



## Installation and Maintenance Manual

### High Pressure E/P Regulator

#### ITVX Series (ITVX2030-\*\*\*\*\*)



## 1 Safety Instructions

This manual contains essential information for the protection of users and others from possible injury and/or equipment damage.

- Read this manual before using the product, to ensure correct handling, and read the manuals of related apparatus before use.
- Keep this manual in a safe place for future reference.
- These instructions indicate the level of potential hazard by label of "Caution", "Warning" or "Danger", followed by important safety information which must be carefully followed.
- To ensure safety of personnel and equipment the safety instructions in this manual and the product catalogue must be observed, along with other relevant safety practices.

	<b>Caution</b>	Indicates a hazard with a low level of risk, which if not avoided, could result in minor or moderate injury.
	<b>Warning</b>	Indicates a hazard with a medium level of risk, which if not avoided, could result in death or serious injury.
	<b>Danger</b>	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.

## Warning

- The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications. Since the products specified here can be used in various operating conditions, their compatibility with the specific pneumatic system must be based on specifications or after analysis and/or tests to meet specific requirements.
- **Only trained personnel should operate pneumatically operated machinery and equipment.**  
Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced personnel.
- **Do not service machinery/equipment or attempt to remove components until safety is confirmed.**
  - 1) Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.
  - 2) When equipment is to be removed, confirm the safety process as mentioned above. Switch off air and electrical supplies and exhaust all residual compressed air in the system.
  - 3) Before machinery/equipment is re-started, ensure all safety measures to prevent sudden movement of cylinders etc. (Supply air into the system gradually to create back pressure, i.e. incorporate a soft-start valve).
- **Do not use this product outside of the specifications. Contact SMC if it is to be used in any of the following conditions:**
  - 1) Conditions and environments beyond the given specifications, or if the product is to be used outdoors.
  - 2) Installations in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverage, recreation equipment, emergency stop circuits, press applications, or safety equipment.
  - 3) An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.

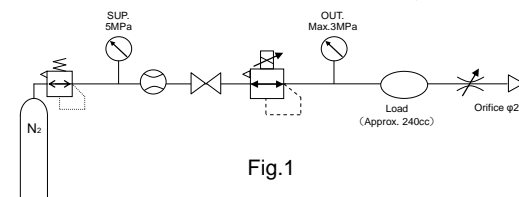
## Caution

- Ensure that the air supply system is filtered to 5 microns.

## 2 Specifications

Model		ITVX Series
Minimum supply pressure		0.5 MPa or (Set pressure+0.2 MPa) whichever is higher.
Maximum supply pressure		5.0 MPa (Note2)
Set pressure range (Note3)		0.01~3.0 MPa
Supply voltage		24 VDC ±10%
Current consumption		0.12 A or less
Input Signal	Current type (Note4)	4~20 mA, 0~20 mA (sink type)
	Voltage type	0~5 VDC, 0~10 VDC
Input Impedance	Current type	500 Ω or less
	Voltage type	6~6.5 kΩ
Output Signal (Note5)	Analogue output	1~5 VDC, 4~20 mA (sink type)
	Switch output	NPN type, PNP type
Linearity		+/- 1% F.S. or less
Hysteresis		1% F.S. or less
Repeatability		+/- 1% F.S. or less
Sensitivity		+/- 1% F.S. or less
Temperature characteristics		+/- 0.12% F.S./°C or less
LED display	Accuracy	+/- 2% F.S. or less, +/- 1 digit
	Minimum unit (Note6)	MPa:0.01, kgf/cm <sup>2</sup> :0.1, bar:0.1, psi:1
Operating temperature		0~50°C (without condensation)
Weight		Approx. 570 g (without options)

(Note 1) The characteristics above are based on the piping conditions shown in Fig.1



(Note 2) When oxygen is used, the maximum supply pressure must be less than 1 MPa.

(Note 3) Pressures of 0.01 MPa or less cannot be controlled.

(Note 4) 2-wire type 4 to 20 mA is not available.

A power supply voltage (24 VDC) is required.

(Note 5) Select either analogue output or switch output. Further, when switch output is used, select either NPN or PNP output.

(Note 6) The setting (Zero/Span, Preset input, Switch output) can be adjusted by each minimum display unit. The unit cannot be changed.

## 3 Installation

### 3.1 Installation

#### Warning

- Do not install the product unless the safety instructions have been read and understood.
- This product is pre-set at the factory and must not be dismantled by the user. Contact your local SMC office for advice.
- Ensure, when installing this product, that it is kept clear of power lines to avoid noise interference.
- Ensure that load surge protection is fitted when inductive loads are present (i.e. solenoid, relay etc.).
- Ensure precautions are in place if the product is used in a 'free flow output' condition. Air will continue to flow continuously.
- Do not use a lubricator on the input side of this product. If lubrication is necessary, place the lubricator on the 'output' side.
- Ensure all air is exhausted from the product before maintenance.
- The length of the connector cable should be 10 m maximum.

### 3.2 Environment

#### Warning

- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not use in an explosive atmosphere.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not install in a location subject to vibration or impact. Check the product specifications.
- Do not mount in a location exposed to radiant heat.

## 3 Installation (continued)

### 3.3 Piping

#### Caution

- Before piping make sure to clean up chips, cutting oil, dust etc.
- When installing piping or fittings, ensure sealant material does not enter inside the port. When using seal tape, leave 1.5 to 2 threads exposed on the end of the pipe/fitting.
- Tighten fittings to the specified tightening torque.

Table2

Thread	Tightening Torque (N · m)
M5	By hand + 1/6 turn with a wrench (1/4 turn for miniature fittings)
Rc 1/4	8 to 12
Rc 3/8	15 to 20

### 3.4 Lubrication

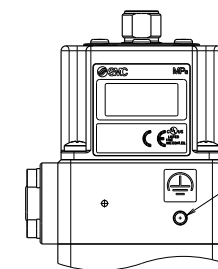
#### Caution

- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.

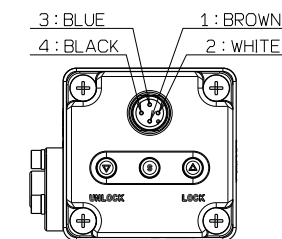
## 4 Wiring

#### Caution

- Ground the F.G. terminal at the front of the main body
- Proceed carefully, as incorrect wiring can cause damage.
- Use DC power supply with sufficient capacity and a low ripple.
- Turn off the power supply to remove and insert the connector.
- Never rotate the right angled type connector as it is not designed to rotate.

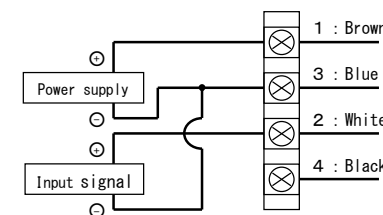


Ground the F.G. terminal at the front of the main body.  
If the field grounding fluctuates due to noise, it may affect the operation of the product.



1	Brown	Power supply
2	White	Input signal
3	Blue	GND (Common)
4	Black	Monitor output

(Note) The wire colour is shown for when the optional cable is used.



Power supply	24 VDC	
Input signal	4~20 mADC	(ITVX2030-0)
	0~20 mADC	(ITVX2030-1)
	0~5 VDC	(ITVX2030-2)
	0~10 VDC	(ITVX2030-3)

## 5 How to Order

Refer to the catalogue for this product.

## 6 Outline Dimensions (mm)

Refer to the catalogue for this product.

## 7 Maintenance and Inspection

#### Caution

- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
- If handled improperly, compressed air can be dangerous. Maintenance of pneumatic systems should be performed only by qualified personnel.
- Before performing maintenance, turn off the power supply and be sure to cut off the supply pressure. Confirm that the air is released to atmosphere.
- After installation and maintenance, apply operating pressure and power to the equipment and perform appropriate functional and leakage tests to make sure the equipment is installed correctly.
- Do not make any modification to the product.
- Do not disassemble the product, unless required by installation or maintenance instructions.

## 8 Limitations of Use

#### Warning

- 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.
- Oxygen gas increases the susceptibility of substances to burning, can be ignited by frictional heat and static electricity, and makes 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.

- 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.
- Since there is an exhaust port on the product, connect the piping in order to exhaust oxygen.
- Do not block the exhaust port.

#### Caution

- This product is only to be used for blowing. This product cannot achieve proper control for applications other than blowing (driving, sealing etc.).
- Please make sure that the secondary side of the product is open to atmosphere.

## 9 Contacts

AUSTRIA	(43) 2262 62280-0	LATVIA	(371) 781 77 00
BELGIUM	(32) 3 355 1464	LITHUANIA	(370) 5 264 8126
BULGARIA	(359) 2 974 4492	NETHERLANDS	(31) 20 531 8888
CZECH REP.	(420) 541 424 611	NORWAY	(47) 67 12 90 20
DENMARK	(45) 7025 2900	POLAND	(48) 22 211 9600
ESTONIA	(372) 651 0370	PORTUGAL	(351) 21 471 1880
FINLAND	(358) 207 513513	ROMANIA	(40) 21 320 5111
FRANCE	(33) 1 6476 1000	SLOVAKIA	(421) 2 444 56725
GERMANY	(49) 6103 4020	SLOVENIA	(386) 73 885 412
GREECE	(30) 210 271 7265	SPAIN	(34) 945 184 100
HUNGARY	(36) 23 511 390	SWEDEN	(46) 8 603 1200
IRELAND	(353) 1 403 9000	SWITZERLAND	(41) 52 396 3131
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## SMC Corporation

URL : <http://www.smcworld.com> (Global) <http://www.smceu.com> (Europe)

Specifications are subject to change without prior notice from the manufacturer.

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