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 saving 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 vessel

Use largest horn size possible in pipe.

Mounting unit on stilling well

Orient front or back of device toward stillpipe slots.

Mounting unit on nozzle

Min. 10 (0.4)
### 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: Programmable as high low or hold (loss of echo)
    - NE 43 programmable
- **PROFIBUS PA**: Profile 3.1
  - Function blocks: 2 Analog Input (AI)
- **FOUNDATION Fieldbus**: 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 \( \varepsilon_r \)**: > 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**: Aluminum, polyester powder-coated
- **Material**: Stainless steel (optional alloy NO6022/2.4602 (Hastelloy C-22 or equivalent))
- **Cable inlet**: Type 4X/NEMA 4X, Type 6/ NEMA 6, IP67, IP68
- **Degree of protection**: IP54
- **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 NO6022/2.4602 (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**: 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]
- **Flange connection**: 2”, 3” (ANSI 150, 300 lb), 50, 80, 100 mm (PN 16, 40, JIS 10K)

#### Power supply
- **HART**: Nominal 24 V DC (max. 30 V DC) with max. 550 \( \Omega \)
- **PROFIBUS PA**: per IEC 61158-2
  - 15 mA
- **FOUNDATION Fieldbus**: per IEC 61158-2
  - 20.0 mA

#### Certificates and approvals
- **General**
  - CSA/UL/C, CE, FM, NE 21, RCM
  - Radio
    - Hazardous
      - Explosion Proof (Brazil)
      - Increased Safety (Brazil)
      - Intrinsically Safe (Brazil)
    - Explosion Proof (Canada/USA)
    - Explosion Proof (Canada/USA)
  - **Radio**
    - Intrinsically Safe (Canada/USA)
  - **Non-incendive (Canada/USA)**
  - **Non-sparking (Canada/USA)**
  - **Intrinsically Safe (Europe)**
  - **Non-sparking (Europe)**
  - **Flame Proof (International/Europe)**
  - **Increased Safety (International/Europe)**
  - **Intrinsically Safe (International)**
  - **Explosion Proof (Russia)**
  - **Increased Safety (Russia)**
  - **Intrinsically Safe (Russia)**

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## Level Measurement

### Continuous level measurement — Radar transmitters

#### SITRANS LR250 Horn Antenna

<table>
<thead>
<tr>
<th>Programming</th>
<th>InfraRed receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Intrinsically Safe Siemens handheld programmer</td>
<td>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</td>
</tr>
<tr>
<td>• Handheld communicator</td>
<td>HART communicator 375/475</td>
</tr>
<tr>
<td>• PC</td>
<td>• SIMATIC PDM • Emerson AMS • SITRANS DTM (for connection into FDT, such as PACTware or Fieldcare)</td>
</tr>
<tr>
<td>• Display (local)</td>
<td>Graphic local user interface including quick start wizard and echo profile displays</td>
</tr>
</tbody>
</table>
### SITRANS LR250 Horn Antenna

**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Article No.</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5431-0</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, to a range of 20 m (66 ft) (antenna dependent). Ideal for small vessels and low dielectric media.</td>
</tr>
</tbody>
</table>

**Process Connection and Antenna Material**

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FFKM seal</td>
<td>316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FFKM seal</td>
</tr>
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<td>316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FFKM seal</td>
<td>316L (1.4435 or 1.4404) stainless steel, PTFE emitter, FFKM seal</td>
</tr>
<tr>
<td>Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FFKM seal</td>
<td>Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FFKM seal</td>
</tr>
<tr>
<td>Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FFKM seal</td>
<td>Hastelloy C-22/2.4602 (or equivalent), PTFE emitter, FFKM seal</td>
</tr>
</tbody>
</table>

**Process Connection Type**

<table>
<thead>
<tr>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot; (ASME B1.20.1) (tapered thread)</td>
</tr>
<tr>
<td>2&quot; (ASME B1.20.1) (tapered thread)</td>
</tr>
<tr>
<td>2&quot; (ASME B1.20.1) (tapered thread)</td>
</tr>
<tr>
<td>2&quot; (ASME B1.20.1) (tapered thread)</td>
</tr>
<tr>
<td>2&quot; (BSPT), EN 10226-1 (tapered thread)</td>
</tr>
<tr>
<td>2&quot; (BSPT), EN 10226-1 (tapered thread)</td>
</tr>
<tr>
<td>2&quot; (BSPT), EN 10226-1 (tapered thread)</td>
</tr>
<tr>
<td>2&quot; (BSPT), EN 10226-1 (tapered thread)</td>
</tr>
</tbody>
</table>

**Flanged connection 316L**

<table>
<thead>
<tr>
<th>DN 100 PN 40 EN 1092-1 Type B1 raised face</th>
<th>DN 100 PN 16 EN 1092-1 Type B1 raised face</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 80 PN 40 EN 1092-1 Type B1 raised face</td>
<td>DN 80 PN 16 EN 1092-1 Type B1 raised face</td>
</tr>
<tr>
<td>DN 50 PN 40 EN 1092-1 Type B1 raised face</td>
<td>DN 50 PN 16 EN 1092-1 Type B1 raised face</td>
</tr>
<tr>
<td>DN 150 PN 16 EN 1092-1 Type B1 raised face</td>
<td>DN 150 PN 16 EN 1092-1 Type B1 raised face</td>
</tr>
<tr>
<td>DN 200 PN 16 EN 1092-1 Type B1 raised face</td>
<td>DN 200 PN 16 EN 1092-1 Type B1 raised face</td>
</tr>
</tbody>
</table>

**Flanged connection Hastelloy C**

<table>
<thead>
<tr>
<th>DN 150 PN 16 EN 1092-1 Type B1 raised face</th>
<th>DN 150 PN 16 EN 1092-1 Type B1 raised face</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 100 PN 16 EN 1092-1 Type B1 raised face</td>
<td>DN 100 PN 16 EN 1092-1 Type B1 raised face</td>
</tr>
<tr>
<td>DN 80 PN 16 EN 1092-1 Type B1 raised face</td>
<td>DN 80 PN 16 EN 1092-1 Type B1 raised face</td>
</tr>
<tr>
<td>DN 50 PN 16 EN 1092-1 Type B1 raised face</td>
<td>DN 50 PN 16 EN 1092-1 Type B1 raised face</td>
</tr>
</tbody>
</table>

**Communication/Output**

<table>
<thead>
<tr>
<th>PROFIBUS PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ... 20 mA, HART, startup at &lt; 3.6 mA</td>
</tr>
</tbody>
</table>

**Enclosure/Cable inlet**

<table>
<thead>
<tr>
<th>Aluminum, Epoxy painted</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x M20x1.5</td>
</tr>
</tbody>
</table>

**Antenna**

<table>
<thead>
<tr>
<th>1½&quot; horn</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot; horn (fits 2” ASME or DN 50 nozzles)</td>
</tr>
<tr>
<td>3&quot; horn (fits 3” ASME or DN 80 nozzles)</td>
</tr>
<tr>
<td>4&quot; horn (fits 4” ASME or DN 100 nozzles)</td>
</tr>
<tr>
<td>2½&quot; horn (fits 2½” ASME or DN 50 nozzles) with 100 mm extension</td>
</tr>
<tr>
<td>3½” horn (fits 3½” ASME or DN 80 nozzles) with 100 mm extension</td>
</tr>
<tr>
<td>4½” horn (fits 4½” ASME or DN 100 nozzles) with 100 mm extension</td>
</tr>
</tbody>
</table>

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## Level Measurement

### Continuous level measurement — Radar transmitters

#### SITRANS LR250 Horn Antenna

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Article No.</th>
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</thead>
<tbody>
<tr>
<td>SITRANS LR250 horn antenna</td>
<td>7ML5431-</td>
</tr>
</tbody>
</table>

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.

### Approvals

- General Purpose, CE, CSA, FM, FCC, R&TTE, RCM
- Intrinsically Safe: IECEx/ATEX II 1G Ex ia IIC T4 Ga, IECEx/ATEX II 1D Ex ia ta IIC T100 °C Da, INMETRO Ex ia IIC T4 Ga, Ex ia ta IIC T100 °C Da, CE, R&TTE, RCM
- 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 IIC T100 °C Da, INMETRO Ex e ia mb IIC T4 Ga/Gb, Ex ia ta IIC T100 °C Da, CE, R&TTE, RCM
- Flameproof: IECEx/ATEX II 1/2 GD 1D, 2D Ex d mb ia IIC T4 Ga/Gb, Ex ia ta IIC T100 °C Da, INMETRO Ex d ia mb IIC T4 Ga/Gb, Ex ia ta IIC T100 °C Da, CE, R&TTE, RCM
- Non Sparking: NEPSI Ex nA IIC T4 Gc
- Intrinsically Safe: NEPSI Ex ia IIC T4 Ga, Ex iaD 20 T90 IP67 DIP A20 T90 °C
- Flameproof: NEPSI Ex d ia mb IIC T4 Ga/Gb, Ex iaD 20 T90 IP67 DIP A20 T90 °C
- Increased Safety: NEPSI Ex e ia mb IIC T4 Ga/Gb, Ex iaD 20 T90 IP67 DIP A20 T90 °C

### Pressure rating

Rating per Pressure/Temperature curves in manual:

<table>
<thead>
<tr>
<th>Pressure/Medium</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 bar g (7.25 psi g) maximum</td>
<td>0</td>
</tr>
</tbody>
</table>

### Notes

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

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

Selection and Ordering data

Order code

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

Plug M12 with mating Connector
Plug 7/8" with mating Connector
Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)];
Measuring-point number/identification (max. 27 characters); specify in plain text
Manufacturer’s Test Certificate: M to DIN 55350, Part 18 and to ISO 9000
Inspection certificate 3.1 of EN 10204
Functional Safety (SIL 2), Device suitable for use in accordance with IEC 61508 and IEC 61511
Namur NE43 compliant, device preset to failsafe < 3.6 mA

Order code

Operating Instructions for HART mA device
English
A5E32220602
A5E32376088

German
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.

Order code

Operating Instructions for PROFIBUS PA device
English
A5E32221386
A5E32376094

German
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.

Order code

Operating Instructions for FOUNDATION Fieldbus device
English
A5E32221411
A5E32376112

German
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.

Order code

Accessories
Handheld programmer, Intrinsically safe, EEx ia
HART modem RS 232
(for use with a PC and SIMATIC PDM)
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)
FDA approved FKM o-ring for 2" G (BSPP) process connections -28 ... +80 °C (-28 ... +176 °F)
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

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

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.
Continuous level measurement — Radar transmitters

SITRANS LR250 Horn Antenna

Characteristic curves

Maximum flange and process temperatures versus allowable ambient temperature

SITRANS LR250 Ambient/Process Flange Surface Temperature Curve
### Dimensional drawings

**Threaded Horn Antenna**

<table>
<thead>
<tr>
<th>Antenna Type</th>
<th>Antenna O.D.</th>
<th>Height to sensor reference point</th>
<th>Beam angle</th>
<th>Measurement range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1-1/2&quot; threaded connection</td>
<td>2&quot; threaded connection</td>
<td>3&quot; threaded connection</td>
</tr>
<tr>
<td>1.5&quot; horn</td>
<td>39.8 (1.57)</td>
<td>135 (5.3)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>2&quot; horn</td>
<td>47.8 (1.88)</td>
<td>N/A</td>
<td>166 (6.55)</td>
<td>180 (7.09)</td>
</tr>
<tr>
<td>3&quot; horn</td>
<td>74.8 (2.94)</td>
<td>N/A</td>
<td>199 (7.85)</td>
<td>213 (8.39)</td>
</tr>
<tr>
<td>4&quot; horn</td>
<td>94.8 (3.73)</td>
<td>N/A</td>
<td>254 (10)</td>
<td>268 (10.55)</td>
</tr>
</tbody>
</table>

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

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**Level Measurement**

Continuous level measurement — Radar transmitters

**SITRANS LR250 Horn Antenna**

### Threaded Horn Antenna with Extension

![Diagram of Threaded Horn Antenna with Extension]

- 1/8" NPT cable entry (or alternatively, M20 cable gland)
- Threaded cover

<table>
<thead>
<tr>
<th>Antenna Type</th>
<th>Antenna O.D.</th>
<th>Height to sensor reference point</th>
<th>Beam angle</th>
<th>Measurement range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-1/2&quot; threaded connection</td>
<td>2&quot; threaded connection</td>
<td>3&quot; threaded connection</td>
<td></td>
</tr>
<tr>
<td>1.5&quot; horn</td>
<td>139.8 (5.57)</td>
<td>N/A</td>
<td>N/A</td>
<td>19 degrees</td>
</tr>
<tr>
<td>2&quot; horn</td>
<td>147.8 (5.88)</td>
<td>N/A</td>
<td>266 (10.55)</td>
<td>15 degrees</td>
</tr>
<tr>
<td>3&quot; horn</td>
<td>174.8 (6.94)</td>
<td>N/A</td>
<td>299 (11.85)</td>
<td>10 degrees</td>
</tr>
<tr>
<td>4&quot; horn</td>
<td>194.8 (7.73)</td>
<td>N/A</td>
<td>354 (14)</td>
<td>8 degrees</td>
</tr>
</tbody>
</table>

*28 mm (1.1) for 1.5 inch and 2 inch, 42 mm (1.65) for 3 inch"
## Level Measurement

Continuous level measurement – Radar transmitters

### SITRANS LR250 Horn Antenna

#### Flanged Horn

![Flanged Horn Diagram]

- **50 (2) nominal**
- **80 (3) nominal**
- **100 (4) nominal**

<table>
<thead>
<tr>
<th>Nominal Horn Size</th>
<th>Horn O.D.</th>
<th>Height to sensor reference point</th>
<th>Beam angle</th>
<th>Measurement range</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 (2)</td>
<td>47.8 (1.88)</td>
<td>135.3 (5.32)</td>
<td>19 degrees</td>
<td>10 m (32.8 ft)</td>
</tr>
<tr>
<td>80 (3)</td>
<td>74.8 (2.94)</td>
<td>168.3 (6.62)</td>
<td>15 degrees</td>
<td>20 m (65.6 ft)</td>
</tr>
<tr>
<td>100 (4)</td>
<td>94.8 (3.73)</td>
<td>223.3 (8.79)</td>
<td>10 degrees</td>
<td>20 m (65.6 ft)</td>
</tr>
</tbody>
</table>

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SITRANS LR250 Flanged Horn Antenna, dimensions in mm (inch)
SITRANS LR250 Flanged Horn Antenna with extension, dimensions in mm (inch)
Connect the wires to the terminals as shown: the polarity is identified on the terminal block.

**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