Bray COMMERCIAL

GA(S) Series - Linear Valve Actuators

- **Non-Spring Return - GA24-562**
- **Spring Return - GASRE24-450**
- **Spring Return - GASEX24-450**

LOOKING FOR MORE

06/14/25

Application

The GA(S) Series is a direct mount line of linear motor actuators to be used primarily on PIC and Globe Valves. The patented drive-valve coupling allows the drive to be connected to the valve automatically as soon as the power is applied to the actuator. An external crank handle enables the desired position to be set manually as well. Microprocessor technology enables the actuator to identify the functions required and to adapt itself automatically to the control valve properties.

These actuators operate on 24V AC or DC power supply. The control signal operates on 0-10VDC, 4-20mA, On/Off (2-point), or Floating (3-point). The position feedback signal operates on 0-10VDC.

These actuators operate both 2 and 3-Way valves and are available in non-spring return and spring return versions. The GA(S) series is bi-directional, selectable via screw terminals.

Features and Benefits

- **Easy Assembly with Valve**

  Stem connection takes place automatically after application of control voltage

- **Works with Bray Simple Set Max and Most Globe Valve Brands**

  Multiple adaptors allow assembly on third-party valves
  Spring return versions allow for fail-open or fail-closed configurations

- **Automatic Adaptation to Valve Stroke**

  Built-in intelligence matches the actuator to the valve stroke.

- **Easy Configurability**

  Meets the requirements of virtually any heat exchanger control application.

- **Spring Return Models**

  Available "fail up/retracted" and "fail down/extended"

Technical Specifications - Actuator		
Non-Spring Return	GA24-562	On/Off, Floating and Modulating
Spring Return	GASRE24-450	On/Off, Floating and Modulating, Shaft Normally Retracted
	GASEX24-450	On/Off, Floating and Modulating, Shaft Normally Extended
Power Requirements	On/Off, Floating and Modulating	24 VAC (±20%) at 50/60 Hz or 24 VDC (±15%)
Positioner[1]	Control Signal 1	0 to 10 V, Ri> 100 kΩ
	Control Signal 2	4 to 20 mA, Ri = 50Ω
	Position Feedback Signal	0 to 10 V, Load >10 kΩ
Action	Direct or Reverse Acting	
Switching Range	300 mv	
Power Consumption[2]	Non-Spring Return	10W, 18VA
	Spring Return	7.5W, 20VA
Force	Non-Spring Return	562 lbs. (2,500 N)
	Spring Return	450 lbs. (2,000 N) Power Stroke and Spring Stroke
Stroke	0″ to 1.93″ (0-49mm)	
Max. Temperature of Media[3]	248˚F (120˚C)	
Ambient Conditions	Temperature	14˚F to 131˚F (-10˚ to 55˚C)
	Humidity	0 to 95% RH without condensation
	Storage Temperature	-4˚F to 158˚F (-20° to 70°C)
Level of Protection	IP 66. Not intended for outdoor use without additional protection.	
Enclosure	Self-extinguishing plastic	
Gear Materials	Gears & Gearbox	Steel
	Mounting Column	Stainless Steel
	Mounting Bracket	Cast Light Alloy
Electrical Connection	13 AWG (2.5 mm²) with screw terminals. Three knock-out cable entries for M20×1.5 (2×) and M16×1.5	
Motor Run Time sec. per in. (mm)	51 (2), 102 (4), 153 (6), DIP Switch Adjustable	
Spring Run Time[4]	15... 30 seconds	
Number of Spring Returns	> 40,000	
Response Time - 3-Point	200 ms	
Weights	Non-Spring Return	9.1 lbs. (4.1 kg)
	Spring Return	12.3 lbs. (5.6 kg)
Agency Certifications	CE, UL Listed - Temperature-Indicating and Regulating Equipment, XAPX, XAPX7. File E366456	
Warranty	5 Years limited from time of shipment.	

[1] Also for On/Off (2-point) or Floating (3 point) depending on the connection for 24V-
[2] Design the transformers for this value, otherwise functional faults may occur.
[3] An intermediate piece is required for media temperatures between 248˚F (120˚C) and 464˚F (240˚C)
[4] The return time corresponds to a stroke of 0.55 in. (14 mm) to 1.58 in. (40 mm) and does not depend on the set run time.

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards.
For application at conditions beyond these specifications consult the local Bray office.
Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

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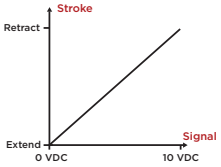
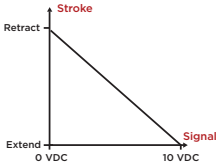
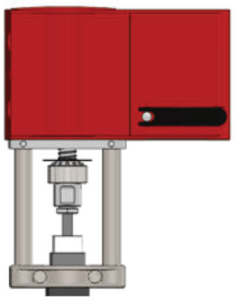
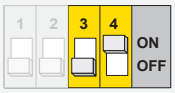
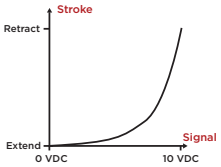
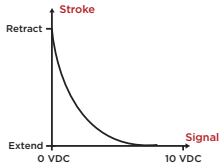
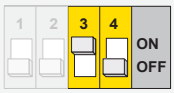
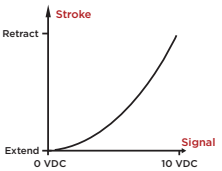
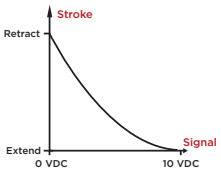
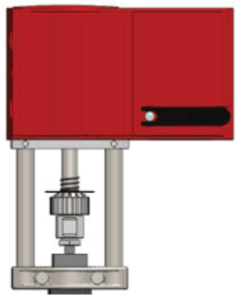
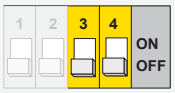
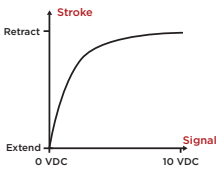
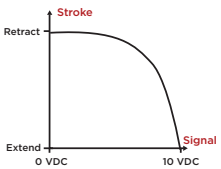
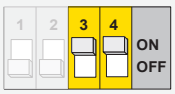
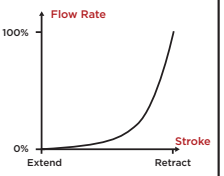
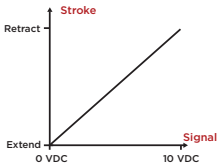
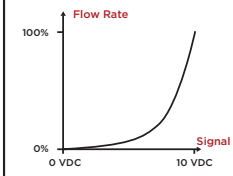
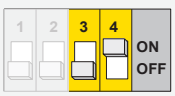
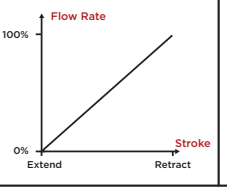
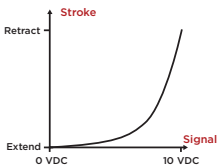
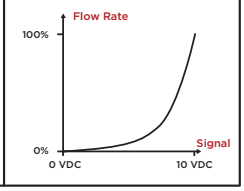
GA(S) - Curve Characteristic Switch Settings

DIP Switch Position	Characteristic Curve for Actuator Drive		Retract/ Extend Position
	Wired to Terminal 2b	Wired to Terminal 2a	
			RETRACTED 
			
			EXTENDED 
			

Note: When using a 4-20 mA control signal, the actuator drive's characteristic curves remain unchanged. When wired for 4-20 mA control...
- 4 mA command results in the same dnive response as 0 VDC
-20 mA command results in the same drive response as 10 VDC

GA(S) - Default Assembly Settings

Valve	Desired Characteristic Curve	Switch Coding	Characteristic Curve for Valve	Characteristic Curve for Drive	Effect on Valve
Globe Valve	Equal Percentage				
PIC Valve	Equal Percentage				

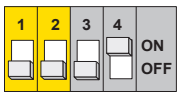
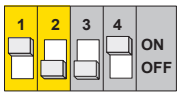
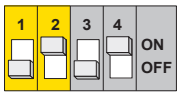
Note: the graphs shown for the default assembly settings apply only to the valves that close in the down (extended) position and open in the up (retracted) position.

Model Number Selection Chart

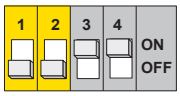
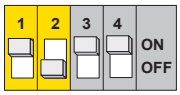
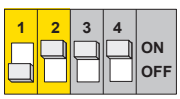
Model Number	Force in. lbs.	Voltage	Control Signal	Auxiliary Switches	High Temperature Kit
GA24-562	562	24 VAC	On/Off Floating Modulating	-A	-HT

GA(S) - Curve Characteristic Switch Settings

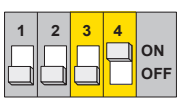
SSM Valve Stroke Times GA(S) Total Stroke = 1.93" (49mm)

Valve Stroke		Non-Spring Return or Spring Return Switch Coding	GA & GAS Size 2.5" & 3" .79" (20mm)	GA & GAS 4" & 5" 1.58" (40mm)	GA & GAS 6" & 8" 1.69" (43mm)	GA Only 10" & 12" 1.89" (48mm)
GA(S) Stroke Time	51 s/in. (2s/mm)	 Default Setting for Simple Set Max 2-1/2 thru 8"	40 Sec.	80 Sec.	86 Sec.	96 Sec.
	102 s/in. (4s/mm)	 Optional Setting	80 Sec.	160 Sec.	172 Sec.	192 Sec.
	153 s/in. (6s/mm)	 Default Setting for 10" and 12"	120 Sec.	240 Sec.	258 Sec.	288 Sec.

DG Valve Stroke Times GA(S) Total Stroke = 1.93" (49mm)

Valve Stroke		Non-Spring Return or Spring Return Switch Coding	GA & GAS Size 2.5" & 3" .75" (19mm)	GA & GAS 4" & 6" 1.5" (38mm)
GA(S) Stroke Time	51 s/in. (2s/mm)	 Default Setting for Globe Valves	38 Sec.	76 Sec.
	102 s/in. (4s/mm)	 Optional Setting	76 Sec.	152 Sec.
	153 s/in. (6s/mm)	 Optional Setting	114 Sec.	228 Sec.

Stand Alone Actuator Stroke Times GA(S) Total Stroke = 1.93" (49mm)

Valve Stroke		Non-Spring Return or Spring Return Switch Coding
GA(S) Stroke Time	153 s/in. (6s/mm)	 = Default Setting for Stand Alone GA Actuator

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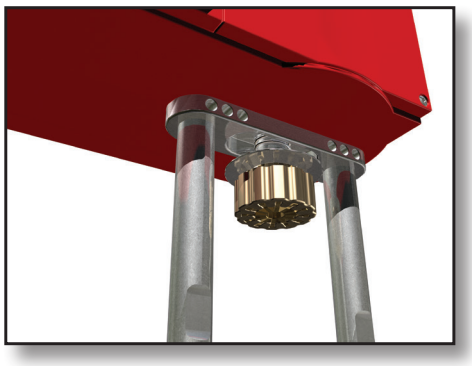
LED Display - The display consists of two dual-color LEDs (red/green).	
Both LEDs flashing red	Calibration procedure
Upper LED lit red	Upper limit stop or shaft is fully retracted
Lower LED lit red	Lower limit stop or shaft is fully extended
Upper LED flashing green	Drive running, moving towards shaft retracted
Upper LED lit green	Drive stationary, last direction of running was shaft was retracting
Lower LED flashing green	Drive running, moving towards shaft extended
Lower LED lit green	Drive stationary, last direction of running shaft extending
Both LEDs lit green	Waiting time after switching on or after Spring Return-Spring Return Only
No LED lit	No power supply (GAS Spring Return models, terminal 21 (GA Non-Spring return models, terminals 2a or 2b)
Both LEDs are flashing red and green	Drive is in manual mode

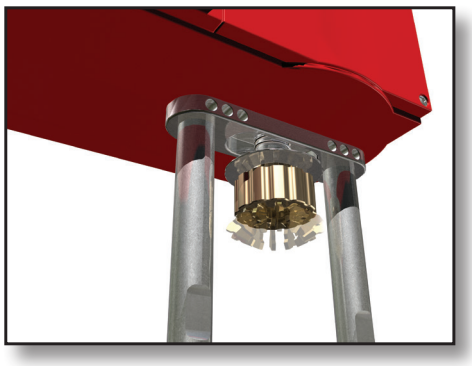
Convenience Features

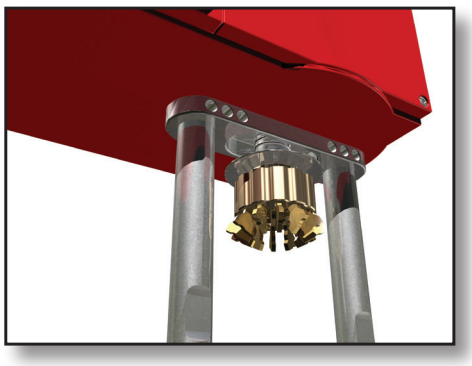
This Bray series of actuators is the most convenient retrofit actuator you can buy. This actuator calibrates itself automatically. As soon as voltage is applied to the drive for the first time, it moves to the lower limit stop on the valve, thus enabling automatic connection with the valve stem. Then it moves to the upper limit stop and the value is recorded and saved with the help of a path measurement system. The control signal and feedback signal are adjusted to this effective stroke. There is no re-calibration if the voltage is interrupted or the voltage supply is removed. The values remain saved.

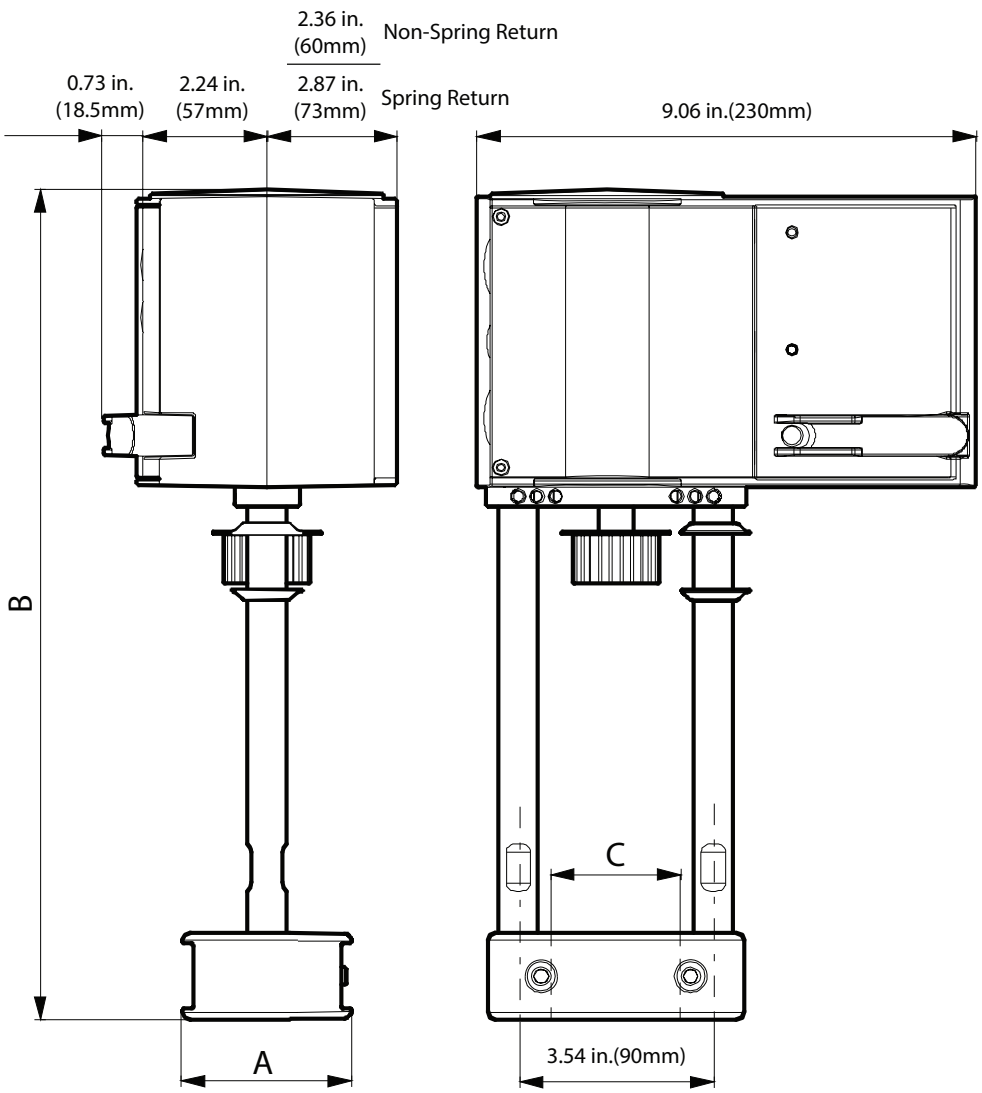
The patented drive-valve coupling automatically attaches to valve spindle and easily detaches when you simply grasp the coupling and push up. There are adapters available for assembly to most globe valve manufacturers.

Furthermore, these actuators can be replaced while keeping the valve in-line for non-spring return and spring return version for both fail open and failed closed configurations.



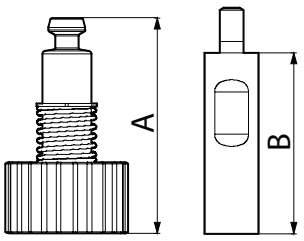






Description	A	B	C
GA(S) Series	2.52 in. (64mm)	11.38 in. (289mm)	1.73 in. (44mm)

Adaptor for media temperatures between
266˚F (130˚C) and 464˚F (240˚C)



Part Number	A	B
0372336 240	4.31 in. (109.4mm)	3.94 in. (100mm)

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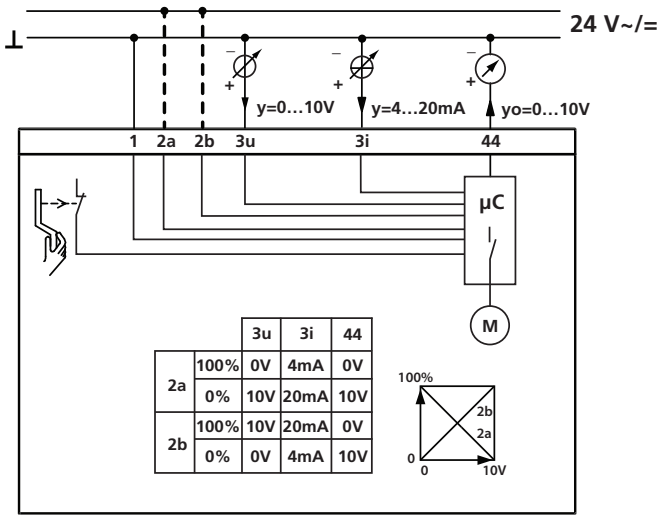
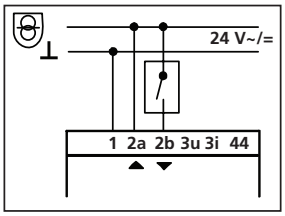
Non-Spring Return

Modulating

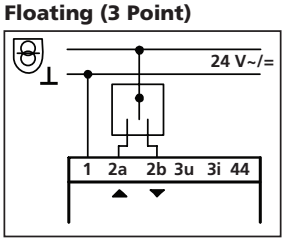


		3u	3i	44
2a	100%	0V	4mA	0V
	0%	10V	20mA	10V
2b	100%	10V	20mA	0V
	0%	0V	4mA	10V

On/Off (2 Point)



Floating (3 Point)

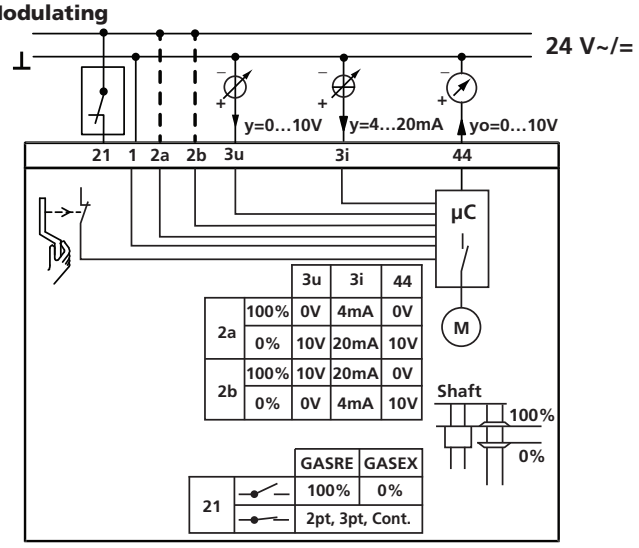


= Extra Low Voltage

Y = modulating signal
1= Neutral/Common for power and signal
2a/2b- These terminals determine forward acting/reverse acting. Only one should be powered with 24V.
Reverse Acting 2a = Extends. 0 volts = 100% retracted. 10V = 0% retracted.
Forward Acting 2b = Retracts. 0 volts = 0% retracted. 10V = 100% retracted.
3u = 0 .. 10 V, in case of control by voltage
3i = 4 .. 20 mA, in case of control by current
44 = 0 .. 10 V Feedback, independent from the use of 3u or 3i

Spring Return

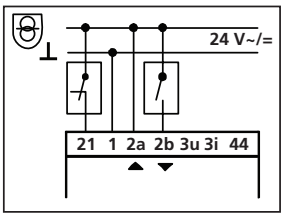
Modulating



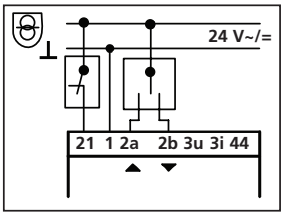
		3u	3i	44
2a	100%	0V	4mA	0V
	0%	10V	20mA	10V
2b	100%	10V	20mA	0V
	0%	0V	4mA	10V

		GASRE	GASEX
21		100%	0%
		2pt, 3pt, Cont.	

On/Off (2 Point)



Floating (3 Point)

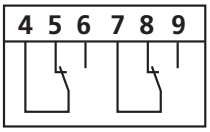


= Extra Low Voltage

Y = modulating signal
1= Neutral/Common for power and signal
2a/2b- These terminals determine forward acting/reverse acting. Only one should be powered with 24V.
Reverse Acting 2a = Extends. 0 volts = 100% retracted. 10V = 0% retracted.
Forward Acting 2b = Retracts. 0 volts = 0% retracted. 10V = 100% retracted.
3u = 0 .. 10 V, in case of control by voltage
3i = 4 .. 20 mA, in case of control by current
44 = 0 .. 10 V Feedback, independent from the use of 3u or 3i

Options

0372333 001
0372333 002
(Auxillary Switches)



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