This innovative, robust insertion turbine combines proven technology with modern materials and design. The PVDF turbine rotates freely on a 316 St St shaft and has specially aerofoil shaped blades to extend the dynamic range of the meter. The specially contoured housing further improves the meters linearity particularly at lower fluid velocities. Each meter contains two sensors, one self powered for our battery operated equipment and the other an open collector transistor.

A reed switch may be specified for hazardous areas where simple apparatus is acceptable. The body is manufactured from AISI316 stainless steel and as standard is supplied with 1.5M of five core screened instrument cable. The Metra-Count, Metra-Smart and Metra-Batch devices can all be mounted directly onto the meter (via a mounting stalk) and all of these can be self powered with the exception of Metra-Batch which requires an external power source.

**FEATURES**
- Economical
- For 40–900mm pipes
- 0.3 to 10M/S velocity
- Linearity 1.5% typical
- 316 St St body
- Dual sensing
- Low installation cost
- Pulse output
- 80 Bar rating
- Viton® seal
- 1½” fitting
- 1% repeatability
- IP68 (NEMA 6)
- 100°C standard
- IS option for hazardous areas
- Bi-directional flow measurement
- Simple apparatus option

**IDEAL FOR**
- HVAC
- Water distribution
- Boiler feed
- Irrigation

Insertion depth = pipe internal diameter divided by 8.
### TECHNICAL SPECIFICATIONS

**Meter ‘K’ factors for common pipe sizes**

<table>
<thead>
<tr>
<th>Pipe I/D (#40)mm</th>
<th>Schedule 40 Pipe (#40) pulses/litre</th>
<th>Schedule 80 Pipe (#80) pulses/litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½”</td>
<td>40.9</td>
<td>18.678</td>
</tr>
<tr>
<td></td>
<td>18.678</td>
<td>70.695</td>
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<tr>
<td>2”</td>
<td>52.6</td>
<td>11.238</td>
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<tr>
<td></td>
<td>42.534</td>
<td>12.818</td>
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<tr>
<td>2½”</td>
<td>62.7</td>
<td>7.880</td>
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<tr>
<td></td>
<td>29.824</td>
<td>8.899</td>
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<tr>
<td>3”</td>
<td>78.0</td>
<td>5.062</td>
</tr>
<tr>
<td></td>
<td>19.161</td>
<td>5.676</td>
</tr>
<tr>
<td>4”</td>
<td>102.0</td>
<td>2.912</td>
</tr>
<tr>
<td></td>
<td>11.021</td>
<td>3.233</td>
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<tr>
<td>Weight</td>
<td>1.30kg (model 400-003)</td>
<td></td>
</tr>
</tbody>
</table>

### Ordering codes – Standard meter

<table>
<thead>
<tr>
<th>Mounting type</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSPT mount</td>
<td>400-003</td>
</tr>
<tr>
<td>BSPT reed switch</td>
<td>400-003-R</td>
</tr>
<tr>
<td>NPT mount</td>
<td>400-004</td>
</tr>
<tr>
<td>Mounting stalk</td>
<td>400-005</td>
</tr>
</tbody>
</table>

For local instrument mounting

These insertion turbines provide a cost effective and simple means to measure the flow of a wide range of low viscosity liquids. Installation is quick and inexpensive in pipes from 40mm diameter up to 900mm diameter. For rate and total applications a self powered instrument can be mounted directly onto the meter for a stand-alone measurement.

Other instruments permit high and low flow alarms, 4–20mA loops or even batching functions, these all require external power. The meter requires at least ten pipe diameters of straight pipe upstream and five downstream to ensure a fully developed flow profile and accurate measurements. Large disturbances may require greater straight lengths.

### Standard specification

- **Pipe sizes**: 40 to 900mm
- **Velocity range**: 0.3 to 10M/sec
- **Fitting size**: 1½” BSPT or NPT
- **Linearity**: ± 1.5% typically
- **Repeatability**: ± 1.0% typically
- **Pressure**: 80Bar Maximum
- **Temperature**: -40°C to +100°C
- **Body material**: 316 Stainless steel
- **Rotor material**: PVDF
- **Rotor shaft**: 316 Stainless Steel
- **Spindle**: Tungsten carbide
- **‘O’ Ring seal**: Viton®
- **Outputs**: Open collector pulse
  - 1.5V X 10μS pulse
  - Reed switch (optional)
- **Frequency**: 230Hz @ 10M/sec
  - 77Hz with reed switch
- **Cable**: 1.5m X 5 core screened
- **Protection**: IP68
- **Options**: Mounted instruments
  - Reed switch sensor
  - Conduit entry