DATASHEET M14V14I

mini CORI-FLOW™ M14V14I

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 M14V14I Mass Flow Controller (MFC) is suited for highly accurate control of liquid flow in the range of 0…7 kg/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	Liquid: 0…7 kg/h (nominal flow rate: 7 kg/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)	< ± 6 g/h (Guaranteed at constant temperature and for unchanging process and environment conditions.)
Temperature effect	on zero: < 0,5 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
Leak integrity, outboard	tested < 2×10^{-9} mbar l/s He
Warm-up time	> 30 min for optimum accuracy

Mechanical parts

Sensor	single tube, DN 1.3
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™ M14

- Flow range 0…30 kg/h
- Pressure rating 200 bar
- Independent of fluid properties
- High accuracy, fast response



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™ M15

- Flow range 0…300 kg/h
- Pressure rating 100 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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