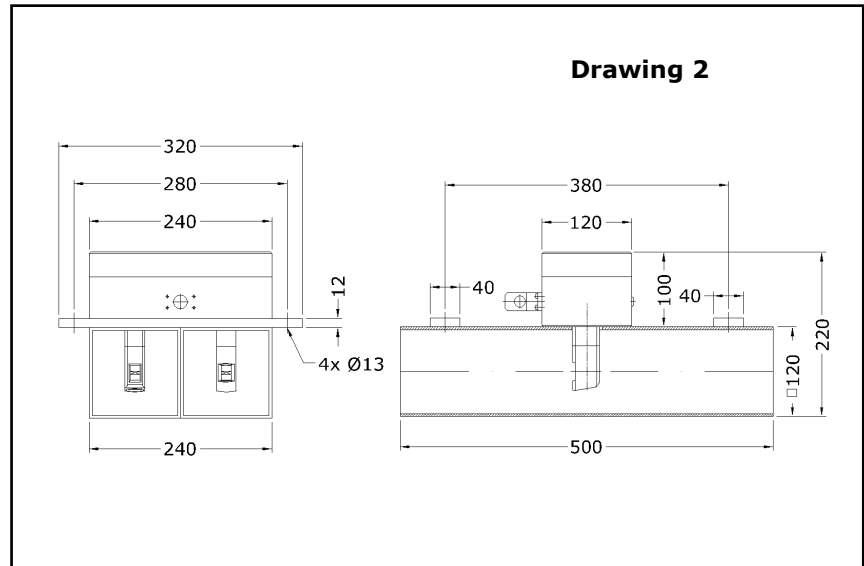




**Vortex flow sensor VAR TwinPipe with  $\pm$ directional sensing of flow  
for measuring flow velocity in traffic tunnels, mining galleries and waste disposal sites**



**Measurable variable**

- standard flow velocity  $v$  [m/s]

**Medium**

- air, exhaust air ...

**Range and examples of application**

- measurement of flow in traffic tunnels, mines and waste disposal sites
- control of air ventilation

**Measuring range**

$\pm 0.4 \dots \pm 25$  m/s

**Advantages**

- cost-efficient
- robust, maintenance-free and nonwearing, as no moving parts
- high fatigue strength and long-term stability
- reliable, even in extreme conditions
- unlike other measuring systems no on site calibration necessary
- only one installation point for the entire measuring system necessary
- application in Ex-protection Category 3G and 3D (zone 2 and zone 22) permissible

**Particles, humidity and condensation**

- charges in the gas caused by particles such as soot do not affect measurements, as long as geometric-changing agglomerations do not occur on the sensor
- relative humidity of less than 100 % does not affect the measurement uncertainty

**Functional principle**

- vortex meter for measuring flow velocity
- ultrasonic measurement of the vortex shedding

**Design**

- vortex twin flow sensor



**Design**

type	art. no.
VAR40-500GE 25 m/s 80 °C / p0 ZG2	b009/697

**Sensor type**

Vortex VAR TwinPipe for measuring flow velocity and the $\pm$ direction of flow as in Drawing 2
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**Dimensions (see Drawing 2, Page 1) / weight**

L / H / W	500 / 220 / 320 mm
Weight	approx. 19 kg

**Medium**

... G ...	air, exhaust air ... (gases)
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**Materials in contact with the medium**

... E ...	stainless steel, sensor housing 1.4581, twin pipe 1.4571, PE-coated metallic silver, ceramics, sealing parts : silicone, connection housing : aluminium with corrosion-inhibiting lacquering
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**Measuring range**

... 25 m/s ...	$\pm 0.4$ ... $\pm 25$ m/s
calibration values	$\pm 1$ ; $\pm 2$ ; $\pm 5$ ; $\pm 10$ ; $\pm 15$ ; $\pm 20$ ; $\pm 25$ m/s
measurement uncertainty	< 1.5 % of measured value + 0.03 m/s
consistency	0.2 % of measured value + 0.025 % of terminal value

**Permissible temperature of the medium**

... +80 °C ...	temperature of the medium or ambient temperature -40 ... +80 °C (continuous)
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**Max. working pressure / degree of protection / EMC**

approx. atmospheric pressure	
degree of protection	sensor IP68, connection housing IP67, as per IEC 529 and EN 60 529
EMC	EN 61 000-6-2

**Design**

as per Drawing 2 (see Page 1)
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### Connection housing AS124

dimensions	240 / 120 / 100 mm (L / W / H)
connection	cable socket GO 070 with screw-type terminals, for connecting cable with diameter 4 ... 10 mm and strand diameter 0.14 ... 0.5 mm <sup>2</sup>
terminal pin assignment	see Page 4

### Sensor mounting

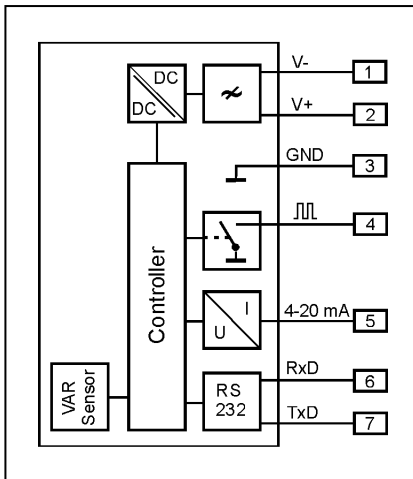
4 vertical drill holes with 13 mm diameter (see Drawing 2 / Page 1)

### Design as transducer UVA, integrated in the sensor connection housing

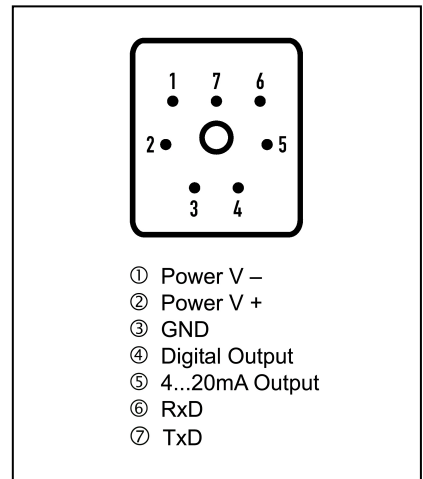
analog output v, flow velocity or flow rate	<b>4 ... 20 mA*</b> = 0 ... x m/s, with relay configuration (see below): $\pm$ direction of flow alternative configurable: <b>4 ... 12 ... 20 mA</b> = -x ... 0 ... +x m/s, terminal value x configurable / resistance max. 400 Ohm
output either limit value or $\pm$ directional flow	<b>relay</b> (normally open contact with reference to 'GND' (system ground)), max. 300 mA / max. 27 V DC
* when choosing ' $\pm$ direction of flow': analog output (see above) proportional to the absolute value v, without arithmetic sign	<b>limit value</b> (alternative 1, configurable): flow velocity < limit value: relay idle, flow velocity > limit value: relay in working position  <b><math>\pm</math>direction of flow v</b> (alternative 2, configurable): +direction: relay idle, - direction: relay in working position
PC serial port RS232	for changing calibration data and parameter by the manufacturer, connection via GO 070 cable socket
self-monitoring	output signals are electrically isolated from the power supply parameter settings, sensor interface; with error: analog output less than 3.6 mA
power supply	24 V DC (20 ... 27 V DC)
power consumption	less than 5 W
setting parameter	analog output, time constant, profile factor, limit value ...
setting parameter may be modified (by the manufacturer) using UCOM software and programming adapter	

### Accessories (optional)

	Description	art. no.
ATEX cat. 3G (zone 2)	Ex nA IIC T6 Gc	vaex2
ATEX cat. 3D (zone 22)	Ex tc IIIC TX Dc	
Calibration certificate v/VA		klbneu



Vortex VAR TwinPipe for ventilator control



Terminal pin assignment GO 070

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