

**BBB/BIB Series  
 Electric Actuators  
 Non Spring Return**



These Bray direct coupled 24 VAC non-spring return rotary electric actuators are designed for 3 position or modulating control of building HVAC valves and dampers.

**FEATURES**

- Brushless DC motor technology
- Unique self-centering shaft coupling
- All metal housing
- Two torque ranges available
- Manual override
- Offset and span adjustment models available
- Independently adjustable dual auxiliary switches available

**APPLICATION OVERVIEW**

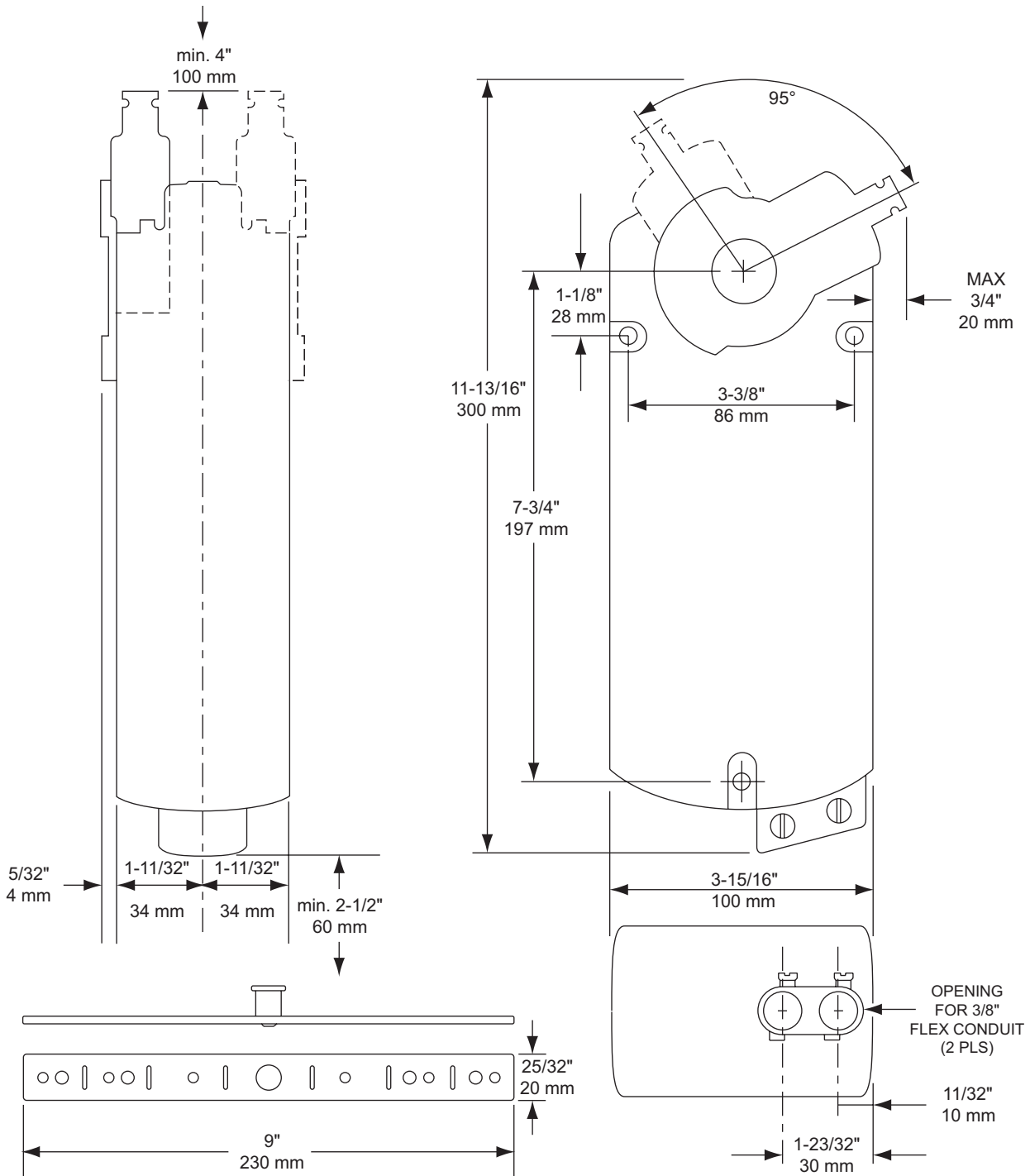
These actuators are used in constant or variable air volume installations for the control of return air, mixed air, exhaust, and face and bypass dampers requiring up to 310 lb-in (35 Nm) torque.

**MODEL INFORMATION**

	221 lb-in (25 Nm)												310 lb-in (35 Nm)																
	BBB131.1U	BBB131.1P	BBB151.1U	BBB151.1P	BBB156.1U	BBB156.1P	BBB161.1U	BBB161.1P	BBB163.1U	BBB163.1P	BBB164.1U	BBB164.1P	BBB166.1U	BBB166.1P	BIB131.1U	BIB131.1P	BIB151.1U	BIB151.1P	BIB156.1U	BIB156.1P	BIB161.1U	BIB161.1P	BIB163.1U	BIB163.1P	BIB164.1U	BIB164.1P	BIB166.1U	BIB166.1P	
Standard Cable	•		•		•		•		•		•		•		•		•		•		•		•		•		•		
Plenum Cable		•		•		•		•		•		•		•		•		•		•		•		•		•		•	
0 - 10 VDC Input Signal							•	•	•	•	•	•	•	•							•	•	•	•	•	•	•	•	
4 - 20 mA Input Signal			•	•	•	•											•	•	•	•									
Dual Auxiliary Switches					•	•					•	•	•	•					•	•				•	•	•	•	•	
Span/Offset Adjustable									•	•	•	•											•	•	•	•			

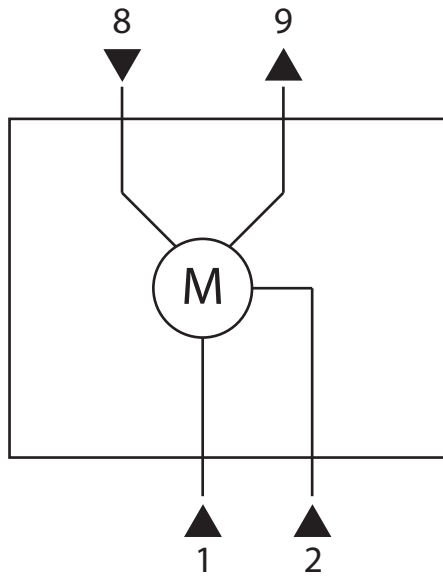
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**DIMENSIONS**

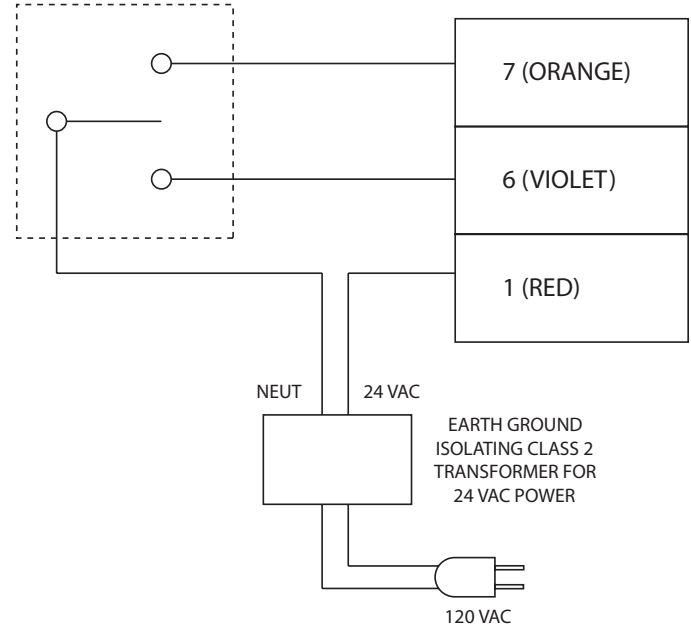


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**WIRING DIAGRAMS**



**Modulating Control**



**3 Point (Floating) Control**

Symbol	Function	Terminal Designations	Color
1	Supply	G	Red
2	Neutral	G0	Black
6	Control Signal Clockwise	Y1	Violet
7	Control Signal Counterclockwise	Y2	Orange
8	0 - 10 VDC Input Signal	Y	Gray
9	Output for 0 - 10 VDC Position Indication	U	Pink

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**SPECIFICATIONS**

Power Supply	Operating Voltage	24 VAC, +20%, -15%		
	Frequency	50/60 Hz		
	Power Consumption	BBB Series	4 VA	
		BIB Series	6 VA	
Equipment Rating	Operating Voltage	Class 2		
Control Signal (Modulating Only)	Voltage	Input	0 to 10 VDC	
		Resistance	100,000 Ω	
	Current	Input	DC 4 - 20 mA	
		Resistance	500 Ω	
Auxiliary Features	Feedback Potentiometer	0 to 1,000 Ohms, <10 mA		
	Dual Auxiliary Switch	Standard Cable	6 A resistive, 2 A inductive	
		Plenum Cable	4 A resistive, 2 A inductive	
	Voltage	Standard Cable	24 to 250 VAC/24 VDC	
		Plenum Cable	24 VAC/VDC	
	Switch Range	Switch A	0 - 90° with 5° intervals	
		Recommended Usage	0 - 45°	
		Switch B	0 - 90° with 5° intervals	
		Recommended Usage	45 - 90°	
		Factory Setting	Switch A 5°, Switch B 85°	
Function	Running Torque	BBB	221 lb-in (25 nM)	
		BIB	310 lb-in (35 Nm)	
	90° Run Time	150 seconds at 50/60 Hz		
	Nominal Angle of Rotation	90°		
	Maximum Angular Rotation	95°		
Mounting	Shaft Size	3/8 to 1 inch (9.5 to 25.4 mm)		
		1/4 to 5/8 inch (6.4 to 15.9 mm)		
Housing	Minimum Shaft Length	3/4 inch (19 mm)		
	Enclosure	NEMA 1		
	Material	Die Cast Aluminum Alloy		
Conditions	Ambient Temperature	Operation	-25 to 130°F (-32 to 55°C)	
		Storage and Transport	-25 to 158°F (-32 to 70°C)	
	Ambient Humidity	95% R.H.		
Miscellaneous	Cable Length	3 ft. (0.9 m)		
	Weight	4.4 lb (2 kg)		
	Noise Level	<45 dBA		
	Agency Approvals	UL873, CSA C22.2 No. 24-93		

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.

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 **Bray** CONTROLS  
 Commercial Division

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