



# Tracer 1000™ LTT1-2G

SECOND GENERATION GUIDED WAVE RADAR LEVEL TRANSMITTER



## DESCRIPTION

Featuring TDR (Time Domain Reflectometry) technology, the Tracer 1000™ second generation Guided Wave Radar level transmitter provides continuous level measurement in liquids, solids and slurries. This innovative device has almost no installation restrictions in tanks, silo's and bins up to 80 feet. The Tracer 1000™ 2G has a fully isolated 4-20 mA output that can be scaled for tank level or distance. The unit requires 18 to 30 VDC power. The 4-wire device comes standard with a RS-485 COMMS output can be connected to the Tracer Talker™ software for custom configurations and detailed level processing analysis. The Tracer 1000™ 2G ships pre-calibrated precisely for the customer's application for quick installation and setup. If adjustment is needed in the field the RS485 Communication Tool and Tracer Talker™ software is recommended. TDR technology is not affected by pressure, vacuum, temperature, viscosity, foam or dust. Changes in dielectric constant or coating of the probe do not affect the level measurement due to the dynamic sensing technology programmed into the artificial intelligence of the Tracer 1000™ 2G GWR level transmitter.

## FEATURES & BENEFITS

- Revolutionary TDR Technology
- Auto Calibration to any dielectric
- Precise continuous level measurement
- Measures liquids, slurries and solids
- Highly robust measurement due to the 4-wire design and innovative signal analysis and constant disturbance signal suppression
- Measures up to 80 feet
- Pre-calibrated from factory for easy installation
- High temperature applications
- Programmable fail safe mode
- RS485 Communication Tool and Software are available for purchase if calibration adjustments are required

## PRIMARY AREAS OF APPLICATION

- Chemical / Petrochemicals
- Energy
- Food & Beverages
- Plastic Pellets
- Minerals & Mining
- Oil & Gas
- Pharmaceutical
- Pulp & Paper
- Wastewater
- Transport
- Overflow Protection
- Asphalt Blending Tanks
- Alum and Wax Tanks
- Sand and Gravel
- Primary and Secondary Sludge Clarifiers
- Fresh Cooking Oil
- Used Cooking Oil



Tracer 2G with 1½" NPT mounting in liquids, slurries or solids applications.

## TECHNOLOGY

The Tracer 1000™ uses TDR Technology: low-energy, high-frequency electromagnetic impulses, generated by the sensor's circuitry, are propagated along the probe which is submerged in the liquid or solid to be measured. When these impulses hit the surface of the media, part of the impulse energy is reflected back up the probe to the circuitry which then calculates the level from the time difference between the impulses sent and the impulses reflected. The sensor can output the analyzed level as a continuous measurement reading through its analog output. TDR Sensors are also known as Guided Radars or Guided Wave Radars.

## SPECIFICATION

<b>Signal Output</b>	Isolated 4-20 mA (750 ohms @24Vdc User Voltage Supply, 250 ohms internally driven)
<b>Fail Safe Output</b>	3.8 mA, 4 mA, Last Known, 20 mA, 20.2 mA
<b>Operating Voltage</b>	12-30 Vdc (residual ripple no greater than 100 mV)
<b>Power Consumption</b>	<3W @ 24 Vdc
<b>Communications</b>	RS485 Modbus (RS485 activation required Tracer Talker™ Communication Software and Tool) <i>Download Virtual COM Port Drivers:</i> <a href="http://www.flowlineoptions.com/tech/software">www.flowlineoptions.com/tech/software</a>
<b>Signal Wiring</b>	Recommended Signal Output and Communications Output is twisted shielded pairs, 20-18 AWG
<b>Measurement Range</b>	1.2' to 80' with minimum dielectric constant of 0.3
<b>Resolution</b>	0.0008"
<b>Accuracy</b>	+/- 0.039" ( 1 mm) or 0.02% of measured distance, whichever is greatest.
<b>Update Interval</b>	100 samples/sec/updated <100 millisc.
<b>Ambient Temp. Effect</b>	+/- 0.005"/K of measured value
<b>Repeatability</b>	+/- 0.02" (0.5mm)

<b>Maximum Operating Temperature</b>	Electronics: -40° to 158°F (-40 to 70°C) Process/Probe: -40° to 398°F standard -50° to 593°F with Temp. Extender Option
<b>Maximum Operating Pressure</b>	-14.50 PSI to 580 PSI
<b>Process Connection/Type</b>	Standard: 1.50" MNPT Option: 1.50" ANSI 150lb. Flange
<b>Probe Type/Diameter</b>	Rod Probe: 316 Stainless Steel, 0.25" diameter Wire Cable Probe: 316 Stainless Steel, 0.195" diameter Weighted Assembly: 0.75" diameter
<b>Tensile Load</b>	4,270 lbs
<b>Enclosure</b>	NEMA 6: Coated Epoxy Aluminum with IP67 Sealing
<b>Cable Entries</b>	(2) 1/2" NPT Conduit Entries
<b>Approvals</b>	A22 ATEX Grp II Cat 3 GD T75°C IP67 Tamb -40°C to 65°C

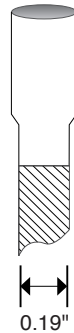
*Specifications are subject to change without notice.*

## PROBE OPTIONS

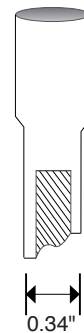
**Rod Probe**



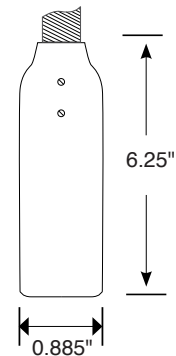
**Wire Cable Probe**



**Coated Wire Cable Probe**



**Weighted Cable Probe End**

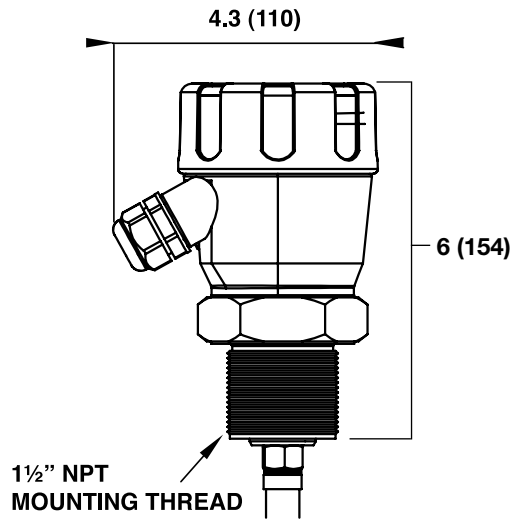


**DIMENSIONS inches (mm)**

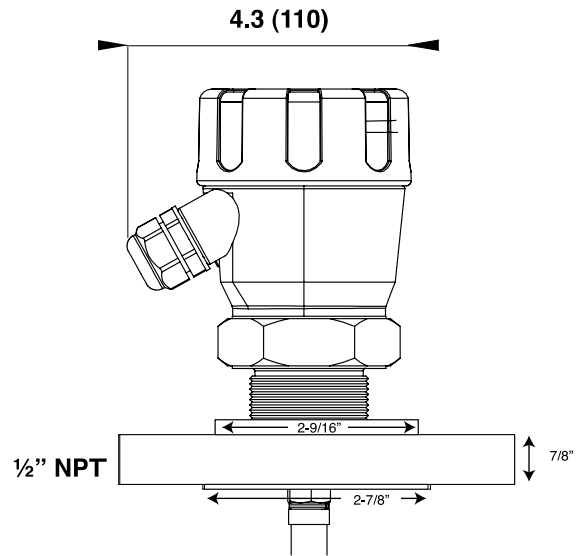
**NEMA 6 ENCLOSURE**



*Standard*



*Flange Option*



## LTCT™ RS485 COMMUNICATION TOOL



The Tracer 1000™ 2G Level Transmitter leaves FLO-CORP's factory pre-configured to the customer's application settings, but if adjustments need to be made in the field the RS485 Communication Tool is recommended. The communication tool and Tracer Talker™ software allow the user to perform a mounting calibration procedure. The software will automatically detect and adjust any deterrent from mounting obstructions and will setup the correct sensitivity settings. It will also allow for a digitize procedure to see the proper auto-calibrate functions in your application. The software will auto-adjust the Tracer 1000™ 2G level transmitter to your application and stabilize the unit.

## TRACER TALKER™ COMMUNICATION SOFTWARE

The Tracer Talker™ Software is included with the RS485 Communication Tool for easy setup and diagnostics. To download the Virtual COM Port Driver please visit: [www.flowlineoptions.com/tech/software](http://www.flowlineoptions.com/tech/software)

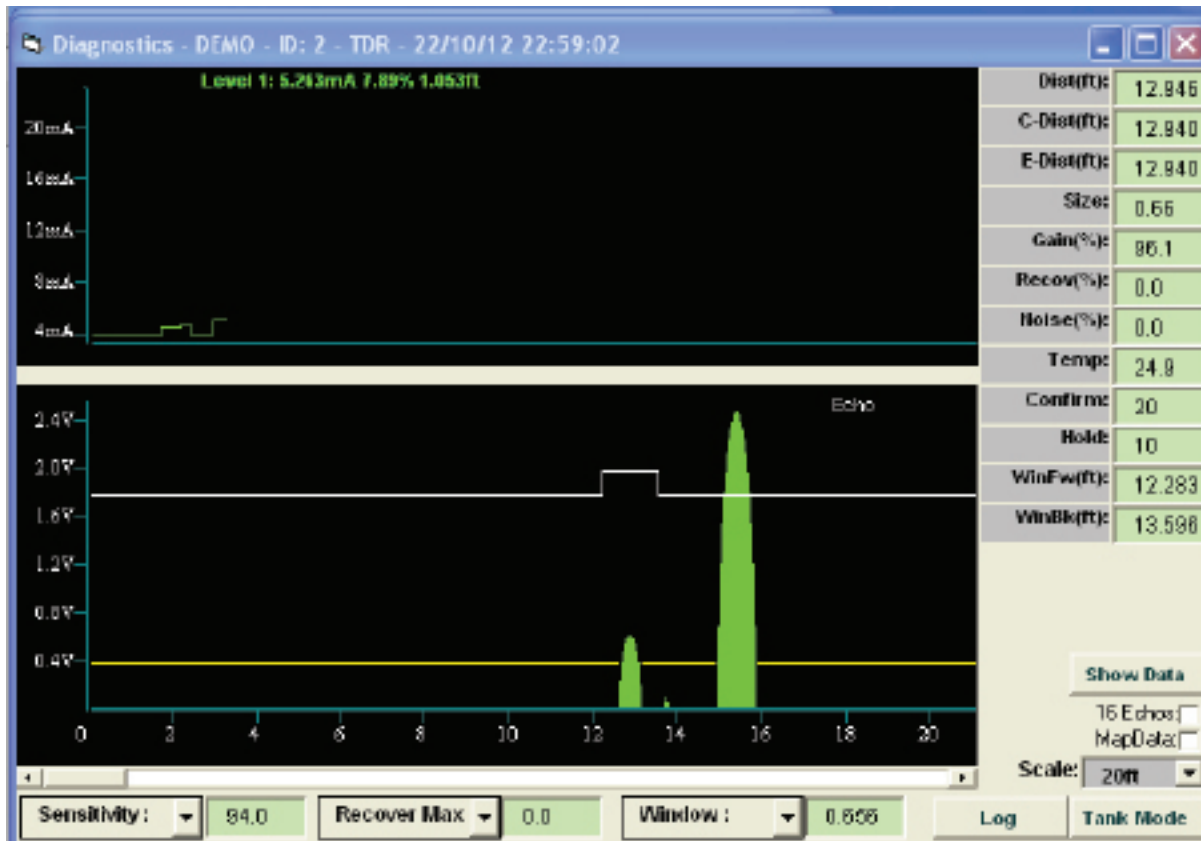


Fig. 1) The *Diagnostics Menu* allows the user to see how the return echo is performing and make adjustments to the measurement signal.

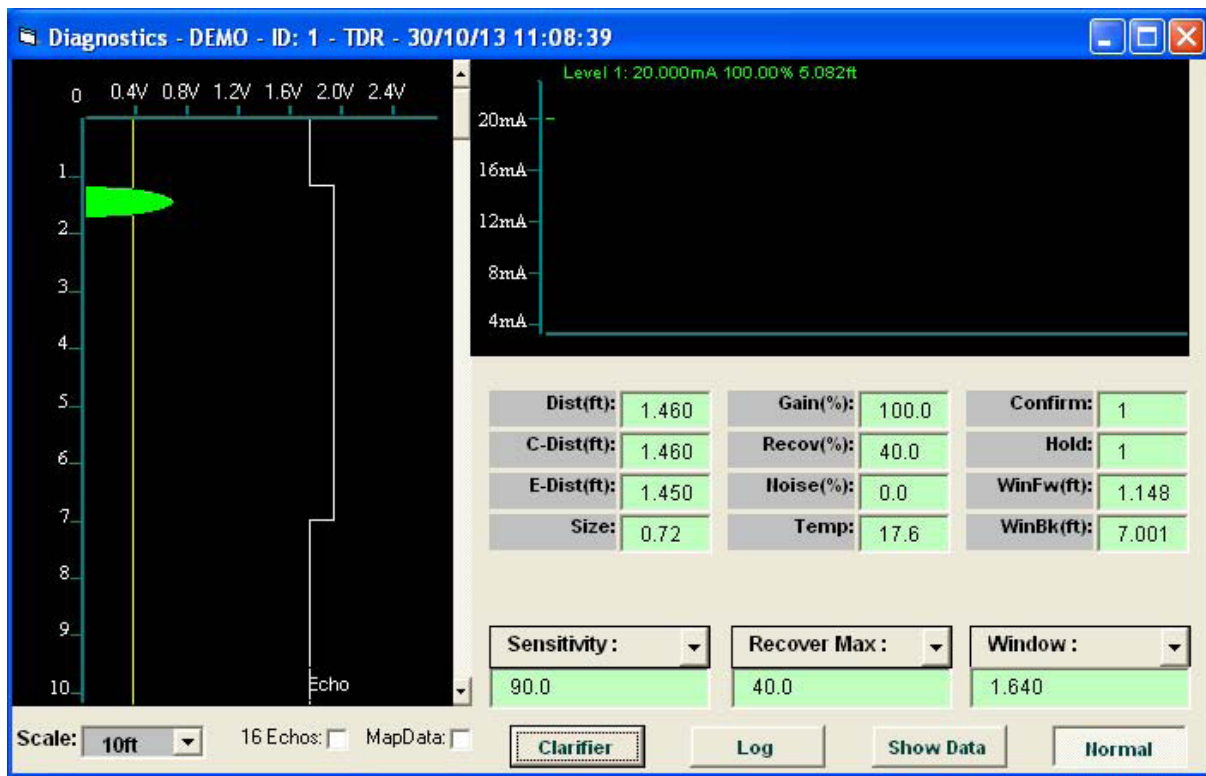


Fig. 2) The *Tank View Menu* allows the user to view their application activity.

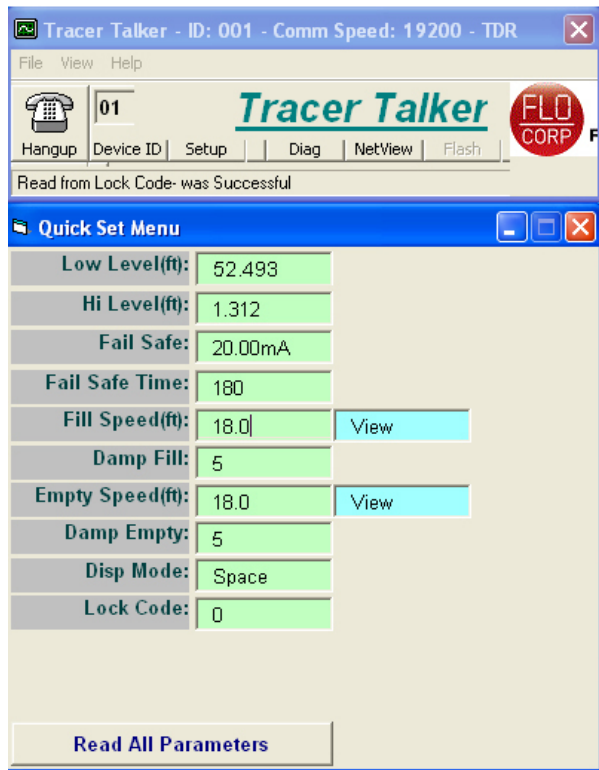


Fig. 3) The *Quick Setup Menu* sets the application base parameters.

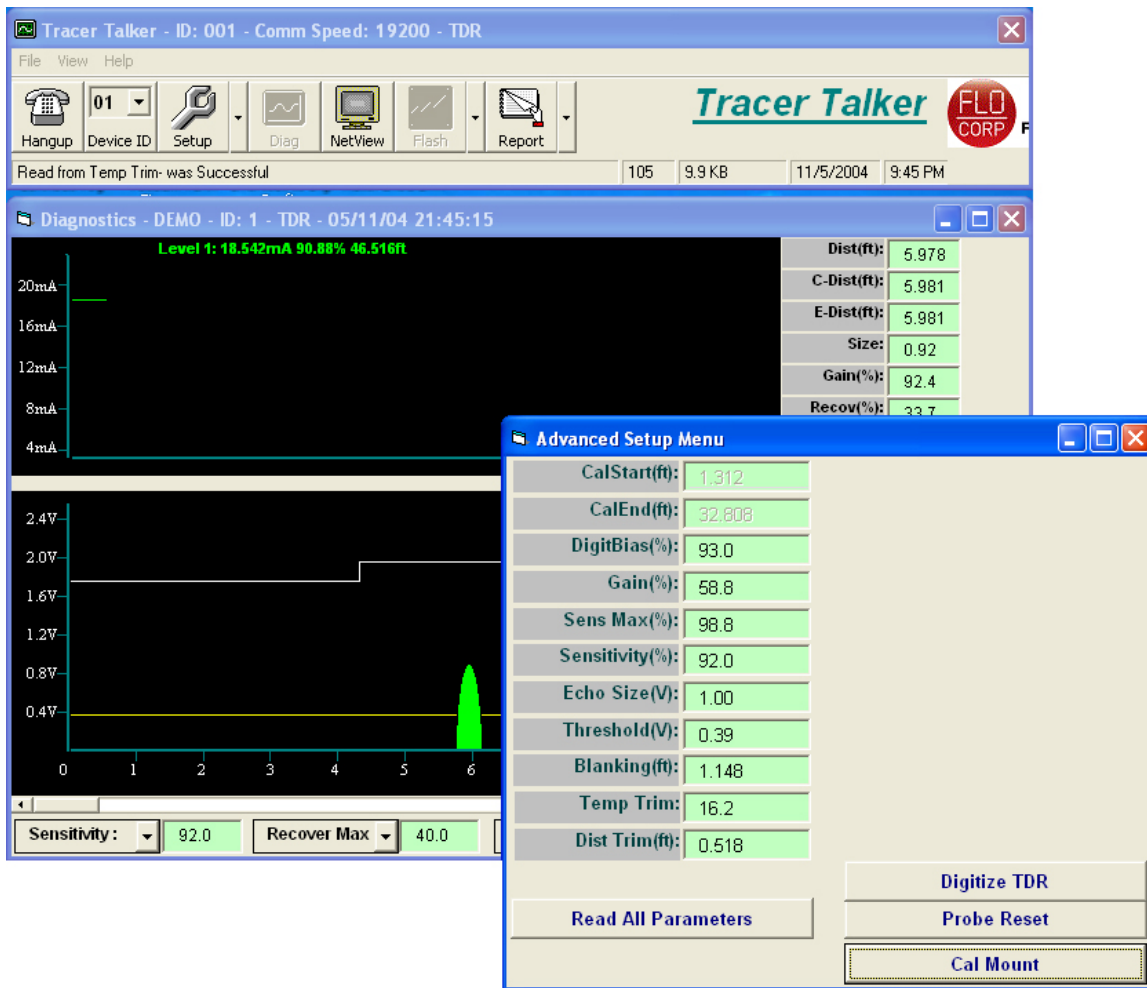


Fig. 4) The *Advanced Setup Menu* allows the user to fine tune the measurement signal and preform a Digitize TDR command for auto tuning in the application.

# Tracer 1000™ 2nd Generation GWR Level Transmitter

## Ordering Information

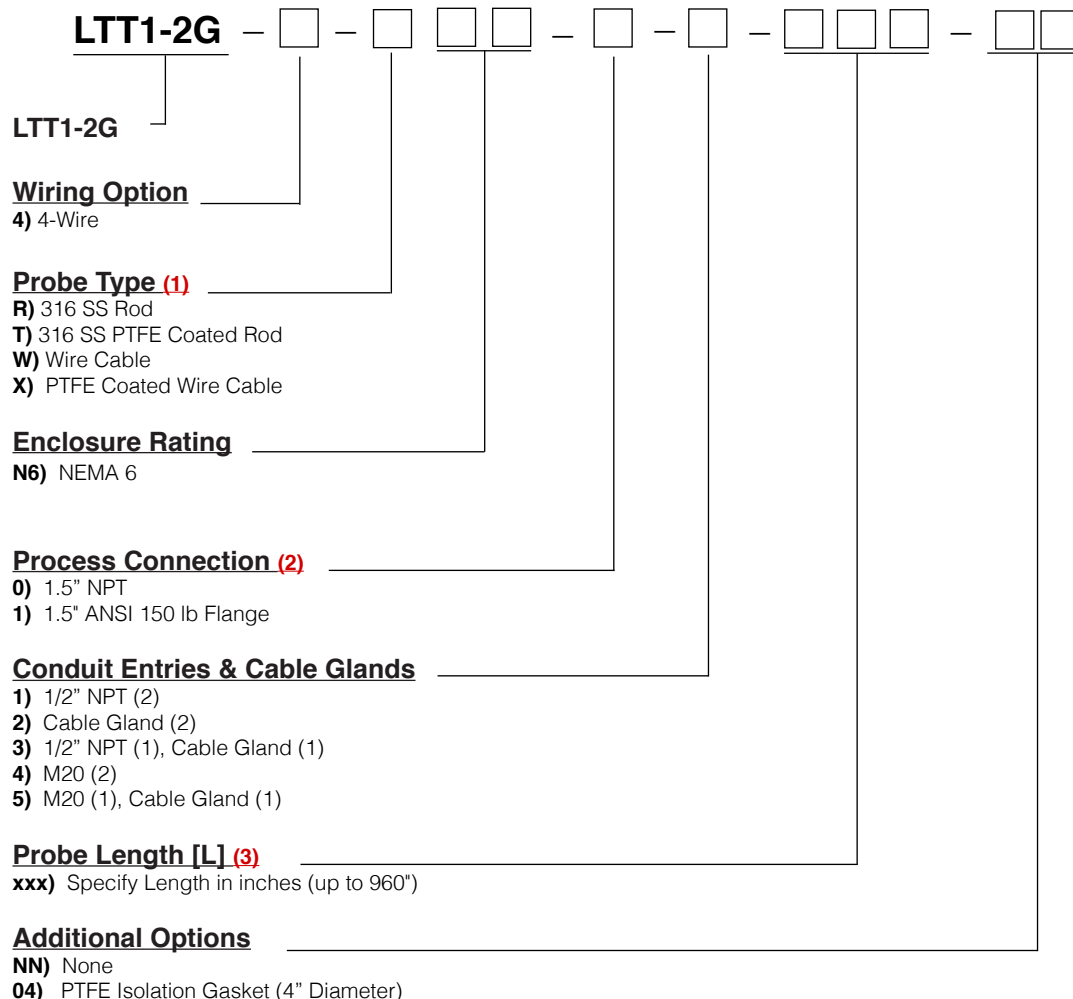
### FLO-CORP MODEL NUMBER BUILDER

For Assistance Call **877.356.5463**

Use the diagram below, working from left to right to construct your FLO-CORP Model Number. Simply match the category number to the corresponding box number.

**Example:** LTT1-2G-4-TN6-0-232-NN

Tracer 1000™ second generation GWR level transmitter, 4-Wire with 316 SS PTFE Coated Rod Probe with NEMA 6 enclosure, 1.5" NPT Process Connection, 1/2" NPT Conduit Entries, 232" Probe Length with no additional options



\*\*Multiple configuration methods, please contact FLO-CORP to choose appropriate method

#### Ordering Notes:

- (1) Select the best probe type based on your requirements
- (2) For special process connections questions please contact factory.
- (3) Specify the L-dimension at the end of the model number (ie: LTT1-2G-4-TN6-1-232"-N). The L-dimension must be specified in inches.

\*\*Additional probe lengths may be available upon request - Please contact factory.