

gasQS™ flonic Z1

Install, configure, forget

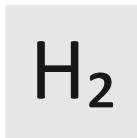
Based on a microthermal CMOS sensor, in combination with a critical nozzle and two valves, heat conductivity, heat capacity and relative density of natural gas can be measured. From these quantities, the device correlates various measured quantities. It requires no carrier gases, is robust, compact, and inexpensive.

This stand-alone unit requires no carrier gases, is robust, compact and cost-effective. An integrated control output makes it possible to set up an additional automatic control measurement. The device is a complete in-house development by Mems AG. Due to the complex knowledge of the physics, the individual components and their interaction, customer-specific applications can be flexibly implemented.

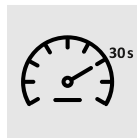
The gasQS measurement systems¹ based on a flonic offer a complete ready-to-use solution that is tailored to the customer application.



Modbus
RTU/ASCII



Suitable for high H₂ concentrations



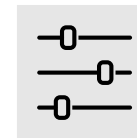
Fast measurement



Easy to integrate



Reliable



Individually adaptable

Measurement range

Output value std. ²		Unit	Range	Accuracy ³	Repeatability ⁴
Norm Density	<i>d</i>	kg/m ³	0.528 ... 0.970	±0.4%	±0.04%
Relative density to air	<i>SG</i>	-	0.400 ... 0.750	±0.4%	±0.04%
Lower calorific value	<i>H_i</i>	MJ/m ³	27.0 ... 43.0	±1.0%	±0.03%
Lower Wobbe Index	<i>W_i</i>	MJ/m ³	35.3 ... 50.3	±1.3%	±0.04%
Higher calorific value	<i>H_s</i>	MJ/m ³	30.0 ... 47.0	±1.0%	±0.03%
Upper Wobbe index	<i>W_s</i>	MJ/m ³	39.6 ... 56.5	±1.3%	±0.04%
Methane number AVL	<i>MN AVL</i>	-	60 ... 100	±3.0%	±0.06%
Hydrogen content ⁵	<i>H₂</i>	mol%	0 ... 50	±1.0%	±0.05%
Compressibility factors	<i>Z, Z_n</i>	-	-	±0.5%	±0.04%
Conversion Factor	<i>C</i>	-	-	±0.5%	±0.04%

This table shows only a selection of possible output values.

¹ Further information on request

² The standard scope of delivery includes density plus one selectable value; up to 10 additional values are currently programmable, additional output values can be found in the order code or on request
Standard conditions 0 °C, 25 °C, 1013.25 mbar absolute

Factory settings: MJ/m³, kg/m³ at standard conditions, further reference conditions and units are stored

³ The precision of H gases is more precise and listed in a separate data sheet. %-values refer to the measured value

⁴ Statistical scatter value with 2 sigma of moving average with 8 values

⁵ The properties of gas mixtures with H₂ content above approximately 30 mol% may fall outside of the given measuring ranges. Custom solutions are available for many different gas mixtures and applications.

Specifications

Measuring time:	≥30 seconds
Measuring interval:	continuous, programmable in seconds
Response time:	T90 within 3 measurement intervals
Operating/storage temperature ⁶ :	-10 ... +55 °C
Ex device protection type:	Ex II 2G Ex ib IIC T4 Gb IECEX SEV 22.0007X SEV 18 ATEX 0111 X

Medium

Media:	dry, neutral gases (10 µm filtering)
Load limit supply line:	+8.0 bar relative
Supply line pressure range:	+2.5 ... +5.0 bar relative
Outlet line pressure range ⁷ :	-50 ... +200 mbar relative
Gas consumption:	approx. 0.03 l _n /measurement interval, unchanged gas quality

Electrical

Output signal ⁸ :	Modbus-RTU (EIA-485 2-wire) M12-A, female, 5-pole
Supply voltage ⁹ :	+12.0 VDC ±10 % M12-A, male, 4-pole
Power consumption:	0.5 W

Mechanical

Gas connection:	Swagelok 6 mm tube fitting (SS-6M0-1-2RS)
Dimensions (L x W x H) :	213 x 80 x 137 mm
Weight:	2.25 kg
Protection class:	IP42

Accessories (optional)

EX Package	1x Mems AG MINI-PS-12-24DC/5-15DC/2-X, +10.5 ... +36 VDC 2x Zener barriers, communication, and power supply 2x 10 m cable PVC assembled, shielded, RAL 5015 blue
Bus converter	Modbus RTU to customised bus profile
Maintenance cable	USB-RS485-M12, 5 m

⁶ Medium and ambient temperature

⁷ Feed into free-flowing exhaust or low-pressure line, tolerant of weather fluctuations

⁸ Factory settings Modbus: 19200 bps, even parity bit + 1 stop bit, slave address: 0x01

⁹ When designing the power supply, the voltage drops of the Zener barriers used must be compensated