



MECHANICAL LEVEL INDICATOR TYPE A1

Fill level transmitter with displacer, for liquids

Applications

Displacement transmitter for measuring fill level, volume, weight, density or interfacial layer in liquid media.

Independent of pressure, temperature, conductivity, dielectric, foam or steam.

For use in hazardous areas

Measuring Principle

The measuring process is based on the Archimedes principle: *A body is immersed in a liquid, and buoyancy force is exerted back on the body.* This buoyancy force is transferred to the display using a strong magnet.

Options

0/4-20mA are available as output signal. As an option up to 4 contacts can be retrofitted. There is a choice between 3 different transmitters. There is a choice between 3 different transmitters.

The material finishes available are:

SS316L stainless steel, Hastelloy C, titanium, tantalum, inconel, and conductive PTFE.



- Simple, robust measuring system
- Display without auxiliary power
- Display rotates 360°
- Simple adjustment, on site without software
- 2 core Exi, HART
- For measuring fill level, volume, weight, density or interfacial layer

Mechanical values

Measuring range	200 mm...20 m
Density range	0.5...2.5kg/l
Temperature of medium	-35...+300°C *1
Ambient temperature A1N	-35...+135°C *1
Process connection	Flange DN 50...150
Nominal pressure	max. 64 bar
Materials sensor	See model code

Measuring transducer WT0000 / WL0000

Ambient temperature	-35...+56°C
Measuring accuracy	< 1.00%
Output signal	4-20 mA, 2 core
Feed	12...30 VDC, Ex i
Linearity	0.4%

Max. working resistance in Ω	<u>Auxiliary power [V] -12V</u>
	Output signal [mA]

Measuring transducer TL /TF

Ambient temperature	-20...+56°C
Measuring accuracy	< 1.00%
Output signal	0-2k Ω

Measuring transducer IFT

Ambient temperature	-20...+65°C
Measuring accuracy	< 0.5%
Output signal	4-20 mA, 2 core HART
Measuring rate	0.65/sec.
Feed	12...30 VDC, Ex i



Certificates ATEX Class II 1/2G, Ex ia II C T6



Filling



Volume



Weight



Density



Interfacial layer

CODES FOR A1 TRANSDUCER

KIW

Type		
Level indicator, type		A1
Transducer version		
Without measuring transducer		N
Compact measuring transducer		T
Separate measuring transducer		S
Local mechanical display (*1 Note)		
Without		0
With local display Type "A"		L
With local display Type "K", (Opt. WT0000: Output 4...20mA, HART)		K
Transducer version		
Without		00000
Angle transmitter Ex, 0/4-20 mA, non-linearised		WT000
Angle transmitter Ex, 4-20 mA, linearised		WL000
Potentiometric transmitter 0...2kΩ		TL000
Electronic "IFT" transmitter, 4-20 mA, with LCD display		TLIFT
Limit value (*1 Note)		
Without		K0
Microswitch	Standard active	KM
Microswitch EEx d, 230 V, 5 A	Standard active	KB
Initiator, NAMUR	Standard covered	KI
Number of contacts (*1 Note)		
Without		0
1		1
2		2
3		3
4		4
Application (scale division)		
Fill level	%level height or mm	F
Volume	Litre, m3, %Vol.	V
Weight	kg or t	M
Density measurement	kg/dm3 or kg/m3	D
Concentration	%Vol. (requires temperature compensation)	K
Interfacial layer measurement	%level height or mm	T

Combinations

N				
	T			
		S		

Material			
St37 (Spring StSt316L)	Operating pressure 40bar max.	Kat. 1	00
StSt316L (Spring StSt316L)	Operating pressure 40bar max.	Kat. 1	01
Hastelloy	Operating pressure 40bar max.	Kat. 1	02
PTFE conductive / Hastelloy	Operating pressure 0 bar	Kat. 1	09
Tantal	Operating pressure 40bar max.	Kat. 1	03
Titan	Operating pressure 40bar max.	Kat. 1	12
Inconel	Operating pressure 40bar max.	Kat. 1	13

Flange	Hood	Linkage	Spring	Springholder	Case	Magnet	Split pin
Standard Material combination							
00	00	01	01	01	01	01	--
01	01	01	01	01	01	01	--
01/02	01/02	02	02	09	02	02	02
01/09	05	09	04	09	02	02	02
01/09	05	09	04	09	03	10	03
01/12	01/12	12	04	09	12	12	12
01/13	01/13	13	04	09	13	13	13

Note *1:

For the option when linking limit contacts with output signal, a local display is not possible.

Note *2 : Process-Temperature

<+120°C	ND = Operating pressure
+120°C...+300°C	ND x 0.80 = Operating pressure
>+300°C	ND x 0.64 = Operating pressure

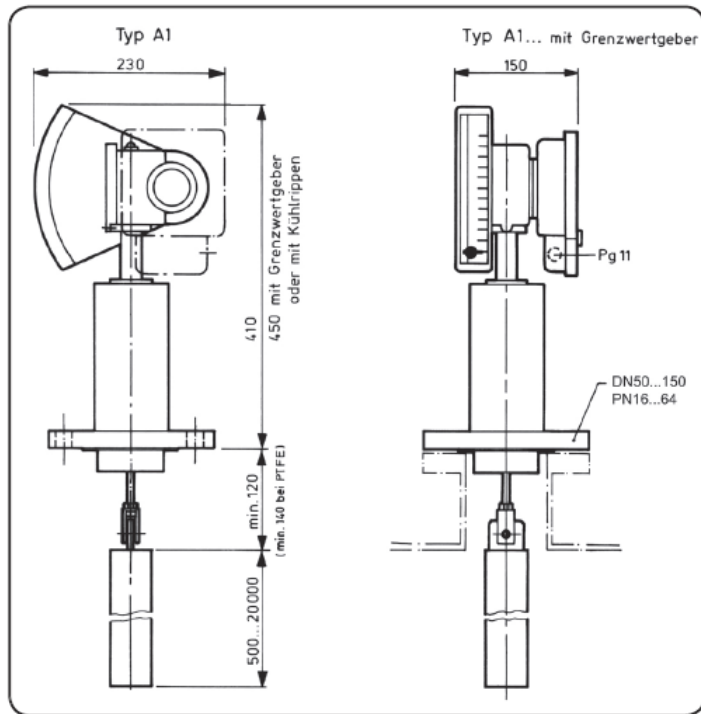
Material Code

00 St37 steel
 01 StSt316L
 02 Hastelloy C
 03 Tantalum
 04 ECTFE
 05 Enamel
 09 PTFE
 10 Glass
 12 Titanium
 13 Tantalum

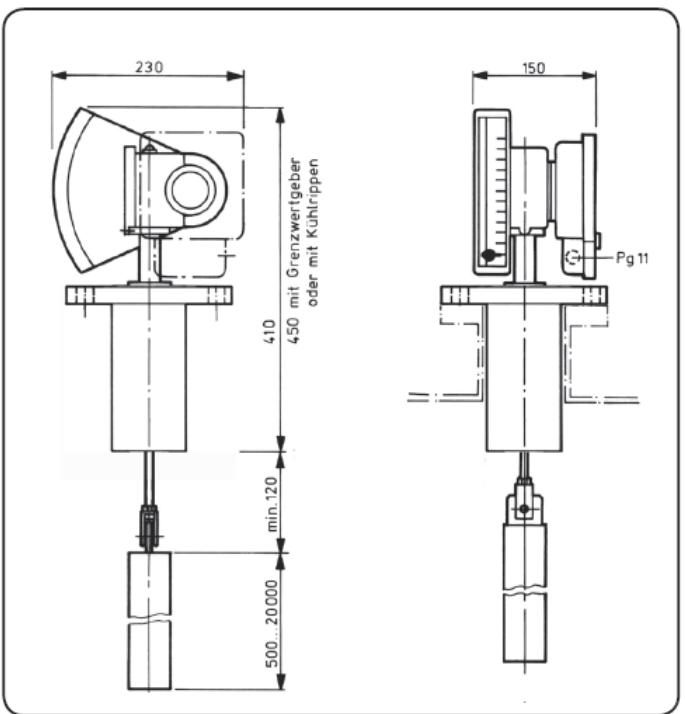
Process connection		
Flange DIN EN1092-Form A (old shape B)		A
Flange DIN EN1092-Form B1 (old shape C)		B
ANSI B16.5 flange, RF		S
DIN 2526 flange, DIN 2512 groove		N
DIN 2526 flange, DIN 2512 spring		F
Nominal size / version		
Hood DN 80 flange / ANSI 3"		H08
Hood DN 100 flange / ANSI 4"		H10
Hood DN 125 flange / ANSI 5"		H12
Hood DN 150 flange / ANSI 6"		H15
Countersunk spring, DN 50 flange / ANSI 2"		F05
Countersunk spring, DN 80 flange / ANSI 3"		F08
Countersunk spring, DIN 100 flange / ANSI 4"		F10
Countersunk spring, DIN 125 flange / ANSI 5"		F12
Countersunk spring, DIN 150 flange / ANSI 6"		F15
Nominal pressure (see note *2)		
PN16 / 150 psi		1
PN40 / 300 psi		2
PN64 / 600 psi		3
Range in Meter		
up to 2 meter		2
up to 4 meter		4
longer then 4 m		X
Cooling body		
No Cooling extension (<70°C)		C0
One Cooling extension (70-100°C)		C1
Two Cooling extensions (100-120°C) with 1 release metal sheet		C2
Tree Cooling extensions (>120-300°C) with 2 release metal sheets		C3
Options		
Hastelloy C spring in place of halar coating (ECTFE), in plastic version		/F2
Magnet tube made of tantalum, in place of Hastelloy C, exterior with aluminium protection		/H03
Magnet tube made of pyrex glass, in place of Hastelloy C, exterior with aluminium protection		/H10
Magnet tube made of titanium, in place of Hastelloy C		/H12
Magnet tube made of Inconel, in place of Hastelloy C		/H13
Magnet tube removeable		/MH
Magnet moulded into glass		/M10
Magnet in stainless steel 1.4435		/M01
Magnet in hastelloy		/M02
Magnet in glass		/M10
Magnet in tantalum		/M03
Magnet in titanium		/M12
Magnet in Inconel		/M13
Rinsing connection on tube		/SP

*iNote: For medium temperature <+120°C: ND = operating pressure; at +120°C...+300°C: ND x 0.8 = operating pressure; at >+300°C: ND x 0.64 = operating pressure

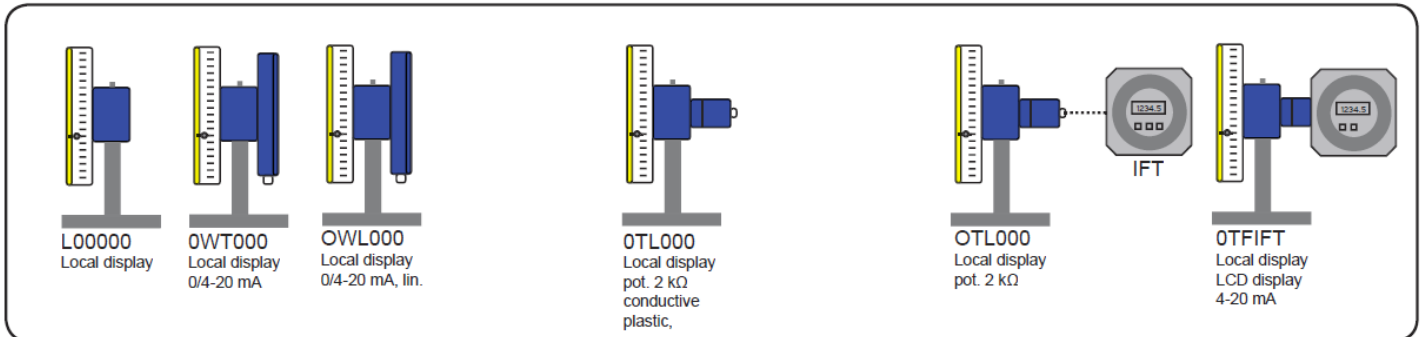
Dimension drawing of A1 with cap



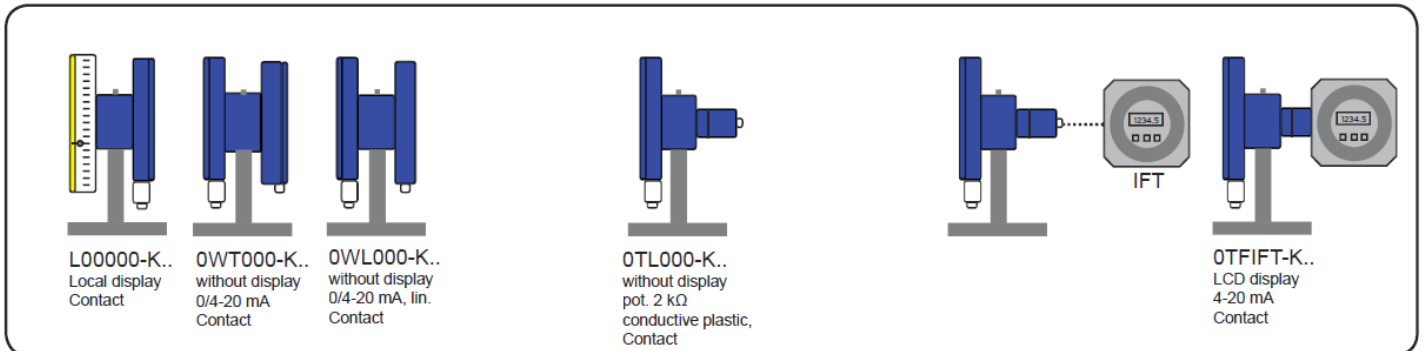
Dimension drawing of A1 with countersunk spring



Measuring transducer variants **without contacts**



Measuring transducer variants **with contacts** (KI or KM or KB)



Technical modifications without advance notice possible.

- Installation
- Customised training
- Telephone support
- Service contracts
- On site support by our service engineers
- Remote access diagnostic facility: All machines are connected via phone line to KIW's service department



For further information please do not hesitate to visit our website www.kiw.com.au or contact us on:

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