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LOW- Δ P-FLOW F-102E

Massendurchflussmesser für Anwendungen mit geringem Druckabfall oder korrosiven Gasen

- Kapillare mit großem Durchmesser (thermischer Bypass-Sensor)
- Sehr geringer Druckabfall
- Geringere Empfindlichkeit gegenüber Feuchtigkeit und Schmutz
- Geeignet für korrosive Gase
- Leicht zu säubern

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Thermische Massendurchflussmesser für geringen Druckabfall oder Anwendungen mit korrosiven Gasen

Bronkhorst® F-102E Massendurchflussmesser sind für die genaue Messung von Durchflussbereichen zwischen 0,17...8,5 l_n/min und 1...50 l_n/min (N₂-Äquivalent) geeignet. Diese Geräte eignen sich insbesondere für korrosive Gase oder Anwendungen mit sehr niedrigem Differenzdruck (Δ P). Im Vergleich zu herkömmlichen Instrumenten verfügen LOW- Δ P-FLOW Massendurchflussmesser über größere Fließkanäle. So wird die Verstopfungsgefahr reduziert, die Reinigung und Spülung erleichtert und ein geringerer Druckabfall gewährleistet (der Sensor benötigt nur 0,5 bis 5 mbar).

Die integrierte Digitalplatine bietet Signal- und Feldbuskommunikation sowie eine PID-Regler-Funktion für die optionale Massendurchflussregelung mithilfe eines separat angebrachten Regelventils. Neben dem Standard-RS232-Ausgang bieten die Instrumente auch analoge Signale. Optional kann eine On-Board-Schnittstelle für CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP, EtherNet/IP or FLOW-BUS Protokolle integriert werden.

Technical specifications

Measurement / control system

Measurement / control system

Flow range (intermediate ranges available)	min. 0,17...8,5 I _n /min
	max. 1...50 I _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
Response time (sensor)	1 ... 2 sec.
Operating temperature	-10 ... +70 °C
Mounting	horizontal
Temperature sensitivity	< 0,1% FS/°C
Pressure sensitivity	0,1% Rd/bar typical N ₂ ; 0,01% Rd/bar typical H ₂
Leak integrity, outboard	tested < 2 x 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	0,6 kg
Ingress protection	IP40

Electrical properties

Power supply	+15 ... 24 Vdc			
Max. power consumption meter	Supply	at voltage I/O	at current I/O	extra for fieldbus
	15 V	95 mA	125 mA	<75 mA
Max. Power consumption controller	24 V	65 mA	85 mA	<50 mA
	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);

Electrical connection

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);

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](#)

Downloads



Download the LOW- Δ P-FLOW Brochure

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Prospekte

LOW- Δ P-FLOW Prospekt



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Bedienungsanleitungen

LOW- Δ P-FLOW Bedienungsanleitung

LOW- Δ P-FLOW Kurzanleitung



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Anschlusspläne

Analog IO - RS232

DeviceNet

EtherCAT

FLOW-BUS

Modbus RTU/ASCII

PROFIBUS DP

PROFINET

Anschlusspläne


CANopen

EtherNet/IP

Modbus-TCP

Optional Bus and IO Configurations



Select a language 

Dimensionszeichnungen

Dimensionszeichnung F-102E

Recommended accessories

Related products