

Level measurement

Continuous level measurement – Radar transmitters

SITRANS LR250 Flanged Encapsulated Antenna

Overview



SITRANS LR250 with flanged encapsulated antenna is a 2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including corrosives or aggressive materials, to a range of 20 m (66 ft) (antenna dependent).

Benefits

- Fully encapsulated horn antenna design with FDA approved TFM 1600 PTFE lens for use in chemical and sanitary environments where aggressive and corrosive materials are used
- Cost effective replacement for transmitters made of exotic materials
- 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 and 2 inch (50 mm) process connection/antenna allow for easy mounting
- 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

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 Quick Start Wizard with a few parameters required for basic operation.

The 25 GHz frequency creates a narrow, focused beam allowing for smaller 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 in small vessels and in tanks/vessels up to 20 m (66 ft) on materials with $dk > 1.6$.

- Key Applications: liquid bulk storage tanks, process vessels with agitators, vaporous liquids, temperatures to 170 °C (338 °F), corrosive and aggressive materials and applications where ease of cleaning is required, such as food or fine chemicals.

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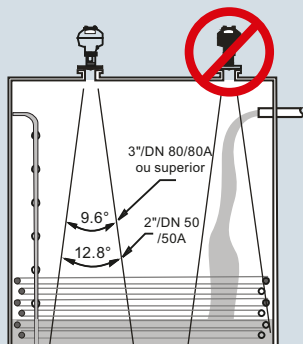
SITRANS LR250 Flanged Encapsulated Antenna

Configuration

Installation

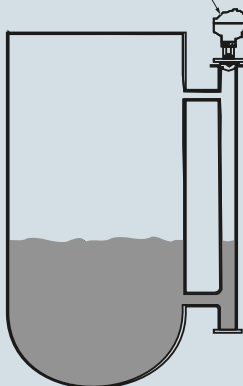
Note:

- 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 antenna.
- There is a signal transmitted outside of the beam angle; therefore false targets may be detected.



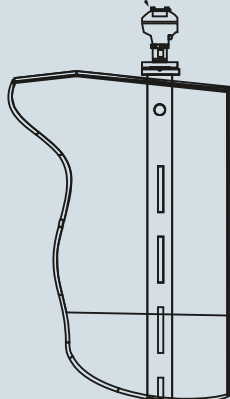
Mounting unit on bypass

Orient front or back of device toward vent.

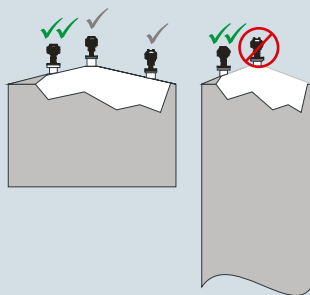


Mounting unit on stilling well

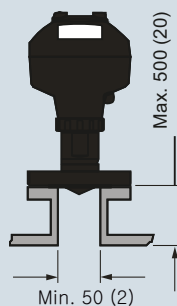
Orient front or back of device toward stillpipe slots.



Mounting unit on vessel



Mounting on a nozzle



SITRANS LR250 flanged encapsulated antenna 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 (66 ft)

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	<ul style="list-style-type: none"> > 500 mm from sensor reference point: 3 mm (0.118 inch) < 500 mm from sensor reference point: 25 mm (1 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 dependent)
Process temperature	-40 ... +170 °C (-40 ... +338 °F) at process connection
Process pressure	See Pressure/Temperature curves for more information (page 4/233)

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 (dependent on process connection)	<ul style="list-style-type: none"> Approx. 7 kg (15.43 lb) for 2" Class 150 ASME B16.5 raised face flange (smallest size) Approx. 17.7 kg (39.02 lb) for 6" Class 150 ASME B16.5 raised face flange (largest size)
Display (local)	Graphic local user interface including quick start wizard and echo profile display
Antenna	
• Material	Stainless steel 316L (1.4435 or 1.4404) and TFM 1600 PTFE Lens (lens is the only wetted part)
• Dimensions (nominal sizes)	48 mm (2 inch), 80 mm (3 inch), 100 mm (4 inch), 150 mm (6 inch)

Process connections

Flanged connection	Raised face
	<ul style="list-style-type: none"> 2, 3, 4, 6" Class 150 ASME B16.5 50A, 80A, 100A, 150A 10K JIS B 2220 DN 50, DN 80, DN 100 & DN 150 PN 10/16 EN 1092-1 type B1

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, 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 ta IIIC T100 °C Da
• Non-sparking (Europe)	ATEX II 3G Ex nA IIC T4 Gc
• 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
• 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
• Intrinsically Safe (International)	IECEx/ATEX II 1 G Ex ia IIC T4 Ga, IECEx/ATEX II 1D Ex ia ta IIIC 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		Selection and Ordering data	Article No.
Intrinsically Safe Siemens handheld programmer	Infrared receiver	SITRANS LR250 flanged encapsulated antenna	7ML5432-
• 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	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 dependant). Ideal for corrosive, aggressive and low dielectric media.	0 -
Handheld communicator	HART communicator 375/475	Process Connection Material Stainless steel 1.4404/1.4435	0
PC	• SIMATIC PDM • Emerson AMS • SITRANS DTM (for connection into FDT, such as PACTware or Fieldcare)	Process Connection Type <u>Flanged Process Connection Types</u> (stainless steel 1.4404/1.4435) 2" Class 150 ASME B16.5 raised face ¹⁾ 3" Class 150 ASME B16.5 raised face 4" Class 150 ASME B16.5 raised face 6" Class 150 ASME B16.5 raised face 50A 10K JIS B 2220 raised face ¹⁾ 80A 10K JIS B 2220 raised face 100A 10K JIS B 2220 raised face 150A 10K JIS B 2220 raised face DN 50 PN 10/16 EN 1092-1 type B1 raised face ¹⁾ DN 80 PN 10/16 EN 1092-1 type B1 raised face DN 100 PN 10/16 EN 1092-1 type B1 raised face DN 150 PN 10/16 EN 1092-1 type B1 raised face	B F B G B H B J F D F E F F F G G A G B G C G D
Display (local)	Graphic local user interface including quick start wizard and echo profile displays	Communication/Output PROFIBUS PA 4 ... 20 mA, HART, startup at < 3.6 mA FOUNDATION Fieldbus	1 2 3
		Enclosure/Cable inlet Aluminum, Epoxy painted 2 x 1/2" NPT 2 x M20x1.5	0 1
		Antenna lens material TFM 1600 PTFE Flush Lens	A
		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 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 Non-incendive: CSA/FM Class I, Div. 2, Groups A, B, C, D T5, FCC, Industry Canada Non Sparking: ATEX II 3G Ex nA IIC T4 Gc, CE, R&TTE, RCM 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 ²⁾ 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 ²⁾ Explosion proof: CSA/FM Class I, II and III, Div.1, Groups A, B, C, D, E, F, G, FCC, Industry Canada ²⁾ Non Sparking: NEPSI Ex nA IIC T4 Gc Intrinsically Safe: NEPSI Ex ia IIC T4 Ga, Ex iaD 20 T90 IP67 DIP A20 T _A 90 °C Flameproof: NEPSI Ex d ia mb IIC T4 Ga/Gb, Ex iaD 20 T90 IP67 DIP A20 T _A 90 °C ²⁾ Increased Safety: NEPSI Ex e ia mb IIC T4 Ga/Gb, Ex iaD 20 T90 IP67 DIP A20 T _A 90 °C ²⁾	A B C D E F G H K L M N
		Pressure rating Rating per Pressure/Temperature curves in instruction manual	0

¹⁾ Maximum range 10 m (32.8 ft), dk > 3 [20m (66ft) and dk > 1.6 when mounted in stillpipe]

²⁾ 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

Further designs

Please add **"-Z"** to Article No. and specify Order code(s).

Plug M12 with mating Connector¹⁾²⁾³⁾ ◆ **A50**

Plug 7/8" with mating Connector²⁾³⁾⁴⁾ ◆ **A55**

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**

Manufacturer's test certificate: M to DIN 55350, Part 18 and to ISO 9000 ◆ **C11**

Inspection Certificate Type 3.1 per EN 10204 ◆ **C12**

Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511⁵⁾⁶⁾ ◆ **C20**

Namur NE43 compliant, device preset to failsafe < 3.6 mA⁵⁾ ◆ **N07**

Operating Instructions for HART/mA device

Article No.

English

A5E32220602

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

German

A5E32376094

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.

A5E31997267

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

Selection and Ordering data

Order code

Accessories

Handheld programmer, Intrinsically safe, EEx ia ◆ **7ML1930-1BK**

HART modem/RS 232 (for use with a PC and SIMATIC PDM) ◆ **7MF4997-1DA**

HART modem/USB (for use with a PC and SIMATIC PDM) ◆ **7MF4997-1DB**

One metallic cable gland M20x1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART (2 are required)⁶⁾ ◆ **7ML1930-1AP**

One metallic cable gland M20x1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA and FOUNDATION Fieldbus (2 are required)²⁾ ◆ **7ML1930-1AQ**

SITRANS RD100 Remote display - see Chapter 7

SITRANS RD200 Remote display - see Chapter 7

SITRANS RD500 web, datalogging, alarming, ethernet, and modem support for instrumentation - see Chapter 7

◆ **7ML5750-1AA00-0**

For applicable back up point level switch - see point level section on page 4/9

¹⁾ Available with enclosure option 1 only

²⁾ Available with communication options 1 and 3 only

³⁾ Available with approval options A, B, C, and L only

⁴⁾ Available with enclosure option 0 only

⁵⁾ Applicable with communication option 2 only

⁶⁾ Available with approval options A, B, C, D, E, K, and L only

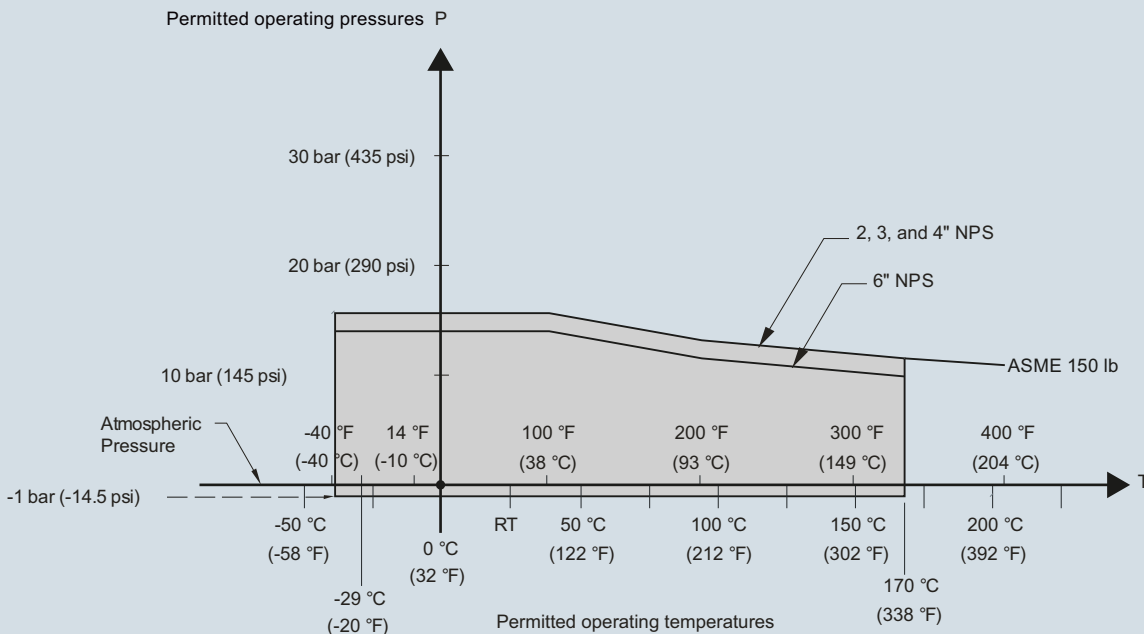
◆ We can offer shorter delivery times for configurations designated with the Quick Ship Symbol ◆. For details see page 9/5 in the appendix.

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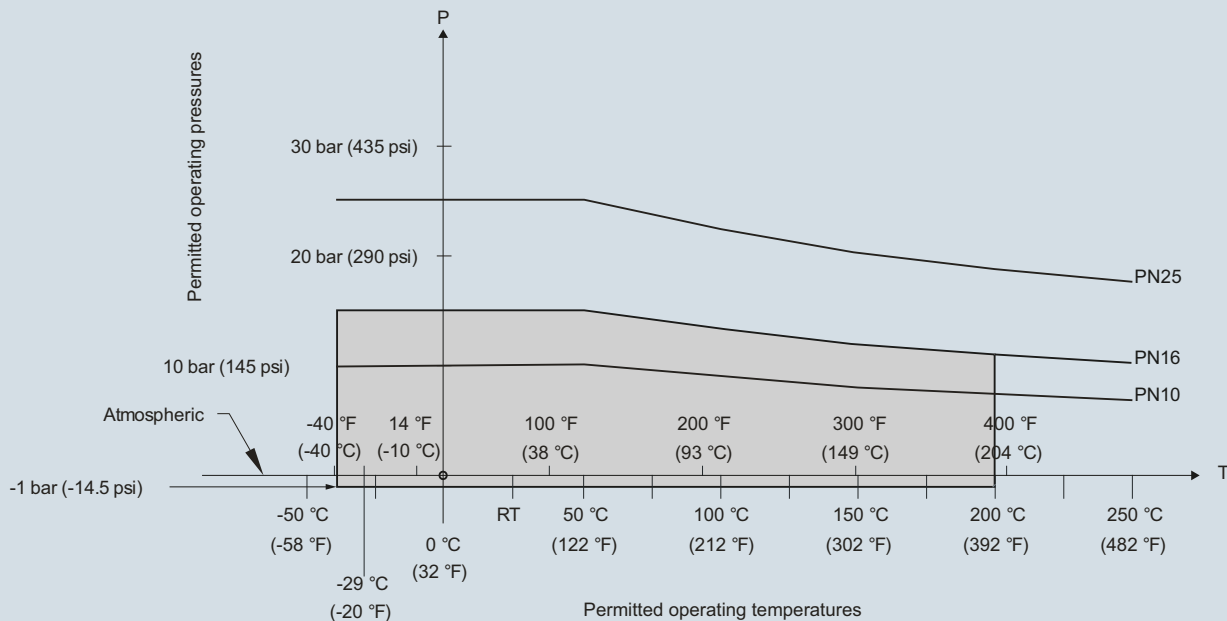
Characteristic curves

Pressure/ temperature curve
LR250 Flanged Encapsulated Antenna
ASME flanged process connections
(7ML5432)



SITRANS LR250 flanged encapsulated antenna installation, dimensions in mm (inch)

Pressure/ temperature curve
LR250 Flanged Encapsulated Antenna
EN 1092-1 flanged process connections
(7ML5432)



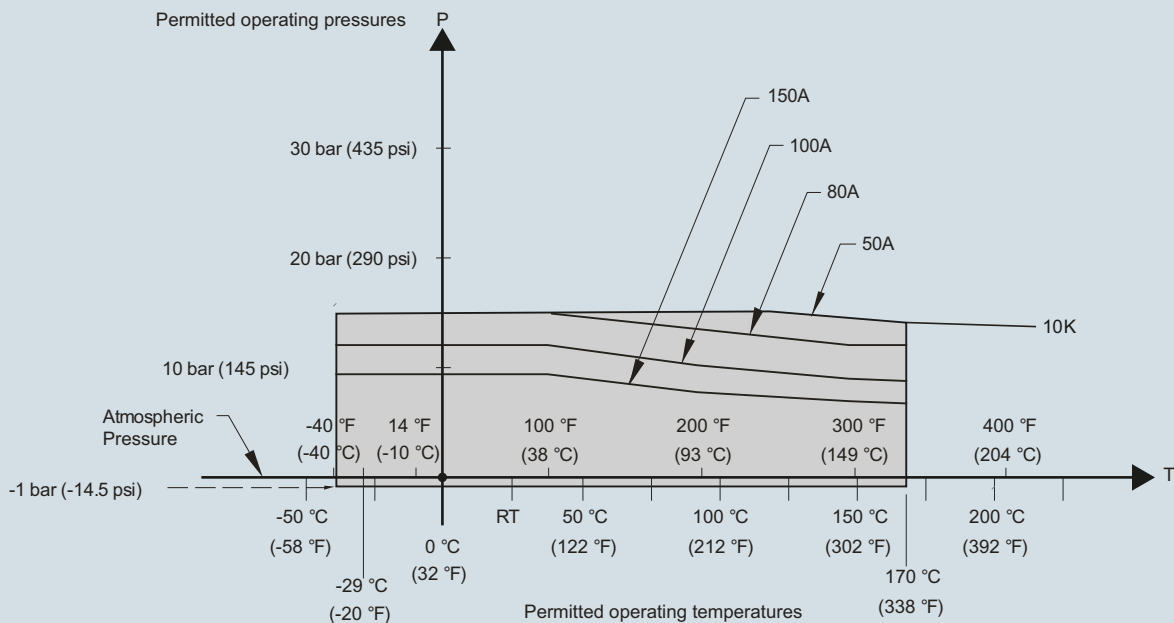
SITRANS LR250 flanged encapsulated antenna pressure/temperature curve

Level measurement

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SITRANS LR250 Flanged Encapsulated Antenna

Pressure/ temperature curve
LR250 Flanged Encapsulated Antenna
JIS B 2220 flanged process connections
(7ML5432)



SITRANS LR250 flanged encapsulated antenna pressure/temperature curve

4

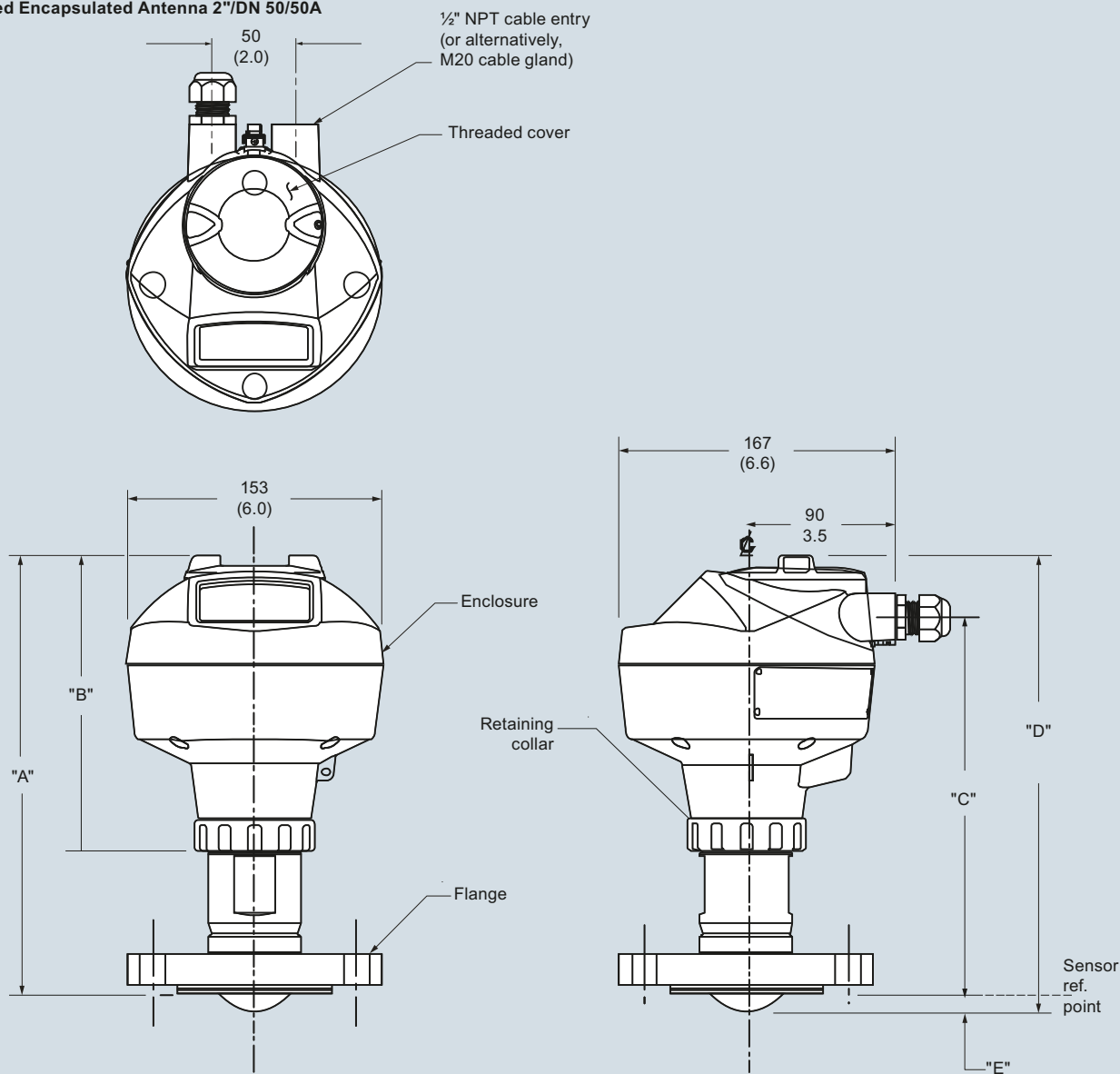
Level measurement

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SITRANS LR250 Flanged Encapsulated Antenna

Dimensional drawings

Flanged Encapsulated Antenna 2"/DN 50/50A



Flange Size	Flange Class	Flange O.D.	Antenna aperture size	Height to Sensor reference point dimension E ¹⁾	Beam angle	Measurement Range	Dimension A	Dimension B	Dimension C	Dimension D
2"	150 lb	152 (5.98)	50 (1.97)	11 (0.43)	12.8°	10 m (32.8 ft)	263 (10.35)	178 (7)	223 (8.78)	274 (10.79)
DN 50	PN 10/16	165 (6.50)								
50A	10K	155 (6.10)								

¹⁾ Height from tip of lens to sensor reference point as shown.

SITRANS LR250 flanged encapsulated antenna, dimensions in mm (inch)

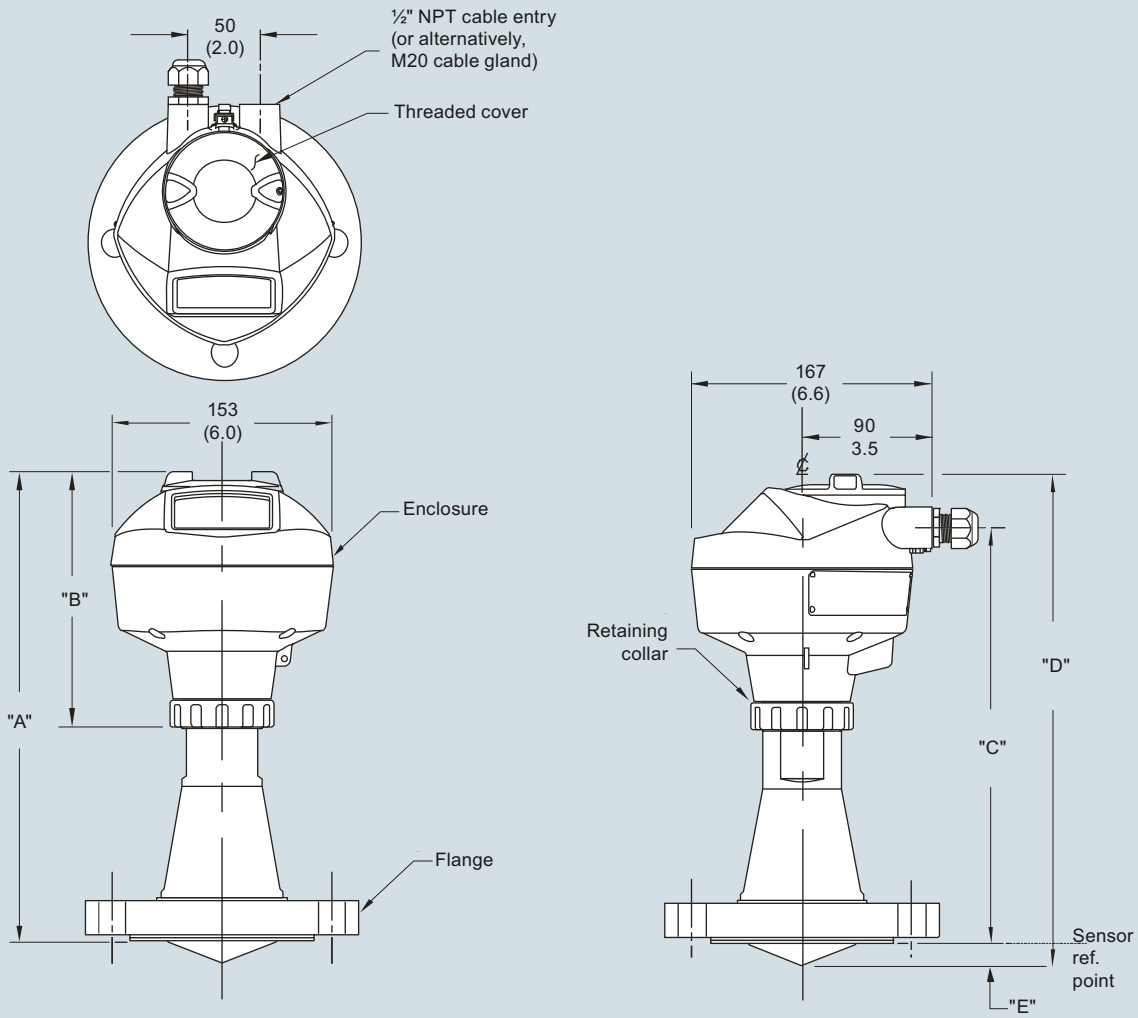
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SITRANS LR250 Flanged Encapsulated Antenna

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Flanged Encapsulated Antenna 3"/DN50/80A or greater



Flange Size	Flange Class	Flange O.D.	Antenna aperture size	Height to Sensor reference point dimension E ¹⁾	Beam angle	Measurement Range	Dimension A	Dimension B	Dimension C	Dimension D
3"	150 lb	190 (7.48)	75 (2.95)	15 (0.59)	9.6°	20 m (65.6 ft)	328 (12.91)	178 (7)	288 (11.34)	343 (13.54)
DN80	PN10/16	200 (7.87)								
80A	10K	185 (7.28)								
4"	150 lb	230 (9.06)	75 (2.95)	13 (0.51)	9.6°	20 m (65.6 ft)	328 (12.91)	178 (7)	288 (11.34)	343 (13.50)
DN100	PN10/16	220 (8.66)								
100A	10K	210 (8.27)								
6"	150 lb	280 (11.02)	75 (2.95)	15 (0.59)	9.6°	20 m (65.6 ft)	333 (13.11)	178 (7)	293 (11.54)	348 (13.70)
DN150	PN10/16	285 (11.25)								
150A	10K	280 (11.02)								

¹⁾ Height from tip of lens to sensor reference point as shown.

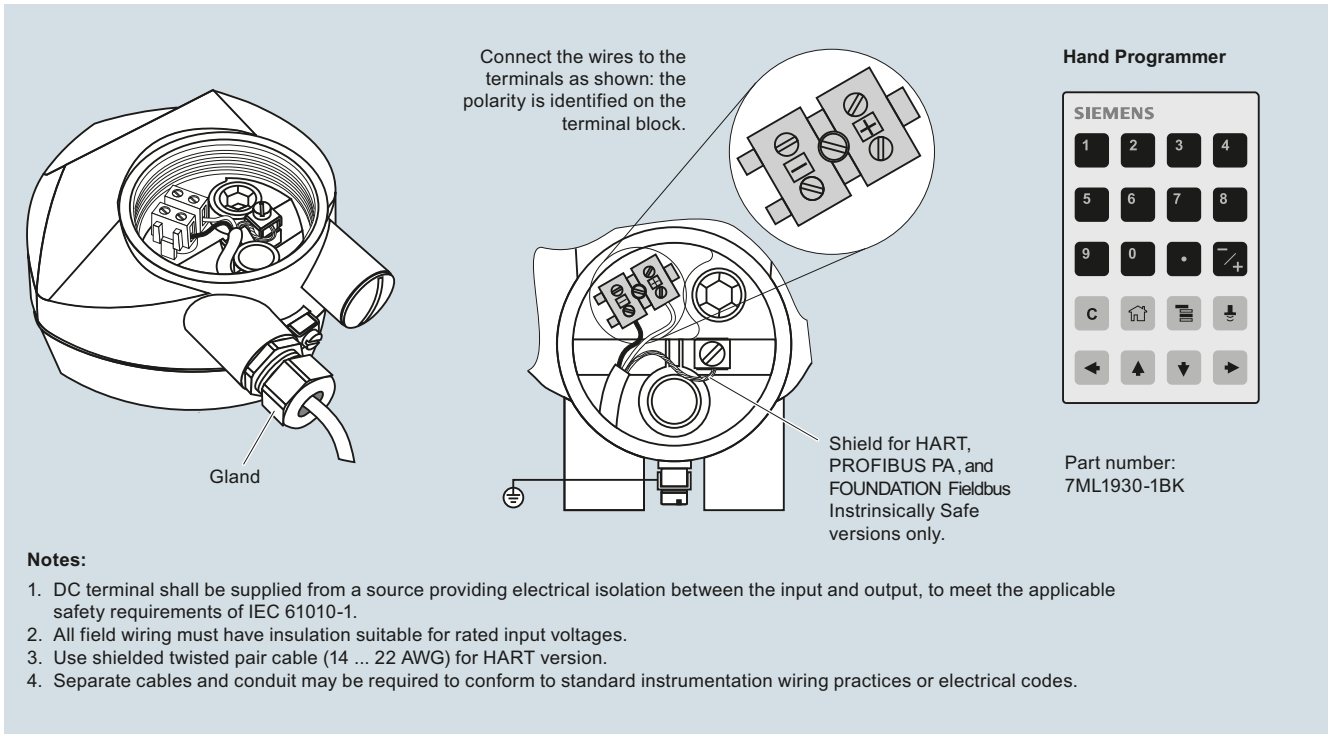
SITRANS LR250 flanged encapsulated antenna, dimensions in mm (inch)

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SITRANS LR250 Flanged Encapsulated Antenna

Schematics



SITRANS LR250 connections

Level measurement

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SITRANS LR250 Flanged Encapsulated Specials

SITRANS LR250 flanged encapsulated Specials

	Article No.
SITRANS LR250 flanged encapsulated antenna version enclosures (PROFIBUS PA models)	
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option A, with PROFIBUS PA communication, no process connection	A5E32462853
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, NPT cable inlet, approval option A, with PROFIBUS PA communication, no process connection	A5E32462854
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, NPT cable inlet, approval option B, with PROFIBUS PA communication, no process connection	A5E32462855
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option C, with PROFIBUS PA communication, no process connection	A5E32462856
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, NPT cable inlet, approval option D, with PROFIBUS PA communication, no process connection	A5E32462857
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option E, with PROFIBUS PA communication, no process connection	A5E32462858
SITRANS LR250 flanged encapsulated antenna version enclosures (FOUNDATION Fieldbus models)	
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option A, with FOUNDATION Fieldbus communication, no process connection	A5E32462859
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, NPT cable inlet, approval option A, with FOUNDATION Fieldbus communication, no process connection	A5E32462860
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, NPT cable inlet, approval option B, with FOUNDATION Fieldbus communication, no process connection	A5E32462861
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option C, with FOUNDATION Fieldbus communication, no process connection	A5E32462862
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, NPT cable inlet, approval option D, with FOUNDATION Fieldbus communication, no process connection	A5E32462863
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option E, with FOUNDATION Fieldbus communication, no process connection	A5E32462864
SITRANS LR250 flanged encapsulated antenna version enclosures (< 3.6 mA start-up HART models)	
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option A, with HART communication start-up at < 3.6 mA, no process connection	A5E32462865
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, NPT cable inlet, approval option A, with HART communication start-up at < 3.6 mA, no process connection	A5E32462866

SITRANS LR250 flanged encapsulated Specials

	Article No.
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, NPT cable inlet, approval option B, with HART communication start-up at < 3.6 mA, no process connection	A5E32462867
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option C, with HART communication start-up at < 3.6 mA, no process connection	A5E32462868
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, NPT cable inlet, approval option D, with HART communication start-up at < 3.6 mA, no process connection	A5E32462869
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option E, with HART communication start-up at < 3.6 mA, no process connection	A5E32462830
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option F, with HART communication start-up at < 3.6 mA, no process connection	A5E32462831
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, M20 cable inlet, approval option G, with HART communication start-up at < 3.6 mA, no process connection	A5E32462832
LR250 flanged encapsulated antenna version (7ML5432) enclosure with board stack, NPT cable inlet, approval option H, with HART communication start-up at < 3.6 mA, no process connection	A5E32462833
SITRANS LR250 flanged encapsulated antenna lens kits	
Replacement TFM 1600 Lens and Spring Washer Kit for 2" Class 150 ASME B16.5 raised face	A5E32462817
Replacement TFM 1600 Lens and Spring Washer Kit for 3" Class 150 ASME B16.5 raised face	A5E32462819
Replacement TFM 1600 Lens and Spring Washer Kit for 4" Class 150 ASME B16.5 raised face	A5E32462820
Replacement TFM 1600 Lens and Spring Washer Kit for 6" Class 150 ASME B16.5 raised face	A5E32462821
Replacement TFM 1600 Lens and Spring Washer Kit for 50A 10K JIS B 2220 raised face	A5E32462822
Replacement TFM 1600 Lens and Spring Washer Kit for 80A 10K JIS B 2220 raised face	A5E32462823
Replacement TFM 1600 Lens and Spring Washer Kit for 100A 10K JIS B 2220 raised face	A5E32462824
Replacement TFM 1600 Lens and Spring Washer Kit for 150A 10K JIS B 2220 raised face	A5E32462825
Replacement TFM 1600 Lens and Spring Washer Kit for DN 50 PN 10/16 EN 1092-1 type B1 raised face	A5E32462826
Replacement TFM 1600 Lens and Spring Washer Kit for DN 80 PN 10/16 EN 1092-1 type B1 raised face	A5E32462827
Replacement TFM 1600 Lens and Spring Washer Kit for DN 100 PN 10/16 EN 1092-1 type B1 raised face	A5E32462828
Replacement TFM 1600 Lens and Spring Washer Kit for DN 150 PN 10/16 EN 1092-1 type B1 raised face	A5E32462829