

Low-Pressure / High-Precision Type

5.0 MPa Maximum Supply Pressure
High Pressure Electro-Pneumatic Regulator



Improved accuracy at 1 MPa or less

Power consumption
3 W or less

Repeatability	$\pm 0.5\%$ F.S. or less
Pressure stability	0.5% F.S. or less



Max. supply pressure: **5.0 MPa**

Set pressure range: **0.01 to 3.0 MPa**

Max. flow rate: **3000 L/min (ANR)***1

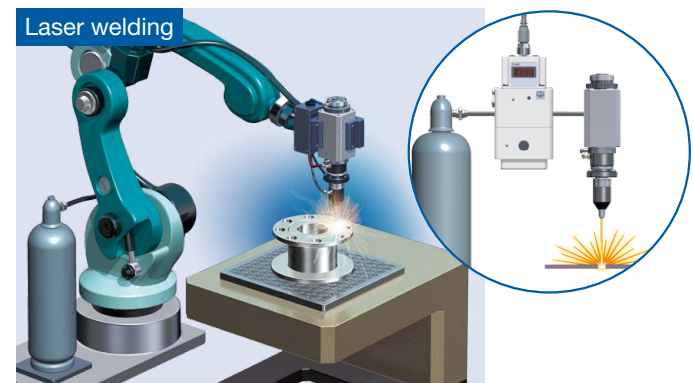
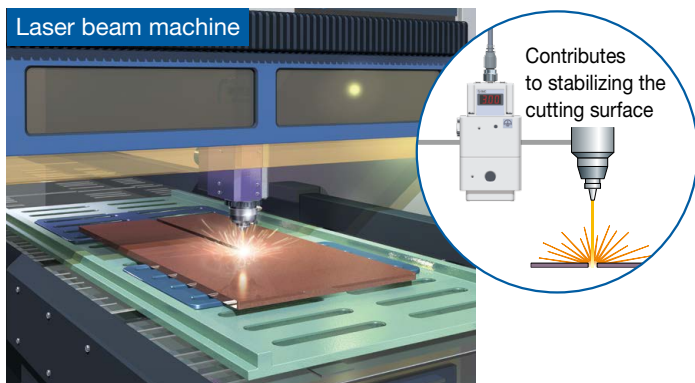
*1 Supply pressure: 5.0 MPa Set pressure: 3.0 MPa

Fluid: Air, N₂, O₂*2, Ar

*2 When using O₂, refer to "Fluid Supply" on page 5.

Wetted parts: **Fluorine grease**

Application Examples



Caution This product is only for blowing gas. This product does not have sufficient pressure control for other applications (driving, sealing, etc.).

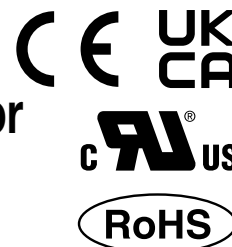
ITVX2030-X10



Low-Pressure / High-Precision Type

5.0 MPa Maximum Supply Pressure
High Pressure Electro-Pneumatic Regulator

ITVX2030-X10



How to Order

ITVX2030-013S-X10

Body size

2	ITVX2000
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Pilot type

0	Built-in regulator type
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Set pressure range

3	0.01 to 3.0 MPa
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Power supply voltage

0	24 VDC
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Input signal

0	Current type 4 to 20 mA DC (Sink type)
1	Current type 0 to 20 mA DC (Sink type)
2	Voltage type 0 to 5 VDC
3	Voltage type 0 to 10 VDC

Monitor output

1	Analog output 1 to 5 VDC
2	Switch output/NPN output
3	Switch output/PNP output
4	Analog output 4 to 20 mA DC (Sink type)

Thread type

Nil	Rc
F	G*1

*1 Complies with ISO1179-1 (2007).

Specifications

X10	Low-Pressure / High-Precision
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Pressure display unit

Nil	MPa
2*3	kgf/cm ²
3	bar
4*3	psi

*3 Under Japan's new Measurement Act, this is only for overseas sales (SI units are to be used inside Japan).

Cable connector type

S	Straight type 3 m
L	Right angle type 3 m
N	Without cable connector

Accessory (Bracket)

Nil	Without bracket
B	Flat bracket
C	L-bracket

Port size

3	3/8*2
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*2 The exhaust port size is 1/4". The exhaust port size for the built-in regulator and the solenoid valve is M5.

Accessories (Option)/Part No.

Description	Part no.	
Flat bracket assembly (including mounting screws)	P398020-600	
L-bracket assembly (including mounting screws)	P398020-601	
Power cable connector	Straight type 3 m	P398020-500-3
	Right angle type 3 m	P398020-501-3

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5.0 MPa Maximum Supply Pressure
High Pressure Electro-Pneumatic Regulator **ITVX2030-X10**

Standard Specifications



Symbol

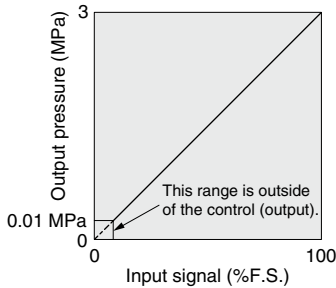
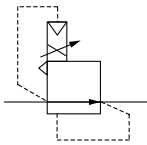


Fig. 2. Input/output characteristics chart

Model		ITVX2030-X10
Minimum supply pressure		Whichever is higher: 0.5 MPa or the set pressure +0.2 MPa
Maximum supply pressure		5 MPa*1
Set pressure range*2		0.01 to 3.0 MPa
Power supply	Voltage	24 VDC ±10%
	Current consumption	0.12 A or less
Input signal	Current type*3	4 to 20 mA DC, 0 to 20 mA DC (Sink type)
	Voltage type	0 to 5 VDC, 0 to 10 VDC
Input impedance	Current type	500 Ω or less
	Voltage type	6 to 6.5 kΩ (at ordinary temperature)
Output signal (Monitor output)*4	Analog output	1 to 5 VDC (Output impedance: Approx. 1 kΩ) Output accuracy: ±6% F.S. or less
	Switch output	NPN open collector output: Max. 30 V, 80 mA Hysteresis: ±3% F.S., Self-diagnosis: ±5% F.S. or less PNP open collector output: Max. 80 mA Hysteresis: ±3% F.S., Self-diagnosis: ±5% F.S. or less
Linearity		±1% F.S. or less
Hysteresis		1% F.S. or less
Repeatability	Set pressure: Up to 1 MPa	±0.5% F.S. or less
	Set pressure: 1 to 3 MPa	±1% F.S. or less
Pressure stability	Set pressure: Up to 1 MPa	0.5% F.S. or less
	Set pressure: 1 to 3 MPa	1% F.S. or less
Sensitivity		±1% F.S. or less
Temperature characteristics		±0.12% F.S. /°C or less
Output pressure display	Accuracy	±2% F.S. ±1 digit or less
	Minimum unit*5	MPa: 0.01, kgf/cm ² : 0.1, bar: 0.1, psi: 1
Fluid		Air, N ₂ , O ₂ , Ar
Operating temperature range		0 to 50°C (No condensation)
Weight		Approx. 900 g (without options)

- *1 When oxygen is used as a fluid, the maximum supply pressure must be less than 1 MPa.
- *2 Refer to Fig. 2 for the relationship between set pressure and input signal.
- *3 2-wire type 4 to 20 mA DC is not available. Power supply voltage 24 VDC is required.
- *4 Select either analog output or switch output. Further, when switch output is selected, select either NPN output or PNP output. When measuring analog output of 1 to 5 VDC with a load impedance less than 100 k, the analog output may not obtain the output accuracy of ±6% or less (F.S.).
- *5 Adjustment of numerical values such as the zero/span adjustment is set based on the minimum units for output pressure display. Note that the unit cannot be changed.
- * Full scale (%F.S.) is 3 MPa.
- * Characteristics shown above are based on the piping conditions of Fig. 1.
- * If the supply pressure becomes 4.5 MPa or more, air may continue to leak from the EXH port of the built-in regulator.

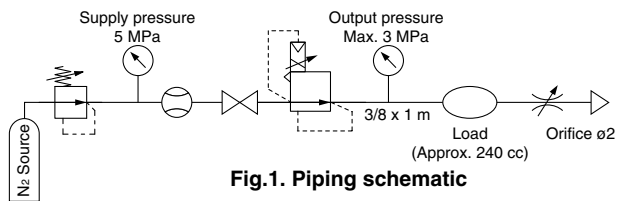
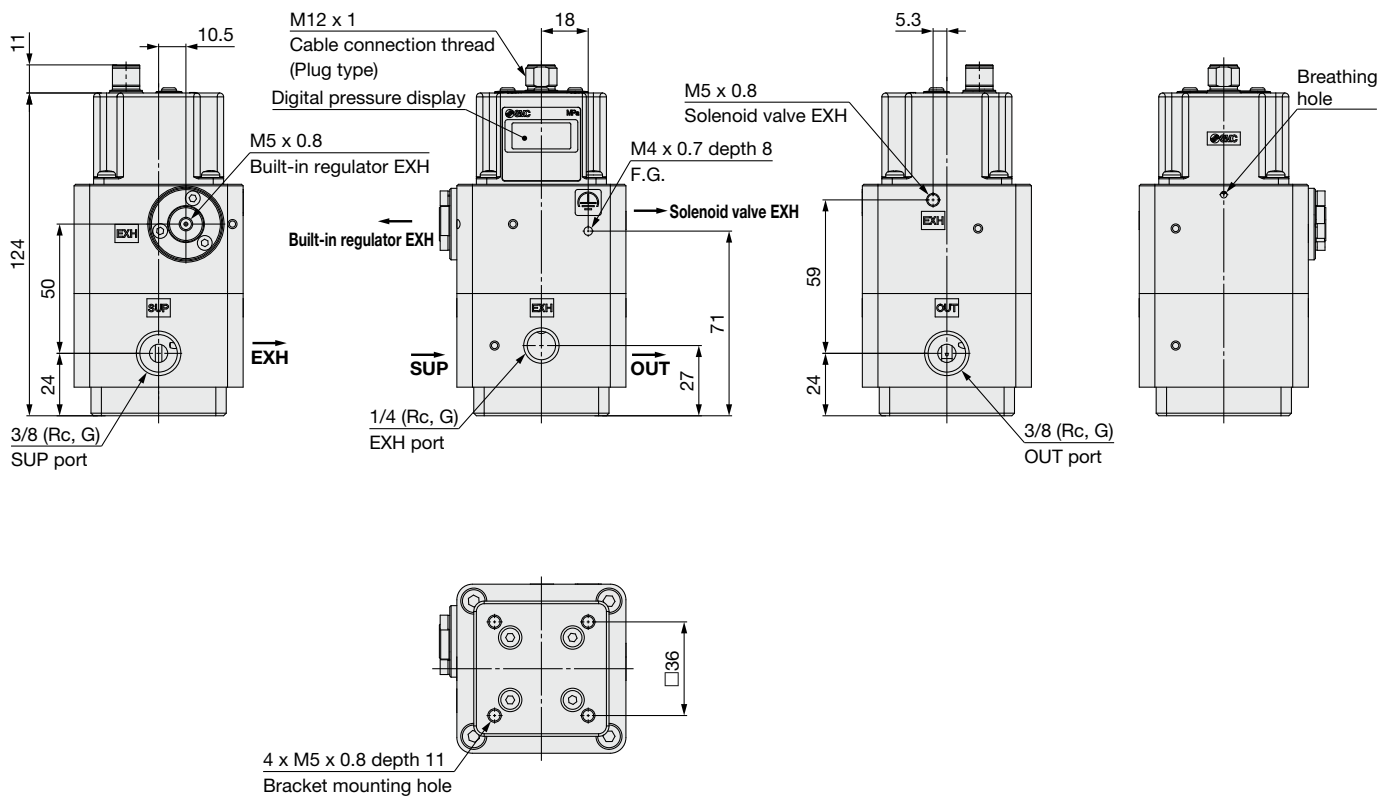
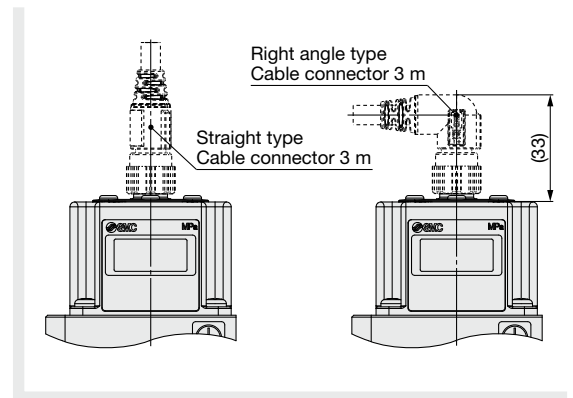
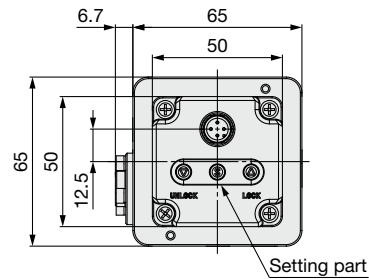


Fig.1. Piping schematic

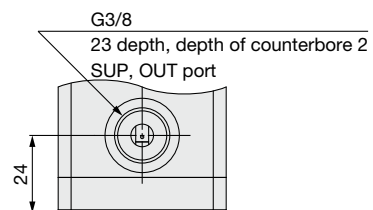
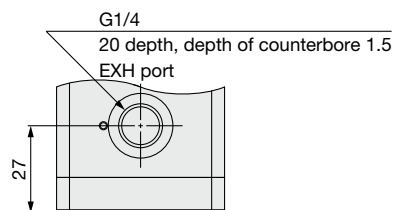
- * This product is only for blowing gas. This product does not have sufficient pressure control for applications other than blowing (driving, sealing, etc.).
- * This product is not certified by Japan's High Pressure Gas Safety Act.

ITVX2030-X10

Dimensions



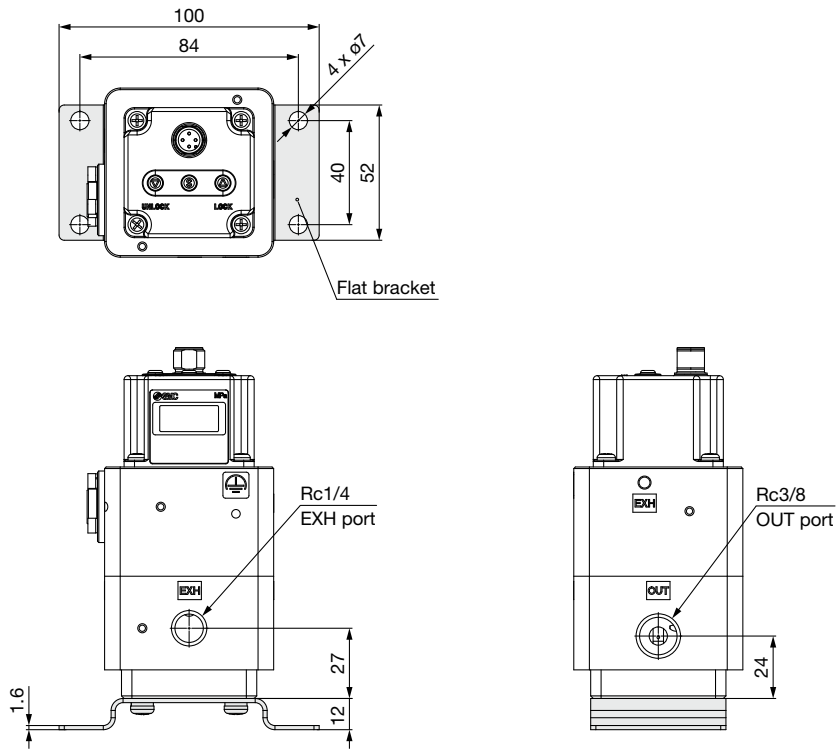
G thread



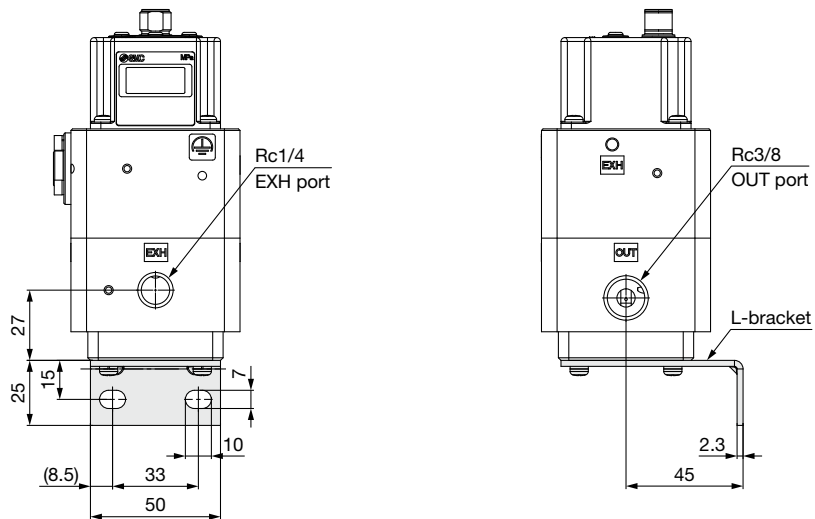
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Dimensions

With flat bracket



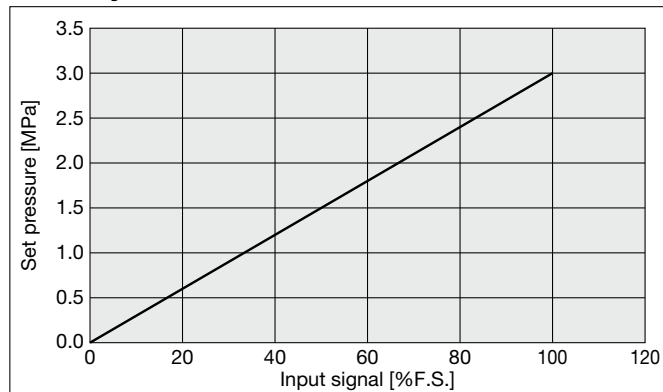
With L-bracket



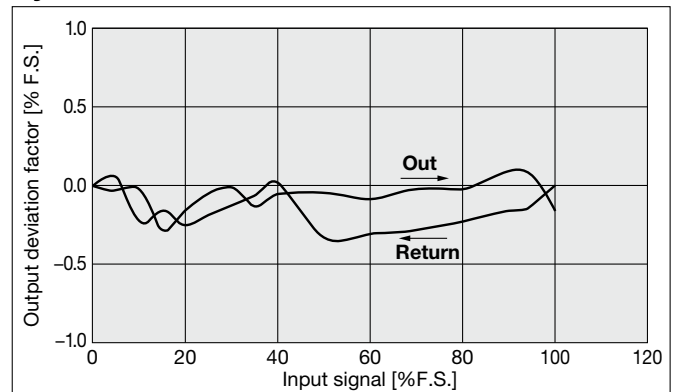
ITVX2030-X10

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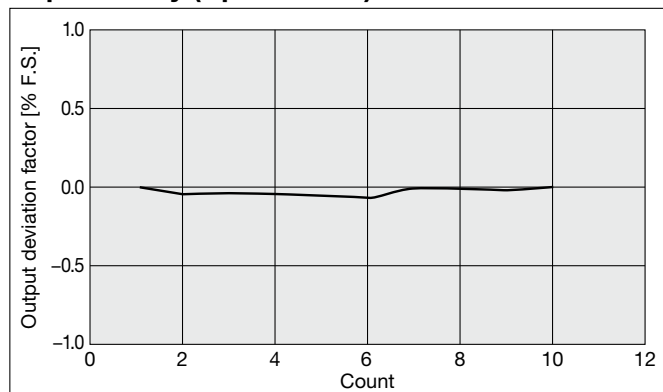
Linearity



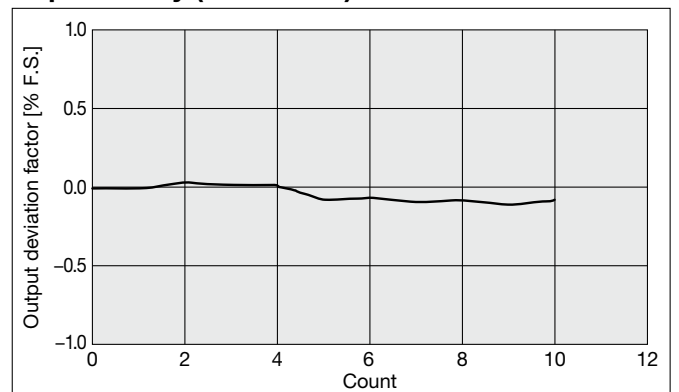
Hysteresis



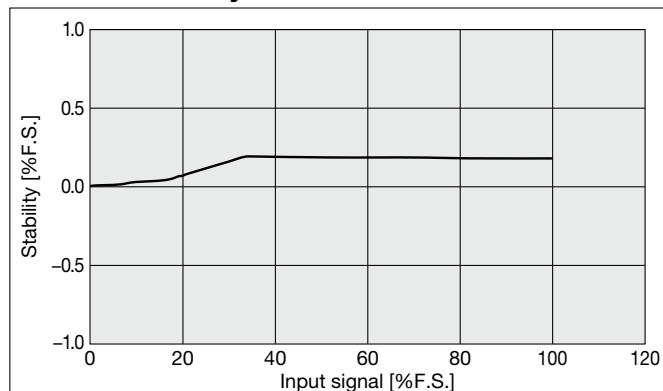
Repeatability (Up to 1 MPa)



Repeatability (1 to 3 MPa)

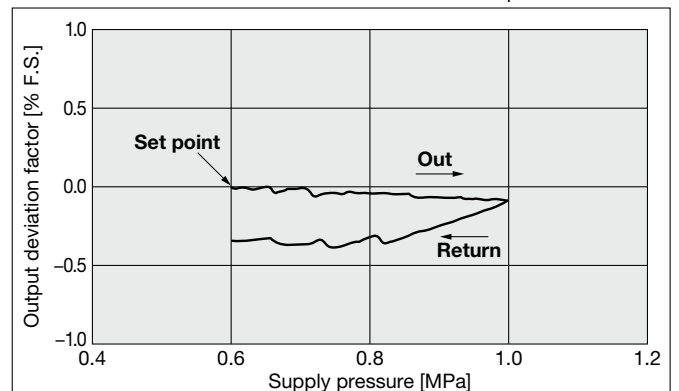


Pressure Stability



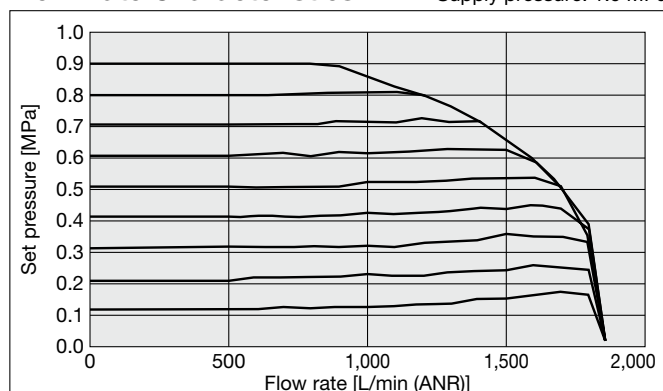
Pressure Characteristics

Set pressure: 0.4 MPa



Flow Rate Characteristics

Supply pressure: 1.0 MPa





ITVX2030-X10

Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

Fluid Supply

Warning

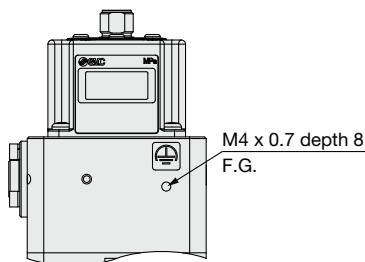
1. Compressed air, nitrogen, oxygen or argon can be used as a fluid.
2. Do not use compressed air which includes chemicals, synthetic oils containing organic solvents, salt, or corrosive gases, etc., as this can cause damage or malfunction.
3. If oxygen is used as the fluid, it can lead to serious and unforeseen risks. However, it is possible to manage and control the risk of hazards and economic loss. In order to use the product safely, it should only be handled by personnel with appropriate knowledge, with support from a suitably qualified specialist.
4. Oxygen gas increases the susceptibility of substances to burning; Oxygen gas can be ignited by frictional heat and static electricity. If oxygen is ignited, the metal and seal materials burn. Therefore, flush the piping thoroughly and mount a suitable filter to prevent foreign matter such as metal powder and dust from entering the product.
5. Take safety measures by installing safety devices (e.g. a circuit that stops the supply of oxygen gas) to prevent fire and explosion in the event of failure, taking flameproof safety standards into consideration.
6. Since there are three exhaust ports on the product, connect the piping in order to exhaust oxygen. Do not block the exhaust port.

Wiring

Caution

F.G. (Grounding)

Ground the frame ground (F.G.) terminal at the front of the main body. If the F.G. terminal port is not used, this product may not operate properly due to the noise.





Specific product precautions not mentioned are the same as for standard products. Scan here for more information.




Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

 **Danger :** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

 **Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

 **Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

SMC Corporation

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<https://www.smcworld.com>
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Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

D-G