

DATASHEET D-6383-BJ-1INCH-AND-D-6483-BJ-1INCH

MASS-STREAM D-6383/BJ-1 & D-6483/BJ-1 MFC

Direct Thermal Mass Flow Controller for Gases, IP65 protected



IP54 Mass Flow Controllers for high flow rates of gases

Bronkhorst® models D-6383/BJ-1" and D-6483/BJ-1" Mass Flow Controllers (MFCs) are suited for precise measurement of flow ranges between 10...500 l_n/min and 100...5000 l_n/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 instrument is IP54 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™, 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. 10...500 l _n /min max. 100...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 1:30 |
| 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 | 2,8 / 4,4 (remain position) |
| Leak integrity, outboard | tested < 2 x 10 ⁻⁸ mbar l/s He |

Measurement / control system

Attitude sensitivity at 90° deviation from horizontal max. error 0,2 % at 1 bar typical N₂

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" (D-63xx : RP-type cavity / D-64xx : ISO1179-1 cavity) /
compression type couplings

Seals standard: Viton®; option: EPDM

Weight Aluminium: 7,5 kg
Stainless steel: 9,0 kg

Ingress protection IP65 (if applicable IP54 for motor driven valve)

Electrical properties

Power supply +24 Vdc ±10%

| Max. power consumption | Supply | Basic consumption | Add. for fieldbus | Add. for display |
|------------------------|--------|-------------------|-------------------|------------------|
| | 24 V | 260 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™, 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-6380 & D-6480 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



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®!