

**Spring Return & Non-Spring Return
24V and 120V
On/Off - Modulating - Tristate**

04/26/21

Bray's wide variety of commercial electric actuator choices increases flexibility when choosing peripheral products for Building Automation Systems. We offer many different torque outputs and optional features to ensure you have the best actuator for the application. Jumper or DIP switch selectable features allow versatility in the field. The actuators are maintenance-free, which means fewer call backs after installation and start-up. In addition, our actuators are manufactured to ISO 9001 and Six Sigma Standards making them the highest quality on the market today.



All of our commercial electric actuators are applicable to Bray characterized ball valves, globe valves and butterfly valves, depending on the torque requirements of the valves. And all actuators are linkage free when applied to dampers ranging for small VAV box dampers all the way up to large outdoor air and return air dampers. For butterfly valves and large globe valves, tandem arrangements are also available, factory mounted, calibrated and synchronized for smooth and long lasting operation.

Options include:

- Metal or plastic housings
- Spring return or non spring return operation
- Auxiliary Switches (optional)
- Master/slave operation
- Weather Shields for outdoor use
- 24V and line voltage models
- On/Off, Floating, or Modulating operation
- Analog feedback on all modulating models
- UL, CSA and CE listings
- 5-year warranty on selected models
- Flying lead or terminal strip electrical connections

Non-Spring Return - D-35 Series



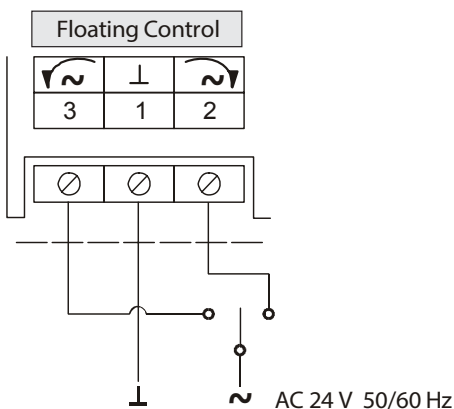
D24-35-T-TS — Submittal/Technical Data

35 lb-in. — Non-Spring Return — Floating — Terminal Block

Specifications:

Power Supply	Operating Voltage	24 VAC +25%/-20% at 50/60 Hz
	Power Consumption	2.1 VA
Equipment Rating		Class 2 or Safety Extra-Low Voltage (SELV)
Control Signal	Input Signal	24 VAC +25%/-20% at 50/60 Hz, Class 2 or SELV
Function	Torque	35 in-lbs. (4 Nm)
	Runtime for 90° of Rotation	60 Seconds at 60 Hz / 72 Seconds at 50 Hz
	Rotation Range	93° ±3°, CW or CCW
Mounting	Shaft Size	Up to 1/2 in. (13 mm) Diameter Round Shaft or 3/8 in. (10 mm) Square Shaft
Enclosure		NEMA 2, IP40
Manual Override		External Push Button
Ambient Conditions		Ambient Temperature
	Operating	-4 to 140°F (-20 to 60°C); 90% RH Maximum, Non-Condensing
	Storage	-20 to 150°F (-29 to 66°C); 90% RH Maximum, Non-Condensing
Agency Certification		United States UL Listed, File E27734, CCN XAPX (United States) and XAPX7 (Canada) Actuator Housing is Plenum Rated per CSA C22.2 No. 236/UL 1995, Heating and Cooling Equipment Europe CE Mark - Product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC. Australia and New Zealand C-Tick Mark Australia/NZ Emissions Compliant
Connection		M3 Terminal Screws
Life Cycle		100,000 Full Stroke Cycles; 2,500,000 repositions at rated running torque
Audible Noise Rating		35 dBA Nominal at 1 Meter
Dimensions		(L) 5.16" x (W) 2.81" x (H) 2.06
Weight		1.0 lb. (0.5 kg)

Wiring: (Terminal Block)



NOTE: To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Non-Spring Return - D-35 Series



5
Year
Warranty

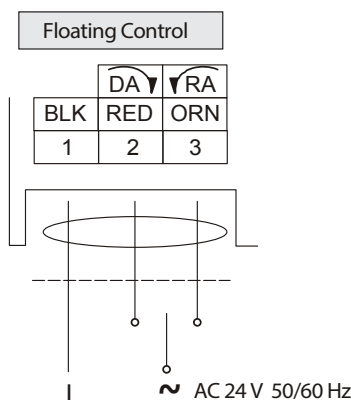
D24-35-TP — Submittal/Technical Data

35 lb-in. — Non-Spring Return — Floating — Plenum Cable

Specifications:

Power Supply	Operating Voltage	24 VAC +25%/-20% at 50/60 Hz
	Power Consumption	2.1 VA
Equipment Rating		Class 2 or Safety Extra-Low Voltage (SELV)
Control Signal	Input Signal	24 VAC +25%/-20% at 50/60 Hz, Class 2 or SELV
Function	Torque	35 in-lbs. (4 Nm)
	Runtime for 90° of Rotation	60 Seconds at 60 Hz / 72 Seconds at 50 Hz
	Rotation Range	93° ±3°, CW or CCW
Mounting	Shaft Size	Up to 1/2 in. (13 mm) Diameter Round Shaft or 3/8 in. (10 mm) Square Shaft
Enclosure		NEMA 2, IP42
Manual Override		External Push Button
Ambient Conditions	Operating	-4 to 140°F (-20 to 60°C); 90% RH Maximum, Non-Condensing
	Storage	-20 to 150°F (-29 to 66°C); 90% RH Maximum, Non-Condensing
Connection		48 in. (1.2 m) UL 444 Type CMP Plenum Rated Cable with 19 AWG (0.75 mm ²) conductors and 1/4 in. (6 mm) ferrule ends
Life Cycle		100,000 Full Stroke Cycles; 2,500,000 repositions at rated running torque
Audible Noise Rating		35 dBA Nominal at 1 Meter
Dimensions		(L) 5.16" x (W) 2.81" x (H) 2.06
Weight		1.0 lb. (0.5 kg)
Agency Certification		United States UL Listed, File E27734, CCN XAPX (United States) and XAPX7 (Canada) Actuator Housing is Plenum Rated per CSA C22.2 No. 236/UL 1995, Heating and Cooling Equipment Europe CE Mark - Product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC. Australia and New Zealand C-Tick Mark Australia/NZ Emissions Compliant

Wiring: (Plenum Cable)



NOTE: To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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Non-Spring Return - D-35 Series



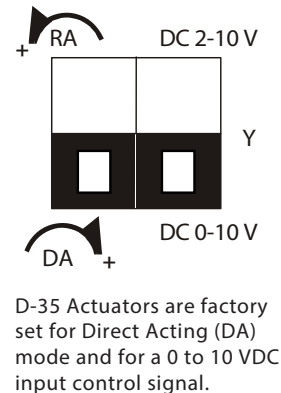
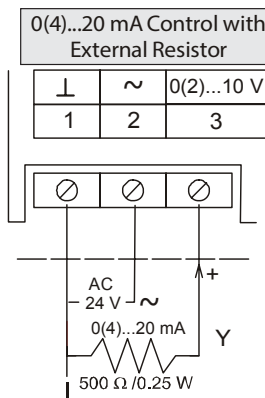
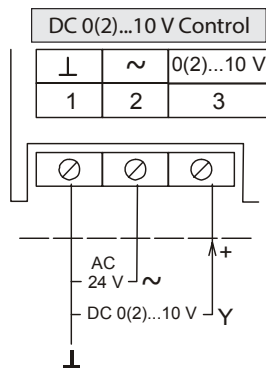
DM24-35-TS — Submittal/Technical Data

35 lb-in. — Non-Spring Return — Modulating — Terminal Block

Specifications:

Power Supply	Operating Voltage	24 VAC +25%/-20% at 50/60 Hz
	Power Consumption	3.6 VA
Equipment Rating		Class 2 or Safety Extra-Low Voltage (SELV)
Control Signal	Input Signal	0(2) to 10 VDC or 0(4) to 20 mA with field-furnished 500 ohm resistor
	Control Input Impedance	200k Ohms
Feedback Signal		0 to 10 VDC or 2 to 10 VDC for 90° (10 VDC at 1 mA) Corresponds to input signal span selection
Function	Torque	35 in-lbs. (4 Nm)
	Runtime for 90° of Rotation	60 Seconds at 60 Hz / 72 Seconds at 50 Hz
	Rotation Range	93° ±3°, CW or CCW
Mounting	Shaft Size	Up to 1/2 in. (13 mm) Diameter Round Shaft or 3/8 in. (10 mm) Square Shaft
Enclosure		NEMA 2, IP40
Manual Override		External Push Button
Ambient Conditions		Ambient Temperature
	Operating	-4 to 140°F (-20 to 60°C); 90% RH Maximum, Non-Condensing
	Storage	-20 to 150°F (-29 to 66°C); 90% RH Maximum, Non-Condensing
Connection		M3 Terminal Screws
Life Cycle		100,000 Full Stroke Cycles; 2,500,000 repositions at rated running torque
Audible Noise Rating		35 dBA Nominal at 1 Meter
Dimensions		(L) 5.16" x (W) 2.81" x (H) 2.06
Weight		1.0 lb. (0.5 kg)
Agency Certification		United States UL Listed, File E27734, CCN XAPX (United States) and XAPX7 (Canada) Actuator Housing is Plenum Rated per CSA C22.2 No. 236/UL 1995, Heating and Cooling Equipment Europe CE Mark - Product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC. Australia and New Zealand C-Tick Mark Australia/NZ Emissions Compliant

Wiring: (Terminal Block)



NOTE: To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Non-Spring Return - D-35 Series



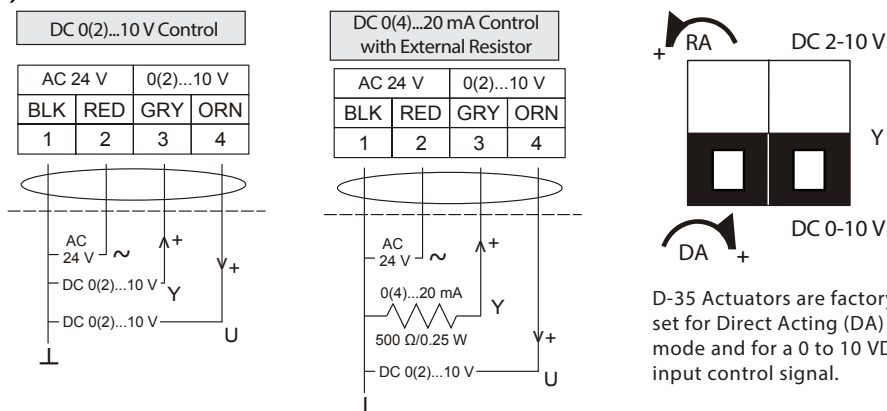
DM24-35 — Submittal/Technical Data

35 lb-in. — Non-Spring Return — Modulating — Plenum Cable

Specifications:

Power Supply	Operating Voltage	24 VAC +25%/-20% at 50/60 Hz
	Power Consumption	3.6 VA
Equipment Rating		Class 2 or Safety Extra-Low Voltage (SELV)
Control Signal	Input Signal	0(2) to 10 VDC or 0(4) to 20 mA with field-furnished 500 ohm resistor
	Control Input Impedance	200k Ohms
	Feedback Signal	0 to 10 VDC or 2 to 10 VDC for 90° (10 VDC at 1 mA) Corresponds to input signal span selection
Function	Torque	35 in-lbs. (4 Nm)
	Runtime for 90° of Rotation	60 Seconds at 60 Hz / 72 Seconds at 50 Hz
	Rotation Range	93° ±3°, CW or CCW
Mounting	Shaft Size	Up to 1/2 in. (13 mm) Diameter Round Shaft or 3/8 in. (10 mm) Square Shaft
Enclosure		NEMA 2, IP42
Manual Override		External Push Button
Ambient Conditions	Ambient Temperature	
	Operating	-4 to 140°F (-20 to 60°C); 90% RH Maximum, Non-Condensing
	Storage	-20 to 150°F (-29 to 66°C); 90% RH Maximum, Non-Condensing
Connection		48 in. (1.2 m) UL 444 Type CMP Plenum Rated Cable with 19 AWG (0.75 mm ²) conductors and 1/4 in. (6 mm) ferrule ends
Life Cycle		100,000 Full Stroke Cycles; 2,500,000 repositions at rated running torque
Audible Noise Rating		35 dBA Nominal at 1 Meter
Dimensions		(L) 5.16" x (W) 2.81" x (H) 2.06
Weight		1.0 lb. (0.5 kg)
Agency Certification		United States UL Listed, File E27734, CCN XAPX (United States) and XAPX7 (Canada) Actuator Housing is Plenum Rated per CSA C22.2 No. 236/UL 1995, Heating and Cooling Equipment Europe CE Mark - Product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC. Australia and New Zealand C-Tick Mark Australia/NZ Emissions Compliant

Wiring: (Plenum Cable)



D-35 Actuators are factory set for Direct Acting (DA) mode and for a 0 to 10 VDC input control signal.

NOTE: To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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Non-Spring Return - VA-35 Series



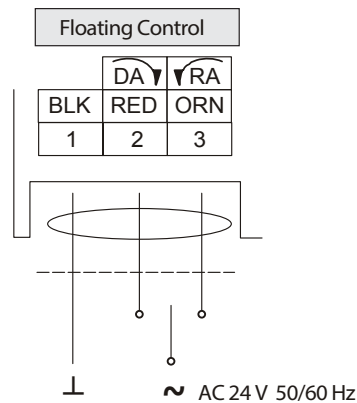
VA24-35-P — Submittal/Technical Data

35 lb-in. — Non-Spring Return — Floating — Plenum Cable

Specifications:

Power Supply	Operating Voltage	24 VAC +25%/-20% at 50/60 Hz
	Power Consumption	2.1 VA
Equipment Rating		Class 2 or Safety Extra-Low Voltage (SELV)
Control Signal	Input Signal	24 VAC +25%/-20% at 50/60 Hz, Class 2 or SELV
Function	Torque	35 in-lbs. (4 Nm)
	Runtime for 90° of Rotation	60 Seconds at 60 Hz / 72 Seconds at 50 Hz
	Rotation Range	93° ±3°, CW or CCW
Mounting	Shaft Size	Up to 1/2 in. (13 mm) Diameter Round Shaft or 3/8 in. (10 mm) Square Shaft
Enclosure		NEMA 2, IP42
Manual Override		External Push Button
Ambient Conditions/Temperatures		
	Operating	-4 to 140°F (-20 to 60°C); 90% RH Maximum, Non-Condensing
	Storage	-20 to 150°F (-29 to 66°C); 90% RH Maximum, Non-Condensing
Connection		48 in. (1.2 m) UL 444 Type CMP Plenum Rated Cable with 19 AWG (0.75 mm2) conductors and 1/4 in. (6 mm) ferrule ends
Life Cycle		100,000 Full Stroke Cycles; 2,500,000 repositions at rated running torque
Audible Noise Rating		35 dBA Nominal at 1 Meter
Dimensions		Actuator Only - (L) 5.16" x (W) 2.81" x (H) 2.06
Weight		1.25 lb. (0.55 kg)
Agency Certification		United States UL Listed, File E27734, CCN XAPX (United States) and XAPX7 (Canada) Actuator Housing is Plenum Rated per CSA C22.2 No. 236/UL 1995, Heating and Cooling Equipment Europe CE Mark - Product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC. Australia and New Zealand C-Tick Mark Australia/NZ Emissions Compliant

Wiring: (Plenum Cable)



NOTE: To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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Non-Spring Return - VA-35 Series



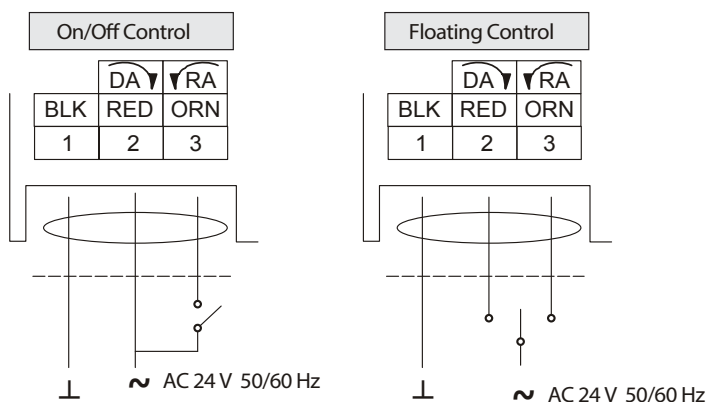
VA24-35-PTO — Submittal/Technical Data

35 lb-in. — Non-Spring Return — On/Off & Floating — Plenum Cable — Time-Out Feature

Specifications:

Power Supply	Operating Voltage	24 VAC +25%/-20% at 50/60 Hz
	Power Consumption	3.0 VA
Equipment Rating		Class 2 or Safety Extra-Low Voltage (SELV)
Control Signal	Input Signal	24 VAC +25%/-20% at 50/60 Hz, Class 2 or SELV with Timeout
Function	Torque	35 in-lbs. (4 Nm)
	Runtime for 90° of Rotation	60 Seconds at 60 Hz / 72 Seconds at 50 Hz
	Rotation Range	93° ±3°, CW or CCW
	Time Out	Auto shutoff feature to prevent excessive wear or drive time on the motor
Mounting	Shaft Size	Up to 1/2 in. (13 mm) Diameter Round Shaft or 3/8 in. (10 mm) Square Shaft
Enclosure		NEMA 2, IP42
Manual Override		External Push Button
Ambient Conditions/Temperatures	Operating	-4 to 140°F (-20 to 60°C); 90% RH Maximum, Non-Condensing
	Storage	-20 to 150°F (-29 to 66°C); 90% RH Maximum, Non-Condensing
Connection		48 in. (1.2 m) UL 444 Type CMP Plenum Rated Cable with 19 AWG (0.75 mm ²) conductors and 1/4 in. (6 mm) ferrule ends
Life Cycle		100,000 Full Stroke Cycles; 2,500,000 repositions at rated running torque
Audible Noise Rating		35 dBA Nominal at 1 Meter
Dimensions		Actuator Only - (L) 5.16" x (W) 2.81" x (H) 2.06
Weight		1.25 lb. (0.55 kg)
Agency Certification		UL Listed, CCN XAPX, File E27734; to UL 60730-1A: 2003-08, Ed. 3.1, Automatic Electrical Controls for Household and Similar Use; and UL 60730-2-14: 2002-02, Ed. 1, Part 2 Particular Requirements for Electric Actuators (All Models) Actuator Housing is Plenum Rated per CSA C22.2 No. 236/UL 1995, Heating and Cooling Equipment

Wiring: (Plenum Cable)



NOTE: To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Non-Spring Return - VA-35 Series



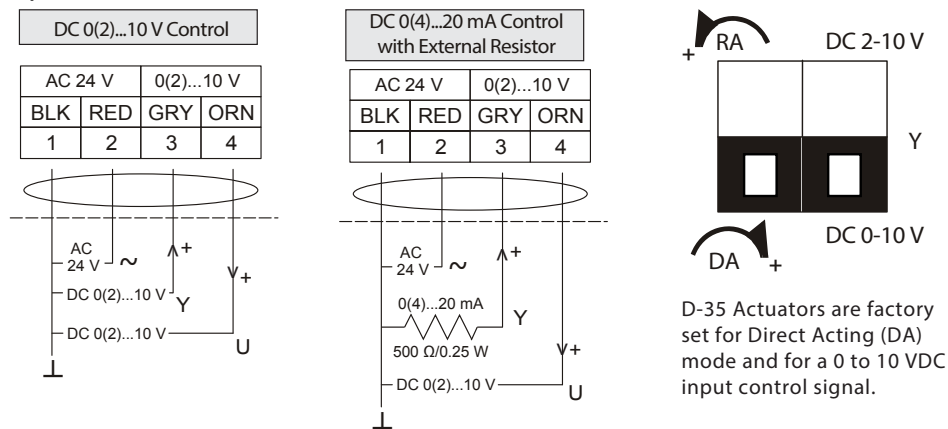
VAM24-35-P — Submittal/Technical Data

35 lb-in. — Non-Spring Return — Modulating — Plenum Cable

Specifications:

Power Supply	Operating Voltage	24 VAC +25%/-20% at 50/60 Hz
	Power Consumption	3.6 VA
Equipment Rating		Class 2 or Safety Extra-Low Voltage (SELV)
Control Signal	Input Signal	0(2) to 10 VDC or 0(4) to 20 mA with field-furnished 500 ohm resistor
	Control Input Impedance	200k Ohms
Feedback Signal		0 to 10 VDC or 2 to 10 VDC for 90° (10 VDC at 1 mA) Corresponds to input signal span selection
Torque		35 in-lbs. (4 Nm)
Rotation Range		Runtime for 90° of Rotation: 60 Seconds at 60 Hz; 72 Seconds at 50 Hz 93° ±3°, CW or CCW
Mounting	Shaft Size	Up to 1/2 in. (13 mm) Diameter Round Shaft or 3/8 in. (10 mm) Square Shaft
Enclosure		NEMA 2, IP42
Manual Override		External Push Button
Ambient Conditions	Operating	-4 to 140°F (-20 to 60°C); 90% RH Maximum, Non-Condensing
	Storage	-20 to 150°F (-29 to 66°C); 90% RH Maximum, Non-Condensing
Connections		48 in. (1.2 m) UL 444 Type CMP Plenum Rated Cable with 19 AWG (0.75 mm ²) conductors and 1/4 in. (6 mm) ferrule ends
Life Cycle		100,000 Full Stroke Cycles; 2,500,000 repositions at rated running torque
Audible Noise Rating		35 dBA Nominal at 1 Meter
Dimensions		(L) 5.16" x (W) 2.81" x (H) 2.06
Weight		1.25 lb. (0.55 kg)
Agency Certification		United States UL Listed, File E27734, CCN XAPX (United States) and XAPX7 (Canada) Actuator Housing is Plenum Rated per CSA C22.2 No. 236/UL 1995, Heating and Cooling Equipment - Europe CE Mark - Product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC. Australia and New Zealand C-Tick Mark Australia/NZ Emissions Compliant

Wiring: (Plenum Cable)



NOTE: To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Non-Spring Return - D-53 Series



5
Year
Warranty

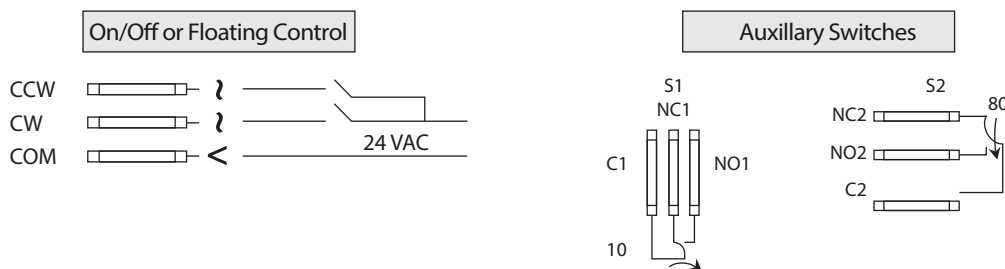
D24-53-T(A) — Submittal/Technical Data

53 lb-in. — Non-Spring Return — Floating — Auxiliary Switches

Specifications:

Power Supply	Operating Voltage	20 to 30 VAC at 50/60 Hz,
	Power Consumption	2.5 VA
Equipment Rating		Class 2
Control Signal	Input Signal	20 to 30 VAC at 50/60 Hz
Input Signal Adjustments		CW and COM Terminals, CW rotation; CCW and COM Terminals, CCW rotation
Auxiliary Switch Rating		Two Single-Pole, Double-Throw (SPDT) switches rated at AC 24 V, 1.5 A inductive, 3.0 A resistive, 35 VA maximum per switch, Class 2
Function	Torque	53 in-lbs. (6 Nm)
	Runtime for 90° of Rotation	60 Seconds at 60 Hz 72 Seconds at 50 Hz
	Rotation Range	Adjustable from 30 to 90°, CW or CCW
Mounting	Shaft Size	3/8 to 1/2 in. (10 to 12.7 mm) round shaft or 3/8 in. (10 mm) square shaft
Enclosure		NEMA 2, IP32
Manual Override		External Push Button
Ambient Conditions		Ambient Temperature
	Operating	-4 to 125°F (-20 to 52°C); 90% RH Maximum, Non-Condensing
	Storage	-40 to 176°F (-40 to 80°C); 90% RH Maximum, Non-Condensing
Connection		1/4 in. spade terminals with optional pluggable terminal blocks
Life Cycle		100,000 Full Stroke Cycles; 2,500,000 repositions at rated running torque
Audible Noise Rating		35 dBA Nominal at 1 Meter
Dimensions		(L) 5.9" x (W) 4.2" x (H) 2.6
Weight		2.4 lb. (1.08 kg)
Agency Certification		United States UL 873 Listed, File E27734, CCN XAPX Canada CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02 Europe CE Mark - product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.

Wiring: (Spade Terminals)



NOTE: **WARNING:** All D-53 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Non-Spring Return - D-53 Series



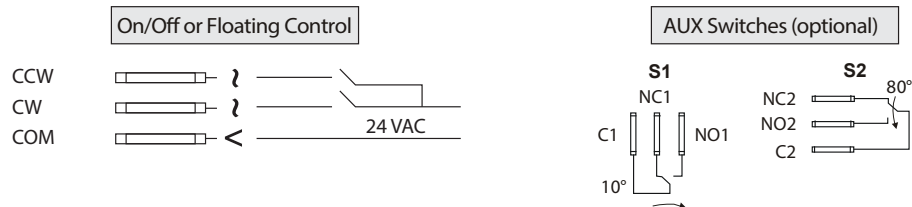
D24-53-TTO-(A) — Submittal/Technical Data

53 lb-in. — Non-Spring Return — On/Off or Floating — Time Out Feature — Auxiliary Switch Option

Specifications:

Power Supply	Operating Voltage	20 to 30 VAC at 50/60 Hz,
	Power Consumption	2.8 VA
Equipment Rating		Class 2
Control Signal	Input Signal	20 to 30 VAC at 50/60 Hz
Input Signal Adjustments		CW and COM Terminals, CW rotation; CCW and COM Terminals, CCW rotation
Feedback Signal		DC 0 to 10 V or DC 2 to 10 V for 90° (1 mA); Corresponds to input signal span selection
Auxiliary Switch Rating (-A)		Two Single-Pole, Double-Throw (SPDT) switches rated at 24 VAC, 1.5 A inductive, 3.0 A resistive; 35 VA maximum per switch, Class 2
Torque		53 in-lbs. (6 Nm)
Function	Runtime for 90° of Rotation	Adjustable with switch settings (factory set for 1 min.) 60, 90, 120, 330, or 660 sec (1, 1.5, 2, 5.5 or 11 min.) at 60 Hz and 72, 108, 144, 396, or 792 sec at 50 Hz
	Rotation Range	Adjustable from 30 to 90°, CW or CCW
	Time Out	Auto shutoff feature to prevent excessive wear or drive time on the motor
Mounting	Shaft Size	3/8 to 1/2 in. (10 to 12.7 mm) round shaft or 3/8 in. (10 mm) square shaft
Enclosure		NEMA 2, IP32
Manual Override		External Push Button
Ambient Conditions		Ambient Temperature
	Operating	-4 to 125°F (-20 to 52°C); 90% RH Maximum, Non-Condensing
	Storage	-40 to 186°F (-40 to 86°C); 90% RH Maximum, Non-Condensing
Connection		1/4 in. spade terminals with optional pluggable terminal blocks
Life Cycle		100,000 Full Stroke Cycles; 2,500,000 repositions at rated running torque
Audible Noise Rating		35 dBA Nominal at 1 Meter
Dimensions		(L) 5.9" x (W) 4.2" x (H) 2.6
Weight		2.4 lb. (1.08 kg)
Agency Certification		United States UL 873 Listed, File E27734, CCN XAPX Canada CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02 Europe CE Mark - product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.

Wiring: (Spade Terminals)



NOTE: WARNING: All D-53 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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Non-Spring Return - D-53 Series



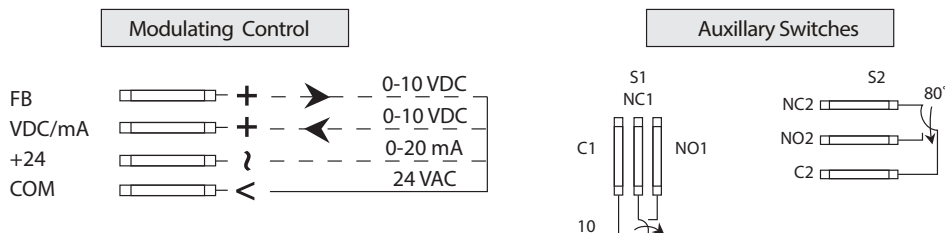
DM24-53-(A) — Submittal/Technical Data

53 lb-in. — Non-Spring Return — Modulating — Auxiliary Switch Option

Specifications:

Power Supply	Operating Voltage	20 to 30 VAC at 50/60 Hz,
	Power Consumption	3.2 VA
Equipment Rating		Class 2
Control Signal	Input Signal	DC 0 to 10 V or DC 0(4) to 20 mA
Control Input Impedance		150k Ohms; Current Input, 500 ohms
Input Signal Adjustments		Voltage Input/Current Input: Jumper Selectable: DC 0(2) to 10 V or DC 0(4) to 20 mA Factory Setting: DC 0 to 10 V, CW rotation with signal increase Action is jumper selectable Direct (CW) or Reverse (CCW) with signal increase
Auxillary Switch Rating		Two Single-Pole, Double-Throw (SPDT) switches rated at AC 24 V, 1.5 A inductive, 3.0 A resistive, 35 VA maximum per switch, Class 2
Feedback Signal		DC 0 to 10 V or DC 2 to 10 V for 90° (1 mA); Corresponds to input signal span selection
Function	Torque	53 in-lbs. (6 Nm)
	Runtime for 90° of Rotation	60 Seconds at 60 Hz 72 Seconds at 50 Hz
	Rotation Range	Adjustable from 30 to 90°, CW or CCW
Mounting	Shaft Size	3/8 to 1/2 in. (10 to 12.7 mm) round shaft or 3/8 in. (10 mm) square shaft
Enclosure		NEMA 2, IP32
Manual Override		External Push Button
Ambient Conditions		Ambient Temperature
	Operating	-4 to 125°F (-20 to 52°C); 90% RH Maximum, Non-Condensing
	Storage	-40 to 176°F (-40 to 80°C); 90% RH Maximum, Non-Condensing
Agency Certification		United States UL 873 Listed, File E27734, CCN XAPX Canada CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02 Europe CE Mark - product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.
Connection		1/4 in. spade terminals with optional pluggable terminal blocks
Life Cycle		100,000 Full Stroke Cycles; 2,500,000 repositions at rated running torque
Audible Noise Rating		35 dBA Nominal at 1 Meter
Dimensions		(L) 5.9" x (W) 4.2" x (H) 2.6
Weight		2.4 lb. (1.08 kg)

Wiring: (Spade Terminals)



NOTE: WARNING: All D-53 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Non-Spring Return - D-70,140,210,280 Series



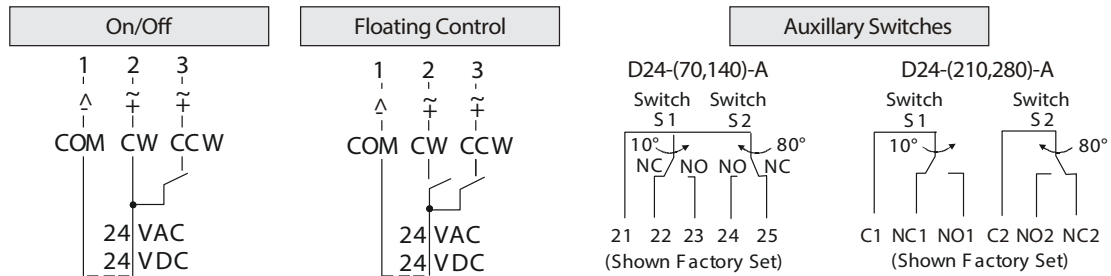
D24-(70,140,210,280-(A)) — Submittal/Technical Data

70,140,210,280 lb-in. — Non-Spring Return — On/Off or Floating — Auxiliary Switch Option

Specifications:

Power Supply	AC 20 to 30 V at 50/60 Hz or DC 24 V \pm 10%; 6.5 VA supply minimum; Class 2	
Input Signal	On/Off and Floating:	24 VAC at 50/60 Hz or 24 VDC
Input Signal Adjustments	Floating Factory Setting:	Terminals 1 and 2, CW rotation; Terminals 1 and 3, CCW rotation
Switch Contact Rating	Two SPDT (Single-Pole, Double-Throw) rated at 24 VAC 1.5A inductive, 3A resistive, 35 VA max. per switch, Class 2	
Time Out	Auto shutoff feature to prevent excessive wear or drive time on the motor	
Mechanical Output	D24-70	70 lb-in (8 Nm)
	D24-140	140 lb-in (16 Nm)
	D24-210	210 lb-in (24 Nm)
	D24-280	280 lb-in (32 Nm)
Audible Noise Rating	45 dBA at 1 m	
Rotation Range	Adjustable from 0 to 90° in 5° increments, mechanically limited to 93°	
Rotation Timing	D24-70	30 sec. at 50% rated load, 25 to 50 sec. for 0 to 70 lb-in (0 to 8 Nm)
	D24-140	80 sec. at 50% rated load, 70 to 115 sec. for 0 to 140 lb-in (0 to 16 Nm)
	D24-210	130 sec. at 50% rated load, 115 to 175 sec. for 0 to 210 lb-in (0 to 24 Nm)
	D24-280	140 sec. at 50% rated load, 115 to 205 sec. for 0 to 280 lb-in (0 to 32 Nm)
Cycle Life	60,000 full stroke cycles	
Electrical Connection	Enclosed Terminal Block(s) for 22 to 14 AWG (insert a maximum of two 18, 20, or 22 AWG per terminal.)	
	D24-(210,280) 1/4 in. spade terminals with pluggable 3-terminal blocks	
Mechanical Connection	3/8 to 3/4 in. (10 to 20 mm) diameter round shaft 3/8 to 5/8 in. (10 to 16 mm) square shaft	
Enclosure	NEMA 2, IP42	
Manual Override	External Push Button	
Ambient Conditions	Operating	-4 to 122°F (-20 to 50°C); 0 to 95% RH, non-condensing
	Storage	-40 to 186°F (-40 to 86°C); 0 to 95% RH, non-condensing
Dimensions (H x W x D)	7.09 x 3.94 x 2.54 in. (180 x 100 x 64.5 mm)	
Shipping Weight	2.9 lb (1.3 kg)	
Agency Compliance	United States UL 873 Listed, File E27734, CCN XAPX	
	Canada CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02	
	Europe CE Mark - declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.	

Wiring: (Terminal Block)



NOTE: WARNING: All D-70,140,210,280 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

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.

Non-Spring Return - D-70,140,210,280 Series



5
Year
Warranty

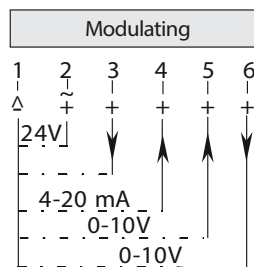
DM24-(70,140,210,280-(A)) — Submittal/Technical Data

70,140,210,280 lb-in. — Non-Spring Return — Modulating — Auxiliary Switch Option

Specifications:

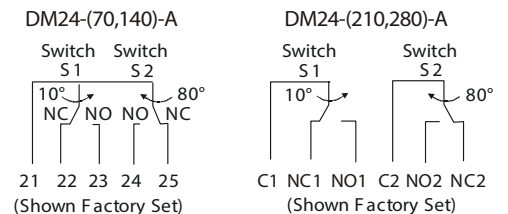
Power Supply	AC 20 to 30 V at 50/60 Hz or DC 24 V \pm 10%; 7.5 VA supply minimum; Class 2	
Input Signal	Modulating:	0 (2) to 10 VDC, 0 (4) to 20 VDC, or 0 (4) to 20 mA
Input Signal Adjustments	Factory Setting:	0 to 10 VDC, 0 to 20 mA, CW rotation with signal increase
	Jumper Selectable:	0 (2) to 10 VDC, 0 (4) to 20 VDC, or 0 (4) to 20 mA
	Action is jumper selectable Direct (CW) or Reverse (CCW) with signal increase.	
Control Input Impedance	205k Ohms	
Feedback Signal	0 to 10 VDC or 2 to 10 VDC for 90° (10 VDC at 1 mA) Corresponds to input signal span selection.	
Switch Contact Rating	Two SPDT (Single-Pole, Double-Throw) rated at 24 VAC 1.5A inductive, 3A resistive, 35 VA max. per switch, Class 2	
Mechanical Output	DM24-70	70 lb-in (8 Nm)
	DM24-140	140 lb-in (16 Nm)
	DM24-210	210 lb-in (24 Nm)
	DM24-280	280 lb-in (32 Nm)
	Audible Noise Rating	
Rotation Range	Adjustable from 0 to 90° in 5° increments, mechanically limited to 93°	
Rotation Timing	DM24-70	30 sec. at 50% rated load, 25 to 50 sec. for 0 to 70 lb-in (0 to 8 Nm)
	DM24-140	80 sec. at 50% rated load, 70 to 115 sec. for 0 to 140 lb-in (0 to 16 Nm)
	DM24-210	130 sec. at 50% rated load, 115 to 175 sec. for 0 to 210 lb-in (0 to 24 Nm)
	DM24-280	140 sec. at 50% rated load, 115 to 205 sec. for 0 to 280 lb-in (0 to 32 Nm)
	Cycle Life	60,000 full stroke cycles
Electrical Connection	Enclosed Terminal Block(s) for 22 to 14 AWG (insert a maximum of two 18, 20, or 22 AWG per terminal.)	
Mechanical Connection	3/8 to 3/4 in. (10 to 20 mm) diameter round shaft 3/8 to 5/8 in. (10 to 16 mm) square shaft	
Enclosure	NEMA 2, IP42	
Manual Override	External Push Button	
Ambient Conditions	Operating	-4 to 122°F (-20 to 50°C); 0 to 95% RH, non-condensing
	Storage	-40 to 186°F (-40 to 86°C); 0 to 95% RH, non-condensing
Dimensions (H x W x D)	7.09 x 3.94 x 2.54 in. (180 x 100 x 64.5 mm)	
Shipping Weight	2.9 lb (1.3 kg)	
Agency Compliance	United States UL 873 Listed, File E27734, CCN XAPX Canada CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02 Europe CE Mark - declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.	

Wiring: (Terminal Block)



- 1= Common
- 2= Power
- 3= Not Used
- 4= Current Input
- 5= Voltage Input
- 6= Feedback Output

Auxillary Switches



NOTE: WARNING: All D-70,140,210,280 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Non-Spring Return - VA-90 Series



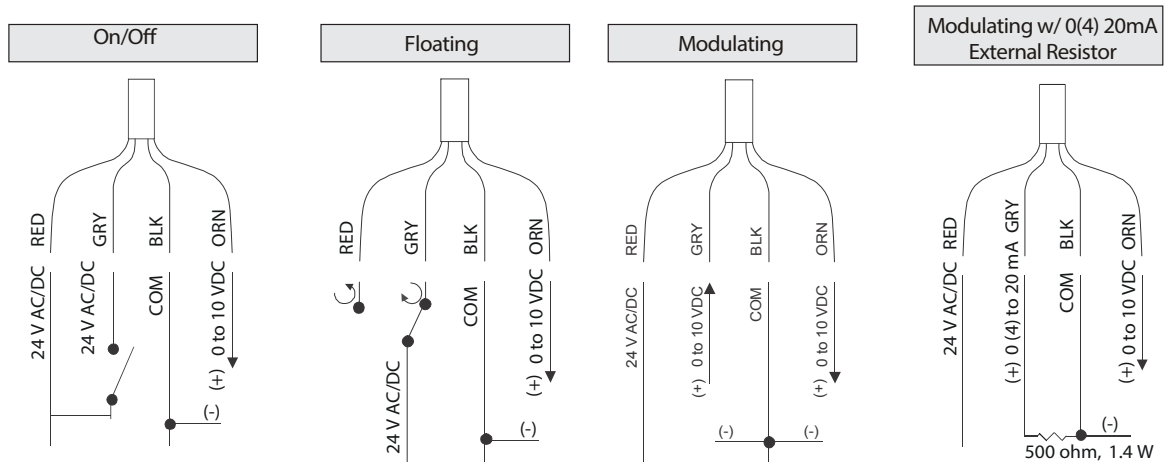
VAM24-90-P-(A) — Submittal/Technical Data

88 lb-in. — Non-Spring Return — On/Off, Floating, Modulating — Auxiliary Switch Option

Specifications:

Power Requirements	24 VAC (19.2 to 28.8 VAC) at 50/60, Class 2, 6 VA running. 24 VDC (21.6 to 28.8 VDC) Class 2
Mechanical Output	88 lb-in (10 Nm)
Transformer Sizing Requirements	<6 VA
Input Signal/Adjustments	On/Off, Floating Mode -19.2 to 28.8 VAC at 50/60 Hz or 24 VDC \pm 10% Class 2 Modulating Mode - 0 (2) to 10 VDC or 0 (4) to 20 mA with field furnished 500 ohm 1/4 W resistor Offset: 0 to 10 VDC SPAN: 2 to 10 VDC
Control Impedance	On/Off, Floating Mode 4.7k ohm Modulating Mode 100k ohm
Feedback Signal	Modulating Mode Only 0 (2) to 10 VDC
Rotation Range	Mechanically limited to $95^{\circ} \pm 3^{\circ}$
Rotation Time	90 seconds
Rotation Time Auto Calibration	35 seconds
Cycles	100,000 full stroke cycles; 2,500,000 repositions
Audible Noise	<35 dBA at 39-13/32 in. (1 m)
Electrical Connections	120 in. (3.05 m) UL 444 Type CMP plenum rated cable
Ambient Conditions	Operating: -22 to 140°F (-30 to 60°C), 90% RH, noncondensing
Storage:	-40 to 185°F (-40 to 85°C), 95% RH, noncondensing
Enclosure	IP54/NEMA 5
Shipping Weight	2 lb (0.9 kg)
Compliance	United States: UL Listed, CCN XAPX, File E27734, Under UL 60730, UL 60730-2-14, Plenum Rated (UL 2043). Canada: UL Listed, CCN XAPX7, File E27734; Under CAN/CSA E60730 and CAN/CSA-E60730

Wiring: (Plenum Cable)



NOTE: WARNING: All VAM24-90 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

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.

Non-Spring Return - DC-44,88 Series



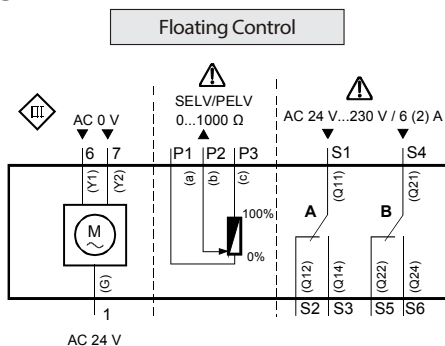
DC24-(44,88)-TAP — Submittal/Technical Data

44,88 lb-in. — Non-Spring Return — Floating — Plenum Cable — Auxiliary Switches

Specifications:

Power Supply	DC24-44 DC24-88 Power Consumption Running Control Signal	24 VAC +20%, -15% at 50/60 Hz 24 VAC +20%, -15% at 50/60 Hz 2 VA 1W 0 to 10 VDC
Input Signal	Floating:	24 VAC at 50/60 Hz or 24 VDC
Mechanical Output	DC24-44 DC24-88	44 lb-in (5 Nm) 88 lb-in (10 Nm)
Dual Auxiliary Switch Contact Rating		4A Resistive, 2A Inductive
Switch Range	Switch A Switch B Switching Hysteresis	0 to 90° with 5° Intervals (Recommended Range Usage 0 to 45°) Factory Setting 5° 0 to 90° with 5° Intervals (Recommended Range Usage 45 to 90°) Factory Setting 85° 2°
Audible Noise Rating		35 dBA at 1 m
Rotation Range		Nominal Angle of Rotation 90°, mechanically limited to 95°
Rotation Timing	DC24-44 DC24-88	90 sec. at 60 Hz (108 sec.at 50Hz) 125 sec. at 60 Hz (150 sec.at 50Hz)
Cycle Life		Designed for 60,000 full stroke cycles
Electrical Connection		3 ft. (0.9 m) Pre-cabled - AWG 18 - Plenum Rated Cable
Mechanical Connection		3/8 to 5/8 in. (8 to 16 mm) diameter round shaft, 1/4 to 1/2 in. (6 to 12.8 mm) square shaft Minimum Shaft Length 1-5/32 (30 mm)
Enclosure		NEMA 2, IP54 according to EN60529
Manual Override		External Push Button
Ambient Conditions	Operating Storage	-25 to 130°F (-32 to 55°C); 0 to 95% RH, non-condensing -40 to 158°F (-40 to 70°C); 0 to 95% RH, non-condensing
Dimensions (L x W x H)		(L) 5.4" x (W) 2.8" x (H) 2.4 (137 x 68 x 60mm)
Shipping Weight		1.06 lb (.48 kg)
Equipment Rating		Class 2 According to UL, CSA - Class III per EN60730
Agency Compliance	UL873, CSA C22.2 No. 24-93, CE	In accordance with the directive set forth by the European Union for Electromagnetic Compatibility (EMC) 89/336/EEC - Emissions Standards EN 50081-1 – Immunity Standards EN 50082-2

Wiring: (Plenum Cable)



Cable			Function
No.	Code	Color	
1	G	Red (RD)	AC 24 V Supply (SP)
2	G0	Black (BK)	Neutral (SN)
6	Y1	Violet (VT)	Control Signal Clockwise AC 0 V
7	Y2	Orange (OG)	Control Signal AC 0 V Counterclockwise
8	Y	Grey (GY)	Control signal DC 0..10 V, 0..35 V
9	U	Pink (PK)	Position indication DC 0...10 V
Auxiliary Switch - Factory Installed			
S1	Q11	Gray/Red (GY RD)	Switch A Input
S2	Q12	Gray/Blue (GY BU)	Switch A - N.C.
S3	Q14	Gray/Pink (GY PK)	Switch A - N.O.
S4	Q21	Black/Red (BK RD)	Switch B Input
S5	Q22	Black/Blue (BK BU)	Switch B - N.C.
S6	Q24	Black/Pink (BK PK)	Switch B - N.O.

NOTE: WARNING: All DC-44,88 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Mixed switch operation is not permitted. To the switching outputs of both auxiliary switches (A and B), only apply: UL/CSA: Class 2 voltage CE: Separated Extra-Low Voltage (SELV) or Protective Extra Low Voltage (PELV), according to HD384-4-41.

Non-Spring Return - DC-44,88 Series



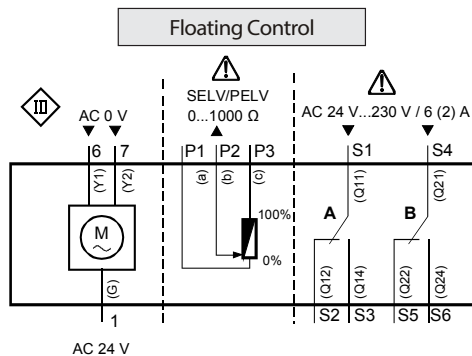
DC24-(44,88)-TP — Submittal/Technical Data

44,88 lb-in. — Non-Spring Return — Floating — Plenum Cable — Auxiliary Switches

Specifications:

Power Supply	DC24-44	24 VAC +20%, -15% at 50/60 Hz
	DC24-88	24 VAC +20%, -15% at 50/60 Hz
	Power Consumption Running	2 VA 1W
	Control Signal	0 to 10 VDC
Input Signal	Floating:	24 VAC at 50/60 Hz or 24 VDC
Mechanical Output	DC24-44	44 lb-in (5 Nm)
	DC24-88	88 lb-in (10 Nm)
Audible Noise Rating		35 dBA at 1 m
Rotation Range		Nominal Angle of Rotation 90°, mechanically limited to 95°
Rotation Timing	DC24-44	90 sec. at 60 Hz (108 sec.at 50Hz)
	DC24-88	125 sec. at 60 Hz (150 sec.at 50Hz)
Cycle Life		Designed for 60,000 full stroke cycles
Electrical Connection		3 ft. (0.9 m) Pre-cabled - AWG 18 - Plenum Rated Cable
Mechanical Connection		3/8 to 5/8 in. (8 to 16 mm) diameter round shaft, 1/4 to 1/2 in. (6 to 12.8 mm) square shaft Minimum Shaft Length 1-5/32 (30 mm)
Enclosure		NEMA 2, IP54 according to EN60529
Manual Override		External Push Button
Ambient Conditions	Operating	-25 to 130°F (-32 to 55°C); 0 to 95% RH, non-condensing
	Storage	-40 to 158°F (-40 to 70°C); 0 to 95% RH, non-condensing
Dimensions (L x W x H)		(L) 5.4" x (W) 2.8" x (H) 2.4 (137 x 68 x 60mm)
Shipping Weight		1.06 lb (.48 kg)
Equipment Rating		Class 2 According to UL, CSA - Class III per EN60730
Agency Compliance	UL873, CSA C22.2 No. 24-93, CE	In accordance with the directive set forth by the European Union for Electromagnetic Compatibility (EMC) 89/336/EEC - Emissions Standards EN 50081-1 – Immunity Standards EN 50082-2

Wiring: (Plenum Cable)



Cable			Function
No.	Code	Color	
1	G	Red (RD)	AC 24 V Supply (SP)
2	G0	Black (BK)	Neutral (SN)
6	Y1	Violet (VT)	Control Signal Clockwise AC 0 V
7	Y2	Orange (OG)	Control Signal AC 0 V Counterclockwise
8	Y	Grey (GY)	Control signal DC 0...10 V, 0...35 V
9	U	Pink (PK)	Position indication DC 0...10 V

NOTE: WARNING: All DC-44,88 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Mixed switch operation is not permitted. To the switching outputs of both auxiliary switches (A and B), only apply: UL/CSA: Class 2 voltage CE: Separated Extra-Low Voltage (SELV) or Protective Extra Low Voltage (PELV), according to HD384-4-41.

Non-Spring Return - DC-44,88 Series



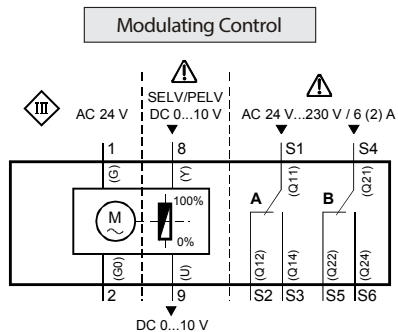
DCM24-(44,88)-AP — Submittal/Technical Data

44,88 lb-in. — Non-Spring Return — Modulating — Plenum Cable — Auxiliary Switches

Specifications:

Power Supply	DCM24-44	24 VAC +20%, -15% at 50/60 Hz
	DCM24-88	24 VAC +20%, -15% at 50/60 Hz
Power Consumption Running		3 VA 2W
Control Signal		0 to 10 VDC
Control Input Impedance		100k Ohms
Feedback Signal	Voltage Output	0 to 10 VDC (Maximum Output Current DC 1mA)
Mechanical Output	DCM24-44	44 lb-in (5 Nm)
	DCM24-88	88 lb-in (10 Nm)
Dual Auxiliary Switch Contact Rating		4A Resistive, 2A Inductive
Switch Range	Switch A	0 to 90° with 5° Intervals (Recommended Range Usage 0 to 45°) Factory Setting 5°
	Switch B	0 to 90° with 5° Intervals (Recommended Range Usage 45 to 90°) Factory Setting 85°
	Switching Hysteresis	2°
Audible Noise Rating		35 dBA at 1 m
Rotation Range		Nominal Angle of Rotation 90°, mechanically limited to 95°
Rotation Timing	DCM24-44	90 sec. at 60 Hz (108 sec.at 50Hz)
	DCM24-88	125 sec. at 60 Hz (150 sec.at 50Hz)
Cycle Life		Designed for 50,000 full stroke cycles
Electrical Connection		3 ft. (0.9 m) Pre-cabled - AWG 18 - Plenum Rated Cable
Mechanical Connection		3/8 to 5/8 in. (8 to 16 mm) diameter round shaft, 1/4 to 1/2 in. (6 to 12.8 mm) square shaft Minimum Shaft Length 1-5/32 (30 mm)
Enclosure		NEMA 2, IP54 according to EN60529
Manual Override		External Push Button
Ambient Conditions	Operating	-25 to 130°F (-32 to 55°C); 0 to 95% RH, non-condensing
	Storage	-40 to 158°F (-40 to 70°C); 0 to 95% RH, non-condensing
Dimensions (L x W x H)		(L) 5.4" x (W) 2.8" x (H) 2.4 (137 x 68 x 60mm)
Shipping Weight		1.06 lb (.48 kg)
Equipment Rating		Class 2 According to UL, CSA - Class III per EN60730
Agency Compliance		UL873, CSA C22.2 No. 24-93, CE In accordance with the directive set forth by the European Union for Electromagnetic Compatibility (EMC) 89/336/EEC - Emissions Standards EN 50081-1 – Immunity Standards EN 50082-2

Wiring: (Plenum Cable)



Cable			Function
No.	Code	Color	
1	G	Red (RD)	AC 24 V Supply (SP)
2	G0	Black (BK)	Neutral (SN)
6	Y1	Violet (VT)	Control Signal Clockwise AC 0 V
7	Y2	Orange (OG)	Control Signal AC 0 V Counterclockwise
8	Y	Grey (GY)	Control signal DC 0...10 V, 0...35 V
9	U	Pink (PK)	Position indication DC 0...10 V
Auxiliary Switch - Factory Installed			
S1	Q11	Gray/Red (GY RD)	Switch A Input
S2	Q12	Gray/Blue (GY BU)	Switch A - N.C.
S3	Q14	Gray/Pink (GY PK)	Switch A - N.O.
S4	Q21	Black/Red (BK RD)	Switch B Input
S5	Q22	Black/Blue (BK BU)	Switch B - N.C.
S6	Q24	Black/Pink (BK PK)	Switch B - N.O.

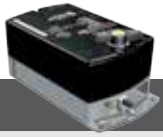
NOTE: WARNING: All DC-44,88 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Mixed switch operation is not permitted. To the switching outputs of both auxiliary switches (A and B), only apply: UL/CSA: Class 2 voltage CE: Separated Extra-Low Voltage (SELV) or Protective Extra Low Voltage (PELV), according to HD384-4-41.

Non-Spring Return - DC-44,88 Series



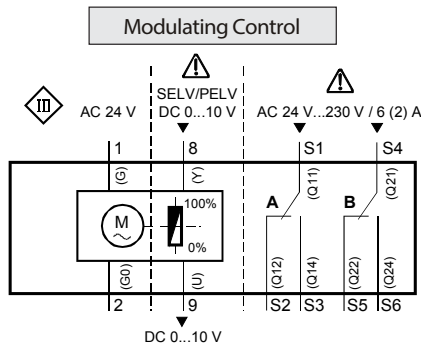
DCM24-(44,88)-P — Submittal/Technical Data

44,88 lb-in. — Non-Spring Return — Modulating — Plenum Cable

Specifications:

Power Supply	DCM24-44	24 VAC +20%, -15% at 50/60 Hz
	DCM24-88	24 VAC +20%, -15% at 50/60 Hz
	Power Consumption Running	3 VA 2W
	Control Signal	0 to 10 VDC
Control Input Impedance		100k Ohms
Feedback Signal	Voltage Output	0 to 10 VDC (Maximum Output Current DC 1mA)
Mechanical Output	DCM24-44	44 lb-in (5 Nm)
	DCM24-88	88 lb-in (10 Nm)
Audible Noise Rating		35 dBA at 1 m
Rotation Range		Nominal Angle of Rotation 90°, mechanically limited to 95°
Rotation Timing	DCM24-44	90 sec. at 60 Hz (108 sec.at 50Hz)
	DCM24-88	125 sec. at 60 Hz (150 sec.at 50Hz)
Cycle Life		Designed for 50,000 full stroke cycles
Electrical Connection		3 ft. (0.9 m) Pre-cabled - AWG 18 - Plenum Rated Cable
Mechanical Connection		3/8 to 5/8 in. (8 to 16 mm) diameter round shaft, 1/4 to 1/2 in. (6 to 12.8 mm) square shaft Minimum Shaft Length 1-5/32 (30 mm)
Enclosure		NEMA 2, IP54 according to EN60529
Manual Override		External Push Button
Ambient Conditions	Operating	-25 to 130°F (-32 to 55°C); 0 to 95% RH, non-condensing
	Storage	-40 to 158°F (-40 to 70°C); 0 to 95% RH, non-condensing
Dimensions (L x W x H)		(L) 5.4" x (W) 2.8" x (H) 2.4 (137 x 68 x 60mm)
Shipping Weight		1.06 lb (.48 kg)
Equipment Rating		Class 2 According to UL, CSA - Class III per EN60730
Agency Compliance		UL873, CSA C22.2 No. 24-93, CE In accordance with the directive set forth by the European Union for Electromagnetic Compatibility (EMC) 89/336/EEC - Emissions Standards EN 50081-1 – Immunity Standards EN 50082-2

Wiring: (Plenum Cable)



Cable			Function
No.	Code	Color	
1	G	Red (RD)	AC 24 V Supply (SP)
2	G0	Black (BK)	Neutral (SN)
6	Y1	Violet (VT)	Control Signal Clockwise AC 0 V
7	Y2	Orange (OG)	Control Signal AC 0 V Counterclockwise
8	Y	Grey (GY)	Control signal DC 0..10 V, 0..35 V
9	U	Pink (PK)	Position indication DC 0...10 V

NOTE: WARNING: All DC-44,88 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Mixed switch operation is not permitted. To the switching outputs of both auxiliary switches (A and B), only apply: UL/CSA: Class 2 voltage CE: Separated Extra-Low Voltage (SELV) or Protective Extra Low Voltage (PELV), according to HD384-4-41.

Non-Spring Return - DC-310 Series



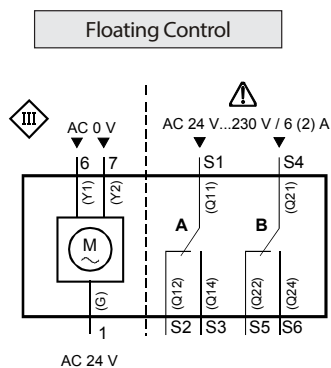
DC24-310-T(A) — Submittal/Technical Data

310 lb-in. — Non-Spring Return — Floating— Time Out Feature — Auxiliary Switch Option

Specifications:

Power Supply	DC24-310	24 VAC ± 20%, at 50/60 Hz
	Power Consumption Running	7 VA 7W
Mechanical Output	DC24-310	310 lb-in (35 Nm)
Feedback Potentiometer		0 to 1,000 Ohms, <10 mA
Dual Auxiliary Switch	Standard Cable	AC, 6 A Resistive, AC 2 A General Purpose
Voltage	Standard Cable	24 to 250 VAC
Switch Range	Switch A	0 to 90° with 5° Intervals (Recommended Range Usage 0 to 45°) Factory Setting 5°
	Switch B	0 to 90° with 5° Intervals (Recommended Range Usage 45 to 90°) Factory Setting 85°
Time Out		Auto shutoff feature to prevent excessive wear or drive time on the motor
Audible Noise Rating		<45 dBA at 1 m
Rotation Range		Nominal Angle of Rotation 90°, mechanically limited to 95° ± 2°
Rotation Timing		150 sec. at 50 Hz (125 sec. at 60Hz)
Cycle Life		Designed for 60,000 full stroke cycles
Electrical Connection		3 ft. (0.9 m) Pre-cabled - AWG 18
Mechanical Connection		3/8 to 1 in. (9.5 to 25.4 mm) diameter round shaft, 1/4 to 5/8 in. (6 to 18 mm) square shaft Minimum Shaft Length 3/4 (20 mm)
Enclosure		IP54 as per EN 60 529
Manual Override		External Push Button
Ambient Conditions	Operating	-25 to 130°F (-32 to 55°C); 0 to 95% RH, non-condensing
	Storage	-40 to 158°F (-40 to 70°C); 0 to 95% RH, non-condensing
Dimensions (L x W x H)		(L) 11.8" x (W) 3.9" x (H) 2.9 (300 x 100 x 67.5 mm)
Shipping Weight		4.4 lb (2 kg)
Equipment Rating		Class 2 According to UL, CSA - Class III per EN60730
Agency Compliance		UL listed to UL873-cUL certified to Canadian Standard C22.2 No. 24-93 CE conformity: Electromagnetic compatibility 2004/108/EC-Low-voltage directive 2006/95/EC

Wiring: (Standard Cable)



Cable			Function
No.	Code	Color	
1	G	Red (RD)	AC 24 V Supply (SP)
6	Y1	Violet (VT)	Control Signal Clockwise AC 0 V
7	Y2	Orange (OG)	Control Signal AC 0 V Counterclockwise
Auxiliary Switch - Factory Installed			
S1	Q11	Gray/Red (GY RD)	Switch A Input
S2	Q12	Gray/Blue (GY BU)	Switch A - N.C.
S3	Q14	Gray/Pink (GY PK)	Switch A - N.O.
S4	Q21	Black/Red (BK RD)	Switch B Input
S5	Q22	Black/Blue (BK BU)	Switch B - N.C.
S6	Q24	Black/Pink (BK PK)	Switch B - N.O.

NOTE: **WARNING:** All DC-310 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Non-Spring Return - DC-310 Series



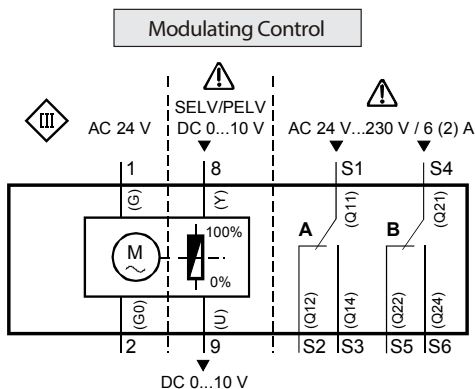
DCM24-310-(A) — Submittal/Technical Data

310 lb-in. — Non-Spring Return — Modulating — Auxiliary Switch Option

Specifications:

Power Supply	24 VAC ± 20%, at 50/60 Hz
Power Consumption Running	8 VA 8W
Control Signal	0 to 10 VDC
Control Input Impedance	100k Ohms
Input Signal Y (wires 8-2)	DC 0...10 V - (Max. permissible input voltage DC 35 V)
Mechanical Output	310 lb-in (35 Nm)
Positioning Signal	DC 0...35 V at Offset $U_0 = 0...5$ V and Span $\Delta U = 2...30$ V
Dual Auxiliary Switch	Standard Cable AC, 6 A Resistive, AC 2 A General Purpose
Voltage	Standard Cable 24 to 250 VAC
Switch Range Switch A	0 to 90° with 5° Intervals (Recommended Range Usage 0 to 45°) Factory Setting 5°
Switch B	0 to 90° with 5° Intervals (Recommended Range Usage 45 to 90°) Factory Setting 85°
Audible Noise Rating	<45 dBA at 1 m
Rotation Range	Nominal Angle of Rotation 90°, mechanically limited to $95^\circ \pm 2^\circ$
Rotation Timing	150 sec. at 50 Hz (125 sec. at 60Hz)
Cycle Life	Designed for 60,000 full stroke cycles
Electrical Connection	3 ft. (0.9 m) Pre-cabled - AWG 18
Mechanical Connection	3/8 to 1 in. (9.5 to 25.4 mm) diameter round shaft, 1/4 to 5/8 in. (6 to 18 mm) square shaft Minimum Shaft Length 3/4 (20 mm)
Enclosure	IP54 as per EN 60 529
Manual Override	External Push Button
Ambient Conditions	Operating -25 to 130°F (-32 to 55°C); 0 to 95% RH, non-condensing Storage -40 to 158°F (-40 to 70°C); 0 to 95% RH, non-condensing
Dimensions (L x W x H)	(L) 11.8" x (W) 3.9" x (H) 2.9 (300 x 100 x 67.5 mm)
Shipping Weight	4.4 lb (2 kg)
Equipment Rating	Class 2 According to UL, CSA - Class III per EN60730
Agency Compliance	UL listed to UL873-cUL certified to Canadian Standard C22.2 No. 24-93 CE conformity: Electromagnetic compatibility 2004/108/EC-Low-voltage directive 2006/95/EC

Wiring: (Standard Cable)



Cable			Function
No.	Code	Color	
1	G	Red (RD)	AC 24 V Supply (SP)
2	G0	Black (BK)	Neutral (SN)
6	Y1	Violet (VT)	Control Signal Clockwise AC 0 V
7	Y2	Orange (OG)	Control Signal AC 0 V Counterclockwise
8	Y	Grey (GY)	Control signal DC 0...10 V, 0...35 V
9	U	Pink (PK)	Position indication DC 0...10 V
Auxiliary Switch - Factory Installed			
S1	Q11	Gray/Red (GY RD)	Switch A Input
S2	Q12	Gray/Blue (GY BU)	Switch A - N.C.
S3	Q14	Gray/Pink (GY PK)	Switch A - N.O.
S4	Q21	Black/Red (BK RD)	Switch B Input
S5	Q22	Black/Blue (BK BU)	Switch B - N.C.
S6	Q24	Black/Pink (BK PK)	Switch B - N.O.

NOTE: WARNING: All DC-310 Series actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

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.

Non-Spring Return - RA Series



RA Series — Submittal/Technical Data

531 lb-in. — On/Off, Floating and Modulating — Auxiliary Switch Option

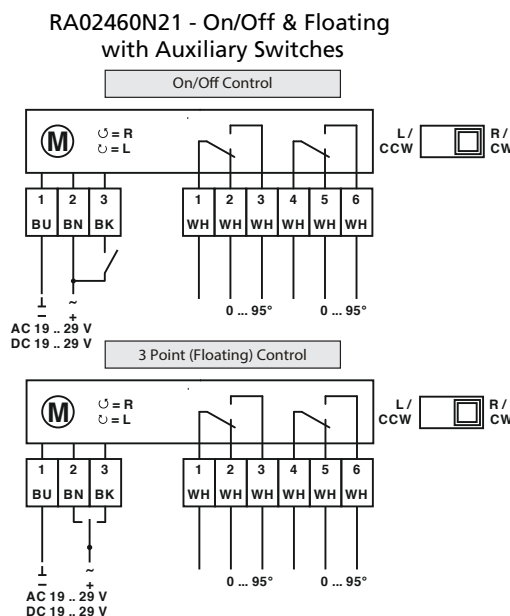
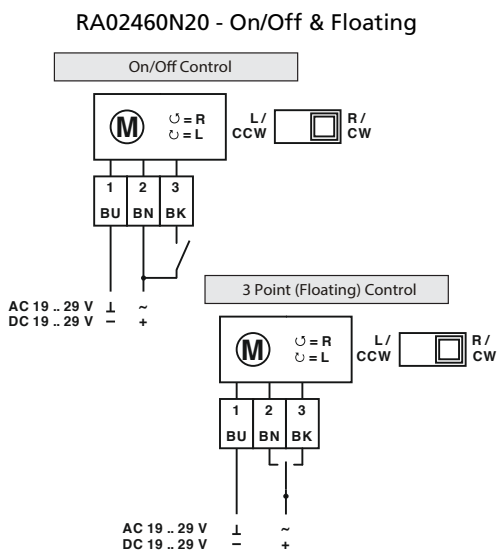
Specifications:

Model Number	RA02460N20	RA02460N21	RA02460N30
Non-Spring Return	On/Off and Floating		Modulating
Power Requirements	24 VAC at 50/60 Hz or 24 VDC		
Power Consumption ¹	7.0 W		
Standby Power Consumption	2.0 W		
Voltage Range	19...29 VAC/DC		
Input Control Signal	24 VAC at 50/60 Hz or 24 VDC	0(2)...10 VDC or 0(4)...20mA Jumper Selectable	
Control Signal Input Impedance	0 to 10V > 100k ohms 2 to 10V > 50kohms		
Position Feedback Signal			0(2)...10 VDC, max 5mA
Auxilliary Switch Rating	N/A	2 X SPDT (AG)/5(2.5)A, 250 VAC/0...95°	N/A
Torque	531 in/lbs. (60 Nm)		
Rotation Range	0 to 95°, CW or CCW		
Runtime for 90° of Rotation	150 seconds		
Manual Override	Gear box ratchet with pushbutton, self-resetting		
Audible Noise Rating	<45dB(A)		
Life Cycle	20,000 full cycles, 600,000 repositions		
Ambient Conditions	Operating / -22 to 122°F (-30 to 50°C) 5 to 95% RH without condensation Storage / -22 to 176°F (-30 to 80°C) 5 to 95% RH without condensation		
Enclosure	NEMA 2 (IP 54)		
Electrical Cable Connection	0.04 in., 3 X 0.03 in. ² (1m, 3 X 0.75 mm ²)	0.04 in., 4 X 0.03 in. ² (1m, 4 X 0.75 mm ²)	
Dimensions	7.6 X 3.78 X 2.36 in. (193 X 96 X 60 mm)		
Weight	3.75 lbs. (1.7 kg)		

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.

¹ Size the transformers for this value.

Wiring: (Cable) - (See Sales Brochure for further details)



RA02460N30 - Modulating

