



OPERATION MANUAL

E/P REGULATOR

MODEL NAME

ITV1000, ITV2000, ITV3000 series

Series

<Digital input type>

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Safety instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of “CAUTION” “WARNING”, or “DANGER”. To ensure safety, be sure to observe ISO 4414, JIS B 8370 and other safety practices.

Explanation of label

Label	Meaning of label
! WARNING	Operator error could result in serious injury or loss of life.
! CAUTION	Operator error could result in injury or equipment damage.

! 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 are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analyses and/or tests to meet your specific requirements. The expected performance and safety assurance will be the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalog information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

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 operators.

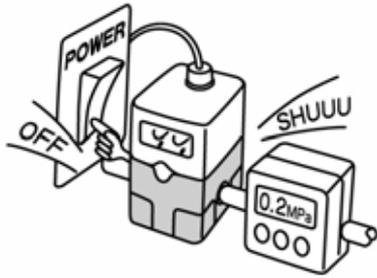
Do not service machinery / equipment or attempt to remove components until safety is confirmed.

- A. Inspection and maintenance of machinery / equipment should only be performed once safety of personnel and equipment is confirmed.
- B. When equipment is to be removed. Stop supplied air, exhaust the residual pressure, verify the release of air, turn the power off and confirm safety before performing maintenance.
- C. Before machinery / equipment is restarted, ensure safety before applying power.

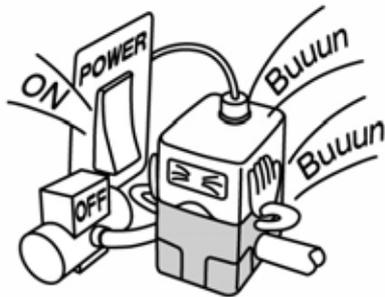
Contact SMC if the product is to be used in any of the following conditions.

- A. Conditions and environments beyond the given specifications, or if product is used outdoors.
- B. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuit in press applications, or safety equipment.
- C. An application which has the possibility of having negative effects on people, property, or animals requiring special safety analysis.

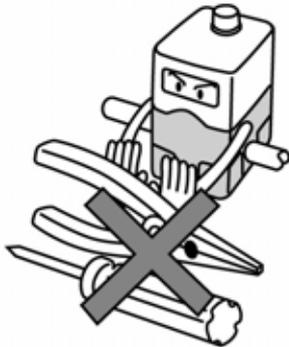
! CAUTION



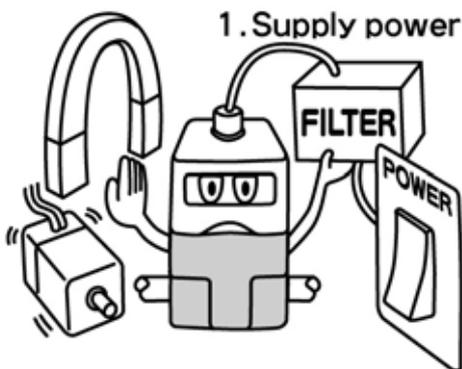
If power to this product is cut off due to a power failure, etc. when it is in a controlled state, residual pressure will be retained temporarily. Handle carefully when operating with output pressure released to the atmosphere, as air will continue to flow out.



If supply pressure to this product is interrupted or shut off, while the power is still on, the internal solenoid valve will continue to operate and a humming noise may be generated. Since the life of the product may be shortened, shut off the power supply also when supply pressure is interrupted or shut off.



This product is adjusted for each specification at the time of shipment from the factory. Avoid careless disassembly or removal of parts, as this can lead to malfunction.



Take the following steps to avoid malfunction due to noise.

- 1) Install a line filter etc. to the AC power line to reduce / eliminate power supply noise.
- 2) Avoid malfunction due to noise by installing this product and its wiring away from strong electric fields, such as those of motors and power line, etc.
- 3) Be sure to implement protective measures against load surge for induction loads (solenoid valves, relays etc.).
- 4) Turn off the power supply before installing or removing the connector.

Specifications

SUPPLY PRESSURE Note.1)	SETTING (PRESSURE+0.1MPa) ~ 1MPa
SETTING PRESSURE	0.005 ~ 0.1MPa
	0.005 ~ 0.5MPa
	0.005 ~ 0.9MPa
POWER VOLTAGE	DC24V \pm 10%
CONSUMPTION CURRENT	AT CONSTANT OUYPUT 120Ma OR LESS
INPUT SIGNAL	DIGITAL 10bit (PARALLEL INPUT)
INPUT IMPEDANCE	4.7k OR LESS
LINEARITY	\pm 1%F.S. OR LESS
HYSTERESIS	\pm 0.5%F.S. OR LESS
PREPEATABILITY	\pm 0.5%F.S. OR LESS
SENSITIVITY	0.2%F.S. OR LESS
OPERATE TEMPERATURE	0 ~ 50
ENCLOSURE	EQUIVALENT TI IP65
MASS	APPROX. 300g (NO ACCESSORIES) ITV1000
	APPROX. 400g (NO ACCESSORIES) ITV2000
	APPROX. 670g (NO ACCESSORIES) ITV3000

Note.1) Up to 0.2MPa for the specification of 0.1MPa output pressure.

! CAUTION

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.

TABLE.1 CABLE FOR SIGNAL

WIRE COLOR	SIGNAL NAME
PINK-BLACK1	POWER SUPPLY (DC24V)
GREEN-BLACK2	POWER SUPPLY (DC0V)
BLUE	SIGNAL COMMON (NO POLARITY)
BLUE-BLACK2	MSB 10bit
GRAY-BLACK1	9bit
ORANGE-BLACK1	8bit
GREEN-BLACK1	7bit
PINK-BLACK1	6bit
BLUE-BLACK1	5bit
GRAY	4bit
ORANGE	3bit
GREEN	2bit
PINK	LSB 1bit

Setting pressure

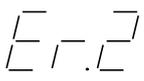
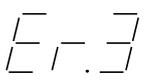
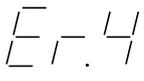
Ex) In case that setting pressure is 0.3MPa on ITV2030.(0.5MPa specification)
 $(0.3\text{MPa}/0.5\text{MPa}) \times 1023 = 614$ (DEC)
 Binary data of “614” (DEC) is “10 0110 0110”

VALUE	1	0	0	1	1	0	0	1	1	0
SIGNAL	MSB 10bit	9bit	8bit	7bit	6bit	5bit	4bit	3bit	2bit	LSB 1bit
INPUT	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF

By inputting 12-24VDC between common and each signal wire, input states becomes “ON”.

Common is no polarity.

Error indicating function

Error No.	LED display	Contents of error	Countermeasure
2		Reading and writing errors occurred in EEPROM.	Contact SMC.
3		Reading and writing errors occurred in memory.	Contact SMC.
4		Solenoid valve failure.	Replace the solenoid valve. For the replacement procedure contact SMC.

Refer to the SMC website (URL <http://www.smcworld.com>) for more information about troubleshooting.

This operation manual refers to general digital input type (model : -X93) and is partially applicable to another special models.

This operation manual is subject to change without prior notice or any obligation on the part of the manufacturer.