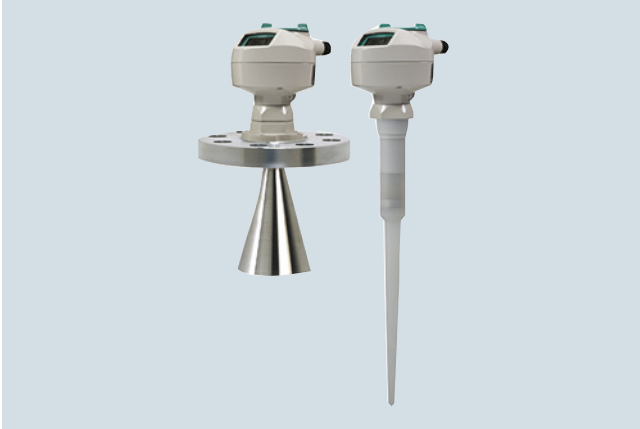


Overview



SITRANS LR200 is a 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in process vessels including high temperature, pressure, agitation, and turbulence to a range of 20 m (65 ft).

Benefits

- Graphical local user interface (LUI) makes operation simple with plug-and-play setup using the intuitive Quick Start Wizard
- LUI displays echo profiles for diagnostic support
- Communication using HART or PROFIBUS PA
- Process Intelligence signal processing for improved measurement reliability and Auto False-Echo Suppression of fixed obstructions
- Programming using infrared Intrinsically Safe handheld programmer or SIMATIC PDM

Application

SITRANS LR200's unique design allows safe and simple programming using the Intrinsically Safe handheld programmer without having to open the instrument's lid. It also features a built-in alphanumeric display in four languages.

The SITRANS LR200 has a standard Uni-Construction polypropylene rod antenna that offers excellent chemical resistance and is hermetically sealed. The Uni-Construction antenna features an internal, integrated shield that eliminates vessel nozzle interference.

Startup is easy with as few as two parameters for basic operation. Installation is simplified as the electronics are mounted on a rotating head that swivels, allowing the instrument to line up with conduit or wiring connections or simply to adjust the position for easy viewing. SITRANS LR200 features Process Intelligence signal-processing technology for superior reliability.

- Key Applications: liquid process vessels with agitators, vaporous liquids, high temperatures, asphalt, digesters

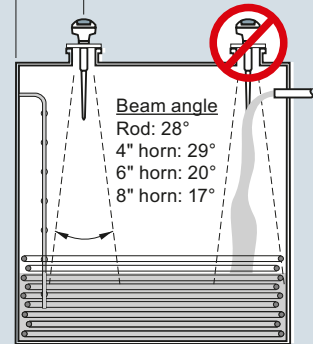
Configuration

Installation

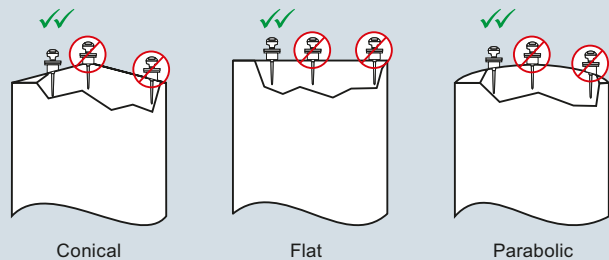
Min. 300 mm (1 ft) for every 3 m (10 ft) of vessel wall.

Note:

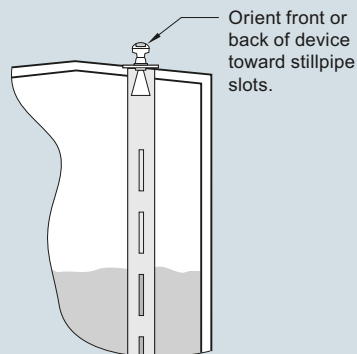
- Beam angle is the width of the cone where the energy density is half of the peak energy density.
- Beam angle for horn antenna dependent on horn size
- The peak energy density is directly in front of and in line with the rod antenna.
- There is a signal transmitted outside of the beam angle; therefore false targets may be detected.



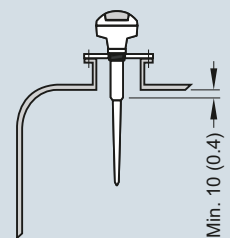
Mounting unit on vessel



Mounting unit on stilling well



Mounting on a nozzle



SITRANS LR200 installation, dimensions in mm (inch)

Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR200


Technical specifications

Mode of operation		Power supply		
Measuring principle	Radar level measurement	4 ... 20 mA/HART	Nominal 24 V DC (max. 30 V DC) with max. 550 Ω Nominal 24 V DC (max. 30 V DC) with max. 250 Ω	
Frequency	5.8 GHz (North America 6.3 GHz)	<ul style="list-style-type: none"> General Purpose, Non-incendive, Intrinsically Safe Flame proof, Increased safety, Explosion proof 		
Measuring range	0.3 ... 20 m (1.0 ... 65 ft)	PROFIBUS PA	<ul style="list-style-type: none"> 10.5 mA Per IEC 61158-2 	
Output		Certificates and approvals		
Analog output	4 ... 20 mA	General	CSA _{US/IC} , CE, FM, RCM	
Accuracy	± 0.02 mA	Marine	<ul style="list-style-type: none"> Lloyd's Register of Shipping ABS Type Approval 	
Span	Proportional or inversely proportional	Radio	FCC, Industry Canada, and European (R&TTE), RCM	
Communications	HART Optional: PROFIBUS PA (Profile 3.0, Class B)	Hazardous	<ul style="list-style-type: none"> INMETRO Ex ia IIC T4 Ga CSA/FM, Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III, T4 CSA/FM, Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III, T4 FM, Class I, Div. 2, Groups A, B, C, D, T5 NEPSI Ex d mb ia IIC T4/ Ex e mb ia IIC T4 ATEX II 1/2 G Ex d mb ia IIC T4 Ga/ Gb ATEX II 1/2 G Ex e mb ia IIC T4 Ga/ Gb ATEX II 1G Ex ia IIC T4 IECEX Ex ia IIC T4 EAC Ex ia 	
Fail-safe	Programmable as high, low or hold (Loss of Echo)	<ul style="list-style-type: none"> Intrinsically Safe (Brazil) Explosion Proof (Canada/USA) Intrinsically Safe (Canada/USA) Non-incendive (USA) Flame Proof/Increased Safety (China) Flame Proof (Europe) Increased Safety (Europe) Intrinsically Safe (Europe) Intrinsically Safe (International) Intrinsically Safe (Russia/Kazakhstan) 		
Performance (according to reference conditions IEC60770-1)		Programming		
From end of antenna to 600 mm	40 mm (1.57 inch)	Intrinsically Safe Siemens handheld programmer	Infrared receiver	
Remainder of range	10 mm (0.4 inch) or 0.1 % of span (whichever is greater)	<ul style="list-style-type: none"> Approvals for handheld programmer 	IS model: ATEX II 1GD Ex ia IIC T4 Ga Ex iaD 20 T135 °C T _a = -20 ... +50 °C CSA/FM Class I, II, and III, Div. 1, Groups A, B, C, D, E, F, G, T6 T _a = +50 °C	
Rated operating conditions		Handheld communicator	HART communicator 375	
Installation conditions	Indoor/outdoor	PC	<ul style="list-style-type: none"> SIMATIC PDM AMS SITRANS DTM (for connecting to FDT such as PACTware or Field-care) 	
<ul style="list-style-type: none"> Location 		<ul style="list-style-type: none"> Flame Proof/Increased Safety (China) Flame Proof (Europe) Increased Safety (Europe) Intrinsically Safe (Europe) Intrinsically Safe (International) Intrinsically Safe (Russia/Kazakhstan) 	Display (local)	Multi-segment alphanumeric liquid crystal with bar graph (representing level) available in four languages
Ambient conditions (enclosure)		<ul style="list-style-type: none"> Ambient temperature Installation category Pollution degree 		
<ul style="list-style-type: none"> Ambient temperature Installation category Pollution degree 				
Medium conditions				
Dielectric constant ϵ_r	$\epsilon_r > 1.6$ (for $\epsilon_r < 3$, use stillpipe)			
Vessel temperature and pressure	Varies with connection type; see Pressure/Temperature curves for more information			
Design				
Enclosure	Aluminum, polyester powder coated 2 x M20 x 1.5 or 2 x 1/2" NPT			
<ul style="list-style-type: none"> Material Cable inlet 				
Degree of protection	Type 4X/NEMA 4X, Type 6/ NEMA 6, IP67, IP68			
Weight	< 2.82 kg (6.21 lb) (polypropylene rod antenna)			
Display (local)	Multi-segment alphanumeric liquid crystal with bar graph (representing level) available in four languages			
Antenna	Polypropylene rod, hermetically sealed construction, optional PTFE Standard 100 mm (4 inch) shield for maximum 100 mm (4 inch) nozzle, or optional 250 mm (10 inch) long shield Refer to SITRANS LR200 Antennas for optional rods and horns			
<ul style="list-style-type: none"> Material 				
<ul style="list-style-type: none"> Dimensions 				
<ul style="list-style-type: none"> Optional rods and horn 				
Process connections	1 1/2" NPT [(Taper), ANSI/ASME B1.20.1] R 1 1/2" [(BSPT), EN 10226], or G 1 1/2" [(BSPP), EN ISO 228-1] (polypropylene rod antenna) Refer to SITRANS LR200 Antennas for more connections			
<ul style="list-style-type: none"> Process connection 				
<ul style="list-style-type: none"> Flange connection 				

Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR200

Selection and Ordering data	Article No.	Selection and Ordering data	Order code
SITRANS LR200, Uni-Construction polypropylene rod antenna version 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in process vessels including high temperature and pressure, to a range of 20 m (66 ft). Max. 3 bar g (43.5 psi g) pressure and 80 °C (176 °F) ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	7ML5422- 	Further designs Please add "-Z" to Article No. and specify Order code(s). Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters); specify in plain text Manufacturer's test certificate: M to DIN 55350, Part 18 and to ISO 9000 Namur NE43 compliant, device preset to failsafe < 3.6 mA ¹⁾	Y15 C11 N07
Enclosure/Cable inlet Aluminum, epoxy painted 2 x 1/2" NPT 2 x M20 x 1.5	2 3	Operating Instructions for HART/mA device English German Note: The Operating Instructions should be ordered as a separate item on the order. All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Quick Start and Operating Instructions library.	Article No. A5E32337676 A5E34942758
Polypropylene antenna type - (Max. 3 Bar pressure and 80 °C) 1/2" NPT [(Taper), ANSI/ASME B1.20.1], c/w integral 100 mm shield R 1/2" [(BSPT), EN 10226], c/w integral 100 mm shield G 1/2" [(BSPP), EN ISO 228-1], c/w integral 100 mm shield 1/2" NPT [(Taper), ANSI/ASME B1.20.1], c/w integral 250 mm shield R 1/2" [(BSPT), EN 10226], c/w integral 250 mm shield G 1/2" [(BSPP), EN ISO 228-1], c/w integral 250 mm shield	A B C D E F	Operating Instructions for PROFIBUS PA device English German Note: The Operating Instructions should be ordered as a separate item on the order. All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Quick Start and Operating Instructions library.	A5E32337680 A5E34942820
Approvals General Purpose, CE, R&TTE, RCM General Purpose, CSA FM, Industry Canada, FCC Intrinsically Safe, CSA Class I, II, Div. 1, Groups A, B, C, D, E, F, G, Industry Canada Intrinsically Safe, FM Class I, II, Div. 1, Groups A, B, C, D, E, F, G, FCC Intrinsically Safe, IECEx/ATEX II 1G Ex ia IIC T4, INMETRO Ex ia IIC T4, CE, R&TTE, RCM; EAC Non incandive, FM Class I, Div. 2, Groups A, B, C, D, FCC ¹⁾ Increased Safety, ATEX II 1/2G Ex e mb ia IIC T4 Ga/Gb, CE, R&TTE, RCM; EAC ²⁾³⁾ Flame Proof, ATEX II 1/2G Ex d mb ia IIC T4 Ga/Gb, CE, R&TTE, RCM; EAC ³⁾ Explosion Proof, CSA/FM Class I, II, III, Groups A, B, C, D, E, F, G, Industry Canada, FCC ¹⁾³⁾	A B C D E F G H J	Accessories Handheld programmer, Intrinsically safe, EEx ia HART modem/USB (for use with a PC and SIMATIC PDM) One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART ²⁾ One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA ²⁾ One general purpose polymeric cable gland M20 x 1.5, rated -20 ... +80 °C (-40 ... +176 °F) SITRANS RD100, loop powered display - see Chapter 7 SITRANS RD200, universal input display with Modbus conversion - see Chapter 7 SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7 SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7 For applicable back up point level switch - see point level measurement section	7ML1930-1BK 7MF4997-1DB 7ML1930-1AP 7ML1930-1AQ 7ML1930-1AM 7ML5741-... 7ML5740-... 7ML5744-... 7ML5750-...
Communication/Output PROFIBUS PA 4 ... 20 mA, HART, start-up at < 3.6 mA	2 3		
¹⁾ Available with enclosure option 2 only ²⁾ Available with enclosure option 3 only ³⁾ Available with communication option 3 only			
		¹⁾ Available with communication option 3 only ²⁾ Product shipped with plastic cable gland, rated to -20 °C. If -40 °C rating required, then metallic cable gland is recommended.	

Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR200

Selection and Ordering data	Article No.	Selection and Ordering data	Article No.
SITRANS LR200, Flange Adapter/PTFE Rod Antenna Version 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in process vessels including high temperature and pressure, to a range of 20 m (66 ft). Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	7ML5423-	SITRANS LR200, Flange Adapter/PTFE Rod Antenna Version 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in process vessels including high temperature and pressure, to a range of 20 m (66 ft).	7ML5423-
Antenna material (uses antenna adapter) PTFE, uses antenna adapter and additional process connection below	1	Enclosure/Cable inlet Aluminum, Epoxy painted 2 x 1/2" NPT 2 x M20 x 1.5	2 3
Process connection (refer to Pressure/Temperature curves, page 4/211) Flanges (316L stainless steel) DN 50 PN 16, Type A, flat faced DN 80 PN 16, Type A, flat faced DN 100 PN 16, Type A, flat faced DN 150 PN 16, Type A, flat faced 2" ASME 150 lb, flat faced 3" ASME 150 lb, flat faced 4" ASME 150 lb, flat faced 6" ASME 150 lb, flat faced DN 50 PN 40, flat faced DN 80 PN 40, flat faced DN 100 PN 40, flat faced DN 150 PN 40, flat faced 2" ASME 300 lb, flat faced, available with Pressure rating option 1 only due to flange hole spacing 3" ASME 300 lb, flat faced 4" ASME 300 lb, flat faced 6" ASME 300 lb, flat faced JIS DN 50 10K JIS DN 80 10K JIS DN 100 10K JIS DN 150 10K (Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5, or EN 1092-1, or JIS B 2220 standard.) Threaded connection (316L stainless steel) 1 1/2" NPT [(Taper), ANSI/ASME B1.20.1] 2" NPT [(Taper), ANSI/ASME B1.20.1] R 1 1/2" [(BSPT), EN 10226] R 2" [(BSPT), EN 10226] G 1 1/2" [(BSPP), EN ISO 228-1] G 2" [(BSPP), EN ISO 228-1]	AA BA CA DA FB GB HB JB AC BC CC DC FD GD HD JD AE BE CE DE	Communication/Output PROFIBUS PA 4 ... 20 mA, HART, start-up at < 3.6 mA	B C
Antenna extensions or Inactive shield length No antenna extension 50 mm (2 inch) extension, PTFE 100 mm (4 inch) extension, PTFE 100 mm (4 inch) extension, 316L stainless steel shield ¹⁾ 150 mm (6 inch) extension, 316L stainless steel shield ¹⁾ 200 mm (8 inch) extension, 316L stainless steel shield ¹⁾ 250 mm (10 inch) extension, 316L stainless steel shield ¹⁾	0 1 2 3 4 5 6	Approvals General Purpose, CE, R&TTE, RCM General Purpose, CSA FM, Industry Canada, FCC Intrinsically Safe, CSA Class I, II, Div. 1, Groups A, B, C, D, E, F, G, Industry Canada Intrinsically Safe, FM Class I, II, Div. 1, Groups A, B, C, D, E, F, G, FCC Intrinsically Safe, IECEx/ATEX II 1G Ex ia IIC T4, INMETRO Ex ia IIC T4, CE, R&TTE, RCM; EAC Non incensive, FM Class I, Div. 2, Groups A, B, C, D, FCC ²⁾ Increased Safety, ATEX II 1/2G Ex e mb ia IIC T4 Ga/Gb, CE, R&TTE, RCM; EAC ³⁾⁴⁾ Flame Proof, ATEX II 1/2G Ex d mb ia IIC T4 Ga/Gb, CE, R&TTE, RCM; EAC ⁴⁾ Explosion Proof, CSA/FM Class I, II, III, Groups A, B, C, D, E, F, G, Industry Canada, FCC ²⁾⁴⁾	A B C D E F G H J
Process seal/gasket Integral Gasket, for flat faced flange process connections only, not for Antenna extension options 3 ... 6 FKM O-ring, not available for combination of flat faced flanges with Antenna extension options 0, 1 or 2	0 1	Pressure rating Rating per Pressure/Temperature curves in manual 0.5 bar g (7.25 psi g) maximum	0 1
		¹⁾ Available with process connection options BA, CA, DA, GB, HB, JB, BC, CC, DC, GD, HD, JD, BE, CE, DE, MA, MC, ME only ²⁾ Available with enclosure option 2 only ³⁾ Available with enclosure option 3 only ⁴⁾ Available with communication option C only	

Selection and Ordering data	Order code
Further designs	
Please add "-Z" to Article No. and specify Order code(s).	
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]; Measuring-point number/identification (max. 27 characters); specify in plain text	Y15
Manufacturer's test certificate: M to DIN 55350, Part 18 and to ISO 9000	C11
Inspection Certificate Type 3.1 per EN 10204	C12
Namur NE43 compliant, device preset to failsafe < 3.6 mA ³⁾	N07
Operating Instructions for HART/mA device	
English	A5E32337676
German	A5E34942758
<p>Note: The Operating Instructions should be ordered as a separate item on the order.</p> <p>All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation</p> <p>This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Quick Start and Operating Instructions library.</p>	
Operating Instructions for PROFIBUS PA device	
English	A5E32337680
German	A5E34942820
<p>Note: The Operating Instructions should be ordered as a separate item on the order.</p> <p>All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation</p> <p>This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Quick Start and Operating Instructions library.</p>	
Accessories	
Handheld programmer, Intrinsically safe, EEx ia	7ML1930-1BK
Antenna, rod, PTFE	7ML1830-1HC
Antenna extension, 50 mm (2 inch), PTFE	7ML1830-1CH
Antenna extension, 100 mm (4 inch), PTFE	7ML1830-1CG
HART modem / USB (for use with PC and SIMATIC PDM)	7MF4997-1DB
Metallic cable gland M20 x 1.5, rated -40 °C (-40 °F) ... 80 °C (176 °F), HART (two are required)	7ML1930-1AP
Metallic cable gland M20 x 1.5, rated -40 °C (-40 °F) ... 80 °C (176 °F), PROFIBUS PA (two required)	7ML1930-1AQ
One General Purpose polymeric cable gland M20 x 1.5, rating for -20 °C (-4°F) ...+ 80 °C (176 °F)	7ML1930-1AM
SITRANS RD100, loop powered display - see Chapter 7	7ML5741-...
SITRANS RD200, universal input display with Modbus conversion - see Chapter 7	7ML5740-...
SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7	7ML5744-...
SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7	7ML5750-...
For applicable back up point level switch - see point level measurement section	

Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR200

Selection and Ordering data

Article No.

SITRANS LR200,

Flange adapter/Horn Antenna version

2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in process vessels including high temperature and pressure, to a range of 20 m (66 ft).

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

Antenna material (uses antenna adapter)

316L stainless steel with PTFE cone emitter
316L stainless steel with PTFE cone emitter and purge connection with 1/8" NPT inlet¹⁾
Sliding waveguide system with 1 000 mm (40 inch) waveguide¹⁾²⁾

Process connection (refer to Pressure/Temperature curves, page 4/211)

Flanges (316L stainless steel)

DN 50 PN 16 EN 1092-1 Type A flat faced¹⁾

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

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

DN 150 PN 16 EN 1092-1 Type A flat faced

DN 200 PN 16 EN 1092-1 Type A flat faced

DN 80 PN 10/16 DIN EN 1092-1 Type B1 raised face³⁾

DN 100 PN 10/16 DIN EN 1092-1 Type B1 raised face³⁾

DN 150 PN 10/16 DIN EN 1092-1 Type B1 raised face³⁾

DN 200 PN 16 DIN EN 1092-1 Type B1 raised face³⁾

2" ASME 150 lb, flat faced¹⁾

3" ASME 150 lb, flat faced

4" ASME 150 lb, flat faced

6" ASME 150 lb, flat faced

8" ASME 150 lb, flat faced

DN 50 PN 40, flat faced³⁾

DN 80 PN 40, flat faced³⁾

DN 100 PN 40, flat faced³⁾

DN 80 PN 25/40 DIN EN 1092-1 Type B1 raised face³⁾

DN 100 PN 25/40 DIN EN 1092-1 Type B1 raised face³⁾

DN 150 PN 25/40 DIN EN 1092-1 Type B1 raised face³⁾

2" ASME 300 lb, flat faced¹⁾³⁾

3" ASME 300 lb, flat faced³⁾

4" ASME 300 lb, flat faced³⁾

JIS DN 50 10K¹⁾

JIS DN 80 10K

JIS DN 100 10K

JIS DN 150 10K

JIS DN 200 10K

(Note: Flange bolting patterns and facings dimensionally correspond to the applicable

ASME B16.5, or EN 1092-1, or JIS B 2220 standard.)

Communication/Output

PROFIBUS PA

4 ... 20 mA, HART, start-up at < 3.6 mA

Article No.

7ML5425-

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Selection and Ordering data

Article No.

SITRANS LR200,

Flange adapter/Horn Antenna version

2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in process vessels including high temperature and pressure, to a range of 20 m (66 ft).

Process seal/gasket

FKM (-40 ... +200 °C)

Nitrile (-40 ... +60 °C),

sliding waveguide systems only

FFKM (-35 ... +200 °C)

Enclosure/Cable inlet

Aluminum, Epoxy painted

2 x 1/2" NPT

2 x M20 x 1.5

Horn size/Waveguide options

80 mm (3 inch) horn⁴⁾

100 mm (4 inch) horn⁴⁾

150 mm (6 inch) horn

200 mm (8 inch) horn

100 mm (4 inch) horn with 100 mm (4 inch) waveguide extension⁴⁾

100 mm (4 inch) horn with 150 mm (6 inch) waveguide extension⁴⁾

100 mm (4 inch) horn with 200 mm (8 inch) waveguide extension⁴⁾

100 mm (4 inch) horn with 250 mm (10 inch) waveguide extension⁴⁾

150 mm (6 inch) horn with 100 mm (4 inch) waveguide extension

150 mm (6 inch) horn with 150 mm (6 inch) waveguide extension

150 mm (6 inch) horn with 200 mm (8 inch) waveguide extension

150 mm (6 inch) horn with 250 mm (10 inch) waveguide extension

200 mm (8 inch) horn with 100 mm (4 inch) waveguide extension

200 mm (8 inch) horn with 150 mm (6 inch) waveguide extension

200 mm (8 inch) horn with 200 mm (8 inch) waveguide extension

200 mm (8 inch) horn with 250 mm (10 inch) waveguide extension

Article No.

7ML5425-

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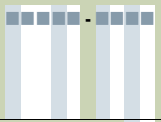
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Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR200

Selection and Ordering data	Article No.	Selection and Ordering data	Order code
SITRANS LR200, Flange adapter/Horn Antenna version 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in process vessels including high temperature and pressure, to a range of 20 m (66 ft).	7ML5425- 	Further designs Please add "-Z" to Article No. and specify Order code(s).	
Approvals General Purpose, CE, R&TTE, RCM General Purpose, CSA, FM, Industry Canada, FCC Intrinsically Safe, CSA Class I, II, Div. 1, Groups A, B, C, D, E, F, G, Industry Canada Intrinsically Safe, FM Class I, II, Div. 1, Groups A, B, C, D, E, F, G, FCC Intrinsically Safe, IECEx/ATEX II 1G Ex ia IIC T4, INMETRO Ex ia IIC T4, CE, R&TTE, RCM; EAC Non Incendive, FM Class I, Div. 2, Groups A, B, C, D, FCC ⁵⁾ Increased Safety, ATEX II 1/2G Ex e mb ia IIC T4 Ga/Gb, CE, R&TTE, RCM; EAC ⁶⁾⁷⁾ Flame Proof, ATEX II 1/2G Ex d mb ia IIC T4 Ga/Gb, CE, R&TTE, RCM; EAC ⁷⁾ Explosion Proof, CSA/FM Class I, II, III, Groups A, B, C, D, E, F, G, Industry Canada, FCC ⁵⁾⁷⁾	A B C D E F G H J	Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters); specify in plain text	Y15
Pressure rating Rating per Pressure/Temperature curves in manual 0.5 bar g (7.25 psi g) maximum	0 1	Manufacturer's test certificate: M to DIN 55350, Part 18 and to ISO 9000 Inspection Certificate Type 3.1 per EN 10204 Namur NE43 compliant, device preset to failsafe < 3.6 mA ¹⁾	C11 C12 N07
1) Available with pressure rating option 1 only 2) Maximum Process Temperature 60 °C (140 °F) 3) Available with Antenna Material options 0 and 1 only 4) For stillpipe applications only 5) Available with enclosure option 2 only 6) Available with enclosure option 3 only 7) Available with communication option 2 only		Operating Instructions for HART/mA device English German Note: The Operating Instructions should be ordered as a separate item on the order. All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Quick Start and Operating Instructions library.	Article No. A5E32337676 A5E34942758
		Operating Instructions for PROFIBUS PA device English German Note: The Operating Instructions should be ordered as a separate item on the order. All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Quick Start and Operating Instructions library.	A5E32337680 A5E34942820
		Accessories Handheld programmer, Intrinsically safe, EEx ia HART modem/USB (for use with a PC and SIMATIC PDM) One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART ²⁾ One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA ³⁾ One general purpose polymeric cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F) SITRANS RD100, loop powered display - see Chapter 7 SITRANS RD200, universal input display with Modbus conversion - see Chapter 7 SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7 SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7 For applicable back up point level switch - see point level measurement section	7ML1930-1BK 7MF4997-1DB 7ML1930-1AP 7ML1930-1AQ 7ML1930-1AM 7ML5741-... 7ML5740-... 7ML5744-... 7ML5750-...
		1) Available with communication option 2 only 2) Product shipped with plastic cable gland, rated to -20 °C. If -40 °C rating required, then metallic cable gland is recommended. 3) Available with enclosure option 2 only	

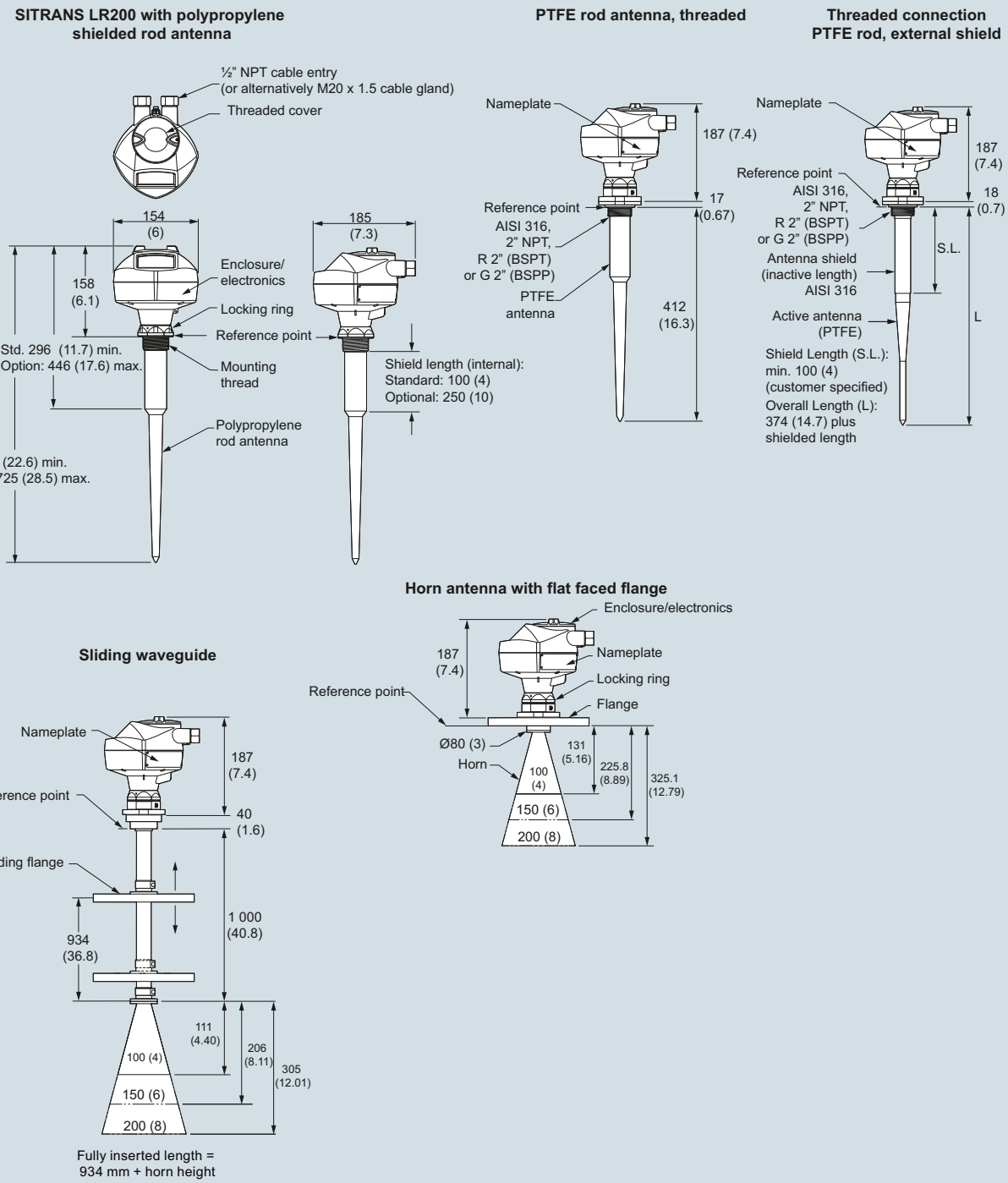
Level Measurement

Continuous level measurement - Radar transmitters

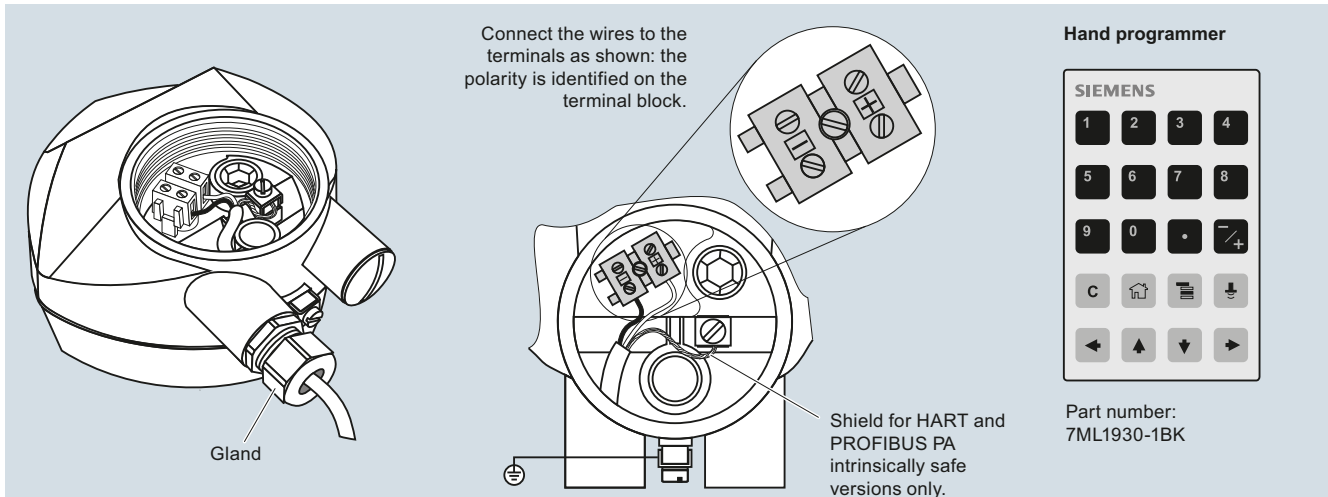
SITRANS LR200

Dimensional drawings

4



SITRANS LR200, dimensions in mm (inch)

Schematics


Connect the wires to the terminals as shown: the polarity is identified on the terminal block.

Shield for HART and PROFIBUS PA intrinsically safe versions only.

Hand programmer

SIEMENS			
1	2	3	4
5	6	7	8
9	0	.	/+
C	⏪	⏩	⏴
⏴	⏵	⏶	⏷

Part number:
7ML1930-1BK

Notes:

1. DC terminal shall be supplied from an SELV source in accordance with IEC 1010-1 Annex H.
2. All field wiring must have insulation suitable for rated input voltages.
3. Use shielded twisted pair cable (14 ... 22 AWG) for HART version.
4. Separate cables and conduit may be required to conform to standard instrumentation wiring practices or electrical codes.

SITRANS LR200 connections

Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR200 Antennas

Integration



Antenna configurations for SITRANS LR200

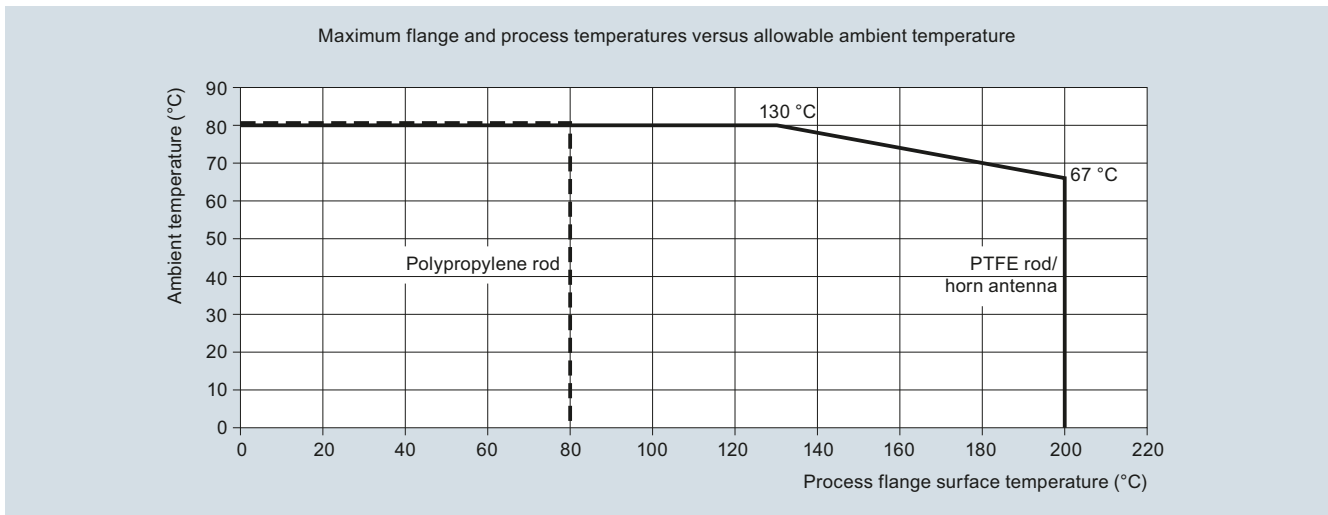
Technical specifications

Antenna Types	Flat Faced Flange with Rod	Shielded Rod	Horn (4", 6", 8" sizes available)
Connection type	Flat faced flange nominal pipe sizes 50, 80, 100, 150 mm (2, 3, 4, 6 inch)	Threaded 2" NPT, R 2" (BSPT), G 2" (BSPP) or flat faced flange nominal pipe sizes 80, 100 mm (3, 4 inch)	Flat faced flange nominal pipe sizes 50, 80, 100, 150 mm (2, 3, 4, 6 inch)
Wetted parts	PTFE	PTFE, 316L stainless steel, FKM O-ring	316L stainless steel PTFE, FKM O-ring
Extensions	50 or 100 mm (2 or 4 inch) PTFE or UHMW-PE	100, 150, 200 or 250 mm (4, 6, 8 or 10 inch) standard shield length	Use waveguide for extensions to 6 m (20 ft) long
Dielectric constant	> 3	> 3	> 3
Insertion length (max.)	41 cm (16.3 inch)	Variable	Variable with extension
Purging option (liquid or gas)	No	No	Yes
Sliding waveguide option for digesters¹⁾	Yes	No	Yes
Weight²⁾	6.5 kg (14.3 lb)	5.0 kg (11 lb)	7.5 kg (16.5 lb)

¹⁾ Maximum pressure 0.5 bar g at 60 °C (7.25 psi g at 140 °F)

²⁾ Not including extensions, includes SITRANS LR200 and smallest process connection

Characteristic curves



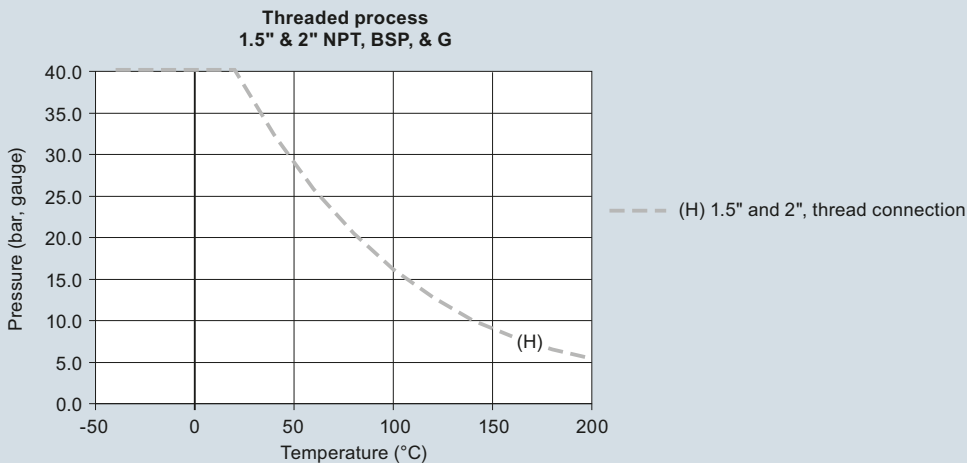
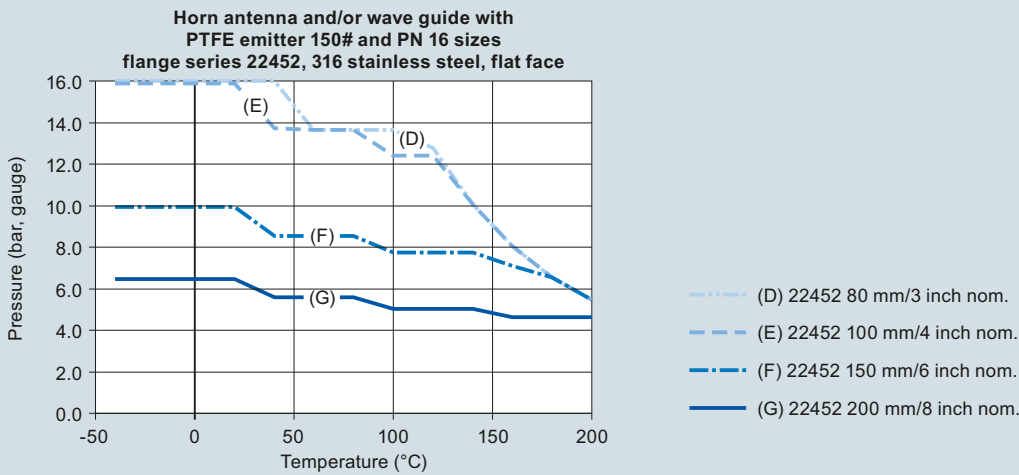
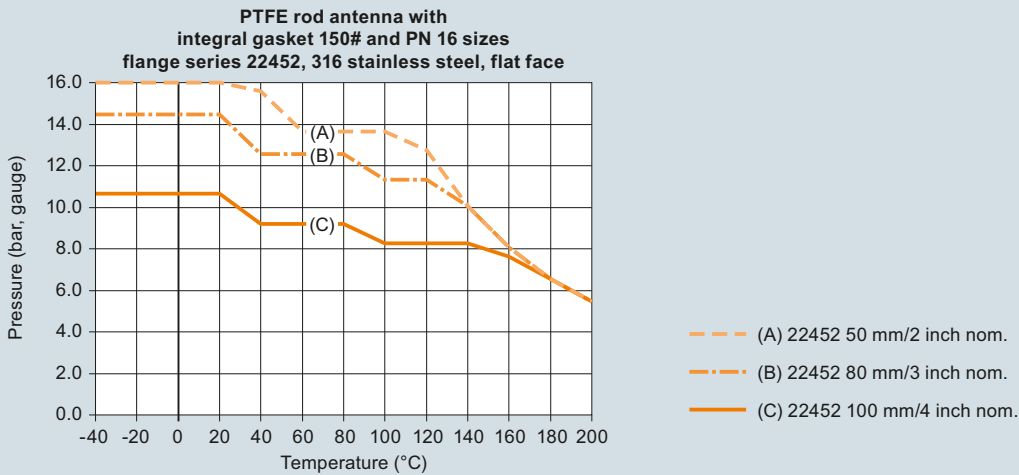
SITRANS LR200 ambient/process flange surface temperature curve

Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR200 Antennas



4



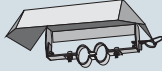

SITRANS LR200 process pressure/temperature derating curves

Selection and ordering data

SITRANS LR200 Specials

	Article No.
SITRANS LR200 PROFIBUS PA Aluminum Enclosure Kit with electronics and covers (7ML5422, 7ML5423, 7ML5424, 7ML5425), calibrated for use with standard rod antenna	
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, M20 cable inlet, approval option E, with PROFIBUS PA communication, no process connection.	A5E01483420
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, M20 cable inlet, approval option A, with PROFIBUS PA communication, no process connection.	A5E01483440
SITRANS LR200 aluminum enclosure with board stack, LUI display, 6.3 GHz, M20 cable inlet, approval option C, with PROFIBUS PA communication, no process connection.	A5E01483456
SITRANS LR200 aluminum enclosure with board stack, LUI display, 6.3 GHz, NPT cable inlet, approval option C, with PROFIBUS PA communication, no process connection.	A5E01483547
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, NPT cable inlet, approval option E, with PROFIBUS PA communication, no process connection.	A5E01483559
SITRANS LR200 HART aluminum enclosure kit with electronics and covers (7ML5422, 7ML5423, 7ML5424, 7ML5425), calibrated for use with standard rod antenna	
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, M20 cable inlet, approval option A, with HART communication start-up at < 3.6 mA, no process connection.	A5E02956419
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, M20 cable inlet, approval option E, with HART communication start-up at < 3.6 mA, no process connection.	A5E02956420
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, M20 cable inlet, approval option G, with HART communication start-up at < 3.6 mA, no process connection.	A5E02956421
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, M20 cable inlet, approval option H, with HART communication start-up at < 3.6 mA, no process connection.	A5E02956422

SITRANS LR200 Specials

	Article No.
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, NPT cable inlet, approval option A, with HART communication start-up at < 3.6 mA, no process connection.	A5E03617085
SITRANS LR200 aluminum enclosure with board stack, LUI display, 6.3 GHz, NPT cable inlet, approval option B, with HART communication start-up at < 3.6 mA, no process connection.	A5E03617086
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, NPT cable inlet, approval option C, with HART communication start-up at < 3.6 mA, no process connection.	A5E03617087
SITRANS LR200 aluminum enclosure with board stack, LUI display, 6.3 GHz, NPT cable inlet, approval option E, with HART communication start-up at < 3.6 mA, no process connection.	A5E03617088
Sun shield for SITRANS LR200 enclosure, stainless steel	
	A5E35497857
SITRANS LR200 Horn Antenna Kits with mounting screws (no emitter supplied)	
80 mm (3 inch) horn antenna kit	PBD:25500K02A
100 mm (4 inch) horn antenna kit	PBD:25500K03A
150 mm (6 inch) horn antenna kit	PBD:25500K05A
200 mm (8 inch) horn antenna kit	PBD:25500K07A
SITRANS LR200 Extension Kits for Horn Antenna with mounting screws	
100 mm (4 inch) extension kit for horn antenna	PBD:25501K0100A
150 mm (6 inch) extension kit for horn antenna	PBD:25501K0150A
200 mm (8 inch) extension kit for horn antenna	PBD:25501K0200A
250 mm (10 inch) extension kit for horn antenna	PBD:25501K0250A
500 mm (20 inch) extension kit for horn antenna	PBD:25501K0500A
1 000 mm (40 inch) extension kit for horn antenna	PBD:25501K1000A

Level Measurement

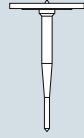
Continuous level measurement - Radar transmitters

SITRANS LR200 Specials

SITRANS LR200 Specials

Article No.

SITRANS LR200 Flanged Rod Antenna Kit with 316L stainless steel flat faced flanges



Flanged PTFE rod antenna kit, 2" ASME, 150 lb. See drawing 51003 on <http://www.siemens.com/radar> ¹⁾⁴⁾

PBD:
51003K020AAAA

Flanged PTFE rod antenna kit, DN 50 PN 16. See drawing 51003 on <http://www.siemens.com/radar> ¹⁾⁴⁾

PBD:
51003K050AJAA

Flanged PTFE rod antenna kit, JIS 10K DN 50. See drawing 51003 on <http://www.siemens.com/radar> ¹⁾⁴⁾

PBD:
51003K050AOAA

SITRANS LR200 PTFE Rod Antenna Kit with 316L stainless steel 1½" pipe thread process connection



PTFE rod antenna kit, 1½" NPT 316L stainless steel process connection, FKM O-ring; See drawing 51004 on <http://www.siemens.com/radar> ⁴⁾

PBD:
51004K1AAA

PTFE rod antenna kit, R 1½" (BSPT), EN 10226 316L stainless steel process connection, FKM O-ring; see drawing 51004 on <http://www.siemens.com/radar> ⁴⁾

PBD:
51004K2AAA

PTFE rod antenna kit, ½" G 316L stainless steel process connection, FKM O-ring; see drawing 51004 on <http://www.siemens.com/radar> ⁴⁾

PBD:
51004K3AAA

SITRANS LR200 PTFE Rod Antenna Kit with 316L stainless steel 2" pipe thread process connection



PTFE rod antenna kit, 2" NPT 316L stainless steel process connection, FKM O-ring; see drawing 51005 on <http://www.siemens.com/radar> ⁴⁾

PBD:
51005K1AAA

PTFE rod antenna kit, R 2" (BSPT), EN 10226 316L stainless steel process connection, FKM O-ring; see drawing 51005 on <http://www.siemens.com/radar> ⁴⁾

PBD:
51005K2AAA

PTFE rod antenna kit, 2" G 316L stainless steel process connection, FKM O-ring; see drawing 51005 on <http://www.siemens.com/radar> ⁴⁾

PBD:
51005K3AAA

SITRANS LR200 Specials

Article No.

SITRANS LR200 PTFE Rod Antenna Kit (100 mm shield) with 316L stainless steel 2" pipe thread process connection



PTFE rod antenna shielded kit, 2" NPT 316L stainless steel process connection, FKM O-ring, 100 mm 316L stainless steel shield. See drawing 51002 on <http://www.siemens.com/radar> ³⁾⁴⁾

PBD:
51002K0100AAA

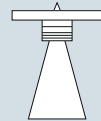
PTFE rod antenna shielded kit, R 2" (BSPT), EN 10226 316L stainless steel process connection, FKM O-ring, 100 mm 316L stainless steel shield. See drawing 51002 on <http://www.siemens.com/radar> ³⁾⁴⁾

PBD:
51002K0100BAA

PTFE rod antenna shielded kit, 2" G 316L stainless steel process connection, FKM O-ring, 100 mm 316L stainless steel shield. See drawing 51002 on <http://www.siemens.com/radar> ³⁾⁴⁾

PBD:
51002K0100CAA

SITRANS LR200 Horn Antenna Kit with 316L stainless steel flat faced flange, with PTFE emitter (without waveguide)



Horn antenna kit, 2" ASME 316L stainless steel flange 3 inch horn, PTFE emitter ¹⁾⁴⁾

PBD:
51006K020AAAA

Horn antenna kit, 2" ASME 316L stainless steel flange 4 inch horn, PTFE emitter ¹⁾²⁾

PBD:
51006K020AABA

Horn antenna kit, 2" ASME 316L stainless steel flange 6 inch horn, PTFE emitter ¹⁾²⁾

PBD:
51006K020AACA

Horn antenna kit, 2" ASME 316L stainless steel flange 8 inch horn, PTFE emitter ¹⁾²⁾

PBD:
51006K020AADA

Horn antenna kit, DN 50 PN 16 316L stainless steel flange 80 mm horn, PTFE emitter ¹⁾²⁾

PBD:
51006K050AJAA

Horn antenna kit, DN 50 PN 16 316L stainless steel flange 100 mm horn, PTFE emitter ¹⁾²⁾


PBD:
51006K050AJBA

Horn antenna kit, DN 50 PN 16 316L stainless steel flange 150 mm horn, PTFE emitter ¹⁾²⁾

PBD:
51006K050AJCA

Horn antenna kit, DN 50 PN 16 316L stainless steel flange 200 mm horn, PTFE emitter ¹⁾²⁾

PBD:
51006K050AJDA

SITRANS LR200 Specials	Article No.
SITRANS LR200 PTFE flanged rod antenna kit with 316L stainless steel shield and 316L stainless steel flat faced flange	
PTFE shielded rod antenna kit, flanged, 3" ASME 150 lb 316L stainless steel flange, 100 mm 316L stainless steel shield. ¹⁾⁴⁾	PBD: 51014K0100AAA
PTFE shielded rod antenna kit, flanged, DN 80 PN 16 316L stainless steel flange, 100 mm 316L stainless steel shield. ¹⁾⁴⁾	PBD: 51014K0100EJA
PTFE shielded rod antenna kit, flanged, 3" ASME 150 lb 316L stainless steel flange, 150 mm 316L stainless steel shield. ¹⁾⁴⁾	PBD: 51014K0150AAA
PTFE shielded rod antenna kit, flanged, DN 80 PN 16 316L stainless steel flange, 150 mm 316L stainless steel shield. ¹⁾⁴⁾	PBD: 51014K0150EJA
PTFE shielded rod antenna kit, flanged, 3" ASME 150 lb 316L stainless steel flange, 200 mm 316L stainless steel shield. ¹⁾⁴⁾	PBD: 51014K0200AAA
PTFE shielded rod antenna kit, flanged, DN 80 PN 16 316L stainless steel flange, 200 mm 316L stainless steel shield. ¹⁾⁴⁾	PBD: 51014K0200EJA
PTFE shielded rod antenna kit, flanged, 3" ASME 150 lb 316L stainless steel flange, 250 mm 316L stainless steel shield. ¹⁾⁴⁾	PBD: 51014K0250AAA
PTFE shielded rod antenna kit, flanged, DN 80 PN 16 316L stainless steel flange, 250 mm 316L stainless steel shield. ¹⁾⁴⁾	PBD: 51014K0250EJA
PTFE paste	
Kit, PTFE paste, tube, 250 ml	PBD:51036065
Cable gland	
One polymeric cable gland M20 x 1.5, rated -20 ... +80 °C (-4 ... +176 °F) for General Purpose and ATEX EEx e	7ML1930-1AN
One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART	7ML1930-1AP
One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA	7ML1930-1AQ

1) Available in flange sizes including ASME, DIN and JIS.
Please consult a local sales person for details.

2) Available with no pressure rating.
Please consult a local sales person for details.

3) Available in other shield lengths.
Please consult a local sales person for details.

4) Available with Pressure rating.
Please consult a local sales person for details.

Customers interested in a custom designed device should consult a local sales person. For more information, please visit http://www.automation.siemens.com/aspa_app.