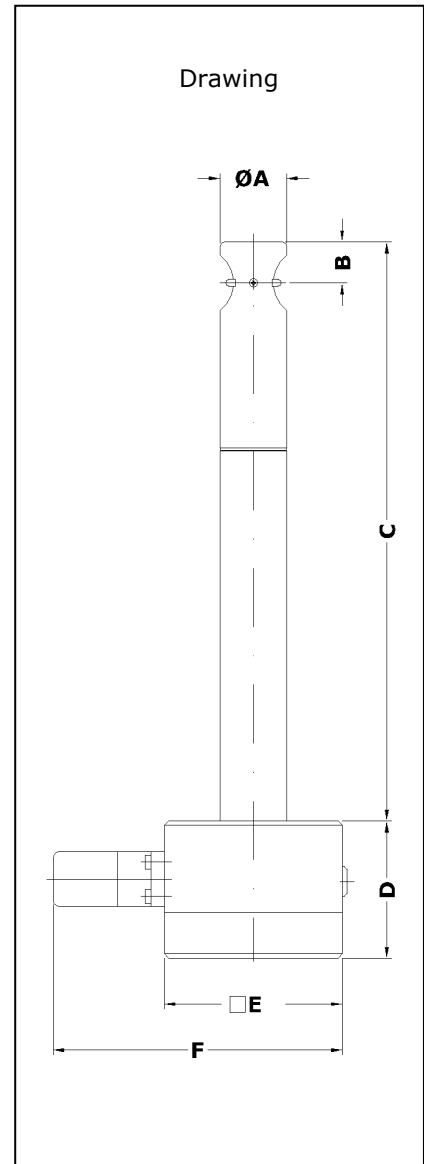
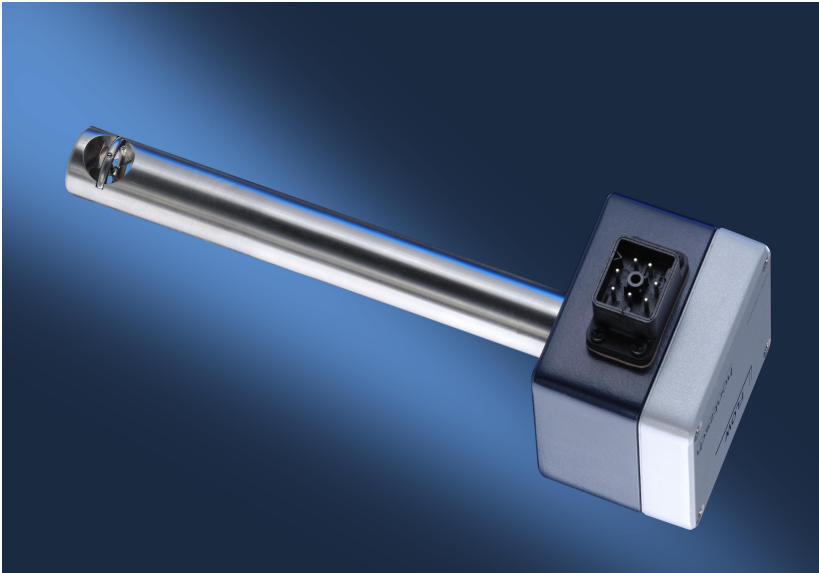


**Flow measurement with sensors D25  
at working temperatures up to +500 °C  
optional with integrated and configurable transducer UFA**



Vane wheel flow sensor D25  
(see Page 3 for dimensions)

**Measurable variable**

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

**Measuring range**

- 0.4 ... 120 m/s

**Functional principle**

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

**Advantages**

- low starting value
- large measuring range span
- maximum fatigue strength thanks to vane wheel which is easy on the bearings
- corrosion resistant
- sterilisable
- high working temperature and pressure ranges
- operates to a large extent irrespective of density and composition of the gas
- low pressure drop
- easy adjustment to process parameter

**Design**

- insertion probe with AS80 housing

**Medium**

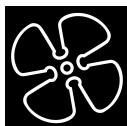
- air, gas mixtures and clean gases

**Range and examples of application**

- flow rate measuring, e.g. of air, exhaust gas, process gas
- monitoring laminar flow
- monitoring flow in pharmaceutical works

**Humidity in the gas**

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



### Model designation (example)

FA	Flow Sensor	/UFA	D25	C250	T100	Ex
		(1)	(2)	(3)	(4)	(5)

### Basic types

Type	Transducer/ Output	Article No.
<b>'100 °C' / integrated UFA</b>		
FA Flow Sensor /UFA D25 <b>C250</b> T100	UFA-AS80 / 4-20 mA	HB02-a190-ufa
FA Flow Sensor /UFA D25 <b>C350</b> T100	UFA-AS80 / 4-20 mA	HB02-a191-ufa
FA Flow Sensor /UFA D25 <b>C450</b> T100	UFA-AS80 / 4-20 mA	HB02-a192-ufa
FA Flow Sensor /UFA D25 <b>C550</b> T100	UFA-AS80 / 4-20 mA	HB02-a193-ufa
FA Flow Sensor /UFA D25 <b>C650</b> T100	UFA-AS80 / 4-20 mA	HB02-a194-ufa
<b>'260 °C' / integrated UFA</b>		
FA Flow Sensor /UFA D25 <b>C250</b> T260	UFA-AS80 / 4-20 mA	HB02-a195-ufa
FA Flow Sensor /UFA D25 <b>C350</b> T260	UFA-AS80 / 4-20 mA	HB02-a196-ufa
FA Flow Sensor /UFA D25 <b>C450</b> T260	UFA-AS80 / 4-20 mA	HB02-a197-ufa
FA Flow Sensor /UFA D25 <b>C550</b> T260	UFA-AS80 / 4-20 mA	HB02-a198-ufa
FA Flow Sensor /UFA D25 <b>C650</b> T260	UFA-AS80 / 4-20 mA	HB02-a199-ufa
<b>'370 °C' / integrated UFA</b>		
FA Flow Sensor /UFA D25 <b>C250</b> T370	UFA-AS80 / 4-20 mA	HB02-a200-ufa
FA Flow Sensor /UFA D25 <b>C350</b> T370	UFA-AS80 / 4-20 mA	HB02-a201-ufa
FA Flow Sensor /UFA D25 <b>C450</b> T370	UFA-AS80 / 4-20 mA	HB02-a202-ufa
FA Flow Sensor /UFA D25 <b>C550</b> T370	UFA-AS80 / 4-20 mA	HB02-a203-ufa
FA Flow Sensor /UFA D25 <b>C650</b> T370	UFA-AS80 / 4-20 mA	HB02-a204-ufa
<b>'500 °C' / integrated UFA</b>		
FA Flow Sensor /UFA D25 <b>C250</b> T500	UFA-AS80 / 4-20 mA	HB02-a205-ufa
FA Flow Sensor /UFA D25 <b>C350</b> T500	UFA-AS80 / 4-20 mA	HB02-a206-ufa
FA Flow Sensor /UFA D25 <b>C450</b> T500	UFA-AS80 / 4-20 mA	HB02-a207-ufa
FA Flow Sensor /UFA D25 <b>C550</b> T500	UFA-AS80 / 4-20 mA	HB02-a208-ufa
FA Flow Sensor /UFA D25 <b>C650</b> T500	UFA-AS80 / 4-20 mA	HB02-a209-ufa
<b>'100 °C' / separate evaluation unit</b>		
FA Flow Sensor D25 <b>C250</b> T100	sep. eval. unit / v/FA	HB02-a190
FA Flow Sensor D25 <b>C350</b> T100	sep. eval. unit / v/FA	HB02-a191
FA Flow Sensor D25 <b>C450</b> T100	sep. eval. unit / v/FA	HB02-a192
FA Flow Sensor D25 <b>C550</b> T100	sep. eval. unit / v/FA	HB02-a193
FA Flow Sensor D25 <b>C650</b> T100	sep. eval. unit / v/FA	HB02-a194
<b>'260 °C' / separate evaluation unit</b>		
FA Flow Sensor D25 <b>C250</b> T260	sep. eval. unit / v/FA	HB02-a195
FA Flow Sensor D25 <b>C350</b> T260	sep. eval. unit / v/FA	HB02-a196
FA Flow Sensor D25 <b>C450</b> T260	sep. eval. unit / v/FA	HB02-a197
FA Flow Sensor D25 <b>C550</b> T260	sep. eval. unit / v/FA	HB02-a198
FA Flow Sensor D25 <b>C650</b> T260	sep. eval. unit / v/FA	HB02-a199



**Basic types (cont.)**

Type	Transducer/ output	Article no.
<b>'370 °C' / separate evaluation unit</b>		
FA Flow Sensor D25 <b>C250</b> T370	sep. eval. unit / v/FA	HB02-a200
FA Flow Sensor D25 <b>C350</b> T370	sep. eval. unit / v/FA	HB02-a201
FA Flow Sensor D25 <b>C450</b> T370	sep. eval. unit / v/FA	HB02-a202
FA Flow Sensor D25 <b>C550</b> T370	sep. eval. unit / v/FA	HB02-a203
FA Flow Sensor D25 <b>C650</b> T370	sep. eval. unit / v/FA	HB02-a204
<b>'500 °C' / separate evaluation unit</b>		
FA Flow Sensor D25 <b>C250</b> T500	sep. eval. unit / v/FA	HB02-a205
FA Flow Sensor D25 <b>C350</b> T500	sep. eval. unit / v/FA	HB02-a206
FA Flow Sensor D25 <b>C450</b> T500	sep. eval. unit / v/FA	HB02-a207
FA Flow Sensor D25 <b>C550</b> T500	sep. eval. unit / v/FA	HB02-a208
FA Flow Sensor D25 <b>C650</b> T500	sep. eval. unit / v/FA	HB02-a209

**(1) Transducer (see Pages 2 & 3, 'Basic types')**

Vane wheel flow sensor D25 optional integrated transducer UFA (see Page 4, 'Output / transducer')

**(2) Sensor type / Sensor diameter**

Vane wheel flow sensor D25 with sensor Ø 25 mm and shaft Ø 25 mm

**(3) Sensor length dimension C (see Drawing, Page 1)**

... C ... 250 / 350 / 450 / 550 / 650 mm

**Materials in contact with the medium**

Design	Material
.....	stainless steel 1.4404 / AISI 316L, ceramics Al <sub>2</sub> O <sub>3</sub> 99.9 %
'100 °C' and '260 °C'	PTFE seal
'370 °C' and '500 °C'	pure graphite seal

**(4) Permissible temperature of the medium**

Design	Temperature of the medium
... T100 ...	-20 ... +100 °C (continuous)
... T260 ...	-40 ... +260 °C (continuous) -40 ... +300 °C (short-time)
... T370 ...	-40 ... +370 °C (continuous) -40 ... +400 °C (short-time)
... T500 ...	-40 ... +500 °C (continuous) -40 ... +550 °C (short-time)
<b>ambience</b>	-40 ... +80 °C      with separate evaluation unit -40 ... +80 °C      with integrated transducer UFA-int -5 ... +50 °C        with optional 'LCD display'



### Max. working pressure / Type of protection for sensor

up to 10 bar / 1 MPa kPa above atmospheric  
protection class IP68

### (5) Option 'Ex'

Type of protection	Art. No.	Comment
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"> <li>evaluation unit or</li> <li>flowtherm NT</li> </ul>
Ex ia IIC T6 Gas-Ex: Category 2G (Zone 1)	faex1	only in connection with: <ul style="list-style-type: none"> <li>isolation/supply unit LDX2 <u>and</u> 'non-Ex evaluation unit or</li> <li>compatible separate evaluation unit with Ex-output</li> </ul>

### Design

as in Drawing (Page 1)

dimensions	A	B	C	D	E	F
	Ø 25 mm	13.9 mm	250/350/450/550/650 mm	60 mm	80 mm	130 mm

### Measurement range (with a gas density of approx. 1.2 kg/m<sup>3</sup>) / vane wheel type

Measurement range	Vane wheel type	Art. No.
0.4 ... 20 m/s	mn 20 E	v_mn20
0.5 ... 40 m/s	mn 40 E	v_mn40
1.0 ... 80 m/s	mn 80 E	v_mn80
1.4 ... 120 m/s	mn 120 E	v_mn120

measurement uncertainty < 1.5 % of measured value + 0.5 % of terminal value

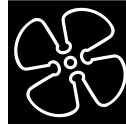
repeatability ±(0.05 % of terminal value + 0.02 m/s)

### Connection housing AS80

dimensions	80 / 80 / 60 mm (L / W / H)
connection	connector GO 070 with terminal screws
terminal assignment	see Page 6
protection class	IP65

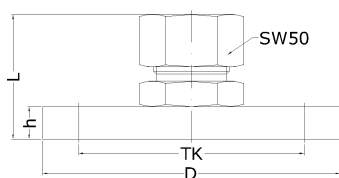
### Output / transducer (see Pages 2 & 3, 'Basic types')

output 4-20 mA / integrated UFA	UFA integrated in the housing (see Page 6)
output sensor v/FA / separate evaluation 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 input or with v/FA input in conjunction with a series connected isolation/supply unit necessary for signal evaluation

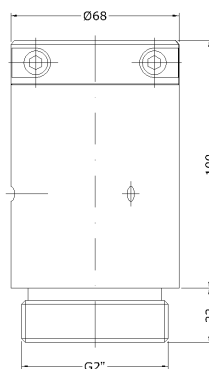


Accessories		
	Description	Article no.
	calibration certificate v/FA	klbneu
standard calibration value depending on vane wheel type, others see Data Sheet U183	mn 20 E: 1; 2; 5; 10; 15; 20 m/s mn 40 E: 1; 2; 5; 10; 20; 30 m/s mn 80 E: 1; 5; 10; 20; 40; 60 m/s mn120 E: 1; 5; 10; 20; 40; 60 m/s	
probe guide piece SFB 25 - G 1 1/4" with bushing as in <b>drawing 5</b>	for any repeated positioning with marginal excess pressure (max. 1.5 bar/ 150 kPa) / low pressure, through hole 25 mm, connection by screw thread sleeve or ball valve with inside thread G 1 1/4", working temp. range -20 ... +240 °C, intallation length 54 mm, materials: stainless steel, VITON®, PTFE bushing	HB04-a510
probe guide piece SFK 25 - G 2" with clamping yoke as in <b>drawing 2</b>	for any repeated positioning even with higher excess pressure (max. 10 bar/1 MPa) / low pressure, through hole 25 mm, connection by screw thread sleeve or ball valve inside thread G 2", working temp. range -20 ... +240 °C, installation lenght 100 mm, materials: stainless steel, VITON® lip-seal, incl. hook spanner and hexagon screw driver	HB04-a210
probe guide piece SFB 25 - DN50 PN16 ZG1 for max. +550 °C as in <b>drawing 1</b>	For any repeated positioning with lower pressures above atmospheric (max. 2 bar / 200 kPa) / subatmospheric pressures, working temperature range -40 ... +550°C, through hole 25 mm, to single ended flange nipples or ball valve with flange, probe attachment by clamping bush, materials: stainless steel, graphite, flange DN50 PN16 in conformity with DIN, installation length L 70 mm	HB04-a110

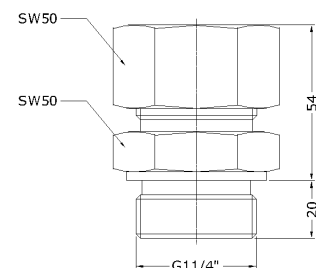
**Probe guide piece drawing 1**

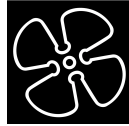


**Probe guide piece drawing 2**



**Probe guide piece drawing 5**





### Transducer UFA-int, integrated in the sensor connection housing

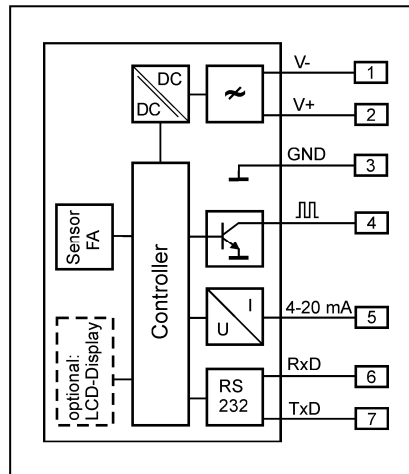
analog output/resistance	4 ... 20 mA = 0 ... ___ m/s, resistance max. 400 Ohm
output 'limit value' or 'quantity pulse'	Open Collector / max. 50 mA / max. 27 V DC, pulse duration 0.5 s
PC interface	RS232
self-monitoring	output signals electrically isolated from the power supply parameter settings, sensor 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	-40 ... +80 °C
housing	sensor connection housing AS80
EMC	EN 61 000-6-2
setting parameter	analog output, profile factor/coefficient, pipe inside diameter, time constant, sensor type, measurement range, medium, limit value or quantity pulse (valency adjustable), switching actual/standard flow with setting parameters, 'actual pressure' and 'actual temperature' ...
setting parameter with PC software UCOM and programming adapter (see below) changeable	

### Accessories (cont.) / options

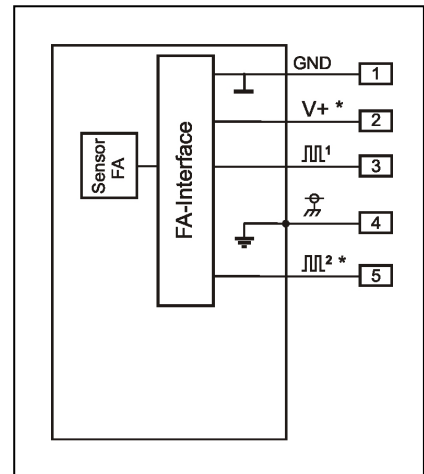
	Description	Art. No.
LCD display in housing cover	2 x 16 digit, numerals 3 mm high, working temperature range -5...+50 °C	HB10-b007
PC software UCOM	for configuring the UFA/int via RS232	HB10-b052
programming adapter G0 070 / RS232	for software UCOM, connection PC Sub-D 9-pin, power plug 230VAC/24VDC	HB10-b004
interface converter USB / RS232	PC connection : USB plug type A on instrument : Sub-D 9-pin	HB10-b100



optional LCD display in the housing cover



Wiring diagram with integrated UFA



Wiring diagram sensor for separate evaluation unit (\* optional)

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