



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

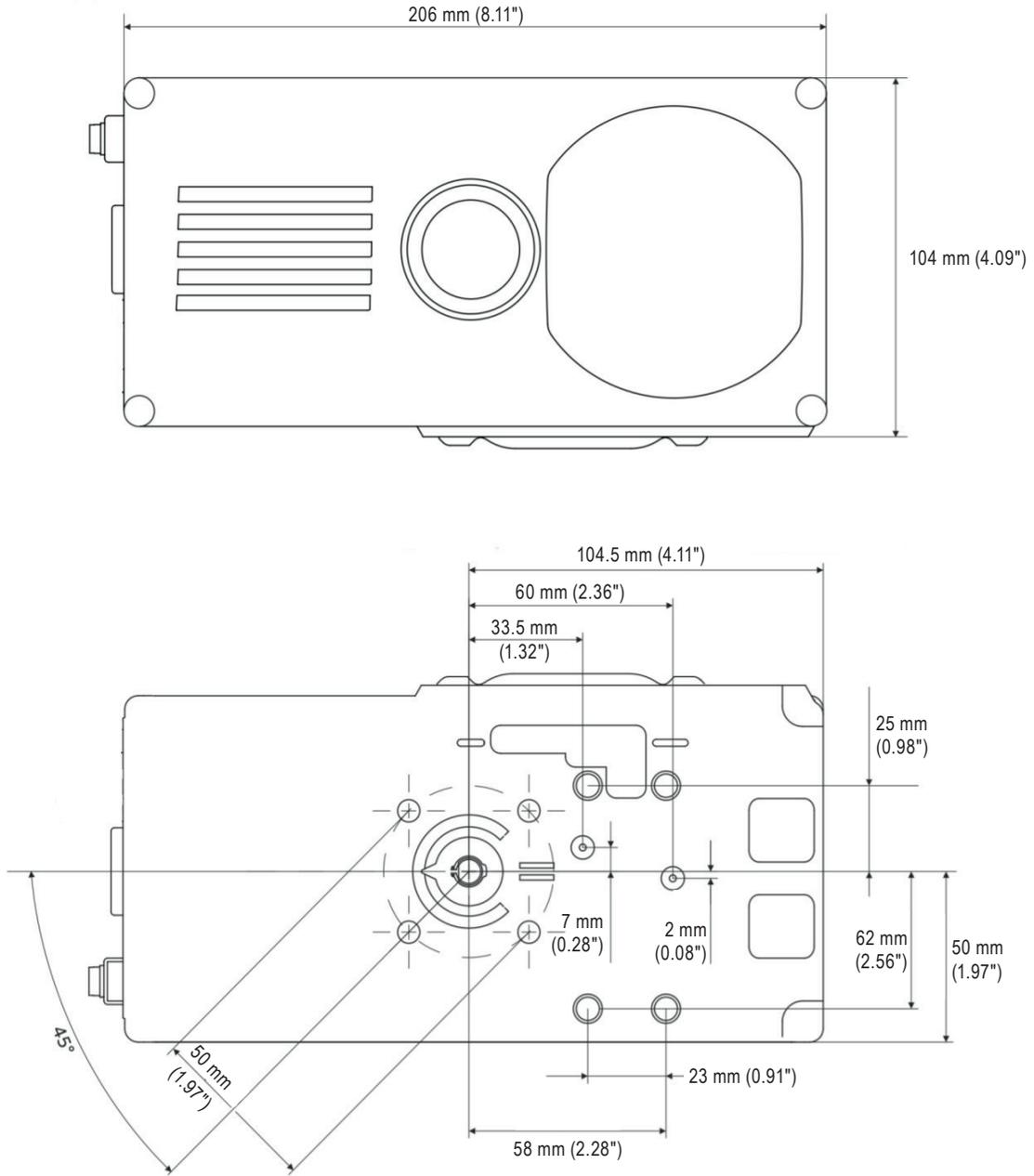
Part	Material	Finish
Case and cover	Die cast aluminium	Case - Anti-corrosive paint, Black Cover - Anti-corrosive paint to RAL9016
Mounting kits	Stainless steel	-
Follower pin cone	Nylon	-

Technical data

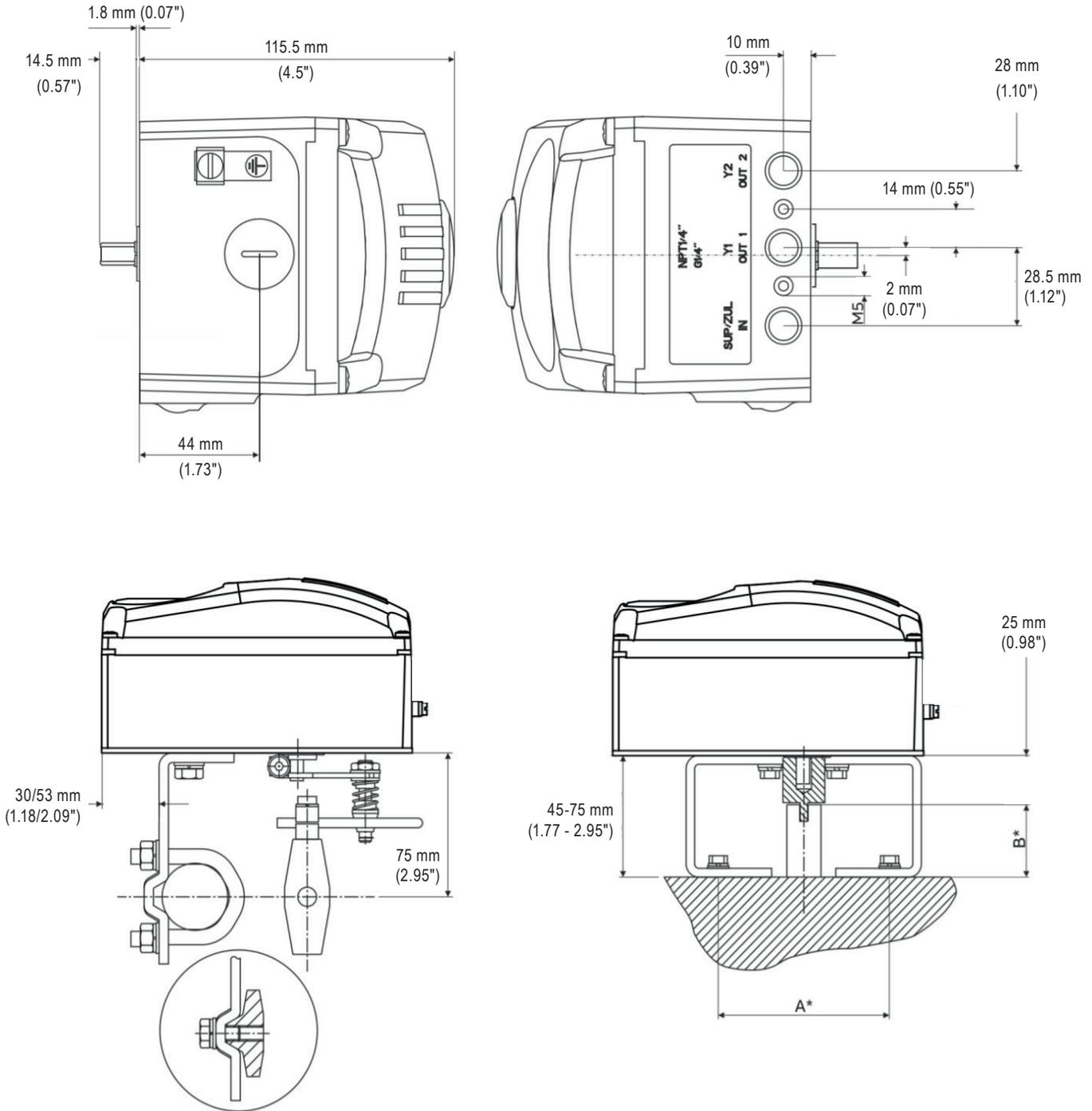
Input signal range	4-20 mA (split range minimum amplitude 8 mA)
Impedance	485 ohms at 20mA
Output pressure	0 to 10 bar (0 to 145 psi)
Actuator stroke	Min. and max. limits, freely configurable in range 0 to 100 %
Action	Single acting/fail vent/Double acting
Operating temperature	-40 to 185 °F
Air connections	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	68 °F
Influence of vibration	≤ 1 % to 10 g and 80 Hz
Degree of protection	IP65
Weight	Linear mounting kit - 1.72 lbs Rotary mounting kit - 0.88 lbs
Air consumption at steady state*	0.015 SCFM

* Independent of air pressure

Dimensions (approximate) in mm (and inches)



Dimensions (approximate) in mm (and inches)



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.

Positioner options for SP8-10

Standard		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		
	Explosion Protection Certification		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	2		
Cable Conduits		Thread M20 x 1.5 female	C		
		Thread NPT 1/2 in. female	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		24 SCFM	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

Positioner options for SP8-10 continued on next page

Positioner options for SP8-10 (continued)

Optional		EDP300 ON / OFF available from Q2 /2020	P7	
	Special Applications		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

SP8-10

- Note 1: Blank
- 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	½" to 2"	AKL11
PN9200		½" to 4"	AKL11
PN9300		½" to 4"	AKL11
PN9400		6" to 12"	AKL17
TN2150	Spira-trol two port and QL three port	½" to 4"	AKL11
TN2300		6" to 12"	AKL17
TN2400	Spira-trol two port and QL three port	6" to 12"	AKL17
		6" to 12"	AKL17
TN2270		6" to 12"	AKL17
		6" to 12"	AKL17
PN3000 Sprg Ext	LE, LEA and Steri-trol	½" to 4"	AKL11
PN4000 Sprg Ret		½" to 4"	AKL11
PN5000	KE, KEA, LE and LEA	½" to 4"	AKL11 + UBC
PN6000		½" to 4"	AKL11 + UBC
PN5000	QL three port	6" to 12"	AKL11 + UBC
PN6000		6" to 12"	AKL11 + UBC
PN1600	'C' series	2½" to 4"	AKL11
PN1600		6" to 12"	AKL11
PN1600	Spira-trol	6" to 12"	AKL11

Gauge blocks

	Material	Spirax Nomenclature	Weight
1,0 MPa/145 psi NPT¼"	Aluminium	GBS1A	0.62 lbs
		GBD1A	0.71 lbs
		GBS1S	1.10 lbs
		GBD1S	1.15 lbs

	Material	Spirax Nomenclature	Weight
10 bar/145 psi NPT¼"	Stainless steel	GBS10A	0.62 lbs
		GBD10A	0.71 lbs
		GBS10S	1.10 lbs
		GBD10S	1.15 lbs

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.