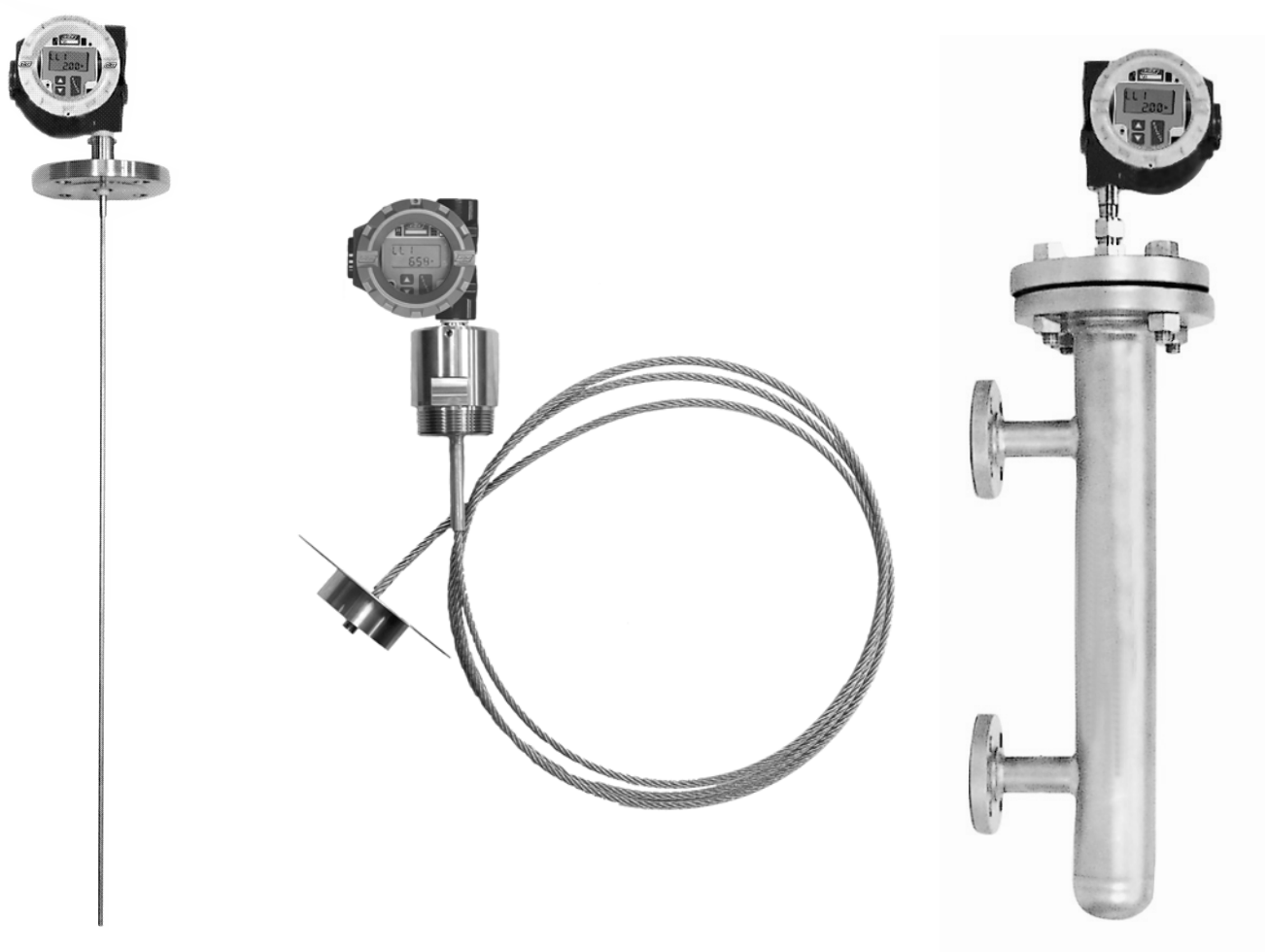
MT2000 Guided Wave Radar Level Transmitter

CONFIGURATION GUIDE



MT2000 Guided Wave Radar Level Transmitter

FEATURES:

- **Radar Signal Travels Along the Waveguide – Eliminates False Echoes and Minimizes Signal Loss**
- **No Moving Parts**
- **2 Wire Loop Powered**
- **High Accuracy**
- **Linearization Table**
- **Lengths From 2 to 100 ft. / 0.6 to 30.5 meters**
- **Local Indication with Scrolling LCD Display**
- **Solid, Flexible & Coaxial Probes**
- **Dielectric as low as 1.3**

OPTIONS:

- **HART Protocol or Honeywell DE Output**
- **Glass Viewing Window**
- **316L Stainless Steel Enclosure**
- **Remote Electronics**
- **External Chamber**

Specifications:

Housing	Dual Compartment Powder Coated Aluminum or Stainless Steel
Power	13.5 – 36 VDC, 2 Wire Loop Power
Output	4-20 mA, HART or Honeywell DE Option
LCD Display	Field Selectable Units in Feet, Inches, Millimeters, Centimeters, Meters or Percentage
Accuracy	+/- 0.20 in / 5.1 mm
Resolution	+/- 0.0625 in / 1.6 mm
Range	2 to 100 ft. / 0.6 to 30.5 meters
Process Connection	3/4” NPT Standard
Sensor Material	316L SS Standard, Other Materials Optional
Process Pressure	Up to 5000 psi (344 bar)
Process Temperature	Up to 800°F (427°C)
Process Dielectric Constant	Minimum 1.3
Process Max Viscosity	1500 cp

Approvals

Factory Mutual Research Corporation

XP / I / 1 / ABCD / T6	Ta = 77C
DIP / II, III / 1 / EFG / T6	Ta = 77C
IS / I / 1 / CD / T4	Ta = 77C - ELE1014
NI / I / 2 / ABCD / T4	Ta = 77C

Type 4X

CSA Canadian Standards Association

XP CL I Div 1 GP ABCD
CL II GP G & Coal Dust
(Exia) Associated Equip., Provides I.S. Output to Sensor

IS CL I Div 1 GP CD T4
CL I Div 2 GP ABCD
CL II Div 2 GP G & Coal Dust when installed per ELE1014

ATEX

Flameproof: Ex II 1/2 GD EExd IIC T6 (80°C) Tamb +66°C; D 02 ATEX 131713
Intrinsically Safe: Ex II 1 GD EEx ia IIB T6 (80°C) Tamb +66°C; D 02 ATEX 131712

Chinese National Supervision and Inspection Centre

XP EX d IIC T6; GB 3836.1-2000, GB3836.2-2000
IS EX ia IIB T4; GB 3836.1-2000, GB3836.4-2000

MT2000 Guided Wave Radar Configuration Guide

To order or request a quotation for MT2000 Guided Wave Radar Level Transmitters, use the following Configuration Guide to select the model number. This information is necessary to meet the specific needs of a customer's application. Requests are also available on K-TEK's website (www.ktekcorp.com).

QuikShip Program:

K-TEK can provide MT2000 Guided Wave Radar Level Transmitters in six (6) different "custom" configurations ready for shipment within **5 working days ARO**. These custom configurations can be supplied for liquids or solids applications with insertion length up to 240 in. / 6096 mm.

Use the QuikShip drawings on the following pages to select the model that best fits your application. Purchase Orders must be accompanied by completed MT2000 QuikShip Drawings to ensure a 5 working day shipment.

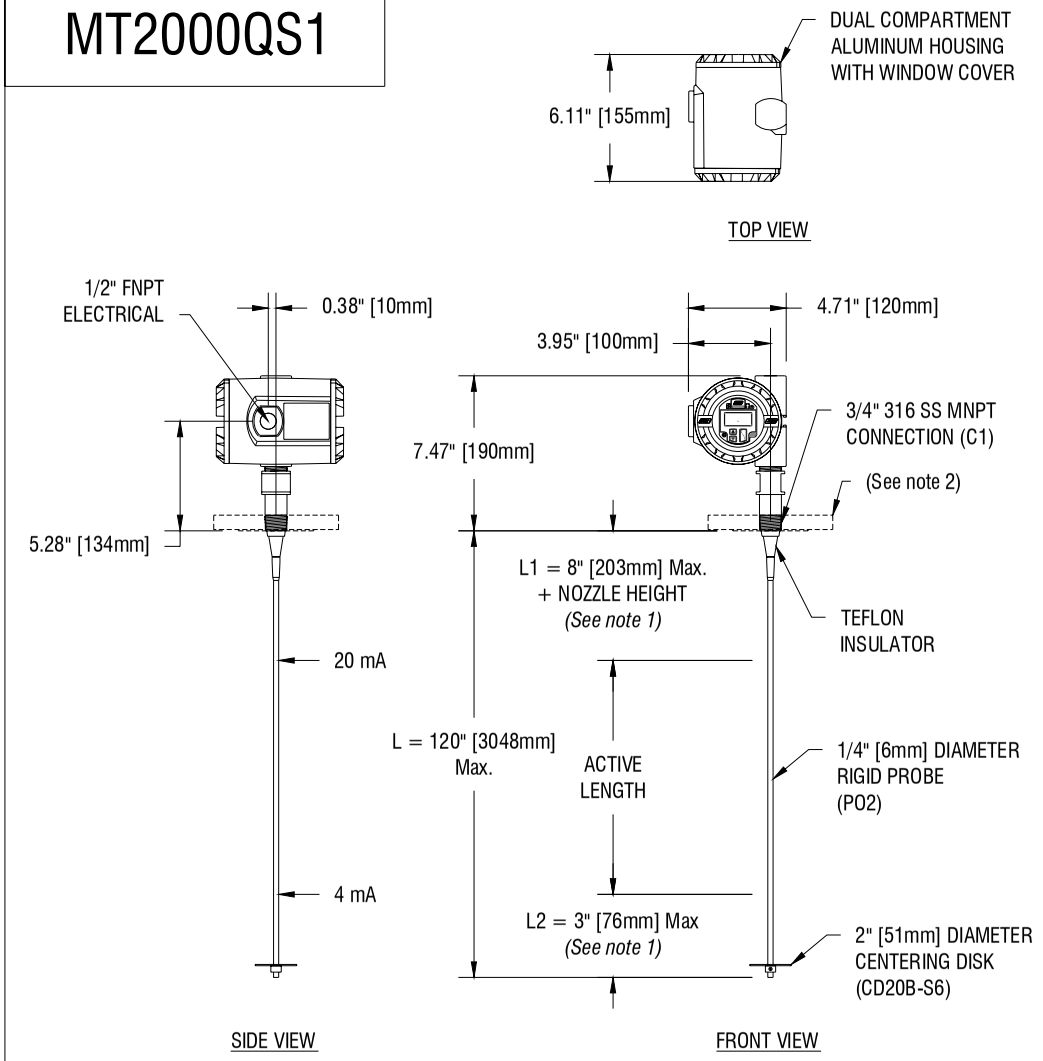
The six (6) QuikShip models available come standard with the following features:

- Insertion lengths in inches or millimeters up to 240 in. (6096mm)
- Process temperatures from -140° to 250°F (-40° to 121°C)
- Pressures from 0 to 1500 psig (103.4 bars)
- FM & CSA or ATEX Approvals
- 316L Stainless Steel Standard Probes or Flexible Cables
- Local Transmitter with Window Cover
- LCD Indicator with Hart Protocol Push Button Configurator
- Dual Compartment Powder Coated Aluminum Housing
- Process Connection C1V: (3/4" NPT) or C2V: (1.5" NPT)
- P01 and P02 Rigid Probes (Liquids only) or P11 and P12 Flexible Cables (Liquids and Bulk Solids)
- Centering Disks (Liquid Rigid Probes & Flex Cables) and Target Disk Assemblies (Bulk Solid Flexible Cables)

LIQUID Measurement Applications (Various Liquids and Hydrocarbons)	
QS Reference #	**Examples of Product Model Number Detail**
MT2000QS1	*MT2000/S6/LW/A/**C1V/P01**/CD20B-S6/H0/M4A/FM/P/Lxxx*
MT2000QS2	*MT2000/S6/LW/A/**C1V/P11**/CW10D-S6/CD20B-S6/H0/M4A/FM/P/Lxxx*
MT2000QS3	*MT2000/S6/LW/A/**C2V/P02**/CD20C-S6/H0/M4A/FM/P/Lxxx*
MT2000QS4	*MT2000/S6/LW/A/**C2V/P12**/CW10E-S6/CD20C-S6/H0/M4A/FM/P/Lxxx*
BULK SOLIDS Measurement Applications (Plastic Pellets & Powders)	
QS Reference #	**Examples of Product Model Number Detail**
MT2000QS5	*MT2000/S6/LW/A/**C1V/P11**/CW29F-S6/CD38A-S6/H0/M4A/FM/P/Lxxx*
MT2000QS6	*MT2000/S6/LW/A/**C2V/P12**/CW29G-S6/CD38A-S6/H0/M4A/FM/P/Lxxx*

If you prefer a more customized MT2000 Guided Wave Radar Level Transmitter, turn to page 10 to begin forming your customized model. Have the Quotation Request form (located on pages 18 & 19 of this document) ready as you form your model, for convenience. A separate Quote Request Form is also available on the website.

MT2000QS1

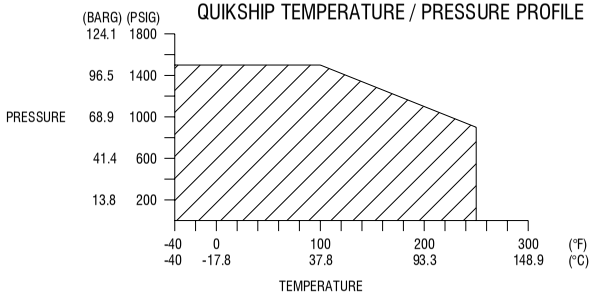


LIQUIDS ONLY

APPLICATION CRITERIA

1. DOES YOUR APPLICATION'S TEMPERATURE AND PRESSURE REQUIREMENTS FIT WITHIN THE QUIKSHIP PARAMETERS BELOW? YES / NO

QUIKSHIP TEMPERATURE / PRESSURE PROFILE



2. DOES YOUR APPLICATION FIT WITHIN ANY OF THE FOLLOWING QUIKSHIP CATEGORIES? (Check only one of the following):

___ METAL TANK, WITHOUT STILLING WELL, DIELECTRIC $\geq$ 4 (See note 3)
___ TANK, WITH METAL STILLING WELL, DIELECTRIC $\geq$ 1.7
___ METAL DISPLACER OR EXTERNAL CHAMBER, DIELECTRIC $\geq$ 1.7

MT TRANSMITTER OPTIONS

SPECIFY EACH OF THE FOLLOWING:

_____ = INSERTION LENGTH (L) (120" [3048mm] Max.)

APPROVALS (Check only one of the following):
_____ FM (FACTORY MUTUAL & CANADIAN STANDARDS [CSA]) (STD.)
_____ CEI (ATEX, INTRINSICALLY SAFE)
_____ CEX (ATEX, FLAMEPROOF)

MODEL NO.

MT2000/S6/LW/A/C1V/P01/CD20B-S6/HO/M4A/_____/P/_____

(Put "approval designation" & "insertion length" in blank spaces)

PROCESS CONDITIONS:
- RATINGS: 1500 PSIG @ 100°F (103.4 BARG @ 37.8°C), 900 PSIG @ 250°F (62.0 BARG @ 121.1°C)
- MINUS 40°F TO 250°F (-40 TO 121.1°C) TEMPERATURE RANGE

MATERIAL SPECIFICATIONS:
- HOUSING: ALUMINUM
- CENTERING DISK: 316 SS
- PROBE: 316 SS

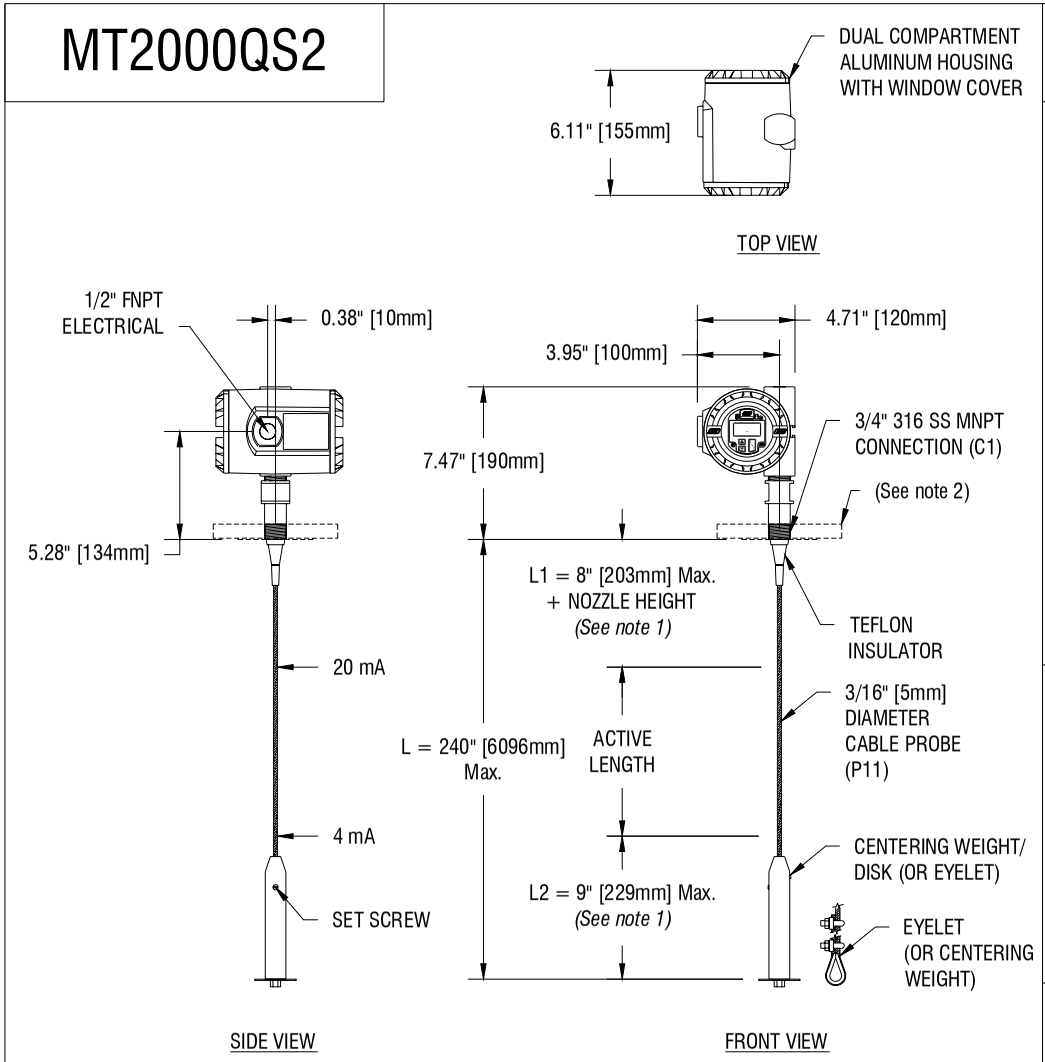
SPECIAL CONSIDERATIONS:
1) "L1" AND "L2" ARE MAXIMUM NONLINEAR ZONES. THESE ZONE VALUES ARE BASED ON A TYPICAL NOZZLE INSTALLATION AND MEASURING A DIELECTRIC CONSTANT > 4 (WITHOUT A STILLING WELL). A MOUNTING CONFIGURATION WITHOUT A NOZZLE MEASURING A HIGHER DIELECTRIC CONSTANT (i.e. > 20), OR WITHIN A METAL STILLING WELL WILL MINIMIZE THE L1 AND L2 ZONES. SEE THE MT2000 MANUAL FOR SETTING UP LINEARIZATION TABLES.
2) TRANSMITTER REQUIRES 6" [152mm] OD METAL PLATE OR EQUIVALENT FLANGE. TANK/VESSEL PROCESS CONNECTION MUST HAVE 2" [51mm] ID MINIMUM OPENING.
3) IF AGITATION EXISTS, THE END USER WILL BE RESPONSIBLE FOR SECURING PROBE END.

K-TEK LLC
18321 SWAMP ROAD
PRAIRIEVILLE, LA 70769 USA

DIMENSIONAL DRAWING FOR MT2000 QUIKSHIP FIGURE 3

CUSTOMER:		K-TEK JOB NO.:	
DRAWING NO.: MT2000-0101-1	REV. NO.: 1	APPROVAL E.F.	DATE: 08-29-2003

MT2000QS2

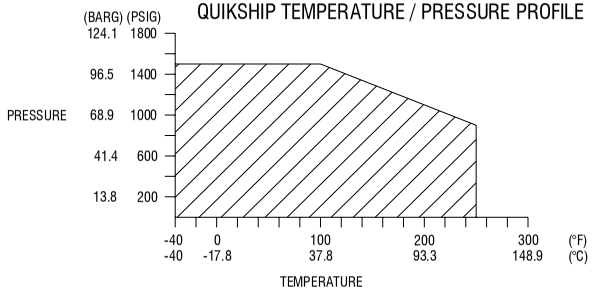


LIQUIDS ONLY

APPLICATION CRITERIA

1. DOES YOUR APPLICATION'S TEMPERATURE AND PRESSURE REQUIREMENTS FIT WITHIN THE QUIKSHIP PARAMETERS BELOW? YES / NO

QUIKSHIP TEMPERATURE / PRESSURE PROFILE



2. DOES YOUR APPLICATION FIT WITHIN ANY OF THE FOLLOWING QUIKSHIP CATEGORIES? (Check only one of the following):

___ METAL TANK, WITHOUT STILLING WELL, DIELECTRIC ≥ 4 (See note 3)
___ TANK, WITH METAL STILLING WELL, DIELECTRIC ≥ 1.7
___ METAL DISPLACER OR EXTERNAL CHAMBER, DIELECTRIC ≥ 1.7

MT TRANSMITTER OPTIONS

SPECIFY EACH OF THE FOLLOWING:
_____ = INSERTION LENGTH (L) (240" [6096mm] Max.)

APPROVALS (Check only one of the following):
_____ FM (FACTORY MUTUAL & CANADIAN STANDARDS [CSA]) (STD.)
_____ CEI (ATEX, INTRINSICALLY SAFE)
_____ CEX (ATEX, FLAMEPROOF)

CABLE ATTACHMENT - Includes CD20B-S6 (2" OD x 3/8" tall) [51mm OD x 10mm tall]
(Check only one of the following):
_____ CW10D-S6 (1" OD x 6" tall, 1.3 pounds) [25mm x 152mm tall, 0.6 kg]
_____ EYELET

MODEL NO.

MT2000/S6/LW/A/C1V/P11/CD20B-S6/_____/HO/M4A/_____/P/_____

(Put "cable attachment", "approval designation" & "insertion length" in blank spaces)

PROCESS CONDITIONS :
- RATINGS: 1500 PSIG @ 100°F (103.4 BARG @ 37.8°C), 900 PSIG @ 250°F (62.0 BARG @ 121.1°C)
- MINUS 40°F TO 250°F (-40°C TO 121.1°C) TEMPERATURE RANGE

MATERIAL SPECIFICATIONS :
- HOUSING: ALUMINUM
- CENTERING DISK: 316 SS
- CABLE PROBE: 316 SS
- CENTERING WEIGHT OR EYELET: 316 SS

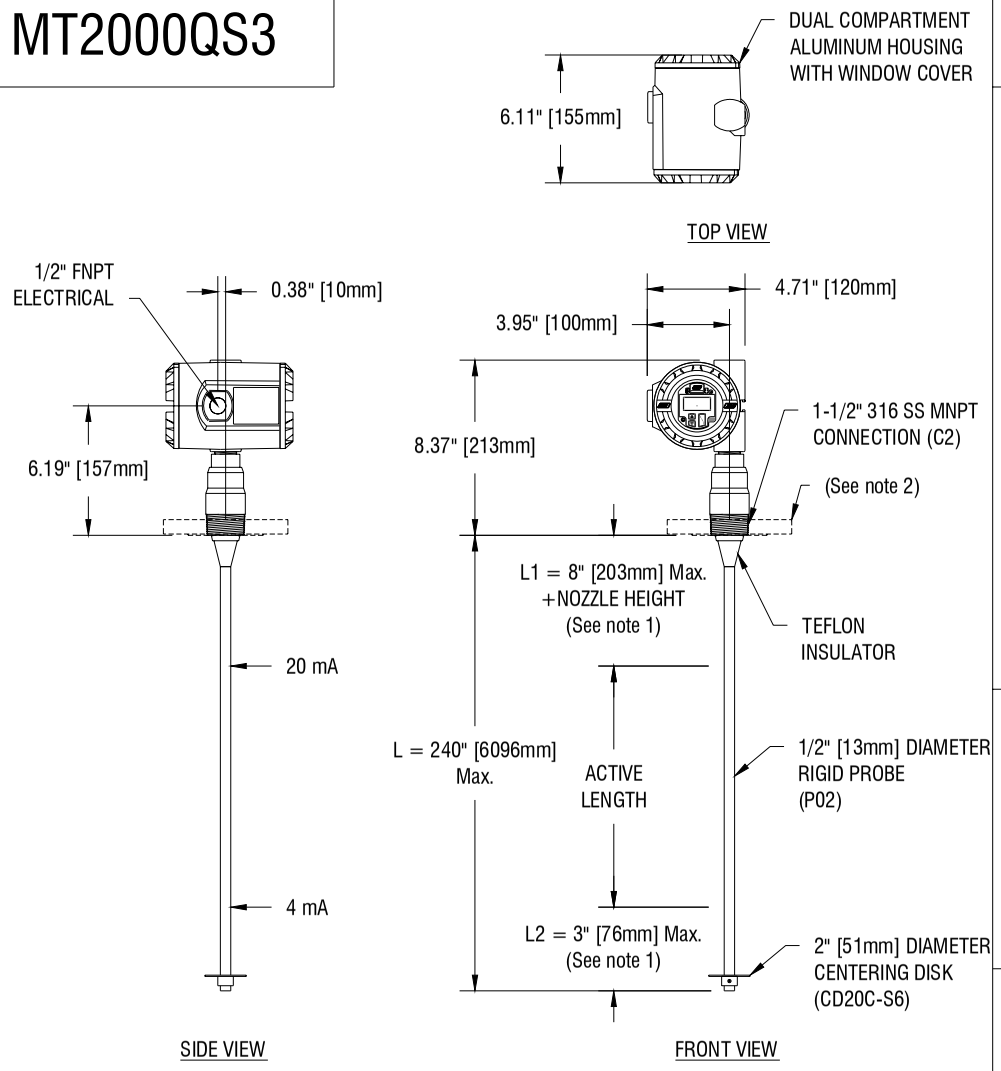
SPECIAL CONSIDERATIONS:
1) "L1" AND "L2" ARE MAXIMUM NONLINEAR ZONES. THESE ZONE VALUES ARE BASED ON A TYPICAL NOZZLE INSTALLATION AND MEASURING A DIELECTRIC CONSTANT > 4 (WITHOUT A STILLING WELL). A MOUNTING CONFIGURATION WITHOUT A NOZZLE MEASURING A HIGHER DIELECTRIC CONSTANT (i.e. > 20), OR WITHIN A METAL STILLING WELL WILL MINIMIZE THE L1 AND L2 ZONES. SEE THE MT2000 MANUAL FOR SETTING UP LINEARIZATION TABLES.
2) TRANSMITTER REQUIRES 6" [152mm] OD METAL PLATE OR EQUIVALENT FLANGE. TANK/VESSEL PROCESS CONNECTION MUST HAVE 2" [51mm] ID MINIMUM OPENING.
3) IF AGITATION EXISTS, THE END USER WILL BE RESPONSIBLE FOR SECURING PROBE END.

K-TEK LLC
18321 SWAMP ROAD
PRAIRIEVILLE, LA 70769 USA

DIMENSIONAL DRAWING FOR MT2000 QUIKSHIP FIGURE 3

CUSTOMER:		K-TEK JOB NO.:	
DRAWING NO.: MT2000-0102-1	REV. NO.: 1	APPROVAL E.F.	DATE: 08-29-2003

MT2000QS3

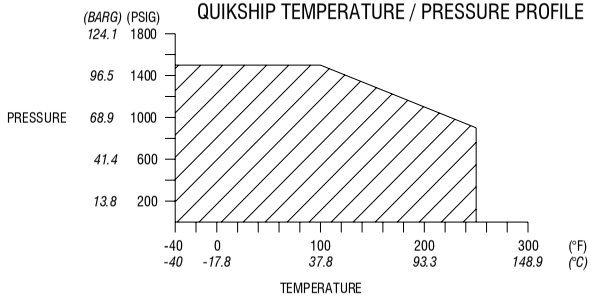


LIQUIDS ONLY

APPLICATION CRITERIA

1. DOES YOUR APPLICATION'S TEMPERATURE AND PRESSURE REQUIREMENTS FIT WITHIN THE QUIKSHIP PARAMETERS BELOW? YES / NO

QUIKSHIP TEMPERATURE / PRESSURE PROFILE



2. DOES YOUR APPLICATION FIT WITHIN ANY OF THE FOLLOWING QUIKSHIP CATEGORIES? *(Check only one of the following):*

___ METAL TANK, WITHOUT STILLING WELL, DIELECTRIC $\geq$ 4 *(See note 3)*
___ TANK, WITH METAL STILLING WELL, DIELECTRIC $\geq$ 1.7
___ METAL DISPLACER OR EXTERNAL CHAMBER, DIELECTRIC $\geq$ 1.7

MT TRANSMITTER OPTIONS

SPECIFY EACH OF THE FOLLOWING:

_____ = INSERTION LENGTH **(L)** *(240" / 6096mm Max.)*

APPROVALS *(Check only one of the following):*
_____ FM (FACTORY MUTUAL & CANADIAN STANDARDS [CSA]) **(STD.)**
_____ CEI (ATEX, INTRINSICALLY SAFE)
_____ CEX (ATEX, FLAMEPROOF)

MODEL NO.

MT2000/S6/LW/A/C2V/P02/CD20C-S6/HO/M4A/_____/P/_____

(Put "approval designation" & "insertion length" in blank spaces)

PROCESS CONDITIONS:
- RATINGS: 1500 PSIG @ 100°F (103.4 BARG @ 37.8°C), 900 PSIG @ 250°F (62.0 BARG @ 121.1°C)
- MINUS 40°F TO 250°F (-40°C TO 121.1°C) TEMPERATURE RANGE

MATERIAL SPECIFICATIONS:
- HOUSING: ALUMINUM
- CENTERING DISK: 316 SS
- PROBE: 316 SS

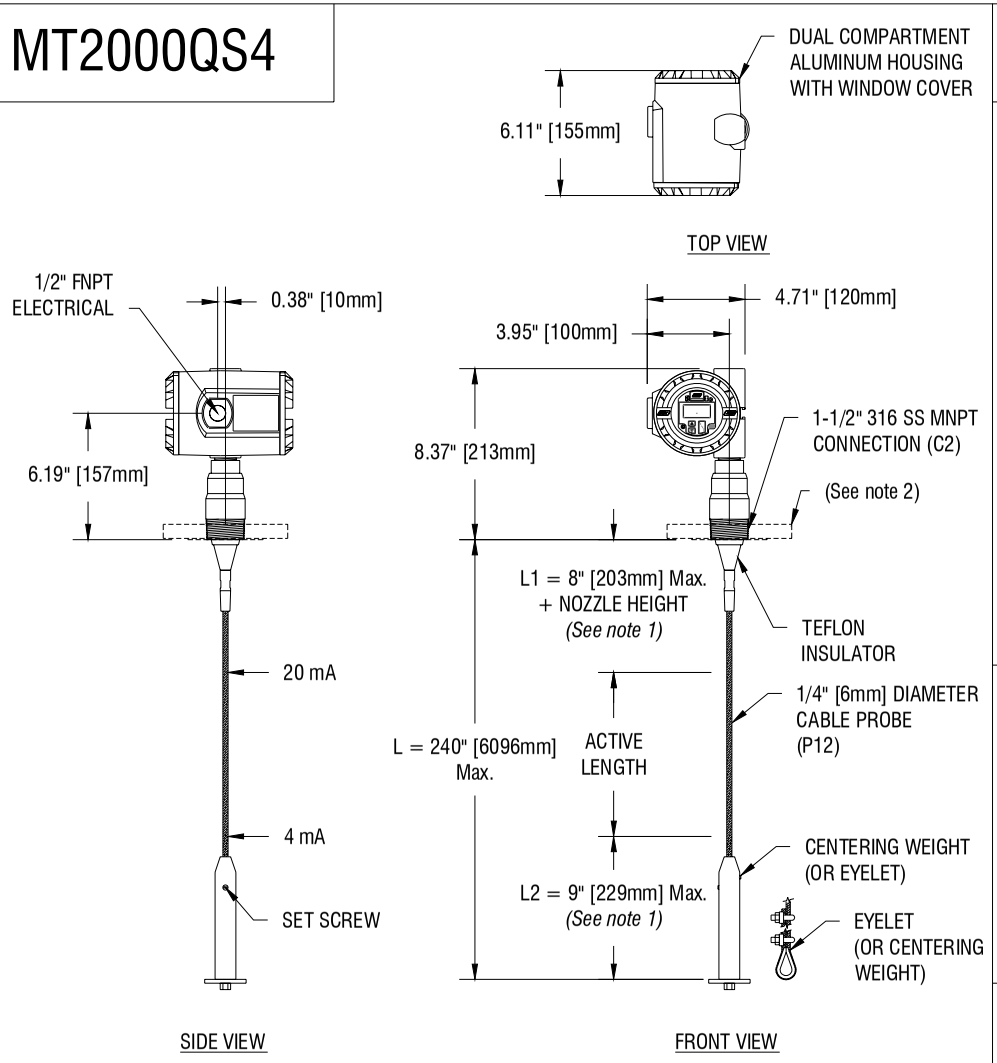
SPECIAL CONSIDERATIONS:
1) "L1" AND "L2" ARE MAXIMUM NONLINEAR ZONES. THESE ZONE VALUES ARE BASED ON A TYPICAL NOZZLE INSTALLATION AND MEASURING A DIELECTRIC CONSTANT > 4 (WITHOUT A STILLING WELL). A MOUNTING CONFIGURATION WITHOUT A NOZZLE MEASURING A HIGHER DIELECTRIC CONSTANT (i.e. > 20), OR WITHIN A METAL STILLING WELL WILL MINIMIZE THE L1 AND L2 ZONES. SEE THE MT2000 MANUAL FOR SETTING UP LINEARIZATION TABLES.
2) TRANSMITTER REQUIRES 6" [152mm] OD METAL PLATE OR EQUIVALENT FLANGE. TANK/VESSEL PROCESS CONNECTION MUST HAVE 2" [51mm] ID MINIMUM OPENING.
3) IF AGITATION EXISTS, THE END USER WILL BE RESPONSIBLE FOR SECURING PROBE END.

K-TEK LLC
18321 SWAMP ROAD
PRAIRIEVILLE, LA 70769 USA

DIMENSIONAL DRAWING FOR MT2000 QUIKSHIP FIGURE 3

CUSTOMER:		K-TEK JOB NO.:	
DRAWING NO.: MT2000-0103-1	REV. NO.: 1	APPROVAL E.F.	DATE: 08-29-2003

MT2000QS4

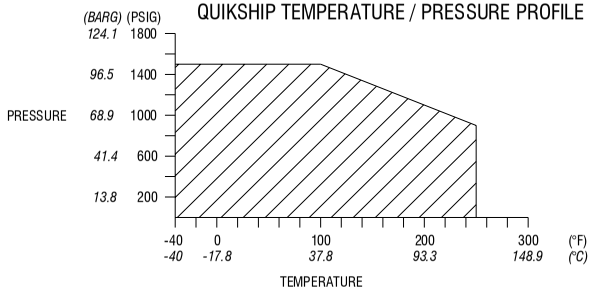


LIQUIDS ONLY

APPLICATION CRITERIA

1. DOES YOUR APPLICATION'S TEMPERATURE AND PRESSURE REQUIREMENTS FIT WITHIN THE QUIKSHIP PARAMETERS BELOW? YES / NO

QUIKSHIP TEMPERATURE / PRESSURE PROFILE



2. DOES YOUR APPLICATION FIT WITHIN ANY OF THE FOLLOWING QUIKSHIP CATEGORIES? *(Check only one of the following):*

___ METAL TANK, WITHOUT STILLING WELL, DIELECTRIC $\geq$ 4 *(See note 3)*
___ TANK, WITH METAL STILLING WELL, DIELECTRIC $\geq$ 1.7
___ METAL DISPLACER OR EXTERNAL CHAMBER, DIELECTRIC $\geq$ 1.7

MT TRANSMITTER OPTIONS

SPECIFY EACH OF THE FOLLOWING:
_____ = INSERTION LENGTH **(L)** *(240" [6096mm] Max.)*

APPROVALS *(Check only one of the following):*
_____ FM (FACTORY MUTUAL & CANADIAN STANDARDS [CSA]) **(STD.)**
_____ CEI (ATEX, INTRINSICALLY SAFE)
_____ CEX (ATEX, FLAMEPROOF)

CABLE ATTACHMENT - Includes CD20C-S6 (2" OD x 1/2" tall) [51mm OD x 13mm tall]
(Check only one of the following):
_____ CW10E-S6 (1" OD x 6" tall, 1.3 pounds) [25mm OD x 152mm tall, 0.6 kg]
_____ EYELET

MODEL NO.

MT2000/S6/LW/A/C2V/P12/CD20B-S6/_____/HO/M4A/_____/P/_____

(Put "cable attachment", "approval designation" & "insertion length" in blank spaces)

PROCESS CONDITIONS:
- RATINGS: 1500 PSIG @ 100°F (103.4 BARG @ 37.8°C), 900 PSIG @ 250°F (62.0 BARG @ 121.1°C)
- MINUS 40°F TO 250°F (-40°C TO 121.1°C) TEMPERATURE RANGE

MATERIAL SPECIFICATIONS:
- HOUSING: ALUMINUM
- CENTERING DISK: 316 SS
- CABLE PROBE: 316 SS
- CENTERING WEIGHT OR EYELET: 316 SS

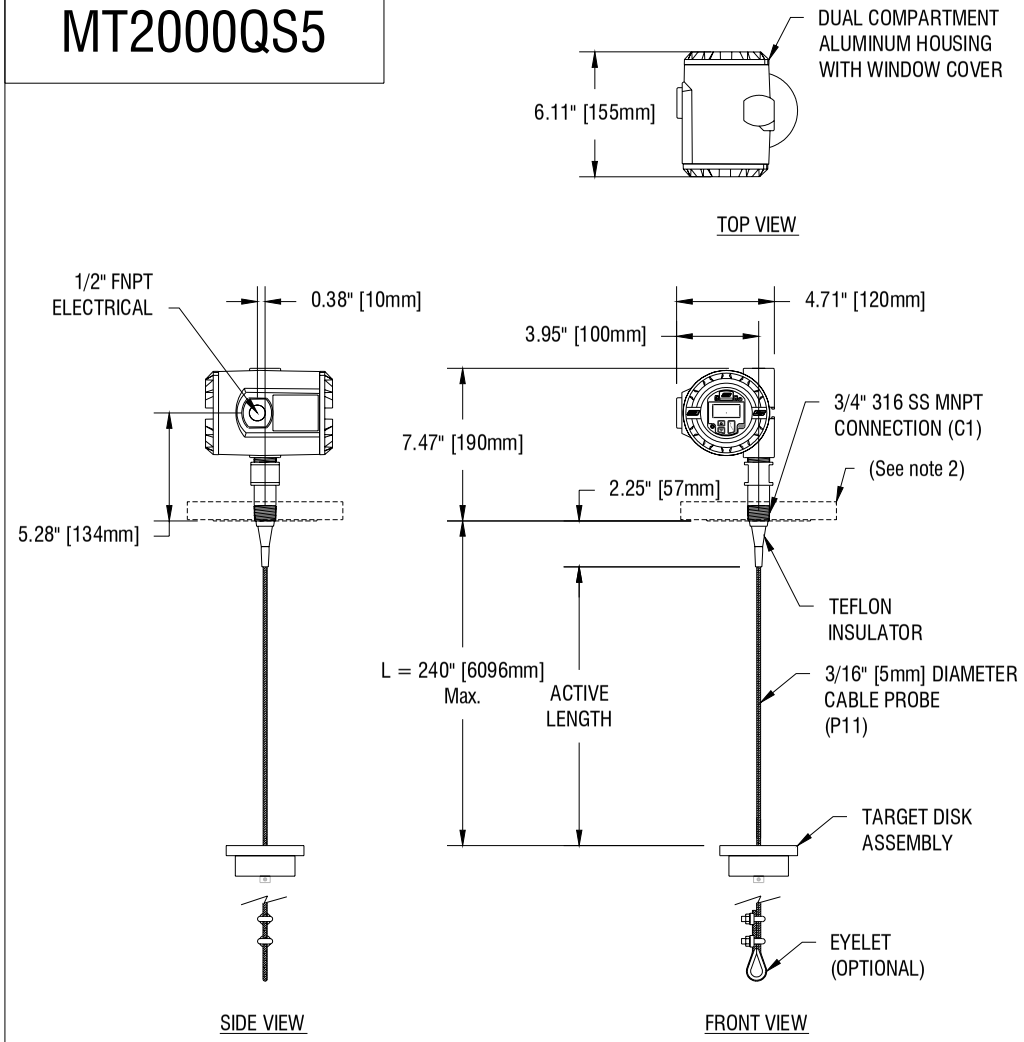
SPECIAL CONSIDERATIONS:
1) "L1" AND "L2" ARE MAXIMUM NONLINEAR ZONES. THESE ZONE VALUES ARE BASED ON A TYPICAL NOZZLE INSTALLATION AND MEASURING A DIELECTRIC CONSTANT > 4 (WITHOUT A STILLING WELL). A MOUNTING CONFIGURATION WITHOUT A NOZZLE MEASURING A HIGHER DIELECTRIC CONSTANT (i.e. > 20), OR WITHIN A METAL STILLING WELL WILL MINIMIZE THE L1 AND L2 ZONES. SEE THE MT2000 MANUAL FOR SETTING UP LINEARIZATION TABLES.
2) TRANSMITTER REQUIRES 6" [152mm] OD METAL PLATE OR EQUIVALENT FLANGE. TANK/VESSEL PROCESS CONNECTION MUST HAVE 2" [51mm] ID MINIMUM OPENING.
3) IF AGITATION EXISTS, THE END USER WILL BE RESPONSIBLE FOR SECURING PROBE END.

K-TEK LLC
18321 SWAMP ROAD
PRAIRIEVILLE, LA 70769 USA

DIMENSIONAL DRAWING FOR MT2000 QUIKSHIP FIGURE 4

CUSTOMER:		K-TEK JOB NO.:	
DRAWING NO.: MT2000-0104-1	REV. NO.: 0	APPROVAL E.F.	DATE: 08-29-2003

MT2000QS5



BULK SOLIDS ONLY

APPLICATION CRITERIA

DOES YOUR BULK SOLIDS APPLICATION MEET **ALL** OF THE FOLLOWING CRITERIA?

_____ PLASTIC PELLETS OR POWDERS *(Density < 25 PCF [400 KG/CUBIC METER])*

_____ METAL SILO WITH MAXIMUM CABLE LOADING < 2000 LBS. *[907.2 KG]*
(Note: Vessel top must be capable of supporting maximum cable loading)

_____ INSERTION LENGTH *(≤ 240" [6096mm])*

_____ DIELECTRIC CONSTANT *(1.3 to 2.0)*

_____ ATMOSPHERIC PRESSURE AND AMBIENT TEMPERATURE

_____ NO MOISTURE CONTENT

_____ NON-AERATED *(Does not include blanket purges)*

MT TRANSMITTER OPTIONS

SPECIFY THE FOLLOWING:

_____ INSERTION LENGTH **(L)**; *(240" [6096mm] Max.)*

APPROVALS *(Check only one of the following):*
_____ FM (FACTORY MUTUAL & CANADIAN STANDARDS [CSA]) **(STD.)**
_____ CEI (ATEX, INTRINSICALLY SAFE)
_____ CEX (ATEX, FLAMEPROOF)

CABLE ATTACHMENT *(Check eyelet if applicable)*
Includes CW29F-S6 (2-7/8" OD x 1" tall, 1.8 pounds) [73mm OD x 25mm tall, 46 kg] & CD38A-S6 [3.75" OD x 1/2" tall]) [95mm OD x 13mm tall]
_____ EYELET (Tank bottom secure)

MODEL NO.

MT2000/S6/LW/A/C1V/P11/CW29F-S6/CD38A-S6/___/HO/M4A/_____/P/_____

(Put "E" for eyelet [if applicable], "approval designation" & "insertion length" in blank spaces)

PROCESS CONDITIONS:
- RATINGS: ATMOSPHERIC PRESSURE, AMBIENT TEMPERATURE
- MINIMUM / MAXIMUM DIELECTRIC CONSTANT:
  (Min. 1.3 < DC < 2.0 Max.)

MATERIAL SPECIFICATIONS:
- HOUSING: ALUMINUM
- CABLE PROBE: 316 SS
- TARGET DISK ASSEMBLY / EYELET: 316 SS

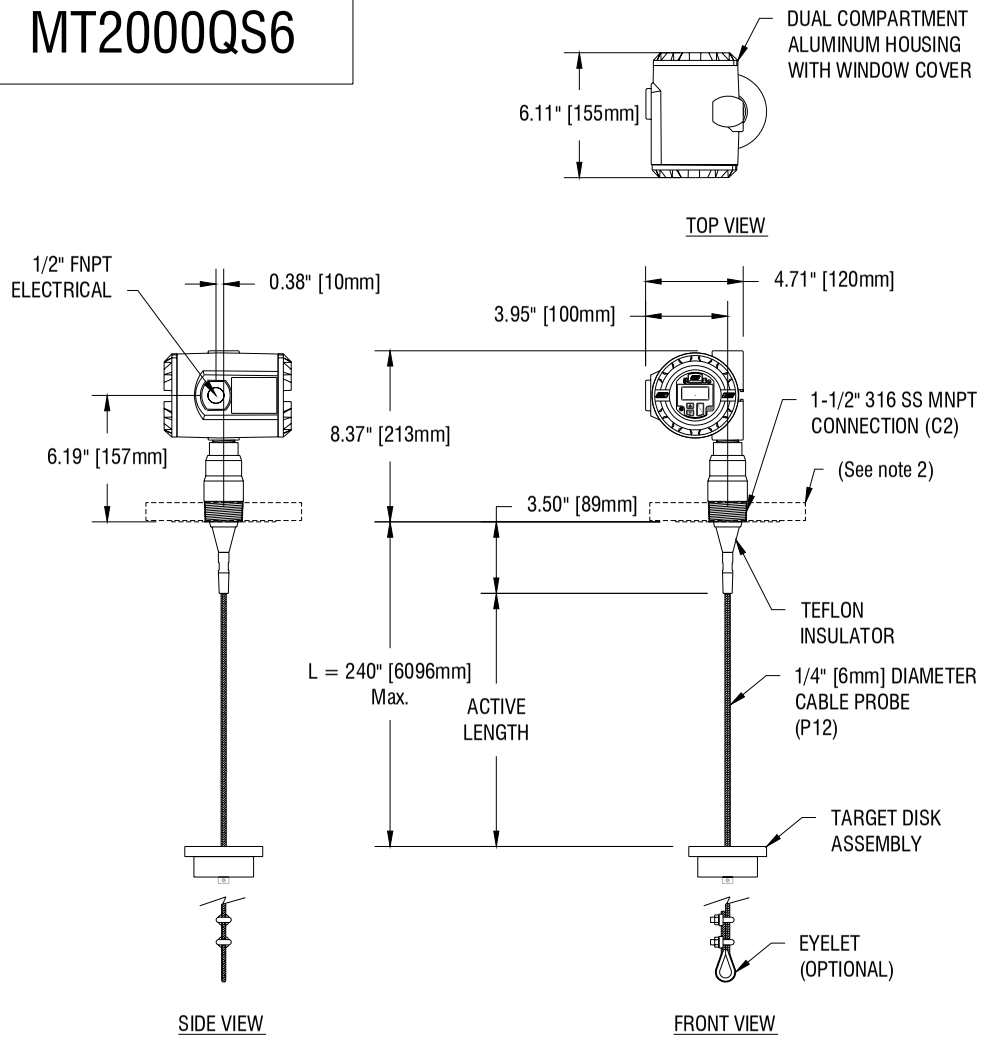
SPECIAL CONSIDERATIONS:
1) CALIBRATION FORMAT: 4 mA - EMPTY; 20 mA - FULL.
2) TRANSMITTER REQUIRES 7-1/2" [191mm] OD METAL PLATE OR EQUIVALENT FLANGE. TANK/VESSEL PROCESS CONNECTION MUST HAVE 3" [76mm] ID MINIMUM OPENING.

K-TEK LLC
18321 SWAMP ROAD
PRAIRIEVILLE, LA 70769 USA

DIMENSIONAL DRAWING FOR MT2000 QUIKSHIP FIGURE 5

CUSTOMER:		K-TEK JOB NO.:	
DRAWING NO.: MT2000-0105-1	REV. NO.: 0	APPROVAL E.F.	DATE: 08-29-2003

MT2000QS6



BULK SOLIDS ONLY

APPLICATION CRITERIA

DOES YOUR BULK SOLIDS APPLICATION MEET **ALL** OF THE FOLLOWING CRITERIA?

_____ PLASTIC PELLETS OR POWDERS *(Density < 25 PCF [400 KG/CUBIC METER])*

_____ METAL SILO WITH MAXIMUM ROOF LOADING < 2000 LBS. *[907.2 KG]*

_____ INSERTION LENGTH *(< 240" [6096mm])*

_____ DIELECTRIC CONSTANT *(1.3 to 2.0)*

_____ ATMOSPHERIC PRESSURE AND AMBIENT TEMPERATURE

_____ NO MOISTURE CONTENT

_____ NON-AERATED *(Does not include blanket purges)*

MT TRANSMITTER OPTIONS

SPECIFY THE FOLLOWING:

_____ INSERTION LENGTH **(L)**; *(240" [6096mm] Max.)*

APPROVALS *(Check only one of the following):*
_____ FM (FACTORY MUTUAL & CANADIAN STANDARDS [CSA]) **(STD.)**
_____ CEI (ATEX, INTRINSICALLY SAFE)
_____ CEX (ATEX, FLAMEPROOF)

CABLE ATTACHMENT *(Check eyelet if applicable)*
Includes CW29G-S6 (2-7/8" OD x 1" tall, 1.8 pounds) [73mm OD x 25mm tall, 46 kg] & CD38A-S6 [3.75" OD x 1/2" tall]) [95mm OD x 13mm tall]
_____ EYELET (Tank bottom secure)

MODEL NO.

MT2000/S6/LW/A/C2/P12/CW29G-S6/CD38A-S6/___/HO/M4A/_____/P/_____

(Put "E" for eyelet [if applicable], "approval designation" & "insertion length" in blank spaces)

PROCESS CONDITIONS:
- RATINGS: ATMOSPHERIC PRESSURE, AMBIENT TEMPERATURE
- MINIMUM / MAXIMUM DIELECTRIC CONSTANT:
  (Min. 1.3 < DC < 2.0 Max.)

MATERIAL SPECIFICATIONS:
- HOUSING: ALUMINUM
- CABLE PROBE: 316 SS
- TARGET DISK ASSEMBLY / EYELET: 316 SS

SPECIAL CONSIDERATIONS:
1) CALIBRATION FORMAT: 4 mA - EMPTY; 20 mA - FULL.
2) TRANSMITTER REQUIRES 7-1/2" [191mm] OD METAL PLATE OR EQUIVALENT FLANGE. TANK/VESSEL PROCESS CONNECTION MUST HAVE 3" [76mm] ID MINIMUM OPENING.

K-TEK LLC
18321 SWAMP ROAD
PRAIRIEVILLE, LA 70769 USA

DIMENSIONAL DRAWING FOR MT2000 QUIKSHIP FIGURE 6

CUSTOMER:		K-TEK JOB NO.:	
DRAWING NO.: MT2000-0106-1	REV. NO.: 0	APPROVAL E.F.	DATE: 08-29-2003

Model Number Configuration:

MT2000 a/b/c/d/e/f/g/h/i/j/k

/a Select the Probe Material

S6	316L Stainless Steel Standard
HC	Hastelloy C-276
HB	Hastelloy B3
MO	Monel
TI	Titanium

/b Select the Transmitter Configuration

L	Local Transmitter Standard
LW	Local Transmitter with Window Cover Standard
R	Remote Mounted Electronics with 5 ft. Cable (Dielectric > 35)
RW	Remote Mounted Electronics with Window Cover and 5 ft. Cable (Dielectric > 35)

/c Select the Transmitter Housing

A	Dual Compartment Aluminum Housing Standard
S	Dual Compartment 316L Stainless Steel Housing

/d Select the Process Connection / Waveguide Coupler

Cxonn	**xx**	Process Connection & Waveguide Coupler (Table 1A)
	o	Seal Code (no code required for /C8 & /C9) (Table 1B)
	nn	Tri-clamp size (/C6 & /C7 Sanitary Probes only)

/e Select the Probe Type

Pxxoo	**xxx**	Probe Code (Table 2A)
	oo	Section Length Code & Quantity (example: E2 is 2 ea 70" sections) (Table 2A) *NOTE: Leave blank for Coaxial Probes (/P51, /P71, /P81) or Custom Length* ***-or-***
	oo	Sanitary Probe Finish (/C6 & /C7 Sanitary Probes only)
X	**None**	

/f Select the Probe Attachment Option

X	None
CDyyz-w	Clamp On Centering Disk (Solid Rod Probes) from page 17 Note: Rigid probes installed in stilling wells or external chambers require centering disk.
CWyyz-ww	Clamp On Centering Weight (Cable Probes) from page 17 Note: Cable probes require a centering weight or end fitting to stabilize bottom of cable.
E	Eyelet (Cable Probes)

/g Select the Process Temperature Options

H0	-40 to 250ºF / -40 to 121ºC Maximum
H6	Above 250ºF / 121ºC; Electronics enclosure is extended 6" above process connection Refer to Probe Selection Chart (Table 2A) for maximum process temperatures

/h Select the Electronic Module with 4-20 mAdc Output

X	None
M2	One Level, LCD Readout
M4A	One Level, LCD Indicator, HART or Honeywell DE Protocol Note: Default is HART; add **D** suffix to module option for Honeywell DE (Class 0 support) M4AD is FM approved EX only

/i Select the Approvals

FM	Factory Mutual Research Corp. (FM) and Canadian Standards Association (CSA)
CEI	ATEX I.S.
CEX	ATEX Flameproof

0539
0036

/j Select the Process Connection

P	Standard as shown on Probe Process Connection Table (Table 1A)
FL	Loose flange or plug for use with probe NPT threads Specify type, material & rating from Flange Designation Chart (FLNG-0202-1) Available on the website.
WP	Welded process connection Specify type, material and rating from Flange Designation Chart (FLNG-0202-1) Available on the website.

/k Select the Length

SL	Insert "SL" for standard length as specified in "/e" above. Can be shortened in the field.
L	Insert custom length from face of coupler in inches or millimeters. Custom length must be specified for sanitary probes (/P41, /P42) and coaxial probes (/P51, /P71, /P81).

Table 1A - Process Connection / Waveguide Coupler

Base Code	Insulator	Process Connection	Seal Options Table 1B	Maximum Pressure	Min Temp. (*)	Max Temp. (*)	Compatible Probes
SINGLE PROBE							
/C1	Teflon	3/4" NPT	V, K, E	1500 psi @ 100°F / 103 bar @ 38°C 600 psi @ 400°F / 41 bar @ 204°C	-60ºF -50ºC	400ºF 204ºC	/P01, /P11, /PXX, /X, /P51
/C1H	Teflon	3/4" NPT	V, K, E	3000 psi @ 100°F / 207 bar @ 38°C 1200 psi @ 400°F / 83 bar @ 204°C	-60ºF -50ºC	400ºF 204ºC	/P01, /P11, /PXX, /X /P51
/C2	Teflon	1.5" NPT	V, K, E	1500 psi @ 100°F / 103 bar @ 38°C 600 psi @ 400°F / 41 bar @ 204°C	-60ºF -50ºC	400ºF 204ºC	/P02, /P12, /PXX, /X
/C2H	Teflon	1.5" NPT	V, K, E	3000 psi @ 100°F / 207 bar @ 38°C 1200 psi @ 400°F / 83 bar @ 204°C	-60ºF -50ºC	400ºF 204ºC	/P02, /P12 /PXX, /X
/C3	Teflon	2.5"NPT	V, K, E	50 psi @ 400°F / 204°C	-60ºF -50ºC	400ºF 204ºC	/P61
/C8	Borosilicate Glass	1.5" NPT	Hermetic	5000 psi @ 100ºF / 344 bar @ 38ºC 1500 psi @ 800ºF / 103 bar @ 427ºC	-60ºF -50ºC	800ºF 427ºC	/P71 (*316SS only)
/C9	Alumina Ceramic	¾" NPT	Aegis O-Ring	2000 psi SAT STEAM (138 bar) @ 635ºF (335ºC)	-60ºF -50ºC	635ºF 335ºC	/P81
DUAL PROBE							
/C4	Teflon	1.5" NPT	V, K, E	1500 psi @ 100°F / 103 bar @ 38°C 600 psi @ 400°F / 41 bar @ 204°C	-60ºF -50ºC	400ºF 204ºC	/P31, /PXX, /X
/C4H	Teflon	1.5" NPT	V, K, E	3000 psi @ 100°F / 207 bar @ 38°C 1200 psi @ 400°F / 83 bar @ 204°C	-60ºF -50ºC	400ºF 204ºC	/P31, /PXX, /X
/C5	Teflon	2" NPT	V, K, E	1500 psi @ 100°F / 103 bar @ 38°C 600 psi @ 400°F / 41 bar @ 204°C	-60ºF -50ºC	400ºF 204ºC	/P22, /P32, /PXX, /X
/C5H	Teflon	2" NPT	V, K, E	3000 psi @ 100°F / 207 bar @ 38°C 1200 psi @ 400°F / 83 bar @ 204°C	-60ºF -50ºC	400ºF 204ºC	/P22, /P32 /PXX, /X
Note: Larger process connection sizes & types are available with /FL & /WP Options							
*** Consult O-Ring Seal Code Table 1B for Min. / Max. Temperature Ratings**							
SANITARY PROBE							
/C6	Teflon	1.5" or larger Tri-Clamp	V, K, E nn	50 psi / 13.4 bar	-60ºF -50ºC	400ºF 204ºC	/P41,/PXX
/C7	Teflon	2.5" or larger Tri-Clamp	V, K, E nn	50 psi / 13.4 bar	-60ºF -50ºC	400ºF 204ºC	/P42,/PXX
Note 1: nn		Tri-Clamp size "nn" as follows: 1.5" = 15, 2" = 20, 2.5" = 25, 3.0" = 30 (/C6 & /C7 only)					
CUSTOM PROBE							
/CX	Custom (Consult Factory)						

Table 1B - Seal Code

Suffix	Description	Min. Temp	Max. Temp	Compatible With	Not Compatible With
V	Viton O-Ring Seal	-40ºF / -40ºC	400ºF / 204ºC	General Purpose, steam, ethylene	Ketones (MEK, acetone), skydrol fluids, amines, anhydrous ammonia, low molecular weight esters and ethers, hot hydrofluoric or chlorosulfuric acids, sour HCs
K	Kalrez O-Ring Seal	-40ºF / -40ºC	400ºF / 204ºC	Inorganic and organic acids to include HH and nitric, aldehydes, ethylene, glycols, organic oils, silicone oils, vinegar, sour HCs, steam, amines, ethylene oxide, propylene oxide	Black liquor, hot water/steam, hot aliphatic amines, ethylene oxide, propylene oxide, molten sodium, molten potassium
E	EPDM O-Ring Seal	-60ºF / -50ºC	250ºF / 125ºC	Acetone, MEK, skydrol fluids, anhydrous ammonia	Petroleum oils, di-ester base lubricants, propane, steam

Table 2A - Probe Code Chart

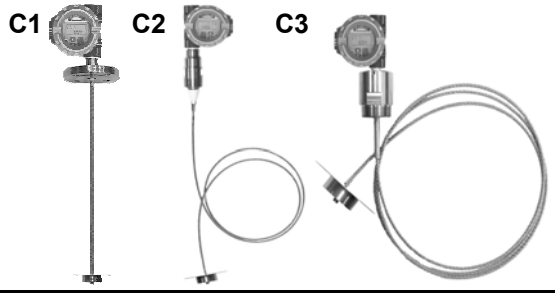
Probe Code	Description	Available Section Lengths	Max Length	Probe Attachment Available
/X	None			
RIGID PROBE (liquids only)				
/P01	0.250" O.D.	D=46" E=70" F=120"	10 ft. / 3.05 m	/CD, /CW, /E
/P02	0.500" O.D.	D=46" E=70" F=142"	20 ft. / 6.10 m	/CD, /CW, /E
CABLE PROBE				
/P11	0.1875" O.D.	J=25 ft. K=50 ft. L=75 ft. M=100 ft.	100 ft. / 30.5 m	/CD, /CW, /E
/P12	0.25" O.D.	J=25 ft. K=50 ft. L=75 ft. M=100 ft.	100 ft. / 30.5 m	/CD, /CW, /E
/P61	0.3125" O.D.	J=25 ft. K=50 ft. L=75 ft. M=100 ft.	100 ft. / 30.5 m	/CD, /CW, /E
DUAL RIGID PROBE (liquids only)				
/P22	0.500" O.D.	D=46" E=70" F=142"	30 ft. / 9.15 m	/CD, /CW, /E
DUAL CABLE PROBE				
/P31	0.1875" O.D.	J=25 ft. K=50 ft. L=75 ft. M=100 ft.	100 ft. / 30.5 m	/CD, /CW, /E
/P32	0.25" O.D.	J=25 ft. K=50 ft. L=75 ft. M=100 ft.	100 ft. / 30.5 m	/CD, /CW, /E
SANITARY RIGID PROBE (liquids only)				
/P41	0.250" O.D.	Finish Options: 1F, 2F, EP	10 ft. / 3.05 m	
/P42	0.500" O.D.	Finish Options: 1F, 2F, EP	20 ft. / 6.10 m	
COAXIAL PROBE (clean liquids only)				
/P51	0.875" O.D		20 ft. / 6.10 m	
/P71	1.315" O.D.	* Stainless Steel only *	20 ft. / 6.10 m	
/P81	0.875" O.D.		20 ft. / 6.10 m	
CUSTOM PROBE				
/PXX	Custom Probe, Consult Factory			

Table 2B - Sanitary Probe Finishes

Suffix	Description
1F	180 Grit Finish Standard (suitable for 3A service)
2F	240 Grit Finish
EP	240 Grit and Electropolished

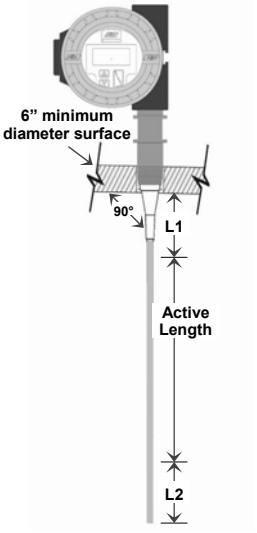
Table 2C - Bulk Solids Coupler / Probe Combinations

Bulk Solids Level Configuration



Capabilities	C1/P11	C2/P12	C3/P61
Measuring Length (ft)	ML < 20	ML < 50	ML < 50
Bulk Density (pcf)	pcf < 25	pcf < 25	pcf < 50
Maximum Cable Loading (lbs)	2,000	2,000	10,000

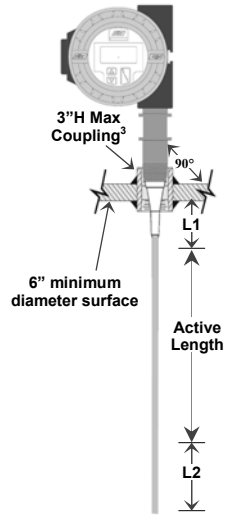
NOTE: The following guidelines are very conservative. If you have an application that exceeds these limits consult factory for application recommendations.



1. SINGLE PROBE - FLAT PLATE

MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1] (WH = Weight Height)
1.3 - 2[3] (solids only)	100 ft. / 30.5 m	0 in. / 0 cm	0 (Cable)
4	20 ft. / 6.1 m	6 in. / 15.2 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (cable)
10	40 ft. / 12.2 m	3 in. / 7.5 cm	0[1] (Rod) WH + 3" / 7.6 cm (cable)
35	100 ft. / 30.5 m	0[1] in. / 0[1] cm	0[1] (Rod / Cable)

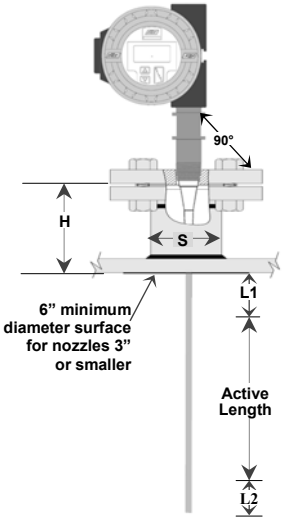
NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min}$ ≥ 3" or as listed if greater and $L2_{min}$≥ 3" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.
3. Ultra-Low Dielectric (ULD) measurement method. Accuracy subject to changes in dielectric constant. Supports dielectric constants from 1.3 to a maximum of 2.0. Requires use of 2.75" min. centering disk.



2. SINGLE PROBE - FLAT PLATE WITH COUPLING

MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1] (WH = Weight Height)
1.3 - 2[4] (solids only)	100 ft. / 30.5 m	0 in. / 0 cm	0 (Cable)
4	20 ft. / 6.1 m	8 in. / 20.3 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.5 cm (Cable)
10	40 ft. / 12.2 m	4 in. / 10.2 cm	0[1] (Rod) WH + 3 in. / 7.5 cm (Cable)
35	100 ft. / 30.5 m	1 in. / 2.5 cm	0[1] (Rod / Cable)

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min}$ ≥ 3" or as listed if greater and $L2_{min}$ ≥ 3" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.
3. The coupling should not extend into the vessel more than 1 in. / 2.5 cm.
4. Ultra-Low Dielectric (ULD) measurement method. Accuracy subject to changes in dielectric constant. Supports dielectric constants from 1.3 to a maximum of 2.0. Requires use of 2.75" min. centering disk.



3A. SINGLE PROBE - NOZZLE & FLANGE

[height of nozzle (H) greater than width of nozzle (S)]

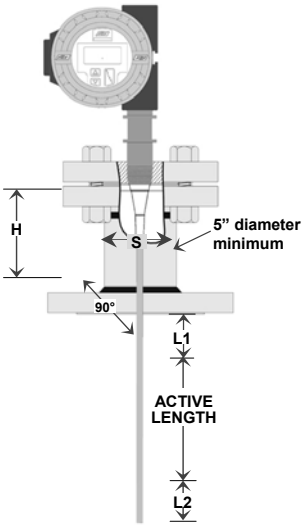
MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1] (WH = Weight Height)
1.3 - 2[4] (solids only)	100 ft. / 30.5 m	0 in. / 0 cm	0 (Cable)
4	20 ft. / 6.1 m	8 in. / 20.3 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.5 cm (Cable)
10	40 ft. / 12.2 m	4 in. / 10.2 cm	0[1] (Rod) WH + 3 in. / 7.5 cm (Cable)
35	100 ft. / 30.5 m	2[1] in. / 5.1[1] cm	0[1] (Rod / Cable)

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min}$ ≥ 3" or as listed if greater and $L2_{min}$ ≥ 3" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.
3. A one time startup adjustment is required to eliminate the effect of the nozzle. For details refer to the Blanking Parameter in the Commissioning section of the Installation & Operation Manual.
4. Ultra-Low Dielectric (ULD) measurement method. Accuracy subject to changes in dielectric constant. Supports dielectric constants from 1.3 to a maximum of 2.0. Requires use of 2.75" min. centering disk.

NOTE: The following guidelines are very conservative. If you have an application that exceeds these limits consult factory for application recommendations.

3B. SINGLE PROBE—NOZZLE & FLANGE

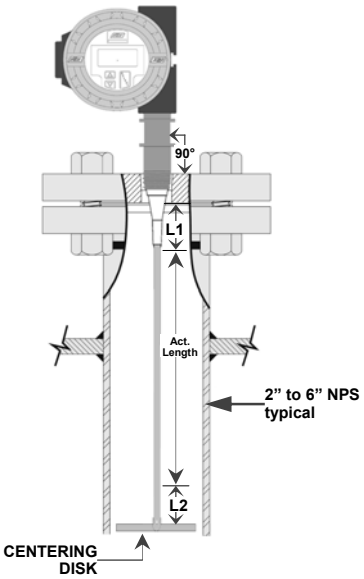
[height of nozzle (H) less than width of nozzle (S)]



MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1] (WH = Weight Height)
1.3 - 2[4] (solids only)	100 ft. / 30.5 m	0 in. / 0 cm	0 (Cable)
4	20 ft. / 6.1 m	6 in. / 15.24 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
10	40 ft. / 12.2 m	3 in. / 7.5 cm	0[1] (Rod) WH + 3 in. / 7.6 cm (Cable)
35	100 ft. / 30.5 m	2[1] in. / 5.1[1] cm	0[1] (Rod / Cable)

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min} \geq 3$" or as listed if greater and $L2_{min} \geq 3$" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.
3. A one time startup adjustment is required to eliminate the effect of the nozzle. For details refer to the Blanking Parameter in the Commissioning section of the Installation & Operation Manual.
4. Ultra-Low Dielectric (ULD) measurement method. Accuracy subject to changes in dielectric constant. Supports dielectric constants from 1.3 to a maximum of 2.0.

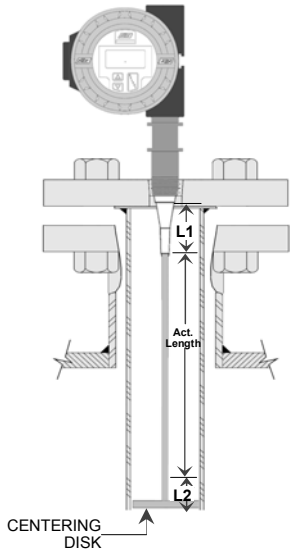
4. SINGLE PROBE - PERMANENT STILLING WELL



MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1] (WH = Weight Height)
1.7[3]	20 ft. / 6.1 m	8 in. / 20.3 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
3	30 ft. / 9.1 m	6 in. / 15.2 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
10	50 ft. / 15.2 m	3 in. / 7.5 cm	0[1] (Rod) WH + 3 in. / 7.6 cm (Cable)
35	50 ft. / 15.2 m	0[1] in. / 0[1] cm	0[1] (Rod / Cable)

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min} \geq 3$" or as listed if greater and $L2_{min} \geq 3$" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.
3. Stilling well size will determine minimum dielectric constant.

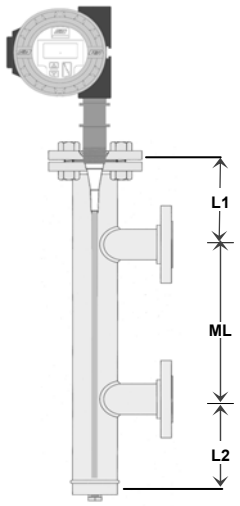
5. SINGLE PROBE - REMOVABLE STILLING WELL



MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1] (WH = Weight Height)
1.7[3]	20 ft. / 6.1 m	8 in. / 20.3 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
3	30 ft. / 9.1 m	6 in. / 15.2 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
10	50 ft. / 15.2 m	3 in. / 7.5 cm	0[1] (Rod) WH + 3 in. / 7.6 cm (Cable)
35	50 ft. / 15.2 m	0[1] in. / 0[1] cm	0[1] (Rod / Cable)

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min} \geq 3$" or as listed if greater and $L2_{min} \geq 3$" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.
3. Stilling well size will determine minimum dielectric constant.

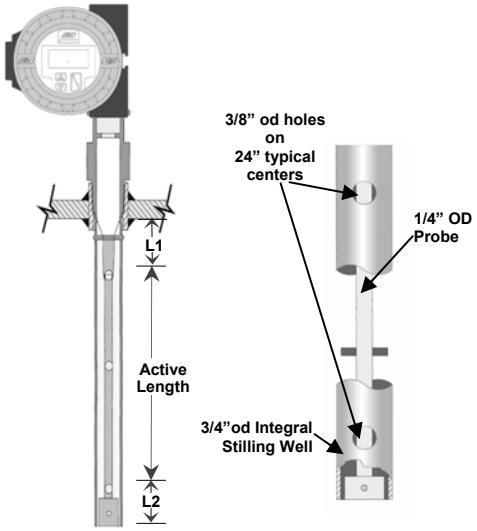
NOTE: The following guidelines are very conservative. If you have an application that exceeds these limits consult factory for application recommendations.



6. SINGLE PROBE - EXTERNAL CHAMBER

MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1] (WH = Weight Height)
1.7[3]	20 ft. / 6.1 m	8 in. / 20.3 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
3	30 ft. / 9.1 m	6 in. / 15.2 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
10	50 ft. / 15.2 m	3 in. / 7.5 cm	0[1] (Rod) WH + 3 in. / 7.6 cm (Cable)
35	50 ft. / 15.2 m	0[1] in. / 0[1] cm	0[1] (Rod / Cable)

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min} \geq 3$" or as listed if greater and $L2_{min} \geq 3$" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.
3. Chamber size will determine minimum dielectric constant.

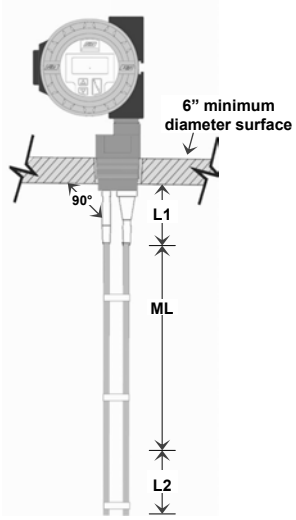


7. COAX PROBE

[(rod inside of outer tube) clean liquids only]

MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1]
1.4	20 ft. / 6.1 m	4 in. / 10.2 cm	1 in. / 2.5 cm
2.0	20 ft. / 6.1 m	2 in. / 5.1 cm	1 in. / 2.5 cm
4.0	20 ft. / 6.1 m	0 in. / 0 cm	0.5 in. / 1.3 cm

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min} \geq 3$" or as listed if greater and $L2_{min} \geq 3$" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.
3. Typically used in low dielectric, clean liquids.

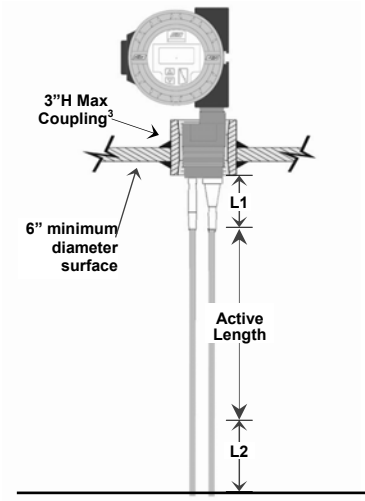


8. DUAL PROBE - FLAT PLATE

MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1] (WH = Weight Height)
3	20 ft. / 6.1 m	6 in. / 15.2 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
4	20 ft. / 6.1 m	3 in. / 7.5 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
10	100 ft. / 30.5 m	0[1] in. / 0[1] cm	0[1] (Rod / Cable)

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min} \geq 3$" or as listed if greater and $L2_{min} \geq 3$" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.

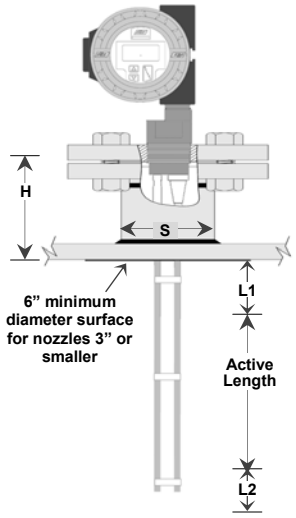
NOTE: The following guidelines are very conservative. If you have an application that exceeds these limits consult factory for application recommendations.



9. DUAL PROBE - FLAT PLATE WITH COUPLING

MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1]
3	20 ft. / 6.1 m	6 in. / 15.2 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
4	20 ft. / 6.1 m	3 in. / 7.5 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
10	100 ft. / 30.5 m	0[1] in. / 0[1] cm	0[1] (Rod / Cable)

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min} \geq 3$" or as listed if greater and $L2_{min} \geq 3$" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.
3. The coupling should not extend into the vessel more than 1" / 25 mm.

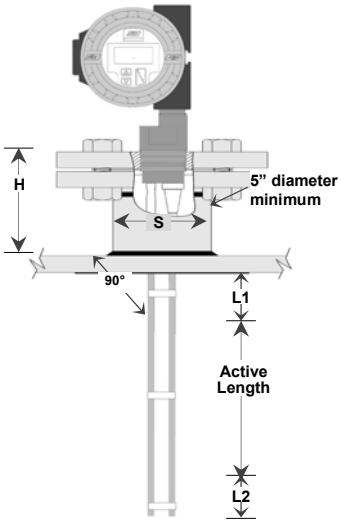


10A. DUAL PROBE—NOZZLE & FLANGE

[height of nozzle (H) greater than width of nozzle (S)]

MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1]
3	20 ft. / 6.1 m	6 in. / 15.2 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
4	20 ft. / 6.1 m	3 in. / 7.5 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
10	100 ft. / 30.5 m	0[1] in. / 0[1] cm	0[1] (Rod / Cable)

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min} \geq 3$" or as listed if greater and $L2_{min} \geq 3$" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.
3. A one time startup adjustment is required to eliminate the effect of the nozzle. For details refer to the Blanking Parameter in the Commissioning section of the Installation & Operation Manual.



10B. DUAL PROBE—NOZZLE & FLANGE

[height of nozzle (H) less than width of nozzle (S)]

MINIMUM DIELECTRIC CONSTANT	L MAXIMUM PROBE LENGTH[2]	L1 Unmeasurable[1]	L2 Unmeasurable[1]
3	20 ft. / 6.1 m	6 in. / 15.2 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
4	20 ft. / 6.1 m	3 in. / 7.5 cm	3 in. / 7.6 cm (Rod) WH + 3 in. / 7.6 cm (Cable)
10	100 ft. / 30.5 m	0[1] in. / 0[1] cm	0[1] (Rod / Cable)

NOTES:
1. L1 & L2 unmeasurable lengths of 0 may require use of linearization table and latching feature. For easiest startup use $L1_{min} \geq 3$" or as listed if greater and $L2_{min} \geq 3$" (rod) or WH + 3" (cable).
2. Maximum probe lengths are limited as indicated in Table 2A.

MT2000 Guided Wave Radar Cable Weights & Centering Disks

Cable Weights					
Part No.	**Material**	**O.D.**	**Weight Height (WH)**	**Weight**	**Compatible Probe(s)**
CW10D-S6	316SS	1.0 in. / 25.4 mm	6.0 in. / 152.4 mm	1.3 lbs / 590 g	P11*
CW10D-MO	Monel	1.0 in. / 25.4 mm	6.0 in. / 152.4 mm	1.4 lbs / 635 g	P11*
CW10E-S6	316SS	1.0 in. / 25.4 mm	6.0 in. / 152.4 mm	1.3 lbs / 590 g	P12*
CW10E-MO	Monel	1.0 in. / 25.4 mm	6.0 in. / 152.4 mm	1.4 lbs / 590 g	P12*
CW16F-S6	316SS	1-⅝ in. / 41.3 mm	2.0 in. / 50.8 mm	1.1 lbs / 499 g	P11*, P31
CW16F-MO	Monel	1-⅝ in. / 41.3 mm	2.0 in. / 50.8 mm	1.2 lbs / 544 g	P11*, P31
CW19G-S6	316SS	1-⅞ in. / 47.6 mm	2.0 in. / 50.8 mm	1.5 lbs / 680 g	P12*, P32
CW19G-MO	Monel	1-⅞ in. / 47.6 mm	2.0 in. / 50.8 mm	1.6 lbs / 726 g	P12*, P32
CW29F-S6	316SS	2-⅞ in. / 73.3 mm	1.0 in. / 25.4 mm	1.8 lbs / 816 g	P11*, P31
CW29F-MP	Monel	2-⅞ in. / 73.3 mm	1.0 in. / 25.4 mm	2.0 lbs / 907 g	P11*, P31
CW29G-S6	316SS	2-⅞ in. / 73.3 mm	1.0 in. / 25.4 mm	1.8 lbs / 816 g	P12*, P32
CW29G-MO	Monel	2-⅞ in. / 73.3 mm	1.0 in. / 25.4 mm	2.0 lbs / 907 g	P12*, P32
CW29H-S6	316SS	1-½ in. / 38.1 mm	5-¼ in. / 133.35 mm	2.2 lbs / 998 g	P61*

Centering Disks					
Part No.	**Material**	**O.D.**	**Height**	**Compatible Probe(s)**	**Minimum Stilling Well Size**
CD20B-S6	316SS	2.0 in. / 50.8 mm	⅜ in / 9.5 mm	P01	2” sch. 40
CD20B-H	Hastelloy**	2.0 in. / 50.8 mm	⅜ in. / 9.5 mm	P01	2” sch. 40
CD20B-TI	Titanium	2.0 in. / 50.8 mm	⅜ in. / 9.5 mm	P01	2” sch. 40
CD20C-S6	316SS	2.0 in. / 50.8 mm	½ in. / 12.7 mm	P02	2” sch. 40
CD20C-H	Hastelloy**	2.0 in. / 50.8 mm	½ in. / 12.7 mm	P02	2” sch. 40
CD20C-TI	Titanium	2.0 in. / 50.8 mm	½ in. / 12.7 mm	P02	2” sch. 40
CD28B-S6	316SS	2.8 in. / 71.1 mm	⅜ in. / 9.5 mm	P01	3” sch. 80
CD28B-H	Hastelloy**	2.8 in. / 71.1 mm	⅜ in. / 9.5 mm	P01	3” sch. 80
CD28B-TI	Titanium	2.8 in. / 71.1 mm	⅜ in. / 9.5 mm	P01	3” sch. 80
CD28C-S6	316SS	2.8 in. / 71.1 mm	½ in. / 12.7 mm	P02	3” sch. 80
CD28C-H	Hastelloy**	2.8 in. / 71.1 mm	½ in. / 12.7 mm	P02	3” sch. 80
CD28C-TI	Titanium	2.8 in. / 71.1 mm	½ in. / 12.7 mm	P02	3” sch. 80
CD38B-S6	316SS	3.75 in. / 95.3 mm	⅜ in. / 9.5 mm	P01	4” sch. 80
CD38B-H	Hastelloy**	3.75 in. / 95.3 mm	⅜ in. / 9.5 mm	P01	4” sch. 80
CD38B-TI	Titanium	3.75 in. / 95.3 mm	⅜ in. / 9.5 mm	P01	4” sch. 80
CD38C-S6	316SS	3.75 in. / 95.3 mm	½ in. / 12.7 mm	P02	4” sch. 80
CD38C-H	Hastelloy**	3.75 in. / 95.3 mm	½ in. / 12.7 mm	P02	4” sch. 80
CD38C-TI	Titanium	3.75 in. / 95.3 mm	½ in. / 12.7 mm	P02	4” sch. 80
CD38A-S6	316SS	3.75 in. / 95.3 mm	$^{1}/_{16}$ in. / 1.5 mm	P11*, P12*	4” sch. 80
CD60A-S6	316SS	4.00 in. / 101.6 mm	½ in. / 12.7 mm	P61*	8” sch. 80
*ULD Mode requires the weight and centering disk assembly for all installations.					
**Hastelloy C-276 is Standard. If Hastelloy B3 coupler is ordered, the disk material is Hastelloy B3.					

Quotation Request - MT2000 Guided Wave Radar

Tel (1) 225-673-6100 Email:sales@ktekcorp.com Date: _____

Fax (1) 225-673-2525 Attn: _____

Customer: _____ Contact: _____

Phone # : _____ Fax # : _____

Email: _____ Project: _____

Rep Firm: _____ Contact: _____

Phone # : _____ Fax # : _____

Email: _____

Process Conditions: **TAG:** _____

Material To Be Measured: _____ Dielectric Constant: _____

Is Material: ☐ **Solid** ☐ **Liquid** ☐ **Liquid/Liquid Interface** **(recommended flooded interface)**

If Solid: Particle Diameter: _____

If Liquid / Liquid Interface: Upper Dielectric Constant: _____ Lower Fluid Dielectric Constant: _____

Temperature: Operating: _____ Maximum: _____ **°F / °C / °K**

Pressure: Operating: _____ Maximum: _____ **PSIG / KG / BAR**

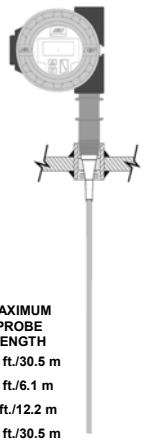
Agitation: ☐ None ☐ Minimal ☐ Heavy

Foam : ☐ No ☐ Yes: Foam Density: ☐ Light ☐ Heavy

Buildup: ☐ None ☐ Light ☐ Heavy (Single Probe designs recommended with heavy buildup)

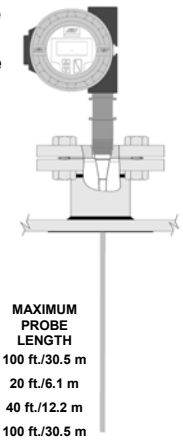
Select mounting configuration closest to your application:

Flat Plate Or Coupling



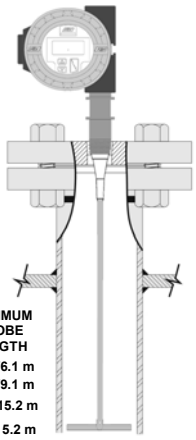
MINIMUM DIELECTRIC CONSTANT	MAXIMUM PROBE LENGTH
1.3[1]	100 ft./30.5 m
4	20 ft./6.1 m
10	40 ft./12.2 m
35	100 ft./30.5 m

Nozzle & Flange



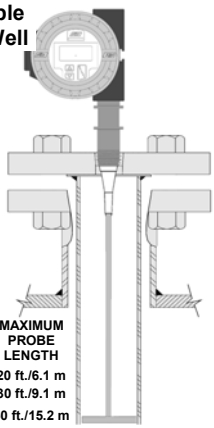
MINIMUM DIELECTRIC CONSTANT	MAXIMUM PROBE LENGTH
1.3[1]	100 ft./30.5 m
4	20 ft./6.1 m
10	40 ft./12.2 m
35	100 ft./30.5 m

Permanent Stilling Well



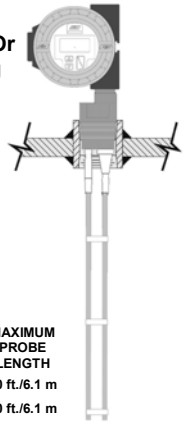
MINIMUM DIELECTRIC CONSTANT	MAXIMUM PROBE LENGTH
1.7	20 ft./6.1 m
3	30 ft./9.1 m
10	50 ft./15.2 m
35	50 ft/15.2 m

Removable Stilling Well



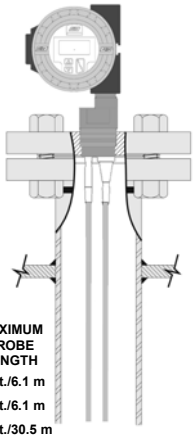
MINIMUM DIELECTRIC CONSTANT	MAXIMUM PROBE LENGTH
1.7	20 ft./6.1 m
3	30 ft./9.1 m
10	50 ft./15.2 m
35	50 ft/15.2 m

Dual Rod Flat Plate Or Coupling



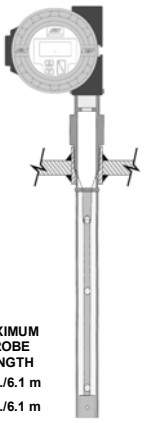
MINIMUM DIELECTRIC CONSTANT	MAXIMUM PROBE LENGTH
3	20 ft./6.1 m
4	20 ft./6.1 m
10	100 ft./30.5 m

Dual Rod Nozzle & Flange



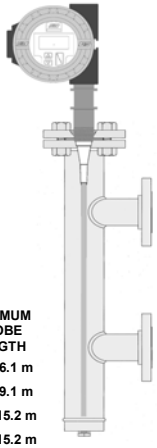
MINIMUM DIELECTRIC CONSTANT	MAXIMUM PROBE LENGTH
2.5	20 ft./6.1 m
4	20 ft./6.1 m
10	100 ft./30.5 m

Coaxial Probe



MINIMUM DIELECTRIC CONSTANT	MAXIMUM PROBE LENGTH
1.4	20 ft./6.1 m
4	20 ft./6.1 m
10	100 ft./30.5 m

External Chamber



MINIMUM DIELECTRIC CONSTANT	MAXIMUM PROBE LENGTH
1.7	20 ft./6.1 m
3	30 ft./9.1 m
10	50 ft./15.2 m
35	50 ft./15.2 m

1. **Accuracy subject to changes in dielectric constant. Ultra-Low Dielectric (ULD) measurement method supports dielectric constants from 1.3 to a maximum of 2.0.**

Quotation Request (cnt'd)

Material & Connections:

Process Connection: ☐ MNPT ☐ RF Flange ☐ Tri-Clamp ☐ Other

Process Connection Description: _____

Probe Material: ☐ 316L SS ☐ Hast C276 ☐ Hast B3 ☐ Monel ☐ Titanium

Probe Type: ☐ Solid Rod ☐ Cable (316SS & Monel Only)

☐ Sanitary Rod Specify Finish ☐ 180 Grit ☐ 240 Grit ☐ 240 Grit & EP

(Refer to Page 17 for below part numbers)

Centering Disk (Solid Rod): ☐ Yes ☐ No P/N: _____ If blank, K-TEK will choose.

Centering Weight (Cables): ☐ Yes ☐ No P/N: _____ If blank, K-TEK will choose.

Housing & Electronics Options:

☐ Aluminum Dual Compartment Housing **(standard)** ☐ 316L SS Dual Compartment Housing

☐ Window Cover ☐ HART Protocol ☐ Honeywell DE Protocol

Vessel / Application Details: **specify by circling**

Total Insertion Length (Bottom of process fitting to end of probe): _____ **in / ft / cm / m Other:** _____

Standard Lengths for field modification to final length: _____

Custom Lengths for final length by K-TEK _____

MT2000 will be mounted:

☐ Directly on roof of tank ☐ Mounted on Nozzle: nozzle height: _____ diameter: _____

☐ In existing stilling well - describe: _____

☐ In new stilling well - describe: _____

☐ In external chamber - describe: _____

☐ Stilling well or external chamber to be supplied with transmitter: Yes ☐ No ☐

Approval Required:

☐ **FM Factory Mutual**

XP / I / 1 / ABCD / T6	Ta = 77C
DIP / II, III / 1 / EFG / T6	Ta = 77C
IS / I / 1 / CD / T4	Ta = 77C - ELE1014
NI / I / 2 / ABCD / T4	Ta = 77C
Type 4X	

☐ **CSA Canadian Standards Association**

XP CL I Div 1 GP ABCD
CL II GP G & Coal Dust
(Exia) Associated Equip., Provides I.S. Output to Sensor

IS CL I Div 1 GP CD T4
CL I Div 2 GP ABCD
CL II Div 2 GP G & Coal Dust when installed per ELE1014

☐ **ATEX Flameproof**

Ⓔx II 1/2 GD EExd IIC T6 (80°C) Tamb +66°C;
Ⓓ02 ATEX 131713

☐ **ATEX Intrinsically Safe**

Ⓔx II 1 GD EEx ia IIB T6 (80°C) Tamb +66°C;
Ⓓ02 ATEX 131712

Completed by K-TEK:

Quotation #_____ By: _____ Date: _____

Qty: _____ Part #: _____ Price: $_____

Options: _____

Note: All prices USD, EX-Works packed for shipping, FOB Factory, standard shipping 5 weeks ARO.

Additional notes or comments: _____