

# DREXELBROOK<sup>®</sup>

## MULTI-PROCESS VARIABLE LIQUID LEVEL SENSOR

### Total Tank Level System (Modbus Output)

#### Magnetostrictive Liquid & Interface Level Sensor with Temperature outputs

Sensors are available in 316SS rigid and flexible probe designs with a choice of Single or Dual NPT mountings. Systems include an explosion-proof conduit housing containing a wiring terminal strip and an intrinsically safe probe. All systems offer totally welded construction.

The Total Tank Level System is an Explosion Proof sensor with Modbus digital output for total level, interface level and temperature sensor outputs. Temperature sensors are evenly distributed over the active length of the probe.

A variety of floats and mounting accessories are available to fit virtually any application. Contact your local representative to match your needs today.

#### Accurately Measures:

- Total Level
- Interface Level
- Temperature - 5 sensors over active range.

#### Modbus RTU digital output for:

- Total level
- Interface level
- Temperature
- System diagnostics

#### Easy Installation

- No calibration needed

#### High Accuracy

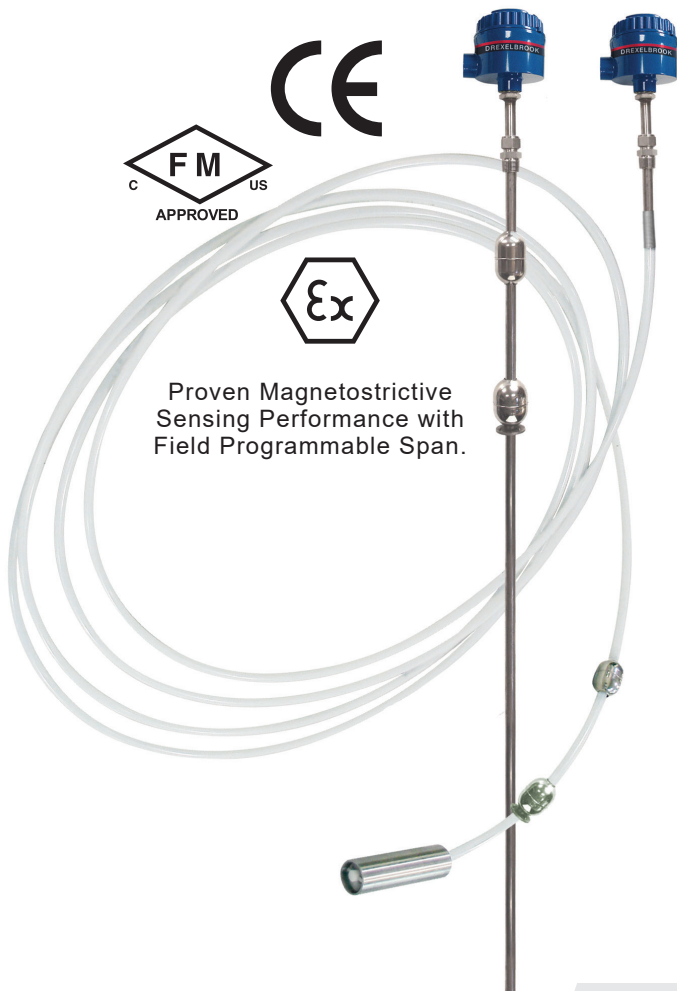
- 0.01% of measured span - less than 1 mm absolute, over full measurement range.

#### Minimal Maintenance

- Unique diagnostic output provides float position beyond active range, as well as loss of float(s).

#### Designed for Hazardous Area Applications

- Rigid Stainless Steel and Flexible Probe models meet FM, ATEX, and IECEx hazardous area approvals. See specification section for details.



Proven Magnetostrictive Sensing Performance with Field Programmable Span.

# Total Tank Level System

## SPECIFICATIONS

### Technology:

- Magnetostrictive

### Operating Voltage:

- 10 - 30 VDC

### Output Signal:

- Modbus RTU / ASCII

### Response Time:

- 1.0 Second

### Temperature Range:

#### Rigid 316 SS Probe

- Process: -40°F to 257°F (-40°C to 125°C)
- Ambient: -40° F to 185° F (-40°C to 85°C)

#### UltraFlex PVDF Probe

- -40°F to 158°F (-40°C to 70°C)

### Pressure Rating:

- 316SS tube: 1000 psig. (69 bar)
- Float: Dependent, 316SS floats Typical to 350 psig. (24 bar)  
Consult Factory

### Resolution:

- +/- 0.0001"

### Repeatability:

- +/- 0.0001"

### Accuracy:

- Level: 0.01% or +/- 0.023" (0.06mm)  
Whichever is greater
- Temp. Sensor: +/- 1°F (+/- 0.5°C)

### Hysteresis:

- 0.002%

### Null Zone (Top of Probe):

#### Rigid 316 SS Probe

- 9.25" (235 mm)

#### UltraFlex PVDF Probe

- Variable by selection

### Dead band (Bottom of Probe):

#### Rigid 316 SS Probe

- 2.75" (70 mm)

#### UltraFlex PVDF Probe

- Variable by selection

### Enclosure Rating:

- IP66, NEMA 4-4X

### Wetted Parts:

- Rigid - 316 SS
- Flexible - PVDF (Kynar)

### Probe Length:

- 316SS 20" to 378" (508 - 9601 mm)
- Flexible PVDF (Kynar) 65" to 600" (1651 - 15240 mm)  
Probes available in 1" (25 mm) increments

### Minimum Liquid / Liquid Interface Measurement:

- $\geq 4"$  (100 mm)

### Hazardous Area Approvals



#### Rigid 316 SS Probe

XP CL I, DIV 1, GRP A,B,C,D T4 (US)

DIP CL II, III, DIV 1, GRP E,F,G T4 (CANADA)

$-40^{\circ}\text{C} \leq \text{Ta} \leq +100^{\circ}\text{C}$

### Hazardous Area Approvals



#### UltraFlex PVDF Probe

XP-IS CL I, DIV 1, GRP C,D T4

NI CL I, DIV 2, GRP A,B,C,D T4

DIP-IS CL II, III, DIV 1, GRP E,F,G T4

CL I, Zone 0/1, AEx ia/db IIB T4 Ga/Gb

Ex ia/db IIB T4 Ga/Gb FM16CA0180X

$-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$

ATEX

FM 15 ATEX0022X

II 2/1) G Ex ia/db IIB T4 Ga/Gb

$-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$

IECEX

IECEX FMG 150022X

Ex ia/db IIB T4 Ga/Gb

$-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$

### 3A Sanitary Option (S) Probe Only

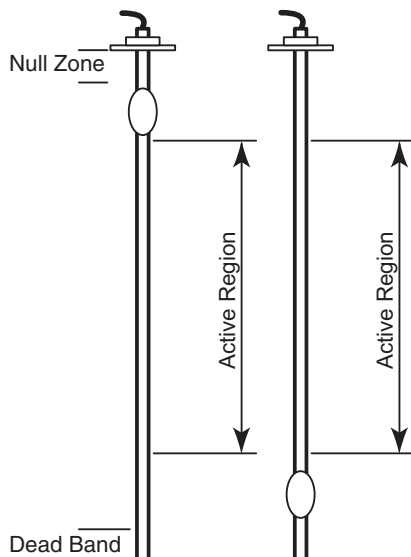


Note: 3A Sanitary option (s) Probes and Food Grade Option (F) Probes

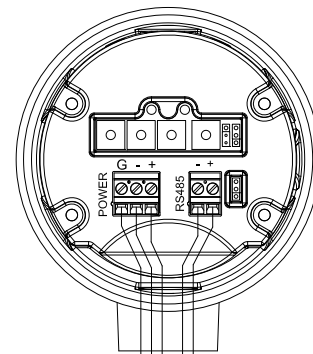
**DO NOT have Hazardous Area Approvals.**



## FLOAT DIAGNOSTIC



## WIRING



POWER 10-30V

MOD BUS RTU / ASCII

If Level or Interface Float are outside of active region:

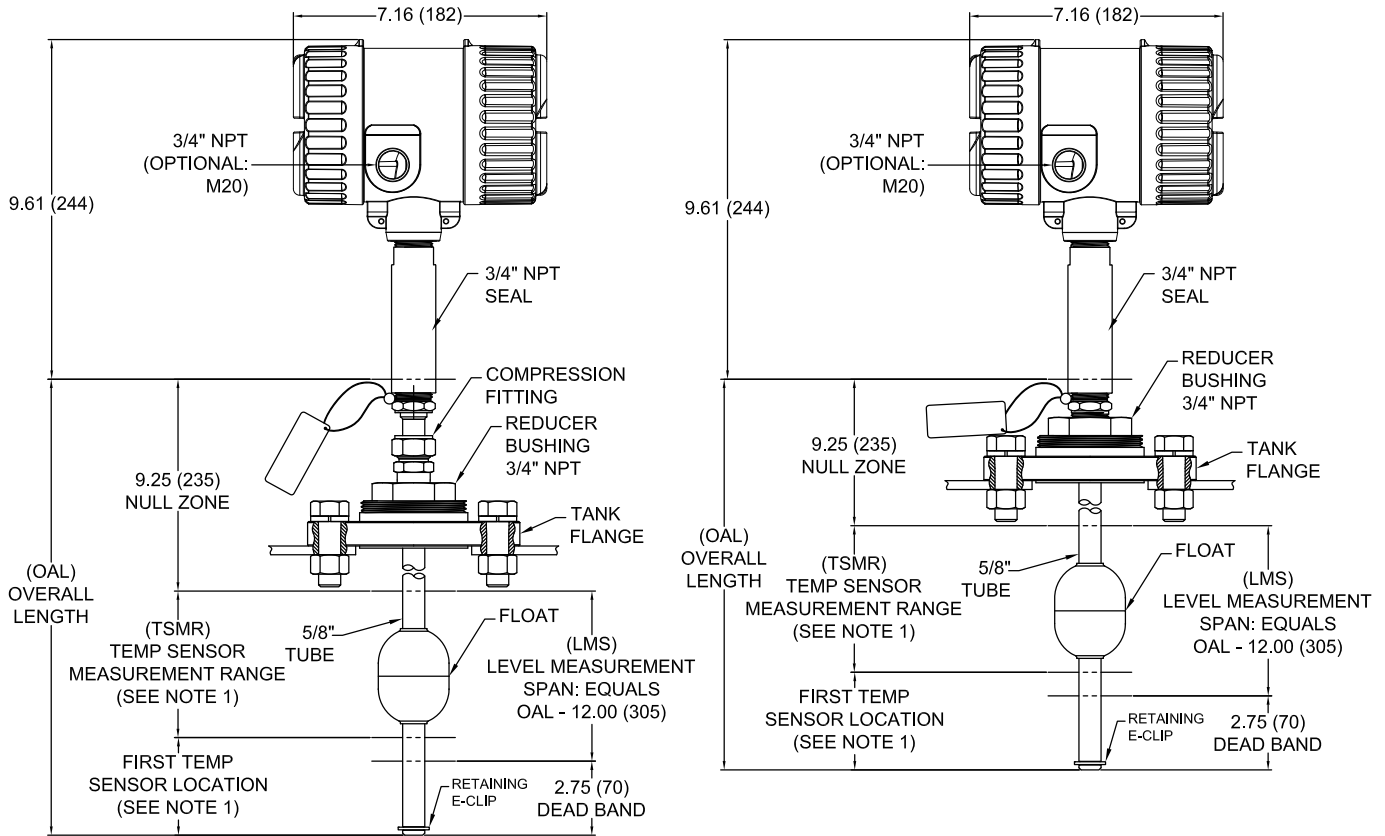
Modbus Mode "1000" as "product or "interface" reading plus Status Byte

# Total Tank Level System

## Total Tank Level System (316 SS Rigid Probe)

DIMENSIONS INCHES, (MM)

### RIGID 316 SS SERIES



ADJUSTABLE MOUNT (B3 STYLE)

FIXED MOUNT (B2 STYLE)

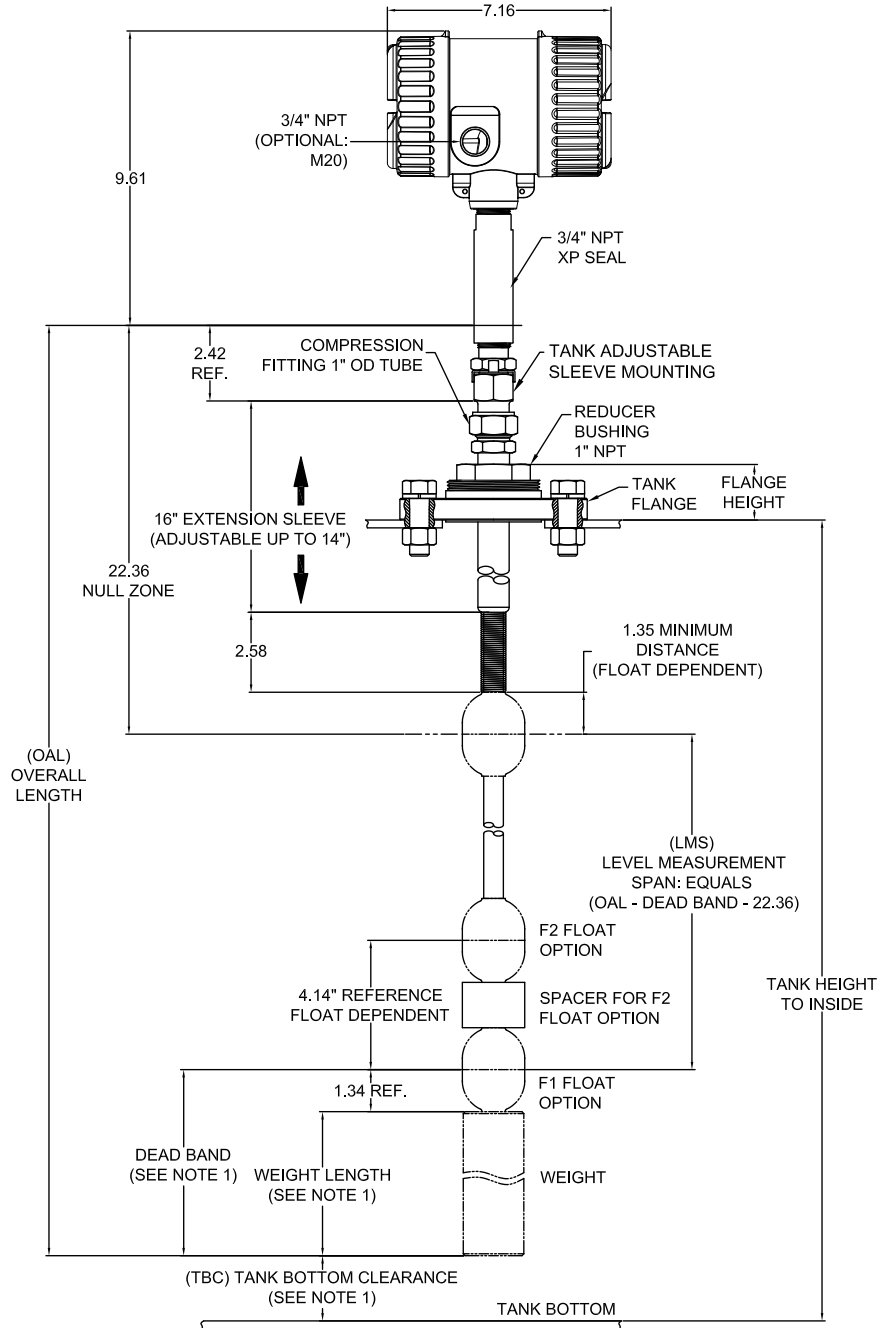
NOTE:  
1. REFERENCE DIMENSIONAL DRAWING.

# Total Tank Level System

## Total Tank Level System (Flexible Probe)

DIMENSIONS INCHES, (MM)

### ULTRAFLEX PVDF SERIES MOUNTING APPLICATION DATA



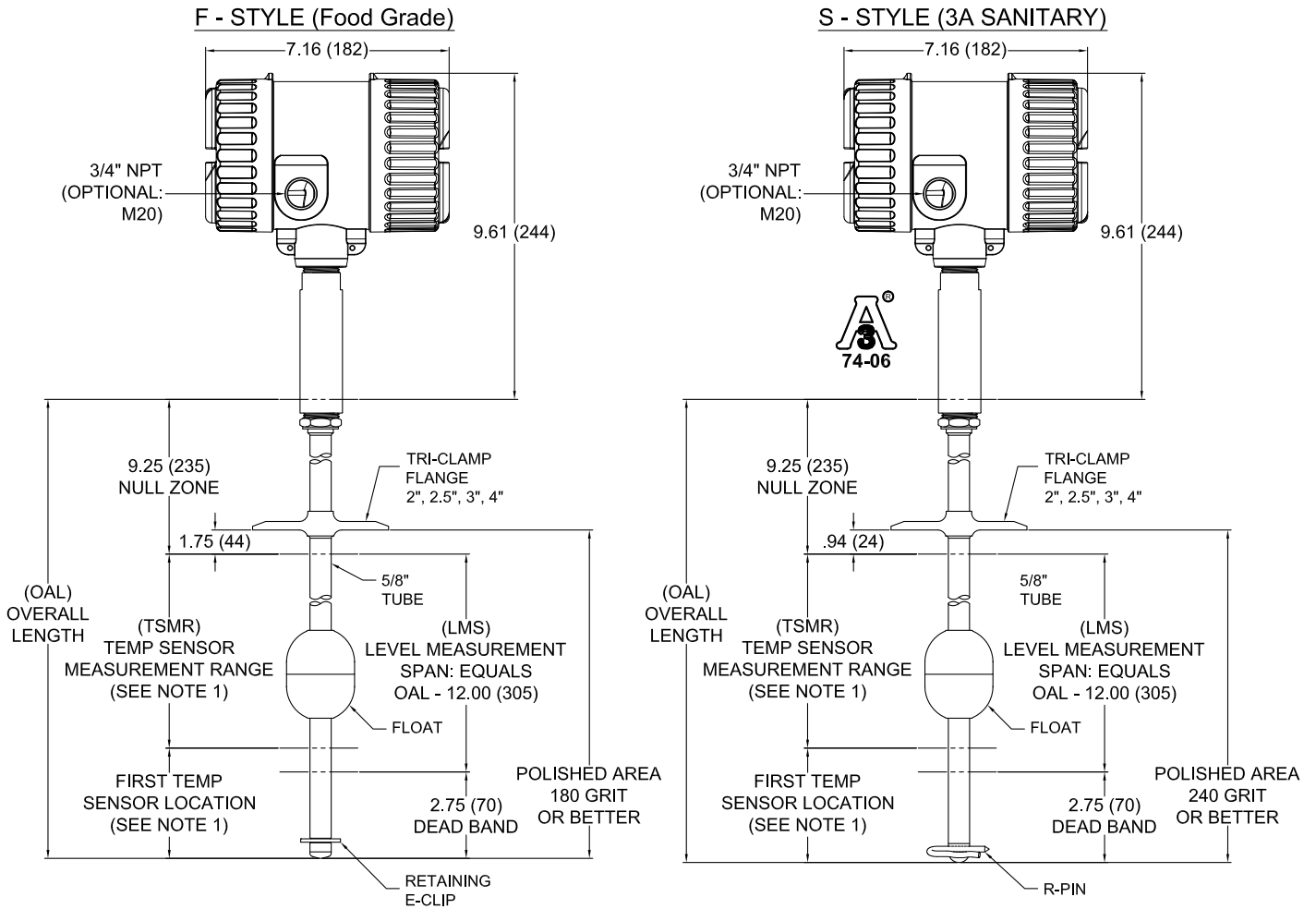
NOTE:  
1. REFERENCE CHART ON DIMENSIONAL DRAWING.

# Total Tank Level System

## Total Tank Level System (Food Grade Probes)

DIMENSIONS INCHES, (MM)

### RIGID 316 SS F and S SERIES



NOTE:  
1. REFERENCE DIMENSIONAL DRAWING.

ADJUSTABLE MOUNT

FIXED MOUNT

# Total Tank Level System

## MODEL NUMBERING

### Model - Total Tank Level System

**M** Total Tank Level System

#### Output

**1** Modbus

#### Housing

**1** Single compartment powder coated aluminum, 3/4" NPT

#### Dual Seal

**X** None

#### Material

**B** 316 SS Stainless Steel (Rigid) 20" to 387" Long

**V** PVDF (UltraFlex) 65" to 600" Long

**S** Sanitary, 3A (Tri-clamp mounting, polished tubing 240 grit 316 SS Rigid only) 20" to 140"

**F** Food Grade (Tri-clamp mounting, 180 grit 316 SS Rigid only) 20" to 200"

#### Mounting

**1** Adjustable, 16" Long Extension Tube UltraFlex Option only

**2** 3/4 NPT 316 SS Rigid Option only

**3** Adjustable 316 SS Rigid Option only

**A** 2" Tri-clamp Sanitary or Food Grade Option only

**B** 2 1/2" Tri-clamp Sanitary or Food Grade Option only

**C** 3" Tri-clamp Sanitary or Food Grade Option only

**D** 4" Tri-clamp Sanitary or Food Grade Option only

#### Level Measurement Span (LMS)

**XXX** 3 figure number (specified in inches)

#### Temperature Points

**R1** 1 Sensor (@36")

**R5** 5 Sensors

**T1** 1 Sensor (close to bottom)

#### Number of Floats

**F1** 1 Float

**F2** 2 Floats

#### Over All Length (OAL)

**XXX** 3 figure number (specified in inches)

#### Float Kit 1 - Total Product Float Kit

**XXX** = None

**001** = 316SS, 2.06" Diameter, 0.54 SG. UltraFlex PVDF Option

**002** = 316SS, 2.06" Diameter, 0.64 SG. UltraFlex PVDF Option

**003** = 316SS, 2.06" Diameter, 0.54 SG. E-Clip/Spacer 1.25" Long Rigid 316SS Option

**004** = 316SS, 2.06" Diameter, 0.64 SG. E-Clip/Spacer 1.25" Long Rigid 316SS Option

**005** = 316SS, 1.83" Diameter, 0.65 SG. R-Clip (3A Sanitary) Rigid 316SS "S" Option

**006** = 316SS, 1.83" Diameter, 0.65 SG. E-Clip (Food Grade) Rigid 316SS "F" Option

#### Float Kit 2 - Interface Float Kit

**XXX** = None

**101** 316SS, 2.06" Diameter, 0.85 SG. UltraFlex PVDF Option

**102** 316SS, 2.06" Diameter, 0.96 SG. UltraFlex PVDF Option

**103** 316SS, 2.05" Diameter, 0.85 SG. E-Clip/Spacer .875" Long Rigid 316SS Option

**104** 316SS, 2.05" Diameter, 0.96 SG. E-Clip/Spacer .875" Long Rigid 316SS Option

**105** 316SS, 2.05" Diameter, 1.10 SG. E-Clip/Spacer .875" Long Rigid 316SS Option

M X X X X X XXX XX XX XXX XXX XXX