SensyMaster
High quality and cost effective solution for precise and dynamic direct mass flow measurement for gases
### SensyMaster

Key specifications at a glance

<table>
<thead>
<tr>
<th>Main features</th>
<th></th>
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<tbody>
<tr>
<td><strong>Design</strong></td>
<td></td>
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<tr>
<td>• Integral mount and remote mount</td>
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<tr>
<td>• One or two compartment transmitter housing</td>
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<tr>
<td>• Choice of pipe components to adapt to the process</td>
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<tr>
<td><strong>Measuring dynamic</strong></td>
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<tr>
<td>Up to 1:150</td>
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<tr>
<td><strong>Pipe diameter</strong></td>
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<tr>
<td>DN 25 to DN 3000 (1 in. to 118 in.)</td>
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<tr>
<td><strong>High end accuracy level</strong></td>
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<tr>
<td>with optional process gas calibration</td>
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<tr>
<td>Up to ± 0.6 % Qm; ±- 0.05 % Qmax (air)</td>
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<tr>
<td><strong>Repeatability</strong></td>
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<tr>
<td>0.2 % Qm</td>
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<tr>
<td><strong>Response time</strong></td>
<td></td>
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<tr>
<td>$T_{63} = 0.5\text{ s}$</td>
<td></td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td></td>
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<tr>
<td>24 V DC or 100 to 240 V AC</td>
<td></td>
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<tr>
<td><strong>Medium temperature range</strong></td>
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<tr>
<td>-20 up to 300°C (-4 up to 572°F)</td>
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<tr>
<td><strong>Ambient temperature range</strong></td>
<td></td>
</tr>
<tr>
<td>-20 up to 70°C (-4 up to 158°F)</td>
<td></td>
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<tr>
<td><strong>Communication</strong></td>
<td></td>
</tr>
<tr>
<td>• Up to 3 current outputs (HART)</td>
<td></td>
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<tr>
<td>• Up to 3 digital outputs</td>
<td></td>
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<tr>
<td>• Up to 2 digital inputs</td>
<td></td>
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<tr>
<td>• Modbus via RS485</td>
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<tr>
<td>• Profibus DP</td>
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<tr>
<td><strong>Approvals</strong></td>
<td></td>
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<tr>
<td>• Hazardous Area according to ATEX/IECEx and cFMus</td>
<td></td>
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<tr>
<td>• DVGW</td>
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</tbody>
</table>

Please visit:
www.abb.com/flow-selector

**Product selection assistant**
Comprehensive tool for selecting the most suitable technology for your application
SensyMaster
Maximum versatility

- **High-grade thermal sensor elements**
  - With superior long-term stability
  - Best accuracy and repeatability

- **SensorApplicationMemory**
  - Plug-and-play electronics replacement
  - Redundant data storage for maximum data security

- **Common ABB look and feel**
  - Through-the-glass operation without opening the housing
  - Commissioning in less than 10 minutes with the Easy Set-up functionality
  - Clear text error messages
  - Flexible choice of up to 5 I/O’s

- **ApplicationSelector**
  - Flexible meter use in up to 8 different applications
  - Selectable process gases from integrated data base
  - Selectable pipe diameters

- **VeriMass onboard verification and diagnostics**
  - Increased plant availability
  - Reduced maintenance
  - SensorCheck to verify the integrity of thermal sensor elements
SensyMaster
Measuring principle and its advantages

The measuring method of the SensyMaster flowmeter series is based on the hot-film anemometer principle. They offer a high quality and cost effective solution for precise and dynamic direct mass flow measurements of gases in low and medium pressure conditions.

- **Direct mass flow measurement**
  No compensation of temperature and pressure required
- **Wide measuring range up to 1:150**
  Measuring down to virtually zero
- **Low pressure drop**
  No additional energy losses
- **Short response time**
  Close control of the process
- **Best accuracy**
  Efficient usage of precious gas
SensyMaster
Efficient high grade thermal sensor elements

Sensor element design

Platinum single chip thin film resistors on ceramic support structure for excellent long term stability.

- Thin sensor element $\rightarrow$ Small surface for dirt
- Small flow restriction $\rightarrow$ Low pressure loss
- Protection bars $\rightarrow$ Prevent damage of sensor elements
- Small sensor element mass $\rightarrow$ Quick response

Sensor element protection frame design

Conditions flow for
- Better thermal sensor element response and repeatability
- Self-cleaning effect of the sensor element for longer maintenance cycles

Mechanical protection to
- Prevent damage by particulate material
- Extend meter life time and maintenance cycles
SensyMaster
High performance transmitters

SensyMaster comes with a variety of transmitter series that are tailored for specific fields of application.

**FMT200 series – System integration flowmeter**
These transmitters are specifically designed to make system integration as easy as possible. It features a high speed Modbus RS485 output. Type FMT230 is ideally suited for all OEM standard applications. FMT250 adds high accuracy and functionality for advanced OEM applications.

**FMT400 series – Flowmeter for industrial applications**
The transmitter features ABB’s common operating concept with common menu structures and through-the-glass-operation without opening the housing. Up to five inputs and outputs can be selected flexible. Its sensor and application memory concept enables easy maintenance and utmost data security with plug-and-play electronic exchange. Type FMT430 is ideally suited for all industrial standard applications, FMT450 adds high accuracy and extended functionality for advanced industrial applications.
SensyMaster
The whole measuring system at a glance

- **FMT200 series**
  - FMT091 – Wafer design
    - DN 40 to DN 200

- **FMT400 series**
  - FMT094 – Weld-on adaptor
    - DN 100 and larger
  - FMT092 – Partial measuring section
    - DN 25 to DN 100
Contact

ABB Measurement & Analytics
For your local ABB contact, visit:
www.abb.com/contacts

For more product information, visit:
www.abb.com/flow