F-202DI

LOW-ΔP-FLOW F-202DI

Mass Flow Controller for low pressure drop or corrosive gas service, industrial style

- Large bore capillary (thermal bypass sensor)
- Very low pressure drop
- Less sensitivity to humidity or dirt
- Suitable of corrosive gases
- Easy to purge
- Rugged, weatherproof construction (IP65, dust and waterproof)

Thermal Mass Flow Controllers for low pressure drop or corrosive gas applications, industrial style

Bronkhorst® model F-202DI Mass Flow Controllers (MFCs) are suited for precise measurement of flow ranges between 0,28…14 l_n/min and 0,5…25 l_n/min (N_2-equivalent). The instruments are particularly suited for corrosive gases or applications with very low differential pressure (ΔP). Compared to conventional instruments, LOW-ΔP-FLOW MFCs have larger flow channels to minimize the risk of clogging, facilitate cleaning and purging, and cause lower pressure drop (the sensor only requires 0,5 to 5 mbar). This model is of rugged design (IP65) for use in industrial environments or even Zone 2 hazardous areas, with optional ATEX Cat. 3 or FM Class I, Div. 2 approval.

The integrated digital pc-board provides signal and fieldbus conversion as well as PID controller functionality for mass flow control by means of the integrated control valve. 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 DeviceNet™, PROFIBUS DP, PROFINET, Modbus or FLOW-BUS protocols.

Technical specifications

Measurement / control system

Flow range, based on N_2 (intermediate ranges available)	min. 0,28…14 l_n/min max. 0,5…25 l_n/min
Accuracy (incl. linearity) (based on actual calibration)	±1%FS
Turndown	1:50 (2...100%)
Multiple fluid capability	storage of max. 8 calibration curves
Repeatability	< 0,2% Rd
Settling time (controller)	2...3 seconds
Control stability	< ±0,1% FS (typical)
Max. Kv-value	$6{,}6 \times 10^{-2}$
Operating temperature	-10…+70°C; for ATEX cat. 3 and FM Class 1 Div 2 : 0…50°C
Temperature sensitivity	< 0,1% FS/°C
Pressure sensitivity	0,1% Rd/bar typical N_2
Leak integrity, outboard	tested < 2×10^{-9} mbar l/s He
Mounting position	horizontal
Warm-up time	30 min. for optimum accuracy 2 min for accuracy ± 2% FS

Mechanical parts

Material (wetted parts)	stainless steel 316L or comparable; other on request
Max. operating pressure	10 bar
Process connections	compression type or face seal couplings
Seals	standard: Viton®; options: EPDM, Kalrez® (FFKM)
Weight	1,5 kg
Ingress protection (housing)	IP65

Electrical properties

Power supply	+15…24 Vdc		
Max. power consumption	Supply 15 V 24 V	at voltage I/O 290 mA 200 mA	at current I/O 320 mA 215 mA
PROFIBUS DP	add 53 mA (15 V supply) or 30 mA (24 V supply)		
DeviceNet™	add 48 mA (24 V supply)		
Analog output/command	0...5 (10) Vdc or 0 (4)…20 mA (sourcing output)		
Digital communication	standard: RS232; options: PROFIBUS DP, PROFINET, DeviceNet™, Modbus RTU or ASCII, FLOW-BUS		

Electrical connection

Analog/RS232	8 DIN (male);
PROFIBUS DP	bus: 5-pin M12 (female); power: 8 DIN (male);
PROFINET	bus: 2 x 5-pin M12 (female) (in/out); power: 8 DIN (male);
Devicenet™	5-pin M12 (male);
FLOW-BUS/Modbus-RTU/ASCII	5-pin M12 (male)

Technical specifications and dimensions subject to change without notice.

For dimensional drawings and hook-up diagrams please visit the productpage on our website

Recommended accessories

E-8000 - DIGITAL READOUT / CONTROL SYSTEMS

- Bright, wide angle, 1.8″ display (TFT technology)
- User friendly operation, menu driven with 4 push buttons

BRIGHT - COMPACT LOCAL READOUT/CONTROL MODULE

- Bright, wide angle, 1.8" display
- User friendly operation
- Indication/operation/configuration

PIPS - PLUG-IN POWER SUPPLY

- For lab-style or industrial devices
- Interchangeable plugs (Euro, UK, USA, Australian, IEC) for mains connection

IN-LINE FILTER SERIES M-422 RS

- 1/4" female in / male out
- 200 bar
- Average porosity 2...20 µm

Related products

LOW-ΔP-FLOW F-201EI

Min. flow 0,028…1,4 ln/min
Max. flow 0,24…12 ln/min
Pressure rating up to 10 bar
Low ΔP, easy to purge
Compact IP65 design

LOW-ΔP-FLOW F-202EI

Min. flow 0,17…8,5 ln/min
Max. flow 1…50 ln/min
Pressure rating up to 10 bar
Low ΔP, easy to purge
Compact IP65 design

LOW-ΔP-FLOW F-202DV

Min. flow 0,28…14 ln/min
Max. flow 0,5…25 ln/min
Pressure rating up to 10 bar
Low ΔP, easy to purge
Compact design

LOW-ΔP-FLOW F-102DI

Min. flow 0,28…14 ln/min
Max. flow 0,5…25 ln/min
Pressure rating up to 10 bar
Low ΔP, easy to purge
Compact IP65 design

BRONKHORST HIGH-TECH B.V.

Nijverheidsstraat 1A

NL-7261 AK Ruurlo (NL)

Tel. +31 573 45 88 00

info@bronkhorst.com