

The SITRANS LR 400 Radar Level Instrument uses 24 GHz FMCW radar technology to provide excellent results on liquids and solids materials in storage vessels up to 45 m (147 ft). SITRANS LR 400 performs reliably on difficult solids applications with high temperature or extreme levels of dust, typical of the cement industry. SITRANS LR 400 is available for standard applications and for applications that require explosion proof protection.

SITRANS LR 400 features robust housing, flange and horn components. It is virtually unaffected by atmospheric or temperature conditions within the vessel.

Safe on-site local programming is simple with finger-activated optical control elements. SIMATIC PDM can be used for easy remote programming.

The characteristics of 24 GHz and high signal-to-noise ratio contribute to exceptional signal reflection, regardless of the dielectric value of the medium. It also features advanced echo processing algorithms for reliable operation on difficult solids applications.

Technical Specifications

Electrical

Power

- 120 to 230 Vac, $\pm 15\%$, 50/60 Hz, 6W (12 VA) or
- 24 Vdc, $+25/-20\%$, 6W (optional)

Interface

- analog output: optically-isolated 4-20 mA into 600 Ω (HART only)
- digital output: Relay, either NCC or NOC function, max. DC 50 V, max. 200 mA, rating 5W
- controls: finger-activated optical controls for local programming
- display (local): alphanumeric liquid crystal for readout and entry
- HART[®] or Profibus-PA (optional)
- Profibus-PA (optional): Layer 1 and 2, Class A, Profile 3.0

Performance*

- frequency: 24 GHz FMCW
- accuracy at 25°C: $\leq \pm 15$ mm at 0.26 to 2 m
 $\leq \pm 5$ mm at 2 to 10 m
 $\leq \pm 15$ mm at 10 to 45 m
- repeatability: ≤ 1 mm
- fail-safe: mA programmable high, low or hold upon Loss of Echo (LOE) condition

Mechanical

Enclosure (electronic):

- construction: Die-cast aluminum
- conduit entries (qty 2): 1/2" NPT or M20
- ingress protection: Type 4X / NEMA 4X, Type 6 / NEMA 6, IP67

Process Connections:

- flat faced flanges: 316 stainless steel, 80, 100, 150 mm (bolt hole pattern to DIN, and JIS sizes)
- raised face flanges: 316 stainless steel, 3, 4, 6" (bolt hole pattern to ANSI sizes)



Product Features

- Easy installation, low maintenance
- Self-calibration with internal reference
- Built-in diagnostics
- Advanced echo processing
- Extremely high signal-to-noise ratio
- Communication using HART[®] or Profibus-PA
- Programming locally or with SIMATIC PDM

Environmental

- location: indoor/outdoor
- altitude: 2000 m max.
- ambient temperature: -40 to 65°C (-40 to 149°F)
- relative humidity: suitable for outdoor (Type 4X / NEMA 4X, Type 6 / NEMA 6, IP67 enclosure)
- installation category: II
- pollution degree: 4

Process**

- process temperature: -40 to 140°C (-40 to 284°F) standard
- -40 to 250°C (-40 to 482°F) optional with temperature extension
- pressure (vessel): up to 40 bar

Weight

- 12.2 kg (26.8 lbs) with 3"/150 psi flange, weight will vary with flange size and rating

Approvals ***

- CSA, CE, FM
- radio: Europe (R&TTE), Industry Canada, FCC
- hazardous areas:
 - ATEX II 1/2 G EEx dem [ia] IIC T6
 - ATEX II 1/2 G EEx dem IIC T6
 - ATEX II 1/2 D IP65
 - CSA/FM Class I, Div 1, Gr. A, B, C, D
Class II, Div 1, Gr. E,F, G

* Under reference conditions

**Refer to charts on reverse for Pressure and Temperature ratings

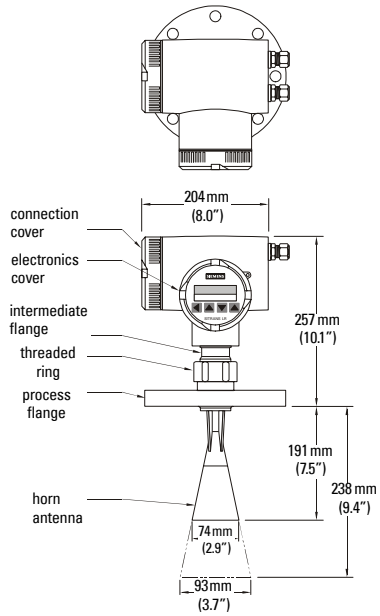
***Some approvals listed are pending; visit www.milltronics.com for current listing
Hart is a registered trademark of the Hart Communications Foundation.

Specifications are subject to change without notice.

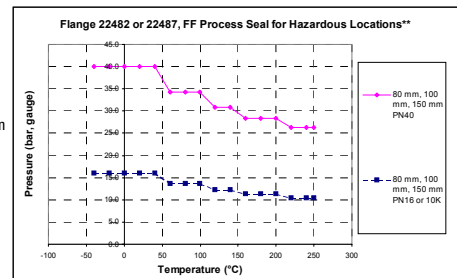
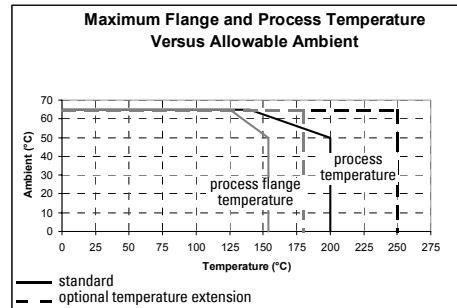
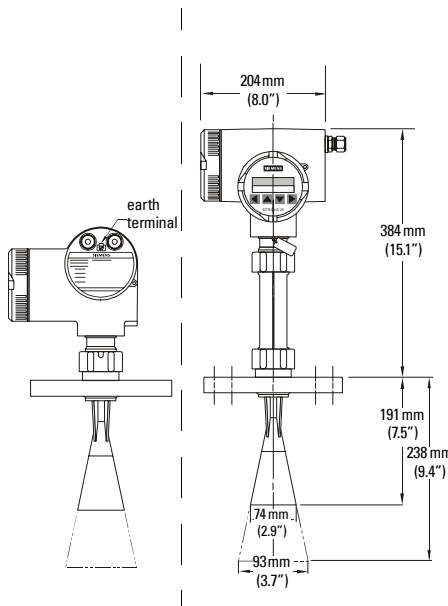
SITRANS LR 400

Dimensions

SITRANS LR 400



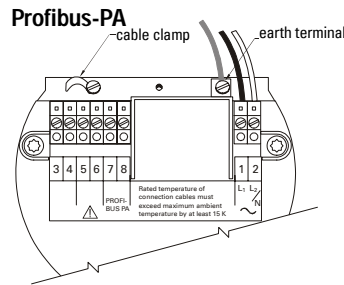
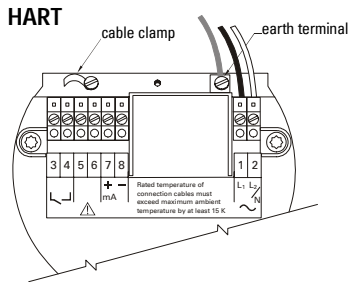
SITRANS LR 400 with Temperature Extension



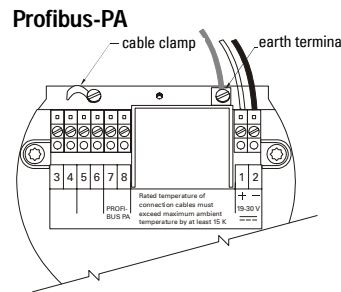
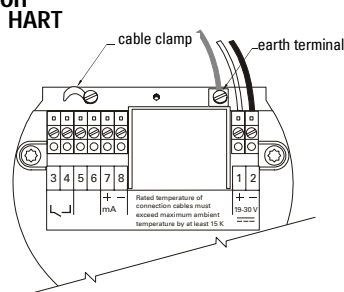
**process seal for hazardous locations rated for a max. of 250°C of continuous duty
Charts for other sizes available upon request

Wiring

ac version



dc version



Notes

- recommended torque on terminal clamping screws, 0.5 - 0.6 Nm
- 4-20 mA, Profibus-PA, DC input circuits, 14-20 AWG, shielded copper wire
- ac input circuit, min 14 AWG copper wire
- all field wiring must have insulation suitable for at least 250 V
- the equipment must be protected by a 15A fuse or circuit breaker in the building installation