

L23I

LIQUI-FLOW™ 'INDUSTRIAL STYLE' L23I

Digital Thermal Liquid Mass Flow Meter, Industrial Style

- Fast and accurate measuring signal
- Insensitive to mounting position
- Suitable for liquids with low boiling points
- Analog, RS232 or fieldbus communication
- Rugged, IP65 enclosure



Liquid Mass Flow Meters for low flow rates, industrial style

Bronkhorst® model L23I Liquid Flow Meters (LFMs) are suited for precise measurement of flow ranges between 2...100 g/h and 20...1000 g/h at operating pressures up to 100 bar. The LFM consists of a thermal mass flow sensor and 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. The "Industrial Style" LIQUI-FLOW™ model is of rugged design (IP65) for use in industrial environments or even Zone 2 hazardous areas, with optional ATEX Cat. 3 approval.

LIQUI-FLOW™ series are equipped with a digital pc-board, offering high accuracy, excellent temperature stability and fast response. The main digital pc-board contains all of the general functions needed for measurement and control. In addition to the standard RS232 output the instruments also offer analog I/O. As an option, an on-board interface can be mounted to provide DeviceNet™, PROFIBUS DP, Modbus or FLOW-BUS protocols.

Technical specifications

Measurement / control system

| | |
|--|---|
| Flow range (intermediate ranges available) | min. 2...100 g/h max. 20...1000 g/h (based on H ₂ O) |
| Accuracy (incl. linearity) (based on actual calibration) | ± 1 % FS |
| Repeatability | < 0,2 % FS (typical H ₂ O) |
| Turndown ratio | 1:50 (2...100%) |
| Operating temperature | 5 ... 50 °C |
| Temperature sensitivity | ± 0,1% FS/°C |
| Attitude sensitivity | negligible |
| Warm-up time | 30 min. for optimum accuracy; 2 min for accuracy ± 2% FS |

Mechanical parts

| | |
|-------------------------|---|
| Material (wetted parts) | stainless steel 316L/320; other on request |
| Pressure rating (PN) | 100 bar abs |
| Process connections | compression type or face seal (VCR/VCO) couplings |
| Seals | Kalrez®; other on request |
| Ingress protection | IP65 |

Electrical properties

| | | | | |
|------------------------|--|----------------|----------------|--------------------|
| Power supply | +15 ... 24 Vdc +/-10% | | | |
| Max. power consumption | Supply | at voltage I/O | at current I/O | extra for fieldbus |
| | 15 V | 100 mA | 120 mA | <75 mA |
| | 24 V | 65 mA | 85 mA | <50 mA |
| PROFIBUS DP | add 53 mA (15 V supply) or 30 mA (24 V supply) | | | |
| Analog output | 0...5 (10) Vdc or 0 (4)...20 mA (sourcing output) | | | |
| Digital communication | standard: RS232; options: PROFIBUS DP, DeviceNet™, Modbus RTU, FLOW-BUS | | | |

Electrical connection

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

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 SERIE

Digital Readout / Control Systems

Bright, wide angle, 1.8" display (TFT technology)

User friendly operation, menu driven with 4 push buttons



BRIGHT SERIE

Compact Local R/C Module

Bright, wide angle, 1.8" display

User friendly operation

Indication/operation/configuration



PIPS SERIE

Plug-in Power Supply

For lab-style or industrial devices

Interchangeable plugs (Euro, UK, USA, Australian, IEC) for mains connection

Related products



**LIQUI-FLOW™ 'INDUSTRIAL STYLE'
L23I+C2I**

Min. flow 2 ... 100 g/h
Max. flow 2 ... 1000 g/h
Pressure rating 100 bar
IP65 protected
Analog, RS232 or fieldbus I/O



**LIQUI-FLOW™ 'INDUSTRIAL STYLE'
L13I**

Min. flow 0,25 ... 5 g/h
Max. flow 5 ... 100 g/h
Pressure rating 100 bar
Compact, IP65 design
Analog, RS232 or fieldbus I/O



LIQUI-FLOW™ L23

Min. flow 2 ... 100 g/h
Max. flow 20 ... 1000 g/h
Pressure rating 100 bar
Compact, IP40 design
Analog, RS232 or fieldbus I/O



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