

R16 LEVEL SENSORS PRODUCT OVERVIEW

WHAT IS AN EZ-track® LIQUID LEVEL PROBE?

The **EZ-track** R16 liquid level probe is a programmable, two-wire loop powered intrinsically safe probe that is ideal for continuous level monitoring in a variety of liquids and tank designs. The R16 sensor uses magnetostrictive technology to monitor the position of a magnetic float along the active stroke of the sensing tube, which is then converted into a configurable 4-20 mA output.

All of the electronics for the R16 sensor are incorporated within the 5/8 inch sensing rod, which eliminates the need for an electronics enclosure at the top of the sensor. This feature, when ordered with the standard 4-pin **minifast**® 7/8-16UN quick disconnect, offers greater mounting options, and a faster, more reliable installation.

WHY CHOOSE THE EZ-track LIQUID LEVEL PROBE?

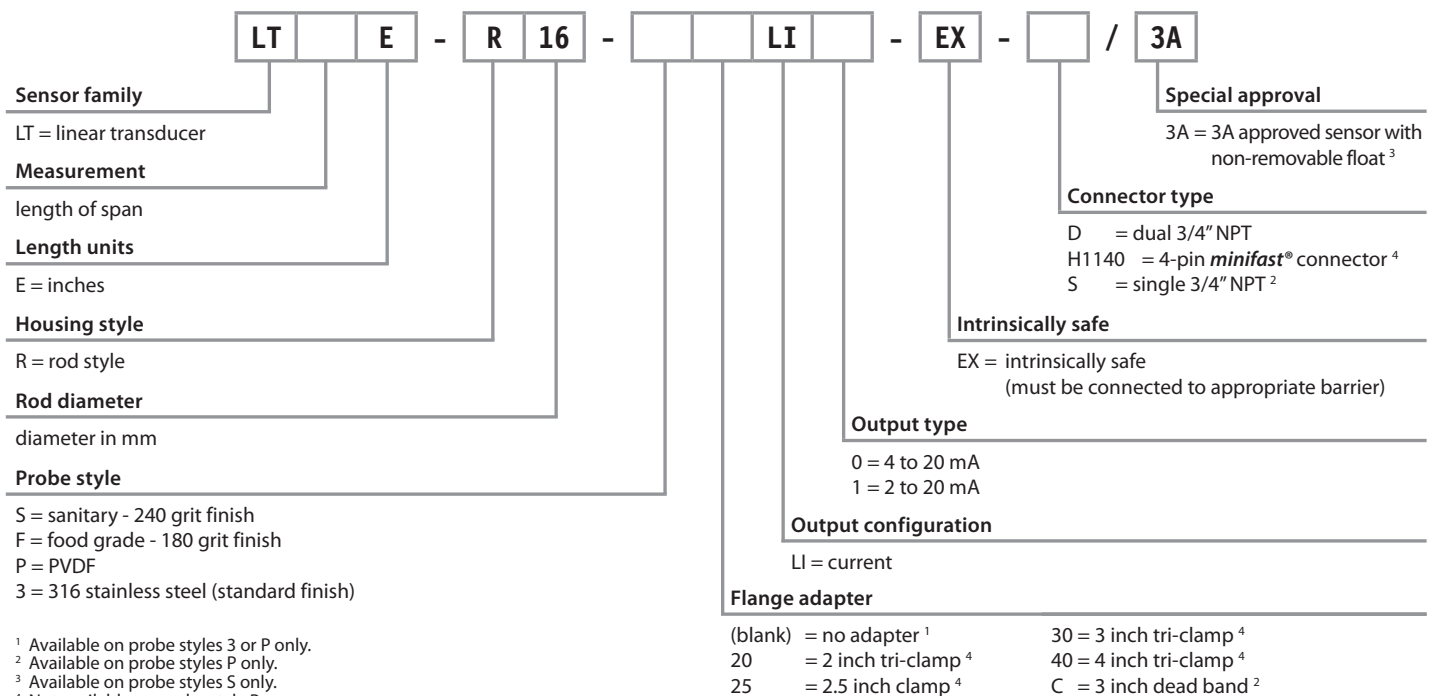
- IP68 rated; available in a rigid 316 stainless steel housing or a flexible PVDF design.
- Probe lengths vary between 18 and 288 inches.
- A variety of floats, fittings and accessories are available to fit virtually any application requirement.
- A resolution of 0.02 inches of full scale, and an accuracy of 0.1% over the programmable monitoring span.

WHERE CAN I USE THE EZ-track LIQUID LEVEL PROBE?

- Because there are no parts to wear or break, the sensors offer better performance than competing technologies.
- The stainless steel version is also available in an optional Food Grade or 3A Rated Sanitary finish probe for use in an array of food service, dairy and beverage applications.



R16 Level Probe Part Number Key



¹ Available on probe styles 3 or P only.

² Available on probe styles P only.

³ Available on probe styles S only.

⁴ Not available on probe style P

Level Sensors - R16 Probe

R16 Level Probe Part Number Key

LT [] E - R 16 - [] [] LI [] - EX - [] / 3A

Sensor Family

LT = Linear Transducer

Measurement

Length of span

Length Units

E = Inches

Housing Style

R = Rod Style

Rod Diameter

Diameter in mm

Probe Style

S = Sanitary - 240 grit finish (max. span is 110 in.)
 F = Food Grade - 180 grit finish (max. span is 110 in.)
 P = PVDF
 3 = 316 stainless steel (standard finish)

Special Approvals

3A = 3A approved sensor with float³

Connector Type

D = Dual 3/4 inch NPT
 B1140 = 4-pin, *minifast*⁴
 S = Single 3/4 in. NPT (steel)
 Single 1/2 in. NPT² (PVDF, with flange "C" only)

Intrinsically Safe

EX
 * must be connected to appropriate barrier

Output Type

0 = 4 to 20 mA
 1 = 20 to 4 mA

Output Configuration

LI = Current

Flange Adapter

Blank = No Adapter¹
 20 = 2 inch Tri-clamp⁴
 25 = 2.5 inch Clamp⁴
 30 = 3 inch Tri-clamp⁴
 40 = 4 inch Tri-clamp⁴
 C = 3 inch Dead Band², temperature limited (0 to 40°C)

Note:

1. Available on probe styles 3 or P only.
2. Available on probe styles P only.
3. Available on probe styles S only.
4. Not available on probe style P.

Specifications

Stainless Steel Probe	
Output	4 to 20 mA, 20 to 4 mA
Span	8 to 278 inches
Repeatability	0.014 in. + 0.5% of programmable span typical; max 0.014 in. + 0.4% of span
Resolution	0.025% of programmable span / 0.02 in., whichever is greater
Operating Temperature	-20°C to +70°C (-4°F to +158°F)
Null Zone	8 in.
Dead Zone	2 in.
Operational Voltage	13.5 to 30 VDC
Current Consumption	Loop Powered
Enclosure Rating	IP68
Accuracy	0.1% of programmable span or 0.050 in.
Reading Rate	40 ms
Rod Diameter	0.625 in. (15.9 mm)
Pressure	1015 psi
Electronics	Stainless Steel 316L
Rod	Stainless Steel 316L
Agency Approvals	FM
FM Approval	Class I, Div 1, Group C and D Class II, Div 1, Group E, F, and G Class I, Zone 0 or 1, Groups IIA or IIB

PVDF Probe	
Output	4 to 20 mA, 20 to 4 mA
Span	7 to 268 in.
Repeatability	0.014 in. + 0.5% of programmable span typical; max 0.014 in. + 0.4% of programmable span
Resolution	0.025% of programmable span or 0.02 in., whichever is greater
Operating Temperature	-20°C to +70°C (-4°F to +158°F)
Null Zone	12 in. (9 in. for flange adapter "C")
Dead Zone	6 to 8 in. (span 7 in. to 126 in.: 6 in.; span 127 in. to 268 in.: 8 in.) 3 in. For flange adapter "C"
Operational Voltage	13.5-30 VDC
Current Consumption	Loop Powered
Enclosure Rating	IP68
Accuracy	0.1% of programmable span
Reading Rate	40 ms
Rod Diameter	0.625 in. (15.9 mm)
Pressure	145 psi
Electronics	PVDF
Rod	PVDF
Agency Approvals	FM
FM Approval	Class I, Div 1, Group C and D Class II, Div 1, Group E, F, and G Class I, Zone 0 or 1, Groups IIA or IIB

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Level Sensors - R16 Probe



Housing Style	Part Number	Output Current
Stainless Steel Level Probe, minifast[®] Connection 	LT***E-R16-3LI0-EX-B1140	4-20 mA Loop Powered
	LT***E-R16-3LI1-EX-B1140	20-4 mA Loop Powered
Stainless Steel Level Probe, Dual 3/4 NPT Connection 	LT***E-R16-3LI0-EX-D	4-20 mA Loop Powered
	LT***E-R16-3LI1-EX-D	20-4 mA Loop Powered
Stainless Steel Level Probe, Single 3/4 NPT Connection 	LT***E-R16-3LI0-EX-S	4-20 mA Loop Powered
	LT***E-R16-3LI1-EX-S	20-4 mA Loop Powered
Stainless Steel Level Probe, minifast Connection, Tri-clamp Adapter 	LT***E-R16-3**LI0-EX-B1140	4-20 mA Loop Powered
	LT***E-R16-S**LI0-EX-B1140	
	LT***E-R16-F**LI0-EX-B1140	
Stainless Steel Level Probe, Single 3/4 NPT Connection, Tri-clamp Adapter 	LT***E-R16-3**LI1-EX-B1140	20-4 mA Loop Powered
	LT***E-R16-S**LI1-EX-B1140	
	LT***E-R16-F**LI1-EX-B1140	
Stainless Steel Level Probe, Single 3/4 NPT Connection, Tri-clamp Adapter 	LT***E-R16-3**LI0-EX-S	4-20 mA Loop Powered
	LT***E-R16-3**LI1-EX-S	20-4 mA Loop Powered

* Float ordered separately, see page E59.

** For flange dimensions, see page E60.

Level Sensors - R16 Probe

Voltage	Probe Style (Finish)	Operating Temp. (°C)	Pressure Rating (psi)	Connection Type	Agency Approval	Mating Cord, Cable Length/ Jacket	Wiring Diagram #	Wiring Diagrams
13.5-30 VDC	316 Stainless Steel	-20 to 70	1015	4-pin <i>minifast</i>	FM	RKM 46-*M	1	<p>Diagram 1</p> <p>Diagram 2</p>
	316 Stainless Steel	-20 to 70	1015	4-pin <i>minifast</i>	FM	RKM 46-*M	1	
13.5-30 VDC	316 Stainless Steel	-20 to 70	1015	Dual 3/4 NPT	FM	2 ft./PVC	2	<p>BK Loop IN - WH Program RD Loop IN + GN GND</p>
	316 Stainless Steel	-20 to 70	1015	Dual 3/4 NPT	FM	2 ft./PVC	2	
13.5-30 VDC	316 Stainless Steel	-20 to 70	1015	Single 3/4 NPT	FM	2 ft./PVC	2	
	316 Stainless Steel	-20 to 70	1015	Single 3/4 NPT	FM	2 ft./PVC	2	
13.5-30 VDC	316 Stainless Steel	-20 to 70	1015	4-pin <i>minifast</i>	FM	RKV 46-*M	1	
	Sanitary (316 SS w/240 grit)	-20 to 70	1015	4-pin <i>minifast</i>	FM	RKV 46-*M	1	
	Food Grade (316 SS w/180 grit)	-20 to 70	1015	4-pin <i>minifast</i>	FM	RKV 46-*M	1	
	316 Stainless Steel	-20 to 70	1015	4-pin <i>minifast</i>	FM	RKV 46-*M	1	
	Sanitary (316 SS w/240 grit)	-20 to 70	1015	4-pin <i>minifast</i>	FM	RKV 46-*M	1	
	Food Grade (316 SS w/180 grit)	-20 to 70	1015	4-pin <i>minifast</i>	FM	RKV 46-*M	1	
13.5-30 VDC	316 Stainless Steel	-20 to 70	1015	Single 3/4 NPT	FM	2 ft./PVC	2	
	316 Stainless Steel	-20 to 70	1015	Single 3/4 NPT	FM	2 ft./PVC	2	

R16 LEVEL

* Length in meters.

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Level Sensors - R16 Probe



Housing Style	Part Number	Output
<p>Stainless Steel Level Probe, <i>minifast</i>® Connection, Tri-clamp Adapter, with Float</p> <p>FM APPROVED</p>	LT***E-R16-S**LI0-EX-B1140/3A	4-20 mA Loop Powered
<p>PVDF Level Probe, Dual 3/4 NPT Connection</p> <p>FM APPROVED</p>	LT***E-R16-PLI0-EX-D	4-20 mA Loop Powered
<p>PVDF Level Probe, Single 1/2 NPT Connection, Temperature Limited</p> <p>FM APPROVED</p>	LT***E-R16-PCLI0-EX-S	4-20 mA Loop Powered
	LT***E-R16-PCLI1-EX-S	20-4 mA Loop Powered

* Float ordered separately, see page E60.

** For flange dimensions, see page E59.

Level Sensors - R16 Probe

Voltage	Probe Style (Finish)	Operating Temp. (°C)	Pressure Rating (psi)	Connection Type	Agency Approval	Mating Cord, Cable Length/ Jacket	Wiring Diagram #	Wiring Diagrams
13.5-30 VDC	Sanitary (316 SS w/240 grit)	-20 to 70	1015	4-pin <i>minifast</i>	3A, FM	RKV 46-*M	1	<p>Diagram 1</p> <p>Diagram 2</p>
	Sanitary (316 SS w/240 grit)	-20 to 70	1015	4-pin <i>minifast</i>	3A, FM	RKV 46-*M	1	
13.5-30 VDC	PVDF	-20 to 70	145	Dual 3/4 NPT	FM	2 ft./PVC	2	<p>Diagram 2</p>
	PVDF	-20 to 70	145	Dual 3/4 NPT	FM	2 ft./PVC	2	
13.5-30 VDC	PVDF	0 to 40	145	Single 1/2 NPT	FM	2 ft./PVC	2	<p>Diagram 2</p>
	PVDF	0 to 40	145	Single 1/2 NPT	FM	2 ft./PVC	2	

* Length in meters.

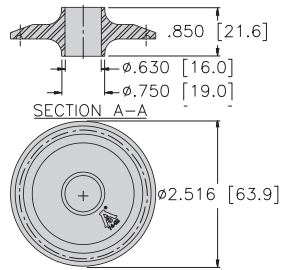
R16 LEVEL

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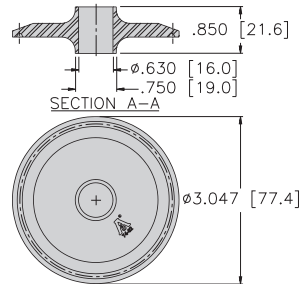
Level Sensors - R16 Probe

All dimensions shown as: Inches [mm]

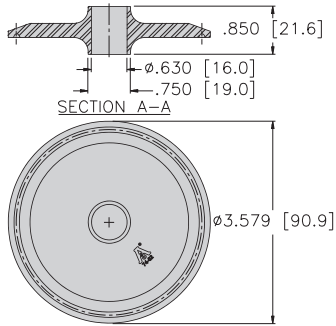
Flange Options



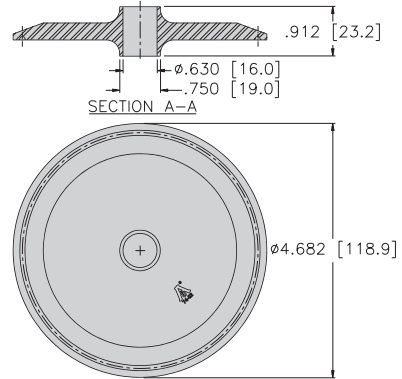
Flange, 2 inch Tri-clamp



Flange, 2.5 inch Tri-clamp



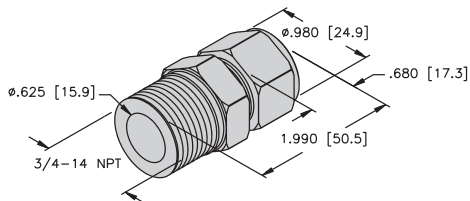
Flange, 3 inch Tri-clamp



Flange, 4 inch Tri-clamp

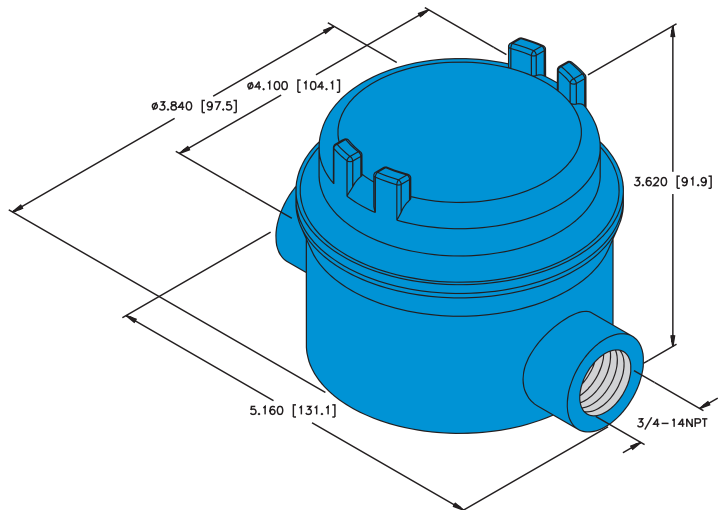
Level Probe Accessories

Tube Coupling



TC-R16-SS
(LT0305)

Junction Box

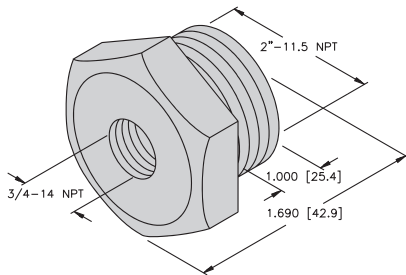


TB-R16S
(LT0294)

Level Sensors - R16 Probe

Level Probe Accessories

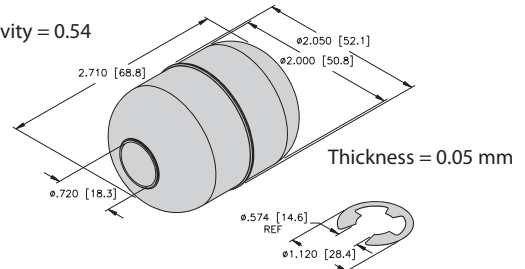
Bushing (316 Stainless Steel)



BU-R16-2x3/4 NPT-SS (LT0306)

Float Kit (316 Stainless Steel) General Applications

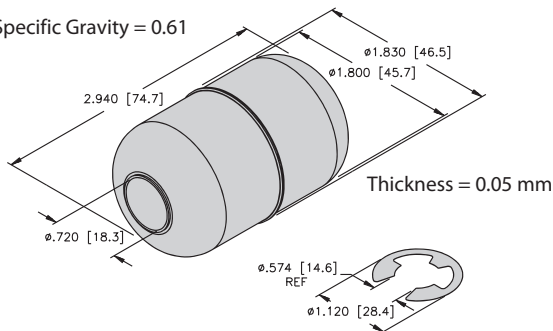
Specific Gravity = 0.54



FK-R16-205-SSES (LT0299)

Float Kit (316 Stainless Steel) General Applications

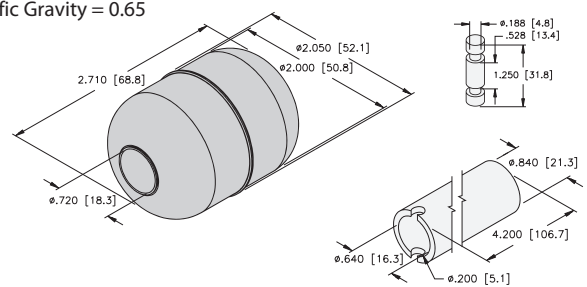
Specific Gravity = 0.61



FK-R16-183-SSES (LT0296)

Float Kit (Nickel Impregnated Teflon) Acidic Applications - Consult Factory

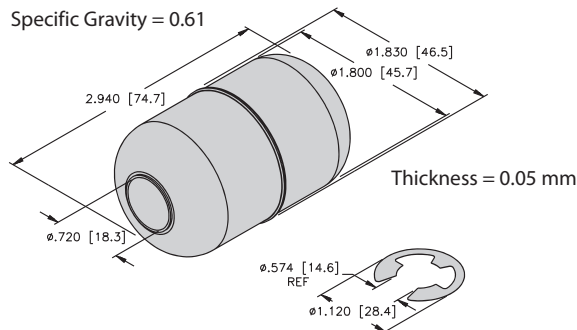
Specific Gravity = 0.65



FK-R16-205-NCS-6 (LT0571)

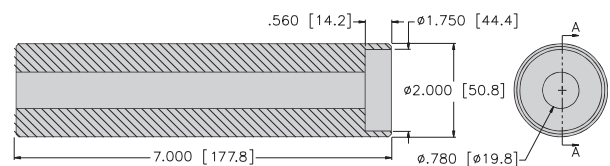
Float Kit (316 Polished Stainless Steel) Food Grade and Sanitary Applications

Specific Gravity = 0.61



FK-R16-183-SSFE (LT0302)

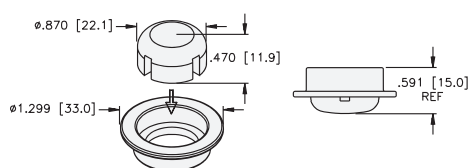
Weight Kit (316 Stainless Steel)



For use on PVDF probes 145-288 inches long.

WK-R16 (LT0295)

Probe Foot (ECTFE)



PF-R16
(LT0292)

R16 LEVEL

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Level Sensors - R16 Probe

R16 Level Probe Worksheet

Liquid to be measured _____

Fluid Properties (check all that apply)

Turbulent

Foam

Solids

Product Build-Up Yes No

Temperature Range _____°F to _____°F

Pressure Range _____ to _____

Viscosity Range _____ to _____

Specific Gravity _____

4 mA Starting Point Top Bottom

Approvals Required

UL CSA FM 3A Food Grade

Tank Location Indoors Outdoors

Tank Material _____

Additional Comments _____

**Allow overhead clearance for installation and removal of sensor.*

Customer

Phone Number

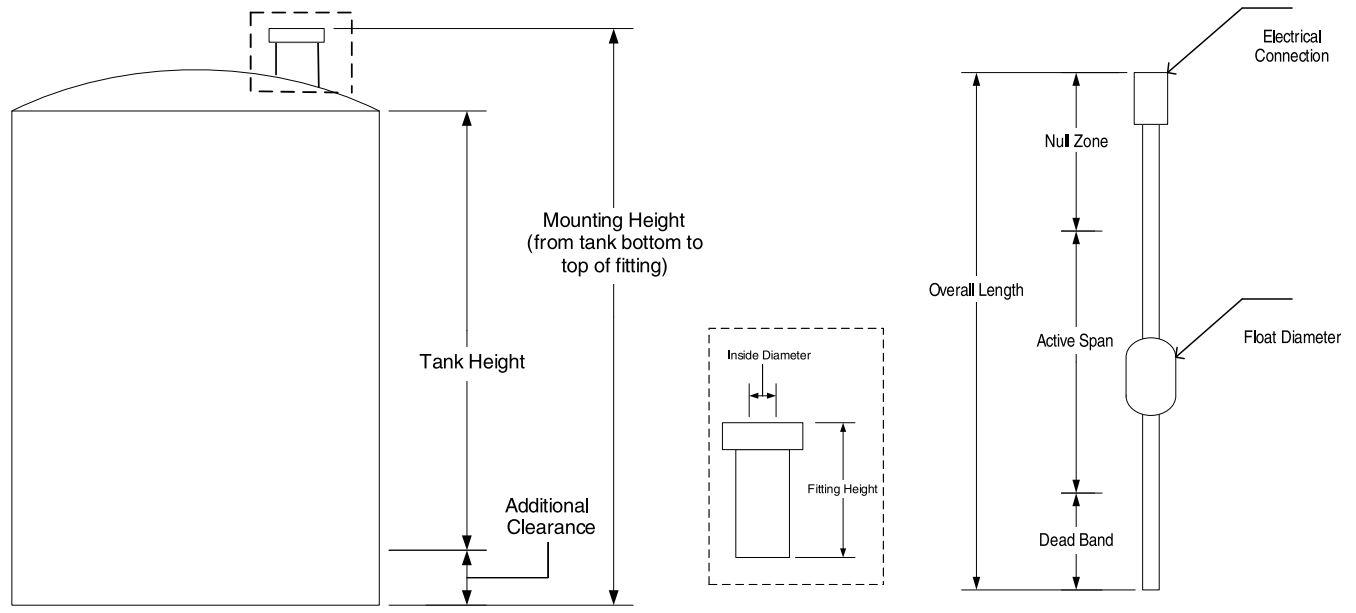
Date

Project

Quantity

Level Sensors - R16 Probe

R16 Level Probe Worksheet



R16 LEVEL