

MASS-STREAM D-6390 MFM

Direct Thermal Mass Flow Meter for Gases, IP65 protected

- Proven direct inline CTA sensor (no bypass)
- Compact, rugged design (IP65, dust and waterproof)
- Very low pressure drop
- Less sensitivity to humidity or dirt
- Optional with integrated TFT display



Compact IP65 Mass Flow Meters for high flow rates of gases

Bronkhorst® model D-6390 Mass Flow Meters (MFMs) are suited for precise measurement of flow ranges between 40...2000 l_n/min and 100...10000 l_n/min at operating pressures between vacuum and 20 bar (g). The MFM consists of a proven inline thermal (CTA) mass flow sensor and a microprocessor based pc-board with signal and fieldbus conversion and a PID controller for optional mass flow control by means of a separately mounted control valve. The instrument is IP65 compliant and can optionally be equipped with a modern, multi-functional and multi-colour display, with operator buttons on the instrument.

The digital MASS-STREAM™ series is characterized by a high degree of signal integrity and, as an option, up to 8 calibration curves of different gases and process conditions can be memorized in the instrument. In addition to the standard RS232 output the instruments also offer analog I/O. As an option, an on-board interface can be mounted to provide PROFIBUS DP, PROFINET, CANopen®, DeviceNet™, Modbus RTU or FLOW-BUS protocols.

Technical specifications

Measurement / control system

| | |
|--|--|
| Flow range (intermediate ranges available) | min. 40...2000 l _n /min max. 100...10000 l _n /min (based on N ₂) |
| Accuracy (incl. linearity) (based on actual calibration) | ± 1,0 % RD plus ± 0.5% FS (at calibration conditions) |
| Repeatability | < 0,2 % FS |
| Turndown ratio | up to 1:100 |
| Response time (sensor) | approx. 0,9 sec. |
| Operating temperature | 0 ... 50 °C |
| Temperature sensitivity | ± 0,2% Rd/°C (Air) |
| Pressure sensitivity | ± 0,3% Rd/bar typical (Air) |
| Leak integrity, outboard | tested < 2 x 10 ⁻⁸ mbar l/s He |
| Attitude sensitivity | at 90° deviation from horizontal max. error 0,2 % at 1 bar typical N ₂ |
| Warm-up time | 30 min. for optimum accuracy, within 30 seconds for accuracy ±4% FS |

Mechanical parts

| | |
|----------------------|--|
| Sensor | Stainless steel SS 316 (AISI 316L) |
| Pressure rating (PN) | 10 bar g for instrument body in aluminium, 20 bar g for instrument body in stainless steel SS 316 |
| Process connections | G2" |
| Seals | standard: Viton®; options: EPDM, Kalrez® (FFKM), FDA and USP Class VI approved compounds |
| Ingress protection | IP65 |
| Instrument body | Aluminium AL 50ST/51ST (anodised) or stainless steel SS 316 |
| Sieves and rings | Stainless steel SS 316 |

Electrical properties

| | | | | |
|------------------------|---|-------------|-------------------|------------------|
| Power supply | +15 ... 24 Vdc ±10% | | | |
| Max. power consumption | Supply | Basic model | Add. for fieldbus | Add. for display |
| | 15 V | 115 mA | 80 mA | 30 mA |
| | 24 V | 85 mA | 50 mA | 20 mA |
| Analog output | 0...5 (10) Vdc or 0 (4)...20 mA (sourcing output) | | | |
| Digital communication | standard: RS232 options: PROFIBUS DP, PROFINET, CANopen®, DeviceNet™, Modbus RTU or FLOW-BUS | | | |

Electrical connection

| | |
|---------------------------|---|
| Analog/RS232 | 8 DIN (male); |
| PROFIBUS DP | bus: 5-pin M12 (female); power: 8 DIN (male) |
| CANopen® / DeviceNet™ | 5-pin M12 (male) |
| FLOW-BUS/Modbus-RTU/ASCII | 5-pin M12 (male) |
| PROFINET | bus: 2 x 5-pin M12 (female) (in/out); power: 8 DIN (male); |

Technical specifications subject to change without notice.

For dimensional drawings and hook-up diagrams please visit the [product page](#) on our [website](#)

Recommended accessories



PIPS SERIES

Plug-in Power Supply

For lab-style or industrial devices
Interchangeable plugs (Euro, UK, USA,
Australian, IEC) for mains connection

Related products



MASS-STREAM D-6380 MFM

Min. flow 10...500 l_n/min
Max. flow 50...5000 l_n/min
Pressure rating up to 20 bar
Rugged sensor and housing (IP65)
Optional integrated TFT display



MASS-STREAM D-6383/BJ-1 MFC

Min. flow 17...500 l_n/min
Max. flow 167...5000 l_n/min
Pressure rating up to 16 bar
Rugged sensor and housing (IP54)
Optional integrated TFT display



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