

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.

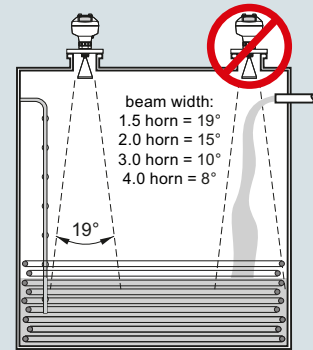
- Key Applications: liquid bulk storage tanks, process vessels, vaporous liquids, high temperatures, low dielectric media and applications with functional safety requirements

Configuration

Installation

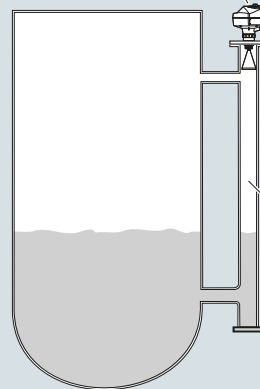
Note:

- 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.



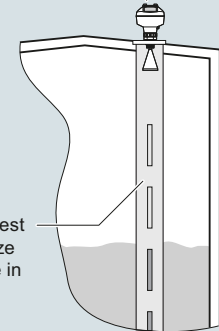
Mounting on bypass

Orient front or back of device toward vent.

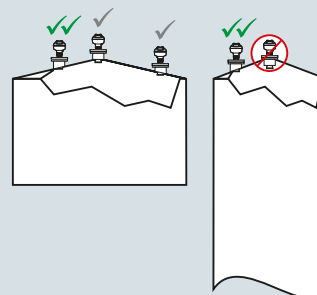


Mounting on stilling well

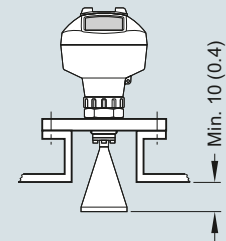
Orient front or back of device toward stillpipe slots.



Mounting on vessel



Mounting on a nozzle



SITRANS LR250 installation, dimensions in mm (inch)

Technical specifications

Mode of operation		Power supply	
Measuring principle	Radar level measurement	4 ... 20 mA/HART	Nominal 24 V DC (max. 30 V DC) with max. 550 Ω
Frequency	K-band (25.0 GHz)	PROFIBUS PA	<ul style="list-style-type: none"> • 15 mA • Per IEC 61158-2
Minimum measuring range	50 mm (2 inch) from end of antenna	FOUNDATION Fieldbus	<ul style="list-style-type: none"> • 20.0 mA • Per IEC 61158-2
Maximum measuring range	20 m (65 ft), antenna dependent		
Output		Certificates and approvals	
HART	Version 5.1	General	CSA _{US/C} , CE, FM, RCM
• Analog output	4 ... 20 mA	Radio	FCC, Industry Canada, RED, RCM
• Accuracy	± 0.02 mA	Hazardous	
• Fail-safe	<ul style="list-style-type: none"> • Programmable as high low or hold (loss of echo) • NE 43 programmable 	• Explosion Proof (Brazil)	INMETRO Ex d ia mb IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da
PROFIBUS PA	Profile 3.01	• Increased Safety (Brazil)	INMETRO Ex e ia mb IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da
• Function blocks	2 Analog Input (AI)	• Intrinsically Safe (Brazil)	INMETRO Ex ia IIC T4 Ga, Ex ia ta IIIC T100 °C Da
FOUNDATION Fieldbus	H1	• 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
• Functionality	Basic or LAS	• 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
• Version	ITK 5.2.0	• Non-incendive (Canada/USA)	CSA/FM Class I, Div. 2, Groups A, B, C, D T5
• Function blocks	2 Analog Input (AI)	• Flame Proof/Increased Safety (China)	NEPSI Ex d ia mb IIC T4 Ga/Gb, Ex ia mb IIC T4 Ga/Gb, Ex iaD tD A20 IP67 T100 °C
Performance (according to reference conditions IEC60770-1)		• Intrinsically Safe (China)	NEPSI Ex ia IIC T4 Ga, Ex iaD tD A20 IP67 T100 °C
Maximum measured error	3 mm (0.118 inch)	• Non-sparking (China)	NEPSI Ex nA IIC T4 Gc
Influence of ambient temperature	< 0.003 %/K	• Intrinsically Safe (Europe)	ATEX II 1G Ex ia IIC T4 Ga
Rated operating conditions		• Non-sparking (Europe)	ATEX II 1D Ex ia IIIC T100 °C Da
Installation conditions		• Flame Proof (International/Europe)	IECEX/ATEX II 1/2 GD, 1D, 2D, Ex e mb ia IIC T4 Ga/Gb, Ex ia ta IIC T100 °C Da
• Location	Indoor/outdoor	• 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
Ambient conditions (enclosure)		• Intrinsically Safe (International)	IECEX/ATEX II 1 G Ex ia IIC T4 Ga, IECEX/ATEX II 1D Ex ia ta IIC T100 °C Da
• Ambient temperature	-40 ... +80 °C (-40 ... +176 °F)	• Explosion Proof (Russia/Kazakhstan)	EAC Ex d
• Installation category	I	• Increased Safety (Russia/Kazakhstan)	EAC Ex e
• Pollution degree	4	• Intrinsically Safe (Russia/Kazakhstan)	EAC Ex ia
Medium conditions		• Marine	<ul style="list-style-type: none"> • Lloyd's Register of Shipping • ABS Type Approval • Bureau Veritas
Dielectric constant ϵ_r	> 1.6, antenna and application dependent	• Functional Safety	SIL-2 suitable in accordance with IEC 61508/61511
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)		
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	Aluminum, polyester powder-coated		
• Cable inlet	2 x M20 x 1.5 or 2 x 1/2" NPT		
Degree of protection	Type 4X/NEMA 4X, Type 6/NEMA 6, IP67, IP68		
Weight	< 3 kg (6.6 lb) 3.75 mm (1/2 inch) threaded connection with 1/2" 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		
Process connections			
• Process connection	1/2", 2" or 3" NPT [(Taper), ANSI/ASME B1.20.1] R 1/2", 2" or 3" [(BSPT), EN 10226] G 1/2", 2" or 3" [(BSPP), EN ISO 228-1]		
• Flange connection	2", 3", 4" (ANSI 150, 300 lb), 50, 80, 100 mm (PN 16, 40, JIS 10K)		

Level Measurement


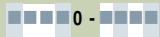
Continuous level measurement

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 Field-care)
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.
SITRANS LR250 horn antenna 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. ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	7ML5431- 	SITRANS LR250 horn antenna 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. <u>Flanged connection Hastelloy C⁴⁾</u>	7ML5431- 
Process Connection and Antenna Material 316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FKM seal ¹⁾	0	2" Class 150 ASME B16.5 raised face 3" Class 150 ASME B16.5 raised face 4" Class 150 ASME B16.5 raised face	J A J B J C
316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FFKM seal ¹⁾	1	2" Class 300 ASME B16.5 raised face 3" Class 300 ASME B16.5 raised face 4" Class 300 ASME B16.5 raised face	J D J E J F
Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FKM seal ²⁾	2	DN 50 PN 16 EN 1092-1 Type B1 raised face DN 80 PN 16 EN 1092-1 Type B1 raised face DN 100 PN 16 EN 1092-1 Type B1 raised face	K A K B K C
Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FFKM seal ²⁾	3	DN 50 PN 40 EN 1092-1 Type B1 raised face DN 80 PN 40 EN 1092-1 Type B1 raised face DN 100 PN 40 EN 1092-1 Type B1 raised face	K D K E K F
Process Connection Type <u>Threaded connection 316L</u>		50A 10K JIS B 2220 raised face 80A 10K JIS B 2220 raised face 100A 10K JIS B 2220 raised face	L A L B L C
1½" NPT (ASME B1.20.1) (tapered thread) ³⁾	A A	DN 50 PN 16 EN 1092-1 Type B1 raised face DN 80 PN 16 EN 1092-1 Type B1 raised face DN 100 PN 16 EN 1092-1 Type B1 raised face	M A M B M C
R 1½" [(BSPT), EN 10226-1] (tapered thread) ³⁾	A B	DN 150 PN 16 EN 1092-1 Type B1 raised face DN 50 PN 40 EN 1092-1 Type B1 raised face DN 80 PN 40 EN 1092-1 Type B1 raised face	M D M E M F
G 1½" [(BSPP), EN ISO 228-1] (parallel thread) ³⁾	A C	DN 100 PN 40 EN 1092-1 Type B1 raised face DN 150 PN 40 EN 1092-1 Type B1 raised face DN 50 PN 40 EN 1092-1 Type B1 raised face DN 80 PN 40 EN 1092-1 Type B1 raised face	M G M H
2" NPT (ASME B1.20.1) (tapered thread) ⁴⁾	A D	Communication/Output PROFIBUS PA ⁵⁾	1
R 2" [(BSPT), EN 10226-1] (tapered thread) ⁴⁾	A E	4 ... 20 mA, HART, start-up at < 3.6 mA FOUNDATION Fieldbus ⁵⁾	2 3
G 2" [(BSPP), EN ISO 228-1] (parallel thread) ⁴⁾	A F	Enclosure/Cable inlet <u>Aluminum, Epoxy painted</u>	
3" NPT (ASME B1.20.1) (tapered thread) ⁴⁾	A G	2 x ½" NPT	0
R 3" [(BSPT), EN 10226-1] (tapered thread) ⁴⁾	A H	2 x M20 x 1.5	1
G 3" [(BSPP), EN ISO 228-1] (parallel thread) ⁴⁾	A J	Antenna 1½" horn	A
<u>Flanged connection 316L⁴⁾</u>		2" horn (fits 2" ASME or DN 50 nozzles) 3" horn (fits 3" ASME or DN 80 nozzles)	B C
2" Class 150 ASME B16.5, raised face	B D	4" horn (fits 4" ASME or DN 100 nozzles)	D
3" Class 150 ASME B16.5, raised face	B E	1½" horn with 100 mm extension	E
4" Class 150 ASME B16.5, raised face	B F	2" horn with 100 mm extension	F
2" Class 300 ASME B16.5, raised face	C D	3" horn with 100 mm extension	G
3" Class 300 ASME B16.5, raised face	C E	4" horn with 100 mm extension	H
4" Class 300 ASME B16.5, raised face	C F	<u>Hastelloy C22 (or equivalent)</u>	
50A 10K JIS B 2220 flat face	F A	2" horn (fits 2" ASME or DN 50 nozzles)	J
DN 50 PN 16 EN 1092-1 Type B1 raised face	G A	3" horn (fits 3" ASME or DN 80 nozzles)	K
DN 80 PN 16 EN 1092-1 Type B1 raised face	G B	4" horn (fits 4" ASME or DN 100 nozzles)	L
DN 100 PN 16 EN 1092-1 Type B1 raised face	G C	2" horn (fits 2" ASME or DN 50 nozzles) with 100 mm extension	M
DN 150 PN 16 EN 1092-1 Type B1 raised face	G D	3" horn (fits 3" ASME or DN 80 nozzles) with 100 mm extension	N
DN 50 PN 40 EN 1092-1 Type B1 raised face	H A	4" horn (fits 4" ASME or DN 100 nozzles) with 100 mm extension	P
DN 80 PN 40 EN 1092-1 Type B1 raised face	H B		
DN 100 PN 40 EN 1092-1 Type B1 raised face	H C		
DN 150 PN 40 EN 1092-1 Type B1 raised face	H D		

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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, RED, 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, RED, 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, RED, 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, RED, RCM ⁶⁾	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, RED, RCM ⁶⁾	G
Explosion proof: CSA/FM Class I, II, and III, Div. 1, Groups A, B, C, D, E, F, G, FCC, Industry Canada ^{b)}	H
Non Sparking: NEPSI Ex nA IIC T4 Gc	K
Intrinsically Safe: NEPSI Ex ia IIC T4 Ga, Ex iaD tD A20 IP67 T100 °C	L
Flameproof: NEPSI Ex d ia mb IIC T4 Ga/Gb, Ex iaD tD A20 IP67 T100 °C ⁶⁾	M
Increased Safety: NEPSI Ex e ia mb IIC T4 Ga/Gb, Ex iaD tD A20 IP67 T100 °C ⁶⁾	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 and Antenna Versions A ... H only

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

³⁾ Not available with Antenna options B, C, D, F, G, H.

⁴⁾ Not available with Antenna options A and E.

⁵⁾ Available with Approval options A, B, C, D, K, and L.

⁶⁾ Available only with Communications option 2.

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

SITRANS LR250 Horn Antenna

Selection and Ordering data	Order code	Selection and Ordering data	Article No.
Further designs		Compact Operating Instructions for FOUNDATION Fieldbus device	
Please add "-Z" to Article No. and specify Order code(s).		English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish	A5E33472700
Plug M12 with mating Connector ¹⁾²⁾³⁾	A50	English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian	A5E33472738
Plug 7/8" with mating Connector ²⁾³⁾⁴⁾	A55	English, Portuguese (Brazil), Chinese	A5E34046626
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	Note: The Operating Instructions should be ordered as a separate line item on the order.	
Manufacturer's Test Certificate: M to DIN 55350, Part 18 and to ISO 9000	C11	All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Material inspection certificate 3.1 of EN 10204	C12	Other Operating Instructions	
Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511 ³⁾⁵⁾	C20	SITRANS LR250 Functional Safety manual, English	A5E32286471
Namur NE43 compliant, device preset to failsafe < 3.6 mA ⁵⁾	N07	Note: The Operating Instructions should be ordered as a separate line item on the order.	
Compact Operating Instructions for HART/ mA device	Article No.	All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish	A5E33469191	Accessories	
English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian	A5E33469171	Handheld programmer, Intrinsically safe, EEx ia	7ML1930-1BK
English, Portuguese (Brazil), Chinese	A5E34046583	HART modem/USB (for use with a PC and SIMATIC PDM)	7MF4997-1DB
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), 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
Compact Operating Instructions for PROFIBUS PA device		FDA approved FKM O-ring for 2" G (BSP) process connections -28 ... +80 °C (-28 ... +176 °F)	7ML1830-3AN
English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish	A5E33469239	SITRANS RD100, loop powered display - see Chapter 7	7ML5741-...
English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian	A5E33472685	SITRANS RD200, universal input display with Modbus conversion - see Chapter 7	7ML5740-...
English, Portuguese (Brazil), Chinese	A5E34046624	SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7	7ML5744-...
Note: The Operating Instructions should be ordered as a separate line item on the order.		SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7	7ML5750-...
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation		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

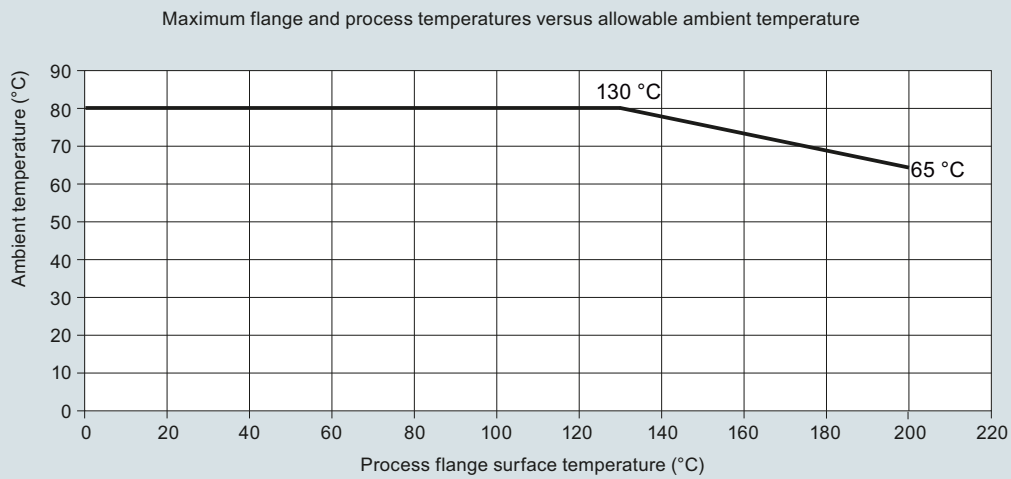
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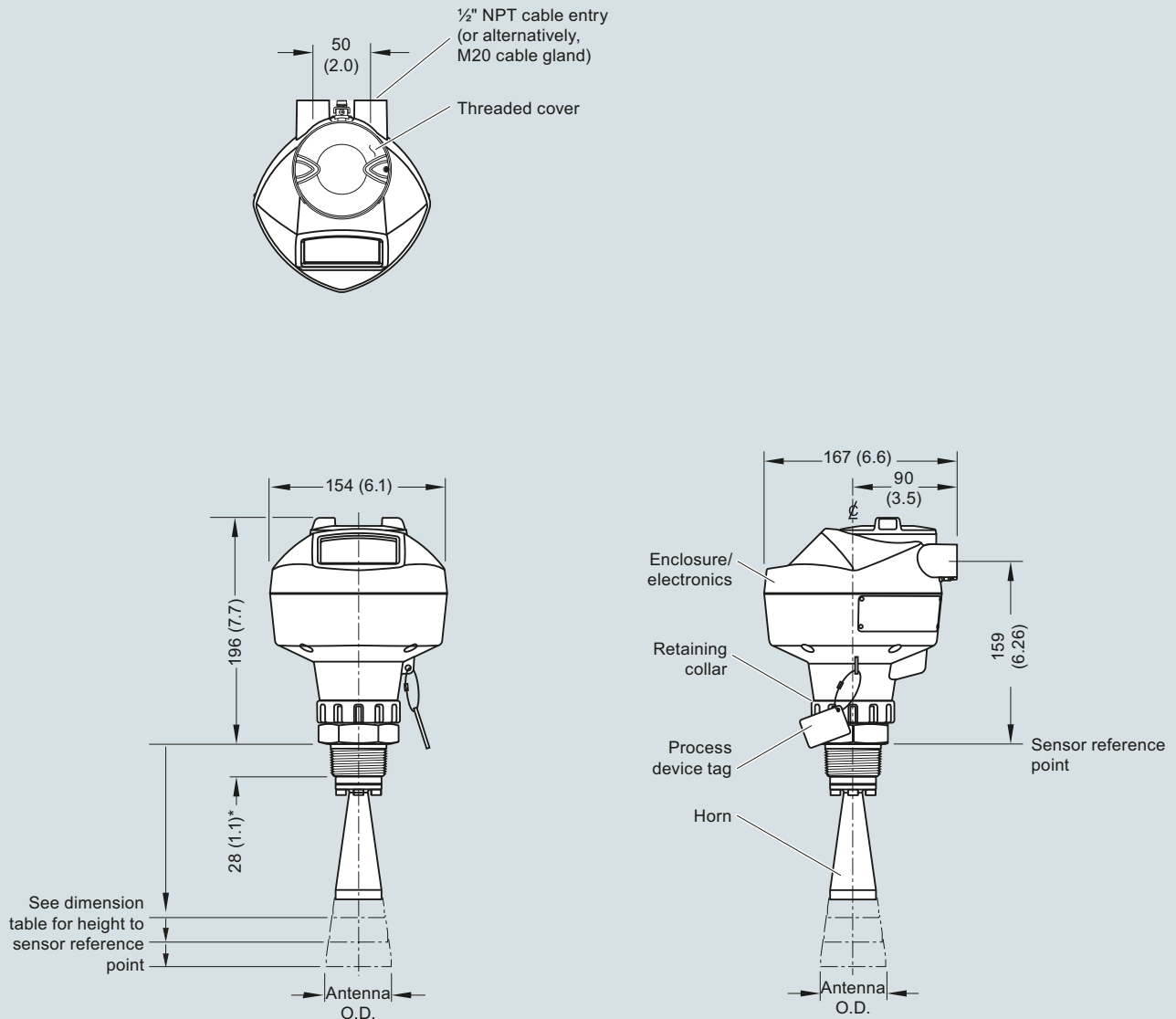
Characteristic curves



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)

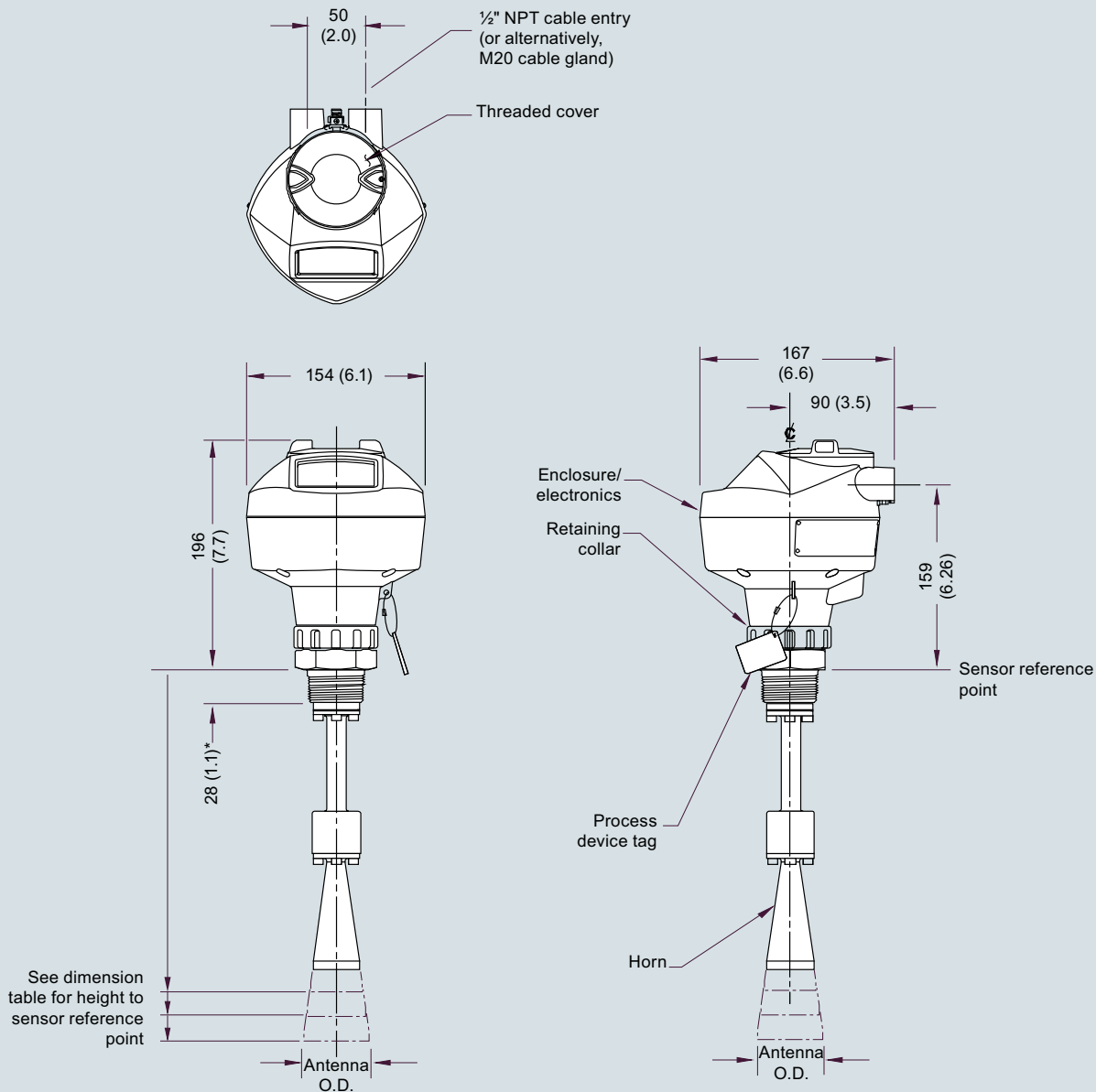
SITRANS LR250 Threaded Horn Antenna, dimensions in mm (inch)

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SITRANS LR250 Horn Antenna

Threaded Horn Antenna with Extension

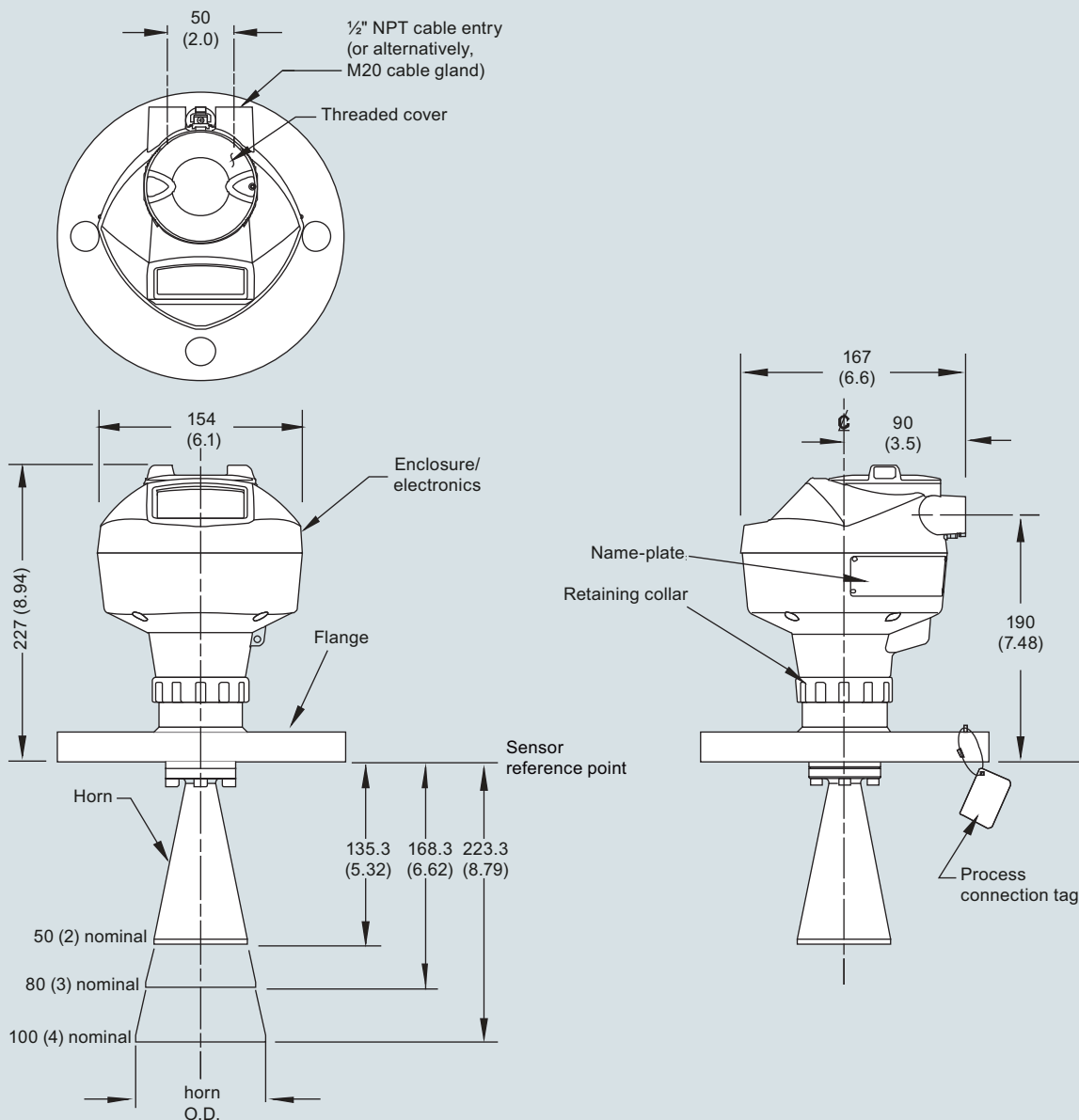


*28 mm (1.1) for 1.5 inch and 2 inch, 42 mm (1.65) for 3 inch

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)

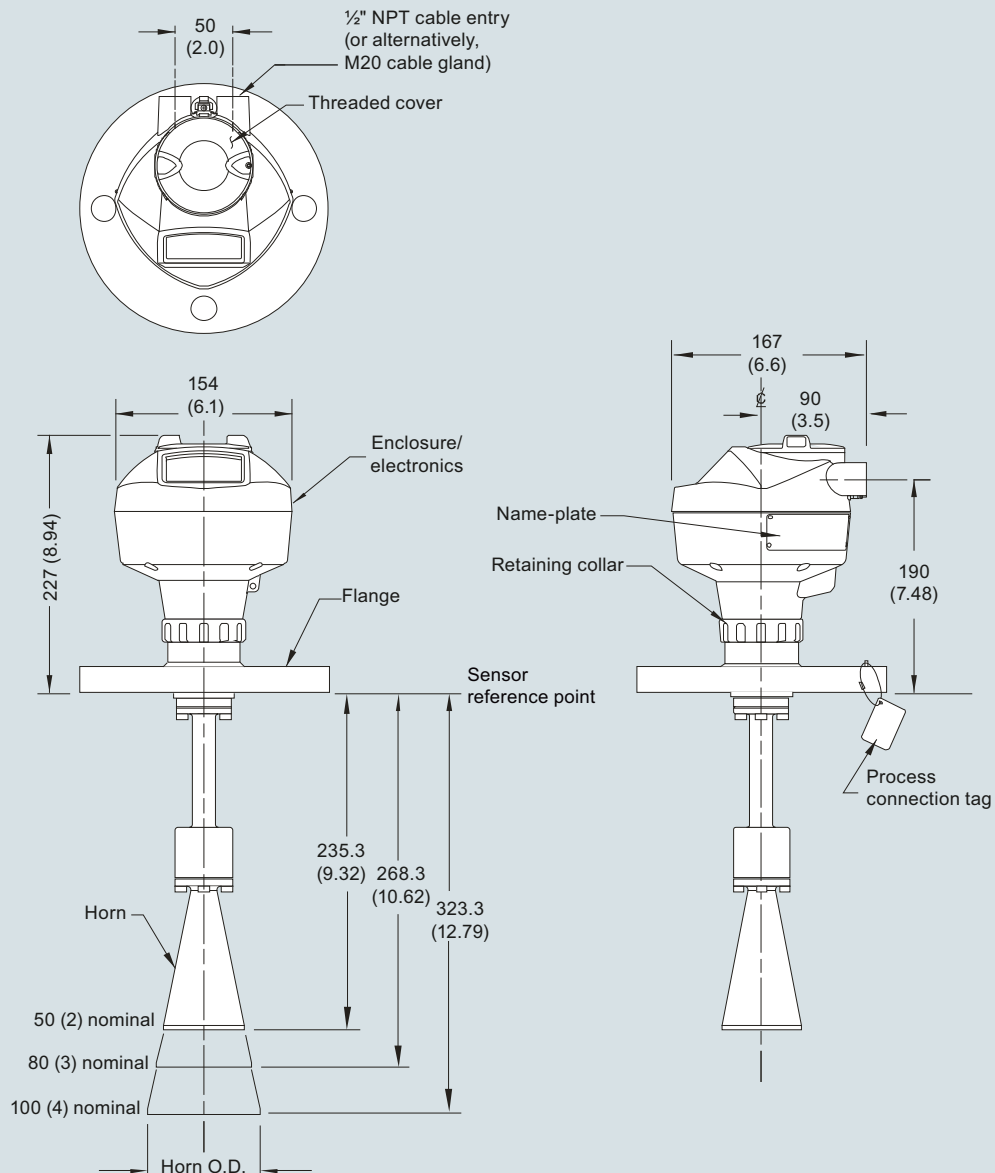
SITRANS LR250 Flanged Horn Antenna, dimensions in mm (inch)

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SITRANS LR250 Horn Antenna

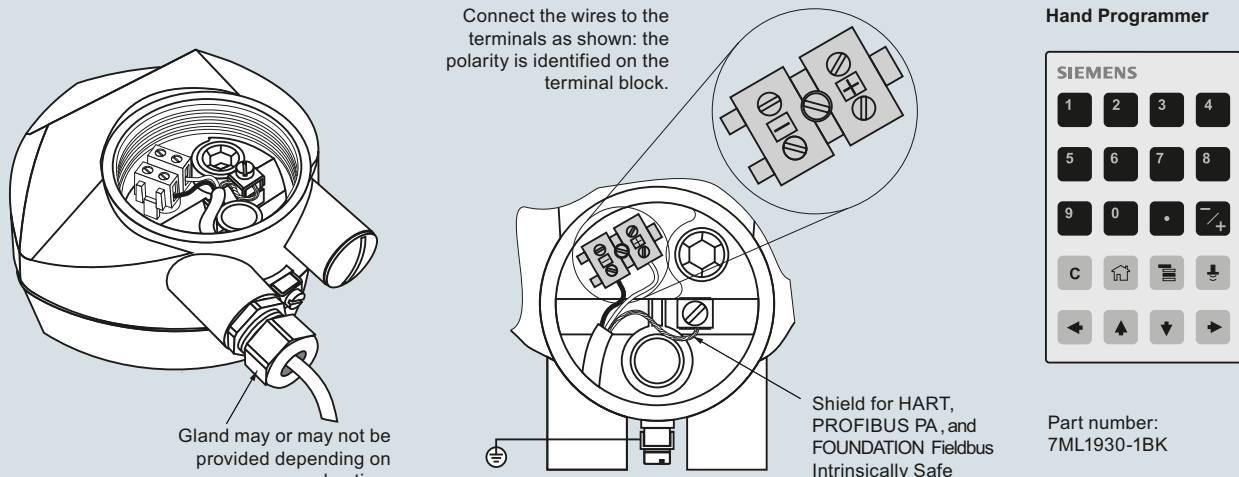
Flanged Horn with Extension



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)

Circuit diagrams



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

Gland may or may not be provided depending on approval option.

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


Level Measurement

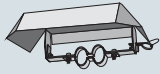

Continuous level measurement
Radar transmitters

SITRANS LR250 Specials

Selection and ordering data

SITRANS LR250 Specials	Article No.
NOTE: LR260 head can be supplied with any LR250 process connection or antenna as special order. For LR250, this means a stronger signal and longer measurement range is possible.	
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, 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, NPT cable inlet, approval option D, with PROFIBUS 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 horn version enclosures (FOUNDATION Fieldbus models)	
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 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 Specials	Article No.
SITRANS LR250 horn version enclosure with board stack, NPT cable inlet, approval option C, with FOUNDATION Fieldbus communication, no process connection	A5E02654606
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 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	
	
	A5E39142556
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 Polypack, PTFE grease kit	A5E01151626
SITRANS LR250 lid with O-ring	A5E02465410
Ex-proof plugs	
Ex-proof plugs kit, 1/2" NPT, qty 5	A5E39979991
Ex-proof plugs kit, M20, qty 5	A5E39979992