

[See page 5 for selection details](#)



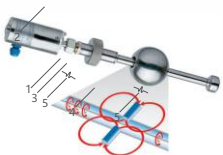
LZS20

Magnetostrictive Level Gauge

Principle of operation

The measurement process is triggered by current pulse. The current generates a circular magnetic field 3 along the catheter, and a wire 1 made of magnetostrictive material is fixed on the catheter.

At the point (liquid level) to be measured, there is a sensor floating with a permanent magnet 4. The superposition of these two magnetic fields triggers the mechanical torsion wave 5 in the wire. The signal is converted into an electrical signal at the end, which is inserted into the sensor housing through a piezoelectric ceramic converter.



Description:

1. Line
2. Sensor housing
3. Magnetic field
4. Permanent magnet
5. Torsional wave

Product description

LZS20 magnetostrictive sensor is specially designed to meet the needs of food and health industries, and is suitable for beverage, pharmaceutical and biotechnology industries. The sensor is especially suitable for process measurement of CIP/SIP cleaning process under special conditions, such as chemical stability cleaning liquid and high temperature medium.

The conduit is directly welded to the process interface, which can ensure that there is no gap, and other sealing measures are added.

The electronic output signal of the sensor is that the applied voltage is 10-30V. The sensor housing with sanitary design has a protection level of IP68, which can be used for external cleaning by splashing water, and is suitable for high humidity environment.

Lzs-20 sensor can meet the high requirements of hygiene applications. The version number marked with 3A symbol and followed by current (based on the third party) is verified to meet the 3-A standard.

Functional performance

Completely welded, no dead angle.

Operational restrictions:

-working temperature t: $-40 \dots +250^{\circ}\text{C}$

-working pressure: P = vacuum to 100 bar

Not sensitive to foaming, very suitable for interface measurement.

High-precision liquid level measurement: accuracy $< 0.5 \text{ m}$.

Various sanitary processes connect ions.

Product application

Food and beverage industry

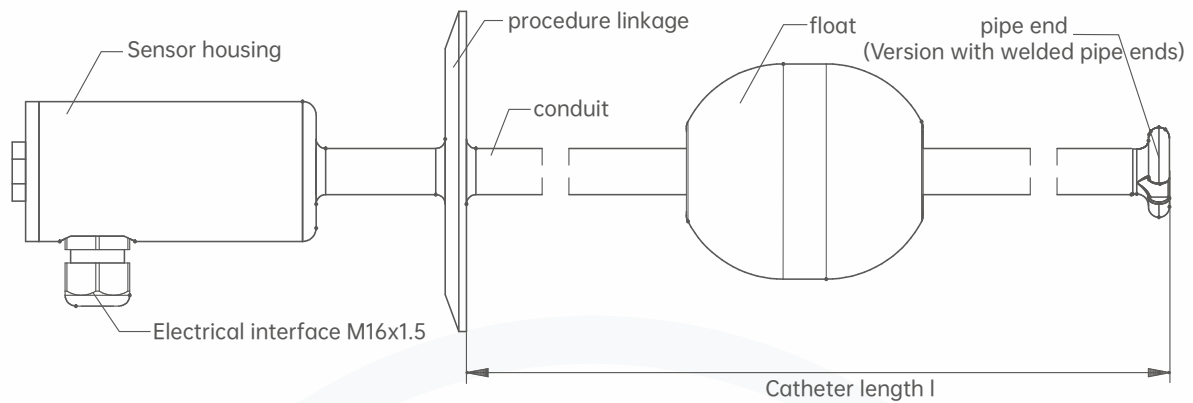
Pharmaceutical industry

biotechnology

Liquid level measurement of fermentor



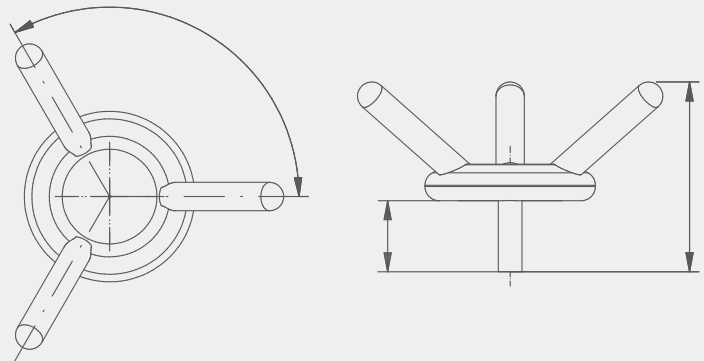
Structure chart



Composition of liquid level sensor

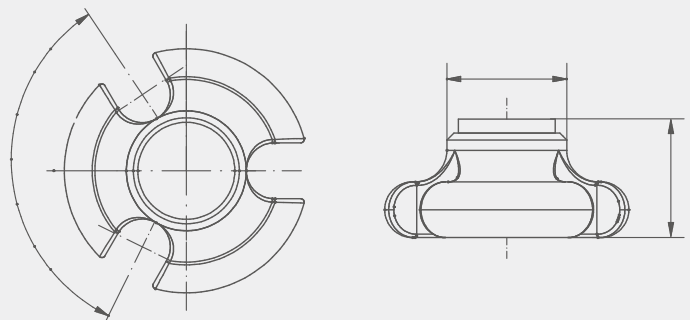
Bracket type

The bracket is independent of magnetostrictive liquid level transmitter and can be directly welded to the bottom of tank. During installation, the transmitter catheter is inserted into the bracket hole; The floating ball can be fixed, and at the same time it can stabilize the conduit, so as to reduce the impact of liquid flow in the tank on the conduit. Removable, easy to install in the tank; It is especially suitable for tanks with inlet holes. By adopting this structure and installing it in the floating ball tank, the opening size of the process interface can be reduced.



Welding end type

Welded at the bottom of the catheter, small blind area, smooth structure and easy cleaning. The structure is easy to use, but the floating ball cannot be detached, and the matching of the outer diameter of the floating ball and the process interface should be considered when selecting the type.



More features

- Simple and reliable measurement principle, wide range of applications
- Can be used in harsh working conditions, good reliability, long service life
- Used for continuous liquid level measurement, which is not affected by physical and chemical changes in the medium
- Long-distance signal transmission
- Easy installation and debugging, no adjustment required after one calibration
- Can display height or volume in equal proportion

For example: foaming, conductivity, dielectric, pressure, vacuum, temperature, steam, condensation, gas

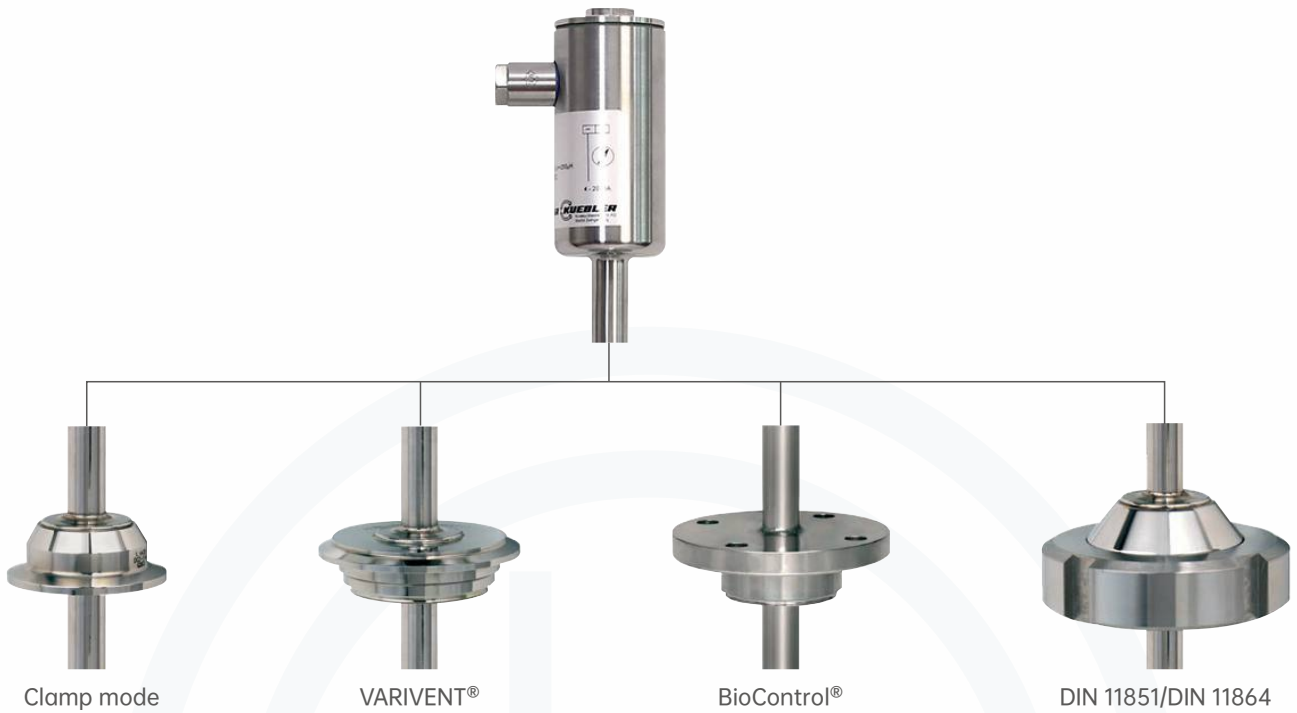
Bubble, boiling effect, density change



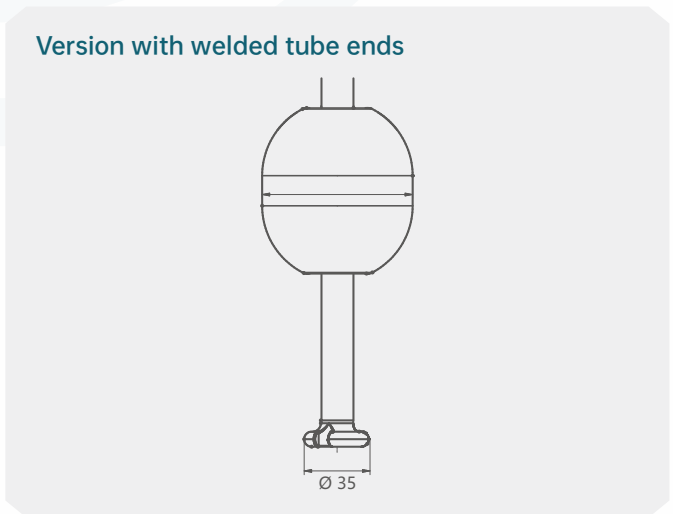
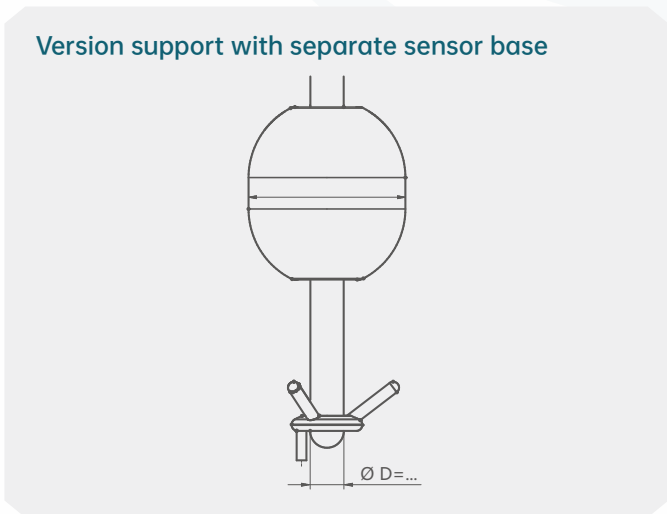
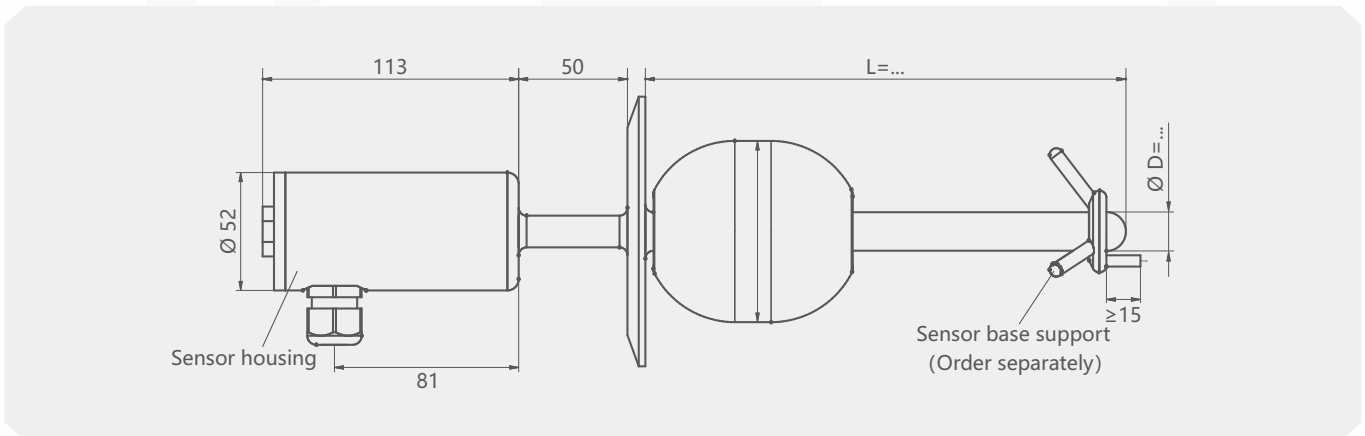
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For more product information, please visit www.ludwig-schneider.com.cn

Procedure connection example



Sterile version



Technical parameter

Specification	
electrical connection	Junction box: stainless steel 1.4305, glen head M16 x 1.5, nylon or sanitary design.
procedure linkage	Fixture connection ISO 2852 (DN 32 ... DN 100 or 1.5" ... 4 ")
	Fixture connection DIN 32676 (DN 32 ... DN 100 or 1.5" ... 4 ")
	Sterile thread, standard DIN 11864-1 (DN 32 ... DN 100 or 1.5" ... 4 ")
	Sterile flange, standard DIN 11864-2 (DN 32 ... DN 50 or 1.5" ... 2 ")
	Aseptic shaft sleeve connection, standard DIN 11864-1 (DN 32 ... DN 100 or 1.5" ... 4 ")
	Sterile clamping type, standard DIN 11864-3 (DN 32 ... DN 100 or 1.5" ... 4 ")
	VARIVENT® (form F, N and g)
	BioConnect® threaded connection (DN 32 ... DN 100 or 1.5" ... 2 ")
	BioConnect® flange connection (DN 32 ... DN 100 or 1.5" ... 2 ")
	BioConnect® clamp connection (DN 32 ... DN 100 or 1.5" ... 2 ")
conduit	Material: stainless steel 1.4435 (316L) or 1.4404 (316L).
	Surface grinding and polishing, $R_s \leq 0.8 \mu\text{m}$ or $R_s \leq 0.4 \mu\text{m}$, or electropolishing.
Catheter diameter	12, 14 or 17.2 mm
Maximum catheter length l	6,000 mm
float	Material: stainless steel 1.4435 (316L) or 1.4404 (316L).
	The surface finish can reach $R_a \leq 0.8 \mu\text{m}$ or $R_a \leq 0.4 \mu\text{m}$, or it can be polished by electrolytic method.
	Floating ball diameter: 50 or 80 mm.
	The floating ball is selected according to the diameter of the catheter.
Density range	
▪ Floating ball diameter 50 mm	1,000 ... 1,860 kg/m^3
▪ Float diameter 80 mm	770 ... 1,162 kg/m^3
maximum pressure	10 bar
temperature range	
▪ Medium (standard)	-40 ... +250 °C
▪ Ambient temperature of junction box	-40 ... +85 °C
▪ Storage temperature	-20 ... +60 °C
output signal	4 ... 20 mA, HART®
Power supply	DC 10 ... 30 V
measurement accuracy	< $\pm 0.5 \text{ mm}$
resolution	< 0.1 mm
load	Maximum 900 Ω , at 30 V.
Installation position	Vertical 30
the protection grades	IP65/IP66/IP67 Optional

LZS20-Selection composition

Selection example LZS20

1	A	2	E	3	G	4	1700	5	N	6	Y	7	M	8	K	9	M	10	A	11	Q	12	F
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1.Measurement mode	A	Hard rod measurement
	B	Flexible cable survey
	C	Auxiliary cavity bypass installation
2.Installation type	F	Side-mounted matching magnetic column level meter
	E	Direct plug-in installation
3.Installation process interface specification	G	G Thread Down (Note thread specification)
	H	Flange (note flange specification)
	I	NPT Thread Down (Note Thread Specification)
4.measuring range	R()	Remarks range (unit: mm)
5.Measuring cavity material	N	Stainless steel
	O	Electropolishing of stainless steel
	P	Stainless steel lined PTFE
	Q	Titanium
	R	Hastelloy b
	S	Hastelloy c
	W	Polyvinyl chloride PVC
	U	Polypropylene PP
	V	Polyvinylidene fluoride PVDF
	T()	Other materials
6.Signal output	Z	Two-wire analog signal output 4~20mA.
	Y	Three-wire analog signal output 4~20mA.
	X	RS485 digital output
	W	4~20mA+HART protocol (LCD)
7.Junction box material	M	Aluminum flameproof junction box
	L	Stainless steel flameproof junction box
8.Junction box location	K	The junction box is on
	S	The junction box is below.
9.Precision	M	±1mm
	U	±2mm
10.Power Supply	A	24V DC
	B	220V AC
11.Electrical interface	Q	M20*1.5
	X	1/2NPT
12.Explosion-proof certification	E	Intrinsic safety
	F	Flameproof
	G	There is no

Instructions:

It means that the LZS20 type magnetostrictive level meter is measured by a hard rod, installed as a direct insert installation, the installation interface is threaded, the thread specification is G1/2, the measuring range is 1700mm, the measuring chamber material is stainless steel, the junction box is an aluminum flameproof junction box, the junction box is on top, and the three-wire analog signal output is 4-20mA. Accuracy ±1mm, power supply 24VDC, electrical interface M20*1.5, flameproof.

Product Certification

Compliance and approval; Rodweg level gauges meet key standards and certifications for process measurement technology; Thus guaranteeing the highest reliability in such Settings;

