

# КОНТРОЛЛЕРЫ ПОЛОЖЕНИЯ КЛАПАНА LSB-3000



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< With beacon indicator >



< With bottom indicator >



< With stainless steel 316 housing >



**Explosion proof robust valve position monitor with a good recognizable beacon, bottom indicator, various switches and feedback options**

### Features

- ▶ Flameproof ATEX / IECEx / TR-CU / KC Ex d IIC
- ▶ Rugged aluminum die-cast housing or optionally stainless steel 316 housing
- ▶ Optionally dual beacons or bottom indicator
- ▶ Various switches and sensors (available with Honeywell / P&F / Hermetically-sealed magnetic sensor)
- ▶ NAMUR mounting shaft or fork lever shaft adjustable for a non-NAMUR pneumatic actuator

### Options

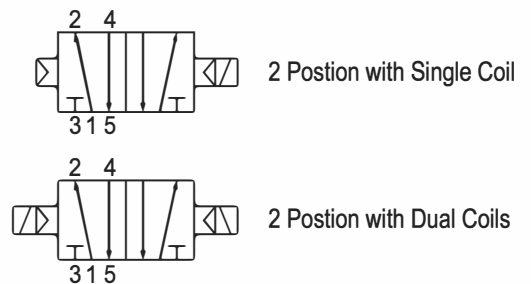
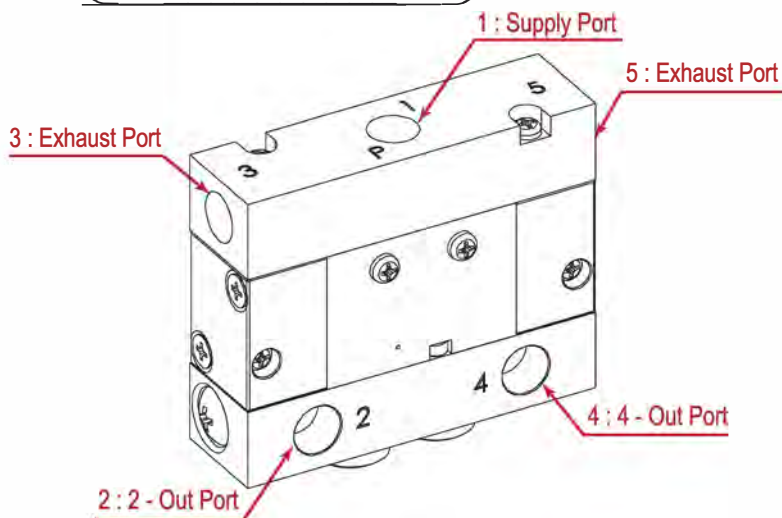
- ▶ 4 x SPDT mechanical limit switch
- ▶ 4 x P&F proximity sensor
- ▶ 4 x Hermetically-sealed magnetic sensor
- ▶ 4 - 20mA output position transmitter

### Specifications

Model	LSB-30xx	LSB-31xx
Explosion proof / Protection Class	ATEX / IECEx / TR-CU / KC - Ex d IIC - IP66&67 (optionally IP68)	
	Ambient Temperature	T6 : - 40 ~ +75°C
		T5 : - 40 ~ +90°C
	T4 : - 40 ~ +110°C	
Switches / Sensors	See page 5	
Operating Temperature	- 40 ~ +110°C (- 40 ~ +230°F)	
Electrical Connections	PT 3/4, NPT 3/4, PF 1/2, NPT 1/2, M20 x 1.5	NPT 3/4, NPT 1/2
Body Material / Painting	Aluminum die-cast / powdered-coating	Stainless steel 316 / 316L
Weight	2 kg	4 kg

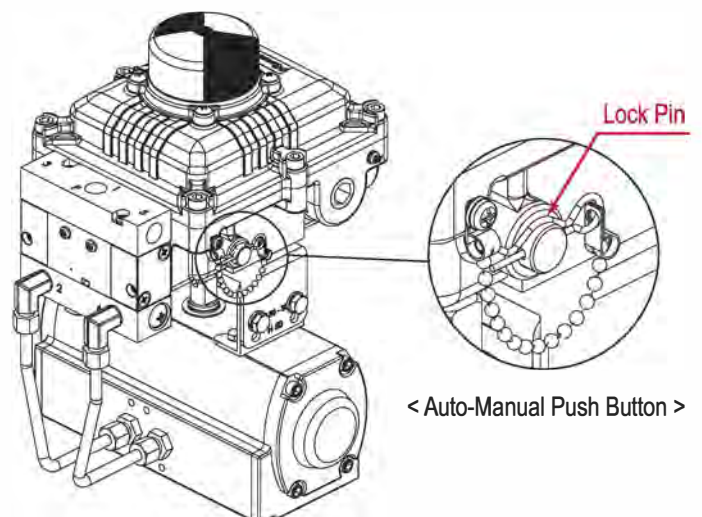


## Solenoid Valve



< Symbols of Operation >

Supply Air		Filtered, compressed, dry and non-oiled air
Supply Air Pressure	2 position with single coil	1.5 ~ 9.9 bar
	2 position with dual coils	1.0 ~ 9.9 bar
Eff. Sectional Area (5 kgf/cm <sup>2</sup> )		19.0 mm <sup>2</sup>
Manual Override		Push button type
Response Time		25 ms or less
Max. Working Frequency		5 c/sec
Power Consumption		AC : 4.5 / 3.6VA (60Hz/50Hz) DC : 2.8W
Coil Insulation Class		Class F or equivalent
Permissible Voltage Variation		±10% of rated voltage
Lubrication		Not required



# Specifications of Switches / Sensors

## Mechanical Switches



< SPDT Mechanical Switch - GSM >

< SPDT Mechanical Switch - V7/V15 >

< DPDT Mechanical Switch - 22104 >

Maker	Standard
Switch type	SPDT (Form C)
Contacts	Silver-plated
Approvals	UL, CSA
Electrical Rating	
16 amps / 250 VAC	
16 amps / 8 VDC , 10amps / 30 VDC	
Operating Temp.	-30 ~ +130°C

Maker	Honeywell
Switch type	SPDT (Form C)
Contacts	Silver-plated or gold-plated
Approvals	UL, CSA
Electrical Rating	
Silver : 16 amps / 125 / 250 VAC	
Gold : 0.1 amps / 125 / 250 VAC	
Operating Temp.	-40 ~ +125°C

Maker	Licon
Switch type	DPDT (Form CC)
Contacts	Silver-plated
Approvals	UL, CSA
Electrical Rating	
10 amps / 125 / 250 VAC	
10 amps / 28 VDC	
Operating Temp.	-30 ~ +80°C

## Proximity Sensors



Part Number / Maker	NJ2-V3-N / P&F
Switching element function	NAMUR NC
<b>Nominal Ratings</b>	
Nominal voltage	8.2 VDC
Switching frequency	0 ~ 1000 Hz
Hysteresis	0.01 ~ 0.1 mm
Current consumption	
Measuring plate not detected	> 3 mA
Measuring plate detected	< 1 mA
Operating Temperature	-25 ~ +100°C

Part Number / Maker	NJ2(4)-12GK-SN / P&F
Switching element function	NAMUR NC
<b>Nominal Ratings</b>	
Nominal voltage	8 VDC
Switching frequency	0 ~ 2000 Hz
Hysteresis	3%
Current consumption	
Measuring plate not detected	> 3 mA
Measuring plate detected	< 1 mA
Operating Temperature	-40(-50) ~ +100°C

## Magnetic Proximity Sensors



Part Number / Maker	MS Series / Power-genex
Switch type	SPDT (Form C)
Contacts	Rhodium / Tungsten
Approvals	UL, CSA
Electrical Ratings	
MS20 : 830 mA / 24VDC, 180 mA / 120VAC	
MS25 : 1 A / 24VDC, 200 mA / 120VAC	
MS100 : 2 A / 24VDC, 3 A / 120VAC, 1.5 A / 240VAC	
Operating Temperature	-40 ~ +130°C

Part Number / Maker	ESI-V3-CR / Euroswitch
Switch type	SPDT (Form C)
Contacts	Rhodium
Approvals	ATEX / IECEx / INMETRO Ex ia IIC T6
Electrical Ratings	
830 mA / 24VDC, 180 mA / 120VAC	
Ex : Ui = 30V, Ii = 250mA, Pi = 1.3w	
Operating Temperature	-20 ~ +80°C

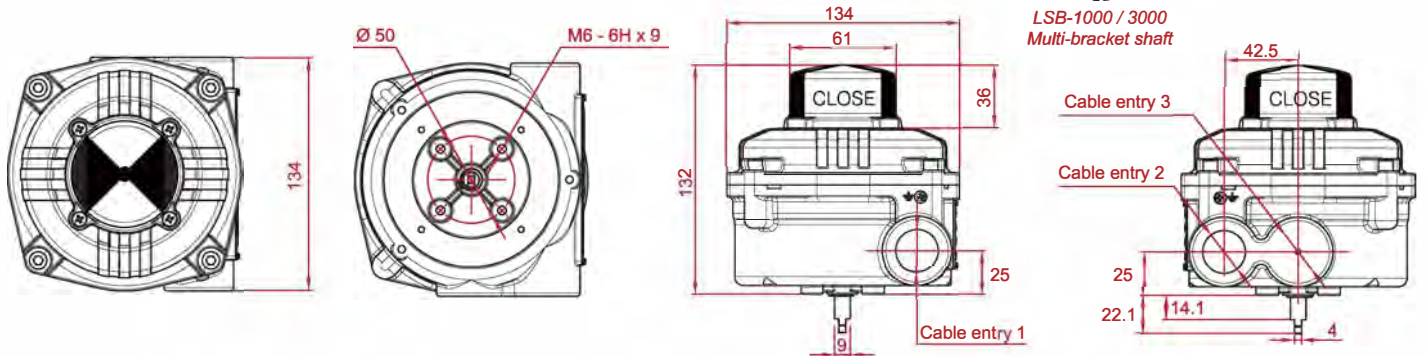
# Ordering Guide

Switch Box Type	Body Material	Switches / Sensors	Position Transmitter	Explosion Proof	Beacon / Indicator	Electrical Connections	Number of Electrical Connections	Feedback Shaft	Mounting Bracket	Coil type	Power Supply	Pneumatic Connections
LSB-3000 Explosion-proof type	0 Aluminum die-cast	<b>Mechanical switches</b> 0 (2) SPDT 2 (4) SPDT 3 (2) DPDT  <b>P&amp;F sensors</b> 4 (2) NJ2-V3-N 5 (4) NJ2-V3-N 6 (2) NJ2-12GK-SN or NJ4-12GK-SN 7 (2) NBB3-V3-Z4 9 (2) NBB2-V3-E2 S(2) NJ2-12GM40-E2 R (2) NCN4-V3-NO T (2) SJ3 3.5-S1N  <b>Sensors</b> 8 (2) PSN17-5D PNP or NPN N (2) D2VW-5L1-1M  <b>Hermetically-sealed proximity sensors</b>	0 None	<b>K7 KC</b> Ex d IIC - IP67  <b>A7 ATEX / IECEx</b> Ex d IIC - IP67  <b>I7 KC</b> Ex ia IIC - IP67  <b>K8 KC</b> Ex d IIC - IP68  <b>A8 ATEX / IECEx</b> Ex d IIC - IP68  <b>I8 KC</b> Ex ia IIC - IP68	<b>N</b> None  <b>A</b> Beacon indicator 90° (Open / Close)  <b>B</b> Bottom indicator 90° (Open / Close)  <b>C</b> Beacon & bottom indicator 90° (Open / Close)  <b>T</b> T port indicator  <b>L</b> L port indicator	<b>A</b> PF 3/4  <b>B</b> NPT 3/4  <b>C</b> PF 1/2  <b>D</b> NPT 1/2  <b>E</b> M20 x 1.5  <b>I</b> M25 x 1.5	<b>2</b> 2 pcs  <b>3</b> 3 pcs	<b>D</b> Stroke 80 ~ 200mm	<b>x50(H)</b>  <b>M</b> Multi-size Bracket  <b>R</b> Other on request			
	1 Stainless steel 316		T 4~20mA output signal									
	2 Stainless steel 316L (On request)		1 0~1k output signal									

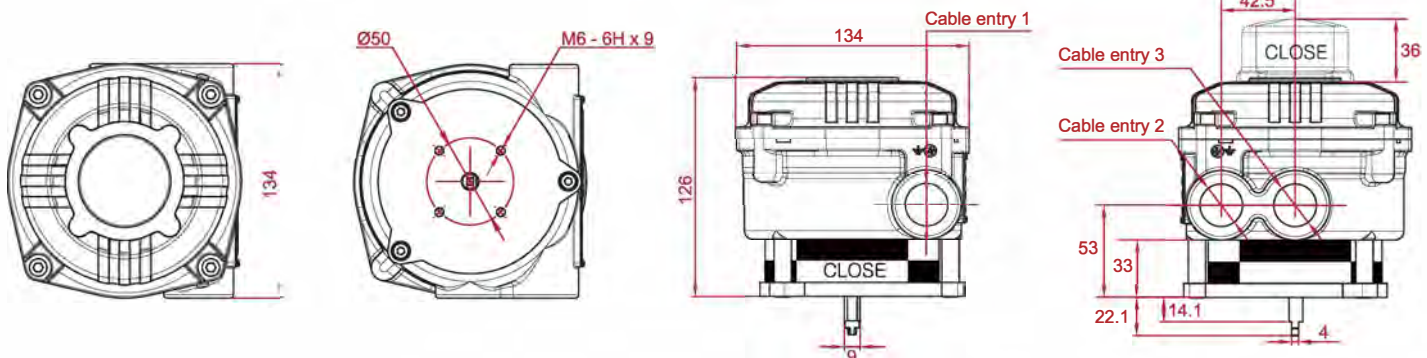
## Dimensions

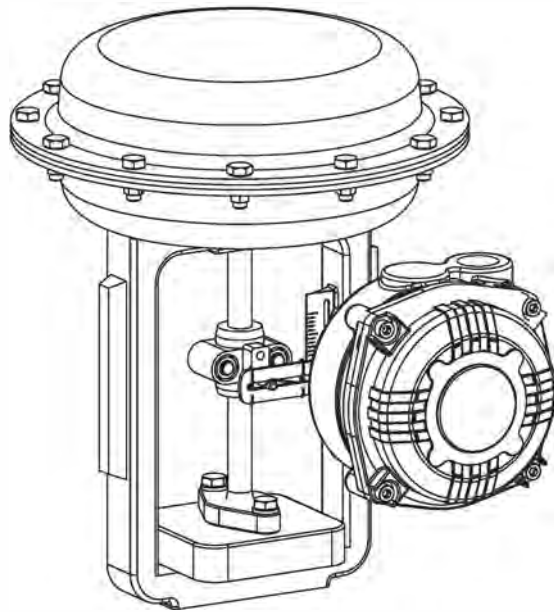
## Valve Position Monitor

< LSB-3000 - Beacon Indicator >



< LSB-3000 - Bottom Indicator >





**< Linear type - LSB-3000 >**



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