L13I

LIQUI-FLOW™ 'INDUSTRIAL STYLE' L13I

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 L13I Liquid Flow Meters (LFMs) are suited for precise measurement of flow ranges between 0,25…5 g/h and 5...100 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. 0,25…5 g/h max. 5…100 g/h (based on H_2O)
Accuracy (incl. linearity) (based on actual calibration)	± 1 % FS
Repeatability	< 0,2 % FS (typical H_2O)
Turndown ratio	FS <50 g/h : 1:20 (5…100%); FS >50 g/h : 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 meter	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: 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' L13I+C2I

Min. flow 0,25 ... 5 g/h
Max. flow 5 ... 100 g/h

Pressure rating 100 bar

IP65 protected

Analog, RS232 or fieldbus I/O

LIQUI-FLOW™ 'INDUSTRIAL STYLE' L23I

Min. flow 2 ... 100 g/h
Max. flow 20 ... 1000 g/h

Pressure rating 100 bar

Compact, IP65 design

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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