D-6380

MASS-STREAM D-6380 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-6380 Mass Flow Meters (MFMs) are suited for precise measurement of flow ranges between 10…500 ln/min and 50…5000 ln/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 instument is IP65 complient 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.

Technical specifications

Measurement / control system

Flow range (intermediate ranges available)	min. 10…500 l_n/min max. 50…5000 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
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^{-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	G1" / compression type 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)

Control valve options

External actuator options to be connected to the controller

Ex-proof specifications

Approvals / certificates

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-6370 MFM

Min. flow 2…100 ln/min
Max. flow 10…1000 ln/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 ln/min
Max. flow 167…5000 ln/min
Pressure rating up to 16 bar
Rugged sensor and housing (IP54)
Optional integrated TFT display

MASS-STREAM D-6390 MFM

Min. flow 40…2000 ln/min
Max. 100…10000 ln/min
Pressure rating up to 20 bar
Rugged sensor and housing (IP65)
Optional integrated TFT display

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