



The GS series mass flow meters are microprocessor-based thermal mass flow.

- Mass flow measurement and regulation of gases
- Ranges of 0,025 Sl/min up to 500 Sl/min
- Accuracy better  $\pm 1\%$  F.S.
- Serial interface (RS-485)
- Networking with up to 247 devices
- Current or voltage output and input

## Technical Description

The regulator contains a digitally or electronically driven valve to regulate the flow automatically.

## Specifications

### Accuracy

Standard:  $\pm 1,0\%$  F.S. Span 1:50  
 Hi-Performance:  $\pm 0,3\%$  F.S. +  $\pm 0,5\%$  o.R. Span 1:100  
 Analogue Output:  $\pm 0,25\%$  F.S. s. above  
 Long-term stability:  $< 1\%$  o.R. per year, pressure drift :  $< 0,2\%$  / bar (typically N<sub>2</sub>), regulation stability:  $\pm 0,1\%$  F.S., leak rate:  $10^{-8}$  mbar l/s He (with valve:  $10^{-6}$  mbar l/s He).

### Cycle Time and Response Behaviour

50 ms, step response after 150 ms accuracy of  $\pm 2\%$  F.S.  
 Damping adjustable with get red-y software.

### Operating Conditions

Pressure: 0 to 10 bar overpressure  
 Temperature: 0 to +50 °C  
 Gases: Air, N<sub>2</sub>, O<sub>2</sub>, He, Ar, CO<sub>2</sub>, H<sub>2</sub>, CH<sub>4</sub>, C<sub>3</sub>H<sub>8</sub>, N<sub>2</sub>O, SF<sub>6</sub>, C<sub>3</sub>H<sub>6</sub>, CO, C<sub>4</sub>H<sub>10</sub>.

Ranges of Ordering Information are valid for Air, N<sub>2</sub> and O<sub>2</sub> at standard conditions (1013 mbar abs., 0 °C, 0 % r.H.).

### Pressure Limits

Bursting pressure: 15 bar

### Media Compatibility

Clean, dry, non-condensing gases.

### Enclosure

Dimensions	Electr. Housing	44 x 87 x 25 mm / 44 x
	GSM / GSC:	117 x 25 mm (HxWxD)
	Body:	25 x 94 x 25 to 42 x
		250 x 42 mm (HxWxD)
Material	Electr. Housing:	Plastic
	Body:	Aluminium / stainless Steel
	Flow Divider:	Brass, nickel-plated

Total Weight:  $\approx 500$  g

Ingress Protection: IP 50

### Electrical Connections (Outputs)

1 x Serial data (RS-485) and  
 1 x Current (0/4 - 20 mA) or  
 1 x Voltage (0/1 - 5 V o. 0/2 - 10 V): SUB-D (m), 9-pole

Current and voltage output only alternatively!  
 Additionally a current or voltage setpoint signal of identical specifications can be feeded.

### Process Connections

G 1/4" f, G 1/2" f or G 3/4" f (2 x), cf. Ordering Information.

### Power Supply

24 VDC (23 to 26 VDC) via SUB-D connector.

## Special Features

### Networking

Modbus protocol: max. 247 devices, differently addressable each, can be connected to a network.

### Alternative Operating Conditions

Multiple calibrations: storage for max. 3 data sets.

### Totalisator Function

Integrator: determination and output of the gas amount.

### Temperature Signal

Gas:  $\pm 0,5$  °C accurate temperature measurement/output.

### Backflow Detection

Info: constant measuring value on threshold violation.

### Integrated Control Valve (GSC)

Control: digital or analogue via setpoint signal. Characteristic curve: linear with pressure-dependent working points.

## Ordering Information

Part No. Structure: **GSx-MR-AC-BM-AO-SI-VN**

### GSx Model

GSM Gas mass flow meter

GSC Gas mass flow controller

### MR Measuring Range

A1	0,025 Sl/min	G 1/4" f
A2	0,05 Sl/min	G 1/4" f
A3	0,1 Sl/min	G 1/4" f
A4	0,2 Sl/min	G 1/4" f
A5	0,5 Sl/min	G 1/4" f
B3	1 Sl/min	G 1/4" f
B4	2 Sl/min	G 1/4" f
B5	5 Sl/min	G 1/4" f
C3	10 Sl/min	G 1/4" f
C4	20 Sl/min	G 1/4" f
C5	50 Sl/min	G 1/4" f
D3	100 Sl/min	G 1/2" f
D4	200 Sl/min	G 1/2" f

### Connection

### AC Accuracy Class (digital)

S  $\pm 1,0\%$  F.S.  
 T  $\pm 0,3\%$  F.S. +  $\pm 0,5\%$  o.R.

### BM Material of Body

A	Aluminium	Viton
B	Aluminium	EPDM
S	Stainless steel	Viton
T	Stainless steel	EPDM

### Material of Valve

### AO Analogue Output/ SI Setpoint Input

A	Current: 4 - 20 mA (NAMUR NE 43)
B	Current: 4 - 20 mA
C	Current: 0 - 20 mA

### AA Analogue Output/ SI Setpoint Input

D	Voltage: 0 - 5 V
E	Voltage: 1 - 5 V
F	Voltage: 0 - 10 V
G	Voltage: 2 - 10 V

### VN Nominal Width of Valve

21	0,1 mm
22	0,2 mm
24	0,8 mm
12	4,5 mm

Additional options and accessories on request: Profibus connection, specific ranges, gases, connections, cables, calibration, etc.