DATASHEET M12V14I

mini CORI-FLOW™ M12V14I

Low Flow Coriolis Mass Flow Controller



Low Flow Coriolis Mass Flow Controllers for Liquids

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 M12V14I Mass Flow Controller (MFC) is suited for highly accurate control of liquid flow in the range of 0…200 g/h at operating pressures up to 100 bar (higher on request). The instruments are equipped with a robust IP65 weatherproof housing and are optionally available with ATEX approval for use in Zone 2 hazardous areas.

The instrument contains a microprocessor based pc-board with signal and fieldbus conversion and a PID controller for mass flow control by means of an integrated control valve (normally closed).

Technical specifications

Measurement / control system

Flow rates	0…200 g/h (nominal flow rate: 100 g/h); Full Scale (FS) value is user-configurable; advised minimum flow depends on fluid properties
Mass flow accuracy	± 0,2 % Rd
Repeatability	± 0,5 % of rate ± ½(ZS* x 100/actual flow)%
Turndown ratio	1:50
Zero stability (ZS)	< ± 0.1 g/h (Guaranteed at constant temperature and for unchanging process and environment conditions.)
Settling time (in control, typical)	1 sec. (typical)
Temperature effect	on zero: < 0,01 g/h/°C; on span: < 0,001% Rd/°C; self heating (at zero flow): < 15°C (Depends on flow rate, heat capacity fluid, T amb., T fluid and cooling capacity.)
Operating temperature	0 … 70 °C ; for ATEX Cat.3, Zone 2 max. 50°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)
Max. Kv-value	$2{,}4 \times 10^{-3}$
Max. fluid viscosity	0,1 Pa*s

Measurement / control system

Leak integrity, outboard	tested < 2 x 10^{-9} mbar l/s He
Warm-up time	> 30 min for optimum accuracy

Mechanical parts

Sensor	single tube, DN 0.25
Valve seat	Kalrez®-6375, other on request
Material (wetted parts)	stainless steel 316L or comparable
Housing	stainless steel 430F
Pressure rating (PN)	100 bar abs
Process connections	compression type or face seal (VCR/VCO) couplings, or Tri-Clamp flanges (welded)
Purge connection	1/8" OD compression type or 1/8" VCR
Seals	metal
Weight	1,5 kg
Ingress protection	IP65 (weatherproof)

Electrical properties

Power supply	+15…24 Vdc +/- 10% Max. ripple recommended: 50 mV tt
Max. power consumption	max. 7 W
Analog output	0…5 (10) Vdc, min. load impedance > 2 kΩ; 0 (4)…20 mA (sourcing), max. load impedance < 375 Ω
Analog setpoint	0…5 (10) Vdc, min. load impedance > 100 kΩ; 0 (4)…20 mA (sourcing), max. load impedance ~ 250 Ω
Digital communication	standard: RS232; options: PROFIBUS DP, DeviceNet™, Modbus RTU or FLOW-BUS

Electrical connection

Analog/RS232	8-pin DIN (male);
PROFIBUS DP	bus: 5-pin M12 (female) power: 8-pin DIN (male);
CANopen® / DeviceNet™	5-pin M12 (male);
FLOW-BUS/Modbus-RTU/ASCII	5-pin M12 (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



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™ M12

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



MINI CORI-FLOW™ ML120V21

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



MINI CORI-FLOW™ M13V14I

- Flow range 0…2000 g/h
- Pressure rating 100 bar
- Independent of fluid properties
- High accuracy, fast control



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®!