

F-131MX

EX-FLOW F-131MX

High-Pressure Mass Flow Meter for Gases, Ex-proof Style

- ATEX approval Cat.2, Zone 1
- Also IECEx, TIIS and KCs certified
- High accuracy, excellent repeatability
- Virtually pressure and temperature independent
- Pressure rating 400 bar



Intrinsically Safe Gas Mass Flow Meters for low flow rates

Bronkhorst® EX-FLOW Mass Flow Meters (MFM) are suited for precise gas flow measurement in ATEX Zone 1 hazardous areas. The MFM should be connected to a power supply with galvanic isolation / preamplifier / readout system (located in the safe zone). See Bronkhorst® [E-8000 Series](#).

EX-FLOW model F-131BX covers flow ranges from 0,24...12 ml_n/min up to 0,4...20 l_n/min (N₂-equivalent) at operating pressures up to 400 bar.

The intrinsically safe measuring head of the flow meter is tested according to ATEX 114 Directive 2014/34/EU and approved under EC-Type Examination Number: KEMA 01ATEX1172, protection II 2 G Ex ib IIC T4 Gb.

Other certifications: IECEx (IECEx DEK14.0060) and TIIS (検・第TC21584号).

Technical specifications

Measurement / control system

Flow range, based on N ₂ (intermediate ranges available)	min. 0,24...12 ml _n /min max. 0,4...20 l _n /min
Accuracy (incl. linearity) (based on actual calibration)	±1% FS
Repeatability	< 0,2% Rd
Turndown	1 : 50 (in digital mode up to 1 : 150)
Max. operating pressure	meter: 1500 psig; controller: 1000 psig
Temperature sensitivity	zero: < 0.05% FS/°C; span: < 0.05% Rd/°C
Pressure sensitivity	< 0,1% Rd/bar typical N ₂ ; < 0,01% Rd/bar H ₂
Warm-up time	30 min. for optimum accuracy 2 min for accuracy ± 2% FS

General performance

Operating temperature	-10...+50°C; up to +70°C on request
Leak integrity(outboard)	$< 2 \times 10^{-11} \text{ Pa}\cdot\text{m}^3/\text{s He}$
Leak-by through closed valve	$< 10^{-5} \text{ Pa}\cdot\text{m}^3/\text{s He}$
Attitude sensitivity	may be mounted in any position

Mechanical parts

Material (wetted parts)	stainless steel 316L or comparable
Process connections	1/4" face seal male
Outer seals	metal-to-metal (no rings)
Valve seat (controllers)	Kalrez® (FFKM); options: Viton®, EPDM
Ingress protection (housing)	IP40

Electrical properties

Power supply +15...24 Vdc

Max. power consumption (controllers based on normally closed valve, pin 5 not used)

	Supply	at voltage I/O	at current I/O
Meter	15 V	95 mA	125 mA
	24 V	65 mA	85 mA
Controller	15 V	290 mA	320 mA
	24 V	200 mA	215 mA

If applicable: PROFIBUS DP add 53 mA (15 V supply) or 30 mA (24 V supply)

PROFINET add 77 mA (15 V supply) or 48 mA (24 V supply)

EtherCAT® add 66 mA (15 V supply) or 41 mA (24 V supply)

DeviceNet™ add 48 mA (24 V supply)

Analog output/command 0...5 (10) Vdc or 0 (4)...20 mA (sourcing output)

Digital communication standard: RS232;
options: PROFIBUS DP, DeviceNet™, PROFINET, EtherCAT®, Modbus RTU or ASCII, 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);

Devicenet™ 5-pin M12-connector (male);

EtherCAT®/PROFINET 2 x RJ45 modular jack (in/out)

Modbus/FLOW-BUS RJ45 modular jack

- Mass flow units sccm and slm refer to 0°C (32°F) and 1013 mbar (14.7 psi)
- Technical specifications and dimensions subject to change without notice.

For dimensional drawings and hook-up diagrams please visit the [productpage](#) on our [website](#)

Recommended accessories



E-8000 - DIGITAL READOUT / CONTROL SYSTEMS

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

User friendly operation, menu driven with
4 push buttons

Related products



EX-FLOW F-130MX

Lowest flow rates, from 0,15...7,5 mln/min
up to 0,2...10 mln/min
Pressure rating 400 bar
ATEX approval Cat.2, Zone 1
Rugged IP65 construction



EX-FLOW F-132MX

Flow ranges from 0,3...15 l/min up to
5...250 l/min
Pressure rating 400 bar
ATEX approval Cat.2, Zone 1
Rugged IP65 construction



EX-FLOW F-230MX

Min. flow 0,2...10 mln/min
Max. flow 10...500 mln/min
Pressure / ΔP up to 400 bar
ATEX approval Cat.2, Zone 1
Rugged IP65 construction



EX-FLOW F-231MX

Min. flow 0,01...0,5 l/min
Max. flow 0,2...10 l/min
Pressure / ΔP up to 400 bar
ATEX approval Cat.2, Zone 1
Rugged IP65 construction



BRONKHORST HIGH-TECH B.V.

Nijverheidsstraat 1A

NL-7261 AK Ruurlo (NL)

Tel. +31 573 45 88 00

info@bronkhorst.com