Level Measurement
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Overview

The SITRANS LR250 Hygienic Encapsulated Antenna is a 2-wire 25GHz pulse radar level transmitter with sanitary and hygienic approvals for continuous monitoring of liquids, slurries, and pastes within the food, beverage, chemical, and pharmaceutical industries to a range of 20 m (66 ft) (antenna dependent). Picture shown with accessories sold separately.

Benefits

- Fully encapsulated horn antenna design with FDA approved and USP Class VI compliant, TFM 1600 PTFE lens
- < 0.8 µ Ra surface finish for maximum cleanability and hygiene requirements commonly required in sanitary environments
- Chemically resistant TFM 1600 PTFE lens is also suitable for aggressive or corrosive materials
- Approved device in accordance with 3-A, EHEDG EL Class I and/or EHEDG EL Aseptic Class I
- Cost effective replacement for transmitters made of exotic materials
- Graphical local user interface (LUI) makes operation simple with plug-and-play set-up using the intuitive Quick Start Wizard
- Industry standard process connections including ISO 2852, DIN 11851, DIN 11864-1, DIN 11864-2, DIN 11864-3, and Tuchenhagen Varivent Type F and N
- 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
- 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 Instrinsically 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 set-up 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 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 Instrinsically 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: applications within the food, beverage, chemical and pharmaceutical industries where sanitary, aseptic, or hygienic approvals are required or easy install/clean flush antennas are preferable such as ice cream, fruit juice, milk, beer, and pharmaceutical or chemical additives and ingredients.

Conclusion

The SITRANS LR250 Hygienic Encapsulated Antenna is a versatile and reliable solution for continuous level measurement in demanding environments. Its design and features meet the high standards required in the food, beverage, and pharmaceutical industries, ensuring accurate and reliable measurement.

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

Medium conditions
Dielectric constant: ≥ 1.6 (antenna dependent)
Process temperature: -40 ... -170 °C (-40 ... -338 °F) at process connection
Process pressure: 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 ½" NPT
Degree of protection
• Type 4X/NEMA 4X, Type 6/NEMA 6, IP67, IP68
Weight (dependent on process connection)
• Approx. 4.7 kg (10.4 lb) for 2" ISO 2852 (smallest size)
• Approx. 7.9 kg (17.4 lb) for DN 100 DIN 11864-2 (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)
• Lens surface finish (R1): 0.8 µm

Process connections
Hygienic/Sanitary connections
• 2", 3" & 4" Sanitary Clamp according to ISO 2852
• DN 50, DN 80 & DN 100 Aseptic/Hygienic thread to DIN 11864-1 [Form A]
• DN 50, DN 80 & DN 100 Aseptic/Hygienic flanged to DIN 11864-2 [Form A]
• DN 50, DN 80 & DN 100 Aseptic/Hygienic Clamp according to DIN 11864-3 [Form A]
• DN 50, DN 80 & DN 100 Hygienic Union according to DIN 11851
• Type F (50 mm) & Type N (68 mm) Tuchenhagen Varivent

Power supply
4 ... 20 mA/HART: Nominal 24 V DC (max. 30 V DC) with max. 550 Ω
• PROFIBUS PA: 15 mA
  Per IEC 61158-2
• FOUNDATION Fieldbus: 20.0 mA
  Per IEC 61158-2

Certificates and approvals
General
• CSA, 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
  • 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 ia mb IIC T4 Ga/Gb, Ex ia mb IIC T4 Ga/Gb, Ex ia ta IIIC T40 °C Da
  • NEPSI Ex ia ta IIIC T40 °C Da
• Intrinsically Safe (China)
  • NEPSI Ex ia IIC T4 Ga, Ex ia ta IIIC T40 °C Da
• Non-sparking (China)
  • NEPSI Ex NA IIC T4 Ga
• Non-sparking (Europe)
  • IECEx/ATEX II 1G Ex ia IIC T4 Ga ATEX II 1D Ex ia ta IIIC T100 °C Da
  • IECEx/ATEX II 3G Ex na IIC T4 Ga
• Flame Proof (International/Europe)
  • IECEx/ATEX II 1/2 GD, 1D, 2D Ex d mb ia IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da
  • 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)
• Intrinsically Safe (International/Europe)
• Explosion Proof (Russia/Kazakhstan)
• Increased Safety (Russia/Kazakhstan)
• Intrinsically Safe (Russia/Kazakhstan)
• Hygienic/Sanitary
• EHEDG EL Class I
  • EHEDG EL Aseptic Class I

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**Level Measurement**
Continuous level measurement - Radar transmitters

### SITRANS LR250 Hygienic Encapsulated Antenna

**Programming**

<table>
<thead>
<tr>
<th>Intrinsically Safe Siemens handheld programmer</th>
<th>Infrared receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Approvals for handheld programmer</td>
<td></td>
</tr>
</tbody>
</table>

**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**
- HART communicator 375/475

**PC**
- 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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**Level Measurement**
Continuous level measurement - Radar transmitters

### SITRANS LR250 Hygienic Encapsulated Antenna

#### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5433-0</td>
<td>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, up to a range of 20 m (66 ft) (Antenna dependant). Ideal for Hygienic applications including small vessels and low dielectric media.</td>
</tr>
</tbody>
</table>

- Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

#### Hygienic/Sanitary Approvals

<table>
<thead>
<tr>
<th>Approval</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHEDG EL Class</td>
<td>(1)</td>
</tr>
<tr>
<td>EHEDG EL Aseptic Class</td>
<td>(1)</td>
</tr>
<tr>
<td>3-A (Tuchenhagen connections only - FC ... FF)</td>
<td>(2)(3)</td>
</tr>
<tr>
<td>EHEDG EL Class I &amp; 3-A (excludes Tuchenhagen connections)</td>
<td>(2)(4)</td>
</tr>
</tbody>
</table>

#### Process Connection Types (all types have TFM1600 PTFE lens)

<table>
<thead>
<tr>
<th>Type</th>
<th>Connection Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>316L st/st</td>
<td>[1.4435 or 1.4404]</td>
<td>2&quot; Sanitary Clamp according to ISO 2852(5)</td>
</tr>
<tr>
<td>316L st/st</td>
<td>[1.4435 or 1.4404] &amp; 304L st/st (1.4301)</td>
<td>3&quot; Sanitary Clamp according to ISO 2852(5)</td>
</tr>
<tr>
<td>DN 50 Aseptic/Hygienic nozzle/ slotted nut (instrument side) to DIN 11864-1 <a href="5">Form A</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 80 Aseptic/Hygienic nozzle/ slotted nut (instrument side) to DIN 11864-1 [Form A]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 100 Aseptic/Hygienic nozzle/ slotted nut (instrument side) to DIN 11864-1 [Form A]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>316L st/st</td>
<td>[1.4435 or 1.4404]</td>
<td>4&quot; Sanitary Clamp according to ISO 2852(5)</td>
</tr>
<tr>
<td>316L st/st</td>
<td>[1.4435 or 1.4404]</td>
<td>5&quot; Sanitary Clamp according to ISO 2852(5)</td>
</tr>
<tr>
<td>DN 50 Aseptic/Hygienic flanged to DIN 11864-2 <a href="5">Form A</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 80 Aseptic/Hygienic flanged to DIN 11864-2 [Form A]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 100 Aseptic/Hygienic flanged to DIN 11864-2 [Form A]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>316L st/st</td>
<td>[1.4435 or 1.4404]</td>
<td>6&quot; Sanitary Clamp according to ISO 2852(5)</td>
</tr>
<tr>
<td>316L st/st</td>
<td>[1.4435 or 1.4404]</td>
<td>7&quot; Sanitary Clamp according to ISO 2852(5)</td>
</tr>
<tr>
<td>DN 50 Aseptic/Hygienic Clamp according to DIN 11864-3 <a href="5">Form A</a></td>
<td></td>
<td></td>
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<tr>
<td>DN 80 Aseptic/Hygienic Clamp according to DIN 11864-3 [Form A]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 100 Aseptic/Hygienic Clamp according to DIN 11864-3 [Form A]</td>
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<td></td>
</tr>
<tr>
<td>316L st/st</td>
<td>[1.4435 or 1.4404] &amp; 304L st/st (1.4301)</td>
<td>8&quot; Sanitary Clamp according to ISO 2852(5)</td>
</tr>
<tr>
<td>DN 50 Hygienic nozzle/ slotted nut (instrument side) to DIN 11851</td>
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<td></td>
</tr>
<tr>
<td>DN 80 Hygienic nozzle/ slotted nut (instrument side) to DIN 11851</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 100 Hygienic nozzle/ slotted nut (instrument side) to DIN 11851</td>
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<td></td>
</tr>
<tr>
<td>316L st/st</td>
<td>[1.4435 or 1.4404]</td>
<td>9&quot; Sanitary Clamp according to ISO 2852(5)</td>
</tr>
<tr>
<td>Type F (50 mm) Tuchenhagen Varivent (EHEDG only)(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type N (68 mm) Tuchenhagen Varivent (EHEDG only)(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type F (50 mm) Tuchenhagen Varivent <a href="5">3-A only &amp; EPDM process seal -40 ... 120 °C (-40 ... 248 °F)</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type N (68 mm) Tuchenhagen Varivent <a href="5">3-A only &amp; EPDM process seal -40 ... 120 °C (-40 ... 248 °F)</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type F (50 mm) Tuchenhagen Varivent <a href="5">3-A only &amp; PKM process seal -20 ... 170 °C (-4 ... 338 °F)</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type N (68 mm) Tuchenhagen Varivent <a href="5">3-A only &amp; PKM process seal -20 ... 170 °C (-4 ... 338 °F)</a></td>
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<td></td>
</tr>
</tbody>
</table>

#### Communication

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFIBUS PA</td>
<td>4 ... 20 mA HART, start-up at &lt; 3.6 mA</td>
</tr>
<tr>
<td>FOUNDATION Fieldbus</td>
<td></td>
</tr>
</tbody>
</table>

#### Enclosure (with Cable Inlets)

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, Epoxy paint, 2 X ½&quot; NPT</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Epoxy paint, 2 X M20 x 1.5</td>
<td></td>
</tr>
</tbody>
</table>

#### Approvals

<table>
<thead>
<tr>
<th>Approval</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Purpose, CE, CSA, FM, FCC, R&amp;TTE, RCM</td>
<td>A</td>
</tr>
<tr>
<td>Intrinsically Safe: IECEx/ATEX II 1 GD Ex ia IIC T4 Ga, Ex ia ta IIIC T100 °C Da, INMETRO Ex ia IIC T4 Ga, Ex ia ta IIIC T100 °C Da, CE, R&amp;TTE, ROM</td>
<td>C</td>
</tr>
<tr>
<td>Non Sparking: ATEX II 3G Ex na IIC T4 Gc, CE, R&amp;TTE, ROM</td>
<td>E</td>
</tr>
<tr>
<td>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 mb ia IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da, CE, R&amp;TTE, ROM</td>
<td>F</td>
</tr>
<tr>
<td>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 mb ia IIC T4 Ga/Gb, Ex ia ta IIIC T100 °C Da, CE, R&amp;TTE, ROM</td>
<td>G</td>
</tr>
<tr>
<td>Non Sparking: NEPSI Ex na IIC T4 Gc</td>
<td>K</td>
</tr>
<tr>
<td>Intrinsically Safe: NEPSI Ex ia IIC T4 Ga, Ex iaD ID A20 IP67 T100 °C</td>
<td>L</td>
</tr>
<tr>
<td>Flameproof: NEPSI Ex d ia mb IIC T4 Ga/Gb, Ex iaD ID A20 IP67 T100 °C</td>
<td>M</td>
</tr>
<tr>
<td>Increased Safety: NEPSI Ex e ia mb IIC T4 Ga/Gb, Ex iaD ID A20 IP67 T100 °C</td>
<td>N</td>
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</tbody>
</table>

#### Pressure Rating

<table>
<thead>
<tr>
<th>Pressure Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating per pressure/temperature curves in instruction manual</td>
<td>O</td>
</tr>
</tbody>
</table>

* We can offer shorter delivery times for configurations designated with the Quick Ship Symbol. For details see page 9/5 in the appendix.
Continuous level measurement - Radar transmitters

SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7

SITRANS RD200, universal input display with Modbus conversion - see Chapter 7

SITRANS RD100, loop powered display - see Chapter 7

SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7

For applicable back up point level switch - see point level measurement section

### Selection and Ordering data

**Further designs**

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

**Electrical Connection cable entry**

Plug M12 (IP 67 rating) with mating connector

Plug 7/8" (IP 67 rating) with mating Connector

**Test Certificates**

Manufacturer's Test Certificate M to DIN 55350, Part 18 and to ISO 9000

Inspection Certificate 3.1 of EN 10204

**Functional Safety**

Functional Safety (SIL 2), Device suitable for use in accordance with IEC 61508 and IEC 61511

Namur

Namur NE43 compliant, device preset to failsafe < 3.6 mA

**Tagging**

Stainless steel tag [69 mm x 50 mm (2.71 x 1.97 inch)]

Measuring-point number / identification (max. 27 characters) specify in plain text

**Compact Operating Instructions for HART/ma device**

English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish

English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian

English, Portuguese (Brazil), Chinese

Note: The Operating Instructions should be ordered as a separate line item on the order.

All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Compact Operating Instructions and Operating Instructions library.

**Selection and Ordering data**

**Compact Operating Instructions for FOUNDATION Fieldbus device**

English, French, German, Spanish, Italian, Dutch, Danish, Finnish, Greek, Portuguese (Portugal), Swedish

English, Bulgarian, Czech, Estonian, Hungarian, Latvian, Lithuanian, Polish, Romanian, Slovakian, Slovenian

English, Portuguese (Brazil), Chinese

Note: The Operating Instructions should be ordered as a separate line item on the order.

All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Compact Operating Instructions and Operating Instructions library.

**Accessories**

Handheld programmer, Intrinsically safe, EEx ia (LUI enabled)

HART modem/USB

(for use with a PC and SIMATIC PDM)

HART (two are required)

One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART (two are required)

One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA and FOUNDATION Fieldbus (two are required)

SITRANS RD100, loop powered display - see Chapter 7

SITRANS RD200, universal input display with Modbus conversion - see Chapter 7

SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7

SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7

For applicable back up point level switch - see point level measurement section

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

1) Available with process connection options AA ... FB & YY only
2) Available with Approval options A, B, C, L only
3) Available with Process connections FC ... FF only
4) Available with process connection options AA ... EC & YY only
5) Max. range 10 m (32.8 ft), dk > 3 [20 m (66 ft) and dk > 1.6 if installed in a stillpipe]
6) Applicable with Communication option 2 only
7) Available with Enclosure option 1 only
8) Available with Communication options 1 and 3 only
9) Available with Enclosure option 0 only
10) Available with Approval options A, B, C, D, E, K, L only

**Selection and Ordering data**

**Accessories**

Handheld programmer, Intrinsically safe, EEx ia (LUI enabled)

HART modem/USB

(for use with a PC and SIMATIC PDM)

One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART (two are required)

One metallic cable gland M20 x 1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA and FOUNDATION Fieldbus (two are required)

SITRANS RD100, loop powered display - see Chapter 7

SITRANS RD200, universal input display with Modbus conversion - see Chapter 7

SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7

SITRANS RD500 web, universal remote monitoring solution for instrumentation - see Chapter 7

For applicable back up point level switch - see point level measurement section

1) Available with process connection options AA ... FB & YY only
2) Available with Approval options A, B, C, L only
3) Available with Process connections FC ... FF only
4) Available with process connection options AA ... EC & YY only
5) Max. range 10 m (32.8 ft), dk > 3 [20 m (66 ft) and dk > 1.6 if installed in a stillpipe]
6) Applicable with Communication option 2 only
7) Available with Enclosure option 1 only
8) Available with Communication options 1 and 3 only
9) Available with Enclosure option 0 only
10) Available with Approval options A, B, C, D, E, K, L only
Level Measurement
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Characteristic curves

DIN 11861 Sanitary/Hygienic nozzle/slotted nut: DN 50, DN 80, and DN 100
DIN 11864-1 Aseptic/Hygienic nozzle/slotted nut: DN 50, DN 80, and DN 100

SITRANS LR250 Hygienic Encapsulated Antenna pressure/temperature curves

DIN 11864-2 Aseptic/Hygienic flanged: DN 50, DN 80, and DN 100

Note: For pressure applications, all attachment hardware must be suitably rated.
Continuous level measurement - Radar transmitters

**SITRANS LR250 Hygienic Encapsulated Antenna**

DIN 11864-3 Aseptic/Hygienic clamp: DN 50, DN 80, and DN 100
ISO 2852 Sanitary/Hygienic clamp: 2", 3", and 4"
Tuchenhagen Varivent face seal clamp: Type N (88 mm) and Type F (50 mm)

**Pressures and Temperatures**

- Atmospheric
- 10 bar (145 psi)
- 20 bar (290 psi)
- 30 bar (435 psi)
- -1 bar (-14.5 psi)

**Temperatures (°C/°F)**

- -50°C (-58°F)
- -29°C (-20°F)
- 0°C (32°F)
- RT
- 50°C (122°F)
- 100°C (212°F)
- 150°C (302°F)
- 200°C (392°F)
- 100°F (38°C)
- 14°F (-10°C)
- 100°F (38°C)
- 200°F (93°C)
- 300°F (149°C)
- 400°F (204°C)

**Note:** For pressure applications, all clamps must be rated accordingly.

SITRANS LR250 Hygienic Encapsulated Antenna pressure/temperature curves
Level Measurement
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Dimensional drawings

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
Hygienic encapsulated antenna (DN 50 nozzle/slotted nut to DIN 11851)

1/2" NPT cable entry (or alternatively, M20 cable gland)

Threaded cover

Enclosure

Retaining collar

Threaded nut

Sensor reference point

Note: Cut out of process connection and placement of threaded nut are shown for illustration purposes only.

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
Level Measurement
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Hygienic encapsulated antenna (DN 80 nozzle/slotted nut to DIN 11851)

1/2” NPT cable entry (or alternatively, M20 cable gland)

Threaded cover

Enclosure

Retaining collar

Threaded nut

Sensor reference point

Note: Cut out of process connection and placement of threaded nut are shown for illustration purposes only.

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
Hygienic encapsulated antenna (DN 100 nozzle/slotted nut to DIN 11851)

- 1/2" NPT cable entry (or alternatively, M20 cable gland)
- Threaded cover
- Enclosure
- Retaining collar
- Threaded nut
- Sensor reference point

Note: Cut out of process connection and placement of threaded nut are shown for illustration purposes only.
Level Measurement
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Hygienic encapsulated antenna (DN 50 aseptic clamp to DIN 11864-1)

Note: Cut out of process connection and placement of threaded nut are shown for illustration purposes only.

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
Hygienic encapsulated antenna (DN 80 aseptic clamp to DIN 11864-1)

1/2" NPT cable entry (or alternatively, M20 cable gland)

Threaded cover

Enclosure

Retaining collar

Threaded nut

Sensor reference point

Note: Cut out of process connection and placement of threaded nut are shown for illustration purposes only.
Level Measurement
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Hygienic encapsulated antenna (DN 100 aseptic clamp to DIN 11864-1)

1/2" NPT cable entry (or alternatively, M20 cable gland)
Threaded cover

Enclosure
Retaining collar
Threaded nut

Sensor reference point

Note: Cut out of process connection and placement of threaded nut are shown for illustration purposes only.

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)

Note: Cut out of process connection and flange are shown for illustration purposes only.
SITRANS LR250 Hygienic Encapsulated Antenna

Hygienic encapsulated antenna (DN 80 aseptic flange to DIN 11864-2)

1/2” NPT cable entry (or alternatively, M20 cable gland)

Threaded cover

Enclosure

Retaining collar

Flange

Sensor reference point

Note: Cut out of process connection and flange are shown for illustration purposes only.

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
Level Measurement

Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Hygienic encapsulated antenna (DN 100 aseptic flange to DIN 11864-2)

- 1/2" NPT cable entry (or alternatively, M20 cable gland)
- Threaded cover
- Enclosure
- Retaining collar
- Flange
- Sensor reference point

Note: The cut out of the process connection and the flange are shown for illustration purposes only.

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
Level Measurement
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Hygienic encapsulated antenna (DN 50 aseptic clamp to DIN 11864-3)

1/2" NPT cable entry
(or alternatively, M20 cable gland)

Threaded cover

Enclosure

Retaining collar

Process connection

Sensor reference point

Note: Cut out of process connection is shown for illustration purposes only.

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
SITRANS LR250 Hygienic Encapsulated Antenna

Hygienic encapsulated antenna (DN 80 aseptic clamp to DIN 11864-3)

1/2" NPT cable entry
(or alternatively, M20 cable gland)

Threaded cover

Enclosure

Retaining collar

Process connection

Sensor reference point

Note: Cut out of process connection is shown for illustration purposes only.

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
Level Measurement
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Hygienic encapsulated antenna (DN 100 aseptic clamp to DIN 11864-3)

1/2” NPT cable entry
(or alternatively, M20 cable gland)

Threaded cover

Enclosure

Retaining collar

Process connection

Sensor reference point

Note: Cut out of process connection is shown for illustration purposes only.

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Hygienic encapsulated antenna (Tuchenhagen Type F, 50 mm)

1/2" NPT cable entry (or alternatively, M20 cable gland)

Threaded cover

Enclosure

Retaining collar

Process connection

Sensor reference point

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
Level Measurement
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Antenna

Hygienic encapsulated antenna (Tuchenhagen Type N, 68 mm)

1/2" NPT cable entry (or alternatively, M20 cable gland)

Threaded cover

Enclosure

Retaining collar

Process connection

Sensor reference point

SITRANS LR250 Hygienic Encapsulated Antenna, dimensions in mm (inch)
SITRANS LR250 connections

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

Hand Programmer

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.

Shield for HART, PROFIBUS PA, and FOUNDATION Fieldbus Intrinsically Safe versions only.

Gland

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Level Measurement
Continuous level measurement - Radar transmitters

SITRANS LR250 Hygienic Encapsulated Specials

Selection and ordering data

For "Electronics Head only" follow the standard configuration and choose YY option on positions 9 and 10 of the full part number.

For example: 7ML5433-1YY20-1AA0 will order an electronics head for the following:
EHEDG EL Class 1 approval, 4 ... 20mA
HART, M20 cable entries, General purpose Haz Loc approval, pressure rating as per manual.

Spare Lens Kits (Lens and O-ring)

Kit, 2 inch, ISO2852, HEA, Lens, silicone secondary O-ring
Kit, 3 inch, ISO2852, HEA, Lens, silicone secondary O-ring
Kit, 4 inch, ISO2852, HEA, Lens, silicone secondary O-ring
Kit, DN 50, DIN 11851, HEA, Lens, silicone secondary O-ring
Kit, DN 80, DIN 11851, HEA, Lens, silicone secondary O-ring
Kit, DN 100, DIN 11851, HEA, Lens, silicone secondary O-ring
Kit, DN 100, DIN 11864-1, HEA, Lens, silicone secondary O-ring
Kit, DN 80, DIN 11864-1, HEA, Lens, silicone secondary O-ring
Kit, DN 50, DIN 11864-1, HEA, Lens, silicone secondary O-ring
Kit, DN 100, DIN 11851 SC tank connection, FKM Seal Class III
Kit, DN 80, DIN 11851 SC tank connection, FKM Seal Class III
Kit, DN 50, DIN 11851 SC tank connection, FKM Seal Class III
Kit, DN 100, DIN 11864-2 Form A tank connection, M10 Hardware (nut/bolt/washer), EPDM Seal Class II
Kit, DN 80, DIN 11864-2 Form A tank connection, M10 Hardware (nut/bolt/washer), EPDM Seal Class II
Kit, DN 50, DIN 11864-2 Form A tank connection, M10 Hardware (nut/bolt/washer), EPDM Seal Class II
Kit, DN 100, DIN 11864-3 Form A tank connection, Clamp, EPDM Seal Class II
Kit, DN 80, DIN 11864-3 Form A tank connection, Clamp, EPDM Seal Class II
Kit, DN 50, DIN 11864-3 Form A tank connection, Clamp, EPDM Seal Class II
Kit, Tuchenhagen, Type F, HEA, Lens, silicone secondary O-ring
Kit, Tuchenhagen, Type N, HEA, Lens, silicone secondary O-ring

Kit DN 50 DIN 11864-1 GS Form A tank connection, EPDM Seal Class II
Kit, DN 80 DIN 11864-1 GS Form A tank connection, EPDM Seal Class II
Kit, DN 100 DIN 11864-1 GS Form A tank connection, EPDM Seal Class II

1) Class II for low fat applications when EPMD seal used on DIN 11851.