DISIBEINT

TMN DBREx INOX

LEVEL MAGNETIC TRANSDUCERS

Operative principle	When the float rises or falls by the guide tube due to the action of liquid is turned on or off a succession of reed contacts to generate an output proportional to the height of the level.
ATEX certification	The complete set of TMN DBEx INOX transmitter is not certified. The certified elements are: the drive (DEMKO 99 ATEX 127088), the junction box (CESI 00 ATEX 008 U), terminals (SIRA02ATEX3001U) and gland (LCIE 97 ATEX 6006 X)

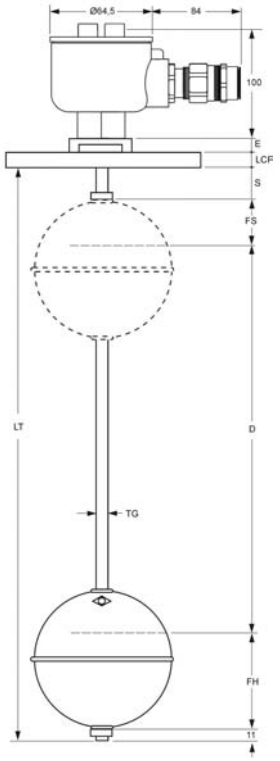
Body	Process connection	Brida DIN. DN100. SS AISI316 (1.4401)
	Guide tube length (TG)	2500..5000 mm (Ø16 mm) SS AISI316
	Standard dimensions	E = 15 mm / S = 0 mm
	Tube and stops	SS AISI316 (1.4401)
	Temperature	-20..+100 ºC
	Protection	IP 67

Flotador	Model	Spherical Ø95x95 mm. SS AISI316L (FEI602B20)
	Pressure	30 K/cm^2
	Density	e < 0,45 g/cm^3
	Temperature	-40..+125 ºC
	Dry/wet (FS/FH)	52,3 / 42,7 mm (For a density of 1 g/cm^3)

Housing	Electrical connexión	Aluminium housing connection. Ø64,5 x 100 mm
	Housing certificate	Ex II 2 G Ex d IIC
	Housing protection	IP66
	Temperature (Ta)	Air: -20..+85ºC - Liquid: -20..+100ºC
	Terminals certificate	Ex ExeII 2GD
	Cable gland	Type ADL (IP68) 10 bares max.
	Cable gland certificate	Ex II 2 G-D EExeII/EExdIIC

Output	Repeatibility	± 1%
	Step between reads	10 mm. Optional 5 mm
	Supply voltage	2 wires: 10..28 VDC

Dimensions



Legend

- **E -** Separation process
- **S -** Zone without measurement
- **LT -** Total length
- **D -** Measurement distance
- **TG -** Guied tube
- **FS -** Dry zone of float
- **FH -** Wet zone of float
- **LCP -** Process connection height

Output	Converter	Signal range	4..20 mA
		Minimum range signal	16 mA
		Time update	135 ms
		Load resistance	< (Vsup. -8) / 0.023 [Ω]
		Load stability	≤ ±0,01% to span / 100Ω
	Error detect.	Programmable	3,5..23 mA
		A max./min. of scale	23 mA/3,5 mA (NAMUR NE43)
		Off	Not defined
	Ex data	U_i - I_i	28 VCC - 120 mACC
		P_i	0,84 W
		L_i - C_i	≤ 10 µH - ≤ 1 nF

CENELEC EEx certificate	DEMKO 99	ATEX 127088
	ATEX	0539 Ex II1G-EExiaIIC T1..T6
	Máx. temp.amb. T1..T4	85 ºC
	Máx. temp.amb. T5,T6	60 ºC
	Aplicable en zonas	0,1 ó 2
Legal regulat.	EMC 89/336/EEC	
	Emisión	EN 50 081-1, EN 50 081-2
	Inmunidad	EN 50 082-2, EN 50 082-1
	ATEX 94/9/EC	EN 50014-1 y EN 50020.

Table 1: Process connection

Flange	**DN100**
t (mm)	18
Ø d (mm)	180
D (mm)	220
Thickness (LCP) (mm)	20

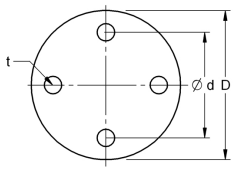


Table 2: Float

Model	**FEI602B20**
Material	SS AISI316 (1.4401)
Dimension (mm)	Ø 95x95
Pressure (kg/cm²)	30
Density (g/cm³)	e > 0,45
FS / FH (mm)	52,3 / 42,7

Installation conditions

Manipulation

Do not use the junction box to transport or to install the sensor in the tank. Ensure that the body is at ground potential.

Mounting position

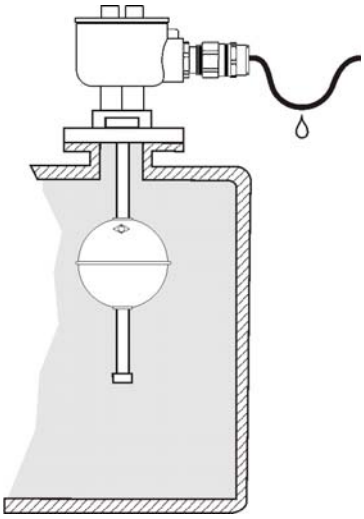
The sensor must be mounted vertically. It is advisable to leave enough space on the vessel wall to prevent the float to touching, and avoid the proximity of ferrous or magnetic materials. We recommend installing the sensor away from the stirring elements, if any.

Electrical wire

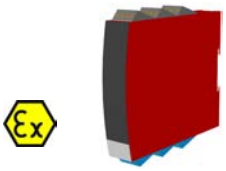
Use an appropriate cable to the electrical conditions of the installation. It is desirable that the entire gland seal on the cable and is essential in the case of humidity exist or be installed outdoors. In these cases, make a loop in the wire which facilitates the removal of accumulated drops (see figure).

Maintenance

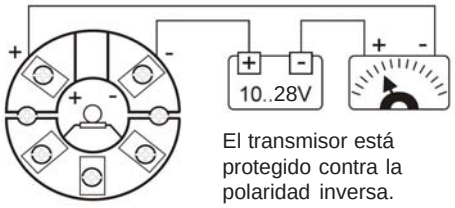
In some cases, depending on the medium to control the residence time and can be deposited into the guide tube a layer of material will be removed so as not to obstruct the displacement of the float. To do this, proceed to clean
and / or disassembly. Do not open the cover under tension.



Accessories

	IPD	IPDS	AG-5104-B
			
Function	Instrument of digital display. 3 setpoints. Different magnitudes.	Instrument of digital display. ATEX certificate.	Galvanic Isolator to analog signals.4-20mA. ATEX.
Installation	Secure Zone	Classified Zone	Secure Zone
Mounting dimensions (mm)	96 x 50 x 70 (pannel)	96 x 48 x 120 (pannel)	109 x 23,5 x 130 (DIN rail)
Approval Ex/ I.S.	-	Ex II 1 G [EEx ia] IIC T6	Ex II (1) G D [EEx ia] IIC
Applicable to areas	-	0, 1 or 2	0, 1, 2, 20, 21 or 22
Range	4-20 mA	3,6-23 mA	0-20 mA
Output	IPD-V: Only visualization. IPD-VR: Visualization and 3 SPST, 2A/250VAC	Visualization by LCD display to 4 digits.	0-20 mA
Supply	· 60..260 VAC ±10%, 50/60 Hz · 22..60 VDC ±20%	Is supplied from the voltage of the current loop.	· 24..230 VAC ±10%, 50/60 Hz · 24..250 VDC ±20%
Loop supply	16..25 VDC / 0..20 mA	16..25 VDC / 0..20 mA	16..25 VDC / 0..20 mA

Connection diagram



El transmisor está protegido contra la polaridad inversa.

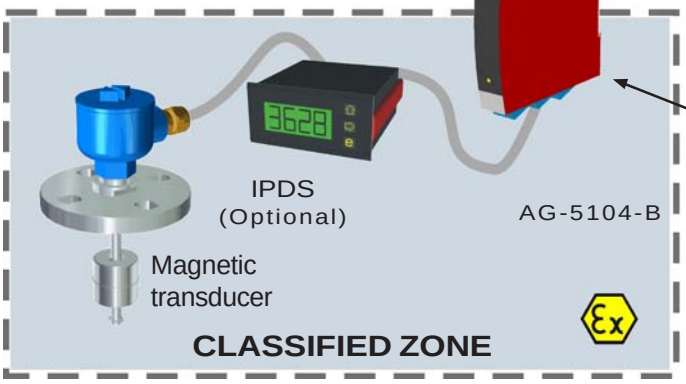
Mounting for intrinsic secure “ia”

Safety instructions

For safe installation of the transducer TMN in hazardous areas should be taken into account:

· The transducer should be installed only by qualified personnel who are familiar with national and international laws and the rules and guidelines for implementing this type of environment.

For more information see EN 60 079-14 for electrical installations in hazardous areas.

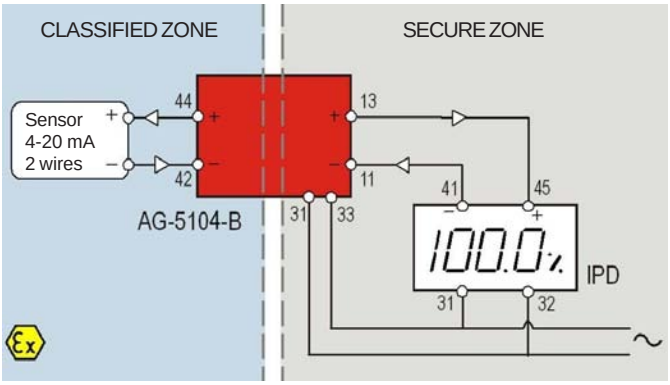


Control relays:

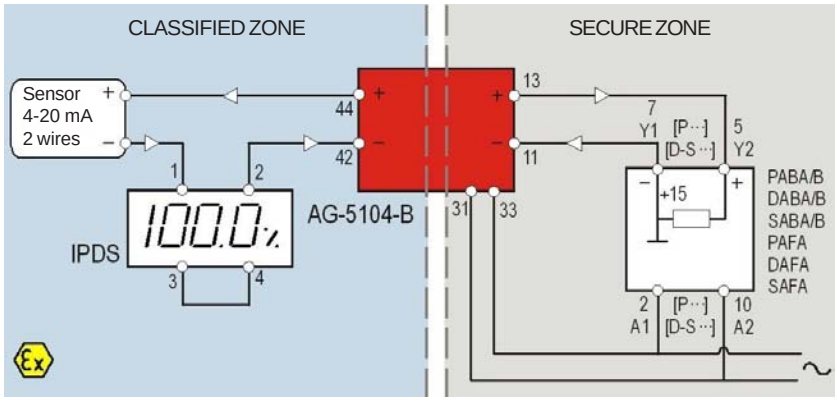
PABA/B
DABA/B
SABA/B
PAFA
DAFA
SAFA

AG-5104-B:
GALVANIC ISOLATION
ANALOG
4-20 mA

Examples to application



Sensor supply, galvanic isolated and secure zone display.



Sensor supply, display in classified areas, isolation, and 1 or 2 set points in safe area.

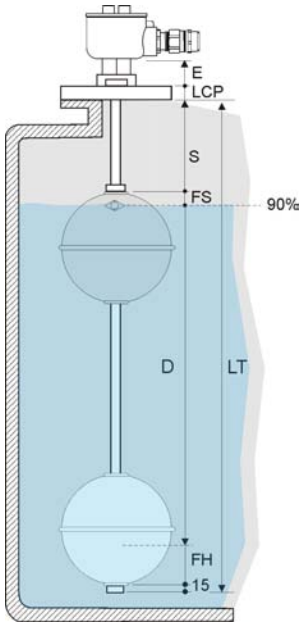
Recommendations and examples to place an order

Determine the resolution you want in your measurement by choosing appropriate step between reads. A smaller distance between reads, the better resolution you get.

The resulting actions are a function of the density of the liquid and float. Unless specified otherwise, the calculations are based on the density of water, 1 g/cm^3.

Note that the measurement can never be done from the bottom of the tank dimensions as there are some unavoidable due to the construction of the sensor itself, corresponding to the end of the guide tube and the height where stands the float level (see dimensional graph on the first page for your understanding).

It is essential that the sensor is manufactured to the maximum internal height of the tank as it can place the measuring distance where it suits you, taking into account the above. In any case, it is recommended that the total length of the sensor is somewhat below the maximum height inside the tank to avoid that the tube is slightly curved and hinders displacement of the float.



You can determine a bound (S) to establish an area where there is no reading at all. In the event that is wanted to separate the head from the process connection (for reasons of high temperature, for example) can enter an elevation (E) higher than the standard.

To place your order the following data are essential:

- the passage between readings,
- the length of the zone without measurement (S),
- the total length (LT)
- the density of the liquid, if known and different from 1 g/cm^3

Example

In a tank working height 1500 mm (LT) containing water to be measured up to 90% capacity. The distance from the bottom of the flange until the maximum filling height is 75 mm (S). You want a reading of 10 mm. Electrically connect to an existing loop 4-20 mA (2 wire).

<u>The data needed for their manufacture are:</u>

Paso = 10 mm
S = 0 mm
Total length LT = 1500 mm
Liquid density, if is different than1 g/cm^3

Composition of the reference

TMN DBREx INOX ☐ **R**☐ **LT**☐ **E**☐ **S**☐

Supply voltage	10..28 VDC	735	
	Step 5 mm	05	
	Step 10 mm	10	*
	Total length (LT)	(mm)	
	Distance (E)	(mm)	
	Distance (S)	(mm)	

* Standard values

Dimensions E and S: If not specified, be read as zero.

To compose a reference, select an option from each of the columns.
Example: **TMN DBREx INOX 735 R10 LT1500 S0**

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