



# Bray<sup>®</sup>

**SERIES 74  
ELECTRIC ACTUATOR**

CELEBRATING  
**20**  
YEARS

**Bray** The  
High  
Performance  
Company

## **SERIES 74 ELECTRIC ACTUATORS WITH OUTPUT TORQUE FROM 8,850 - 30,975 LB-INS (1,000 - 3,500 NM)**

**RUGGED, HIGH TORQUE ELECTRIC ON-OFF & MODULATING ACTUATORS FOR LARGE SIZE ROTARY VALVES**

**WATERPROOF (NEMA 4,4X,6 & IP 67)**

**MOTOR & CAPACITOR** On-Off Series 74 units have a 120 or 220 VAC 50/60 Hz single phase permanent split-capacitor reversible induction motor. These motors feature a built-in thermal overload protector with automatic reset. 12/24 VAC / VDC On/Off and Modulating units & 110/220 VAC Modulating units have brush/commutator DC motors. 3-Phase motors are also available upon request.

**SPUR GEAR SYSTEM** The self-locking, heavy-duty spur gear train is composed of precision cut, multi-staged gears and shafts. The gears and shafts are heat treated high alloy steel designed to withstand locked rotor conditions. The gear train is permanently lubricated at the factory.

**MANUAL OVERRIDE** Bray's Series 74 manual override features a non-declutch design. Upon power outage, manual operation of the actuator can easily be performed by turning the handwheel in the desired direction.

**TRAVEL LIMIT SWITCHES** Bray has provided four SPDT switches as standard. The switches are 10A, 220 VAC. 2 are used for motor control. 2 voltage free auxiliary switches can signal a low wattage AC lamp or DC controller input.

**CAMS / CAM ADJUSTMENT** Cams are infinitely adjustable by a Hex key with no special tools needed. Standard factory setting allows 90° reversible rotation between open and closed positions. Extended rotation units such as 180°, 270° or beyond are optional.

**VALVE STATUS DISPLAY** The Series 74 features a highly visible valve status display. Prominently labeled and color coded – yellow for open, red for closed – the display indicates valve position through the full range of travel. The display enclosure is made of steel with

high impact, heat and chemical resistant clear polycarbonate windows. This display withstands caustic washdown and offers excellent corrosion protection.

**HEATER** Pre-wired to the terminal block, the heater prevents condensation from collecting inside the actuator.

**TERMINAL BLOCK** The actuator switches are wired to a terminal block. The block features clearly marked terminal numbers. The block has been placed near the two conduit entries for customer wiring. A wiring diagram is included inside the cover for easy reference.

**ENCLOSURE** Die-cast aluminum cover and base are waterproof and meet NEMA 4, 4X, 6 and IP 67 specifications. The enclosure features a high-quality gray polyester powder coating offering exceptional corrosion, wear, impact and ultraviolet resistance.

**CONDUIT ENTRIES** Two are offered in either 1/2" NPT or 20mm threads.

**TRAVEL STOPS** Standard Series 74 units are supplied with mechanical travel stops for limiting actuator travel in both the open and closed positions. Travel Stops are easily adjustable without removing the cover and are set at the factory to 0° and 90°.

**MODULATING SERVO** A Servo for precise control of valve position is available. The Servo consists of a circuit board and a feedback potentiometer assembly, which both fit entirely within the standard Series 74 actuator housing. The circuit board has terminal blocks for customer field wiring, and other terminals for internal connections to the actuator components. The feedback potentiometer is driven by a gearset connected to the actuator output drive. The unit features proportional 4 to 20 mA or 2 to 10 VDC position feedback signal.



**DIRECT MOUNTING** Series 74 actuators mount directly to Bray valves without the need for brackets or adapters. This reduces the space required for installation and prevents contaminants from collecting between actuator and valve.

**OPTIONAL FEATURES**

**2 Adjustable Torque Switches** – SPDT mechanical switches calibrated at the factory. The switches independently respond to predetermined loads in both directions of travel. The switches operate at any point of actuator travel and shut down the unit if loads exceed the pre-set limit.

**Potentiometer** – A potentiometer can be installed to give continuous feedback of the valve position.

**Local Control Station** – Features Power On, Open and Close indicator lights, an Open/Off/Close switch, and a Local/Remote switch.

**CERTIFICATIONS**

ISO 9001  
CE  
CSA - certified to USA and Canadian standards

**TECHNICAL DATA - SINGLE PHASE MOTORS**

Actuator Size	Torque Output lb/in [Nm]	Speed For 90° Operation In Seconds		120VAC Current In Amps		220V-240VAC Current In Amps		24VDC/AC Current In Amps		Rim Pull lb/in [Nm]
		60 Hz	50 Hz	Run	Lock Rotor	Run	Lock Rotor	Run	Lock Rotor	
S74-0890	8850 [1000]	46	55	3.2	10.0	1.6	4.0	7.0	30.0	620 [70]
S74-1330	13275 [1500]	46	55	4.0	10.0	2.0	5.0	7.5	30.0	797 [90]
S74-2210	22125 [2500]	58	70	4.0	6.0	2.0	3.0	7.5	30.0	354 [40]
S74-3100	30975 [3500]	58	70	4.0	6.0	2.2	3.0	15.0	26.0	442 [50]

**TECHNICAL DATA - THREE PHASE MOTORS**

Actuator Size	Torque Output lb/in [Nm]	Speed For 90° Operation In Seconds		220VAC Current In Amps		380VAC Current In Amps		440VAC Current In Amps		Rim Pull lb/in [Nm]
		60 Hz	50 Hz	Run	Lock Rotor	Run	Lock Rotor	Run	Lock Rotor	
S74-0890	8850 [1000]	46	55	0.6	1.8	0.4	1.0	0.4	1.0	620 [70]
S74-1330	13275 [1500]	46	55	0.8	2.8	0.6	1.6	0.6	1.2	797 [90]
S74-2210	22125 [2500]	58	70	0.8	1.5	0.4	1.0	0.4	1.0	354 [40]
S74-3100	30975 [3500]	58	70	1.2	2.5	0.6	1.5	0.6	1.5	442 [50]

The duty cycle for intermittent on-off operation is 30%. The extended duty actuator with Servo is rated for 50% modulating operation for S74-0890/1330 units and 75% S74-2210/3100 units.

**DIMENSIONS**

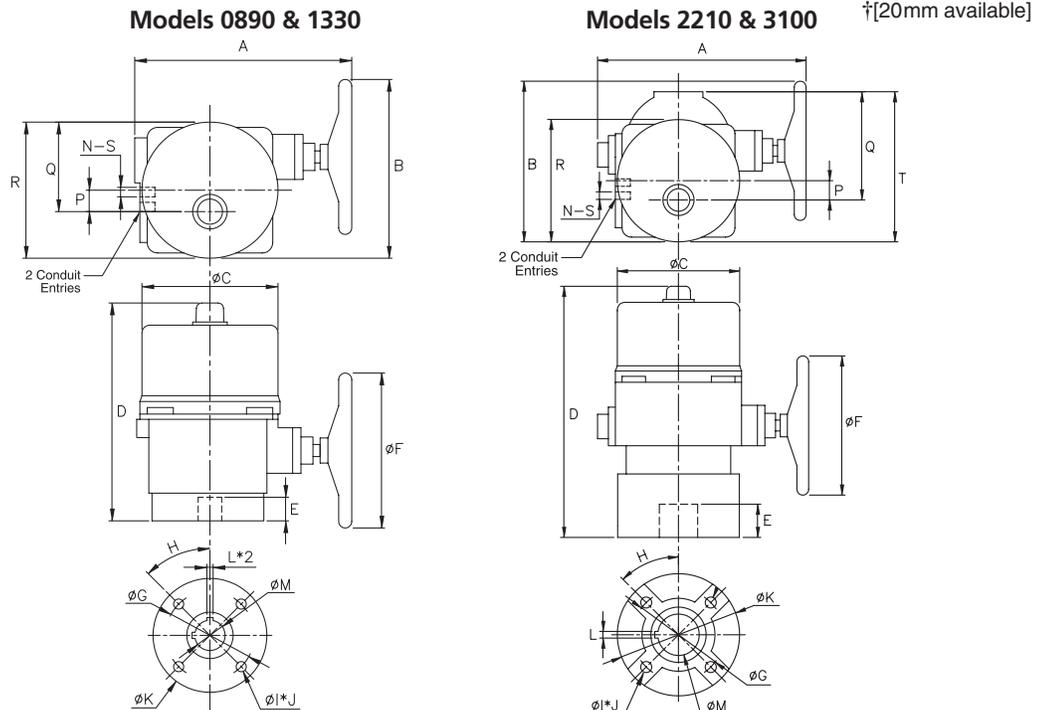
Actuator Size	A	B	C	D	E	F	G	H	I	J	K	L*	M**	N	P	Q	R	S†	T
S74-0890 S74-1330	17.13 [435]	13.23 [336]	8.54 [217]	15.98 [406]	2.36 [60]	11.69 [297]	4.92 [125]	45°	M12	4	7.09 [180]	0.39 [10]	1.38 [35]	2	0.63 [16]	5.16 [131]	9.06 [230]	1/2 NPT	—
S74-2210 S74-3100	17.91 [455]	15.43 [392]	10.08 [256]	22.20 [564]	3.94 [100]	15.55 [395]	6.50 [165]	45°	M20	4	8.70 [221]	* *	** **	2	2.32 [59]	10.47 [266]	10.87 [276]	1/2 NPT	13.58 [345]

Dimensions are in Inches, [Millimeters in brackets].

\*Size 2210 available with 0.47 [12] or 0.62 [16]  
Size 3100 available with 0.62 [16] or 0.75 [19]  
\*\*Size 2210 available with 1.97 [50] or 2.50 [64]  
Size 3100 available with 2.50 [64] or 3.00 [76]

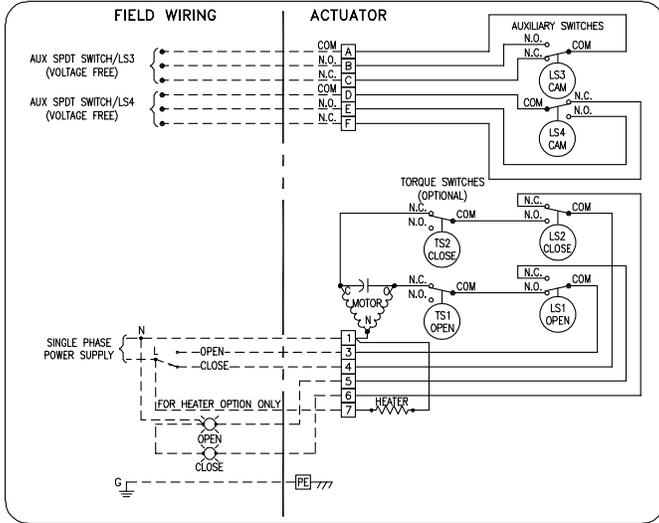
**TEMPERATURE RANGE**  
-21°F (-30°C) to +148°F (65°C)

**VALVE SIZING**  
Refer to ES Drawing ES11A-0523 for correct actuator sizing for Bray Valves.

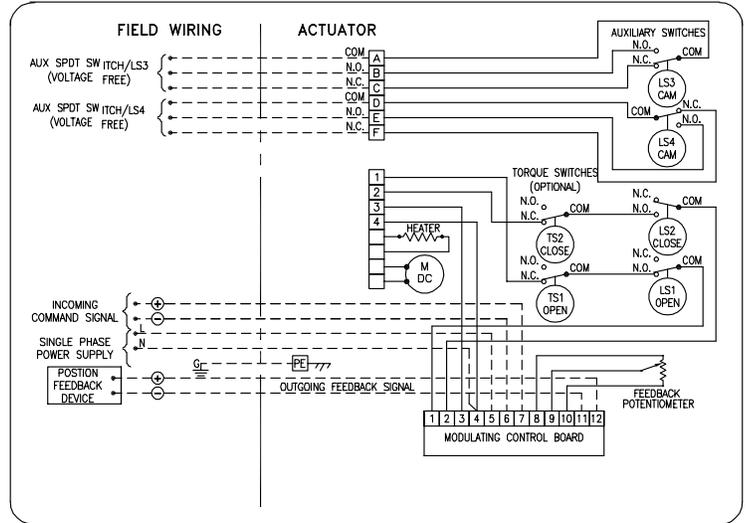


# WIRING DIAGRAMS

## ON-OFF 110V/220V AC



## MODULATING 110V/220V AC



For 3-Phase, 24 VDC & additional actuator wiring diagrams, please consult the factory.

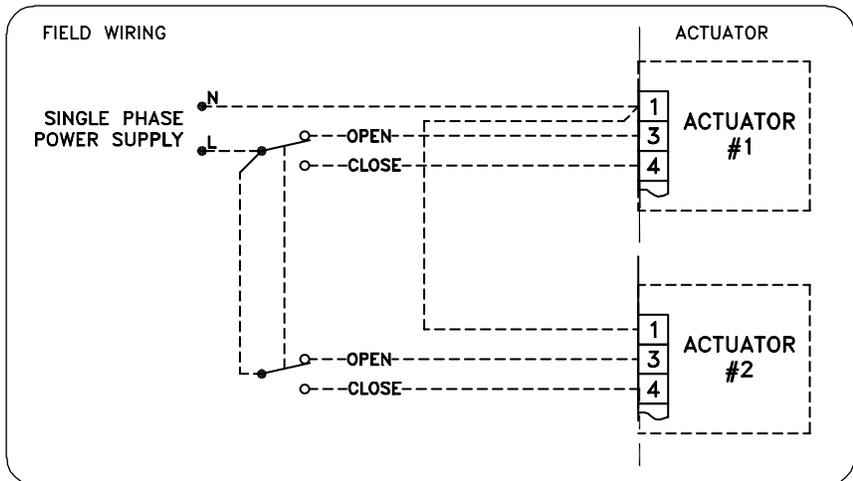
### Notes:

- 1) Actuators are shown in closed position.
- 2) Actuators are shown with optional Torque Switches
- 3) All switches are Single Pole Double Throw.
- 4) Terminal block accepts field wiring from 12-22 AWG, 14-22 AWG for Servo.
- 5) Modulating Unit: Position Feedback Output is designed to drive an isolated 200 to 1k Ohm resistive load.

**Wiring Diagrams are For Reference Only. Do NOT use for field wiring. Refer to Wiring Diagram in Actuator Housing.**

## MULTIPLE ACTUATOR WIRING DIAGRAMS

For correct installation use a multiple pole switch or relay as shown below. This wiring diagram is shown with 2 actuators.



Do **Not** parallel wire multiple On/Off duty actuators.



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved.

Patents applied for worldwide.



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13333 Westland East Blvd. Houston, Texas 77041  
281.894.5454 FAX 281.894.9499 www.bray.com

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