FLUIDWELL
Process Instrumentation

Count on us.

Guidense TDR200-SMART

Continuous guided level radar with Smart bidirectional digital communication

M844 Data Acquisition and Communication Module

Guidense TDR200-SMART
Continuous Guided Level Radar

Smart Services

Advantages

- Stand alone level monitoring and data logging solution independent from local infrastructures, using GSM / GPRS communications and solar panel, battery or AC/DC power options.
- Easy and time saving remote configuration through Smart bidirectional digital communication, even when the M844 has a public, dynamic IP address.
- Full control to easily read, modify, store and analyse all process parameters from anyplace, anywhere, anytime.

Features

- 3 Probe types: single rod probe, wire rope probe and a coaxial probe.
- Measuring range: 100 to 20.000mm.
- Fastest reaction time with 0,5 sec in the market for smallest vessels / tanks.
- No influences caused by tank / vessel internals.
- Power supplied by the M844.
- Accuracy of ±3mm or 0.03% of measured distance.
- Robust IP68, NEMA6P enclosure.
- Smallest inactive areas in the market.

Signal outputs

- Smart bidirectional digital communication with related M844 which provides full access for configuration, measurement data and process analysis including a full graphical echo curve profile.

Applications

- Extremely suitable Smart level measurement solution for off-grid and hard to reach locations.
- Suitable in almost every liquid and solids - independent of changing process conditions, such as density, conductivity, temperature, pressure, vapour, turbulence, low dielectric constant or low reflectivity.
- The Guidense TDR200-SMART has almost no installation restrictions - it can be mounted in small tanks, tall and narrow nozzles and it measures precisely even with difficult tank geometries or close to interfering structures.

General information

Introduction Guidense TDR200-SMART

The Guidense TDR200-SMART is a guided level radar for continuous level measurement in liquids and solids.
The Guidense TDR200-SMART has no conventional analog output but a Smart bidirectional digital communication output to the ProcessMonitor M844 monitoring and data logging solution. - These (field)devices combined represent Processmonitors Smart Services.

Smart Services

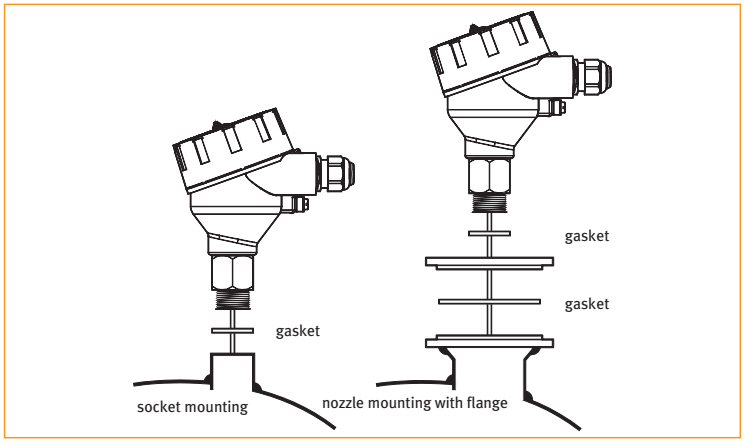
With Smart Services we go further then just remote monitoring. Apart from the measured value, it is now possible to gain full access to the sensor data for improving and optimizing your complete process. Even the echo curve which is the sensors core information can be visualized. Potential failure due to process conditions like foaming, swirling and level changes can be explained and corrected, which results in a reliable and stabilized process. The Guidense TDR200-SMART and the M844 are the next level of Smart Level Measurement. You can easily read, modify, store and analyse all process parameters including a full graphical echo curve profile from anyplace, anywhere, anytime. The stand alone combination is independent from local infra structures, using GSM/GPRS communications and solar or battery power options. The solar panel of the M844 can even power up to 6 Guidense TDR200-SMART level sensors!

Configuration

After the very easy plug-and-play installation of the Guidense TDR200-SMART and the M844 from ProcessMonitor, configuration can be done via the ProcessMonitor web-portal or ProcessView (stand-alone software package). Connect to the M844 and readout and configure all sensor settings. You can easily read, modify, store and analyse all process parameters from anywhere, anyplace, anytime.

Mechanical installation

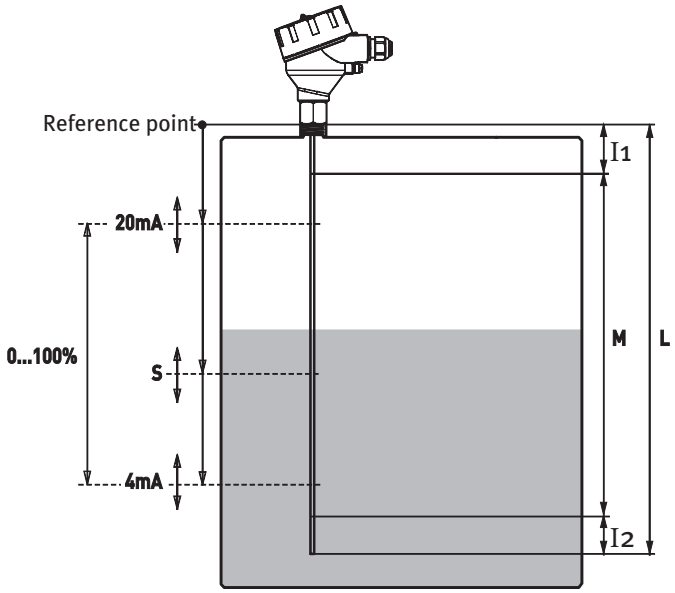
The Guidense TDR200-SMART is mounted vertically to the tank via its connection thread, which is screwed directly into a standard threaded tank connection, i.e. weld-in socket, or it can be screwed into a flange, which is connected to a tank nozzle.



Probe types

To meet various application requirements, the Guidense TDR200-SMART has three different probe types: single rod probe, wire rope probe and coaxial probe. The single rod probe is recommended for installations in liquids and in bypass chambers and stilling wells. The wire rope probe is recommended for installations in solids, tall tanks and where limited headroom is available. The coaxial probe is the ideal solution for a hassle-free 'drop-in anywhere' application; ensuring reliable measurement under almost all conditions.
An extended temperature option, -200°C to +250°C, for the single rod and coaxial probe is available on request.
For chemically aggressive and corrosive environments a single rod probe with PTFE coating is available on request.

Probe length and measuring range



L	Probe length: Single rod probe: 100 to 3.000mm. Wire rope probe: 2.500 to 20.000mm. Coaxial probe: 100 to 6.000mm.
I1	Inactive area top: Single rod probe εr = 80: 50mm / εr = 2: 80mm. Wire rope probe εr = 80: 50mm / εr = 2: 80mm. Coaxial probe εr = 80: 30mm / εr = 2: 50mm.
I2	Inactive area bottom: Single rod probe εr = 80: 10mm / εr = 2: 50mm. Wire rope probe εr = 80: 10mm / εr = 2: 50mm. Coaxial probe εr = 80: 10mm / εr = 2: 50mm.
M	Measuring area: M = L - I1 - I2.
S	Switch point, freely positionable within the measuring range (M) Default at 20% of [L].

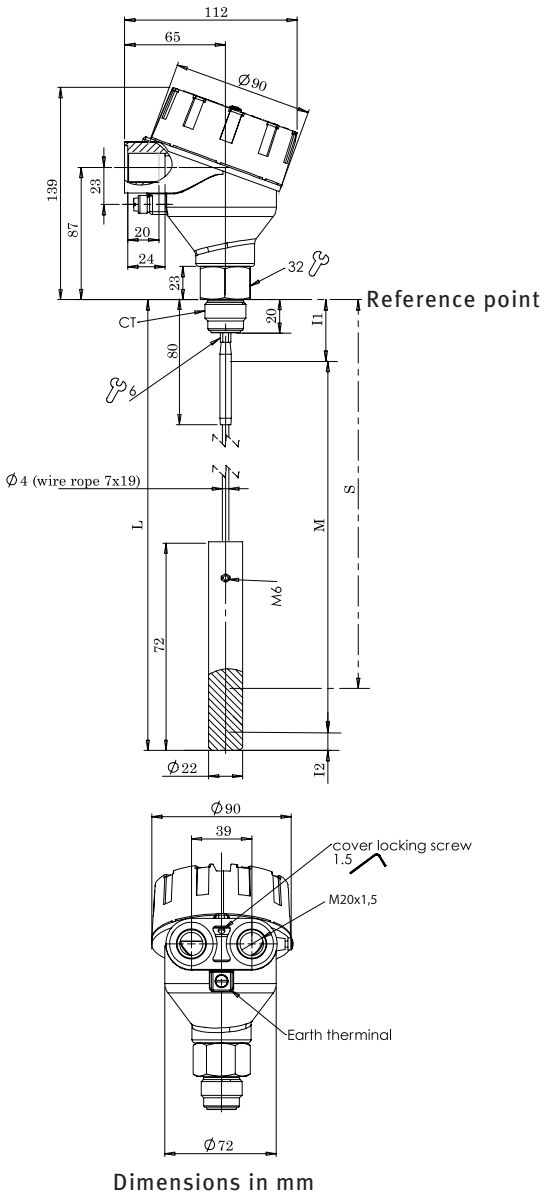
Hazardous areas

For applications with hazardous gas or dust atmospheres an ATEX flameproof enclosure with ATEX II 1/2 G Ex ia/d IIC T6 Ga/Gb approval is available on request.

Mechanical specifications

Materials house	• Aluminium alloy EN AC-AlSi9Cu3. Cover o-ring: silicone rubber. • Stainless steel 1.4401 / 316. Cover O-ring: silicone rubber.
Materials probe	Single rod probe: SS 1.4404 / 316L, PEEK. Single rod probe PTFE coated: PTFE, O-ring (Pending). Wire rope probe: SS 1.4401 / 316, PEEK. Coaxial probe: SS 1.4404 / 316L, PEEK, O-ring. Gasket at connection thread: Klingersil C-4400, 2mm
Protective rating	IP68 / NEMA6P.
Cable entries	M20 x 1,5.
Conn. thread	G ¾ A or ¾"NPT (wrench size 32mm).
Max. load	Single rod probe: Max. lateral load 6Nm. Wire rope probe: Max. tensile load 5kN. Coaxial probe: Max. lateral load 100Nm.
Diameters	Single rod probe: Ø6mm. Wire rope probe: Ø4mm / counterweight: Ø22mm. Coaxial probe: Ø17.2mm.

Dimensions Guidense TDR200-SMART



Dimensions in mm

Application specifications

Dielectric constant	Single rod / wire rope probe: Ɛr minimal 1,8. Coaxial probe: Ɛr minimal 1,4.
Conductivity	No restrictions.
Density	No restrictions.
Application temperature	Single rod / wire rope probe: -40°C to +150°C. Single rod, PTFE coated: -15°C to +100°C (Pending). Coaxial probe EPDM o-ring: -40°C to +130°C. Coaxial probe FKM (Viton) o-ring: -15°C to +150°C.
Extended temperature	NBR o-ring: -200°C to +250°C (Pending). FKM (Viton) o-ring: -150°C to +250°C (Pending).
Ambient temperature	-25°C to +80°C. (storage: -40°C to +85°C).
Application pressure	-1bar to 40bar. (single rod probe PTFE coated: 0 to 4bar - Pending).
Velocity of level change	< 1.000mm/s
Interface	An oil layer of < 70mm thickness on top of water is not detected by the sensor.
Dynamic viscosity	Single rod / wire rope probe: < 5.000mPa s=5.000cP Coaxial probe: < 500mPa s = 500cP.

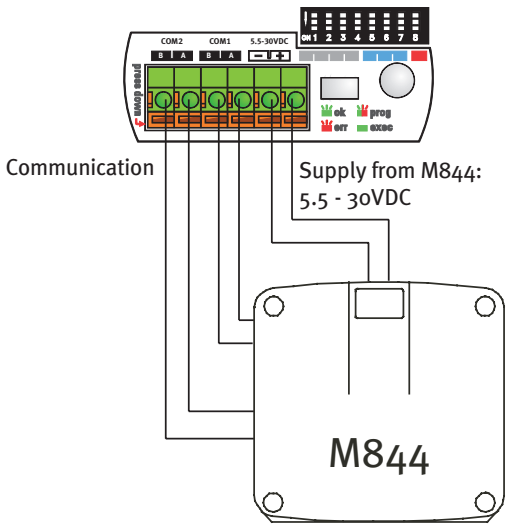
Electrical specifications

Communication	Smart bidirectional digital communication with M844.
Response time	Approx. 2 sec.
Temperature drift	< 0,2mm/K change in ambient temperature.
Termin. resistor	Approx. 120Ω +/-10%.
Supply voltage	5.5 to 30V DC (Powered by M844).
Start-up time	< 6 sec.
Cable terminals	Stranded and solid wires 0,5 to 2mm²/AWG 22 to 14.

Measurement specifications

Accuracy	±3mm or 0.03% of measured distance, whichever is greatest.
Repeatability	< 2mm.
Resolution	< 1mm.

Terminal connections Guidense TDR200-SMART



Ordering information

Standard configuration: Guidense TDR200-SMART-BNP-DGoo-HA-RW-XX-ZX-Lxxxxx.

Ordering information: Guidense TDR200-SMART	-B _ _	-D _ _	-H _	-R _	-XX	-Z _	-L _ _ _ _ _

Probe type

BNP	**No probe attached.**
BCP	Coaxial probe, max. 6.000mm.
BCE	Coaxial probe, with ext. application temp. max. 1.000mm (on request).
BSR	Single rod probe, max. 3.000mm.
BSE	Single rod probe, with ext. application temp. max. 1.000mm (on request).
BSF	Single rod probe, PTFE coated, max. 3.000mm (on request).
BWR	Wire rope probe with counterweight, min. 2.500mm / max. 20.000mm.

Connection thread

DGoo	**G ¾ A connection thread.**
DNoo	¾" NPT connection thread.
DP05	PTFE disk for DN50/ASME 2,5" flange - requires probe type BSF (on request).
DP10	PTFE disk fo r DN100/ASME 4" flange - requires probe type BSF (on request).

Housing

HA	**Aluminium (epoxy coated) / IP68 enclosure.**
HS	Stainless steel (1.4401/316) / IP68 enclosure.

O-ring material

RE	EPDM O-ring - requires probe type BCP.
RF	FKM (Viton) O-ring - requires probe type BCP / BCE / BSE.
RN	NBR O-ring - requires probe type BCE / BSE (on request).
RW	**Without O-ring - requires probe type BNP / BSR / BWR.**

Hazardous area

XD	Explosion proof Eexd enclosure with ATEX II 1/2 G Ex ia/d IIC T6 Ga/Gb approval (on request).
XX	**Safe area only.**

Accessories

ZD	Two M20 x 1,5, nylon cable glands.
ZP	Two M20 x 1,5, nylon screw blind plugs.
ZX	**No accessories.**

Length

	Coaxial probe length: 00100 up to 06.000mm.
Lxxxxx	Single rod probe length: 00100 up to 03.000mm.
	Wire rope probe length: 02500 up to 20.000mm incl. counterweight.

The bold marked text contains the standard configuration.

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