MADE IN GERMANY

AQUALIMPIA ENGINEERING

Measured variables
- actual flow rate
- actual velocity
- standard volume flow (in combination with pressure and temperature sensors)

Design
- measuring tube with flanged connection

Functional principle
- vortex meter for measuring flow rate and volume
- ultrasonic acquisition of the frequency of the vortex shedding

Advantages
- compact unit for explosive atmospheres with local display
- applications in Category 1 (Zone 0 and 20); transducer housing approved for Category 2 (Zone 1 and 21)
- no external isolation/supply unit necessary
- recognizes even the lowest rates of flow, thanks to patented ultrasonic sensing
- high turndown (up to 1 : 100)
- no moving parts
- easy to clean
- high durability
- corrosion-resistant
- largely unaffected by gas composition
- marginal pressure loss
- easy adjustment of parameters with HART® interface

Examples of application
- flow measurement in explosive atmospheres: air, exhaust air, sludge activation air, engine intake air, natural gas, waste gas, process gas, biogas, car exhaust emissions, flare gas, water vapour, …

Media
- primarily single-phase gas mixtures with air, nitrogen, oxygen, methane, natural gas, flare gas, ammonia, argon, carbon monoxide, water vapour, ... as dominant components; combustion gas, biogas, fermentation gas, sewer gas

  Other gases and gas mixtures on request.

Particles, humidity and condensation
- dust or fibre particles in the gas do not affect the measurement, as long as these are not abrasive or accumulate on the sensor
- measurement uncertainty remains unaffected by a relative gas humidity of less than 100 % and a slight accumulation of condensate on the sensor

(3) Materials in contact with the medium

Design	Material
... GE ...	stainless steel 1.4571, ceramics
... GT ...	titanium 3.7161, ceramics
... GH ...	Hastelloy 2.4610 (HC4), ceramics
... GL ...	tantalum, ceramics

(4) Measuring range

Di [mm]	flow rate V/t [m³/h]	average flow velocity v_m [m/s]	interrelationship v_m - V/t
25	0.7 ... 44	0.4 ... 25	1 m/s = 1.77 m³/h
40	1.8 ... 135	0.4 ... 30	1 m/s = 4.52 m³/h
50	2.8 ... 212	0.4 ... 30	1 m/s = 7.07 m³/h
80	7.2 ... 724	0.4 ... 40	1 m/s = 18.1 m³/h
100	11.0 ... 1131	0.4 ... 40	1 m/s = 28.3 m³/h

Measurement uncertainty	< 1 % of measured value + 0.3 % FS (at +20 °C / 1000 hPa)
Repeatability	± 0.2 % of measured value + 0.025 % FS
Input/output sections	in order to achieve as great a measurement accuracy as possible, an input/output section of 20/10 x Di is recommended. The input section can be reduced considerably by using a flow rectifier (see Accessories). Further information on this subject can be found in the Operating Instructions

(5) Maximum working pressure

up to 10 bar / 1 MPa overpressure

(6) Design

as in Drawing 1 (Page 1)

(7) ATEX protection

for gas	: ⟨Ex⟩ II 1/2 G Ex ia/d e [ia] IIC T6 Ga/Gb
for dust	: ⟨Ex⟩ II 1/2 D Ex ia/tb IIIC TX Da/Db
sensor	: Category 1 (Zone 0 or 20)
transducer housing	: Category 2 (Zone 1 or 21)

Transducer UVA integrated in the connection housing	
Analog output flow	4 ... 20 mA resistance max. 500 Ohm
Output limit value or quantity pulse	potential-free relay contact (normally-open) max. 300 mA / 27 VDC
Communication port	HART® via modem adapter for PC connection and UCOM software (see Accessories)
	output signals electrically isolated from power supply
Self-monitoring	parameter settings, sensor interface; in the case of error: analog output < 3.6 mA
Power supply	24 V DC (20 ... 27 V DC)
Power consumption	less than 5 W
Setting parameters (selection depending on parameter set)	analog output, time constant, profile factor, limit value or quantity pulse (rating adjustable), switchover actual/standard flow with parameters 'working pressure' and 'working temperature'

Accessories (optional)		
	Description	**Article No.**
LCD display	1st row: 'instantaneous value': flow rate or flow velocity 2nd row: 'counter' or 'error code' 2 x 16-digit, character height 5.5 mm, working temperature range -20 ... +50 °C display rotatable in 90 °-stages on removing the Ex-d housing window cover	A010/520
Calibration certificate v/VA		KLB
HART® modem adapter	for changing setting parameters, for PC-USB connection	A010/101
PC software UCOM	for configuring the UVA via RS232	A010/052

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