



BM500 / LS6X00 / LS72XX

Technical Datasheet

Level gauges for hygienic applications

- Hygienic installation
- Completely made of stainless steel
- Maintenance / seal-free installation

KROHNE

Hygienic level gauges

The **BM 500** is a continuous level gauge for small vessels with viscous and pasty products with a minimum conductivity of 1 $\mu\text{S}/\text{cm}$.

The electromagnetic switches of the **LS 6000 series** are designed as limit switches for level detection or dry run protection. The measurement method allows universal application for changing media. Coating and condensate are not detected.

The conductive switches of the **LS 7000 series** are designed as limit switches for level detection or dry run protection for conductive products.



- ① BM 500
- ② LS 6200 PG
- ③ LS 7240 coated

Highlights

- Max. temperature 140°C / 285°F
- Fast response time
- Optimized flow geometry
- No pressure loss

Industries

- Food & Beverage
- Pharmaceuticals
- Cosmetics

Typical applications

- Level measurement of mustard
- Level measurement of ketchup
- Level detection of cream
- Level detection of toothpaste

Options and variants



BM 500

- Remote version
- Length up to 3 m / 10 ft
- Potted version
- "Empty" and "Overfull" status signals
- Automatic position detection (installation from top or bottom)



LS 6200

- No blockage of the pipeline
- Installation from DN 25
- LED switch indicator
- Insensitive to build-up of foam



LS 6250 (LS 6250 S)

- Suitable for organic products
- LED switch indicator



LS 6300 (LS 6300 S)

- Installation from DN 15
- LED switch indicator



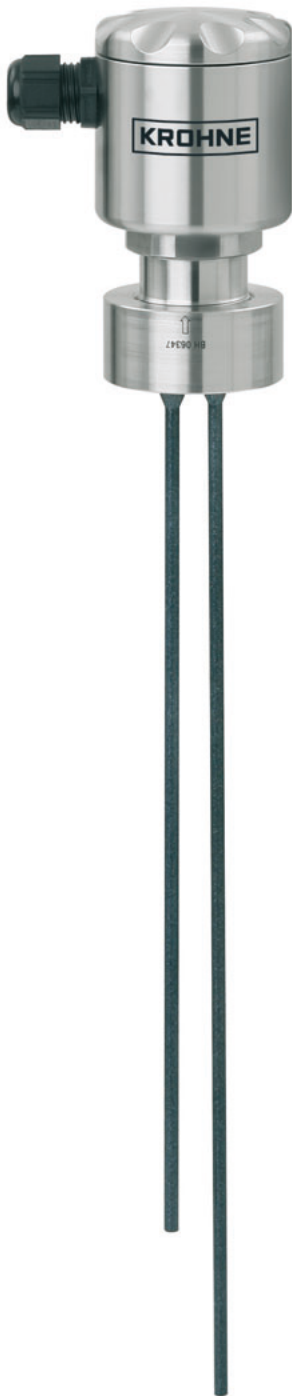
LS 7200

- No blockage of the pipeline



LS 7210 / 7211 / 7220 / 7221

- Mono rod probes, stainless steel or coated
- Can be shortened



LS 7230 / 7240 (LS 7240 coated)

- Multiple rod probes, stainless steel or coated
- Can be shortened

Technical data

BM 500

Measuring system

Functional principle	Potentiometric
Installation	Installation from top or bottom (automatic position detection)

Measuring accuracy

Accuracy	± 0.5%
Repeatability	± 0.1% of the max. measuring rod length
Min. measuring range	50 mm / 2", configurable using keys
Response time	T ₆₆ 10 ms

Operating conditions

Pressure	≤ 16 bar / 232 psi
Ambient temperature (compact)	-20...+60°C / -4...+140°F
Ambient temperature (remote)	-20...+100°C / -4...+212°F
Operating temperature	-20...+140°C / -4...+284°F
Medium conductivity	≥ 1 µS/cm

Materials

Probe	Stainless steel 1.4404 / AISI 316 L
Housing	Stainless steel 1.4301 / AISI 304
Process connection	Stainless steel 1.4404 / AISI 316 L
Isolation material	PEEK (FDA accepted)
M16 cable glands	Plastic
M12 plug	Brass, nickel plated

Process connections

Screwed joint	G1" hygienic; adapter ❶
Sensor length	200...3000 mm / 0.6...10 ft
Cable length	1000...5000 mm / 3.3...16.4 ft (only for remote version)
Protection class [EN 60529]	IP67
Vibrations	IEC 68-2-6, GL test2

Electrical connection

Resolution, input	15 bit
Output	4...20 mA; max. load 500 Ohm
Power supply	18...36 VDC; max. 200 mA
Status signal, "empty"	2.4 mA
Status signal, "filled"	21.6 mA

Approvals

Immunity (EMC)	EN 61000-6-2
Emissions (EMC)	EN 50081-1

Accessories

HWN 500 welding sleeve	Option ❶
Hygienic adapter sleeve for other process connections	Option ❶
Adapter sleeve	Option ❶

❶ For further information, see additional datasheet "Accessories for hygienic measuring instruments".

LS 6000 Series

Version	LS 6200	LS 6250 / LS 6250 S	LS 6300 / LS 6300 S
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Measuring system

Functional principle	Electromagnetic wave
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Operating conditions

Pressure	≤ 16 bar / 232 psi
Ambient temperature	-20...+60°C / -4...+140°F
Operating temperature	-20...+85°C / -4...+185°F (Cleaning 140°C / 284°F (1h))
Applications	Please refer to the following table "Positioning the jumper and recommended applications"

Materials

Probe	Stainless steel 1.4404 / AISI 316 L
Housing	Stainless steel 1.4301 / AISI 304
Process connection	Stainless steel 1.4404 / AISI 316 L
Isolation material	PEEK (FDA accepted)
M16 cable glands	Plastic
M12 plug	Brass, nickel plated

Process connections

Threaded joint	G½" hygienic; adapter ①	M12 hygienic ①
Protection class (EN 60529)	IP67	

Electrical connection

Standard	Contactless switch
Contact output	18...36 VDC; max. 50 mA (load free)
Power supply	18...36 VDC; max. 70 mA
Full/empty switching function	Polarity of the power supply
Attenuation	0.1 / 1.0 s (Jumper)
Hysteresis	± 1 mm
Repeatability	± 2 mm
Status display	LED

Approvals

Immunity (EMC)	EN 61000-6-2
Emissions (EMC)	EN 50081-1
Vibration	IEC 68-2-6, GL test2

Accessories

HWN 200 welding sleeve	Option ①
Hygienic adapter sleeve for other process connections	Option ①

① For further information, see additional datasheet "Accessories for hygienic measuring instruments".

Positioning the jumper and recommended applications

Series	Jumper	DK value	Immunity to foam	Response time [s]	Recommended application Medium type
LS 6200	1-2	> 22	Yes	1	Aqueous, fat component <10%
	2-3	> 22	Yes	0.1	Aqueous, fat component <10%
	Open	> 22	No	0.1	Aqueous, fat component <85%
LS 6250	1-2	> 30	Yes	1	Aqueous, fat component <1% or carbohydrates >10%
	2-3	> 30	Yes	0.1	Aqueous, fat component <1% or carbohydrates >10%
	Open	> 22	No	0.1	Aqueous, fat component <20% or carbohydrates >10%
LS 6250 S	1-2	< 10	Yes	1	Organic solvents, fat and oil. Dry media.
	2-3	< 10	Yes	0.1	Organic solvents, fat and oil. Dry media.
	Open	< 27	No	0.1	Organic solvents, fat and oil. Dry media.
LS 6300	1-2	> 28	Yes	1	Aqueous, fat component <10%
	2-3	> 28	Yes	0.1	Aqueous, fat component <10%
	Open	> 22	No	0.1	Aqueous, fat component <20%
LS 6300 S	1-2	< 12	Yes	1	Organic solvents, fat and oil. Dry media.
	2-3	< 12	Yes	0.1	Organic solvents, fat and oil. Dry media.
	Open	< 21	No	0.1	Organic solvents, fat and oil. Dry media.

LS 7000 series: versions with stump electrode or mono rod electrode

Version	LS 7200 / LS7201	LS 7210 / LS 7211	LS 7220 / LS 7221
Probe type	Stump electrode	Rod electrode	Rod electrode, coated

Measuring system

Functional principle	Conductive
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Operating conditions

Pressure	≤ 16 bar / 232 psi
Ambient temperature	-20...+85°C / -4...+185°F (electrode / mass output) -20...+60°C / -4...+140°F (contact output)
Operating temperature	-20...+140°C / -4...284°F

Materials

Probe	Stainless steel 1.4404 / AISI 316 L	E1.4404 / AISI 316 L, PTFE coated
Housing	Stainless steel 1.4301 / AISI 304	
Process connection	Stainless steel 1.4404 / AISI 316 L	
Isolation material	PEEK (FDA accepted)	
M16 cable glands	Plastic	
M12 plug	Brass, nickel plated	

Process connections

Screwed joint	G½" hygienic; adapter ❶		
Rod diameter	-	4 mm / 0.16"	4.2 mm / 0.17"
Electrode length [mm]	-	200; 500; 850; 1000	200; 500; 850; 1000
Electrode length [ft]	-	7.87; 19.69; 33.46; 39.37	7.87; 19.69; 33.46; 39.37
Protection class (EN 60529)	IP67		

Electrical connection

Output	LS 7200: Electrode / mass connection	LS 7210: Electrode / mass connection	LS 7220: Electrode / mass connection
	LS 7201: Active max. 50 mA (resistant to short circuits)	LS 7211: Active max. 50 mA (resistant to short circuits)	LS 7221: Active max. 50 mA (resistant to short circuits)
Power supply	18...36 VDC; max. 10 mA ❷		
Sensitivity [kOhm]	Adjustable: 0,2; 2; 20 ❷		

Approvals

Immunity (EMC)	EN 61000-6-2
Emissions (EMC)	EN 50081-1

Accessories

Level evaluation modules	Option ❶
Hygienic process connections	Option ❶

❶ For further information, see additional datasheet "Accessories for hygienic measuring instruments".

❷ Valid for active output

LS 7000 series: Versions with multiple rod electrodes

Version	LS 7230 / LS 7231	LS 7240 / LS 7241
Probe type	Multiple rod electrode	Multiple rod electrode, coated

Measuring system

Functional principle	Conductive
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Operating conditions

Pressure	≤ 16 bar / 232 psi
Ambient temperature	-20...+85°C / -4...+185°F (Electrode / mass output) -20...+60°C / -4...+140°F (contact output)
Operating temperature	-20...+140°C / -4...284°F

Materials

Probe	Stainless steel 1.4404 / AISI 316 L	Stainless steel 1.4404 / AISI 316 L, PTFE coated
Housing	Stainless steel 1.4301 / AISI 304	
Process connection	Stainless steel 1.4404 / AISI 316 L	
Isolation section	PEEK (FDA accepted)	
M16 cable glands	Plastic	
M12 plug	Brass, nickel plated (only for 2 and 3 rod probes)	

Process connections

Screwed joint	1" hygienic; adapter ①	
Rod diameter	4 mm / 0.16"	4.2 mm / 0.17"
Electrode length [mm]	200; 500; 850; 1000	
Electrode length [ft]	7.87; 19.69; 33.46; 39.37	
Protection class [EN 60529]	IP67	

Electrical connection

Output	LS 7230: Electrode / mass connection	LS 7240: Electrode / mass connection
	LS 7231: Active max. 50 mA (resistant to short circuits)	LS 7241: Active max. 50 mA (resistant to short circuits)
	max. 1 piece	
Power supply	18...36 VDC; max. 10 mA ②	
Sensitivity [kOhm]	Adjustable: 0,2; 2; 20 ②	

Approvals

Immunity (EMC)	EN 61000-6-2
Emissions (EMC)	EN 50081-1

Accessories

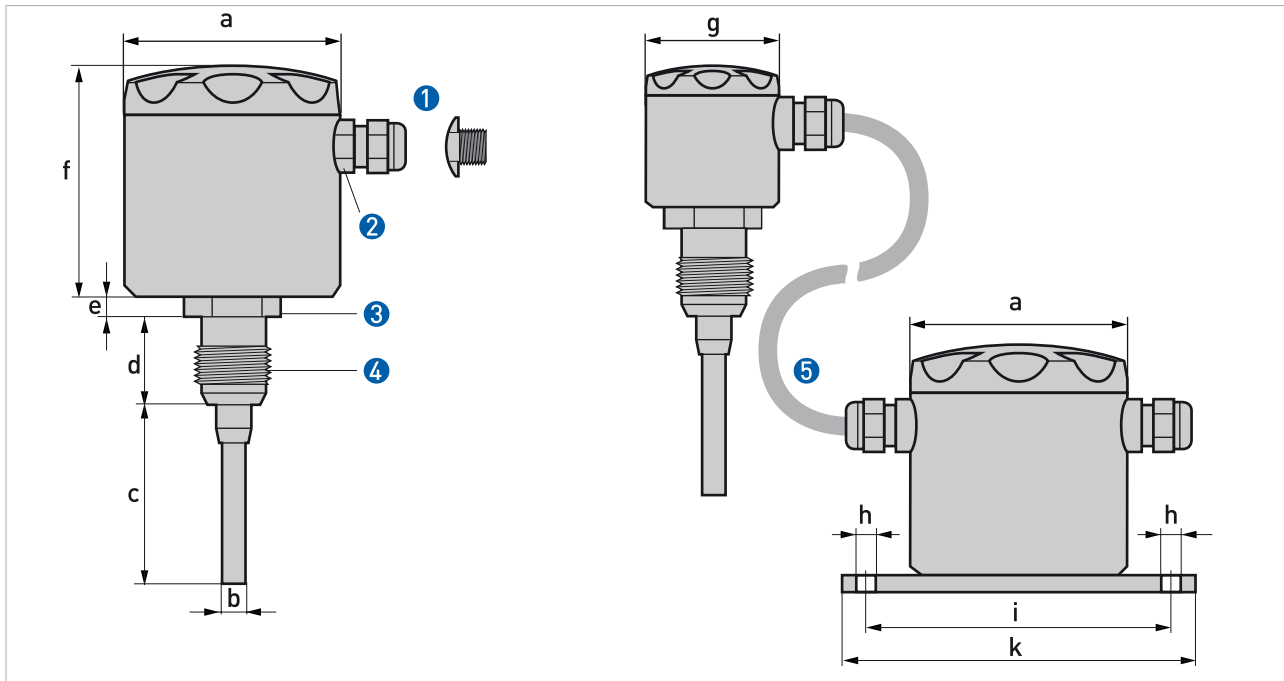
Level evaluation modules	Option ①
Hygienic process connections	Option ①

① For further information, see additional datasheet "Accessories for hygienic measuring instruments".

② Valid for active output

Dimensions

BM 500



- ❶ M12x1 plug
- ❷ M16x1.5 cable gland
- ❸ WAF 36
- ❹ G1"
- ❺ Connecting cable (please specify length on ordering)

Dimensions in mm

	a	b	c	d	e	f	g	h	i	k
BM 500	89	10	L ❶	36	8	92	55	8	125	145

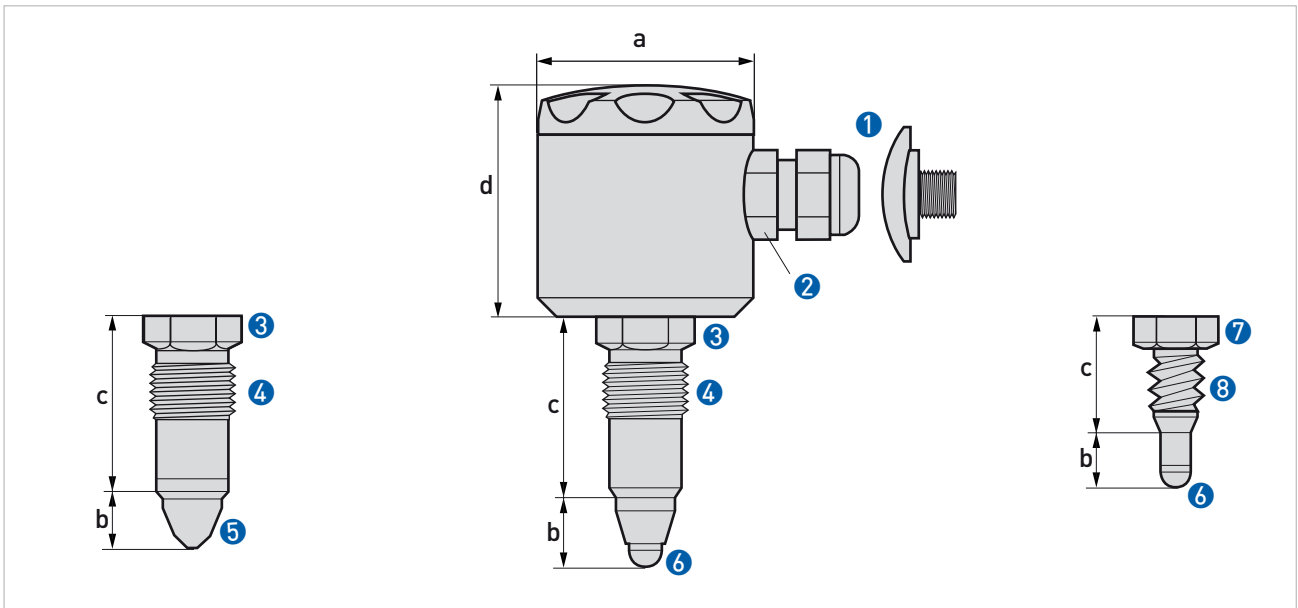
❶ ordered rod length

Dimensions in inches

	a	b	c	d	e	f	g	h	i	k
BM 500	3.5	0.49	L ❶	1.42	0.31	3.62	2.17	0.31	4.92	5.71

❶ ordered rod length

LS 6000 Series: LS 6200, LS 6250 / LS 6250 S & LS 6300 / LS 6300 S (from left to right)



- ❶ M12x1 plug
- ❷ M16x1.5 cable gland
- ❸ WAF 22
- ❹ G 1/2"
- ❺ PEEK tip
- ❻ Metal tip
- ❼ WAF 17
- ❽ M12

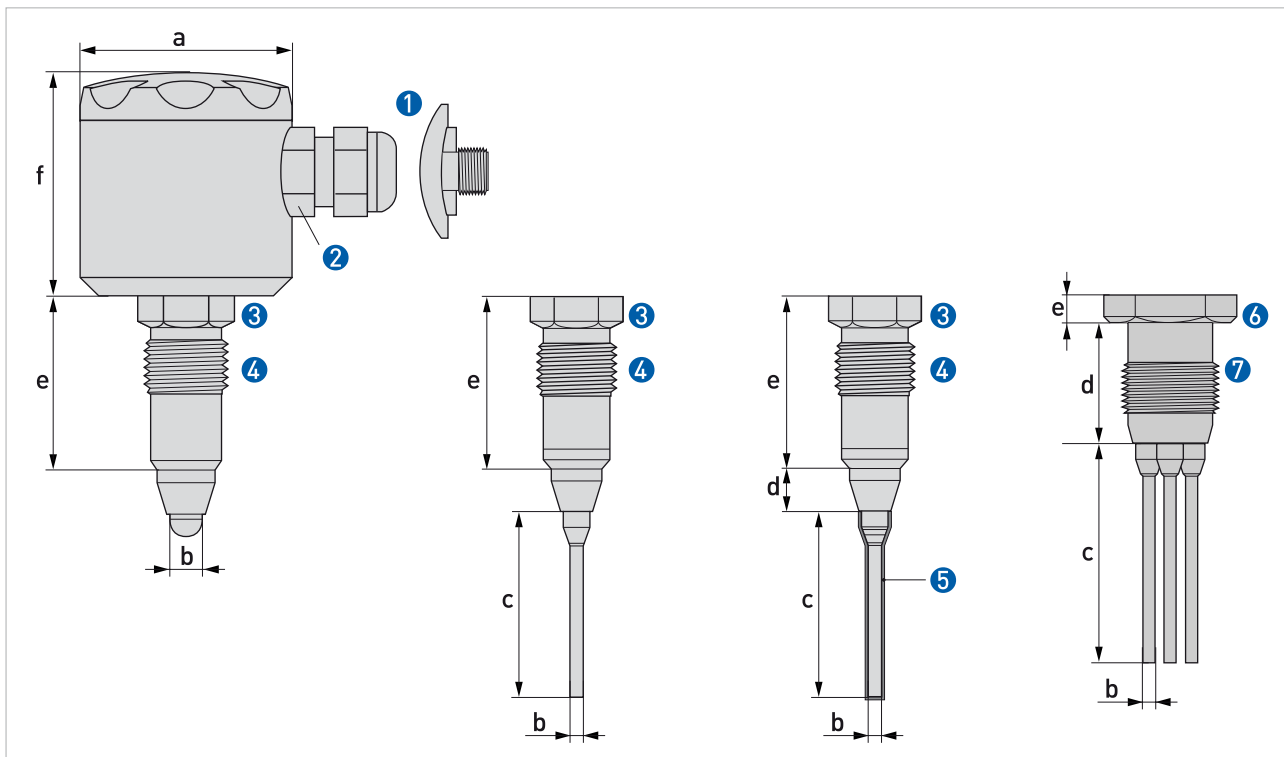
Dimensions in mm

	a	b	c	d
LS 6200	55	13	44	58
LS 6250	55	17	46	58
LS 6300	55	11	27	58

Dimensions in inches

	a	b	c	d
LS 6200	2.17	0.51	1.73	2.28
LS 6250	2.17	0.67	1.81	2.28
LS 6300	2.17	0.43	1.06	2.28

LS 7000 Series: LS 7200 / 7201, LS 7210 / 7211, LS 7220 / 7221, LS 7230 / LS 7231 (from left to right)



- ❶ M12x1 plug
- ❷ M16x1.5 cable gland
- ❸ WAF 22
- ❹ G 1/2"
- ❺ Powder coating
- ❻ WAF 37
- ❼ G 1"

Dimensions in mm

	a	b	c	d	e	f
LS 7200 / LS 7201	55	8	-	-	46	58
LS 7210 / LS 7211	55	4	L ❶	-	46	58
LS 7220 / LS 7221	55	4.2	L ❶	11	46	58
LS 7230 / LS 7231	55	4	L ❶	36	8	58
LS 7240 / LS 7241	55	4.2	L ❶	36	8	58

❶ ordered rod length

Dimensions in inches

	a	b	c	d	e	f
LS 7200 / LS 7201	2.17	0.31	-	-	1.81	2.28
LS 7210 / LS 7211	2.17	0.16	L ❶	-	1.81	2.28
LS 7220 / LS 7221	2.17	0.17	L ❶	0.43	1.81	2.28
LS 7230 / LS 7231	2.17	0.16	L ❶	1.41	0.31	2.28
LS 7240 / LS 7241	2.17	0.17	L ❶	1.41	0.31	2.28

❶ ordered rod length



KROHNE Product Overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Mass flowmeters
- Ultrasonic flowmeters
- Vortex flowmeters
- Flow controllers
- Level measuring instruments
- Pressure gauges
- Temperature measuring instruments
- Water solutions & analysis
- Oil and gas turnkey solutions

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