F-202EV

LOW-ΔP-FLOW F-202EV

Mass Flow Controller for low pressure drop or corrosive gas service

- Large bore capillary (thermal bypass sensor)
- Very low pressure drop
- Less sensitivity to humidity or dirt
- Suitable of corrosive gases
- Easy to purge



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

Bronkhorst® model F-202EV Mass Flow Controllers (MFCs) are suited for precise measurement of flow ranges between 0,17…8,5 l_n/min and 1…50 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).

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 CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP, EtherNet/IP or FLOW-BUS protocols.

Technical specifications

Measurement / control system

Flow range (intermediate ranges available)	min. 0,17…8,5 l_n/min max. 1…50 l_n/min (based on N_2)
Accuracy (incl. linearity) (based on actual calibration)	± 1 % FS
Repeatability	< 0,2 % RD
Turndown ratio	1:50 (2…100%)
Max. operating pressure	10 bar g
Multi fluid capability	storage of max. 8 calibration curves
Settling time (in control, typical)	2 … 3 sec.
Control stability	< ± 0,1 % FS (typical)
Operating temperature	-10 … +70 °C
Mounting	horizontal
Temperature sensitivity	< 0,1% FS/°C
Pressure sensitivity	0,1% Rd/bar typical N_2
Max. Kv-value	$6{,}6 \times 10^{-2}$
Leak integrity, outboard	tested < 2×10^{-9} mbar l/s He
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
Process connections	compression type or face seal (VCR/VCO) couplings
Seals	standard: Viton®; options: EPDM, Kalrez® (FFKM), FDA and USP Class VI approved compounds
Weight	0,8 kg
Ingress protection	IP40

Electrical properties

Power supply	+15 … 24 Vdc			
Max. power consumption	Supply	at voltage I/O	at current I/O	extra for fieldbus
	15 V	290 mA	320 mA	<75 mA
	24 V	200 mA	215 mA	<50 mA
Analog output	0…5 (10) Vdc or 0 (4)…20 mA (sourcing output)			
Digital communication	standard: RS232; options: PROFIBUS DP, CANopen®, DeviceNet™, PROFINET, EtherCAT®, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, FLOW-BUS			

Electrical connection

Analog/RS232	9-pin D-connector (male);
PROFIBUS DP	bus: 9-pin D-connector (female); power: 9-pin D-connector (male);
CANopen® / DeviceNet™	5-pin M12-connector (male);
FLOW-BUS/Modbus-RTU/ASCII	RJ45 modular jack
Modbus TCP / EtherNet/IP	2 x RJ45 modular jack (in/out);
EtherCAT®/ PROFINET	2 x RJ45 modular jack (in/out);

Technical specifications subject to change without notice.

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

Recommended accessories



E-8000 SERIES

Digital Readout / Control Systems

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



BRIGHT SERIES

Compact Local R/C Module

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



PIPS SERIES

Plug-in Power Supply

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



IN-LINE FILTER SERIE M-422 RS

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

Related products



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-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-102E

Min. flow 0,17…8,5 ln/min
Max. flow 1…50 ln/min
Pressure rating up to 10 bar
Very low pressure drop
Suitable for corrosive gases

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