FLATREG MFC
Mass Flow Controller



- Ultra compact size < 22mm
- Best performance-to-cost ratio
- Fast time-to-market through complete sub-assemblies
- No drift, no recalibration required
- For robotic welding, industrial packaging, industrial leak testing, bioreactors, analytical instrumentation, medical devices and industrial & process gas control

Technical features

Sensor:
Thermal MEMS

Flow ranges:
0-40 l_s/min,
0-20 l_s/min
Custom flow range on request

Operating gas:
Air, N_2, O_2, CO_2
Other gas on request

Dynamic range:
500:1

Accuracy *1):
± 0.2% of full scale
(0-10% of max flow)
± 2% of reading
(10%-100% of max flow)

Operating voltage:
24 V d.c. ±10%

Current supply:
< 100 mA

Electrical connection:
JST Connector BM06B-GHS-TBT

In & output signals:
Analog 0 ... 5 V d.c. & RS485
Analog 0 ... 5 V d.c. & RS232

Digital communication protocol:
IMI FAS proprietary protocol & Modbus RTU

Weight:
205 g

Seal material:
FPM

Pneumatic connections:
In line version (G1/4")
Manifold mount

Response time:
As fast as 100 ms
No warm-up time

Gas temperature:
+10 ... +50°C (°50 ... +122°F)

Ambient temperature:
+10 ... +50°C (°50 ... +122°F)

Internal and external leak rate:
Standard: <10^{-2} mbar l/s, air @ 7 barg
On-demand: <10^{-6} mbar l/s He
100% of the devices are tested in production

Thermal drift:
±0,004% of full scale per °C (0-10% of max flow)
±0,04% of reading per °C (10-100% of max flow)

Additional options:
USP class VI seals

*1) Calibrated with air at 4 barg, under standard conditions: 20°C, P=1 atm. Custom calibration conditions on demand. Accuracy does not include reference error.

Technical data – standard models

Flow range *2) (l_s/min)	Gas	Mounting	In & output signals	Max. inlet pressure *3) (barg)	Model
0 ... 40	Air, N_2, O_2	Inline G 1/4"	Analog 0 ... 5 V d.c. & RS485	7	8580401CJ58113110000
0 ... 20	Air, N_2, O_2	Inline G 1/4"	Analog 0 ... 5 V d.c. & RS485	10	8580201CJ58113110000

*2) Please ensure that the pressure differential is high enough to obtain the desired flow rate
For 40 l_s/min version, an inlet pressure of minimum 0.4 barg is required to obtain 40 l_s/min, with outlet at atmosphere
For 20 l_s/min version, an inlet pressure of minimum 3.9 barg is required to obtain 20 l_s/min, with outlet at atmosphere
*3) Higher max inlet pressure on request

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Electrical connection (optional)

Electrical connector
JST GHR-06V-S
with 300 mm flying leads



S401.0024

Cable starter kit (optional)

USB to JST cable (incl. RS485 converter)
Power supply, universal input voltage and interchangeable AC blades for global use



S401.0305

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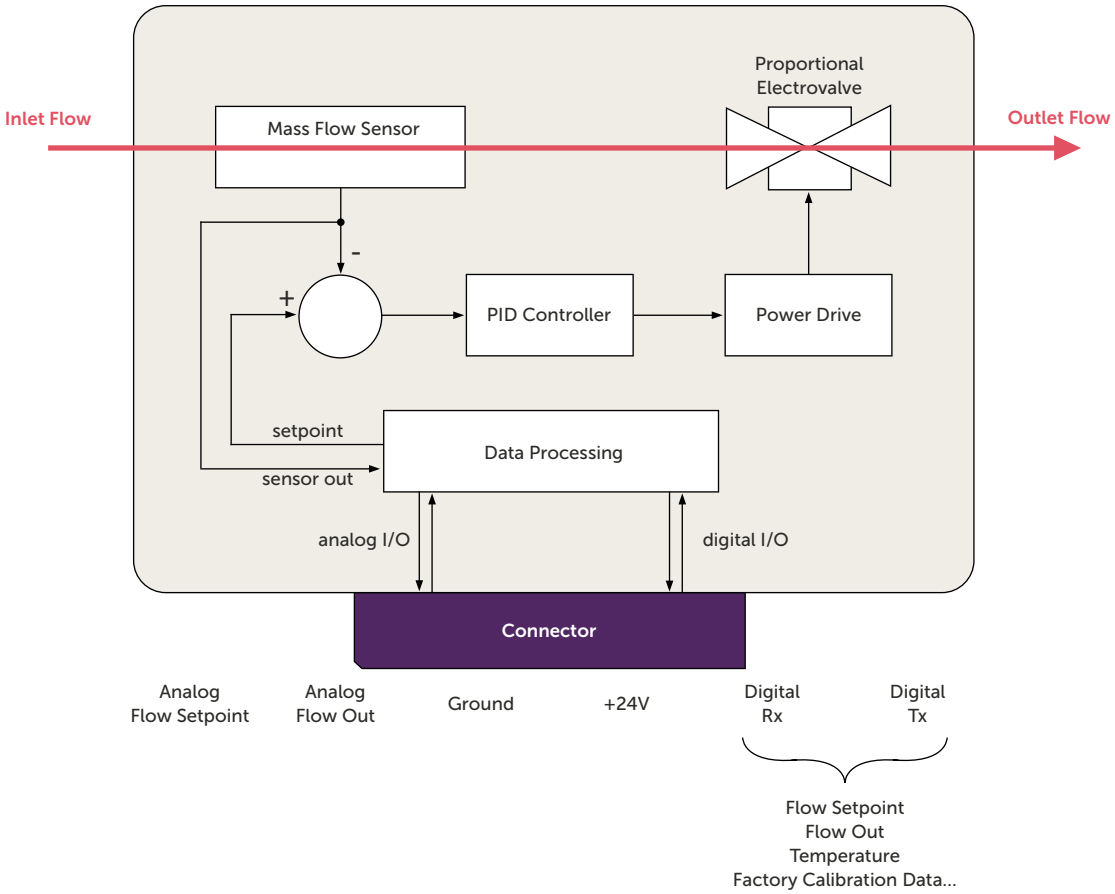
Codification and option selector

858★★★1C★★★113110000

Flow range (air)	Substitute
0 ... 40 l/min	040
0 ... 20 l/min	020
Custom flow on demand	
Electric interface	**Substitute**
RS232 + IN 0 ... 5V + OUT 0 ... 5V	G
RS485 + IN 0 ... 5V + OUT 0 ... 5V	J
Mounting	**Substitute**
Manifold mount	1
Inline G1/4"	5
Media *4)	**Substitute**
Nitrogen (N_2), Oxygen (O_2), Air	8
On request:	
Carbon Dioxide (CO_2)	3
Argon (Ar)	5

*4) Flow range will differ from air (standard), flow media correspondance available on request. For example, CO_2 flow is 50% of N_2 flow.

Block diagram

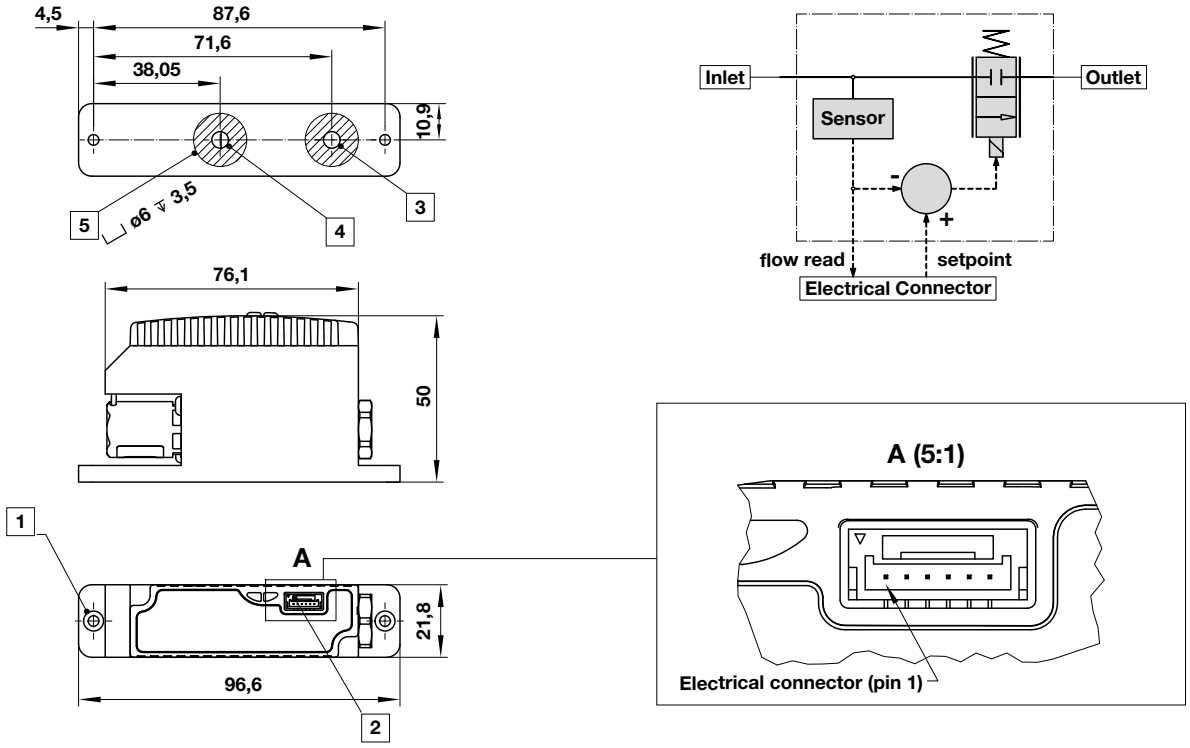


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Dimensions

Manifold mount

Dimensions in mm
Projection/first angle



1 ø 3,2 mm through all hole (2x)
2 Connector JST BM06B-GHS-TBT (First pin on the left)
3 INLET ø 5 mm
4 OUTLET ø 5 mm
5 ø 16 (2x) sealing area /Ra 0,8

Electrical connection

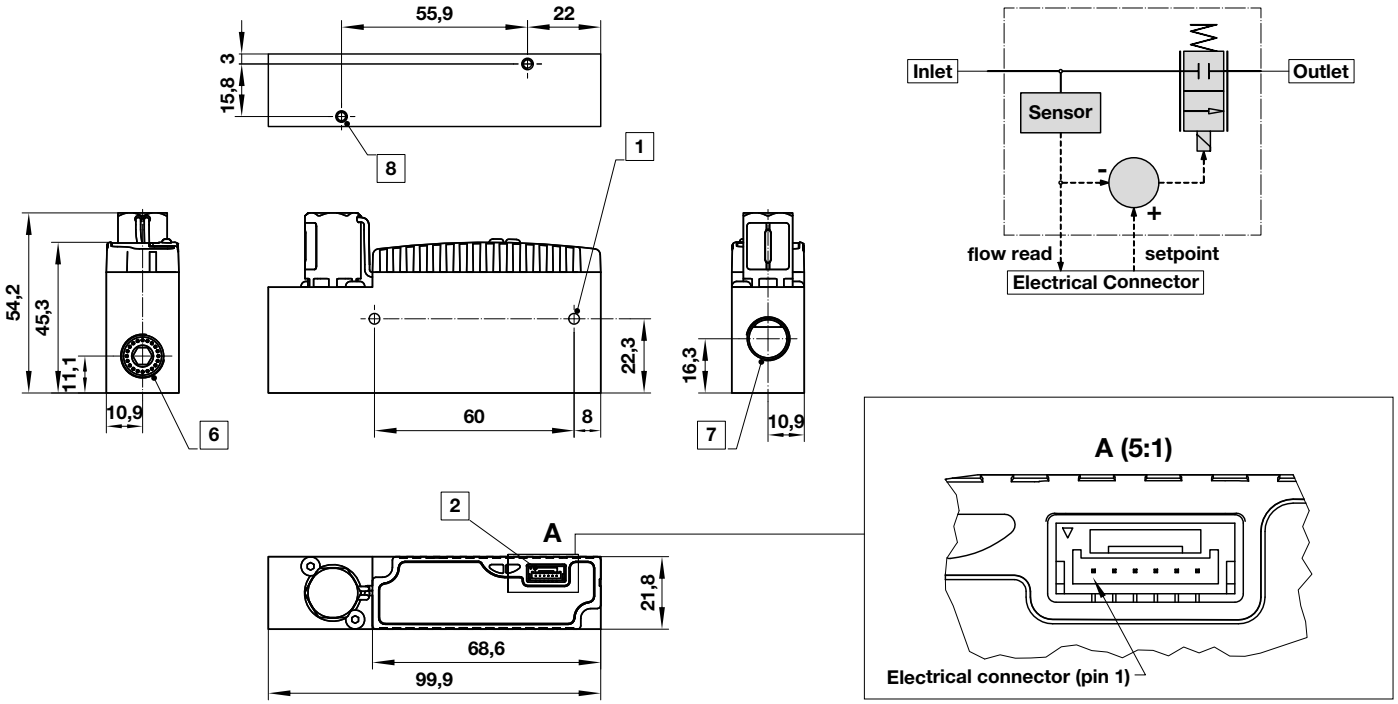
Pin#	Description (RS232)	Description (RS485)
1	+24V	+24V
2	Ground	Ground
3	Rx	A
4	Tx	B
5	Analog flow out	Analog flow out
6	Analog flow setpoint	Analog flow setpoint

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Dimensions

Inline version (G 1/4")

Dimensions in mm
Projection/first angle



1 ø 3,2 mm through all hole (2x)
2 Connector JST BM06B-GHS-TBT (First pin on the left)
6 INLET G 1/4'', Thread depth: max. 12 mm
7 OUTLET G 1/4'', Thread depth: max. 12 mm
8 M3x0,5 (2x), Thread depth: max. 6 mm

Electrical connection

Pin#	Description (RS232)	Description (RS485)
1	+24V	+24V
2	Ground	Ground
3	Rx	A
4	Tx	B
5	Analog flow out	Analog flow out
6	Analog flow setpoint	Analog flow setpoint

Warning

These products are intended for use with aggressive sensitive media. Please contact IMI for more compatibility requests.
Do not use these products where pressures and temperatures can exceed those listed under **„Technical features/data"**. Before using these products with fluids other than those specified, for non-industrial applications, life-support systems or other applications not within published specifications, consult IMI.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure. System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

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