



## Series 70 (On/Off) – Submittal/Technical Data

800-18,000 lb-in. — Non-Spring Return — On/Off — Auxiliary Switches

Construction		
Housing	ASTM B85 Pressure Die Cast Aluminum - Polyester Powder Coated	
Motor	120 VAC 24 VAC/DC	Single Phase, Reversible, Permanent Split Capacitor Induction Motor Permanent Magnet-Brush D.C. Motor
Heater	Optional, 5 Watt PTC style	
Terminal Strip	Switch Plate Servo	12 - 22 AWG (2.0 - 0.65mm) 14 - 24 AWG (1.63 - 0.51mm)
Torque Limiting	Optional, Open and Closed preset at factory - Standard on 13,000 & 18,000 lb.-in.	
Auxiliary/Limit Switches: SPDT	120 VAC	10A - 1/3 HP
	220 VAC	10A - 1/2 HP
	250 VDC	1/4A
	12 VDC	2A
Exposed Fasteners	Stainless Steel	
Travel Stops	Externally adjustable at both 0 and 90 degrees	
Conduit Entries	800 lb.-in.	Two 1/2" NPT
	1200 lb.-in. and Higher	Two 3/4" NPT
Weight	See Dimensions	
Enclosure	Designed to meet NEMA Type 4, 4x and IP65 specifications	
Warranty	3 Years	
Certifications	UL/CSA 120V. CE 24 & 120V	

Operating Conditions		
Motor Insulation	120 VAC: 24 VAC/DC:	Class F, 311°F (155°C) thermal trip at 275°F (135°C) Class B, Fast Blow Fuse 5A 250 VAC
Ambient Temperature	-20 to 150°F (-29° to 65°C)	
Continuous Duty	Will operate continuously at a maximum ambient temperature of 104°F (40°C)	
Manual Operation	Pull to Engage, Push to Disengage - 30:1 drive ratio, 13 & 18K lb.-in. models are 90:1	

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.

Torque and Motor Data						
24 V Models	Voltage 50/60 Hz	(lb.in)	(NM)	Stroke Time*	Full Load Amps	Power Consumption VA
70-24-0081H	24 VAC/DC	800	90	60 Sec.	2.90	70
70-24-0201H	24 VAC/DC	2000	226	80 Sec.	3.50	84
70-24-0501H	24 VAC	5000	565	90 Sec	4.00	96

All 24V current ratings include heaters and servos

- 24V heater = 208 mA
- 24V modulating servo current draw = 0.3 A

Torque and Motor Data						
120 VAC Models	Voltage 50/60 Hz	(lb.in)	(NM)	Stroke Time*	Full Load Amps	Locked Rotor Amps
70-0081H	120 VAC	800	90	30 Sec	0.80	1.00
70-0121H	120 VAC	1,200	135	30 Sec	0.75	2.10
70-0201H	120 VAC	2,000	226	30 Sec	0.85	2.10
70-E301H	120 VAC	3,000	339	30 Sec	1.00	2.10
70-0501H	120 VAC	5,000	565	30 Sec	1.60	3.00
70-0651H	120 VAC	6,500	734	30 Sec	2.30	3.10
70-1300H	120 VAC	13,000	1,470	110 Sec	2.30	3.10
70-1800H	120 VAC	18,000	2,034	110 Sec	2.50	3.10

For 120V models, heater and servo current draws are additive

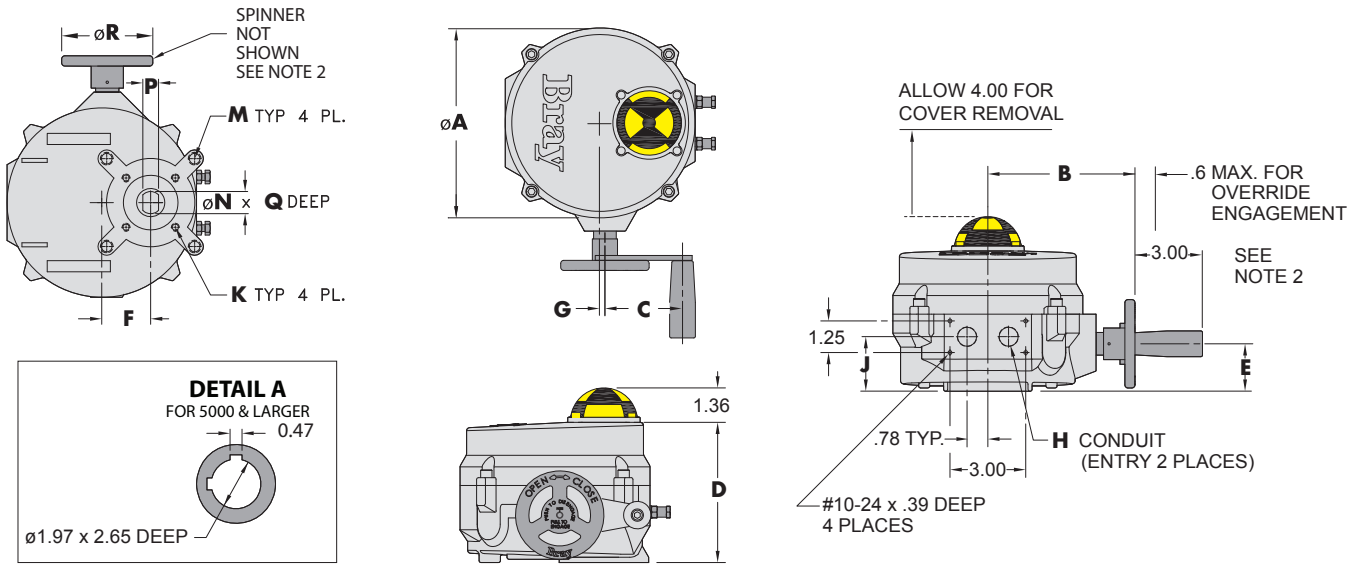
- 120V Heater + 42 mA
- 120V servo + 0.3 A

\*Stroke Times shown are with 60 Hz power.

Actuators with 50 Hz power supply will be 20% slower.

Series 70 Actuator - DIMENSIONS In./(mm)

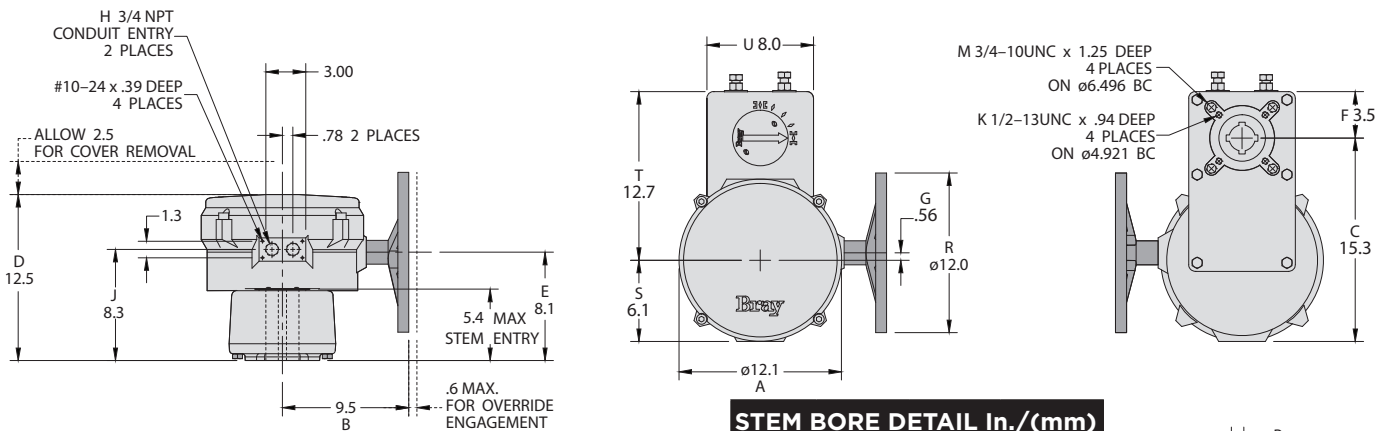
Actuator Model Number	øA	B	C	D	E	F	G	H	J	K UNC x B.C. (MM x B.C.)	M UNC x B.C. (MM x B.C.)	N	P	Q	øR	Weight lbs. (kg)
70-0081 (Small Frame)	7.5 (191)	5.8 (147)	3.0 (76)	5.6 (141)	1.9 (48)	1.94 (49.2)	.19 (4.7)	1/2 (M20 x 1.5)	2.2 (55)	5/16-18 x ø2.76 [M8 x 1.25 x ø70]	—	.75 (19.0)	.51 (13.0)	1.75 (44.5)	3.5 (89)	13 (6)
70-0121 70-0201 70-E301	10.1 (256)	7.8 (198)	3.7 (93)	6.6 (168)	2.4 (62)	2.69 (68.3)	.56 (14.3)	3/4 (M25 x 1.5)	2.6 (66)	5/16-18 x ø2.76 [M8 x 1.25 x ø70]	1/2-13 x ø4.92 [M12 x 1.75 x ø125]	1.18 (30.0)	.87 (22.0)	2.22 (56.3)	8.0 (203)	28 (13)
70-0501 70-0651	12.1 (308)	9.5 (241)	5.5 (139)	7.2 (183)	2.9 (73)	3.19 (80.9)	.56 (14.3)	3/4 (M25 x 1.5)	3.1 (78)	1/2-13 x ø4.92 [M12 x 1.75 x ø125]	3/4-10 x ø6.50 [M20 x 2.5 x ø165]	See Detail A			12.0 (305)	48 (22)



70-1300 TO 70-1800

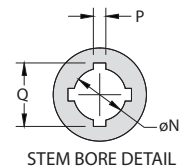
Series 70 Actuator - DIMENSIONS In./(mm)

Actuator Model Number	øA	B	C	D	E	F	G	H	J	K UNC x B.C. (MM x B.C.)	M UNC x B.C. (MM x B.C.)	N	P	Q	øR	S	T	U	Weight lbs. (kg)
70-1300 70-1800	12.1 (308)	9.5 (241)	15.3 (389)	12.5 (316)	8.1 (206)	3.5 (89)	.56 (14.3)	3/4 (M25 x 1.5)	8.3 (211)	1/2-13 x ø4.921 F12 (12 x 125 BC x 23.9)	3/4-10 x ø6.496 F16 (20 x 165 BC x 31.8)	See Stem Bore Detail			12.0 (305)	6.1 (155)	12.7 (322)	8.0 (203)	118 (54)



STEM BORE DETAIL In./(mm)

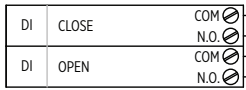
Size	N	P	Q
70-1306 70-1806	2.51 (63.6)	0.63 (15.9)	3.05 (77.5)
70-1316 70-1816	1.97 (50.0)	0.47 (12.0)	2.38 (60.6)



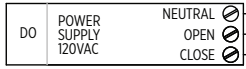
# Series 70 - Wiring - On/Off

**70-0081H / 70-0121H / 70-0201H / 70-E301H / 70-0501H / 70-0651H / 70-1300H / 70-1800H**  
**120 VAC ON/OFF IRB**  
 REFERENCE WIRING DIAGRAM: WD-000045

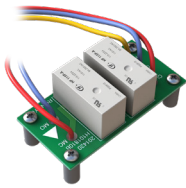
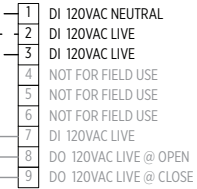
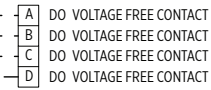
## FIELD WIRING



GROUND --- ⊕

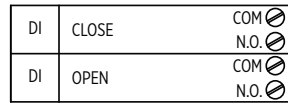


## ACTUATOR



**70-24-0081H / 70-24-0201H**  
**24 VAC/VDC ON/OFF PRO**  
 REFERENCE WIRING DIAGRAMS: WD-000276 AND WD-000327

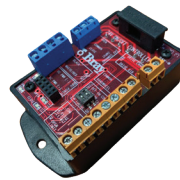
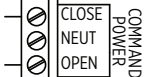
## FIELD WIRING



GROUND --- ⊕

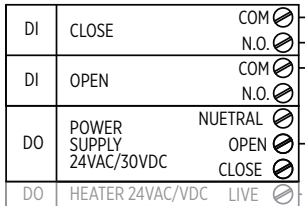


## ACTUATOR



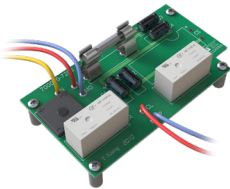
**70-24-0501H**  
**24 VAC/ON/OFF PCB**  
 REFERENCE WIRING DIAGRAM: WD-000111

## FIELD WIRING



GROUND --- ⊕

## ACTUATOR



### CALIBRATION SEQUENCE:

PLEASE VISIT THE S70 INDUSTRIAL ELECTRIC ACTUATOR SECTION OF OUR WEBSITE AND REFER TO THE QUICK START GUIDE AND VIDEO TUTORIAL LINK IN THE DOCUMENTS SECTION.





### TERMINAL STRIP:

14-24 AWG FOR CONTROLLER & BBU, MAX TIGHTENING TORQUE 3.5 IN-LBS  
 14-22 AWG FOR OTHER, MAX TIGHTENING TORQUE 8 IN-LBS  
 105 °C, 300V MIN RATED WIRE

### NOTES:

1. HEATER OPTIONAL.
2. SWITCHES ARE SPDT (FORM C).
3. DO NOT INSTALL OR USE THE SERIES 70 ELECTRIC ACTUATOR IN OR NEAR ENVIRONMENTS WHERE CORROSIVE SUBSTANCES OR VAPORS COULD BE PRESENT. EXPOSURE OF THE ELECTRIC ACTUATOR TO CORROSIVE ENVIRONMENTS MAY DAMAGE THE INTERNAL COMPONENTS OF THE DEVICE, AND WILL VOID THE WARRANTY.

### LEGEND:

TERMINAL SYMBOLS   
 FIELD WIRING   
 FACTORY WIRING   
 GROUND 

### FUSE:

FAST BLOW 250V 5A 5x20MM

### LIMIT SWITCH:

125/250 VAC, 10A, 1/2 HP  
 125/250 VDC, 0.25A INDUCTIVE  
 125/250 VDC, 0.5A RESISTIVE