

Magnetic level gauge AQUARIUS

OVERVIEW

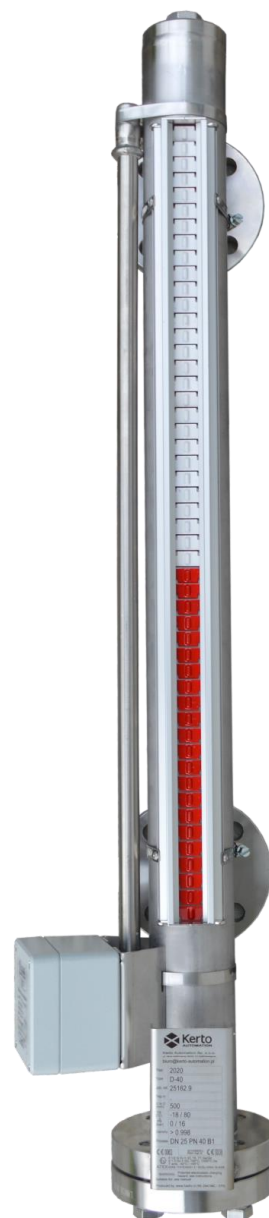
Magnetic level gauges allow to visualize the current liquid level, due to the physical law of liquids in communicating vessels in a forced manner, regardless of changes in pressure and temperature. This simple measurement method is used in many industries. The fluid level is indicated directly with a 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, under high pressure and high temperature.

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

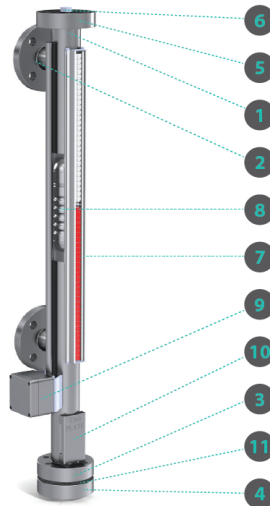
APPLICATIONS

- 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
- Food and beverage



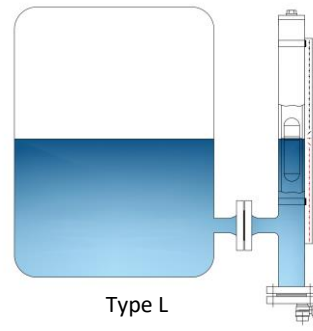
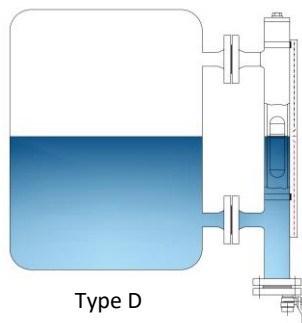
DESIGN

1. Bypass chamber
2. Process connections
3. Bottom flange
4. Blind flange
5. Top flange
6. Vent plug
7. Indicator
8. Float
9. Level transmitter 4..20mA
10. TAG plate
11. Gasket



Kerto AUTOMATION	
Kerto Automation Sp. z o.o. ul. Jana Kazimierza 29/40, 01-248 Warszawa biuro@kerto-automation.pl	
Year	2020
Type	D-40
Job. ref.	24000A
Tag nr.	LG-TANK1
C to C (mm)	1234
TS (°C)	-25 / +150
PSI (bar)	0 - 12
S.G.	0.70 - 1.23
Process	1.1/2" 300#
2014/68/EU PED Cat. II	CE 0038
II 1/2" 300# 1500# 1500# II 1" 150# 1500# 1500# T max: +150°C / 150°C	ATEX IMA 17ATD006 X / IBC: NEMA 1B.0000
	CE 0620
WARNING: Potential electrostatic charging hazard, see instructions	
Suitable for: see manual	

TYPES OF SIDE-MOUNTED LEVEL GAUGES



TECHNICAL DATA

SPECIFICATIONS

Model:	DIN	D-40...D-320	L-40...L-320
	ANSI	D-150...D-2500	L-150...L-2500
Material:	Stainless steel 1.4404 (316L) 1.4571(316Ti)		
Measuring chamber:	Ø 60.3mm		
Pressure:	up to 320bar		
Temperature:	up to 400°C		
Measuring range (C. to C.):	up to 5500mm (longer on request)		
Indication rail:	Polycarbonate, Aluminium, Stainless steel		
Process connection:	flanges DIN DN15 up to DN100 / PN16 up to PN320		
	flanges ANSI 1/2" up to 4" / 150# up to 2500# weld or thread 1/2" - 1" BSP/NPT (Male / Female)		
Vent:	Plug or valve 1/4" - 3/4", extra flange acc. DIN or ANSI		
Drain:	Plug or valve 1/4" - 3/4", extra flange acc. DIN or ANSI		
Float:	float is specified for a particular application		
Density:	min. 380 kg/m ³		
Certificates:	Material EN 10204 3.1, Pressure test, CE, PED, UKCA, NACE, ATEX, IECEx, LR, BV		
Options:	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] - [13]

1 Type

- D: Bypass side-mounted (two process connections)
- L: Bypass side-mounted (one process connection)

2 Pressure class ratings

- DIN 40/64/100/160/250/320 bar
- ANSI 150/300/600/900/1500/2500# class

3 Measuring range (C. to C.)

4 Process connection

- KD: Flanges DIN DN15 – DN100 / PN40 – PN320
- KA: Flanges ANSI ½" – 4" / 150# - 2500#
- T: Thread ½" – 1" G/NPT (Male / Female)
- WS: Weld

5 Vent

- K: Plug ¼" - ¾" G/NPT
- Z: Valve ¼" - ¾" G/NPT
- F: Flange acc. DIN or ANSI

6 Drain

- K: Plug ¼" - ¾" G/NPT
- Z: Valve ¼" - ¾" G/NPT
- F: Flange acc. DIN or ANSI

7 Gasket

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

8 Material

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

9 Indicator rail

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

10 Float

- SS: Stainless steel 1.4571 [R1...RT3]
- TT: Titanium [T1T...TS14]
- HL: Hastelloy [H2S]

11 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 Top/Bottom

12 Certificates

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

13 Drawing number

ORDERING EXAMPLE

D - 40 - 500 - KA.1"/600# - K.G1/2 - Z.1/2"NPT - PT - S6 - WA - SS[R1/3.30] - 420[P-10] - ATEX - [220131-02]

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: Aluminium + LCD, M20x1.5
 - A3HO: Aluminium + LCD, ½" NPT
 - A4HO: Aluminium + 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: Aluminium + LCD, M20x1.5
- A3HO: Aluminium + LCD, ½" NPT
- A4HO: Aluminium + 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: 0422_v04