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SP8-10
Smart Positioner

Description

The SP8-10 is an electronically configurable positioner with communication capabilities designed for mounting on pneumatic linear or rotary actuators. It features a small and compact design, a modular construction, and an excellent cost-performance ratio. Fully automatic determination of the control parameters and adaptation to the positioner allow for considerable time savings as well as optimum control behavior.

An I/P module with subsequent pneumatic amplifier is used to control the pneumatic actuator. The well-proven I/P module proportionally converts the permanent electrical set point signal from the CPU into a pneumatic signal used to adjust a 3/3-way valve. Dosing of the air flow for pressurizing or depressurizing the actuator is continuously adjusted. As a result, excellent control results are achieved. When reaching the set point, the 3/3-way valve is closed in centre position to minimize the air consumption. The pneumatic system can be supplied in four versions: for single acting and double acting actuators and each with the 'fail-safe' / 'fail-freeze' safety function.

In addition to its input for the analogue position set point, the positioner is equipped with a digital input which can be used to activate control system functions in the device. A digital output allows you to output collective messages (alarms / faults).

Applications

The SP8-10 can be used with any actuator that conforms to NAMUR, this includes all of the following Spirax Sarco pneumatic actuators:

BVA300 rotary

PN1600 series

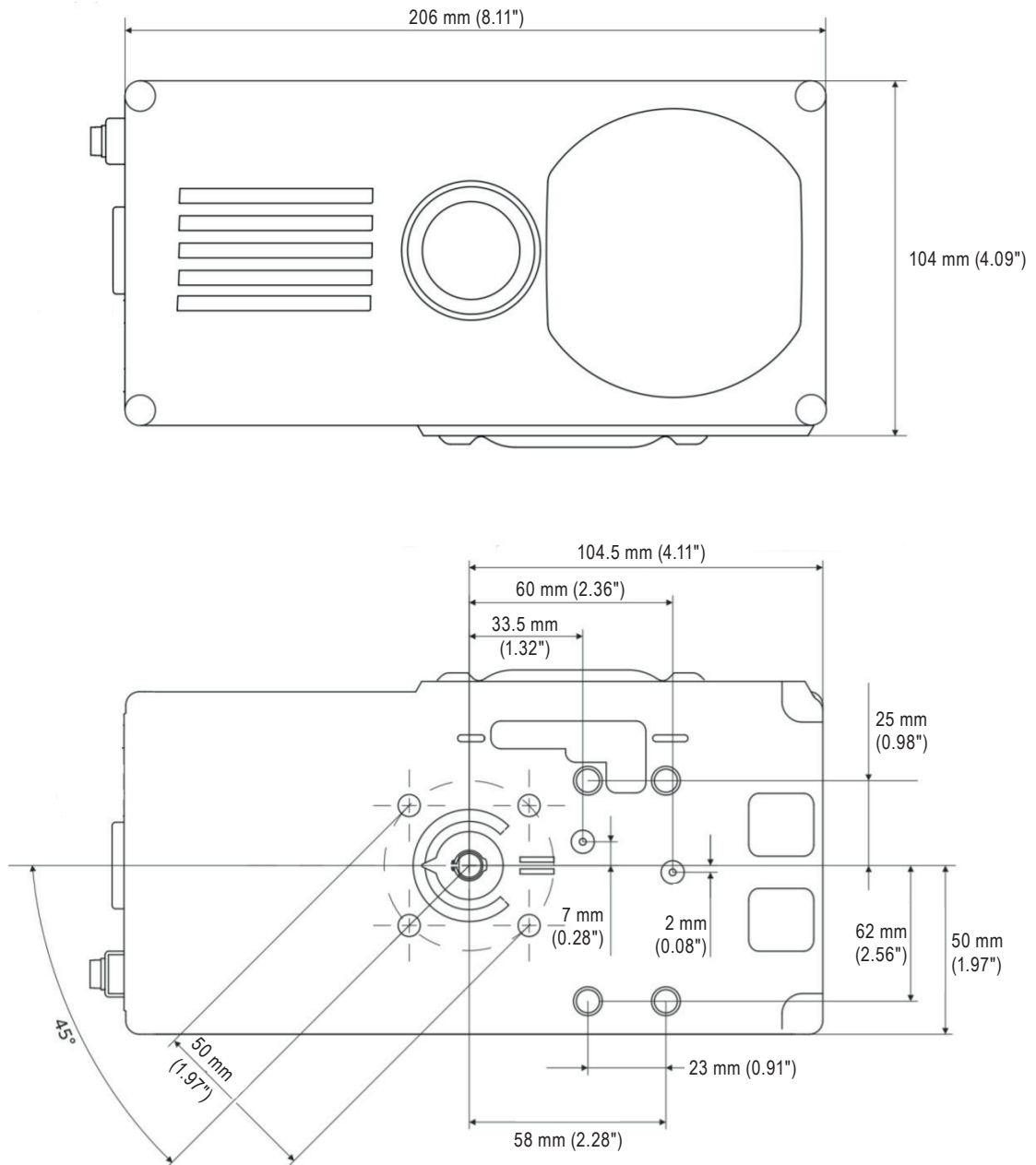**PNS3000** and **PNS4000 series**

PN9000 series

TN2000 series

Materials

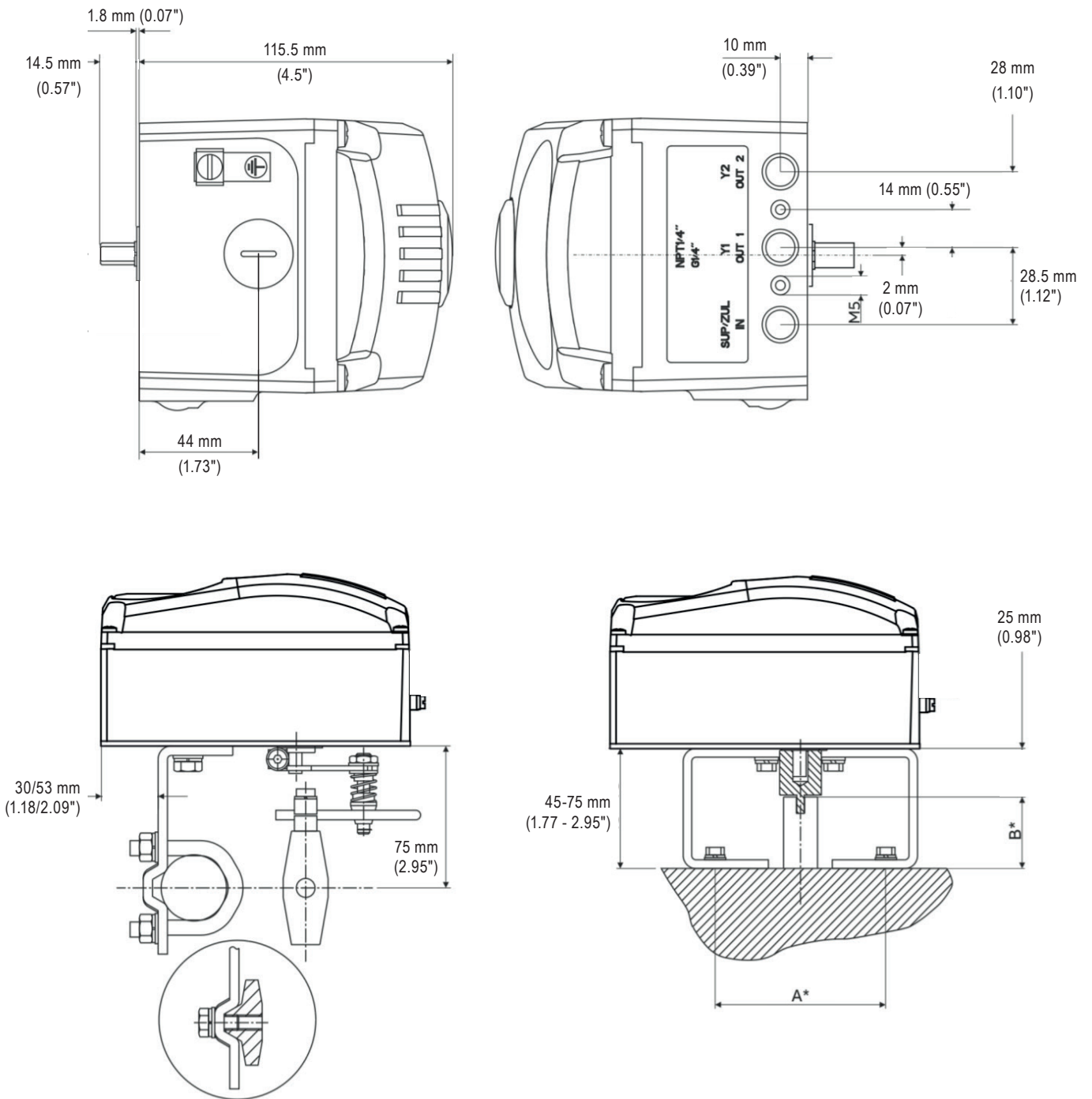| Part	Material	Finish
Case and cover	Die cast aluminium	Case - Anti-corrosive paint, Black
		Cover - Anti-corrosive paint to RAL9016
Mouting kits	Stainless steel	-
Follower pin cone	Nylon	-

E X P E R T I S E | S O L U T I O N S | S U S T A I N A B I L I T Y

Technical data

Input signal range	4-20 mA (split range minimum amplitude 8 mA)
Impedance	485 ohms at 20mA
Output pressure	0 to 10 bar (0 to 145 psi)
Actuator stroke	Min. and max. limits, freely configurable in range 0 to 100 %
Action	Single acting/fail vent/Double acting
Operating temperature	−40 to 85 °C
Air connections	¼" NPT female
Deviation	≤ 0.5 %
Tolerance band	0.3 to 10 %, adjustable
Configurable dead zone	0.1 to 10 %, adjustable
Resolution (AD-conversion)	> 16,000 steps
Sampling frequency	20 ms
Ambient temperature effect	≤ 0.5 % per 10 K
Reference temperature	20 °C
Influence of vibration	≤ 1 % to 10 g and 80 Hz
Degree of protection	IP65
Weight	Linear mounting kit - 0.78 kg
	Rotary mounting kit - 0.4 kg

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Dimensions (approximate) in mm (and inches)

206 mm (8.11")

104 mm (4.09")

104.5 mm (4.11")

60 mm (2.36")

33.5 mm (1.32")

25 mm (0.98")

7 mm (0.28")

2 mm (0.08")

62 mm (2.56")

50 mm (1.97")

45°

50 mm (1.97")

23 mm (0.91")

58 mm (2.28")

Dimensions (approximate) in mm (and inches)

1.8 mm (0.07")
14.5 mm (0.57")
115.5 mm (4.5")
44 mm (1.73")

10 mm (0.39")
28 mm (1.10")
14 mm (0.55")
28.5 mm (1.12")
2 mm (0.07")
M5

Y2 OUT 2
Y1 OUT 1
NPT¼" G¼"
SUP/ZUL IN

30/53 mm (1.18/2.09")
75 mm (2.95")

25 mm (0.98")
45-75 mm (1.77 - 2.95")
B*
A*

Rotary positioner mounting kits

Actuator mounting dimensions	Spirax kit nomenclature
80/20 mm	AKR13
80/30 mm	AKR14
130/30 mm	AKR15
130/50 mm	AKR16

For BVA actuators the AKR14 mounting kit is required.

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Positioner options for SP8-10

Standard	**Explosion Protection Certification**	Without	Y0
		ATEX II 1G Ex ia IIC / II 1D Ex ia IIIC	A1
		ATEX II 3G Ex nA IIC	B2
		ATEX II 2D Ex tb IIIC	B3
		FM / CSA Intrinsically Safe Class I, II, III Div. 1 Groups A, B, C, D, E, F, G	F1
		IECEx Ex ia IIC Ga / Ex ia IIIC Da	M1
		IECEx Ex nA IIC Gc	N2
		IECEx Ex tb IIIC Db	N3
		NEPSI - EX ia II C T4/T6 Ga	S1
		KOSHA Korea - Ex ia II C T6	S5
		UKCA Ex ia IIC Ga / Ex ia IIIC Da	U1
		UKCA Ex nA IIC Gc	U2
		UKCA Ex tb IIIC Db	U3
	Input Signal / Communication Port	4 ... 20 mA	A
		HART digital communication and 4 ... 20 mA	H
	Pneumatic Output Type	Single acting	1
		Double acting	2
	Safe Position	Fail-safe	S
		Fail-freeze	F
	Air Pipe Connection	Thread 1/4-18 NPT female (Note: 1)	2
	Cable Conduits	Thread M20 x 1.5 female	C
		Thread NPT 1/2 in. female (Note: 1)	D
Optional	**Option Module Slot 1**	Analogue feedback output	A1
		Digital feedback output	A2
		Analogue universal input	A3
	Option Module Slot 2	Analogue feedback output	B1
		Digital feedback output	B2
		Analogue universal input	B3
		Emergency shutdown module	B4
	Option, Air Power	50kg/h	L5
	Usage Certifications	SIL 2 - Declaration of Conformity (Note: 2)	CS
	CCC Certification	CCC- approval for Ex i	CC
	Position Indicator	Visual Indicator, integrated into cover	D1
	Limit Switches	Microswitches (Note: 3)	F1
		Proximity switches (NC) SJ2-SN (Note: 4)	F2
	Housing Material	Stainless steel	H1
	Position Sensor Type	With integrated (contactless) position sensor	K1
		Control Unit for remote position sensor (Note: 3)	K2

When the stainless steel housing material is selected, gauge blocks will automatically be S/S

Optional	**Special Applications**	EDP300 ON / OFF available from Q2 /2020	P7
		Operation with natural gas (Note: 5)	P8
		Operation with natural gas (Housing Material: Stainless steel) (Note: 5)	P8
		With noise reduction	P9
	Pressure Gauge Block Type	0 ... 1 MPa (0 ... 10 bar, 0 ... 145 psi)	R3
		0 ... 1 MPa (0 ... 10 bar, 0 ... 145 psi) (Housing Material: Stainless steel)	R3
	Diagnosis Module	Pressure sensors	S3
	Additional TAG Plate	Stainless steel 18.5 mm x 65 mm (0.73 in. x 2.5 in.)	T1
		Sticker 11 mm x 25 mm (0.44 in. x 1 in.) (Note: 3)	T3
	Mounting Options	Prepared for integral mounting	V1
	Remote Sensor	Basic unit	RS
		Basic unit (Housing Material: Stainless steel)	RS
	Remote Sensor Temperature Range	Extended ambient temperature range -40 ... 100 °C (-40 ... 212 °F)	RT
	Remote Sensor Vibration Resistance	Advanced vibration range 2 g @ 300 Hz	RV
	Remote Sensor Protection Class	Protection class IP 66	RP
	2Remote Sensor Cable	5 m cable enclosed	R5
		10 m cable enclosed	R6

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Note 1: Needed for FM / CSA certification
Note 2: With single acting, fail safe pneumatic only
Note 3: Not for Ex-versions
Note 4: Not for IECEx-versions
Note 5: Only with Explosion protection

Ordering Code Example: | SP8-10 | Y0 | H | 2 | F | 2 | C |

Safety information, installation and maintenance

Full details are contained in the SP8-10 digital positioner Installation and Maintenance Instructions.

Mounting/linkage kit : Positioner mounting kits will be supplied for central mounting as standard.

Actuator Model	Valve Models	Valve Sizes	Spirax kit Nomenclature
PN9100	Spira-trol two port and QL three port	DN15 to DN50	AKL10
PN9200		DN15 to DN100	AKL10
PN9300		DN15 to DN100	AKL10
PN9400		DN125 to DN300	AKL17
TN2150	Spira-trol two port and QL three port	DN15 to DN100	AKL10
TN2300		DN125 to DN300	AKL17
		DN125 to DN300	AKL17
TN2400	Spira-trol two port and QL three port	DN125 to DN300	AKL17
		DN125 to DN300	AKL17
TN2270		DN125 to DN300	AKL17
		DN125 to DN300	AKL17
PN3000 Sprg Ext	LE, LEA and Steri-trol	DN15 to DN100	AKL10
PN4000 Sprg Ret		DN15 to DN100	AKL10
PN5000	KE, KEA, LE and LEA	DN15 to DN100	AKL10 +UBC
PN6000		DN15 to DN100	AKL10 + UBC
PN5000	QL three port	DN125 to DN200	AKL11 + UBC
PN6000		DN125 to DN200	AKL11 + UBC
PN1600	'C' series	DN65 to DN100	AKL11
PN1600		DN125 to DN200	AKL11
PN1600	Spira-trol	DN125 to DN300	AKL11

Gauge blocks

	Material	Spirax Nomenclature	Weight		Material	Spirax Nomenclature	Weight
1,0 MPa/145 psi NPT¼"	Aluminium	GBS1A	0.28 kg	10 bar/145 psi NPT¼"	Stainless steel	GBS10A	0.28 kg
		GBD1A	0.32 kg			GBD10A	0.32 kg
		GBS1S	0.50 kg			GBS10S	0.50 kg
		GBD1S	0.52 kg			GBD10S	0.52 kg

How to order

Example: 1 off Spirax Sarco SP8-10-Y0H2F2C Smart positioner with AKL10 mounting kit and GBS6A gauge block.
Caution: The SP8-10 positioner must have a high quality air supply to ISO 8573-1:2010 Class 3:3:3.