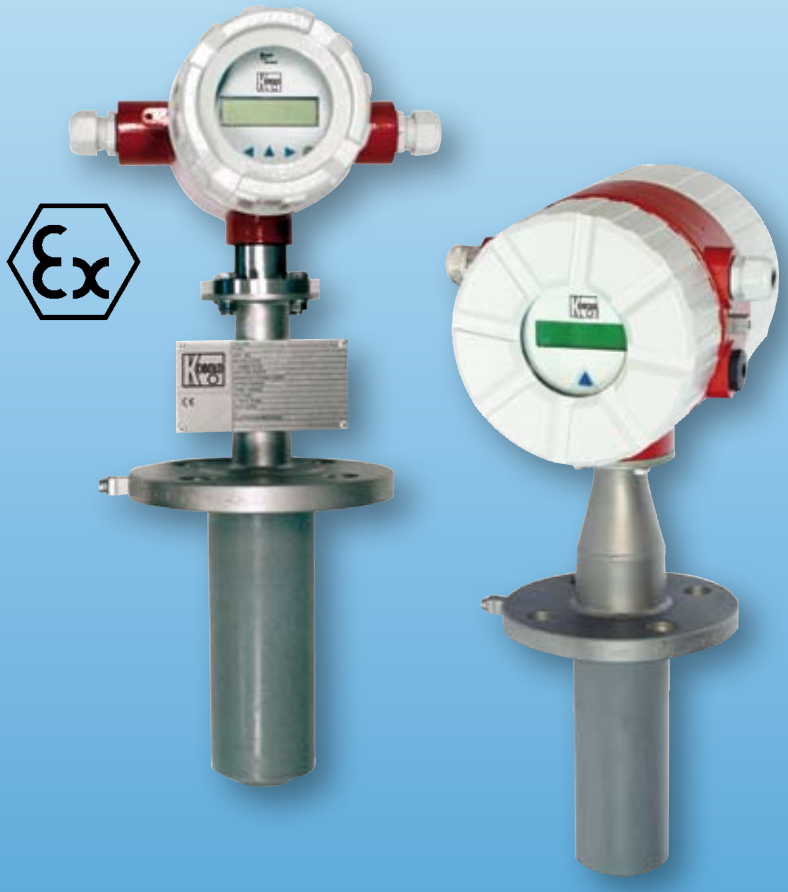
Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

Magnetic Inductive Flowmeter

for conductivity liquids

KOBOLD

measuring • monitoring • analysing



- Measuring range: up to 10 m/s
- Accuracy: ±1.5% of reading ±0.5% full scale
- p_{max}: PN40 t_{max}: -40 … +150 °C
- Connection: flange DN40...80, ANSI 2"...3"
- Material: st. st./PTFE or PFA
- Outputs: analogue with HART®, pulse und status

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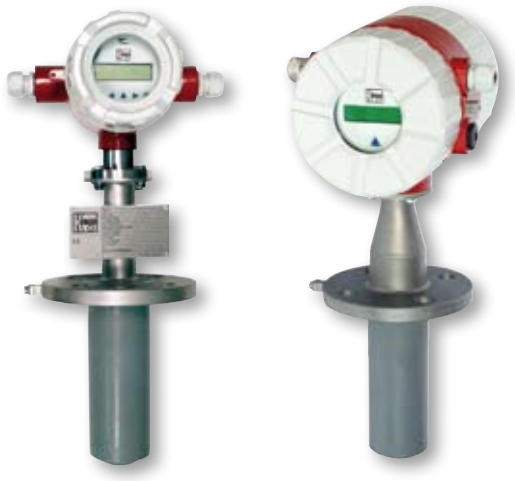
Model:
PIT

01/06-2008



Description

An electrically conductive medium induces a voltage while flowing through an arranged magnetic field in accordance to the Faraday's induction law. The electrode currency is proportional to the flow velocity and therewith to the volume flow. The PIT-Sensor is available with integral or remote mount transmitter. A retracting device for mounting and dismounting under process conditions is available.

The magnetic-inductive PIT flow velocity sensor is used to measure or monitor the volume flow of liquids, slurries, pastes and other electrically conductive media while minimizing pressure drop.

Pressure, temperature, density and viscosity do not affect the volume measurements. Portions of solid particles and small gas pockets should be avoided.

The PIT has following significant Characteristics:

- Wide variety of wetted materials
- Electrodes in Hastelloy, tantalum, platinum and other materials available.
- Retracting device for use under process conditions

Technical Details

Sensor

Material armature:	stainless steel / PTFE, PFA
Material electrodes:	Hastelloy, tantalum, platinum, other materials on request
Process connection:	flanges acc. EN 1092, ASME B16.5, DIN2512, special connections on request
Nominal pressure:	PN 16, ASME Cl150 / 300 (PFA) PN 40, ASME Cl150 / 300 (stainless steel / PTFE) higher pressures on request
Process temperature:	-40 … +100 °C (st. st. / PTFE) -40 … +150 °C (PFA)
Ambient temperature:	-40 … + 60 °C
Protection:	IP 65 / IP 68 (EN60529)

Certification and approvals

Explosion protection:	BVS 03 ATEX E 150 X Ⓔx II 2G EEx e [ia] IIC T3–T6 NEPSI Approval Cert No. GYJ06474X
Range of application for sizes:	DN125 up to DN2000 (st. st. / PTFE), DN125 up to DN600 (PFA)

Adjustable upper range values

Standard:	1 ... 10 m/s
Special:	0.5 ... 5 m/s
Conductivity:	≥20 µS/cm

Transmitter UMF and UMF2

Mounting:	integral or remote
Power supply:	115 / 250 VAC 24 V_{DC} 24 V_{AC} (UMF)
Outputs:	galvanically isolated
Current:	2 x 0/4 - 20 mA (UMF) 1 x 0/4-20 mA (UMF2)
Binary 1:	active, potential free 24 V_{DC}, max. 200 mA (UMF) passive, optocoupler, (UMF, UMF2) U_i = 30 V, I_i = 200mA, P_i = 3 W
Binary 2 (status):	passive, optocoupler, (UMF) U_i = 30 V, I_i = 200mA, P_i = 3 W
Binary 3 (optional):	passive, optocoupler, (UMF) U_i = 30 V, I_i = 200mA, P_i = 3 W (only with 1 analogue output)
Ambient temperature:	-20 … +60 °C

01 / 07 - 2008

Technical Details Continuation

Protection: IP 68 (EN60529)

Communication: HART®

Accuracy : ±1.5% of reading
±0.5% adjusted full scale
(under reference conditions)

Repeatability: ±0.75% of reading
±0.25% adjusted full scale
(under reference conditions)

Signal output/ input: intrinsically safe or not intrinsically safe

NEPSI Approval Cert No. GYJ06475

CE-Marking: Explosion Protection Directive 94/9/EG
EMC-Directive 89/336/EWG

Electromagnetic compatibility:
EN 61000-6-3: 2001 (emissions residential environments)
EN 61000-6-2: 1999 (immunity for industrial environments)
EN 55011: 1998 + A1: 1999 Group 1, Class B (radio interference)
EN 61000-4-2 to DIN EN 61000-4-6
EN 61000-4-8, EN 61000-4-11, EN 61000-4-29, EN 61326

Certification and Approvals

Explosion protection: DMT 99 ATEX E 107 X (UMF)
Increased safety
EEx e (connection area): ⟨Ex⟩ II (1)/2G EEx de [ia] IIB/IIC T3–T6

Explosion proof
EEx d (connection area): ⟨Ex⟩ II (1)/2G EEx d [ia] IIB/IIC T3–T6

Order Details Sensor (Example: **PIT-S 317B 016 H 0 10 0 0**)

Model / material / version	Process connection Flange	Sensor length	Electrode material	Earthing-electrode	Version	Certificates	Supplementary-equipment
PIT-S = st. st.	**317B** = DN40 PN40 form B1 DIN EN 1092-1 **321B** = DN50 PN40 form B1 DIN EN 1092-1 **326B**[1] = DN65 PN40 form B1 DIN EN 1092-1 **331B** = DN80 PN40 form B1 DIN EN 1092-1 **206R** = 2" Class 150 RF ASME B16.5-2003 **208R** = 3" Class 150 RF ASME B16.5-2003	**016** = 163 mm **xxx** = special length	**H** = Hastelloy C-4 **T** = tantalum **N** = platinum	**0** = without	**10** = integrated transmitter, IP 68 **30** = remote mounted transmitter, IP 65 **40** = remote mounted transmitter, IP 68 **5E** = remote mounted transmitter, IP 68, ATEX-approval **5B** = remote mounted transmitter, IP 68, NEPSI-approval	**0** = without certificate **1** = certificate of compliance with the order 2.1 **2** = certificate of compliance with the order 2.2 **B** = inspection certificate with material certificate 3.1 **C** = inspection certificate with material certificate 3.2	**0** = without **L** = special design for flow-velocity **X** = special version
PIT-A = PFA				**0** = without **H** = Hastelloy C-4 **T** = tantalum **N** = platinum			
PIT-U = st.st./ design for installation	**326B** = DN65 PN40 form B1 DIN EN 1092-1			**0** = without			

1) not for PIT-A (PFA)

Order Details Transmitter (Example: **UMF - 1 3 1 0 0 1 1 0**)

Model	Power supply	Analogue output	Pulse output	Approval	Type of protection Signal output
UMF -	**1** = 230 V_{AC} 50/60 Hz **2** = 115 V_{AC} 50/60 Hz **3** = 24 V_{AC} 50/60 Hz **4** = 24 V_{DC}	**3** = 4-20 mA with HART®-protocol **4** = 4-20 mA	**1** = active, 24 V_{DC} **2** = passive, U_i=30 V_{DC}	**0** = without **1** = ⟨Ex⟩ II(1)2G EEx de [ia] IIB/IIC T3-T6 **2** = ⟨Ex⟩ II(1)2G EEx d [ia] IIB/IIC T3-T6 **4** = NEPSI	**0** = without **1** = EEx ia (intrisically safe) **2**[2)] = EEx e (not intrisically safe)

Continuation Order Details Transmitter

Mounting	Thread for cable gland	Display / Interface board
1 = integrated transmitter **2**[1)] = remote mounted transmitter	**1** = M 20x1.5 **2** = ½ NPT	**0** = without **1** = with display/interface board

[1)] - includes mounting bracket for wall, adapter for pipe mounting bracket, select from accessories list
- Interconnecting cable and cable glands, from select accessories list

[2)] standard protection with Ex-approval EEx d

Order Details Transmitter (Example: **UMF2 - A 0 1 F00**)

Model	Mounting/ Thread for cable gland	Display-/ Interface board	Power supply	Outputs
UMF2 -	**A** = integrated transmitter/½ NPT **B** = integrated transmitter/M 20x1.5 **C**[1)] = remote version incl. 2.5 m cable and wall mounting bracket/½ NPT **D**[1)] = remote version incl. 2.5 m cable and wall mounting bracket/M 20x1.5 **E**[1)] = remote version incl. 2.5 m cable and 2" pipe mounting bracket / ½ NPT **F**[1)] = remote version incl. 2.5 m cable and 2" pipe mounting bracket / M 20x1.5	**0** = without **1** = with display/ interface board	**1** = 230 V_{AC} 50/60 Hz **2** = 115 V_{AC} 50/60 Hz **4** = 24 V_{DC}	**F00** = analogue output: 0(4)-20 mA pulse output: passive, U_m=24 V_{DC} status output: passive, U_m=24 V_{DC} **G00** = analogue output: 0(4)-20 mA with HART® pulse output: passive, U_m=24 V_{DC} status output: passive, U_m=24 V_{DC}

[1)] longer interconnecting cable select from accessories list

01/07-2008

Order Details Interconnection Cable for Remote Mount Transmitter

(Example: **PITKBL - 65 - 0 001**)

Model	Protection / Approvals	Cable length
PITKBL - 65 - 0	IP 65 / without approvals	**001** = 1 metre **002** = 2 metre **003** = 3 metre **XXX** = x metre
PITKBL - 65 - E	IP 65 / ⟨Ex⟩ II 2G EEx e [ia] IIC T3-T6	
PITKBL - 68 - 0	IP 68 / without approvals	
PITKBL - 68 - E	IP 68 / ⟨Ex⟩ II 2G EEx e [ia] IIC T3-T6	

Order Details Welding Socket

Model	Version
60 000 519	st. st. (1.4571/1.4404), DN 40 PN40, standard length
60 018 833	st. st. (1.4571/1.4404), DN 50 PN40, standard length
60 020 328	st. st. (1.4571/1.4404), 2" Class 150 RF ASME, standard length
60 019 025	st. st. (1.4571/1.4404), 3" Class 150 RF ASME, standard length
60 019 917	st. st. (1.4571/1.4404), DN 65 PN40, standard length (for installation-/extracting device)

Screws on request

Order Details Installation-, Extracting Device

Model	Protection / Approvals	Cable length
PIT - EVVS	valve lock 1.4408 (DN65 PN40)	
PIT - EVDS1G	pressure screw for remote mounted version	l ≤ 1000 mm
PIT - EVDS2G	pressure screw for remote mounted version	l ≤ 2000 mm
PIT - EVDS1A	pressure screw for integrated mounted version	l ≤ 1000 mm
PIT - EVDS2A	pressure screw for integrated mounted version	l ≤ 2000 mm

For mounting the installation-, extracting device following things are necessary:
sensor in special version PIT-U326B, welding socket 60019917,
valve lock PIT-EWS and pressure screw set PIT.EVD...

Dimensions

Model	DN	T	Ød1	L
PIT-A (PFA)	150 - 600	163 mm	62 mm	145 mm
PIT-Sxxxx016	150 - 600	163 mm	60.3 mm	145 mm
PIT-Sxxxx026	700 - 1200	263 mm	60.3 mm	170 mm
PIT-Sxxxx036	1400 - 2000	363 mm	60.3 mm	170 mm