- measurement of conductive fluids
- one measurement probe for a wide range of pipe diameters
- high quality materials
- no moving parts
- sensor replacement without loss of medium
- simple to use
- frequency and 4-20mA outputs
- trend and digital displays
- any physical units can be displayed
- extreme values, summing function, progr. damping, 2 limits, adjustable hysteresis...
- bi-directional infrared interface

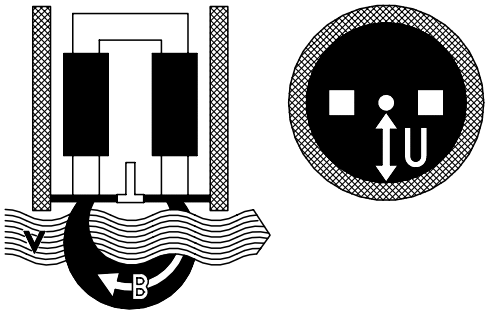
PRINCIPLE

When an electrical conductor moves perpendicular to a magnetic field, a voltage **U** is induced in this conductor due to this movement. In this measurement principle the conductor is the electrically conductive measurement substance. The magnetic field **B** is positioned transverse to the direction of flow. The induced voltage U is directly proportional to the local flow velocity **v**.

$$U = k \times B \times v \times D$$

k = device constant
B = magnetic flux density
v = local velocity
D = electrode separation distance

The voltage U is obtained from the electrodes at the centre-point and the ground electrode (sleeve) and is converted into a proportional 0(4)-20mA signal. All other attributes of the smart Series are of course also available.



TECHNICAL DATA

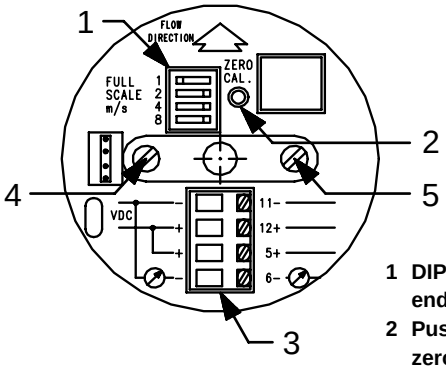
measurement range	full-scale values of 1-8 m/s in steps of 1 m/s.
accuracy	±5 % of measurement. For local calibration ±2% of measurement.
reproducibility	±2 % of measurement
time constant	5 second fixed
electrical conductivity	min. 20 µS/cm
supply voltage	24V DC ± 10%
power consumption	3W
output	0(4)-20mA (passive current output) load resistance max. 500 Ω
materials medium contact	stainless steel 1.4435 Insulation: Ceramic (zirconium oxide) with clamp saddle PP,1.4305
materials not medium contact	housing stainless steel 1.4305 seal: viton and klingerit
medium temperature	-25 ... 150°C
ambient temperature	-25 ... 60°C
operating pressure	welding probe max. 25 bar clamp on probe max 10 bar
protection class	IP 65

Display, mode indicator, limits, hysteresis, analogue current interface, IR interface, linearisation, data transport
Please refer to general product description „50.1.smart“ and the Hand-Held Terminal „50.7.smart-H“.

TERMINAL ASSIGNMENT

On opening the cover (secured with a band against loss) electrical connection is provided via the terminals in the cover.
The arrow on the electronics housing must point in the direction of flow (turn housing appropriately). The full scale deflection has already been set at the works ac-cording to your specification (1,2,3,4,5,6,7,8 m/s). If the full-scale value must be changed, then the parameter selection in the smart electronics must be changed.

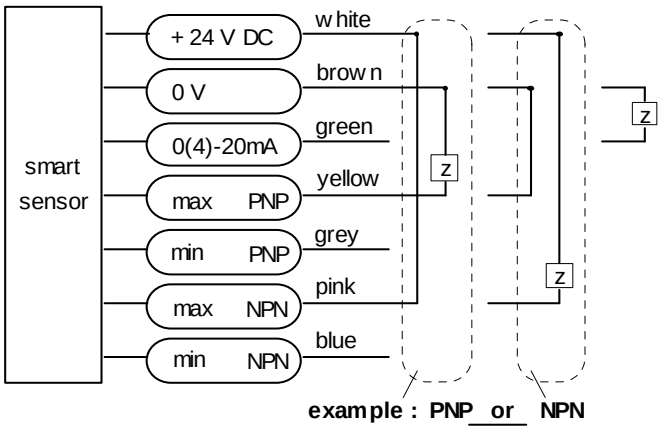
Zero-point adjustment: (Only if necessary!) Fill the pipe completely with the measurement medium. The flow velocity in the pipe must be zero! Press the key “ZERO CAL”. After one minute the device is automatically self-calibrated.



1 DIP switch for end of scale
2 Push bottom for zero-adjustment
3 Terminal block

Sample : to the DIP switch

= 3m/s



Z = load

If a PNP output is needed, the corresponding NPN output should be connected to 24 VDC. For an NPN output the corresponding PNP output should be wired to 0V.
(z) = Your load.

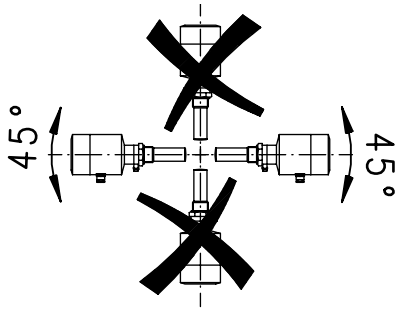
An automatic self-test will be carried out when the device is installed:

no error : measurment activity, current output 0(4)-20 mA

error : current output reads 3 mA, error!

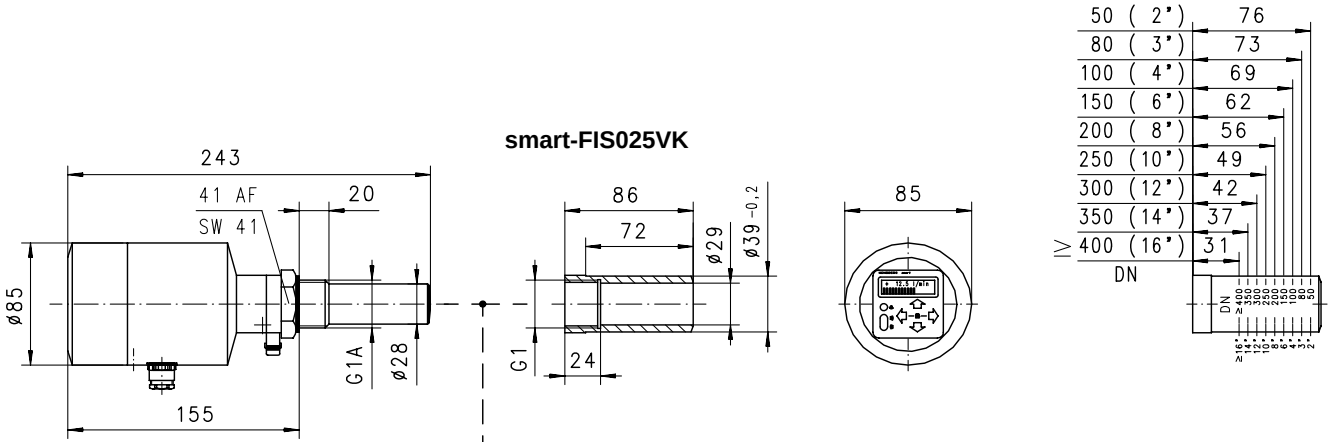
MOUNTING

The magnetic-inductive smart-FIS probe is assembled into the pipe by support of a sleeve welded into the relevant pipe to receive the sensor (min.pipe diameter DN 5o). For installation position and depth see diagrams Alternatively a clamp saddle arrangement may be used.
Inlet and outlet sections must be >= 10x diameter of pipe. Weld the connector sleeve vertically to the centre of the pipe according to the pipes nominal diameter (see marking = external pipe diameter). Do not use force! The Probe must be screwed in handtight.
After putting in place, the probe can be aligned by rotation (see electrical connection). The complete measuring probe is removable without damaging the carrier, so that the electronic part can be exchanged in case of defect.



The positions indicated with ✕
are not recommended due to air bubbles or sediments in pipe

DIMENSIONS



DN	D	H	B
50	63	110	70
65	75	113	80
80	90	120	90
100	110	125	100
125	140	135	125
150	160	143	130

NOMENCLATURE

smart-FIS	025	V	K	001	G		basic type / specification	
	025					●		DN 025 (welding socket)
	050					●		DN 050
	065					●		DN 065
	080					●		DN 080
	100					●		DN 100
	125					●		DN 125
	150					●		DN 150
		V				●		welding socket
		B				●		clamp sattle
			K			●		stainless steel (welding socket)
			B			●		PP (clamp sattle)
				001		●	full-scale value	1 m/s
				002		●		2 m/s
				003		●		3 m/s
				004		●		4 m/s
				005		●		5 m/s
				006		●		6 m/s
				007		●		7 m/s
				008		●		8 m/s
					G	●		metall cable gland Pg9 (without cable)
					S	●		connection for locking plug M12x1, 7-pole

ACCESSORY

Hand-Held Terminal

see product information 50.7.smart-H

Locking plug KB007G

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