DATASHEET D-6373-BJ-1-2INCH-AND-D-6473-BJ-1-2INCH

MASS-STREAM D-6373/BJ-1/2 & D-6473/BJ-1/2 MFC

Direct Thermal Mass Flow Controller for Gases, IP65 protected

IP54 Mass Flow Controllers for high flow rates of gases

Bronkhorst® model D-6373/BJ-1/2" and D-6473/BJ-1/2" Mass Flow Controllers (MFCs) are suited for precise measurement of flow ranges between 2…100 ln/min and 20…1000 ln/min at operating pressures between vacuum and 16 bar (g). The MFC consists of a proven inline thermal (CTA) mass flow sensor, a precise 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 instument is IP54 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™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, POWERLINK or FLOW-BUS protocols.

Technical specifications

Measurement / control system

Flow range (intermediate ranges available)	min. 2…100 l_n/min max. 20…1000 l_n/min (based on N_2)
Accuracy (incl. linearity) (based on actual calibration)	± 1 % RD plus ± 0.5% FS (at calibration conditions)
Repeatability	< 0,2 % FS
Turndown ratio	up to 1:30
Type of gases	almost all gases, compatible with chosen materials
Response time (sensor)	approx. 0,9 sec.
Settling time (in control, typical)	< 5 sec.
Control stability	< 0,2 % FS typical
Operating temperature	0 … 50 °C
Storage / Transport conditions	with display : 0 … 50 °C, max. 95% RH (non-condensing); without display : -20 … +80 °C, max. 95% RH (non-condensing)
Temperature sensitivity	D-63xx : ±0,2% Rd/°C (Air) D-64xx : ±0,1% Rd/°C (Air)
Pressure sensitivity	±0,3% Rd/bar typical (Air)
Max. Kv-value	1,1 / 3,4 (remain position)

Measurement / control system

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)
Instrument body	D-63xx : Aluminium AL 50ST/51ST (anodised) or stainless steel SS 316 / D-64xx : Aluminium EN AW-6082-T6 (non-anodised) or stainless steel SS 316; Body of motor driven valve: Brass
Sieves and rings	Stainless steel SS 316
Pressure rating (PN)	10 bar g for instrument body in aluminium, 16 bar g for instrument body in stainless steel SS 316
Process connections	G1/2" (D-63xx : RP-type cavity / D-64xx : ISO1179-1 cavity) / compression type couplings
Seals	standard: Viton®; option: EPDM
Weight	Aluminium: 3,3 kg Stainless steel: 4,4 kg
Ingress protection	IP65 (if applicable IP54 for motor driven valve)

Electrical properties

Power supply	+24 Vdc ±10%			
Max. power consumption	Supply 24 V	Basic consumption 260 mA	Add. for fieldbus 50 mA	Add. for display 20 mA
Analog output	0…5 (10) Vdc or 0 (4)…20 mA (sourcing output)			
Digital communication	standard: RS232 options: CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, POWERLINK 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)
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-6373/002AI & D-6473/002AI MFC

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

MASS-STREAM D-6370 & D-6470 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-6373/BJ-1 & D-6473/BJ-1 MFC

- Min. flow 2…100 ln/min Max. flow 20…1000 ln/min
- Pressure rating up to 16 bar
- Rugged sensor and housing (IP54)
- Optional integrated TFT display

Bronkhorst®

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Bronkhorst High-Tech designs and manufactures innovative instruments and subsystems for low-flow measurement and control for use in laboratories, machinery and industry. Driven by a strong sense of sustainability and with many years of experience, we offer an extensive range of (mass) flow meters and controllers for gases and liquids, based on thermal, Coriolis and ultrasonic measuring principles. Our global sales and service network provides local support in more than 40 countries. Discover Bronkhorst®!