

DATASHEET M15

mini CORI-FLOW™ M15

Low Flow Coriolis Mass Flow Meter / Controller



Low Flow Coriolis Mass Flow Meters / Controllers 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 M15 Mass Flow Meter (MFM) is suited for highly accurate measurement of gas or liquid flow in the range of 0...300 kg/h (which corresponds with 0...4000 l_n/min when used on nitrogen) 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 optional mass flow control by means of a separately mounted control valve or pump.

Technical specifications

Measurement / control system

Flow rates	Liquid: 0...300 kg/h (nominal flow rate: 100 kg/h); Gas: 0...4000 l _n /min (N ₂); 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 1:100
Zero stability (ZS)	< ± 50 g/h (Guaranteed at constant temperature and for unchanging process and environment conditions.)
Response time (sensor)	≤ 200 msec
Temperature effect	on zero: < 5 g/h/°C; on span: < 0,001% 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 ; for ATEX Cat.3, Zone 2 max. 50°C
Mounting	any position, attitude sensitivity negligible. External shocks or vibrations should be avoided.
Temperature accuracy	± 0,5 °C
Density accuracy	< ± 5 kg/m ³ (at full scale flow)
Leak integrity, outboard	tested < 2 x 10 ⁻⁹ mbar l/s He

Measurement / control system

Warm-up time	> 30 min for optimum accuracy
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Mechanical parts

Sensor	single tube, DN 3.1
Material (wetted parts)	stainless steel 316L / 1.4404;
Housing	stainless steel 430F
Pressure rating (PN)	100 bar abs , higher on request
Process connections	compression type or face seal (VCR/VCO) couplings, or Tri-Clamp flanges (welded)
Seals	metal
Weight	4,7 kg
Ingress protection	IP65 (weatherproof)

Electrical properties

Power supply	+15...24 Vdc +/- 10% Max. ripple recommended: 50 mV tt
Max. power consumption	meter: max. 3 W; controller: 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

M15+C0I: Gas flow control valve	Kv-max= $6,6 \times 10^{-2}$
M15+C2I: Liquid flow control valve	Kv-max= $2,3 \times 10^{-3}$
M15+C5I: Gas/Liquid flow control valve	Kv-max= $6,6 \times 10^{-2}$
M15+F-004AI: Gas/Liquid flow control	Kv-max= $3,0 \times 10^{-1}$
M15+F-004BI: Gas/Liquid flow control	Kv-max= 1,0

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

Related products



MINI CORI-FLOW™ M14

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



CORI-FLOW™ M54

Flow range 0...100 kg/h
Pressure rating 200 bar
Independent of fluid properties
High accuracy, fast response



CORI-FLOW™ M55

Flow range 0...600 kg/h
Pressure rating 100 bar
Independent of fluid properties
High accuracy, fast response