

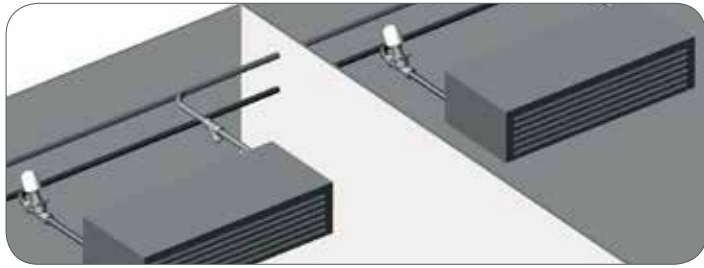


Simple Set Series - 1/2" - 2" Valve & Actuator Models PA(M) Series — Installation Instructions

03/20/20

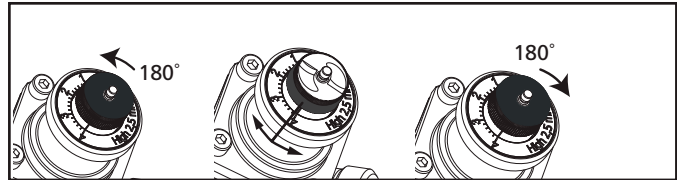
Mounting instructions

The Simple Set combines an externally adjustable automatic balancing valve with a full authority modulating control valve.

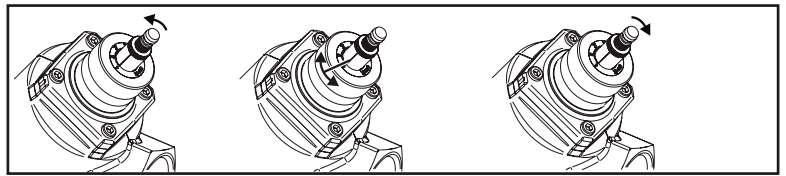


The Simple Set can be mounted in either the supply or the return line. To avoid temperature extremes, it is recommended on the return line. Installation of strainers and isolation ball valves are recommended. The temperature in and about the actuator should not be below 32°F (0°C).

1/2" to 1-1/2"



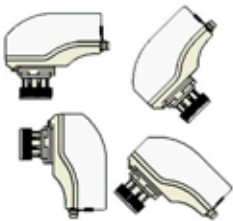
1-1/2" to 2"



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.

Mounting

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

Assembly



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.

Simple Set - How it Works

Function

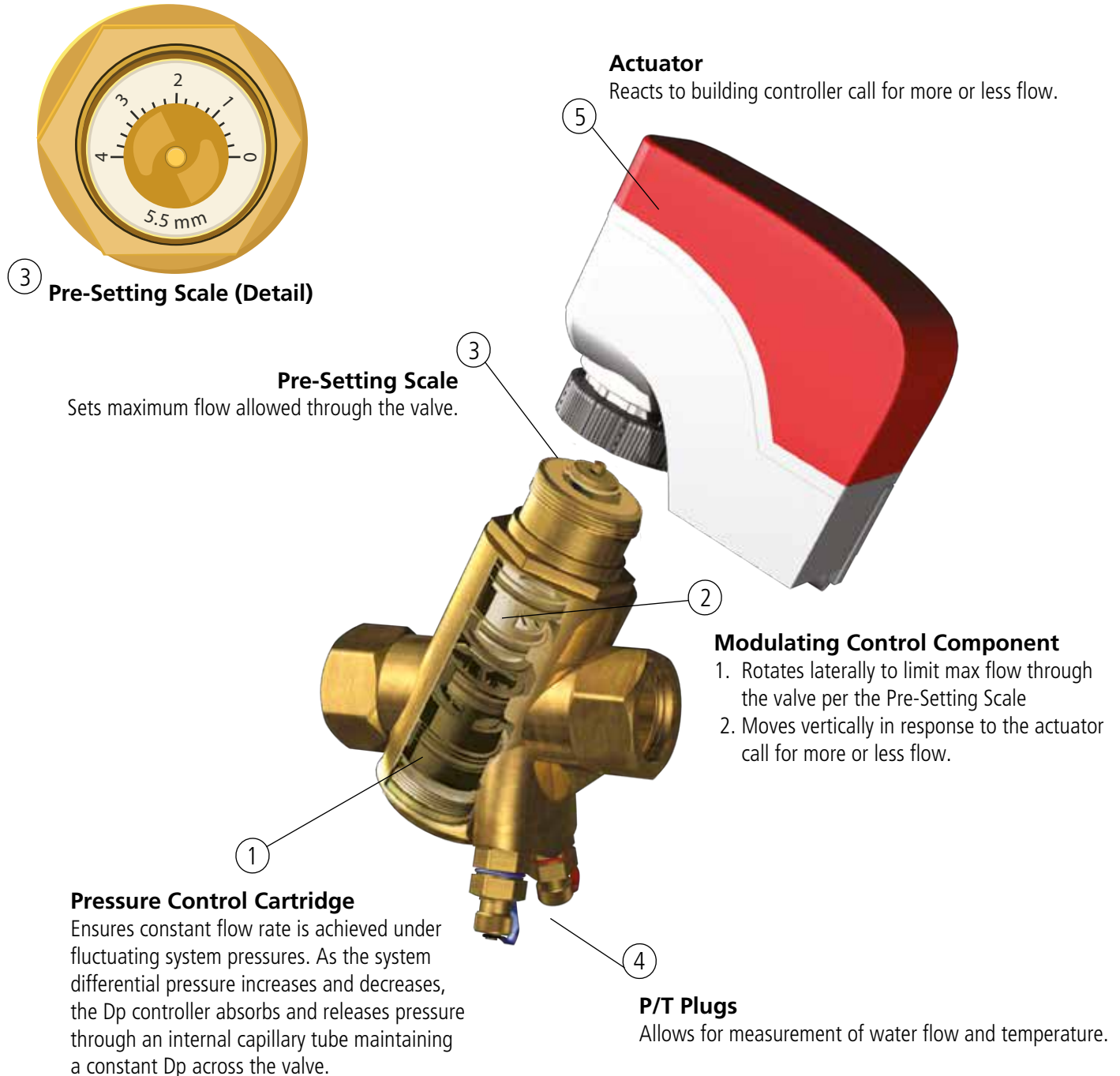
Unlike conventional control valve sizing where valves are sized to a Cv, the Simple Set valves are simply sized for flow and pipe size. Refer to the ordering table for the wide range of flow values available.

IMPORTANT:

Valve diameter should NEVER exceed pipe diameter!

Design

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



Simple Set - Flow Rate Charts

1/2"		1/2" Standard Flow Rate Cartridge		
Model Number	Pre-Set	Min. PSI	Flow l/h	Flow GPM
SS-05-N-S-1.5	0.3	2.3	329.3	1.45
SS-05-N-S-1.6	0.4	2.3	372.5	1.64
SS-05-N-S-2.0	0.6	2.4	458.8	2.02
SS-05-N-S-2.4	0.8	2.4	545.1	2.4
SS-05-N-S-2.8	1	2.5	629.1	2.77
SS-05-N-S-3.2	1.2	2.6	715.4	3.15
SS-05-N-S-3.5	1.4	2.6	799.5	3.52
SS-05-N-S-3.9	1.6	2.6	883.5	3.89
SS-05-N-S-4.3	1.8	2.6	967.6	4.26
SS-05-N-S-4.6	2	2.6	1049.3	4.62
SS-05-N-S-5.0	2.2	2.6	1131.1	4.98
SS-05-N-S-5.3	2.4	2.6	1210.6	5.33
SS-05-N-S-5.7	2.6	2.6	1287.8	5.67
SS-05-N-S-6.0	2.8	2.6	1360.5	5.99
SS-05-N-S-6.3	3	2.6	1430.9	6.3
SS-05-N-S-6.6	3.2	2.6	1492.2	6.57
SS-05-N-S-6.8	3.4	2.6	1544.4	6.8
SS-05-N-S-7.0	3.6	2.6	1592.1	7.01
SS-05-N-S-7.2	3.8	2.6	1628.5	7.17
SS-05-N-S-7.3	4	2.6	1648.9	7.26

1/2"		1/2" Low Flow Rate Cartridge		
Model Number	Pre-Set	Min. PSI	Flow l/h	Flow GPM
SS-05-N-L-0.3	0.3	2.2	75.0	0.33
SS-05-N-L-0.4	0.4	2.2	81.8	0.36
SS-05-N-L-0.5	0.6	2.2	106.7	0.47
SS-05-N-L-0.6	0.8	2.2	134.0	0.59
SS-05-N-L-0.7	1	2.5	168.1	0.74
SS-05-N-L-0.8	1.2	2.5	190.8	0.84
SS-05-N-L-1.0	1.4	2.5	222.6	0.98
SS-05-N-L-1.1	1.6	2.5	256.7	1.13
SS-05-N-L-1.3	1.8	2.5	290.7	1.28
SS-05-N-L-1.4	2	2.5	327.1	1.44
SS-05-N-L-1.6	2.2	2.5	365.7	1.61
SS-05-N-L-1.8	2.4	2.5	404.3	1.78
SS-05-N-L-2.0	2.6	2.5	442.9	1.95
SS-05-N-L-2.1	2.8	2.5	481.5	2.12
SS-05-N-L-2.3	3	2.5	520.1	2.29
SS-05-N-L-2.5	3.2	2.5	556.5	2.45
SS-05-N-L-2.6	3.4	2.5	592.8	2.61
SS-05-N-L-2.8	3.6	2.5	629.1	2.77
SS-05-N-L-3.0	3.8	2.5	672.3	2.96
SS-05-N-L-3.1	4	2.5	699.5	3.08

3/4"		3/4" Standard Flow Cartridge		
Model Number	Pre-Set	Min. PSI	Flow l/h	Flow GPM
SS-75-N-S-1.6	0.3	2.5	361.1	1.59
SS-75-N-S-1.8	0.4	2.5	402.0	1.77
SS-75-N-S-2.1	0.6	2.5	483.8	2.13
SS-75-N-S-2.5	0.8	2.5	565.5	2.49
SS-75-N-S-2.9	1	2.5	649.6	2.86
SS-75-N-S-3.2	1.2	2.6	726.8	3.2
SS-75-N-S-3.6	1.4	2.6	810.8	3.57
SS-75-N-S-4.0	1.6	2.6	913.0	4.02
SS-75-N-S-4.4	1.8	2.6	1006.2	4.43
SS-75-N-S-4.8	2	2.6	1099.3	4.84
SS-75-N-S-5.3	2.2	2.6	1194.7	5.26
SS-75-N-S-5.7	2.4	2.6	1290.1	5.68
SS-75-N-S-6.1	2.6	2.6	1385.5	6.1
SS-75-N-S-6.5	2.8	2.6	1476.3	6.5
SS-75-N-S-6.9	3	2.6	1560.3	6.87
SS-75-N-S-7.2	3.2	2.6	1633.0	7.19
SS-75-N-S-7.4	3.4	2.6	1685.3	7.42
SS-75-N-S-7.6	3.6	2.6	1730.7	7.62
SS-75-N-S-7.8	3.8	2.6	1787.5	7.87
SS-75-N-S-7.9	4	2.6	1801.1	7.93

3/4"		3/4" Low Flow Rate Cartridge		
Model Number	Pre-Set	Min. PSI	Flow l/h	Flow GPM
SS-75-N-L-0.3	0.3	2.3	77.2	0.34
SS-75-N-L-0.4	0.4	2.3	81.8	0.36
SS-75-N-L-0.5	0.6	2.3	106.7	0.47
SS-75-N-L-0.6	0.8	2.3	136.3	0.6
SS-75-N-L-0.7	1	2.3	168.1	0.74
SS-75-N-L-0.9	1.2	2.6	197.6	0.87
SS-75-N-L-1.0	1.4	2.6	227.1	1.0
SS-75-N-L-1.2	1.6	2.6	268.0	1.18
SS-75-N-L-1.3	1.8	2.6	304.3	1.34
SS-75-N-L-1.5	2	2.6	345.2	1.52
SS-75-N-L-1.7	2.2	2.6	388.4	1.71
SS-75-N-L-1.9	2.4	2.6	431.5	1.9
SS-75-N-L-2.1	2.6	2.6	474.7	2.09
SS-75-N-L-2.3	2.8	2.6	517.8	2.28
SS-75-N-L-2.5	3	2.6	567.8	2.5
SS-75-N-L-2.6	3.2	2.6	599.6	2.64
SS-75-N-L-2.8	3.4	2.6	635.9	2.8
SS-75-N-L-3.0	3.6	2.6	672.3	2.96
SS-75-N-L-3.1	3.8	2.6	706.4	3.11
SS-75-N-L-3.3	4	2.6	738.2	3.25

See braycommercialdivision.com for Specific Flow Rate Settings Calculator

Simple Set - Flow Rate Charts

1"		1" Standard Flow Rate Cartridge		
Model Number	Pre-Set	Min. PSI	Flow l/h	Flow GPM
SS-1-N-S-1.8	0.3	3.9	399.7	1.76
SS-1-N-S-2.0	0.4	3.9	442.9	1.95
SS-1-N-S-2.3	0.6	3.9	531.5	2.34
SS-1-N-S-2.8	0.8	3.9	629.1	2.77
SS-1-N-S-3.2	1	3.9	729.1	3.21
SS-1-N-S-3.7	1.2	3.9	835.8	3.68
SS-1-N-S-4.2	1.4	3.9	944.8	4.16
SS-1-N-S-4.7	1.6	3.9	1056.1	4.65
SS-1-N-S-5.2	1.8	3.9	1169.7	5.15
SS-1-N-S-5.6	2	4.1	1281.0	5.64
SS-1-N-S-6.1	2.2	4.1	1390.0	6.12
SS-1-N-S-6.6	2.4	4.1	1494.5	6.58
SS-1-N-S-7.0	2.6	4.1	1596.7	7.03
SS-1-N-S-7.5	2.8	4.1	1692.1	7.45
SS-1-N-S-7.8	3	4.1	1780.7	7.84
SS-1-N-S-8.2	3.2	4.2	1857.9	8.18
SS-1-N-S-8.5	3.4	4.2	1919.2	8.45
SS-1-N-S-8.7	3.6	4.2	1969.2	8.67
SS-1-N-S-8.9	3.8	4.2	2016.9	8.88
SS-1-N-S-9.0	4	4.2	2050.9	9.03

1-1/4"		1-1/4" Standard Flow Rate Cartridge		
Model Number	Pre-Set	Min. PSI	Flow l/h	Flow GPM
SS-125-N-S-3.2	0.3	2.9	729.1	3.21
SS-125-N-S-3.6	0.4	2.9	808.6	3.56
SS-125-N-S-4.3	0.6	2.9	974.4	4.29
SS-125-N-S-5.1	0.8	2.9	1147.0	5.05
SS-125-N-S-5.8	1	2.9	1319.6	5.81
SS-125-N-S-6.6	1.2	2.9	1494.5	6.58
SS-125-N-S-7.3	1.4	2.9	1667.1	7.34
SS-125-N-S-8.1	1.6	3	1835.2	8.08
SS-125-N-S-8.8	1.8	3	1996.4	8.79
SS-125-N-S-9.5	2	3.1	2150.9	9.47
SS-125-N-S-10.1	2.2	3.1	2294.0	10.1
SS-125-N-S-10.7	2.4	3.2	2428.0	10.69
SS-125-N-S-11.2	2.6	3.2	2548.3	11.22
SS-125-N-S-11.7	2.8	3.3	2655.1	11.69
SS-125-N-S-12.1	3	3.3	2750.5	12.11
SS-125-N-S-12.5	3.2	3.4	2830.0	12.46
SS-125-N-S-12.7	3.4	3.4	2893.6	12.74
SS-125-N-S-13.0	3.6	3.5	2943.5	12.96
SS-125-N-S-13.1	3.8	3.5	2975.3	13.1
SS-125-N-S-13.2	4	3.5	3000.3	13.21

1-1/2"		1-1/2" Standard Flow Rate Cartridge		
Model Number	Pre-Set	Min. PSI	Flow l/h	Flow GPM
SS-150-N-S-2.9	0.3	2.2	649.6	2.86
SS-150-N-S-3.4	0.4	2.2	772.2	3.40
SS-150-N-S-5.5	0.6	2.3	1249.2	5.50
SS-150-N-S-7.9	0.8	2.3	1794.3	7.90
SS-150-N-S-10.1	1	2.3	2294.0	10.10
SS-150-N-S-12.1	1.2	2.3	2748.2	12.10
SS-150-N-S-14.0	1.4	2.4	3179.7	14.00
SS-150-N-S-15.9	1.6	2.5	3611.3	15.90
SS-150-N-S-18.0	1.8	2.6	4088.2	18.00
SS-150-N-S-20.2	2	2.7	4587.9	20.20
SS-150-N-S-22.6	2.2	2.9	5133.0	22.60
SS-150-N-S-25.1	2.4	3.1	5700.8	25.10
SS-150-N-S-27.5	2.6	3.4	6245.9	27.50
SS-150-N-S-29.7	2.8	3.6	6745.6	29.70
SS-150-N-S-31.7	3	3.9	7199.9	31.70
SS-150-N-S-33.3	3.2	4.1	7563.3	33.30
SS-150-N-S-34.6	3.4	4.2	7858.5	34.60
SS-150-N-S-35.5	3.6	4.2	8062.9	35.50
SS-150-N-S-36.0	3.8	4.2	8176.5	36.00
SS-150-N-S-36.1	4	4.2	8199.2	36.10

2"		2" Standard Flow Rate Cartridge		
Model Number	Pre-Set	Min. PSI	Flow l/h	Flow GPM
SS-2-N-S-2.9	0.3	4.4	649.6	2.86
SS-2-N-S-4.5	0.4	4.4	1022.1	4.50
SS-2-N-S-9.5	0.6	4.4	2157.7	9.50
SS-2-N-S-13.8	0.8	4.4	3134.3	13.80
SS-2-N-S-18.1	1	4.4	4111.0	18.10
SS-2-N-S-22.4	1.2	4.4	5087.6	22.40
SS-2-N-S-26.6	1.4	4.4	6041.5	26.60
SS-2-N-S-30.6	1.6	4.4	6950.0	30.60
SS-2-N-S-34.3	1.8	4.4	7790.4	34.30
SS-2-N-S-37.8	2	4.4	8585.3	37.80
SS-2-N-S-41.3	2.2	4.4	9380.3	41.30
SS-2-N-S-44.9	2.4	4.5	10197.9	44.90
SS-2-N-S-48.5	2.6	4.6	11015.5	48.50
SS-2-N-S-52.2	2.8	4.7	11855.9	52.20
SS-2-N-S-55.6	3	4.8	12628.1	55.60
SS-2-N-S-58.4	3.2	4.9	13264.1	58.40
SS-2-N-S-60.6	3.4	4.9	13763.8	60.60
SS-2-N-S-62.4	3.6	5.0	14172.6	62.40
SS-2-N-S-63.9	3.8	5.0	14513.3	63.90
SS-2-N-S-64.9	4	5.1	14740.4	64.90

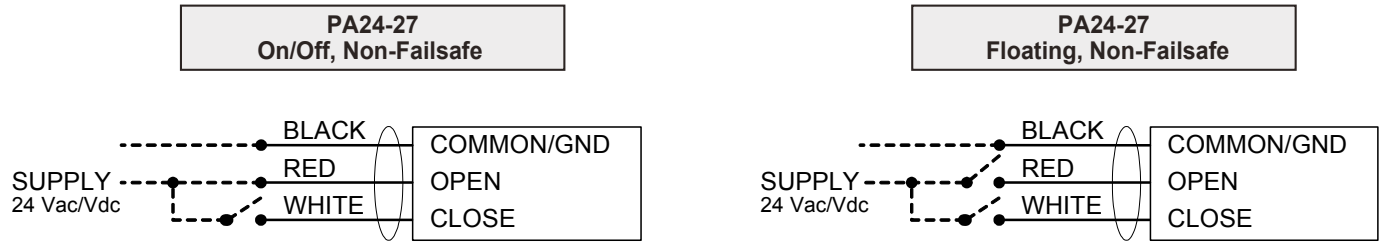
See braycommercialdivision.com for Specific Flow Rate Settings Calculator



PA24-27 — Install Instructions

27 lb-force — Non-Fail Safe — On/Off and Floating

Wiring: (Cable)



DIP Switches

DIP Switches
(default settings shown)

Not used

LED Status

Normal: Flash 0.5 sec ON / 10 sec OFF

Error: Flash 0.2 sec ON / 0.2 sec OFF

1) Rotation Direction



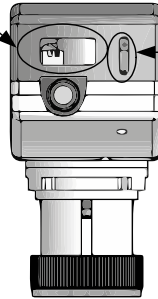
Switch Off: Default

Red wire = Open (Stem Up)

White wire = Close (Stem Down)

Switch On: Red wire = Close (Stem Down)

White wire = Open (Stem Up)



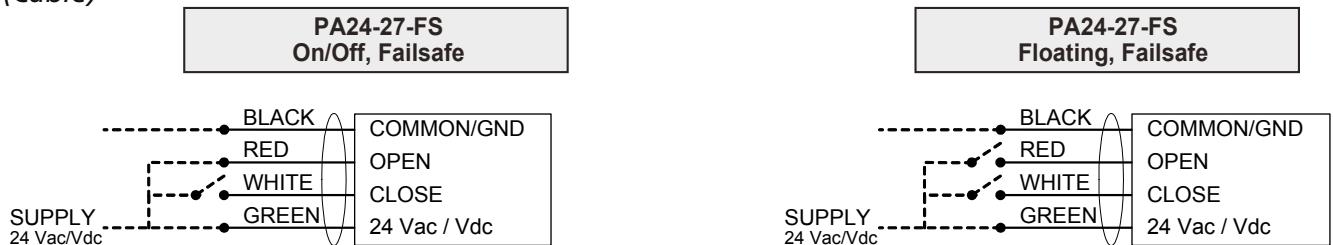
NOTE: For additional operating information consult PA24-27 Operation Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages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



PA24-27-FS — Install Instructions

27 lb-force — Fail Safe — On/Off and Floating

Wiring: (Cable)



DIP Switches

DIP Switches
(default settings shown)

2) Failsafe Direction

Switch Off: Valve Normally Open
(Stem Up)

Switch On: Valve Normally Closed
(Stem Down)

LED Status

Normal: Flash 0.5 sec ON / 10 sec OFF

Error: Flash 0.2 sec ON / 0.2 sec OFF

Failsafe Operation: OFF

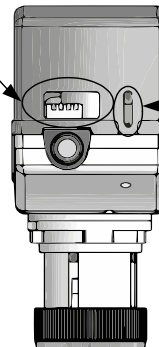
Switch Off: Default

Red wire = Open (Stem Up)

White wire = Close (Stem Down)

Switch On: Red wire = Close (Stem Down)

White wire = Open (Stem Up)



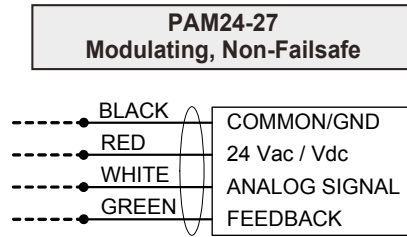
NOTE: ¹The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to it failsafe position during a power failure. For additional operating information consult PA24-27-FS Operation Manual. The performance specifications are nominal and 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.



PAM24-27 — Install Instructions

27 lb-force — Non-Fail Safe — Modulating

Wiring: (Cable)



DIP Switches

1) Rotation Direction

Switch Off: Default
Valve Open
(Stem Up) - (0 Vdc)

Switch On: Valve Closed
(Stem Down) - (0 Vdc)

2) Anti-Stick System

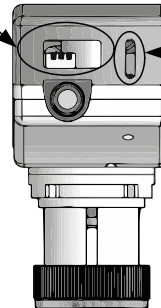
Switch Off: Deactivated
Switch On: Activated

DIP Switches (default settings shown)



3) Input Analog - Signal & Feedback

Switch Off: 2-10 Vdc
Switch On: 0-10 Vdc



LED Status

Normal: Flash 0.5 sec ON / 10 sec OFF
Error: Flash 0.2 sec ON / 0.2 sec OFF
Auto stroke: Continuous ON

NOTE: For additional operating information consult PAM24-27 Operation 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.

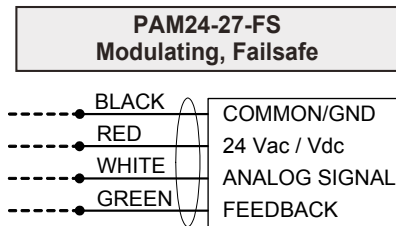


PAM24-27-FS — Install Instructions

27 lb-force — Fail Safe — Modulating

Wiring: (Cable)

FAILSAFE CONTROLLED BY DIP SWITCHES



DIP Switches

1) Rotation Direction

Switch Off: Default
Valve Open
(Stem Up) - (0Vdc)

Switch On: Valve Closed
(Stem Down) - (0Vdc)

2) Anti-Stick System

Switch Off: Deactivated
Switch On: Activated

DIP Switches (default settings shown)

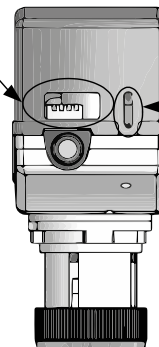


4) Failsafe Direction

Switch Off: Valve Normally Open
(Stem Up)
Switch On: Valve Normally Closed
(Stem Down)

3) Input Analog - Signal & Feedback

Switch Off: 2-10 Vdc
Switch On: 0-10 Vdc



LED Status

Normal: Flash 0.5 sec ON / 10 sec OFF
Error: Flash 0.2 sec ON / 0.2 sec OFF
Auto stroke: Continuous ON
Failsafe charge: Continuous ON
Failsafe operation: OFF

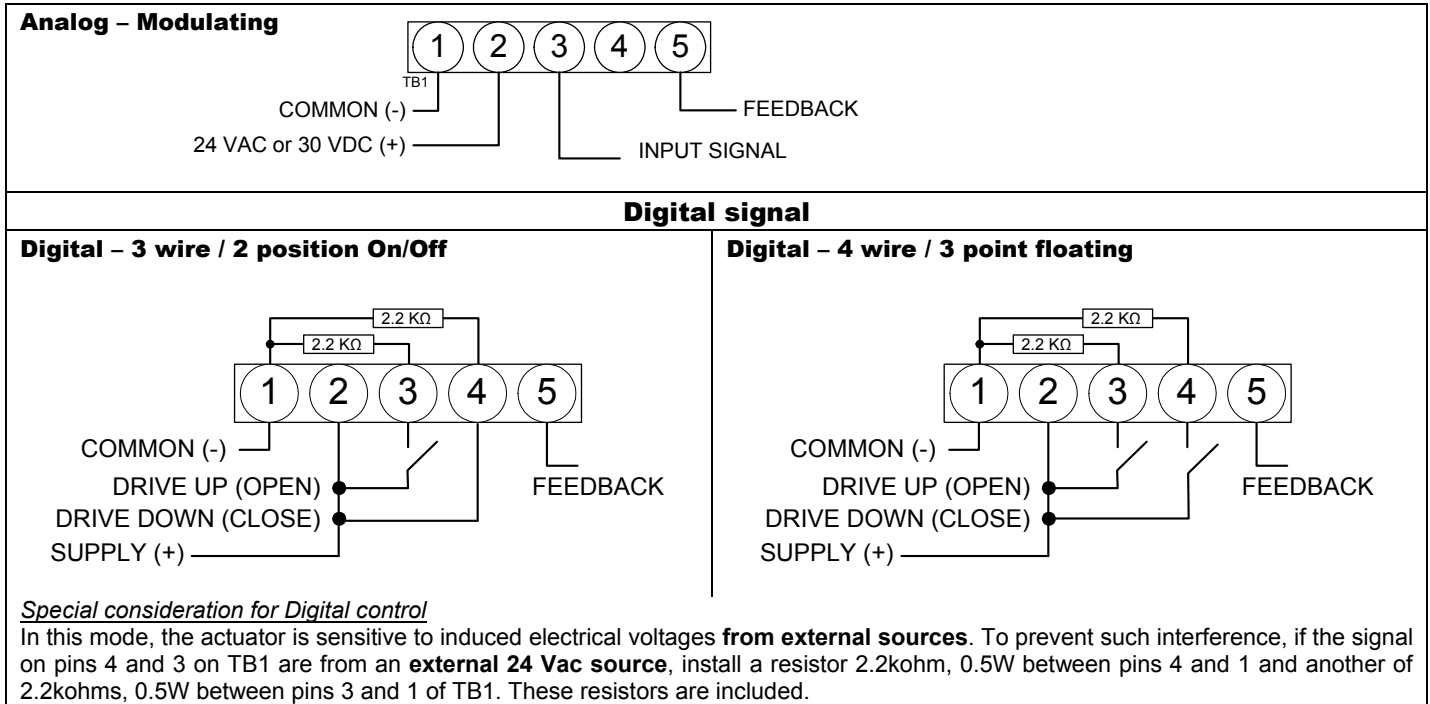
NOTE: ¹The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to its failsafe position during a power failure. For additional operating information consult PAM24-27-FS Operation Manual. The performance specifications are nominal and 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.



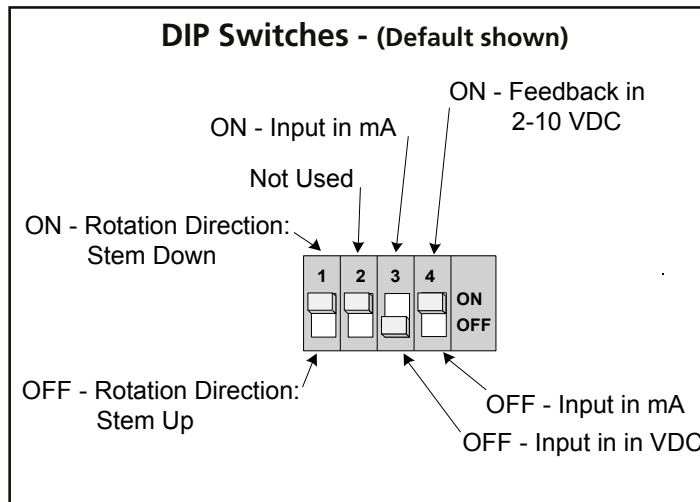
PAM24-100 — Submittal/Technical Data

100 lb-force — Non-Fail Safe — On/Off, Floating & Modulating

Wiring: (Terminal)



NOTE: For additional operating information consult PAM24-100 Operation 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.

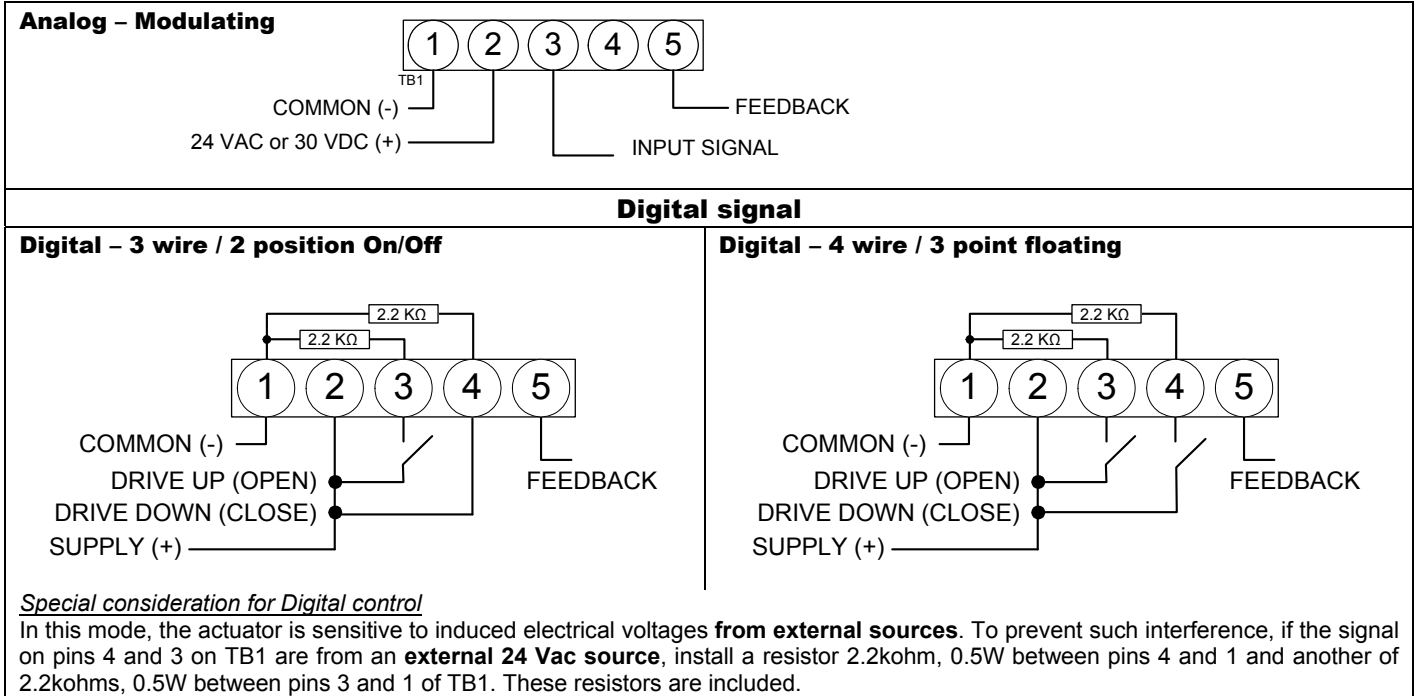




PAM24-100-FS — Submittal/Technical Data

100 lb-force — Fail Safe — On/Off, Floating & Modulating

Wiring: (Terminal)



NOTE: ¹The 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 PAM24-100-FS Operation 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.

