LYNSA
Soluciones Industriales

POWER-GENEX®

Progressive!

All innovation
on driving your valve automation

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Contents

A solid workhorse you can depend on for consistent, reliable control

Contents

A solid workhorse you can depend on for consistent, reliable control

SS2 Linear / Rotary

Smart performance with innovative and ever-strong coil drive even under harsh working environments

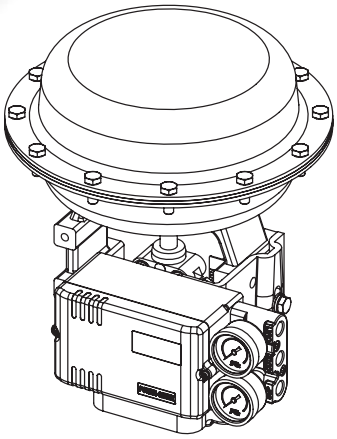
MENU

Features

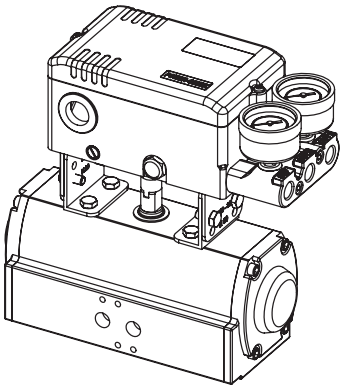
- Easy and quick auto-calibration
- Detecting RA (reverse acting) or DA (direct acting) automatically regardless of wrong air connections
- Available to use for single or double acting without any special adjustments
- Compact design allowing to be installed on small actuators
- Providing error messages against performance failures
- Possible to test the actuator with any fixed signal under a test mode
- Programmable characteristic curve with 17 points
- Wide operating temperature range -30 ~ +80℃
- Improved control of high-friction globe and ball valves by eliminating an overshoot and a hunting
- Low air consumption
- Providing a mounting bracket to meet IEC 60534-6-1 for linear valves
- Supporting a NAMUR mounting pattern VDI/VDE 3845 (IEC 60534-6-2) and providing a multi-size mounting bracket for rotary valves

Options

- Output position transmitter (4 - 20 mA)
- 2 x alarm limit or micro switch (SPDT)
- Low temperature (- 40℃)
- Intrinsically safe type (IECEx / ATEX / TR-CU / KC Ex ia IIC T6/T5)
- HART communication
- Profibus PA communication
- Foundation Fieldbus communication



- SS2L (Linear Type)



- SS2R (Rotary Type)

SS3 Linear / Rotary

Sturdy explosion proof housing and smart performance with innovative and ever-strong coil drive even under harsh working environments

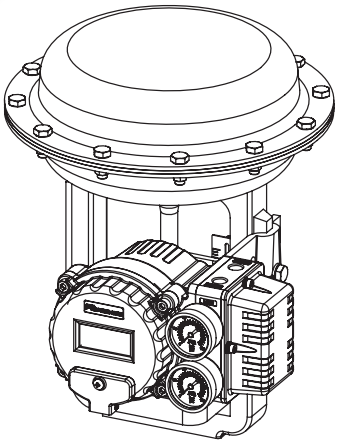
MENU

Features

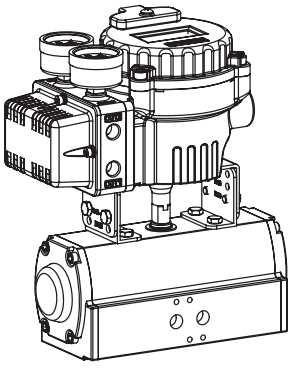
- Flameproof IECEx / ATEX / TR-CU / KC Ex d IIC T6
- Easy and quick auto-calibration
- Detecting RA (reverse acting) or DA (direct acting) automatically regardless of wrong air connections
- Available to use for single or double acting without any special adjustments
- Compact design allowing to be installed on small actuators
- Providing error messages against performance failures
- Possible to test the actuator with any fixed signal under a test mode
- Programmable characteristic curve with 17 points
- Wide operating temperature range -30 ~ +75℃
- Improved control of high-friction globe and ball valves by eliminating an overshoot and a hunting
- Low air consumption
- Providing a mounting bracket to meet IEC 60534-6-1 for linear valves
- Supporting a NAMUR mounting pattern IEC 60534-6-2 (VDI/VDE 3845) and providing a multi-size mounting bracket for rotary valves

Options

- Output position transmitter (4 - 20 mA)
- 2 x alarm limit
- Low temperautre (-40℃)
- HART communication
- Profibus PA communication
- Foundation Fieldbus communication



- SS3L (Linear Type)



- SS3R (Rotary Type)

POWER-GENEX®

ASD-5000 Series
Smart Valve Positioner
(Diagnostics Positioner)

ASD-5000 Positioner Series

ASD-5000 is the smart valve positioner which offers incomparable and stable control processing performance and advanced self-diagnostics for control valves. ASD-5000 has an outstanding durability and it has an improved control performance thanks to non-contact sensors with accuracy. ASD-5000 has a wide and multi-lingual display that provides diverse information and a current control situation with graph.

Features

Easy to use

- Quick auto-calibration by pushing one button
- Detecting RA (reverse acting) or DA (direct acting) automatically regardless of wrong air connections
- By-pass (auto/manual screw)
- Logical trend and histogram collection
- Providing a mounting bracket to meet IEC 60534-6-1 for linear valves
- Supporting a NAMUR mounting pattern VDI/VDE3845 (IEC60534-6-2) and providing a multi-size mounting bracket for rotary valves

Improved display performance

- Wide and multi-lingual full text graphical TFT LCD with high-resolution and clear graphic images
- Provides 3 steps to re-size information on LCD
- Shows a control history trend, a logical trend and histogram collection

Various communications

- HART (Ver. 7)
- Profibus PA
- Foundation Fieldbus

Non-contact position sensor

- Magnetic position sensor (MPS, non-contact)
- Resistant to vibration
- Excellent temperature characteristics

Improved durability

- Vibration and impact tolerant
- Resistant to dirty air and humidity

Diagnostics

- Self-diagnostics
- Advanced diagnostics with 4 x pressure sensor
- Valve signature
- Valve step response
- Partial stroke test (PST)

Options

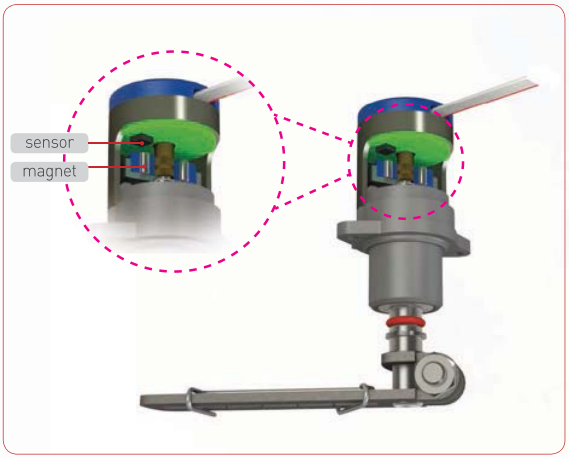
- Output position transmitter (4 - 20 mA)
- 2 x 24VDC software limit switch or 2 x SPDT mechanical limit switch
- Position indication beacon (flat or dome)
- Stainless steel body (316SS)
- Intrinsically safe Ex ia IIC
- HART communication
- Profibus PA communication
- Foundation Fieldbus communication

Solid body design

- Aluminum housing / Epoxy-coated
- High corrosion-resistant stainless steel 316 body
- Protection class : IP66

Non-contact sensor providing high durability and improved control performance

- Higher durability than a feedback lever type
- Reduced hysteresis
- Provides a remarkable control performance under a harsh working environment with vibration



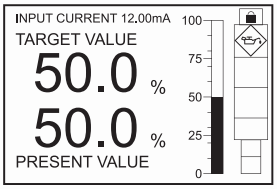
< MPS - Magnetic Position Sensor >

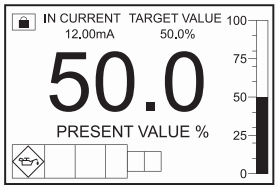
Easy and quick auto-calibration

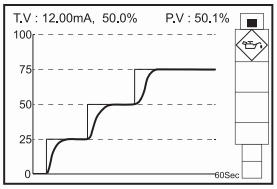
Quick auto-calibration by pushing one button provides optimal positioner setting easily and fast.

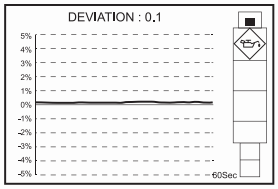
Improved display

ASD positioner has a wide display with high visibility and it's possible to re-size information with 3 steps and available to show a control graph on LCD.









Multi-lingual display

English, Chinese and Korean are available on LCD and more languages are planned to add through a continuous update

- MODE
  - DISPLAY VARIABLE
  - MANUAL
  - MONITORING
  - AUTO TUNE
  - PARAMETERS
  - TEST

- 모 드
  - 표시 변수
  - 수동 제어
  - 모니터링
  - 오토 튠
  - 파라메터
  - 테스트

- 模 式
  - 显示设置
  - 手动模式
  - 监测模式
  - 自动模式
  - 参数
  - 测试

Self-diagnostics

Advanced self-diagnostics is performed with pressure sensors installed inside of ASD positioner and results from self-diagnostics can be shown on LCD or transmitted over communication according to NAMUR NE107 standard.

Failure

Out of Specification

Maintenance Required

Check Function

Offline diagnostics (self-diagnostics)

Failure

- Loop current failure
- Loop voltage failure
- Supply air failure
- Auto calibration failure

Out of Specification

- Position high / low limit
- Temperature high / low limit
- Supply air high / low limit

Maintenance Required

- Not calibrated
- Use small angle
- Deviation error
- TUNE-point adjust error

Check Function

- PST Failure
- Use SHAPE parameter
- Valve friction high
- Check EMI / RFI

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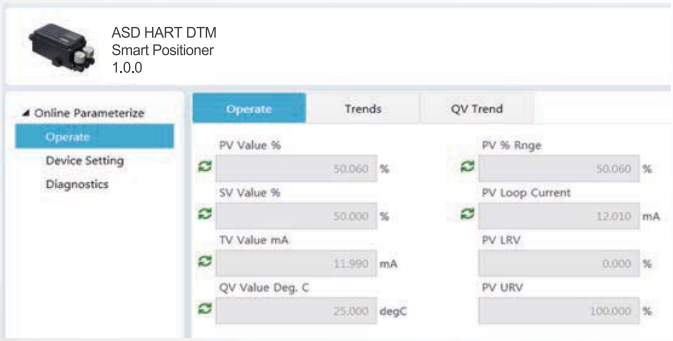
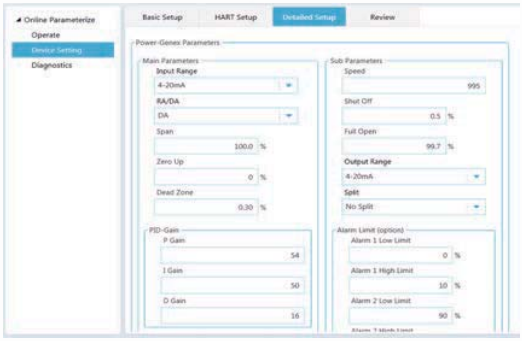
Online FDT DTM (Device Type Manager)

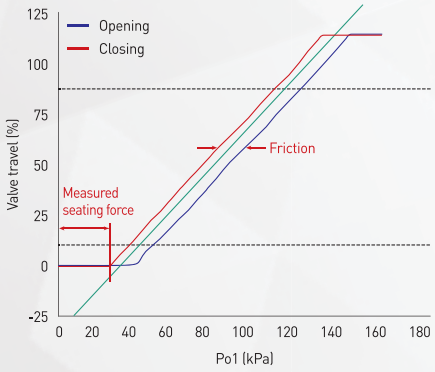




It's possible to make use of advanced diagnostics of ASD positioner by using an online DTM.

※ Available only with HART communication option

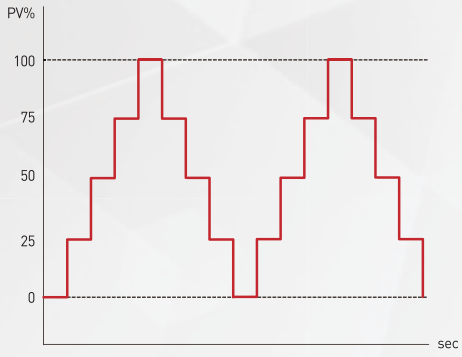
Online diagnostics (Advanced diagnostics)



- **Valve signature**

Valve signature is the result which records air pressure change and valve position according to ramp input signals. The following values about performance of valve control are obtained from this valve signature and it's possible to confirm a current valve status (integrity)

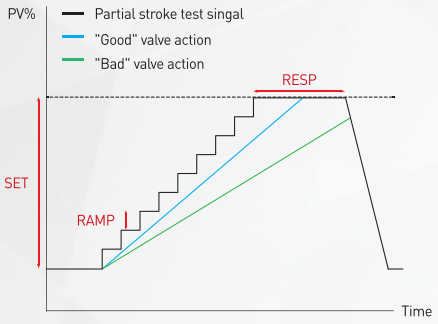
a. Seating force
b. Friction
c. Spring range



- **Valve step response**

This is the result which shows a valve control status with on-off signals or on every 25% step.

a. ON-OFF step
b. 25% step



- **PST (Partial Stroke Test)**

This is the function which records changes by operating the positioner with the set values automatically without influencing system in an automatic control mode.

It's possible to confirm a valve status (integrity) by comparing the past one with the present one.

Technical specifications
ASD-5000 Smart valve positioner

Input	
Standard	
Supply power	4 to 20mA, Loop powered
Max.	50mA
Min.	3.6mA
Load voltage at 20mA	6.8V
Impedance at 20mA	340 Ω
HART Communication ver. 7	
- Without advanced diagnostics	
Load voltage at 20mA	7.8V
Impedance at 20mA	390 Ω
- With advanced diagnostics (with 4 pressure sensors)	
Load voltage at 20mA	9.5V
Impedance at 20mA	475 Ω
Profibus PA & Foundation Fieldbus	
Supply power	Bus power 9 – 32VDC
Current Consumption	Profibus - 15mA
	Foundation Fieldbus - 16mA

Output	
Range	0 – 7 bar (0 – 100 psi)
Air consumption	2.5 L.P.M
	at 1.4 bar (20 psi) supply pressure
	3.0 L.P.M
	at 6 bar (90 psi) supply pressure
Air Capacity	250 L.P.M
	at 1.4 bar (20 psi) supply pressure
	300 L.P.M
	at 6 bar (90 psi) supply pressure

Air Supply	
Instrument air	free of oil, water and dust acc. to
	DIN/ISO 8573-1 pollution and oil
	content according to Class 3
Supply pressure	1.4 to 7 bar (20 to 100 psi)

Applicable actuators	
Operating type	Linear, Rotary, Remote
Acting type	Single, Double
Action	direct action(DA), reverse action(RA)
Linkage type	
Travel range	Linear : 10 – 120 mm
	Rotary : 30˚– 120˚ rotation angle
Linkage-less type	
Travel range	Linear : 10 – 120 mm
	Rotary : 30˚– 120˚ rotation angle
	Remote : 3, 5, 10, 15, 20, 30m
※ Other travel range on request	

Characteristics	
Linearity	< ±0.5% F.S
Sensitivity	< ±0.3% F.S
Hysteresis	< ±0.3% F.S
Repeatability	< ±0.2% F.S
Performance characteristic	Linear, Shape (EQ%, Quick), User set

Enclosure	
Material	Aluminum die-cast + Epoxy-coated
	316 Stainless steel housing
Protection class	IP66
Pneumatic connections	PT 1/4
	NPT 1/4
Electrical connections	PF 1/2
	NPT 1/2
	M20 x 1.5
Weight	2.4 kg – Aluminum die-cast
	4.5 kg – Stainless steel 316

Hazardous area approvals	
IECEx	Intrinsically Safe, Ex ia IIC T6/T5/T4
ATEX	Intrinsically Safe, Ex ia IIC T6/T5/T4
KCs	Intrinsically Safe, Ex ia IIC T6/T5/T4
CCC	Intrinsically Safe, Ex ia IIC T6/T5/T4

Environmental influences	
Ambient temperature	Standard : -30 to 80℃ (-22 to 176℉)
Operating temperature of LCD	-20 to 80℃ (-4 to 176℉)
Vibration	2G, 5 to 400 Hz
Humidity	The dew point should be at least 10℃ lower than the temperature of this device.

Feedback options	
Position Transmitter (Output signal)	
Output signal	4-20mA, 2-wired
Supply voltage	12-30VDC
Load Limitation	0 – 1000 Ω (Normally 650Ω at 24VDC)
Linearity	± 0.5%
Limit switches – Programmable software limit switches	
Type	2 x software limit switch
Rating	24VDC
Limit switches – Micro switches	
Type	2 x SPDT
Rating	5A @ 220VAC
Contact	Silver alloy
Ambient temperature	-30 - +85℃
Limit switches – P&F sensor (SJ2-SN)	
Type	NAMUR NC
Supply voltage	Nominal 8.2VDC (5 – 11 VDC)
Current consumption	Target not detected > 3mA
	Target detected < 1mA
Ambient temperature	-40 - +100℃

Mounting brackets	
Linear type	IEC 60534-6-1
Rotary type	IEC 60534-6-2

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ASD-5000 Series How to order

				①	②	③	-	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	-	⑬
ASD-5000 Series positioner			ASD - 5	X	X	X	-	X	X	X	X	X	X	X	X	X	-	X
1. Body material	Aluminum die-cast			0														
	Stainless steel 316			1														
2. Actuator operation	Linear				0													
	Rotary				1													
3. Feedback type	Linkage type					0												
	Linkage-less type					1												
	Remote type					2												
4. Hazardous area & Protection	Intrinsically Safe Ex ia IIC , IP66							I										
	Weatherproof to IP66							W										
5. Feedback size	Linkage type	Linear type (ASD-5x00)	Stroke 10 – 60mm						B									
			Stroke 10 - 120mm						C									
			*Others on request															
		Rotary type (ASD-5x10)	Fork lever						F									
			NAMUR shaft						N									
	Linkage-less type	Linear type (ASD-5x01, 5x02)	Stroke 10 – 120mm						B									
			*Others on request															
		Rotary type (ASD-5x11, 5x12)	M6 Connector						6									
			M8 Connector						8									
6. Gauge (Out1, Out2 gauge)	6 bar (90 psi)									1								
	10bar (150 psi)									2								
7. Beacon indicator	None										N							
	Flat indicator										F							
	Beacon indicator (90˚)										Y							
8. Position feedback	None											N						
	Position transmitter (4-20mA)											O						
	Advanced diagnostics + position transmitter (in pending)											A						
9. Limit switches	None												N					
	2 x 24VDC software limit switch												L					
	2 x micro switch (SPDT)												S					
	2 x P&F proximity sensor												P					
10. Communication	None													N				
	HART communication													H				
	Profibus PA (in pending)													P				
	Foundation Fieldbus(in pending)													F				
11. Connection threads (pneumatic – electrical)	PT(Rc) 1/4 – PF(G) 1/2														3			
	NPT 1/4 – NPT 1/2														4			
	PT(Rc) 1/4 – M20x1.5														5			
	NPT 1/4 – M20x1.5														6			
	※ Others on request																	
12. Mounting bracket	None															N		
	Linear type / IEC 60534-6-1															L		
	Rotary type / IEC 60534-6-2															R		
13. Remote cable (only for ASD-5002)	3, 5, 10, 20, 30m																	X

* Low temperature on request

Order example ASD - 5 0 0 0 - I N 2 N O N H 4 R

ASD-5 Series, linkage type, rotary, aluminum body, intrinsically Safe, 10bar gauge, position transmitter, HART communication, NPT

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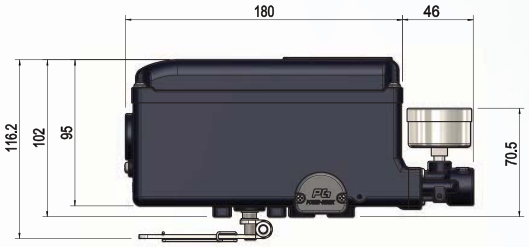
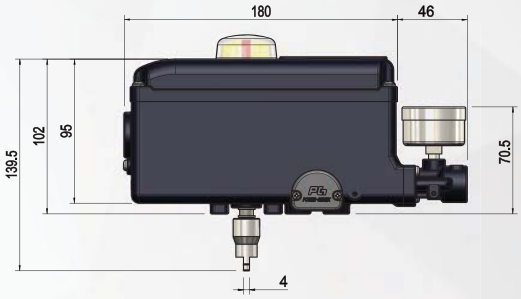
Dimensions (Linkage type)

ASD-5000 Linear type

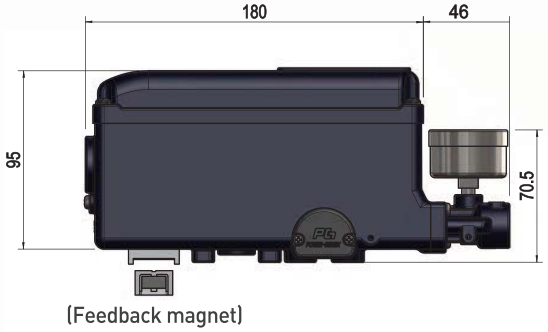


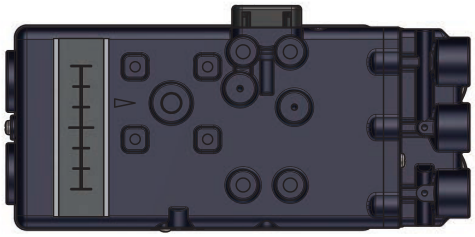
ASD-5010 Rotary type



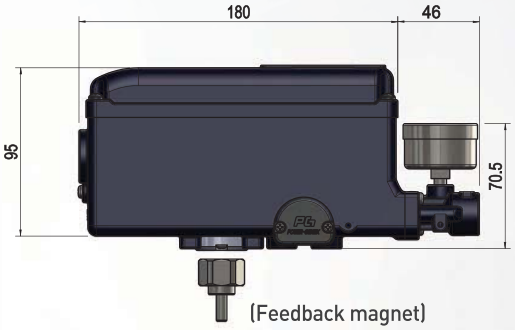
Dimensions (Linkage - less type)

ASD-5001 Linear type





ASD-5011 Rotary type



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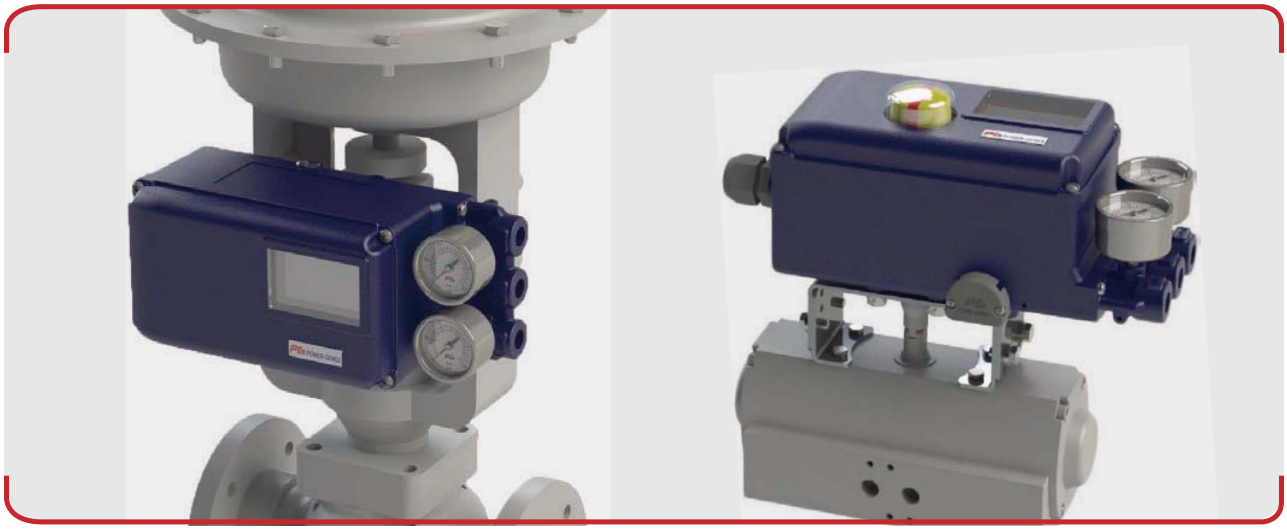
All innovation
on driving your valve automation



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CA : 20-12

POWER-GENEX®

ASD-7000 Series
Smart Valve Positioner

(Diagnostics Positioner)

ASD-7000 Positioner Series

ASD-7000 is the smart valve positioner which offers incomparable and stable control processing performance and advanced self-diagnostics for control valves. ASD-7000 has an outstanding durability and it has an improved control performance thanks to non-contact sensors with accuracy. ASD-7000 has a wide and multi-lingual display that provides diverse information and a current control situation with graph.

Features

Easy to use

- Quick auto-calibration by pushing one button
- Detecting RA (reverse acting) or DA (direct acting) automatically regardless of wrong air connections
- By-pass (auto/manual screw)
- Logical trend and histogram collection
- Providing a mounting bracket to meet IEC 60534-6-1 for linear valves
- Supporting a NAMUR mounting pattern VDI/VDE3845 (IEC60534-6-2) and providing a multi-size mounting bracket for rotary valves

Improved display performance

- Wide and multi-lingual full text graphical TFT LCD with high-resolution and clear graphic images
- Provides 3 steps to re-size information on LCD
- Shows a control history trend, a logical trend and histogram collection

Various communications

- HART (Ver. 7)
- Profibus PA
- Foundation Fieldbus

Non-contact position sensor

- Magnetic position sensor (MPS, non-contact)
- Resistant to vibration
- Excellent temperature characteristics

Improved durability

- Vibration and impact tolerant
- Resistant to dirty air and humidity

Diagnostics

- Self-diagnostics
- Advanced diagnostics with 4 x pressure sensor
- Valve signature
- Valve step response
- Partial stroke test (PST)

Options

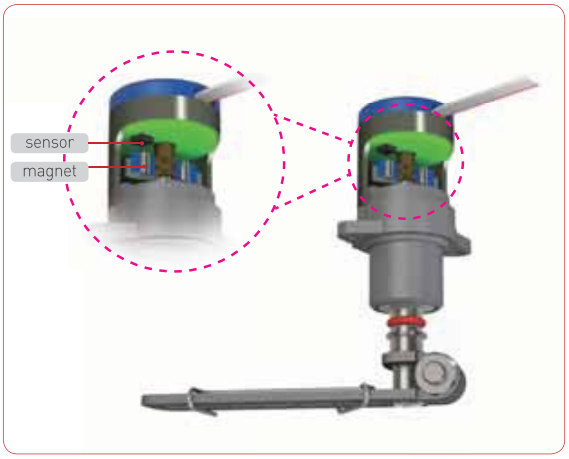
- Output position transmitter (4 - 20 mA)
- 2 x 24VDC software limit switch or 2 x SPDT mechanical limit switch
- Stainless steel body (316SS)
- HART communication
- Profibus PA communication
- Foundation Fieldbus communication

Solid body design

- Aluminum housing / Epoxy-coated
- High corrosion-resistant stainless steel 316 body
- Protection class : IP66
- Flameproof Ex db IIC, Dustproof Ex tb IIIC

Non-contact sensor providing high durability and improved control performance

- Higher durability than a feedback lever type
- Reduced hysteresis
- Provides a remarkable control performance under a harsh working environment with vibration



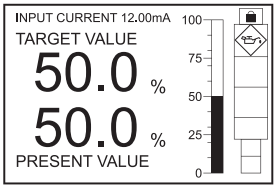
< MPS - Magnetic Position Sensor >

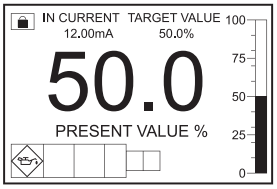
Easy and quick auto-calibration

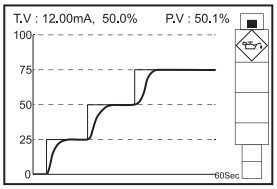
Quick auto-calibration by pushing one button provides optimal positioner setting easily and fast.

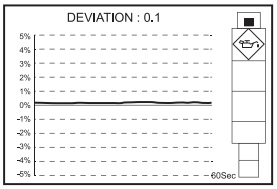
Improved display

ASD positioner has a wide display with high visibility and it's possible to re-size information with 3 steps and available to show a control graph on LCD.









Multi-lingual display

English, Chinese and Korean are available on LCD and more languages are planned to add through a continuous update

- MODE
  - DISPLAY VARIABLE
  - MANUAL
  - MONITORING
  - AUTO TUNE
  - PARAMETERS
  - TEST

- 모 드
  - 표시 변수
  - 수동 제어
  - 모니터링
  - 오토 튠
  - 파라메터
  - 테스트

- 模 式
  - 显示设置
  - 手动模式
  - 监测模式
  - 自动模式
  - 参数
  - 测试

Self-diagnostics

Advanced self-diagnostics is performed with pressure sensors installed inside of ASD positioner and results from self-diagnostics can be shown on LCD or transmitted over communication according to NAMUR NE107 standard.

Failure

Out of Specification

Maintenance Required

Check Function

Offline diagnostics (self-diagnostics)

Failure

- Loop current failure
- Loop voltage failure
- Supply air failure
- Auto calibration failure

Out of Specification

- Position high / low limit
- Temperature high / low limit
- Supply air high / low limit

Maintenance Required

- Not calibrated
- Use small angle
- Deviation error
- TUNE-point adjust error

Check Function

- PST Failure
- Use SHAPE parameter
- Valve friction high
- Check EMI / RFI

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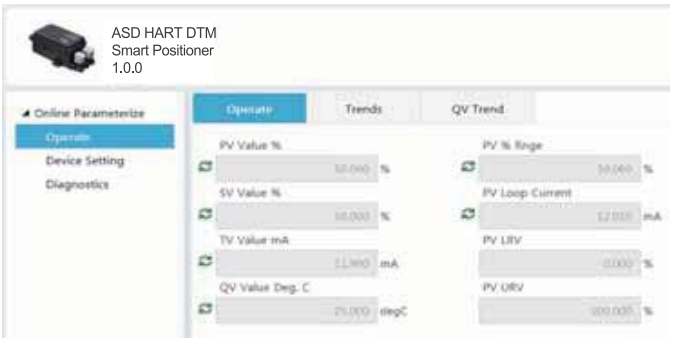
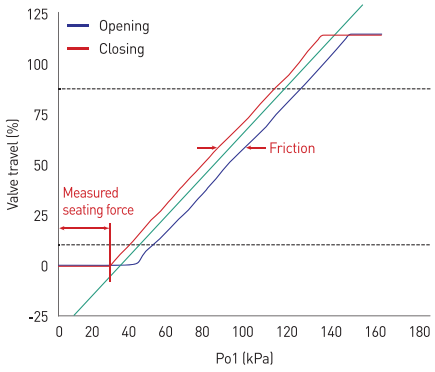
Online FDT DTM (Device Type Manager)



It's possible to make use of advanced diagnostics of ASD positioner by using an online DTM.

※ Available only with HART communication option

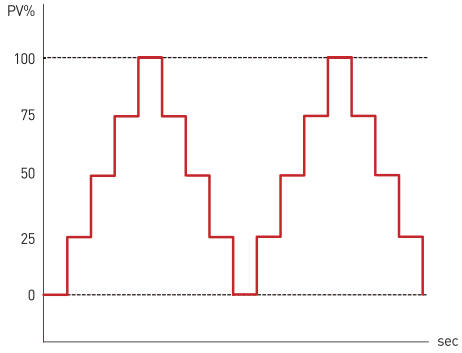
Online diagnostics (Advanced diagnostics)



• Valve signature

Valve signature is the result which records air pressure change and valve position according to ramp input signals. The following values about performance of valve control are obtained from this valve signature and it's possible to confirm a current valve status (integrity)

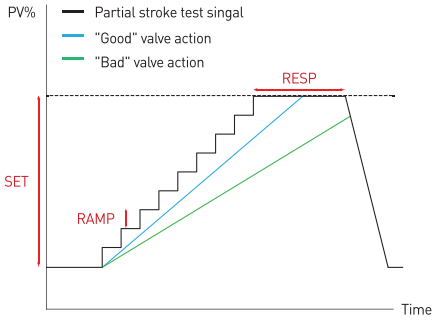
a. Seating force
b. Friction
c. Spring range



• Valve step response

This is the result which shows a valve control status with on-off signals or on every 25% step.

a. ON-OFF step
b. 25% step



• PST (Partial Stroke Test)

This is the function which records changes by operating the positioner with the set values automatically without influencing system in an automatic control mode.

It's possible to confirm a valve status (integrity) by comparing the past one with the present one.

Technical specifications
ASD-7000 Smart valve positioner

Input	
Standard	
Supply power	4 to 20mA, Loop powered
Max.	50mA
Min.	3.6mA
Load voltage at 20mA	6.8V
Impedance at 20mA	340 Ω
HART Communication ver. 7	
- Without advanced diagnostics	
Load voltage at 20mA	7.8V
Impedance at 20mA	390 Ω
- With advanced diagnostics (with 4 pressure sensors)	
Load voltage at 20mA	9.5V
Impedance at 20mA	475 Ω
Profibus PA & Foundation Fieldbus	
Supply power	Bus power 9 – 32VDC
Current Consumption	Profibus - 15mA
	Foundation Fieldbus - 16mA

Output	
Range	0 – 7 bar (0 – 100 psi)
Air consumption	2.5 L.P.M
	at 1.4 bar (20 psi) supply pressure
	3.0 L.P.M
	at 6 bar (90 psi) supply pressure
Air Capacity	250 L.P.M
	at 1.4 bar (20 psi) supply pressure
	300 L.P.M
	at 6 bar (90 psi) supply pressure

Air Supply	
Instrument air	free of oil, water and dust acc. to
	DIN/ISO 8573-1 pollution and oil
	content according to Class 3
Supply pressure	1.4 to 7 bar (20 to 100 psi)

Applicable actuators	
Operating type	Linear, Rotary, Remote
Acting type	Single, Double
Action	direct action(DA), reverse action(RA)
Linkage type	
Travel range	Linear : 10 – 120 mm
	Rotary : 30˚– 150˚rotation angle
Linkage-less type	
Travel range	Linear : 10 – 120 mm
	Rotary : 30˚– 150˚rotation angle
	Remote : 3, 5, 10, 15, 20, 30m
※ Other travel range on request	

Characteristics	
Linearity	< ±0.5% F.S
Sensitivity	< ±0.3% F.S
Hysteresis	< ±0.3% F.S
Repeatability	< ±0.2% F.S
Performance characteristic	Linear, Shape (EQ%, Quick), User set

Enclosure	
Material	Aluminum die-cast + Epoxy-coated
	316 Stainless steel housing
Protection class	IP66
Pneumatic connections	PT 1/4
	NPT 1/4
Electrical connections	PF 1/2
	NPT 1/2
	M20 x 1.5
Weight	2.4 kg – Aluminum die-cast
	4.5 kg – Stainless steel 316

Hazardous area approvals	
IECEx	Flameproof, Ex db IIC T6/T5 Gb Dustproof Ex tb IIIC T85℃/T100℃Db
ATEX	
KCs	
CCC / EAC	

Environmental influences	
Ambient temperature	Standard : -30 to 80℃ (-22 to 176℉)
Operating temperature of LCD	-20 to 80℃ (-4 to 176℉)
Vibration	2G, 5 to 400 Hz
Humidity	The dew point should be at least 10℃ lower than the temperature of this device.

Feedback options	
Position Transmitter (Output signal)	
Output signal	4-20mA, 2-wired
Supply voltage	12-30VDC
Load Limitation	0 – 1000 Ω (Normally 650Ω at 24VDC)
Linearity	± 0.5%
Limit switches – Programmable software limit switches	
Type	2 x software limit switch
Rating	24VDC
Limit switches – Micro switches	
Type	2 x SPDT
Rating	5A @ 220VAC
Contact	Silver alloy
Ambient temperature	-30 - +85℃
Limit switches – P&F sensor (SJ2-SN)	
Type	NAMUR NC
Supply voltage	Nominal 8.2VDC (5 – 11 VDC)
Current consumption	Target not detected > 3mA
	Target detected < 1mA
Ambient temperature	-40 - +100℃

Mounting brackets	
Linear type	IEC 60534-6-1
Rotary type	IEC 60534-6-2

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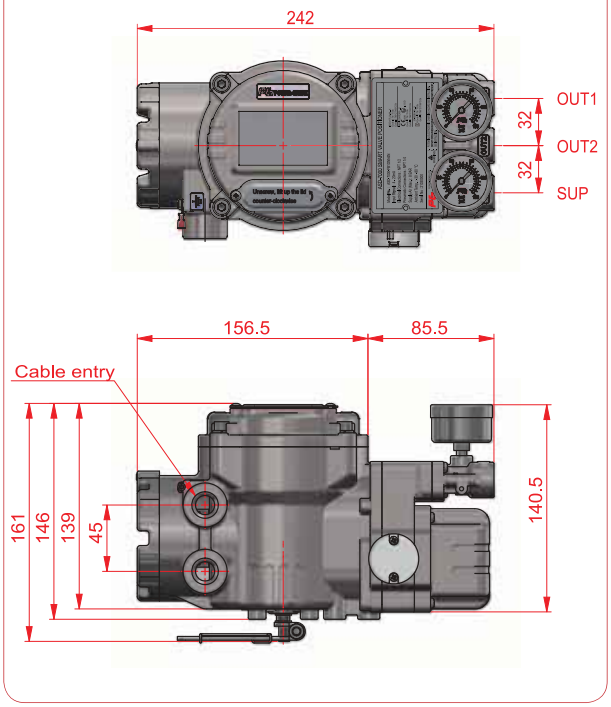
ASD-7000 Series How to order

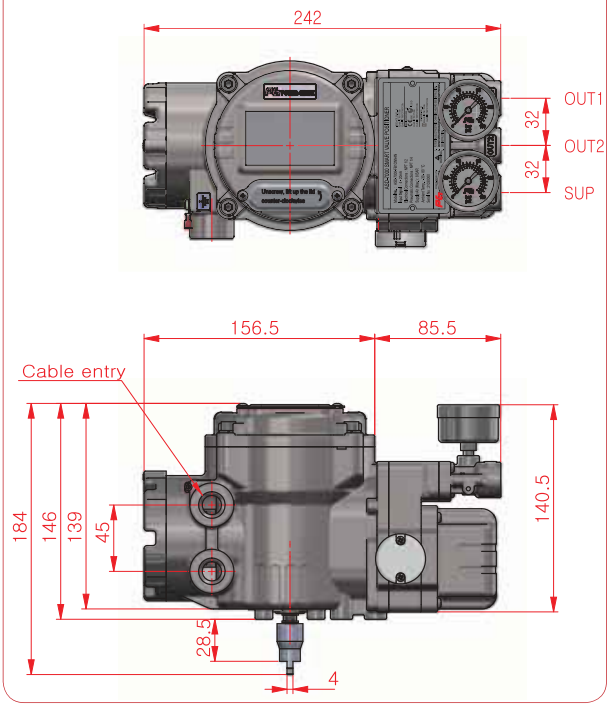
				①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪		⑫	⑬
ASD-7000 Series positioner			ASD - 7	X	X	X	-	F	X	X	X	X	X	X	X	-	X	X
1. Body material	Aluminum die-cast Stainless steel 316			0 1														
2. Actuator operation	Linear Rotary				0 1													
3. Feedback type	Linkage type Linkage-less type Remote type					0 1 2												
4. Hazardous area & Protection	Flameproof Ex db IIC T6/T5 Gb Dustproof Ex tb IIIC T85℃/T100℃ Db							F										
5. Feedback size	Linkage type	Linear type (ASD-7x00)	Stroke 10 – 60mm Stroke 10 - 120mm *Others on request						B C									
		Rotary type (ASD-7x10)	Fork lever NAMUR shaft						F N									
	Linkage -less type	Linear type (ASD-7x01, 7x02)	Stroke 10 – 120mm *Others on request						B									
		Rotary type (ASD-7x11, 7x12)	M6 Connector M8 Connector						6 8									
6. Gauge (Out1, Out2 gauge)	6 bar (90 psi) 10bar (150 psi)									1 2								
7. Position feedback	None Position transmitter (4-20mA) Advanced diagnostics + position transmitter (in pending)										N O A							
8. Limit switches	None 2 x 24VDC software limit switch 2 x micro switch (SPDT) - Only for Rotary type 2 x P&F proximity sensor - Only for Rotary type											N L S P						
9. Communication	None HART communication Profibus PA (in pending) Foundation Fieldbus(in pending)												N H P F					
10. Connection threads (pneumatic – electrical)	PT(Rc) 1/4 – PF(G) 1/2 NPT 1/4 – NPT 1/2 PT(Rc) 1/4 – M20x1.5 NPT 1/4 – M20x1.5 ※ Others on request													3 4 5 6				
11. Mounting bracket	None Linear type / IEC 60534-6-1 Rotary type / IEC 60534-6-2														N L R			
12. Remote cable (only for ASD-7xx2)	3, 5, 10, 20, 30m																X	
13. Temperature	Standard (-30 - +80℃)																	Blank
	Low temperature (-40 - +80℃)																	LT

Dimensions (Linkage type)

ASD-7000 Linear type

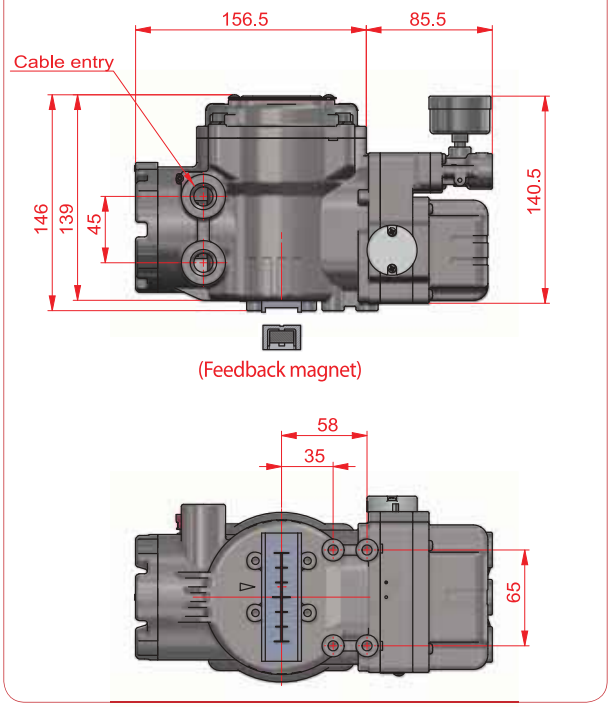


ASD-7010 Rotary type

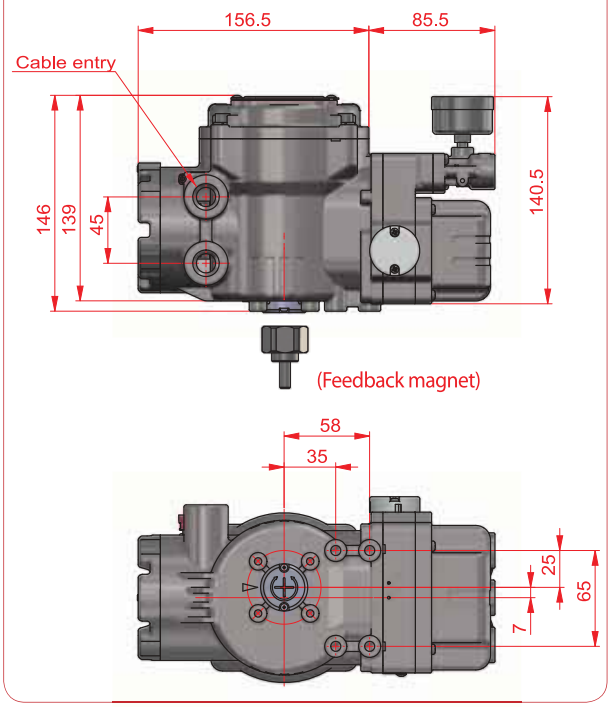


Dimensions (Linkage - less type)

ASD-7001 Linear type



ASD-7011 Rotary type



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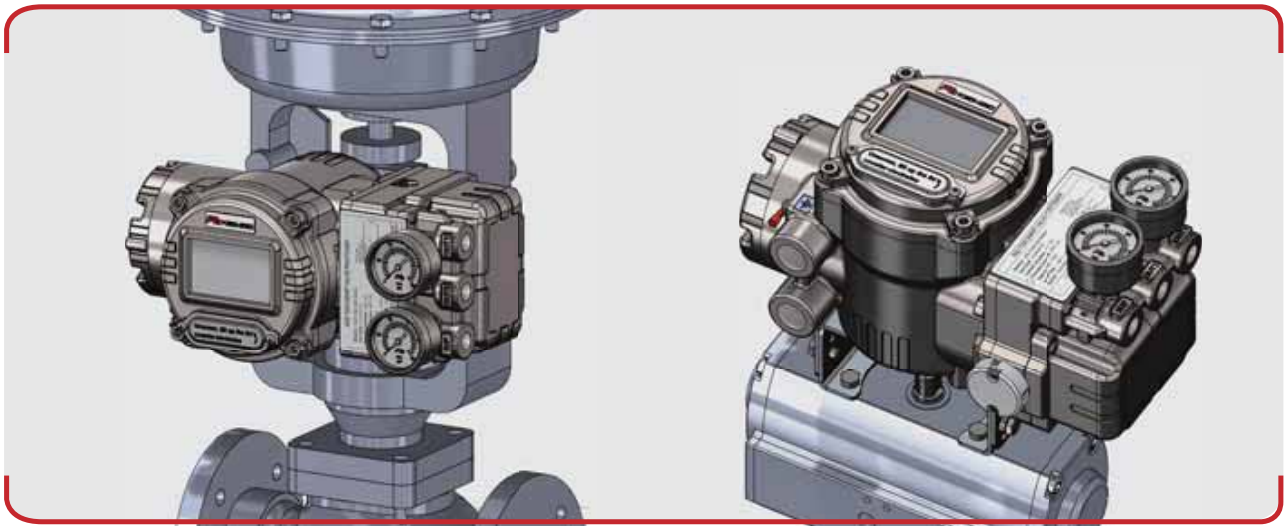
All innovation
on driving your valve automation



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Website. http://www.powergenex.com

E-mail. sales@powergenex.com (overseas sales)

sales2@powergenex.com (domestic sales)

CA : 21-03

SS Linear / Rotary

Smartest valve control device meeting a dynamic performance and a precise setting with a piezoelectric technology and an optimized auto-calibration program

Features

- Auto-Calibration for optimum conditions
- Precise control performance and high dynamic response
- Easy operation with four-key pads and full text graphical LCD
- Single and double acting
- Low air consumption due to piezo electric microvalve
- Pressure regulator built-in to eliminate variations in supply air pressure
- Problem-free characteristics on a small actuator
- High resistance against shock and vibration
- Mounting on linear actuators according to IEC 534

Options

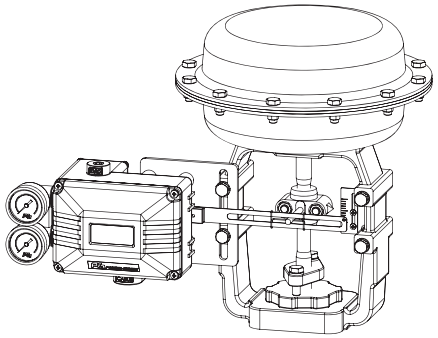
- Position transmitter (4...20mA output signal)
- 2 × alarm limit (Min., Max.)
- Explosion proof type (KC Ex d IIB+H_2 T6 IP66)
- HART communication (FSK)

Specifications

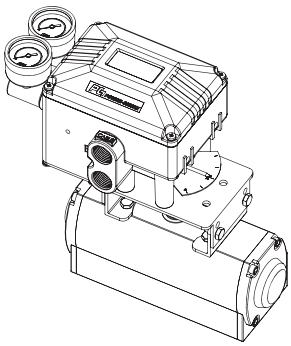
Input Signal	4 - 20 mA @ 24 VDC
Voltage Drop	8.5 VDC @ 20 mA (425 Ω)
Min. / Max. Current	3.6 mA / 50 mA
Required Load Voltage (≒ Ω @ 20mA)	Without HART : 8.5V (≒425 Ω) With HART : 9.2V (≒460 Ω)
Air Supply Pressure	1.4 - 7.0 bar (20 - 100 psi) Filtered compressed dry and non-oiled air
Output Pressure	0 - 100% supply air pressure / single or double action
Shut-off Value	Range 0 - 5% of position signal
Air Capacity	80 ℓ/min = 4.8 N㎥/h = 2.8 scfm (Sup = 1.4 bar)
Air Consumption	1.3 ℓ/min = 0.08 N㎥/h = 0.05 scfm (Sup = 1.4 ~ 6 bar)
Humidity Limits	< 90% RH, non-condensing
Stroke / Angle	5 ~ 80mm (max. up to 150mm) 0 ~ 90° (max. up to 100°)
Adjustable Speed	1 - 1000 (lowest 1, highest 1000)
LCD Indication	4-digit LCD indicator
Scan Time	2 ms
Valve Action	Position 0 - 100% / direct action (DA) / reverse action (RA)
Characteristic Curve	Linear, E.Q.% (1:25 or 1:50), Quick open Linearity < = 0.3% / sensitivity < = 0.2% / hysteresis < = 0.2%
Operating Temperature	- 30 ~ +70℃
Protection Class	IP66, flameproof (KC Ex d IIB+H_2 T6 IP66)
Body Material	Aluminum die-cast
Pneumatic Connections	PT(Rc) 1/4 or NPT 1/4
Electrical Connections	2 x PF(G) 1/2 or NPT 1/2
Weight	2.5 kg

Note : Equal percentage or Quick-open option is available. Please contact for more details

MENU



- SSL (Linear Type)



- SSR (Rotary Type)

EPL

Robust valve control device giving a confidence in reliable performance and outstanding durability under harsh working environments

Features

- Easy maintenance
- Precise calibration with simple SPAN and ZERO adjustments
- Simple conversion to direct acting or reverse acting
- 1/2 split range available
- Rugged aluminum housing with corrosion-resistant coating
- Vibration resistant design
- Stainless steel gauges standard
- Restricted pilot valve orifice kit for small actuators included
- KC-certified flameproof Ex dmb IIB+H_2 T6
- NEPSI-certified flameproof Ex dmb IIB+H_2 T6
- IECEx-certified flameproof Ex dmb IIC T6/T5
- ATEX / TR-CU-certified flameproof Ex dmb IIC T6/T5
- KC-certified flameproof Ex dmb IIC T6/T5
- IECEx-certified intrinsically safe Ex ia IIC T6
- ATEX / TR-CU-certified flameproof Ex ia IIC T6
- KC-certified intrinsically safe Ex ia IIC T6

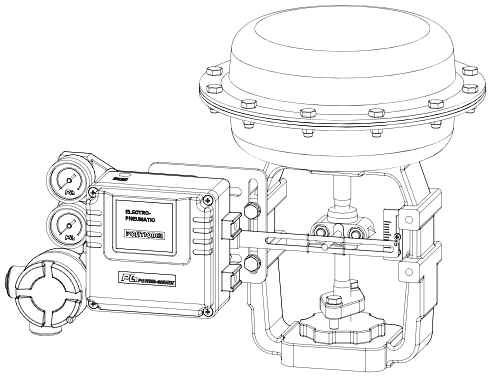
MENU

Specifications

	EPL	
	Linear Type (Lever Feedback)	
	Single	Double
Input Signal	4~20 mA DC (Note. 1)	
Input Resistance	235±15Ω	
Air Supply	Max. 7.0 bar (100 psi) free of oil, water, and moisture	
Standard Stroke	10~80mm (Note. 2)	
Pneumatic Connections	PT(Rc) 1/4 or NPT 1/4	
Electrical Connections	PF(G) 1/2 or NPT 1/2	
Protection Class	Ex dmb IIB+H_2 T6 / Ex dmb IIC T6/T5 Ex ia IIC T6 / IP66	
Ambient Temperature	-20 ~ +70℃ (Note. 3)	
Pressure Gauge	Stainless steel	
Output Characteristics	Linear	
Linearity	Within ±1.0 % F.S	Within ±1.5 % F.S
Sensitivity	Within ±0.2 % F.S	Within ±0.5 % F.S
Hysteresis	Within 1.0 % F.S	
Repeatability	Within ±0.5 % F.S	
Air Consumption	5 LPM (Sup. 1.4 kgf/㎠)	
Flow Capacity	80 LPM (Sup. 1.4 kgf/㎠)	
Material	Aluminum die-cast	
Weight	3.3 kg (with terminal box) 3.0 kg (without terminal box)	

Options

- Position transmitter (4...20 mA ouput signal)
- High temperature (+120℃)
- Low temperature (-40℃)



Note : 1) 1/2 spilt range is available for 4~12mA input signal or 12~20mA input signal
2) Feedback lever can be extended to stroke 80 ~ 150mm
3) Temperature option : up to +120℃ without feedback options
up to +85℃ with feedback options
up to -40℃ without feedback options

EPR

Robust valve control device giving a confidence in reliable performance and outstanding durability under harsh working environments

Features

- Easy maintenance
- Precise calibration with simple SPAN and ZERO adjustments
- Simple conversion to direct acting or reverse acting
- 1/2 split range available
- Rugged aluminum housing with corrosion-resistant coating
- Vibration resistant design
- Stainless steel gauges standard
- Restricted pilot valve orifice kit for small actuators included
- KC-certified flameproof Ex dmb IIB+H_2 T6
  - NEPSI-certified flameproof Ex dmb IIB+H_2 T6
  - IECEx / KC-certified flameproof Ex dmb IIC T6/T5
  - ATEX / TR-CU-certified flameproof Ex dmb IIC T6/T5
  - IECEx / KC-certified intrinsically safe Ex ia IIC T6
  - ATEX / TR-CU-certified flameproof Ex ia IIC T6

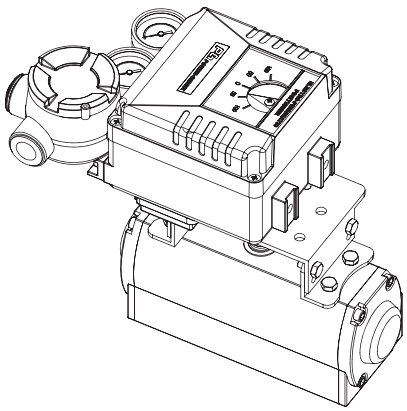
Options

- Position transmitter (4...20 mA output signal)
- 2 x SPDT limit switch
- 2 x P&F proximity sensor NJ2-V3-N
- Visual dome indicator
  - High temperature (+120℃)
  - Low temperature (-40℃)

Specifications

	EPR	
	Rotary Type (Cam Feedback)	
	Single	Double
Input Signal	4~20 mA DC (Note. 1)	
Input Resistance	235±15Ω	
Air Supply	Max. 7.0 bar (100 psi) free of oil, water, and moisture	
Operating Angle	60~100° (Note. 2)	
Pneumatic Connections	PT(Rc) 1/4 or NPT 1/4	
Electrical Connections	PF(G) 1/2 or NPT 1/2	
Protection Class	Ex dmb IIB+H_2 T6 / Ex dmb IIC T6/T5 Ex ia IIC T6 / IP66	
Ambient Temperature	-20 ~ +70℃ (Note. 3)	
Pressure Gauge	Stainless steel	
Output Characteristics	Linear	
Linearity	Within ±1.0 % F.S	Within ±1.5 % F.S
Sensitivity	Within ±0.5 % F.S	
Hysteresis	Within 1.0 % F.S	
Repeatability	Within ±0.5 % F.S	
Air Consumption	5 LPM (Sup. 1.4 kgf/㎠)	
Flow Capacity	80 LPM (Sup. 1.4 kgf/㎠)	
Material	Aluminum die-cast	
Weight	3.5 kg (with terminal box) 3.2 kg (without terminal box)	

With Dome Indicator



Note : 1) 1/2 spilt range is available for 4~12mA input signal or 12~20mA input signal
2) Operating angle can be adjusted to 0~60° or 0~100°
3) Temperature option : up to +120℃ without feedback options
up to +85℃ with feedback options
up to -40℃ without feedback options

Robust valve control device giving a confidence in reliable performance and outstanding durability under harsh working environments

Features

- Easy maintenance
- Precise calibration with simple SPAN and ZERO adjustments
- Simple conversion to direct acting or reverse acting
- 1/2 split range available
- Rugged aluminum housing with corrosion-resistant coating
- Vibration resistant design
- Stainless steel gauges standard
- Restricted pilot valve orifice kit for small actuators included

Options

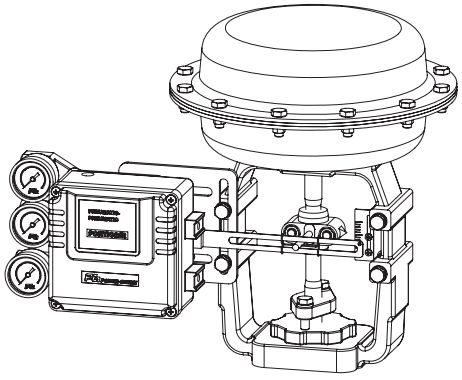
- High temperature

Specifications

	PPL	
	Linear Type (Lever Feedback)	
	Single	Double
Input Signal	0.2 - 1.0 bar (3 - 15 psi) (Note.1, 2)	
Supply Air Pressure	Max. 7.0 bar (100 psi)	
Standard Stroke	10 - 80 mm (Note.3)	
Pneumatic Connections	PT(Rc) 1/4 or NPT 1/4	
Ambient Temperature	-20 ~ +70℃ (Note. 4)	
Pressure Gauge	Stainless steel	
Output Characteristics	Linear	
Linearity	Within ± 1.0 % F.S	Within ± 1.5 % F.S
Sensitivity	Within ± 0.2 % F.S	Within ± 0.5 % F.S
Hysteresis	Within 1.0 % F.S	
Repeatability	Within ± 0.5 % F.S	
Air Consumption	5 LPM (Sup. 1.4 bar)	
Flow Capacity	80 LPM (Sup. 1.4 bar)	
Body Material	Aluminium die-cast	
Weight	2.1 kg	

Note : 1) 1/2 spilt range is available for 3~9 psi input signal or 9~15 psi input signal
2) Please contact for 6~30 psi input signal
3) Feedback lever can be extended to stroke 80 ~ 150mm
4) High temperature option : up to +120℃

MENU



PPR

Robust valve control device giving a confidence in reliable performance and outstanding durability under harsh working environments

Features

- Easy maintenance
- Precise calibration with simple SPAN and ZERO adjustments
- Simple conversion to direct acting or reverse acting
- 1/2 split range available
- Rugged aluminum housing with corrosion-resistant coating
- Vibration resistant design
- Stainless steel gauges standard
- Restricted pilot valve orifice kit for small actuators included

Options

- Position transmitter (4-20mA output signal)
- 2 x SPDT limit switch
- 2 x P&F proximity sensor NJ2-V3-N
- Visual dome indicator
- High temperature

Specifications

	PPR	
	Rotary Type (Cam Feedback)	
	Single	Double
Input Signal	0.2 - 1.0 bar (3 - 15 psi) (Note.1, 2)	
Supply Air Pressure	Max. 7.0 bar (100 psi)	
Standard Stroke	60 - 100° (Note.3)	
Pneumatic Connections	PT(Rc) 1/4 or NPT 1/4	
Ambient Temperature	-20 ~ +70℃ (Note. 4)	
Pressure Gauge	Stainless steel	
Output Characteristics	Linear	
Linearity	Within ± 1.0 % F.S	Within ± 1.5 % F.S
Sensitivity	Within ± 0.5 % F.S	
Hysteresis	Within 1.0 % F.S	
Repeatability	Within ± 0.5 % F.S	
Air Consumption	5 LPM (Sup. 1.4 bar)	
Flow Capacity	80 LPM (Sup. 1.4 bar)	
Body Material	Aluminium die-cast	
Weight	2.5 kg	

Note : 1) 1/2 spilt range is available for 3~9 psi input signal or 9~15 psi input signal
2) Please contact for 6~30 psi input signal
3) Operating angle can be adjusted to 0~60° or 0~100°
4) High temperature option : up to +120℃ without feedback options
up to +85℃ with feedback options

MENU

With Dome Indicator

IPC

Dynamic valve drive to convert 4-20mA current signal to pneumatic output pressure with state-of-the art piezoelectric technology

Features

- Rugged aluminum die-cast housing
- Precise control performance and high dynamic response
- Simple and easy to set
- Low air consumption due to piezo electric microvalve

Specifications

Model	IPC
Input Signal	4 - 20 mA @ 24 VDC, 2-wire
Output Pressure	Max. 3 bar (45 psi)
Air Supply Pressure	1.4 - 4 bar (20 - 60 psi)
Air Consumption	1.3 ℓ/min = 0.08 N㎥/h = 0.05 scfm
Output Characteristic	Linear to input signal
Action	Direct
Total Error	Max. error ±0.3% of span (linearity + hysteresis + repeatability)
Supply Air	Filtered compressed, dry and non-oiled air (up to 5 micron)
Operating Temperature	-20℃ - +70℃
Protection Class	IP55
Impedance	425Ω@ 20 mA
Mounting Type	Rail (to DIN EN 50022)
Pneumatic Connection	PT(Rc) 1/8
Electrical Connections	PG 9
Body Material	Aluminum die-cast
Weight	820 g

MENU

How to Order

Output Pressure	Required Supply Air	Part Number
0 - 1 bar (0 - 15 psi)	1.5 bar (23 psi)	IPC - 01
0.2 - 1 bar (3 - 15 psi)	1.5 bar (23 psi)	IPC - 21
0.4 - 2 bar (6 - 30 psi)	2.5 bar (38 psi)	IPC - 42
0.2 - 3 bar (3 - 45 psi)	3.5 bar (53 psi)	IPC - 23
Other Pressure		On request

PTP

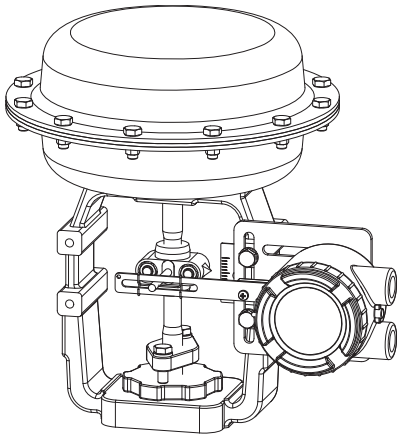
Explosion proof position transmitter for reliable valve position feedback with 4-20mA output signal

Features

- Rugged aluminum die-cast housing
- Optional 2 x SPDT limit switch or 2 x P&F proximity sensor NJ2-V3-N

Specifications

Model	PTP-L	PTP-R
Current Output Signal	4 - 20 mA, 2-wire	
Power Supply Range	12 - 30 VDC (24VDC recommendable)	
Span Adjustable Angle	10° - 45°	0° - 90°
Linearity	Within ± 1.0% F.S.	
Repeatability	Within ± 0.25% F.S.	
Hysteresis	Within 1.0% F.S.	
Operating Ambient Temperature	- 30℃ ~ +75℃	
Explosion Proof Class	Ex d ⅡC T6	
Protection Class	IP66	
Electrical Connections	PF(G) 1/2 or NPT 1/2	
Weight	0.9 kg	



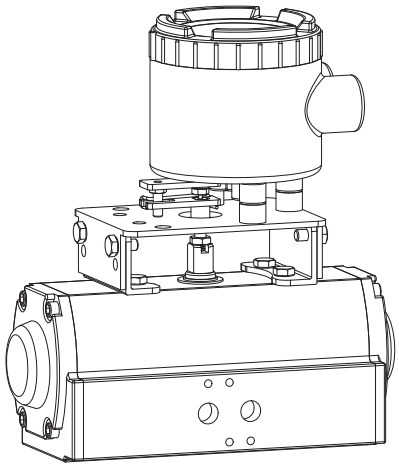
PTP-L Mounting to Globe Control Valve

How to Order

PTP — Operation — Limit Switches | Electrical Connections | Feedback Lever

Description	Code
Operation :	L : Linear type R : Rotary type
Limit Switches:	N : None S : 2 x SPDT mechanical limit switch P : 2 x P&F proximity sensor NJ2-V3-N
Electrical Connections:	1 : PF(G) 1/2 2 : NPT 1/2
Feedback Lever: (only for linear type)	A : Stroke 10 - 40mm B : Stroke 10 - 80mm C : Stroke 80 - 150mm

Ex) PTP-L-S1A (linear type, 2 x SPDT, G 1/2,10-40mm stroke)



PTP-R Mounting to Pneumatic Rotary Actuator

Dependable safety valve to retain a set supply air pressure and guarantee a steady process control when a supply air is suddenly failed by accident and its pressure becomes lower than a set pressure

Specifications

	LU	
	LUS	LUD
Proof Pressure	Max 10 bar (150psi)	
Signal Pressure	1.4 ~ 7 bar	
Line Pressure	Max 7 bar (105psi)	
Flow Capacity (Cv)	0.9	
Operating Temperature	-20℃ ~ +70℃	
Pneumatic Connections	PT(Rc) 1/4 or NPT 1/4	
Hysterisis	Within 0.1 bar	
Body Material	Aluminum die-cast / 316SS	
Weight	0.6 kg	0.8 kg

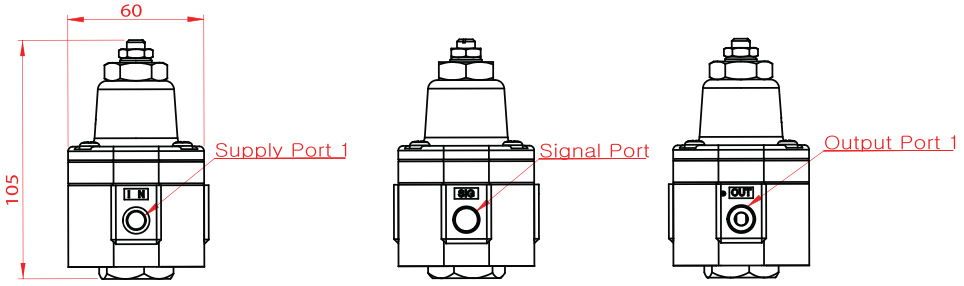
How to Order

LU | Acting Type | — | Pneumatic Connections | Operating Temp. | Body Material

Description	Code
Acting Type :	S : Single acting D : Double acting
Pneumatic Connections :	1 : PT (Rc) 1/4 2 : NPT 1/4
Operating Temperature :	1 : -20 ~ +70℃ (standard) 2 : -20 ~ +120℃ (high temp.) 3 : -40 ~ +70℃ (low temp.)
Body Material :	1 : Aluminum die-cast 2 : Stainless steel 316

Dimensions

< LUS >



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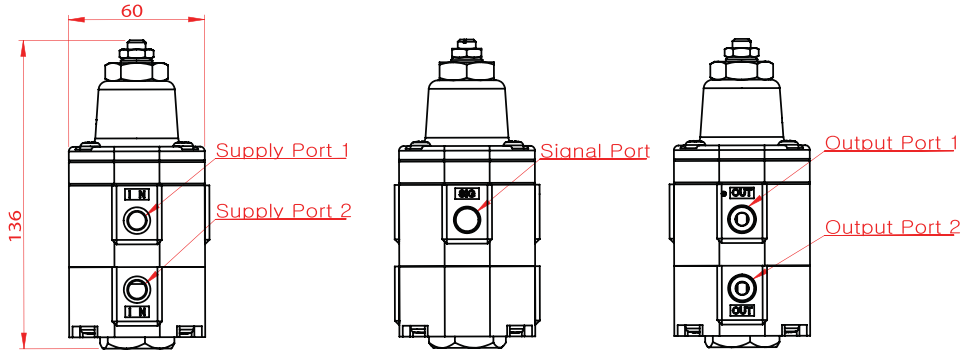


MENU

Snap Acting Relay is the device which is usually used with an air tank, converts an air flow direction and moves the valve to the fail-safe position when the signal air pressure is lower than the set air pressure. Also, it has a fail-freeze function to help the valve stay at the last position on the loss of a supply air pressure.

MENU

Specifications

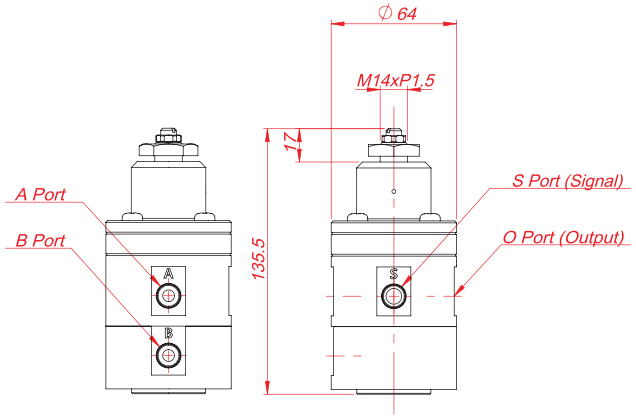
	SAR	
	Single	Double
Proof Pressure	Max 10 bar (150psi)	
Signal Pressure	1.4 ~ 7 bar	
Line Pressure	Max 7 bar (105psi)	
Flow Capacity (Cv)	0.9	
Operating Temperature	-20℃ ~ +70℃ (STD)	
Pneumatic Connections	NPT 1/4	
Hysterisis	Within 0.1 bar	
Body Material	Aluminum / 316SS	
Weight (Aluminum / 316SS)	0.6 kg / 1.2 kg	0.8 kg / 2.5 kg

How to Order

SAR – [Material] [Acting Type] [Operating Temp.]

Description	Code
Material :	10 : Aluminum 11 : 316SS
Acting Type :	0 : Single acting 1 : Double acting
Operating Temperature :	0 : -20 ~ +70℃ (standard) 1 : -20 ~ +120℃ (high temp.) 2 : -40 ~ +70℃ (low temp.)

Dimensions



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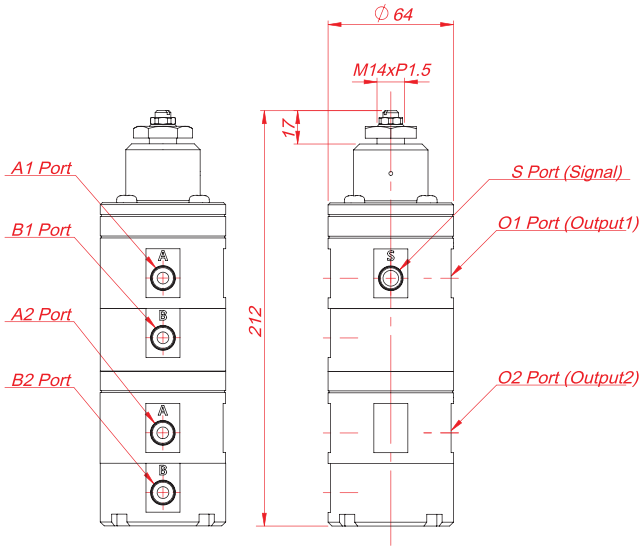


< SAR-Double >

Solenoid Valve
(5/2 way, Cv 0.9)

Explosion proof solenoid valve for a confident control under rough working environments

Features

- Rugged aluminum die-cast housing or Stainless steel 316
- Rotaable valve head for optimal mounting
- Direct NAMUR mounting or screw mounting
- Usable up to SIL3 acc. to IEC 61508
- KC - certified flameproof Ex d IIC T6 / T5
- NEPSI - certified flameproof Ex d IIC T6 / T5
- IECEx - certified flameproof Ex d IIC T6 / T5
- ATEX - certified flameproof Ex d IIC T6 / T5

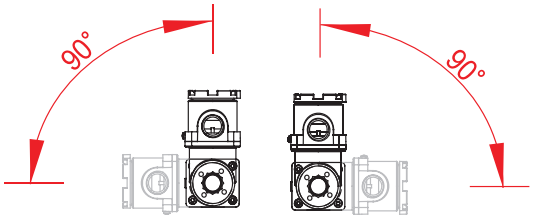
MENU

Specifications

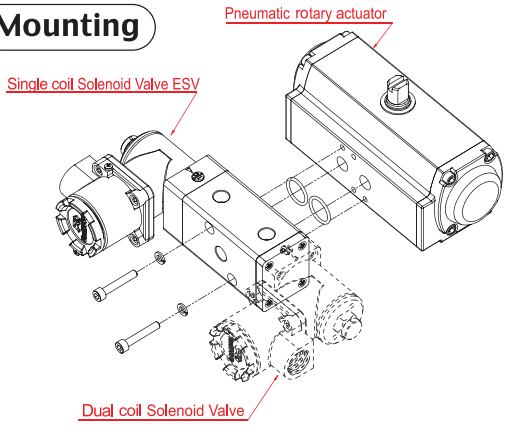
Model	ESV-S	ESV-D
Operating Air Pressure	1.5 - 10 bar	
Air Supply (Max.)	15 bar	
Operating Voltage / Power	AC110V : 6.1VA / AC220V : 3.8VA / DC 24V : 3.4W	
Voltage Tolerance	10%	
Frequency	50Hz / 60Hz	
Explosion Proof Class	Ex d IIC T6 / T5, IP66	
Operating Ambient Temperature	T6 : -30 - +60 T5 : -30 - +80	
Flow Capacity(Cv)	0.9	
Mounting Configuration	NAMUR or screw interface	
Pneumatic Connections	PT(Rc) 1/4 or NPT 1/4	
Electrical Connection	PF(G) 1/2 or NPT 1/2	
Coil Insulation Grade	Class F / Class H	
Operating type	Single coil	Dual coil
Duty Cycle	100%	
Valve body material	Aluminum die-cast or Stainless steel 316	
Coil housing material	Aluminum die-cast or Stainless steel 316	
Weight (Valve body / Coil housing)	Aluminum / Aluminum : 0.9 kg Aluminum / SS316 : 1.9 kg SS316 / SS316 : 2.3 kg	Aluminum / Aluminum : 1.4 kg Aluminum / SS316 : 2.5 kg SS316 / SS316 : 3.3 kg

Rotatable Valve Head

The ESV valve head can be rotated by 90° to the right or to the left for an optimal mounting as shown below



Mounting



Solenoid Valve
(3/2 way, Cv 0.09)

Explosion proof solenoid valve for a confident control under rough working environments

Features

- Rugged aluminum die-cast housing or Stainless steel 316
- Rotaable valve head for optimal mounting
- Screw mounting
- Usable up to SIL3 acc. to IEC 61508
- KC - certified flameproof Ex d IIC T6 / T5
- NEPSI - certified flameproof Ex d IIC T6 / T5
- IECEx - certified flameproof Ex d IIC T6 / T5
- ATEX - certified flameproof Ex d IIC T6 / T5

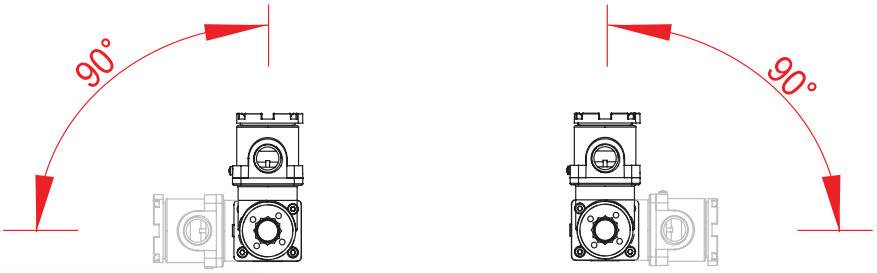
MENU

Specifications

Model	ESV-3	ESV-3S	ESV-3C
Orifice Size (Cv)	Ø 1.6 (0.09)		
Operating Air Pressure	1.5 - 7 bar		
Operating Voltage / Power	AC110V : 9.9VA / AC220V : 9.7VA / DC 24V : 4.8W		
Voltage Tolerance	10%		
Frequency	50Hz / 60Hz		
Explosion Proof Class	Ex d IIC T6 / T5, IP66		
Operating Ambient Temperature	T6 : -30 - +60 T5 : -30 - +80		
Flow Capacity	145 ℓ/min (6 bar)		
Mounting Configuration	Screw interface		
Pneumatic Connections	PT(Rc) 1/4 or NPT 1/4	NPT 1/4	
Electrical Connection	PF(G) 1/2 or NPT 1/2	NPT 1/2	
Coil Insulation Grade	Class F / Class H		
Duty Cycle	100%		
Valve body material	Aluminum	Stainless steel 316	Stainless steel 316
Coil housing material	Aluminum die-cast	Aluminum die-cast	Stainless steel 316
Weight	0.5 kg	0.8 kg	1.2 kg

Rotatable Valve Head

The ESV valve head can be rotated by 90° to the right or to the left for an optimal mounting as shown below



Explosion proof solenoid valve for a confident control under rough working environments

Features

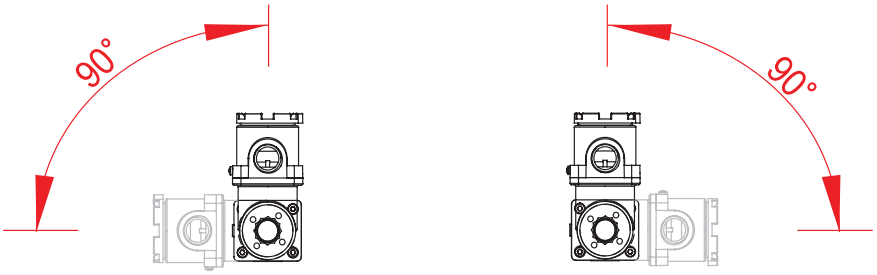
- Rugged aluminum die-cast housing or Stainless steel 316
- Rotaable valve head for optimal mounting
- Screw mounting
- Usable up to SIL3 acc. to IEC 61508
- KC - certified flameproof Ex d IIC T6 / T5
- NEPSI - certified flameproof Ex d IIC T6 / T5
- IECEx - certified flameproof Ex d IIC T6 / T5
- ATEX - certified flameproof Ex d IIC T6 / T5

Specifications

Model	ESV-31	ESV-32
Operating Air Pressure	1.5 - 10 bar	
Air Supply (Max.)	15 bar	
Operating Voltage / Power	AC110V : 6.1VA / AC220V : 3.8VA / DC 24V : 3.4W	
Voltage Tolerance	10%	
Frequency	50Hz / 60Hz	
Explosion Proof Class	Ex d IIC T6 / T5, IP66	
Operating Ambient Temperature	T6 : -30 - +60 T5 : -30 - +80	
Flow Capacity(Cv)	0.9	
Mounting Configuration	Screw interface	
Pneumatic Connections	PT(Rc) 1/4 or NPT 1/4	
Electrical Connection	PF(G) 1/2 or NPT 1/2	
Coil Insulation Grade	Class F / Class H	
Operating type	Nomally - Closed	Nomally - Open
Duty Cycle	100%	
Valve body material	Aluminum die-cast or Stainless steel 316	
Coil housing material	Aluminum die-cast or Stainless steel 316	
Weight (Valve body / Coil housing)	Aluminum / Aluminum : 0.8 kg Aluminum / SS316 : 1.8 kg SS316 / SS316 : 2.1 kg	

Rotatable Valve Head

The ESV valve head can be rotated by 90° to the right or to the left for an optimal mounting as shown below



MENU

< ESV10-S >

< ESV10-D >

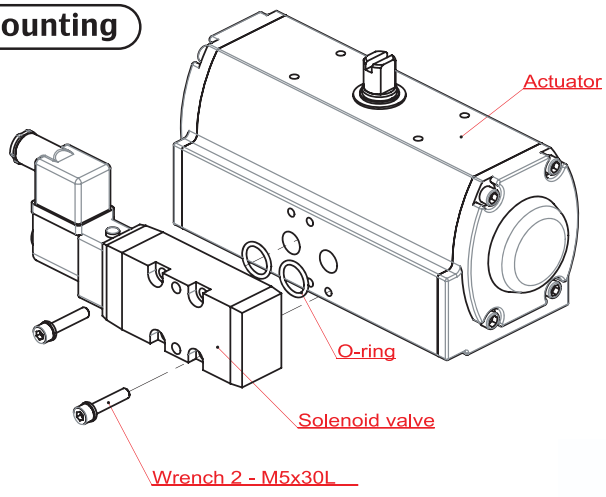
Weatherproof to IP65

- 5 port pilot / no lubrication
- Excellent durability
- Suitable for operation of even large-sized actuators with large effective section area of valve
- Suitable for PLC control system and computerized system due to a low power consumption
- Direct NAMUR mounting type

Specifications

Model		ESV10 - S	ESV10 - D
Fluid		Air, Inert Gas	
Pneumaitc Connections		PT(Rc) 1/4 / NPT 1/4 / PF(G) 1/4	
Electrical Connection(s)		PG9	
Effective Sectional Area(Cv)		31.2 mm^2 (1.7)	
Opeerating Pressure Range		1.5 - 9 bar	
Maximum Operating Frequency		5 cycle / sec.	
Operating (Response) Time		Less than 30ms	
Lubrication		Non-lubricant (if necessary, turbine oil ISO VG32 or equivalent recommended)	
Manual Operation		Non-lock push type	
Power Consumption	DC	2.8 W	
	AC	4.5 / 3.6VA (50 / 60Hz)	
Voltage Fluctuation Tolerance		± 10% of applicable voltage	
Operating Temperature		+5℃ - +60℃	
Coil Insulation Class		Class F	
Protection Class		IP65	
Applicable Cylinder Size for Reference		Ø32 - Ø125	
Weight		330g	410g

Mounting



MENU

Air Filter Regulator
(with 1/4 ports)

Valve air unit essential to provide clean and dry supply air to valve positioners, solenoid valves and pneumatic actuators

Features

- Rugged aluminum die-cast or stainless steel 316 housing
- Excellent stability and repeatability
- Outstanding sensitivity with precise setting
- High capacity with 5 micron filter
- Self-relief function to balance output and settnig pressures
- High flow capacity
- Optional auto-drain (float type)

Specifications

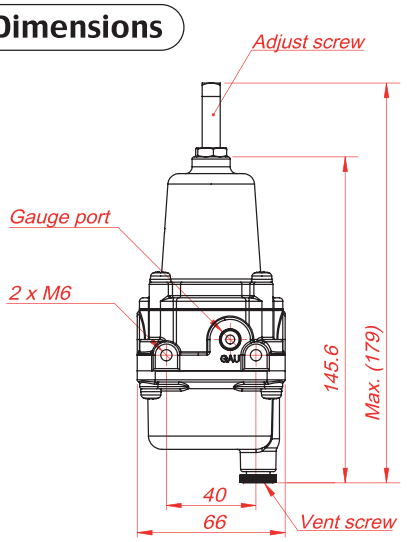
Model	FR-20	FR-21
Port Size	PT(Rc) 1/4 or NPT 1/4	NPT 1/4
Fluid	Air	
Output Pressure Range	0 - 4 bar (60 psi) / 0 - 8 bar (120 psi)	
Max. Supply Pressure	15 bar (225 psi)	
Operating and Fluid Temperature	-20℃ to +70℃	
Supply Air	Filtered compressed, dry and non oiled air (up to 5 micron)	
Gauge Port Size	PT(Rc) 1/8	
Filteration	5 micon	
Housing Material	Aluminum die-cast	Stainless steel 316
Pressure Gauge Material	Stainless steel	
Weight	0.65 kg	1.4 kg

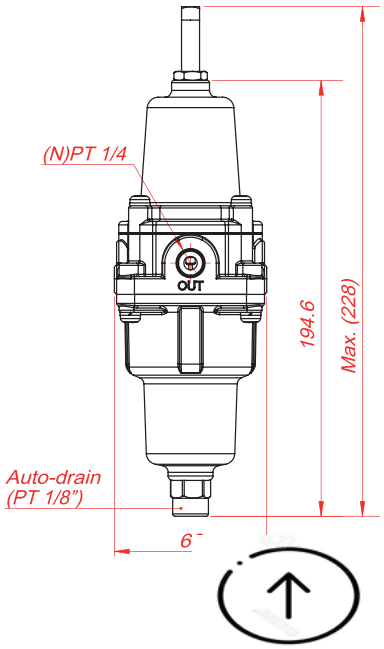
How to Order

FR | Body Material | - | Port Size | Output Pressure Range | Operating Temp. | - | Options

Description	Code	
Body Material	20 : Aluminum die-cast 21 : Stainless steel 316	
Port Size	R : PT(Rc) 1/4	N : NPT 1/4
Output Pressure Range	1 : 0 - 4 bar (60 psi)	2 : 0 - 8 bar (120 psi)
Operating Temperature	0 : -20 - +70℃ 2 : -40 - +80 ℃	1 : -20 - +120℃
Options	M : Manual drain	A : Auto drain

Dimensions





Air Filter Regulator
(with 1/2 or 3/4 ports)

MENU

Valve air unit essential to provide clean and dry supply air to valve positioners, solenoid valves and pneumatic actuators

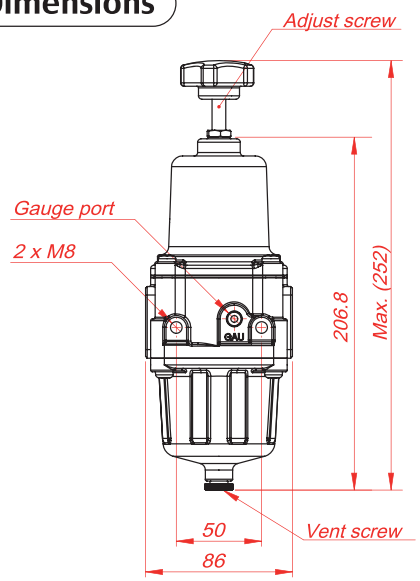
Features

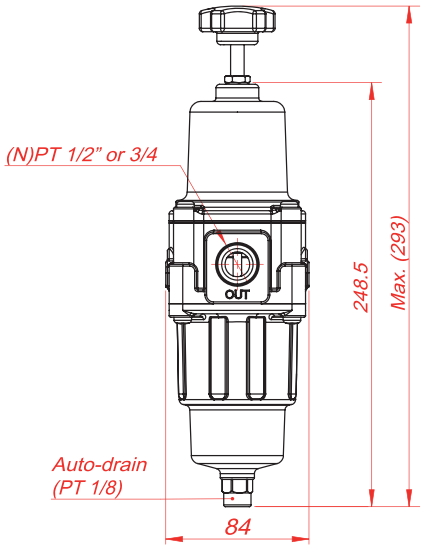
- Rugged aluminum die-cast or stainless steel 316 housing
- Excellent stability and repeatability
- Outstanding sensitivity with precise setting
- High capacity with 5 micron filter
- Self-relief function to balance output and settnig pressures
- High flow capacity
- Optional auto-drain (float type)

Specifications

Model	FR-30	FR-31
Port Size	PT(Rc) 1/2, NPT 1/2 PT(Rc) 3/4, NPT 3/4	NPT 1/2 NPT 3/4
Fluid	Air	
Output Pressure Range	0 - 4 bar (60 psi) / 0 - 8 bar (120 psi)	
Max. Supply Pressure	15 bar (225 psi)	
Operating Temperature	-20℃ to +70℃	
Supply Air	Filtered compressed, dry and non oiled air (up to 5 micron)	
Gauge Port Size	PT(Rc) 1/8	
Filteration	5 micon	
Housing Material	Aluminum die-cast	Stainless steel 316
Pressure Gauge Material	Stainless steel	
Weight	1.6 kg	3.4 kg

Dimensions





How to Order

FR | Body Material | - | Port Size | Output Pressure Range | Operating Temp. | - | Options

Description	Code	
Body Material	30 : Aluminum die-cast	
	31 : Stainless steel 316	
Port Size	1 : PT (Rc) 1/2	2 : NPT 1/2
	3 : PT (Rc) 3/4	4 : NPT 3/4
Output Pressure Range	1 : 0 - 4 bar (60 psi)	2 : 0 - 8 bar (120 psi)
Operating Temperature	0 : -20 - +70℃	1 : -20 - +120℃
	2 : -40 - +80℃	
Options	M : Manual drain	A : Auto drain

Air Volume Booster
(with 1/4 or 3/8 ports)

< AVB-1000 > CE Ex II2 G/D

The AVB-1000 series is mounted between the positioner and actuator. It provides the actuator with a high air flow output whose pressure corresponds exactly to the signal pressure

Features

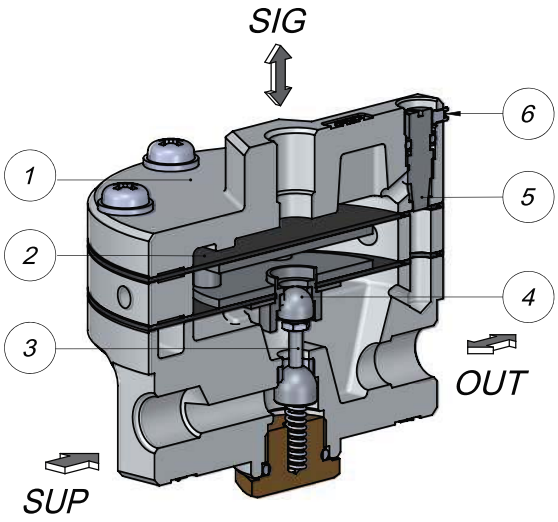
- Delivers high air volume to actuator rapidly
- Tunes a unit response to eliminate an actuator overshoot or overdamping
- Provides a tight shut off to reduce a costly air consumption
- Optional 1/4 or 3/8, PT or NPT supply and output ports

< AVB-1100 > CE Ex II2 G/D

Options

- High temperature : -20℃ - +120℃
- Low temperature : -40℃ - +80℃

MENU



< Sectional View of AVB-1000 >

How to Order

AVB - 1 | Body Material | Port Size | Operating Temp.

Description	Code
Body Material :	0 : Aluminum die-cast 1 : Stainless steel 316
Port Size :	0 : PT (Rc) 1/4 1 : NPT 1/4 2 : PT (Rc) 3/8 3 : NPT 3/8
Operating Temperature :	0 : -20 ~ +80℃ (standard) 1 : -20 ~ +120℃ (high temp.) 2 : -40 ~ +80℃ (low temp.)

No.	Description	AVB-1000	AVB-1100
1	Body	ALDC 12.1	SS316
2	Diaphragm	N.B.R	N.B.R
3	Inet valve	SS304	SS316
4	Exhaust valve	SS304	SS316
5	Adjusting screw	SS304	SS316
6	Lock screw	SS304	SS316

< AVB-2000 > CE Ex II2 G/D

< AVB-2100 > CE Ex II2 G/D

The AVB-2000 series is the heavy-duty volume booster relays with bigger ports and a more flow capacity to help a large actuator move faster by converting a low flow control signal to the higher flow

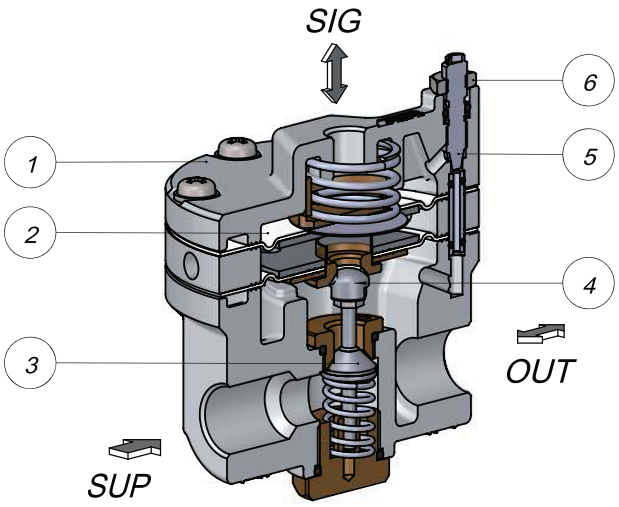
Features

- Delivers a high air volume for a fast actuator movement
- Tunes a unit response to eliminate an actuator overshoot or overdamping
- Provides a tight shut off to reduce a costly air consumption
- Available in aluminum or stainless steel 316
- Exhaust filters are installed for prevention of contamination by foreign substances from outside

Options

- NPT 1/2 threaded exhaust ports
- Supply pressure gauge port
- High temperature : -20℃ - +120℃
- Low temperature : -40℃ - +80℃

MENU



< Sectional View of AVB-2000 >

How to Order

AVB - 2 [Body Material] [Port Size] [Operating Temp.] - [Options]

Description	Code
Body Material :	0 : Aluminum die-cast 1 : Stainless steel 316
Port Size :	0 : PT (Rc) 1/2 1 : NPT 1/2
Operating Temperature :	0 : -20 ~ +80℃ (standard) 1 : -20 ~ +120℃ (high temp.) 2 : -40 ~ +80℃ (low temp.)
Options :	N : None A : Supply pressure gauge port B : NPT 1/2 threaded exhaust port C : A + B

No.	Description	AVB-2000	AVB-2100
1	Body	ALDC 12.1	SS316
2	Diaphragm	N.B.R	N.B.R
3	Inet valve	SS304	SS316
4	Exhaust valve	SS304	SS316
5	Adjusting screw	SS304	SS316
6	Lock nut	SS304	SS316

< AVB-3000 > CE Ex II2 G/D

< AVB-3100 > CE Ex II2 G/D

The AVB-3000 series is the heavy-duty volume booster relays with bigger ports and a more flow capacity to help a large actuator move faster by converting a low flow control signal to the higher flow

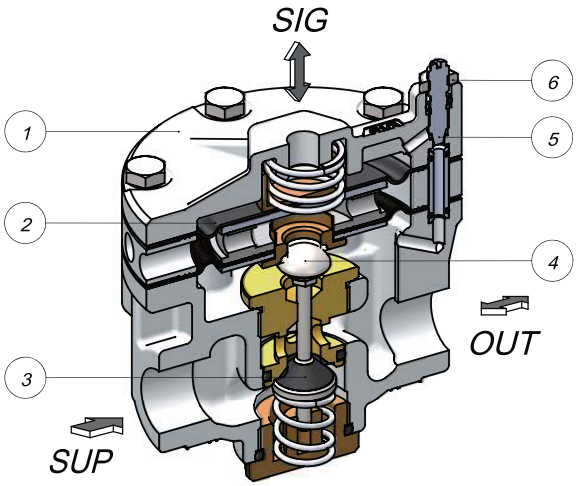
Features

- Delivers a high air volume for a fast actuator movement
- Tunes a unit response to eliminate an actuator overshoot or overdamping
- Provides a tight shut off to reduce a costly air consumption
- Available in aluminum or stainless steel 316
- Exhaust filters are installed for prevention of contamination by foreign substances from outside

Options

- NPT 1/2 threaded exhaust ports
- Supply pressure gauge port
- High temperature : -20℃ - +120℃
- Low temperature : -40℃ - +80℃

MENU



< Sectional View of AVB-3000 >

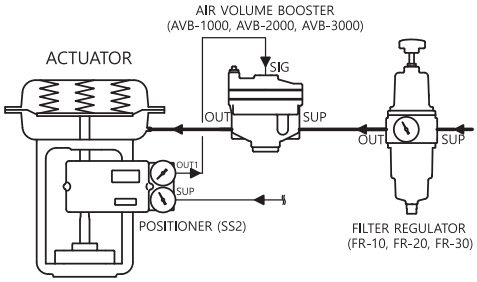
How to Order

AVB - 3 | Body Material | Port Size | Operating Temp. | - | Options

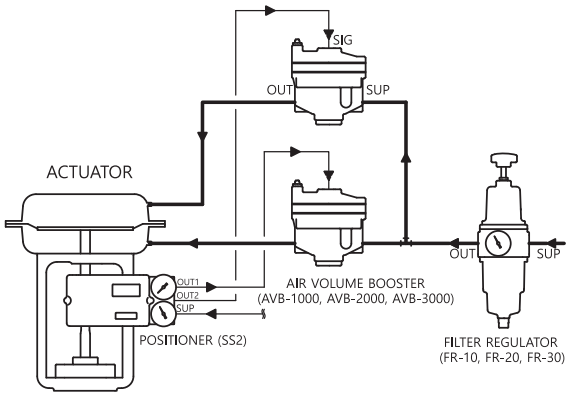
Description	Code
Body Material :	0 : Aluminum die-cast 1 : Stainless steel 316
Port Size :	0 : PT (Rc) 3/4 1 : NPT 3/4
Operating Temperature :	0 : -20 ~ +80℃ (standard) 1 : -20 ~ +120℃ (high temp.) 2 : -40 ~ +80℃ (low temp.)
Options :	N : None A : Supply pressure gauge port B : NPT 1/2 threaded exhaust port C : A + B

No.	Description	AVB-3000	AVB-3100
1	Body	ALDC 12.1	SS316
2	Diaphragm	N.B.R	N.B.R
3	Inet valve	SS304	SS316
4	Exhaust valve	SS304	SS316
5	Adjusting screw	SS304	SS316
6	Lock nut	SS304	SS316

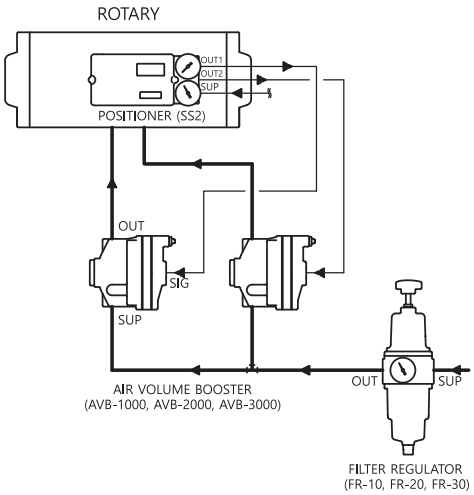
Applications



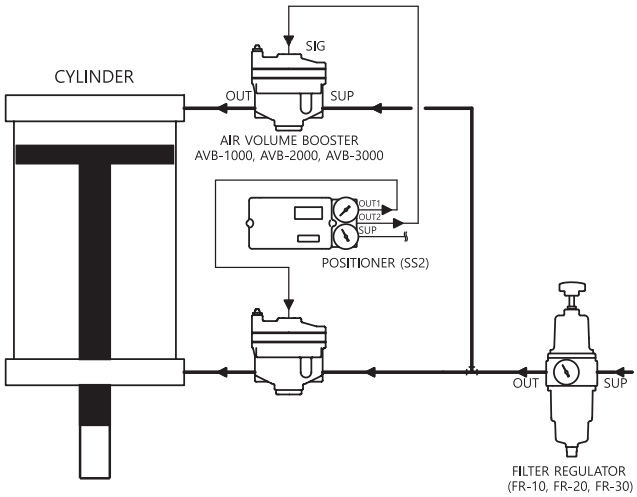
SINGLE ACTING



DOUBLE ACTING



ROTARY ACTUATOR



CYLINDER ACTUATOR

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POWER-GENEX®

LSB Series

Valve Position Monitor

All innovation
on driving your valve automation

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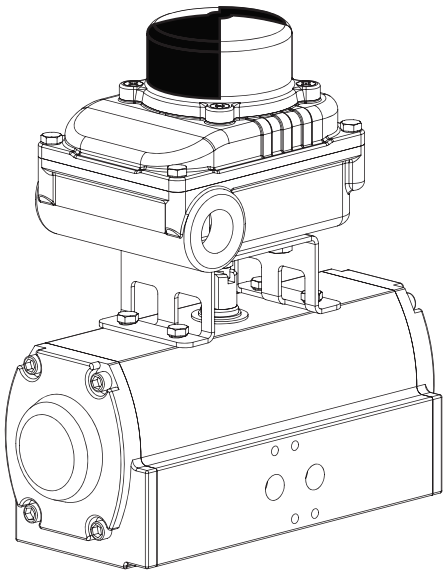
MENU

Robust valve position monitor with a good recognizable beacon, various switches and feedback options

Features

- Weatherproof to IP66 & 67 (optionally IP68)
- Rugged aluminum die-cast housing
- Various switches and sensors (available with Honeywell / P&F)
- NAMUR mounting shaft or fork lever shaft adjustable for a non-NAMUR pneumatic actuator



Options

- 2 x SPDT mechanical limit switch
- 4 x SPDT mechanical limit switch
- 2 x P&F proximity sensor

MENU

Specifications

Model	LSB-1000
Protection Class	IP66 & 67 (optionally IP68)
Switches / Sensors	See page 5
Operating Temperature	- 40 ~ +100℃ (-40 ~ +212°F)
Electrical Connections	PF 1/2, NPT 1/2, M20 x 1.5, PG13.5
Body Material / Painting	Aluminum die-cast / powdered-coating
Weight	0.8 kg

< 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 stanless 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

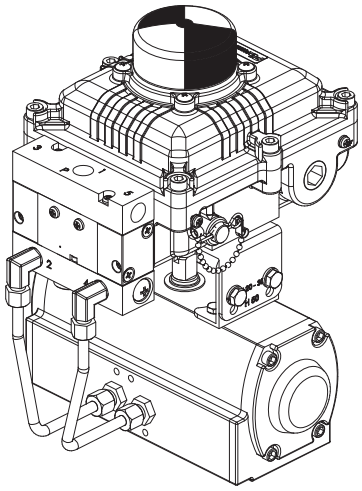
- 4 x SPDT mechanical limit switch
- 4 x P&F proximity sensor
- 4 x Hermetically-sealed magnetic sensor
- 4 - 20mA output position transmitter

MENU

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℃	
	Ambient Temperature: T5 : - 40 ~ +90℃	
	Ambient Temperature: T4 : - 40 ~ +110℃	
Switches / Sensors	See page 5	
Operating Temperature	- 40 ~ +110℃ (- 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

With built-in solenoid valve



Explosion-proof robust valve position monitor with built-in solenoid and more feedback options and designed to provide an outstanding performance under harsh working environments

Features

- Flameproof ATEX / IECEx / TR-CU / KC Ex d IIB+H_2 T6
- Rugged aluminum die-cast or stainless steel housing
- Compact single unit with built-in solenoid valve
- More economical in costs and simple wiring to a single unit comparison with separate installations of explosion proof limit switches and explosion proof solenoid valve
- Auto / Manual button easy to convert
- 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
- 2 x Hermetically-sealed magnetic sensor
- 4 - 20mA output position transmitter

MENU

Specifications

Model	LSB-7000	LSB-7100	LSB-7200
Explosion proof / Protection Class	ATEX / IECEx / TR-CU / KC - Ex d IIB+H_2 - IP66&67		
Operating Air Pressure	1.5 ~ 10 bar		
Air Supply Pressure	Max. 10 bar		
Mechanical Switches/Proximity Sensors	See page 5		
Operating Voltage of Solenoid Valve	24 VDC / 48 VDC / 110 VAC / 220 VAC		
Manual Override of Solenoid Valve	Push button type		
Response Time of Solenoid Valve	25 ms		
Coil Insulation Class	Class F		
Operating Temperature	-30 ~ +75℃		
Pneumatic Connections	PT(Rc) 1/4, NPT 1/4		NTP 1/4
Electrical Connections	PT 1, NPT 1 PT 3/4, NPT 3/4, PF 1/2, NPT 1/2		NPT 1, NPT 3/4, NPT 1/2
Body Material	Aluminum die-cast		Stainless steel 316
Solenoid Valve Body Material	Aluminum die-cast	Stainless steel 316	
Weight	2.5 kg	3.5 kg	5.8 kg

Specifications of Switches / Sensors

Mechanical Switches

< SPDT Mechanical Switch - GSM >

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℃

< SPDT Mechanical Switch - V7/V15 >

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℃

< DPDT Mechanical Switch - 22104 >

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℃

Proximity Sensors

Part Number / Maker	NJ2-V3-N / P&F
Switching element function	NAMUR NC
Nominal Ratings	
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℃

Part Number / Maker	NJ2(4)-12GK-SN / P&F
Switching element function	NAMUR NC
Nominal Ratings	
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℃

MENU

Magnetic Proximity Sensors

Part Number / Maker	MS Series / Power-genex
Switch type	SPDT (Form C)
Contacts	Rhoduim / 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℃

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 ℃

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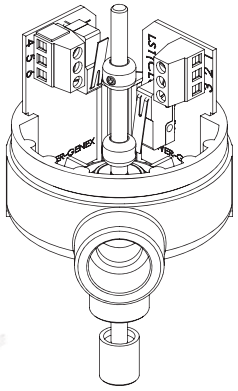
Linear valve position monitor

Features

- Weatherproof to IP66
- Easy to mount and compact for angle seat valve or diaphgram valve

Specifications

	LSB-2000
Protection Class	IP66
Specifcations of Switches	2 x SPDT (250 VAC @ 10.1A)
Linear Operating Stroke	8 ~ 30mm
Operating Temperature	-20 ~ +60℃ (-4 ~ +140°F)
Electrical connections	PF 1/2
Body material	PA
Weight	0.5 kg

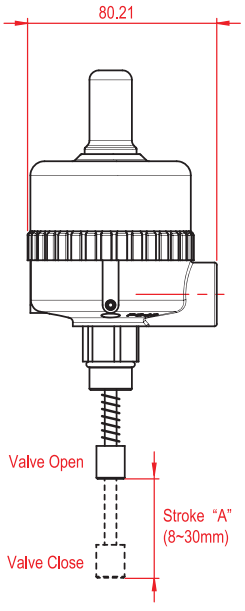


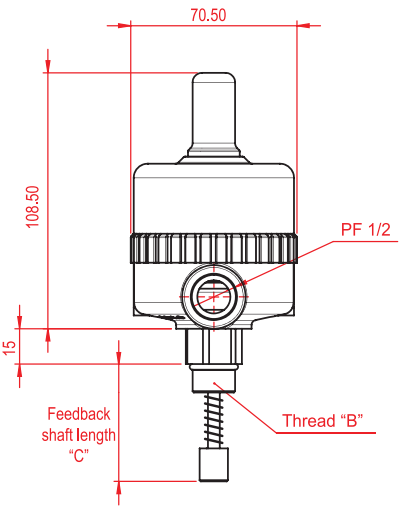
MENU

How to Order

LSB-2000 - Stroke "A" - Mounting Threads "B" - Feedback Shaft Length "C"

Description	Code
Stroke (A) :	On request (8mm ~ 30mm)
Mounting Threads (B):	On request (Ex. M30 x 2.0)
Feedback Shaft Length (C):	On request





< SPDT Mechanical Switch - OMRON >

Technical Data	
Switch type	SPDT (Form C)
Contacts	Silver-plated
Approvals	UL, CSA
Electrical Rating	10.1 Amps / 250 VAC
Operating Temp.	-25 ~ +85℃

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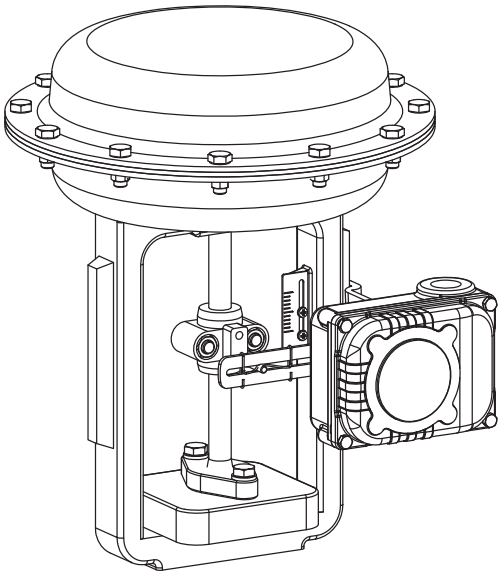

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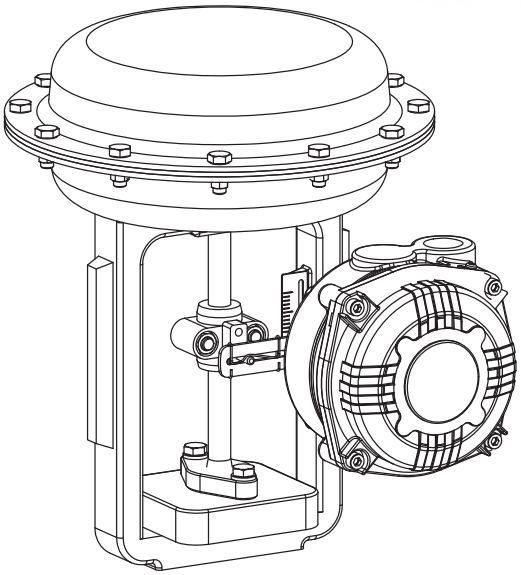

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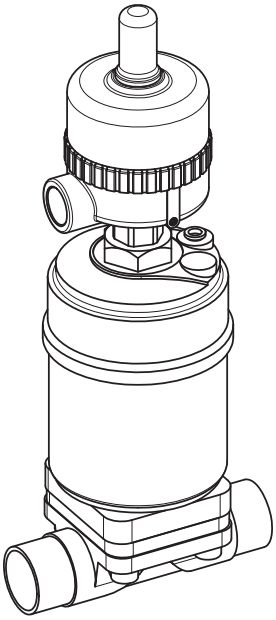
MENU



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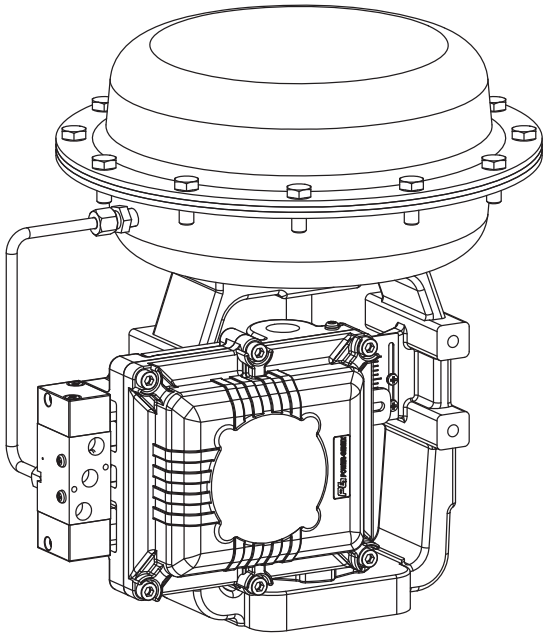

< Linear type - LSB-7000 >

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