Trigas DM

Durchflussmesser-Manufaktur

GH2 HUB

For Stationary Trailer Swap Station

Datasheet

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GH2 HUB – Certified custody transfer flow measuring system for gaseous hydrogen

Efficient Trailer Swap Station Solution for Stationary Hydrogen Discharge

The GH2 HUB flow measurement system is the ideal solution for certified custody transfer flow measurement when discharging hydrogen swap trailers. The compact system was especially developed for refuelling at different flow rates and offers maximum flexibility and user-friendliness.

Flexible Flow Measurement for Wide Measuring Ranges

The GH2 HUB can be equipped with one or two flow sensors, depending on the application. With two sensors, extremely large measuring ranges can be achieved – ideal for applications with highly fluctuating flow rates, from small requirements to large discharge rates. If you do not yet know your specific measuring ranges, Trigas will be happy to carry out appropriate test measurements and design the system to best suit your requirements. This guarantees you the best possible solution for your application.

Intelligent Control – Automatic or Manual

At the core of the GH2 HUB an intelligent pressure sensor technology is making the difference: one sensor automatically detects the connected trailer, while a second sensor monitors the system pressure of the customer application. If this falls below a defined value (e.g. 30 bar), the system automatically opens the valve and fills to the desired pressure limit. Alternatively, manual control allows you to fully control the filling process according to your individual requirements.

Easy Installation and Flexible Power Supply

The GH2 HUB can be easily integrated into existing infrastructures. It is usually installed as part of the customer's system. You can choose between a version with or without a protective cabinet. The connection is made via standard autoclave connections directly on the hydrogen trailer. There are two options available for the power supply: an intrinsically safe 24VDC supply provided by the customer or the supplied solar module for off-grid operation.

On-Site Calibration - Minimal Downtime

A key advantage: The legally required calibration is conveniently repeated every two years on site by our mobile service teams using the RMS reference measurement system developed by Trigas. Alternatively, you can also have the system tested in our ISO17025-certified calibration laboratory at TrigasFI. Minimize your downtime and maximize the availability of your system!

Key Benefits at a Glance

- Certified custody transfer stationary measurement system for swap trailers, legal basis for hydrogen delivery billing
- Automatic or manual filling operation
- Rugged design for high-pressure ratings
- Flexible power supply (24 VDC or solar)
- Easy integration, with or without protective cabinet
- Minimal downtime thanks to on-site calibration by mobile teams at your location

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Technical data for GH2 HUB – stationary certified custody transfer measuring system for hydrogen swap trailers

Standard configuration. We will be happy to advise you on available options.

GH2 HUB	
Medium	Gaseous hydrogen
Operating pressure range	20 to 1048 bar
Qmin (minimum flow rate)	0,075 kg/min
Qmax (maximum flow rate)	24 kg/min
Cut-off threshold	0,04 kg/min
Measurement accuracy	±2%
Operating temperature for pressurized parts	-50 to +120°C
Temperature range	-40 to +55 °C
Ambient temperature range	-25 to +55 °C
Mechanical/Electrical environment	M2/E2
Power supply	24 VDC
Overall dimensions (complete unit) with one sensor:	Housing ca. 600 x 500 x 280 mm Weight ca. 30 kg
Overall dimensions (complete unit) two sensors:	Housing ca. 1100 x 600 x 430 mm Weight ca. 45 kg

Components

Coriolis-Flow Meter:	
Type	RHM 04 and/or RHM 10
Housing material	Stainless steal
Wetted material	SS 316 / HP160
Process connections	Autoclave 9/16“ MP (13/16“-16 UN)
Approvals	ATEX/IECEx: Zone 1 ATEX / IEC <Ex> II 2G Ex ib IIC T6…T1 Gb Certificate No.: IECEx BVS 17.0063 Note: Explosion safety regulations must be observed. Design according to PED: 2014/68/EU Art. 4(3) SEP

Coriolis-Transmitter:	
Type	RHE42 (one or two devices)
Housing material	Coated aluminium
Degree of protection	IP 65
Approvals	ATEX/IECEx: Zone 1 ATEX / IEC <Ex> II 2(1)G Ex db eb [ia Ga] IIC T6 Gb
Ambient temperature	-20 to +60°C
Outputs	2 analogue outputs 4–20 mA, active / passive; 2 frequency / pulse / status outputs
Inputs	2 digital signal inputs All digital I/Os: in accordance with DIN IEC 60946
Communication interfaces	Modbus RS485 Modbus TCP
Power supply	12-24 VDC +/-10%
Dimensions	Housing approx. 144 x 108 x 139 mm (per device) Weight approx. 2,3 kg

Operator terminal C406:	
Housing material	Aluminium housing
Degree of protection	IP54
Approvals	ATEX/IECEx: Zone 2 ATEX <Ex> II 3G Ex ec IIC T4 Gc
Ambient temperature	-25 bis +55°C
Outputs	RS232 for printer RS485 for external SPS
Operation	6 push-buttons, USB, RS485
Billing/totalizing unit	Kg / Nm³
Power supply	16-27 VDC +/-10%
Dimensions	Housing approx. 95 x 240 x 150 mm Weight approx. 2,5 kg

Electrical Cabling	
Measurement cable	
Length	3 m (standard), longer on request
Interface	Coriolis and transmitter
Connecting cable	
Length	3 m (standard), longer on request
Interface	Transmitter and operator terminal
Special features	UV-resistant, chemically resistant, halogen-free, oil-resistant and low-capacitance

Communication cable	
Length	3 m (standard), longer on request
Interface	Operator terminal and SPS
Special features	UV-resistant, chemically resistant, halogen-free, oil-resistant and low-capacitance

Power cable	
Length	3,5 m (standard), longer on request
Interface	Operator terminal and power source
Special features	Flame-retardant, UV-resistant, ozone-resistant, chemically resistant, oil-resistant, LABS-free For use between operator terminal and power source
Connectors	Harting Han Ex 8D QL Set agg/gg-M20: IEC 60664-1; IEC 61984; IEC 60079-0; EN 60079-11

Certifications:

The devices are supplied with the following certificates:

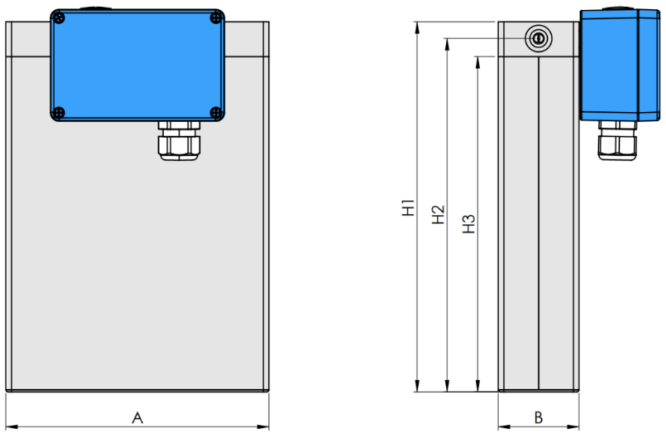
- Conformity assessment
  Validity: 2 years

Documentation:

- The following documentation is included with each system:
- Maintenance logbook
- Operating manual (German)
- Calibration certificate issued by Trigas FI GmbH
- Declaration of Conformity

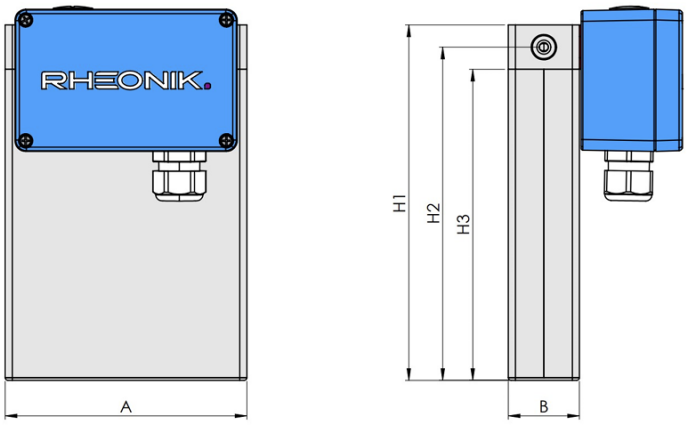
Dimensions

1) Coriolis Flow Meter (RHM10)



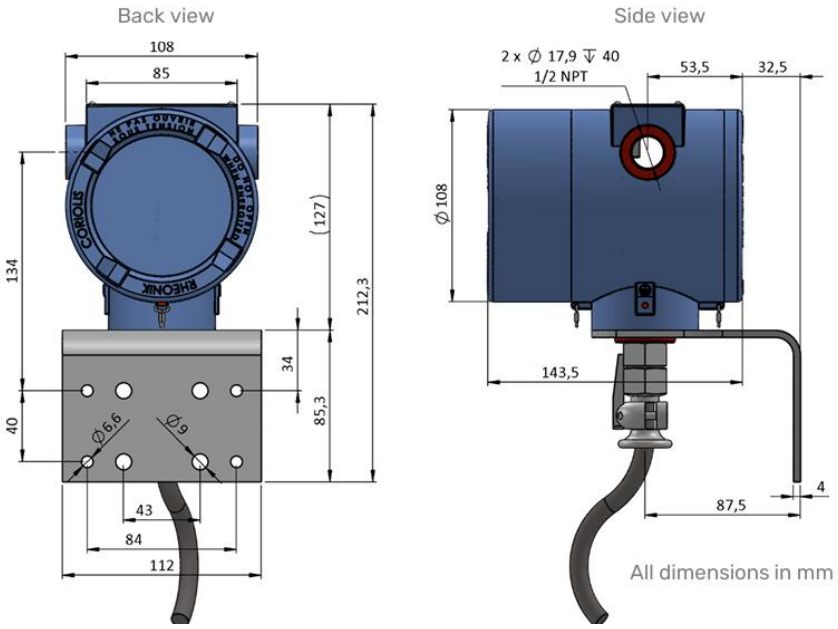
Dimensions	mm
A	189
B	58
H1	265
H2	253
H3	240

2) Coriolis Flow Meter (RHM04)



Dimensions	mm
A	136
B	40
H1	200
H2	188
H3	175

3) Coriolis Transmitter (RHE42)



4) Operator terminal (C406)