

## μ-FLOW L01

### Ultra Low-Flow Thermal Liquid Mass Flow Meter

- Fast and accurate measuring signal
- Insensitive to mounting position
- Very small internal volume (sensor: 1,5...33 μl)
- Suitable for liquids with low boiling points
- Analog, RS232 or fieldbus communication



### Liquid Mass Flow Meters for Ultra Low Flow Rates

Bronkhorst® model L01 Liquid Flow Meters (LFMs) are suited for precise measurement of flow ranges between 5...100 mg/h and 0,1...2 g/h at operating pressures up to 400 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.

μ-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. 5...100 mg/h max. 0,1...2 g/h (based on H <sub>2</sub> O)
Accuracy (incl. linearity) (based on actual calibration)	± 2 % FS
Repeatability	< 0,2 % FS (typical H <sub>2</sub> O)
Turndown ratio	1:20 (5...100%)
Operating temperature	5 ... 50 °C
Temperature sensitivity	± 0,2% FS/°C
Attitude sensitivity	negligible
Warm-up time	approx. 10 min. for accuracy ± 2% FS

### Mechanical parts

Material (wetted parts)	stainless steel 316L/320; other on request
Pressure rating (PN)	400 bar abs
Process connections	1/16" or 1/8" OD compression type; other on request (<1 g/h we advise to use 1/16" only)
Seals	Metal
Ingress protection	IP40

### 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
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	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

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



### μ-FLOW L01V12

Min. flow 5 ... 100 mg/h

Max. flow 0,1 ... 2 g/h

Pressure rating 100 bar

Compact unit; small internal volume

Analog, RS232 or fieldbus I/O



### LIQUI-FLOW™ L13

Min. flow 0,25 ... 5 g/h

Max. flow 5 ... 100 g/h

Pressure rating 100 bar

Compact, IP40 design

Analog, RS232 or fieldbus I/O



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