Digital Vortex Flowmeter
digitalYEWFLO
Multivariable Type
The perfect solution for energy-efficient steam flow measurement!

The World’s First-ever Two-wire Multivariable Vortex Flowmeter with Built-in Temperature Sensor

digitalYEWFLO

Ideal for Steam Flow Measurement

✔ Computations based on steam tables and built-in temperature sensor directly output mass flow rates of saturated steam.

✔ Spectral signal processing (SSP) allows stabilized high accuracy over a broad range of changes in flow.

Enables saturated steam flow rates to be measured with higher precision—ideal for planning energy efficiency programs and progress checks.

The improved resistance to vibration and enhanced output stability at low flow rates assure close tracking of sudden and large fluctuations in flow and temperature, thus maintaining precise measurement at all times.

Temperature Monitoring and Mass Flow Measurement

Can measure flow rates and temperature simultaneously.

Volumetric flow rate or mass flow rate (pulse output)
→ Totalized flow rate management
Temperature (analog output)
→ Process temperature management

digitalYEWFLO can perform both liquid or gas temperature measurement and give a temperature-compensated flow rate output.

Computes the mass flow rate in real time based on the measured temperature.
 Displays the flow rate and temperature in two rows.
 Minimizes the instrumentation cost.

Temperature Sensor Built into Vortex Shedder

A Pt1000, Class A-equivalent sensor for process fluid temperature measurement is ruggedly built into the vortex shedder as a thermowell.

Displays the flow rate and temperature in two rows.

Minimizes the instrumentation cost.
SSP*, a leading-edge digital signal processing technology, allows the measurement conditions to be captured on target at all times to extract the optimum vortex signal.

By applying spectral analyses continuously to signals detected by piezoelectric sensors, the vortex signal and noise are distinguished and noise is eliminated automatically. SSP thus delivers:

- **Improved resistance to vibration**
- **Stable output at low flow rates**
- **Powerful self-diagnostics**

(* Spectral signal processing (SSP) is Yokogawa’s original spectral signal processing technology using leading-edge digital technologies.)

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>DY digital vortex flowmeter (Integral/Remote)</th>
<th>DY digital vortex flow converter (Remote)</th>
<th>Multivariable type (option code /MV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid to Be Measured</td>
<td>Liquid, gas, steam (avoid multiphase flow and sticky fluids)</td>
<td>Same as left</td>
<td>Same as left</td>
</tr>
<tr>
<td>Size (Nominal Diameter)</td>
<td>1/2 to 12 inches (15 to 300 mm)</td>
<td>1 to 8 inches (25 to 200 mm)</td>
<td>1 to 8 inches (25 to 200 mm)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Liquid: ±0.75% of reading</td>
<td>Mass flow rate: ±2.0% of reading</td>
<td>Mass flow rate: ±2.0% of reading</td>
</tr>
<tr>
<td></td>
<td>Gas or steam: ±1.0% of reading (at flow speed of less than 35 m/s)</td>
<td>Fluid temperature: Saturated steam or liquid: ±0.5°C</td>
<td>Fluid temperature: Saturated steam or liquid: ±0.5°C</td>
</tr>
<tr>
<td></td>
<td>±1.5% of reading (at flow speed from 35 to 80 m/s)</td>
<td>Superheated steam or gas: ±1°C</td>
<td>Superheated steam or gas: ±1°C</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.2% of reading</td>
<td>Same as left</td>
<td>Same as left</td>
</tr>
<tr>
<td>Output Signals</td>
<td>Dual outputs (analog and transistor contact output can be obtained simultaneously)</td>
<td>Analog output: Selected from flow rate and temperature outputs</td>
<td>Analog output: Selected from flow rate and temperature outputs</td>
</tr>
<tr>
<td></td>
<td>Analog output: 4 to 20 mA DC, 2-wire transmitter signal</td>
<td>Transistor contact output: 3-wire open collector</td>
<td>Transistor contact output: 3-wire open collector</td>
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<tr>
<td></td>
<td>Transistor contact output: 3-wire open collector</td>
<td>Contact rating: 30 V DC, 120 mA DC</td>
<td>Contact rating: 30 V DC, 120 mA DC</td>
</tr>
<tr>
<td></td>
<td>Whether to use this contact for the pulse, alarm, or status output is selected by a parameter setting.</td>
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</tr>
<tr>
<td></td>
<td>Pulse frequency: Max. 10 kHz</td>
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<tr>
<td></td>
<td>–200 to 100°C (cryogenic version: option)</td>
<td>Steam measuring range: 100 to 260°C</td>
<td>Steam measuring range: 100 to 260°C</td>
</tr>
<tr>
<td></td>
<td>–40 to 450°C (high process temperature version: option)</td>
<td>Steam measuring range: 100 to 260°C</td>
<td>Steam measuring range: 100 to 260°C</td>
</tr>
<tr>
<td>Process Pressure Limit</td>
<td>–0.1 MPa (–1 kg/cm²) to flange rating</td>
<td>Same as left</td>
<td>Same as left</td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>–40 to 85°C (general)</td>
<td>Same as left</td>
<td>Same as left</td>
</tr>
<tr>
<td>Ambient Humidity</td>
<td>5 to 100% RH</td>
<td>Same as left</td>
<td>Same as left</td>
</tr>
<tr>
<td>Mounting</td>
<td>Flange or wafer mounting for ANSI Class 150, 300, 600, or 900 (JIS 10k, 20k, or 40k)</td>
<td>Same as left</td>
<td>Same as left</td>
</tr>
<tr>
<td>Electrical Connection</td>
<td>ANSI 1/2 NPT female, ISO M20 x 1.5 female, or JIS G1/2 female</td>
<td>Same as left</td>
<td>Same as left</td>
</tr>
<tr>
<td>Protection Class</td>
<td>IEC IP67, NEMA 4X water tight protection</td>
<td>A resistance temperature detector (Pt1000, Class A) is built into the vortex shreader.</td>
<td>A resistance temperature detector (Pt1000, Class A) is built into the vortex shreader.</td>
</tr>
<tr>
<td></td>
<td>Options: FM explosion-proof, FM intrinsically safe; FM non-incendive; CENELEC ATEX (KEMA) explosion-proof; CENELEC ATEX (KEMA) intrinsically safe; CSA explosion-proof; CSA intrinsically safe; SAA explosion-proof; SAA intrinsically safe; TIIS flame-proof Ex d IIC T6, Japan</td>
<td>(see the General Specifications sheet for details).</td>
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</tr>
<tr>
<td></td>
<td>Gasket: 316SS stainless steel with polytetrafluoroethylene (Teflon) coating</td>
<td>Converter housing, case, and cover: Aluminum alloy</td>
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</tr>
<tr>
<td>Materials</td>
<td>Body (standard); SCS14A casting stainless steel (equivalent to 316SS)</td>
<td>Vortex shredder bar: Duplex stainless steel (anti-corrosion option available)</td>
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**NOTICE:**
- Before operating the product, read the instruction manual thoroughly for proper and safe operation.
- If this product is for use with a system requiring safeguards that directly involve personnel safety, please contact the Yokogawa sales offices.