The Series TDMT Flow Meter is for use in industrial applications, and can be easily installed virtually non-intrusively into any pipe. This non-intrusive installation allows flow-sensing without obstruction of the pipe diameter. It is completely encapsulated in epoxy resin and is compact, rugged, shock and vibration resistant. It provides proven reliability and long-term stability, even under the harshest environmental conditions. The TDMT is made of stainless steel with a titanium option making it resistant to aggressive media. In addition to its small and compact size, the TDMT also comes with a choice of a 1˝ unit with 1˝ NPT union nut or a 1-1/4˝ unit with 1-1/4˝ union nut, as well as available extensions that can be used for pipes sized up to 10˝ in diameter. With an optional temperature output, this meter provides the user with a very broad range of usage. When trying to decide on the correct length, use the 1/7th law (the TDMT’s probe length needs to be 1/7th of the pipe diameter).

**PRINCIPLES OF OPERATION**

The TDMT operates according to a new calorimetric principle, allowing for a wide measuring range. This meter also provides a very short integration time, even at low flow rates, making it ideal for quick control loops. Its measurement accuracy at low flow rates is considerably better than all other competing measurement devices.

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**Example**

<table>
<thead>
<tr>
<th>Example</th>
<th>TDMT W S T</th>
<th>1</th>
<th>0</th>
<th>1</th>
<th>TDMT-WS-1001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series TDMT</td>
<td>Wetted Material</td>
<td>Range</td>
<td>Fitting</td>
<td>Extension</td>
<td>Output</td>
</tr>
<tr>
<td>Base Type</td>
<td></td>
<td>W</td>
<td>S</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>316 SS</td>
<td>0 to 6.56 ft/s (0 to 2 m/s)</td>
<td>1 unit with 1˝ NPT union nut (up to 4˝ inner pipe diameter)</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Titanium</td>
<td>0 to 13.12 ft/s (0 to 4 m/s)</td>
<td>1-1/4˝ unit with 1-1/4˝ NPT union nut (4˝ to 10˝ inner pipe diameter)</td>
<td>1 flow output</td>
</tr>
</tbody>
</table>

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**SPECIFICATIONS**

- **Service:** Water, oil, compatible liquids, paste, glue, sludge and grease.
- **Wetted Materials:** 316 SS, optional titanium.
- **Flow Range:**
  - Min: 0 to 0.66 ft/s (0 to 20 cm/s);
  - Max: See model chart.
- **Temperature Range:** (For optional output only) 32 to 212°F (0 to 100°C).
- **Accuracy:** <3% of full range.
- **Repeatability:** <1%.
- **Response Time:** 10 seconds.
- **Temperature Limits:**
  - Process: 14 to 176°F (-10 to 80°C);
  - Ambient: 14 to 140°F (-10 to 60°C).
- **Pressure Limits:** 435 psi (30 bar).
- **Power Requirements:** 24 VDC ±10%.
- **Resistive Load:** 0 to 600 Ω.
- **Current Consumption:** Approx. 100 to 200 mA (max. flow).
- **Electrical Connection:** 4 to 20 mA for flow, optional 4 to 20 mA for temperature.

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**UNPACKING**

Remove the TDMT from the shipping carton and inspect for damage. If damage is found, notify the carrier immediately.

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**INSTALLATION**

- Insure that the process fluid is compatible with the wetted materials.
- Do not exceed the maximum device ratings.
- Insure that the system is properly installed BEFORE removing this device or other objects from the system.
1.0 Items delivered
1.1 Thermal Dispersion Meter: TDMT
1.2 Union nut: 1-1/4" NPT / 1" NPT SS
1.3 O-ring: 1-1/4" NPT / 1" NPT
1.4 Miniature flathead screwdriver for adjustment

2.0 Installation Instructions
2.1 Installation depth: 1/7x inner pipe diameter with a minimum of 0.2" (5 mm).
2.2 Orientation to flow: See Figure 3.
2.3 Fitting position: Preferably in vertical pipes with ascending flow or in horizontal pipes with TDMT in horizontal position. For optimal flow, straight pipes should be 5 to 7x inner diameter of the pipe before, and 3 to 5x inner diameter of the pipe after the TDMT.
2.4 Mounting: Push O-ring over the sensing surface and housing to the flange. Insert TDMT into the fitting, which is welded onto the pipe and hold in place with the union nut. Ideal sealing is achieved by a fitting of a 0.16 to 0.2" (4 to 5 mm) wall.
2.5 Initial operation: Connect TDMT to 24V DC according to connection diagram Figure 4, and wait approximate 2 minutes before starting adjustment. The TDMT has been preset under test pipe conditions to a flow range specified to each model (see model chart). A customer's plant signal may vary depending on individual mounting and medium conditions. Output current is 4 to 20 mA. If re-adjustment is required, please refer to point 3.

3.0 Adjustment Procedure
3.1 Zero point adjustment in stationary medium: Adjust zero point potentiometer after 2 minutes, so that Ia ≈ 4 mA, i.e: at la > 4 mA turn potentiometer to the left, at la < 4 mA turn potentiometer to the right.
3.2 Measuring range adjustment at maximum flow: Measuring range is adjustable from 0 to 0.66 ft/s (0 to 20 cm/s) to calibrated range according to the model (see model chart). Accelerate flow of the medium to a point, where the TDMT should give an output signal of 20 mA and wait a minimum of 2 minutes. Turn range potentiometer until Ia = 20 mA (to the left Ia will be greater, to the right Ia will be smaller). The color of the LED will change from green (Ia ≤ 20 mA) to red (exceeding measuring range).
3.3 Fine adjustment of zero point: After at least 3 minutes of flow standstill, turn zero point slightly, so that Ia is just 4 mA (turning direction as in 3.1).
3.4 Repeat adjustment according to 3.2 and 3.3 until the zero point (4 mA) or maximum range setting (20 mA) remains constant.

MAINTENANCE & REPAIR
Inspect and clean wetted parts with water or damp cloth at regular intervals. Disassembly or modifications made by the user will void the warranty and could impair the continued safety of the product. If repair is required obtain a Return Goods Authorization (RGA) number and send the unit, freight prepaid, to the address below. Please include a detailed description of the problem and conditions under which the problem was encountered.

Dwyer Instruments, Inc.
Attn: Repair Department
102 Indiana Hwy 212
Michigan City, IN 46360