

# Liqui-Flow L13-L23

Termisk massflödesmätare för gaser från Bronkhorst High-Tech

L13 Mäter och reglerar från 0,25 till 100 g/h

L23 Mäter och reglerar från 2 till 1000 g/h

## Enkel

- Mäter alltid rätt flöde oavsett tryck och temperatur
- Snabb respons, mindre än 2 s.
- Okänslig för vibrationer
- Klarar temperaturer från 5 till +50°C
- Analogt bör- och ärvärde samt RS232-kommunikation
- Lab-version IP40 eller industriell IP65

## Ekonomisk

- Enkelt montage med Swagelok-kopplingar, därmed låg installationskostnad
- Medieberörda delar i 316L
- Klarar tryck upp till 100 bar
- Kalibreringskurvor för upp till 8 olika vätskor kan lagras i instrumentet
- Profibus, DeviceNet, Modbus

## Noggrann

- +/-1% av mätområdet



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## > Technical specifications

### Measurement / control system

|   |  |
|---|--|
| Accuracy, standard<br>(based on actual calibration) | : ±1% FS   |
| Turndown  | : L10 Series 1 : 20 (5 ... 100%)<br>L20 Series 1 : 50 (2 ... 100%) |
| Reproducibility                                     | : ±0,2% FS typical H <sub>2</sub> O                                |
| Settling time (controller)                          | : < 2 seconds  |
| Operating temperature                               | : 5 ... 50°C   |
| Temperature sensitivity                             | : ±0,1% FS/°C  |
| Attitude sensitivity                                | : negligible   |
| Warm-up time  | : 30 min for optimum accuracy;<br>10 min. for accuracy ±2% FS      |

### Mechanical parts

|                              |   |
|------------------------------|---|
| Material (wetted parts)      | : stainless steel 316L / 320;<br>other on request   |
| Process connections          | : 1/8", 1/4" or 6 mm OD compression<br>type: 1/8" or 1/4" face seal male;<br>other on request |
| Seals                        | : Kalrez-6375;<br>other on request  |
| Weight                       | : meter: 0,2 kg; controller: 0,3...0,5 kg   |
| Ingress protection (housing) | : IP40; other on request  |

### Electrical properties

|                       |  |
|-----------------------|--|
| Power supply          | : +15 ... 24 Vdc   |
| Power consumption     | : meter: 100 mA;<br>controller: 350 mA;<br>add 50 mA for Profibus, if applicable |
| Analog output/command | : 0...5 (10) Vdc or 0 (4) ... 20 mA<br>(sourcing output)                         |
| Digital communication | : standard: RS232<br>options: Profibus-DP®, DeviceNet™,<br>Modbus-RTU, FLOW-BUS  |
| Electrical connection |  |
| Analog/RS232          | : 9-pin D-connector (male);  |
| Profibus-DP®          | : bus: 9-pin D-connector (female);<br>power: 9-pin D-connector (male);           |
| DeviceNet™            | : 5-pin M12-connector (male);  |
| Modbus-RTU/FLOW-BUS   | : RJ45 modular jack  |

*Technical specifications subject to change without notice.*

## > Models and flow ranges

### Liquid Mass Flow Meters; PN100 (pressure rating 100 bar)

| Model | min. flow   | max. flow     |
|-------|-------------|---------------|
| L13   | 0,1...5 g/h | 5...100 g/h   |
| L23   | 2...100 g/h | 20...1000 g/h |

### Liquid Mass Flow Controllers; PN100 (P-max 100 bar)

| Model  | min. flow    | max. flow     |
|--------|--------------|---------------|
| L13V02 | 0,25...5 g/h | 5...100 g/h   |
| L23V02 | 2...100 g/h  | 20...1000 g/h |

*Indicated ranges are based on H<sub>2</sub>O.*

*Higher pressure ratings are available on special request.*

### Calibration

|            |  |
|------------|--|
| References | : Verified by NKO, the Dutch calibration organisation, and traceable to Dutch and international standards. |
| Liquids    | : Standard calibration: H <sub>2</sub> O or IPA (Isopropyl Alcohol); for other liquids apply to factory.   |
| System     | : Precision laboratory balances.   |



L23 Mass Flow Meter for Liquids