Cased (Protection Tube) Style Multipoint

The Cased multipoint design utilizes an external protection tube that protects the sensors from the process. They are used to measure temperatures at various intervals along a single plain. They give indication of longitudinal and/or cross sectional temperature measurement.

If the protection tube already exists as part of the vessel, the multipoint can be coiled and installed once on site.

Options:
- Pointed tip machined from bar stock
- Variety of alloy steels to suit process conditions
- Cooling fins to dissipate convected and conducted heat from terminations
- Secondary Pressure Containment in the event of a primary pressure boundary failure
- Individual sensor replacement during production with heat transfer block design (Spring loaded designs involve complete multipoint sensor removal from tube)
- Sleeve design allowing for multipoint tube movement without deformation of tube

Advantages:
- Protection of the MI-cable from the process
- More rigid construction especially if there is turbulence in the vessel
- Depending on the design the individual thermocouples can be removed and replaced if a failure occurs
Cased Sensor Styles

**Bimetallic or high temperature steel spring loading.**

This design consists of the spring loaded device attached to each individual sensor and making a positive contact to the protection tube. The bimetallic design is inserted into the protection tube in the relaxed position and contact with the inside wall of the protection tube is achieved when heat is applied to the process. This style will function at temperatures up to 538 degrees C. The high temperature steel spring design has a maximum temperature rating of 650 degrees C.

**Heat transfer block.**

This design allows for individual removal and replacement of the sensors during operation if required. It has the advantage of a primary and secondary pressure boundary within the process. The heat transfer block is welded to the wall of the protection tube and to an inner guide tube. The sensor is located inside the inner guide tube and rests against the heat transfer block.

**Bimetallic or high temperature steel spring loading with support strap**

The support strap is fitted inside the total length of the protection tube and has the sensors fastened to it. The spring loading is from the strap to the inside wall of the protection tube. All spring loading allows for a positive contact to the protection tube. This increases accuracy and response time to temperature changes.
### Customer Detail:
- **Company Name:**
- **Contact:**
- **Phone:**
- **Fax:**
- **Email:**
- **Address:**

### Type of Vessel:

### Name and Model of Vessel:

### Vessel Dimensions:
- **Diameter:**
- **Height:**

### Vessel Material:

### Vessel Condition:
- **Used (In service):**
- **New:**

### Temperatures:
- **Ambient:**
- **Process:**

### Pressure:
- **Process:**

### Process Connection:
- **Type:**
- **Size:**
- **Rating:**
- **Schedule (Nozzle):**
- **ID of Nozzle:**
- **Material:**

### Type of Sensor:
- **Type K Thermocouple:**
- **Single (K):**
- **Dual (KK):**
- **Type J Thermocouple:**
- **Single (J):**
- **Dual (JJ):**
- **Type E Thermocouple:**
- **Single (E):**
- **Dual (EE):**
- **Type N Thermocouple:**
- **Single (N):**
- **Dual (NN):**
- **Junction:**
- **Grounded:**
- **Ungrounded:**
- **RTD (Consult Factory):**
- **Other (Specify in notes):**

### Number of Points:
- **See next page for point details**

### Sensor Style:
- **Spring Loaded:**
- **Spring Loaded with Strap:**
- **Heat Transfer Block:**

### MI Cable Material:

### MI Cable Diameter:

### Protection Tube:
- **Existing:**
- **New:**

### Protection Tube Diameter:
- **OD:**
- **ID:**

### Protection Tube Material:

### Removable Sensors:
- **Individually:**
- **Complete:**
- **Yes:**
- **No:**

### Secondary Containment:
- **Yes:**
- **No:**

### Visual Indication:
- **Yes:**
- **No:**

### Additional Notes:
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*Consult factory if additional points are required.*
Junction Box

- Stainless Steel - Weather Proof / Corrosion resistant
- Direct or remote mount
- Cable entry connection to suit customer requirements
- Available as Explosion Proof (EEx-d) or General Purpose (NEMA/IP Rating)
- Easy access to terminals or transmitters
- Terminal strips or DIN rail mounting options available