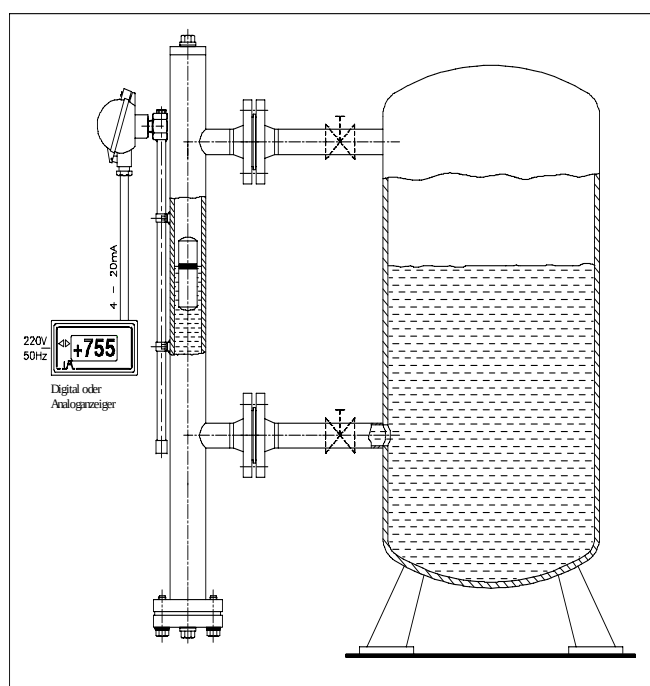


MAGNETICALLY CONTROLLED LEVEL INDICATOR

Type: ITA-AVK



Manual

November 2008

Advantages of ITA-AVK

- The mounting expense is fundamentally lower than at the use of the float chamber switch.
- No mechanical parts between float and indication.
- Little influence of density change on the measuring precision.
- Version for higher temperatures available.
- Construction of the standard level indicator is suitable for most different applications.
- Interface measurement possible.
- Low wear – only reed chain are necessary as spare part.
- Can be equipped with an indication rail.

Magnetically controlled level indicator type: ITA-AVK – Functional description

The reed chain is built up, that the resistance of the reed chain against infinitely goes if the magnet system of the float is outside the measuring length of the reed chain. If the resistance change by means of a R/I transducer into a 4-20mA signal, a fault signal > 20mA will apply.

If the reed chain will be delivered with a level indicator type ITA, the reed chain is calibrated to the required measuring length (0-1600mm e.g. = 4-20mA). The measuring length is the distance from middle of lower to middle of upper process connection.

If the reed chain is delivered separately, this is also by vendor calibrated if a R/I measurand transducer is part of the delivery. Measurement of 4 mA and final value 20 mA are indicated well visibly at the protection tube of the reed chain.

The cable gland is not part of delivery. Specalliy for flame proof execution, costumer has to use suitable cable glands.

Functional check

The function of the reed chain can be easily checked with the help of a stick magnet. If a R/I transducer is used, the reed chain shall connected as a two wiring system. Put stick magnet on the outside at the protection tube, the mA signal must rise all 5mms, 10mm or 20mms (within the ordered measuring length see description above). If not please, check whether the fault is within the reed chain or the R/I transducer is faulty.

Loose the Connections of the reed chain at the measurand transducer and carry out the following examining steps:

1. Measure the resistance of the reed chain between "blue " and "yellow"

It has to be:

$$\frac{\text{meas.length(mm)}}{\text{meas.step} / 5 / 10 / 20\text{mm}} \times \text{Sole resistors (value per meas.step) } / 4, 7 / 10 / 20 \Omega$$

In case this is not true, the circuit board is broken.

2. Measuring of the resistance change:

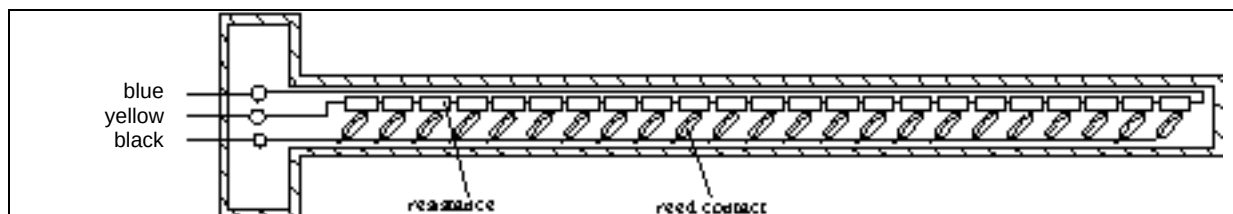
Connect an ohm meter between "blue" and "black". If you go with a stick magnet along the reed chain from bottom to top, the total resistance must rise all 5mm, 10mm or 20mm around approx. 4,7, 10 or 20 Ω (depending on the used resistors). If you connect a ohm meter between "yellow" and "black" the total resistance must fall all 5mm, 10mm or 20mm around appr. 20 Ω .

If the functions described under point 1 and 2 are correct, you can exclude a defect of the reed chain.

Then it can be only a malfunction of the Transmitter or the power supply for the transmitter is too low. (12 -- 30VDC)

However make sure that the float magnet system may never be outside the measuring length of the reed chain because the output signal of the Transmitter will be > 20mA.

Reed chain



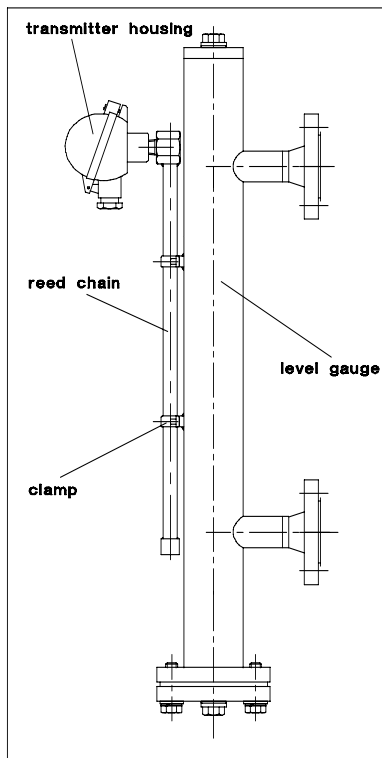
Resolution : 5 mm, 10 mm or 20 mm (Distance of reed contacts on resistor chain)
 Total resistance : approx. 0,5..5 k Ω
 Power dissipation : 2...max. 5 Watt

Code3

ITA-AVK		Magnetically controlled level indicator (Reed chain)	
		Design	
		N	Standard Reed chain for temperatures up to max. 150 °C
		H	Reedchain for higher temperatures up to max. 400 °C
		Resolution	
		5	Resolution 5 mm
		10	Resolution 10 mm
		20	Resolution 20 mm

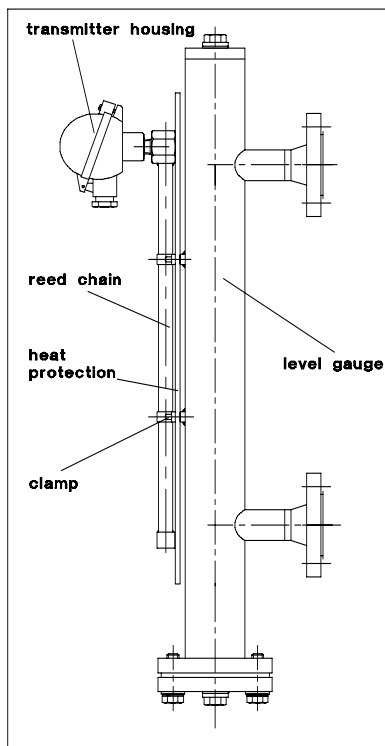
ITA-AVK		
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Reed chain (Standard)



Max. fluid temperature	:	150 °C
Protection pipe	:	Ø14 mm material: 1.4571
Enclosure	:	IP65
Environmental temperature	:	-20...+40°C

Reed chain (for higher temperatures)



Max. fluid temperature	:	400 °C
Protection pipe	:	Ø14 mm material: 1.4571
Enclosure	:	IP65
Environmental temperature	:	-20...+40 °C
Heat protection	:	Dim. 60 x 4 mm

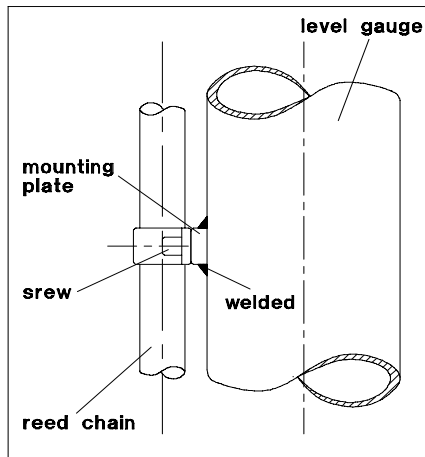


CAUTION!

Regarding a reed chain with heat protection please absolutely take care that the reed chain never (in no case) is to be integrated in an insulation. Insulating the reed chain can lead to serious damages of the reed chain, even at considerably lower fluid temperatures than indicated above, due to a heat accumulation. This leads to a functional failure of the device.

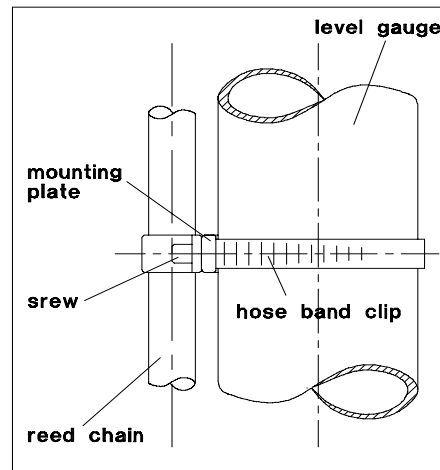
Clamp

Standard version



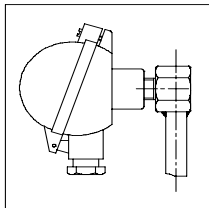
Special version

Necessary for Armaflex-isolation and later mounting of a reed chain.

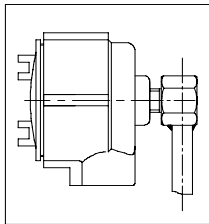


Transmitter

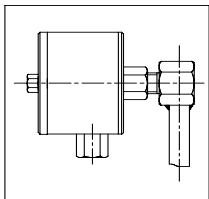
erhältliche Gehäuse



Standard-
Transmitter housing
- mat.: Aluminium
- cable entry: Pg16

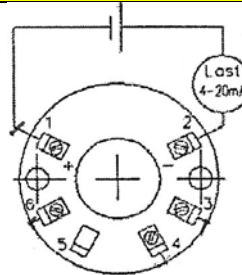


EExd
transmitter housing
- mat.: Aluminium
- epoxy coated,
saekphen
- cable entry: 1/2"NPT
or M20 x 1,5

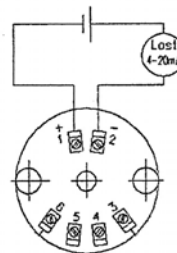


Stainless steel
transmitter housing
- mat.: 316Ti
- cable entry: 3/4"NPT
or M20 x 1,5

erhältliche Transmitter



Type: 5333B
EEx i model
output: 4-20 mA
power supply:
8-28 VDC
linearity: $\pm 0,2 \%$
power loss max. 2 Watt



Type: TMT 182
EExia IIC T4
Output: 4-20 mA
power supply:
13-30 VAC
linearity: $\pm 0,4...0,5 \%$
power loss max. 2 Watt

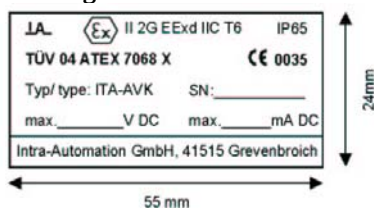
Maintenance

Normally level transmitter type ITA-AVK needs no special maintenance. Latest 2 years after start-up costumer has to clean all the threads of the field enclosure and has to lubricate these threads while using grease free of acid. The interval depends on the local stress. Some times it is necessary to shorten this time.

Important notes for flame proof version

For the flame proofed version only below listed components have to be used:

1. **field enclosure type GUAB 16**
approval : ATEX II 2 GD EEx d IIC T5/T6
2. **R/I-transmitter**
operating voltage : 8 to 36 VDC
operating current : max. 40 mA
power loss : max. 3 W
3. **reed chain**
measuring length : 200 up to 6000 mm
power loss : max. 5 W (for measuring length 6000 mm)
max. 2 W (for measuring length 200 mm)
4. **plug**
dimension : 3/8"-NPT(M)
material : brass/ nickel-plated
approval : ATEX II 2 GD EEx d IIC
necessary threads : min. 6
5. **cable gland**
The cable gland is not part of the delivery. Costumer has to take care during installation, that only approved and for the cable diameter suitable glands will be used. After installation there have to be done a pressure test to guarantee tightness of the installation.
6. **mounting**
Item 4 (plug) and item 1 (transmitter enclosure) has to be fixed additional during mounting to the reed chain tube while using spec. adhesive (f.e. type lock 306-40/ Weicon).
7. **Marking**



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IntraDigit digital indicators



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