## Overview

SITRANS LR200 is a 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 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

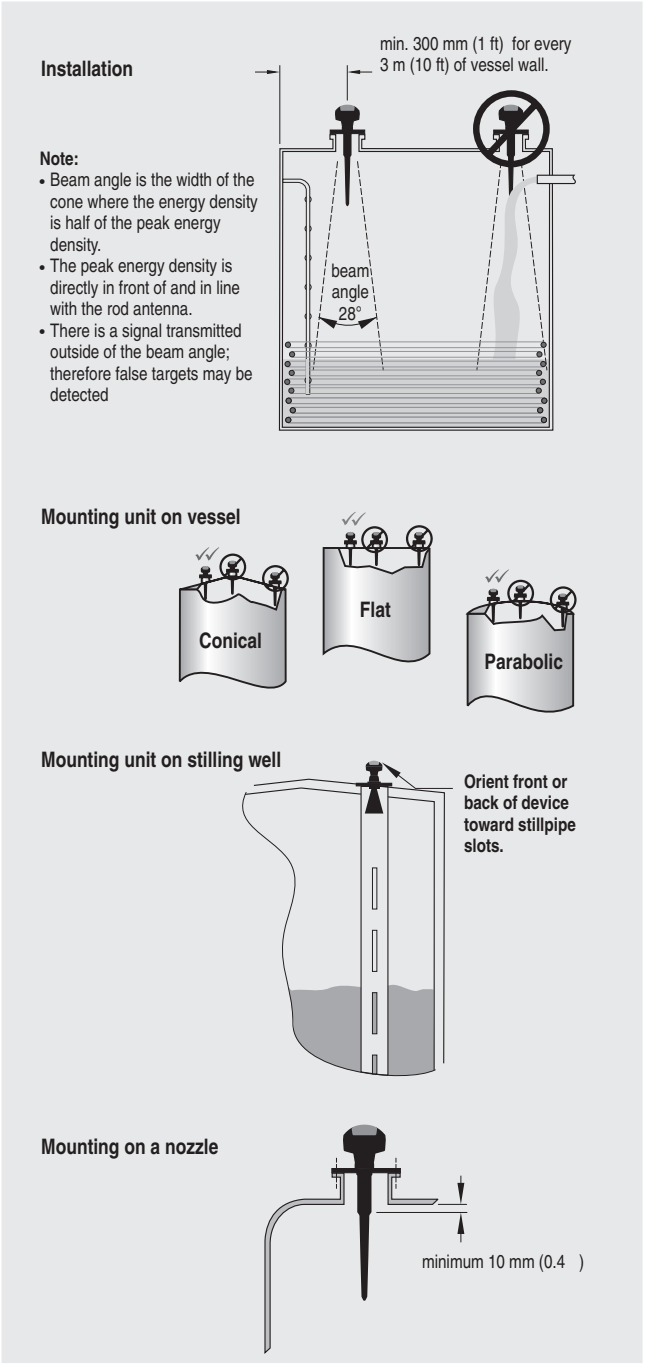
SITRANS LR200's unique design allows safe and simple programming using the Intrinsically Safe handheld programmer without having to open the instrument's lid. It also features a built-in alphanumeric display in four languages.

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.

Start-up 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 patented Process Intelligence signal-processing technology for superior reliability.

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

## Configuration




SITRANS LR200 installation

5

## SITRANS LR200

### Technical specifications

| | |
|---|---|
| **Mode of operation** | |
| Measuring principle | Radar level measurement |
| Frequency | 5.8 GHz (North America 6.3 GHz) |
| Measuring range | 0.3 to 20 m (1.0 to 65 ft) |
| **Output** | |
| • Analog output | 4 to 20 mA |
| • Accuracy | ± 0.02 mA |
| • Span | Proportional or inversely proportional |
| • Communications | HART® |
| | Optional: PROFIBUS PA (Profile 3.0, Class B) |
| • Fail-safe | Programmable as high, low or hold (Loss of Echo) |
| **Performance (according to reference conditions IEC60770-1)** | |
| • From end of antenna to 600 mm: | 40 mm (1.57") |
| • Remainder of range: | 10 mm (0.4") or 0.1% of span (whichever is greater) |
| **Rated operating conditions** | |
| Installation conditions | |
| • Location | Indoor/outdoor |
| Ambient conditions (enclosure) | |
| • Ambient temperature | -40 to +80 °C (-40 to +176 °F) |
| • Installation category | I |
| • Pollution degree | 4 |
| **Medium conditions** | |
| • Dielectric constant $\varepsilon_r$ | $\varepsilon_r$ > 1.6 (for $\varepsilon_r$ < 3, use waveguide antenna or stillpipe) |
| • Vessel temperature and pressure | Varies with connection type; see Pressure/Temperature curves for more information |
| **Design** | |
| • Enclosure | |
| - Material | Aluminium, polyester powder coated |
| - Cable inlet | 2 x M20x1.5 or 2 x ½" NPT with adapter |
| • Degree of protection | Type 4X/NEMA 4X, Type 6/ NEMA 6, IP67, IP68 |
| • Weight | < 2 kg (4.4 lbs) (polypropylene rod antenna) |
| • Display (local) | Multi-segment alphanumeric liquid crystal with bar graph (representing level) available in four languages |
| • Antenna | |
| - Material | Polypropylene rod, hermetically sealed construction, optional PTFE |
| - Dimensions | Standard 100 mm (4") shield for maximum 100 mm (4") nozzle, or optional 250 mm (10") long shield |
| - Optional rods, horn and waveguides | Refer to SITRANS LR200/LR300 Antennas for optional rods, horns and waveguides |

| | |
|---|---|
| Process connections | |
| • Process connection | 1½" NPT [(Taper), ANSI/ASME B1.20.1] |
| | R 1½" [(BSPT), EN 10226], or G 1½" [(BSPP), EN ISO 228-1] (polypropylene rod antenna) |
| • Flange connection | Refer to SITRANS LR200/LR300 Antennas for more connections |
| **Power supply** | |
| 4 to 20 mA/HART | |
| - General Purpose, Non-incendive, Intrinsically Safe | Nominal 24 V DC (max. 30 V DC) with max. 550 Ω |
| - Flame proof, Increased safety, Explosion proof | Nominal 24 V DC (max. 30 V DC) with max. 250 Ω |
| PROFIBUS PA | • 10.5 mA |
| | • per IEC 61158-2 |
| **Certificates and approvals** | |
| • General | $CSA_{US/C}$, CE, FM, C-TICK |
| • Marine | • Lloyd's Register of Shipping |
| | • ABS Type Approval |
| • Radio | FCC, Industry Canada and European (R&TTE), C-TICK |
| • Hazardous | |
| - Flame proof (Europe) | ATEX II 1/2 G EEx dmia IIC T4 |
| - Increased safety (Europe) | ATEX II 1/2 G EEx emia IIC T4 |
| - Explosion proof (USA/Canada) | CSA/FM (barrier not required) T4, Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III |
| - Non-incendive (USA) | FM (barrier not required) T5, Class I, Div. 2, Groups A, B, C, D |
| - Intrinsically Safe (Europe) | ATEX II 1G EEx ia IIC T4 |
| - Intrinsically Safe (USA/Canada) | CSA/FM (barrier required) T4, Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III |
| - Intrinsically Safe (Australia) | ANZEX Ex ia IIC T4 [Ta = -40 to +80 °C (-40 to +176 °F)] IP67 |
| - Intrinsically Safe (International) | IECEx TSA 04.0020X T4 |
| • Brazil - INMETRO | BR-Ex ia IIC T4 |
| **Programming** | |
| • Intrinsically Safe Siemens handheld programmer | Infrared receiver |
| - Approvals for handheld programmer | IS model: |
| | ATEX II 1GD Ex ia IIC T4 Ga Ex iaD 20 T135°C Ta = -20 to +50 °C |
| | CSA/FM Class I, II, and III, Div. 1., Groups A, B, C, D, E, F, G, T6 Ta = +50 °C |
| • Handheld communicator | HART communicator 375 |
| • PC | • SIMATIC PDM |
| | • AMS |
| • Display (local) | Multi-segment alphanumeric liquid crystal with bar graph (representing level) available in four languages |

HART® is a registered trademark of the Hart Communications Foundation.

| Selection and Ordering data | | Order No. |
|---|---|---|
| **SITRANS LR200, Uni-Construction polypropylene rod antenna version**<br>2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft).<br>Max. 3 bar g (43.5 psi g) pressure and +80 °C (+176 °F) | C) | **7ML5422-■■■■0** |
| **Enclosure/Cable inlet**<br>Aluminum, Epoxy painted<br>2 x ½" NPT, Siemens LUI interface<br>2 x M20x1.5, Siemens LUI interface | | **2**<br>**3** |
| **Polypropylene antenna type - (Max. 3 Bar pressure and +80 °C)**<br>1½" NPT [(Taper), ANSI/ASME B1.20.1], c/w integral 100 mm shield<br>R 1½" [(BSPT), EN 10226], c/w integral 100 mm shield<br>G 1½" [(BSPP), EN ISO 228-1], c/w integral 100 mm shield<br>1½" NPT [(Taper), ANSI/ASME B1.20.1], c/w integral 250 mm shield<br>R 1½" [(BSPT), EN 10226], c/w integral 250 mm shield<br>G 1½" [(BSPP), EN ISO 228-1], c/w integral 250 mm shield | | **A**<br>**B**<br>**C**<br>**D**<br>**E**<br>**F** |
| **Approvals**<br>General Purpose, CE[1]<br>General Purpose, $CSA_{US/C}$, FM, for North America only[2]<br>CSA Class I and II, Div. I, Groups A, B, C, D, G, 6.3 GHz, for North America only, Intrinsically Safe with suitable barrier [2]<br>FM, Class I and II, Div. I, Groups A, B, C, D, E, F, G, for North America only, Intrinsically Safe with suitable barrier[2]<br>ATEX II 1G EEx ia IIC T4, Intrinsically Safe with suitable barrier[1]<br>FM, Class I, Div. 2, Groups A, B, C, D, for North America only (no barrier required)[2] [3]<br>ATEX II 1/2 G EEx emia IIC T4 (no barrier required)[1] [4] [5]<br>ATEX II 1/2 G EEx dmia IIC T4 (no barrier required)[1] [5]<br>CSA/FM Class I, II and III, Div. 1, Groups A, B, C, D, E, F, G (no barrier required)[2] [3] [5] | | **A**<br>**B**<br>**C**<br>**D**<br>**E**<br>**F**<br>**G**<br>**H**<br>**J** |
| **Communication/Output**<br>4 to 20 mA, HART®<br>PROFIBUS PA | | **1**<br>**2** |
| ***Further designs***<br>Please add "**-Z**" to Order No. and specify Order code(s). | | Order code |
| Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters); specify in plain text | | **Y15** |
| Test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and to ISO 9000 | | **C11** |
| Namur NE43 compliant, device preset to failsafe <3.6 mA[5] | | **N07** |
| ***Instruction manual for HART/mA device*** | | Order No. |
| English<br>German<br>Note: The instruction manual should be ordered as a separate line item on the order. | C)<br>C) | **7ML1998-5JP02**<br>**7ML1998-5JP32** |
| Multi-language Quick Start manual<br>This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and instruction manual library. | C) | **7ML1998-5XC82** |

| Selection and Ordering data | | Order No. |
|---|---|---|
| **SITRANS LR200, Uni-Construction polypropylene rod antenna version**<br>2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft).<br>Max. 3 bar g (43.5 psi g) pressure and +80 °C (+176 °F) | C) | **7ML5422-■■■■0** |
| ***Instruction manual for PROFIBUS PA device***<br>English<br>German<br>Note: The instruction manual should be ordered as a separate line item on the order. | C)<br>C) | **7ML1998-5JR01**<br>**7ML1998-5JR31** |
| Multi-language Quick Start manual<br>This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and instruction manual library. | C) | **7ML1998-5XD81** |
| ***Accessories***<br>Handheld programmer, Intrinsically safe, EEx ia | C) | **7ML1930-1BK** |
| HART modem/RS-232 (for use with a PC and SIMATIC PDM) | D) | **7MF4997-1DA** |
| HART modem/USB (for use with a PC and SIMATIC PDM) | D) | **7MF4997-1DB** |
| One metallic cable gland M20x1.5, rated -40 °C to +80 °C (-40 to +176 °F) for General Purpose or ATEX EEx e installations (available for HART only) | | **7ML1930-1AP** |
| One metallic cable gland M20x1.5, rated -40 to +80 °C (-40 °F to +176 °F) with integrated shield connection (available for PROFIBUS PA) | | **7ML1930-1AQ** |
| One General Purpose polymeric cable gland M20x1.5, rating for -20 to +80 °C (-4 to +176 °F) | | **7ML1930-1AM** |
| SITRANS RD100 Remote display - see RD100 on page 5/304 | | |
| SITRANS RD200 Remote display - see RD200 on page 5/306 | | |

1) Includes European Radio approval (R&TTE), 5.8 GHz, C-TICK
2) Includes Radio approval FCC, 6.3 GHz
3) Available with enclosure option 2 only
4) Available with enclosure option 3 only
5) Available with communication option 1 only

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

D) Subject to export regulations AL: N, ECCN: EAR99H

## SITRANS LR200

| Selection and Ordering data | | Order No. |
|---|---|---|
| **SITRANS LR200, Flange Adapter, Sanitary Version** | C) | **7ML5424-** |
| 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft). | | |
| **Antenna material (uses antenna adapter)** | | |
| PTFE, one piece rod antenna | | **0** |
| UHMW-PE, one piece rod antenna | | **1** |
| **Process connection** | | |
| Sanitary fitting clamp | | **A** |
| **Configuration/Connection size** | | |
| 2" connection, rod antenna only | | **A** |
| 3" connection, rod antenna only | | **B** |
| 4" connection, rod antenna only | | **C** |
| **Antenna extension** | | |
| No extension | | **0** |
| **Mounting Clamp** | | |
| No mounting clamp | | **0** |
| Mounting clamp included, not available with Pressure rating option 0 | | **1** |
| **Enclosure/Cable inlet** | | |
| Aluminum, Epoxy painted | | |
| 2 x ½" NPT, Siemens LUI interface | C) | **2** |
| 2 x M20x1.5, Siemens LUI interface | C) | **3** |
| **Communication/Output** | | |
| 4 to 20 mA, HART® | | **A** |
| PROFIBUS PA | | **B** |
| **Approvals** | | |
| General Purpose, CE[1] | | **A** |
| General Purpose, $CSA_{US/C}$, FM, for North America only[2] | C) | **B** |
| CSA Class I and II, Div. I, Groups A, B, C, D, G, for North America only, Intrinsically Safe with suitable barrier[2] | C) | **C** |
| FM, Class I and II, Div. I, Groups A, B, C, D, E, F, G, for North America only, Intrinsically Safe with suitable barrier[2] | C) | **D** |
| ATEX II 1G EEx ia IIC T4, Intrinsically Safe with suitable barrier[1] | | **E** |
| FM, Class I, Div. 2, Groups A, B, C, D, FCC 6.3 GHz, for North America only (no barrier required) [3] | C) | **F** |
| ATEX II 1/2 G EEx emia IIC T4 (no barrier required)[1] [4] [5] | | **G** |
| ATEX II 1/2 G EEx dmia IIC T4 (no barrier required)[1] [5] | | **H** |
| CSA/FM Class I, II and III, Div. 1, Groups A, B, C, D, E, F, G (no barrier required)[2] [3] [5] | C) | **J** |
| **Pressure rating** | | |
| Rating per Pressure/Temperature curves in Manual | | **0** |
| 0.5 bar g (7.25 psi g) maximum | | **1** |
| ***Further designs*** | | Order code |
| Please add "**-Z**" to Order No. and specify Order code(s). | | |
| Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and to ISO 9000 | | **C11** |
| Inspection Certificate Type 3.1 per EN 10204 | | **C12** |
| Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters); specify in plain text | | **Y15** |
| Namur NE43 compliant, device preset to failsafe <3.6 mA[5] | | **N07** |

| Selection and Ordering data | | Order No. |
|---|---|---|
| **SITRANS LR200, Flange Adapter, Sanitary Version** | C) | **7ML5424-** |
| 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft). | | |
| ***Instruction manual for HART/mA device*** | | |
| English | C) | **7ML1998-5JP02** |
| German | C) | **7ML1998-5JP32** |
| Note: The instruction manual should be ordered as a separate line item on the order. | | |
| Multi-language Quick Start manual | C) | **7ML1998-5XC81** |
| This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and instruction manual library. | | |
| ***Instruction manual for PROFIBUS PA device*** | | |
| English | C) | **7ML1998-5JR02** |
| German | C) | **7ML1998-5JR32** |
| Note: The instruction manual should be ordered as a separate line item on the order. | | |
| Multi-language Quick Start manual | C) | **7ML1998-5XD81** |
| This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and instruction manual library. | | |
| ***Accessories*** | | |
| Handheld programmer, Intrinsically safe, EEx ia | C) | **7ML1930-1BK** |
| HART modem/RS-232 (for use with a PC and SIMATIC PDM) | D) | **7MF4997-1DA** |
| HART modem/USB (for use with a PC and SIMATIC PDM) | D) | **7MF4997-1DB** |
| One metallic cable gland M20x1.5, rated -40 °C to +80 °C (-40 to +176 °F) for General Purpose or ATEX EEx e installations (available for HART only) | | **7ML1930-1AP** |
| One metallic cable gland M20x1.5, rated -40 to +80 °C (-40 °F to +176 °F) with integrated shield connection (available for PROFIBUS PA) | | **7ML1930-1AQ** |
| One General Purpose polymeric cable gland M20x1.5, rating for -20 to +80 °C (-4 to +176 °F) | | **7ML1930-1AM** |
| SITRANS RD100 Remote display - see RD100 on page 5/304 | | |
| SITRANS RD200 Remote display - see RD200 on page 5/306 | | |
| Sanitary fitting clamps | | |
| 2", 304 stainless steel | | **7ML1830-1HD** |
| 3", 304 stainless steel | | **7ML1830-1HE** |
| 4", 304 stainless steel | | **7ML1830-1HF** |

1) Includes European Radio approval (R&TTE), 5.8 GHz, C-TICK
2) Includes Radio approval FCC, 6.3 GHz
3) Available with enclosure option 2 only
4) Available with enclosure option 3 only
5) Available with communication option A only

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

D) Subject to export regulations AL: N, ECCN: EAR99H

## Selection and Ordering data

Order No.

**SITRANS LR200, Flange Adapter/PTFE Rod Antenna Version** C) **7ML5423-**

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

**Antenna material (uses antenna adapter)**
PTFE, uses antenna adapter and additional process connection below — **1**

**Process connection (refer to Pressure/Temperature curves in Instruction manual)**
Flanges (316L stainless steel)
DN 50 PN 16, Type A, flat faced — **AA**
DN 80 PN 16, Type A, flat faced — **BA**
DN 100 PN 16, Type A, flat faced — **CA**
DN 150 PN 16, Type A, flat faced — **DA**
2" ASME 150 lb, flat faced — **FB**
3" ASME 150 lb, flat faced — **GB**
4" ASME 150 lb, flat faced — **HB**
6" ASME 150 lb, flat faced — **JB**
DN 50 PN 40, flat faced — **AC**
DN 80 PN 40, flat faced — **BC**
DN 100 PN 40, flat faced — **CC**
DN 150 PN 40, flat faced — **DC**
2" ASME 300 lb, flat faced, available with Pressure rating option 1 only — **FD**
3" ASME 300 lb, flat faced — **GD**
4" ASME 300 lb, flat faced — **HD**
6" ASME 300 lb, flat faced — **JD**
JIS DN 50 10K — **AE**
JIS DN 80 10K — **BE**
JIS DN 100 10K — **CE**
JIS DN 150 10K — **DE**
(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)
1½" NPT [(Taper), ANSI/ASME B1.20.1] — **LA**
2" NPT [(Taper), ANSI/ASME B1.20.1] — **MA**
R 1½" [(BSPT), EN 10226] — **LC**
R 2" [(BSPT), EN 10226] — **MC**
G 1½" [(BSPP), EN ISO 228-1] — **LE**
G 2" [(BSPP), EN ISO 228-1] — **ME**

**Antenna extensions or Inactive shield length**
No antenna extension — **0**
50 mm (2") extension, PTFE — **1**
100 mm (4") extension, PTFE — **2**
100 mm (4") extension, 316L stainless steel shield[1] — **3**
150 mm (6") extension, 316L stainless steel shield[1] — **4**
200 mm (8") extension, 316L stainless steel shield[1] — **5**
250 mm (10") extension, 316L stainless steel shield[1] — **6**
Custom inactive shield length 101 mm to 1000 mm (in 1 mm increments)
Add order code Y01 and plain text: "Inactive shield length...mm"[1] — **7**

**Process seal/gasket**
Integral Gasket, for flat faced flange process connections only, not for Antenna extension options 3 to 6 — **0**
FKM O-ring, not available for combination of flat faced flanges with Antenna extension options 0, 1 or 2 — **1**

**Enclosure/Cable inlet**
Aluminum, Epoxy painted
2 x ½" NPT, Siemens LUI interface C) — **2**
2 x M20x1.5, Siemens LUI interface C) — **3**

**Communication/Output**
4 to 20 mA, HART® — **A**
PROFIBUS PA — **B**

## Selection and Ordering data

Order No.

**SITRANS LR200, Flange Adapter/PTFE Rod Antenna Version** C) **7ML5423-**

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

**Approvals**
General Purpose, CE[2] — **A**
General Purpose, CSA$_{US/C}$, FM, for North America only[3] — **B**
CSA Class I and II, Div. I, Groups A, B, C, D, G, for North America only, Intrinsically Safe with suitable barrier[3] — **C**
FM, Class I and II, Div. I, Groups A, B, C, D, E, F, G, for North America only, Intrinsically Safe with suitable barrier[3] — **D**
ATEX II 1G EEx ia IIC T4, Intrinsically Safe with suitable barrier[2] — **E**
FM, Class I, Div. 2, Groups A, B, C, D, FCC 6.3 GHz, for North America only (no barrier required) [3) 4)] — **F**
ATEX II 1/2 G EEx emia IIC T4 (no barrier required)[2) 5) 6)] — **G**
ATEX II 1/2 G EEx dmia IIC T4 (no barrier required)[2) 6)] — **H**
CSA/FM Class I, II and III, Div. 1, Groups A,B, C, D, E, F, G (no barrier required)[2) 4) 6)] — **J**

**Pressure rating**
Rating per Pressure/Temperature curves in Manual — **0**
0.5 bar g (7.25 psi g) maximum — **1**

***Further designs***

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

Order code

Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and to ISO 9000 — **C11**
Inspection Certificate Type 3.1 per EN 10204 — **C12**
Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters); specify in plain text — **Y15**
Inactive custom shield lengths: Enter the total length of the inactive shield in plain text description (in 1 mm increments). — **Y01**
Namur NE43 compliant, device preset to failsafe <3.6 mA[6] — **N07**

***Instruction manual for HART/mA device***

Order No.

English C) **7ML1998-5JP02**
German C) **7ML1998-5JP32**
Note: The instruction manual should be ordered as a separate line item on the order.
Multi-language Quick Start manual C) **7ML1998-5XC81**
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and instruction manual library.

***Instruction manual for PROFIBUS PA device***

English C) **7ML1998-5JR02**
German C) **7ML1998-5JR32**
Note: The instruction manual should be ordered as a separate line item on the order.
Multi-language Quick Start manual C) **7ML1998-5XD81**
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and instruction manual library.

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## SITRANS LR200

### Selection and Ordering data — Order No.

**SITRANS LR200, Flange Adapter/PTFE Rod Antenna Version** C) **7ML5423-**

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

*Accessories*

| | | |
|---|---|---|
| Handheld programmer, Intrinsically safe, EEx ia | C) | **7ML1930-1BK** |
| HART modem/RS-232 (for use with a PC and SIMATIC PDM) | D) | **7MF4997-1DA** |
| HART modem/USB (for use with a PC and SIMATIC PDM) | D) | **7MF4997-1DB** |
| One metallic cable gland M20x1.5, rated -40 °C to +80 °C (-40 to +176 °F) for General Purpose or ATEX EEx e installations (available for HART only) | | **7ML1930-1AP** |
| Antenna, rod, PTFE | | **7ML1830-1HC** |
| Antenna extension, 50 mm (2") PTFE | | **7ML1830-1CG** |
| Antenna extension, 100 mm (4") PTFE | | **7ML1830-1CH** |
| One metallic cable gland M20x1.5, rated -40 to +80 °C (-40 to +176 °F) with integrated shield connection (available for PROFIBUS PA) | | **7ML1930-1AQ** |
| One General Purpose polymeric cable gland M20x1.5, rating for -20 to +80 °C (-4 to +176 °F) | | **7ML1930-1AM** |
| SITRANS RD100 Remote display - see RD100 on page 5/304 | | |
| SITRANS RD200 Remote display - see RD200 on page 5/306 | | |

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) Includes European Radio approval (R&TTE), 5.8 GHz, C-TICK
3) Includes Radio approval FCC, 6.3 GHz
4) Available with enclosure option 2 only
5) Available with enclosure option 3 only
6) Available with communication option A only

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

D) Subject to export regulations AL: N, ECCN: EAR99H

### Selection and Ordering data — Order No.

**SITRANS LR200, Flange Adapter/Horn Antenna Version** C) **7ML5425-**

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

| | | |
|---|---|---|
| **Antenna Material (uses antenna adapter)** | | |
| 316L stainless steel with PTFE cone emitter | | **0** |
| 316L stainless steel with PTFE cone emitter and purge connection with 1/8" NPT inlet[1] | | **1** |
| Sliding waveguide system with 1000 mm (40") waveguide[1] | | **2** |
| **Process connection (refer to Pressure/Temperature curves on specification sheets)** | | |
| Flanges (316L stainless steel) | | |
| DN 50 PN 16, Type A, flat faced[1] | | **AA** |
| DN 80 PN 16, Type A, flat faced | | **BA** |
| DN 100 PN 16, Type A, flat faced | | **CA** |
| DN 150 PN 16, Type A, flat faced | | **DA** |
| DN 200 PN 16, Type A, flat faced | | **EA** |
| DN 80 PN 10/16 DIN EN1092-1 form B1 | | **BF** |
| DN 100 PN 10/16 DIN EN1092-1 form B1 | | **CF** |
| DN 150 PN 10/16 DIN EN1092-1 form B1 | | **DF** |
| DN 200 PN 16 DIN EN1092-1 form B1 | | **EF** |
| 2" ASME 150 lb, flat faced[1] | | **FB** |
| 3" ASME 150 lb, flat faced | | **GB** |
| 4" ASME 150 lb, flat faced | | **HB** |
| 6" ASME 150 lb , flat faced | | **JB** |
| 8" ASME 150 lb, flat faced | | **KB** |
| DN 50 PN 40, flat faced[1] | | **AC** |
| DN 80 PN 40, flat faced | | **BC** |
| DN 100 PN 40, flat faced | | **CC** |
| DN 80 PN 25/40 DIN EN1092-1 form B1 | | **CG** |
| DN 100 PN 25/40 DIN EN1092-1 form B1 | | **DG** |
| DN 150 PN 25/40 DIN EN1092-1 form B1 | | **EG** |
| 2" ASME 300 lb, flat faced[1] | | **FD** |
| 3" ASME 300 lb, flat faced | | **GD** |
| 4" ASME 300 lb, flat faced | | **HD** |
| JIS DN 50 10K[1] | | **AE** |
| JIS DN 80 10K | | **BE** |
| JIS DN 100 10K | | **CE** |
| JIS DN 150 10K | | **DE** |
| JIS DN 200 10K | | **EE** |
| (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** | | |
| 4 to 20 mA, HART® | | **0** |
| PROFIBUS PA | | **1** |
| **Process seal/gasket** | | |
| FKM (-40 to +200 °C) | | **0** |
| Nitrile (-40 to +100 °C), sliding waveguide sytems only | | **1** |
| FFKM (-35 to +200 °C) | | **2** |
| **Enclosure/Cable inlet** | | |
| Aluminum, Epoxy painted | | |
| 2 x ½" NPT, Siemens LUI interface | | **2** |
| 2 x M20x1.5, Siemens LUI interface | | **3** |
| **Horn size/Waveguide options** | | |
| 80 mm (3") horn[2] | D) | **B** |
| 100 mm (4") horn[2] | D) | **C** |
| 150 (6") mm horn | D) | **D** |
| 200 (8") mm horn | | **E** |
| 100 mm (4") horn with 100 mm (4") waveguide extension[2] | D) | **F** |
| 100 mm (4") horn with 150 mm (6") waveguide extension[2] | | **G** |
| 100 mm (4") horn with 200 mm (8") waveguide extension[2] | | **H** |
| 100 mm (4") horn with 250 mm (10") waveguide extension[2] | D) | **J** |

| Selection and Ordering data | | Order No. |
|---|---|---|
| **SITRANS LR200, Flange Adapter/Horn Antenna Version** | C) | **7ML5425-** |
| 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft). | | |
| 150 mm (6") horn with 100 mm (4") waveguide extension | | **K** |
| 150 mm (6") horn with 150 mm (6") waveguide extension | | **L** |
| 150 mm (6") horn with 200 mm (8") waveguide extension | | **M** |
| 150 mm (6") horn with 250 mm (10") waveguide extension | | **N** |
| 200 mm (8") horn with 100 mm (4") waveguide extension | | **P** |
| 200 mm (8") horn with 150 mm (6") waveguide extension | | **Q** |
| 200 mm (8") horn with 200 mm (8") waveguide extension | | **R** |
| 200 mm (8") horn with 250 mm (10") waveguide extension | | **S** |
| Waveguide only - Waveguide length 500 mm to 3000 mm (in 1 mm increments) (Add order code Y01 and plain text: "waveguide length ...mm") | | **T** |
| **Approvals** | | |
| General Purpose, CE[3] | | **A** |
| General Purpose, $CSA_{US/C}$, FM, for North America only[4] | | **B** |
| CSA Class I and II, Div. I, Groups A, B, C, D, G, for North America only, Intrinsically Safe with suitable barrier[4] | | **C** |
| FM, Class I and II, Div. I, Groups A, B, C, D, E, F, G, for North America only, Intrinsically Safe with suitable barrier[4] | | **D** |
| ATEX II 1G EEx ia IIC T4, Intrinsically Safe with suitable barrier[3] | | **E** |
| FM, Class I, Div. 2, Groups A, B, C, D, for North America only (no barrier required)[4) 5)] | | **F** |
| ATEX II 1/2 G EEx emia IIC T4 (no barrier required)[3) 6) 7)] | | **G** |
| ATEX II 1/2 G EEx dmia IIC T4 (no barrier required)[3) 7)] | | **H** |
| CSA/FM Class I, II and III, Div. 1, Groups A B, C, D, E, F, G (no barrier required)[4) 5) 7)] | | **J** |
| **Pressure rating** | | |
| Rating per Pressure/Temperature curves in Manual 0.5 bar g (7.25 psi g) maximum | | **0** **1** |
| ***Further designs*** | | Order code |
| Please add "**-Z**" to Order No. and specify Order code(s). | | |
| Acceptance test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and to ISO 9000 | | **C11** |
| Inspection Certificate Type 3.1 per EN 10204 | | **C12** |
| Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text | | **Y15** |
| Waveguide custom lengths: Enter the total length of the waveguide in plain text description (1 mm increments) | | **Y01** |
| Namur NE43 compliant, device preset to failsafe <3.6 mA[7] | | **N07** |

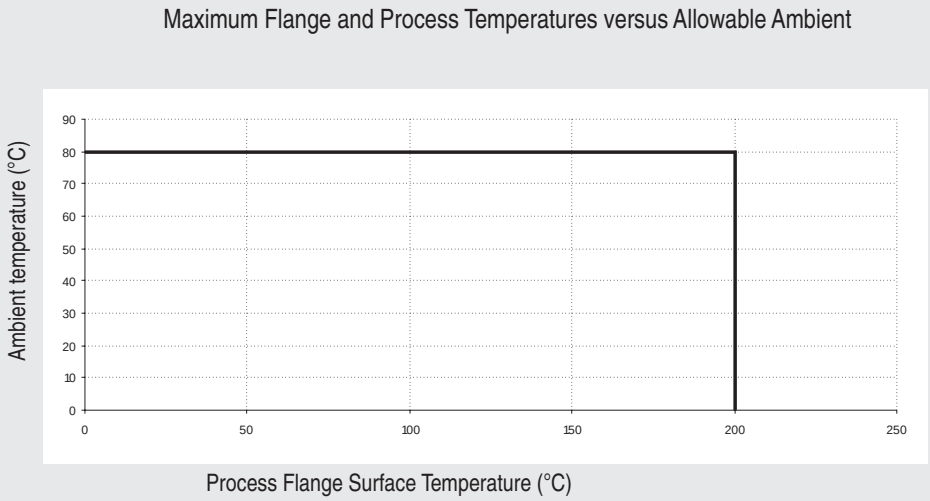
| Selection and Ordering data | | Order No. |
|---|---|---|
| **SITRANS LR200, Flange Adapter/Horn Antenna Version** | C) | **7ML5425-** |
| 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft). | | |
| ***Instruction manual for HART/mA device*** | | |
| English | C) | **7ML1998-5JP02** |
| German | C) | **7ML1998-5JP32** |
| Note: The instruction manual should be ordered as a separate line item on the order. | | |
| Multi-language Quick Start manual | C) | **7ML1998-5XC82** |
| This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and instruction manual library. | | |
| ***Instruction manual for PROFIBUS PA device*** | | |
| English | C) | **7ML1998-5JR02** |
| German | C) | **7ML1998-5JR32** |
| Note: The instruction manual should be ordered as a separate line item on the order. | | |
| Multi-language Quick Start manual | C) | **7ML1998-5XD81** |
| This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and instruction manual library. | | |
| ***Accessories*** | | |
| Handheld programmer, Intrinsically safe, EEx ia | C) | **7ML1930-1BK** |
| HART modem/RS-232 (for use with a PC and SIMATIC PDM) | D) | **7MF4997-1DA** |
| HART modem/USB (for use with a PC and SIMATIC PDM®) | D) | **7MF4997-1DB** |
| One metallic cable gland M20x1.5, rated -40 °C to +80 °C (-40 to +176 °F) (available for HART only) | | **7ML1930-1AP** |
| One metallic cable gland M20x1.5, rated -40 °C to +80 °C (-40 to +176 °F) with integrated shield connection (available for PROFIBUS PA) | | **7ML1930-1AQ** |
| One General Purpose polymeric cable gland M20x1.5, rating for -20 to +80 °C (-4 to +176 °F) | | **7ML1930-1AM** |
| SITRANS RD100 Remote display - see RD100 on page 5/304 | | |
| SITRANS RD200 Remote display - see RD200 on page 5/306 | | |

1) Available with pressure rating option 1 only
2) For stillpipe applications only
3) Includes European Radio approval (R&TTE), 5.8 GHz, C-TICK
4) Includes Radio approval FCC, 6.3 GHz
5) Available with enclosure option 2 only
6) Available with enclosure option 3 only
7) Available with communication option 0 only

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

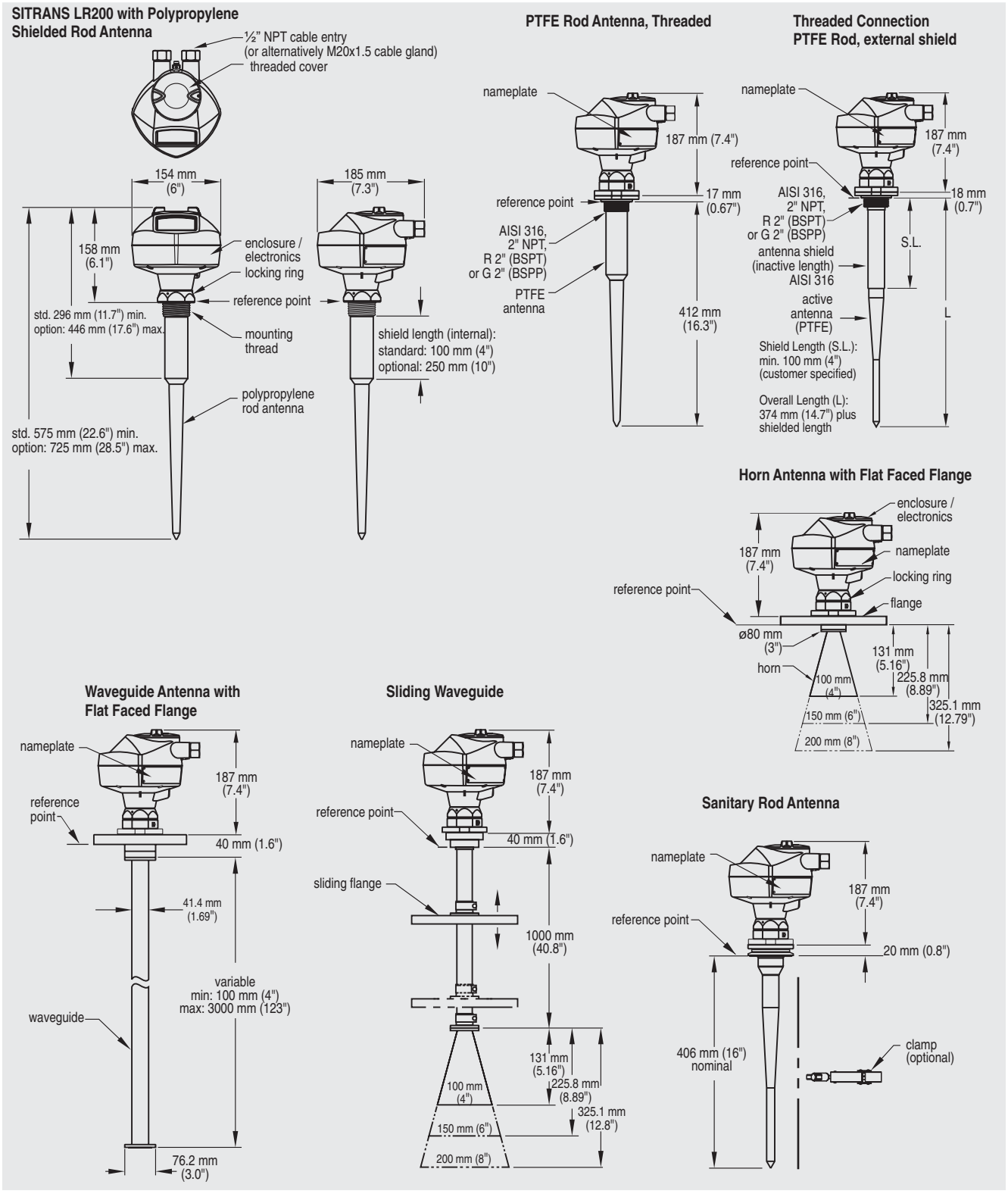
D) Subject to export regulations AL: N, ECCN: EAR99H

## Characteristic curves




SITRANS LR200 Ambient/Process Flange Surface Temperature Curve

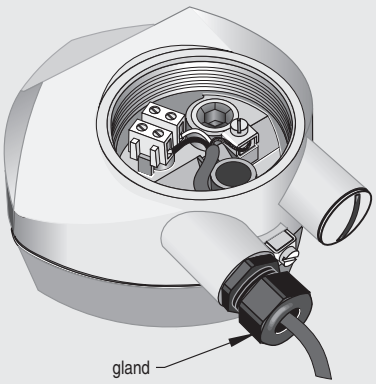
## Dimensional drawings

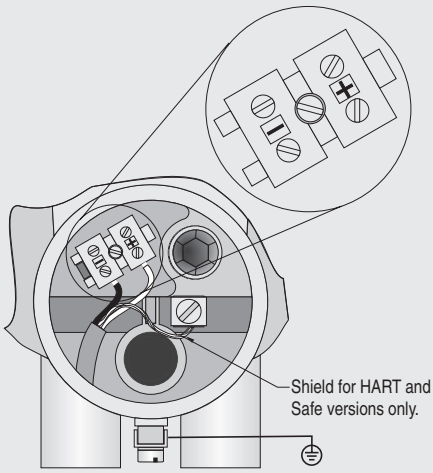



SITRANS LR200 dimensions

## SITRANS LR200

### Schematics




**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 to 22 AWG) for HART version.
4. Separate cables and conduit may be required to conform to standard instrumentation wiring practices or electrical codes.

**Hand Programmer**

Part number:
7ML1930-1BK


SITRANS LR200 connections