



# Ultrasonic Flow Sensors **soniQ**<sup>®</sup>

**SIKA**<sup>®</sup>  
founded 1901  
Dr. Siebert & Kühn GmbH & Co. KG

Series VUS



# Just a straight pipe

## Flow measurement without moving parts

The **soniQ**® from SIKA is a solid state flow sensor. The medium just flows through a straight stainless steel pipe. Nothing extends into a measuring pipe. The ultrasonic transducers are positioned on the outer surface of the pipe and therefore not in contact with the medium.

Exceptional features of **soniQ**®:

- No moving parts
- Only one wetted material, chemically resistant (stainless steel)
- No mechanical wear
- Three output signals
  - frequency output
  - analog output 4...20 mA
  - alarm output
- Independent of pipe and installation position
- Suitable for electrically non-conductive liquids, e. g. DI water
- Fast response
- Air detection
- Insensitive against pressure peaks and particles in the medium because of protected transducers
- Customised set-up on request



### Typical application areas

**soniQ**® is the ideal flow sensor for interference free operation combined with a long-life cycle.

**soniQ**® can be used in areas where flow sensors with moving parts cannot be applied, e. g. paddle wheel sensors.

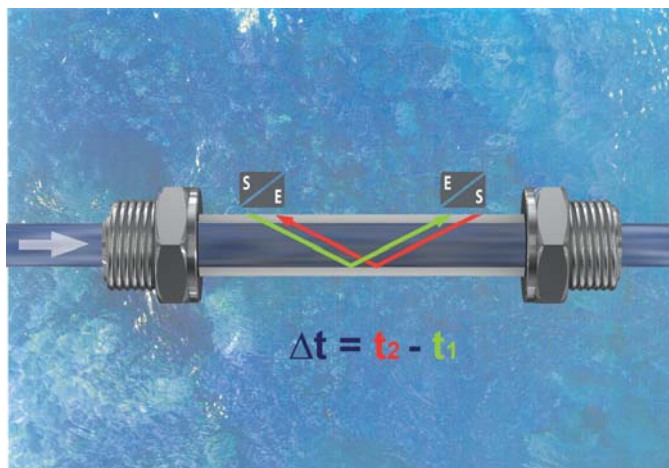
The wide independence to the inlet and outlet pipes creates the advantage to be able to install **soniQ**® even in compact machines with cramped confines.

### Operational principle

Ultrasonic flow metering is a method to measure flow rates without any moving parts.

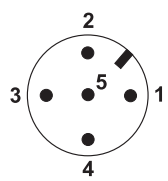

**soniQ**® operates on the transit time principle: Two ultrasonic transducers are positioned on the outer surface of the measuring pipe. These transducers are used alternately as transmitter (S) and receiver (E). Thus the sonic signal is transmitted in the flow direction (→) and reverse to the flow direction (←).

The difference of both transit times ( $\Delta t$ ) is proportional to the average flow velocity.



Materials	
Process connections	Stainless steel 1.4404
Measuring pipe	Stainless steel 1.4404
Housing	Aluminium casting

## Technical data

	VUS 10	VUS 20
<b>Flow range</b>	1.5...30 l/min	5...110 l/min
<b>Accuracy*</b>	3...30 l/min $\pm 4$ % of reading 1.5...3 l/min $\pm 8$ % of reading	10...110 l/min $\pm 4$ % of reading 5...10 l/min $\pm 10$ % of reading
<b>Signal output starting from</b>	1 l/min	2 l/min
<b>Max. flow rate</b>	33 l/min	140 l/min
<b>Repeatability</b>	1 %	1 %
<b>Medium</b>	Water and aqueous solutions	
<b>Medium temperature</b>	5...60 °C	
<b>Ambient temperature</b>	5...60 °C	
<b>Nominal pressure</b>	PN16	
<b>Diameter</b>	DN 10	DN 20
<b>Process connection</b>	thread connection $\frac{1}{2}$ " BSP male or $\frac{3}{4}$ " BSP male	thread connection 1" BSP male
<b>Flow indication / alarm indication</b>	LED green / red	
<b>Output signals</b>		
<b>Frequency output signal</b>		
• Pulse rate	855 pulses/l (factory setting in the range of 1...3000 pulses/l)	200 pulses/l (factory setting in the range of 1...1200 pulses/l)
• Signal shape	Square wave signal NPN or PNP open collector (factory setting)	
• Signal current	Max. 100 mA, short-circuit-proof	
• Max. pull-up voltage	30 VDC	
<b>Analog output signal</b>		
• Flow or	0...30 l/min, others on request	0...110 l/min, others on request
• Temperature	0...60 °C, others on request (accuracy $\pm 0.5$ K)	
<b>Alarm output signal</b>	<ul style="list-style-type: none"> <li>- Alarm in case of lack of flow or air in the pipe</li> <li>- PNP open collector, max. 100 mA short-circuit-proof</li> <li>- 16 different set points selectable with rotary switch</li> </ul>	
<b>Electrical data</b>		
<b>Electrical connection</b>	5 pin plug connector M12x1	
<b>Power supply</b>	10...30 VDC	
<b>Current consumption</b>	Max. 80 mA	
<b>Electrical protection measures</b>	Short-circuit proof (up to 30 V) and polarity protection (up to -30 V)	
<b>Protection class</b>	IP 54	
<b>Pin assignment</b>		
 <p> <b>PIN 1:</b> +U  <b>PIN 2:</b> alarm output PNP  <b>PIN 3:</b> GND  <b>PIN 4:</b> frequency   <b>PIN 5:</b> 4...20 mA         </p>		



\* Test conditions see operating manual VUS

## Order code

VUS 10		Order no.		
Frequency output signal	PNP open collector NPN open collector	VU13VP VU13VN		
Analog output signal	flow 0...30 l/min temperature 0...60 °C		A1AAAA A1AAA1	
Process connection	1/2" BSP male 3/4" BSP male			510 520

VUS 20		Order no.		
Frequency output signal	PNP open collector NPN open collector	VU25VP VU25VN		
Analog output signal	flow 0...110 l/min temperature 0...60 °C		E1CAAC570 E1CAA1570	

## Accessory

Accessory part	Length	Order code	
Connection cable with 5 pin cable socket M12x1, angle type, molded cable, screened, sheathing material PUR, (T <sub>max</sub> = 80 °C), UL-approval	3 m	XVUS055	
	5 m	XVUS057	
	10 m	XVUS058	
5 pin cable socket M12x1, angle type, unassembled		XVUS056	

## Set point table for the alarm output

### VUS 10



Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)	2	3	4	5	6	7	8	9	10	12	14	16	18	20	22	24
Set point increasing flow	0.5 l/min above the set point decreasing flow															

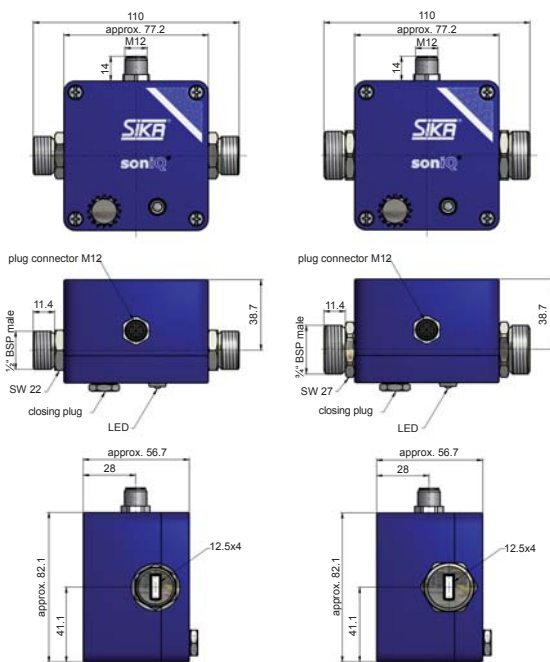
### VUS 20



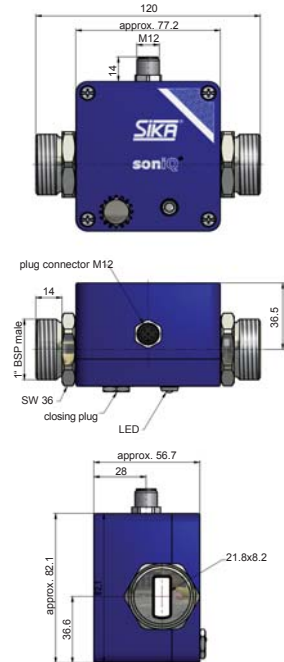
Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)	3	5	6	8	10	12	15	18	20	25	30	35	40	50	70	100
Set point increasing flow (l/min)	5	7	8	10	12	14	17	20	22	27	33	38	44	55	75	105

## Dimensions

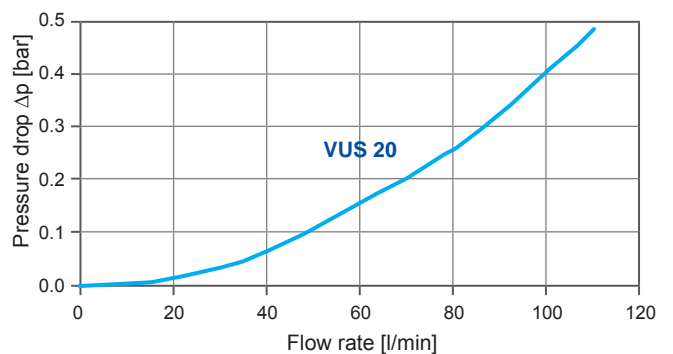
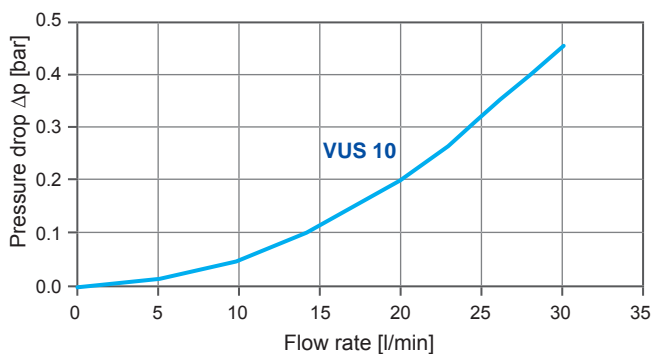
### VUS 10 1/2" BSP and 3/4" BSP



### VUS 20



## Pressure drop



# Our Production and Sales Range



Flow Sensors without moving Parts



Turbine Flow Sensors



Flow Switches



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Phone: 0700 CALL SIKA

Phone: +49 5605 803-0

Fax: +49 5605 803-54

E-Mail: info@sika.net

Internet: http://www.sika.net

Struthweg 7-9, 34260 Kaufungen

P.O. Box 11 13, 34254 Kaufungen

Germany

Subject to technical modification

