

# F-106FI

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## IN-FLOW 'HIGH-FLOW' F-106FI

### Industrial Style Mass Flow Meter for High Gas Flow

- High accuracy, excellent repeatability
- Virtually pressure and temperature independent
- Compact design
- Rugged, weatherproof housing (IP65, dust and waterproof)
- "Wafer type" for mounting between flanges (DN200 / 8")



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### Industrial Style Gas Mass Flow Meters for high flow rates

Bronkhorst® model F-106FI Mass Flow Meters (MFM) are suited for precise measurement of flow ranges between 14...700 m<sup>3</sup><sub>n</sub>/h and 140...7000 m<sup>3</sup><sub>n</sub>/h at operating pressures up to 40 bar. The MFM 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 IN-FLOW model is of rugged design (IP65) for use in industrial environments or even Zone 2 hazardous areas, with optional ATEX Cat. 3 or FM Class I, Div. 2 approval.

IN-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, PROFINET, Modbus or FLOW-BUS protocols.

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### Technical specifications

## Measurement / control system

Flow range, based on N <sub>2</sub> (intermediate ranges available)	min. 14...700 m <sup>3</sup> <sub>n</sub> /h max. 140...7000 m <sup>3</sup> <sub>n</sub> /h
Accuracy (incl. linearity) (based on actual calibration)	±1% FS
Turndown	1:50
Multi fluid capability	storage of max. 8 calibration curves
Repeatability	< 0,2% Rd
Response time	typical: 0,5 seconds
Operating temperature	-10...+70°C; for ATEX cat. 3 and FM Class 1 Div 2 : 0...50°C
Temperature sensitivity	zero: < 0,05% FS/°C; span: < 0,05% Rd/°C
Pressure sensitivity	0,1% Rd/bar typical N <sub>2</sub> ; 0,01% Rd/bar typical H <sub>2</sub>
Leak integrity, outboard	tested < 2 x 10 <sup>-9</sup> mbar l/s He
Attitude sensitivity	max. error at 90° off horizontal 0,2% FS at 1 bar, typical N <sub>2</sub>
Warm-up time	30 min. for optimum accuracy 2 min for accuracy ± 2% FS

## Mechanical parts

Material (wetted parts)	stainless steel 316L or comparable
Pressure rating	up to 40 bar abs (PN10, 16, 40); for hazardous gases such as O <sub>2</sub> , H <sub>2</sub> , etc. do not exceed operating pressure of 10 bar; for higher pressure select a flanged type MFM, series F-107/F-117.
Process connections	Wafer type, for mounting between flanges according to DIN DN200 or ANSI 8"
Seals	standard: Viton <sup>®</sup> ; options: EPDM, Kalrez <sup>®</sup> (FFKM)
Weight	18,1 kg
Ingress protection (housing)	IP65

## Electrical properties

Power supply	+15...24 Vdc		
Max. power consumption	Supply	at voltage I/O	at current I/O
	15 V	95 mA	125 mA
	24 V	65 mA	85 mA
PROFIBUS DP	add 53 mA (15 V supply) or 30 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, PROFINET, DeviceNet™, Modbus RTU or ASCII, FLOW-BUS		

## Electrical connection

Analog/RS232	8 DIN (male);
PROFIBUS DP	bus: 5-pin M12 (female); power: 8 DIN (male);
PROFINET	bus: 2 x 5-pin M12 (female) (in/out); power: 8 DIN (male);
Devicenet™	5-pin M12 (male);
FLOW-BUS/Modbus-RTU/ASCII	5-pin M12 (male)

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



### BRIGHT - COMPACT LOCAL READOUT/CONTROL MODULE

Bright, wide angle, 1.8" display

User friendly operation

Indication/operation/configuration



### PIPS - PLUG-IN POWER SUPPLY

For lab-style or industrial devices

Interchangeable plugs (Euro, UK, USA, Australian, IEC) for mains connection

## Related products



**IN-FLOW 'HIGH-FLOW' F-106EI**

Min. flow 8 ... 400 m<sup>3</sup>n/h  
Max. flow 80 ... 4000 m<sup>3</sup>n/h  
Pressure rating up to 40 bar  
Wafer type connection (DIN/ANSI)  
Rugged IP65 housing



**IN-FLOW 'HIGH-FLOW' F-106GI**

Min. flow 22 ... 1100 m<sup>3</sup>n/h  
Max. flow 220 ... 11000 m<sup>3</sup>n/h  
Pressure rating up to 40 bar  
Wafer type connection (DIN/ANSI)  
Rugged IP65 housing



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