

Installation and Maintenance Manual Series ITV1000-DIK00137

Electro-Pneumatic Regulator with negative terminal of power line separated from signal line.
For future reference, please keep this manual in a safe place with negative terminal of power line separated from signal line.



This manual should be read in conjunction with the current catalogue

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 label of "Caution", "Warning", or "Danger". To ensure safety, be sure to observe ISO 4414 (Note 1), JIS B 8370 (Note 2) and other safety practices.

(Note 1): ISO 4414: Pneumatic fluid power-Recommendations for the application of equipment to transmission and control systems.
(Note 2): JIS B 8370 : Pneumatic system axiom

CAUTION : Operator error could result in injury or equipment damage.

WARNING: Operator error could result in serious injury or loss of life.

DANGER : In extreme conditions, there is a possible result of serious injury or loss of life.

WARNING

1. **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 analysis and/or tests to meet your specific requirements.

2. **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.

3. **Do not service machinery / equipment or attempt to remove component 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.)

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

- 1) Conditions and environments beyond the given specifications, or if product is used outdoors.
- 2) Installation on equipment 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 micron

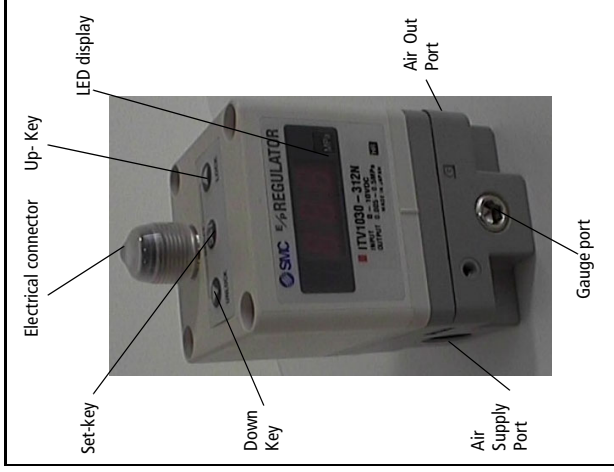


Fig 1 - Key features of an ITV

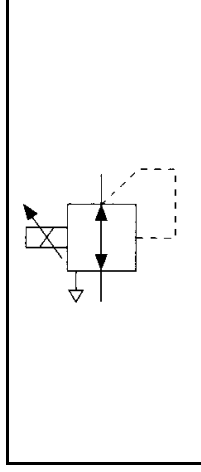


Fig 2 - JIS symbol

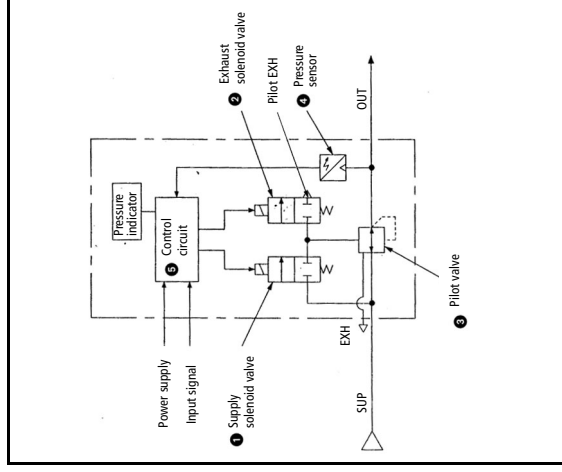


Fig 3 - Schematic diagram

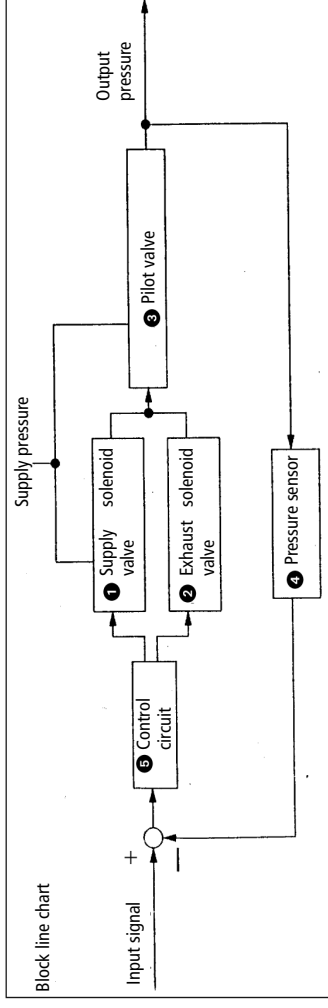


Fig 4 - Control diagram

CAUTION

Wiring

Connect the cable to the connector on the main unit as shown in the following diagram. Take precautions as incorrect wiring will damage the unit. Use a DC power supply capable of supplying the necessary power requirements with minimal ripple.

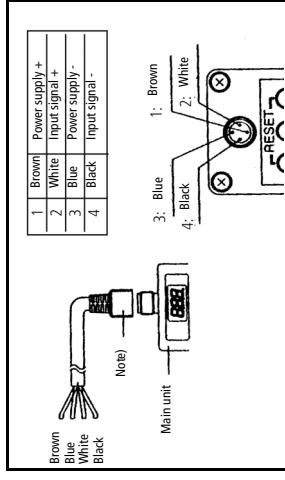


Fig 5 - Connection details

Note: The right angle type connector extends to the left side (over the supply port side)

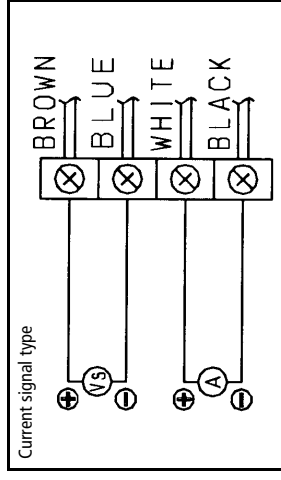


Fig 6 - Wiring diagram

Vs : Power supply 24VDC
A : Input Signal 4 to 20mA DC

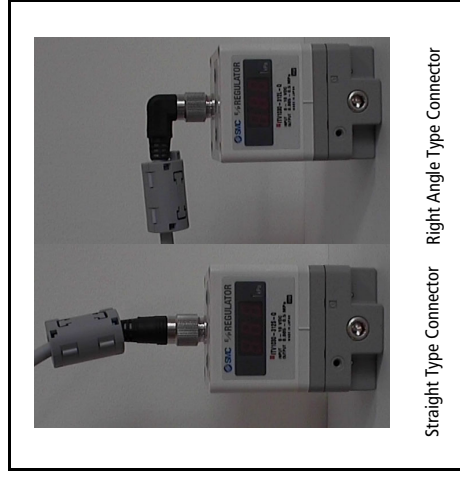


Fig 7 - Connection types

Reset Function

Push 'Up' and 'Down' keys (Fig 1) together for longer than 3 seconds
Display shows 'RES'.
Release keys to reset minimum and maximum pressure.

Installation & Maintenance

CAUTION

1. If the electrical supply fails, settings are 'held' for a short period.
2. If the air pressure fails with power 'on' the solenoid will 'flutter'. Turn off the power.

CAUTION

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

When you enquire about the product, please contact the following

SMC Corporation:

Phone	Phone
AUSTRIA (43) 2262-62 280	ITALY (39) 02-92711
BELGIUM (32) 3-355 1464	NETHERLANDS (31) 20-531 8888
CZECH REP. (420) 5-414 24611	NORWAY (47) 67 12 90 20
DENMARK (45) 70 25 79 00	POLAND (48) 22-548 50 85
FINLAND (358) 9-859 580	PORTUGAL (351) 2-610 89 22
FRANCE (33) 1-647 6 1000	SPAIN (34) 945-18 41 00
GERMANY (49) 6103 4020	SWEDEN (46) 8-603 0700
GREECE (30) 1-342 6076	SWITZERLAND (41) 52-396 3131
HUNGARY (36) 1-371 1343	TURKEY (90) 212 221 1512
IRELAND (353) 1-403 9000	UK (44) 1908-56 3888

Key-Lock Release

1. Push 'Down' key (Fig 1) for longer than 2 seconds.
2. Display will flash 'Loc' (locked).
3. Push 'Set' key (Fig 1) to unlock.

Note: To cancel push 'up' key (Fig 1).

Key-Lock

1. Push 'Up' key (Fig 1) for longer than 2 seconds.
2. Display will flash 'unL' (unlocked).
3. Push 'Set' key (Fig 1) to lock.

Note: To cancel push 'Down' key (Fig 1).

Function of the 'Error' Display

If an abnormality is detected by the ITV1000 the LED display (Fig 1) will show 'Er' followed by a code number. Isolate the power supply and ascertain and solve the problem. Re-instate power supply after correcting fault.

Error codes are as shown in Table 2:

Nº	Content	Display
1	Input Signal Outside Spec.	Er 1
2	EEPROM Reading/Writing Error	Er 2
3	Memory Reading/Writing Error	Er 3
4	Solenoid Valve Fault	Er 4

Table 2

Table 1
(Note 1) Two wire 4 to 20 mADC control. Negative terminal of power line is separated from that of signal line.
(Note 2) 1 PSI is the minimum unit on ITV1050

Operation Principle

When the input signal increases, the supply solenoid valve ① turns on and the exhaust solenoid valve ② turns off. Supply pressure is passed to the pilot valve ③ through the supply solenoid valve. The pilot valve will open the main valve allowing partial supply pressure to pass to the out port.

The pressure sensor ④ will provide output pressure feedback to the control circuit ⑤. The control circuit will balance the input signal and output pressure to ensure that the output pressure remains proportional to the input signal.