

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

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.

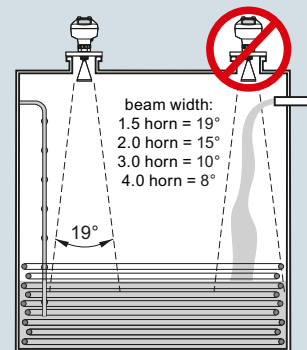
- Key Applications: liquid bulk storage tanks, process vessels, vaporous liquids, high temperatures, low dielectric media and applications with functional safety requirements

Configuration

Installation

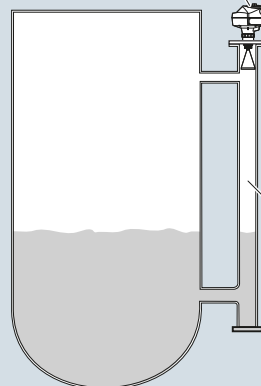
Note:

- 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.



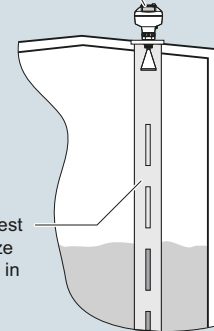
Mounting unit on bypass

Orient front or back of device toward vent.

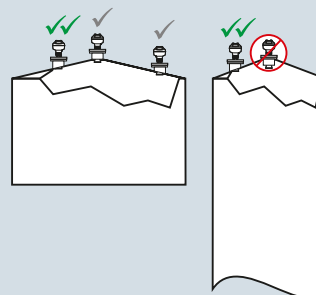


Mounting unit on stilling well

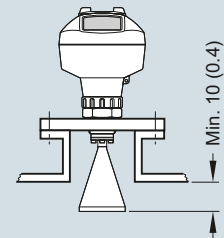
Orient front or back of device toward stillpipe slots.



Mounting unit on vessel



Mounting on a nozzle



SITRANS LR250 installation, dimensions in mm (inch)

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Technical specifications

Mode of operation

Measuring principle	Radar level measurement
Frequency	K-band (25.0 GHz)
Minimum measuring range	50 mm (2 inch) from end of antenna
Maximum measuring range	20 m (65 ft), antenna dependent

Output

HART:	Version 5.1
• Analog output	4 ... 20 mA
• Accuracy	± 0.02 mA
• Fail-safe	<ul style="list-style-type: none"> • Programmable as high low or hold (loss of echo) • NE 43 programmable
PROFIBUS PA:	Profile 3.01
• Function blocks	2 Analog Input (AI)
FOUNDATION Fieldbus	H1
• Functionality	Basic or LAS
• Version	ITK 5.2.0
• Function blocks	2 Analog Input (AI)

Performance (according to reference conditions IEC60770-1)

Maximum measured error	3 mm (0.118 inch)
Influence of ambient temperature	< 0.003 %/K

Rated operating conditions

Installation conditions	
• Location	Indoor/outdoor
Ambient conditions (enclosure)	
• Ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
• Installation category	I
• Pollution degree	4

Medium conditions

Dielectric constant ϵ_r	> 1.6, antenna and application dependent
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 M20x1.5 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 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 1/2", 2" or 3" NPT [(Taper), ANSI/ASME B1.20.1] R 1 1/2", 2" or 3" [(BSPT), EN 10226] G 1 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)

Power supply

4 ... 20 mA/HART	Nominal 24 V DC (max. 30 V DC) with max. 550 Ω
PROFIBUS PA	<ul style="list-style-type: none"> • 15 mA • per IEC 61158-2
FOUNDATION Fieldbus	<ul style="list-style-type: none"> • 20.0 mA • per IEC 61158-2

Certificates and approvals

General	CSA _{US/C} , CE, FM, NE 21, RCM
Radio	FCC, Industry Canada and Europe ETSI EN 302-372, RCM
Hazardous	
• Explosion Proof (Brazil)	INMETRO Ex d ia mb IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da
• Increased Safety (Brazil)	INMETRO Ex e ia mb IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da
• Intrinsically Safe (Brazil)	INMETRO Ex ia IIC T4 Ga, Ex ia ta IIIC T100 °C Da
• 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
• 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
• Non-incendive (Canada/USA)	CSA/FM Class I, Div. 2, Groups A, B, C, D T5
• 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
• Intrinsically Safe (China)	NEPSI Ex ia IIC T4 Ga, Ex iaD 20 T90 IP67 DIP A20 T _A 90 °C
• Non-sparking (China)	NEPSI Ex nA IIC T4 Gc
• Intrinsically Safe (Europe)	ATEX II 1G Ex ia IIC T4 Ga ATEX II 1D Ex ia IIIC T100 °C Da ATEX II 3G Ex nA IIC T4 Gc
• Non-sparking (Europe)	IECEx/ATEX II 1/2 GD, 1D, 2D, Ex d mb ia IIC T4 Ga/Gb, Ex ia ta IIC T100 °C Da
• Flame Proof (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
• Increased Safety (International/Europe)	IECEx/ATEX II 1 G Ex ia IIC T4 Ga, IECEx/ATEX II 1D Ex ia ta IIC T100 °C Da
• Intrinsically Safe (International)	IECEx/ATEX II 1 G Ex ia IIC T4 Ga, IECEx/ATEX II 1D Ex ia ta IIC T100 °C Da
• Explosion Proof (Russia)	GOST-R Ex d
• Increased Safety (Russia)	GOST-R Ex e
• Intrinsically Safe (Russia)	GOST-R Ex ia
• Marine	<ul style="list-style-type: none"> • Lloyd's Register of Shipping • ABS Type Approval • Bureau Veritas
• Functional Safety	SIL-2 suitable in accordance with IEC 61508/61511

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Programming

- Intrinsically Safe Siemens handheld programmer
 - Approvals for handheld programmer

Infrared receiver

IS model:
ATEX II 1 GD Ex ia IIC T4 Ga
Ex ia D 20 T135 °C
Ta = -20 ... +50 °C
CSA/FM Class I, II, III, Div. 1.,
Groups A, B, C, D, E, F, G, T6
Ta = +50 °C
IECEX SIR 09.0073

- Handheld communicator
- PC

HART communicator 375/475

- 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

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Selection and Ordering data	Article No.	Selection and Ordering data	Article No.
SITRANS LR250 horn antenna	7ML5431-	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 -	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 -
Process Connection and Antenna Material		<u>Flanged connection Hastelloy C</u>	
316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FKM seal ¹⁾	0	2" Class 150 ASME B16.5 raised faced ⁴⁾	JA
316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FFKM seal ¹⁾	1	3" Class 150 ASME B16.5 raised faced ⁴⁾	JB
Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FKM seal ²⁾	2	4" Class 150 ASME B16.5 raised faced ⁴⁾	JC
Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FFKM seal ²⁾	3	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
Process Connection Type		DN 50 PN 16 EN 1092-1 Type B1 raised faced ⁴⁾	KA
<u>Threaded connection 316L</u>		DN 80 PN 16 EN 1092-1 Type B1 raised faced ⁴⁾	KB
1½" NPT (ASME B1.20.1) (tapered thread) ³⁾	AA	DN 100 PN 16 EN 1092-1 Type B1 raised faced ⁴⁾	KC
R 1½" [(BSPT), EN 10226-1] (tapered thread) ³⁾	AB	DN 50 PN 40 EN 1092-1 Type B1 raised faced ⁴⁾	KD
G 1½" [(BSPP), EN ISO 228-1] (parallel thread) ³⁾	AC	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
<u>Flanged connection 316L</u>		Communication/Output	
2" Class 150 ASME B16.5 flat faced ⁴⁾	BA	PROFIBUS PA	1
3" Class 150 ASME B16.5 flat faced ⁴⁾	BB	4 ... 20 mA, HART, startup at < 3.6 mA	2
4" Class 150 ASME B16.5 flat faced ⁴⁾	BC	FOUNDATION Fieldbus	3
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		
DN 50 PN 16 EN 1092-1 Type A flat faced ⁴⁾	DA	Enclosure/Cable inlet	
DN 80 PN 16 EN 1092-1 Type A flat faced ⁴⁾	DB	Aluminum, Epoxy painted	
DN 100 PN 16 EN 1092-1 Type A flat faced ⁴⁾	DC	2 x ½" NPT	0
DN 50 PN 40 EN 1092-1 Type A flat faced ⁴⁾	EA	2 x M20x1.5	1
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	Antenna	
80A 10K JIS B 2220 flat faced ⁴⁾	FB	1½" horn	A
100A 10K JIS B 2220 flat faced ⁴⁾	FC	2" horn (fits 2" ASME or DN 50 nozzles)	B
DN 50 PN 16 DIN EN 1092-1 Type B1 raised face	GA	3" horn (fits 3" ASME or DN 80 nozzles)	C
DN 80 PN 16 DIN EN 1092-1 Type B1 raised face	GB	4" horn (fits 4" ASME or DN 100 nozzles)	D
DN 100 PN 16 DIN EN 1092-1 Type B1 raised face	GC	1½" horn with 100 mm extension	E
DN 150 PN 16 DIN EN 1092-1 Type B1 raised face	GD	2" horn with 100 mm extension	F
DN 50 PN 40 DIN EN 1092-1 Type B1 raised face	HA	3" horn with 100 mm extension	G
DN 80 PN 40 DIN EN 1092-1 Type B1 raised face	HB	4" horn with 100 mm extension	H
DN 100 PN 40 DIN EN 1092-1 Type B1 raised face	HC	<u>Hastelloy C22 (or equivalent)</u>	J
DN 150 PN 40 DIN EN 1092-1 Type B1 raised face	HD	2" horn (fits 2" ASME or DN 50 nozzles)	K
		3" horn (fits 3" ASME or DN 80 nozzles)	L
		4" horn (fits 4" ASME or DN 100 nozzles)	M
		2" horn (fits 2" ASME or DN 50 nozzles) with 100 mm extension	N
		3" horn (fits 3" ASME or DN 80 nozzles) with 100 mm extension	P
		4" horn (fits 4" ASME or DN 100 nozzles) with 100 mm extension	

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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, R&TTE, RCM
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

A

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

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, RCM⁵⁾

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, RCM⁵⁾

G

Explosion proof: CSA/FM Class I, II and III, Div.1, Groups A, B, C, D, E, F, G, FCC, Industry Canada⁵⁾

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_A90 °C

L

Flameproof: NEPSI Ex d ia mb IIC T4 Ga/Gb,
Ex iaD 20 T90 IP67 DIP A20 T_A90 °C⁵⁾

M

Increased Safety: NEPSI Ex e ia mb IIC T4 Ga/Gb,
Ex iaD 20 T90 IP67 DIP A20 T_A90 °C⁵⁾

N

Pressure rating

Rating per Pressure/Temperature curves in manual
0.5 bar g (7.25 psi g) maximum

0

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 Milltronics 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

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

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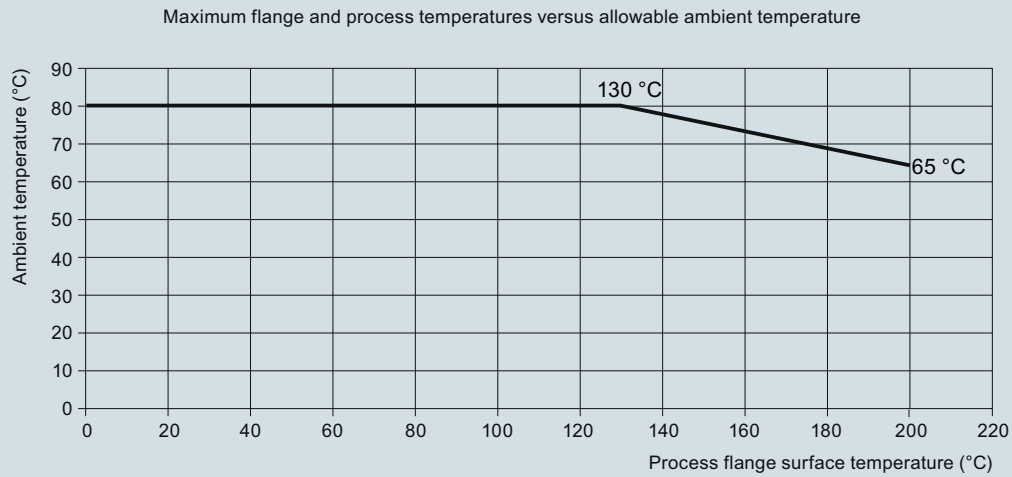
Selection and Ordering data	Order code	Selection and Ordering data	Order code
Further designs		Accessories	
Please add "-Z" to Article No. and specify Order code(s).		Handheld programmer, Intrinsically safe, EEx ia	7ML1930-1BK
Plug M12 with mating Connector ¹⁾²⁾³⁾	◆ A50	HART modem/RS 232 (for use with a PC and SIMATIC PDM)	7MF4997-1DA
Plug 7/8" with mating Connector ²⁾³⁾⁴⁾	◆ A55	HART modem/USB (for use with a PC and SIMATIC PDM)	7MF4997-1DB
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	One metallic cable gland M20x1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART (two are required)	7ML1930-1AP
Manufacturer's Test Certificate: M to DIN 55350, Part 18 and to ISO 9000	◆ C11	One metallic cable gland M20x1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA and FOUNDATION Fieldbus (two are required) ⁶⁾	7ML1930-1AQ
Inspection certificate 3.1 of EN 10204	◆ C12	FDA approved FKM o-ring for 2" G (BSPP) process connections -28 ... +80 °C (-28 ... +176 °F)	7ML1830-3AN
Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511 ^{3) 5)}	◆ C20	SITRANS RD100 Remote display - see Chapter 7	
Namur NE43 compliant, device preset to failsafe < 3.6 mA ⁵⁾	◆ N07	SITRANS RD200 Remote display - see Chapter 7	
Operating Instructions for HART/mA device		SITRANS RD500 web, datalogging, alarming, eth- ernet, and modem support for instrumentation - see Chapter 7	7ML5750- 1AA00-0
English	Article No. A5E32220602	For applicable back up point level switch - see point level section on page 4/9	
German	A5E32376088		
Note: The Operating Instructions should be ordered as a separate line item on the order.			
Multi-language Quick Start manual This device is shipped with the Siemens Milltronics manual DVD containing the ATEX Quick Start and Operating Instructions library.	A5E31997170		
Operating Instructions for PROFIBUS PA device			
English	A5E32221386	1) Available with enclosure option 1 only	
German	A5E32376094	2) To be used with communication options 1 and 3 only. Connector has IP67 rating.	
Note: The Operating Instructions should be ordered as a separate line item on the order.		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.	
Multi-language Quick Start manual This device is shipped with the Siemens Milltronics manual DVD containing the ATEX Quick Start and Operating Instructions library.	A5E31997267	4) Available with enclosure option 0 only	
		5) Applicable to communication option 2 only	
		6) For use with communication option 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.	
Operating Instructions for FOUNDATION Fieldbus device			
English	A5E32221411		
German	A5E32376112		
Note: The Operating Instructions should be ordered as a separate line item on the order.			
Multi-language Quick Start manual This device is shipped with the Siemens Milltronics manual DVD containing the ATEX Quick Start and Operating Instructions library.	A5E31993945		

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Characteristic curves



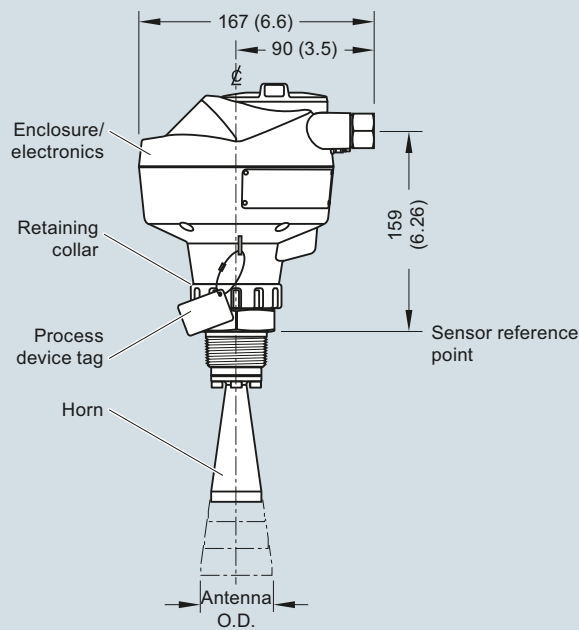
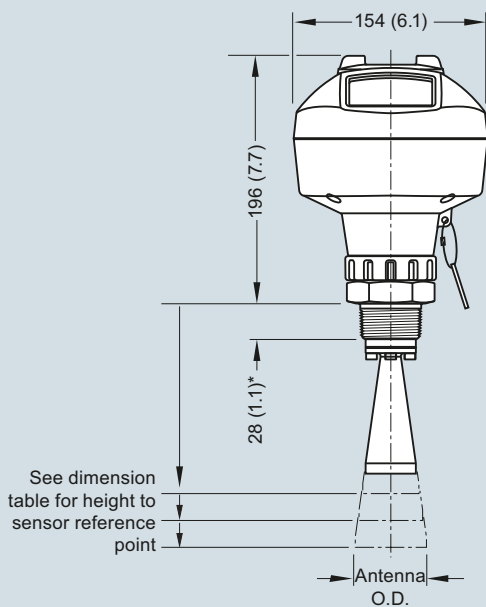
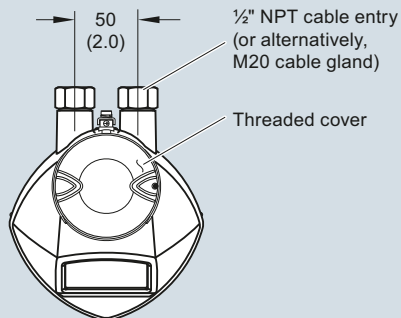
SITRANS LR250 Ambient/Process Flange Surface Temperature Curve

Level measurement Continuous level measurement – Radar transmitters

SITRANS LR250 Horn Antenna

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)

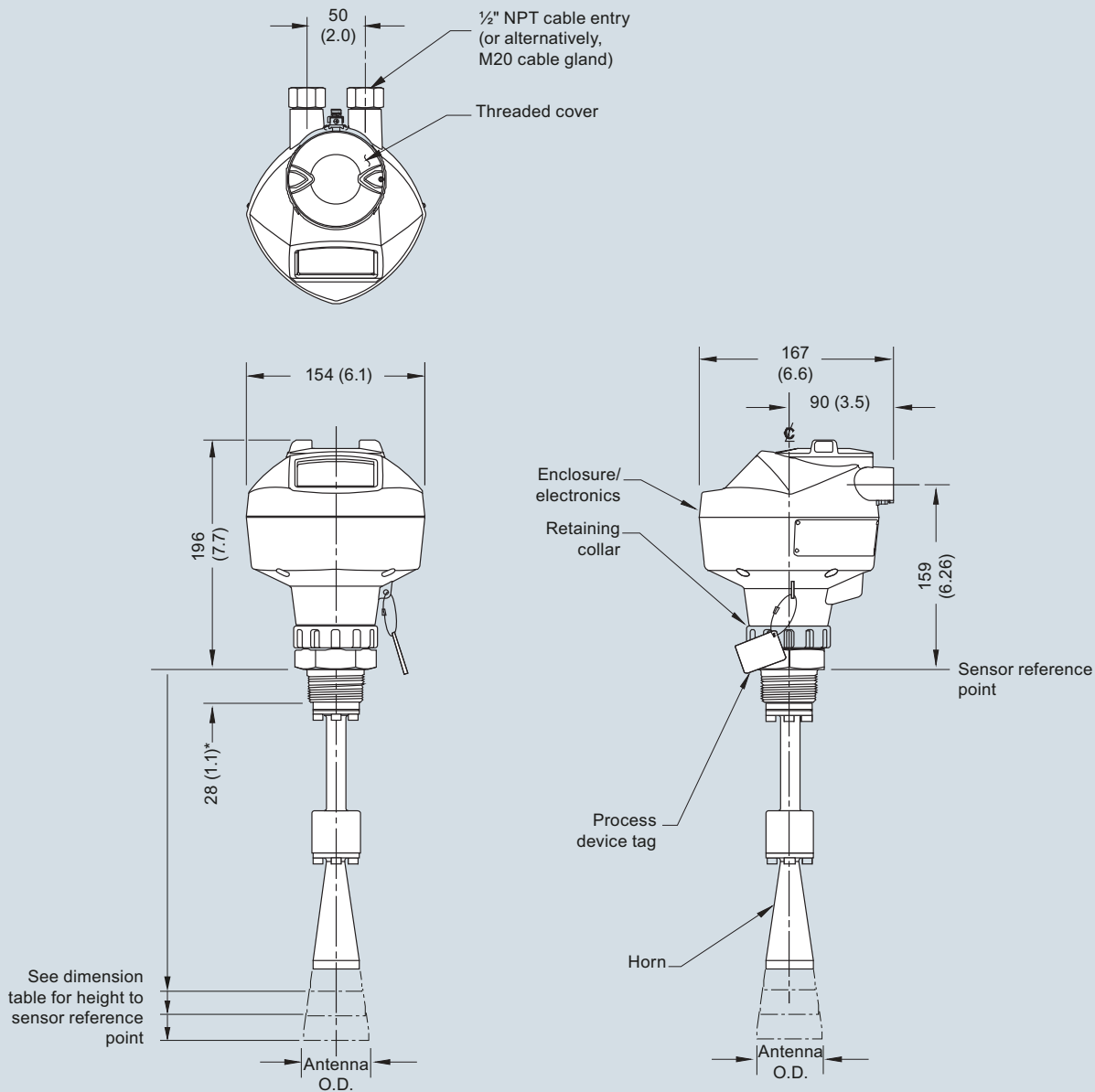
Level measurement

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SITRANS LR250 Horn Antenna

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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	139.8 (5.57)	235 (9.3)	N/A	N/A	19 degrees	10 m (32.8 ft)
2" horn	147.8 (5.88)	N/A	266 (10.55)	280 (11.09)	15 degrees	20 m (65.6 ft)
3" horn	174.8 (6.94)	N/A	299 (11.85)	313 (12.39)	10 degrees	20 m (65.6 ft)
4" horn	194.8 (7.73)	N/A	354 (14)	368 (14.55)	8 degrees	20 m (65.6 ft)

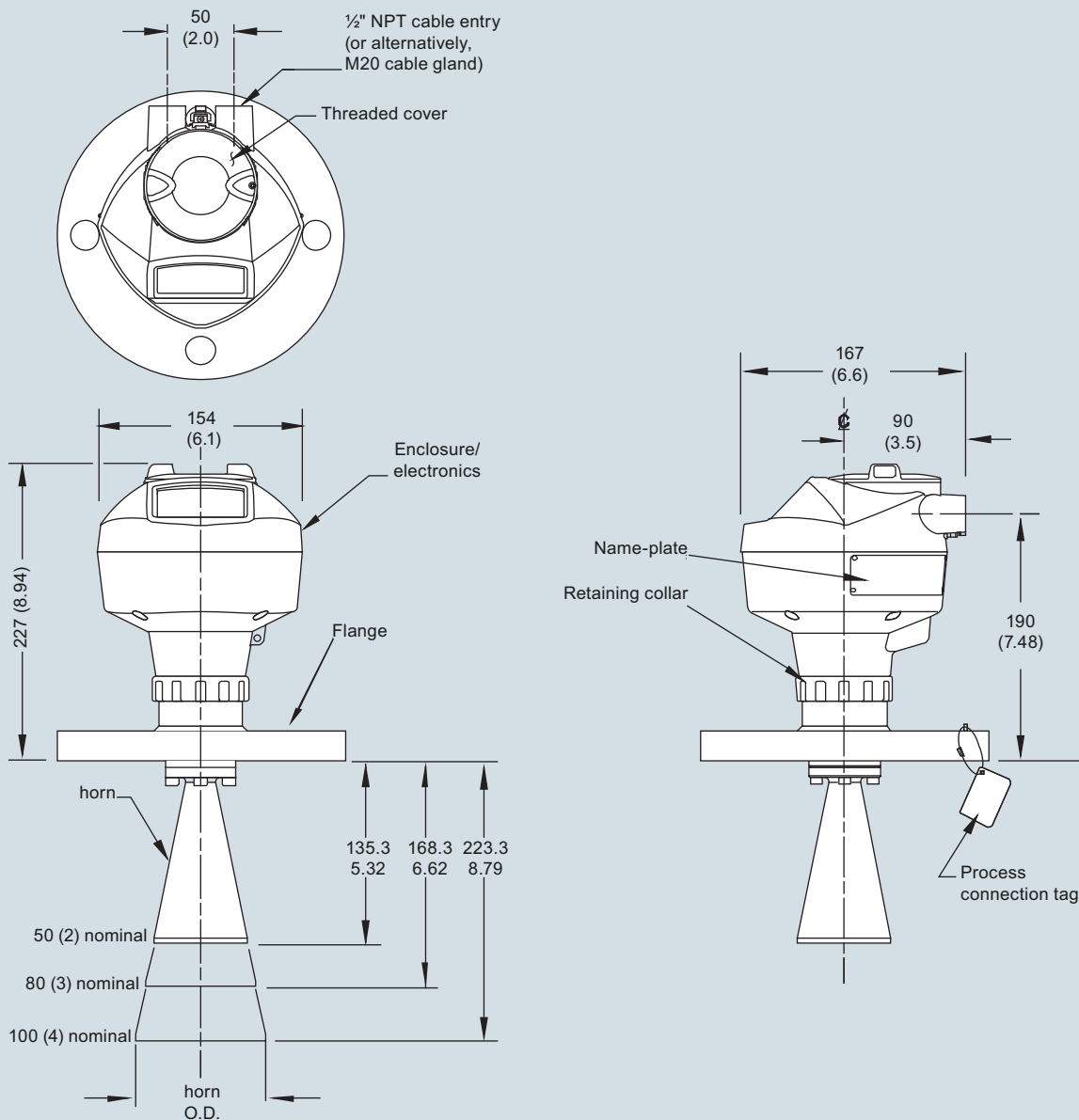
SITRANS LR250 Threaded Horn Antenna with extension, dimensions in mm (inch)

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SITRANS LR250 Horn Antenna

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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)	19 degrees	10 m (32.8 ft)
80 (3)	74.8 (2.94)	168.3 (6.62)	171.3 (6.74)	15 degrees	20 m (65.6 ft)
100 (4)	94.8 (3.73)	223.3 (8.79)	226.3 (8.90)	10 degrees	20 m (65.6 ft)

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

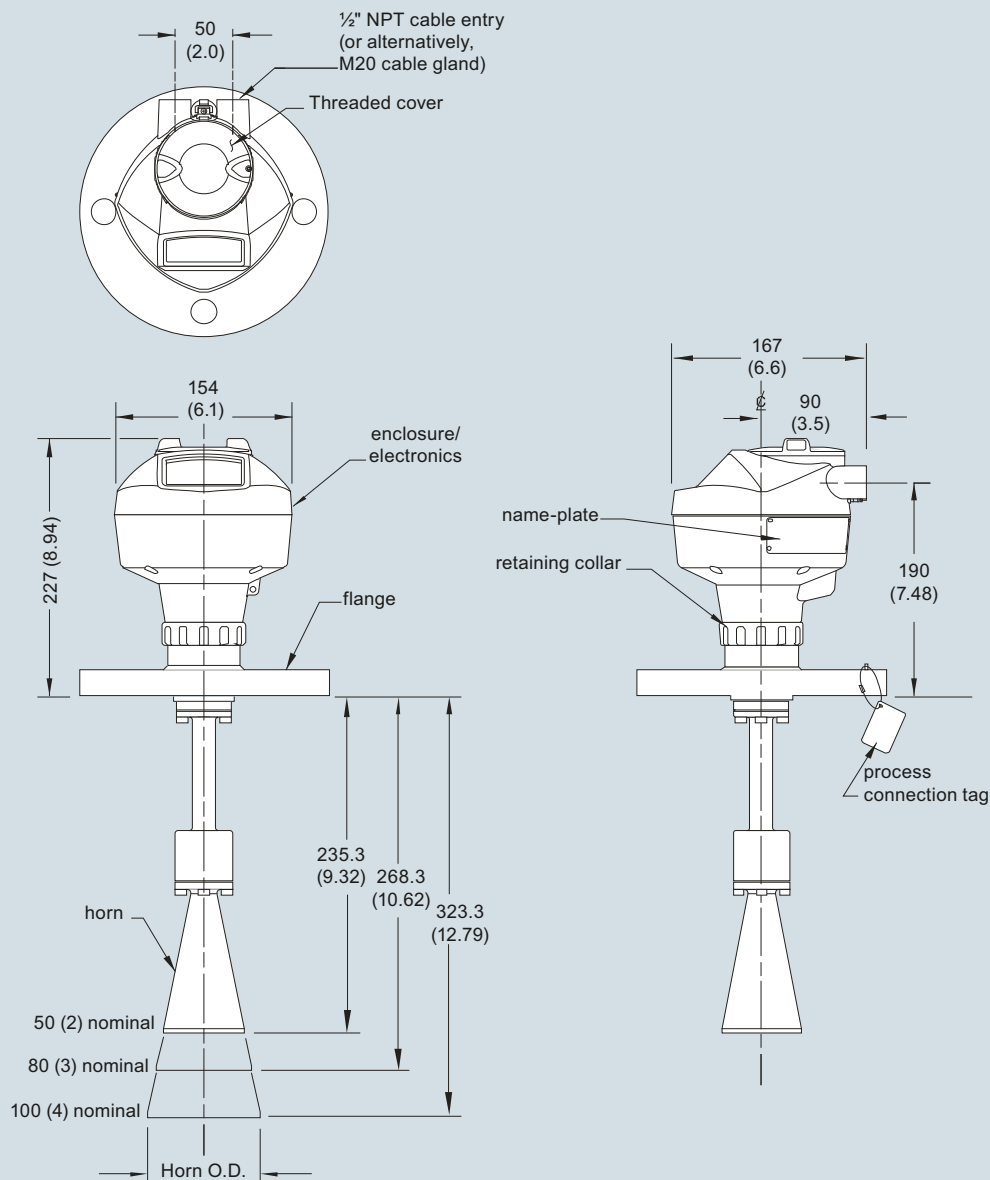
Level measurement

Continuous level measurement – Radar transmitters

SITRANS LR250 Horn Antenna

4

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 (9.32)	238.3 (9.44)	19 degrees	10 m (32.8 ft)
80 (3)	74.8 (2.94)	268.3 (10.62)	271.3 (10.74)	15 degrees	20 m (65.6 ft)
100 (4)	94.8 (3.73)	323.3 (12.79)	326.3 (12.90)	10 degrees	20 m (65.6 ft)

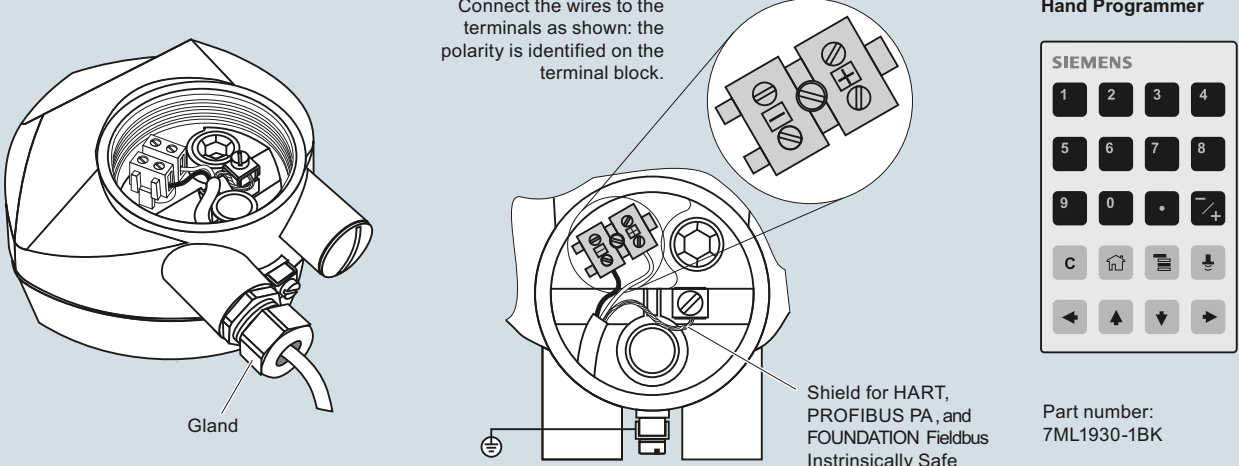
SITRANS LR250 Flanged Horn Antenna with extension, dimensions in mm (inch)

Level measurement

Continuous level measurement – Radar transmitters

SITRANS LR250 Horn Antenna

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.

SITRANS LR250 connections

Level measurement

Continuous level measurement – Radar transmitters

SITRANS LR250 Specials

SITRANS LR250 Specials

SITRANS LR250 horn version enclosures (PROFIBUS PA models)

Order No.



LR250 horn version enclosure with board stack, NPT cable inlet, approval option A, with PROFIBUS PA communication, no process connection

A5E01156836

LR250 horn version enclosure with board stack, M20 cable inlet, approval option A, with PROFIBUS PA communication, no process connection

A5E01156838

LR250 horn version enclosure with board stack, NPT cable inlet, approval option B, with PROFIBUS PA communication, no process connection

A5E01156839

LR250 horn version enclosure with board stack, M20 cable inlet, approval option B, with PROFIBUS PA communication, no process connection

A5E01156841

LR250 horn version enclosure with board stack, NPT cable inlet, approval option C, with PROFIBUS PA communication, no process connection

A5E01156843

LR250 horn version enclosure with board stack, M20 cable inlet, approval option C, with PROFIBUS PA communication, no process connection

A5E01156844

LR250 horn version enclosure with board stack, M20 cable inlet, approval option C, with PROFIBUS PA communication, no process connection

A5E01156846

LR250 horn version enclosure with board stack, M20 cable inlet, approval option D, with PROFIBUS PA communication, no process connection

A5E01156848

LR250 enclosure with board stack, NPT cable inlet, approval option B, with FOUNDATION FIELDBUS communication, no process connection

A5E03769538

LR250 enclosure with board stack, NPT cable inlet, approval option D, with FOUNDATION FIELDBUS communication, no process connection

A5E03769539

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)



LR250 horn version enclosure with board stack, M20 cable inlet, approval option C, with FOUNDATION Fieldbus communication, no process connection

A5E02654608

LR250 horn version enclosure with board stack, NPT cable inlet, approval option A, with FOUNDATION Fieldbus communication, no process connection

A5E02653792

LR250 horn version enclosure with board stack, M20 cable inlet, approval option A, with FOUNDATION Fieldbus communication, no process connection

A5E02653793

LR250 horn version enclosure with board stack, NPT cable inlet, approval option C, with FOUNDATION Fieldbus communication, no process connection

A5E02654606

SITRANS LR250 Specials

Order 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

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

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

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

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 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

LR250 lid with O-ring

A5E02465410