

**Flow measurement with sensors ZS30 at working temperatures up to +350 °C
optional with integrated and configurable transducer UFA**



Measurable variable

- actual flow velocity v [m/s] in air/gases

Measuring range

- 0.3 ... 3.0 m/s

Functional principle

- vane wheel flow sensor
- scanning the vane rotation; non-contact inductive proximity switch

Advantages

- minimum reaction time
- high time yield thanks to ultralight titanium vane wheel which is easy on the bearings
- corrosion resistant
- can be sterilized
- high working temperature and pressure range
- operates largely irrespective of density and composition of gas
- low pressure drop
- easy adjustment to process parameter

Design

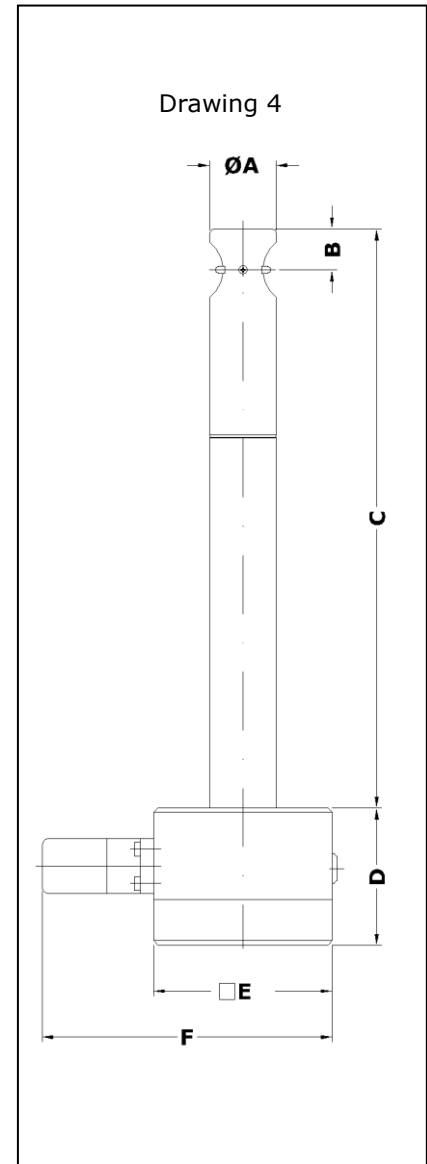
- insertion probe with AS80 housing

Medium

- air, gas mixtures and clean gases

Range and examples of application

- flow measurement of air, exhaust gas, process gas, for example
- monitoring laminar flow
- monitoring flow in pharmaceutical works



Vane wheel flow sensor ZS30
(see Page 3 for dimensions)

Humidity in the gas

- relative gas humidity of less than 100 % does not affect the measuring uncertainty

Model designation (example)							
ZS30/30	-350	G	E	md3T	350	p6	Ex ZG4
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) (9)

Basic types		
Type	Transducer/output	Article No.
Design '100 °C' / integrated UFA		
ZS30/30- 250 GE-md3T/100/p6/ZG4	UFA-int / 4-20 mA	B014/129-UFA
ZS30/30- 350 GE-md3T/100/p6/ZG4	UFA-int / 4-20 mA	B014/130-UFA
ZS30/30- 450 GE-md3T/100/p6/ZG4	UFA-int / 4-20 mA	B014/131-UFA
ZS30/30- 550 GE-md3T/100/p6/ZG4	UFA-int / 4-20 mA	B014/132-UFA
ZS30/30- 680 GE-md3T/100/p6/ZG4	UFA-int / 4-20 mA	B014/133-UFA
Design '350 °C' / integrated UFA		
ZS30/30- 250 GE-md3T/350/p6/ZG4	UFA-int / 4-20 mA	B014/109-UFA
ZS30/30- 350 GE-md3T/350/p6/ZG4	UFA-int / 4-20 mA	B014/110-UFA
ZS30/30- 450 GE-md3T/350/p6/ZG4	UFA-int / 4-20 mA	B014/111-UFA
ZS30/30- 550 GE-md3T/350/p6/ZG4	UFA-int / 4-20 mA	B014/112-UFA
ZS30/30- 680 GE-md3T/350/p6/ZG4	UFA-int / 4-20 mA	B014/113-UFA
Design '100 °C' / ext. evaluation unit		
ZS30/30- 250 GE-md3T/100/p6/ZG4	ext. e-unit nec. / v/FA	B014/129
ZS30/30- 350 GE-md3T/100/p6/ZG4	ext. e-unit nec. / v/FA	B014/130
ZS30/30- 450 GE-md3T/100/p6/ZG4	ext. e-unit nec. / v/FA	B014/131
ZS30/30- 550 GE-md3T/100/p6/ZG4	ext. e-unit nec. / v/FA	B014/132
ZS30/30- 680 GE-md3T/100/p6/ZG4	ext. e-unit nec. / v/FA	B014/133
Design '+350 °C' / ext. eval. unit		
ZS30/30- 250 GE-md3T/350/p6/ZG4	ext. e-unit nec. / v/FA	B014/109
ZS30/30- 350 GE-md3T/350/p6/ZG4	ext. e-unit nec. / v/FA	B014/110
ZS30/30- 450 GE-md3T/350/p6/ZG4	ext. e-unit nec. / v/FA	B014/111
ZS30/30- 550 GE-md3T/350/p6/ZG4	ext. e-unit nec. / v/FA	B014/112
ZS30/30- 680 GE-md3T/350/p6/ZG4	ext. e-unit nec. / v/FA	B014/113

(1) Sensor type / Sensor diameter
Vane wheel flow sensor ZS30 with sensor Ø 30 mm and shaft Ø 30 mm

(2) Sensor length measurement C (see drawing Page 1)
250 / 350 / 450 / 550 / 680 mm

(3) Medium
... G ... air / gases

(4) Materials in contact with the medium	
Design	Material
... E ...	stainless steel 1.4404 / AISI 316L, titanium, ceramics Al ₂ O ₃ 99.9 %, pure graphite

(5) Vane wheel type / Measuring range

Design	Measuring range
... md3T ...	0.3 ... 3.0 m/s (with a gas density of approx. 1.2 kg/m ³)
Measuring uncertainty	< 1.5 % of reading + 0.03 m/s
Consistency	± 0.02 m/s

(6) Permissible temperature of the medium

Design	Temperature
... 100 ...	-20 ... +100 °C (continuous)
... 350 ...	-40 ... +350 °C (continuous)
	-40 ... +400 °C (short-time)

ambient temperature	-40 ... +80 °C	with separate evaluation unit
	-40 ... +80 °C	with integrated transducer UFA-int
	-5 ... +50 °C	with 'LCD' option

(7) Max. working pressure / Type of protection for sensor

up to 6 bar / 600 kPa above atmospheric
type of protection IP68

(8) Option 'Ex'

Type of protection	Art.-No.	Comment
CE <Ex> II 2 G Ex ia IIC T6 Gb Gas-Ex: Category 2G (Zone 1)	FAEX1	only in connection with: isolation/supply unit LDX2 <u>and</u> 'non-Ex evaluation unit or compatible separate evaluation unit with Ex-output
CE <Ex> II 3 G Ex ec IIC T6 Gc X Gas-Ex: Categorie 3G (Zone 2)	FAEX2E	only in connection with: evaluation unit
CE <Ex> II 3 D Ex tc IIIC TX Dc X Dust-Ex: Categorie 3D (Zone 22)	FAEX2E	only in connection with: evaluation unit

(9) Design

as Drawing 4 (Page 1)					
measurements	A	Ø 30 mm	B	18 mm	C 250/350/450/550/680 mm
	D	60 mm	E	80 mm	F 130 mm

Connection housing AS80

measurements	80 / 80 / 60 mm (l / b / h)
connection	connector GO 070 with terminal screws
terminal connections	see Page 4
type of protection	IP65

Output / transducer (see Page 2, 'Basic types')

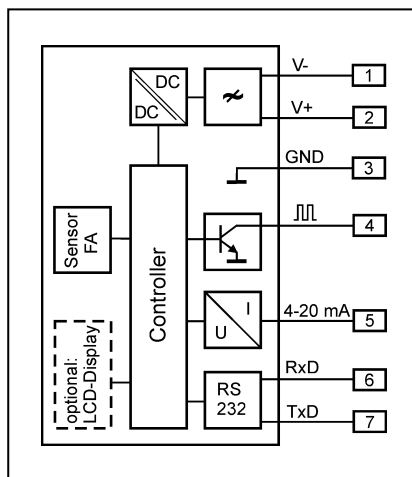
output 4-20 mA / integrated UFA	UFA transducer integrated in the sensor housing (see Page 4)
output sensor v/FA / sep. eval. unit necessary	Höntzsch evaluation unit with v/FA input necessary for signal evaluation
output sensor v/FA-Ex, sensor with option 'Ex' for use in Category	Höntzsch evaluation unit with intrinsically safe v/FA-Ex signal or evaluation unit with v/FA input in conjunction with a series connected isolation/supply unit necessary for signal evaluation

Design - Transducers UFA-int, integrated in the sensor connection housing		
analog output / burden	4 ... 20 mA, burden max. 400 Ohm	
output limit value	Open Collector / max. 50 mA / max. 27 V DC	
PC interface	RS232	
	the output signals are electrically isolated from the power supply	
self-regulation	parameter settings, sensor interface; in case of error: analog output less than 3.6 mA	
connection	connector GO 070 with terminal screws	
power supply	24 V DC (20 ... 27 V DC)	
power consumption	less than 3 W	
working temp. range	-25 ... +80 °C	
housing	sensor connection housing AS80	
EMC	EN 61 000-6-2, EN 61 000-6-4	
transducer with PC software UCOM and programming adapter capable of parameterization	Parameter	Factory settings
	analog output	4...20 mA = 0...x m/s (x = customers desire)
	time constant	1 s
	limit value v	3.00 m/s
	coefficient / profile factor	1.000

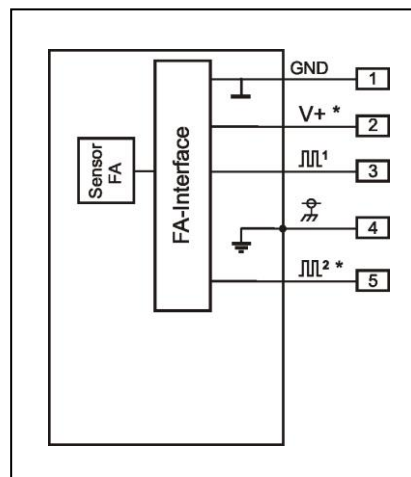
Accessories (optional)		
	Description	Art. No.
LCD in housing cover	2 x 16 digit, numerals 3 mm high, working temperature range -5...+50 °C	A010/007
calibration cert. v/FA	calibration values 0.5;0.75;1;1.5;2;3 m/s	KLB
PC software UCOM	for configuring the UFA/int via RS232	A010/052
programming adapter GO 070 / RS232	for software UCOM, connection PC Sub-D 9-pin, plug to mains supply 230VAC/24VDC	A010/004
Interface converter USB / RS232	connection PC : USB plug type A connection unit : Sub-D 9-pin	A010/100



optional LCD display in the housing cover



Wiring diagram with integrated UFA



Wiring diagram sensor for separate evaluation unit (* optional)

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Subject to alteration