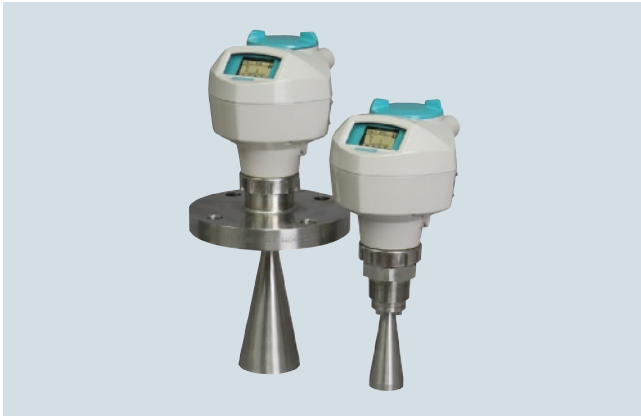


# Level Measurement

## 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.

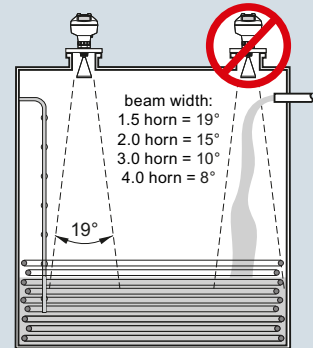
- Key Applications: liquid bulk storage tanks, process vessels, vaporous liquids, high temperatures, low dielectric media and applications with functional safety requirements

#### Configuration

##### Installation

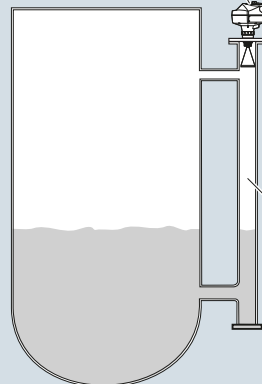
##### Note:

- 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.



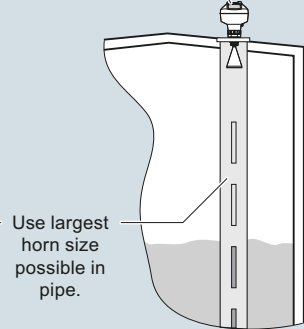
##### Mounting unit on bypass

Orient front or back of device toward vent.

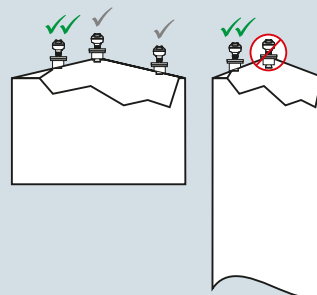


##### Mounting unit on stilling well

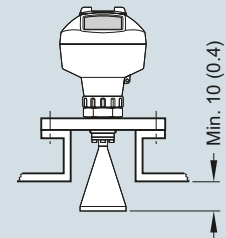
Orient front or back of device toward stillpipe slots.



##### Mounting unit on vessel



##### Mounting on a nozzle



SITRANS LR250 installation, dimensions in mm (inch)

# Level Measurement

## Continuous level measurement – Radar transmitters

### SITRANS LR250 Horn Antenna

#### 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 3.1	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 20 T90 IP67 DIP A20 T <sub>A</sub> 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 <sub>A</sub> 90 °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
• Location	Indoor/outdoor	• Non-sparking (Europe)	ATEX II 1D Ex ia IIIC T100 °C Da
Ambient conditions (enclosure)		• Flame Proof (International/Europe)	ATEX II 3G Ex nA IIC T4 Gc
• Ambient temperature	-40 ... +80 °C (-40 ... +176 °F)	• Increased Safety (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
• Installation category	I	• Intrinsically Safe (International)	IECEX/ATEX II 1/2 GD, 1D, 2D, Ex e mb ia IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da
• Pollution degree	4	• Explosion Proof (Russia)	GOST-R Ex d
<b>Medium conditions</b>		• Increased Safety (Russia)	GOST-R Ex e
Dielectric constant ε <sub>r</sub>	> 1.6, antenna and application dependent	• Intrinsically Safe (Russia)	GOST-R 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)		
Process pressure	Up to 40 bar g (580 psi g), process connection and temperature dependent. See Pressure/Temperature curves for more information		
<b>Design</b>			
Enclosure			
• Material	Aluminum, polyester powder-coated		
• Cable inlet	2 x M20x1.5 or 2 x ½" NPT		
Degree of protection	Type 4X/NEMA 4X, Type 6/NEMA 6, IP67, IP68		
Weight	< 3 kg (6.6 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
- Approvals for handheld programmer

- Handheld communicator
- PC

- Display (local)

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

HART communicator 375/475

- SIMATIC PDM
- Emerson AMS
- SITRANS DTM (for connection into FDT, such as PACTware or Fieldcare)

Graphic local user interface including quick start wizard and echo profile displays

# Level Measurement

## Continuous level measurement – Radar transmitters

### SITRANS LR250 Horn Antenna

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 -
<b>Process Connection and Antenna Material</b>		<b>Flanged connection Hastelloy C</b>	
316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FKM seal <sup>1)</sup>	0	2" Class 150 ASME B16.5 raised faced <sup>4)</sup>	JA
316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FFKM seal <sup>1)</sup>	1	3" Class 150 ASME B16.5 raised faced <sup>4)</sup>	JB
Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FKM seal <sup>2)</sup>	2	4" Class 150 ASME B16.5 raised faced <sup>4)</sup>	JC
Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FFKM seal <sup>2)</sup>	3	2" Class 300 ASME B16.5 raised faced <sup>4)</sup>	JD
		3" Class 300 ASME B16.5 raised faced <sup>4)</sup>	JE
		4" Class 300 ASME B16.5 raised faced <sup>4)</sup>	JF
<b>Process Connection Type</b>		DN 50 PN 16 EN 1092-1 Type B1 raised faced <sup>4)</sup>	KA
<b>Threaded connection 316L</b>		DN 80 PN 16 EN 1092-1 Type B1 raised faced <sup>4)</sup>	KB
1½" NPT (ASME B1.20.1) (tapered thread) <sup>3)</sup>	AA	DN 100 PN 16 EN 1092-1 Type B1 raised faced <sup>4)</sup>	KC
R 1½" [(BSPT), EN 10226-1] (tapered thread) <sup>3)</sup>	AB	DN 50 PN 40 EN 1092-1 Type B1 raised faced <sup>4)</sup>	KD
G 1½" [(BSPP), EN ISO 228-1] (parallel thread) <sup>3)</sup>	AC	DN 80 PN 40 EN 1092-1 Type B1 raised faced <sup>4)</sup>	KE
		DN 100 PN 40 EN 1092-1 Type B1 raised faced <sup>4)</sup>	KF
2" NPT (ASME B1.20.1) (tapered thread)	AD	50A 10K JIS B 2220 raised faced <sup>4)</sup>	LA
R 2" [(BSPT), EN 10226-1] (tapered thread)	AE	80A 10K JIS B 2220 raised faced <sup>4)</sup>	LB
G 2" [(BSPP), EN ISO 228-1] (parallel thread)	AF	100A 10K JIS B 2220 raised faced <sup>4)</sup>	LC
3" NPT (ASME B1.20.1) (tapered thread)	AG	DN 50 PN 16 EN 1092-1 Type B1 raised face	MA
R 3" [(BSPT), EN 10226-1] (tapered thread)	AH	DN 80 PN 16 EN 1092-1 Type B1 raised face	MB
G 3" [(BSPP), EN ISO 228-1] (parallel thread)	AJ	DN 100 PN 16 EN 1092-1 Type B1 raised face	MC
<b>Flanged connection 316L</b>		DN 150 PN 16 EN 1092-1 Type B1 raised face	MD
2" Class 150 ASME B16.5 flat faced <sup>4)</sup>	BA	DN 50 PN 40 EN 1092-1 Type B1 raised face	ME
3" Class 150 ASME B16.5 flat faced <sup>4)</sup>	BB	DN 80 PN 40 EN 1092-1 Type B1 raised face	MF
4" Class 150 ASME B16.5 flat faced <sup>4)</sup>	BC	DN 100 PN 40 EN 1092-1 Type B1 raised face	MG
2" Class 300 ASME B16.5 flat faced <sup>4)</sup>	CA	DN 150 PN 40 EN 1092-1 Type B1 raised face	MH
3" Class 300 ASME B16.5 flat faced <sup>4)</sup>	CB		
4" Class 300 ASME B16.5 flat faced <sup>4)</sup>	CC	<b>Communication/Output</b>	
DN 50 PN 16 EN 1092-1 Type A flat faced <sup>4)</sup>	DA	PROFIBUS PA	1
DN 80 PN 16 EN 1092-1 Type A flat faced <sup>4)</sup>	DB	4 ... 20 mA, HART, startup at < 3.6 mA	2
DN 100 PN 16 EN 1092-1 Type A flat faced <sup>4)</sup>	DC	FOUNDATION Fieldbus	3
DN 50 PN 40 EN 1092-1 Type A flat faced <sup>4)</sup>	EA	<b>Enclosure/Cable inlet</b>	
DN 80 PN 40 EN 1092-1 Type A flat faced <sup>4)</sup>	EB	Aluminum, Epoxy painted	
DN 100 PN 40 EN 1092-1 Type A flat faced <sup>4)</sup>	EC	2 x ½" NPT	0
50A 10K JIS B 2220 flat faced <sup>4)</sup>	FA	2 x M20x1.5	1
80A 10K JIS B 2220 flat faced <sup>4)</sup>	FB	<b>Antenna</b>	
100A 10K JIS B 2220 flat faced <sup>4)</sup>	FC	1½" horn	A
DN 50 PN 16 DIN EN 1092-1 Type B1 raised face	GA	2" horn (fits 2" ASME or DN 50 nozzles)	B
DN 80 PN 16 DIN EN 1092-1 Type B1 raised face	GB	3" horn (fits 3" ASME or DN 80 nozzles)	C
DN 100 PN 16 DIN EN 1092-1 Type B1 raised face	GC	4" horn (fits 4" ASME or DN 100 nozzles)	D
DN 150 PN 16 DIN EN 1092-1 Type B1 raised face	GD	1½" horn with 100 mm extension	E
DN 50 PN 40 DIN EN 1092-1 Type B1 raised face	HA	2" horn with 100 mm extension	F
DN 80 PN 40 DIN EN 1092-1 Type B1 raised face	HB	3" horn with 100 mm extension	G
DN 100 PN 40 DIN EN 1092-1 Type B1 raised face	HC	4" horn with 100 mm extension	H
DN 150 PN 40 DIN EN 1092-1 Type B1 raised face	HD	<b>Hastelloy C22 (or equivalent)</b>	
		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

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# 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.	0 -
<b>Approvals</b>	
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 <sup>5)</sup>	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 <sup>5)</sup>	G
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>	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 <sub>A</sub> 90 °C	L
Flameproof: NEPSI Ex d ia mb IIC T4 Ga/Gb, Ex iaD 20 T90 IP67 DIP A20 T <sub>A</sub> 90 °C <sup>5)</sup>	M
Increased Safety: NEPSI Ex e ia mb IIC T4 Ga/Gb, Ex iaD 20 T90 IP67 DIP A20 T <sub>A</sub> 90 °C <sup>5)</sup>	N
<b>Pressure rating</b>	
Rating per Pressure/Temperature curves in manual	0
0.5 bar g (7.25 psi g) maximum	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.

# Level Measurement

## Continuous level measurement – Radar transmitters

### SITRANS LR250 Horn Antenna

Selection and Ordering data	Order code	Selection and Ordering data	Order code
<b>Further designs</b>		<b>Accessories</b>	
Please add <b>"-Z"</b> to Article No. and specify Order code(s).		Handheld programmer, Intrinsically safe, EEx ia	<b>7ML1930-1BK</b>
Plug M12 with mating Connector <sup>1)2)3)</sup>	◆ <b>A50</b>	HART modem/RS 232 (for use with a PC and SIMATIC PDM)	<b>7MF4997-1DA</b>
Plug 7/8" with mating Connector <sup>2)3)4)</sup>	◆ <b>A55</b>	HART modem/USB (for use with a PC and SIMATIC PDM)	<b>7MF4997-1DB</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>	One metallic cable gland M20x1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART (two are required)	<b>7ML1930-1AP</b>
Manufacturer's Test Certificate: M to DIN 55350, Part 18 and to ISO 9000	◆ <b>C11</b>	One metallic cable gland M20x1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA and FOUNDATION Fieldbus (two are required) <sup>6)</sup>	<b>7ML1930-1AQ</b>
Inspection certificate 3.1 of EN 10204	◆ <b>C12</b>	FDA approved FKM o-ring for 2" G (BSPF) process connections -28 ... +80 °C (-28 ... +176 °F)	<b>7ML1830-3AN</b>
Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511 <sup>3) 5)</sup>	◆ <b>C20</b>	SITRANS RD100 Remote display - see Chapter 7	
Namur NE43 compliant, device preset to failsafe < 3.6 mA <sup>5)</sup>	◆ <b>N07</b>	SITRANS RD200 Remote display - see Chapter 7	
<b>Operating Instructions for HART/mA device</b>		SITRANS RD500 web, datalogging, alarming, eth- ernet, and modem support for instrumentation - see Chapter 7	<b>7ML5750- 1AA00-0</b>
English	Article No. <b>A5E32220602</b>	For applicable back up point level switch - see point level section on page 4/9	
German	<b>A5E32376088</b>		
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.	<b>A5E31997170</b>		
<b>Operating Instructions for PROFIBUS PA device</b>			
English	<b>A5E32221386</b>		
German	<b>A5E32376094</b>		
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.	<b>A5E31997267</b>		
<b>Operating Instructions for FOUNDATION Fieldbus device</b>			
English	<b>A5E32221411</b>		
German	<b>A5E32376112</b>		
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.	<b>A5E31993945</b>		

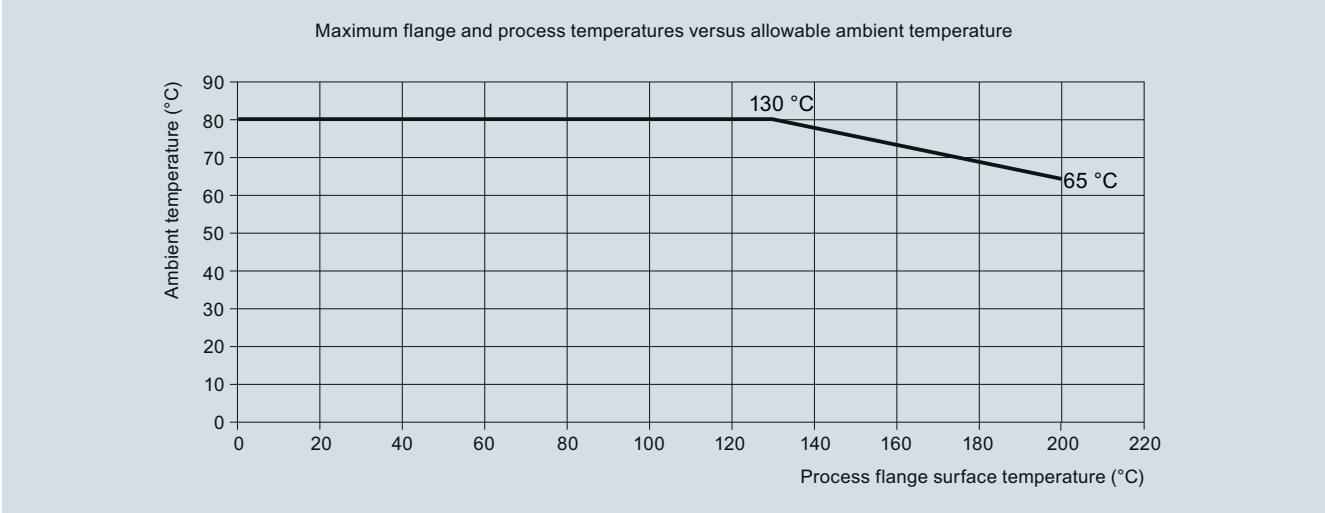
- 1) Available with enclosure option 1 only
  - 2) To be used with communication options 1 and 3 only.  
Connector has IP67 rating.
  - 3) Available with approval options A and B. Available with approval option C  
for use on intrinsically safe applications only. Not rated for dust Ex.
  - 4) Available with enclosure option 0 only
  - 5) Applicable to communication option 2 only
  - 6) For use with communication 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.

# Level Measurement

## Continuous level measurement – Radar transmitters

### SITRANS LR250 Horn Antenna

#### Characteristic curves



SITRANS LR250 Ambient/Process Flange Surface Temperature Curve

4

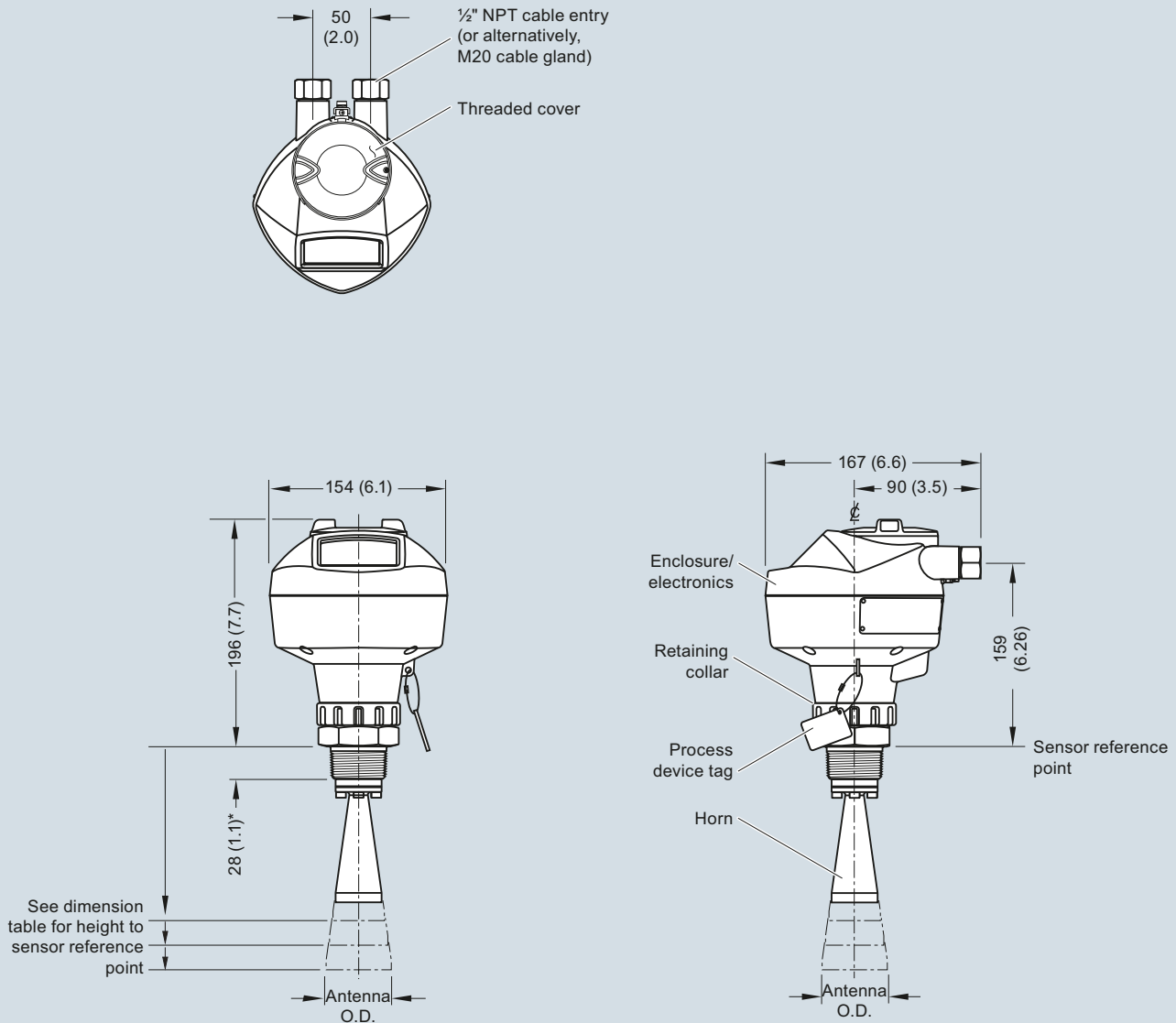
# Level Measurement

## 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)



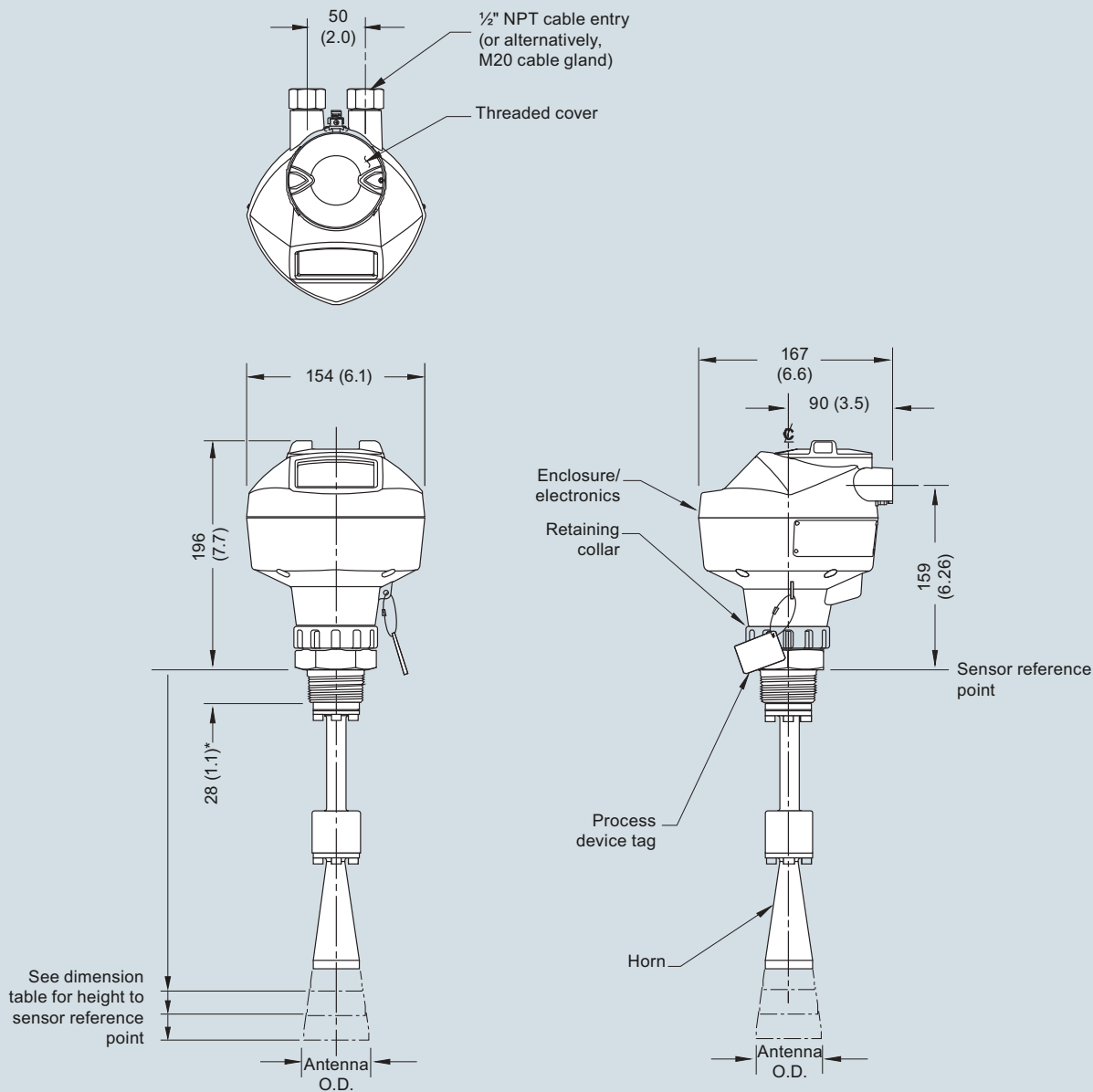
# Level Measurement

## Continuous level measurement – Radar transmitters

### SITRANS LR250 Horn Antenna

4

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)

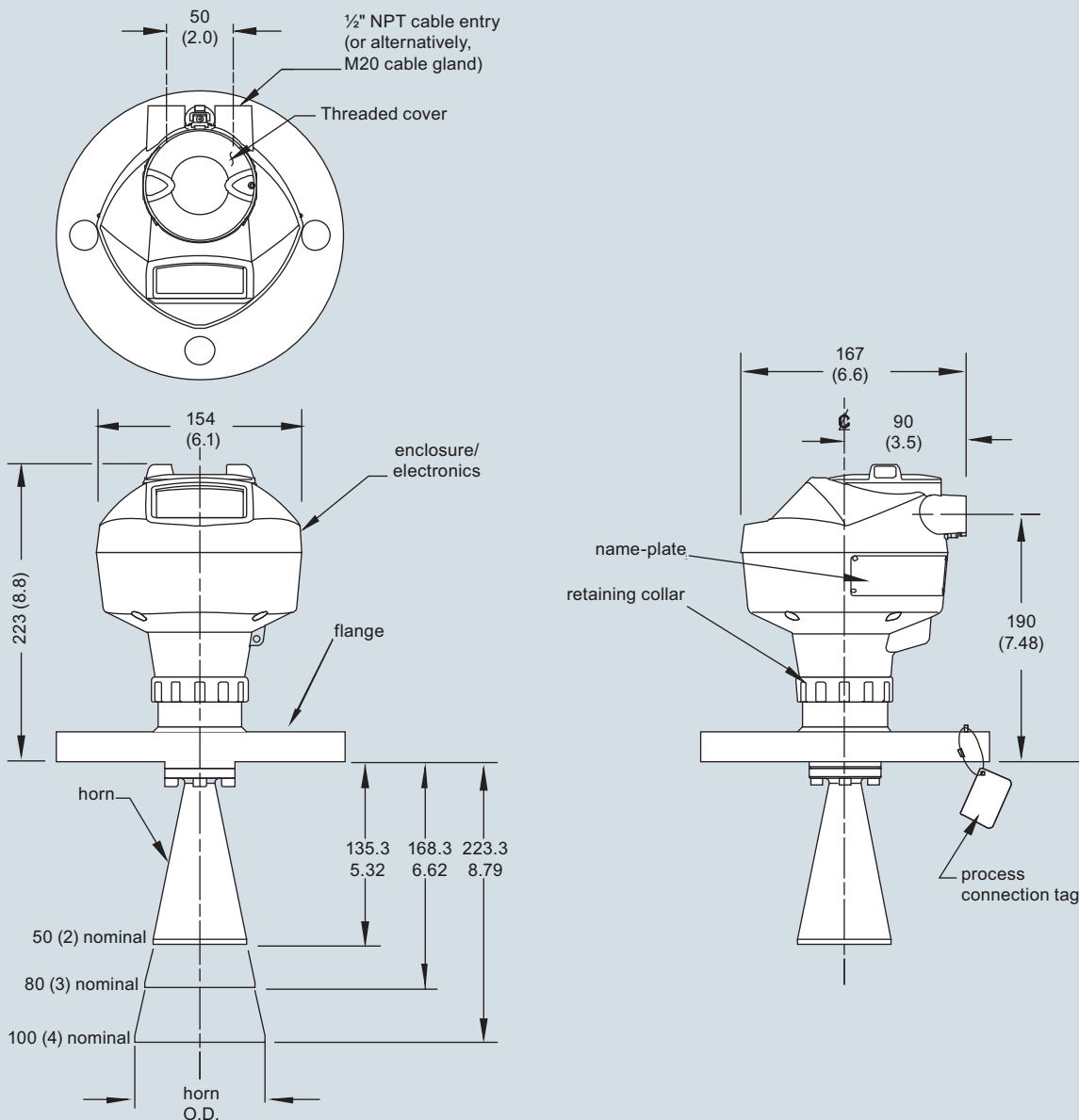
# Level Measurement

## Continuous level measurement – Radar transmitters

### SITRANS LR250 Horn Antenna

4

#### 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)

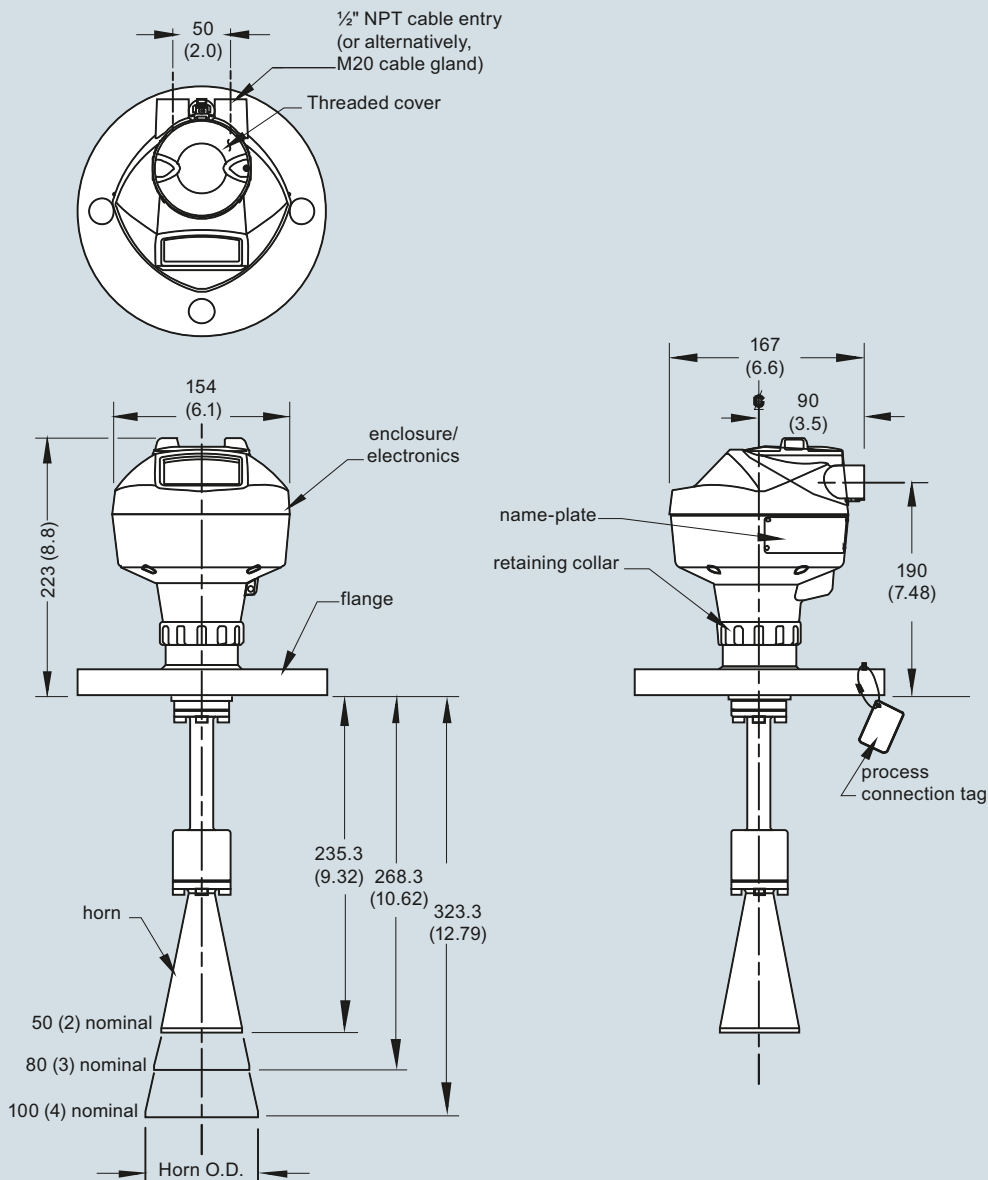
# Level Measurement

## 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)

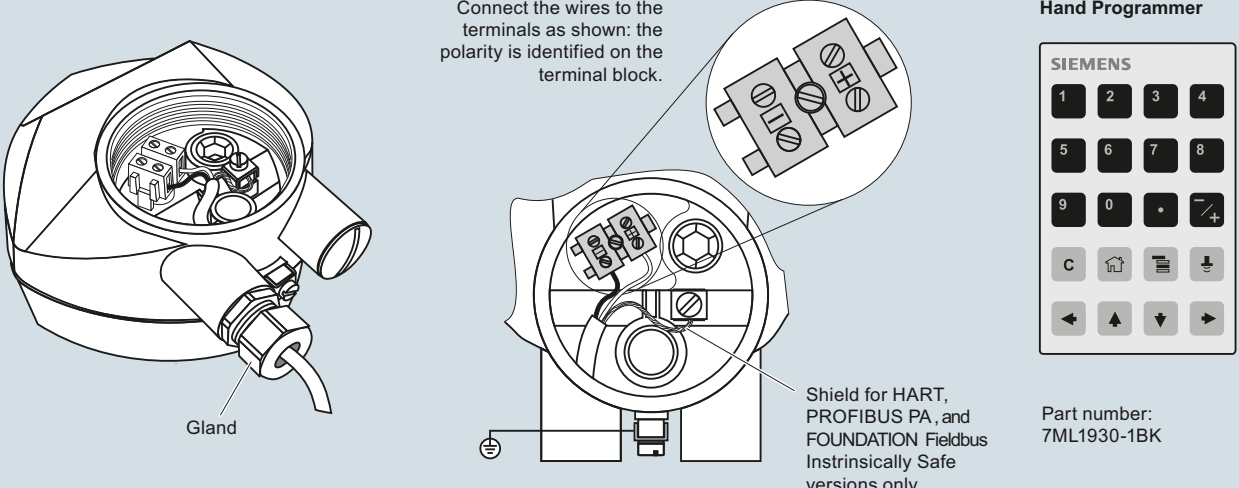
SITRANS LR250 Flanged Horn Antenna with extension, dimensions in mm (inch)

# 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