



Industrial Gas Flow Measurement

HYDROGEN (H_2)

Flow Metering Solutions

SICK
Sensor Intelligence.

In addition to the today's chemical process industry, hydrogen is becoming one of the most important energy carriers of the future. With the FLOWSIC family SICK offers ultrasonic meters for gas flow measurement of pure hydrogen (100 vol.-%).

Your benefits

- No pressure loss
- Large turn down
- Permanent health check (diagnostics)
- Gas quality monitoring (speed of sound)
- Pure H₂ measurement

Technical data

| | Flowrate [m ³ /h] | | Maximum Velocity [m/s] | Length (flange-to-flange) [mm] | Weight (ANSI CL600) [kg] |
|---------------|---|-------|---------------------------|--------------------------------------|--------------------------------|
| | min* | max | | | |
| DN150/6 inch | 85 | 1710 | 30 | 450 | 150 |
| DN200/8 inch | 115 | 3000 | 30 | 600 | 220 |
| DN250/10 inch | 140 | 4600 | 30 | 750 | 330 |
| DN300/12 inch | 160 | 6200 | 30 | 900 | 500 |
| DN400/16 inch | 215 | 11000 | 30 | 762 | 650 |
| DN500/20 inch | 625 | 17200 | 30 | 902 | 990 |
| DN600/24 inch | 750 | 24700 | 30 | 991 | 1615 |
| Material | Meter Body: LT-CS (A352 LCC), two layer RAL9003 coated or Stainless Steel (A182 Gr. F316/316L), uncoated Electronics: Aluminum or Stainless Steel Transducer: Stainless Steel | | | | |
| Flange Type | ASME B16.5 | | | | |
| | * Referenced speed of sound at 1350 m/s equivalent e.g. p = 50 bar at T = 20 °C (100% H ₂) | | | | |

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|---|--|
| Measured values | Volumetric flow, a. c., volume a. c., gas velocity, speed of sound |
| Number of meas. paths | 1+1 paths crossed (DN500 and DN600 2 paths in plane) |
| Measurement principle | Ultrasonic transit time difference measurement |
| Measurement medium | H ₂ (95 ... 100%) |
| Repeatability | ± 0.5% of the measured value (typical) |
| Accuracy (0.1 Q _{max} ... Q _{max}) | ≤ ± 2.0% (un-calibrated), ≤ ± 4.0% below 0.1 Q _{max} (typical) |
| Min. piping requirements | Straight inlet section of ≥ 20D or ≥ 10D with flow conditioner |
| Operating pressure (typical) | 5 ... 100 bar(a) (minimum pressure depending on line size and H ₂ content) |
| Gas temperature | -40 ... 100 °C |
| Ambient temperature | -40 ... 60 °C |
| Ambient humidity | ≤ 95% relative humidity; non-condensing |
| Conformities | ISO17089-2 |
| Ex-approvals (IECEX) | CSA, ATEX, IECEx, Zone 1 Classification according IIC T4, intrinsically safe transducers |
| Electrical safety | CE |
| Enclosure rating | IP66 / IP67 |
| I/O configuration | 1x RS485, 1x Pulse, 2x Status Outputs, 1x Analog Output (4-20mA / HART) 2x RS485, 2x Pulse, 1x Status Outputs |