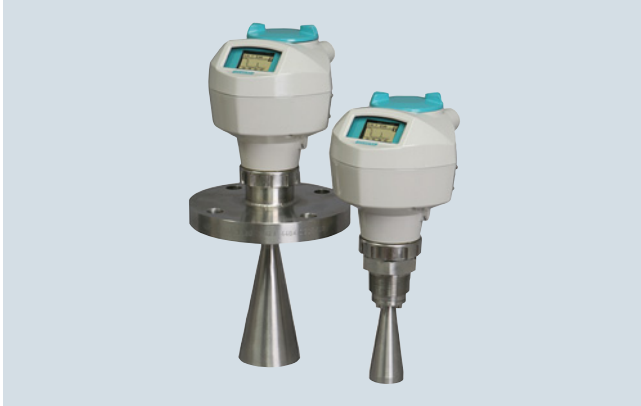


Level Measurement

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.

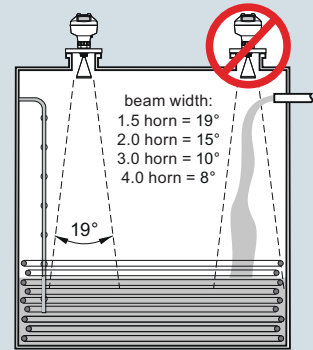
- Key Applications: liquid bulk storage tanks, process vessels, vaporous liquids, high temperatures, low dielectric media and applications with functional safety requirements

Configuration

Installation

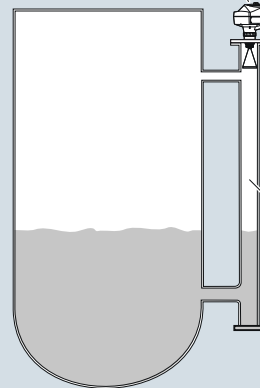
Note:

- 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.



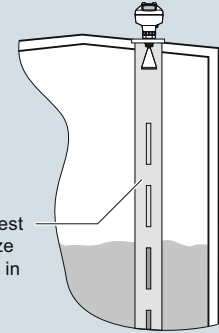
Mounting unit on bypass

Orient front or back of device toward vent.

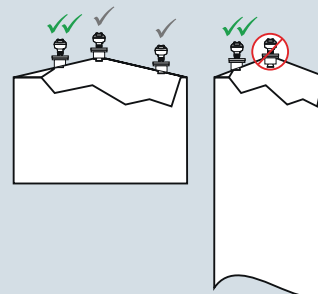


Mounting unit on stilling well

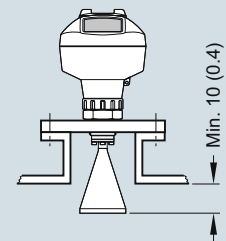
Orient front or back of device toward stillpipe slots.



Mounting unit on vessel



Mounting on a nozzle



SITRANS LR250 installation, dimensions in mm (inch)

Technical specifications

Mode of operation		Process connections	
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	Power supply	
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
Output		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	Certificates and approvals	
• Accuracy	± 0.02 mA	General	CSA _{US/C} , 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
Performance (according to reference conditions IEC60770-1)		• 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 20 T90 IP67 DIP A20 T _A 90 °C
Influence of ambient temperature	< 0.003 %/K	• Intrinsically Safe (China)	NEPSI Ex ia IIC T4 Ga, Ex iaD 20 T90 IP67 DIP A20 T _A 90 °C
Rated operating conditions		• 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
Medium conditions		• Increased Safety (Russia/Kazakhstan)	EAC Ex e
Dielectric constant ϵ_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
Design			
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"> • Approvals for handheld programmer 	IS model: ATEX II 1 GD Ex ia IIC T4 Ga Ex ia D 20 T135 °C T _a = -20 ... +50 °C CSA/FM Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G, T6 T _a = +50 °C IECEx SIR 09.0073
Handheld communicator	HART communicator 375/475
PC	<ul style="list-style-type: none"> • SIMATIC PDM • Emerson AMS • SITRANS DTM (for connection into FDT such as PACTware or Fieldcare)
Display (local)	Graphic local user interface including quick start wizard and echo profile displays

Selection and Ordering data	Article No.
SITRANS LR250 horn antenna	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) (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.	
Process Connection and Antenna Material	
316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FKM seal ¹⁾	0
316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FFKM seal ¹⁾	1
Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FKM seal ²⁾	2
Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FFKM seal ²⁾	3
Process Connection Type	
Threaded connection 316L	
1½" NPT (ASME B1.20.1) (tapered thread) ³⁾	AA
R 1½" [(BSPT), EN 10226-1] (tapered thread) ³⁾	AB
G 1½" [(BSPP), EN ISO 228-1] (parallel thread) ³⁾	AC
2" NPT (ASME B1.20.1) (tapered thread)	AD
R 2" [(BSPT), EN 10226-1] (tapered thread)	AE
G 2" [(BSPP), EN ISO 228-1] (parallel thread)	AF
3" NPT (ASME B1.20.1) (tapered thread)	AG
R 3" [(BSPT), EN 10226-1] (tapered thread)	AH
G 3" [(BSPP), EN ISO 228-1] (parallel thread)	AJ
Flanged connection 316L	
2" Class 150 ASME B16.5 flat faced ⁴⁾	BA
3" Class 150 ASME B16.5 flat faced ⁴⁾	BB
4" Class 150 ASME B16.5 flat faced ⁴⁾	BC
2" Class 150 ASME B16.5, raised face	BD
3" Class 150 ASME B16.5, raised face	BE
4" Class 150 ASME B16.5, raised face	BF
2" Class 300 ASME B16.5 flat faced ⁴⁾	CA
3" Class 300 ASME B16.5 flat faced ⁴⁾	CB
4" Class 300 ASME B16.5 flat faced ⁴⁾	CC
2" Class 300 ASME B16.5, raised face	CD
3" Class 300 ASME B16.5, raised face	CE
4" Class 300 ASME B16.5, raised face	CF
DN 50 PN 16 EN 1092-1 Type A flat faced ⁴⁾	DA
DN 80 PN 16 EN 1092-1 Type A flat faced ⁴⁾	DB
DN 100 PN 16 EN 1092-1 Type A flat faced ⁴⁾	DC
DN 50 PN 40 EN 1092-1 Type A flat faced ⁴⁾	EA
DN 80 PN 40 EN 1092-1 Type A flat faced ⁴⁾	EB
DN 100 PN 40 EN 1092-1 Type A flat faced ⁴⁾	EC
50A 10K JIS B 2220 flat faced ⁴⁾	FA
80A 10K JIS B 2220 flat faced ⁴⁾	FB
100A 10K JIS B 2220 flat faced ⁴⁾	FC
DN 50 PN 16 DIN EN 1092-1 Type B1 raised face	GA
DN 80 PN 16 DIN EN 1092-1 Type B1 raised face	GB
DN 100 PN 16 DIN EN 1092-1 Type B1 raised face	GC
DN 150 PN 16 DIN EN 1092-1 Type B1 raised face	GD
DN 50 PN 40 DIN EN 1092-1 Type B1 raised face	HA
DN 80 PN 40 DIN EN 1092-1 Type B1 raised face	HB
DN 100 PN 40 DIN EN 1092-1 Type B1 raised face	HC
DN 150 PN 40 DIN EN 1092-1 Type B1 raised face	HD

Selection and Ordering data	Article No.
SITRANS LR250 horn antenna	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) (antenna dependent). Ideal for small vessels and low dielectric media.	0 -
Flanged connection Hastelloy C	
2" Class 150 ASME B16.5 raised faced ⁴⁾	JA
3" Class 150 ASME B16.5 raised faced ⁴⁾	JB
4" Class 150 ASME B16.5 raised faced ⁴⁾	JC
2" Class 300 ASME B16.5 raised faced ⁴⁾	JD
3" Class 300 ASME B16.5 raised faced ⁴⁾	JE
4" Class 300 ASME B16.5 raised faced ⁴⁾	JF
DN 50 PN 16 EN 1092-1 Type B1 raised faced ⁴⁾	KA
DN 80 PN 16 EN 1092-1 Type B1 raised faced ⁴⁾	KB
DN 100 PN 16 EN 1092-1 Type B1 raised faced ⁴⁾	KC
DN 50 PN 40 EN 1092-1 Type B1 raised faced ⁴⁾	KD
DN 80 PN 40 EN 1092-1 Type B1 raised faced ⁴⁾	KE
DN 100 PN 40 EN 1092-1 Type B1 raised faced ⁴⁾	KF
50A 10K JIS B 2220 raised faced ⁴⁾	LA
80A 10K JIS B 2220 raised faced ⁴⁾	LB
100A 10K JIS B 2220 raised faced ⁴⁾	LC
DN 50 PN 16 EN 1092-1 Type B1 raised face	MA
DN 80 PN 16 EN 1092-1 Type B1 raised face	MB
DN 100 PN 16 EN 1092-1 Type B1 raised face	MC
DN 150 PN 16 EN 1092-1 Type B1 raised face	MD
DN 50 PN 40 EN 1092-1 Type B1 raised face	ME
DN 80 PN 40 EN 1092-1 Type B1 raised face	MF
DN 100 PN 40 EN 1092-1 Type B1 raised face	MG
DN 150 PN 40 EN 1092-1 Type B1 raised face	MH
Communication/Output	
PROFIBUS PA ⁶⁾	1
4 ... 20 mA, HART, start-up at < 3.6 mA	2
FOUNDATION Fieldbus ⁶⁾	3
Enclosure/Cable inlet	
<u>Aluminum, Epoxy painted</u>	
2 x ½" NPT	0
2 x M20 x 1.5	1
Antenna	
1½" horn	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	E
2" horn with 100 mm extension	F
3" horn with 100 mm extension	G
4" horn with 100 mm extension	H
<u>Hastelloy C22 (or equivalent)</u>	
2" horn (fits 2" ASME or DN 50 nozzles)	J
3" horn (fits 3" ASME or DN 80 nozzles)	K
4" horn (fits 4" ASME or DN 100 nozzles)	L
2" horn (fits 2" ASME or DN 50 nozzles) with 100 mm extension	M
3" horn (fits 3" ASME or DN 80 nozzles) with 100 mm extension	N
4" horn (fits 4" ASME or DN 100 nozzles) with 100 mm extension	P

Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR250 Horn Antenna

Selection and Ordering data	Article No.
SITRANS LR250 horn antenna	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) (antenna dependent). Ideal for small vessels and low dielectric media.	0 -
Approvals	
General Purpose, CE, CSA, FM, FCC, R&TTE, RCM	A
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
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	C
Non-incendive: CSA/FM Class I, Div. 2, Groups A, B, C, D T5, FCC, Industry Canada	D
Non Sparking: ATEX II 3G Ex nA IIC T4 Gc, CE, R&TTE, RCM	E
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 ⁵⁾	F
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 ⁵⁾	G
Explosion proof: CSA/FM Class I, II and III, Div. 1, Groups A, B, C, D, E, F, G, FCC, Industry Canada ⁵⁾	H
Non Sparking: NEPSI Ex nA IIC T4 Gc	K
Intrinsically Safe: NEPSI Ex ia IIC T4 Ga, Ex iaD 20 T90 IP67 DIP A20 T _A 90 °C	L
Flameproof: NEPSI Ex d ia mb IIC T4 Ga/Gb, Ex iaD 20 T90 IP67 DIP A20 T _A 90 °C ⁵⁾	M
Increased Safety: NEPSI Ex e ia mb IIC T4 Ga/Gb, Ex iaD 20 T90 IP67 DIP A20 T _A 90 °C ⁵⁾	N
Pressure rating	
Rating per Pressure/Temperature curves in manual	0
0.5 bar g (7.25 psi g) maximum ⁷⁾	1

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

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

3) Available for antenna versions A and E only, max. range 10 m (32.8 ft), dk > 3. Can measure dk > 1.6 [20 m (65.6 ft)] when mounted in a stillpipe/bypass.

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

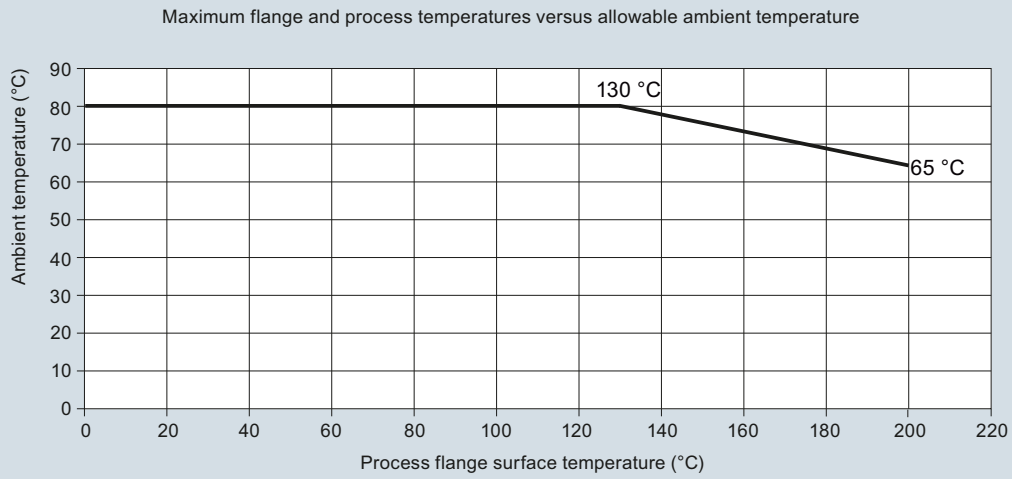
Selection and Ordering data	Order code	Selection and Ordering data	Article No.
<p>Further designs</p> <p>Please add "-Z" to Article No. and specify Order code(s).</p>		<p>Compact Operating Instructions for FOUNDATION Fieldbus device</p>	
Plug M12 with mating Connector ¹⁾²⁾³⁾	◆ A50	English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish	A5E33472700
Plug 7/8" with mating Connector ²⁾³⁾⁴⁾	◆ A55	English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian	A5E33472738
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters); specify in plain text	◆ Y15	English, Portuguese (Brazil), Chinese	A5E34046626
Manufacturer's Test Certificate: M to DIN 55350, Part 18 and to ISO 9000	◆ C11	Note: The Operating Instructions should be ordered as a separate line item on the order.	
Inspection certificate 3.1 of EN 10204	◆ C12	All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511 ³⁾⁵⁾	◆ C20	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 ⁵⁾	◆ N07		
<p>Compact Operating Instructions for HART/ma device</p>		<p>Accessories</p>	
English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish	A5E33469191	Handheld programmer, Intrinsically safe, EEx ia	7ML1930-1BK
English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian	A5E33469171	HART modem/USB (for use with a PC and SIMATIC PDM)	7MF4997-1DB
English, Portuguese (Brazil), Chinese	A5E34046583	One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART (two are required)	7ML1930-1AP
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation		One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA and FOUNDATION Fieldbus (two are required) ⁶⁾	7ML1930-1AQ
This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Compact Operating Instructions and Operating Instructions library.		FDA approved FKM O-ring for 2" G (BSP) process connections -28 ... +80 °C (-28 ... +176 °F)	7ML1830-3AN
<p>Compact Operating Instructions for PROFIBUS PA device</p>		SITRANS RD100, loop powered display - see Chapter 7	7ML5741-...
English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish	A5E33469239	SITRANS RD200, universal input display with Modbus conversion - see Chapter 7	7ML5740-...
English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian	A5E33472685	SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7	7ML5744-...
English, Portuguese (Brazil), Chinese	A5E34046624	SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7	7ML5750-...
Note: The Operating Instructions should be ordered as a separate line item on the order.		For applicable back up point level switch - see point level measurement section	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation			
This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Compact Operating Instructions and Operating Instructions library.			
		<ol style="list-style-type: none"> 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.	

Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR250 Horn Antenna

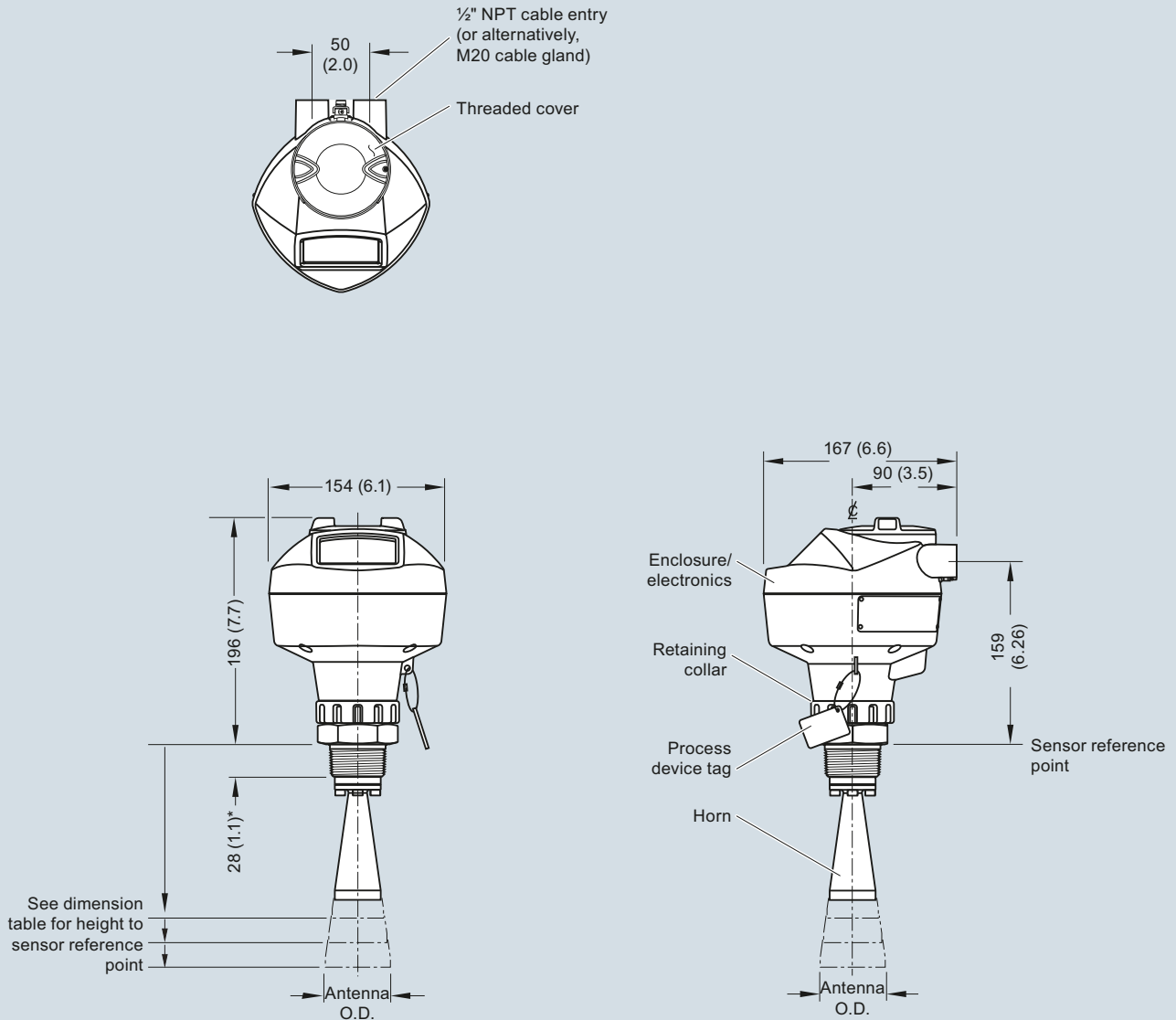
Characteristic curves



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)

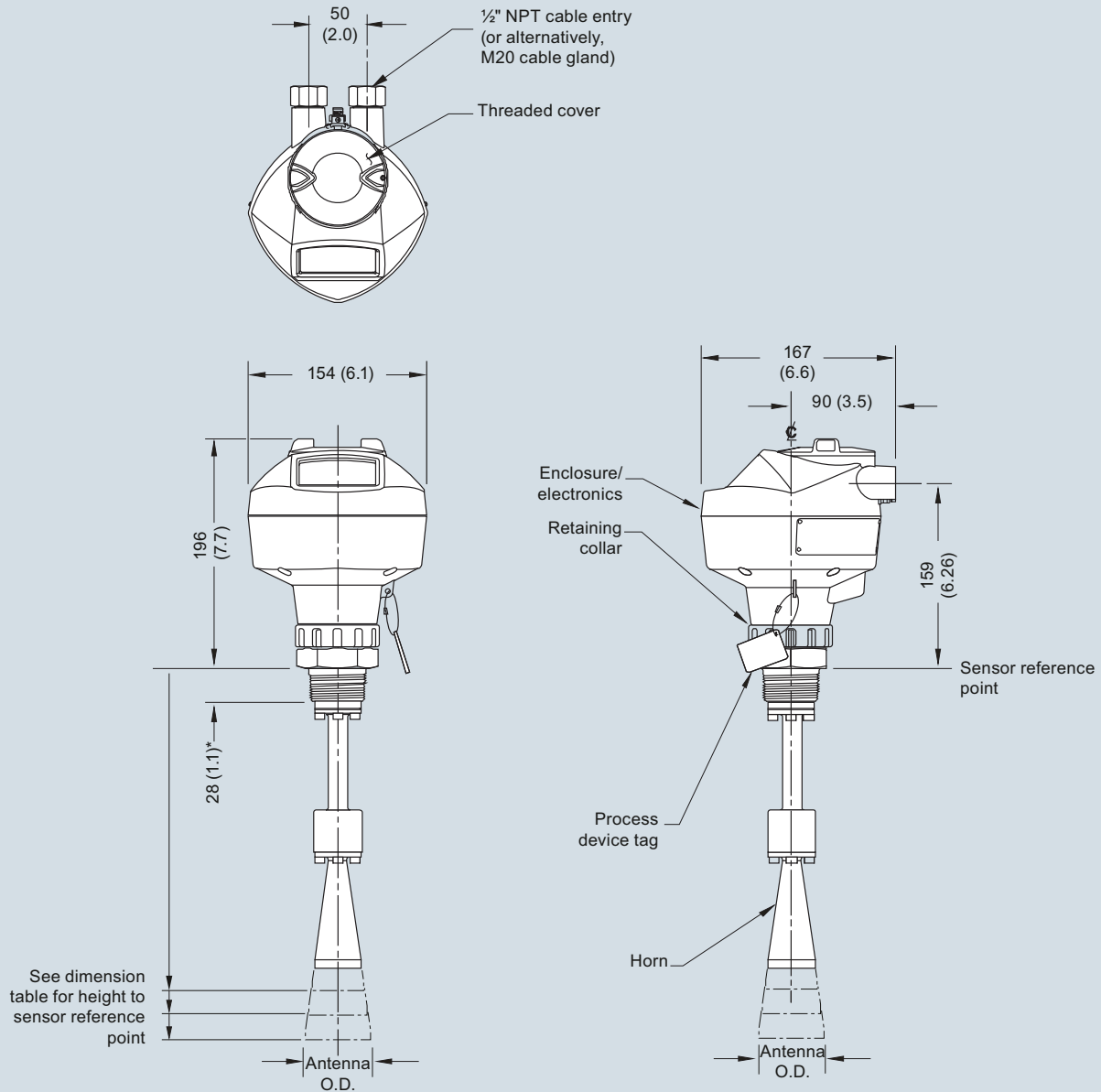
SITRANS LR250 Threaded Horn Antenna, dimensions in mm (inch)

Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR250 Horn Antenna

Threaded Horn Antenna with Extension

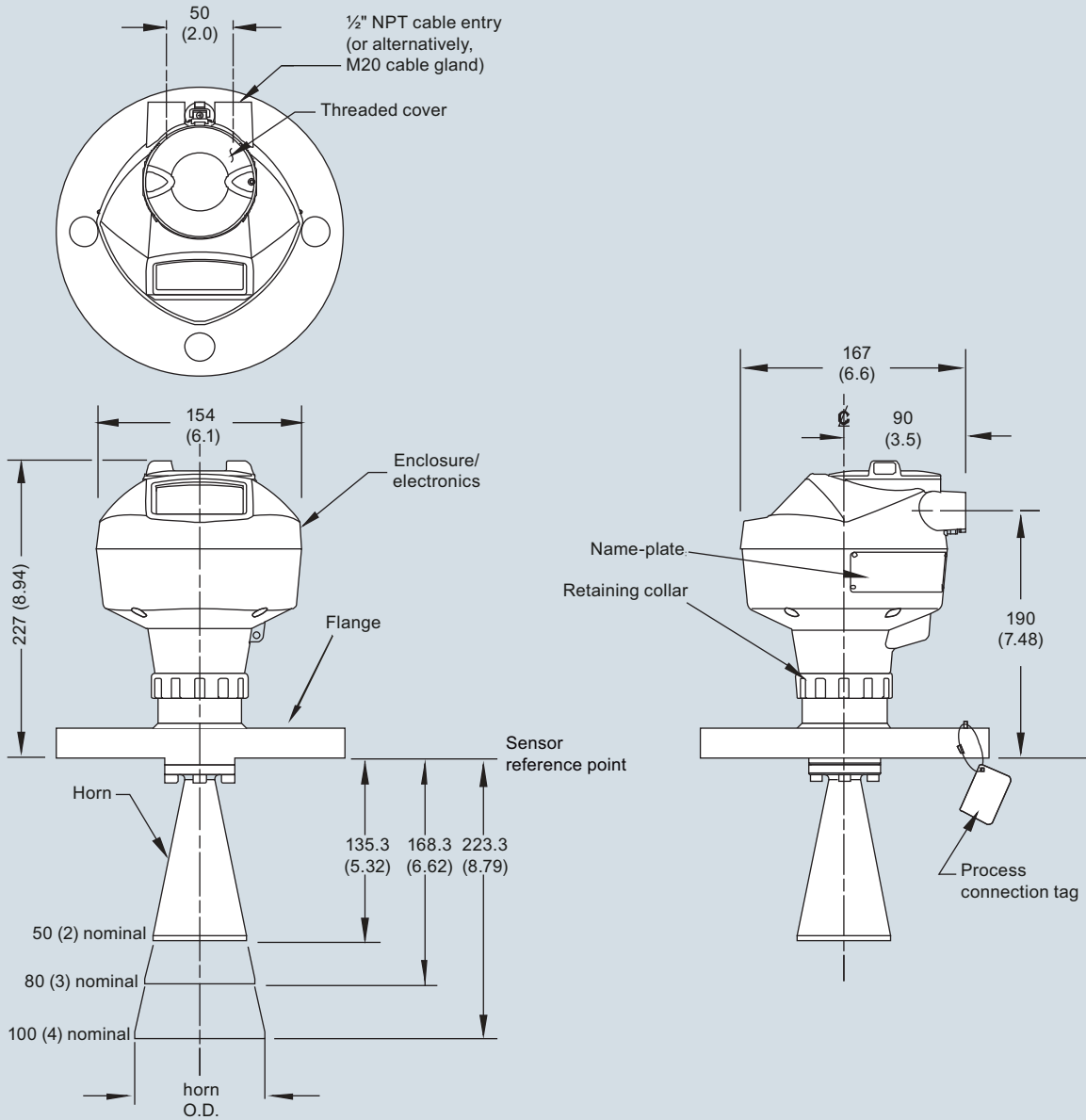


*28 mm (1.1) for 1.5 inch and 2 inch, 42 mm (1.65) for 3 inch

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)

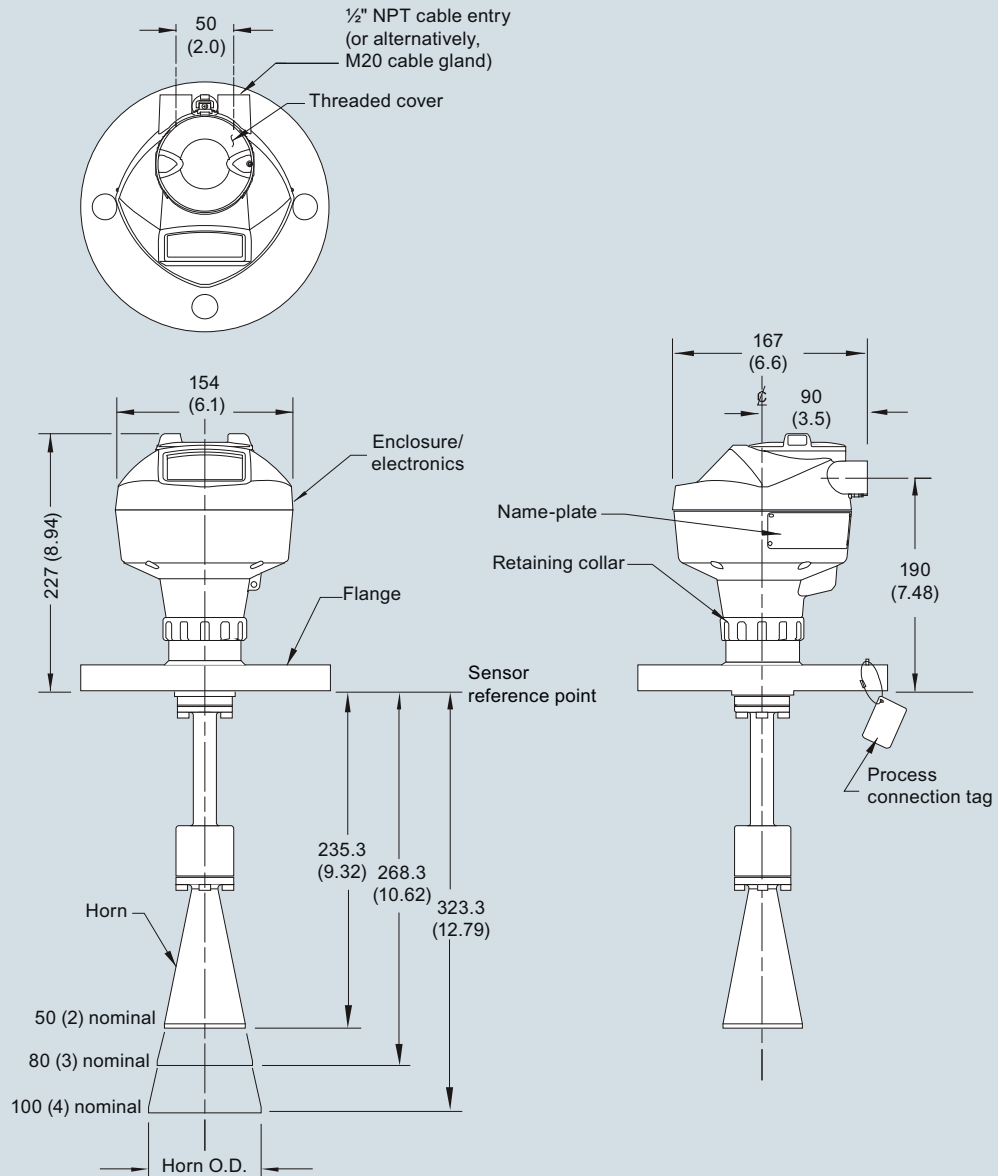
SITRANS LR250 Flanged Horn Antenna, dimensions in mm (inch)

Level Measurement

Continuous level measurement - Radar transmitters

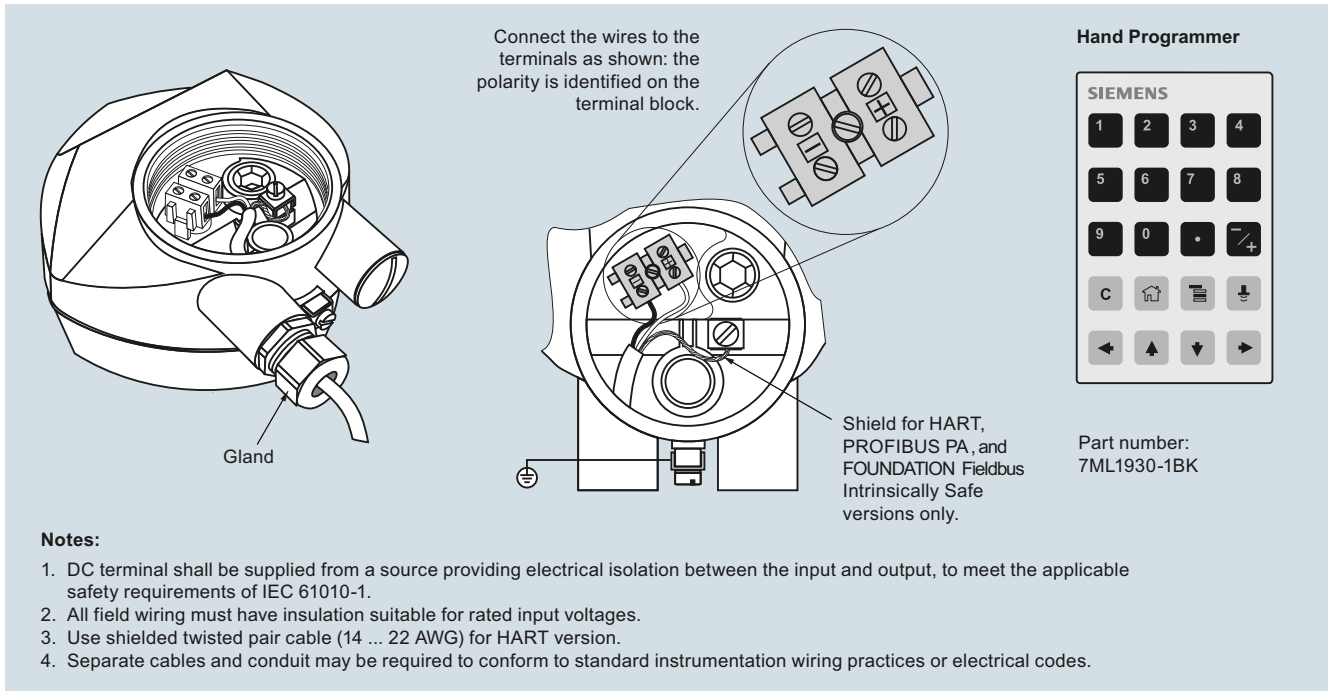
SITRANS LR250 Horn Antenna

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)

Schematics


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.

Gland

SITRANS LR250 connections



Level Measurement

Continuous level measurement - Radar transmitters


SITRANS LR250 Specials

Selection and ordering data

SITRANS LR250 Specials

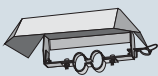
	Article No.
SITRANS LR250 horn version enclosures (PROFIBUS PA models)	
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option A, with PROFIBUS PA communication, no process connection	A5E01156836
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option A, with PROFIBUS PA communication, no process connection	A5E01156838
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option B, with PROFIBUS PA communication, no process connection	A5E01156839
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option B, with PROFIBUS PA communication, no process connection	A5E01156841
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option C, with PROFIBUS PA communication, no process connection	A5E01156843
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option C, with PROFIBUS PA communication, no process connection	A5E01156844
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option C, with PROFIBUS PA communication, no process connection	A5E01156846
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option D, with PROFIBUS PA communication, no process connection	A5E01156848
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option B, with FOUNDATION Fieldbus communication, no process connection	A5E03769538
SITRANS LR250 enclosure with board stack, NPT cable inlet, approval option D, with FOUNDATION Fieldbus communication, no process connection	A5E03769539
SITRANS LR250 enclosure with board stack, M20 cable inlet, approval option E, with FOUNDATION Fieldbus communication, no process connection	A5E03769543
SITRANS LR250 horn version enclosures (FOUNDATION Fieldbus models)	
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option C, with FOUNDATION Fieldbus communication, no process connection	A5E02654608
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option A, with FOUNDATION Fieldbus communication, no process connection	A5E02653792
SITRANS LR250 horn version enclosure with board stack, M20 cable inlet, approval option A, with FOUNDATION Fieldbus communication, no process connection	A5E02653793
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option C, with FOUNDATION Fieldbus communication, no process connection	A5E02654606

SITRANS LR250 Specials

	Article No.
SITRANS LR250 horn version enclosures (< 3.6 mA start-up HART)	
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	A5E02956317
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	A5E02956319
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	A5E02956320
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	A5E02956322
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	A5E02956323
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	A5E03441096
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	A5E03441097
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	A5E03441098
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	A5E03441099

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

A5E01151573100 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