



The TDR-1000 provides continuous, non-mechanical level measurement, utilizing guided wave radar technology. The TDR-1000 is particularly suited for measuring the level of solids, granules, and powders as well as a wide range of liquids. For many applications, the TDR-1000 is an economical and superior alternative to capacitance, ultrasonic and plumb bob technologies.

Principle of Operation

The TDR-1000 operates on the principle of Time Domain Reflectometry (TDR), transmitting pulses of low-power microwaves along a counterweighted stainless steel cable at the velocity of light. At the material surface, the pulses are partially reflected and travel back to the device via the cable. The TDR-1000 measures the elapsed time between the transmission and reception of pulses, which is directly proportional to the distance between the device and the stored material. In this way, the TDR-1000 indicates the instantaneous level of material in the vessel.

The intensity of the reflected pulses depends only on the dielectric constant of the material. The TDR-1000 is effective in measuring level in materials with a dielectric constant as low as 2.3. Provided this condition is met, the TDR-1000 accurately measures level independent of changes in the dielectric constant of the stored material.

Features and Benefits

Flexibility for a wide range of applications

- Suitable for broad range of tank sizes, geometries, and internal constructions
- Ideal for dirty-service applications

Accurate, reliable level measurement across a range of dynamic process conditions

- Insensitive to changes in dielectric, conductivity, pressure, vacuum, humidity, dust, viscosity, vapor, foam, temperature, pH, bulk density, turbulence
- Unaffected by filling or emptying conditions such as dust, noise, and material movement.

Easy Installation

- Simple to install in new tanks or as a retrofit
- Can be installed while tank is in service
- 2-Wire Loop Powered, 24VDC
- Does not require special configuration to compensate for environmental or structural conditions

Low-Maintenance

- Does not require re-calibration
- Transmitter design minimizes maintenance requirements

Typical Applications

SOLIDS & POWDERS

- Agricultural products
- Mining

- Plastics
- Power Generation
- Food & Baking
- Building Materials

Feeds, grains, corn, rice, barley, malt, bran
Rock, molding sand, lime, calcium carbonate, silica, alumina, phosphate, gypsum, perlite, sodium bicarbonate, lime slurry
Resin pellets, powders
Coal
Flour, sugar, starch, pet foods
Metals, stucco, cement, roofing granules, wood chips

LIQUIDS

- Chemicals
- Waste Treatment
- Food & Beverage

Specialty chemicals, resins, corrosives, acids, solvents, paraffin
Sludge, wastewater
Viscous syrups, corn oil

Specifications

TECHNICAL SPECIFICATIONS

Function:	Level, distance and volume measurement of liquids and solids
Measuring Range:	Flexible probe: to 78ft Deadband: Top: 15.8in Dielectric < 10 11.8in Dielectric > 10 Deadband: Bottom: 14.25in Counter Weight Diameter.: 1.575in; length 10.25in (Weight is tapped with 1/2" -13 to allow tethering or anchoring)
Accuracy:	+/- 0.6in
Repeatability:	0.04in
Dielectric Constant:	> 2.3
Probe Materials:	Flexible cable 316 SS
Operating Pressure:	232 psi
Flange Temperature:	-22° to 194°F
Electronics Temperature:	-22° to 131°F
Connection:	1.5" MNPT
Protection Category:	IP66; Nema 4X
Power Supply:	24VDC (18 to 35VDC)
Output:	4/20mA current loop into max. of 750 Ohms
Communication:	HART protocol
Approvals:	CE
Weight:	Without probe 4.4lbs (2Kgs)
Materials of Construction:	Housing: Aluminium with white epoxy coating Cable and Weight: 316SS Gaskets: Buna N

ELECTRICAL CONNECTION

M16 CONNECTOR

Terminals:	Max wire size 16AWG (1.5mm)
Cable Entries:	1 x M16 x 1.5 (with standard cable gland: cable clamping area = 0.137 - 0.315in (3.5-8mm))

ELECTRICAL SIGNAL OUTPUT

Electrical Connection:	Two wire
Power Supply:	18 to 35 VDC
Current Output:	4/20mA - Unisolated

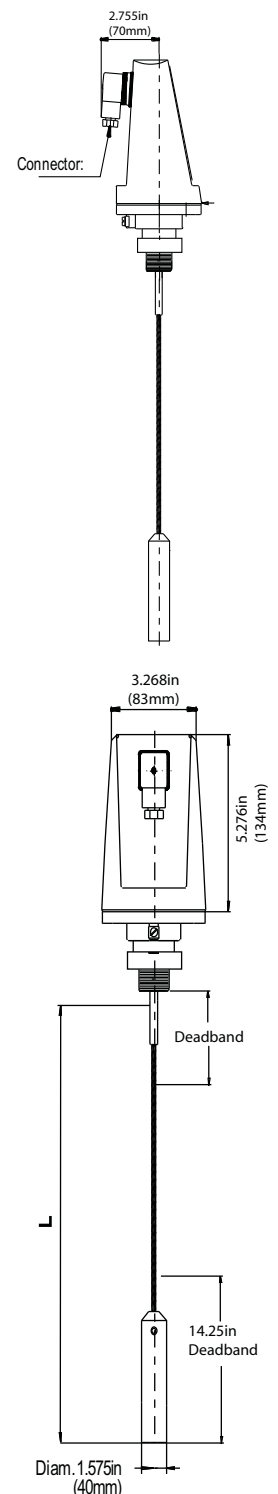
ENVIRONMENT

Ambient Temperature:	-22° to 131°F
Protection Category to EN 60529 / IEC 529:	IP66, Nema 4X

MODEL NUMBER / ORDER CODE

TDR1000-A-XXX (XXX = length (L) in inches)

DIMENSIONS



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