SMC

Expertise – Passion – Automation

Pressure switches

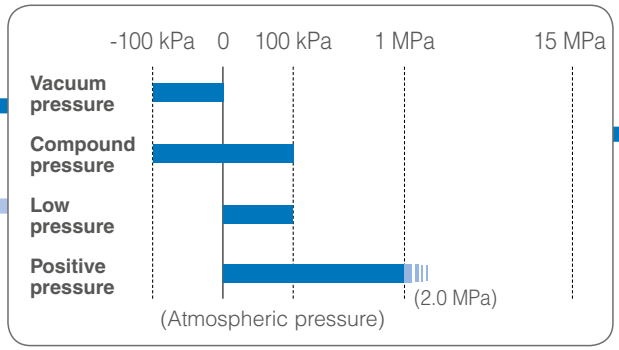
Flow sensor product variations

Fluid

Flow rate range

For Gas

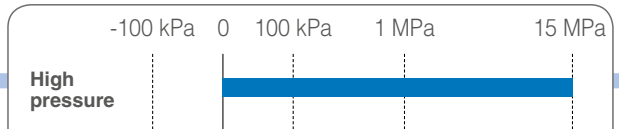
Silicon diaphragm
Air, Nitrogen, Argon, Carbon dioxide

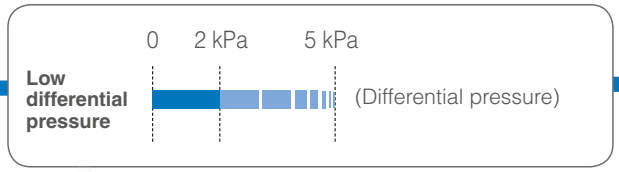


For Gas and Liquid

Stainless steel diaphragm
Liquids such as water, oil, etc. Air, Nitrogen, Argon, Carbon dioxide
Anti-corrosiveness, Airtightness

Ceramic diaphragm
Liquids such as water, oil, etc. Air, Nitrogen, Argon, Carbon dioxide





For dimensions and other details refer to the general catalogue for each series in www.smc.eu

For visual examples, please refer to the sensors & switches promotional video

Product type

Applicable model

Digital

Output type

Switch output | Analogue [1] output | Digital display

· Sensor/Display integrated type
· Numerically displays the setting and measurement values.

1) Excludes Z/ISE20

For gas	For gas and liquid
· Z/ISE20☐ series · Z/ISE10 series · ISE7☐ series	· Z/ISE20C series · ISE7☐G series · ISE75H series (For high pressure)

Switch

Output type

· Sensor only product
· ON/OFF confirmed by LED

For gas	For gas and liquid
· Z/ISE1 series · Z/ISE2 series · PS1000/1100/1200 series	

Sensor

Output type

· Sensor only product
· Can be connected to a separate monitor

For gas	For gas and liquid
· PSE53m series · PSE54m series · PSE550 series (For low differential pressure)	· PSE56☐ series · PSE57☐ series

Monitor

Output type

· Sensor type display
· Numerical control can be placed in a distant location.

[For 1 ch]	[For 4 ch]
· PSE300A/300AC series	· PSE200A series

Basic performance table (For gas and liquid)

Model selection table

Self-contained type

Model	**ZSE20(F)** **ISE20** 	**ZSE20A(F)** **ISE20A** 	**ZSE20B(F)** **ISE20B** 	**ZSE20B(F)-L** **ISE20B-L** 	**ZSE10(F)** **ISE10** 	**ISE70/71**
Fluid	General pneumatic					
Calibration method	Push-button calibration					
Set pressure range	-105 to 10 kPa -105 to 105 kPa -0.105 to 1.05 MPa					-0.105 to 1.05 MPa -0.105 to 1.68 MPa
Power supply voltage	12 to 24 VDC ±10 % (Ripple ±10 %)			12 to 24 VDC ±10 % (Ripple ±10 %) 18 to 30 VDC ±10 % [1] (Ripple ±10 %) 1) When used as an IO-Link device	12 to 24 VDC ±10 % (Ripple ±10 %)	12 to 24 VDC ±10 % (Ripple ±10 %) 18 to 30 VDC ±10 % [1] (Ripple ±10 %) 1) When used as an IO-Link device
Temperature characteristics (based on 25 °C)	±2 % F.S. (-5 to 50 °C)				±2 % F.S. (0 to 50 °C)	
Repeatability	±0.2 % F.S. ±1 digit					
Hysteresis	Hysteresis mode: Variable Window comparator mode: Variable					
Output	NPN/PNP open collector	NPN/PNP open collector Analogue voltage output Analogue current output		IO-Link: Switch output 1) Switch output: NPN or PNP switching type	NPN/PNP open collector Analogue voltage output	IO-Link: Switch output 1 + Switch output 2 Switch output 1 + Switch output 2 1) Switch output: NPN or PNP switching type
Display	2-colour display				1-colour display	2-colour display
Enclosure	IP40		IP65		IP40	IP67
Note	3-screen display Panel mounting possible Selectable pressure unit Anti-chattering function Display calibration function Power saving mode Sub screen setting function	3-screen display Panel mounting possible Selectable pressure unit Anti-chattering function Display calibration function Power saving mode Sub screen setting function Copy function Auto shift function		IO-Link compatible 3-screen display Panel mounting possible Selectable pressure unit Anti-chattering function Display calibration function Power saving mode Sub screen setting function	Panel mounting possible DIN rail mountable Selectable pressure unit Anti-chattering function Display calibration function Power saving mode Copy function	IO-Link compatible 3-screen display Selectable pressure unit Anti-chattering function Power saving mode Sub screen setting function

For dimensions and other details refer to the general catalogue for each series in www.smc.eu

	ISE7□G	ISE75H	ZSE20C(F) ISE20C(H)	ZSE1 ISE1	ZSE2 ISE2	PS1000 PS1100 PS1200	ISE35
	General fluids			General pneumatic			
				Trimmer calibration			Push-button calibration
	-0.105 to 1.05 MPa -0.105 to 2.1 MPa -0.25 to 5.25 MPa -0.5 to 10.5 MPa	0.5 to 15 MPa	-105 to 10 kPa -105 to 105 kPa -0.105 to 1.05 MPa -0.105 to 2.1 MPa	-101 to 0 kPa 0 to 100 kPa 0 to 1 MPa		-100 to 0 kPa -0.1 to 0.4 MPa -0.1 to 0.45 MPa	-0.1 to 1 MPa
	12 to 24 VDC ±10 % (Ripple ±10 %)						
	ISE70G: ±3 % F.S. Other models: ±5 % F.S. (-5 to 50 °C)	±3 % F.S. (0 to 50 °C)		±3 % F.S. (0 to 60 °C)		±3 % F.S. (0 to 60 °C)	
	±0.5 % F.S.		±0.2 % F.S. ±1 digit	±1 % F.S.			
				Variable 1 to 10 % Fixed 3 % F.S. or less	Fixed 3 % F.S. or less	Fixed 4 % F.S. or less Fixed 10 % F.S. or less	Hysteresis mode: Variable Window comparator mode: Variable
		1 setting NPN/PNP 2 settings NPN/PNP open collector PNP open collector	NPN/PNP open collector Analogue voltage output Analogue current output	NPN/PNP open collector Analogue voltage output	NPN/PNP open collector	2-wire type	NPN/PNP open collector
							2-colour display
			IP65	IP40			
		Selectable pressure unit Anti-chattering function Display calibration function	3-screen display Panel mounting possible Selectable pressure unit Anti-chattering function Display calibration function Power saving mode Copy function Auto shift function	Compliant with ZM ejector	Compliant with ZX/ZR ejector		Modular type mountable Series ARM10/11 mountable Selectable pressure unit Anti-chattering function Power saving mode

Model selection table

Sensor

	PSE53□	PSE54□	PSE550	PSE56□	PSE57□	
Model						
Fluid	General pneumatic			General fluids		
Calibration method						
Set pressure range	-101 to 0 kPa -101 to 101 kPa 0 to 101 kPa 0 to 1 MPa	-101 to 0 kPa -100 to 100 kPa 0 to 1 MPa	0 to 2 kPa	-101 to 0 kPa -100 to 100 kPa 0 to 500 kPa 0 to 1 MPa	-100 to 100 kPa 0 to 500 kPa 0 to 1 MPa	0 to 2 MPa 0 to 5 MPa 0 to 10 MPa
Power supply voltage	12 to 24 VDC ±10 % (Ripple ±10 %)					
Temperature characteristics (based on 25 °C)	±2 % F.S. (0 to 50 °C)		±3 % F.S. (0 to 50 °C)	±2 % F.S. (0 to 50 °C) ±3 % F.S. (-10 to 60 °C)	**PSE570** ±2 % F.S. (0 to 50 °C) ±3 % F.S. (-10 to 60 °C)	**PSE573/574** ±3 % F.S. (0 to 50 °C) ±4 % F.S. (-10 to 60 °C) **PSE575/576/577** ±5 % F.S. (-10 to 60 °C)
Repeatability	±1 % F.S.	±0.2 % F.S.	±0.3 % F.S.	±0.2 % F.S.	**PSE570/573/574** ±0.2 % F.S.	**PSE575/576/577** ±0.5 % F.S.
Hysteresis						
Output	Analogue voltage output		Analogue voltage output Analogue current output			
Display						
Enclosure	IP40			IP65		
Note						

For dimensions and other details refer to the general catalogue for each series in www.smc.eu

Model selection table

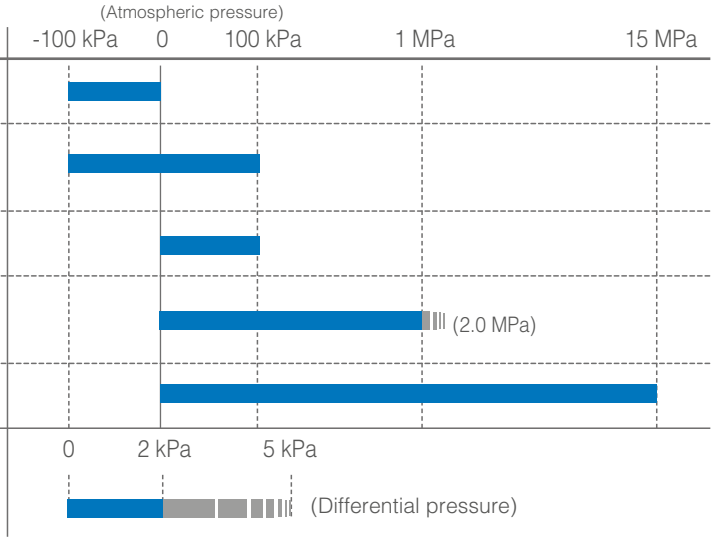
Monitor

	PSE200A	PSE300A	PSE300AC
Model			
Sensor input amount	4 inputs	1 input	
Calibration method	Push-button calibration		
Set pressure range	−105 to 10 kPa (**PSE531/541/561**) −105 to 105 kPa (**PSE533/543/563/573**) −0.2 to 2.1 kPa (**PSE550**) −10 to 105 kPa (**PSE532**) −50 to 525 kPa (**PSE564/574**)	−0.105 to 1.05 MPa (**PSE530/540/560/570**) −0.105 to 2.1 MPa (**PSE575**) −0.25(−0.1) [1] to 5.25 MPa (**PSE576**) −0.5(−0.1) [1] to 10.5 MPa (**PSE577**) 1) ( ): For PSE300AC	
Power supply voltage	12 to 24 VDC ±10 % (Ripple ±10 %)		
Temperature characteristics (based on 25 °C)	±0.5 % F.S. (0 to 50 °C)		
Repeatability	±0.1 % F.S. ±1 digit		
Hysteresis	Hysteresis mode: Variable Window comparator mode: Variable		
Output	IO-Link NPN/PNP open collector 1 CH: 2 outputs 2 to 4 CH: 1 output	NPN/PNP open collector Analogue voltage output Analogue current output 1) Switch output: NPN or PNP (switching type)	NPN/PNP open collector 1) Switch output: NPN or PNP (switching type)
Display	2-colour display		
Enclosure	Front only IP65 The rest IP40	IP40	IP65
Note	IO-Link compatible 3-screen display Panel mounting possible Auto shift function Display calibration function Anti-chattering function Channel to channel copy function Selectable pressure unit Differential pressure measuring	3-screen display Panel mounting possible Auto shift function Display calibration function Anti-chattering function Selectable pressure unit Current input possible Copy function	3-screen display Display calibration function Anti-chattering function Selectable pressure unit Current input possible

Applications

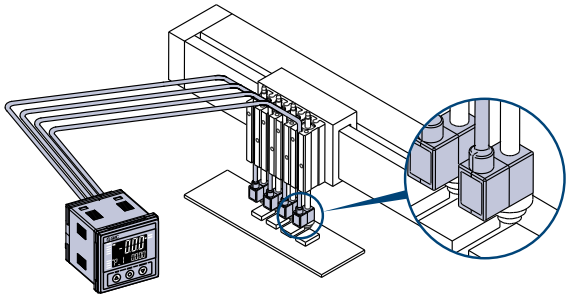
Pressure range and application examples

Application Examples	Pressure range
- Suction verification	Vacuum pressure
- Suction verification (confirmation of release pressure)	Compound pressure
- Workpiece placement verification	Low pressure
- Supply pressure confirmation - Leak test	Positive pressure
- Liquid coolant pressure control	High pressure
- Monitoring filter clogging - Level detection of a liquid	Low differential pressure



Suction verification

PSE54□ + PSE200A Series

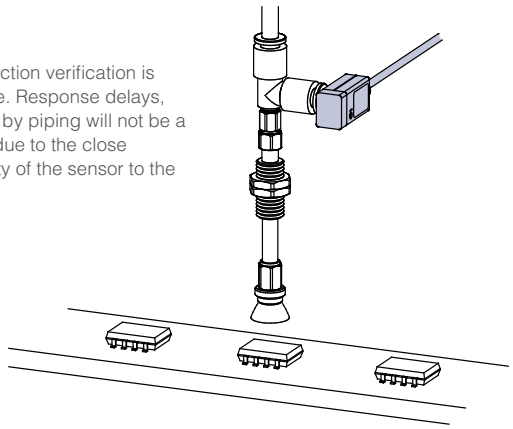


Due to the small size, the sensor can be installed close to a pad.
Calibration is easy with the auto-preset function.

- Sensor installed close to a pad (No. 1)

PS1100 Series

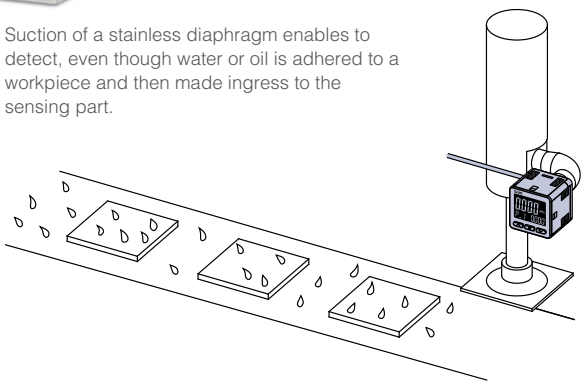
Easy suction verification is possible. Response delays, caused by piping will not be a factor, due to the close proximity of the sensor to the pad.



- Sensor installed close to a pad (No. 2)

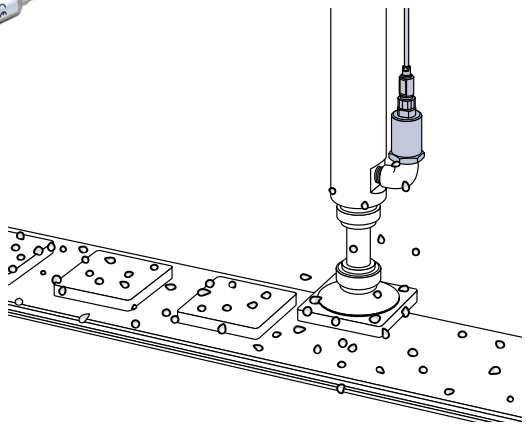
ZSE20CF Series

Suction of a stainless diaphragm enables to detect, even though water or oil is adhered to a workpiece and then made ingress to the sensing part.



- Suction verification of workpieces containing moisture

PSE573 Series



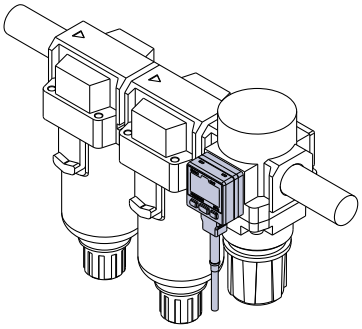
- Suction verification of workpieces containing moisture

For dimensions and other details refer to the general catalogue for each series in www.smc.eu

Supply pressure confirmation

ISE35 Series

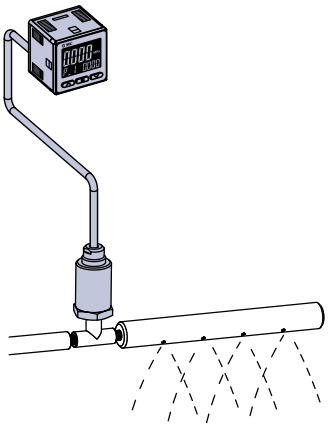
The line pressure can be adjusted by monitoring the digital readout. Which provides a visual verification of the operating pressure. The output can be programmed to respond to supply pressure drops, etc.



- Confirmation of supply pressure in air line

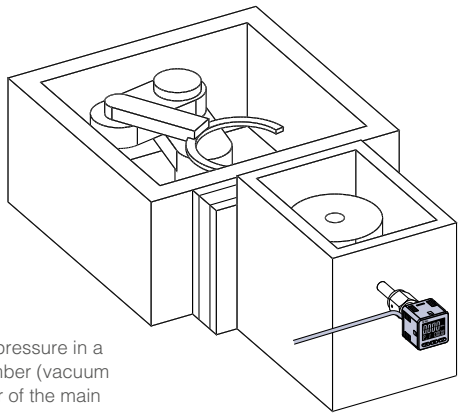
PSE560 + PSE300A Series

The supply pressure of water, oil, etc. can be confirmed by using a sensor for gas and fluids.



- Confirmation of supply pressure of cleaning lines

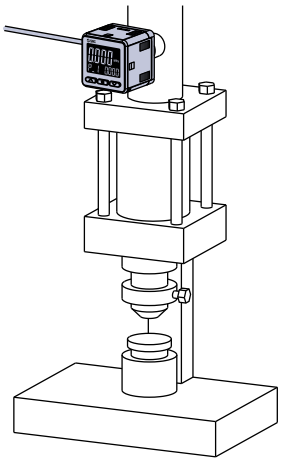
ZSE20CF Series



Verification of pressure in a load lock chamber (vacuum spare chamber of the main chamber)

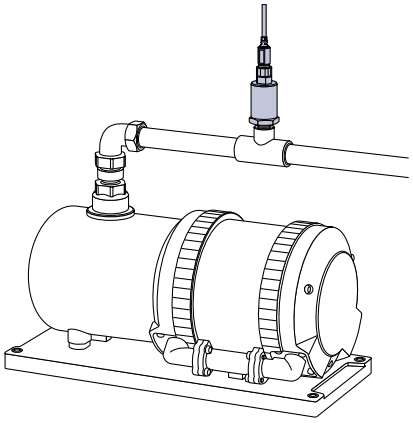
- Confirmation of atmospheric pressure for a load lock chamber

ISE20C Series



- Confirmation of working pressure of hydraulic cylinder

PSE57☐ Series

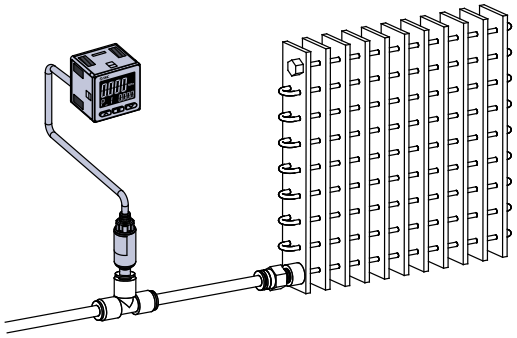


- Discharge pressure control for compressor

Leak test

PSE532 + PSE300A Series

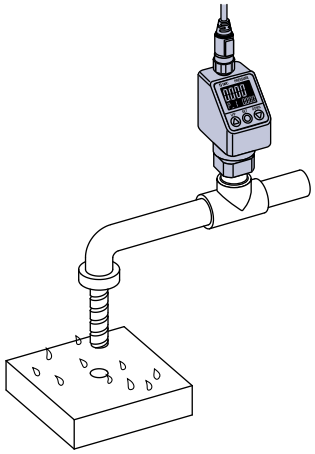
A low pressure sensor (PSE532-☐) is used to detect minute differences. The auto shift function reduces the influence of fluctuations in the supply pressure.



- Inspection of a radiator

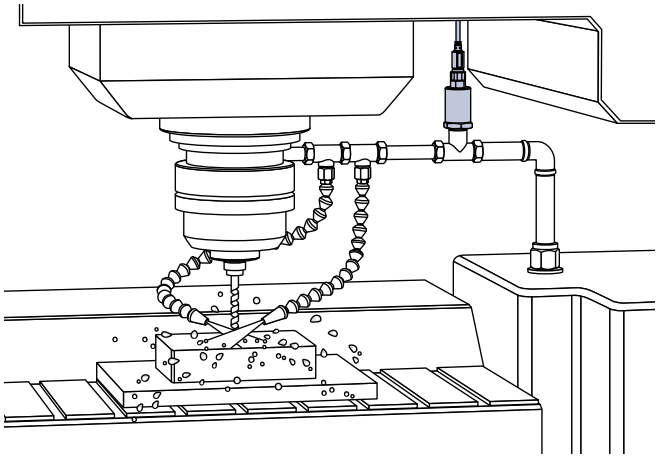
Liquid coolant pressure control

ISE7□G Series



- Liquid pressure control of a gun drill

PSE57□ Series

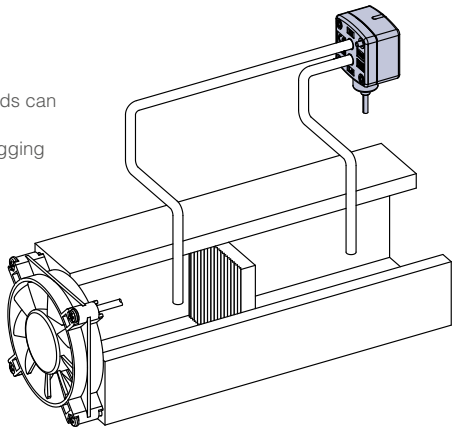


- Liquid coolant pressure control

Monitoring filter clogging

PSE550, PSE200A Series

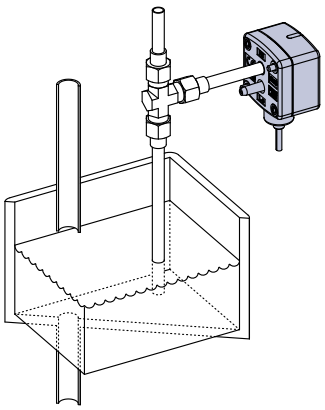
The filtration and replacement periods can be controlled by monitoring the clogging of the filter.



Liquid level detection

PSE550 Series

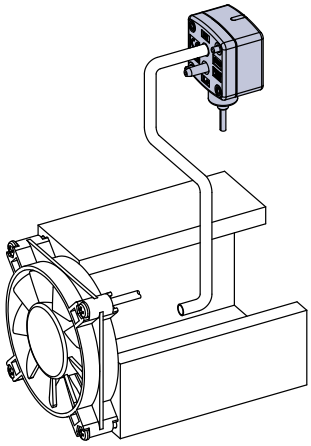
Can detect the level of a liquid through changes in the purge pressure.



Air flow control

PSE550 Series

Can monitor the air flow in the duct and control air blasts.



IO-Link Compatible

3-screen. High-precision digital pressure switch
Vacuum pressure – ZSE20B(F)
Positive pressure – ISE20B

2 outputs

IO-Link Compatible

- IO-Link version	V1.1
- Process data length	2-byte input
- Transmission speed	COM2 (38.4 kbps)
- Minimum cycle time	2.3 ms
- IO-Link port type	Class A

3-screen display. High-precision digital pressure switch
ISE7□/7□(G)

IO-Link Compatible

- IO-Link version	V1.1
- Process data length	2-byte input
- Transmission speed	COM2 (38.4 kbps)
- Minimum cycle time	2.3 ms
- IO-Link port type	Class A

3-screen. Multi-channel digital sensor monitor
PSE200A

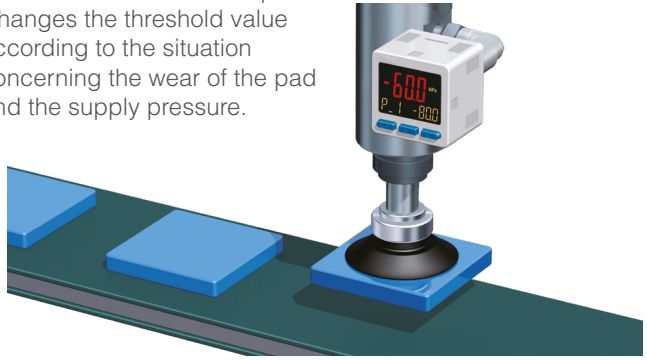
New product

IO-Link Compatible

- IO-Link version	V1.1
- Process data length	10-byte input
- Transmission speed	COM2 (38.4 kbps)
- Minimum cycle time	4.8 ms
- IO-Link port type	Class A

Employs predictive maintenance for the early detection of declining adsorption capacity

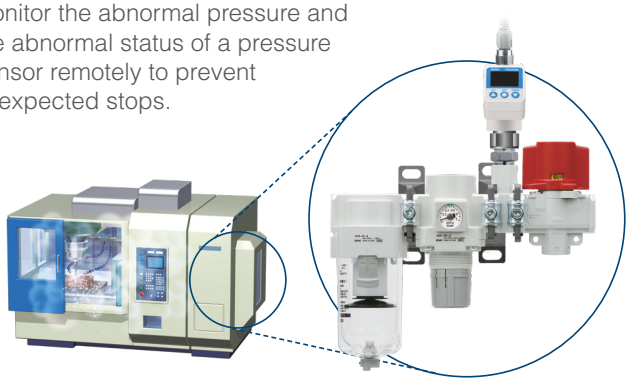
- Monitors switch ON/OFF signals and analogue values to determine the wear of the pad.
- Changes the threshold value according to the situation concerning the wear of the pad and the supply pressure.



Preventive maintenance to prevent supply pressure and sensor abnormalities

Confirm the pressure condition during operation and monitor the device status.

Monitor the abnormal pressure and the abnormal status of a pressure sensor remotely to prevent unexpected stops.



Expertise – Passion – Automation

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