

Model 43AP Pneumatic Controller, Style B

Installation and Operation

Model 43AP Controller continuously detects the difference between a process measurement and its set point, and produces an output air signal that is a function of this difference and the type of control. The output signal is transmitted to a control valve or other control device. The process measurement, set point, and output signal are indicated on the controller.



Standard Specifications

Types of Control

Suffix Code –A1:	On-Off
A2:	Proportional
A3:	Proportional plus Derivative
A4:	Proportional plus Reset
A5:	Proportional plus Reset plus Derivative
A7:	Differential Gap
A8:	Automatic Shutdown

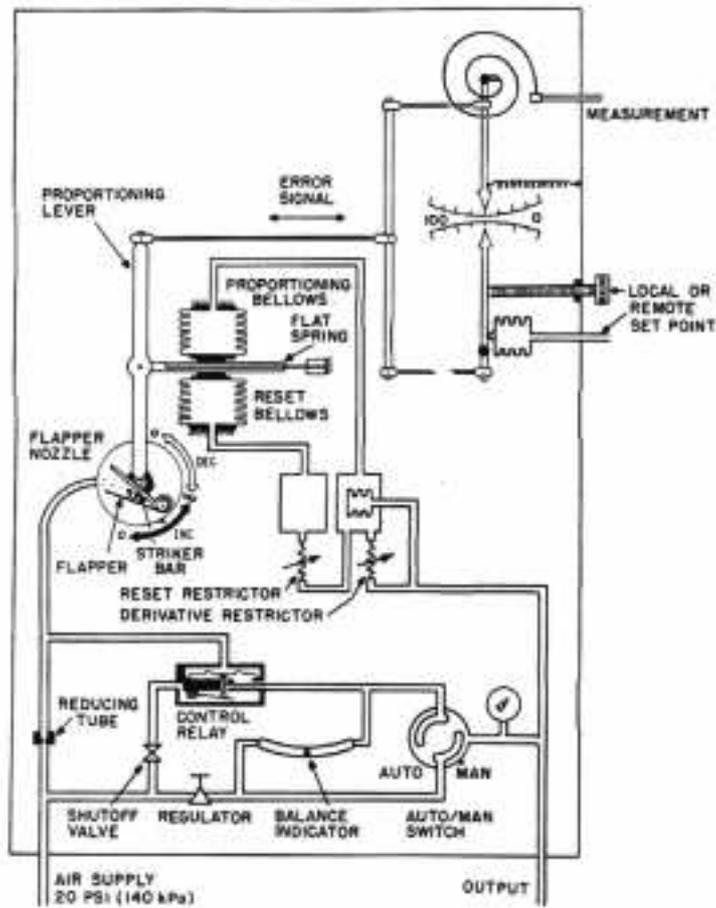
Control Limits

Proportional:	4 to 400%
Reset:	0.01 to 50 minutes per repeat
Derivative:	0.05 to 50 minutes
Differential Gap:	1 to 100%

Output Signal:	3-15 psi or 20-100 kPa
Air Supply:	20 psi (140 kPa)
Air Consumption:	0.3 std ft ³ /min (0.5 std m ³ /h)
Air Connections:	Tapped for 1/4 NPT
Ambient Temperature Limits:	–40 to +180°F (–40 to +80°C)
Weight:	Approx. 10 lb (4.5 kg), excluding element
Case:	Glass fiber reinforced plastic

Principle of Operation

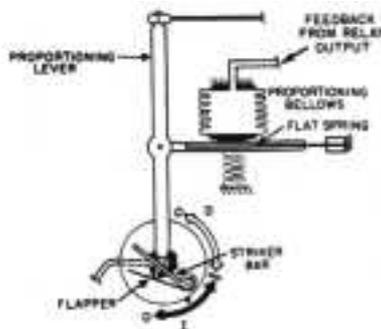
1. A differential linkage measures difference between measurement pointer and setting index positions. This error signal moves proportioning lever.
2. Proportioning lever pivots at its center on end of a flat spring.
3. This motion changes flapper nozzle relationship, causing relay to establish an output pressure.
4. Output pressure is fed back to proportioning bellows, which acts through proportioning lever to rebalance flapper nozzle.
5. Reset bellows and tank assembly are used when measurement must be maintained exactly at control point (without “offset”).
6. Derivative tank assembly is used to improve system response to a slow process.



Controller with Proportional, Reset, and Derivative Actions, and Automatic-Manual Transfer System (Optional)

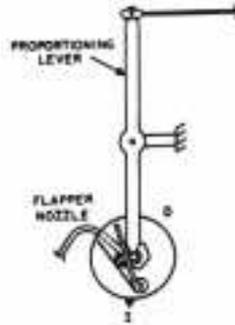
Proportional Control

For description, see Items 1 through 4 above.



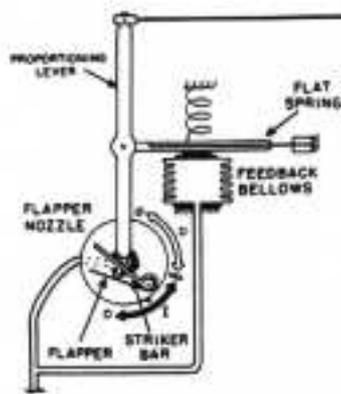
On-Off Control

On-off control is obtained by pivoting the proportional lever about a fixed point without proportioning or reset bellows. This controller can be equipped with an automatic shutdown unit.



Differential Gap Control

Differential gap control is obtained with positive feedback..



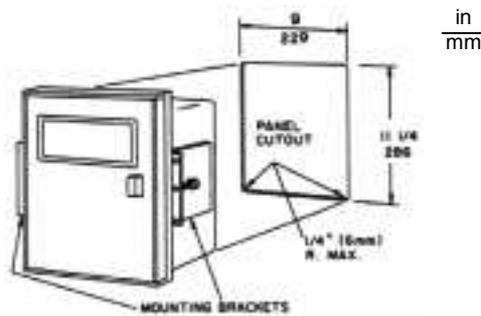
Installation

Controller Mounting

Mount controller level on a rigid support. If controller has Type 37 Meter, see page 8.

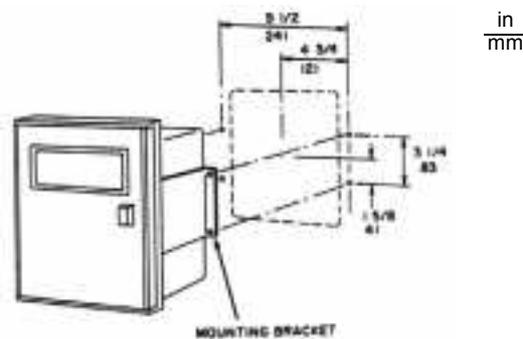
Flush Mounting

After case is inserted in panel, install mounting brackets as shown. Slide brackets firmly against panel and tighten bracket bolts to case.



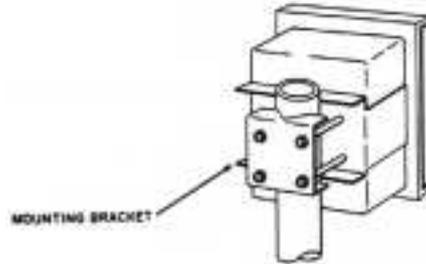
Surface Mounting

Loosely install mounting brackets flush with rear of case as shown. Attach brackets to panel with 1/4-inch bolts or #14 wood screws. Tighten mounting bracket bolts to case.



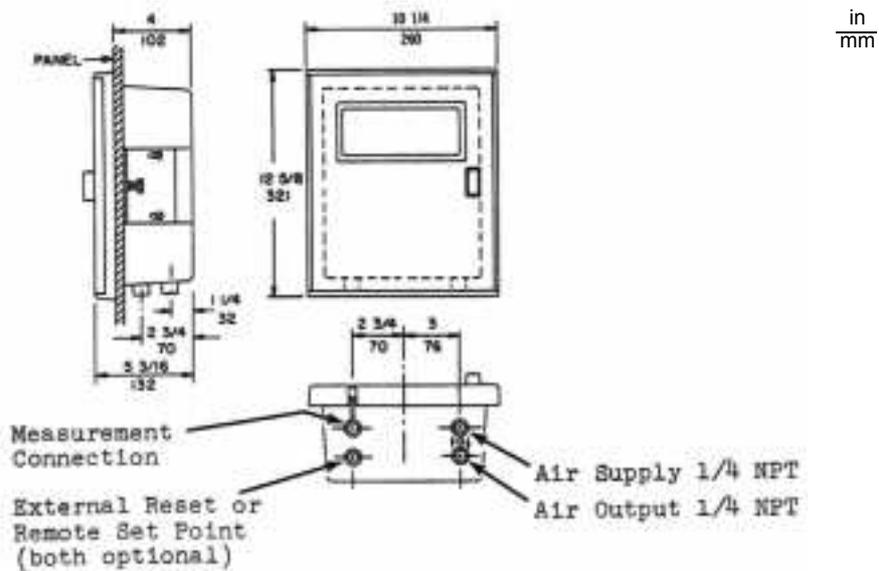
Pipe Mounting

Remove mounting bracket from controller case. Securely fasten bracket on a 2-inch or 3-inch pipe. Then reinstall controller into bracket.

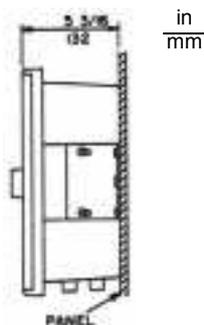


Controller Dimensions and Connections

Flush Mounting



Surface Mounting



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