PHARMACEUTICAL INDUSTRY SOLUTIONS

Master flow, optimise your process

Expertise
Passion
Automation

Master flow, optimise your process. Tailor-made solutions for every challenge with SMC.

At SMC we're aware of the crucial role pneumatic **control panels** play in the **Bio/Pharmaceutical industry**. Process automation ensures accuracy and consistency in medicine production.

What is SMC concept when designing control panels?

**Single panel size and single valve series.**

This innovative approach offers several key benefits:

- **Simplified maintenance:** By using a single valve series, the need to have a large stock of MRO spare parts is drastically reduced, resulting in **cost savings and optimised maintenance requirements**.

- **Enhanced aesthetics:** By using of a single panel size significantly improves the overall visual appeal of the skid and stick build control panels, contributing to a more **modern design**.

SMC is committed to providing **tailor-made solutions** that meet your specific production requirements. Whether the panels are **remote solenoid valve (RSV) panels** or **instrument air (IA) panels** located in hygienic areas, protected process spaces or technological environments, our design expertise allows us to create control panels that integrate into your operations seamlessly.

At SMC, we not only provide you with the **highest-quality components**, but also the comprehensive **support** you need to **optimise your process**.

Our global network of sales and services, covering **over 80 countries**, is supported by an expansive manufacturing capacity in order to meet our customers' needs.
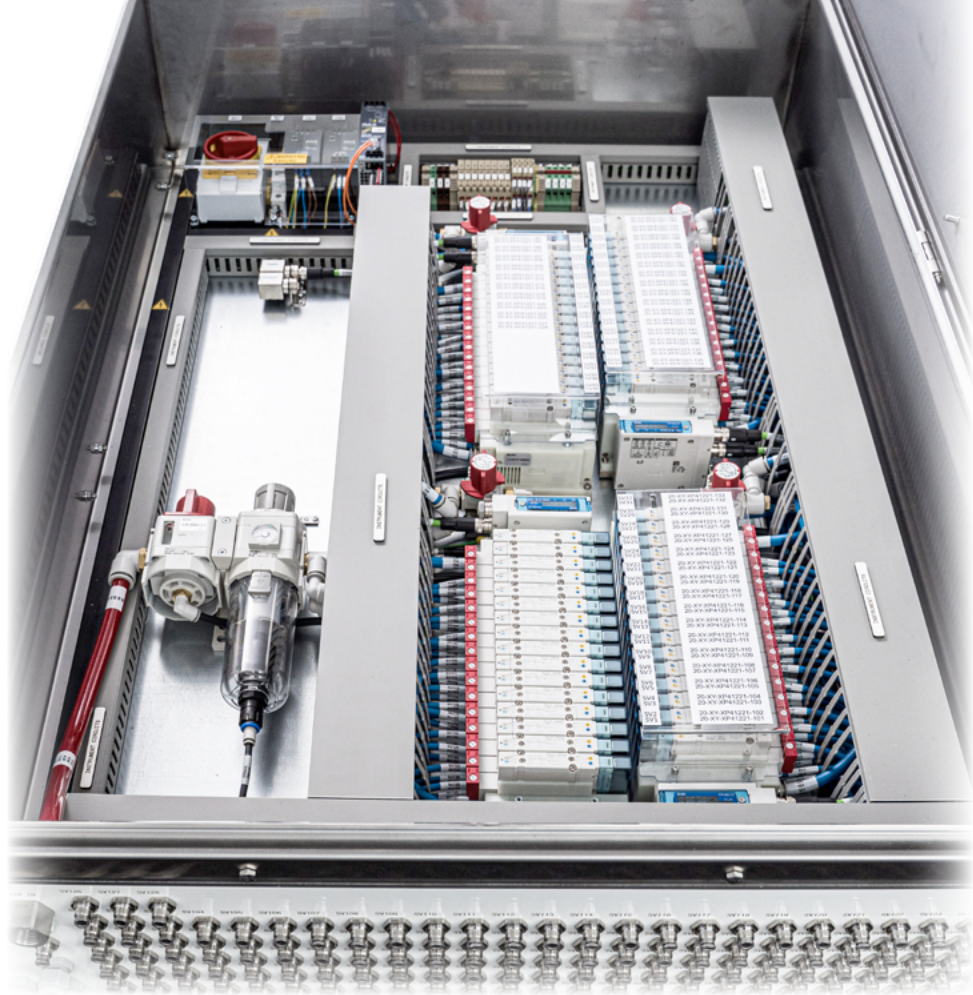
Our support network

SMC's worldwide commitment

One of the things we do best at SMC is **being close to our customers**. Local support, on a global scale.

EUROPEAN TECHNICAL CENTRE

GERMAN TECHNICAL CENTRE

JAPAN TECHNICAL CENTRE

CHINA TECHNICAL CENTRE

U.S. TECHNICAL CENTRE
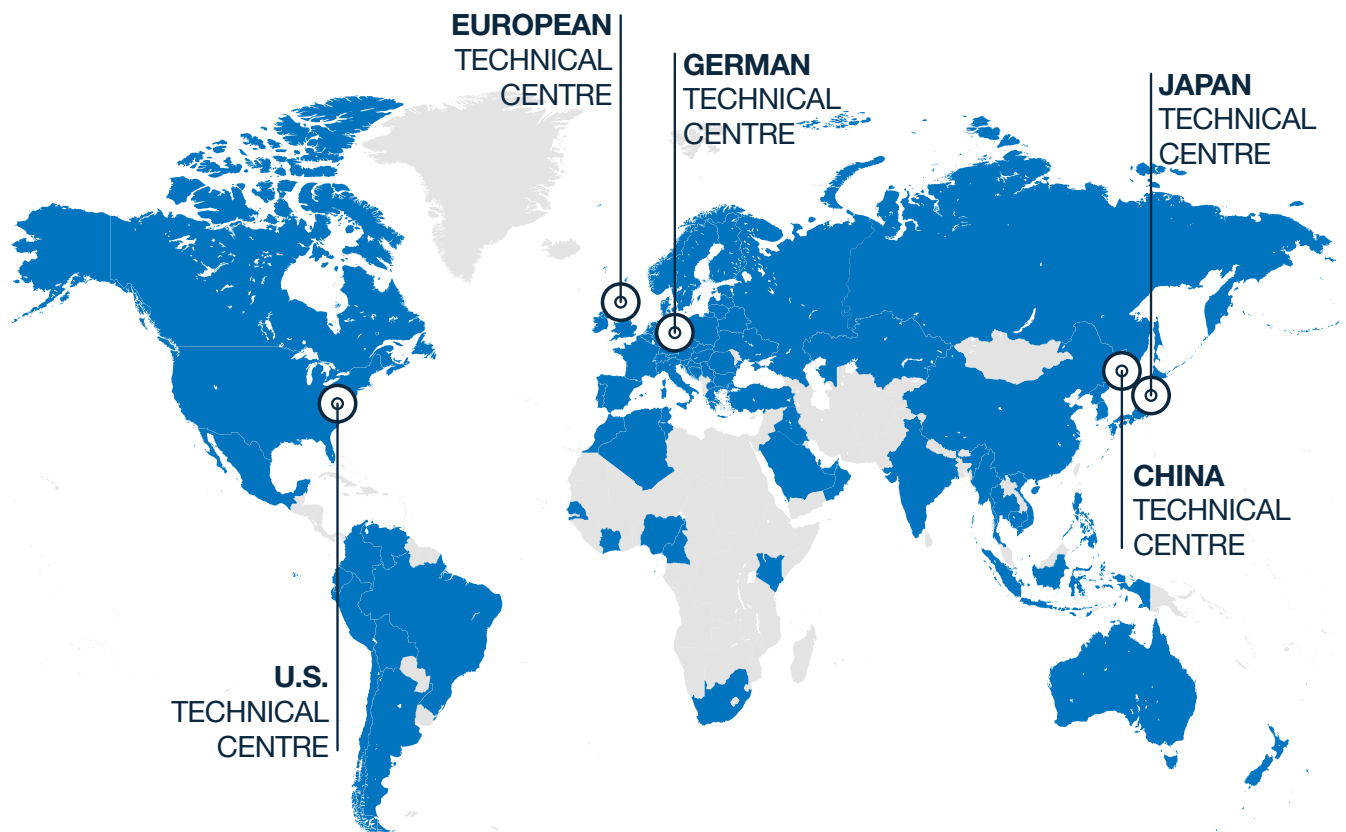
With **support** in over **500 locations** across **80 countries** and regions **worldwide**, our sales force of **7000 experts** maintains **close communication with customers**.

Key overseas production facilities

- China Factory
- Singapore Factory
- India Factory.

Overseas local production facilities

- United States of America
- Brazil
- Mexico
- Germany
- United Kingdom
- Italy
- Austria
- Finland
- France
- South Africa
- Spain
- Sweden
- Switzerland
- Turkey
- Russia
- Czech Republic
- Australia
- Korea
- China
- (Guangzhou)
- Hong Kong
- Malaysia
- New Zealand
- Philippines
- Singapore
- Taiwan
- Thailand
- Vietnam.

Domestic production facilities (Japan)

- Soka Factory (Saitama Pref.)
- Kamaishi Factory (Iwate Pref.)
- Tsukuba Factory (Ibaraki Pref.)
- Tono Factory (Iwate Pref.)
- Shimotsuma Factory (Ibaraki Pref.)
- Yamatsuri Factory (Fukushima Pref.)
- Distribution Centre (Ibaraki Pref.).

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SMC Business Continuity Plan

Sustainable growth also means ensuring uninterrupted operations

We are committed to ensuring that SMC is prepared for any emergency and that our business activities will not stop in the event of such circumstances. SMC aims to fulfil our product supply responsibilities and maintain our customers' trust by contributing to both sustainable growth and the expansion of technological innovations.

SMC, as a comprehensive manufacturer of automatic control equipment that supports automation, is able to promptly provider products that meet our customers' needs anywhere in the world.

Production BCP
Ensure customer order fulfilment

Reliable delivery for you thanks to our 9 global logistic centres and 38 production sites worldwide, 10 of which are located in Europe. Moreover, flexibility to rapidly respond to any sudden change in the manufacturing environment.

Information security BCP
Vital data kept safe

Strengthen information security for protection against computer viruses and cyberattacks, plus the installation of data centres to establish a disaster recovery system. Your information is safe with us.

Finance BCP
Safe & Solid financial base

In the event of an emergency, SMC can provide a safe and solid financial base (with cash, deposits, and equity capital) that will sufficiently cover the working capital and funds needed to rebuild buildings and the equipment required for business continuity. This is done to provide peace of mind to our customers and workers alike.

Engineering BCP
Consistent technical support

2,100 engineers at our 5 technical centres around the globe (2 in Europe – Germany and UK).

Sales BCP
Consistent sales support

7,000 sales engineers worldwide ready to recommend the best solution for you.
Over 80 global locations to make sure that wherever you are, we are there too.

+ **Discover more**

Some of the many benefits of SMC products

Efficiency and productivity drive your success. SMC offers you solutions that maximise both. With our pneumatic control panels, you can optimise your processes and achieve operational excellence.

Increase your productivity:

SMC panels can be easily reconfigured to accommodate additional control functions or changes in formulations, increasing **production agility**. Systems can be scaled up or down as production needs change, optimising resources and adapting to changes in demand. If required, the panel design has enough scope to easily improve the switching response time of the remote process valves if required.

Energise your efficiency:

SMC's **low-power consumption** valves allow for reduced system power demand and therefore **lower capacity and lower cost power supply**. Using these valves in combination with a reduced capacity power supply results in minimal heat generation which in turn lowers or eliminates the need for costly panel cooling. Our panels can be designed with built-in power supply redundancy to alert when the active power supply fails.

Guarantee impeccable accuracy:

Accuracy in flow control is essential to ensure the efficacy and safety of medicines. Modern control systems allow for the highly accurate dosing of active ingredients, ensuring the quality of the final product. SMC valves **guarantee the precision** you need in your process.
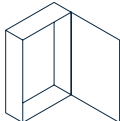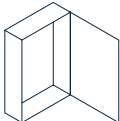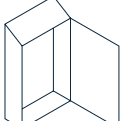
SMC

SMC control panels

① **Fieldbus system**

② **Pilot operated 4/5-port solenoid valves**

③ **FRL combination units**

④ **Modular LOTO pressure relief 3-port valve**

⑤ **Fittings**

⑥ **Tubing**
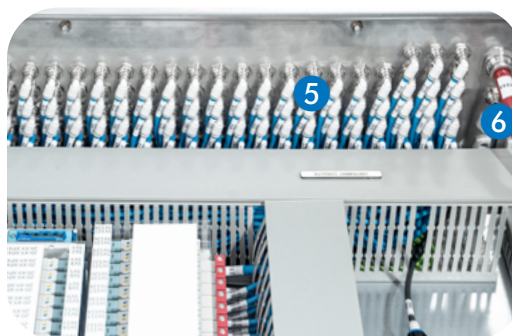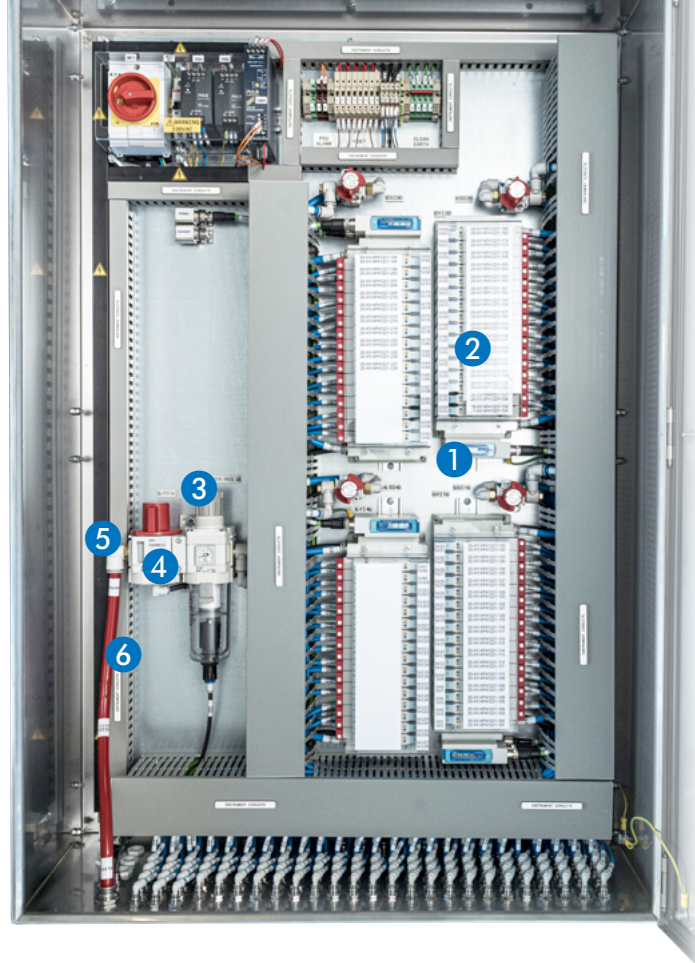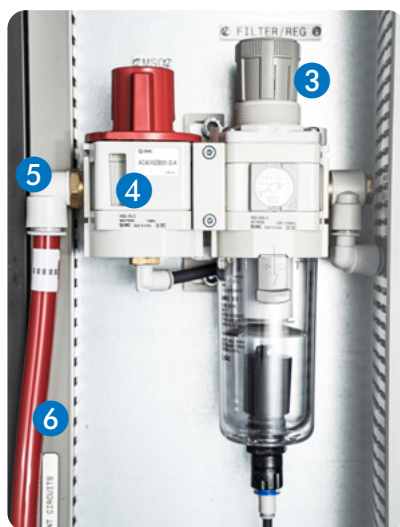
Dimensions & Materials

Maximum valve stations	Solenoid valve function N.O./N.C.	Tech area (Powder coated/Zinc plated sheet steel) W x H x D [mm]	Protected process space (304 stainless steel) W x H x D [mm]	Hygienic area (304 tainless steel) W x H front x H rear x D [mm]
20	Dual 3/2	760 x 760 x 300	760 x 760 x 300	—
48		800 x 1200 x 300	800 x 1200 x 300	810 x 1250 x 1421 x 300
60				
90				
128				

SMC products for control panels

Fieldbus system

EX260 Series ⊕
The cost-effective solution for your communications

- Cut your cost & installation time – Daisy-chain communication, no need for external branch connectors nor external terminating resistors & SPEEDCON connectors

- Reduce your equipment size – Compact size with wiring and piping possible from the same direction

- Utilize our IO-Link compatible product series – SMC is your supplier for all your automation needs

- Stay safely connected – PROFIsafe compatible.

EX600 Series ⊕
Increase the capabilities of your communications

- Ensure constant communication – DLR and MRP supported.

- Obtain greater flexibility – Availability of digital and analogue input/output units together with IO-Link communication.

- Enhance efficiency with simplified maintenance – Self-diagnosis function and LED display. IO-Link communication for device parameters control.

- Reduce installation and wiring time – Joint type connection method plus SPEEDCON compatible connectors.

EXW1/EX600-W Series wireless system ⊕
Less is definitely more

- Less cabling. Less installation time. Less downtime. Less hassle. Less. – Compact and modular wireless systems

- Achieve totally secure, reliable and noise-resistant communication – Frequency hopping and data encryption in the 2.4 GHz ISM band

- Introduce flexibility in your machines – Simple layout modification and quick connection & start-up.

SMC

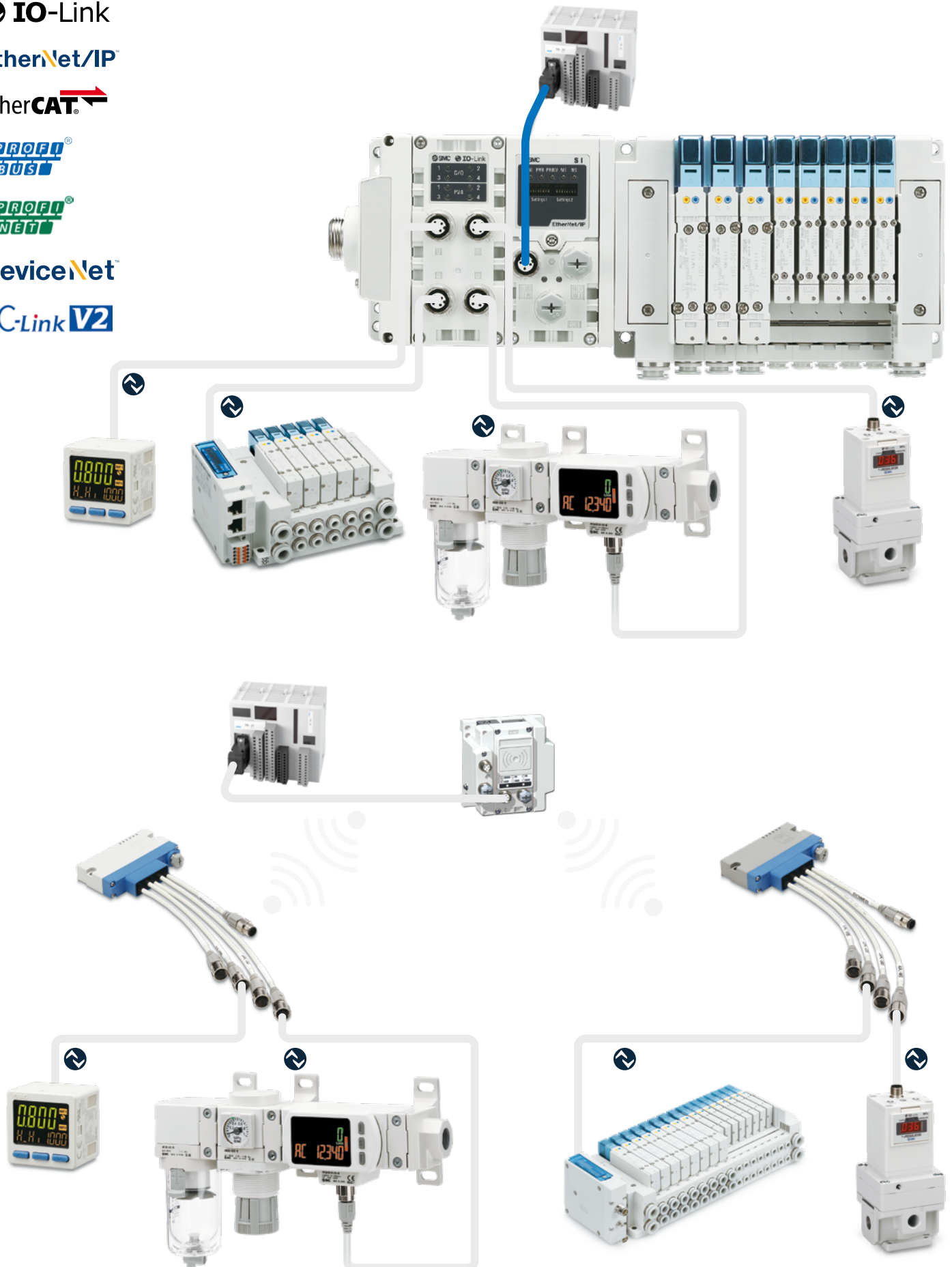# Our solutions communicate in your language

IO-Link

EtherNet/IP

EtherCAT

PROFI BUS

PROFI NET

DeviceNet

CC-Link **V2**

Pilot operated 4/5-port solenoid valves

SY Series ⊕
The most versatile all-purpose valve

- Improve your productivity – Outstanding reliability and reduction in cycle time

- Save on installation costs and assembly time – Remarkable flexibility in design by allowing mixed mounting valve sizes and individual pressure supplies

- Reduce your process downtime – Keep your equipment running thanks to individual valve isolation for hot swap

- Ensure a safe working environment – LOTO capable with lockable overrides.
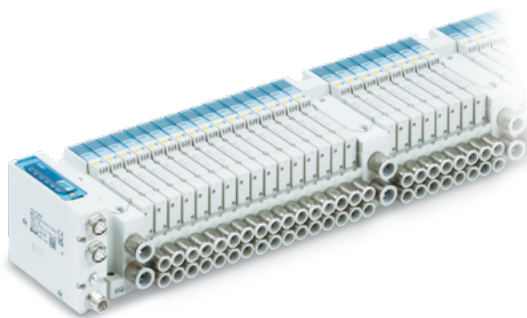
JSY Series ⊕
Space efficient. Friendly with productivity

- Save space – The thinnest valve in the world: 6.4 mm that will provide you a great flow of 244 l/min

- Reduce cabling, wiring work and number of SI units – Long manifolds from 4 to 64 stations and 128 output points

- Increase your productivity – Reduce cycle times considerably

- Endorse Energy Efficiency and keep cool – Power saver provides a minim 0.1 W and prevents from heating up.

Panel bulkhead mounted
JSY3000-S Series ⊕
Sealing made simple

- Operate securely in washdown applications – Prevent water ingress with EPDM bottom seal

- Improve the lifetime of your valves – Corrosion-resistant plate made of stainless steel 304 and equipped with stainless steel 316 one-touch fittings (FDA compliant)

- Communicate remotely – Control and monitor up to 32 outputs via a wide variety of serial interface communication protocols and IO-Link

- Get a clean look – Trim plate decorative panel available for roughly cut cabinet.

⊛SMC

FRL combination units

AC-D Series ⊕
Uniformity in your air treatment

- Fulfil the air standardisation requirements – Air purity classes certified against ISO 8573-1:2010
- Prevent accumulation of dust and foreign matter – Clean design with uniform appearance
- Guarantee durability and easy maintenance – Double-layer, transparent quick release polycarbonate bowl
- Adjust the pressure easily – Ergonomic handle with integrated pressure gauge.

Finger valve

VHK-A Series ⊕
Just turn to stop the air

- Simplicity in use – Close or open by simply turning the thumb switch
- Fits your needs – Many push-in piping variants in 2 or 3 port variants
- Obtain reliability – Poppet valve construction.
- Lockable for enhanced safety.

Modular LOTO pressure relief 3-port valve

VHS-D Series ⊕
Making maintenance a safe operation

- Reduce air supply and exhaust time – Up to a maximum flow rate of 14098 l/min for one-inch size
- Save energy – Zero air bleeding while switching the handle
- Prevent accidents caused by inadvertent pressurisation – rotary switch is padlock-secured.

Other solutions for air

Air Management System

AMS Series ⊕
Uniformity in your air treatment

- Save energy and improve sustainability – Programmable automatic pressure reduction and shut-off modes

- Enhance your maintenance capabilities – Measurement and monitoring of flow, pressure and temperature

- Digitalise your compressed air installation – Virtual control of parameters with fieldbus or OPC UA data collection

- Reduce labour and wiring time – Wireless connection up to 100-metre range and 10 remote units per base unit.

Electro-pneumatic regulator

ITV Series ⊕
Simple and smart control of your applications

- Make it simple – Dynamic control of air pressure by electrical signals

- Get ready for IIoT with IO-Link – Exchange data and parameters remotely via network

- Reduce your installation space – Compact and lightweight design

- Go towards a uniform and clean design – Modular connection with AC-D series components is possible.

SMC

Fittings & Tubing

One-touch fittings
KQG2 Series ⊕

- Harsh and corrosive environments compatible with temperatures up to 150 °C
- 316 stainless steel
- Body type: 17 variants
- Material:
  · Metal parts: 316 stainless steel
  · Seal parts: special FKM.

316 stainless steel insert fittings
KFG2H-E Series ⊕

- Applicable tubing O.D.: Ø 4 to Ø 12 mm
- Applicable port size: M5, 1/8, 1/4, 3/8, 1/2
- EHEDG certified
- Material:
  · Metal parts: 316 stainless steel
  · Seal parts: special FKM.

One-touch fittings manifold
KM Series ⊕

- Number of port A: 6, 10
- Port B size: Ø 8, Ø 10, Ø 12
- Port A size: Ø 4, Ø 6, Ø 8
- Body material: PBT.

Polyurethane standard tubing
TU Series ⊕

- Applicable tubing O.D.: Ø 2 to Ø 16 mm
- Operating temperature: -20 to 60 °C
- 29 colour variations
- Material: polyurethane.

Flame resistant tubing, soft nylon
TRS Series ⊕

- Applicable tubing O.D.: Ø 6 to Ø 12 mm
- Operating temperature: -20 to 60 °C for air and 0 to 60 °C for water
- Material: Flame resistance nylon.

Clean and chemical resistant tubing, modified PTFE soft tubing
TD Series ⊕

- Applicable tubing O.D.: Ø 4 to Ø 12 mm
- Max. operating temperature: 260 °C
- Colour: translucent
- Material: PTFE.

Clean tubing, standard
TPH Series ⊕

- Applicable tubing O.D.: Ø 4 to Ø 12 mm
- Operating temperature: -20 to 80 °C for air and 5 to 80 °C for water
- Colours: white, black, red, blue, yellow and green
- Material: polyolefin resin.

Other pharma solutions

Chillers

Circulating fluid temperature controller, standard type
HRS Series ⊕

- Cooling capacity: from 1.1 to 38 kW (50 Hz)
- Temperature stability: ±0.1 °C to ±1 °C
- Set temperature range: 5 °C to 40 °C.

Peltier-type chiller thermo-con/compact type
HEF Series ⊕

- Cooling capacity: 220 W
- Quiet design (37 dB)
- Set temperature range: 10 °C to 60 °C
- Temperature stability: ±0.1 °C.

Low temperature type
HRS-X158 ⊕

- Cooling capacity: 1 kW
- Set temperature range: -10 to 40 °C
- Temperature stability: ±0.1 °C.

Flow switch & Flow controller

Digital flow switch, 2-colour display, IO-Link ⊕
PF2M7(-L) Series

- 2 to 200 l/min range
- Applicable fluid: dry air, N_2, Ar, CO_2
- Grease free.

Flow controller
PFCA7 Series ⊕

- Flow rate control range: 9 to 300 l/min
- Applicable fluid: dry air, N_2, Ar, CO_2
- Time to flow set: 0.5 seconds or less
- Flow rate accuracy: ±3 % F.S.

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Pressure regulator

Clean regulator
SRH Series ⊕

- Pressure regulation for N_2, CO_2, Ar, Air
- Contamination-controlled SUS steel
- Body material: 316L stainless steel
- Oil free.

Fitting

High purity fluoropolymer fitting
LQ Series ⊕

- Triple-seal construction
- Max. operating temperature: 200 °C
- Material: new PFA
- Variety of size combinations available.

Process pump

Automatically operated type/air operated type
PA Series ⊕

- Air-operated process pump
- Compact, large capacity
- Long life, easy maintenance
- Body material: aluminium, stainless steel, polypropylene.

ATEX compliant

5-port solenoid valve
52-SY5000/7000/9000 Series ⊕

- ATEX category 2
- Five kinds of safety barriers are available
- Two types of plug connectors are available
- IP65-compliant terminal box type (T)
- Long life time.

Compact fieldbus system for output
56-EX260 Series ⊕

- ATEX category 3
- Protocols:EtherNet/IP™, PROFINET, EtherCAT®, PROFIBUS DP
- Up to 32 outputs
- Enclosure: IP67.

Fieldbus unit
56-EX600 Series ⊕

- ATEX category 3
- Protocols: PROFIBUS DP and EtherNet/IP™
- Up to 32 outputs
- Enclosure: IP67.

APTech products ⊕

Diaphragm valve
AP Series

- Suitable for UHP gas supply line
- Body material: 316L SS secondary remelt
- Air operated type/Manually operated type
- High pressure type: max. 3000 psig (20.7 MPa).

Regulator
KT Series

- Single stage regulator
- Inlet pressure: max. 10000 psig (69 MPa)
- Body material: stainless steel or brass
- Self-relieving or non-relieving available.

Regulator
AK Series

- Single or two stage regulator for general applications
- High inlet pressure type: max. 3500 psig (24.1 MPa)
- Body material: stainless steel or brass
- Corrosion resistant Ni-Cr-Mo alloy (2.4602) internals available.

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Process valves

2-port solenoid valve
JSX Series +

- Power consumption: 14 % reduction
- Improved environmental resistance
- Applicable fluid: air, water, steam, heated water, vacuum or oil
- Body material: stainless steel, brass, bronze or aluminium
- Coil material: stainless steel.

Angle seat valve
JSB Series +

- 10 million life cycles (with air)
- Compact and large flow rate
- Applicable fluid: air, water, steam
- Body material: 316L stainless steel
- Actuator material: 304 stainless steel.

Pinch valve solenoid type
LPV Series +

- 2-port and 3-port type
- Applicable fluid: gas and liquid applicable to the tube
- Body material: PBT
- Applicable tubing: silicone, PharMed®BPT, Tygon®
- Easy tubing replacement for single use
- Power consumption: 2 W (2-port), 2.9 W (3-port).

Isolated structure valve
LVM Series +

- Fluid area is separated from solenoid
- Applicable fluid: chemical liquids
- Fluid contact material:
  · Plate: peek, PFA
  · Diaphragm: EPDM, FKM, Kalrez®
- With power saving circuit.

Complete solution

Electronic actuation & control

Pneumatic actuation

Sensors, switches, air line equipment

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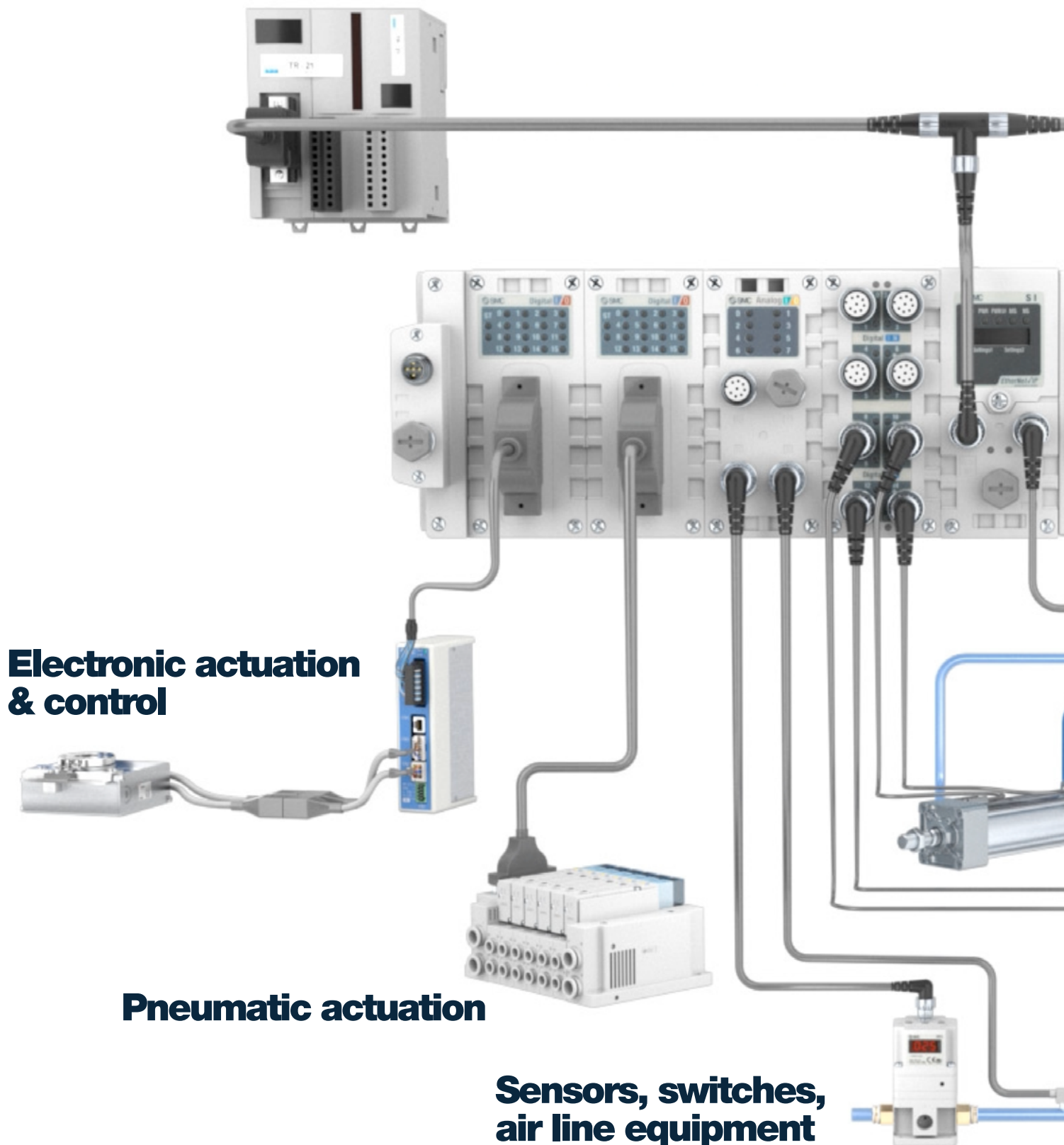
Pneumatic actuation

Electronic actuation & control
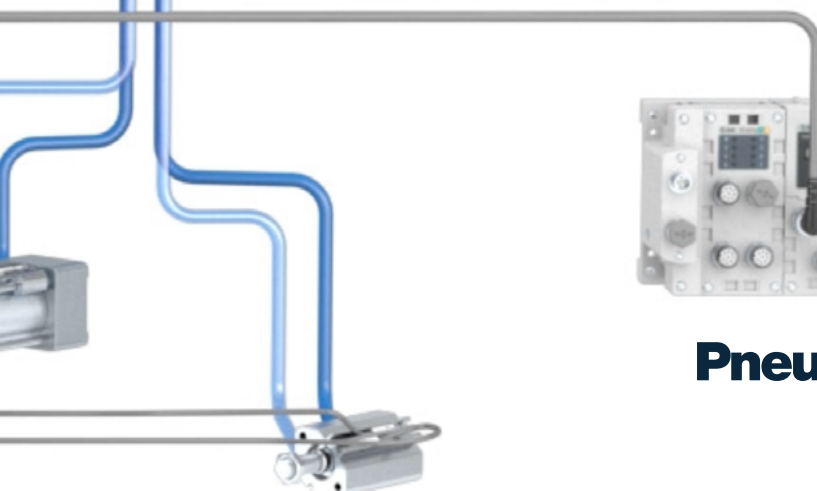
Pneumatic actuation

Pneumatic actuation

Expertise
Passion
Automation

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