

PA(M)24-27 Series

IOM Manual



Safety Instructions - Definition of Terms Read, Follow and Save these instructions



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Used without the safety alert symbol indicates a potential situation which, if not avoided, may result in an undesirable result or state, including property damage.

Table of Contents

PA(M)24-27 Series - Installation, Operation and Maintenance Manual

Safety Instructions	1
PA(M)24-27 Series Model Number Chart	2
PA(M)24-27 Series Dimensions	2
PA(M)24-27 Series Function	2
PA(M)24-27 Series Mounting/Dial Settings	3
PA(M)24-27 Series Assembly	4
PA(M)24-27 Series Specifications	5
PA(M)24-27 Series Wiring/DIP Switches	6,7

FOR MORE INFORMATION ON THIS PRODUCT AND OTHER BRAY PRODUCTS
PLEASE VISIT OUR WEBSITE – www.braycommercialdivision.com



PA24-27 Series - Installation, Operation & Maintenance Manual Continued

For Simple Set PIC Valves

Application

The PA(M) Series is a line of linear motor actuators to be used primarily on Bray PIC Valves utilized in Building Automation Systems. These actuators are available with a multitude of options for On/Off/Floating or Modulating with or without electronic Failsafe.

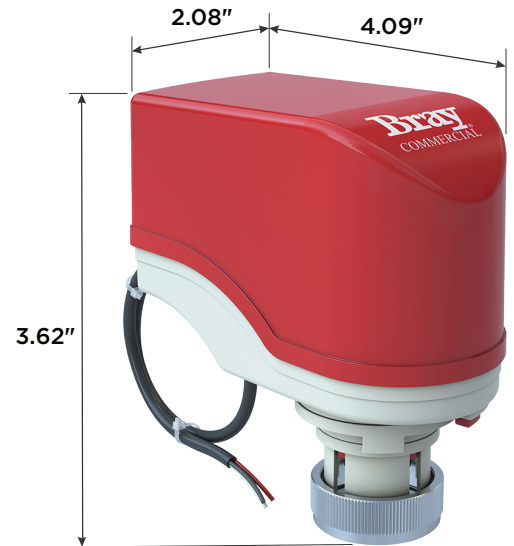
These actuators automatically calibrate to the stroke of the valve as soon as power is applied and are field selectable direct or reverse acting.

A simple, reliable, versatile solution for your Bray Commercial Simple Set pressure Independent control valves!

PA Series Actuators - Model Number Matrix

PA24-27	24V On/Off & Floating - Non-Fail Safe
PA24-27-FS	24V On/Off & Floating - Fail Safe
PAM24-27	24V Modulating - Non-Fail Safe
PAM24-27-FS	24V Modulating - Fail Safe

PA Series Actuators - Dimensions

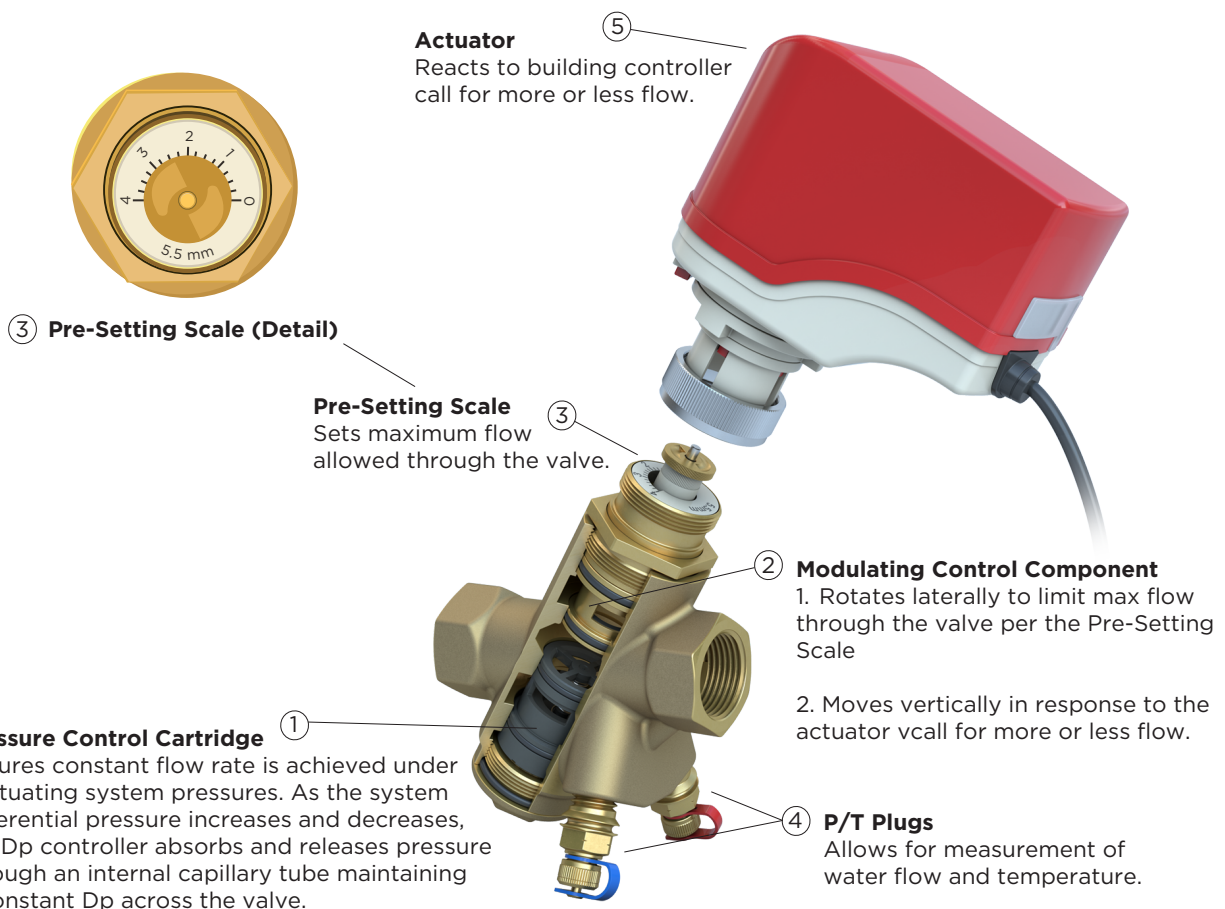


PA Series Actuators - Function

Unlike conventional control valve sizing where valves are sized to a Cv, the Simple Set valves are simply sized for flow and pipe size. Refer to the ordering table for the wide range of flow values available.

IMPORTANT: Valve diameter should NEVER exceed pipe diameter!

The design of Simple Set combines high performance with small size and compact construction. The main components of the valve are:

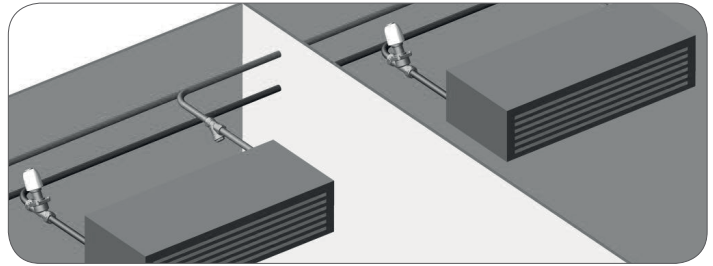




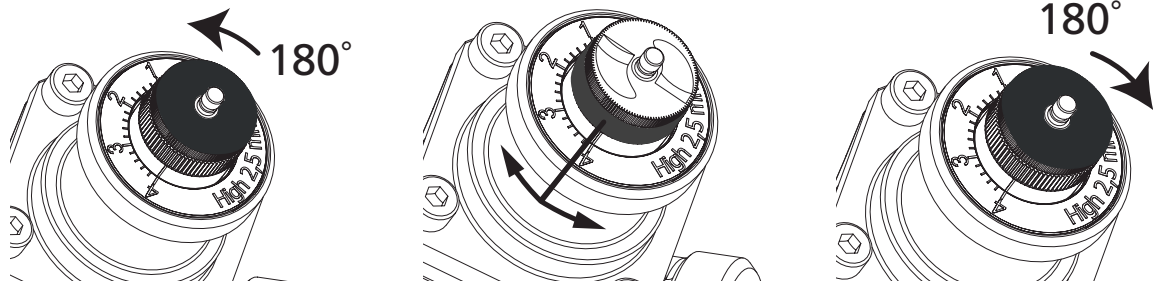
PA Series Actuators - Mounting Instructions

The PA24-27 Series Actuator combines an externally adjustable automatic balancing valve with a full authority modulating control valve.

The PA24-27 Series Actuator can be mounted in either the supply or the return line. To avoid temperature extremes, it is recommended on the return line. Installation of strainers and isolation ball valves are recommended. The temperature in and about the actuator should not be below 32°F (0°C).



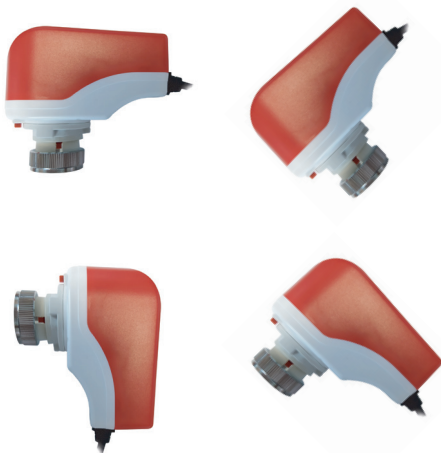
PA Series Actuators - Dial Settings for 1/2" to 1-1/4"



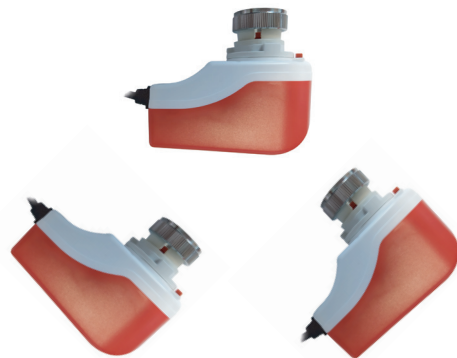
Safety Instructions: The manufacturer is not liable for any damage resulting from use other than in the designated application. Such risk lies entirely with the user. Observance of the mounting instructions is considered as part of the valve designated use.

PA Series Actuators - Mounting Orientations

CORRECT MOUNTING



INCORRECT MOUNTING



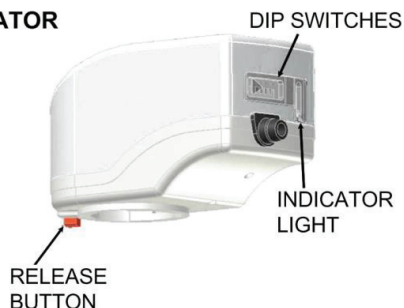
1. The actuated valve installation should be easily accessible and provide sufficient clearance for service and replacement.
2. Horizontal and vertical positions are preferred orientations for the installation of actuated valve. However, this actuator can be installed at any in between angle.

Caution: Do not install at more than 90° from horizontal

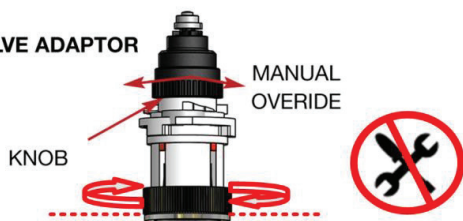


PA Series Actuators - Assembly

ACTUATOR



VALVE ADAPTOR



No foam insulation above the dotted line and around the adaptor

1. Mount the valve adaptor to the valve and finger-tighten only.



Finger-tighten only. Do not use a wrench or any other tool.

2. Rotate knob clockwise to open the valve. Do not force knob in either direction!
3. Manually adjust the knob to test piping network.
4. Once satisfied that the network is working properly, engage the actuator over the valve adaptor and turn 30° clockwise (CW). You should hear an audible click. To disengage the actuator, press the release button while turning the actuator CCW 30°.

Caution:

Actuator specifically calibrated to its adapter. DO NOT exchange original adapter with a different actuator.



You must connect the actuator to its adaptor and mount it on a valve before applying power. Failure to do so will result in incorrect operation of the actuator.



Improper use of mechanical tools or application of excessive force to tighten the adaptors on the valves could lead to structural damage of the adaptor, which could lead to failure over time.



If you plan to add foam insulation, do not add insulation foam beyond the chrome ring and around the adaptor. Improper installation of insulation material could lead to a build-up of condensate water around the valve and the chrome ring of the adaptor, which could lead to a build-up of rust and compromise the structure of the chrome ring that holds the adaptor.

Auto-Stroke Settings for Modulating (Analog) Models

Analog actuators perform an Auto-Stroke sequence upon every power-up. The Auto-Stroke sequence runs from 0 to the end position and back in order to automatically detect the stroke limits and calibrate the input signal to the detected stroke limits. The Auto-Stroke sequence can take up to a maximum of 2 minutes to complete.



During the Auto-Stroke sequence, the status LED remains on and the actuator will not perform any other action.

If the actuator and/or adaptor are removed from the valve after initial installation, an Auto-Stroke sequence must be initiated must be initiated to recalibrate the actuator. To do so, remove and reapply the power.



PA Series Actuators - Specifications

Technical Specifications - Actuators				
Actuator Models	For Valves Sizes 1/2" to 1 -1/4"			
	PA24-27	PA24-27-FS	PAM24-27	PAM24-27-FS
	On/Off & Floating		Modulating	
	Non-Fail Safe	Fail Safe	Non-Fail Safe	Fail Safe
Supply Voltage	22 to 26 AC/DC			
Power Consumption	5VA	10VA	5VA	10VA
Control Signal	2 Position On/Off or 3-Point Floating		Analog, 0-10VDC or 2-10VDC; 4-20mA with external 500Ω resistor	
Input Impedance	4.7 K		10.0 K	100.0 K
Feedback Signal	No		0-10VDC or 2-10VDC	
Failsafe Function	No	Yes (60 Sec. Runtime)	No	Yes (60 Sec. Runtime)
Anti-Stick	No		Optional ^l	
Operation Time	120 Seconds			
Enclosure Rating	NEMA type 3R (Equivalent to IP54)			
Ambient Temperature	36°F to 122°F (2°C to 50°C)			
Humidity Rating	5 to 95% RH Non Condensing			
Connection	3 wires 18 AWG halogen free cable, 3.2 ft.	4 wires 18 AWG halogen free cable, 3.2 ft.		
Noise Rating	>35dBA			
Dimensions	(L) 4.09" x (W) 2.08" x (H) 3.62"			(L) 4.09" x (W) 2.08" x (H) 4.18"
Weight	0.9 lb. (0.4 kg)			
Warranty	5 Years limited from time of shipment			
Agency Listing	cULus, C E			

¹Anti-Stick Option

With the anti-stick option activated, the actuator will make one full cycle every 24 hours, if the actuator constantly has been in fully open or fully closed position during the previous 24 hours. This operation will clear up any possible impurities accumulated in the valve, and re-calculate the end positions.



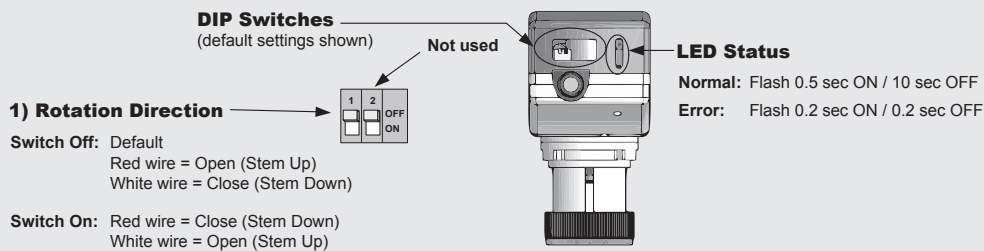
PA24-27 Series - Installation, Operation & Maintenance Manual Continued

PA Series Actuators - Wiring/DIP Switches

WIRING - (CABLE)

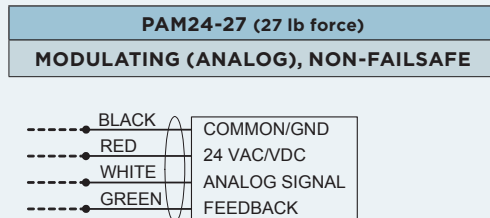


DIP SWITCHES

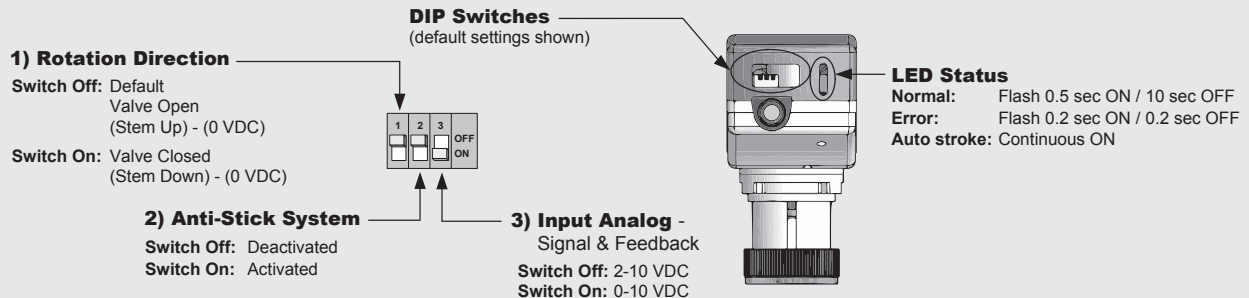


NOTE: For additional operating information consult PA24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

WIRING - (CABLE)



DIP SWITCHES

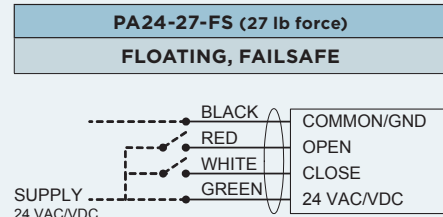
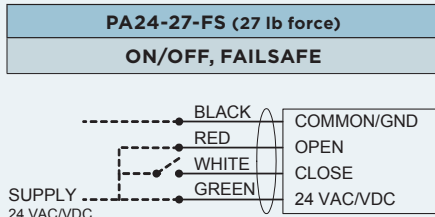


NOTE: For additional operating information consult PAM24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

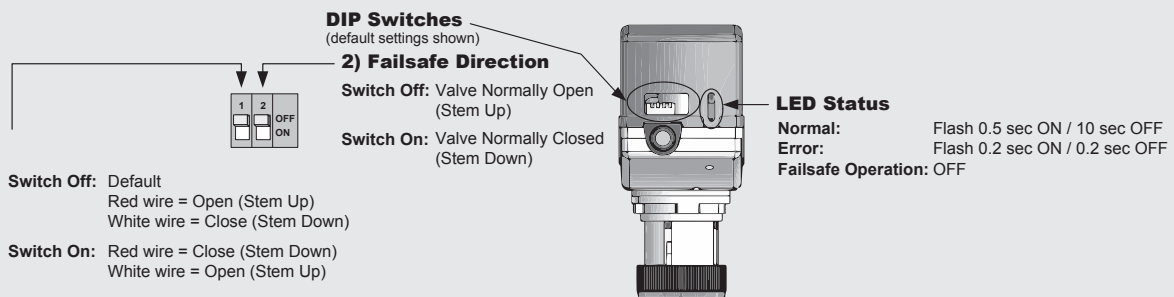
PA Series Actuators - Wiring/DIP Switches



WIRING - (CABLE)

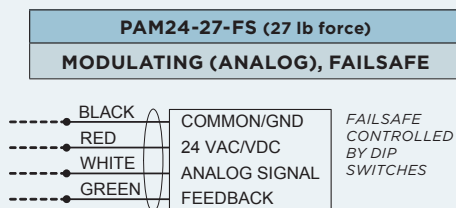


DIP SWITCHES

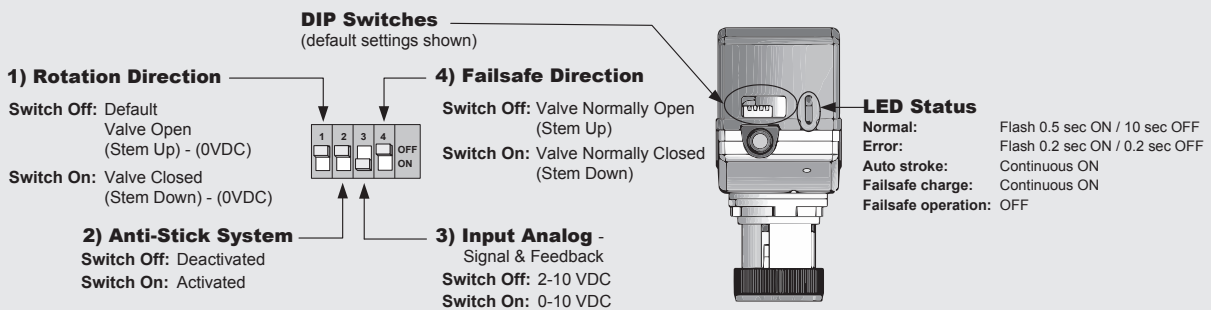


NOTE: The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to it failsafe position during a power failure. For additional operating information consult PA24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

WIRING - (CABLE)



DIP SWITCHES



NOTE: The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to it failsafe position during a power failure. For additional operating information consult PAM24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.