

# D-6340

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## MASS-STREAM D-6340 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



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### Compact IP65 Mass Flow Meters for low/medium flow rates of gases

Bronkhorst® model D-6340 Mass Flow Meters (MFMs) are suited for precise measurement of flow ranges between 0,14...7 l/min and 0,5...50 l/min at operating pressures between vacuum and 10 bar (Aluminium) or 20 bar (Stainless Steel). 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 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. 0,14...7 I<sub>n</sub>/min  
max. 0,5...50 I<sub>n</sub>/min  
(based on N<sub>2</sub>)

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

Type of gases

almost all gases, compatible with chosen materials

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<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)	10 bar g for instrument body in aluminium, 20 bar g for instrument body in stainless steel SS 316
Process connections	G1/4" / 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	Aluminium AL 50ST/51ST (anodised) or stainless steel SS 316
Sieves and rings	Teflon or 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: CANopen®, DeviceNet™, 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® / DeviceNet™ 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® / PROFINET bus: 2 x 5-pin M12 (female) (in/out);  
power: 8 DIN (male)



## Related products



**MASS-STREAM D-6320 MFM**

Min. flow 0,05...1 l/min  
Max. flow 0,35...7 l/min  
Pressure rating up to 20 bar  
Rugged sensor and housing (IP65)  
Optional integrated TFT display



**MASS-STREAM D-6360 MFM**

Min. flow 0,4...20 l/min  
Max. flow 2...200 l/min  
Pressure rating up to 20 bar  
Rugged sensor and housing (IP65)  
Optional integrated TFT display



**MASS-STREAM D-6341 MFC**

Min. flow 0,14...7 l/min  
Max. flow 1...50 l/min  
Pressure rating up to 20 bar  
Rugged sensor and housing (IP65)  
Optional integrated TFT display



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