

## Magnetic level gauge AQUARIUS TOP MOUNTED

### OVERVIEW

Magnetic level gauges top-mounted allow to visualize the current liquid level in vessels, regardless of changes in pressure and temperature. The level indicator consists of a measuring chamber, a float with guide rod and a magnetic system. This simple measurement method is used in many industries. It is used in tanks that cannot be mounted on the side surfaces. The fluid level is indicated directly with a separation of the measurement and indication area, which makes it resistant to vibration and sudden changes of the level. Design of this level gauges allows the installation in hazardous area on storage tank for dangerous fluids and high temperatures.

### SPECIAL FEATURES

- Level display, switch and transmitter in one device
- Simple structure and easy installation
- No power supply needed
- High visibility
- Interface measurement
- Robust, shockproof and completely sealed for safety
- Explosion-protected versions

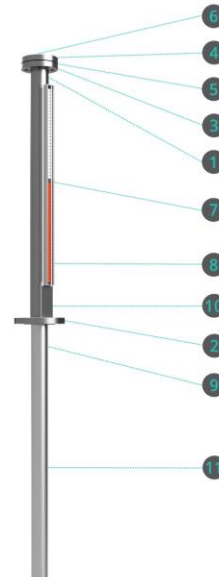
### APPLICATIONS

- Pharmaceutical and chemical industry
- Power plants and power generating equipment
- Petrochemical industry and refineries
- Oil and natural gas extraction (on- and offshore)
- Shipbuilding and offshore industries
- Pipeline compressor applications
- Machine building



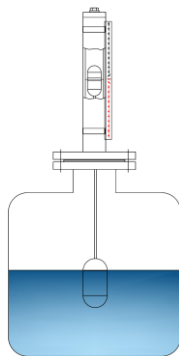
## DESIGN

1. Measuring chamber
2. Process connection
3. Top flange
4. Blind flange
5. Gasket
6. Vent plug
7. Float
8. Indicator (red/white flaps)
9. Stilling well pipe
10. TAG plate
11. Measuring Float

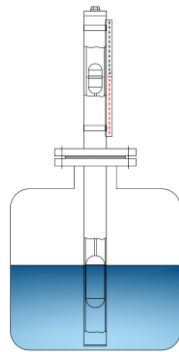


<b>Kerto</b> AUTOMATION	
<small>Kerto Automation Sp. z o.o. ul. Jana Kazimierza 29/40, 01-248 Warszawa biuro@kerto-automation.pl</small>	
Year	2023
Type	F-01
Job. ref	24000A
Tag nr.	LG-TANK1
C to C (mm)	1234
TS (°C)	-25 / +150
PS (bar)	0 - 12
S.G.	0.70 - 1.23
Process	DN 50 PN 40 B1
<b>CE0343</b>	
<small>2014/68/EU PED Cat III</small>	
<b>ATEX</b> <small>II 1/2 G Ex h IIC T80-110°C / II 1 D Ex h IIC T80C-145°C / T amb. -50°C / +180°C KWA STAT00001 x / IECEx KWA 18.0006</small>	
<b>CE2813</b>	
<small>WARNING: Potential electrostatic charging hazard: see instructions Suitable for: see manual</small>	

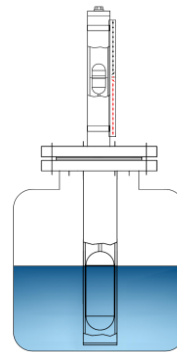
## TYPES OF TOP-MOUNTED LEVEL GAUGES



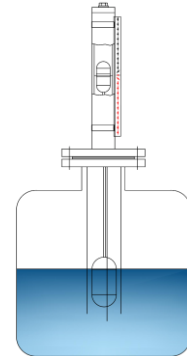
F-00A / F-00B



F-01 / F-01A



F-03A / F-03B



F-02 / F-04

## TECHNICAL DATA

### SPECIFICATIONS

<b>Model:</b>	F-00A / F-00B	Without stilling well pipe
	F-01 / F-01A and F-03A / F-03B	With stilling well pipe Ø54 or Ø60.3 and Ø76.1 or Ø88.9
	F-02 / F-04	With 3- rods (guide system) Ø76 or Ø104
<b>Material:</b>	Stainless steel 1.4404 (316L) 1.4571(316Ti)	
<b>Measuring chamber:</b>	Ø 60.3mm (above tank)	
<b>Pressure:</b>	Max. 60 bar (depending on type)	
<b>Temperature:</b>	up to 350°C	
<b>Measuring range (C. to C.):</b>	up to 5500mm (longer on request)	
<b>Indication rail:</b>	Polycarbonate, Aluminium, Stainless steel	
<b>Process connection:</b>	flanges DIN DN50 up to DN150 / PN16 up to PN63	
	flanges ANSI 2" up to 6" / 150# up to 300#	
<b>Vent:</b>	Plug or valve 1/4" - 3/4", extra flange acc. DIN or ANSI	
<b>Float:</b>	float is specified for a particular application	
<b>Density:</b>	min. 410 kg/m <sup>3</sup>	
<b>Certificates:</b>	Material EN 10204 3.1, Pressure test, CE, PED, UKCA, NACE, ATEX, IECEx, BV	
<b>Options:</b>	scale, switches MIN/MAX, transmitter 4..20mA, insulation, heating or cooling jacket, electric or steam tracing	

## LEVEL SWITCHES

### General purpose

HLS-15, LMS-Ha2, HLS-Ha1, HLS-Ha3

- bistable SPDT / NAMUR
- operating temperature -50... +350°C
- housing protection IP66/IP68
- switch rating: 10-230V: 0,8A-5A
- cable 5m or cable gland M16
- housing: plastic, aluminium or SS316



### Hazardous area

Exi: HLS-25i, HLS-Ha1E, HLS-Ha3E | Exd: HLS-25d, HLS-HaD

- bistable SPDT / NAMUR
- versions Exi or Exd
- operating temperature -50... +350°C
- housing protection IP66/IP68
- switch rating:
  - Exi 10-30V: 0,25-0,5A
  - Exd 10-230V: 0,25-5A
- cable 5m or cable gland M20
- housing: aluminium or SS316
- gold contacts (option)



## REED-CHAIN LEVEL TRANSMITTERS

P-05, P-10, P-15, P-25

- accuracy  $\pm 5\text{mm}$  [P-10] or  $\pm 7,5\text{mm}$  [P-15]
- operating temperature -50...+350°C
- reed-chain tube material: SS316
- housing materials: aluminium or SS316
- housing protection IP66/IP68
- output 4...20mA + HART

### OPTIONS:

- higher accuracy:  $\pm 2,5\text{mm}$  [P-05] and  $\pm 1,25\text{mm}$  [P-25]
- communication modules PROFIBUS or FIELDBUS
- housing with LCD display (also optical)
- output signal: V or Ohm
- version Exi or Exd



## ACCESSORIES

▪ heat tracing

▪ scale

▪ floats

▪ indicators

▪ insulation

▪ valves



## TYPE CODE FOR MAGNETIC LEVEL GAUGE

[ 1 ] - [ 2 ] - [ 3 ] - [ 4 ] - [ 5 ] - [ 6 ] - [ 7 ] - [ 8 ] - [ 9 ] - [ 10 ] - [ 11 ] - [ 12 ]

### 1 Type

- F-00A: without stilling well, float  $\varnothing 52$
- F-00B: without stilling well, float  $\varnothing 67$  or  $\varnothing 72$
- F-01: with stilling well pipe  $\varnothing 60.3$
- F-01A: with stilling well pipe  $\varnothing 54$
- F-03A: with stilling well pipe  $\varnothing 76.1$
- F-03B: with stilling well pipe  $\varnothing 88.9$
- F-02: with 3-rods  $\varnothing 76$
- F-04: with 3-rods  $\varnothing 104$

### 2 Measuring range (ML)

### 3 Immersion length

### 4 Process connection

- KD: Flanges DIN DN50 – DN150 / PN16 – PN63
- KA: Flanges ANSI 2" – 6" / 150# - 300#

### 5 Top of the chamber

- K: Plug  $\frac{1}{4}$ " -  $\frac{3}{4}$ " G/NPT
- Z: Valve  $\frac{1}{4}$ " -  $\frac{3}{4}$ " G/NPT
- F: Flanges acc. DIN or ANSI

### 6 Gasket (only for top flanges)

- PT: PTFE
- AR: Aramide
- GR: Graphite
- US: Spiral wound

### 7 Material

- S6: Stainless steel | SS316L (1.4404)
- S4: Stainless steel | SS304

### 8 Indicator rail

- WA: Housing aluminum with SS316 flaps
- WS: Housing and flaps: SS316
- WT: Housing and flaps: polycarbonate

### 9 Float

- SS: Stainless steel 1.4571 [R... ,V...]
- TT: Titanium [T...]

### 10 Options

- SKL: Scale [cm / mm / 0-100%] + pointer
- SPM: Switches MIN/MAX SPDT [LMS... HLS]
- 420: Transmitter 4...20mA [P-05...P-25]
- IZL/PŁG/PŁC: Insulation, heating or cooling jacket
- OGE: Electric or steam tracing
- SUP: Float damage indicator
- SPR: Spring on Top

### 11 Certificates

- CM: Material 3.1 EN 10204
- PT: Pressure test
- NACE MR-0175
- ATEX
- BV: Marine approvals BV
- WPS/PQR: Welding specification WPS/PQR
- RTG: X-ray testing
- UK: UKCA marking

### 12 Drawing number

## ORDERING EXAMPLE

F-01A - 550 – 950 – KA.3"/150# - K.G1/2 - S6 - WA - SS[R1/3.30] – 420[P-10] - ATEX - [230717-02]

## TYPE CODE FOR LEVEL TRANSMITTERS P-05, P-10, P-15, P-25 (Exi)

P-[1]-[2]-[3]-[4]-[5]-[6]-[7]

### 1 Accuracy

- 05: ± 2,5mm
- 10: ± 5mm
- 15: ± 7,5mm
- 25: ± 1,25mm

### 2 Version

- G: Standard (general purpose)
- I2: Ex II 1 G Ex ia IIC T6 Ga
- I3: Ex II 1 G Ex ia IIC T6 Ga / II 1 D Ex ia IIIC T135 °C Da

### 3 Head mounted transmitter

- S: Standard 4..20mA
- H5: 4..20mA + HART 5\*
- H7: 4..20mA + HART 7
- F: Fieldbus
- P: Profibus

### 4 Measuring range [mm]

### 5 Medium temperature

- C: -50°C ...-25°C
- S: -25°C...+160°C
- H: +161°C...+300°C
- SH: +301°C...+400°C

### 6 Housing material

- S41: Stainless steel, SS 304, M16x1.5
  - S42: Stainless steel, SS 304, M20x1.5
  - S62: Stainless steel, SS 316, M20x1.5
  - S63: Stainless steel, SS 316, ½" NPT
  - S64: Stainless steel, SS 316, ¾" NPT
  - S62L: Stainless steel + LCD, M20x1.5
  - S63L: Stainless steel + LCD, ½" NPT
  - S64L: Stainless steel + LCD, ¾" NPT
  - A12: Aluminium, M16x1.5
  - A22: Aluminium, M20x1.5
  - A32: Aluminium, ½" NPT
  - A42: Aluminium, ¾" NPT
  - A13: Aluminium, M16x1.5
  - A23: Aluminium, M20x1.5
  - A33: Aluminium, ½" NPT
  - A43: Aluminium, ¾" NPT
  - A2L: Aluminium + LCD, M20x1.5
  - A3L: Aluminium + LCD, ½" NPT
  - A4L: Aluminium + LCD, ¾" NPT
  - P1: ABS, M16x1.5
  - P2: ABS, M20x1.5
  - P3: ABS, ½" NPT
- \*) only transmitter with option H:
- S62HO: Stainless steel + LCD, M20x1.5
  - S63HO: Stainless steel + LCD, ½" NPT
  - S64HO: Stainless steel + LCD, ¾" NPT
  - A2HO: Aluminum + LCD, M20x1.5
  - A3HO: Aluminum + LCD, ½" NPT
  - A4HO: Aluminum + LCD, ¾" NPT

### 7 Certificates

- ATEX
- IECEX
- KLB: calibration
- UK: UKCA marking

## ORDERING EXAMPLE

**P – 10 I2 – H7 – 500 – S – A22 – ATEX (version Exi)**

**P – 10 G – H7 – 500 – S – A22 (standard version)**

## TYPE CODE FOR LEVEL TRANSMITTERS P-05, P-10, P-15, P-25 (Exd)

P-[1]-[2]-[3]-[4]-[5]-[6]-[7]

### 1 Accuracy

- 05: ± 2,5mm
- 10: ± 5mm
- 15: ± 7,5mm
- 25: ± 1,25mm

### 2 Version

- D: Ex db IIC T5..T1 Gb / Ex tb IIIC T100°C..T400°C Db

### 3 Head mounted transmitter

- S: Standard 4..20mA
- H5: 4..20mA + HART 5
- H7: 4..20mA + HART 7
- F: Fieldbus
- P: Profibus
- O: Ohm

### 4 Measuring range [mm]

### 5 Medium temperature

- C: -50°C ...-25°C
- S: -25°C...+160°C
- H: +161°C...+300°C
- SH: +301°C...+400°C

### 6 Housing material

- S62: Stainless steel, SS 316, M20x1.5
- S63: Stainless steel, SS 316, ½" NPT
- S64: Stainless steel, SS 316, ¾" NPT
- S62L: Stainless steel + LCD, M20x1.5
- S63L: Stainless steel + LCD, ½" NPT
- S64L: Stainless steel + LCD, ¾" NPT
- A2: Aluminium, M20x1.5
- A3: Aluminium, ½" NPT
- A4: Aluminium, ¾" NPT
- A2L: Aluminium + LCD, M20x1.5
- A3L: Aluminium + LCD, ½" NPT
- A4L: Aluminium + LCD, ¾" NPT
- S62HO: Stainless steel + LCD, M20x1.5
- S63HO: Stainless steel + LCD, ½" NPT
- S64HO: Stainless steel + LCD, ¾" NPT
- A2HO: Aluminum + LCD, M20x1.5
- A3HO: Aluminum + LCD, ½" NPT
- A4HO: Aluminum + LCD, ¾" NPT

### 7 Certificates

- ATEX
- IECEx
- KLB: calibration
- UK: UKCA marking

## ORDERING EXAMPLE

P – 15 D – S – 500 – H7 – S62L – ATEX (version Exd)



version: 0723\_v01