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# Cap Level<sup>®</sup> IIA Installation & Operation Manual

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# Cap Level<sup>®</sup> IIA Installation & Operation Manual

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## SAFETY SYMBOLS



### **WARNING:**

IDENTIFIES CONDITIONS OR PROCEDURES, WHICH IF NOT FOLLOWED, COULD RESULT IN SERIOUS INJURY. RISK OF ELECTRICAL SHOCK.



### **CAUTION:**

IDENTIFIES CONDITIONS OR PROCEDURES, WHICH IF NOT FOLLOWED, COULD RESULT IN SERIOUS DAMAGE OR FAILURE OF THE EQUIPMENT.

# Cap Level<sup>®</sup> IIA

## I. HANDLING AND STORAGE

### **SAVE THESE INSTRUCTIONS**

#### **INSPECTION AND HANDLING**

Do not dispose of the carton or packing materials.

Each package should be inspected upon receipt for damage that may have occurred due to mishandling during shipping. If the unit is received damaged, notify the carrier or the factory for instructions. Failure to do so may void your warranty. If you have any problems or questions, consult Bindicator<sup>®</sup> Customer Support at 1-800-778-9242.

#### **DISPOSAL AND RECYCLING**

This product can be recycled by specialized companies and must not be disposed of in a municipal collection site. If you do not have the means to dispose of properly, please contact Bindicator for return and disposal instructions or options.

#### **STORAGE**

If the device is not scheduled for immediate installation following delivery, the following steps should be observed:

1. Following inspection, repackage the unit into its original packaging.
2. Select a clean dry site, free of vibration, shock and impact hazards.
3. If storage will be extended longer than 30 days, the unit must be stored at temperatures between 32° and 158° F (0° to 70° C) in non-condensing atmosphere with humidity less than 85%.



**CAUTION: DO NOT STORE A NON-POWERED UNIT OUTDOORS FOR A PROLONGED PERIOD.**

## II. GENERAL SAFETY

### **AUTHORIZED PERSONNEL**

All instructions described in the document must be performed by authorized and qualified service personnel only. Before installing the unit, please read these instructions and familiarize yourself with the requirements and functions of the device. The required personal protective equipment must always be worn when servicing this device.

### **USE**

The device is solely intended for use as described in this manual. Reliable operation is ensured only if the instrument is used according to the specifications described in this document. For safety and warranty reasons, use of accessory equipment not recommended by the manufacturer or modification of this device is explicitly forbidden. All servicing of this equipment must be performed by qualified service personnel only. This device should be mounted in locations where it will not be subject to tampering by unauthorized personnel.

### **MISUSE**

Improper use or installation of this device may cause the following:

- Personal injury or harm
- Application specific hazards such as vessel overfill
- Damage to the device or system

If any questions or problems arise during installation of this equipment, please contact Customer Support at 800-778-9242.

### III. PRODUCT DESCRIPTION

#### FUNCTION

The Cap Level® IIA combines proven capacitance measuring technique with the ease and safety of two-wire operation. The power and signal reside on the same pair of wires. Since only low voltage signal wiring is involved, the installation time and expense are greatly reduced. The Cap Level IIA transmitter will measure solid or liquid material and will provide a reliable method of level measurement.

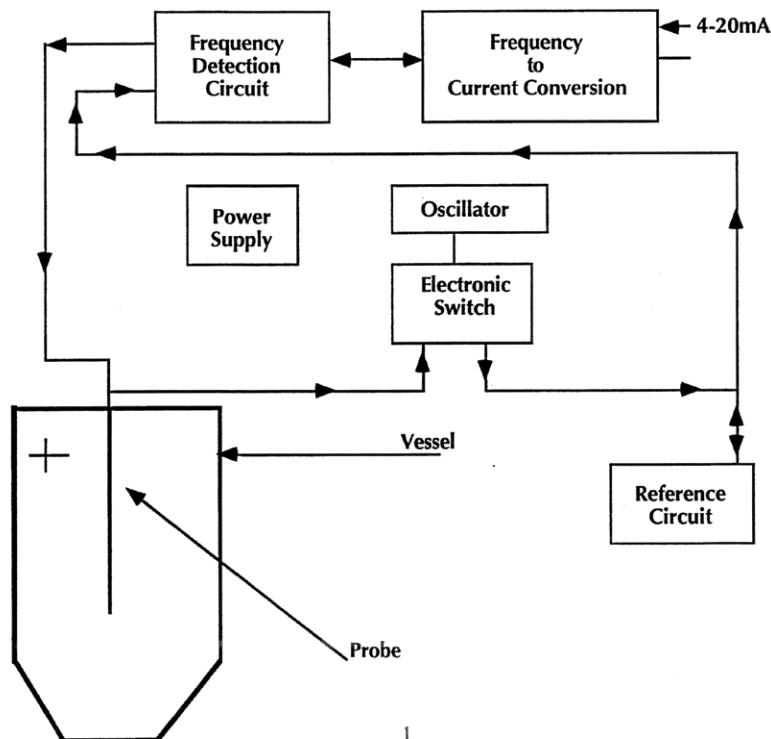
Please wire this device to DC power ONLY. Use in a hazardous area ONLY with approved Intrinsic Safety Barriers. If you should have any questions as to the safe installation of this device, please contact the factory for assistance.

#### THEORY

A high frequency oscillator alternately switches between a very stable reference capacitor and the probe. The probe capacitance will vary depending upon how much material is in contact with the probe, and this will cause a change in frequency of the oscillator. This difference in oscillator frequency is directly proportional to the level of material surrounding the probe. (This patented technique of constantly using a stable reference capacitor provides excellent temperature stability.)

The change in probe frequency is converted to a voltage and then to a 4-20 mA output signal.

Figure 1. Frequency Conversion



## SPECIFICATIONS

FUNCTIONAL	
Power	15-32 VDC (27 VDC max. for LS operation)
Output	4-20 mA
Drive Capability	450 ohms @ 24 VDC (varies with voltage)
Calibration	Zero and span with frequency selection
Capacitance Range	0 pF to 4000 pF nominal
Repeatability	±1% of span (constant dielectric)
Sensing System	High frequency capacitance with digital comparator
PHYSICAL	
Enclosure	NEMA 4X, aluminum with corrosion resistant polyester coating
Enclosure Temperature	-40° to 120° F (-40° C to 49° C) (lagging assembly for higher temperature)
Length	As specified - Types A, B, M, N, P, Q: 167" (4175 mm) maximum; Types D, E, H, I: 1200" (36,000 mm) maximum
APPROVALS	
	CSA, Explosion Proof, Class I, Groups C & D; FM, Intrinsically Safe, Class I, II, III, Div I, Groups C, D, E, F & G Type 4

## PROBE APPLICATION

PROBE TYPE	MOUNT STANDARD	MATERIAL	PRESSURE (MAXIMUM)	TEMPERATURE (MAXIMUM)
A	¾" NPT	316 SS**	50 PSI (3.51 kg/cm <sup>2</sup> )	250° F (121° C)
B	¾" NPT	Teflon®/SS	50 PSI (3.51 kg/cm <sup>2</sup> )	250° F (121° C)
D	1¼" NPT	316 SS**	Atmospheric	250° F (121° C)
E	1¼" NPT	316 SS**	Atmospheric	250° F (121° C)
H	1¼" NPT	Teflon®/SS	Atmospheric	250° F (121° C)
I	1¼" NPT	Teflon®/SS	50 PSI (3.51 kg/cm <sup>2</sup> )	250° F (121° C)
M	¾" NPT	PVC/SS	50 PSI (3.51 kg/cm <sup>2</sup> )	140° F (60° C)
N	1" Sanitary	Teflon®/SS	50 PSI (3.51 kg/cm <sup>2</sup> )	250° F (121° C)
P	1" Sanitary	316 SS	50 PSI (3.51 kg/cm <sup>2</sup> )	250° F (121° C)
Q	2" Sanitary	Teflon®/SS	50 PSI (3.51 kg/cm <sup>2</sup> )	250° F (121° C)

\*\* Probe types A, D, E non-conductive media only. Use auxiliary ground rod or stilling well (reference ground) in fiberglass or lined vessels. Teflon® is a registered trademark of E.I. Du Pont, 2006. All rights reserved.



## IV. MECHANICAL INSTALLATION



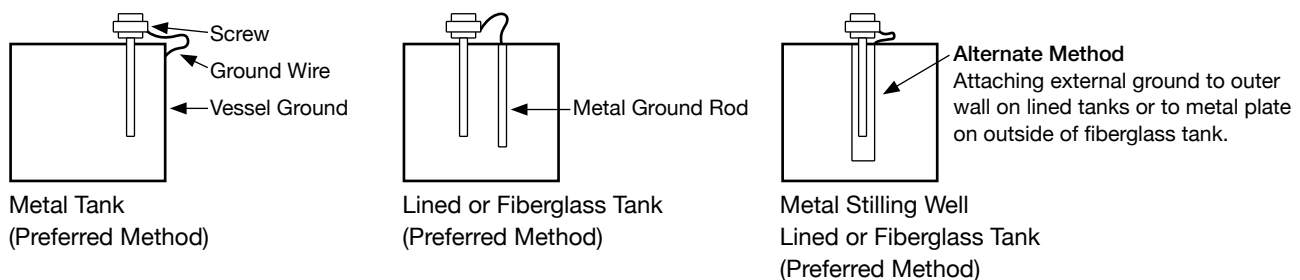
**WARNING: REMOVE POWER FROM THE UNIT BEFORE INSTALLING, REMOVING, OR MAKING ADJUSTMENTS.**

### APPLICATION CONSIDERATIONS

To ensure the successful operation of the Cap Level IIA, the following application considerations should be addressed before installing or operating the unit.

- The unit received should be compatible with the process, including: pressure, temperature, material of construction, and area classification.
- If the media is conductive, the probe specified must be jacketed with either Teflon® or PVC. Media with conductivity equal to or greater than that of tap water (dielectric constant of 80), is considered conductive. Bare metal probes will not function properly in conductive media.
- Since the sensor measures capacitance, the dielectric of the media will effect its operation. Materials with a dielectric constant below 5 provide a lower gain and are more difficult to detect. Special consideration should be given these applications. Probe lengths below 3 feet in these applications may require a stilling well, ground rod or other considerations. Consult factory if you are not sure of action required.
- Proper grounding of the transmitter enclosure to the vessel wall is important. Capacitance devices use this wall as part of the measuring circuit. In lined or plastic vessels, a metal rod or stilling well may be required to provide a ground reference for the probe.

Figure 2. Applications

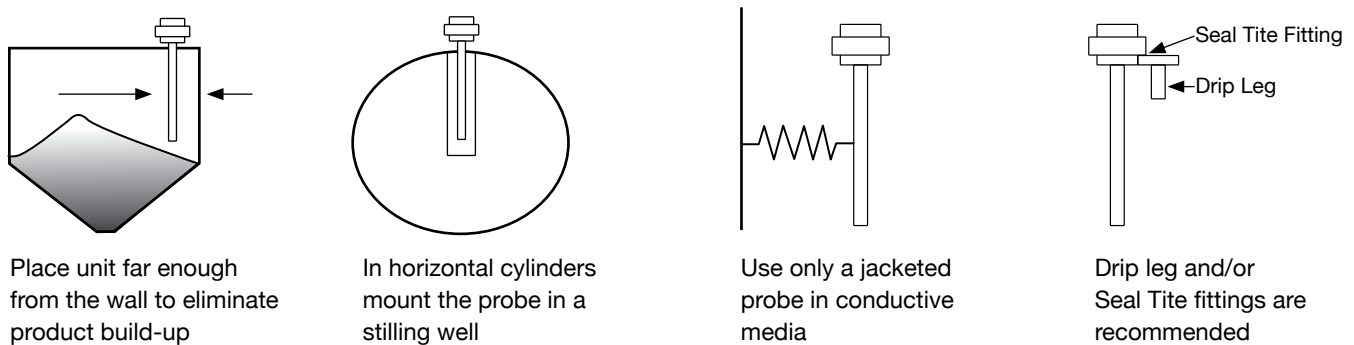


- A constant dielectric value is very important when using this type of transmitter. The dielectric constant can change due to the following factors: changing or adding other materials; density or moisture content changes of dry materials; changes in media temperature. These changes can cause significant changes in instrument accuracy and performance. Recalibration is sometimes required in these circumstances.
- Raising and lowering of the material level will be required for calibration.
- Conductive media which leaves a coating on the probe may cause an error in output. Non-conductive materials generally do not cause this type of error.
- Non-conductive media which may be contaminated with water or other conductive media, will require a jacketed probe. Only DC voltages are to be applied to this unit. Do not apply AC voltages!

## MOUNTING LOCATION CONSIDERATIONS

- Sensing rods should be located parallel to the vessel wall. If this is not possible such as in horizontal cylinders, a stilling well may be required. This is especially true with non-conductive liquids such as solvents.
- Probes should be mounted as close to metal tank walls as possible. However, avoid situations where material build-up between probe and vessel walls could occur.
- Beware of agitators or any obstruction that may contact the sensing probe. Probes should not contact anything except the process media. Exception: on probes over 10 feet or in highly agitated materials, a non-metallic support should be considered to avoid probe damage or erratic operation.
- Make sure there is enough “head room” above the bin for installation.

Figure 3. Mounting Recommendations



## MOUNTING: REFER TO INSTALLATION DRAWINGS

- A. All probes except E and H Tie-down types:
1. Mount sensor to appropriate process connection to prevent damage to probe or electronics housing.
  2. Tighten to connection using flats on stainless process connector only. On flanged units, rotate with the flange. Rotation of the enclosure on its mount can damage the process seal and will void the pressure rating!
  3. If pipe sealant is used, a ground strap must be run from the external ground screw to the vessel wall or other metal object supplying a ground to the process media (this is true non-metallic tanks).
- B. Type E and H Tie-Down types:
1. A mounting point for the tie-down must be located directly below the selected process connection location. This may be on the bottom of the vessel or on a bracket mounted on the side wall of the tank.
  2. Drill a  $\frac{3}{8}$ " hole at this location for assembly of the tie-down.



**CAUTION: IN SOME APPLICATIONS PULL-FORCE ON THE CABLE CAN EXCEED 500 LBS. VERIFY THAT THE TIE-DOWN LOCATION WILL SUPPORT THIS LOAD.**

3. Mount the probe and assemble the tie-down as indicated on the Installation Drawing. The tie-down must be assembled as indicated to avoid any connection of cable directly with the tank.
4. Observe cable tension while filling and emptying vessel. Jacking assembly should be adjusted to provide a reasonably taut cable under loaded and unloaded conditions. Check cable regularly and tighten as required.

### **STILLING WELL INSTALLATION (OPTIONAL)**

This is only required in special cases. See “Application Considerations” or consult factory.

1. The stilling well (concentric ground) must be metal and be compatible with the process media. The pipe should be 2” nominal or larger and be equal to, or greater than the probe length. In addition, a vent hole must be made in the upper portion of the well to allow for pressure equalization as the material level rises. The vent hole is internal to the tank only.
2. Construct and install the well inside of the vessel providing a connection on the well compatible with the unit’s process connection.
3. Install the sensing probe in the center of the well. The probe should not be allowed to move or contact the pipe wall. If necessary, a standoff of non-metallic construction may be required to limit movement. In general, rigid sensors are preferred for this type of mounting.

## V. ELECTRICAL INSTALLATION



**WARNING: VERY HIGH VOLTAGE IS PRESENT. REMOVE POWER FROM THE UNIT BEFORE INSTALLING, REMOVING, OR MAKING ADJUSTMENTS**

### GENERAL SAFETY

When using electrical equipment, you should always follow basic safety precautions, including the following:

- The installation and wiring of this product must comply with all national, federal, state, municipal, and local codes that apply.
- Properly ground the enclosure to an adequate earth ground.
- Do not modify any factory wiring. Connections should only be made to the terminals described in this section.
- All connections to the unit must use conductors with an insulation rating of 300 V minimum, rated for 212° F (105° C), a minimum flammability rating of VW-1, and be of appropriate gauge for the voltage and current required (see specifications).
- Do not allow moisture to enter the electronics enclosure. Conduit should slope downward from the unit housing. Install drip loops and seal conduit with silicone rubber product.

### DISCONNECT REQUIREMENTS FOR PERMANENTLY INSTALLED EQUIPMENT

A dedicated disconnecting device (circuit breaker) must be provided for the proper installation of the unit. If independent circuits are used for power input and main relay outputs, individual disconnects are required.

Disconnects must meet the following requirements:

- Located in close proximity to the device
- Easily accessible to the operator
- Appropriately marked as the disconnect for the device and associated circuit
- Sized appropriately to the requirements of the protected circuit (See specifications)

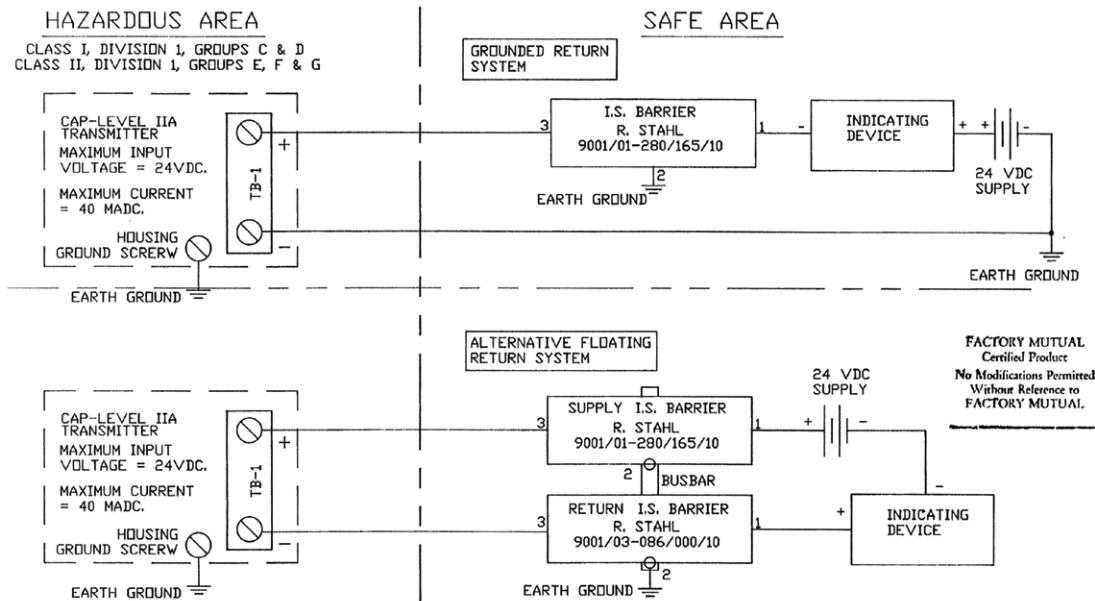
### ELECTRICAL HOOKUP (REFER TO WIRING DIAGRAMS)

1. Connect Shielded-twisted pair of 20 AWG or larger (Belden 8761 or equivalent) to terminal TB 1 (+/-) on transmitter circuit board. Shield should not be connected at this point. Ground shield at receiving (readout) end only.
2. Run cable in conduit dedicated to signal wiring only. Cable should not be run with any AC wiring. Install conduit per NEC or company standards. In addition, it is imperative that a drip leg or loop be installed prior to enclosure. Units rendered inoperative due to water damage will not be covered under warranty.

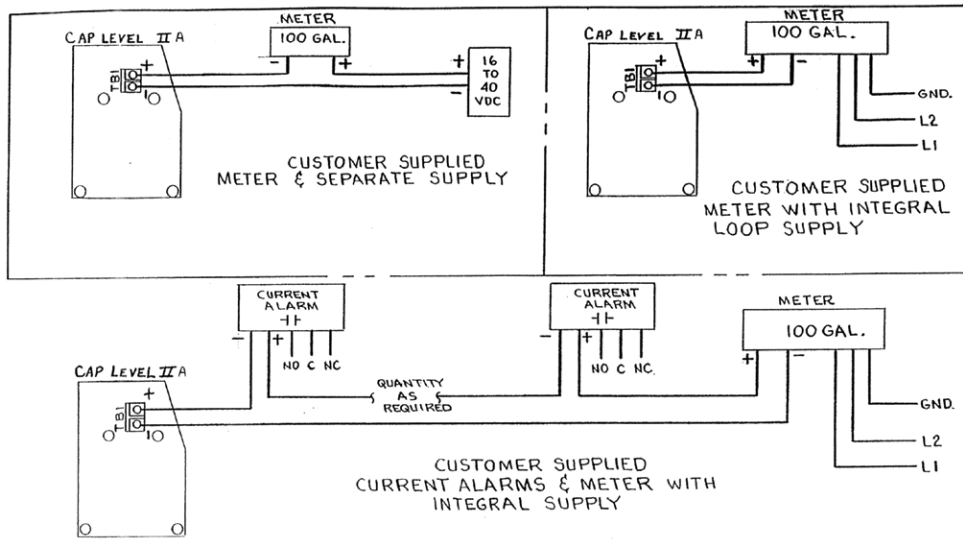


**CAUTION: DO NOT CONNECT TO ANY POWERED DEVICE (PUMP, CONVEYOR, VALVE, ETC.) UNTIL ALL CALIBRATION HAS BEEN COMPLETED AND WIRING VERIFIED. DAMAGE OR INJURY COULD RESULT.**

**SCL2E0029 Intrinsically Safe Loop Diagram**



**SCL2E0046 Alternate methods of customer hook-up**



SOURCE VOLTAGE	CAP LEVEL IIA	
	GUARANTEED MINIMUM	TYPICAL
16 VOLTS	50	100
22 VOLTS	350	400
24 VOLTS	450	500
28 VOLTS	650	700
34 VOLTS	950	1000
40 VOLTS	1250	1300

← TOTAL INPUT IMPEDANCE OF ALL EXTERNAL DEVICES NOT TO EXCEED VALUES IN TABLE.

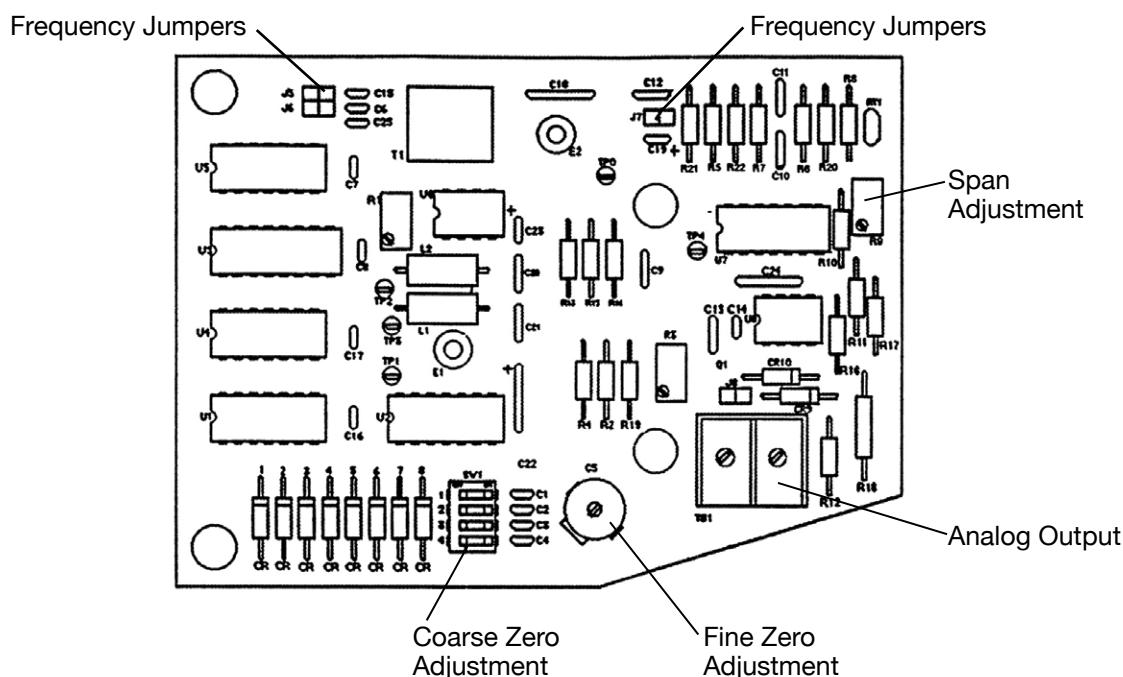
## VI. SET-UP

### CALIBRATION REQUIREMENTS

In order to calibrate the unit for maximum accuracy and performance the following will be required:

- A. Ability to move tank contents to the desired 0% and 100% points on the sensor.
- B. Prior knowledge of desired analog output span.
- C. A  $\frac{7}{16}$ " wrench for cover removal, DVM, small screwdriver and needle nose pliers.
- D. Reference (Figure 1) for position of test points and adjustments during all subsequent calibration procedures.

Figure 4. Cap Level IIA Circuit Board



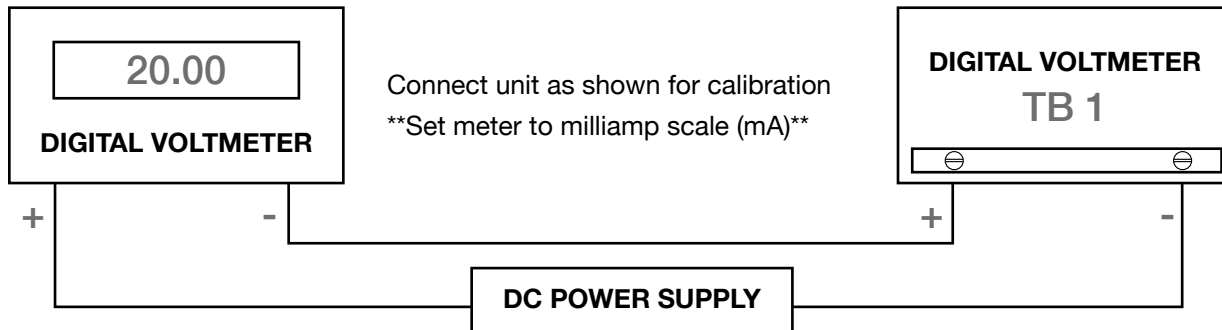
### CALIBRATION

The Cap Level IIA will be calibrated by moving the material level between the desired 0 and 100% points and adjusting the appropriate controls for 4 mA (0%) and 20 mA (100%) output. If the vessel can be emptied but not filled to the required 100% point, use the "Alternate Span Calibration" procedure after zeroing.

Please check and verify the following before proceeding:

- Proper DC power is available
- All related equipment which could cause injury is locked out
- Only "Frequency Jumper J5" is installed (if first time calibration). For Preventive Maintenance, do not change jumper positions.
- Vessel contents can be moved up and down for calibration procedure.

Figure 5. Calibration Connection



#### A. Zero Calibration

1. Lower vessel contents to cover the bottom 1" of probe or to the desired 0% point (Do not cover more than the bottom 1.0% under any circumstances.)
2. Turn the Coarse Zero Adjust Switch (SW1) on and off until a reading very close to 4 mA is reached (switch order s not critical).
3. Turn the Fine Zero Adjust Capacitor (C5) until 4 mA is achieved.
4. Zero calibration is now complete.

#### B. Span Calibration

1. Fill the vessel to the desired 100% point (See Alternate Span Calibration below if 100 is not obtainable).
2. Turn Span Adjust Potentiometer (R9) until the output reads 20 mA. If the unit adjusts as indicated, zero and span operations are now complete. If not, the operating frequency will have to be changed. See Operating Frequency for corrective action.

#### C. Alternate Span Calibration (Vessel less than 100%)

1. Fill vessel to at least 50% of desired span. Better span results will be achieved as level approaches 100%.
2. Determine the material level as a percentage of full scale span using the following formula:  

$$(\text{Vessel Level/Desired Span}) \times 16 \text{ mA} + 4 \text{ mA} = 16.8 \text{ mA (output at 80" should be 16.8 mA)}$$
3. Turn Span Adjust Potentiometer (R9) until the output equals the reading derived above. If the unit adjusts as desired, zero and span operations are complete. If not, the operating frequency will have to be changed. See Operating Frequency for corrective action.

### OPERATING FREQUENCY SELECTION

The Cap Level IIA is shipped with the jumper J5 only installed and should provide adequate operation in the most common applications.

If the output current is always higher than desired (normally 20 mA is maximum) and cannot be brought into range, install jumper J6. At this point both J5 and J6 should be installed. This change increases the amount of capacitance than can be detected by the system. Because the operating frequency has been altered, the unit must be recalibrated starting with zero calibration. Unit must be recalibrated (zero and span) anytime Jumpers J5 and J6 are moved.

If the output current is always lower than desired (20 mA is normal at 100% level) remove both J5 and J6 jumpers. This change decreases the amount of capacitance that can be sensed. Because the operating frequency has been altered, the unit must be recalibrated starting with zero calibration. Unit must be recalibrated (zero and span) anytime Jumpers J5 and J6 are moved.

## VII. TROUBLESHOOTING

DESCRIPTION	ACTION TO TAKE
Output Current = 0 mA	<ul style="list-style-type: none"> <li>• Signal wire is disconnected</li> <li>• Check DC Power</li> <li>• Look for open Intrinsic Safety Barrier</li> </ul>
Output changes without level change	<ul style="list-style-type: none"> <li>• Dielectric of media changing</li> <li>• System no calibrated to tank media</li> <li>• Poor ground reference</li> </ul>
Output always high	<ul style="list-style-type: none"> <li>• Unjacketed probe in conductive material</li> <li>• Bare probe touching vessel wall</li> <li>• Material lodged between probe and tank wall</li> <li>• Wrong frequency setting</li> </ul>
Output erratic	<ul style="list-style-type: none"> <li>• Severe agitation - Section VI. Operating Frequency Selection</li> <li>• Sample time too fast on PLC/Computer. Consult factory.</li> </ul>
Good unit suddenly stops working	<ul style="list-style-type: none"> <li>• Probe missing</li> <li>• Check for water in housing - install conduit seal</li> <li>• Check power and/or Intrinsic Barrier</li> </ul>

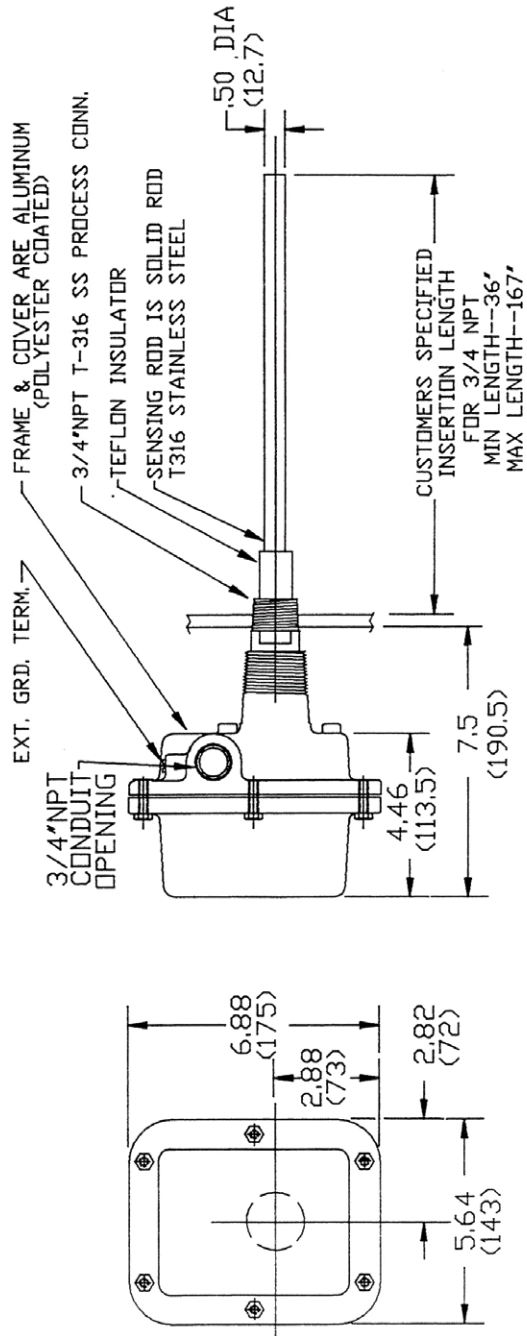
## VII. DIMENSIONAL DRAWINGS

Drawing Number	Description
SCL2E0008	Installation Drawing - w/T316 bare probe
SCL2E0009	Installation Drawing - w/Teflon® jacketed probe
SCL2E0012	Installation Drawing - w/SS cable and tie-down assembly
SCL2E0014	Installation Drawing - w/Teflon® jacketed cable and tie-down assembly
SCL2E0015	Installation Drawing - w/Cable and weight
SCL2E0035	Installation Drawing - Teflon coated cable and weight
SCL2E0036	Installation Drawing - w/PVC jacketed probe
SCL2E0037	Installation Drawing - Teflon® faced flange
SCL2E0038	Installation Drawing - w/Teflon® faced flange and cable
SCL2E0039	Installation Drawing - w/bare probe w/sanitary style process connection
SCL2E0040	Installation Drawing - w/Teflon® probe w/sanitary style process connection
SCL2E0042	Installation Drawing - Explosion-proof w/Teflon® jacketed probe assembly
SCL2E0049	Outline Drawing Lagged Probe
SCL2E0050	Installation - Remote Electronics



SCL2E0008 Installation Drawing - w/T316 bare probe

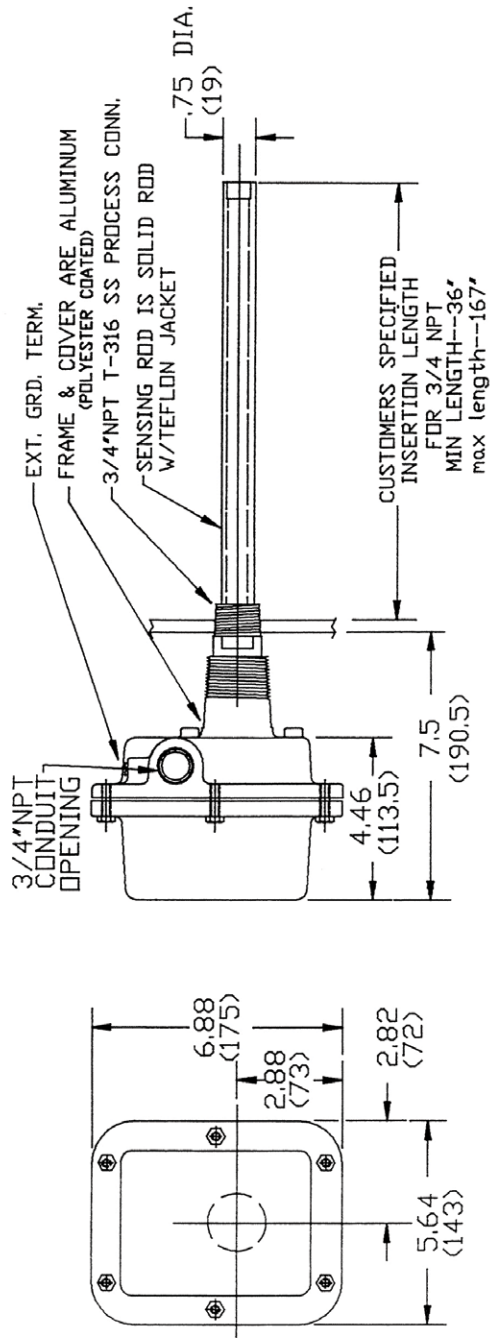
DATA BLOCK  
 PROBE LENGTH: AS REQUIRED  
 MOUNTING: 3/4" NPT STANDARD,  
 PROBE MATERIALS: 316 SS SENSING PROBE,  
 WITH TEFLON INSULATOR



REF "A" TYPE PROBE

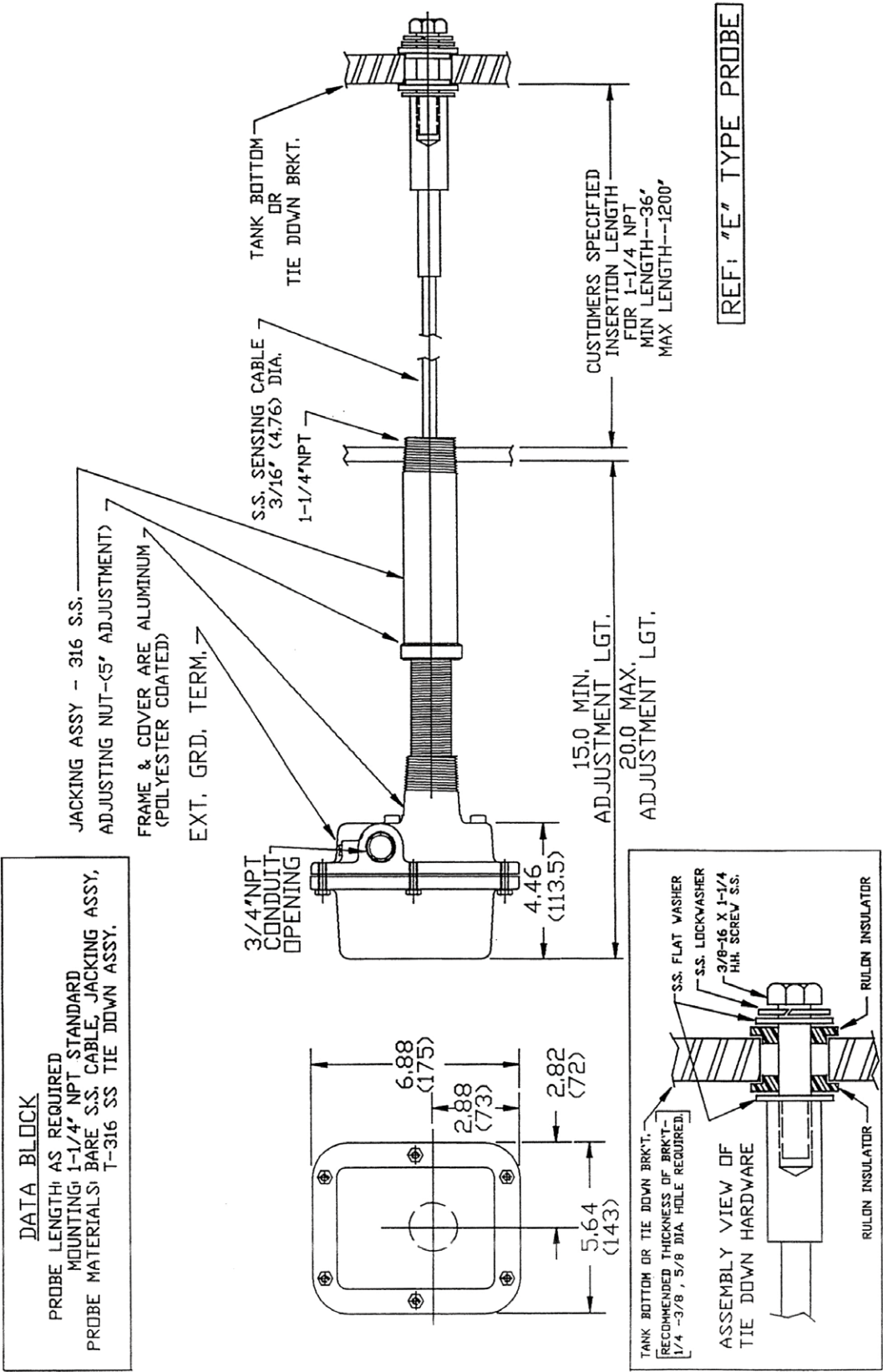
SCL2E0009 Installation Drawing - w/Teflon® jacketed probe

DATA BLOCK  
 PROBE LENGTH AS REQUIRED  
 MOUNTING: 3/4" NPT STANDARD,  
 PROBE MATERIALS: S.S. SENSING PROBE,  
 WITH TEFLON JACKET



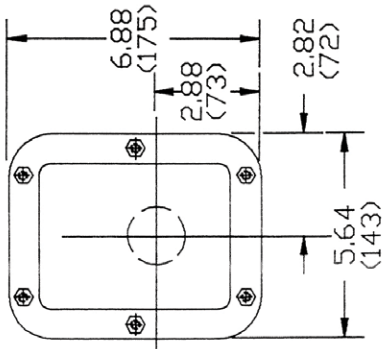
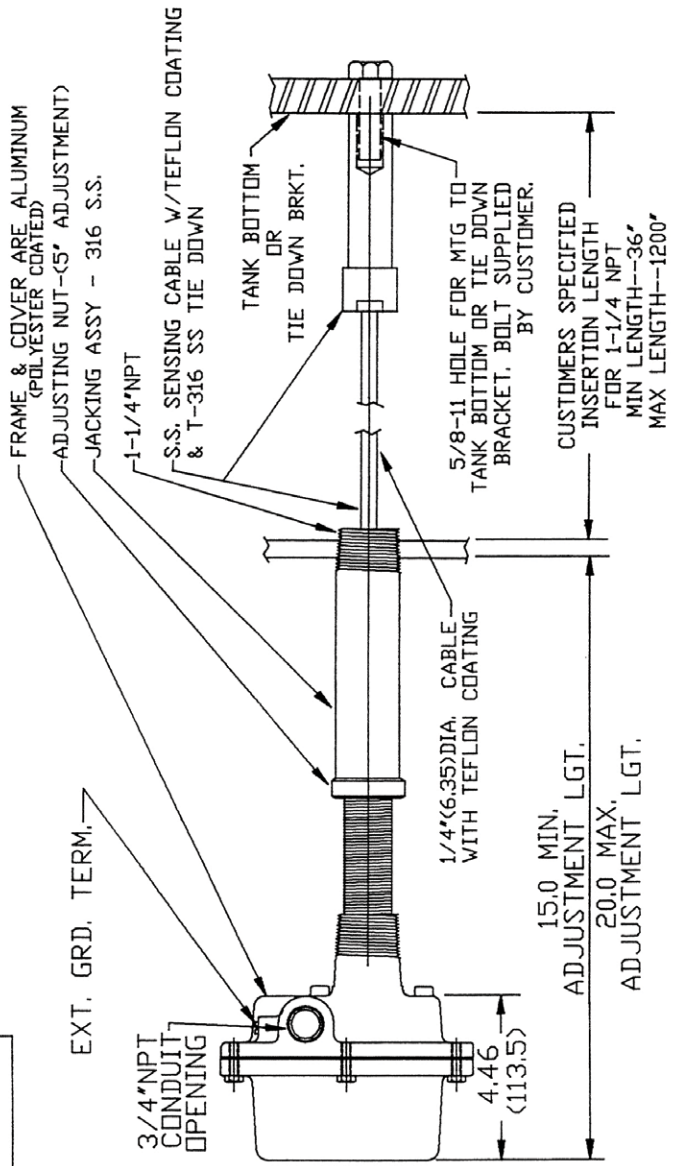
REF: "B" TYPE PROBE

SCL2E0012 Installation Drawing - w/SS cable and tie-down assembly



SCL2E0014 Installation Drawing - w/Teflon<sup>®</sup> jacketed cable and tie-down assembly

**DATA BLOCK**  
 PROBE LENGTH AS REQUIRED  
 MOUNTING: 1-1/4" NPT STANDARD  
 PROBE MATERIALS: SS CABLE W/TEFLON COATING,  
 T-316 SS TIE DOWN & JACKING-  
 ASSEMBLY.

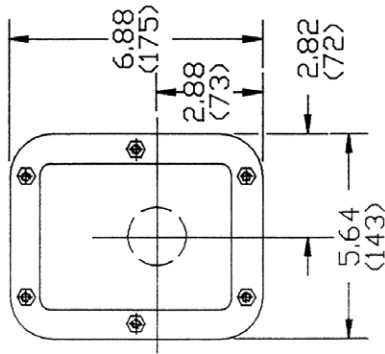
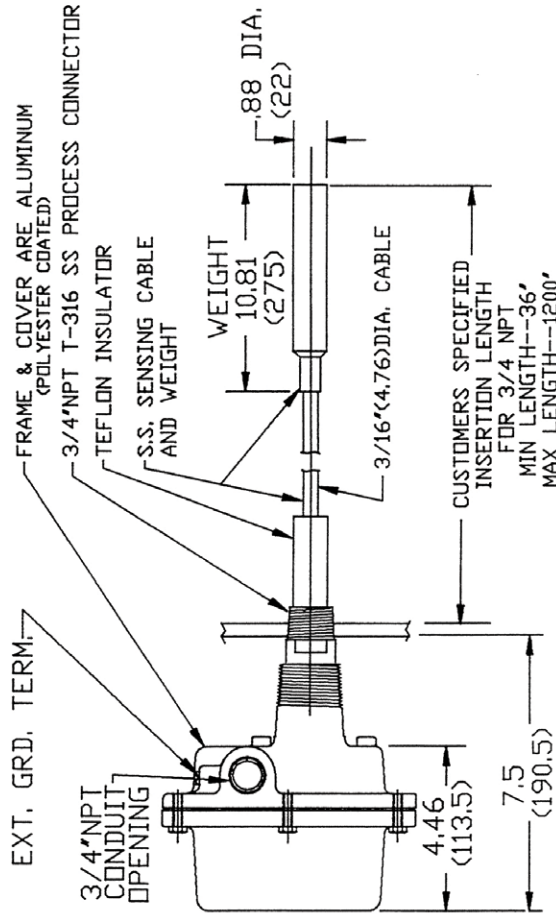


NOTE: BRACKETED DIM'S ARE IN MILLIMETERS.

REF: "H" TYPE PROBE

SCL2E0015 Installation Drawing - w/Cable and weight

DATA BLOCK  
 PROBE LENGTH: AS REQUIRED  
 MOUNTING: 3/4" NPT STANDARD,  
 PROBE MATERIALS: BARE S.S. CABLE  
 WITH TEFLON INSULATOR

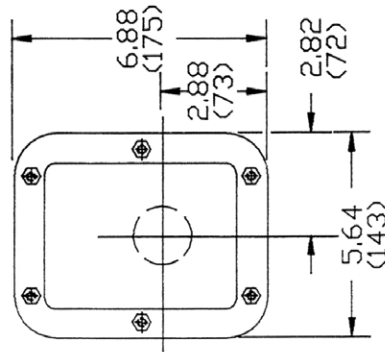
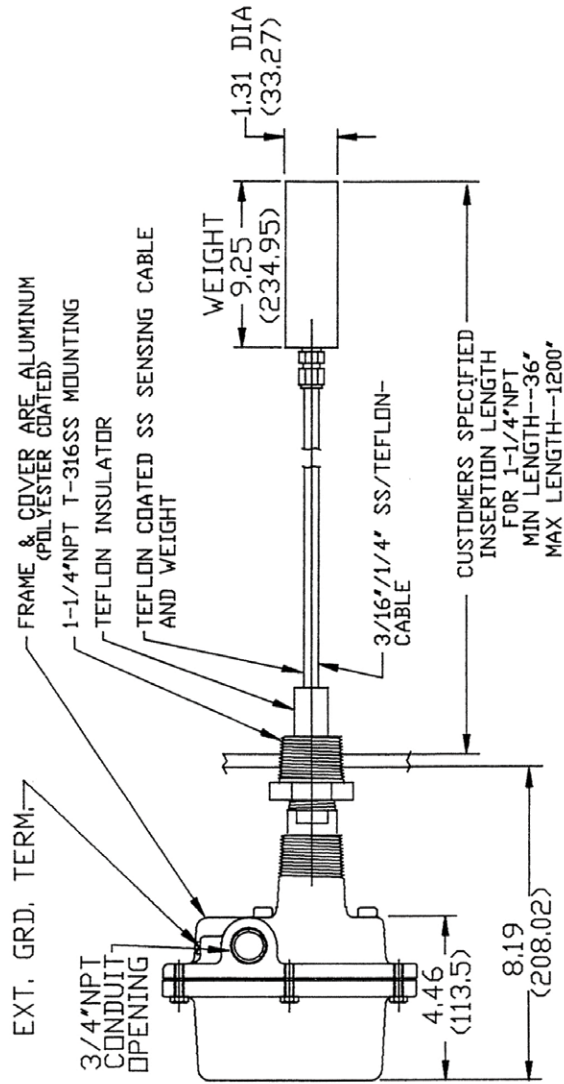


NOTE: BRACKETED DIM'S ARE IN MILLIMETERS.

REF: "D" TYPE PROBE

SCL2E0035 Installation Drawing - Teflon coated cable and weight

**DATA BLOCK**  
 PROBE LENGTH: AS REQUIRED  
 MOUNTING: 1-1/4"NPT  
 PROBE MATERIALS: TEFLON COATED S.S. CABLE,  
 TEFLON INSULATOR, &  
 TEFLON COATED S.S. WEIGHT

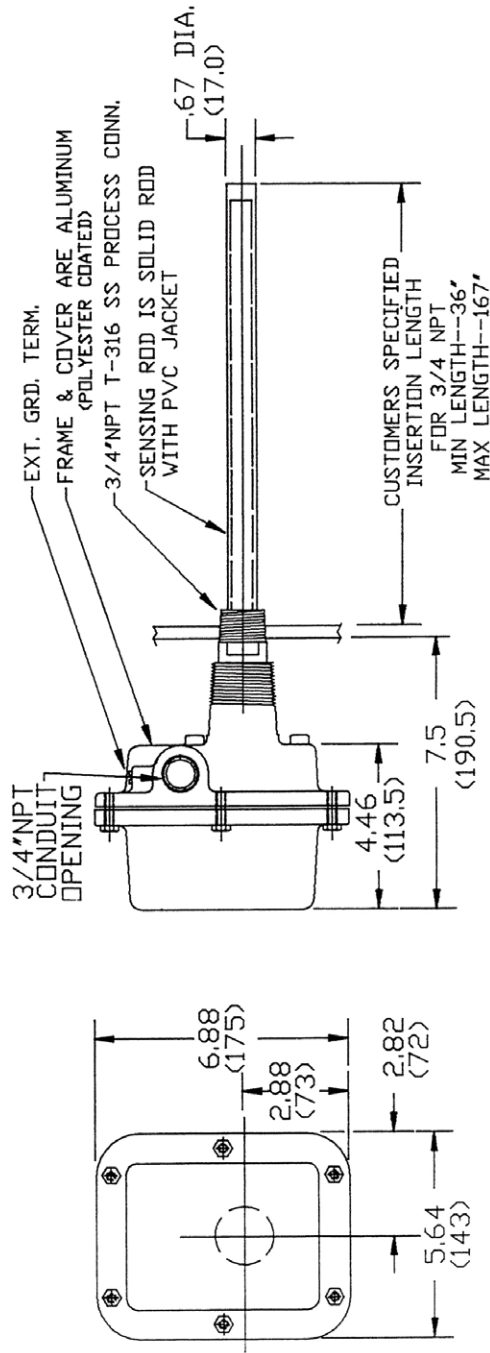


NOTE: BRACKETED DIM'S ARE IN MILLIMETERS.

REF: "I" TYPE PROBE

SCL2E0036 Installation Drawing - w/PVC jacketed probe

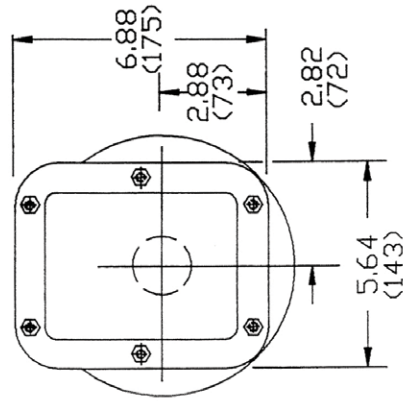
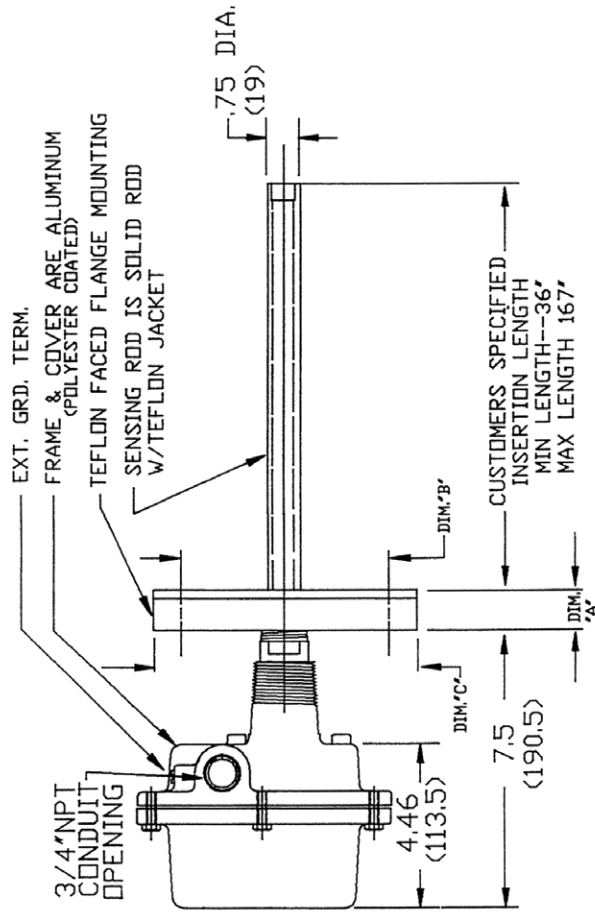
DATA BLOCK  
 PROBE LENGTH: AS REQUIRED  
 MOUNTING: 3/4" NPT STANDARD,  
 PROBE MATERIALS: S.S. SENSING PROBE,  
 WITH PVC JACKET



REF: "M" TYPE PROBE

SCL2E0037 Installation Drawing - Teflon<sup>®</sup> faced flange

**DATA BLOCK**  
 PROBE LENGTH: AS REQUIRED  
 MOUNTING: TEFLON FACED FLANGE  
 PROBE MATERIALS: S.S. SENSING PROBE,  
 WITH TEFLON JACKET



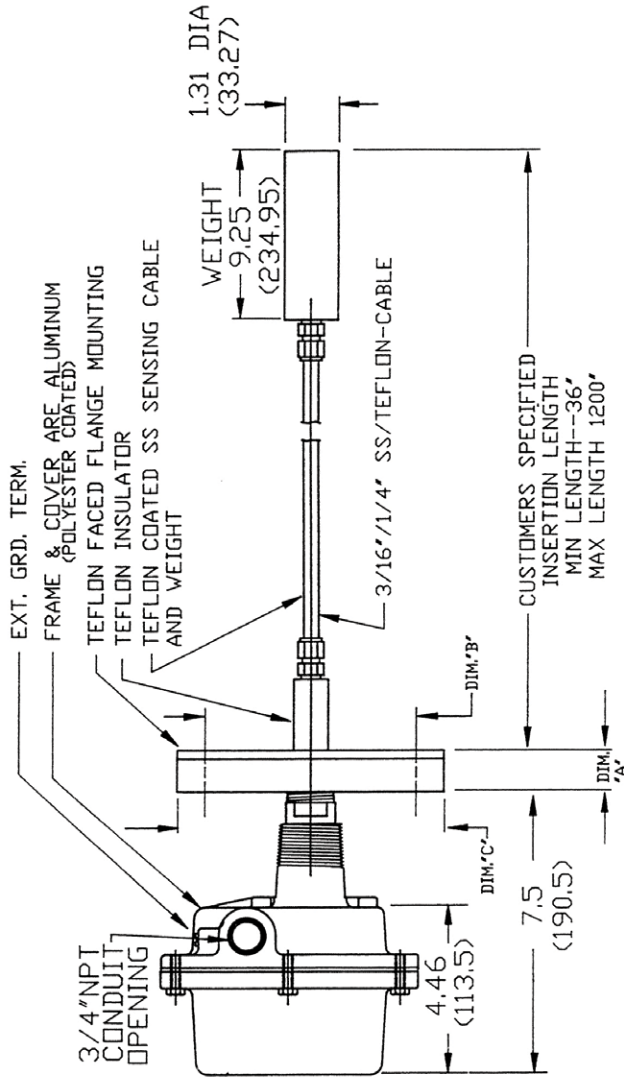
REF. "B" TYPE PROBE  
 (WITH TEFLON FACED FLANGE MTG.)

FLANGE SIZE	THICKNESS		BOLT CIRCLE DIAMETER		BOLTS	
	DIM. A'	DIM. B'	DIM. C'	DIM. D'	NO.	SIZE
1-1/2"-150#	.88 (22.35)	3.88 (98.55)	5 (127.0)	4	4	1/2"
2"-150#	.94 (23.87)	4.75 (120.7)	6 (152.4)	4	4	5/8"
3"-150#	1.12 (28.45)	6.0 (152.4)	7.0 (177.8)	4	4	5/8"
4"-150#	1.12 (28.45)	7.5 (190.5)	9.0 (228.6)	8	8	5/8"

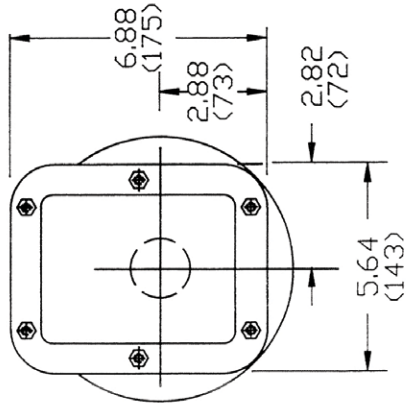


SCL2E0038 Installation Drawing - w/Teflon<sup>®</sup> faced flange and cable

**DATA BLOCK**  
 PROBE LENGTH: AS REQUIRED  
 MOUNTING: TEFLON FACED FLANGE  
 PROBE MATERIALS: TEFLON COATED S.S. CABLE,  
 TEFLON INSULATOR &  
 TEFLON COATED S.S. WEIGHT.

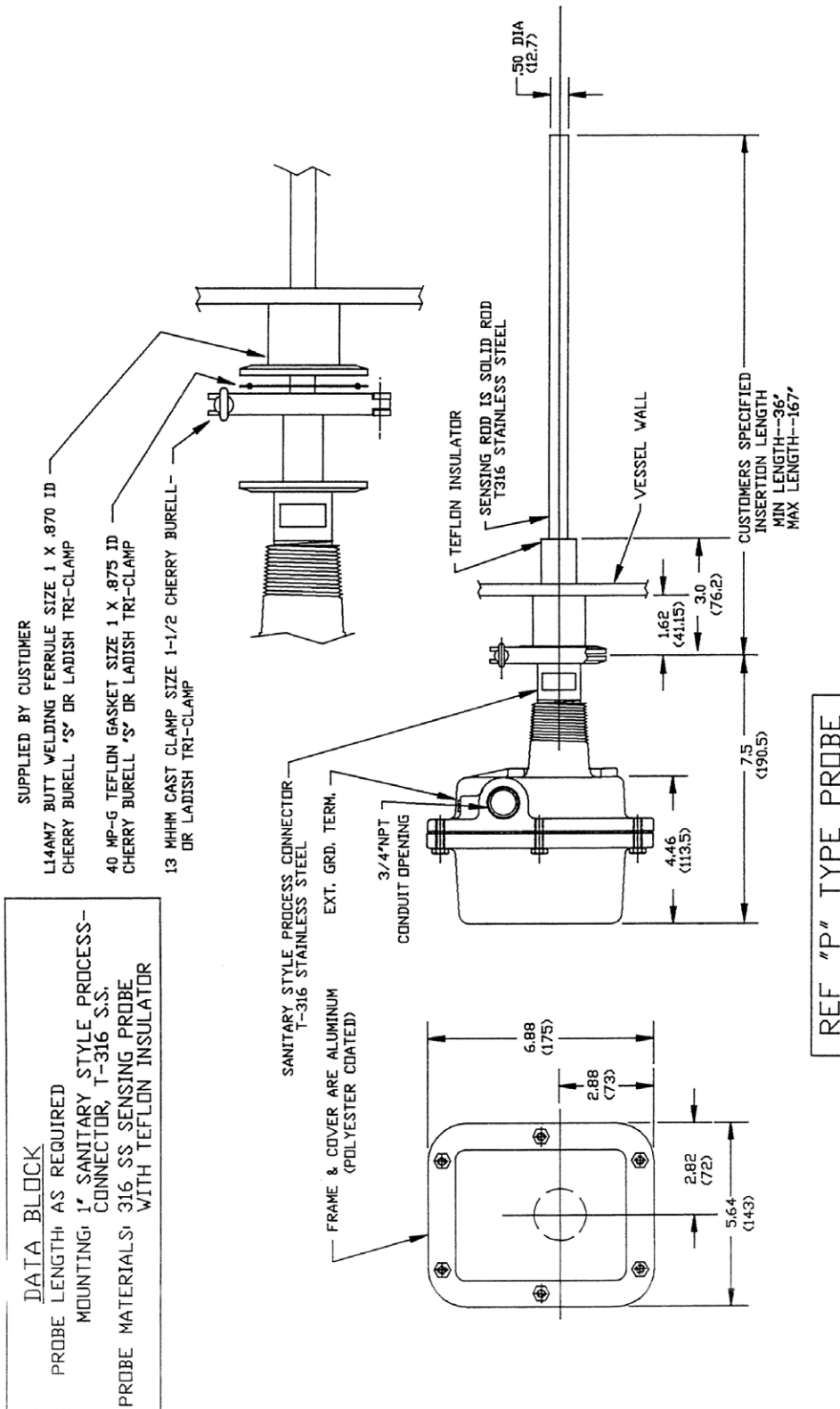


REF: "I" TYPE PROBE  
 (WITH TEFLON FACED FLANGE MTG.)

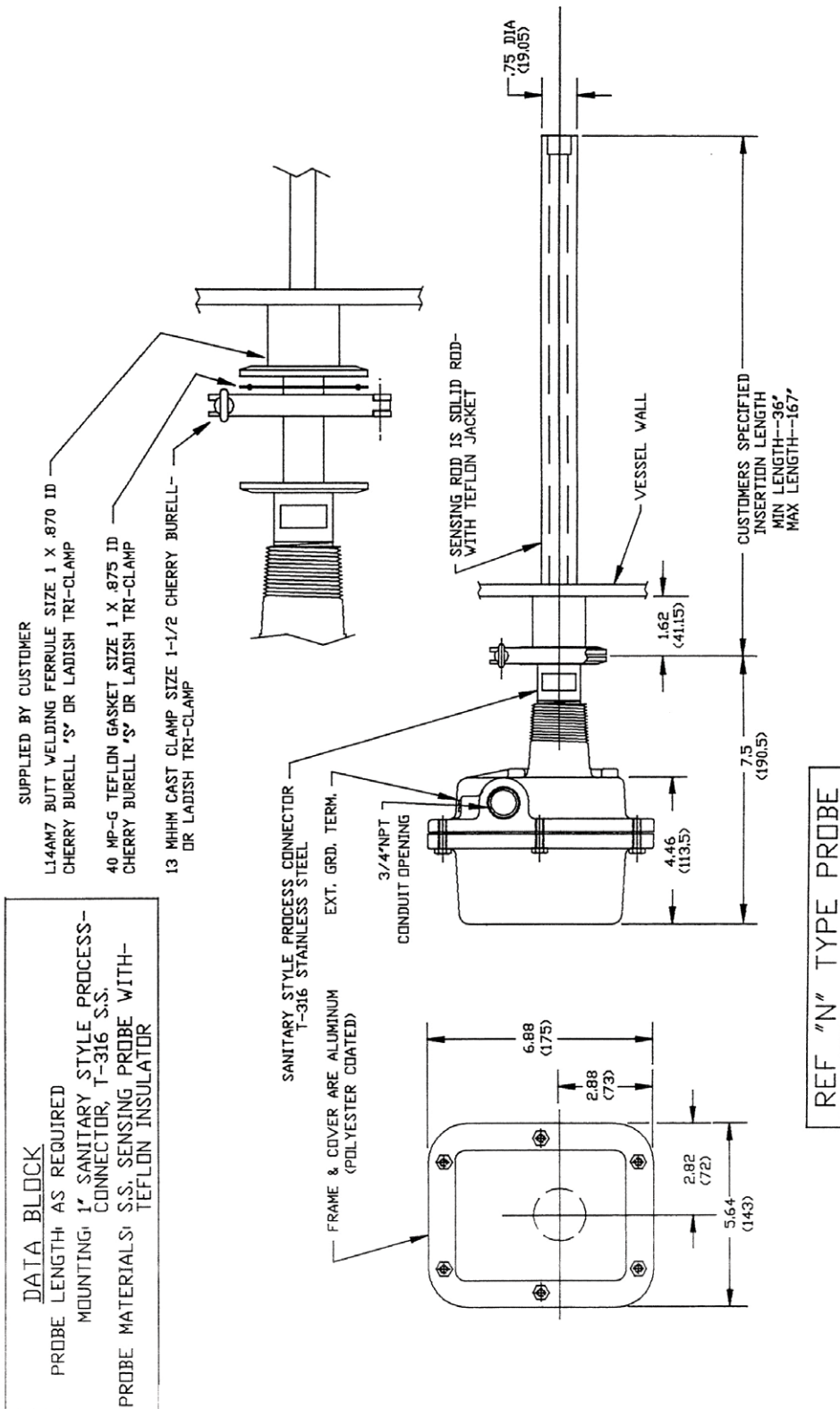


FLANGE SIZE	THICKNESS	SS	BOLT	DIAMETER	BOLTS
DIM.'A'	DIM.'B'	DIM.'C'	NO.	SIZE	
1-1/2'-150#	.88 (22.35)	3.88 (98.55)	5 (127.0)	4	1/2"
2'-150#	.94 (23.87)	4.75 (120.7)	6 (152.4)	4	5/8"
3'-150#	1.12 (28.45)	6.0 (152.4)	7.0 (177.8)	4	5/8"
4'-150#	1.12 (28.45)	7.5 (190.5)	9.0 (228.6)	8	5/8"

SCL2E0039 Installation Drawing - w/bare probe w/sanitary style process connection

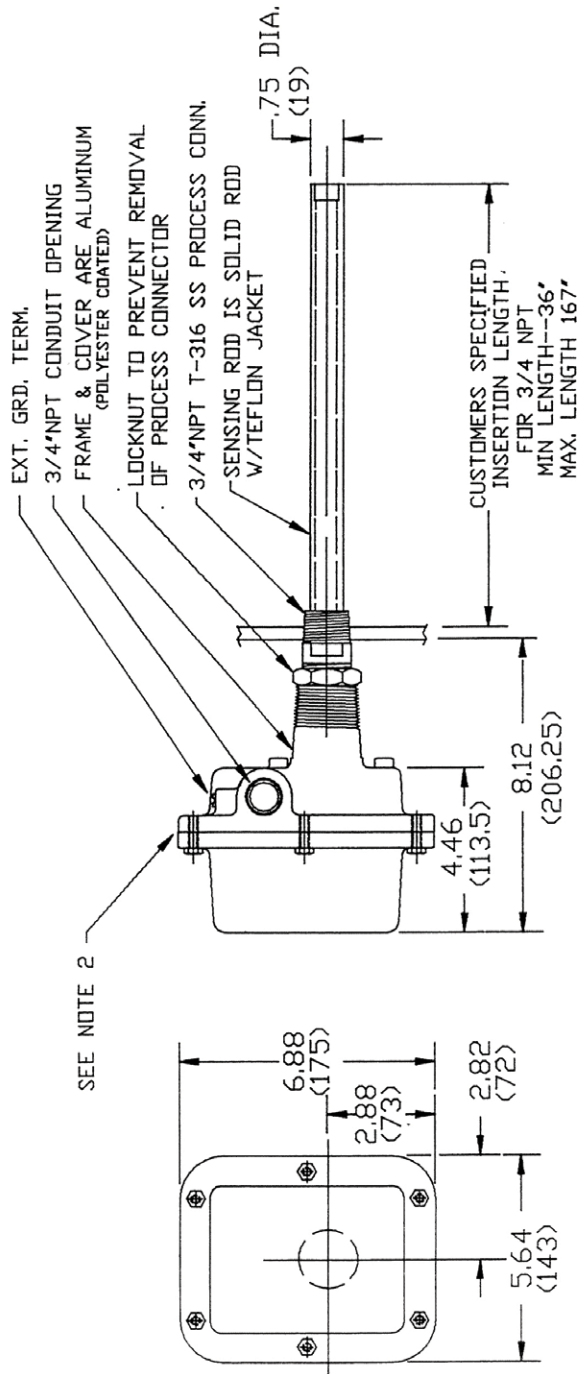


SCL2E0040 Installation Drawing - w/Teflon® probe w/sanitary style process connection



SCL2E0042 Installation Drawing - Explosion-proof w/ Teflon® jacketed probe assembly

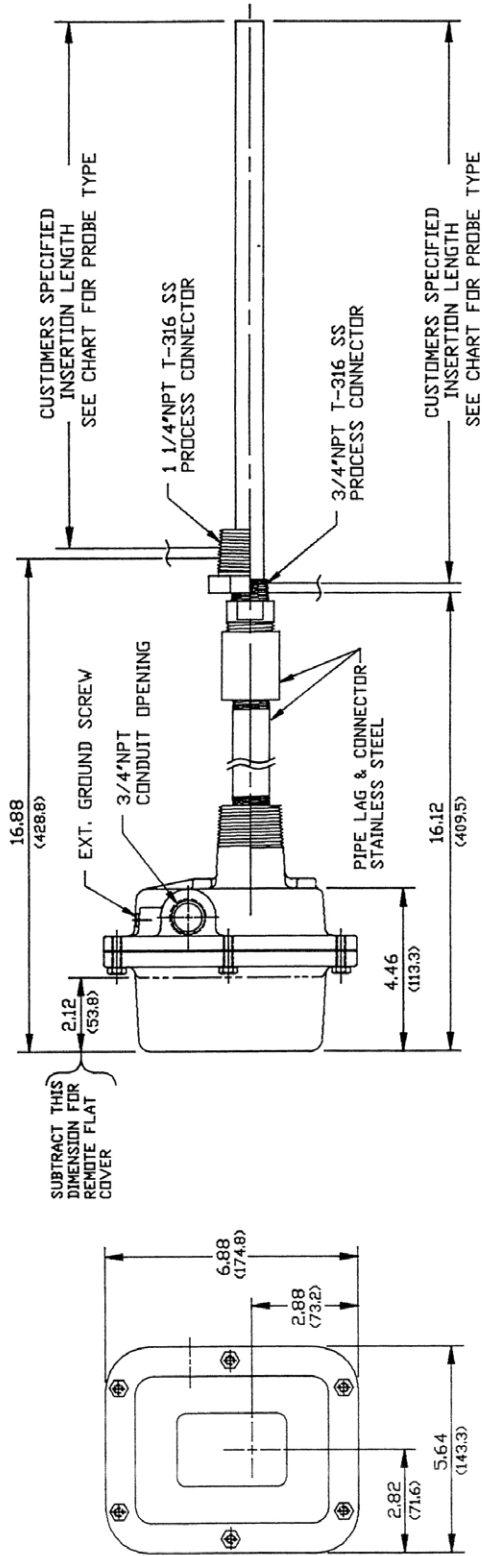
DATA BLOCK  
 PROBE LENGTH- AS REQUIRED  
 MOUNTING: 3/4"NPT  
 PROBE MATERIALS: S.S. SENSING PROBE,  
 WITH TEFLON JACKET



NOTE:  
 1-INSTALL PER N.E.C. OR LOCAL AUTHORITY.  
 C.S.A. APPROVAL FOR CLASS 1, DIV. 1,  
 GROUPS C & D.  
 2-INSTALL ALL COVER SCREWS AND TIGHTEN.  
 (MAX. FLANGE GAP .0039 (0.1MM) )

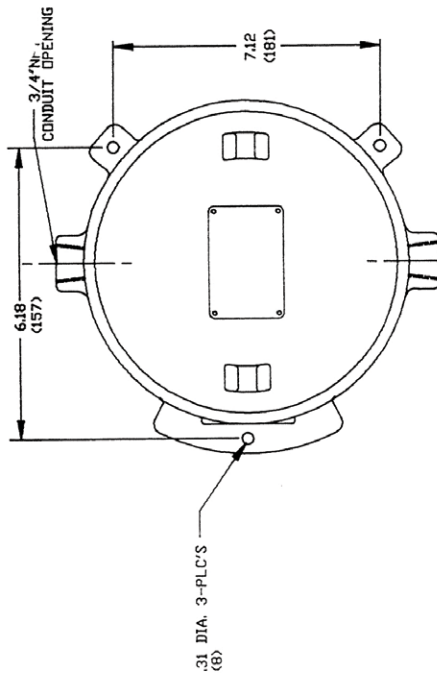
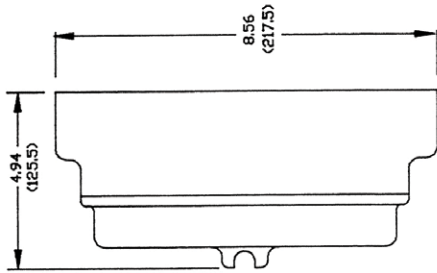
SCL2E0049 Outline Drawing Lagged Probe

**DATA BLOCK**  
 PROBE LENGTH: AS REQUIRED  
 MOUNTING: 3/4" NPT STANDARD,  
 1 1/4" NPT - 'I' TYPE PROBE  
 PROBE MATERIALS: SEE PROBE CHART BELOW  
 ELECT. ENCLOSURE: ALUMINUM, (POLYESTER COATED)



PROBE CHART			
PROBE TYPE	DESCRIPTION	MOUNTING	SEE DRAWING FOR PROBE DETAIL
'A'	316 S.S. SOLID PROBE	3/4" NPT	SCL2E0008
'B'	TEFLON JACKETED SOLID PROBE	3/4" NPT	SCL2E0009
'D'	S.S. CABLE, S.S. WEIGHT	3/4" NPT	SCL2E0015
'I'	TEFLON COATED CABLE, TEFLON JACKETED WEIGHT	1 1/4" NPT	SCL2E0035
'M'	PVC JACKETED SOLID PROBE	3/4" NPT	SCL2E0036

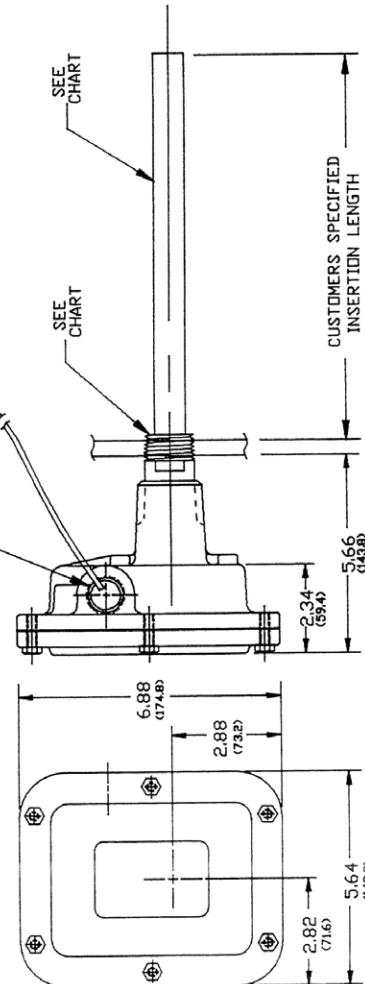
SCL2E0050 Installation - Remote Electronics



COAX CABLE  
20 FT. MAX. AS  
CALLED OUT IN ORDER  
(... FT.)

PROBE CHART

PROBE TYPE	DESCRIPTION	MOUNTING	SEE DRAWING FOR PROBE DETAIL
"A"	316 S.S. SOLID PROBE	3/4"NPT	SCL2E0008
"B"	TEFLON JACKETED SOLID PROBE	3/4"NPT	SCL2E0009
"D"	S.S. CABLE, S.S. WEIGHT	3/4"NPT	SCL2E0015
"I"	TEFLON COATED CABLE, TEFLON JACKETED WEIGHT	1-1/4"NPT	SCL2E0035
"M"	PVC JACKETED SOLID PROBE	3/4"NPT	SCL2E0036



## Notes



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**venture**  
MEASUREMENT

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SCL280004 Rev F