Radar transmitters

Overview

Radar measurement technology is non-contacting and low maintenance. Because microwaves require no carrier medium, they are virtually unaffected by the process atmosphere (vapour, pressure, dust, or temperature extremes). Siemens offers a variety of models to meet the specific needs of your application.

SITRANS Probe LR is a 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage vessels with nominal pressure and temperature, to a range of 20 m (66 ft).

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).

SITRANS LR250 is a 2-wire, 25 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). Ideal for small vessels and low dielectric media.

SITRANS LR260 is a 2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of solids in silos to a range of 30 m (98.4 ft). Ideal for applications with extreme dust and high temperatures to +200 °C (+392 °F).

SITRANS LR400 is a 4-wire, 24 GHz FMCW radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and high pressure, to a range of 50 m (164 ft). It is ideal for low dielectric media.

SITRANS LR460 is a 4-wire, 24 GHz FMCW radar level transmitter with extremely high signal to noise ratio and advanced signal processing for continuous monitoring of solids up to 100 m (328 ft). It is ideal for measurement in extreme dust.

Auto False-Echo Suppression

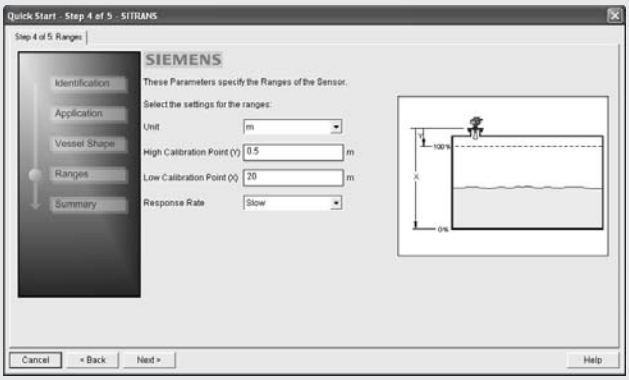
SITRANS LR instruments offer the unique advantage of patented Process Intelligence signal processing technology. This in-depth knowledge and experience is built into the software's advanced algorithms to provide intelligent processing of echo profiles. The result is repeatable, fast and reliable measurement.

A special feature of SITRANS radar devices is Auto False-Echo Suppression, an echo processing technique that automatically detects and suppresses false echoes from vessel obstructions. You can implement this feature using two parameters on the local interface or SIMATIC PDM communicating over HART® or PROFIBUS PA.



Local display interface —graphically displays echo profiles and diagnostic information (available with LR200, LR250, LR260)

Quick to configure Quick Start Wizard via SIMATIC PDM guides you during setup (available with LR200, LR250, LR260, LR460)



Mode of operation

Principle of Operation

Radar measurement technology measures the time of flight from the transmitted signal to the return signal. From this time, distance measurement and level are determined.

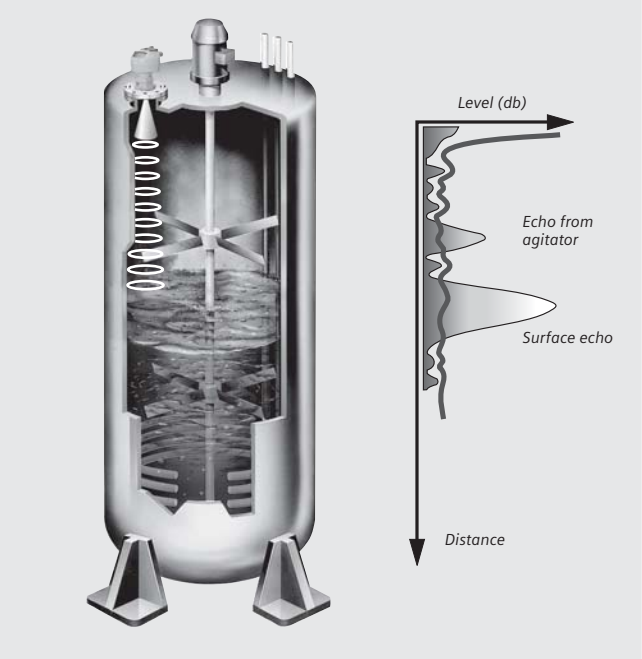
Unlike ultrasonic measurement, radar technology does not require a carrier medium and travels at the speed of light (300 000 000 m/s). Most industrial radar devices operate from 6 to 26 GHz.

Siemens offers pulse radar transmitters (SITRANS Probe LR, SITRANS LR200, SITRANS LR250, SITRANS LR260) and FMCW (Frequency Modulated Continuous Wave) radar transmitters (SITRANS LR400, SITRANS LR460).

Pulse radar emits a microwave pulse from the antenna at a fixed repetition rate that reflects off the interface between the two materials with different dielectric constants (the atmosphere and the material being monitored). The echo is detected by a receiver and the transmit time is used to calculate level.

Reflected echoes are digitally converted to an echo profile. The profile is analyzed to determine the distance from the material surface to the reference point on the instrument.

FMCW (Frequency Modulated Continuous Wave) radar devices send microwaves to the surface of the material. The wave frequency is modulated continuously. At the same time, the receiver is also receiving continuously and the difference in frequency between the transmitter and the receiver is directly proportional to the distance to the material.



Radar operation in a reactor vessel

Technical specifications

Radar Selection Guide

Criteria	SITRANS Probe LR	SITRANS LR200	SITRANS LR250	SITRANS LR260	SITRANS LR400	SITRANS LR460
Typical industries	Chemicals	Chemicals, petrochemicals	Chemicals, petrochemicals	Cement, power generation, food processing, mineral processing, mining	Chemicals, petrochemicals	Cement, power generation, food processing, mineral processing, mining
Typical applications	Liquids, storage vessels	Liquids, storage and process vessels	Liquids, storage and process vessels with agitators, vaporous liquids, high temperatures, low dielectric media	Cement, plastics, grain, flour, coal	Liquids storage vessels, liquid petroleum gas (LPG)	Cement, flyash, grain, coal, flour, plastics
Range	0.3 to 20 m (1 to 65 ft)	0.3 to 20 m (1 to 65 ft)	50 mm (2") from end of horn to 20 m (65 ft), horn dependent	30 m (98.4 ft)	0.35 to 50 m (1.14 to 164 ft)	100 m (328 ft)
Frequency	5.8 GHz (North America 6.3 GHz)	5.8 GHz (North America 6.3 GHz)	K-band (25.0 GHz)	K-band (25.0 GHz)	24 to 25 GHz FMCW	24 to 25 GHz FMCW
Performance accuracy	0.1% of range or 10 mm (0.4")	0.1% of range or 10 mm (0.4")	5 mm (0.02")	25 mm (1") from minimum detectable distance to 300 mm (11.8") Remainder of range = 10 mm (0.39") or 0.1% of span (whichever is greater)	≤ 5 mm (0.2") from 2 to 10 m (6.6 to 32.8 ft) ≤ 15 mm (0.6") from 10 to 50 m (32.8 to 164 ft)	0.25 %
Temperature	Ambient: -40 to +80 °C (-40 to +176 °F) Process: -40 to +80 °C (-40 to +176 °F)	Ambient: -40 to +80 °C (-40 to +176 °F) Process: -40 to +200 °C (-40 to +392 °F), dependent on antenna type	Ambient: -40 to +80 °C (-40 to +176 °F) Process: -40 to +200 °C (-40 to +392 °F) dependent on antenna type	Ambient: -40 to +80 °C (-40 to +176 °F) Process: -40 to +200 °C (-40 to +392 °F) dependent on antenna type	Ambient: -40 to +65 °C (-40 to +149 °F) Process: -40 to +250 °C (-40 to +482 °F), dependent on antenna type	Ambient: max. +65 °C (+149 °F) Process: max. +200 °C (+392 °F)
Output/ Communications	• 4 to 20 mA/HART® • SIMATIC PDM for remote configuration and diagnostics	• 4 to 20 mA/HART • PROFIBUS PA • SIMATIC PDM for remote configuration and diagnostics • AMS	• 4 to 20 mA/HART • PROFIBUS PA • SIMATIC PDM for remote configuration and diagnostics • AMS	• 4 to 20 mA/HART • PROFIBUS PA • SIMATIC PDM for remote configuration and diagnostics	• 4 to 20 mA/HART • PROFIBUS PA • SIMATIC PDM for remote configuration and diagnostics	• 4 to 20 mA/HART • PROFIBUS PA • SIMATIC PDM for remote configuration and diagnostics
Power	• 4 to 20 mA, 24 V DC nominal, 30 V DC max. • Minimum voltage depends on total loop resistance	• 4 to 20 mA loop, 24 V DC nominal, 30 V DC max. • Minimum voltage depends on total loop resistance	• 4 to 20 mA loop, 24 V DC nominal, 30 V DC max. • Minimum voltage depends on total loop resistance	• 4 to 20 mA (±0.02 mA accuracy) 24 V DC nominal, 30 V DC max. • Minimum voltage depends on total loop resistance	• 120 to 230 V AC, ±15%, 50/60 Hz • 24 V DC, +25/-20%, 6 W (optional)	• 100 to 230 V AC, ±15%, 50/60 Hz, 6 W • 24 V DC, +25/-20%, 6 W
Approvals	CE, $CSA_{US/C}$, FM, Lloyds Register of Shipping, ABS, FCC, Industry Canada, R&TTE, ATEX, PED, C-TICK, INMETRO	CE, $CSA_{US/C}$, FM, Lloyds Register of Shipping, ABS, FCC, Industry Canada, R&TTE, ATEX, PED, C-TICK, INMETRO	$CSA_{US/C}$, CE, FM FCC, Industry Canada, R&TTE, ATEX, PED, C-TICK, INMETRO	$CSA_{US/C}$, CE, FM R&TTE, Industry Canada, FCC, ATEX, C-TICK	CE, $CSA_{US/C}$, FM, Lloyds Register of Shipping, ABS, FCC, Industry Canada, R&TTE, ATEX, PED, C-TICK	$CSA_{US/C}$, CE, FM R&TTE, Industry Canada, FCC, ATEX, C-TICK, INMETRO

SIEMENS

Radar Application Questionnaire

Customer information

Contact: _____ Prepared By: _____

Company: _____ Date: _____

Address: _____ Notes on the Application: _____

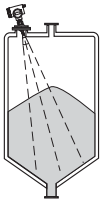
City: _____ Country: _____

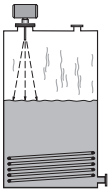
Zip/Postal Code: _____ Phone: ( ) _____

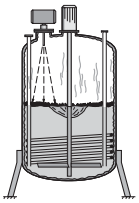
E-mail: _____ Fax: ( ) _____

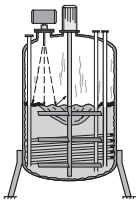
Vessel Information

(supply sketch where possible) ☐ Sketch attached

☐ Storage Solids 

☐ Storage Liquids 

☐ Process 

☐ Reactor 

Area safety classification: *(specify code required)* _____

Height: _____ m/ft **Diameter:** _____ m/ft **Filling method:** _____

Top:
☐ Flat
☐ Parabolic
☐ Conical

Atmosphere: *(indicate all that apply)*
☐ Foam ☐ Steam
☐ Dust ☐ Deposit (build-up)
☐ Vapor

Pressure:
Normal: _____
Maximum (relief): _____

Mounting connection *(specify type)* _____

Distance to sidewall: _____ cm/in

Mounting connection maximum temperature: _____ °C/°F

Max. temperature at electronics: _____ °C/°F

Critical Information

Nozzle Length: _____ cm/in

Nozzle Diameter: _____ cm/in

Stilling well or Still Pipe mounting: ☐ Yes ☐ No **Stilling well diameter:** _____ cm/in

Material

Material being measured: _____ ☐ Liquid ☐ Solid ☐ Liquified gas

Material temperature: Norm: _____ °C/°F Max: _____ °C/°F

Material surface: ☐ Flat ☐ Turbulent ☐ Agitated ☐ Vortex **Dielectric constant:** ☐ $\varepsilon r < 3$ ☐ $\varepsilon r > 3$

Installation

Power available: _____

Communications:
☐ HART® /4 to 20 mA
☐ PROFIBUS PA
☐ None

Products recommended:

© Siemens Milltronics Process Instruments Inc.

Overview



SITRANS Probe LR is a 2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage vessels with nominal pressure and temperature, to a range of 20 m (66 ft).

Benefits

- Uni-Construction polypropylene rod antenna standard
- Easy installation and simple startup
- Programming using infrared Intrinsically Safe handheld programmer, SIMATIC PDM or HART® handheld communicator
- Communication using HART®
- Patented Process Intelligence® signal processing
- Extremely high signal-to-noise ratio
- Auto False-Echo Suppression of false echoes

Application

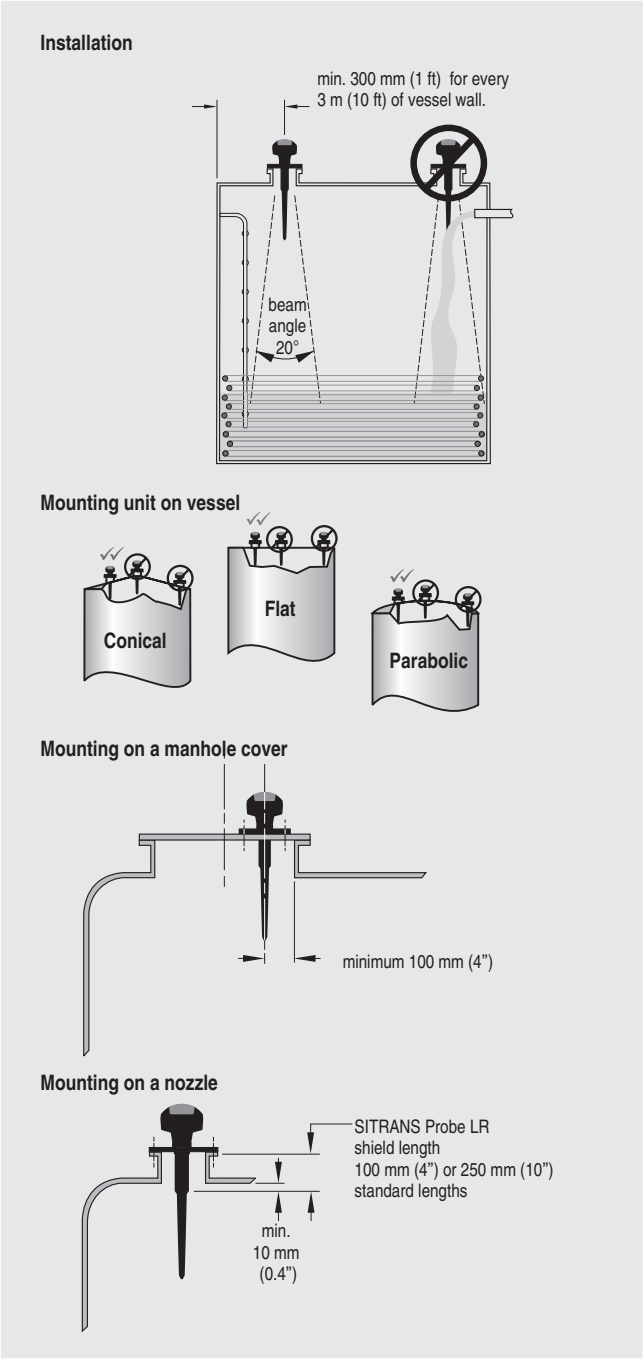
The Probe LR is ideal for applications with chemical vapours, temperature gradients, vacuum or pressure, such as tank farms, chemical storage, digesters and long-range applications. SITRANS Probe LR has a range of 0.3 to 20 m (1 to 65 ft).

Probe LR is designed for safe and simple programming using the Intrinsically Safe handheld programmer without having to open the instrument's lid. It has a standard Uni-Construction polypropylene rod antenna that offers excellent chemical resistance and is hermetically sealed. The Uni-Construction antenna includes an internal, integrated shield that eliminates vessel nozzle interference. SITRANS Probe LR incorporates Process Intelligence® signal processing. The Probe LR also has a high signal-to-noise ratio leading to improved reliability.

Start-up is easy with as few as two parameters for basic operation. Programming is simple using SIMATIC PDM, HART® handheld communicator or the Intrinsically Safe handheld programmer.

- Key Applications: tank farms, chemical storage, wastewater wet well

Configuration



SITRANS Probe LR installation

5

SITRANS Probe LR

Technical specifications

Mode of operation	
Measuring principle	Pulse 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®
Performance (reference conditions)	
Accuracy	± the greater of 0.1% of range or 10 mm (0.4")
Influence of ambient temperature	0.003%/K
Repeatability	± 5 mm (2")
Fail-safe	mA signal programmable as high, low or hold (LOE)
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 ε_r	ε_r > 1.6 (for ε_r < 3, use stillpipe)
Vessel temperature	-40 to +80 °C (-40 to +176 °F)
Vessel pressure	3 bar g (43.5 psi g)
Design	
• Enclosure	
- Body construction	PBT (Polybutylene Terephthalate)
- Lid construction	PEI (Polyether Imide)
- 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	1.97 kg (4.35 lb)
• Antenna	
- Material	Polypropylene rod, hermetically sealed construction
- Dimensions	Standard 100 mm (4") shield for maximum 100 mm (4") nozzle or optional 250 mm (10") long shield
• Process connections	1½" NPT [(Taper), ANSI/ASME B1.20.1] R 1½" [(BSPT), EN 10226] G 1½" [(BSPP), EN ISO 228-1]
Power supply	• Nominal 24 V DC with max. 550 Ω, maximum 30 V DC • 4 to 20 mA
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	
• Europe	ATEX II 1G EEx ia IIC T4
• USA	Intrinsically Safe barrier required FM Class I, Div.1, Groups A,B,C,D; Class II, Div. 1, Groups E,F, G; Class III
• Canada	Intrinsically Safe barrier required CSA Class I, Div.1, Groups A,B,C,D; Class II, Div. 1, Group G; Class III
• Brazil - INMETRO	BR-Ex ia IIC T4
Programming	
Handheld programmer	HART communicator 375
PC	SIMATIC PDM
Intrinsically safe Siemens handheld programmer (optional)	Infrared receiver
• Approvals (handheld programmer)	ATEX II 1G EEx ia IIC T4 CSA and FM Class I, Div.1, Groups A,B,C,D, T6 @ max. ambient
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 Probe LR	C)	**7ML5430-**
2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage vessels with nominal pressure and temperature, to a range of 20 m (66 ft). Max. 3 bar g (43.5 psi g) pressure and +80 °C (+176 °F)		**0**
Enclosure		
Plastic, (PBT), 2 x ½" NPT		**1**
Plastic, (PBT), 2 x M20x1.5		**2**
Antenna type/Material - (max. 3 bar and +80 °C)		
Polypropylene Antenna		
1½" NPT [(Taper), ANSI/ASME B1.20.1], c/w integral 100 mm shield		**A**
R 1½" [(BSPT), EN 10226], c/w integral 100 mm shield		**B**
G 1½" [(BSPP), EN ISO 228-1], c/w integral 100 mm shield		**C**
1½" NPT [(Taper), ANSI/ASME B1.20.1], c/w integral 250 mm shield		**D**
R 1½" [(BSPT), EN 10226], c/w integral 250 mm shield		**E**
G 1½" [(BSPP), EN ISO 228-1], c/w integral 250 mm shield		**F**
Approvals		
General Purpose, CE[1]		**A**
General Purpose, FM, $CSA_{US/C}$[2]		**B**
CSA Class I, Div 1, Groups A, B, C, D, Class II, Div. 1 Group G, Class III, Intrinsically Safe with suitable barrier[2]		**C**
FM, Class I, II and III, Div 1, Groups A, B, C, D, E, F, G, Intrinsically Safe with suitable barrier[2]		**D**
ATEX II 1G EEx ia IIC T4, Intrinsically Safe with suitable barrier[1]		**E**
Communication/Output		
4 to 20 mA, HART®		**1**
Further designs		Order code
Please add "**-Z**" to Order No. and specify Order code(s).		
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**
Operating Instructions		Order No.
English	C)	**7ML1998-5HR02**
French	C)	**7ML1998-5HR11**
Spanish	C)	**7ML1998-5HR21**
German	C)	**7ML1998-5HR32**
Note: The Operating Instructions should be ordered as a separate item on the order.		
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.		
Additional quick start manual		
Multi-language Quick Start manual	C)	**7ML1998-5QP81**

Selection and Ordering data		Order No.
SITRANS Probe LR	C)	**7ML5430-**
2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage vessels with nominal pressure and temperature, to a range of 20 m (66 ft). Max. 3 bar g (43.5 psi g) pressure and +80 °C (+176 °F)		**0**
Optional equipment		
Handheld programmer, Intrinsically Safe, ATEX II 1G, EEx ia		**7ML5830-2AH**
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 to +80 °C (-40 to +176 °F)		**7ML1930-1AP**
SITRANS RD100 Remote display - see RD100 on page 5/304		
SITRANS RD200 Remote display - see RD200 on page 5/306		
Spare parts		
Plastic lid	C)	**7ML1830-1KB**

[1] Includes European Radio approvals (R&TTE), 5.8 GHz, C-TICK
[2] Includes FCC Radio approvals, 6.3 GHz for North America only

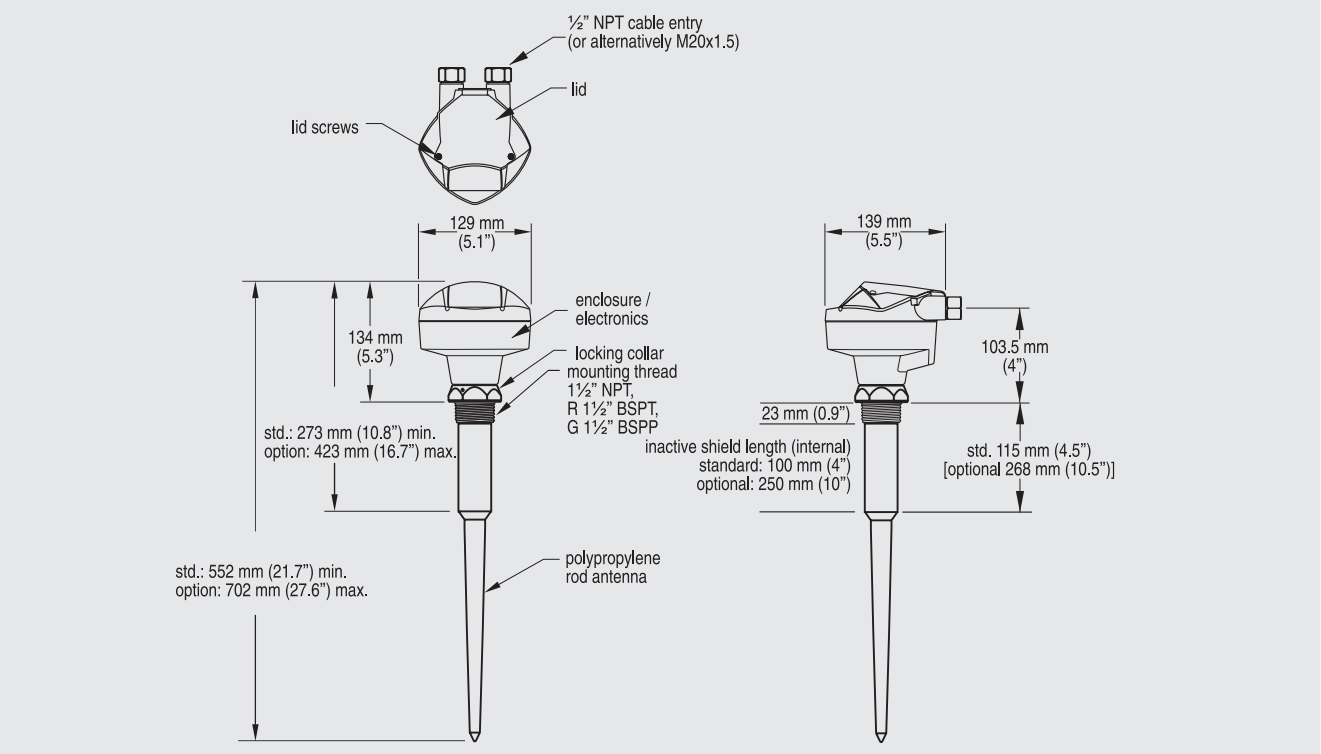
C) Subject to export regulations AL: N, ECCN: EAR99

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

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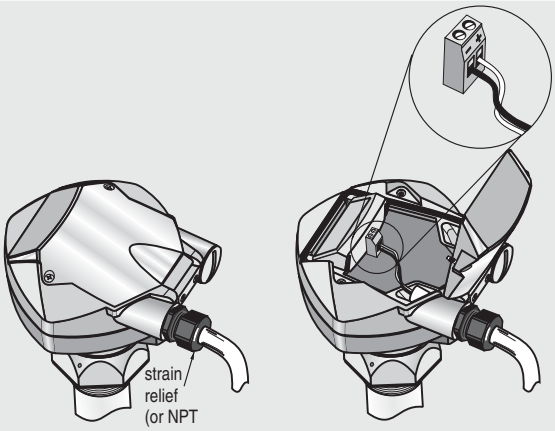
SITRANS Probe LR

Dimensional drawings



SITRANS Probe LR dimensions

Schematics



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

Hand Programmer



SITRANS PROBE LR

Part number:
7ML5830-2AH

Notes

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

SITRANS Probe LR connections

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

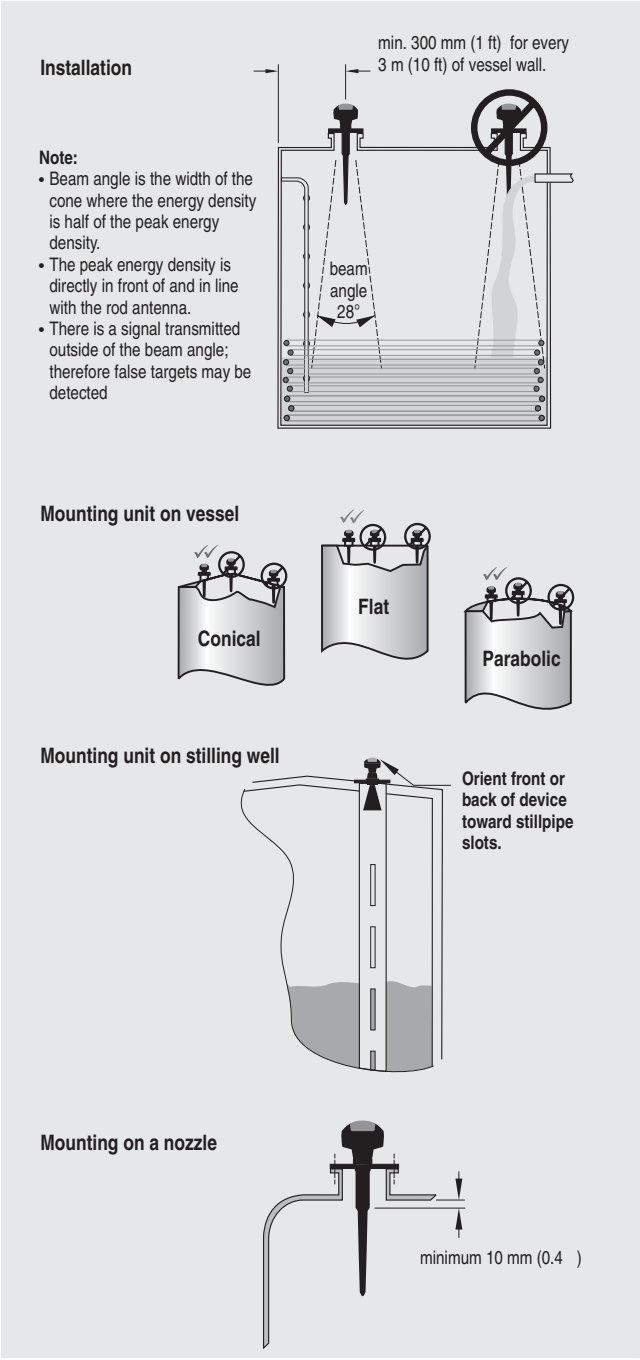
SITRANS LR200's unique design allows safe and simple programming using the Intrinsically Safe handheld programmer without having to open the instrument's lid. It also features a built-in alphanumeric display in four languages.

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 ε_r	ε_r > 1.6 (for ε_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 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). Max. 3 bar g (43.5 psi g) pressure and +80 °C (+176 °F)	C)	**7ML5422-** **0**
Enclosure/Cable inlet Aluminum, Epoxy painted 2 x ½" NPT, Siemens LUI interface 2 x M20x1.5, Siemens LUI interface		**2** **3**
Polypropylene antenna type - (Max. 3 Bar pressure and +80 °C) 1½" NPT [(Taper), ANSI/ASME B1.20.1], c/w integral 100 mm shield R 1½" [(BSPT), EN 10226], c/w integral 100 mm shield G 1½" [(BSPP), EN ISO 228-1], c/w integral 100 mm shield 1½" NPT [(Taper), ANSI/ASME B1.20.1], c/w integral 250 mm shield R 1½" [(BSPT), EN 10226], c/w integral 250 mm shield G 1½" [(BSPP), EN ISO 228-1], c/w integral 250 mm shield		**A** **B** **C** **D** **E** **F**
Approvals General Purpose, CE[1] General Purpose, $CSA_{US/C}$, FM, for North America only[2] 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] 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] ATEX II 1G EEx ia IIC T4, Intrinsically Safe with suitable barrier[1] FM, Class I, Div. 2, Groups A, B, C, D, for North America only (no barrier required)[2] [3] ATEX II 1/2 G EEx emia IIC T4 (no barrier required)[1] [4] [5] ATEX II 1/2 G EEx dmia IIC T4 (no barrier required)[1] [5] CSA/FM Class I, II and III, Div. 1, Groups A, B, C, D, E, F, G (no barrier required)[2] [3] [5]		**A** **B** **C** **D** **E** **F** **G** **H** **J**
Communication/Output 4 to 20 mA, HART® PROFIBUS PA		**1** **2**
Further designs 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**
Operating Instructions for HART/mA device		Order No.
English	C)	**7ML1998-5JP02**
German Note: The Operating Instructions should be ordered as a separate line item on the order.	C)	**7ML1998-5JP32**
Multi-language Quick Start manual This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	C)	**7ML1998-5XC82**

Selection and Ordering data		Order No.
SITRANS LR200, Uni-Construction polypropylene rod antenna version 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). Max. 3 bar g (43.5 psi g) pressure and +80 °C (+176 °F)	C)	**7ML5422-** **0**
Operating Instructions for PROFIBUS PA device		
English	C)	**7ML1998-5JR01**
German Note: The Operating Instructions should be ordered as a separate line item on the order.	C)	**7ML1998-5JR31**
Multi-language Quick Start manual This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	C)	**7ML1998-5XD81**
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		

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

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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).		
Operating Instructions for HART/mA device		
English	C)	**7ML1998-5JP02**
German	C)	**7ML1998-5JP32**
Note: The Operating Instructions 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 Operating Instructions library.		
Operating Instructions for PROFIBUS PA device		
English	C)	**7ML1998-5JR02**
German	C)	**7ML1998-5JR32**
Note: The Operating Instructions 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 Operating Instructions 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 Operating Instructions)		
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		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**
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**
Operating Instructions for HART/mA device		Order No.
English	C)	**7ML1998-5JP02**
German	C)	**7ML1998-5JP32**
Note: The Operating Instructions 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 Operating Instructions library.		
Operating Instructions for PROFIBUS PA device		
English	C)	**7ML1998-5JR02**
German	C)	**7ML1998-5JR32**
Note: The Operating Instructions 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 Operating Instructions library.		

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 HART modem/RS-232 (for use with a PC and SIMATIC PDM)	C) D)	**7ML1930-1BK** **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**
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**
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).		
Operating Instructions for HART/mA device		
English	C)	**7ML1998-5JP02**
German	C)	**7ML1998-5JP32**
Note: The Operating Instructions 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 Operating Instructions library.		
Operating Instructions for PROFIBUS PA device		
English	C)	**7ML1998-5JR02**
German	C)	**7ML1998-5JR32**
Note: The Operating Instructions 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 Operating Instructions 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

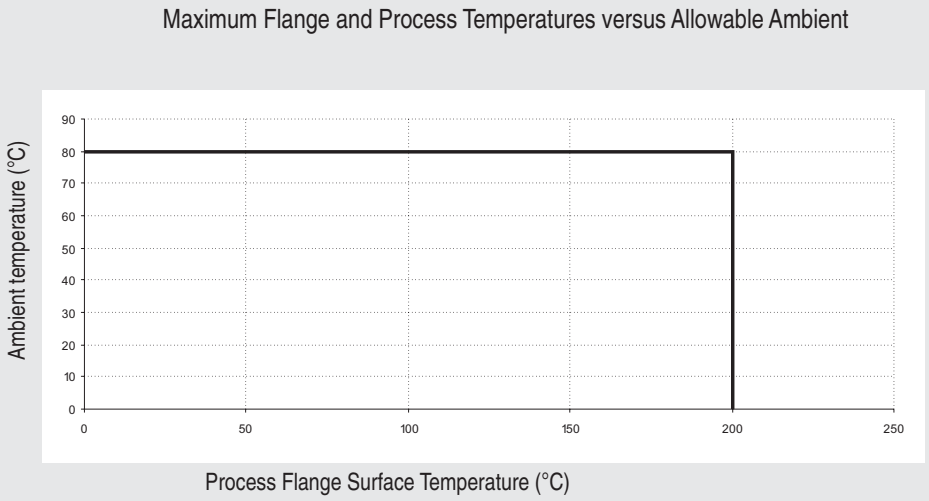
C) Subject to export regulations AL: N, ECCN: EAR99

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

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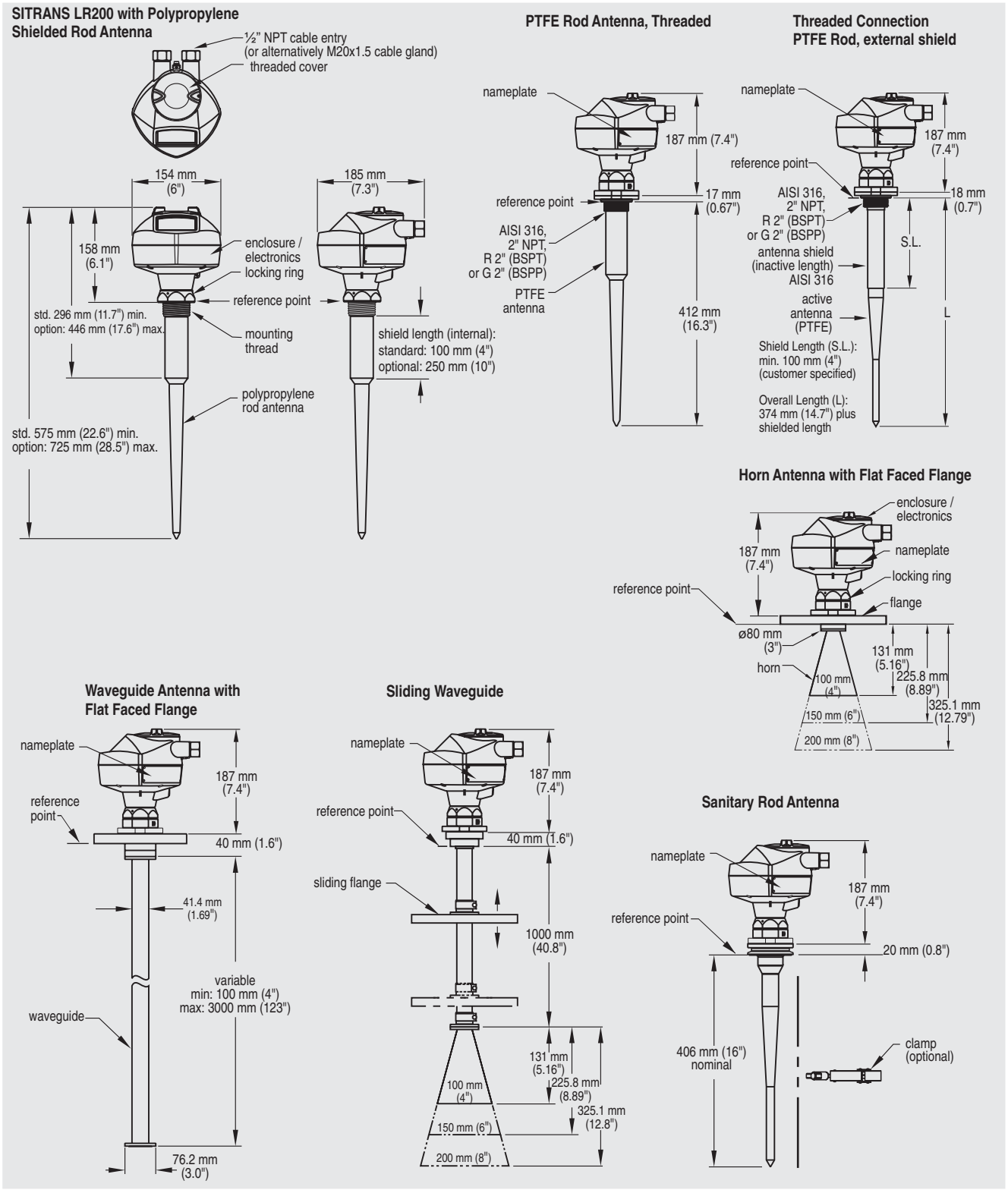
SITRANS LR200

Characteristic curves



SITRANS LR200 Ambient/Process Flange Surface Temperature Curve

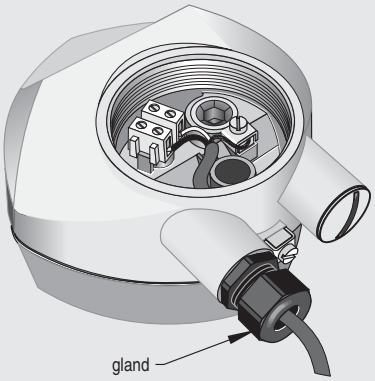
Dimensional drawings

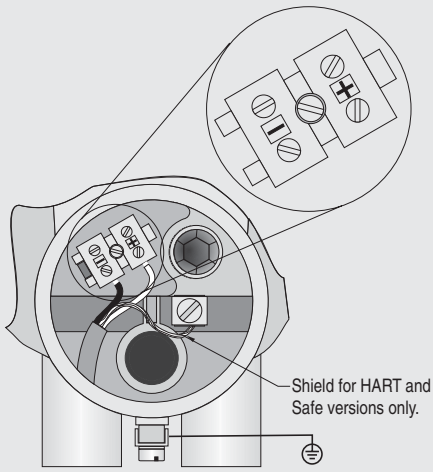


SITRANS LR200 dimensions

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

Integration



Antenna configurations for SITRANS LR200

Technical specifications

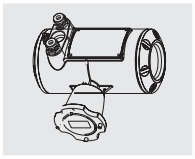
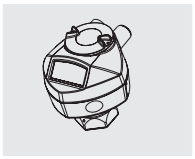
Antenna Types	Flat Faced Flange with Rod	Shielded Rod	Sanitary Rod (1 piece construction)	Horn (4", 6", 8" sizes available)	Waveguide
Connection type	Flat faced flange nominal pipe sizes 50, 80, 100, 150 mm (2, 3, 4, 6")	Threaded 2" NPT, R 2" (BSPT), G 2" (BSPP) or flat faced flange nominal pipe sizes 80, 100 mm (3, 4")	Sanitary fitting clamp 50, 80, 100 mm (2, 3, 4") sizes	Flat faced flange nominal pipe sizes 50, 80, 100, 150 mm (2, 3, 4, 6")	Flat faced flange nominal pipe sizes 50, 80, 100, 150 mm (2, 3, 4, 6")
Wetted parts	PTFE	PTFE, 316L stainless steel, FKM o-ring	UHME-PE or PTFE	316L stainless steel PTFE, FKM o-ring	316L stainless steel PTFE, FKM o-ring
Extensions	50 or 100 mm (2 or 4") PTFE or UHMW-PE	100, 150, 200 or 250 mm (4, 6, 8 or 10") standard shield length	N/A	use waveguide for extensions to 6 m (20 ft) long	two sections (max.) can be connected together Max. overall length: 3 m (9.8 ft)
Dielectric constant	> 3	> 3	> 3	> 3	> 1.6
Insertion length (max.)	41 cm (16.3")	variable	41 cm (16.3")	variable with extension	variable
Purging option (liquid or gas)	No	No	No	Yes206	Yes
Sliding waveguide option for digesters[1)]	Yes	No	No	Yes	N/A
Weight[2)]	6.5 kg (14.3 lbs)	5.0 kg (11 lbs)	5.0 kg (11 lbs)	7.5 kg (16.5 lbs)	8.0 kg (17.6 lbs) 1 m (39") length

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

SITRANS LR200 and SITRANS LR300 Antennas

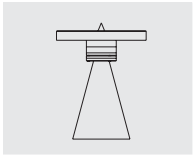
Selection and ordering Data

SITRANS LR200 and SITRANS LR300 Specials

		Order No.
SITRANS LR300 Aluminum Enclosure Kit with Electronics and Covers (7ML5411, 7ML5412, 7ML5413), calibrated for use with standard rod antenna		
SITRANS LR300 aluminum enclosure with board stack, M20 cable inlet, approval option A, with HART® communication, no process connection. See note 7.	C)	**PBD-51035860**
SITRANS LR300 aluminum enclosure with board stack, M20 cable inlet, approval option E, with HART communication, no process connection. See note 7.		**PBD-51035377**
SITRANS LR300 aluminum enclosure with board stack, M20 cable inlet, approval option G, with HART communication, no process connection. See note 7.	C)	**PBD-51035336**
SITRANS LR300 aluminum enclosure with board stack, M20 cable inlet, approval option J, with HART communication, no process connection. See note 7.	C)	**PBD-51035566**
SITRANS LR200 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, no process connection. See note 7.	C)	**A5E01483323**
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, M20 cable inlet, approval option E, with HART communication, no process connection. See note 7.	C)	**A5E01483368**
SITRANS LR200 aluminum enclosure with board stack, LUI display, 6.3 GHz, M20 cable inlet, approval option C, with HART communication, no process connection. See note 7.	C)	**A5E01483389**
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. See note 7.	C)	**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. See note 7.	C)	**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. See note 7.	C)	**A5E01483456**
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, NPT cable inlet, approval option A, with HART communication, no process connection. See note 7.	C)	**A5E01483468**
SITRANS LR200 aluminum enclosure with board stack, LUI display, 6.3 GHz, NPT cable inlet, approval option C, with HART communication, no process connection. See note 7.	C)	**A5E01483480**
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, NPT cable inlet, approval option E, with HART communication, no process connection. See note 7.	C)	**A5E01483493**
SITRANS LR200 aluminum enclosure with board stack, LUI display, 5.8 GHz, NPT cable inlet, approval option E, with HART communication, no process connection. See note 7.	C)	**A5E01483536**
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. See note 7.	C)	**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. See note 7.	C)	**A5E01483559**
SITRANS LR200/LR300 Horn Antenna Kits with mounting screws (no emitter supplied)		
80 mm (3") horn antenna kit		**PBD-25500K02A**
100 mm (4") horn antenna kit		**PBD-25500K03A**
150 mm (6") horn antenna kit		**PBD-25500K05A**
200 mm (8") horn antenna kit		**PBD-25500K07A**
SITRANS LR300 Extension Kits for Horn Antenna with mounting screws		
100 mm (4") extension kit for horn antenna		**PBD-25501K0100A**
150 mm (6") extension kit for horn antenna		**PBD-25501K0150A**
200 mm (8") extension kit for horn antenna		**PBD-25501K0200A**
250 mm (10") extension kit for horn antenna		**PBD-25501K0250A**
500 mm (20") extension kit for horn antenna		**PBD-25501K0500A**
1000 mm (40") extension kit for horn antenna		**PBD-25501K1000A**
SITRANS LR200/LR300 Flanged Rod Antenna Kit with 316L SS flat faced flanges		
Flanged PTFE rod antenna kit, 2" ASME, 150 lb. See drawing 51003 on http://www.siemens.com/radar. See notes 1 and 6.		**PBD-51003K020AAAA**
Flanged PTFE rod antenna kit, DN 50 PN16. See drawing 51003 on http://www.siemens.com/radar. See notes 1 and 6.		**PBD-51003K050AJAA**
Flanged PTFE rod antenna kit, JIS 10K DN 50. See drawing 51003 on http://www.siemens.com/radar. See notes 1 and 6.		**PBD-51003K050AOAA**

SITRANS LR200 and SITRANS LR300 Antennas

	Order No.
SITRANS LR200/LR300 PTFE Rod Antenna Kit with 316L SS 1½" pipe thread process connection	
PTFE rod antenna kit, 1½" NPT 316L SS Process Connection, FKM O-ring; See drawing 51004 on http://www.siemens.com/radar. See note 6.	**PBD-51004K1AAA**
PTFE rod antenna kit, R 1½" (BSPT), EN 10226 316L SS Process Connection, FKM O-ring; See drawing 51004 on http://www.siemens.com/radar. See note 6.	**PBD-51004K2AAA**
PTFE rod antenna kit, 1½" G 316L SS Process Connection, FKM O-ring; See drawing 51004 on http://www.siemens.com/radar. See note 6.	**PBD-51004K3AAA**
SITRANS LR200/LR300 PTFE Rod Antenna Kit with 316L SS 2" pipe thread process connection	
PTFE rod antenna kit, 2" NPT 316L SS Process Connection, FKM O-ring; See drawing 51005 on http://www.siemens.com/radar. See note 6.	**PBD-51005K1AAA**
PTFE rod antenna kit, R 2" (BSPT), EN 10226 316L SS Process Connection, FKM O-ring; See drawing 51005 on http://www.siemens.com/radar. See note 6.	**PBD-51005K2AAA**
PTFE rod antenna kit, 2" G 316L SS Process Connection, FKM O-ring; See drawing 51005 on http://www.siemens.com/radar. See note 6.	**PBD-51005K3AAA**
SITRANS LR200/LR300 PTFE Rod Antenna Kit (100 mm shield) with 316L SS 2" pipe thread process connection	
PTFE rod antenna shielded kit, 2" NPT 316L SS Process Connection, FKM O-ring, 100 mm 316L SS shield. See drawing 51002 on http://www.siemens.com/radar. See notes 3 and 6.	**PBD-51002K0100AAA**
PTFE rod antenna shielded kit, R 2" (BSPT), EN 10226 316L SS Process Connection, FKM O-ring, 100 mm 316L SS shield. See drawing 51002 on http://www.siemens.com/radar. See notes 3 and 6.	**PBD-51002K0100BAA**
PTFE rod antenna shielded kit, 2" G 316L SS Process Connection, FKM O-ring, 100 mm 316L SS shield. See drawing 51002 on http://www.siemens.com/radar. See notes 3 and 6.	**PBD-51002K0100CAA**

	Order No.
SITRANS LR200/LR300 Horn Antenna Kit with 316L SS flat faced flange, with PTFE emitter (without waveguide)	
Horn antenna kit, 2" ASME 316L SS flange 3" horn, PTFE emitter; See notes 1 and 6.	**PBD-51006K020AAAA**
Horn antenna kit, 2" ASME 316L SS flange 4" horn, PTFE emitter; See notes 1 and 2.	**PBD-51006K020AABA**
Horn antenna kit, 2" ASME 316L SS flange 6" horn, PTFE emitter; See notes 1 and 2.	**PBD-51006K020AACA**
Horn antenna kit, 2" ASME 316L SS flange 8" horn, PTFE emitter; See notes 1 and 2.	**PBD-51006K020AADA**
Horn antenna kit, DN 50 PN 16 316L SS flange 80 mm horn, PTFE emitter; See notes 1 and 2.	**PBD-51006K050AJAA**
Horn antenna kit, DN 50 PN 16 316L SS flange 100 mm horn, PTFE emitter; See notes 1 and 2.	**PBD-51006K050AJBA**
Horn antenna kit, DN 50 PN 16 316L SS flange 150 mm horn, PTFE emitter; See notes 1 and 2.	**PBD-51006K050AJCA**
Horn antenna kit, DN 50 PN 16 316L SS flange 200 mm horn, PTFE emitter; See notes 1 and 2.	**PBD-51006K050AJDA**
SITRANS LR200/LR300 Sanitary Rod Antenna with Sanitary Fitting Clamp Flange mounting and bushing. See drawing 51010 on http://www.siemens.com/radar **(Sanitary Fitting Clamps not included)**	
PTFE sanitary rod antenna kit, 2" mounting connection. See note 6.	**PBD-51010K1AA**
PTFE sanitary rod antenna kit, 3" mounting connection. See note 6.	**PBD-51010K2AA**
PTFE sanitary rod antenna kit, 4" mounting connection. See note 6.	**PBD-51010K3AA**
UHMW-PE sanitary rod antenna kit, 2" mounting connection. See note 6.	**PBD-51010K1AB**
UHMW-PE sanitary rod antenna kit, 3" mounting connection. See note 6.	**PBD-51010K2AB**
UHMW-PE sanitary rod antenna kit, 4" mounting connection). See note 6.	**PBD-51010K3AB**
SITRANS LR200/LR300 PTFE Flanged Rod Antenna Kit with 316L SS shield and 316L SS flat faced flange	
PTFE shielded rod antenna kit, flanged, 3" ASME 150 lb 316L SS flange, 100 mm 316L SS shield. See notes 1 and 6.	**PBD-51014K0100AAA**
PTFE shielded rod antenna kit, flanged, DN 80 PN 16 316L SS flange, 100 mm 316L SS shield. See notes 1 and 6.	**PBD-51014K0100EJA**
PTFE shielded rod antenna kit, flanged, 3" ASME 150 lb 316L SS flange, 150 mm 316L SS shield. See notes 1 and 6.	**PBD-51014K0150AAA**
PTFE shielded rod antenna kit, flanged, DN 80 PN 16 316L SS flange, 150 mm 316L SS shield. See notes 1 and 6.	**PBD-51014K0150EJA**

SITRANS LR200 and SITRANS LR300 Antennas

		Order No.
PTFE shielded rod antenna kit, flanged, 3" ASME 150 lb 316L SS flange, 200 mm 316L SS shield. See notes 1 and 6.		**PBD-51014K0200AAA**
PTFE shielded rod antenna kit, flanged, DN 80 PN 16 316L SS flange, 200 mm 316L SS shield. See notes 1 and 6.		**PBD-51014K0200EJA**
PTFE shielded rod antenna kit, flanged, 3" ASME 150 lb 316L SS flange, 250 mm 316L SS shield. See notes 1 and 6.		**PBD-51014K0250AAA**
PTFE shielded rod antenna kit, flanged, DN 80 PN 16 316L SS flange, 250 mm 316L SS shield. See notes 1 and 6.		**PBD-51014K0250EJA**
PTFE paste		
Kit, PTFE paste, Tube, 250 mL. See note 7.	C)	**PBD-51036065**
Cable gland		
One polymeric cable gland M20x1.5, rated -20 to +80 °C (-4 to +176 °F) for General Purpose and ATEX EEx e		**7ML1930-1AN**
One metallic cable gland M20x1.5, rated -40 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 to +176 °F) with integrated shield connection (available for PROFIBUS PA)		**7ML1930-1AQ**

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

Please contact nacc.smpi@siemens.com for special requests.

Note 1: Available in flange sizes including ASME, DIN and JIS: please contact nacc.smpi@siemens.com.

Note 2: Available with no pressure rating

Note 3: Available in other shield lengths: please contact nacc.smpi@siemens.com.

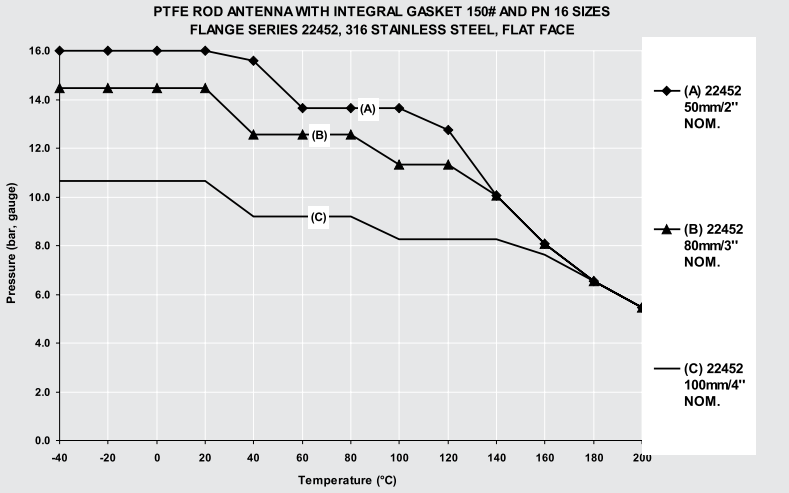
Note 4: Available with no pressure rating and with General Purpose Approvals only

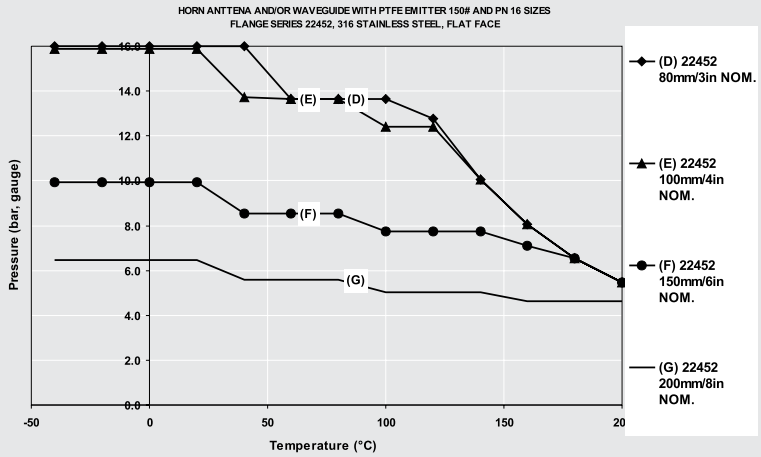
Note 5: Please contact nacc.smpi@siemens.com for pricing and part number. Submit completed Application Questionnaire found on page 5/190.

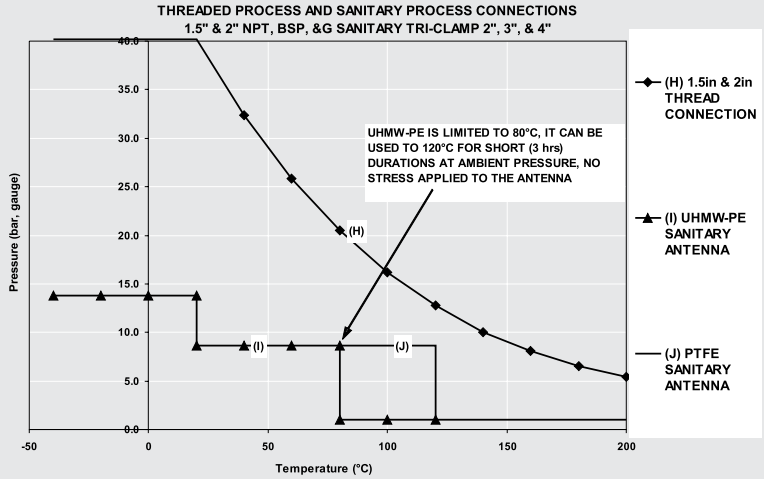
Note 6: Available with Pressure rating; serial number of original unit required with completed Application Questionnaire found on page 5/190.

Note 7: Subject to export regulations AL: N, ECCN: EAR99

Characteristic curves



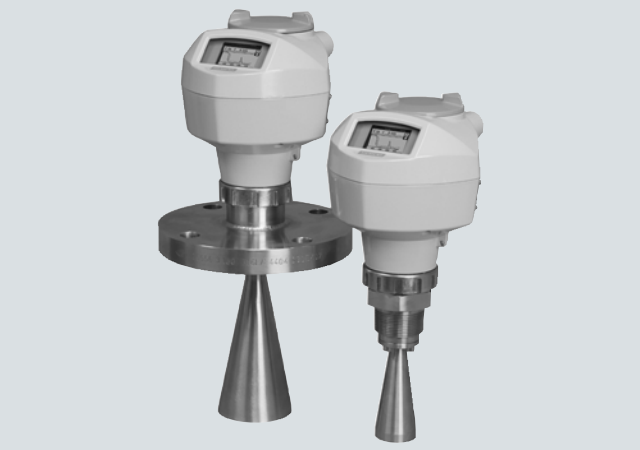




SITRANS LR200/LR300 Process Pressure/Temperature derating curves

SITRANS LR250

Overview



SITRANS LR250 is a 2-wire, 25 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
- 25 GHz high frequency allows for small horn antennas for easy mounting in nozzles
- Insensitive to mounting location and obstructions, and less sensitive to nozzle interference
- Short blanking distance for improved minimum measuring range to 50 mm (2") from the end of the horn
- 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 LR250 includes a graphical local user interface (LUI) that improves setup and operation by including an intuitive Quick Start Wizard, and echo profile displays for diagnostic support. Startup is easy using the Quick Start wizard with a few parameters required for basic operation.

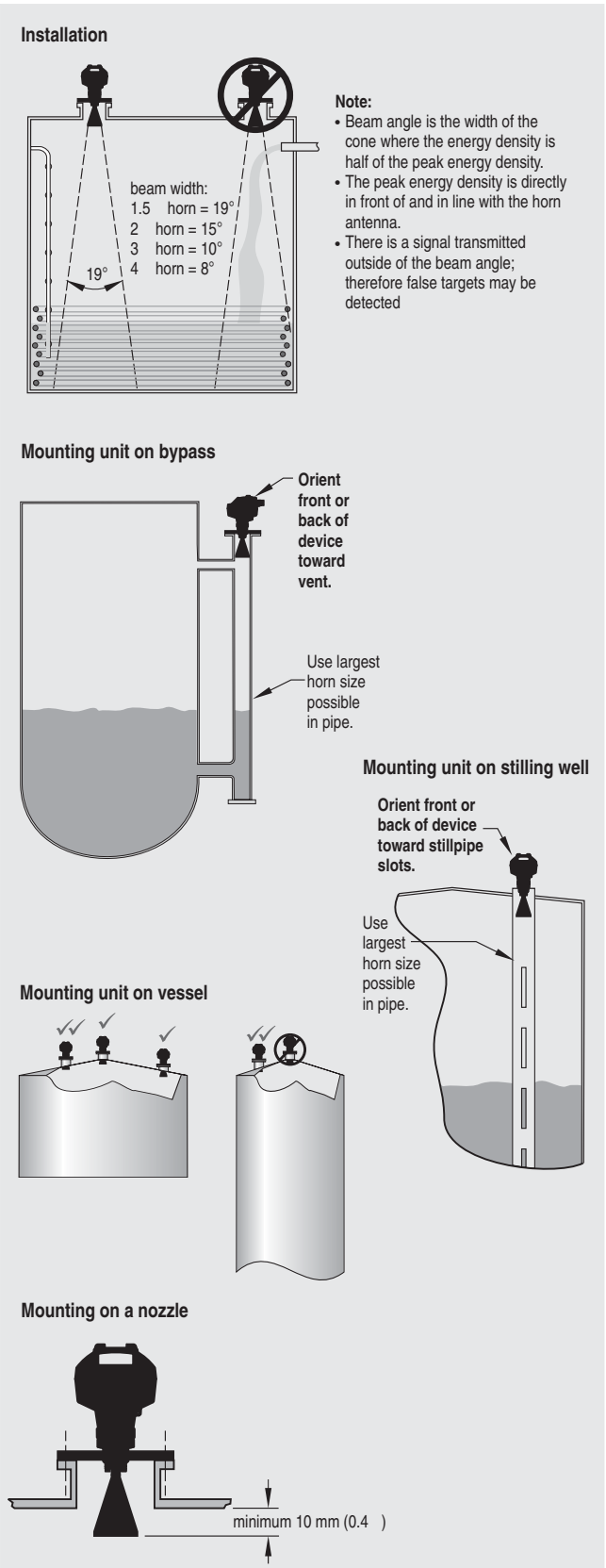
The 25 GHz frequency creates a narrow, focused beam allowing for smaller horn options and decreasing sensitivity to obstructions.

SITRANS LR250's unique design allows safe and simple programming using the Intrinsically Safe handheld programmer without having to open the instrument's lid.

SITRANS LR250 measures superbly on low dielectric media, and in small vessels, as well as tall and narrow vessels.

- Key Applications: liquid bulk storage tanks, process vessels with agitators, vaporous liquids, high temperatures, low dielectric media

Configuration



SITRANS LR250 installation

Technical specifications

Mode of operation	
Measuring principle	Radar level measurement
Frequency	K-band (25.0 GHz)
Minimum measuring range	50 mm (2") from end of horn
Maximum measuring range	20 m (65 ft), horn dependent
Output	
• Analog output	4 to 20 mA
• Accuracy	± 0.02 mA
• Communications	HART®
	Optional: PROFIBUS PA (Profile 3.0, Class B)
• Fail-safe	• Programmable as high, low or hold (Loss of Echo)
	• NE 43 programmable
Performance (according to reference conditions IEC60770-1)	
• Maximum measured error	5 mm (0.2")
• Influence of ambient temperature	<0.003 %/K
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 ε_r	ε_r > 1.6, horn and application dependent
• Process temperature	-40 to +200 °C (-40 to +392 °F) (at process connection with FKM o-ring)
	-20 to +200 °C (-4 to +392 °F) (at process connection with FFKM o-ring)
• Process pressure	Up to 40 bar g (580 psi g), process connection and temperature dependent.
	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
• Degree of protection	Type 4X/NEMA 4X, Type 6/ NEMA 6, IP67, IP68
• Weight	< 3 kg (6.6 lbs) 3.75 mm (1½") threaded connection with 1½" horn antenna
• Display (local)	Graphic local user interface including quick start wizard and echo profile display
• Antenna	
- Material	316L stainless steel [optional alloy N06022/2.4602 (Hastelloy® C-22® or equivalent)]
- Dimensions (nominal horn sizes)	Standard 1.5" (40 mm), 2" (48 mm), 3" (75 mm), 4" (95 mm) horn and optional 100 mm (4") horn extension

Process connections	
• Process connection	1½" or 2" NPT [(Taper), ANSI/ASME B1.20.1]
	R 1½" or 2" [(BSPT), EN 10226] G 1½" or 2" [(BSPP), EN ISO 228-1]
• Flange connection	2", 3", 4" (ANSI 150, 300 lbs),
	50, 80, 100 mm (PN 16, 40, JIS 10K)
Power supply	
4 to 20 mA/HART	Nominal 24 V DC (max. 30 V DC) with max. 550 Ω
PROFIBUS PA	• 10.5 mA
	• per IEC 61158-2
Certificates and approvals	
• General	$CSA_{US/C}$, CE, FM, NE 21, C-TICK
• Radio	FCC, Industry Canada and Europe ETSI EN 302-372, C-TICK
• Hazardous	
- Intrinsically Safe (Europe)	ATEX II 1G EEx ia IIC T4 ATEX II 1D EEx tD A20 IP67 T90 °C
- Intrinsically Safe (USA/Canada)	CSA/FM (barrier required) Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III T4
- Intrinsically Safe (International)	IECEx SIR 05.0031X, Ex ia IIC T4, EX tD A20 IP67 T90 °C
- Non-incendive (USA/Canada)	CSA/FM Class I, Div. 2, Groups A, B, C, D T5
- Flameproof (Europe/ International)	ATEX II 1/2 GD, 1D, 2D, IECEx SIR 08.107X Ex dmbia IIC T4 Ga/Gb Ex tD A20 IP67 T90 °C
- Increased Safety (Europe/International)	ATEX II 1/2 GD, 1D, 2D, IECEx SIR 08.107X Ex embia IIC T4 Ga/Gb Ex tD A20 IP67 T90 °C
- Explosion proof (USA/Canada)	CSA/FM: (barrier not required) Class I, Div. 1, Groups A, B, C, D Class II, Div. 1, Groups E, F, G Class III T4
Programming	
• Intrinsically Safe Siemens handheld programmer	Infrared receiver
- Approvals for handheld programmer	IS model: ATEX II 1 GD Ex ia IIC T4 Ga Ex ia D 20 T135°C Ta = -20 to +50 °C CSA/FM Class I, II, and III, Div. 1., Gr. A-G, T6 Ta=+50 °C IECEx SIR 09.0073
• Handheld communicator	HART communicator 375
• PC	• SIMATIC PDM
	• AMS
• Display (local)	Graphic local user interface including quick start wizard and echo profile displays

®HART is a registered trademark of the Hart Communications Foundation.
®Hastelloy and ®C-22 are registered trademarks of Haynes International Inc.

5

SITRANS LR250

Selection and Ordering data — Order No.

SITRANS LR250 C) **7ML5431-**

2-wire, 25 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). Ideal for small vessels and low dielectric media. — **0-**

Process Connection and Antenna Material

316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FKM seal	0
316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FFKM seal	1
Hastelloy C-22/2.4602, PTFE emitter, FKM seal[1)]	2
Hastelloy C-22/2.4602, PTFE emitter, FFKM seal[1)]	3

Process Connection Type

1½" NPT [(Taper), ANSI/ASME B1.20.1][2)]	AA
R 1½" [(BSPT), EN 10226][2)]	AB
G 1½" [(BSPP), EN ISO 228-1] (parallel thread)[2)]	AC
2" NPT [(Taper), ANSI/ASME B1.20.1]	AD
R 2" [(BSPT), EN 10226]	AE
G 2" [(BSPP), EN ISO 228-1] (parallel thread)	AF
2" ASME, 150 lb	BA
3" ASME, 150 lb	BB
4" ASME, 150 lb	BC
2" ASME, 300 lb	CA
3" ASME, 300 lb	CB
4" ASME, 300 lb	CC
DN 50 PN 16	DA
DN 80 PN 16	DB
DN 100 PN 16	DC
DN 50 PN 40	EA
DN 80 PN 40	EB
DN 100 PN 40	EC
JIS 50A 10K	FA
JIS 80A 10K	FB
JIS 100A 10K	FC
DN 50 PN 10/16 DIN EN1092-1 form B1	GA
DN 80 PN 10/16 DIN EN1092-1 form B1	GB
DN 100 PN 10/16 DIN EN1092-1 form B1	GC
DN 150 PN 10/16 DIN EN1092-1 form B1	GD
DN 50 PN 25/40 DIN EN1092-1 form B1	HA
DN 80 PN 25/40 DIN EN1092-1 form B1	HB
DN 100 PN 25/40 DIN EN1092-1 form B1	HC
DN 150 PN 25/40 DIN EN1092-1 form B1	HD

Communication/Output

4 to 20 mA, HART®	0
PROFIBUS PA	1

Enclosure/Cable inlet

Aluminum, Epoxy painted	
2 x ½" NPT	0
2 x M20x1.5	1

Antenna

1½" horn[3)]	A
2" horn (fits 2" ASME or DN 50 nozzles)	B
3" horn (fits 3" ASME or DN 80 nozzles)	C
4" horn (fits 4" ASME or DN 100 nozzles)	D
1½" horn with 100 mm extension[2)]	E
2" horn with 100 mm extension	F
3" horn with 100 mm extension	G
4" horn with 100 mm extension	H

(Note: Please use largest horn size possible.)

Selection and Ordering data — Order No.

SITRANS LR250 C) **7ML5431-**

2-wire, 25 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). Ideal for small vessels and low dielectric media. — **0-**

Approvals

General Purpose, CE, CSA, FM, FCC, R&TTE, C-TICK	A
CSA/FM Class I and II, Div. I, Groups A, B, C, D, E, F, G Intrinsically Safe, barrier required, FCC, C-TICK	B
ATEX II 1 GD EEx ia IIC T4, Intrinsically Safe, barrier required, R&TTE, C-TICK, INMETRO[4)]	C
CSA/FM Class I, Div. 2, Non-Incendive, no barrier required, FCC, C-TICK[5)]	D
ATEX II 3G Ex nA II T4, Non- Sparking, no barrier required, CE, R&TTE, C-TICK[4) 5) 6)]	E
ATEX II 1/2 GD Ex embia IIC T4, Ex tD A20 IP67 T90C, CE, R&TTE, C-TICK[4) 5) 6)]	F
ATEX II 1/2 GD Ex dmbia IIC T4, Ex tD A20 IP67 T90C, CE, R&TTE, C-TICK[4) 5) 6)]	G
CSA/FM Class I, II and III, Div. 1, Gr. A-G, FCC, C-TICK[4) 5)]	H

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**
Namur NE43 compliant, device preset to failsafe <3.6mA[6)]	**N07**
Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 27 characters) specify in plain text	**Y15**

Operating Instructions for HART/mA device — Order No.

English	C)	**7ML1998-5JE01**
German	C)	**7ML1998-5JE31**

Note: The Operating Instructions should be ordered as a separate line item on the order.

Multi-language Quick Start manual	C)	**7ML1998-5QX81**

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

Selection and Ordering data		Order No.
SITRANS LR250	C)	**7ML5431-**
2-wire, 25 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). Ideal for small vessels and low dielectric media.		**0-**
Operating Instructions for PROFIBUS PA device		
English	C)	**7ML1998-5JF02**
German	C)	**7ML1998-5JF32**
Note: The Operating Instructions should be ordered as a separate line item on the order.		
Multi-language Quick Start manual	C)	**7ML1998-5XE81**
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.		
Accessories		
Handheld programmer, Intrinsically Safe, EEx ia (LUI enabled)	C)	**7ML1930-1BK**
HART modem/RS-232 (for use with a PC and SIMATIC PDM)	D)	**7MF4997-1DA**
One metallic cable gland M20x1.5, rated -40 to +80 °C (-40 to +176 °F)		**7ML1930-1AP**
One metallic cable gland M20x1.5, rated -40 to +80 °C (-40 to +176 °F), PROFIBUS PA		**7ML1930-1AQ**
SITRANS RD100 Remote display - see RD100 on page 5/304		
SITRANS RD200 Remote display - see RD200 on page 5/306		

1) Not available with process connection options AA to AF
2) For 1½" horn antennas only, max. range 10 m (32.8 ft), dk > 3
3) For 1½" threaded connection only, max. range 10 m (32.8 ft), dk > 3
4) Includes equivalent IECEx approval
5) No barrier required
6) Applicable to HART version only

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

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

SITRANS LR250

Selection and ordering Data

SITRANS LR250 Spare parts

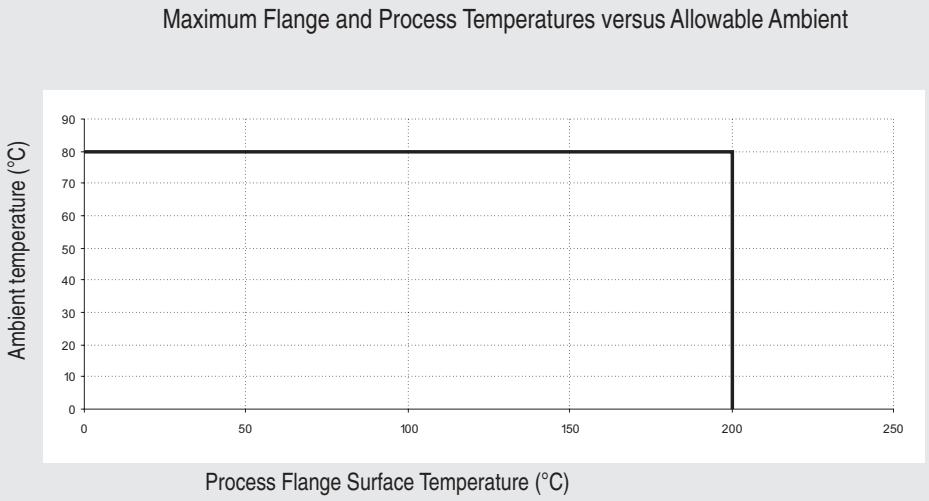
		Order No.
SITRANS LR250 Enclosures		
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option A, with HART communication, no process connection	C)	**A5E01156819**
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option A, with HART communication, no process connection	C)	**A5E01156820**
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option B, with HART communication, no process connection	C)	**A5E01156823**
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option B, with HART communication, no process connection	C)	**A5E01156824**
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option C, with HART communication, no process connection	C)	**A5E01156827**
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option C, with HART communication, no process connection	C)	**A5E01156832**
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option D, with HART communication, no process connection	C)	**A5E01156834**
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option D, with HART communication, no process connection	C)	**A5E01156835**
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option A, with PROFIBUS PA communication, no process connection	C)	**A5E01156836**
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option A, with PROFIBUS PA communication, no process connection	C)	**A5E01156838**
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option B, with PROFIBUS PA communication, no process connection	C)	**A5E01156839**
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option B, with PROFIBUS PA communication, no process connection	C)	**A5E01156841**
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option C, with PROFIBUS PA communication, no process connection	C)	**A5E01156843**
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option C, with PROFIBUS PA communication, no process connection	C)	**A5E01156844**
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option D, with PROFIBUS PA communication, no process connection	C)	**A5E01156846**
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option D, with PROFIBUS PA communication, no process connection	C)	**A5E01156848**
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option F, with Hart communication, no process connection	C)	**A5E02448270**
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option G, with Hart communication, no process connection	C)	**A5E02448274**
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option H, with Hart communication, no process connection	C)	**A5E02448278**
SITRANS LR250 horn antenna and extension kits		
38 mm (1.5") horn antenna kit, 1.5" Process Connections only	C)	**A5E01151539**
100 mm (4") horn antenna extension kit, 1.5" Process Connections only		**A5E01151553**
50 mm (2") stainless steel horn antenna kit	C)	**A5E01151569**
75 mm (3") stainless steel horn antenna kit	C)	**A5E01151571**
100 mm (4") stainless steel horn antenna kit	C)	**A5E01151573**
100 mm (4") horn antenna extension kit, 50 mm (2"), 75 mm (3") and 100 mm (4") process connection	C)	**A5E01151577**
50 mm (2") horn antenna kit, Hastelloy C-22	J)	**A5E01151584**
75 mm (3") horn antenna kit, Hastelloy C-22	J)	**A5E01151585**
100 mm (4") horn antenna kit, Hastelloy C-22	J)	**A5E01151587**
5 Dupont 1Gr Polyback, PTFE grease kit	C)	**A5E01151626**

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

J) Subject to export regulations AL: 9I999, ECCN: EAR99

Please contact nacc.smpi@siemens.com for special requests.

Characteristic curves



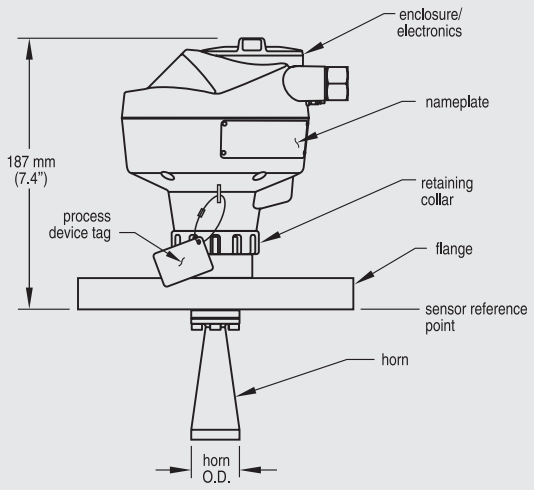
SITRANS LR250 Ambient/Process Flange Surface Temperature Curve

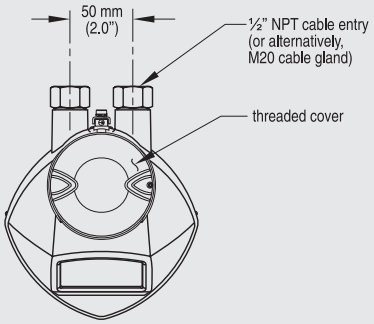
SITRANS LR250

Dimensional drawings

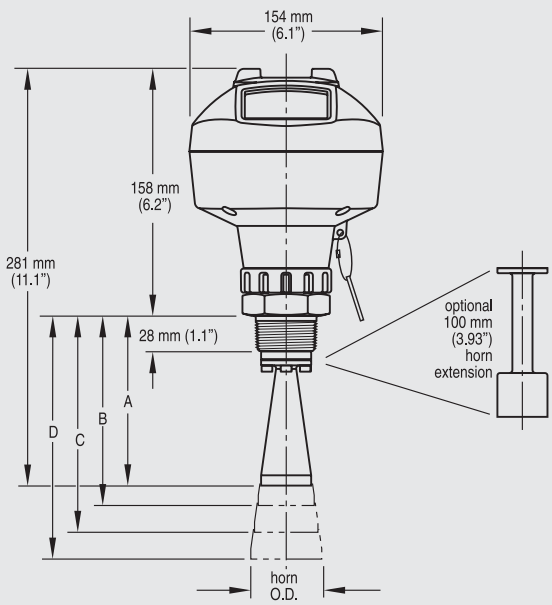
SITRANS LR250

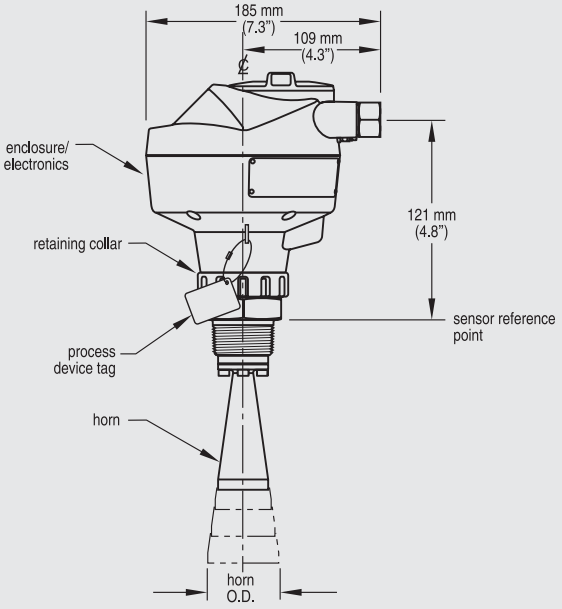
Flanged





Threaded

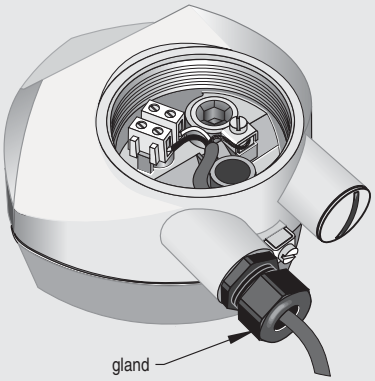


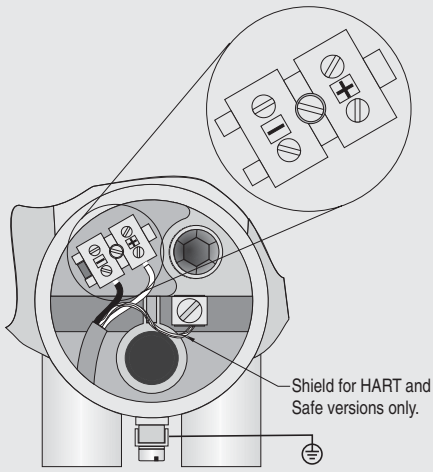


Nominal Horn Size	Horn O.D.	Horn Height		Beam Angle	Measurement Range
40 mm (1.5")	39.8 mm (1.57")	A	135 mm (5.3")	19 degrees	10 m (32.8 ft)
50 mm (2")	47.8 mm (1.88")	B	166 mm (6.55")	15 degrees	20 m (65.6 ft)
80 mm (3")	74.8 mm (2.94")	C	199 mm (7.85")	10 degrees	20 m (65.6 ft)
100 mm (4")	94.8 mm (3.73")	D	254 mm (10")	8 degrees	20 m (65.6 ft)

SITRANS LR250 dimensions

Schematics





Notes:
1. DC terminal shall be supplied from a source providing electrical isolation between the input and output, to meet the applicable safety requirements of IEC 61010-1.
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

SITRANS LR250 HART

Part number:
7ML1930-1BK



SITRANS LR250 connections

SITRANS LR260

Overview



SITRANS LR260 is a 2-wire 25 GHz pulse radar level transmitter for continuous monitoring of solids in storage vessels including extreme levels of dust and high temperatures, to a range of 30 m (98.4 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
- 25 GHz high frequency allows for small horn antennas mounted easily in nozzles
- 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

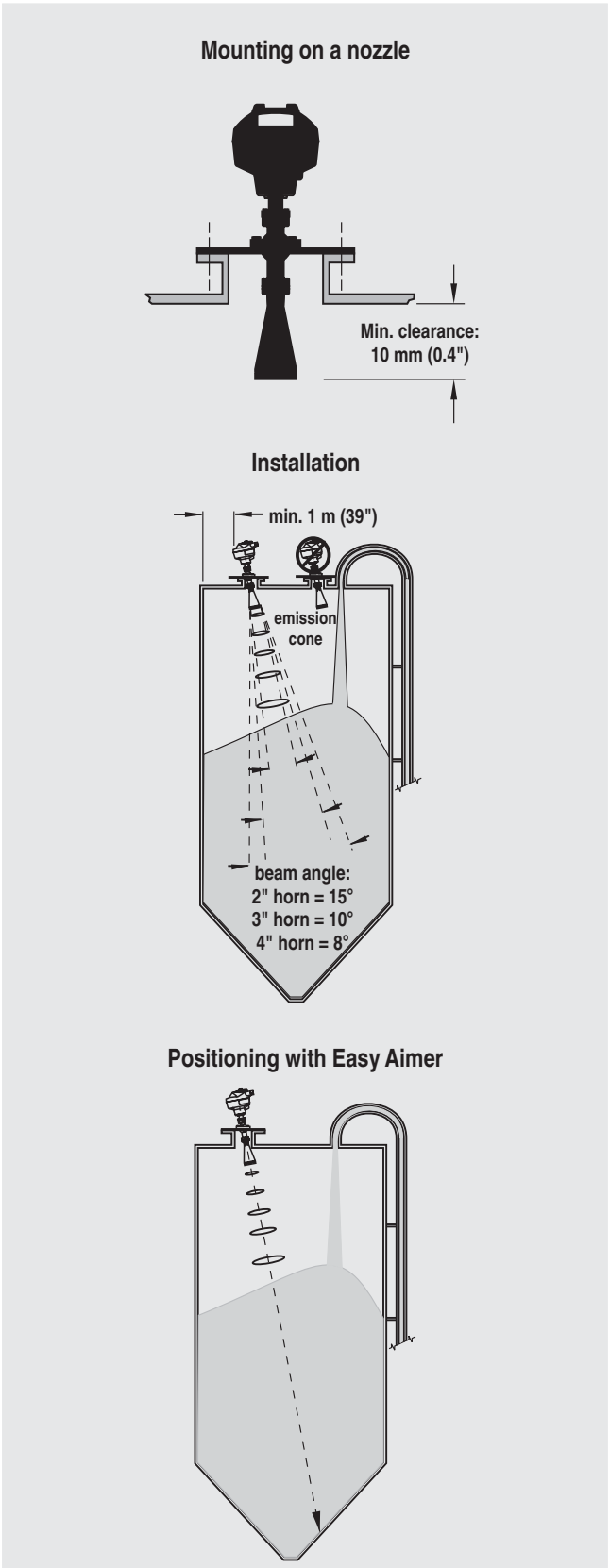
SITRANS LR260 includes a graphical local user interface (LUI) that improves setup and operation using an intuitive Quick Start Wizard, and echo profile displays for diagnostic support. Startup is easy using the Quick Start wizard with a few parameters required for basic operation.

SITRANS LR260's unique design allows safe and simple programming using the Intrinsically Safe handheld programmer without having to open the instrument's lid.

SITRANS LR260 measures virtually any solids material to a range of 30 m (98.4 ft).

- Key Applications: cement powder, plastic powder/pellets, grain, flour, coal, solids bulk storage vessels, and other applications.

Configuration



SITRANS LR260 installation

Technical specifications

Mode of operation	
Measuring principle	Pulse radar level measurement
Frequency	K-band (25.0 GHz)
Minimum detectable distance	0.05 m (2") from end of horn
Maximum measuring range[1)]	• 2" horn: 10 m (32.8 ft) • 3" horn: 20 m (65.6 ft) • 4" horn: 30 m (98.4 ft)
Output - HART ®	
• Power	• 4 to 20 mA (±0.02 mA accuracy) • Nominal 24 V DC (max. 30 V DC)
• Fail signal	3.6 mA to 23 mA; or last value
• Load	230 to 600 Ω, 230 to 500 Ω when connecting a coupling module
• Max. line length	Multi-wire: ≤ 1500 m (4921 ft) Protocol HART, Version 5.1
Output - PROFIBUS PA	• Per IEC 61158-2 • 15.0 mA • Profile version 3.01, Class B
Performance (according to reference conditions IEC60770-1)	
• Maximum measured error (including hysteresis and non-repeatability)	• 25 mm (1") from minimum detectable distance to 300 mm (11.8") • Remainder of range = 10 mm (0.39") 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 ε_r	ε_r > 1.6, antenna and application dependent
• Process temperature	-40 to +200 °C (-40 to +392 °F)
• Process pressure	• 0.5 bar g (7.25 psi g) maximum • 3 bar g (43.5 psi g) optional with +80 °C (+176 °F) temperature max.

Design	
• Enclosure	
- Construction	Aluminium, polyester powder-coated
- Conduit entry	2 x M20x1.5 or 2 x ½" NPT
• Degree of protection	Type 4X/NEMA 4X, Type 6/ NEMA 6, IP67, IP68
• Weight	< 8.14 kg (17.9 lb) including 4" flange and standard Easy Aimer with 4" horn antenna
• Display (local)	Graphic LCD, with bar graph representing level
• Flange and horn	
- Material	304 stainless steel
- Dimensions (nominal horn sizes)	2" horn: 1.93" (49.0 mm) diameter 3" horn: 2.93" (74.5 mm) diameter 4" horn: 3.84" (97.5 mm) diameter
Process connections	
• Universal flanges[2)]	2"/50 mm, 3"/80 mm, 4"/100 mm, 6"/150 mm
Certificates and approvals	
• General	$CSA_{US/C}$, CE, FM
• Radio	Europe (R&TTE), FCC, Industry Canada, C-TICK
• Hazardous	CSA/FM Class II, Div. 1, Groups E, F, G, Class III ATEX II 1D, 1/2D, 2D Ex tD A20 IP67, IP68 T100 °C
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., Gr. A-G, T6 Ta=50C
• Handheld communicator	HART communicator 375
• PC	SIMATIC PDM
• Display (local)	Graphic local user interface including quick start wizard and echo profile displays

1) From sensor reference point
2) Universal flange mates with EN 1092-1 (PN 16)/ASME B16.5 (150 lb)/JIS 2220 (10K) bolt hole pattern

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

5

SITRANS LR260

Selection and Ordering data

		Order No.
SITRANS LR260	C)	**7ML5427-0**
2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of solids to a range of 30 m (98.4 ft).		■■■0-■■■■
Order handheld programmer separately!		
Process connection		
Universal flat faced flange fits ANSI/DIN/JIS flanges, Easy Aimer with integral (Easy Aimer ball)		
2" / 50 mm	C)	**A**
3" / 80 mm	C)	**B**
4" / 100 mm	C)	**C**
6" / 150 mm	C)	**D**
Antenna		
2" Horn antenna, fits 50 mm or 2" nozzles[1]	C)	**A**
2" Horn antenna with 100 mm extension[1]	C)	**B**
2" Horn antenna with 200 mm extension[1]	C)	**C**
2" Horn antenna with 500 mm extension[1) 2) 3)]	C)	**D**
2" Horn antenna with 1000 mm extension[1) 2) 3)]	C)	**E**
3" Horn antenna, fits 80 mm or 3" nozzles[4]	C)	**F**
3" Horn antenna with 100 mm extension[4]	C)	**G**
3" Horn antenna with 200 mm extension[4]	C)	**H**
3" Horn antenna with 500 mm extension[2) 3) 4)]	C)	**J**
3" Horn antenna with 1000 mm extension[2) 3) 4)]	C)	**K**
4" Horn antenna, fits 100 mm or 4" nozzles	C)	**L**
4" Horn antenna with 100 mm extension	C)	**M**
4" Horn antenna with 200 mm extension	C)	**N**
4" Horn antenna with 500 mm extension[2) 3)]	C)	**P**
4" Horn antenna with 1000 mm extension[2) 3)]	C)	**Q**
Purge (Self Cleaning) Connection		
No purge connection	C)	**0**
Purge connection	C)	**1**
Output / Communication		
4 to 20 mA, HART®	C)	**0**
PROFIBUS PA	C)	**1**
Cable inlet		
2 x M20x1.5	C)	**A**
2 x ½" NPT	C)	**B**
Note: Polymeric cable glands will be provided with M20 devices.		
Approvals		
General purpose, $CSA_{US/C}$, FM, Industry Canada, FCC, CE, R&TTE, C-TICK	C)	**A**
CSA/FM Class II, Div. I, Groups E, F, G, Class III, Industry Canada, FCC, C-TICK	C)	**B**
ATEX II 1D, 1/2D, 2D T100 °C, CE, R&TTE, C-TICK	C)	**C**
Pressure rating		
3 bar g (43.5 psi g) pressure maximum and +80 °C (+176 °F)	C)	**0**
0.5 bar g (7.25 psi g) maximum	C)	**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[5]		**C12**
Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 27 characters) specify in plain text		**Y15**
Operating Instructions for HART/mA device		Order No.
English	C)	**7ML1998-5KE01**
French	C)	**7ML1998-5KE11**
German Note: The Operating Instructions should be ordered as a separate line item on the order.	C)	**7ML1998-5KE31**

Selection and Ordering data

		Order No.
Multi-language Quick Start manual	C)	**7ML1998-5XH81**
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.		
Operating Instructions for PROFIBUS PA device		
English	C)	**7ML1998-5KF01**
German Note: The Operating Instructions should be ordered as a separate line item on the order.	C)	**7ML1998-5KF31**
Multi-language Quick Start manual	C)	**7ML1998-5XJ81**
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.		
Accessories		
Metallic cable gland M20x1.5, rated -40 °C to +80 °C (-40 to +176 °F), HART		**7ML1930-1AP**
Metallic cable gland M20x1.5, rated -40 °C to +80 °C (-40 to +176 °F), integrated shield for PROFIBUS PA	D)	**7MF4997-1AQ**
Handheld programmer, Infrared, Intrinsically Safe	C)	**7ML1930-1BK**
Dust cap, PTFE, for 2"/50 mm horn		**7ML1930-1DE**
Dust cap, PTFE, for 3" /75 mm horn		**7ML1930-1BL**
Dust cap, PTFE, for 4"/100 mm horn		**7ML1930-1BM**
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**
SITRANS RD100 Remote display - see RD100 on page 5/304		
SITRANS RD200 Remote display - see RD200 on page 5/306		

1) Maximum measurement range 10 m (32.8 ft)
2) Available with Purge connection option 0 only
3) Available with pressure option 1 only
4) Maximum measurement range 20 m (65.6 ft)
5) Available with Pressure rating option 0 only

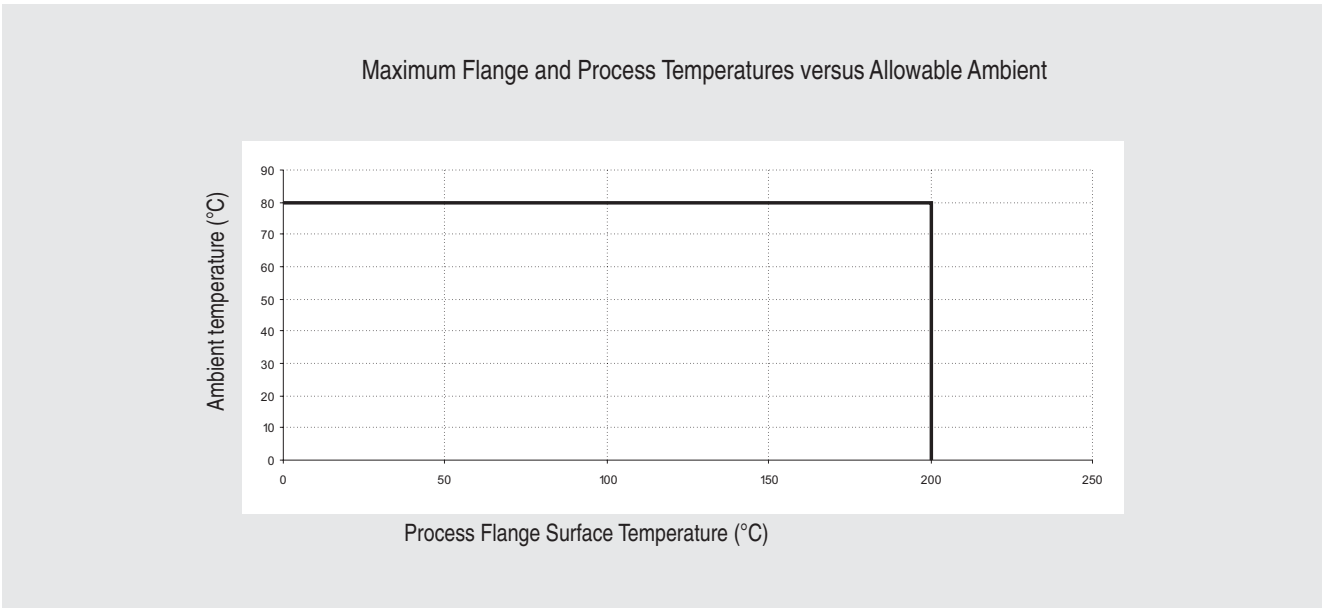
® HART is a registered trademark of HART Communication Foundation

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

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

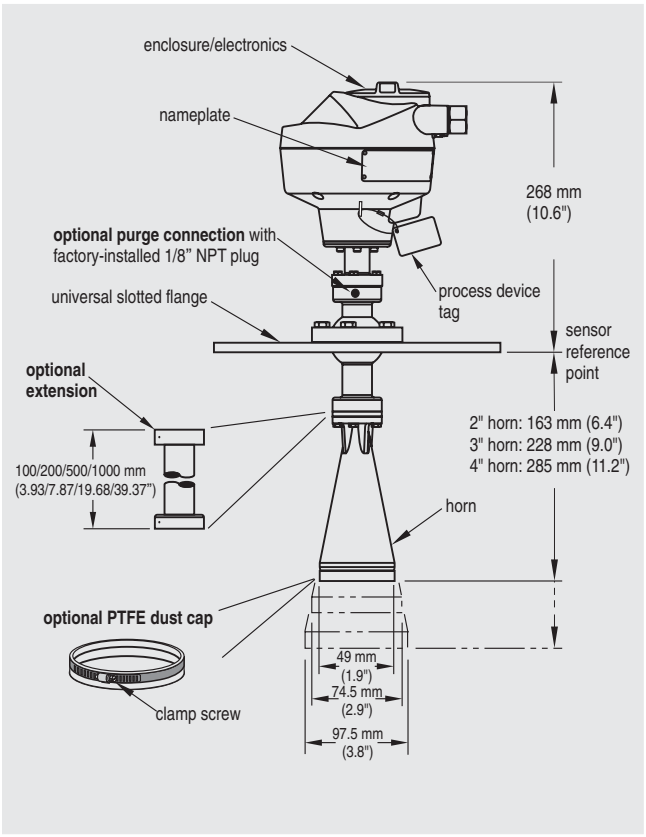
Note 1: available with no pressure rating, 0.5 bar g maximum. Please contact nacc.smpi@siemens.com for special requests.

Characteristic curves



SITRANS LR250 Ambient/Process Flange Surface Temperature Curve

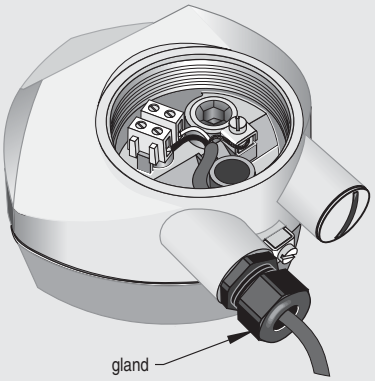
Dimensional drawings

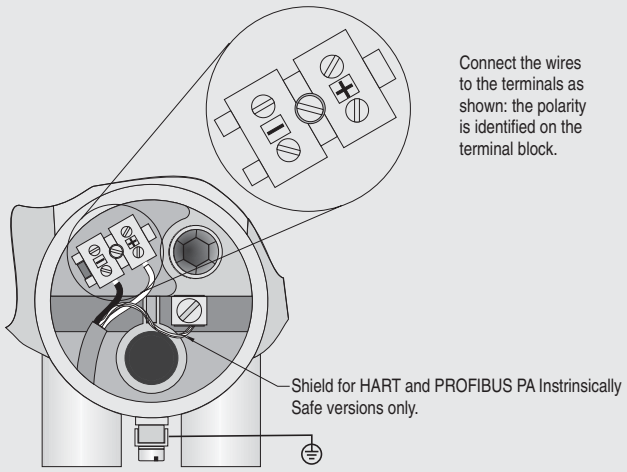


SITRANS LR260 dimensions

SITRANS LR260

Schematics





Notes:

1. DC terminal shall be supplied from a source providing electrical isolation between the input and output, to meet the applicable safety requirements of IEC 61010-1.
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 LR260 connections

Overview



The SITRANS LR400 is a 4-wire, 24 GHz FMCW radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and high pressure, to a range of 50 m (164 ft); ideal for low dielectric media.

Benefits

- Easy installation and commissioning, low maintenance
- Self-calibration with internal reference
- Built-in diagnostics
- Auto False-Echo Suppression and advanced echo processing
- 24 GHz and high signal-to-noise ratio
- Communication using HART® or PROFIBUS PA
- Programming using infrared Intrinsically Safe handheld programmer or with SIMATIC PDM or HART handheld device

Application

It provides excellent results on low dielectric media.

SITRANS LR400 is available for standard applications and for applications that require explosion proof protection.

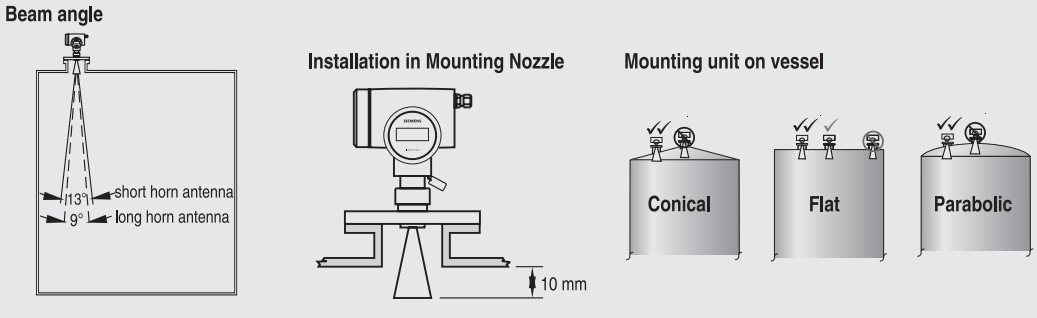
SITRANS LR400 features robust enclosure, flange and horn components. It is virtually unaffected by atmospheric or temperature conditions within the vessel.

Safe on-site local programming is simple using the Intrinsically Safe handheld programmer. SIMATIC PDM can be used for easy remote programming.

The characteristics of 24 GHz and high signal-to-noise ratio contribute to exceptional signal reflection, regardless of the dielectric value of the medium.

Key applications: long-range liquid or slurry applications, high temperature or high pressure, low dielectric media, such as LPG (liquid, petroleum, gas)

Configuration



SITRANS LR400 installation

SITRANS LR400

Technical specifications

Mode of operation	
Measuring principle	FMCW radar level measurement
Frequency	24 to 25 GHz FMCW
Measuring range	0.35 to 50 m (1.15 to 164 ft)
Output	
Analog output (HART®)	
• Signal range	Optically isolated 4 to 20 mA
• Load	Max. 600 Ω (330 Ω for [ia] versions, Area classification options G, L, P, S)
• Relay	NC or NO function, max. DC 50 V, max. 200 mA, rating 5 W
Communication	HART, optional PROFIBUS PA
PROFIBUS PA protocol	Layer 1 and 2, Class A, Profile 3.0
Performance (Reference conditions)	
• Dead band	0 to 350 mm from bottom edge of flange
• Error in measurement at +25 °C (+77 °F)	≤ 5 mm from 2 to 10 m ≤ 15 mm from 10 to 50 m
- Repeatability	≤ 1 mm
- Fail-safe	mA signal programmable as high, low or hold (LOE)
Rated operating conditions	
• Amb. temperature for enclosure	-40 to +65 °C (-40 to +149 °F)
• Location	Indoor/outdoor
• Installation category	II
• Pollution degree	4
Medium conditions	
Dielectric constant	ε_r >1.4
Process temperature range	
• Standard	-40 to +200 °C (-40 to +392 °F) -20 to +200 °C (-4 to +392 °F) for SITRANS LR400 with ATEX rating
• With optional temperature extension	-40 to +250 °C (-40 to +482 °F)
Vessel Pressure	Up to 40 bar g (process connection dependent)
Design	
Weight	Approx. 12.2 kg (26.8 lbs) with 3" 150 psi flange
Materials	
• Enclosure	Die-cast aluminum, painted
• Degree of protection	IP67/Type 4X/NEMA 4X, Type 6/NEMA 6
• Cable inlet	2x M20x1.5 or ½" NPT
Process connections	
• Flat faced flanges	316L stainless steel, 80, 100, 150 mm, bolt holes matching EN 1092-1 and JIS B 2220
• Raised face flanges	316L stainless steel, 3", 4", 6", bolt holes matching ASME B 16.5

Programming	
Intrinsically Safe Siemens handheld programmer (ordered separately)	Infrared receiver
• Approvals for handheld programmer	IS model with ATEX EEx ia IIC T4, CSA/FM Class I, Div. 1, Groups A, B, C, D T6 @ max. ambient temperature of +40 °C (+104 °F)
Handheld communicator	HART communicator 375
PC	SIMATIC PDM
Display (local)	Alphanumeric LCD for readout and entry
Power supply	100 to 230 V AC ± 15% (50/60 Hz), 6 W (12 VA) or 24 V DC +25/-20%, 6 W (optional)
Certificates and approvals	
• Safety	$CSA_{US/C}$, CE, FM, C-TICK
• Shipping	• Lloyd's Register of Shipping • ABS
• Radio	Europe (R&TTE, CETECOM), Industry Canada, FCC, C-TICK
• Hazardous areas	ATEX II 1/2 G EEx dem [ia] IIC T6 ATEX II 1/2 G EEx dem IIC T6 CSA/FM Class I, Div. 1, Groups B, C, D; Class II, Div. 1, Groups E, F, G; Class III T6, INMETRO
Optional equipment	Purging (self-cleaning) system PTFE dust cover

Selection and Ordering data

Order No.

SITRANS LR400 L) **7ML5421-**

4-wire, 24 GHz FMCW radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and high pressure, to a range of 50 m (164 ft); ideal for low dielectric media.

Order handheld programmer separately!

Process temperature range

-40 °C to +200 °C (-40 to +392 °F), standard **0**
-40 °C to +250 °C (-40 to +482 °F), high temperature extension **1**

Process connection

Universal flange 3"/80 mm[1] **A**
Universal flange 4"/100 mm[1] **B**
Universal flange 6"/150 mm[1] **D**
DN 80, PN 16, Type A, flat faced **S**
DN 80, PN 40, Type B1, raised face **C**
DN 100, PN 16, Type A, flat faced **T**
DN 100, PN 40, Type B1, raised face **G**
DN 150, PN 16, Type A, flat faced **U**
3" ASME, 150 lb, raised face **E**
3" ASME, 300 lb, raised face **F**
4" ASME, 150 lb, raised face **J**
4" ASME, 300 lb, raised face **K**
6" ASME, 150 lb, raised face **N**
JIS, DN 80 10K **Q**
JIS, DN 100 10K **R**
JIS, DN 150 10K **V**
(Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5, or EN 1092-1, or JIS B 2220 standard.)

Antenna

Horn antenna, long 93 mm (3.66") diam. for 100 mm (4") nozzles **D**
Horn antenna, short 74 mm (2.91") diam. for 80 mm (3") nozzles **K**

Antenna purging system

None **0**
Purging system **1**
Note: Available with process connections A, B or D, only, and available for Area Classifications A or B only

Process seal/gasket

PTFE for -40 to +250 °C (-40 to +482 °F) flange temperatures **1**
FKM for -20 to +200 °C (-4 to +392 °F) flange temperatures[2] **3**

Output/communication

4 to 20 mA, HART **0**
PROFIBUS PA **1**

Power supply/cable inlet

100 to 230 V AC
- 2 x M20x1.5 **B**
- 2 x ½" NPT **C**

24 V DC
- 2 x M20x1.5 **E**
- 2 x ½" NPT **F**

Area classification

General Purpose, CE, CETECOM[3] **A**
General Purpose, CSA$_{US/C}$, Industry Canada, FCC, CE and R&TTE **B**
ATEX II 2G EEx d IIC T6; CE, R&TTE **E**
ATEX II 2G EEx dem IIC T6; CE, R&TTE **F**
ATEX II 2G EEx dem [ia] IIC T6; CE, R&TTE[4] **G**
ATEX II 1/2 GD EEx d IIC T6; CE, R&TTE[2] **J**
ATEX II 1/2 GD EEx dem IIC T6; CE, R&TTE[2] **K**
ATEX II 1/2 GD EEx dem [ia] IIC T6; CE, R&TTE[2) 4)] **L**

Selection and Ordering data

Order No.

SITRANS LR400 L) **7ML5421-**

4-wire, 24 GHz FMCW radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and high pressure, to a range of 50 m (164 ft); ideal for low dielectric media.

Order handheld programmer separately!

ATEX II 2G EEx d IIC T6; CE, CETECOM[3] **M**
ATEX II 2G EEx dem IIC T6; CE, CETECOM[3] **N**
ATEX II 2G EEx dem [ia] IIC T6; CE, CETECOM[2) 4)] **P**
ATEX II 1/2 GD EEx d IIC T6; CE, CETECOM[2) 3)] **Q**
ATEX II 1/2 GD EEx dem IIC T6; CE, CETECOM[2) 3)] **R**
ATEX II 1/2 GD EEx dem [ia] IIC T6; CE, CETECOM[2) 3) 4)] **S**
FM Class I, Div. 1, Groups B, C, D; Class II/III, Div. 1, Groups E, F, G; FCC[2] D) **T**
CSA Class I, Div. 1, Groups B, C, D; Class II/III, Div. 1, Groups E, F, G; FCC[2] D) **U**

Local operation

Local Display Only. Handheld programmer not included **(Order programmer separately.)** **2**

Further designs

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

Order code

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**

Operating Instructions

Order No.

English C) **7ML1998-5FH06**
German C) **7ML1998-5FH36**
French C) **7ML1998-5FH15**
Spanish C) **7ML1998-5FH22**
Multi-language Quick start manual C) **7ML1998-5QN83**
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.

Accessories

Handheld programmer Intrinsically Safe, EEx ia **7ML5830-2AJ**
Long horn dust cover, PTFE **7ML1930-1AH**
Short horn dust cover, PTFE **7ML1930-1AJ**
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 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 to +176 °F) with integrated shield connection (available for PROFIBUS PA) **7ML1930-1AQ**
SITRANS RD100 Remote display - see RD100 on page 5/304
SITRANS RD200 Remote display - see RD200 on page 5/306

1) Available with antenna purging system option 1 only, universal, 0.5 bar g (7.25 psi g) maximum
2) Available with process temperature range option 0 only
3) Germany and Belgium end customers only
4) Available only with power supply option E or F

C) Subject to export regulations AL: N, ECCN: EAR99
D) Subject to export regulations AL: N, ECCN: EAR99H
L) Subject to export regulations AL: N, ECCN: 3A991X

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SITRANS LR400

Selection and ordering Data

SITRANS LR400 Spare parts

		Order No.
4"/100 mm Universal Flange, without horn or hub. See note 1.		**PBD-51035814**
6"/150 mm Universal Flange, without horn or hub. See note 1.		**PBD-51035815**
8"/200 mm Universal Flange, without horn or hub. See note 1.		**PBD-51035816**
Purging kit with Easy Aimer ball, no flange, no horn. See note 1.		**PBD-51036110**
Purging kit with Easy Aimer ball with 4"/100 mm flange, no horn. See note 1.		**PBD-51035810**
Purging kit with Easy Aimer ball with 6"/150 mm flange, no horn. See note 1.		**PBD-51035811**
Purging Kit with Easy Aimer ball with 8"/200 mm flange, no horn. See note 1.		**PBD-51035812**
Short horn antenna, no emitter supplied		**PBD-22475K1A**
Long horn antenna, no emitter supplied		**PBD-22475K2A**
Short horn antenna, purged, no emitter supplied		**PBD-22475K3A**
Long horn antenna, purged, no emitter supplied		**PBD-22475K4A**
Replacement display module, SITRANS LR400 Liquids and Solids versions		**PBD-51035410**
4" Horn antenna extension kit with General Purpose approvals		**PBD-51035474**
8" Horn antenna extension kit with General Purpose approvals		**PBD-51035473**
8" Horn antenna extension kit for hazardous units		**PBD-51036180**
SITRANS LR400 Aluminum enclosure with AC power, M20 cable inlet, HART® communication, and GP, CE, and CETECOM approvals. See note 2.	C)	**PBD-51036479**
SITRANS LR400 Aluminum enclosure with AC power, M20 cable inlet, PROFIBUS PA communication and GP, CE, and CETECOM approvals. See note 2.	C)	**PBD-51036480**
SITRANS LR400 Aluminum enclosure with AC power, M20 cable inlet, HART communication and GP, CE, CSA, Industry Canada, FCC and R&TTE. See note 2.	C)	**PBD-51035867**
SITRANS LR400 Aluminum enclosure with AC power, M20 cable inlet, PROFIBUS PA communication and GP, CE, CSA, Industry Canada, FCC and R&TTE. See note 2.	C)	**PBD-51035871**

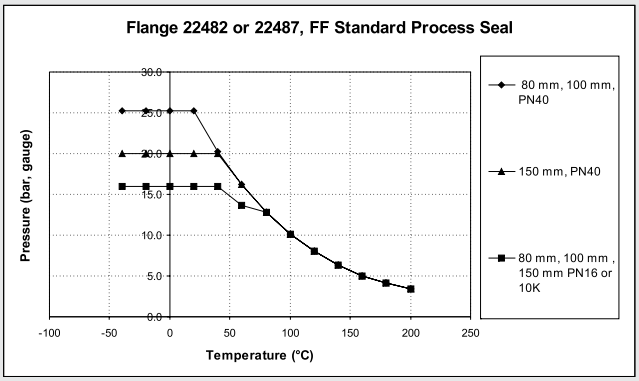
		Order No.
SITRANS LR400 Aluminum enclosure with AC power, M20 cable inlet, PROFIBUS PA communication and ATEX II 1/2 GD EEx d IIC T6, CE and R&TTE approvals. See note 2.	C)	**PBD-51035873**
SITRANS LR400 Aluminum enclosure with DC power, M20 cable inlet, HART communication and and GP, CE and CETECOM approvals. See note 2.	C)	**PBD-51036481**
SITRANS LR400 Aluminum enclosure with DC power, M20 cable inlet, PROFIBUS PA communication and GP, CE and CETECOM approvals. See note 2.	C)	**PBD-51036482**
SITRANS LR400 Aluminum enclosure with DC power, M20 cable inlet, HART communication and GP, CE, CSA, Industry Canada, FCC and R&TTE. See note 2.	C)	**PBD-51036483**
SITRANS LR400 Aluminum enclosure with DC power, M20 cable inlet, PROFIBUS PA communication and GP, CE, CSA, Industry Canada, FCC and R&TTE. See note 2.	C)	**PBD-51036484**
SITRANS LR400 Aluminum enclosure with DC power, M20 cable inlet, HART communication and ATEX II 1/2 GD EEx d IIC T6, CE and R&TTE approvals. See note 2.	C)	**PBD-51036485**
SITRANS LR400 Aluminum enclosure with DC power, M20 cable inlet, PROFIBUS PA communication and ATEX II 1/2 GD EEx d IIC T6, CE and R&TTE approvals. See note 2.	C)	**PBD-51036486**

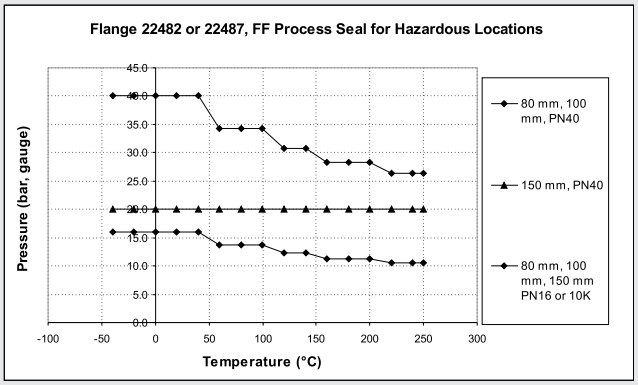
Note 1: Available with no pressure rating and with General Purpose approvals only

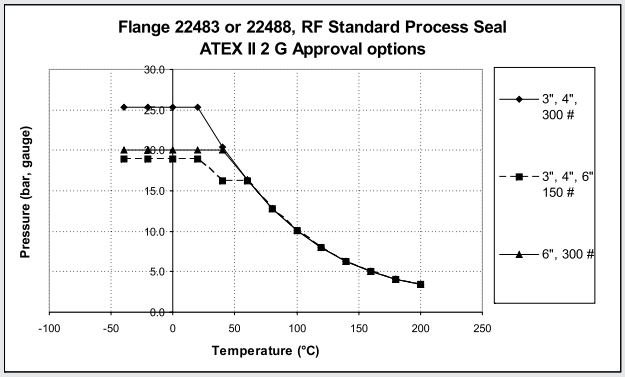
Note 2: Subject to export regulations AL: N, ECCN: 3A991X
Please contact nacc.smpi@siemens.com for special requests.

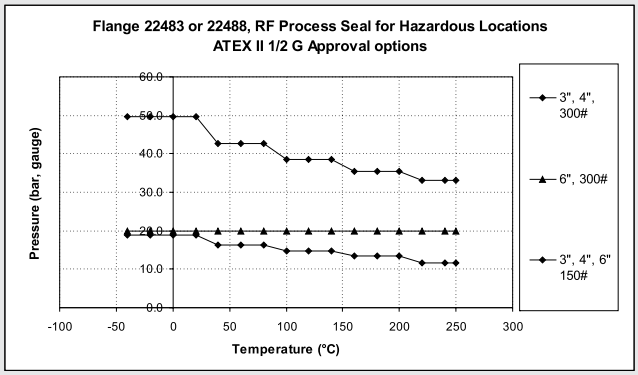
C) Subject to export regulations AL: N, ECCN: 3A991X

Characteristic curves





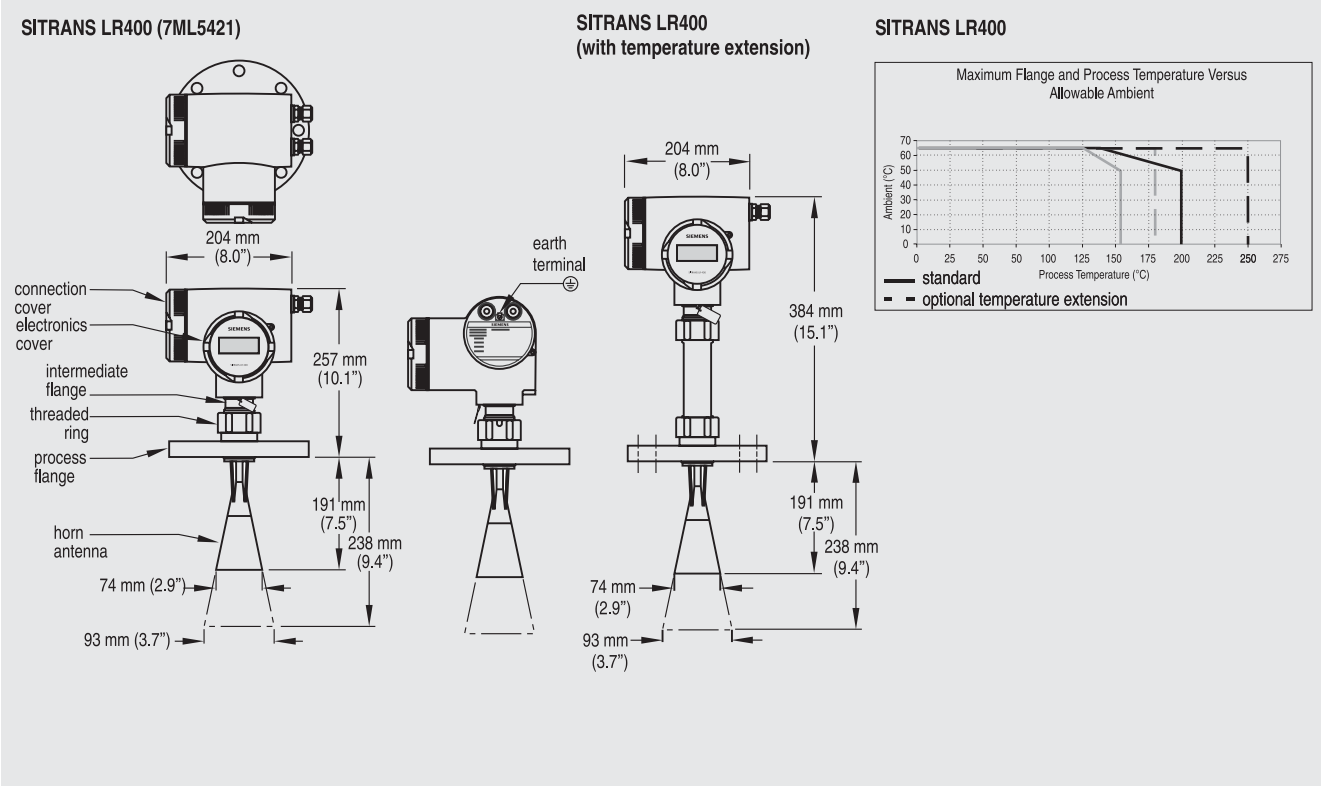




SITRANS LR400 Process Pressure/Temperature derating curves

SITRANS LR400

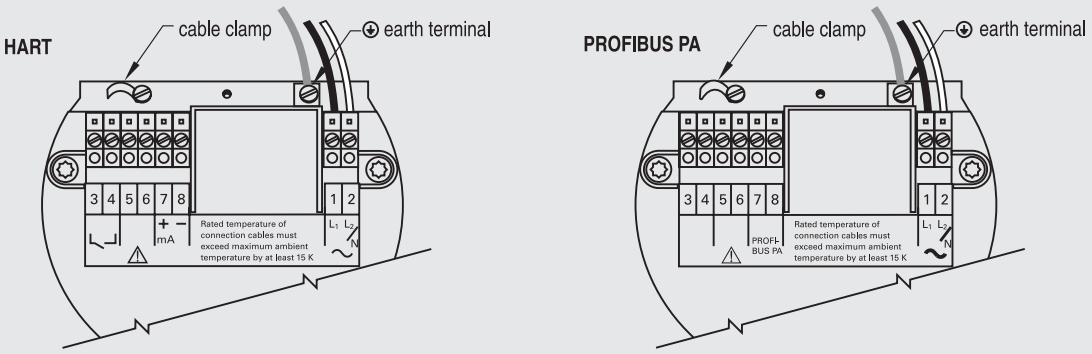
Dimensional drawings



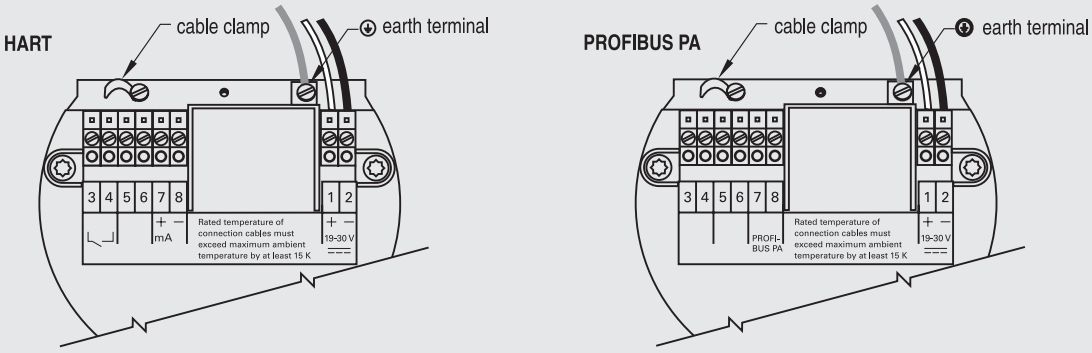
SITRANS LR400 dimensions

Schematics

AC version



DC version



Notes

- recommended torque on terminal clamping screws, 0.5 to 0.6 Nm
- 4-20 mA, Profibus PA, DC input circuits, 14-20 AWG, shielded copper wire
- AC input circuit, min. 14 AWG copper wire
- all field wiring must have insulation suitable for at least 250 V
- the equipment must be protected by a 15 A fuse or circuit breaker in the building installation

Hand Programmer

Part number:
7ML5830-2AJ



SITRANS LR400

SITRANS LR400 connections

SITRANS LR460

Overview



The SITRANS LR460 is a 4-wire, 24 GHz FMCW radar level transmitter with extremely high signal-to-noise ratio and advanced signal processing for continuous monitoring of solids up to 100 m (328 ft). It is ideal for measurement in extreme dust.

Benefits

- Process Intelligence for advanced signal processing and quick and easy adjustment
- Self-guided quick start wizard for plug and play start-up
- 24 GHz provides superior reflective properties on solids surfaces
- 100 m (328 ft) range for long-range and difficult applications
- Easy Aimer optimizes signal quality on sloped surfaces
- Programming using infrared Intrinsically Safe handheld programmer or with SIMATIC PDM or HART® handheld device

Application

SITRANS LR460 provides excellent results even during conditions of extreme dust. The integral Easy Aimer included on the SITRANS LR460 allows for easy positioning for optimum measurement on solids.

Process Intelligence onboard SITRANS LR460 means advanced signal processing is harnessed for reliable operation on both simple and difficult solids application.

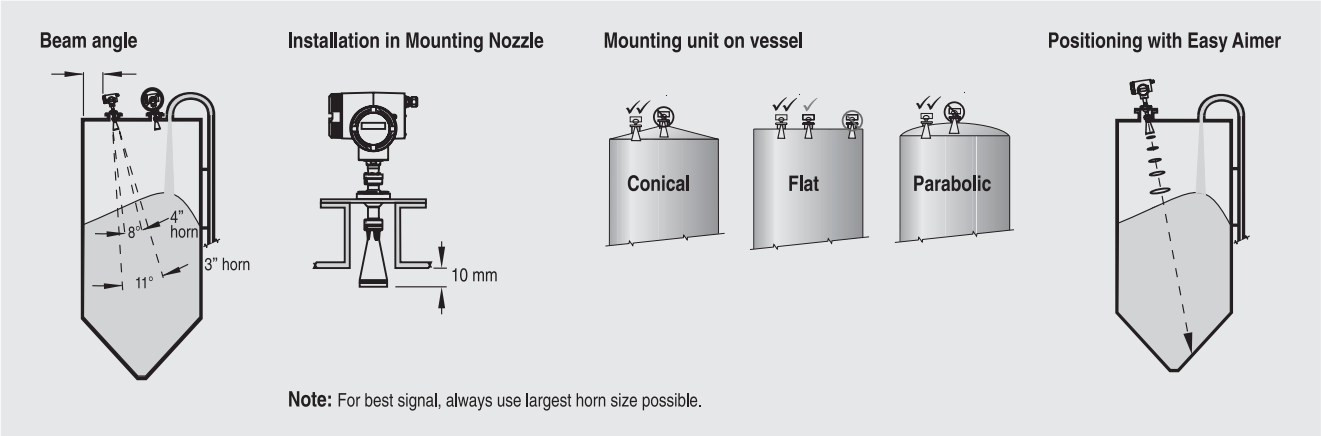
SITRANS LR460 features a robust enclosure, flange and horn components. It is virtually unaffected by atmospheric or temperature conditions within the vessel.

An optional dust cap is available for sticky solids. Optional air purging is also available for extremely sticky applications.
Safe on-site local programming is simple using the Intrinsically Safe handheld programmer. SIMATIC PDM can be used for easy remote programming using HART or PROFIBUS PA.

The characteristics of 24 GHz and high signal-to-noise ratio contribute to exceptional signal reflection, regardless of the dielectric value of the medium.

Key applications: long-range dusty applications, cement powder, fly-ash, coal, flour, grain, plastics

Configuration



SITRANS LR460 installation

Technical specifications

Mode of operation	
Measuring principle	FMCW radar level measurement
Frequency	24.2 to 25.2 GHz FMCW
Measuring range	0.35 to 100 m (1.15 to 328.08 ft)
Output	
Analog output (HART®)	
• Signal range	Optically isolated 4 to 20 mA
• Load	Max. 600 Ω
• Fail-safe	mA signal programmable as high, low or hold (LOE)
Communication	HART, optional PROFIBUS PA
Digital output	Relay, NC or NO function, max. 50 V DC, max. 200 mA, rating 5 W
PROFIBUS PA protocol	Layer 1 and 2, Class A, Profile 3.01
Performance (Reference conditions according to IEC 60770-1)	
• Non-linearity	Greater of 25 mm (1") or 0.25% of span (including hysteresis and non-repeatability), over the full ambient temperature range
• Non-repeatability	≤ 10 mm (0.4")
Rated operating conditions	
• Amb. temperature for enclosure	-40 to +65 °C (-40 to +149 °F)
• Location	Indoor/outdoor
• Installation category	II
• Pollution degree	4
Medium conditions	
Dielectric constant	$\varepsilon_r > 1.4$
Process temperature range	-40 to +200 °C (-40 to +392 °F)
Vessel Pressure	0.5 bar g (7.25 psi g) maximum
Design	
Weight	Approx. 6.1 kg (13.4 lbs) with 3" universal flange
Materials	
• Enclosure	Die-cast aluminum, painted
• Degree of protection	IP67/Type 4X/NEMA 4X/Type 6/NEMA 6
• Cable inlet	2x M20x1.5 or ½" NPT
Process connections	
• Universal flanges, 316L stainless steel, flat faced, with integral Easy Aimer	3"/80 mm, 4"/100 mm, 6"/150 mm (mates with flange EN 1092-1, ASME B16.5, or JIS B2238 bolt pattern), 0.5 bar g (7.25 psi g) max. pressure

Programming	
Intrinsically Safe Siemens handheld programmer (ordered separately)	Infrared receiver
- Approvals for handheld programmer	IS model with ATEX II 1G EEx ia IIC T4, CSA/FM Class I, Div. 1, Groups A, B, C, D T6 @ max. ambient temperature of +40 °C (+104 °F)
Handheld communicator	HART Communicator 375
PC	SIMATIC PDM
Display (local)	Alphanumeric LCD for readout and entry
Power supply	100 to 230 V AC ± 15% (50/60 Hz), 6 W (12 VA) or 24 V DC +25/-20%, 6 W (optional)
Certificates and approvals	
• General	$CSA_{US/C}$, CE, FM, C-TICK
• Radio	European Radio (R&TTE), Industry Canada, FCC, C-TICK
• Hazardous Areas	CSA/FM Class II, Div. 1, Groups E, F and G, Class III ATEX II 1D, 1/2 D, 2D T85 °C
Optional equipment	
Dust cap	PTFE
Air purge connection	1/8" NPT

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SITRANS LR460

Selection and Ordering data — Order No.

SITRANS LR460 L) **7ML5426-0 ■■■0-■■■0**

4-wire, 24 GHz FMCW radar level transmitter with extremely high signal-to-noise ratio and advanced signal processing for continuous monitoring of solids up to 100 m (328 ft). It is ideal for measurement in extreme dust.

Order handheld programmer separately!

Process connection	
Universal, flat faced, 0.5 bar g (7.25 psi g) maximum with integral Easy Aimer ball	
3" (80 mm)	**A**
4" (100 mm)	**B**
6" (150 mm)	**C**
Antenna	
3" horn antenna, fits 80 mm (3") nozzles	**A**
3" horn antenna, fits 80 mm (3") nozzles with 100 mm extension	**B**
3" horn antenna, fits 80 mm (3") nozzles with 200 mm extension	**C**
3" horn antenna, fits 80 mm (3") nozzles with 500 mm extension[1]	**D**
3" horn antenna, fits 80 mm (3") nozzles with 1000 mm extension[1]	**E**
4" horn antenna, fits 100 mm (4") nozzles	**F**
4" horn antenna, fits 100 mm (4") nozzles with 100 mm extension	**G**
4" horn antenna, fits 100 mm (4") nozzles with 200 mm extension	**H**
4" horn antenna, fits 100 mm (4") nozzles with 500 mm extension[1]	**J**
4" horn antenna, fits 100 mm (4") nozzles with 1000 mm extension[1]	**K**
Purge (self-cleaning) connection	
No purge connection	**0**
Purge connection	**1**
Output/Communication	
4 to 20 mA, HART®	**0**
PROFIBUS PA	**1**
Power supply/cable inlet	
100 to 230 V AC	
• 2 x M20x1.5	**A**
• 2 x ½" NPT	**B**
24 V DC	
• 2 x M20x1.5	**C**
• 2 x ½" NPT	**D**
Approvals	
General Purpose, CSA$_{US/C}$, Industry Canada, FM, FCC, CE and R&TTE, C-TICK	**A**
CSA/FM Class II, Div. 1, Groups E, F, and G, Class III	**B**
ATEX II 1/2 D T6, CE, R&TTE	**C**
Further designs	Order code
Please add "**-Z**" to Order No. and specify Order code(s).	
Manufacturer's test certificate M to DIN 55350, Part 18 and to ISO 9000	**C11**
Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters); specify in plain text	**Y15**

Selection and Ordering data — Order No.

SITRANS LR460 L) **7ML5426-0 ■■■0-■■■0**

4-wire, 24 GHz FMCW radar level transmitter with extremely high signal-to-noise ratio and advanced signal processing for continuous monitoring of solids up to 100 m (328 ft). It is ideal for measurement in extreme dust.

Order handheld programmer separately!

Operating Instructions		
English	C)	**7ML1998-5JM02**
French	C)	**7ML1998-5JM11**
German	C)	**7ML1998-5JM32**
Multi-language Quick Start manual	C)	**7ML1998-5QW82**
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.		
Accessories		
Handheld programmer, Infra-red, Intrinsically Safe, EEx ia		**7ML5830-2AJ**
Dust cap, PTFE, for 3"/80 mm horn		**7ML1930-1BL**
Dust cap, PTFE, for 4"/100 mm horn		**7ML1930-1BM**
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 to +80 °C (-40 to +176 °F) (available for HART only - two cable glands required)		**7ML1930-1AP**
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**
SITRANS RD100 Remote display - see RD100 on page 5/304		
SITRANS RD200 Remote display - see RD200 on page 5/306		

[1] Available with Purge option 0 only

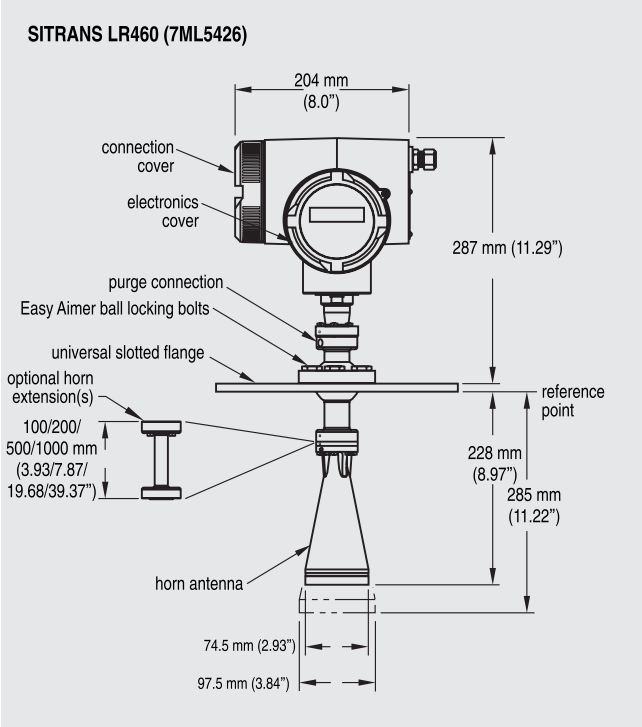
C) Subject to export regulations AL: N, ECCN: EAR99

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

L) Subject to export regulations AL: N, ECCN: 3A991X

Note 1: available with no pressure rating, 0.5 bar g maximum. Please contact nacc.smpi@siemens.com for special requests.

Dimensional drawings

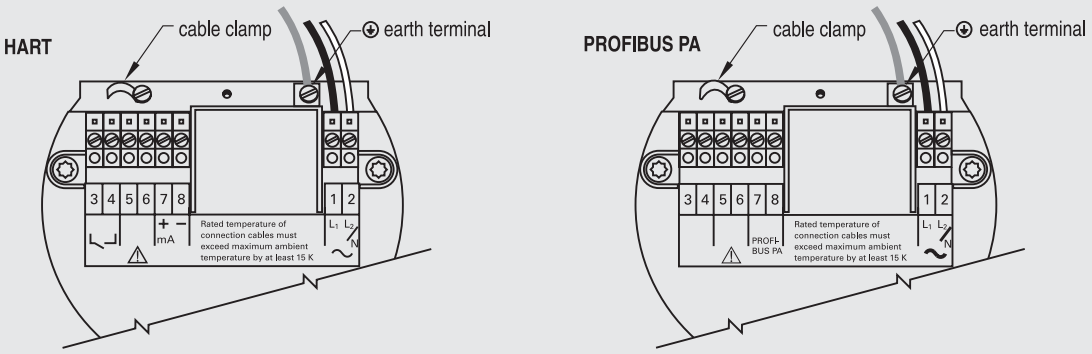


SITRANS LR460 dimensions

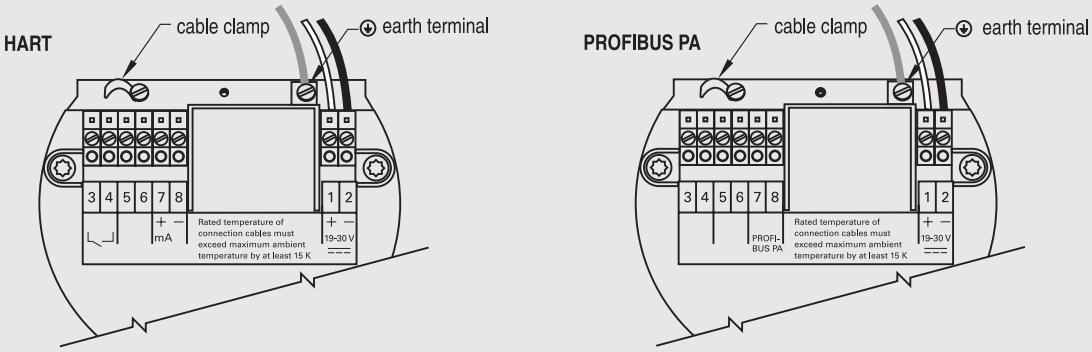
SITRANS LR460

Schematics

AC version



DC version



Notes

- recommended torque on terminal clamping screws, 0.5 to 0.6 Nm
- 4-20 mA, PROFIBUS PA, DC input circuits, 14-20 AWG, shielded copper wire
- AC input circuit, min. 14 AWG copper wire
- all field wiring must have insulation suitable for at least 250 V
- the equipment must be protected by a 15 A fuse or circuit breaker in the building installation

Hand Programmer

Part number:
7ML5830-2AJ



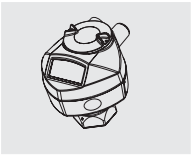
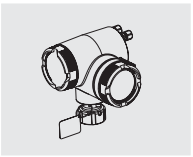
SITRANS LR460

SITRANS LR460 connections

Selection and Ordering data

SITRANS LR260 and SITRANS LR460 Specials

		Order No.
Process connection part kits - non-pressure-rated		
LR260/LR460,100 mm horn extension, no purge, see Note 1		**A5E01087872**
LR260/LR460, 200 mm horn extension, no purge, see Note 1		**A5E01091262**
LR260/LR460,100 mm extension with purge, see Note 1		**A5E01261979**
LR260/LR460, 200 mm extension with purge, see Note 1		**A5E01261981**
LR260/LR460, horn 2", no purge, no emitter, see Note 1		**A5E02083905**
LR260/LR460, horn 3", no purge, no emitter, see Note 1		**A5E01623511**
LR260/LR460, horn 4", no purge, no emitter, see Note 1		**A5E01623512**
LR260/LR460, horn 2", with purge, no emitter, see Note 1		**A5E02083906**
LR260/LR460, horn 3", with purge, no emitter, see Note 1		**A5E01623513**
LR260/LR460, horn 4", with purge, no emitter, see Note 1		**A5E01623514**
LR260/LR460, 4" universal flat faced flange, see Note 1		**A5E01259467**
LR260/LR460, 6" universal flat faced flange, see Note 1		**A5E01261834**
LR260/LR460 O-Rings for Easy Aimer, see Note 1	F)	**A5E01261836**
Purge conversion kit - non-pressure-rated (no flange or extension included)		
LR260/LR460 purge conversion, 2" horn, see Note 1		**A5E02083914**
LR260/LR460 purge conversion, 3" horn, see Note 1		**A5E02083915**
LR260/LR460 purge conversion, 4" horn, see Note 1		**A5E02083916**

		Order No.
Enclosure with electronics		
		
LR260 enclosure with board stack, HART communication, M20 cable inlet, approval option A, no process connection	C)	**A5E02203605**
LR260 enclosure with board stack, PROFIBUS PA communication, M20 cable inlet, approval option A, no process connection	C)	**A5E02213423**
LR260 enclosure with board stack, HART communication, NPT cable inlet, approval option A, no process connection	C)	**A5E02165924**
LR260 enclosure with board stack, PROFIBUS PA communication, NPT cable inlet, approval option A, no process connection	C)	**A5E02213428**
Enclosure with electronics (SITRANS 460)		
		
LR460 enclosure with board stack,HART communication, AC power, M20 cable inlet, approval option A, no process connection	L)	**A5E02182085**
LR460 enclosure with board stack, PROFIBUS PA communication, AC power, M20 cable inlet, approval option A, no process connection	C)	**A5E02212422**
LR460 enclosure with board stack, HART communication, AC power, NPT cable inlet, approval option A, no process connection	L)	**A5E02212423**
LR460 enclosure with board stack, PROFIBUS PA communication, AC power, NPT cable inlet, approval option A, no process connection	L)	**A5E02212424**
LR460 enclosure with board stack, HART communication, DC power, M20 cable inlet, approval option A, no process connection	L)	**A5E02212425**
LR460 enclosure with board stack, PROFIBUS PA communication, DC power, M20 cable inlet, approval option A, no process connection	L)	**A5E02212426**
LR460 enclosure with board stack, HART communication, DC power, NPT cable inlet, approval option A, no process connection	L)	**A5E02212428**
LR460 enclosure with board stack, PROFIBUS PA communication, DC power, NPT cable inlet, approval option A, no process connection	L)	**A5E02212429**

Note 1: available with no pressure rating, 0.5 bar g maximum. Please contact nacc.smpi@siemens.com for special requests.

C) Subject to export regulations AL: N, ECCN: EAR99
F) Subject to export regulations AL: 91999, ECCN: N
L) Subject to export regulations AL: N, ECCN: 3A991X

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