spirax sarco
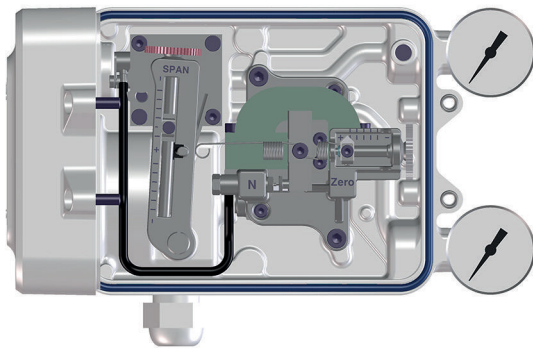
TI-P343-45
CTLS Issue 2

EP500
Advanced
ATEX Electropneumatic Positioner

EP500 with front cover closed

EP500 with front cover opened to display the inside

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Description

With the highest precision the EP500 electropneumatic positioner can control any valve that is actuated by a linear pneumatic actuator that conforms with NAMUR. It guarantees an exact proportionality between the stroke of the valve and the value of the electrical input signal (mA) into the positioner.

Simple construction and high operational reliability make-up this high precision unit which further offers simplicity of maintenance and calibration.

The EP500 has a cast aluminium housing that is also treated for outdoor installation. The unit can be mounted onto pneumatic actuators that have a stroke limit of between 10 and 100 mm.

As standard the unit is supplied with a mounting kit for actuators that have a stroke limit of between 10 to 70 mm; however if specified at the at the time of order placement the unit can be supplied with a kit to facilitate strokes up to 100 mm.

As standard the EP500 is equipped with two gauges to indicate the supply air pressure and the air pressure command sent to the pneumatic actuator.

The flow of the output signal is adjustable by means of a valve damping adjustment screw.

The positioner is supplied for a control signal in mA and for an air supply pressure up to 6 bar.

With simple calibration the positioners can be arranged for sequential operation of two or more pneumatic valves in such a way that the stroke of each valve is obtained by a split-range control signal. For example: 4 to 12 and 12 to 20 mA in the case of two valves; and 4 to 9, 9 to 14 and 14 to 20 mA with three valves, etc..

The EP500 electropneumatic positioner can also be used to reverse the action of the control signal.

<Ex logo>	**ATEX rating**	II2G Ex d mb IIC T6 Gb
		II2D Ex tb mb IIIC T76 °C Db
		II2G Ex ia IIC T6 Gb
		II2D Ex ia IIIC T76 °C Db
	Ex ia circuit parameters	Ui = 30 V, i = 110 mA, Pi = 0.82 W, Li = 0, Ci = 0

Air supply

The EP500 positioner must be provided with a high quality air supply. A Spirax Sarco MPC2 filter regulator with coalescing filter or equivalent must be used. A fixing kit is available to mount the MPC2 filter regulator onto the actuator.

For further product data regarding the MPC2 see Technical Information sheet TI-P054-04.

Applications

The EP500 can be used with any actuator that conforms to NAMUR, this includes all of the following Spirax Sarco pneumatic actuators:

PN1000 and **PN2000 series**

PNS3000 and **PNS4000 series**

PN9000 series

TN2000 series

Materials

Part	Material	Finish
Case and cover	Die cast aluminium	Anti-corrosive paint to RAL9016

First for Steam Solutions

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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

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Control systems
Positioners and controllers

Technical data

Input signal range	4-20 mA (split range minimum amplitude 4 mA)	**Steady state air consumption**	0.1 Nm³/h @ 1.4 bar
Input resistance	292 Ω	**Air connections**	¼" NPT female
Air supply	1.4 to 6.0 bar (regulate 5 to 10 psi above actuator spring range)	**Sensitivity**	≤0.2% F.S. (Full Scale)
Air quality	Air must be free of water, oil and dust	**Histerisis**	≤0.4% F.S.
		Linearity	≤1.0% F.S.
Output pressure	0 to 100% supply pressure	**Repeatability**	≤0.5% F.S
Actuator stroke	10 mm to 100 mm	**Electrical connections**	Cable gland M20 internal terminals for conductors from 0.5 to 2.5 mm² wire
Action	Single acting / fail vent		
Operating temperature	-20 °C to +75 °C	**Degree of protection**	IP65
		Characteristic	Linear
Air flow	3.20 Nm³/h @ 1.4 bar	**Shipping weight**	2.35 kg

Dimensions
(approximate) in mm

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Mounting kit

153 mm
110 mm

211 mm
125.5 mm

OUT ¼" **NPT**

IN ¼" **NPT**
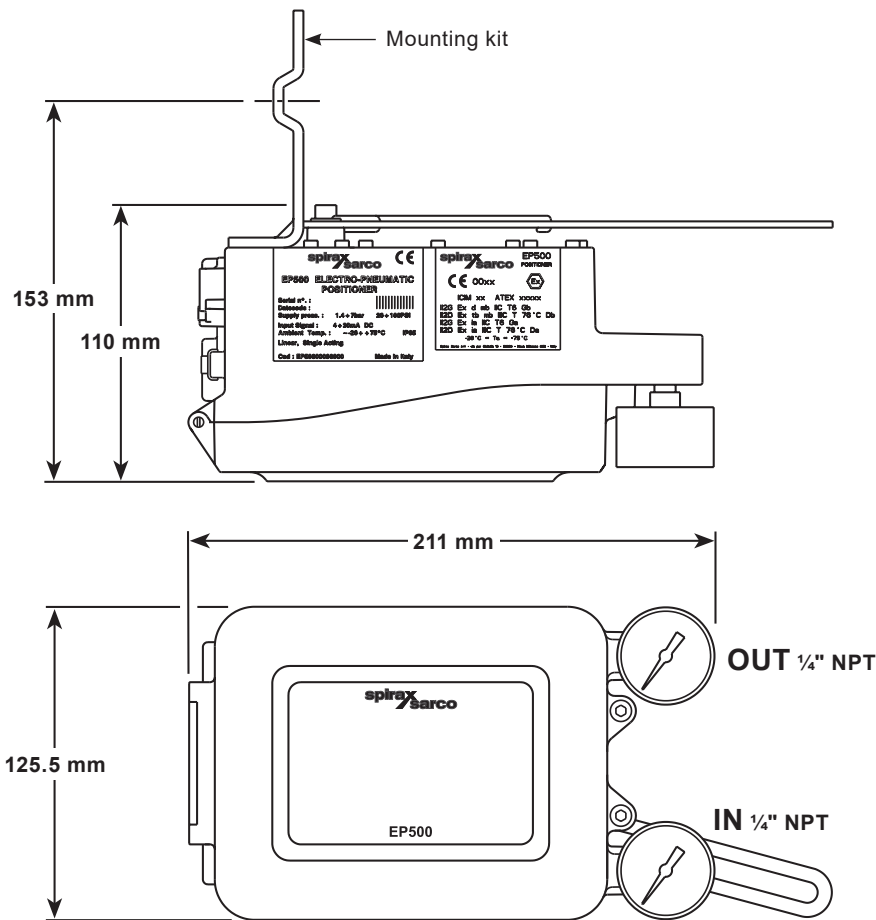
EP500

Safety information, installation and maintenance
Full details are contained in the EP500 electropneumatic positioner Installation and Maintenance Instructions (IM-P343-46) supplied with the product.

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EP500 Advanced ATEX Electropneumatic Positioner

Available spares

Gauges	Full-scale 0 to 2 bar
	Full-scale 0 to 4 bar
	Full-scale 0 to 7 bar

Back plate, gasket and screw

Amplifying relay set

Gasket set

Mounting kit

How to order spares
Always order spares by using the adjacent description and state which unit it is intended for.
For example: 1 off Amplifying relay set for an EP500 standard electropneumatic positioner.

Positioner nomenclature guide

Positioner series	EP500A	= Advanced ATEX electropneumatic positioner	EP500A
Movement / action	1	= Linear, single action for a maximum stroke limit of 70 mm	1
	3	= Linear, single action for a maximum stroke limit of 100 mm	
Enclosure	0	= Standard	0
Approvals	3	= Explosion proof + intrinsic safety	3
Gauges	G2	= Full-scale 2 bar	G4
	G4	= Full-scale 4 bar	
	G7	= Full-scale 7 bar	

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| **Selection example:** | EP500A | 1 | 0 | 3 | G4 |

How to order

Example: 1 off Spirax Sarco EP500A103G4 advanced ATEX electropneumatic linear positioner having a stroke limit of 70 mm supplied equipped with gauges for a full-scale pressure reading of 4 bar.
Caution: The EP500 positioner must have a high quality air supply. A Spirax Sarco MPC2 filter regulator with coalescing filter or equivalent must be used inclusive of fixing kit - See Technical Information sheet TI-P054-04 for further data and How to order.

TI-P703-03
CTLS Issue 4

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EP6
ATEX Electro-pneumatic Positioner

Description
The EP6 Electro-pneumatic positioner can control any valve that is actuated by a linear pneumatic actuator that conforms with NAMUR. It guarantees an exact proportionality between the stroke of the valve and the value of the electrical input signal (mA) into the positioner.

The EP6 has a cast aluminium housing that is also treated for outdoor installation. The unit can be mounted onto pneumatic actuators either rotary 55-90° or linear 20 to 150 mm.
The positioner can be supplied without a mounting kit or with a kit for rotary or linear actuators, the type must be specified when ordering.

As standard the EP6 is equipped with a pressure gauge to indicate air pressure command sent to the pneumatic actuator. The positioner is supplied for a control signal in mA and for an air supply pressure up to 7 bar.

The EP6 positioner can also be used to reverse the action of the control signal.

Air supply
The EP6 positioner must be provided with a high quality air supply to ISO 8573-1:2010 Class 3:3:3.

Applications
The EP6 can be used with any actuator that conforms to NAMUR, this includes all of the following Spirax Sarco pneumatic actuators:

BVA300 rotary

PN1600

PNS3000 and **PNS4000 series**

PN9000 series

TN2000 series

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ATEX rating
Flameproof.
Not intrinsically safe.
II 2G Ex db mb IIB T5 Gb

INMETRO (Brazil)   Ex db mb IIB T5 Gb

CCC
(China)
Ex d mb IIB T5 Gb

UKEX rating
Flameproof.
Not intrinsically safe.
II 2G Ex db mb IIB T5 Gb

Materials

Part	Material	Finish
Case and cover	Die cast aluminium	Anti-corrosive paint to RAL9016
Mounting bracket	Steel	EP protected
Feedback pin	Stainless steel	
Feedback lever	Stainless steel	
Feedback pin locator	Stainless steel	
Screws	Stainless steel	

Technical data

|	
Input signal range	4-20 mA
Impedance	Max 250 +/- 15 Ω
Air supply	1.4 to 7.0 bar (regulate 0.4 to 0.7 bar above actuator spring range)
Air quality	ISO 8573-1:2010 Class 3:3:2
Output pressure	0 to 100% supply pressure
Actuator stroke	20 mm to 150 mm or 55° to 90°
Action	Single acting/fail vent/Double acting
Operating temperature	-20 °C to +60 °C
Air flow	80 LPM @ 1.4 bar
Steady state air consumption	2.5 LPM @ 1.4 bar
Air connections	¼" NPT female
Sensitivity	Single +/- 0.2% F.S. (Full Scale)
	Double +/- 0.5%
Hysteresis	+/- 1% F.S.
Linearity	Single +/- 1%F.S.
	Double +/- 2% F.S.
Repeatability	+/- 0.5% F.S
Electrical connections	Cable gland M20 internal, terminals for conductors from 0.5 to 2.5 mm² wire
Degree of protection	IP66
Characteristic	Linear
Shipping weight	Linear 3.0 kg (positioner only)
	Mounting Kits for Linear EY3 and EY4 - 1.3 kg, UY1,2,3 - 0.9 kg, UBC - 0.2 kg
	Rotary 4.4 kg (Positioner and mounting kit)

Positioner options

Basic model	Aluminium enclosure		EP6
Acting type	Single acting		S
	Double acting		D
	Single Acting + Reduced Orifice Ø 1		A
Mounting type	Linear - See page 4 for Mounting Kit selection		L
	Rotary - Mounting Kit included		R
Hazardous area protection	Safe Area		S
	Flameproof Ex d (UKEX, ATEX, IECEx, KCs)		A
	Flameproof Ex d (CCC, NEPSI, UKEX, ATEX, IECEx)		C
	Flameproof Ex d (INMETRO)		M
Electrical and Air connection	M20 -¼" NPT		1
Non standard features	Standard model		A
	Standard Model + Supply Pressure Gauge		B
	High temp model		H
	High temp model + Supply Pressure Gauge		K

Ordering Code Example:

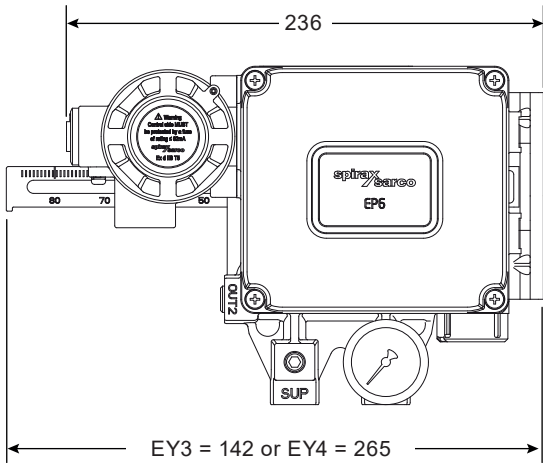| EP6	S	L	A	1	-	A

Safety information, installation and maintenance

Full details are contained in the EP6 Electro-pneumatic positioner Installation and Maintenance Instructions.
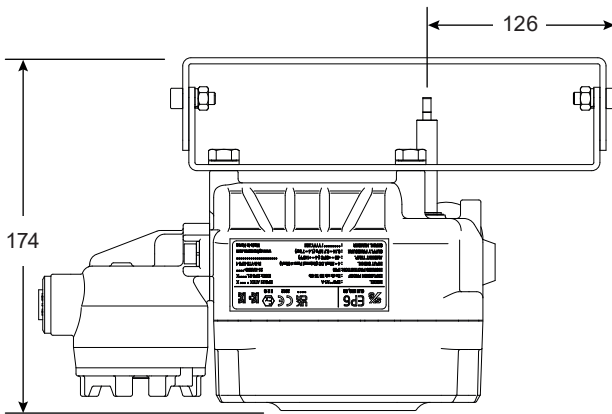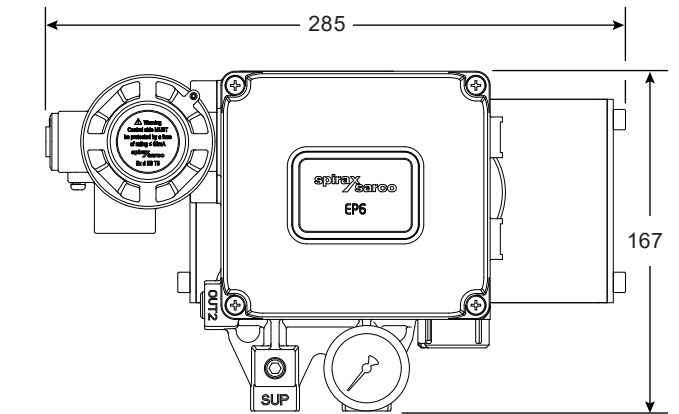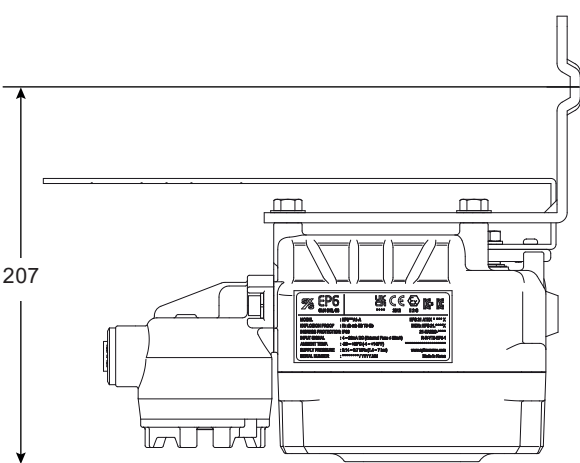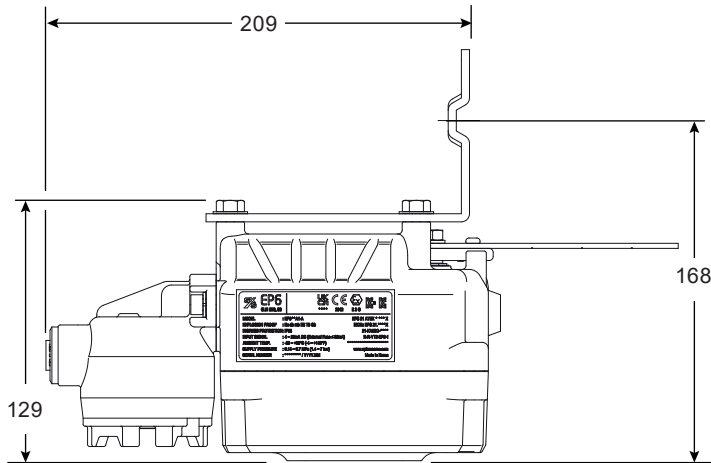
Dimensions (approximate) in mm
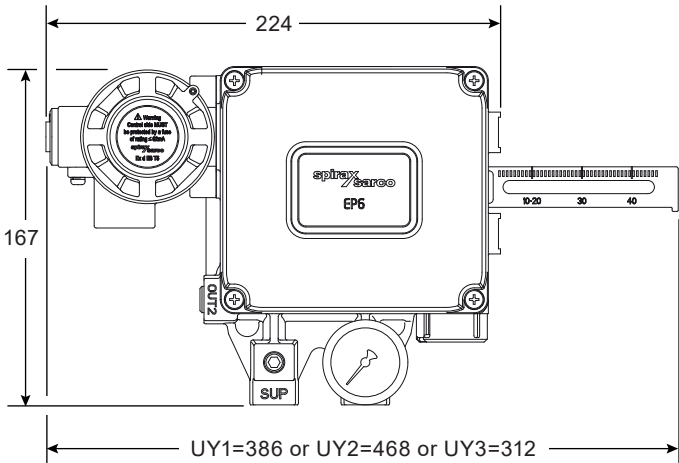
Linear left mounted

Linear centrally mounted

Rotary mounted

EP6 ATEX Electro-pneumatic Positioner

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Control systems
Positioners and controllers

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

Mounting Position	Actuator Model	Valve Models	Valve Sizes	Spirax kit Nomenclature
Central	PN9100	Spira-trol™ two port and QL three port	DN15 to DN50	EY3
	PN9200		DN15 to DN100	
	PN9300			
	PN9400		DN125 to DN300	EY4
	TN2150	Spira-trol™ two port and QL three port	DN15 to DN100	EY3
	TN2300		DN125 to DN300	EY4
	TN2400			
	TN2270			
	PN3000 Sprg Ext	LE, LEA and Steri-trol	DN15 to DN100	EY3
	PN4000 Sprg Ret			
	PN5000	KE, KEA, LE and LEA	DN15 to DN100	EY3 + UBC
	PN6000			
	PN5000	QL three port	DN125-DN200	EY4 + UBC
	PN6000			
Left side	PN9100	Spira-trol™ two port and QL three port	DN15 to DN50	UY3
	PN9200		DN15 to DN100	
	PN9300			
	PN9400		DN125 to DN300	UY1
	TN2150	Spira-trol™ two port and QL three port	DN15 to DN100	Not compatible
	TN2300		DN125 to DN300	UY1
	TN2400			
	TN2270			
	PN3000 Sprg Ext	LE, LEA and Steri-trol	DN15 to DN100	UY3
	PN4000 Sprg Ret			
	PN5000	KE, KEA, LE and LEA	DN15 to DN100	UY3 + UBC
	PN6000			
	PN5000	QL three port	DN125-DN200	EY4 + UBC
	PN6000			
	PN1600	'C' series	DN65 to DN100	UY1
	PN1600	'C' series	DN125 to DN200	UY2
	PN1600	Spira-trol™	DN125 to DN300	

Customer requirement example:
1 off Electro-pneumatic positioner for use with single acting PN9300 actuator, having 30 mm stroke and ATEX approved.

How to order
Example: 1 off Spirax Sarco EP6SLA1-A Electro-pneumatic Positioner + EY3 mounting kit.
Caution: The EP6 positioner must have a high quality air supply to ISO 8573-1:2010 Class 3:3:2.

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TI-P703-03
CTLS Issue 4

EP6 ATEX Electro-pneumatic Positioner

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