



# TRACER 1000™ 3G (LTT1-3G)

## Guided Wave Radar Level Transmitter (up to 60ft.)

The Tracer 1000™ 3G Guided Wave Radar Level Transmitter is ideal for level measurement of liquids, solids, bulk materials, sludge, powders and granules. With a maximum measuring distance of 60ft. the guided-wave technology sends the radar pulse down a probe to measure either liquids or solids. The pulse hits the surface and is reflected back up the probe to the sensor, where the transit time is translated into a distance using time of flight and time expansion. The amplitude of the reflection depends on the dielectric constant of the product. This technology is not affected by pressure, temperature, viscosity, vacuum, foam, dust, changes in dielectric constant or coating of the probe.

### FEATURES & BENEFITS

- Interface level measurement
- Up to (60ft. 8in) range
- Very short minimum range (6in)
- Simple Setup
- Auto-calibration to any dielectric  $\geq 1.5$
- Adjustable Sensitivity
- Precise & Continuous accuracy
- 14-28VDC
- Modbus
- Protection class IP66, NEMA 4x
- Measures extremely low dielectric (1.5)
- Programmable fail safe mode

### 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.

### APPLICATIONS



Chemical & Petrochemical



Food & Beverage



Wastewater



Oil & Gas



Minerals & Mining

# SPECIFICATIONS

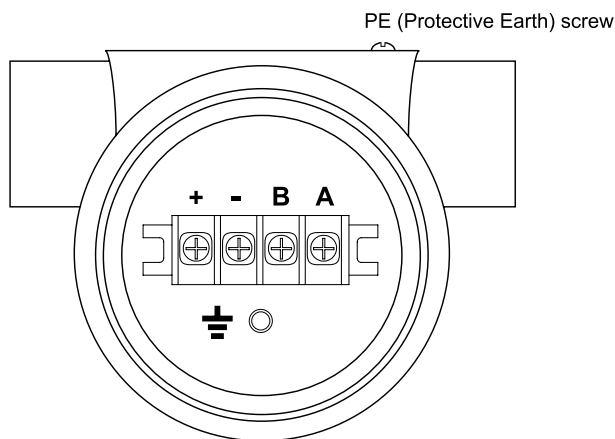
ELECTRONICS	
<b>POWER</b>	- 24VDC (14 to 28VDC) - 2-Wire Loop
<b>POWER CONSUMPTION</b>	<500mW @ 24VDC
<b>COMMUNICATIONS</b>	- Modbus - HART - Tracer Software via Modbus or HART
<b>ANALOG OUTPUT<sup>1</sup></b>	- 14V @ 0 Ohm - 19V @ 250 Ohms - 24V @ 500 Ohms - Current park at 4mA, 8mA, 12mA
<b>MAXIMUM RANGE</b>	- Flexible cable probe: 60ft 8in (18.5m) - Rigid probe: 13ft 1in (4m)
<b>MINIMUM RANGE (BLANKING)</b>	150mm
<b>DIELECTRIC RANGE</b>	≥ 1.5
<b>FREQUENCY</b>	2.2 GHz
<b>RESOLUTION</b>	- Analog: 1uA - Display: 1.0mm
<b>ACCURACY</b>	+/- 3mm
<b>MEASUREMENTS PER SECOND</b>	3
<b>RESPONSE TIME</b>	<1 second (application dependant)
<b>SUM OF NON-LINEARITY, NON-REPEATABILITY, HYSTERESIS</b>	Analog +/- 0.02%
<b>REPEATABILITY</b>	+/- 3mm
<b>MEMORY</b>	Non-Volatile (No backup battery required) >10 years data retention
<b>OPERATING TEMPERATURE (ELECTRONICS)</b>	-40°F to +176°F (-40°C to +80°C)
<b>DISPLAY</b>	4 line graphic display (128 x 64 pixels)
<b>LANGUAGE</b>	English
<b>CONFIGURATION</b>	4 button (up down, Cal, Run), Tracer Software via HART

<b>APPROVALS<sup>2</sup></b>	- IECEx Zone 0/1, Zone 1 IECEx TSA 14.0037X Ex ia/d [ia Ga] IIC T6 Ga/Gb Tamb = -40°C to +60°C IP 66, NEMA 4X (T6 ... T1) - ATEX Grp II Cat 3 GD IP66 Tamb -40°C to 60°C - IECEx Zone 20/21 IECEx TSA 14.0037X Ex ia tb [ia Da] IIIC T85°C Da Db Tamb = -40°C to +60°C IP 66, NEMA 4X
ENCLOSURE	
<b>TYPE</b>	Dual Compartment with Glass window
<b>MATERIAL</b>	- Die-cast Copper-Free Aluminium, Epoxy Painted - 316L Stainless
<b>CABLE ENTRIES</b>	- 1/2" NPT - 3/4" NPT - M20 x 1.5 - M25 x 1.5
<b>IP RATING</b>	- NEMA 4X - IP66
PROBE	
<b>PROBE SIZE/WETTED MATERIALS</b>	4mm SS316L rod 4mm DIN3055 (7x7 strand) SS316L flexible cable 6mm SS316L rod 6mm DIN3055 (7x7 strand) SS316L flexible cable 8mm SS316L rod 8mm DIN3055 (7x7 strand) SS316L flexible cable
<b>PROBE ENTRY WETTED MATERIALS</b>	TN07 / TB07 / TN10 / TB10 / Welded Flange1 SS316L, PEEK TN15 / TB15 / Welded Flange1 SS 316L, PTFE, GF25
<b>PROBE O-RING SEALS<sup>3</sup></b>	- Silicone / VMQ (-60°C to +230°C) - Nitrile / NBR (-35°C to +110°C) - Viton (-20°C to +204°C)

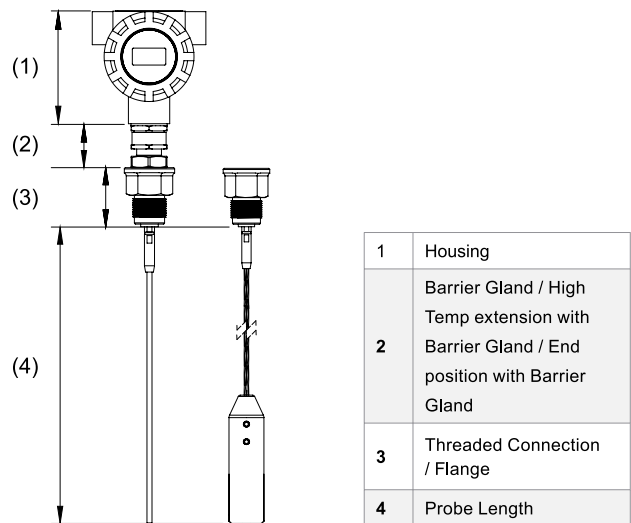
<b>PROCESS CONNECTIONS</b>	3/4" NPT or BSP 3/4" NPT with Flange 1" NPT or BSP 1.5" NPT or BSP 1.5" NPT with Flange Welded Flange
<b>PROCESS PRESSURE</b>	-1 to 100 BAR
<b>PROCESS TEMPERATURE</b>	-40°F to +176°F (-40°C to +80°C) -40 to +302°F (-40°C to +150°C)

<b>TENSILE LOAD (FLEXIBLE CABLE PROBES)</b>	Probe Type: A04 / J04 0.5 ton Probe Type: A06 / J06 1.0 ton Probe Type: A08 / J08 4.0 ton
<b>LATERAL LOAD (RIGID PROBES)</b>	Probe Type: B04 / K04 1 Nm Probe Type: B06 / K06 3 Nm Probe Type: B08 / K08 8 Nm
Specifications are subject to change without notice. <sup>1</sup> Compatible with 2-wire loop powered option only <sup>2</sup> Approvals valid with 2-wire loop powered option only <sup>3</sup> Observe min/max temperatures for O-Ring seal	

## WIRING TERMINAL COMPARTMENT

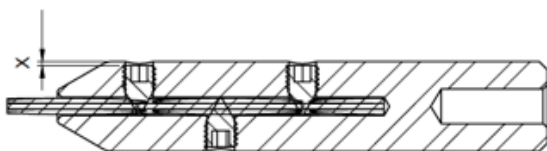


## DIMENSION REFERENCE



## TANK FASTENING KIT (OPTIONAL)

The Tracer 1000™ 3G cable weight tank fastening kit (LTFKIT) includes 2 eye bolts and 1 adjustable rigging lock. For full details and specifications, please refer to the Tank Fastening Kit (LTFKIT) data sheet.



# ORDERING INFORMATION

## FLO-CORP MODEL NUMBER BUILDER

For Assistance Call **877.356.5463**

LTT1-3G —   —  —   —    —   —

### LTT1-3G

Tracer 1000™ 3G

#### COMMUNICATION (1)

- (4W) 4-Wire Modbus with Interface
- (2W) 2-Wire 4-20mA with HART
- (2I) 2-Wire 4-20mA with HART and Interface

#### HOUSING

- (A) Aluminum, Epoxy Painted
- (S) 316L Stainless Steel

#### PROCESS CONNECTION

- (1) 3/4" NPT (316L Stainless Steel)
- (2) 1" NPT (316L Stainless Steel)
- (3) 1.5" NPT (316L Stainless Steel)
- (4) 2" ANSI 150# Flange (316L Stainless Steel)
- (5) 4" ANSI 150# Flange (316L Stainless Steel)
- (6) Custom Connection

#### GLAND ENTRY

- (1) 1/2" NPT Cable Gland Entry
- (2) 3/4" NPT Cable Gland Entry
- (3) M20 x 1.5 Cable Gland Entry
- (4) M25 x 1.5 Cable Gland Entry

#### PROBE TYPE

- (R) 316 SS Rod (120" max)
- (T) 316 SS PTFE Coated Rod (120" max)
- (W) Wire Cable
- (X) PTFE Coated Wire Cable

#### PROCESS O-RING SEAL

- (V) FKM (Viton) (40°F to 176°F)
- (M) FFKM (Markez) (23°F to 482°F) Max process pressure 40 bar

#### PROCESS TEMPERATURE

- (1) -40 to +176°F
- (2) -40 to +302°F

#### APPROVALS (2)

- (NN) Not Required
- (A1) IECEx Ex ia/d [ia Ga] IIC T6 Ga/Gb Tamb 60°C
- (A2) IECEx Ex ia tb [ia Da] IIIC T85C Da Db Tamb 60°C
- (AX) ATEX Grp II Cat 3 GD IP66 Tamb -40°C to 60°C

#### PROBE LENGTH [L]

- (xxx) Specify Length in Inches (up to 728)

#### ORDERING NOTES

- (1) Select the best configuration based on your requirements
- (2) A1, A2, AX only available with 2-Wire Communication Option