INSPECTION
Inspect the sensor upon receipt of shipment to be certain it is as ordered and not damaged. If damaged, contact carrier.

INSTALLATION
General – The sensing ports of the flow sensor must be correctly positioned for measurement accuracy. The instrument connections on the sensor indicate correct positioning. The side connection is for total or high pressure and should be pointed upstream. The top connection is for static or low pressure.

Location – The sensor should be installed in the flowing line with as much straight run of pipe upstream as possible. This will provide a flow profile as ideal as possible. A rule of thumb is to allow 10-15 pipe diameters upstream and 5 down. The table below lists recommended up and down piping.

PRESSURE AND TEMPERATURE
Maximum 200 psig at 200°F.

<table>
<thead>
<tr>
<th>UPSTREAM CONDITION</th>
<th>MINIMUM DIAMETER OF STRAIGHT PIPE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UPSTREAM</td>
</tr>
<tr>
<td></td>
<td>IN-PLANE</td>
</tr>
<tr>
<td>ONE ELBOW OR TEE</td>
<td>7</td>
</tr>
<tr>
<td>TWO 90° BENDS IN SAME PLANE</td>
<td>8</td>
</tr>
<tr>
<td>TWO 90° BENDS IN DIFFERENT PLANE</td>
<td>18</td>
</tr>
<tr>
<td>REDUCERS OR EXPANDERS</td>
<td>8</td>
</tr>
<tr>
<td>ALL VALVES *SEE NOTE 2</td>
<td>24</td>
</tr>
</tbody>
</table>

*Note #1: Values shown are recommended spacing, in terms of internal diameter for normal industrial metering requirements. For laboratory or high accuracy work, add 25% to values.

*Note #2: Includes gate, globe, plug and other throttling valves that are only partially opened. If valve is to be fully open, use values for pipe size change. CONTROL VALVES SHOULD BE LOCATED AFTER THE FLOW SENSOR.
**POSITION**

Be certain there is sufficient clearance between the mounting position and other pipes, walls, structures, etc. so that the sensor can be inserted through the mounting unit once the mounting unit has been installed onto the pipe.

Flow Sensors should be positioned to keep air out of the instrument connecting lines on liquid flows and condensate out of the lines on gas flows. The easiest way to assure this is to install the sensor into the pipe so that air will bleed into, or condensate will drain back to, the pipe.

**For air or gas flow:**

Install in upper quadrant of pipe

Condensate drains back to pipe

**For liquid or steam flow:**

Install in lower quadrant of pipe

Air bleeds back to pipe

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**INSTALLATION**

1. Weld the thread-o-let to the pipe wall.
2. Drill through the center of the thread-o-let into the pipe, with a drill that is slightly larger than the flow sensor diameter.
3. Install the packing gland using proper pipe sealant. If the packing gland is disassembled, note that the tapered end of the ferrule goes into the fitting body.
4. Insert the sensor until it bottoms against the opposite wall of the pipe then withdraw 1/16” to allow for thermal expansion.
5. Tighten packing gland nut finger tight. Then tighten the nut with a wrench an additional 1-1/4 turns. Be sure to hold the sensor body with a second wrench to prevent the sensor from turning.

**INSTRUMENT CONNECTION**

Connect the side connection to the high pressure connection of the Capsuhelic gage or transmitting instrument and the top connection to the low pressure side. See the connection schematics below.

Bleed air from instrument piping on liquid flows. Drain any condensate from the instrument piping on air and gas flows.

Open valves to instrument to place flow meter into service. For permanent installations, a 3-valve manifold is recommended to allow the gage to be zero checked without interrupting the flow. The Dwyer A-471 Portable Test Kit includes such a device.

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**Water Flow**

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**Air or Gas Flow**

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