DATASHEET ML120V00

mini CORI-FLOW™ ML120V00

(Ultra) Low Flow Coriolis Mass Flow Meter

Low Flow Coriolis Mass Flow Meters for Liquid and Gases

mini CORI-FLOW™ Mass Flow Meters and Controllers are precise and compact instruments, based on the Coriolis measuring principle, designed to cover the needs of the low flow market. Bronkhorst® model ML120V00 Mass Flow Meter (MFM) is suited for highly accurate measurement of gas or liquid flow in the range of 0…200 g/h (which corresponds with 0…2,66 l_n/min when used on nitrogen) at operating pressures up to 200 bar.

The flow meter offers "multi-range" functionality: factory calibrated ranges can be rescaled by the user, maintaining the original accuracy specs. The instrument contains a microprocessor based pc-board with signal and fieldbus conversion.

Technical specifications

Measurement / control system

Flow rates	Liquid: 0…200 g/h (nominal flow rate: 100 g/h); Gas: 0…2.66 ln/min (N2); Full Scale (FS) value is user-configurable
Mass flow accuracy	Liquid: ±0,2% Rd; Gas: ±0,5% Rd
Repeatability	± 0,05 % of rate ± ½(ZS* x 100/actual flow)%
Turndown ratio	up to 1:4000
Zero stability (ZS)	< ± 10 mg/h (Guaranteed at constant temperature and for unchanging process and environment conditions.)
Response time (sensor)	≤ 200 msec
Temperature effect	on zero: < 3 mg/h/°C; on span: < 0,005% Rd/°C; self heating (at zero flow): < 10°C (Depends on flow rate, heat capacity fluid, T amb., T fluid and cooling capacity.)
Operating temperature	0 … 70 °C
Mounting	any position, attitude sensitivity negligible. Instrument to be rigidly bolted to a stiff and heavy mass or construction for guaranteed zero stability. External shocks or vibrations should be avoided.
Temperature accuracy	± 0,5 °C
Density accuracy	< ± 5 kg/m³ (at full scale flow)
Leak integrity, outboard	tested < 2 x 10^{-9} mbar l/s He
Warm-up time	> 30 min. for optimum accuracy

Mechanical parts

Material (wetted parts)	stainless steel 316L or comparable
Pressure rating (PN)	200 bar abs
Process connections	compression type or face seal (VCR/VCO) couplings
Seals	metal
Weight	0,8 kg
Ingress protection	IP40

Electrical properties

Power supply	+15…24 Vdc +/- 10% Max. ripple recommended: 50 mV tt
Max. power consumption	max. 2,5 W
Analog output	0…5 (10) Vdc, min. load impedance > 2 kΩ; 0 (4)…20 mA (sourcing), max. load impedance < 375 Ω
Digital communication	standard: RS232; options: PROFIBUS DP, CANopen®, DeviceNet™, PROFINET, EtherCAT®, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, POWERLINK, 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 / POWERLINK	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

Certification for hazardous areas

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

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

MOUNTING PARTS

Mass blocks and vibration dampeners

- To guarantee zero stability of low flow Coriolis instruments

Related products

MINI CORI-FLOW™ ML120V21

- Flow range 0…200 g/h
- Pressure rating 5 bar
- Independent of fluid properties
- High accuracy, control

MINI CORI-FLOW™ M12

- Flow range 0…200 g/h
- Pressure rating 200 bar
- Independent of fluid properties
- High accuracy, fast response

MINI CORI-FLOW™ CORIOLIS WITH PUMP

- Min. flow 0,05…5 ml/h
  Max. flow 6…600 l/h
- Compact, integrated dosing solution
- Direct pump control

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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®!