



IO-LINK SOLUTIONS

# Enjoy IO-Link advantages with SMC

Expertise  
Passion  
Automation



# IO-Link solutions

Hot on the heels of lean manufacturing, the focus has once again changed. Digitalisation of processes is now an essential part of factory modernisation.

With the goal to improve manufacturing performance, using more automated operations and the use of data analytics, **smart manufacturing** is the order of the day. This technology-driven approach, using machinery connected to the internet to monitor the production process, has seen the development of smart machine components.

SMC's IO-Link products can help you improve your productivity and reduce your costs, granting dynamic production processes and leading to the **Smart Flexibility** the industry is seeking. Plus, they will let you bet on the continuous improvement of your company's **industrial maintenance** strategy.

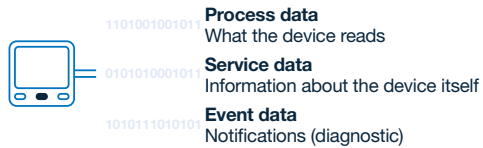
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# The advantages of IO-Link with SMC

## Increased data availability

There are **three primary data types** made available, which are categorized into cyclic data (data automatically transmitted on a regular basis) or acyclic data (data transmitted as needed or upon request).



## Product diagnostic

No need to wait for a process failure to replace a sensor. Devices are always being monitored to know the state of their health with **Event data**. Depending on the device, you can track if they are suffering excessive temperature, pressure, if they are out of range, internal default, etc.



## Easy device replacement

**Plug & play** replacement simplifies the connection: a common connector for communication and power. Parameters are saved in the master, enabling **automatic setting** once the device is connected.



## Tamper free

The key-lock function keeps unauthorised persons from tampering with the settings.



## Standard wiring

The entire measured value **transmission is digital**, thus, all device **parameter are stored in the IO-Link master**. The data transfer is based on a 24 V signal and the **shielded wires are not required**.



## Remote access

Customised solutions force a **continuous change in parameters**. The overall setting control from the control system (PC) minimises time, increasing machine availability.



## Together these advantages result in:

- Reduce overall costs
- Increase process efficiency
- Improve machine availability.

# Action in practice

## What will you obtain thanks to IO-Link?

- Time and money savings thanks to reduced wiring operations
- Intelligence and communication to the standard sensors without additional costs
- Reduce the number of components as well as spare parts thanks to the standardisation of input/output modules.

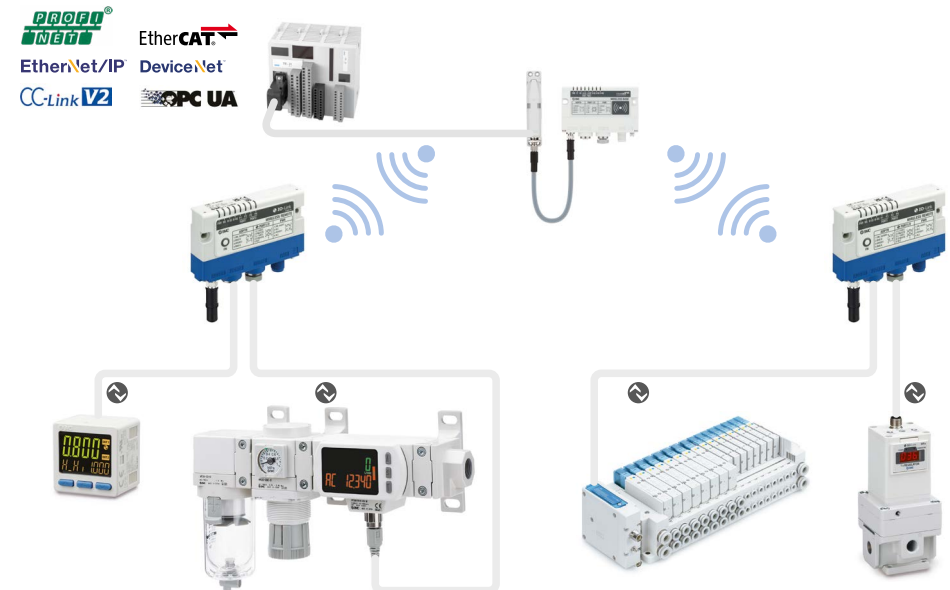
## Without IO-Link



## With IO-Link



## With IO-Link and wireless



# IO-Link products

New technology enables sensors and actuators to become smarter but...

## What is IO-Link really?

IO-Link (IEC61131-9) is an open standard serial communication protocol that allows the bi-directional exchange of data from sensors and devices that support IO-Link and are connected to a master. The IO-Link master can transmit this data over various networks, fieldbuses, or backplane buses, making the data accessible for immediate action or long-term analysis via an industrial information system (PLC, HMI, etc.).

Each IO-Link device has an IODD (IO Device Description) file that describes it and its IO-Link capabilities.



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- 25 Position sensing
- 27 Environmental sensing

# Wireless system

## IO-Link compatible wireless compact remote system

### EXW1 Series



- Compact version
- IP67 environmental protection
- Master/device diagnosis function
- The data can be accessed from via PLC (setting tool)
- Device parameter setting function, automatic saving/writing.

Compact wireless base



Compact wireless remote



Communication distance: 100 m

Part number	Connector/Number of IO-Link ports	IO-Link port class
EXW1-RLAPA8C	M12/4-port	Class A
EXW1-RLBPA7C	M12/2-port	Class B

## IO-Link compatible wireless Air Management Hub

### EXA1 Series



- Includes IO-Link master port
- Wireless base or remote function
- Up to 100 m wireless communication range
- Protocols: EtherNet/IP™, EtherCAT®, PROFINET (base) or standalone (remote)
- Each base can communicate with up to 10 wireless remotes
- Easy combination with SMC air combination range size AC20/30/40/60.

Part number	Description
EXA1-□-SA-L	Standalone (when wireless adapter is connected: wireless remote)
EXA1-□-PN-L	PROFINET, OPC UA (when wireless adapter is connected: wireless base)
EXA1-□-EN-L	EtherNet/IP™, OPC UA (when wireless adapter is connected: wireless base)
EXA1-□-EC-L	EtherCAT® (when wireless adapter is connected: wireless base)

□ AC body size symbol: 20 (AC20), 30 (AC30), 40 (AC40), 60 (AC60).



# IO-Link master

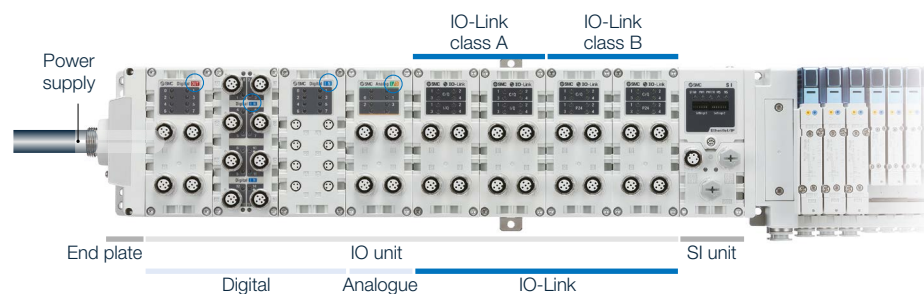
## IO-Link unit

### EX600-LAB1/LBB1 Series



- 2 models (port class A and port class B)
- Master/device diagnosis function
- The data can be accessed from via PC (setting tool)
- Device parameter setting function, automatic saving/writing.

Part number	Communication protocol	Number of ports	Connector
EX600-LAB1	Port class A	4 ports	M12 connector (5 pins) 4 pcs.
EX600-LBB1	Port class B		



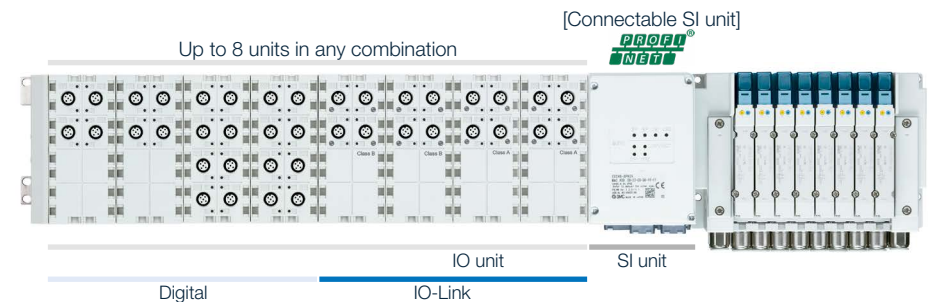
## IO-Link unit

### EX245-LA1/LB1 Series



- 2 models (port class A and port class B)
- Diagnosis is possible from the upper level communication
- The data can be accesses from via PC (setting tool)
- Device parameter setting function, automatic saving/writing.

Part number	IO-Link module specification
EX245-LA1	Class A (4-port)
EX245-LB1	Class B (4-port)



Shortcircuit detection, non-connected/misconnected device detection, number of valve operations exceeded, notification of port misconfiguration, conditions of diagnostic event (port, device).



# Actuators

## Distributed input/output control

### SI unit compatible with IO-Link

EX600-SEN7/SEN8 Series (EtherNet/IP™)

EX600-SEC3/SEC4 Series (EtherCAT®)

EX600-SPN3/SPN4/SPN31 Series (PROFINET)



- Protocols: EtherNet/IP™, EtherCAT®, PROFINET
- Applicable valve series: JSY, new SY, VQC, S0700, SV
- Up to 9 input/output/IO-Link master units (up to 4 IO-Link master units with EtherNet/IP™)
- Up to 1280 inputs/1280 outputs
- IP67 enclosure.

Part number	Communication protocol	Polarity of output
EX600-SPN3	PROFINET	Source/PNP (Negative common)
EX600-SPN31	PROFINET + OPC UA server	
EX600-SEC3	EtherCAT®	
EX600-SEN7	EtherNet/IP™	



Internal failure, abnormal internal temperature, shortcircuit detection (valve output wiring), open-circuit detection (valve output wiring), external power supply failure (valve power supply), number of valve operations exceeded.

### SI unit compatible with IO-Link

EX245-SPN1A/SPN2A/SPN3A Series



- Protocols: PROFINET
- Applicable valve series: JSY, SY, VQC
- Up to 8 input/output/IO-Link master units
- Up to 128 inputs/64 outputs
- IP65 enclosure.

Part number	Communication protocol	Communication connector	Power supply connector
EX245-SPN1A	PROFINET	Push Pull connector (SCRJ): 2 pcs	Push pull connector (24 V): 2 pcs
EX245-SPN2A		Push Pull connector (RJ45): 2 pcs.	
EX245-SPN3A		M12 connector (4-pin, socket, D-coded): 2 pcs.	7/8 inch connector (5-pin, plug): 1 pc.



Internal failure, abnormal internal temperature, shortcircuit detection (valve output wiring), open-circuit detection (valve output wiring), external power supply failure (valve power supply), number of valve operations exceeded.

## Terminal unit

### EX600-T□ Series



- Connect up to 16 or 32 digital inputs to an IO-Link master
- Auto switch failure diagnostic function
- IO-Link communication of connected switch inputs.

Part number	Number of inputs	Input type	Input connector
EX600-TDX-1	32	PNP	M12 (4-pin) socket
EX600-TDX-2	16		M8 (3-pin) socket



Auto switch failure diagnostic function.

# Solenoid output control

## SI unit compatible with IO-Link

### EX260-SIL1 Series



- Sends and receives ON/OFF signals + unit information/status
- Supports data update cycles of 1 ms or less (COM3)
- IO-Link master and SI unit can be connected with one cable (port class B).

For control of both manifold mounted solenoid valves and vacuum ejectors.  
JSY1000-E/JSY3000 + ZK2 Series.



Part number	Output specification
EX260-SIL1	32 outputs, PNP (negative common/source)



Shortcircuit detection, non-connected/misconnected device detection, number of valve operations exceeded, notification of port misconfiguration, conditions of diagnostic event (port, device).

## Clean design manifold valve

### JSY5000-H Series



- Enclosure IP69K
- External parts: FDA-compliant materials
- Up to 1600 l/min in single-unit and manifold design
- Low fluid accumulation and easy to clean.

Part number	Product type	Type of actuation
JJ5SY5-H11SKAN-□B-02F	Manifold without valves	—
JSY5103-5NZ-H	Valve	2-position (single)
JSY5203-5NZ-H		2-position (double)
JSY5303-5NZ-H		3-position (closed centre)
JSY5403-5NZ-H		3-position (exhaust centre)
JSY5503-5NZ-H		3-position (pressure centre)

□ Number if valve stations (2 to 16).



# Static electricity control

## Bar type ionizer

### IZS51 Series



- High speed static neutralisation: as fast as 0.1 s
- Low maintenance cartridge
- Auto balance function
- 2 types of brackets are available: angle adjustment or space reduction
- Ionizers can be set with a remote controller
- Option for integrated 2-port valve for reduced consumption and installation labour.

Part number	Emitter cartridge type	One-touch fitting [mm]	Bracket
IZS51-□TL-V6-3J3-B	High flow cartridge/ Tungsten	Ø 6 straight	With bracket 1
IZS51-□TL-V6-3J3-W			With bracket 2
IZS51-□TL-V8-3J3-B		Ø 8 straight	With bracket 1
IZS51-□TL-V8-3J3-W			With bracket 2
IZS51-□TL-VA-3J3-B		Ø 10 straight	With bracket 1
IZS51-□TL-VA-3J3-W			With bracket 2
IZS51-□CL-V6-3J3-B	High flow cartridge/ Silicon	Ø 6 straight	With bracket 1
IZS51-□CL-V6-3J3-W			With bracket 2
IZS51-□CL-V8-3J3-B		Ø 8 straight	With bracket 1
IZS51-□CL-V8-3J3-W			With bracket 2
IZS51-□CL-VA-3J3-B		Ø 10 straight	With bracket 1
IZS51-□CL-VA-3J3-W			With bracket 2

□ For bar length symbol (bar length): 35 (350 mm), 38 (380 mm), 44 (440 mm), 56 (560 mm), 62 (620 mm), 80 (800 mm), 110 (1100 mm), 128 (1280 mm), 158 (1580 mm), 188 (1880 mm), 230 (2300 mm) and 248 (2480 mm).



Ion generation ON/OFF signal and offset voltage data, auto balance ON/OFF signal, device information, normal or abnormal device status.

## Bar type/nozzle type ionizer

### ⊕ IZT40/41/42 Series

### ⊕ IZT43 Series



- Bar type (AC type and dual AC type available) and nozzle type available
- Potential amplitude: as low as 25 V or less
- Rapid neutralisation of static electricity: as fast as 0.1 s
- One controller can control a maximum of 4 ionizers
- Monitor and operate bars/nozzles which are installed in an inaccessible location
- Multiple alarms & functions.

Part number	Type	One-touch fitting [mm]	Emitter cartridge type/Emitter material
IZT4□-■D36HL-JN	Bar type ionizer	Ø 6 straight	High speed deionising cartridge/ Tungsten
IZT4□-■D38HL-JN		Ø 8 straight	
IZT4□-■D3AHL-JN		Ø 10 straight	
IZT43-D36HL-JN	Nozzle type ionizer	Ø 6 straight	High speed static neutralisation cartridge
IZT43-D36LL-JN		Ø 6 elbow	
IZT43-L36HL-JN		Ø 6 straight	Energy saving static neutralisation cartridge
IZT43-L36LL-JN		Ø 6 elbow	

□ For ionizer model: 1 for AC type model, 2 for Dual AC type.

■ For bar length symbol (bar length): 16 (160 mm), 22 (220 mm), 34 (340 mm), 40 (400 mm), 46 (460 mm), 58 (580 mm), 64 (640 mm), 82 (820 mm), 112 (1120 mm), 130 (1300 mm), 160 (1600 mm), 190 (1900 mm), 232 (2320 mm) and 250 (2500 mm).



Ion generation ON/OFF signal offset voltage data, auto balance ON/OFF signal, device information (manufacturer, product part number, etc.), normal or abnormal device status.

# Flow control

## Flow controller for water

### FC3W-L Series



- Rated flow range: up to 40 l/min
- Inputs/outputs: IO-Link, analogue current/voltage with external control stop input
- Responsiveness: 10 s or less
- Grease-free.

Part number	Rated flow range [l/min (ANR)]	Port size	Fluid temperature range [ °C]
FC3W504-F03-LN-NY	0.5 to 4	G3/8	0 to 50
FC3W520-F04-LN-NY	2 to 16	G1/2	
FC3W540-F06-LN-NY	5 to 40	G3/4	



Flow rate command value, valve opening position command value, measured flow rate value, valve opening position, control status, device information, normal or abnormal device status.

## Flow controller for air

### PFCA7 Series



- Inputs/outputs: IO-Link, NPN/PNP, analogue current/voltage
- Responsiveness: 0.5 s or less
- Control accuracy:  $\pm 3\%$  (F.S.)
- Grease-free.

Part number	Rated flow range [l/min (ANR)]	Port size	Analogue input
PFCA710-C6-1N	0.1 to 10	Ø 6	1 to 5 V
PFCA710-F1-1N		G1/8	
PFCA725-C6-1N	0.2 to 25	Ø 6	
PFCA725-F1-1N		G1/8	
PFCA750-C6-1N	0.5 to 50	Ø 6	
PFCA750-F1-1N		G1/8	
PFCA711-C6-1N	1 to 100	Ø 6	
PFCA711-F2-1N		G1/8	
PFCA710-C6-2N	0.1 to 10	Ø 6	4 to 20 mA
PFCA710-F1-2N		G1/8	
PFCA725-C6-2N	0.2 to 25	Ø 6	
PFCA725-F1-2N		G1/8	
PFCA750-C6-2N	0.5 to 50	Ø 6	
PFCA750-F1-2N		G1/8	
PFCA711-C6-2N	1 to 100	Ø 6	
PFCA711-F2-2N		G1/8	



Threshold value, operation mode, commanded flow rate, switch ON/OFF signal and analogue value device information, normal or abnormal device status, cable breakage.



## Air flow controller

### IN502-44/45/46 Series



- 3-screen display
- Outputs: IO-Link, NPN/PNP, analogue current/voltage
- Control accuracy:  $\pm 5\%$  (F.S.)
- Responsiveness: 0.5 s or less
- Greases: grease compatible with low dew point, white vaseline, grease for food
- Operation at power-off: flow rate zero, flow rate retention
- Enclosure: IP65.

Part number	Rated flow range [l/min (ANR)]	Grease	Analogue input
IN502-44-6	50 to 500	Grease compatible with low dew points	1 to 5 V or 0 to 10 V
IN502-44-8			4 to 20 mA
IN502-44-6B		Grease for food	1 to 5 V or 0 to 10 V
IN502-44-8B			4 to 20 mA
IN502-45-6	100 to 1000	Grease compatible with low dew points	1 to 5 V or 0 to 10 V
IN502-45-8			4 to 20 mA
IN502-45-6B		Grease for food	1 to 5 V or 0 to 10 V
IN502-45-8B			4 to 20 mA
IN502-46-6	200 to 2000	Grease compatible with low dew points	1 to 5 V or 0 to 10 V
IN502-46-8			4 to 20 mA
IN502-46-6B		Grease for food	1 to 5 V or 0 to 10 V
IN502-46-8B			4 to 20 mA



Threshold value, operation mode, flow rate command value, switch ON/OFF signal and analogue data, device information, normal or abnormal device status, cable breakage.

## Pressure control

### Electro-pneumatic regulator

### ITV-IL Series



- Applicable fluid: air
- Linearity:  $\pm 1\%$  F.S. or less
- Hysteresis: 0.5 % F.S. or less
- Repeatability:  $\pm 0.5\%$  F.S. or less.

Part number	Maximum flow rate [l/min]	Pressure range [MPa]	Port size
ITV1010-ILF1N	200	0.1	G1/8
ITV1030-ILF1N		0.5	
ITV1050-ILF1N		0.9	
ITV2010-ILF2N	1500	0.1	G1/4
ITV2030-ILF2N		0.5	
ITV2050-ILF2N		0.9	
ITV3010-ILF4N	4000	0.1	G1/2
ITV3030-ILF4N		0.5	
ITV3050-ILF4N		0.9	



Internal failure, outside of rated range, set pressure reached (process data).



# Electric actuator control

## Step motor controller

### JXCL1/JXCLF Series



- Multiple compatible actuators: all 24 VDC stepper motor axis
- Two types of operation command: step no. defined operation and numerical data defined operation
- Current consumption: 100 mA or less
- Applicable electric actuators:
  - Absolute encoder: LEF, LEY/LEYG, LER, LEHF, LEKF, LES/LESH, LESYH
  - Incremental encoder: LEF, LEL, LEM, LEY/LEYG, LES/LESH, LEPY/LEPS, LER, LEH.

Part number	Communication protocol	Mounting
JXCL17	IO-Link	Screw mounting
JXCL18		DIN rail
JXCLF7	IO-Link with STO sub-function	Screw mounting
JXCLF8		DIN rail



Applicable electric actuators, external power supply failure (control power supply), motor control related alarm, diagnostic bit (process data).

# e-Actuator integrated controller

## EQFSH/EQYH/EQYGH Series



- Easy to set up, just like air equipment!
- Battery-less absolute encoder
- Downsized with integrated controller, wiring saving, labour saving, programless, reduced adjustment time
- Annual CO<sub>2</sub> emissions: max. 59 % reduction (SMC comparison)
- The numerical values vary depending on the operating conditions.

Part number	Size	Type	Motor mounting position/Motor cover direction	Bearing type	Lead [mm]
EQY16D1HA-□-BLA	16	Rod	Inline/Left side	-	10
EQY16D1HB-□-BLA					5
EQY16D3HA-□-BLA			Inline/Top side		10
EQY16D3HB-□-BLA					5
EQY16RHA-□-BLA			Parallel/Right side		10
EQY16RHB-□-BLA					5
EQY25HA-□-BLA	25	Rod	Parallel/Top side	-	12
EQY25HB-□-BLA					6
EQY25RHA-□-BLA			Parallel/Right side		12
EQY25RHB-□-BLA					6
EQY25DHA-□-BLA			Inline		12
EQY25DHB-□-BLA					6
EQY32HA-□-BLA	32	Rod	Parallel/Top side	-	16
EQY32HB-□-BLA					8
EQY32RHA-□-BLA			Parallel/Right side		16
EQY32RHB-□-BLA					8
EQY32DHA-□-BLA			Inline		16
EQY32DHB-□-BLA					8

Part number	Size	Type	Motor mounting position/Motor cover direction	Bearing type	Lead [mm]			
EQFS16D1HA-□-BLA	16	Slider	Inline/Left side	-	10			
EQFS16D1HB-□-BLA					5			
EQFS16D3HA-□-BLA			Inline/Top side		10			
EQFS16D3HB-□-BLA					5			
EQFS16RHA-□-BLA			Parallel/Right side		10			
EQFS16RHB-□-BLA					5			
EQFS25HA-□-BLA	25	Slider	Inline	-	12			
EQFS25HB-□-BLA					6			
EQFS25RHA-□-BLA			Parallel/Right side		12			
EQFS25RHB-□-BLA					6			
EQFS32HA-□-BLA	32	Slider	Inline	-	16			
EQFS32HB-□-BLA					8			
EQFS32RHA-□-BLA			Parallel/Right side		16			
EQFS32RHB-□-BLA					8			
EQFS40HA-□-BLA			40		Slider	Inline	-	20
EQFS40HB-□-BLA								10
EQFS40RHA-□-BLA	Parallel/Right side	20						
EQFS40RHB-□-BLA		10						
EQYG16MD2HA-□-BLA	16	Guide rod	Inline/Right side	Sliding bearing	10			
EQYG25MDHA-□-BLA	25		Inline		12			
EQYG32MDHA-□-BLA	32		16					

- For stroke length symbol:
- Rod type: up to 500 mm
  - Slider type: up to 1200 mm
  - Guide type: up to 300 mm.

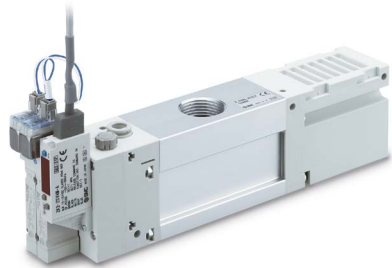


Position, speed, acceleration/deceleration, pushing force, current position, speed, force, target position reached signal, device information, normal or abnormal device status.

# Vacuum generation/management

## Multistage ejector

### ZL3/6 Series



- Energy-saving, large flow rate, 3-stage diffuser construction ejector
- Energy saving function selectable, with reduction of up to 90 %
- Suction flow rate up to 600 l/min, increased by 250 % compared to one-stage ejectors
- Supply valve/release valve combinations
- All-in-one design with integrated components to make it compact and lightweight.

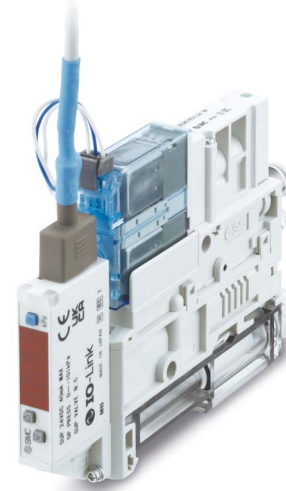
Part number	Max. suction flow rate [l/min (ANR)]	Standard supply pressure [MPa]	Vacuum (2/V) port size	Pressure range [kPa]
ZL3MF06-K15LOZ-ELH	300	0.35	G3/4	0 to -101
ZL3MF04-K15LOZ-ELH			G1/2	
ZL6MF06-K15LOZ-ELH	G3/4			
ZL6MF04-K15LOZ-ELH	G1/2			
ZL3MF06-K15LOZ-VLH	300		G3/4	-100 to 100
ZL3MF04-K15LOZ-VLH			G1/2	
ZL3HF06-K15LOZ-ELH	600	0.5	G3/4	0 to -101
ZL3HF04-K15LOZ-ELH			G1/2	
ZL6HF06-K15LOZ-ELH			G3/4	
ZL6HF04-K15LOZ-ELH	G1/2			
ZL3HF06-K15LOZ-VLH	300		G3/4	-100 to 100
ZL3HF04-K15LOZ-VLH			G1/2	



ON/OFF signal and analogue value, device information, normal or abnormal device status, cable breakage.

## Vacuum unit. Ejector system/Vacuum pump

### ZK2□A Series



- Advanced vacuum unit (ejector/pump/manifold systems) with low noise and high efficiency options.
- Energy saving digital vacuum switch: intermittent energising (supply/exhaust) only when vacuum decreases.
- More efficient 2-stage ejector: air consumption 30 % reduced.
- Dual 2 port valve (release valve/supply valve): can hold vacuum even when the power goes out or is turned off. Prevents the sudden dropping of workpieces.
- All-in-one design with integrated components to make it compact and lightweight.

Part number	Pressure range [kPa]	Nominal nozzle size [mm]	Energy saving function
ZK2□07K51HA-08	0 to -101	Ø 0.7	No
ZK2□10K51HA-08		Ø 1.0	
ZK2□12K51HA-08		Ø 1.2	
ZK2□15K51HA-08		Ø 1.5	
ZK2□07K55HA-08	-100 to 100	Ø 0.7	Yes
ZK2□10K55HA-08		Ø 1.0	
ZK2□12K55HA-08		Ø 1.2	
ZK2□15K55HA-08		Ø 1.5	

□ Body type: A for single unit, C for manifold

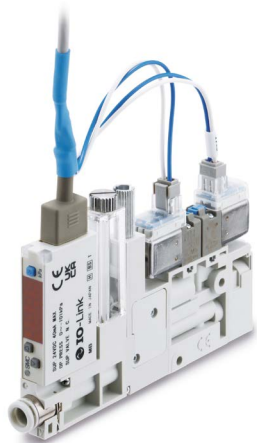


Threshold value, operation mode, ON/OFF signal and analogue value, device information, normal or abnormal device status, cable breakage.



## Compact vacuum unit

ZQ□A Series



- Nozzle sizes: Ø 0.5, Ø 0.7, Ø 1.0
- Suction flow rate of up to 22 l/min
- Max. vacuum pressure of -80 kPa
- Pressure switch variations
- Various solenoid valve combinations (supply valve/release valve).

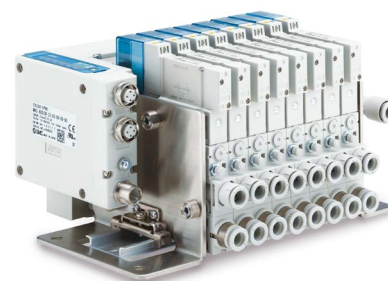
Part number	Pressure range [kPa]	Body type	Lead wire
ZQ101UA-K15LO-EL-00	0 to -101	For single unit	Without lead wire with connector
ZQ103MA-K15LO-EL-0		For manifold	
ZQ101UA-K15LO-VLH-00	-100 to 100	For single unit	Lead wire with connector for IO-Link
ZQ103MA-K15LO-VLH-0		For manifold	
ZQ101UA-K15LO-EL-33	0 to -101	For single unit	Without lead wire with connector
ZQ103MA-K15LO-VLH-3	-100 to 100	For manifold	Lead wire with connector for IO-Link



Threshold value, operation mode, ON/OFF signal and analogue value, device information, normal or abnormal device status, cable breakage.

## Vacuum manifold for fieldbus system

ZKJ Series



- Nozzle size: Ø 0.7, Ø 1.0, Ø 1.2, Ø 1.5
- Suction flow rate up to 74 l/min with a vacuum pressure of -89 kPa
- Max. valve flow rate: 415 l/min
- Exhaust sealing function for the quick release of workpieces
- Exhaust specifications: port exhaust, high-noise reduction silencer
- Easy to replace the filter element.

Part number	Manifold stations	U-side end plate and supply (P) port [mm]
ZZKJ04-KAN-L8	4	Ø 8 elbow one-touch fittings
ZZKJ08-KAN-L8	8	
ZZKJ12-KAN-L8	12	
ZZKJ16-KAN-L8	16	



Real-time diagnosis (process data), request base diagnosis (service data), data storage function.



## Vacuum gripper system

### ZGS Series



- Foam size: 300 mm x 180 mm/ 200 mm x 120 mm.
- Suitable for the palletising and depalletising of corrugated cardboard, etc.
- Ejector unit. Combines all functions required for adsorption (ejector, supply valve/release valve, silencer, pressure switch).
- Can be used immediately by simply connecting 1 electrical cable and air piping.

Part number	Foam size [mm]	Thickness [mm] (number of holes)	Number of ejector assemblies
ZGSNHK-300180BS2-NW1C8	300 x 180	30 (39 holes)	2
ZGSNHK-300180BS3-NW1C8			3
ZGSNHK-200120BS2-NW1C8	200 x 120		2



Pressure measurement value, diagnostic information and output status for valves, normal or abnormal device status, device information.

## Compact vacuum unit, ejector

### ZB Series



- Energy saving design
- Supply valve with latching specification
- Compact and light weight.

Part number	Nominal nozzle size [mm]	Maximum suction flow [l/min (ANR)]	Supply valve
ZB0311-K15LO-EL-C4	Ø 0.3	2	Normally closed
ZB0411-K15LO-EL-C4	Ø 0.4	3.5	
ZB0511-K15LO-EL-C4	Ø 0.5	4.5	
ZB0611-K15LO-EL-C4	Ø 0.6	10	



Threshold value, operation mode, ON/OFF signal and analogue value, device information, normal or abnormal device status, cable breakage.

# Sensors

## Flow sensors

### Digital flow switch manifold for water PF3WB/C/S/R Series



- Applicable fluid: water
- Flow ranges: from 0.5 to 40 l/min
- Integrated basic/straight and remote supply/return types available
- Output: IO-Link and switch output (NPN/PNP)
- Up to 10 stations
- Repeatability: 2.0 % F.S.

Part number	Type	Rated flow range [l/min]	Piping	Output
PF3WB□F-704-03-LT-M	Basic	0.5 to 4	G1/8	IO-Link with temperature sensor
PF3WB□F-720-04-LT-M		2 to 16	G1/2	
PF3WB□F-740-06-LT-M		5 to 40	G3/4	
PF3WC□DF-704-03-LT-M	Straight	0.5 to 4	G1/8	
PF3WC□DF-720-04-LT-M		2 to 16	G1/2	
PF3WC□DF-740-06-LT-M		5 to 40	G3/4	
PF3WR□BF-704-03-L-M	Remote return	0.5 to 4	G1/8	IO-Link
PF3WR□BF-720-04-L-M		2 to 16	G1/2	
PF3WR□BF-740-06-L-M		5 to 40	G3/4	

□ Number of stations, from 1 to 10.



Internal failure, abnormal internal temperature, outside of rated range, diagnostic bit (process data).

### Digital flow switch for water PF3W7-L Series



- Applicable fluid: water
- 3 parameters visible on the screen
- Flow ranges: from 0.5 to 250 l/min
- Output: IO-Link and switch output (NPN/PNP)
- Repeatability: 2.0 % F.S.
- IP65 enclosure.

Part number	Rated flow range [l/min]	Applicable fluid	Piping	Output
PF3W704-F03-LN-MZ	0.5 to 4	Water and ethylene glycol aqueous solution	G3/8	IO-Link: switch output (N/P)
PF3W720-F04-LN-MZ	2 to 16		G1/2	
PF3W740-F06-LN-MZ	5 to 40		G3/4	
PF3W711-F10-LN-MZ	10 to 100		G1	
PF3W721-F12-LN-M	50 to 250		G1 1/4	



Internal failure, abnormal internal temperature, outside of rated range, diagnostic bit (process data).

## Digital flow switch for large flow

### PF3A□H-L Series



- Applicable fluid: air and nitrogen
- 3-colour 2 or 4-screen display
- Flow ranges: from 10 to 12000 l/min
- Output: IO-Link, NPN/PNP and analogue/external input
- Built-in temperature and pressure sensor version available
- Repeatability:  $\pm 1$  F.S.
- Can be connected to air combination unit
- IP65 enclosure.

Part number	Rated flow range [l/min]	Piping	Applicable air combination unit	Output	Integrated pressure & temperature sensor
PF3A7R5H-□	5 to 500	—	AC20-D/AW30-D	Note 1)	No
PF3A701H-□	10 to 1000		AC30-D/AW40-D		
PF3A702H-□	20 to 2000		AC40-D/AW30-D		
PF3A704H-□	40 to 4000		AC50-D/AC60-D		
PF3A708H-□	80 to 8000				
PF3A703H-F10-□	30 to 3000	G1	—	Note 1)	No
PF3A706H-F14-□	60 to 6000	G1, 1/2			
PF3A712H-F20-□	120 to 12000	G2			
PF3A8R5H-L2	5 to 500	—	AC20-D/AW30-D	IO-Link/Switch output and switch output (N/P)	Yes
PF3A801H-L2	10 to 1000		AC30-D/AW40-D		
PF3A802H-L2	20 to 2000		AC40-D/AW30-D		
PF3A804H-L2	40 to 4000		AC50-D/AC60-D		
PF3A808H-L2	80 to 8000				

□ L3 IO-Link: Switch output (N/P)/ Analogue voltage output External input.

L4 IO-Link: Switch output (N/P)/ Analogue current output External input.



Internal failure, abnormal internal temperature, outside of rated range, overflow error/accumulated flow error/over current error, diagnostic bit (process data).

## Digital flow switch, 2-colour display

### PF2M7-L Series



- Applicable fluid: dry air, nitrogen, carbon dioxide and argon
- Flow ranges: from 0.01 to 100 l/min
- Output: IO-Link, PNP/NPN or analogue (voltage/current)
- Repeatability:  $\pm 1.0$  % F.S.
- Consumption: 35 mA or less
- Flow adjustment valve option.

Part number	Rated flow range [l/min]	Piping
PF2M701-C6-L□	0.01 to 1	Ø 6 one-touch fitting
PF2M702-C6-L□	0.02 to 2	
PF2M705-C6-L□	0.05 to 5	
PF2M710-C6-L□	0.1 to 10	
PF2M725-C6-L□	0.3 to 25	
PF2M750-C6-L□	0.5 to 50	
PF2M711-C8-L□	1 to 100	Ø 8 one-touch fitting
PF2M721-C8-L□	2 to 200	

□ For output specification: — (IO-Link/NPN/PNP), 2 (IO-Link/NPN/PNP + NPN/PNP/External input), 3 (IO-Link/NPN/PNP + Analogue 1 to 5 V/0 to 10 V), 4 (IO-Link/NPN/PNP + Analogue 4 to 20 mA).



Over current error, outside of rated flow range, accumulated flow error, internal product malfunction.



## Digital flow switch, 3-colour/3-screen display

### PF2MC7-L Series



- Applicable fluid: dry air and nitrogen
- Flow ranges: 5 to 2000 l/min
- Output: PNP/NPN, analogue (voltage/current) and/or IO-Link
- Repeatability:  $\pm 0.1$  % F.S.  $\pm 1$  digit
- M8 standard connector
- IP65 enclosure.

Part number	Rated flow range [l/min]	Piping	Output
PF2MC7501-F04-L2	5 to 500	G1/2	IO-Link, switch output (N/P) & external input
PF2MC7501-F04-L3			IO-Link, switch output (N/P) & analogue voltage
PF2MC7501-F04-L4			IO-Link, switch output (N/P) & analogue current
PF2MC7102-F04-L2	10 to 1000		IO-Link, switch output (N/P) & external input
PF2MC7102-F04-L3			IO-Link, switch output (N/P) & analogue voltage
PF2MC7102-F04-L4			IO-Link, switch output (N/P) & analogue current
PF2MC7202-F06-L2	20 to 2000	G3/4	IO-Link, switch output (N/P) & external input
PF2MC7202-F06-L3			IO-Link, switch output (N/P) & analogue voltage
PF2MC7202-F06-L4			IO-Link, switch output (N/P) & analogue current



Internal failure, outside of rated range, overflow error/accumulated flow error, diagnostic bit (process data).

## Clamp-on type flow sensor for liquids

### PFUW Series



- General liquids (water, oil, chemical liquids, etc.)
- Detection method: ultrasonic method
- Rated flow ranges: from 0 to 100 l/min
- Output: IO-Link, NPN/PNP or analogue (voltage/current)
- Repeatability:  $\pm 2.0$  % F.S.
- Consumption: 85 mA or less
- IP65/IP67 enclosure.

Part number	Rated flow range [l/min (ANR)]	Output 1	Output 2
PFUW760-L3N	0 to 60	IO-Link/NPN/ PNP	Analogue output (1 to 5 V $\leftrightarrow$ 0 to 10 V)
PFUW760-L4N			Analogue output (4 to 20 mA)
PFUW711-L3N	0 to 100		Analogue output (1 to 5 V $\leftrightarrow$ 0 to 10 V)
PFUW711-L4N			Analogue output (4 to 20 mA)



Threshold value, operation mode, flow rate command value, switch ON/OFF signal and analogue value, device information, normal or abnormal device status, cable breakage.



# Pressure & vacuum sensors

## High-precision digital pressure switch for air & general fluids

ISE7□/ISE7□G/ISE79S Series



- Applicable fluid: air and general fluids
- 3 parameters visible on the screen
- Pressure ranges: from 0 to 50 MPa
- Output: IO-Link, NPN/PNP
- Repeatability:  $\pm 0.5$  % F.S. or less
- Metal housing, solid turnable body
- IP67 enclosure.

Part number	Rated pressure range [MPa]	Applicable fluid	Piping	Output
ISE70-F02-L2	0 to 1	Air, non-corrosive gas, non flammable gas	G1/4	IO-Link: switch output 1 + switch output 2 (switch output: NPN or PNP switching type)
ISE71-F02-L2	0 to 1.6			
ISE70G-F02-L2	0 to 1	Liquid or gas that will not corrode materials of parts in contact with fluid		
ISE75G-F02-L2	0 to 2			
ISE76G-F02-L2	0 to 5			
ISE77G-F02-L2	0 to 10			
ISE78G-F02-L2	0 to 16			
ISE79S-F02-L2	0 to 50			



Internal failure, abnormal internal temperature, outside of rated range, short-circuit detection, diagnostic bit (process data).

## High-precision digital pressure & vacuum switch for air & general fluids

ZSE20□(F)-L/ISE20□-L Series



- Applicable fluid: air and general fluids
- 3 parameters visible on the screen
- Pressure ranges: from -101 kPa to 2 MPa
- Output: IO-Link, NPN/PNP
- Repeatability:  $\pm 0.2$  % F.S.  $\pm 1$  digit
- IP65 enclosure.

Part number	Rated pressure range	Applicable fluid	Piping	Output
ISE20B-L-M5	0 to 1 MPa	Air, Non-corrosive gas, Non flammable gas	M5 female thread	IO-Link/Switch: 1 output (switch output: NPN or PNP switching type)
ZSE20B-L-M5	0 to -100 kPa			
ZSE20BF-L-M5	-100 to 100 kPa			
ISE20C-L-F02	-0.100 to 1 MPa	Liquids and gases that do not corrode stainless steel 630 and 304	G1/4	
ZSE20C-L-F02	-0.101 to 0 kPa			
ZSE20CF-L-F02	-100 to 100 kPa			
ISE20CH-L-F02	-0.100 to 2 MPa			



Internal failure, abnormal internal temperature, outside of rated range, diagnostic bit (process data).



## Pressure sensor/switch for general fluids

### PSE570 Series



- Repeatability: up to  $\pm 0.2$  % (F.S.)
- Output: IO-Link, NPN/PNP
- PSE sensor set up tool available
- Enclosure: up to IP65.

Part number	Sensor range	Description
PSE570-01-L2N	Positive pressure (0 to 1 MPa)	IO-Link/Switch: 1 output + 2 outputs (PNP or NPN switching type for switch output)
PSE573-02-L2N	Compound pressure (-100 to 100 kPa)	



Measured values, device information, device status monitoring, cable breakage.

## Compact pneumatic pressure sensor/switch

### PSE540 Series



- Repeatability: up to  $\pm 0.2$  % (F.S.)
- Output: IO-Link, NPN/PNP
- PSE sensor set up tool available.

Part number	Sensor range	Port size	Description
PSE540-01-L	Positive pressure (0 to 1 MPa)	R1/8 (with M5 female thread)	IO-Link/Switch: 1 output (PNP or NPN switching type for switch output)
PSE540-M5-L		M5 x 0.8	
PSE540-R04-L		Ø 4 reducer	
PSE540-R06-L		Ø 6 reducer	
PSE541-01-L	Negative pressure (0 to -101 kPa)	R1/8 (with M5 female thread)	
PSE541-M5-L		M5 x 0.8	
PSE541-R04-L		Ø 4 reducer	
PSE541-R06-L	Ø 6 reducer		
PSE543-01-L	Compound pressure (-100 to 100 kPa)	R1/8 (with M5 female thread)	
PSE543-M5-L		M5 x 0.8	
PSE543-R04-L		Ø 4 reducer	
PSE543-R06-L		Ø 6 reducer	



Measured values, device information, device status monitoring, cable breakage.



## 3-screen display, 4-channel flow monitor PFG200 Series



- 2-tier, 3-screen and 3-colour display
- Repeatability:  $\pm 0.1$  % (F.S.)
- Consumption: 55 mA or less
- IO-Link hub function available
- IP65 (front face), IP40 (others).

Part number	Input/Output specification
PFG203	IO-Link + PNP 4 outputs



Threshold value, operation mode, switch ON/OFF signal and position measurement value, device information, normal or abnormal device status, cable breakage.

## Multi-channel digital sensor monitor PSE200A Series



- 2-tier 3-screen and 3-colour display
- 4 channel monitor, up to 4 sensors can be connected
- Output: IO-Link, NPN/PNP
- IO-Link hub function available
- Simple 3-step setting.

Part number	Input/Output	Unit specification
PSE202A	IO-Link + NPN 4 outputs or NPN 5 outputs	With unit selection function
PSE203A	IO-Link + PNP 4 outputs or PNP 5 outputs	
PSE202A-M	IO-Link + NPN 4 outputs or NPN 5 outputs	SI units only
PSE203A-M	IO-Link + PNP 4 outputs or PNP 5 outputs	



Internal failure, outside of rated range, over current error, diagnostic bit (process data).



## Digital gap checker ISA3-L Series



- Rated distance range: 0.01 to 0.30 mm
- Output: IO-Link, NPN/PNP
- Repeatability: 5 μm or less (ISA3-FL)
- Supply port available on both sides
- IP67 enclosure.

Part number	Type	Rated distance range [mm]	Port size	Operating pressure range [kPa]	Output specifications
ISA3-FFL-1	1 station with straight cable Without control unit	0.01 to 0.03	G1/8	100 to 200	IO-Link: switch output 1 + switch output 2 (switch output: NPN or PNP switching type)
ISA3-GFL-1		0.02 to 0.15			
ISA3-HFL-1		0.05 to 0.30			



Internal failure, abnormal internal temperature, outside of rated range, shortcircuit detection, internal product malfunction, diagnostic bit (process data).

## Position sensing

### Compact position sensor D-MPG Series



- Monitor multiple positions using a single switch
- Electrical entry: grommet
- Power voltage: 18 to 30 VDC
- Current consumption: 25 mA or less.

Part number	Teach unit lead wire	Sensor head lead wire [m]
D-MPGB1	M8 4 pin, 0.3 m	0.1
D-MPGC1	M12 4 pin, 0.3 m	0.3
D-MPGB2	M8 4 pin, 0.3 m	0.1
D-MPGC2	M12 4 pin, 0.3 m	0.3



Threshold value, operation mode, switch ON/OFF signal and position measurement value, device information, normal or abnormal device status.



## Actuator position sensor

### D-MP□ Series



- Applicable cylinders: MB, CQ2, MGP, CXSJ, CP96, C96, C55, CQS, MXH, MXS, MXQ□, MHZ, MHZL2, MHL2, MHF2 Series
- Measuring range: 25, 50, 100, 200 mm
- Output: IO-Link, NPN/PNP and analogue (0 to 10 V or 4 to 20 mA)
- Repeatability: 0.1 mm
- Teach pad: setting is available by simply touching the touch pad
- Consumption: 48 mA or less
- IP67 enclosure.

Part number	Measuring range [mm]	Lead wire
D-MP025A	25	Separate line, 2.0 m
D-MP025B		M8-4 pin, 0.3 m
D-MP025C		M12-4 pin, 0.3 m
D-MP050A	50	Separate line, 2.0 m
D-MP050B		M8-4 pin, 0.3 m
D-MP050C		M12-4 pin, 0.3 m
D-MP100A	100	Separate line, 2.0 m
D-MP100B		M8-4 pin, 0.3 m
D-MP100C		M12-4 pin, 0.3 m
D-MP200A	200	Separate line, 2.0 m
D-MP200B		M8-4 pin, 0.3 m
D-MP200C		M12-4 pin, 0.3 m



Internal failure, abnormal internal temperature, reduced magnetic field strength.

## 2-in-1 auto switch

### D-MH2 Series



- Monitor multiple positions using a single switch
- Electrical entry: grommet
- Power voltage: 18 to 30 VDC
- Current consumption: 25 mA or less.

Part number	Number of set points	Electrical entry	Lead wire specification
D-MH2CPSBPC	2	In-line	M8 4-pin
D-MH2CPVSBPC		Perpendicular	
D-MH2DPSBPC	3	In-line	M8 4-pin
D-MH2DPVSBPC		Perpendicular	
D-MH2CPSDPC	2	In-line	M12 4-pin
D-MH2CPVSDPC		Perpendicular	
D-MH2DPSDPC	3	In-line	M12 4-pin
D-MH2DPVSDPC		Perpendicular	



Threshold value, operation mode, switch ON/OFF signal and position measurement value, device information, normal or abnormal device status, cable breakage.



# Environmental sensing

## Condensation checker

### PSH Series



- Applicable fluid: air, non-corrosive gas
- Relative humidity setting range: 0 to 100 %
- Relative humidity display accuracy:  $\pm 5\%$  RH  $\pm 1$  digit
- Temperature setting range: -5 to 55 °C
- Temperature display accuracy:  $\pm 3\%$  °C  $\pm 1$  digit
- 3-colour/ 2-screen display
- IP65.

Part number	Rated pressure range [MPa]	Description
PSH-LL-01-W	0.3 to 1.0	IO-Link/Switch output 1 + Switch output 2 (switch output: NPN or PNP switching type)



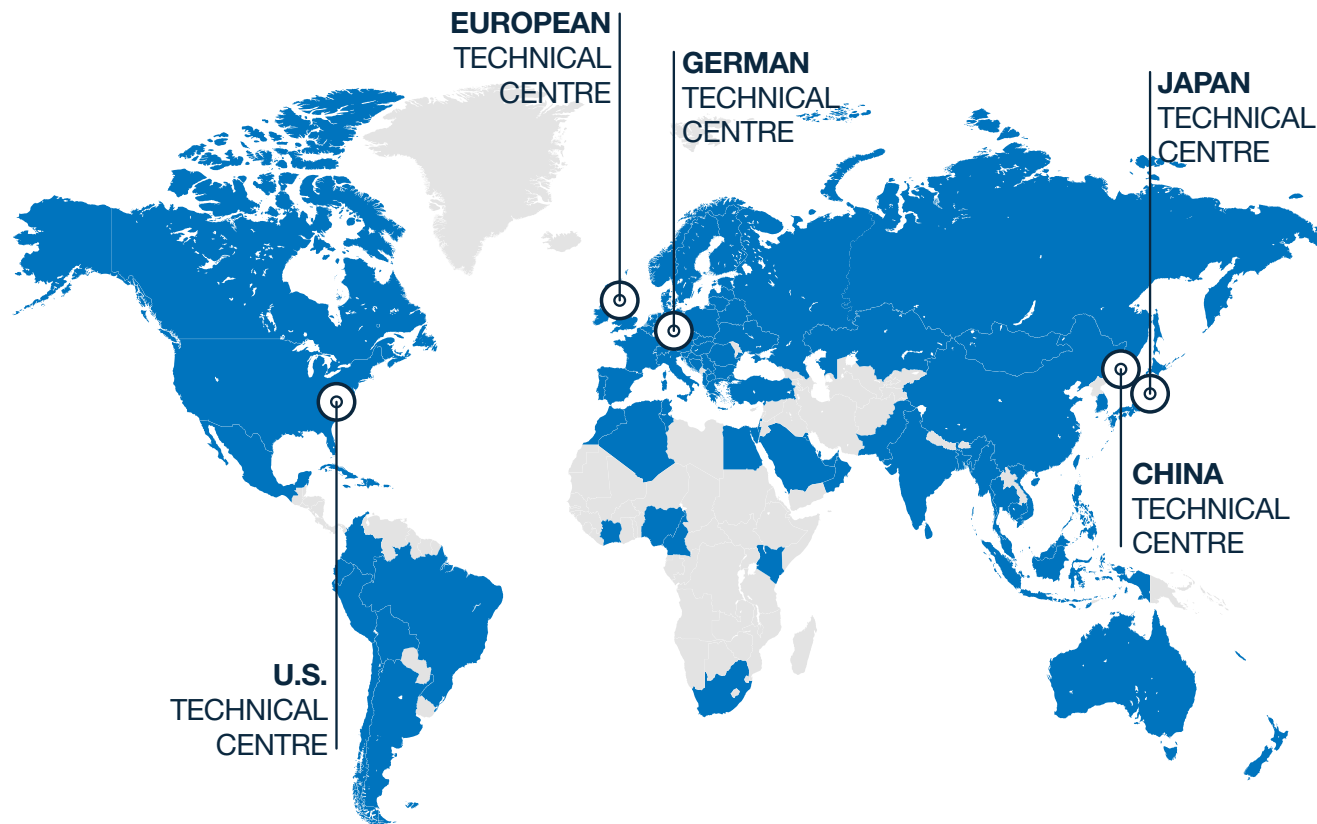
Relative humidity measurement value, temperature measurement value, system error diagnostic (process data).

# 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.

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



# 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 provide 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. Moreover, flexibility to rapidly respond to any sudden change in the manufacturing environment.

## 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.

## 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.

## Engineering BCP

### Consistent technical support

2,000 engineers at our 5 technical centres around the globe.

## 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.

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