



○ CONTROL VALVE INTERFACE INSTRUMENTS

Converters,
Positioners
and Switchboxes



SIMPLE OR SMART FLEXIBLE AND RELIABLE

CONTROL VALVE INTERFACE INSTRUMENTS

Today's complex manufacturing environments demand advanced and efficient technology. Machines are controlled by computers. Interface instruments are essential to pass commands and information between the control valve and the control system. Spirax Sarco has been designing and making instrumentation since 1970. Our manufacturing facility is dedicated to producing only the highest quality and advanced products. Our years of experience, together with our culture of continuous improvement, ensure that our interface instruments are the most up-to-date and as comprehensive as possible.

As well as continually developing and enhancing our products, we make sure that they don't lose the qualities for which Spirax Sarco products are renowned. They are:

- Designed and built to international quality standards
- Easy to use
- Reliable
- Available with flexible installation options

The solution to your requirement can be 'simple' or 'smart'. Whichever you need, our product will perform to or beyond your specification. There are different types of interface instruments:

The most basic is a simple **converter**. This allows pneumatic control valves to be connected to an electronic control system.

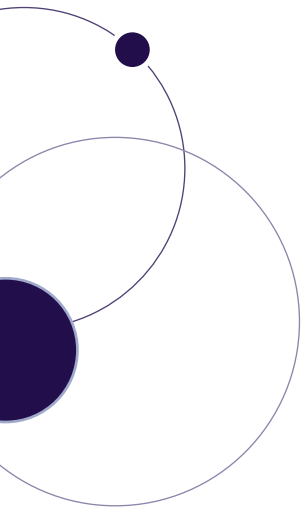
A control valve **positioner** with valve position feedback allows more precise valve positioning, through either direct mechanical linkage or a non-contact sensing device. It may be a simple instrument, or a more sophisticated smart version that calibrates itself and can be networked using communications protocols such as HART®, Foundation™ Fieldbus or PROFIBUS-PA®.

Some processes require valves to be interlocked for safety reasons. This can be achieved through switching devices operated by the control valves to prove out their position. The switches can be part of the positioner solution or an independent interface device.



SPIRAX SARCO'S RANGE – AT A GLANCE

Interface device		Valve position feedback	Smart	Network capability	Intrinsically safe option	Explosion proof option	Remote fitting from valve
I PC4	I to P converter	No	No	No	Yes	No	Yes
EP5 / PP5	Positioners	Yes	No	No	Yes	No	No
SP2	Smart positioner	Yes	Yes	No	No	No	No
SP300	Smart positioner	Yes	Yes	Yes	Yes	Yes	Yes
RB	Switchboxes	Yes	No	No	Yes	Yes	No



I TO P CONVERTERS: The simple solution

The IPC4 range of I to P converters is a simple, low-cost solution which permits high-performance electronic control systems to be linked to robust, fast-acting, pneumatically-actuated control valves.

SPECIFICATION

Input signal	4 to 20 mA
Output signal	0.2 to 1 bar (3 to 15 psi)
Supply air pressure	1.4 bar (20 psi)
Enclosure rating	IP54
Maximum temperature	65°C (149°F)
Input impedance	220 ohms
Linearity	0.5%
Hysteresis	0.2%
Intrinsically safe version	EEx.ia IIc T6, T5-T4 (CES)
	ATEX suitable



KEY FEATURES

- Compatible with 4 to 20 mA control systems.
- Compatible with 0.2 to 1.0 bar (3 to 15 psi) pneumatically actuated control valves.
- Intrinsically safe option.
- The converters can be mounted on a rail, in a panel or a wall, away from the control valve, in lower temperature and easy access areas.





KEY FEATURES

- Simple to commission and maintain.
- Low air consumption.
- 0.2 to 1.0 bar (3 to 15 psi) and 4 to 20 mA input signal options.
- Loop powered: no external power source required.
- Optional gauge block indicating air input and output pressures.
- Centrally mounted to avoid disturbance during transit.
- NAMUR standard fitting.



PP5 & EP5 POSITIONERS: The traditional solution

Operating on the balanced forced principle, the PP5 and EP5 range of control valve positioners provide a time-tested solution to accurate control valve positioning.

SPECIFICATION

Input signal	4 to 20 mA or 0.2 to 1.0 bar (3 to 15 psi) compressed air
Output signal	Single acting, 0 to 100% of air supply
Supply air pressure	6 bar (87 psi) maximum
Enclosure rating	IP54
Maximum temperature	65°C (149°F)
Input impedance	220 ohms
Sensitivity	0.2% of span
Intrinsically safe version	EEx.ia IIc T6, T5, T4 (CESI) ATEX suitable

SP2 POSITIONERS: The smart solution

The SP2 provides all the benefits of a smart positioner, without the complexity. Its simplicity means quick and easy commissioning, which is important for valve maintenance and fast plant installations.

SPECIFICATION

Input signal	4 to 20 mA
Output signal	Single acting, 0 to 100% of air supply
Supply air pressure	6 bar (87 psi) maximum
Enclosure rating	IP65
Maximum temperature	80°C (176°F)
Resolution	8 000 steps



KEY FEATURES

- Self-commissioning: no external devices required for setting.
- Energy efficient, with near-zero air consumption at the control position.
- Loop powered: no external power source required.
- Data logging for valve maintenance.
- Software or mechanical switches.
- Programmable, characterised output.
- Centrally mounted, NAMUR compatible fitting, to avoid disturbance during transit.





KEY FEATURES

- Self-commissioning: no external devices required for setting.
- Energy efficient.
- Loop powered: no external power source required.
- Single or double acting operation.
- Compatible with linear and rotary control valves.
- NAMUR standard fitting, with optional remote Hall Effect sensor for heavy vibration, high temperatures and easy access.
- Intrinsically safe, with explosion-proof options. Network capability with HART®, Foundation™ Fieldbus or PROFIBUS-PA®.



SP300 SMART POSITIONERS: Efficient and flexible

The SP300 range of positioners provides greater sophistication.

Using communications protocols and the Hall Effect non-contact sensor, these products meet the performance requirements of even the most modern and integrated plant.

SPECIFICATION

Input signal	4 to 20 mA
Output signal	0 to 100%, single or double acting, configurable, linear, equal percentage, fast acting or 16 freely selectable points
Supply air pressure	7 bar (102 psi)
Enclosure rating	IP67, NEMA 4x
Maximum temperature	85°C (185°F)
Resolution	0.1%
Hysteresis	0.1%
Intrinsically safe version	EEx d (ia) IIC T6
Explosion proof version	EEx d IIC T6 / ATEX suitable

ACCESSORIES: RB switchboxes

RB switchboxes provide additional interface capability independently to that available from the positioner range.

SPECIFICATION

Enclosure material	Black ABS
Enclosure rating	IP65
Maximum temperature	70°C (158°F)
Switch type	2 x SPDT
Potentiometer resistance	1000 ohms



KEY FEATURES

- Switches or feedback potentiometers.
- Suitable for modulating and on/off control valves.
- Linear and rotary valve compatible.
- NAMUR standard fitting.





KEY FEATURES

- Oil and water removal.
- Air pressure gauge.
- Metal bowl and tamper-proof options.
- Suitable for use with all pneumatic instruments.
- Part of a complete range of compressed air equipment.



ACCESSORIES: MPC2 air filter regulator

The most common source of failure amongst pneumatic instruments lies in the quality of air supply. Consequently, Spirax Sarco developed the MPC2, a compact high efficiency coalescing filter regulator. By effectively removing oil and water from compressed air the MPC2 maximises the service life of pneumatic instruments.

SPECIFICATION

Water removal	100%
Oil removal	To less than 0.01 mg/m ³
Maximum temperature	50°C (122°F)
Supply air pressure	10 bar (145 psi) maximum
Design	ATEX suitable





CONTROL VALVES

Spirax Sarco produces a comprehensive range of control valves for on/off and modulating duty.

The control valves are designed and manufactured directly by Spirax Sarco in a number of its manufacturing plants strategically located around the World.

DEVICES FOR NOISE REDUCTION

Some pressure-drop applications require extensive treatment that can't be dealt with at source within the confines of the control valve body. In such instances an external attenuating device is required to reduce the noise to an acceptable level, or remove the onset of cavitation. Commonly we achieve this through the use of baffle plates or silencers depending on the severity of the situation.

VALVE SIZING AND SELECTION ADVICE

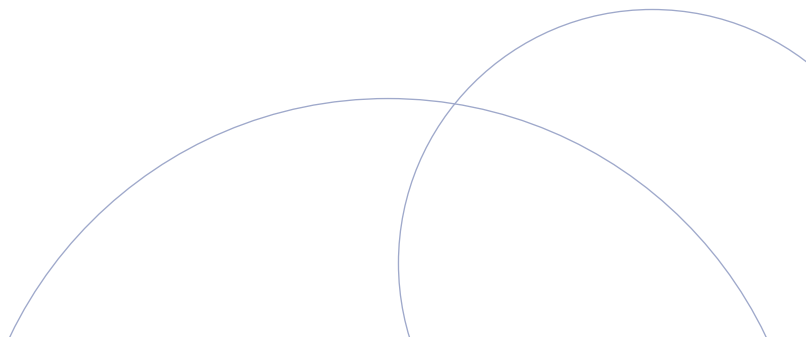
Correct selection of control valve style, size and material is key to achieving performance and long service life. Depending on the process conditions this can be a complex decision.

In order to allow our engineers to make these decisions quickly and reliably Spirax Sarco has developed its own dedicated software system, ensuring you achieve the best price performance from your valve.

ISOLATION VALVES AND STRAINERS

Control valves require isolation for maintenance purposes and strainers to protect them from pipeline debris.

Spirax Sarco has a complete range of compatible isolation valves including, automatic and manual, globe, ball, butterfly and piston, and strainers to complete the control valve station.



MANUFACTURING AND QUALITY

Spirax Sarco instruments are designed and produced in a dedicated Spirax Sarco manufacturing plant. This ISO 9000 approved facility employs the latest in technology and production best practice, giving you the peace of mind that we have direct control over the quality of product and service that we provide.

SKILLED ASSEMBLY

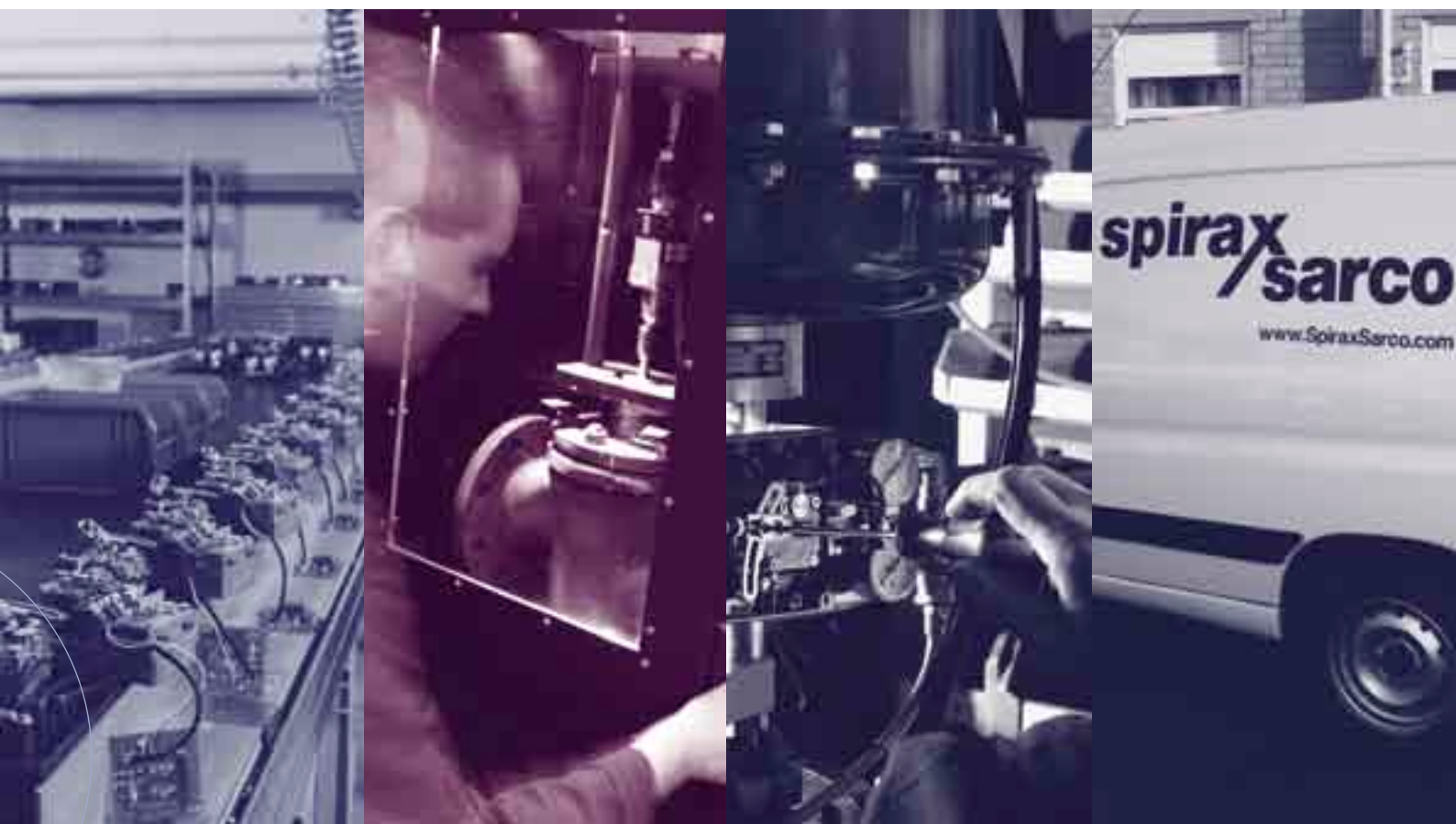
Assembly of all instruments is carried out manually by skilled operatives who have many years service with the Company. Testing is computerised and every instrument is fully function checked prior to despatch.

HIGH LEVELS OF PERSONAL SERVICE

Our dedicated and highly trained service people have knowledge second to none in the industry. And with over 800 direct sales engineers around the world and controls specialists in 32 countries, you can be assured of receiving service to the highest order.

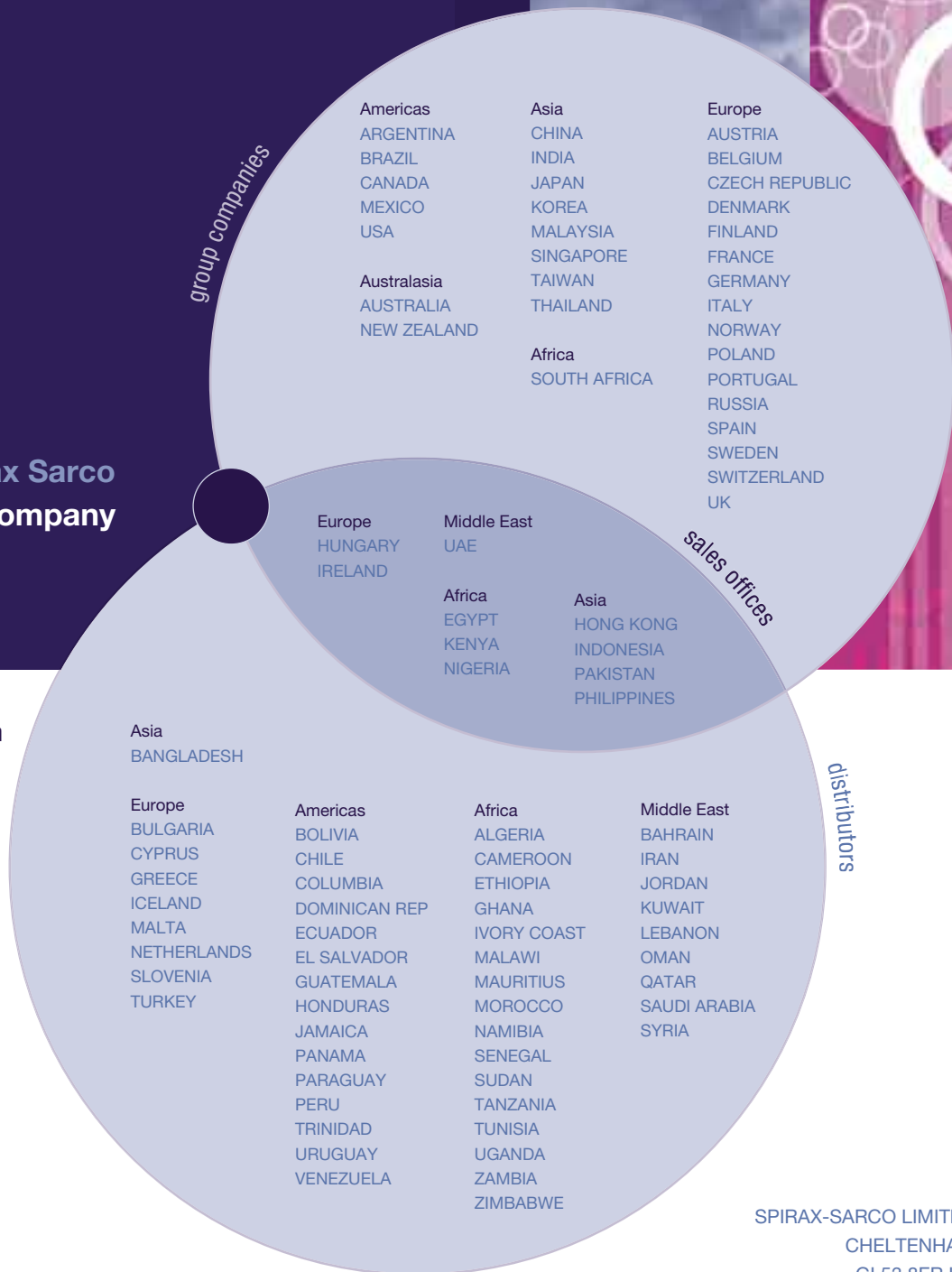
SPIRAX SARCO, A SUPPLIER YOU CAN TRUST

- Spirax Sarco direct design and manufacture
- Off-the-shelf availability
- 100% test and inspection before despatch
- 800 direct sales engineers
- Controls specialists in 32 countries
- Highly trained worldwide service network



Spirax Sarco
a worldwide company

Some of the products shown
may not be available in
certain markets



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