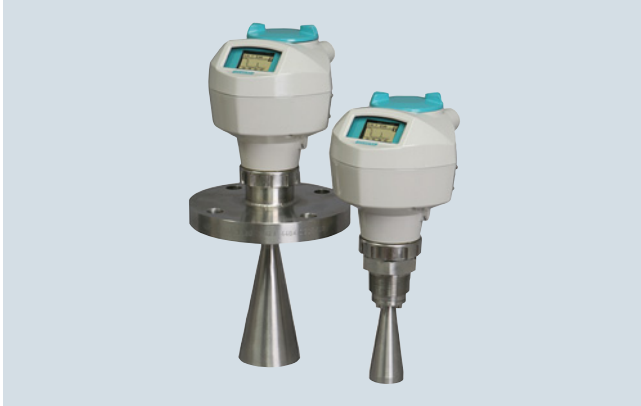


## Level Measurement

Continuous level measurement - Radar transmitters

### SITRANS LR250 Horn Antenna

#### 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 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 inch) from the end of the antenna
- Communication using HART, PROFIBUS PA, or FOUNDATION Fieldbus
- Process Intelligence signal processing for improved measurement reliability and Auto False-Echo Suppression of fixed obstructions
- Programming using infrared Intrinsically Safe handheld programmer or over a network using SIMATIC PDM, Emerson AMS, or Field Device Tools such as PACTware or Fieldcare via SITRANS DTM
- Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511
- 3 mm (0.118 inch) accuracy in accordance with IEC 60770-1
- Suitable for API 2350

#### 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 antenna 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.

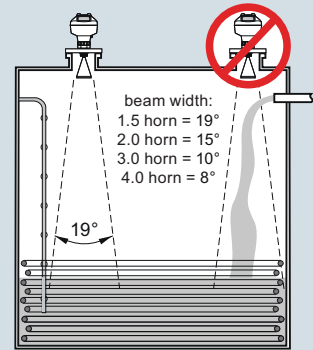
- Key Applications: liquid bulk storage tanks, process vessels, vaporous liquids, high temperatures, low dielectric media and applications with functional safety requirements

#### Configuration

##### Installation

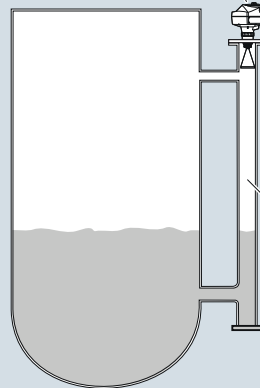
##### Note:

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



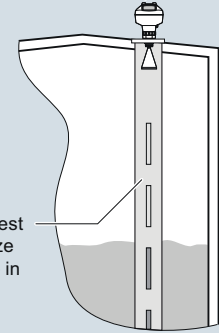
##### Mounting unit on bypass

Orient front or back of device toward vent.

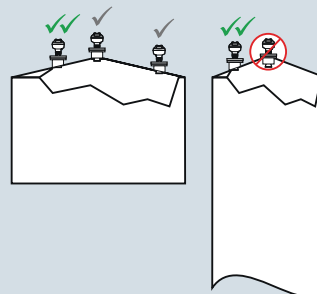


##### Mounting unit on stilling well

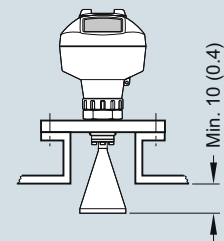
Orient front or back of device toward stillpipe slots.



##### Mounting unit on vessel



##### Mounting on a nozzle



SITRANS LR250 installation, dimensions in mm (inch)

### Technical specifications

<b>Mode of operation</b>		<b>Process connections</b>	
Measuring principle	Radar level measurement	• Process connection	1½", 2" or 3" NPT [(Taper), ANSI/ASME B1.20.1] R 1½", 2" or 3" [(BSPT), EN 10226] G 1½", 2" or 3" [(BSPP), EN ISO 228-1]
Frequency	K-band (25.0 GHz)	• Flange connection	2", 3", 4" (ANSI 150, 300 lb), 50, 80, 100 mm (PN 16, 40, JIS 10K)
Minimum measuring range	50 mm (2 inch) from end of antenna	<b>Power supply</b>	
Maximum measuring range	20 m (65 ft), antenna dependent	4 ... 20 mA/HART	Nominal 24 V DC (max. 30 V DC) with max. 550 Ω
<b>Output</b>		PROFIBUS PA	• 15 mA • Per IEC 61158-2
HART	Version 5.1	FOUNDATION Fieldbus	• 20.0 mA • Per IEC 61158-2
• Analog output	4 ... 20 mA	<b>Certificates and approvals</b>	
• Accuracy	± 0.02 mA	General	CSA <sub>US/C</sub> , CE, FM, NE 21, RCM
• Fail-safe	• Programmable as high low or hold (loss of echo) • NE 43 programmable	Radio	FCC, Industry Canada, and Europe ETSI EN 302-372, RCM
PROFIBUS PA	Profile 3.01	Hazardous	
• Function blocks	2 Analog Input (AI)	• Explosion Proof (Brazil)	INMETRO Ex d ia mb IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da
FOUNDATION Fieldbus	H1	• Increased Safety (Brazil)	INMETRO Ex e ia mb IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da
• Functionality	Basic or LAS	• Intrinsically Safe (Brazil)	INMETRO Ex ia IIC T4 Ga, Ex ia ta IIIC T100 °C Da
• Version	ITK 5.2.0	• Explosion Proof (Canada/USA)	CSA/FM Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III T4
• Function blocks	2 Analog Input (AI)	• Intrinsically Safe (Canada/USA)	CSA/FM Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III T4
<b>Performance (according to reference conditions IEC60770-1)</b>		• Non-incendive (Canada/USA)	CSA/FM Class I, Div. 2, Groups A, B, C, D T5
Maximum measured error	3 mm (0.118 inch)	• Flame Proof/Increased Safety (China)	NEPSI Ex d ia mb IIC T4 Ga/Gb, Ex e ia mb IIC T4 Ga/Gb, Ex iaD tD A20 IP67 T100 °C
Influence of ambient temperature	< 0.003 %/K	• Intrinsically Safe (China)	NEPSI Ex ia IIC T4 Ga, Ex iaD tD A20 IP67 T100 °C
<b>Rated operating conditions</b>		• Non-sparking (China)	NEPSI Ex nA IIC T4 Gc
Installation conditions		• Intrinsically Safe (Europe)	ATEX II 1G Ex ia IIC T4 Ga ATEX II 1D Ex ia IIIC T100 °C Da
• Location	Indoor/outdoor	• Non-sparking (Europe)	ATEX II 3G Ex nA IIC T4 Gc
Ambient conditions (enclosure)		• Flame Proof (International/Europe)	IECEX/ATEX II 1/2 GD, 1D, 2D, Ex d mb ia IIC T4 Ga/Gb, Ex ia ta IIC T100 °C Da
• Ambient temperature	-40 ... +80 °C (-40 ... +176 °F)	• Increased Safety (International/Europe)	IECEX/ATEX II 1/2 GD, 1D, 2D, Ex e mb ia IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da
• Installation category	I	• Intrinsically Safe (International)	IECEX/ATEX II 1 G Ex ia IIC T4 Ga, IECEX/ATEX II 1D Ex ia ta IIC T100 °C Da
• Pollution degree	4	• Explosion Proof (Russia/Kazakhstan)	EAC Ex d
<b>Medium conditions</b>		• Increased Safety (Russia/Kazakhstan)	EAC Ex e
Dielectric constant $\epsilon_r$	> 1.6, antenna and application dependent	• Intrinsically Safe (Russia/Kazakhstan)	EAC Ex ia
Process temperature	-40 ... +200 °C (-40 ... +392 °F) (at process connection with FKM O-ring) -20 ... +200 °C (-4 ... +392 °F) (at process connection with FFKM O-ring)	• Marine	• Lloyd's Register of Shipping • ABS Type Approval • Bureau Veritas
Process pressure	Up to 40 bar g (580 psi g), process connection and temperature dependent. See Pressure/Temperature curves for more information	• Functional Safety	SIL-2 suitable in accordance with IEC 61508/61511
<b>Design</b>			
Enclosure			
• Material	Aluminum, polyester powder-coated		
• Cable inlet	2 x M20 x 1.5 or 2 x ½" NPT		
Degree of protection	Type 4X/NEMA 4X, Type 6/NEMA 6, IP67, IP68		
Weight	< 3 kg (6.6 lb) 3.75 mm (1½ inch) 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 inch (40 mm), 2 inch (48 mm), 3 inch (75 mm), 4 inch (95 mm) horn, and optional 100 mm (4 inch) horn extension		

## Level Measurement

### Continuous level measurement - Radar transmitters

#### SITRANS LR250 Horn Antenna

##### Programming

Intrinsically Safe Siemens handheld programmer	Infrared receiver
<ul style="list-style-type: none"> <li>• Approvals for handheld programmer</li> </ul>	IS model: ATEX II 1 GD Ex ia IIC T4 Ga Ex ia D 20 T135 °C T <sub>a</sub> = -20 ... +50 °C CSA/FM Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G, T6 T <sub>a</sub> = +50 °C IECEx SIR 09.0073
Handheld communicator	HART communicator 375/475
PC	<ul style="list-style-type: none"> <li>• SIMATIC PDM</li> <li>• Emerson AMS</li> <li>• SITRANS DTM (for connection into FDT such as PACTware or Fieldcare)</li> </ul>
Display (local)	Graphic local user interface including quick start wizard and echo profile displays

Selection and Ordering data	Article No.	Selection and Ordering data	Article No.
<b>SITRANS LR250 horn antenna</b>	<b>7ML5431-</b>	<b>SITRANS LR250 horn antenna</b>	<b>7ML5431-</b>
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) (antenna dependent). Ideal for small vessels and low dielectric media.	0 -	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) (antenna dependent). Ideal for small vessels and low dielectric media.	0 -
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		<u>Flanged connection Hastelloy C</u>	
<b>Process Connection and Antenna Material</b>		2" Class 150 ASME B16.5 raised face <sup>4)</sup>	<b>J A</b>
316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FKM seal <sup>1)</sup>	0	3" Class 150 ASME B16.5 raised face <sup>4)</sup>	<b>J B</b>
316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FFKM seal <sup>1)</sup>	1	4" Class 150 ASME B16.5 raised face <sup>4)</sup>	<b>J C</b>
Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FKM seal <sup>2)</sup>	2	2" Class 300 ASME B16.5 raised face <sup>4)</sup>	<b>J D</b>
Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FFKM seal <sup>2)</sup>	3	3" Class 300 ASME B16.5 raised face <sup>4)</sup>	<b>J E</b>
		4" Class 300 ASME B16.5 raised face <sup>4)</sup>	<b>J F</b>
<b>Process Connection Type</b>		DN 50 PN 16 EN 1092-1 Type B1 raised face <sup>4)</sup>	<b>K A</b>
<u>Threaded connection 316L</u>		DN 80 PN 16 EN 1092-1 Type B1 raised face <sup>4)</sup>	<b>K B</b>
1½" NPT (ASME B1.20.1) (tapered thread) <sup>3)</sup>	AA	DN 100 PN 16 EN 1092-1 Type B1 raised face <sup>4)</sup>	<b>K C</b>
R 1½" [(BSPT), EN 10226-1] (tapered thread) <sup>3)</sup>	AB	DN 50 PN 40 EN 1092-1 Type B1 raised face <sup>4)</sup>	<b>K D</b>
G 1½" [(BSPP), EN ISO 228-1] (parallel thread) <sup>3)</sup>	AC	DN 80 PN 40 EN 1092-1 Type B1 raised face <sup>4)</sup>	<b>K E</b>
2" NPT (ASME B1.20.1) (tapered thread)	AD	DN 100 PN 40 EN 1092-1 Type B1 raised face <sup>4)</sup>	<b>K F</b>
R 2" [(BSPT), EN 10226-1] (tapered thread)	AE	50A 10K JIS B 2220 raised face <sup>4)</sup>	<b>L A</b>
G 2" [(BSPP), EN ISO 228-1] (parallel thread)	AF	80A 10K JIS B 2220 raised face <sup>4)</sup>	<b>L B</b>
3" NPT (ASME B1.20.1) (tapered thread)	AG	100A 10K JIS B 2220 raised face <sup>4)</sup>	<b>L C</b>
R 3" [(BSPT), EN 10226-1] (tapered thread)	AH	DN 50 PN 16 EN 1092-1 Type B1 raised face	<b>M A</b>
G 3" [(BSPP), EN ISO 228-1] (parallel thread)	AJ	DN 80 PN 16 EN 1092-1 Type B1 raised face	<b>M B</b>
<u>Flanged connection 316L</u>		DN 100 PN 16 EN 1092-1 Type B1 raised face	<b>M C</b>
2" Class 150 ASME B16.5 flat face <sup>4)</sup>	BA	DN 150 PN 16 EN 1092-1 Type B1 raised face	<b>M D</b>
3" Class 150 ASME B16.5 flat face <sup>4)</sup>	BB	DN 50 PN 40 EN 1092-1 Type B1 raised face	<b>M E</b>
4" Class 150 ASME B16.5 flat face <sup>4)</sup>	BC	DN 80 PN 40 EN 1092-1 Type B1 raised face	<b>M F</b>
2" Class 150 ASME B16.5, raised face	BD	DN 100 PN 40 EN 1092-1 Type B1 raised face	<b>M G</b>
3" Class 150 ASME B16.5, raised face	BE	DN 150 PN 40 EN 1092-1 Type B1 raised face	<b>M H</b>
4" Class 150 ASME B16.5, raised face	BF	<b>Communication/Output</b>	
2" Class 300 ASME B16.5 flat face <sup>4)</sup>	CA	PROFIBUS PA <sup>6)</sup>	1
3" Class 300 ASME B16.5 flat face <sup>4)</sup>	CB	4 ... 20 mA, HART, start-up at < 3.6 mA	2
4" Class 300 ASME B16.5 flat face <sup>4)</sup>	CC	FOUNDATION Fieldbus <sup>6)</sup>	3
2" Class 300 ASME B16.5, raised face	CD	<b>Enclosure/Cable inlet</b>	
3" Class 300 ASME B16.5, raised face	CE	<u>Aluminum, Epoxy painted</u>	
4" Class 300 ASME B16.5, raised face	CF	2 x ½" NPT	0
DN 50 PN 16 EN 1092-1 Type A flat face <sup>4)</sup>	DA	2 x M20 x 1.5	1
DN 80 PN 16 EN 1092-1 Type A flat face <sup>4)</sup>	DB	<b>Antenna</b>	
DN 100 PN 16 EN 1092-1 Type A flat face <sup>4)</sup>	DC	1½" horn <sup>3)</sup>	<b>A</b>
DN 50 PN 40 EN 1092-1 Type A flat face <sup>4)</sup>	EA	2" horn (fits 2" ASME or DN 50 nozzles)	<b>B</b>
DN 80 PN 40 EN 1092-1 Type A flat face <sup>4)</sup>	EB	3" horn (fits 3" ASME or DN 80 nozzles)	<b>C</b>
DN 100 PN 40 EN 1092-1 Type A flat face <sup>4)</sup>	EC	4" horn (fits 4" ASME or DN 100 nozzles)	<b>D</b>
50A 10K JIS B 2220 flat face <sup>4)</sup>	FA	4" horn (fits 4" ASME or DN 100 nozzles) with 100 mm extension <sup>3)</sup>	<b>E</b>
80A 10K JIS B 2220 flat face <sup>4)</sup>	FB	2" horn with 100 mm extension	<b>F</b>
100A 10K JIS B 2220 flat face <sup>4)</sup>	FC	3" horn with 100 mm extension	<b>G</b>
DN 50 PN 16 EN 1092-1 Type B1 raised face	GA	4" horn with 100 mm extension	<b>H</b>
DN 80 PN 16 EN 1092-1 Type B1 raised face	GB	<u>Hastelloy C22 (or equivalent)</u>	
DN 100 PN 16 EN 1092-1 Type B1 raised face	GC	2" horn (fits 2" ASME or DN 50 nozzles)	<b>J</b>
DN 150 PN 16 EN 1092-1 Type B1 raised face	GD	3" horn (fits 3" ASME or DN 80 nozzles)	<b>K</b>
DN 50 PN 40 EN 1092-1 Type B1 raised face	HA	4" horn (fits 4" ASME or DN 100 nozzles)	<b>L</b>
DN 80 PN 40 EN 1092-1 Type B1 raised face	HB	2" horn (fits 2" ASME or DN 50 nozzles) with 100 mm extension	<b>M</b>
DN 100 PN 40 EN 1092-1 Type B1 raised face	HC	3" horn (fits 3" ASME or DN 80 nozzles) with 100 mm extension	<b>N</b>
DN 150 PN 40 EN 1092-1 Type B1 raised face	HD	4" horn (fits 4" ASME or DN 100 nozzles) with 100 mm extension	<b>P</b>

## Level Measurement

### Continuous level measurement - Radar transmitters

#### SITRANS LR250 Horn Antenna

Selection and Ordering data	Article No.
<b>SITRANS LR250 horn antenna</b>	<b>7ML5431-</b>
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) (antenna dependent). Ideal for small vessels and low dielectric media.	<b>0 -</b>
<b>Approvals</b>	
General Purpose, CE, CSA, FM, FCC, R&TTE, RCM	<b>A</b>
Intrinsically Safe: CSA/FM Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III T4 FCC, Industry Canada	<b>B</b>
Intrinsically Safe: IECEx/ATEX II 1 G Ex ia IIC T4 Ga, IECEx/ATEX II 1D Ex ia ta IIIC T100 °C Da, INMETRO Ex ia IIC T4 Ga, Ex ia ta IIIC T100 °C Da, CE, R&TTE, RCM	<b>C</b>
Non-incendive: CSA/FM Class I, Div. 2, Groups A, B, C, D T5, FCC, Industry Canada	<b>D</b>
Non Sparking: ATEX II 3G Ex nA IIC T4 Gc, CE, R&TTE, RCM	<b>E</b>
Increased Safety: IECEx/ATEX II 1/2 GD, 1D, 2D Ex e mb ia IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da, INMETRO Ex e ia mb IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da, CE, R&TTE, RCM <sup>5)</sup>	<b>F</b>
Flameproof: IECEx/ATEX II 1/2 GD 1D, 2D Ex d mb ia IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da, INMETRO Ex d ia mb IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da, CE, R&TTE, RCM <sup>5)</sup>	<b>G</b>
Explosion proof: CSA/FM Class I, II, and III, Div. 1, Groups A, B, C, D, E, F, G, FCC, Industry Canada <sup>5)</sup>	<b>H</b>
Non Sparking: NEPSI Ex nA IIC T4 Gc	<b>K</b>
Intrinsically Safe: NEPSI Ex ia IIC T4 Ga, Ex iaD tD A20 IP67 T100 °C	<b>L</b>
Flameproof: NEPSI Ex d ia mb IIC T4 Ga/Gb, Ex iaD tD A20 IP67 T100 °C <sup>5)</sup>	<b>M</b>
Increased Safety: NEPSI Ex e ia mb IIC T4 Ga/Gb, Ex iaD tD A20 IP67 T100 °C <sup>5)</sup>	<b>N</b>
<b>Pressure rating</b>	
Rating per Pressure/Temperature curves in manual	<b>0</b>
0.5 bar g (7.25 psi g) maximum <sup>7)</sup>	<b>1</b>

1) Available with process connection options AA ... HD and Antenna Versions A ... H only

2) Available with process connection options JA ... MH and Antenna Versions J ... P only

3) Available for Antenna versions A and E only, max. range 10 m (32.8 ft), dk > 3 and A and E only available for Process Connection options AA, AB, and AC

4) Siemens type flange (flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5, or EN 1092-1, or JIS B 2220 standard), see operating instructions for details

5) Applicable with communication option 2 only

6) Available with Approval options A, B, C, D, K, and L

7) Available with Process Connection and Antenna Material 0, 1, 2, and 3 only

◆ We can offer shorter delivery times for configurations designated with the Quick Ship Symbol ◆. For details see page 9/5 in the appendix.

## Level Measurement

### Continuous level measurement - Radar transmitters

#### SITRANS LR250 Horn Antenna

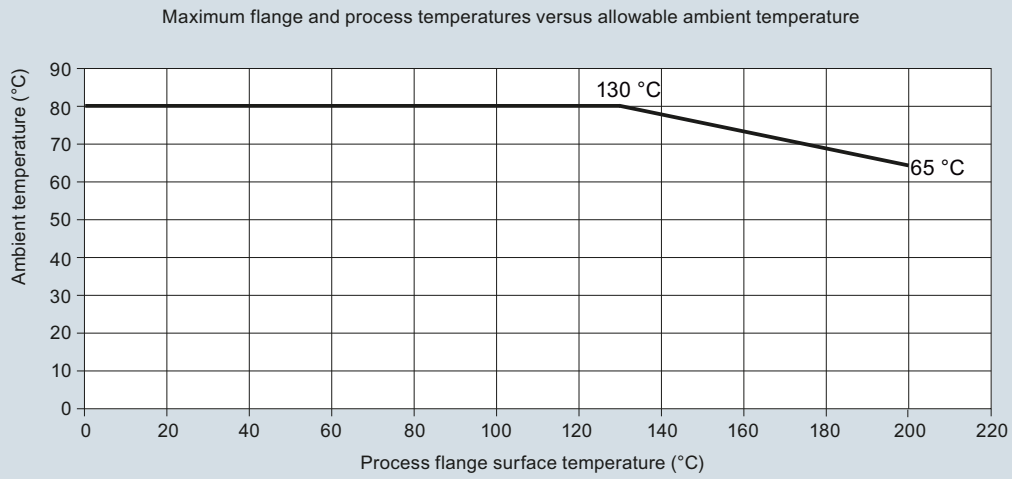
Selection and Ordering data	Order code	Selection and Ordering data	Article No.
<p><b>Further designs</b></p> <p>Please add <b>"-Z"</b> to Article No. and specify Order code(s).</p>		<p><b>Compact Operating Instructions for FOUNDATION Fieldbus device</b></p>	
Plug M12 with mating Connector <sup>1)2)3)</sup>	◆ <b>A50</b>	English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish	<b>A5E33472700</b>
Plug 7/8" with mating Connector <sup>2)3)4)</sup>	◆ <b>A55</b>	English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian	<b>A5E33472738</b>
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters); specify in plain text	◆ <b>Y15</b>	English, Portuguese (Brazil), Chinese	<b>A5E34046626</b>
Manufacturer's Test Certificate: M to DIN 55350, Part 18 and to ISO 9000	◆ <b>C11</b>	Note: The Operating Instructions should be ordered as a separate line item on the order.	
Inspection certificate 3.1 of EN 10204	◆ <b>C12</b>	All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>	
Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511 <sup>3)5)</sup>	◆ <b>C20</b>	This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Compact Operating Instructions and Operating Instructions library.	
Namur NE43 compliant, device preset to failsafe < 3.6 mA <sup>5)</sup>	◆ <b>N07</b>		
<p><b>Compact Operating Instructions for HART/ma device</b></p>		<p><b>Accessories</b></p>	
English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish	<b>A5E33469191</b>	Handheld programmer, Intrinsically safe, EEx ia	<b>7ML1930-1BK</b>
English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian	<b>A5E33469171</b>	HART modem/USB (for use with a PC and SIMATIC PDM)	<b>7MF4997-1DB</b>
English, Portuguese (Brazil), Chinese	<b>A5E34046583</b>	One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART (two are required)	<b>7ML1930-1AP</b>
Note: The Operating Instructions should be ordered as a separate line item on the order.		One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA and FOUNDATION Fieldbus (two are required) <sup>6)</sup>	<b>7ML1930-1AQ</b>
All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>		FDA approved FKM O-ring for 2" G (BSP) process connections -28 ... +80 °C (-28 ... +176 °F)	<b>7ML1830-3AN</b>
This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Compact Operating Instructions and Operating Instructions library.		SITRANS RD100, loop powered display - see Chapter 7	<b>7ML5741-...</b>
		SITRANS RD200, universal input display with Modbus conversion - see Chapter 7	<b>7ML5740-...</b>
		SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7	<b>7ML5744-...</b>
		SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7	<b>7ML5750-...</b>
		For applicable back up point level switch - see point level measurement section	
		1) Available with enclosure option 1 only	
		2) To be used with communication options 1 and 3 only. Connector has IP67 rating.	
		3) Available with approval options A and B. Available with approval option C for use on intrinsically safe applications only. Not rated for dust Ex.	
		4) Available with enclosure option 0 only	
		5) Applicable to communication option 2 only	
		6) For use with communication options 1 and 3 only	
		◆ We can offer shorter delivery times for configurations designated with the Quick Ship Symbol ◆. For details see page 9/5 in the appendix.	
<p><b>Compact Operating Instructions for PROFIBUS PA device</b></p>			
English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish	<b>A5E33469239</b>		
English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian	<b>A5E33472685</b>		
English, Portuguese (Brazil), Chinese	<b>A5E34046624</b>		
Note: The Operating Instructions should be ordered as a separate line item on the order.			
All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>			
This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Compact Operating Instructions and Operating Instructions library.			

## Level Measurement

Continuous level measurement - Radar transmitters

### SITRANS LR250 Horn Antenna

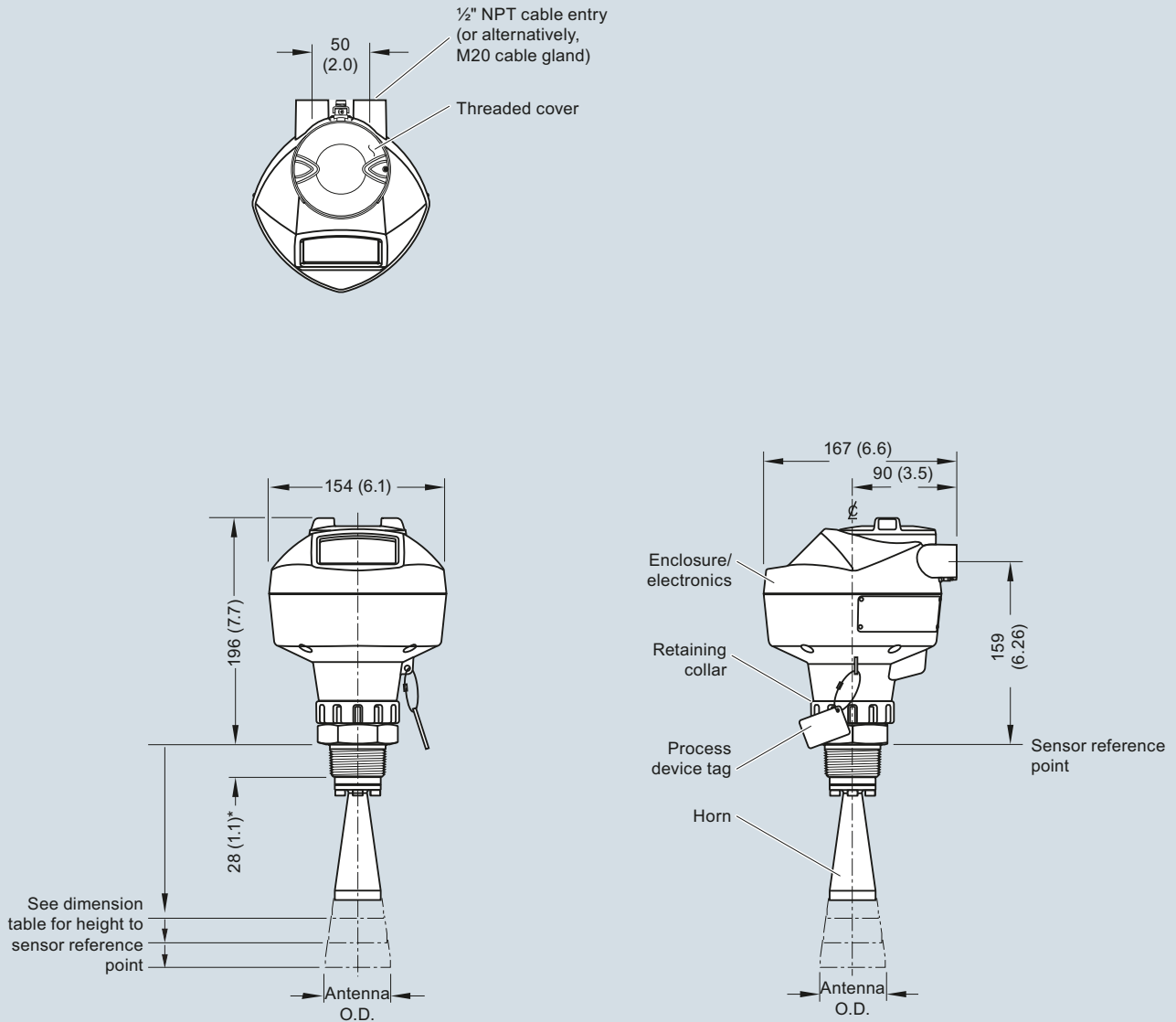
#### Characteristic curves



SITRANS LR250 ambient/process flange surface temperature curve

**Dimensional drawings**

**Threaded Horn Antenna**



\*28 mm (1.1) for 1.5 inch and 2 inch, 42 mm (1.65) for 3 inch

Antenna Type	Antenna O.D.	Height to sensor reference point			Beam angle	Measurement range
		1-1/2" threaded connection	2" threaded connection	3" threaded connection		
1.5" horn	39.8 (1.57)	135 (5.3)	N/A	N/A	19 degrees	10 m (32.8 ft)
2" horn	47.8 (1.88)	N/A	166 (6.55)	180 (7.09)	15 degrees	20 m (65.6 ft)
3" horn	74.8 (2.94)	N/A	199 (7.85)	213 (8.39)	10 degrees	20 m (65.6 ft)
4" horn	94.8 (3.73)	N/A	254 (10)	268 (10.55)	8 degrees	20 m (65.6 ft)

SITRANS LR250 Threaded Horn Antenna, dimensions in mm (inch)

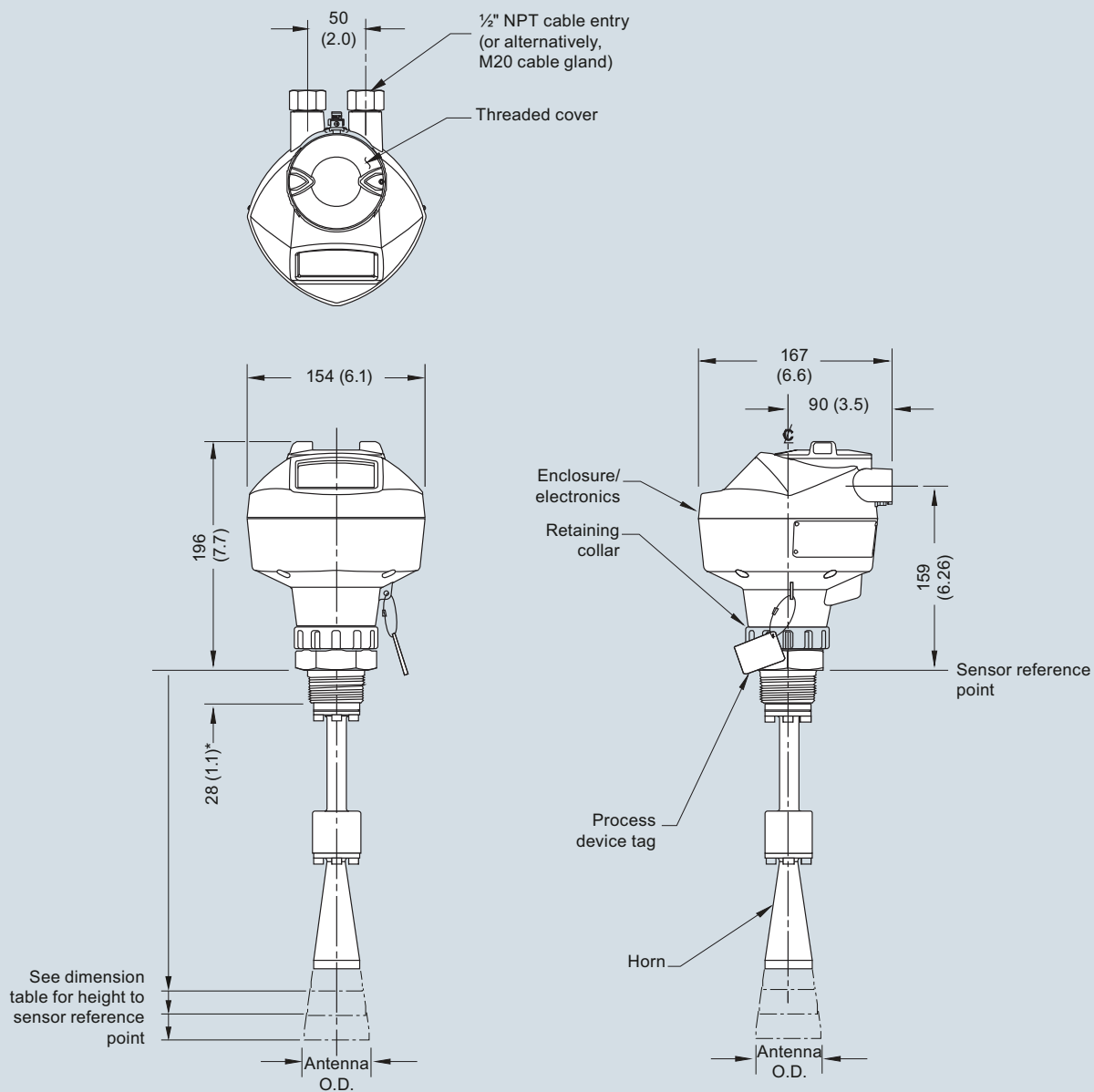


## Level Measurement

Continuous level measurement - Radar transmitters

### SITRANS LR250 Horn Antenna

#### Threaded Horn Antenna with Extension

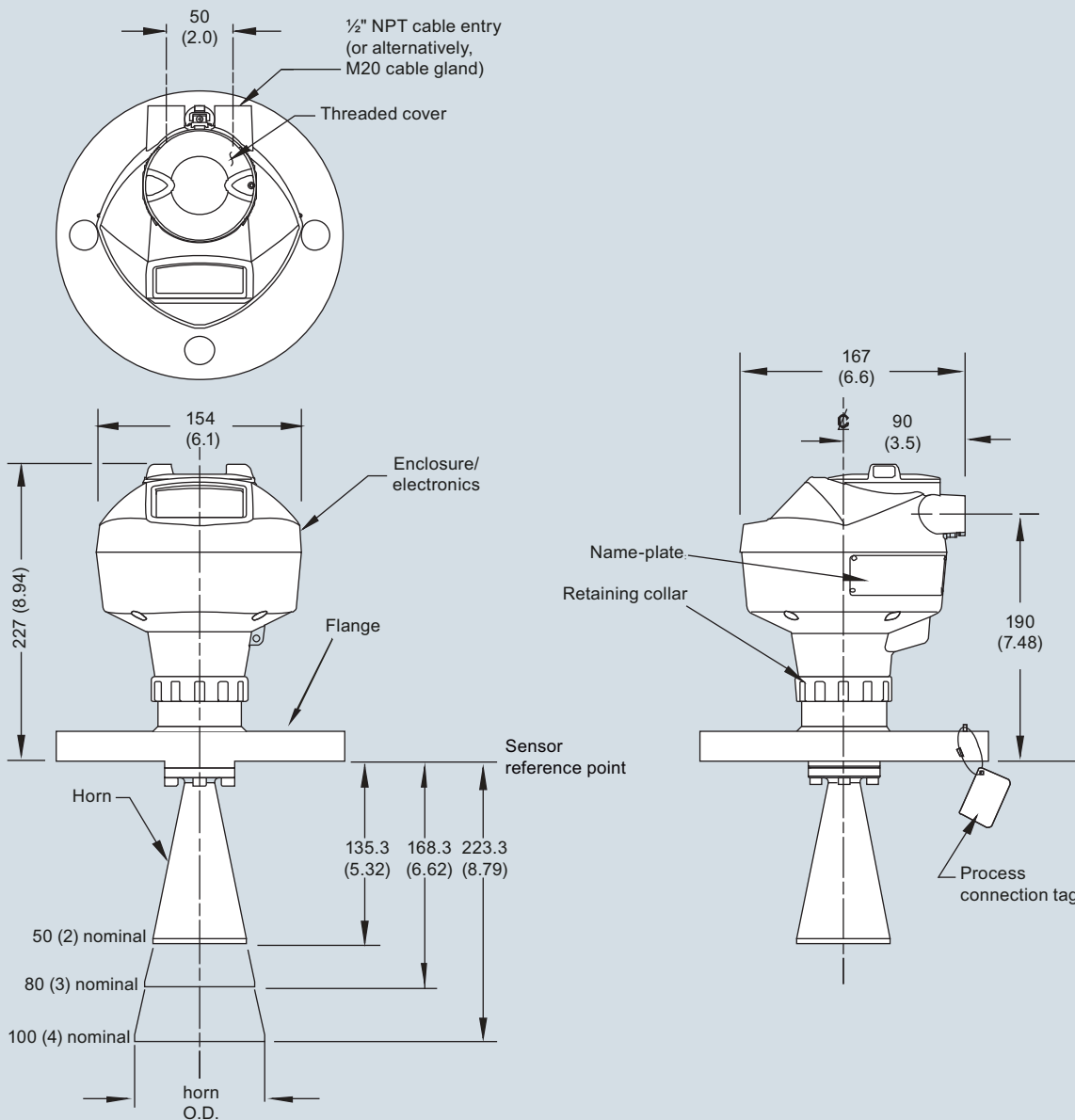


\*28 mm (1.1) for 1.5 inch and 2 inch, 42 mm (1.65) for 3 inch

Antenna Type	Antenna O.D.	Height to sensor reference point			Beam angle	Measurement range
		1-1/2" threaded connection	2" threaded connection	3" threaded connection		
1.5" horn	39.8 (1.57)	235 (9.3)	N/A	N/A	19 degrees	10 m (32.8 ft)
2" horn	47.8 (1.88)	N/A	266 (10.47)	280 (11.02)	15 degrees	20 m (65.6 ft)
3" horn	74.8 (2.94)	N/A	299 (11.77)	313 (12.32)	10 degrees	20 m (65.6 ft)
4" horn	94.8 (3.73)	N/A	354 (13.94)	368 (14.49)	8 degrees	20 m (65.6 ft)

SITRANS LR250 Threaded Horn Antenna with extension, dimensions in mm (inch)

**Flanged Horn**



Nominal Horn Size	Horn O.D.	Height to sensor reference point		Beam angle	Measurement range
		Stainless steel flange raised or flat-faced	Optional alloy flange		
50 (2)	47.8 (1.88)	135.3 (5.32)	138.3 (5.44)	15 degrees	20 m (65.6 ft)
80 (3)	74.8 (2.94)	168.3 (6.62)	171.3 (6.74)	10 degrees	20 m (65.6 ft)
100 (4)	94.8 (3.73)	223.3 (8.79)	226.3 (8.90)	8 degrees	20 m (65.6 ft)

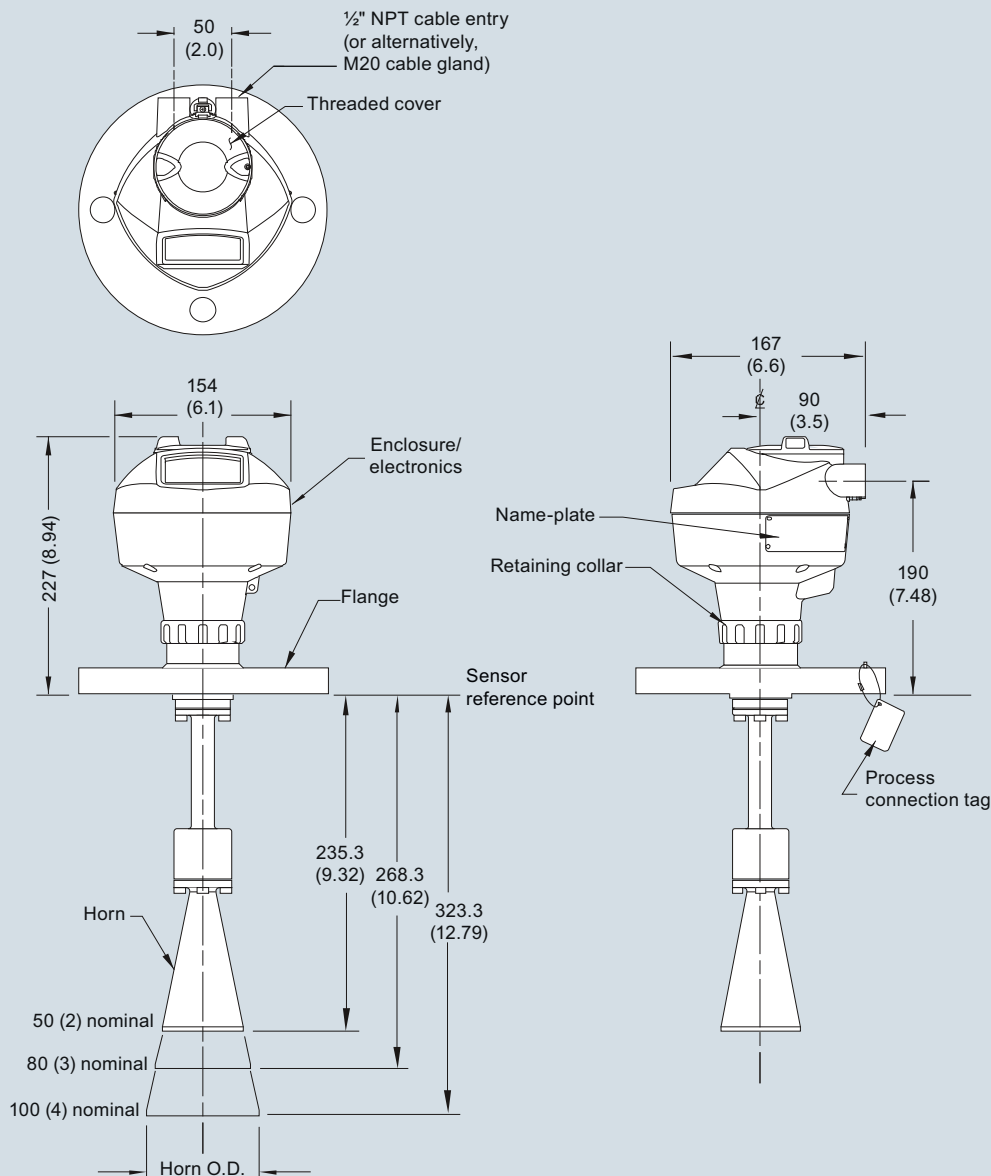
SITRANS LR250 Flanged Horn Antenna, dimensions in mm (inch)

## Level Measurement

Continuous level measurement - Radar transmitters

### SITRANS LR250 Horn Antenna

#### Flanged Horn with Extension



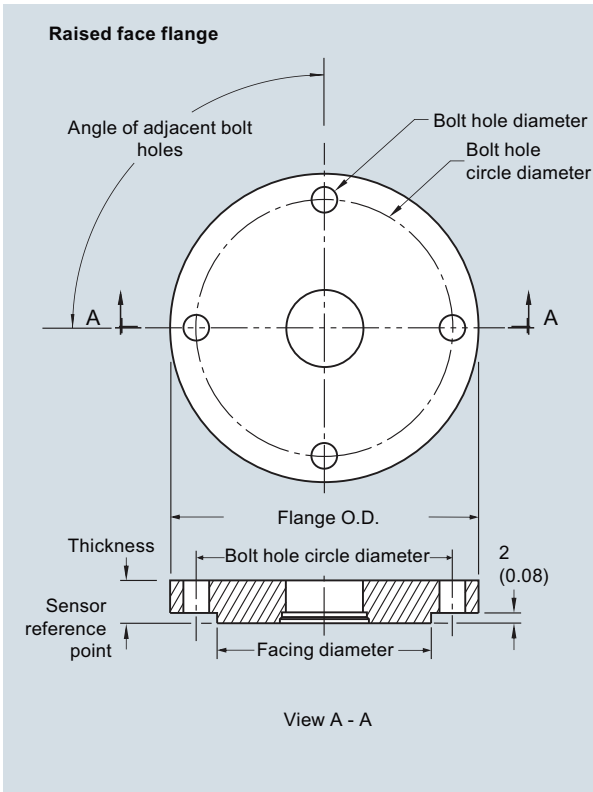
Nominal Horn Size	Horn O.D.	Height to sensor reference point		Beam angle	Measurement range
		Stainless steel flange raised or flat-faced	Optional alloy flange		
50 (2)	47.8 (1.88)	235.3 (9.26)	238.3 (9.38)	15 degrees	20 m (65.6 ft)
80 (3)	74.8 (2.94)	268.3 (10.56)	271.3 (10.68)	10 degrees	20 m (65.6 ft)
100 (4)	94.8 (3.73)	323.3 (12.73)	326.3 (12.85)	8 degrees	20 m (65.6 ft)

SITRANS LR250 Flanged Horn Antenna with extension, dimensions in mm (inch)

## Level Measurement

### Continuous level measurement - Radar transmitters

#### SITRANS LR250 Horn Antenna



Pipe size	Flange class	Flange O.D. (mm)	Bolt hole circle Ø (mm)	Bolt hole Ø (mm)	No. of bolts	Angle of adjacent bolt holes	Facing Ø (mm)	Thickness (mm)
2"	150 lb	152 (5.98)	120.7 (4.75)	19 (0.75)	4	90	92.1 (3.63)	20.6 (0.81)
3"	150 lb	190 (7.48)	152.4 (6.00)	19 (0.75)	4	90	127 (5.00)	25.9 (1.02)
4"	150 lb	230 (9.06)	190.5 (7.50)	19 (0.75)	8	45	157.2 (6.19)	25.9 (1.02)
2"	300 lb	165 (6.50)	127 (5.0)	19 (0.75)	8	45	92.1 (3.66)	28.4 (1.12)
3"	300 lb	209.6 (8.25)	168 (6.62)	22 (0.88)	8	45	127.0 (5.00)	35.0 (1.38)
4"	300 lb	254 (10.00)	200 (7.88)	22 (0.88)	8	45	157.2 (6.19)	38.1 (1.50)
DN 50	PN 10/ PN 16	165 (6.5)	125 (4.92)	18 (0.71)	4	90	102 (4.02)	18 (0.71)
DN 80	PN 10/ PN 16	200 (7.87)	160 (6.30)	18 (0.71)	8	45	138 (5.43)	20 (0.79)
DN 100	PN 10/ PN 16	220 (8.66)	180 (7.09)	18 (0.71)	8	45	158 (6.22)	20 (0.79)
DN 150	PN 10/ PN 16	285 (11.22)	240 (9.45)	22 (0.87)	8	45	212 (8.35)	22 (0.87)
DN 50	PN 25/ PN 40	165 (6.50)	160 (6.30)	18 (0.71)	4	90	138 (5.43)	20 (0.79)
DN 80	PN 25/ PN 40	200 (7.87)	160 (6.30)	18 (0.71)	8	45	138 (5.43)	24 (0.94)
DN 100	PN 25/ PN 40	235 (9.25)	190 (7.48)	22 (0.87)	8	45	162 (6.38)	24 (0.94)
DN 150	PN 25/ PN 40	300 (11.81)	250 (9.84)	26 (1.02)	8	45	218 (8.58)	28 (1.10)
50A	10K	155 (6.10)	120 (4.72)	19 (0.75)	4	90	96 (3.78)	16 (0.63)
80A	10K	185 (7.28)	150 (5.91)	19 (0.75)	8	45	126 (4.96)	18 (0.71)
100A	10K	210 (8.27)	175 (6.89)	19 (0.75)	8	45	151 (5.94)	18 (0.71)
150A	10K	280 (11.02)	240 (9.45)	23 (0.91)	8	45	212 (8.35)	22 (0.87)

SITRANS LR250 Raised face flange, dimensions in mm (inch)

## Level Measurement

Continuous level measurement - Radar transmitters

### SITRANS LR250 Horn Antenna

#### Schematics

4

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

Shield for HART, PROFIBUS PA, and FOUNDATION Fieldbus Intrinsically Safe versions only.

**Hand Programmer**

SIEMENS

1	2	3	4
5	6	7	8
9	0	.	/+
C	↑	↓	↔


Part number:  
7ML1930-1BK

**Notes:**

1. DC terminal shall be supplied from 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 ... 22 AWG) for HART version.
4. Separate cables and conduit may be required to conform to standard instrumentation wiring practices or electrical codes.

SITRANS LR250 connections

### Selection and ordering data

SITRANS LR250 Specials		SITRANS LR250 Specials	
	Article No.		Article No.
<b>SITRANS LR250 horn version enclosures (PROFIBUS PA models)</b>		<b>SITRANS LR250 horn version enclosures (&lt; 3.6 mA start-up HART)</b>	
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option A, with PROFIBUS PA communication, no process connection	<b>A5E01156836</b>	SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option A, with HART communication start-up at < 3.6 mA, no process connection	<b>A5E02956317</b>
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option A, with PROFIBUS PA communication, no process connection	<b>A5E01156838</b>	SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option C, with HART communication start-up at < 3.6 mA, no process connection	<b>A5E02956319</b>
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option B, with PROFIBUS PA communication, no process connection	<b>A5E01156839</b>	SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option E, with HART communication start-up at < 3.6 mA, no process connection	<b>A5E02956320</b>
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option B, with PROFIBUS PA communication, no process connection	<b>A5E01156841</b>	SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option F, with HART communication start-up at < 3.6 mA, no process connection	<b>A5E02956322</b>
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option C, with PROFIBUS PA communication, no process connection	<b>A5E01156843</b>	SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option G, with HART communication start-up at < 3.6 mA, no process connection	<b>A5E02956323</b>
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option C, with PROFIBUS PA communication, no process connection	<b>A5E01156844</b>	SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option A, with HART communication start-up at < 3.6 mA, no process connection	<b>A5E03441096</b>
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option D, with PROFIBUS PA communication, no process connection	<b>A5E01156846</b>	SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option B, with HART communication start-up at < 3.6 mA, no process connection	<b>A5E03441097</b>
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option D, with PROFIBUS PA communication, no process connection	<b>A5E01156848</b>	SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option D, with HART communication start-up at < 3.6 mA, no process connection	<b>A5E03441098</b>
<b>SITRANS LR250 horn version enclosures (FOUNDATION Fieldbus models)</b>		SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option H, with HART communication start-up at < 3.6 mA, no process connection	<b>A5E03441099</b>
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option B, with FOUNDATION Fieldbus communication, no process connection	<b>A5E03769538</b>		
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option D, with FOUNDATION Fieldbus communication, no process connection	<b>A5E03769539</b>		
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option E, with FOUNDATION Fieldbus communication, no process connection	<b>A5E03769543</b>		
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option C, with FOUNDATION Fieldbus communication, no process connection	<b>A5E02654608</b>		
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option A, with FOUNDATION Fieldbus communication, no process connection	<b>A5E02653792</b>		
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option A, with FOUNDATION Fieldbus communication, no process connection	<b>A5E02653793</b>		
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option C, with FOUNDATION Fieldbus communication, no process connection	<b>A5E02654606</b>		

## Level Measurement

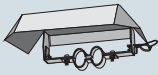
### Continuous level measurement - Radar transmitters

#### SITRANS LR250 Specials

##### SITRANS LR250 Specials

Article No.

**Sun shield for SITRANS LR250 enclosure,  
stainless steel**



**A5E35497857**

**SITRANS LR250 horn antenna and  
extension kits**



38 mm (1.5 inch) horn antenna kit,  
1.5" process connections only

**A5E01151539**

100 mm (4 inch) horn antenna extension kit,  
1.5" process connections only

**A5E01151553**

50 mm (2 inch) stainless steel 316L horn antenna kit

**A5E01151569**

75 mm (3 inch) stainless steel 316L horn antenna kit

**A5E01151571**

100 mm (4 inch) stainless steel 316L horn antenna kit

**A5E01151573**

100 mm (4 inch) horn antenna extension kit,  
50 mm (2 inch), 75 mm (3 inch), and 100 mm  
(4 inch) process connection

**A5E01151577**

50 mm (2 inch) horn antenna kit, Hastelloy C-22

**A5E01151584**

75 mm (3 inch) horn antenna kit, Hastelloy C-22

**A5E01151585**

100 mm (4 inch) horn antenna kit, Hastelloy C-22

**A5E01151587**

5 Dupont 1Gr Polyback, PTFE grease kit

**A5E01151626**

SITRANS LR250 lid with O-ring

**A5E02465410**