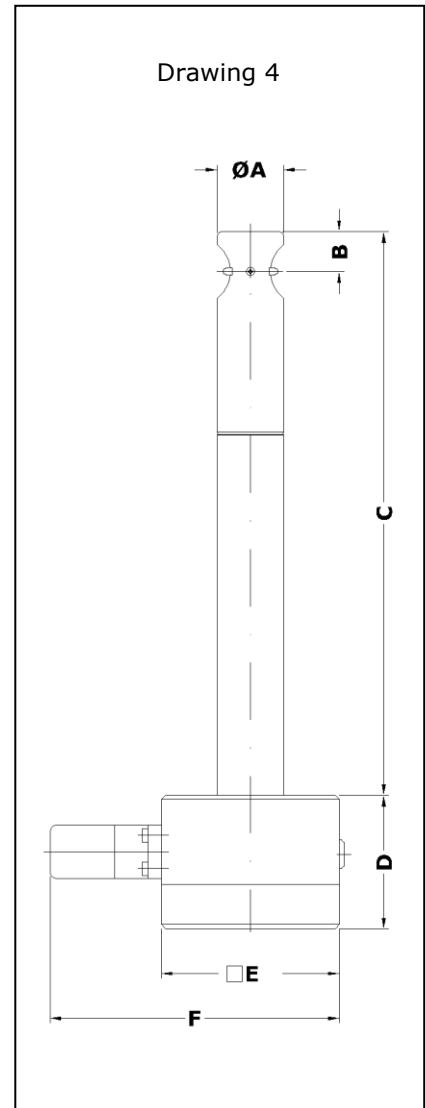




Flow measurement with ZS30 sensors at working temperatures up to +350 °C optional with integrated transducer UFA capable of parameterization



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

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

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)

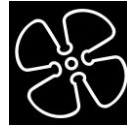
250 / 350 / 450 / 550 / 680 mm

(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 |
|---|----------|--|
| Ex ia IIC T6 Gas-Ex: Category 2G (Zone 1) | FAEX1 | only in connection with: <ul style="list-style-type: none"> isolation/supply unit LDX2 <u>and</u> 'non-Ex evaluation unit or compatible separate evaluation unit with Ex-output |
| Ex nA IIC T6 Gas-Ex: Category 3G (Zone 2) Ex tc IIIC TX Dust-Ex: Category 3D (Zone 22) | FAEX2 | only in connection with: <ul style="list-style-type: none"> evaluation unit or |

(9) Design

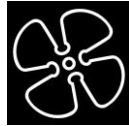
| | | | | | |
|-----------------------|---|---------|---|-------|--------------------------|
| as Drawing 4 (Page 1) | | | | | |
| measurements | A | Ø 30 mm | B | 18 mm | C 250/350/450/550/680 mm |
| | D | 60 mm | E | 80 mm | F 130 mm |

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 2G (Zone1) / sep. eval. unit necessary | 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

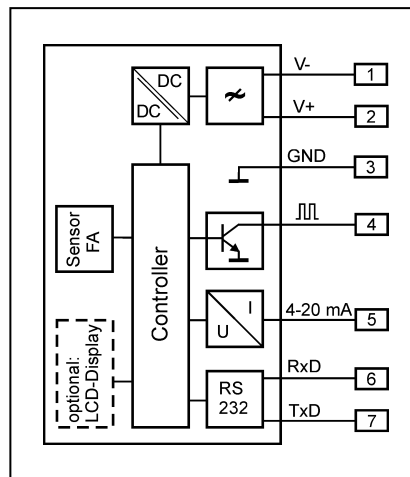
| | | |
|--|---|---|
| analog output / burden | 4 ... 20 mA, burden max. 400 Ohm | |
| output limit value | Open Collector / max. 50 mA / max. 27 V DC | |
| PC interface | RS232 | |
| | the output signals are electrically isolated from the power supply | |
| self-regulation | parameter settings, sensor 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 61 000-6-2:2001 | |
| 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)

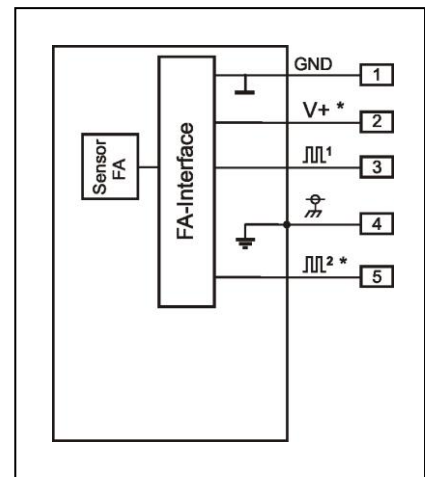
| | Description | Art. No. |
|------------------------------------|---|----------|
| LCD in housing cover | 2 x 16 digit, numerals 3 mm high, working temperature range -5...+50 °C | A010/007 |
| calibration cert. v/FA | calibration values 0.5;0.75;1;1.5;2;3 m/s | KLB |
| PC software UCOM | for configuring 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 in housing cover



wiring diagram integrated transducer UFA



wiring diagram for external evaluation unit (* optional)