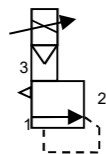




ORIGINAL INSTRUCTIONS

**Instruction Manual**  
**Electro-Pneumatic Regulator (CC-Link)**  
**ITV\*0\*0-CC\*\*\*\* Series**



The intended use of the electro-pneumatic regulator is to control the flow and pressure of fluid while connected to CC-Link communication.

**1 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)<sup>1)</sup>, and other safety regulations.

<sup>1)</sup> ISO 4414: Pneumatic fluid power - General rules relating to systems.  
 ISO 4413: Hydraulic fluid power - General rules relating to systems.  
 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.

- Refer to product catalogue, Operation Manual and Handling Precautions for SMC Products for additional information.
- Keep this manual in a safe place for future reference.

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

**Warning**

- **Always ensure compliance with relevant safety laws and standards.**  
 All work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.
- This product is class A equipment intended for use in an industrial environment. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted or radiated disturbances.

**Caution**

- Ensure that the air supply system is filtered to 5 microns.
- Refer to the SMC website (URL: <https://www.smcworld.com>) for more information about Safety Instructions.

**2 Specifications**

**2.1 General specifications**

Model	ITV*010	ITV*030	ITV*050	ITV2090
Min. supply pressure	(Set pressure) + 0.1 MPa			(Set pressure) -13.3 kPa
Max. supply pressure	0.2 MPa	1.0 MPa		-101 kPa
Set pressure range	0.005 to 0.1 MPa	0.005 to 0.5 MPa	0.005 to 0.9 MPa	-1.3 to -80 kPa
Supply voltage	24 VDC ± 10%,			
Current consumption	0.16 A or less <sup>1)</sup>			
Input / output data	12bit / 12bit (data 4095 corresponds to 100% F.S.)			
Linearity	±1% F.S. or less			
Hysteresis	0.5% F.S. or less			
Repeatability	±0.5% F.S. or less			
Sensitivity	0.2% F.S. or less			
Temperature characteristics	±0.12% F.S. / °C or less			
Ambient and fluid temperature	0 to 50°C (no condensation)			
Enclosure rating	IP65			

Note 1) Excluded consumption current of communication line of CC-Link.

**2.2 Size / Weight specifications**

Model	ITV10*0	ITV20*0	ITV30*0
Size (mm)	50×50×161	50×50×183	66×66×204
Weight (no options)	330 g	430 g	730 g

**2.3 Communication specifications**

Item	Specification	Remarks
Protocol	CC-Link	Ver 1.10
Station type	Remote device	-
Device type	Analogue I/O	Code 04H
Occupied stations	1 Station	Fixed
Communication rate	10 M / 5 M / 2.5 M / 625 k / 156 k bps	Set by dip switch
Node address	1 to 64	Set by dip switch
Occupied area (Input/output data)	4 word / 4 word 32 bit / 32 bit	
Communication data resolution	12 bit (4096 resolution)	
Output condition at communication error	Zero clear / Hold pressure	Set by dip switch

Note) Baud rate relates to communication distance.

**Warning**

Special products (-X) might have specifications different from those shown in this section. Contact SMC for specific drawings.

**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.).

**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.

**3.3 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 thread exposed on the end of the pipe/fitting.
- Tighten fittings to the specified tightening torque.

**3.4 Lubrication**

**Caution**

- Do not use a lubricator on the input side of this product. If lubrication is required, place the lubricator on the 'output' side so that it does not enter the product.

- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.
- If a lubricant is to be used in the system, refer to the catalogue for details.

**4 Wiring**

**Caution**

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.

The 3 m straight cable specified refers to the power supply cable. The communication cable should be ordered separately.

**4.1 Power supply connector**

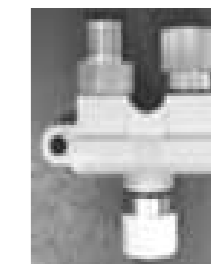
Item	Pin assignment	Wire colour
Connector for power supply	1. +24V	Brown
	2. F.G.	White
	3. GND	Blue
	4. N.C.	-

**4.2 Communication connector**

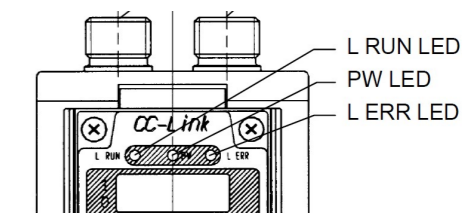
Item	Pin assignment	Item	Pin assignment
CC-Link IN	1. SLD	CC-Link OUT	1. SLD
	2. DB		2. DB
	3. DG		3. DG
	4. DA		4. DA
			5. N.C.

Note: Wire colours shown are when the optional cable is used.

- A bus adapter is required for the communication connection.



**5 LED Display**



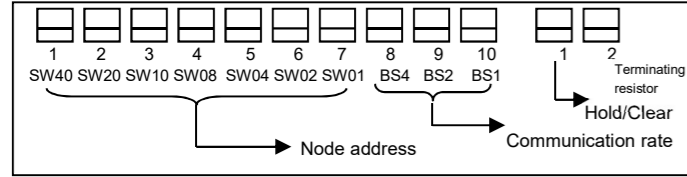
Item	LED ON	LED Flashing	LED OFF
Power	Power ON	-	Power OFF
L RUN	Normal (Red)	-	Abnormal
L ERR	Communication or switch setting error (Red)	The switch setting has changed online.	Normal

## 6 Settings

### Caution

- Turn OFF the power supply before setting the switches.
- Setting the address switch requires the removal of 4 screws in the front panel of the product.
- Take care as the panel hinges to a maximum of 90 degrees.
- After setting the address, always close and fix the panel securely. Tighten the screws to a torque of 0.6 – 0.8 N·m

### 6.1 DIP switch setting



#### Node address

Add.	SW40	SW20	SW10	SW08	SW04	SW02	SW01
0	OFF	OFF	OFF	OFF	OFF	OFF	ON
1	OFF	OFF	OFF	OFF	OFF	ON	OFF
2	OFF	OFF	OFF	OFF	OFF	ON	ON
:	:	:	:	:	:	:	:
64	ON	ON	OFF	OFF	ON	OFF	OFF

First digit "10"      Second digit "1"

#### Communication rate

Rate	BS4	BS2	BS1
0 (156 kbps)	OFF	OFF	OFF
1 (625 kbps)	OFF	OFF	ON
2 (2.5 Mbps)	OFF	ON	OFF
3 (5.0 Mbps)	OFF	ON	ON
4 (10 Mbps)	ON	OFF	OFF

#### Hold/Clear

This switch is set to hold or clear the output pressure during a communication error.

Setting	Switch 1	Function
Hold	OFF	Hold output pressure
Clear	ON	Clear output pressure

Note: The hold pressure is set according to the communication data (RY00~RY0F).

#### Hold output pressure

RY0F	Hold output pressure
1	Set depending on the data of RY00-RY0B
0	Set pressure immediately before communication abnormality

#### Terminating resistor

This switch is used for activating the internal terminating resistor.

Setting	Switch 2
Hold	OFF
Clear	ON

## 7 Communication Data Allocation

Output area		Input area	
Word data area	Output word data	Word data area	Output word data
RWw0	b <sub>15</sub> ... b <sub>0</sub>	RWw0	b <sub>15</sub> ... b <sub>0</sub>
RWw1	Unused	RWw1	Unused
RWw2	Unused	RWw2	Unused
RWw3	Unused	RWw3	Unused

Output data occupies 4 words, but uses only the 1<sup>st</sup> word. The pressure is set by b<sub>15</sub>...b<sub>0</sub> data. (b<sub>11</sub>...b<sub>0</sub> cover 100% F.S.). The limit is 17FEh, data of 150 %, but the accuracy is guaranteed up to 100 % F.S.

Input data occupies 4 words, but uses only the 1<sup>st</sup> word. The pressure is monitored by b<sub>15</sub>...b<sub>0</sub> data. (b<sub>11</sub>...b<sub>0</sub> cover 100 % F.S.)

Output area		Input area	
Bit data area	Output bit data	Bit data area	Input bit data
RY00 to RY0B	Set value of holding pressure for error <sup>Note</sup>	RX00 to RX0F	Unused
RY0C,RY0D	Unused	RX10 to RX19	Invalid (area of system)
RY0E	Banned for use	RX1A	Flag for error
RY0F	0: RY00 to RY0B invalid data 1: RY00 to RY0B valid data	RX1B	Remote READY
RY10 to RY1F	Invalid (area of system)		

Note: 12 bit of RY00 to RY0B (RY00:b<sub>0</sub>...RY0B:b<sub>11</sub>)  
Data will become valid when the hold/clear switch is set to hold and RY0F is "1". The maximum value OFFFh of data is the pressure set for 100 % F.S.

## 8 How to Order

Refer to the operation manual or catalogue on the SMC website (URL: [http:// www.smcworld.com](http://www.smcworld.com)) for How to order information.

## 9 Outline Dimensions

Refer to the operation manual or catalogue on the SMC website (URL: [http:// www.smcworld.com](http://www.smcworld.com)) for outline dimensions.

## 10 Maintenance

### 10.1 General maintenance

#### 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.
- If any electrical connections are disturbed during maintenance, ensure they are reconnected correctly and safety checks are carried out as required to ensure continued compliance with applicable national regulations.
- Do not make any modification to the product.
- Do not disassemble the product, unless required by installation or maintenance instructions.
- Ensure all air is exhausted from the product before maintenance.

## 11 Limitations of Use

11.1 Limited warranty and disclaimer/compliance requirements refer to Handling Precautions for SMC Products.

## 12 Product Disposal

This product shall not be disposed of as municipal waste. Check your local regulations and guidelines to dispose of this product correctly, in order to reduce the impact on human health and the environment.

## 13 Contacts

Refer to [www.smcworld.com](http://www.smcworld.com) or [www.smc.eu](http://www.smc.eu) for your local distributor/importer.

## SMC Corporation

URL : [https:// www.smcworld.com](https://www.smcworld.com) (Global)    [https:// www.smc.eu](https://www.smc.eu) (Europe)  
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