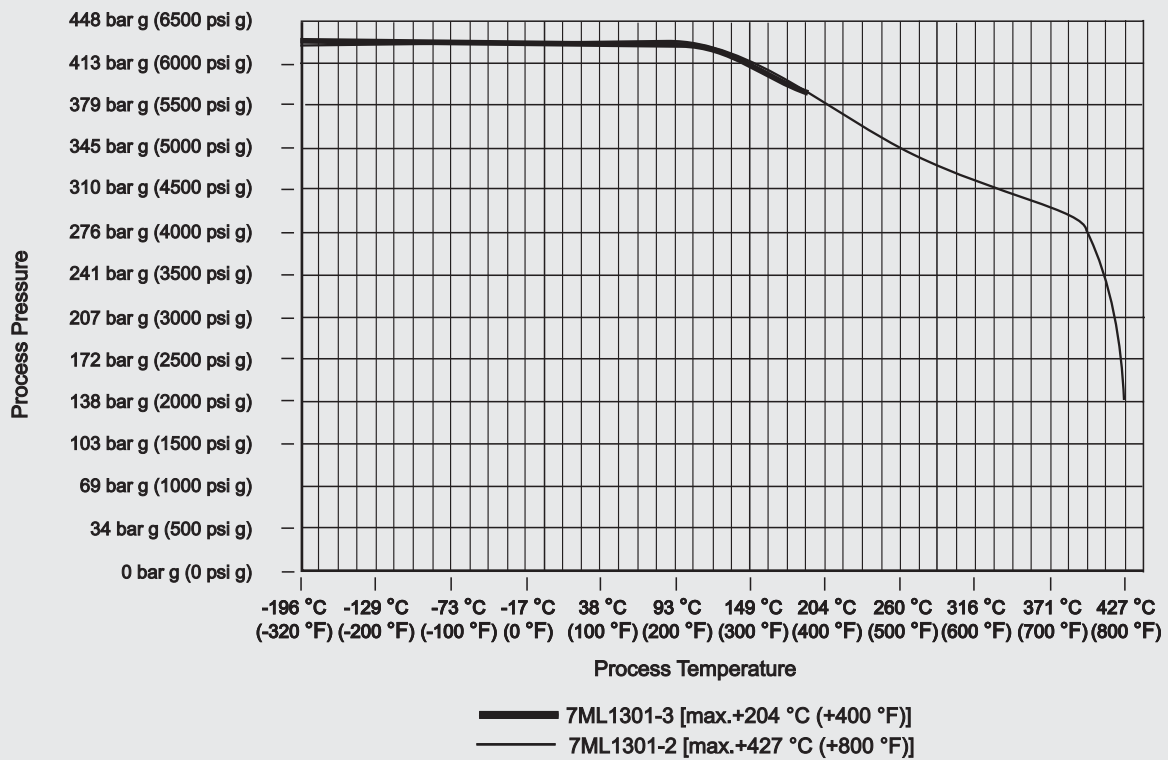
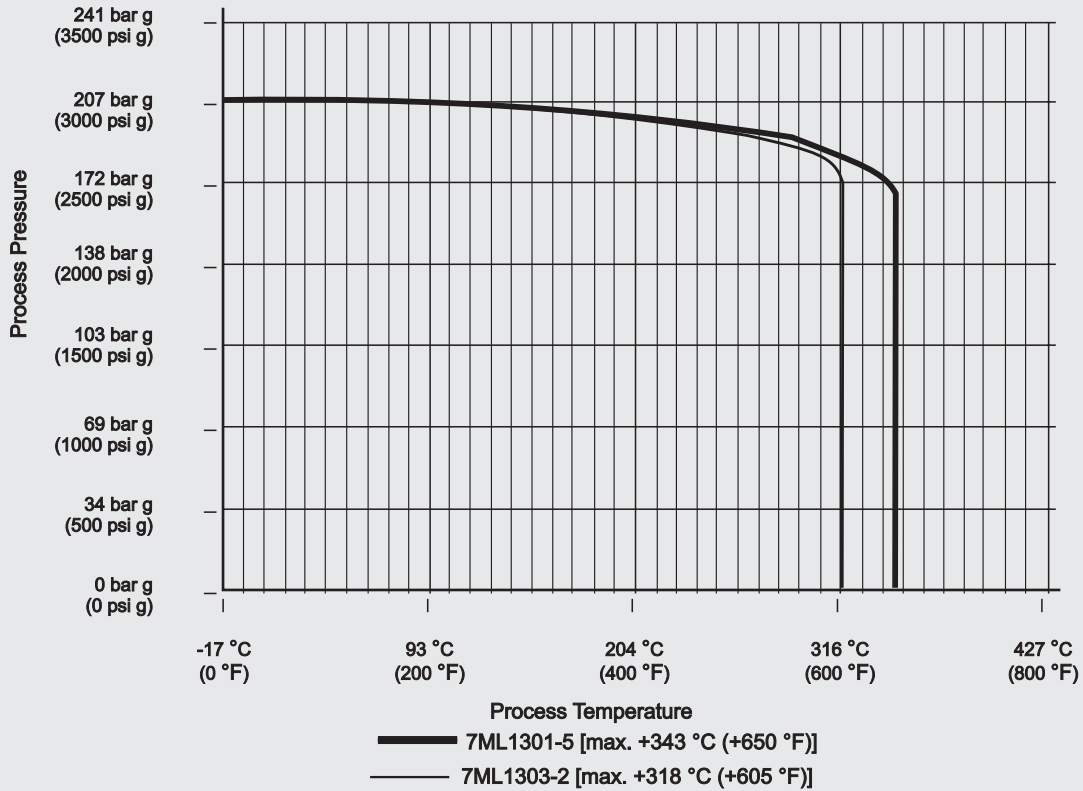
SITRANS LG200 Process Pressure/Temperature derating curves

# Level instruments

## Continuous level measurement - Guided wave radar transmitters

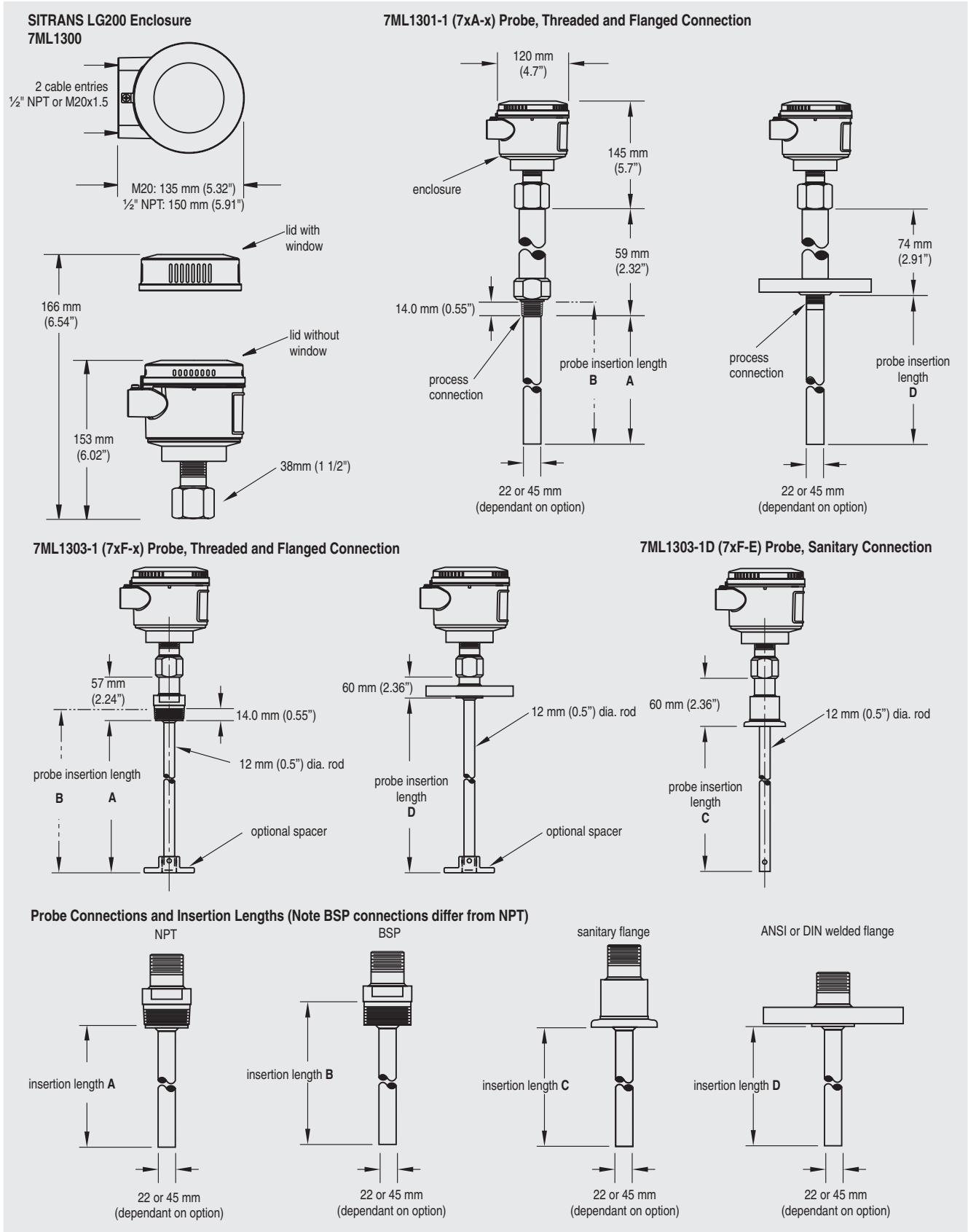
### SITRANS LG200

5



SITRANS LG200 Process Pressure/Temperature derating curves

Dimensional drawings



SITRANS LG200 dimensions (threaded process connection dimensions shown are NPT connections unless stated otherwise)

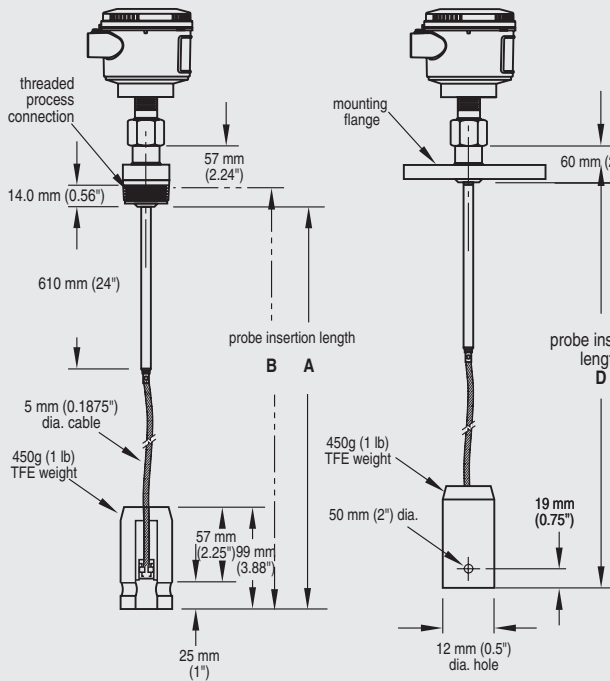
# Level instruments

## Continuous level measurement - Guided wave radar transmitters

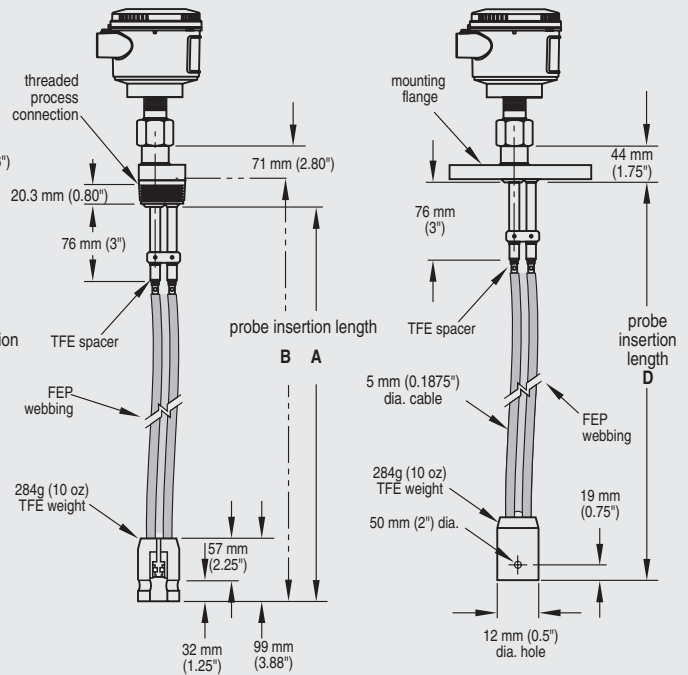
### SITRANS LG200

#### SITRANS LG200

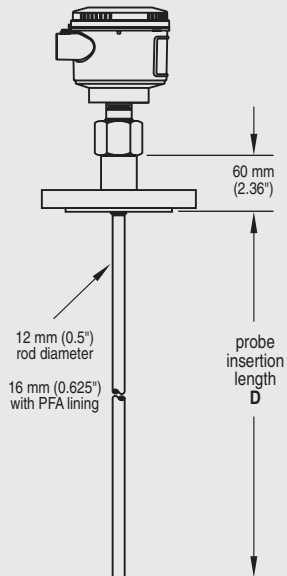
#### 7ML1304-1 (7x1-x) Flexible Probe, Threaded or Flanged Connection



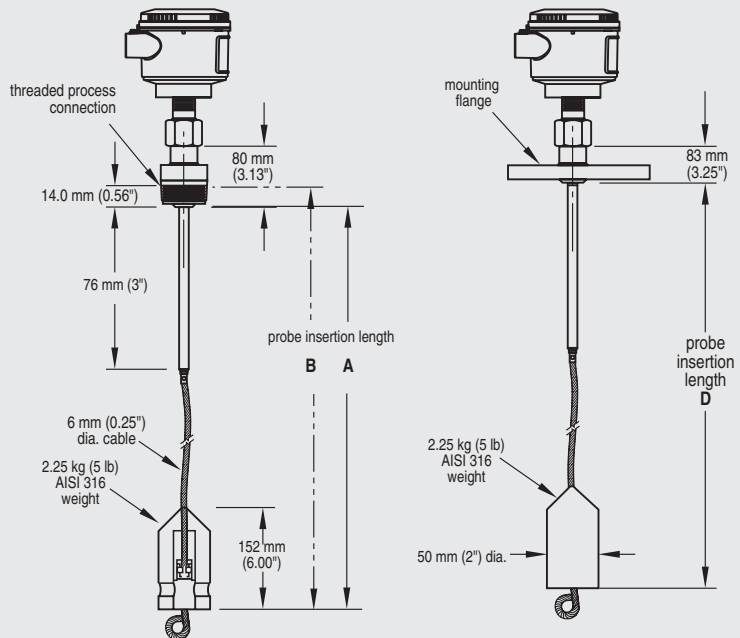
#### 7ML1302-3 (7x7-x) Twin Rod Flexible Probe, Threaded or Flanged Connection



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



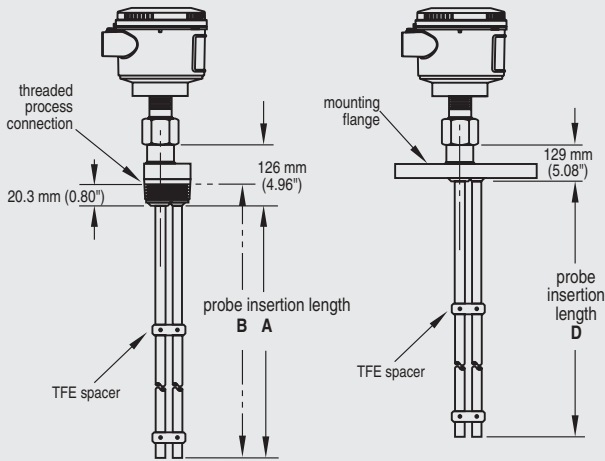
#### 7ML1304-2 (7x2-x) Bulk Solids Flexible Probe, Threaded or Flanged Connection



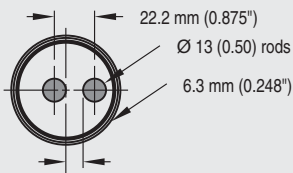
SITRANS LG200 dimensions (threaded process connection dimensions shown are NPT connections unless stated otherwise)

**SITRANS LG200**

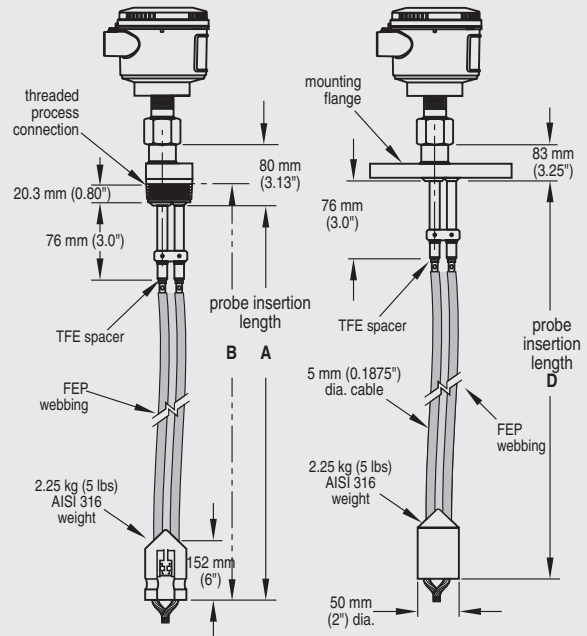
**7ML1302-1 (7xB-x) Twin Rod Probe, Threaded and Flanged Connection**



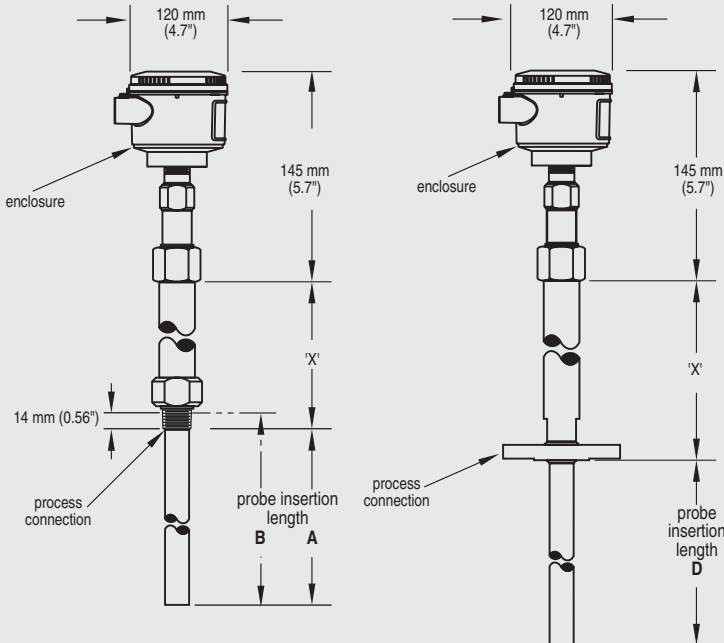
**Twin rod end view**



**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 mm (8.55")	277 mm (10.91")
7ML1301-3 (Coaxial HP Probe)	106 mm (4.18")	166 mm (6.54")
7ML1301-4 (Coaxial Overfill/Flooded Cage Probe), 7ML1301-6 (Coaxial Interface Probe)	150 mm (5.89")	167 mm (6.57")
7ML1301-5 (Coaxial HT/HP Steam Probe)	180 mm (7.10")	242 mm (9.52")

SITRANS LG200 dimensions (threaded process connection dimensions shown are NPT connections unless stated otherwise)

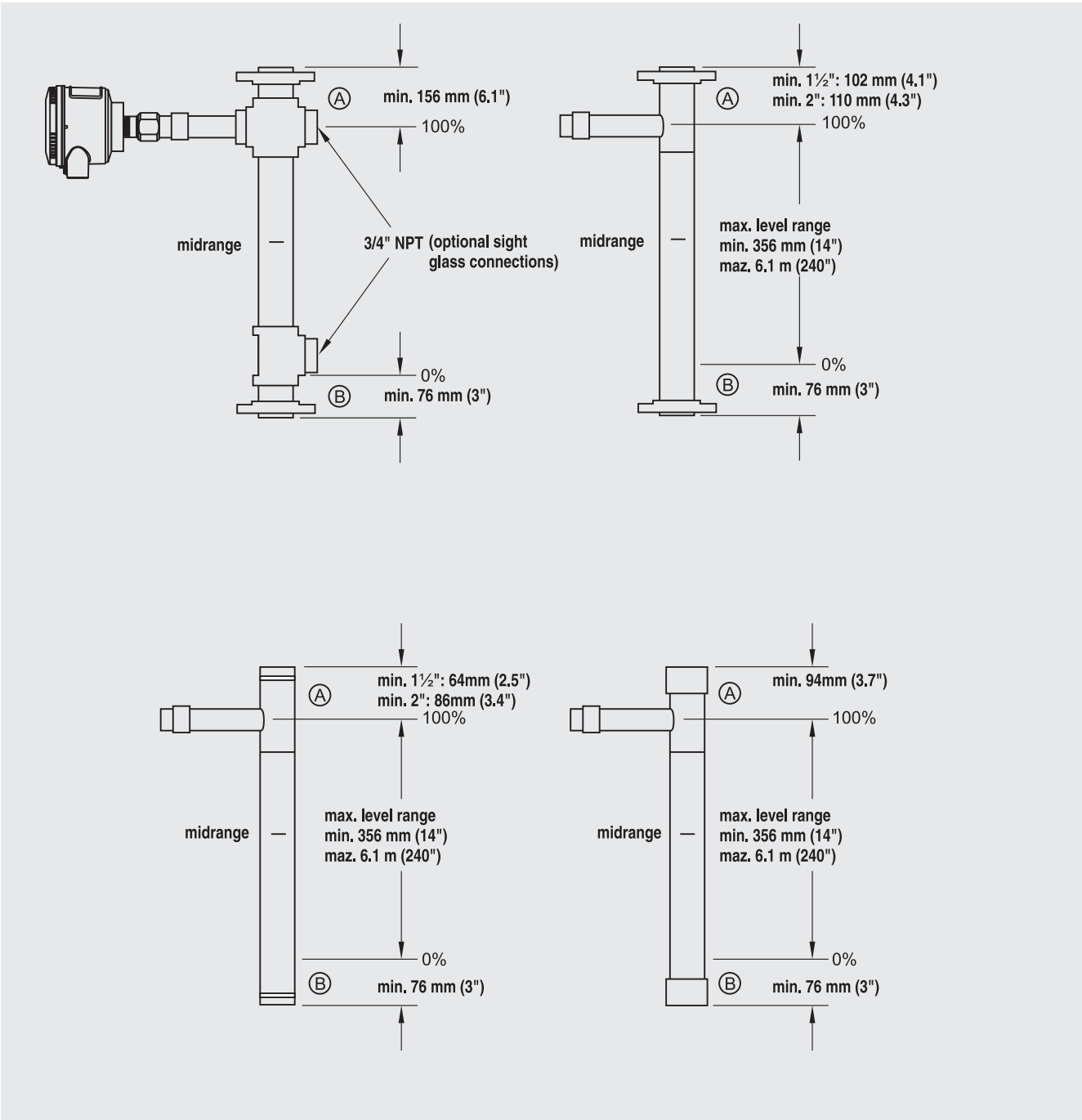


# Level instruments

## Continuous level measurement - Guided wave radar transmitters

### SITRANS LG200

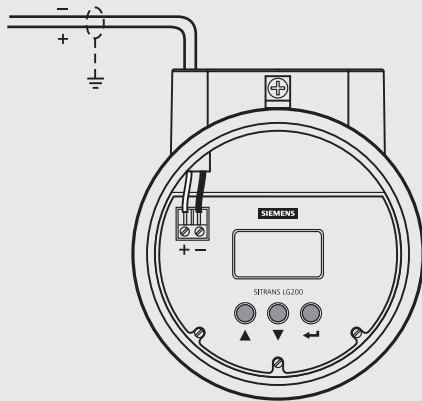
5



SITRANS LG200 - Model 7ML1305-1 Chamber Replacement Probe

## 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