The selection is detailed on page 10

LQK40

Floating Ball Level Switch

principle of operation

The floating ball liquid level switch is based on the buoyancy principle and drives each contact to monitor the change of each liquid level state. It uses a floating ball with a built-in magnetic system to trigger a small dry spring contact in the catheter to produce action. Therefore, the switch has no direct contact with liquid, no wear and crack, and does not need any power supply.
The change of contact state always refers to the rising liquid level: normally open and normally closed or switching type.
N-closed when the liquid level rises
F-open when the liquid level rises.
O-conversion type
By using a floating ball with at most two switching points, its switching performance is bistable, that is,
But even when the liquid level rises or falls further, the switch state will remain the same.

Product description

The magnetic float switch is easy to install and does not need maintenance, which can greatly reduce the installation, debugging and operation costs for users.
Because there is no magnet and float, it has the advantage of not being affected by the density of the medium, and it can also work normally in the medium containing magnetic iron filings, which complements the magnetic column level gauge. Moreover, it has simple installation and maintenance, low cost and wide application space.
There are three different structures of magnetic floating ball liquid level switch, the observation panel with top-bottom structure can rotate freely, and the fixed one has a shorter blind area. The visual range is determined by parameters such as structure, center distance and number of segments.

Functional performance

This simple and reliable working principle has a wide range of applications.

Suitable for harsh environment and long service life.

Applicable liquid parameters:

-Operating temperature: T = -196 ... +350℃

-working pressure: P = vacuum ... 4.0mpa.

-density: ρ ≥ 300 kg/m

Provide a variety of different electrical interfaces, process connections and materials

Explosion-proof design

Product application

Suitable for liquid level measurement of various media.
Liquid level monitoring and pump start-stop at the injection and discharge position with high precision requirements.
Chemical, petrochemical, natural gas, offshore platforms, shipbuilding industry, power generation equipment, power plants.
Water treatment, food and beverage industries

✆ 400-860-9760

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

LUDWIG
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More technical advantages

Provide process connections, conduits and floating balls made of stainless steel, plastic and Tinner rubber.
General signal processing:
Can be directly connected, circuit breaker protection circuit (NAMUR), signal amplifier, contact protection relay.
The measurement of liquid level has nothing to do with the physical or chemical changes of liquid, such as conductivity, foam, dielectric constant, medium, pressure, vacuum, temperature, steam, condensed water, bubbles, boiling and so on. A magnetic float switch can be set with multi-point switches for measurement (up to 8 o'clock).
The set point has high reliability and repeatability.
Meet the design requirements of DIN IEC60079-11 passive electrical equipment: meet the requirements of EEx at least.

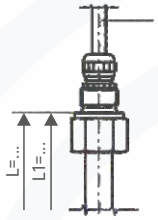
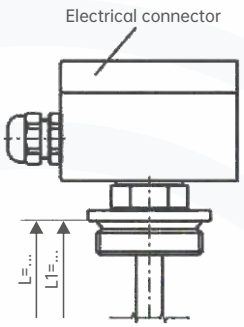
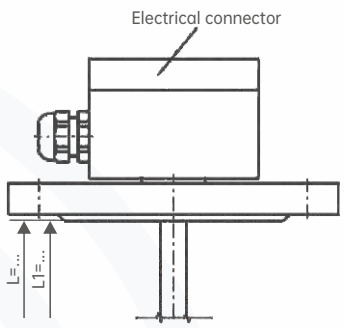
Option

Can customize solutions for customers.

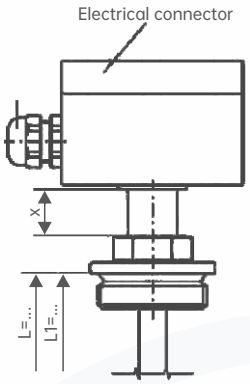
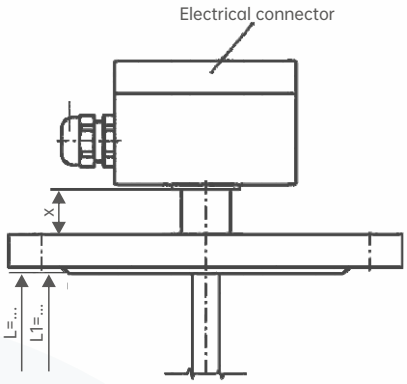
Special design can measure the interface between two media when ρ ≥ 100 kg/m.

Provide process connections, conduits and floating balls with special materials, such as stainless steel 1.4435 and 1.4539, and titanium Hastelloy (other materials are required).

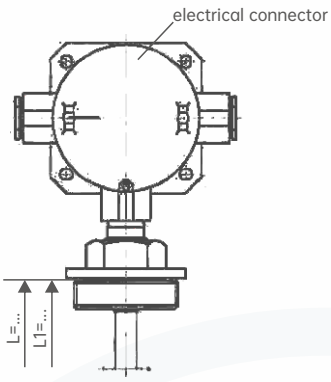
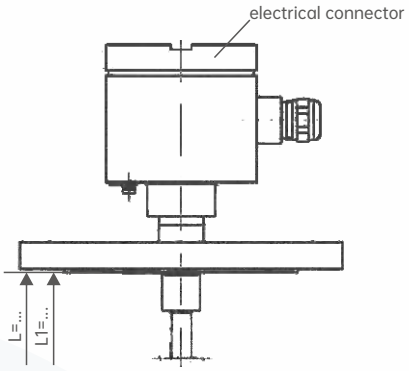
Basic LQK40 magnetic float liquid level switch

Process connections, conduits and floating balls are made of stainless steel.						
Specifications	Threaded installation (without junction box)		Threaded installation		Flange installation	
Threaded installation	cable jumper	PVC	electrical connector	Aluminum: 80x75x57mm		
		silicon resin		Optional: polypropylene, polyester, stainless steel.		
		PUR				
procedure linkage	Threaded installation (upward)		Threaded installation (downward)		DIN DN50...DN200, PN6...PN100	
	G3/8 (or as required)	G1/2 (or on demand)	G1 1/2 or G2	18mm	ANSI 2"...8", class150...600	
					EN 1092-1	
Catheter outer diameter	12mm or 14mm	18mm	12mm or 14mm	6000mm	12mm or 14mm	18mm
Maximum length of catheter	3000mm	6000mm	3000mm		3000mm	6000mm
floating ball	Material: stainless steel 316L (optional: NBR, titanium).					
	Floating ball diameter range: 44...120mm					
	The selection of floating ball is based on the outer diameter of conduit and process conditions.					
Standard temperature range	PVC cable: -10...+80℃		-30...+150℃			
	Silicone cable: -30...+150℃		Optional: High temperature: +150...+350℃ Low temperature: -196...-30℃			
Switch state	Optional: normally open (NO), normally closed (NC) or switching type (SPDT)- when the liquid level rises.					
▪ Number of electric shocks	6xNO or NC, or 4xSPDT					
▪ Electric shock position	L1, L2, L3 ... (from the top sealing surface)					
▪ Electric shock distance	Minimum 20mm (determined by the model and contact of the floating ball)					
▪ Electric shock capacity	Normally open: AC230V; 100VA; 1A DC 230V; 50W; 0.5A					
	Normally closed: AC230V; 100VA; 1A DC 230V; 50W; 0.5A					
	Conversion type: AC230V; 40VA; 1A DC 230V; 20W; 0.5A					
Installation angle	30 vertical					
the protection grades	IP65/IP66/IP67 Optional					
texture of wood	Stainless steel 304/316/ titanium/Hastelloy					

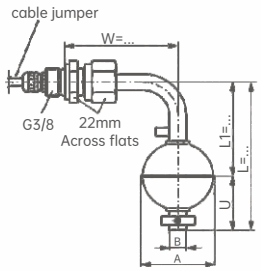
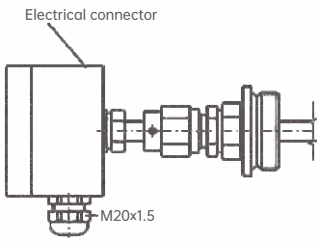
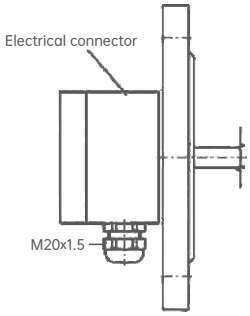
Magnetic float liquid level switch intrinsically safe LQK40

Process connection, conduit and floating ball are made of 316L.				
Specifications	Threaded installation		Flange installation	
Threaded installation	electrical connector	Aluminum 80x75x57mm		
		Optional: polyester, stainless steel		
procedure linkage	Threaded installation (downward)		DIN DN50...DN200, PN6...PN100	
	G1 1/2 or G2 (or as required)		ANSI 2"...8", class150...600	
			EN 1092-1	
Catheter outer diameter	12mm or 14mm	18mm	12mm or 14mm	18mm
Maximum length of catheter	3000mm	6000mm	3000mm	6000mm
floating ball	Material: stainless steel 316L (optional: NBR, titanium).			
	Floating ball diameter range: 44...120mm			
	The selection of floating ball is based on the outer diameter of conduit and process conditions.			
Temperature grade	T3/T4/T5/T6			
▪ Process temperature	Maximum: 190℃/130℃/95℃/80℃			
▪ Ambient temperature of junction box	Minimum: 60℃/60℃/60℃/60℃			
Switch state	Optional: normally open (NO), normally closed (NC) or switching type (SPDT)- when the liquid level rises.			
▪ Number of electric shocks	6xNO or NC, or 4xSPDT			
▪ Electric shock position	L1, L2, L3 ... (from the top sealing surface)			
▪ Electric shock distance	Minimum 20mm (determined by the model and contact of the floating ball)			
▪ Electric shock capacity	Only the safety barrier connection meeting the conditions of maximum voltage of 28V, maximum current of 100mA and maximum power of 0.7W is allowed.			
Installation angle	30 vertical			
The protection grades	IP65/IP66/IP67 Optional			
option	Height of junction box is increased by x (heat dissipation extension dimension x)			
	Temperature sensor Pt100 or Pt1000			
	Bimetal temperature sensor 40...120℃ (5℃ is one level)			
texture of wood	Stainless steel 304/316/ titanium/Hastelloy			

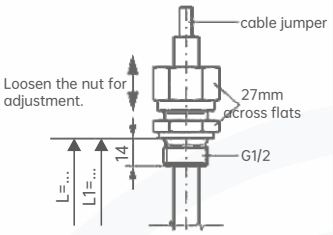
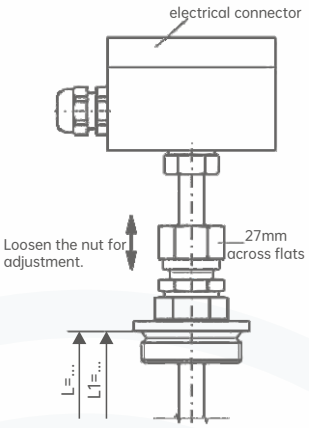
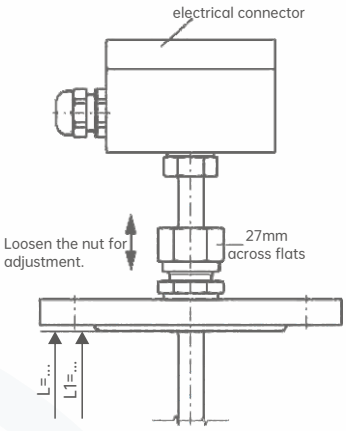
Explosion-proof LQK40 for magnetic floating ball liquid level switch

Process connection, conduit and floating ball are made of 316L.				
Specifications	Threaded installation		Flange installation	
Threaded installation	Electrical connector	Aluminum 107x85mm		
		Stainless steel 88x80		
procedure linkage	Threaded installation (downward)		DIN DN50...DN200, PN6...PN100	
	G1 1/2 or G2 (or as required)		ANSI 2"...8", class150...600	
			EN 1092-1	
Catheter outer diameter	12mm or 14mm	18mm	12mm or 14mm	18mm
Maximum length of catheter	3000mm	6000mm	3000mm	6000mm
floating ball	Material: stainless steel 316L (optional: NBR, titanium).			
	Floating ball diameter range: 44...120mm			
	The selection of floating ball is based on the outer diameter of conduit and process conditions.			
Temperature grade	T3/T4/T5/T6			
▪ Process temperature	Maximum: 190℃/130℃/95℃/80℃			
Switch state	Optional: normally open (NO), normally closed (NC) or switching type (SPDT)- when the liquid level rises.			
▪ Number of electric shocks	6xNO or NC, or 4xSPDT			
▪ Electric shock position	L1, L2, L3 ... (from the top sealing surface)			
▪ Electric shock distance	Minimum 20mm (determined by the model and contact of the floating ball)			
▪ Electric shock capacity	Normally open: AC230V; 100VA; 1A DC 230V; 50W; 0.5A			
	Normally closed: AC230V; 100VA; 1A DC 230V; 50W; 0.5A			
	Conversion type: AC230V; 40VA; 1A DC 230V; 20W; 0.5A			
Installation angle	30 vertical			
The protection grades	IP65/IP66/IP67 Optional			
option	Temperature sensor Pt100 or Pt1000			
	Bimetal temperature sensor 40...120℃ (5℃ is one level)			
texture of wood	Stainless steel 304/316			

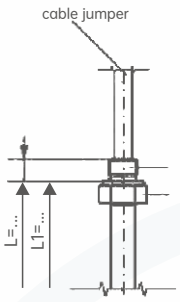
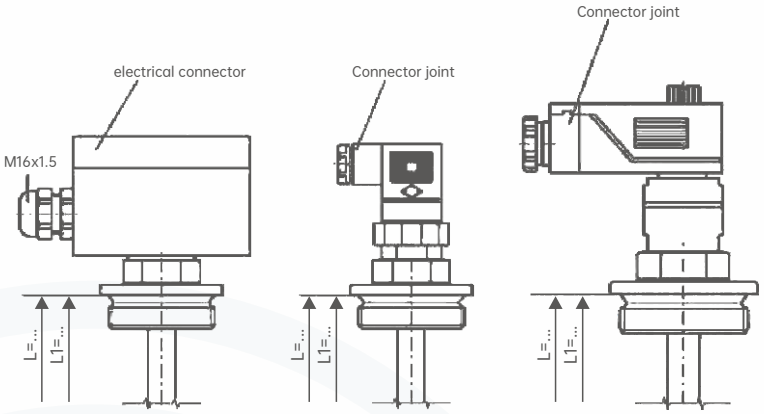
Angular design of magnetic floating ball liquid level switch LQK40

Process connection, conduit and floating ball are made of 316L.					
Specifications	Threaded installation (without junction box)		Threaded installation		Flange installation
Threaded installation	cable jumper	PVC	electrical connector	Aluminum: 80x75x57mm	
		Silicon resin		Optional: polypropylene, polyester, stainless steel.	
		PUR			
procedure linkage	Threaded installation (lateral)		Threaded installation (lateral)		DIN DN50...DN200, PN6...PN100
	G3/8 (or as required)		G1 1/2 or G2		ANSI 2"...8", class150...600
					EN 1092-1
Catheter outer diameter	12mm		12mm		12mm
Maximum length of catheter	3000mm		3000mm		3000mm
floating ball	Material: stainless steel 316L				
	Floating ball diameter range: 44...120mm				
	The selection of floating ball is based on the outer diameter of conduit and process conditions.				
Standard temperature range	PVC/PUR cable: -10...+80℃		-30...+150℃		
	Silicone cable: -30...+150℃				
Switch state	Optional: normally open (NO), normally closed (NC) or switching type (SPDT)- when the liquid level rises.				
▪ Number of electric shocks	6xNO or NC, or 4xSPDT				
▪ Electric shock position	L1, L2, L3 ... (from the top sealing surface)				
▪ Electric shock distance	Minimum 20mm (determined by the model and contact of the floating ball)				
▪ Electric shock capacity	Normally open: AC230V; 100VA; 1A DC 230V; 50W; 0.5A				
	Normally closed: AC230V; 100VA; 1A DC 230V; 50W; 0.5A				
	Conversion type: AC230V; 40VA; 1A DC 230V; 20W; 0.5A				
	Electric shock protection equipment to choose from				
Installation angle	30 vertical				
the protection grades	IP65/IP66/IP67 Optional				
texture of wood	Stainless steel 304/316/ titanium				

LQK40 with adjustable magnetic floating ball liquid level switch

Process connection, conduit and floating ball are made of 316L.				
Specifications	Threaded installation (without junction box)		Threaded installation	Flange installation
Threaded installation	cable jumper	PVC	electrical connector	Aluminum: 80x75x57mm
		silicon resin		Optional: polypropylene, polyester, stainless steel.
		PUR		
procedure linkage	Threaded installation (downward)		Threaded installation (downward)	DIN DN50...DN200, PN6...PN100
	G1/2 (or as required)		G1 1/2 or G2 (or as required)	ANSI 2"...8", class150...600
				EN 1092-1
Catheter outer diameter	12mm		12mm	12mm
Maximum length of catheter	3000mm		3000mm	3000mm
floating ball	Material: stainless steel 316L (optional: NBR, titanium).			
	Floating ball diameter range: 44...83mm			
	The selection of floating ball is based on the outer diameter of conduit and process conditions.			
nominal pressure	5 bar			
Standard temperature range	PVC/PUR cable: -10...+80℃		-30...+150℃	
	Silicone cable: -30...+150℃			
Switch state	Optional: normally open (NO), normally closed (NC) or switching type (SPDT)- when the liquid level rises.			
▪ Number of electric shocks	6xNO or NC, or 4xSPDT			
▪ Electric shock position	L1, L2, L3 ... (from the top sealing surface)			
▪ Electric shock distance	Minimum 20mm (determined by the model and contact of the floating ball)			
▪ Electric shock capacity	Normally open: AC230V; 100VA; 1A DC 230V; 50W; 0.5A			
	Normally closed: AC230V; 100VA; 1A DC 230V; 50W; 0.5A			
	Conversion type: AC230V; 40VA; 1A DC 230V; 20W; 0.5A			
	Electric shock protection equipment to choose from			
Installation angle	30 vertical			
The protection grades	IP65/IP66/IP67 Optional			
Texture of wood	Stainless steel 304/316/ titanium/Hastelloy			

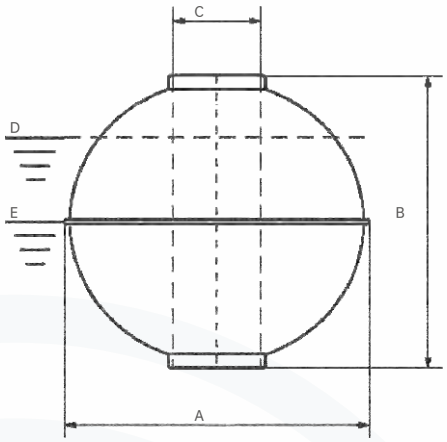
Magnetic float liquid level switch 8mm conduit LQK40

Process connection, conduit and floating ball are made of 316L					
specifications	Threaded installation (without junction box)		Threaded installation		
Threaded installation	cable jumper	PVC	electrical connector	Connector joint	Connector joint
		silicon resin	Aluminum: 64x58x34mm	M12, 4-pin	M12, 5-pin
		PUR			N6R, 7-pin
procedure linkage	Threaded installation (upward)		Threaded installation (downward)		
	G1/8 (or as required)		G3/4 or G1 (or as required)		
			8mm		
Catheter outer diameter	8mm		500mm		
Maximum length of catheter	500mm				
floating ball	Material: stainless steel 316L (optional: NBR, polypropylene, titanium).				
	Floating ball diameter range: 20...35mm				
	The selection of floating ball is based on the outer diameter of conduit and process conditions.				
Standard temperature range	-10...+100℃ (the floating ball is made of stainless steel or titanium)				
	-30℃+150℃ material: stainless steel 316L (the floating ball is made of NBR or polypropylene).				
Switch state	Optional: normally open (NO), normally closed (NC) or switching type (SPDT)- when the liquid level rises.				
▪ Number of electric shocks	PVC cable: 3xNO or NC, or 2xSPDT				
	Silicone cable: 2xNO or NC, or 1xSPDT				
▪ Electric shock capacity	Normally open: AC230V; 100VA; 1A DC 230V; 50W; 0.5A				
	Normally closed: AC230V; 100VA; 1A DC 230V; 50W; 0.5A				
	Conversion type: AC230V; 40VA; 1A DC 230V; 20W; 0.5A				
Installation angle	30 vertical				
the protection grades	IP65/IP66/IP67 Optional				

Magnetic float liquid level switch spherical float (K)

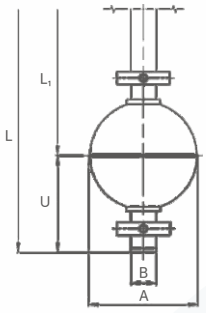
D= critical density of 85% volume immersion of the floating ball.

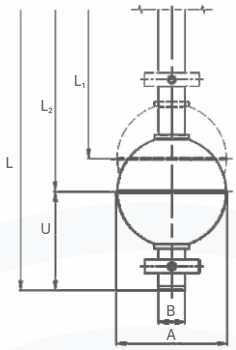
E= standard density of 50% volume immersion of floating ball.

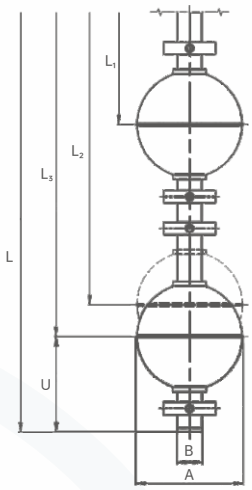


Material	Applicable outer diameter of conduit φmm	A mm	B mm	C mm	Maximum working pressure MPa	Maximum operating temperature℃	weight g	volume cm³	Critical density D85% kg/m³	Critical density E85% kg/m³
Stainless steel	8	29	28	9	0.6	100	7	8	977	1660
	8	29	28	9	2.5	100	8	8	1069	1817
	12	52	52	15	4.0	300	37	57	769	1307
	12	62	61	15	3.2	300	52	102	597	1015
	12	83	81	15	2.5	300	88	254	408	693
	18	80	76	23	2.5	300	115	198	679	1155
	18	98	96	23	2.5	300	215	423	597	1016
	18	105	103	23	2.5	300	240	529	533	907
	18	120	117	23	2.5	300	268	811	389	661
titanium	8	29	28	9	3.0	100	6	8	822	1397
	12	52	52	15	2.5	300	34	57	707	1201
	12	52	52	15	6.0	300	41	57	852	1448
	12	52	52	15	8.0	300	51	57	1060	1802
	12	62	62	15	2.5	300	44	102	505	859
	12	83	81	15	2.5	300	60	254	278	473
	18	80	76	23	2.5	300	112	198	665	1130
	18	98	96	23	2.5	300	178	423	495	841
	18	105	103	23	2.5	300	166	529	369	627
	18	120	117	23	2.5	300	227	811	329	560
Stainless steel coating E-PTFE	12	53	53	14	2.5	Depending on the liquid	39	62	745	1266
	12	63	62	14	2.5	Depending on the liquid	55	109	591	1005
	12	84	82	14	2.5	Depending on the liquid	91	266	403	685
	18	81	77	22	2.5	Depending on the liquid	128	210	718	1220
	18	99	97	22	2.5	Depending on the liquid	245	427	675	1148
	18	106	104	22	2.5	Depending on the liquid	278	517	633	1076
	18	121	118	22	2.5	Depending on the liquid	310	794	459	781

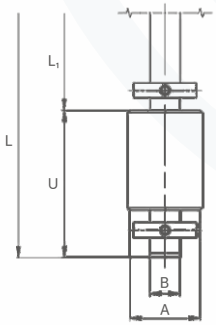
Magnetic float level switch-Switch point size

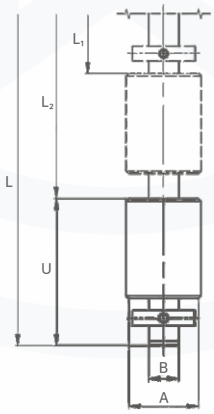


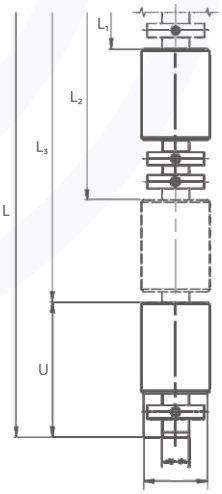




Floating ball type	A (mm)	B (mm)	L_{1min} (mm)	U_{min} (mm)	Distance between two contacts	
					One goal and two points (mm)	Two balls and two points (mm)
V(E)44A	44	12 or 14	55	45	20	80
V(E)52A	52	12 or 14	55	45	20	80
V(E)62A	62	12 or 14	60	50	20	90
V(E)83A	83	12 or 14	70	60	20	110
V(E)80A	80	18	90	65	20	125
V(E)98A	98	18	100	75	20	145
V(E)105A	105	18	105	80	20	155
V(E)120A	120	18	115	90	20	170







Floating ball type	A (mm)	B (mm)	L_{1min} (mm)	U_{min} (mm)	Distance between two contacts	
					One goal and two points (mm)	Two balls and two points (mm)
B30A	30	12	40	65	20	75
B40A	40	12	40	45	20	65

LQK40-Selection composition

Selection example **LQK40**

A	G	N	500	U	Y	M	Q	C	J	A	I	N
1	2	3	4	5	6	7	8	9	10	11	12	13

1.Product type	A	fundamental form
	B	Catheter type
	C	Industrial type
	D	Sanitary type
	T( )	Other types
2.Junction box material	G	Aluminum junction box
	H	Stainless steel junction box (304)
	I	Stainless steel junction box (316)
	J	Aluminum explosion-proof junction box
	K	Stainless steel explosion-proof junction box (304)
	L	Stainless steel explosion-proof junction box (316)
	T( )	Other junction box materials
3.Electrical interface	N	M20×1.5
	O	G1/2
	P	1/2NPT
	T( )	Other electrical interfaces
4.measuring range	R( )	Measuring length (mm)
5.Switch state	O	Normally closed (closed when the liquid level rises)
	U	Normally open (disconnected when the liquid level rises)
	V	Conversion type
6.Number of switching points	Z	1 alarm point
	Y	2 alarm points
	X	4 alarm points
	T( )	Other number of alarm points
7.Floating ball material	M	304SS
	S	316L
	N	PTFE
	L	titanium
	T( )	Other materials
8.Process connection material	Q	304SS
	I	316L
	U	PTFE
	T( )	Other materials
9.Flange standard	A	Flange (DIN standard)
	B	Flange (ANSI standard)
	C	HG/T20592
	D	HG/T20615
	E	EN
	T( )	Other flange standards

LQK40-Selection composition

Selection example **LQK40**

A	G	N	500	U	Y	M	Q	C	J	A	I	N
1	2	3	4	5	6	7	8	9	10	11	12	13

10.Flange sealing surface form	J	RF			
	H	MFM			
	G	FF			
	E	TIG			
	F	RJ			
	T( )	Other sealing forms			
11.Flange specification	A	DN25			
	B	DN32			
	C	DN40			
	D	DN50			
	Q	DN65			
	R	DN80			
	S	DN100			
	U	DN125			
	V	DN150			
	W	DN200			
	X	2"			
	Y	4"			
	Z	6"			
	A1	8"			
	T( )	Other flange sizes			
12.Flange pressure rating	G	PN6			
	H	PN10			
	I	PN16			
	J	PN25			
	K	PN40			
	L	PN63			
	M	PN100			
	N	Class150			
	O	Class300			
	P	Class600			
	T( )	Other nominal pressure			
13.authentication	X	Exi			
	Y	Exd			
	N	without			

Instructions:

It indicates that the LQK40 float liquid level switch is basic type, aluminum junction box, electrical interface M20*1.5, measuring range 500mm, switch status is normally on, two alarm points, float material is 304SS, process connection material is 304SS, process connection is DN25 (HG/T20592), flange sealing surface is RF, and so on. Pressure rating PN16, non-explosion-proof.

Product Certification

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

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