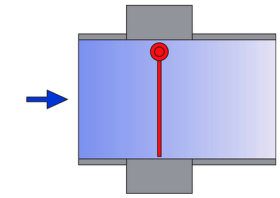
Flap-type flow-meters
KLA

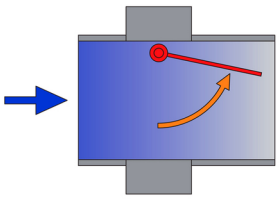
KLA-GS



KLA Standard







Operating principle

- **For liquids**
- **From DN 15 up to DN 200**
- **Horizontal or vertical mounting**
- **Independent of viscosity**
- **Optional:**
- **Limit value switch**
- **4 ... 20 mA Analogue output**
- **ATEX version**

APPLICATIONS

The KLA flap-type flow-meter is the ideal choice as a reliable instrument for measuring liquids throughout plant engineering, wherever a robust and dependable device is required for instantaneous flow indication and flow monitor.

DESCRIPTION

All instruments in the KLA range are based on the same operating principle: Inside the device, a flap rises and falls according to the flow rate of the liquid.

On the AMA-GS version, the device features a glass pane on both the front and rear. The flow rate is read directly via the flap on a scale applied to the front tempered glass pane
In addition to displaying the flow rate, this cost-effective version also provides a direct visual indication of the circulating medium.

In the standard version of the KLA, the movement of the flap is magnetically transmitted to an external pointer. The flow rate is displayed on an aluminum scale. For process control and automation, this standard version can be optionally equipped with:

- an IK or IKS limit value switch
- an analog output (4 ... 20 mA) providing a linearized signal proportional to the pointer's angle of rotation.

MODELS

KLA	with magnetically coupled pointer mechanism
KLA-GS	with direct visual indication through a glass pane
KLA-IK	with 1x inductive limit switch, 2-wire
KLA-IKS	with 1x electronic limit switch, 3-wire
KLA-EM	with 4 ... 20 mA analogue output
KLA-V4A ...	Stainless steel version AISI 316 Ti (1.4571)
KLA Ex	ATEX version
KLA(-V4A)-IK Ex	ATEX version with NAMUR limit switch IK

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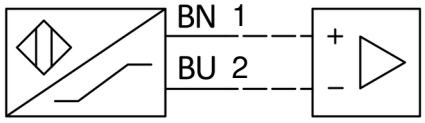
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TECHNICAL FEATURES

Fittings	DN 15 - 200/1“ – 8“ Flanges DIN EN 1092-1 Option: ANSI B16.5 150 lbs
Nominal pressure	Standard: PN 10 (Specific version: PN 6)
Corrosion protection	Epoxy powder coating, glossy blue RAL 5017 Optional: Rubber lining NR-isoprene quality Corrosion class : C3
Max. fluid temperature [1)]	100 °C - Standard 90 °C - with isoprene rubber (NR) lining 150 °C - special design 70 °C - KLA-IKS, KLA-EM [1)]: The liquid must not freeze
Max. ambient temperature	90 °C 70 °C - KLA-IKS, KLA-EM
Scale factor	1 : 10
Accuracy	5 % F. S.
Protection	IP 54

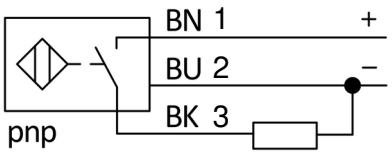
Technical data of limit value switches

IK	**2-wire (Namur)**
Type	SC3,5-N0-BU
Features	Adjustable, bistable
Switching function	(NC) normally closed, (NO) normally open
Nominal voltage	8,2 V (Ri ~ 1 kΩ)
Operating voltage	5 ... 25 V DC
Repeatability	≤ 0,5° on scale
Hysteresis	≤ 2° on scale
Current consumtion vane not detected	≥ 3 mA at nominal voltage
Current consumtion vane detected	≤ 1 mA at nominal voltage
Temperature resistance	-25 ... +100 °C
Degree of protection	IP67
MTTF d	4968 a



IK connection diagram

IKS	**2-wire (Namur)**
Type	SB3,5-E2
Features	Adjustable, bistable
Switching function	(NC)normally closed, (NO) normally open
Operating voltage	10 ... 30 V DC
Repeatability	≤ 0,5° on scale
Hysteresis	≤ 2° on scale
Nominal current	DC ≤ 100 mA
No-load current	≤ 7 mA
Temperature stability	-25 ... +70 °C
Protection	IP67
MTTF d	2590 a

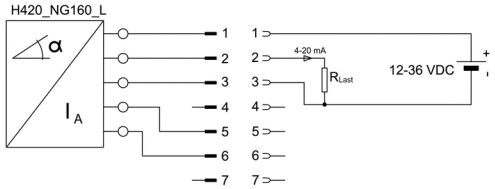


IKS connection diagram

Electrical connection	M12 square flange plug, 4-pin, A-coded M12x1 right-angle female connector, 4-pin, A-coded, screw terminals

EM analogue output 4 ... 20 mA

Signal output	3-wire, analogue
Current output	4 ... 20 mA, linearised
Accuracy	± 1 %
Temperature drift	< 50 ppm/K
Operating temperature	-20 ... +70 °C
Operating voltage	(Ub) 12 ... 36 V DC
Load impedance	300 Ω | Ub = 24 V 50 Ω | Ub = 12 V
Consumption	< 0.2 W, load-free output
Measuring cycle	250 ms
Lifetime	> 10^6 cycles
Protection	IP 64



EM connection diagram

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MEASURING RANGES

DN	Range of water at 20 °C		Maximum operating pressure	
	Horizontal flow [m³/h]	Vertical flow [m³/h]	Standard version [bar]	Glass window version [bar]
15/20/25	0,1 - 1	0,2 - 1,5	10	10
	0,5 - 6	1 - 6,5		
32	0,5 - 4	0,5 - 4	10	9
	2,5 - 30	2,5 - 25		
40	0,5 - 4	0,5 - 4	10	9
	2,5 - 30	2,5 - 25		
50	0,5 - 4	0,5 - 4	10	9
	2,5 - 30	2,5 - 25		
65	1 - 8	2 -15	10	10
	2,5 - 50	5 - 50		
80	1 - 10	2 - 10	10	10
	7 - 70	5 -50		
100	1,5 - 15	2 - 15	10	10
	10 - 120	10 - 100		
125	2 - 20	2 - 20	10	7
	14 - 140	12 - 120		
150	2 - 25	4 - 25	10	6,5
	15 - 200*)	-		
200	8 - 80	15 - 150	10	6,5
	25 - 300	20 - 300		

Min and Max flow-rate for each range according installation, with pressure drop of 20 to 30 mbar depending of the liquide.
Intermediate measuring ranges are available on request.
*) : Only with glass window and horizontal installation

MATERIALS

Models	ND	Housing	Flap	Bearing	Disc	Blind flange / Ring	Seal
KLA	15 - 150	EN-GJL-200	1.4571	1.4571	1.4571	S355	NBR
	200	S355, welded					
KLA-V4A	25 - 100	1.4571, welded	1.4571	1.4571	1.4571	1.4571	FKM
KLA-GS	15 - 150	EN-GJL-200	1.4571	1.4571	Soda-lime glass 1)	S355	NBR
	200	S355, welded					
KLA-GS-V4A	25 - 100	1.4571, welded	1.4571	1.4571	Borosilicate glass	1.4571	FKM
KLA - Rubber lined	32 – 150	EN-GJL-200 + ruber lining	1.4571	1.4571	1.4571	EN-GJL-200 / S355 + rubber lining	Sil-C8200
	32 – 150		Hastelloy C4	Hastelloy C4	1.4571 – PTFE		
	80 – 150		PTFE	Hastelloy C4	1.4571 – PTFE		
	80 – 150		PTFE	PTFE	1.4571 – PTFE		

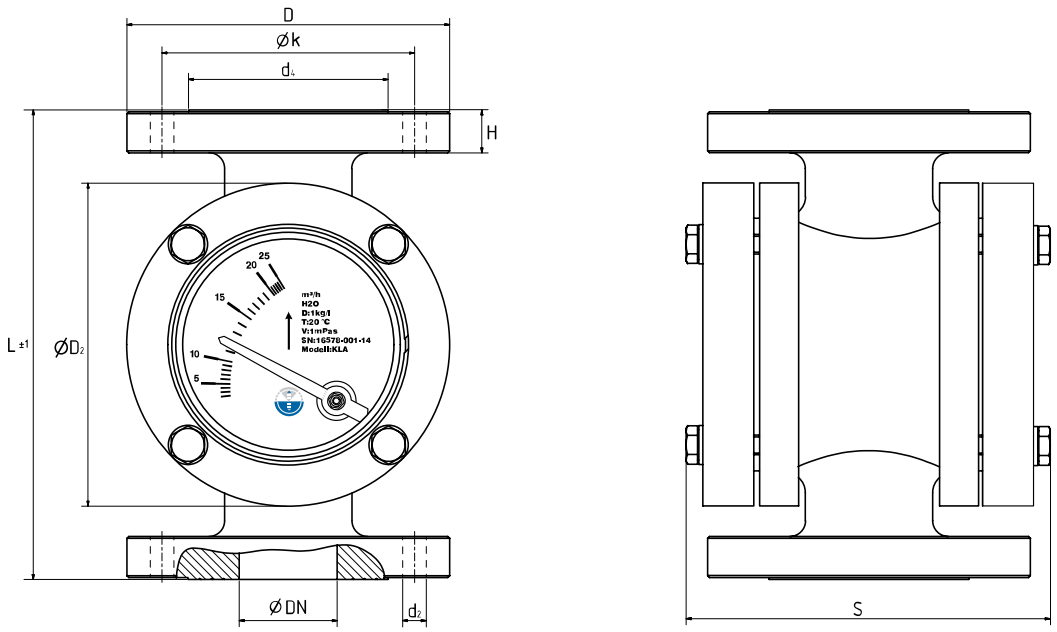
Other materials on request: seals, rubber linings (e.g. with drinking water approval), gunmetal (CuSn).
1) : Option, with borosilicate glass

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DIMENSIONS



DN	Ø D [mm]	Ø k [mm]	Ø d_4 [mm]	Ø H [mm]	L [mm]	Ø D_2 [mm]	d_2	S [mm]	IK/IKS*)	GS	EM	[kg]
15	95	65	45	18	170	119	4x M12	145	169	132	166	8
20	105	75	58	18	170	119	4x M12	145	169	132	166	8,5
25	115	85	68	18	170	119	4x Ø14	145	169	132	166	9
32	140	100	78	21	240	165	4x Ø18	176	200	186	197	16
40	150	110	88	21	240	165	4x Ø18	176	200	186	197	16
50	165	125	102	21	240	165	4x Ø18	176	200	186	197	17
65	185	145	122	21	280	185	4x Ø18	201	225	217	222	22
80	200	160	138	22	320	225	8x Ø18	214	238	227	235	34
100	220	180	158	24	350	245	8x Ø18	267	291	278	288	43
125	250	210	188	25	380	285	8x Ø18	299	323	310	320	58
150	285	240	212	25	380	295	8x Ø22	299	323	310	320	64
200	340	295	268	27	550	370	8x Ø22	390	414	405	407	104

*) KLA(-V4A)-IK/-IKS Ex + 3 mm

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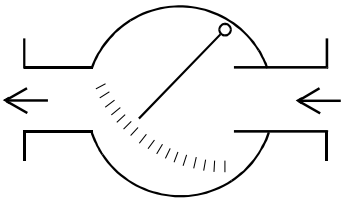
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INSTALLATION

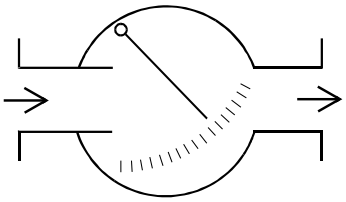
Mounting:

With the order: flow direction to confirm.
The process seals (e.g. flange gaskets) as well as bolts and nuts required for installation at the measuring point are not included in the scope of delivery.
A straight run of at least 3×DN must be maintained upstream and downstream of the device (including to valves and dampers)

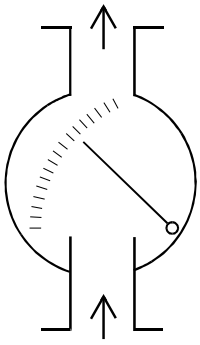
Flow direction



Right to left



Left to right



Bottom to top

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