

R.F. PROBE

TYPE P21 HIGH GAIN, TUBULAR GROUND FOR LOW DIELECTRIC LIQUIDS

ADVANTAGES

- High inherent gain sensitivity
- Allows full scale calibration over a very small level change
- Insensitive to surface turbulence
- Output signal is linear to liquid depth
- Calibration can be done outside the vessel
- Only a small 1" NPT process connection required
- Use for sensing light hydrocarbons and materials with low dielectric constants
- Linear output in irregular tanks
- Built in ground reference for plastic & lined tanks

APPLICATION

This probe is equipped with a wrap around concentric ground sheath. It has high inherent gain sensitivity and is useful on materials having low dielectric constant, such as benzene and other light hydrocarbons.

The linear ground sheath also allows it to be used with transmitters in horizontal cylindrical tanks and other containers having non-linear sidewalls. It also allows the electronic module (transmitter or switch) to be calibrated outside the vessel. This is done by turning the probe upside down, filling the tubular sheath with process liquid to the desired coverage depth, and adjusting the electronics unit at each liquid depth appropriate to the model configuration.

SPECIFICATIONS

Process Working pressure @ 100 °F (38°C): 1500 PSIG (100 BAR).

Process Temperature: -460 to +450°F (-273 to +230°C).

Materials: 316 SS and PTFE are basic; other metals are optional.

Process connections: 1" MPT is minimum; any larger threaded or flanged connection is optional

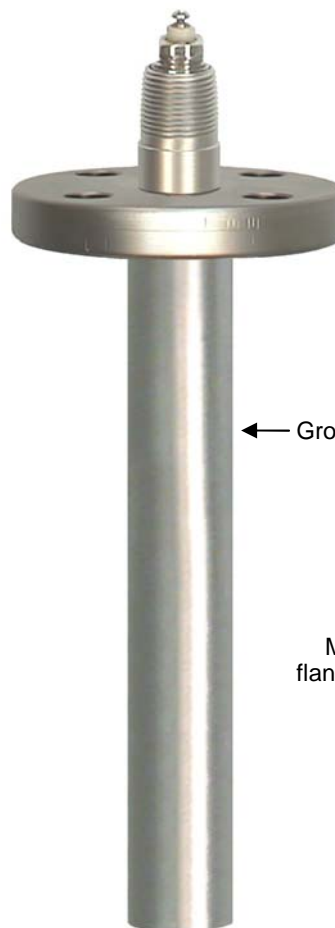
Ground sheath: metal tube, welded to the gland body. Sensing probe centering guides are provided.

Electronic module: works with all models

Maximum insertion: 20 feet (6 meters)

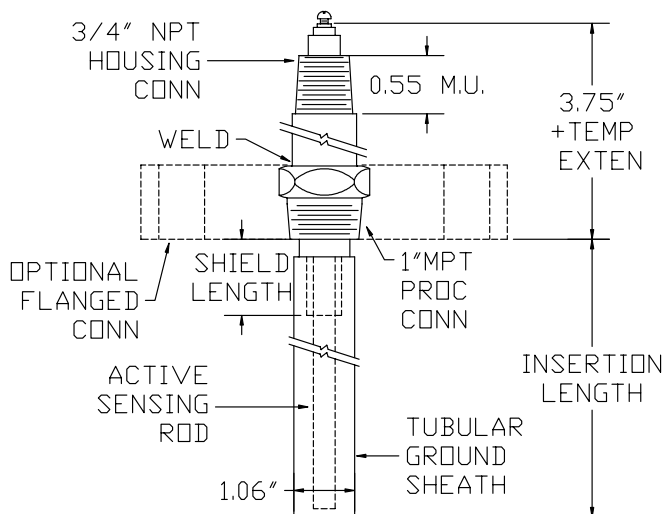
Bottom support bracket: may be required when insertion is over 60 inches and the liquid is agitated or turbulent.

Double Block and Vent Seals: optional for toxic and hazardous services



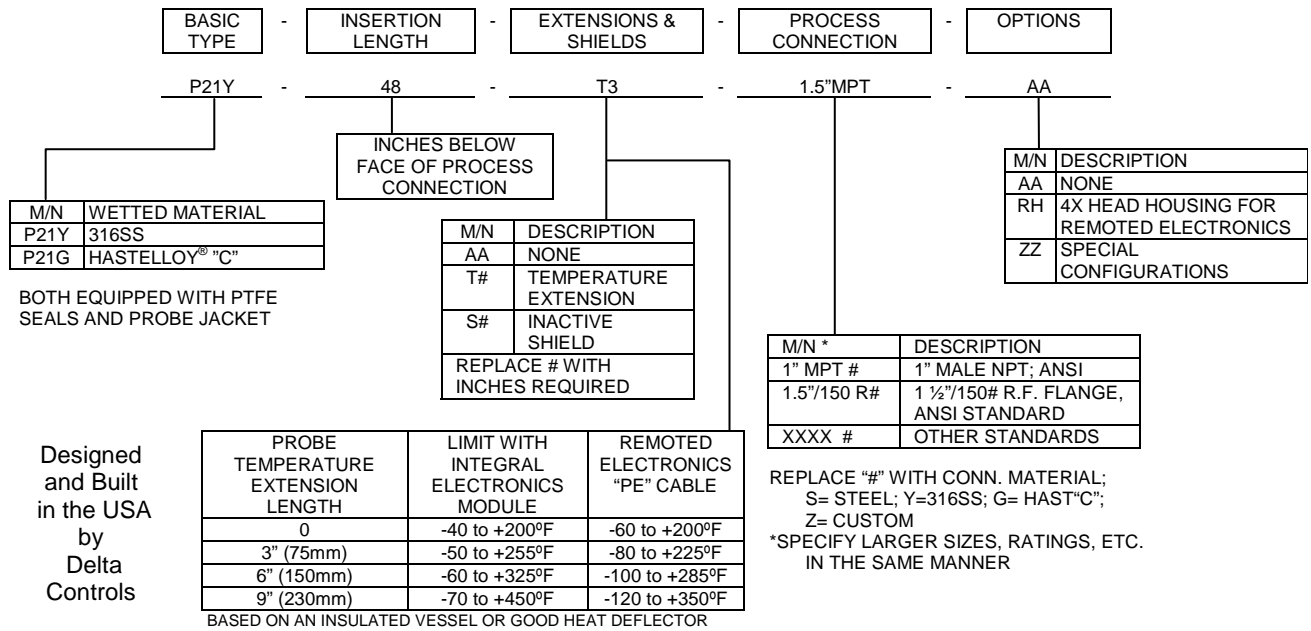
← Ground Reference Sheath

Model P21 Probe with
flanged process connection



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MODEL NUMBERING SYSTEM



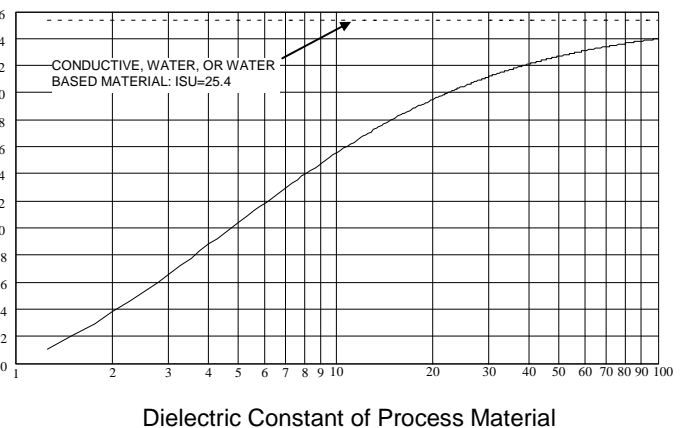
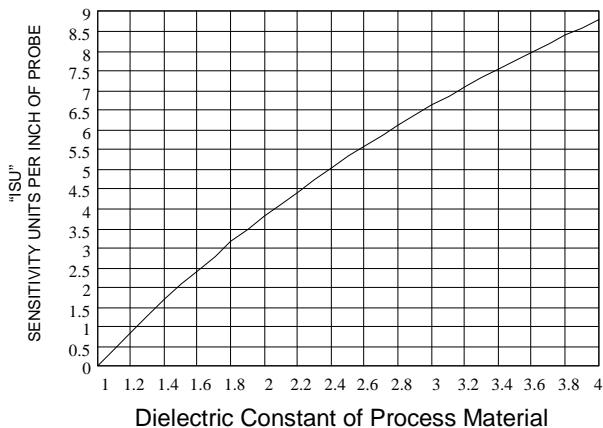
Designed and Built in the USA by Delta Controls

ESTIMATING PROBE PERFORMANCE

STEP # 1 Determine "BSU", which is the total Sensing Unit equivalent when no material is covering the sensing probe.

- | | |
|---|----------------|
| (A) BASIC "SU" DUE TO SEAL/BODY | = 137.0 |
| (B) INCHES SENSING PROBE INSERTION X 5.5 | = _____ |
| (C) INCHES INACTIVE SHIELD X 31 | = _____ |
| (D) INCHES TEMPERATURE EXTENSION X 31 | = _____ |
| (E) INCHES CABLE FOR REMOTED MODULE X 4.5 | = _____ |
| "BSU" TOTAL | = _____ |

STEP # 2 Determine "ISU", which is the quantity of Sensing Unit change caused by a 1 inch change in the elevation of the process material covering the sensing probe, "ISU" = Read from the graph below



STEP # 3 INSERT "BSU" AND "ISU" (DETERMINED ABOVE) INTO THE FORMULAS SHOWN IN APPLICATION NOTE # PROB-198; "FORMULAS FOR MODELING AND PERFORMANCE TESTING". VERIFY THAT THE SELECTED PROBE AND ELECTRONICS MODULE WILL MEET THE REQUIREMENTS OF THE APPLICATION AND PROVIDE THE EXPECTED RESULTS.



DELTA CONTROLS

CORPORATION

Engineered Sensors - For Difficult Services

585 Fortson Street
Shreveport, La. 71107 - USA
Ph: +1(318) 424-8471
Fax: +1(318) 425-2421
E-mail: sales@deltacnt.com
Web: www.deltacnt.com