

# D-6371A-003AI

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## MASS-STREAM D-6371A/003AI MFC

Direct Thermal Mass Flow Controller for Gases, IP65 protected

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



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### IP65 Mass Flow Controllers for higher flow rates of gases

Bronkhorst® model D-6371A/003AI Mass Flow Controllers (MFCs) are suited for precise measurement of flow ranges between 4...200 l/min and 40...2000 l/min at operating pressures between vacuum and 20 bar. The MFC consists of a proven inline thermal (CTA) mass flow sensor, a precise pilot-operated control valve and a microprocessor based pc-board with signal and fieldbus conversion. As a function of a setpoint value, the flow controller swiftly adjusts the desired flow rate. 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 CANopen®, DeviceNet™, PROFIBUS DP, PROFINET, Modbus RTU or FLOW-BUS (other on request) protocols.

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### Technical specifications

## Measurement / control system

Flow range (intermediate ranges available) min. 4...200 l<sub>n</sub>/min  
max. 40...2000 l<sub>n</sub>/min  
(based on N<sub>2</sub>)

Accuracy (incl. linearity) (based on actual calibration) ± 1 % RD plus ± 0.5% FS (at calibration conditions)

Repeatability < 0,2 % FS

Turndown ratio 1:50

Type of gases almost all gases, compatible with chosen materials

Response time (sensor) approx. 0,9 sec.

Settling time (in control, typical) plus approx. 2 sec.

Control stability < 0,2 % FS typical

Operating temperature 0 ... 50 °C

Temperature sensitivity ± 0,2% Rd/°C (Air)

Pressure sensitivity ±0,3% Rd/bar typical (Air)

Max. Kv-value 0,15 ... 1,5

Leak integrity, outboard tested < 2 x 10<sup>-8</sup> mbar l/s He

Attitude sensitivity at 90° deviation from horizontal max. error 0,2 % at 1 bar typical N<sub>2</sub>

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)	20 bar g
Max. ΔP	up to 20 bar d
Process connections	G1/2" / compression type or face seal (VCR/VCO) couplings
Seals	standard: Viton®; options: EPDM, Kalrez® (FFKM), FDA and USP Class VI approved compounds
Ingress protection	IP65
Instrument body	Stainless steel SS 316
Sieves and rings	Teflon or stainless steel SS 316

## Electrical properties

Power supply	+15 ... 24 Vdc $\pm$ 10%			
Max. power consumption	Supply	Basic model	Add. for fieldbus	Add. for display
	15 V	300 mA	80 mA	30 mA
	24 V	200 mA	50 mA	20 mA
Analog output	0...5 (10) Vdc or 0 (4)...20 mA (sourcing output)			
Digital communication	standard: RS232 options: CANopen <sup>®</sup> , DeviceNet <sup>™</sup> , PROFIBUS DP, PROFINET, Modbus RTU or FLOW-BUS (other on request)			

## Electrical connection

Analog/RS232	8 DIN (male);
PROFIBUS DP	bus: 5-pin M12 (female); power: 8 DIN (male)
CANopen <sup>®</sup> / DeviceNet <sup>™</sup>	5-pin M12 (male)
Modbus RTU / FLOW-BUS	5-pin M12 (male)
Modbus TCP / EtherNet/IP / POWERLINK	bus: 2 x 5-pin M12 (female) (in/out); power: 8 DIN (male);
EtherCAT <sup>®</sup> / PROFINET	bus: 2 x 5-pin M12 (female) (in/out); power: 8 DIN (male)



## Related products



**MASS-STREAM D-6361/002BI MFC**

Min. flow 0,4...20 l/min  
Max. flow 4...200 l/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/min  
Max. flow 167...5000 l/min  
Pressure rating up to 16 bar  
Rugged sensor and housing (IP54)  
Optional integrated TFT display



**MASS-STREAM D-6370 MFM**

Min. flow 2...100 l/min  
Max. flow 10...1000 l/min  
Pressure rating up to 20 bar  
Rugged sensor and housing (IP65)  
Optional integrated TFT display



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