

# EPCON

## ELECTRO - PNEUMATIC CONTROLLER



Accredited by the RvA  
ISO-9001 REGISTERED FIRM  
Del Nostra Veritas BV, NETHERLANDS

## OUTLINE

The **BY EPCON** Electro-Pneumatic Controller utilizes the latest digital technology to provide the most accurate and reliable electronic control system.

It provides all the latest electronic control functions with simplicity and reliability of a pneumatic controller. The unnecessary cost and complexity of external power supplies, I/P transducers and valve positioners could be eliminated with this controller.

The **BY EPCON** Controller is designed for broad applications, and the perfect choice for stand-alone, single-loop control applications. It provides a simple and reliable solution over conventional electronic control systems as far as the accurate and reliable control operation are concerned. Applicable field of this controller includes the plants in chemical, petrochemical, pharmaceutical, power generation, steels, food process, pulp and paper, textile and other industries as well as the utility systems in school, hospital, and commercial building.

The **BY EPCON** Controller is electro-pneumatic controller that can be used in a wide range of control applications.

The controller accepts input signals from any 4 to 20 mA transmitter, and controls process variables such as pressure, temperature, liquid level and flow rate in steam, air and other fluid systems.

The controller accommodates a maximum of 100 psi output to control pneumatic diaphragm or piston actuator without using valve positioners or I/P transducers.

The **BY EPCON** Controller operates on 110/220V AC (50/60 Hz) or 24V DC supply, and displays up to 16 characters  $\times$  2 lines, minimum 4" (10.0 mm) back-lit digit display indicating various parameters such as set point (SP), process value (PV), control range (min/max), direct/reverse action, KP, KI, KD values etc.. AUTO/MANUAL mode is selected with an external toggle switch. Actuator can be manually vented or loaded on MANUAL mode. Basically there is no air consumption under steady-state condition.

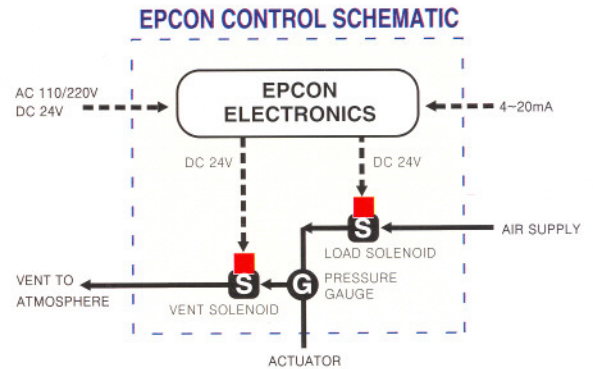
## SPECIFICATIONS

Supply Voltage	110/220V AC 50/60Hz, 24V DC
Operating Voltage Range	90 ~ 110% of Rated Voltage
Power Consumption	12 W(max), 9W(steady state)
Input	4-20 mA
Output	4-20 mA standard, $\pm$ 5% span accuracy
Control Action	Direct or Reverse
Control Method	P, PI, PID.
Local Set Point Adjustment	Push Button Switches and Digital Display
Remote Set Point Adjustment	4-20mA Standard Input
Display Modes	Process Value (PV), Set Point (SP), Deviation (DEV)
Communication	Max, Min, Unit and etc. Approaching various parameters and displaying the results using RS 232C
Troubleshooting	Service Mode, LED Display for error
Air Supply	100 psi Max
Air Output	Zero ~ Maximum Supply Pressure
Air Consumption	Zero at steady state conditions
Accuracy	$\pm$ 0.5% of Full Span
Input Resistance to Current Loop	100 $\Omega$ $\times$ Currenty + 0.7V
Ambient Temperature Rating	-30 ~ 60 $^{\circ}$ C
Dimensions	205(W) $\times$ 260(D) $\times$ 130(H) <sub>mm</sub>
Enclosure	NEMA 4 $\times$ Polycarbonate



### FEATURES

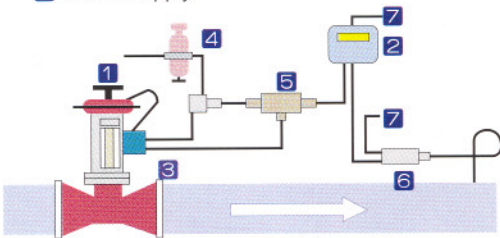
- electronic control with the latest Digital Signal Process (DSP)
- P, PI, PID tuning functions.
- Internal 24V DC power is provided for 4-20 mA transmitter.
- Self-diagnostic and error indicating functions.
- Visual indications for Process Value (PV), Set Point (SP), Deviation (DEV), Min/Max Sensor Values (control range), etc.
- Process Value (PV) can be remotely monitored through 4-20 mA interface.
- Power fail-safe mode provides either actuator load or vent options.
- Non-volatile memory stores all the set points for auto restart and resumes a normal operation once the power is restored.
- Universal unit entry allows to choose any one of pre-programmed units or custom units.



### GENERAL SPECIFICATION

#### Conventional Electronic Control System

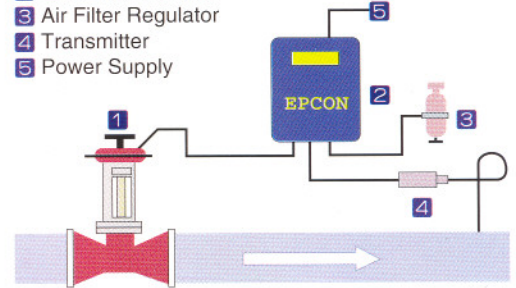
- 1 Control Valve
- 2 Electronic controller
- 3 Positioner
- 4 Air Filter Regulator
- 5 I/P Converter
- 6 Transmitter
- 7 Power Supply



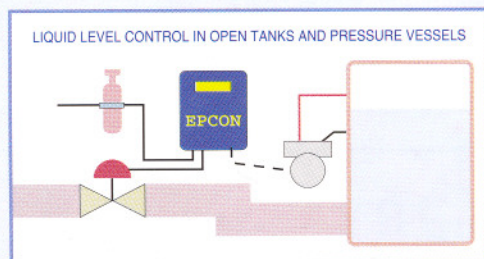
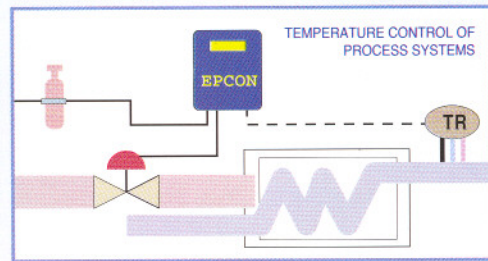
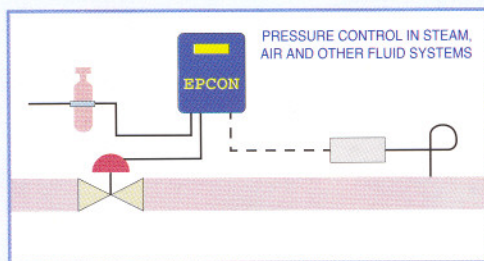
※ Note : The **BY EPCON** controller does not require positioner, I/P converter, and power supply. This means that EPCON controller is more reliable and cost-effective.

#### BY EPCON Control System

- 1 Control Valve
- 2 EPCON Controller
- 3 Air Filter Regulator
- 4 Transmitter
- 5 Power Supply



### TYPICAL APPLICATIONS



- **PRESSURE CONTROL**  
gland seal system, steam generating system, process system, etc.
- **TEMPERATURE CONTROL**  
boiler feed water, fuel oils, process fluids, etc.
- **LEVEL CONTROL**  
drums, columns, storage tanks, etc.
- **FLOW CONTROL**  
cooling medium flow, process flow, etc.



# BY EPCON

### ENCLOSURE

Material : NEMA 4, Polycarbonate  
 Size : 205 × 260 × 130mm  
 Purpose : internal circuit protection  
 from external elements  
 and impacts

### LCD DISPLAY

Back-lit display for various operational parameters, such as PV, SP, Units, Action etc.

### MODE SELECT BUTTON

Normal Mode : P,I,D value input,  
 action selection, etc.  
 Service Mode : check on internal  
 circuit operation status  
 Parameter Mode : changeable after  
 initial input value

### POWER LED

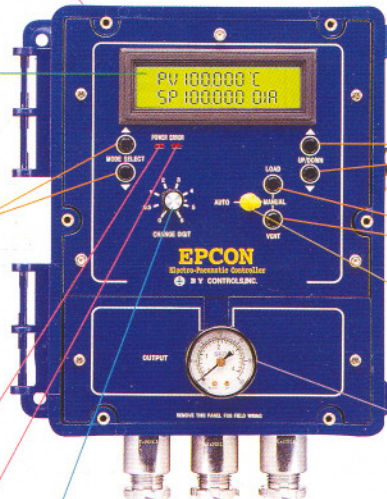
Light when power on

### ERROR LED

Light when error or malfunction  
 occur during operation

### CHANGE DIGIT KNOB

Allows to change digit  
 by turning the knob



### AIR FILTER REGULATOR

Regulates the air pressure for optimal performance of solenoid valve

### UP / DOWN CHANGE BUTTON

Change the value of parameters chosen by MODE SELECT

### LOAD / VENT BUTTON

Used for air pressure control in actuator in case of MANUAL MODE

### AUTO / MANUAL SELECTOR SWITCH

Change AUTO/MANUAL modes

### OUTPUT GAUGE

Measure output pressure supplied to actuator

### SIGNAL INPUT

### POWER SUPPLY

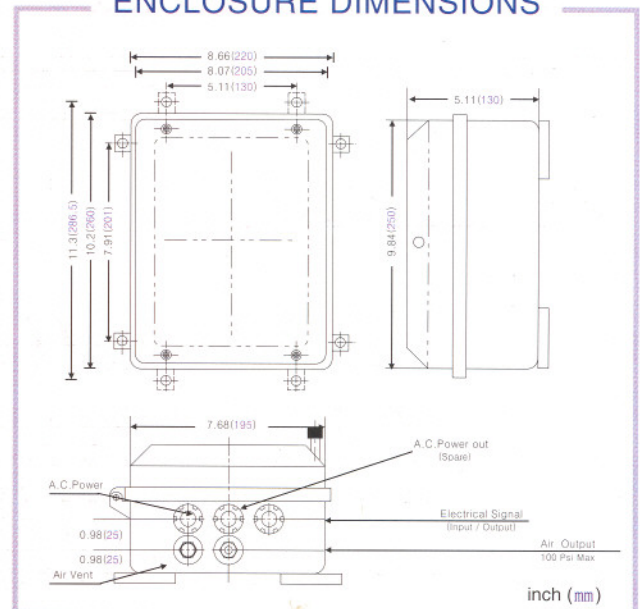
## OPTIONS

- Actuator vent on power failure
- Double-acting cylinder controller
- Communicator ( RS 232C )

## ACCESSORIES

- Pressure Transmitter max 5000psi standard, 4-20mA output
- Differential Pressure Transmitter, 4-20mA output
- Temperature Transmitter, 4-20mA output
- Level transmitter, 4-20mA output
- Air Filter Regulators

### ENCLOSURE DIMENSIONS



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