DATASHEET L01

µ-FLOW L01

Ultra Low-Flow Thermal Liquid Mass Flow Meter

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 CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, POWERLINK 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_2O)
Accuracy (incl. linearity) (based on actual calibration)	± 2 % FS
Repeatability	< 0,2 % FS (typical H_2O)
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

Mechanical parts

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 15 V 24 V	at voltage I/O 100 mA 65 mA	at current I/O 120 mA 85 mA	extra for fieldbus <75 mA <50 mA
Analog output	0…5 (10) Vdc or 0 (4)…20 mA (sourcing output)			
Digital communication	standard: RS232; options: CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, POWERLINK or 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
Modbus TCP / EtherNet/IP / POWERLINK	2 x RJ45 modular jack (in/out);

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

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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