

Standard Features

- **Motor:** Reversing, brushless, capacitor-run 120 VAC 50/60 Hz, single phase
- **Overload protection:** Integral thermal overload protection for motor windings with automatic reset
- **Gear train:** Permanently lubricated hardened steel gears
- **Corrosion resistant housing:** Thermally bonded powder coating rated Type 4X with stainless steel trim
- **ISO mounting configuration:** FO7/17mm star
- **Conduit:** Two 1/2" NPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible beacon position indicator for positive indication of valve position
- **Declutchable manual override:** Pull up on indicator knob, insert 5/8" wrench onto flats and rotate in the appropriate direction (CCW for open, CW for close). Models with handwheel override do not require a wrench. Simply push down on handwheel until engaged with cam and rotate
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **Enclosure:** Weatherproof enclosure rated Type 4X has a thermally bonded powder coat finish with SS trim
- **Captivated SS hexhead slotted cover screws**
- **Corrosion resistant mounting:** Mounting is with PPG or stainless steel bracket, stainless steel coupling, and stainless steel hardware
- **CE compliant motor:** All 120 VAC and 220 VAC motors are CE compliant and stamped as such
- **Extended duty cycles:** Our extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** Series 92 electric actuators have an output torque range from 400 in./lbs. to 2,000 in./lbs.



Options

- Auxiliary (additional) limit switches
- Heater and thermostat
- RHM (see page 189)
- Feedback potentiometer
- Positioner (modulating PCB)
- Mechanical brake
- Transmitter
- Cycle length control module (CLC)
- Two-wire control
- Failsafe battery back up (Protek)
- Voltages
- Local remote station (LL200)
- UL1203 explosion proof enclosure

Engineering Specifications

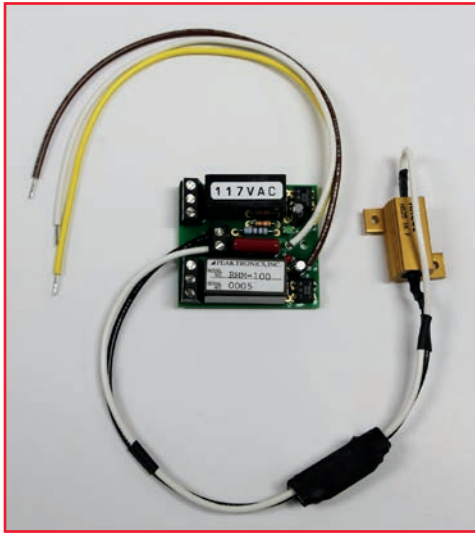
Size: S92, A92, B92, C92
 Torque: 400-2000 in./lbs
 Voltage: 120 VAC 1Ph 50/60 Hz
 Amp Draw: S92, B92 .5A, A92 .8A, C92 1.0A
 Conduit Entry: Two (2) 1/2" NPT
 Max Ambient Temperature: 150° F
 Switches: Two (2) single pole, double throw (2SPDT)
 15 amp rated
 Cycle Time per 90°: S92, A92: 15 seconds* Approx.
 B92, C92: 32 seconds* Approx.

Engineering Data

Model	Torque (in./lbs)	120 VAC		220 VAC		12 VDC		24 VDC		12 VAC		24 VAC		Cycle Time per 90 Degrees (seconds)*	Weight (lbs)
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
S92	400	0.5	100%	0.4	100%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	15	15.3
A92	700	0.8	75%	0.6	75%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	15	15.3
B92	1100	0.5	100%	0.4	100%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	32	15.3
C92	2000	1.0	50%	0.6	50%	2.0	75%	4.0	75%	2.0	75%	3.0	75%	32	18.3

Note: Amp rating is considered locked rotor. Duty cycles are for ambient temperature (73° F).

* Cycle times are approximate.



Specifications

Standard Operating Voltage: 120 VAC
Optional Voltages: 220 VAC, 12 VAC, 24 VAC, 12 VDC, 24 VDC
Operating Current: 42mA @ 120 VAC
 39mA @ 220 VAC
 89mA @ 12 VAC
 43mA @ 24 VAC
 37mA @ 12 VDC
 23mA @ 24 VDC

Relay Outputs (Form C): 8A
Operating Temperature: -40 to 85 C
 Approved for UL508 & UL1203 Actuators

Series 92/Series 94 Optional RHM (Relay Heater Module)

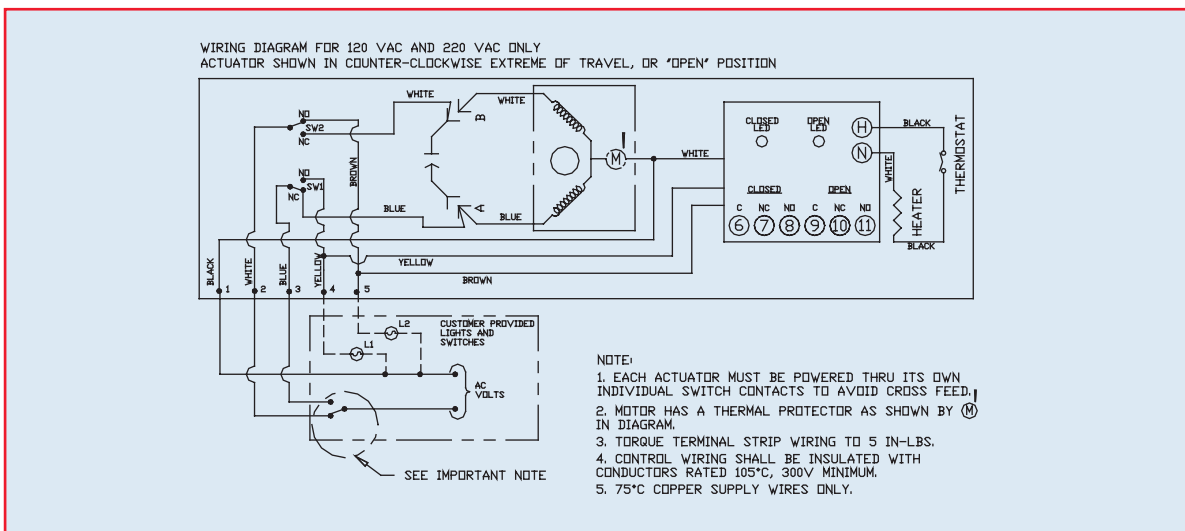
The RHM (Relay Heater Module) is a means of powering an optional heater and thermostat without requiring an additional constant power source or wiring. These modules also provide open and close Form C dry contacts that replace auxiliary switches. A 2-pin terminal block provides wiring connection of the heater and thermostat, while two 3-pin terminal blocks provide easy connection to the relays by the user.

When the actuator is powered to open, the motor runs until the open limit switch is tripped, then sends power to the RHM open connection. At that time power is provided to the heater and thermostat, the open relay coil, and to the on board red LED. This provides contact closure at the end of the open cycle and confirms that power is provided to the heater and thermostat.

When the actuator is powered to close, the motor runs until the close limit switch is tripped, then sends power to the RHM close connection. At that time power is provided to the heater and thermostat, the close relay coil, and to the on board green LED. This provides contact closure at the end of the close cycle and confirms that power is provided to the heater and thermostat.

*Power must be maintained at the end of travel for power to be applied to heater and thermostat. Also note that no power is provided to heater and thermostat when the actuator is in mid travel.

AC Wiring (For 120 VAC and 220 VAC only)



Series 92 120 VAC & 220 VAC Explosion Proof Electric Actuator

Standard Features

- **UL1203 Certified (CL.I, DIV. 1&2)**
- **Motor:** Reversing, brushless, capacitor run 120 VAC 50/60 Hz, single phase
- **Overload protection:** Integral thermal overload protection for motor windings with automatic reset
- **Gear train:** Permanently lubricated, solid gear that is Rockwell hardened
- **Corrosion Resistant Enclosure:** Thermally bonded polyester powder coat finish with stainless steel trim
- **ISO mounting configuration (FO7/17 star)**
- **Conduit:** Two ½" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible beacon position indicator for positive position of valve, even at a distance
- **Decutchable manual override:** Pull up on indicator knob, insert 5/8" wrench on to flats and rotate in the appropriate direction (CCW for open, CW for close). Models with handwheel override do not require a wrench. Simply push down on handwheel until engaged with cam and rotate
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **UL1203 Enclosure:** Combination weather proof & explosion proof (CL.I, Div. 1&2) enclosure for use in various environments
- **Captivated SS hexhead slotted enclosure screws**
- **CE compliant motor:** All 120 VAC and 220 VAC motors are CE compliant stamped as such
- **Extended duty cycles:** Our extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** Series 92 Electric Actuators have an output torque range from 400 in/lbs to 2000 in/lbs

Options

- Auxiliary limit switches
- Mechanical brake
- DC control relay
- 220 VAC
- Hand wheel manual override
- No manual override
- TYPE 7 breather
- Custom wiring configurations



Engineering Specifications

Size: S92, A92, B92, C92
 Torque: 400-2000 in/lbs
 Voltage: 120 VAC 1Ph 50/60 Hz
 Amp Draw: S92, B92 .5A, A92 .8A, C92 1.0A
 Conduit Entry: Two (2) ½" FNPT
 Max Ambient Temperature: 150° F
 Switches: Two (2) single pole, double throw (2-SPDT) 15 amp rated
 Cycle Time per 90°: S92, A92: 15 seconds
 B92, C92: 32 seconds
 Enclosure: UL1203 CL.I, Div. 1&2

Engineering Data

Model	Torque (in/lbs)	120/1 VAC		220/1 VAC		Cycle Time per 90 Degrees (seconds)*	Weight (lbs)
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
S92	400	0.5	100%	0.4	100%	15	15.3
A92	700	0.8	75%	0.6	75%	15	15.3
B92	1100	0.5	100%	0.4	100%	32	15.3
C92	2000	1.0	50%	0.6	50%	32	18.3

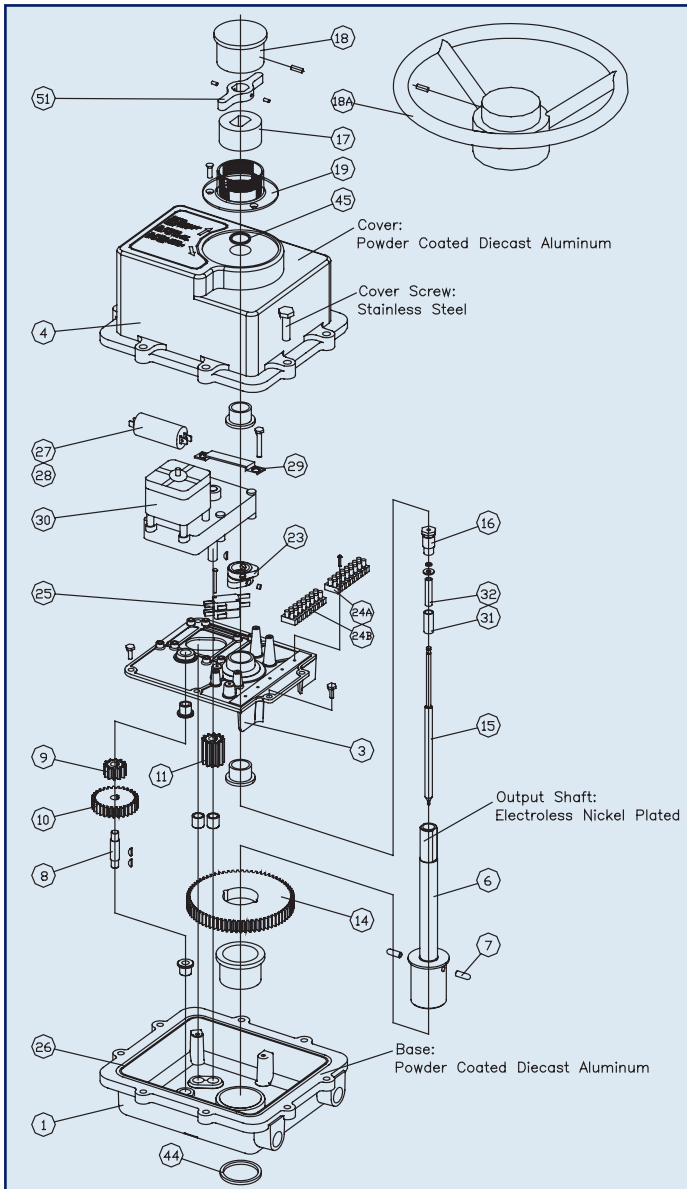
Note: Amp rating is considered locked rotor.

Duty cycles are for ambient temperature (73° F).

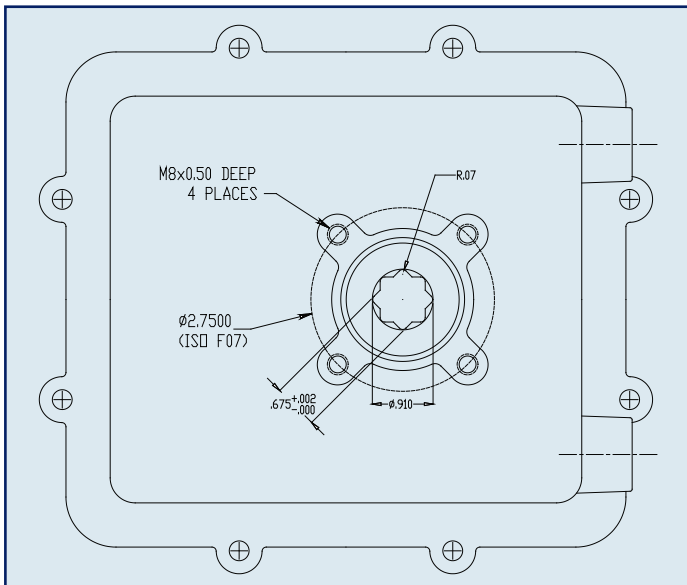
* Cycle times are approximate and will vary depending on load.

Series 92 120 VAC & 220 VAC Explosion Proof Electric Actuator

Parts List



PARTS LIST						
NO.	Part Number	PCS.				Description
		S92	A92	B92	C92	
1	7401920	1	1	1	1	Base
3	7401060	1	1	1	1	Base Plate
4	7401940	1	1	1	1	Cover
6	7401900	1	1	1		Shaft Main
6A	7401905				1	Shaft Main
7	7401360	2	2	2	2	Pin
8	7401280			1	1	Shaft Stub
9	7402003			1	1	Spur Gear B1
10	7402002			1	1	Spur Gear A1
11	7401400	1	1	1	1	Gear Pinion
14	7401380	1	1	1	1	Gear Main
15	7401200	1	1	1		Shaft Inner
15A	7401210				1	Shaft Inner
16	7401180	1	1	1	1	Shaft Retainer
17	7401300	1	1	1	1	Knob Lower
18	7401320	1	1	1		Knob Upper
18A	7401995				1	Handwheel
19	7401260	1	1	1	1	Collar
23	7401480	2	2	2	2	Cam
24A	7401420	1	1	1	1	Terminal Block 1-8
24B	7401425	1	1	1	1	Terminal Block 9-16
25	7401460	2	2	2	2	Switch
26	7401560	1	1	1	1	O-Ring Base/Cover
27	7402948	1		1	1	Capacitor 4.2 mFD
27A	7402004		1			Capacitor 6.7 mFD
28	7403008				1	Capacitor 7.6 mFD
29	7401520	1	1	1	1	Capacitor Bracket
30	7401340	1	1	1	1	120 VAC Motor
31	7401250	1	1	1	1	Shell
32	7401220	1	1	1		Spring
32A	7401230				1	Spring
44	7401040	1	1	1	1	Seal Base
45	7401140	1	1	1	1	Seal Cover
51	7401485				1	Handwheel Cam



Sample Specification

All Series 92 120 VAC & 220 VAC Explosion Proof electric actuators shall be UL1203 Certified for Class I, Division 1 & 2 locations, have a thermally protected, bi-directional (reversing type), capacitor run motor with a permanently lubricated gear train. Motors shall conform to CE and be indicated on motor housing. Actuators shall have solid, heat-treated alloy steel gearing encased in a die cast aluminum enclosure that has a thermally bonded polyester powder coat finish, with stainless steel trim. Actuator enclosure shall conform to weather proof and explosion proof criteria set forth by UL Standard 1203, and bear the UL1203 plaque for CL.I Div. 1 locations. Each actuator shall have a declutchable manual override, visual position indication, and an ISO mounting configuration as manufactured by Asahi/America.

Series 92 LVLC 5000 in/lb Explosion Proof

Standard Features

- UL1203 Certified (CL.I, DIV. 1&2)
- **Motor:** (LVLC) Low Voltage/Low Current reversing dc motor
- **Gear train:** Permanently lubricated, solid gear that is Rockwell hardened
- **Corrosion Resistant** Enclosure: Thermally bonded polyester powder coat finish with stainless steel trim
- ISO mounting configuration (F14/36 star)
- **Conduit:** Two 1/2" FNPT conduit entries to eliminate cross feed between control, feedback, and power signals
- **Position indication:** Highly visible Beacon position indicator for positive position of valve, even at a distance
- **Limit switches:** Standard end of travel limit switches can be used for light indication (not to be use with PLC for position confirmation)
- **UL1203 Enclosure:** Combination Weather Proof & Explosion Proof (CL.I, Div. 1&2) enclosure for use in various environments
- Captivated SS hex head slotted enclosure screws
- Extended duty cycles: Our extended duty cycles are ideal for modulating and high cycling applications
- **Output torque:** 5000 in/lbs



Engineering Specifications

Size: C92G
 Torque: 5000 in/lbs
 Voltage: 12 Vdc, 24 Vdc
 Amp Draw:
 2.0 Amps at 12 Vdc
 4.0 Amps at 24 Vdc
 Conduit Entry: Two (2) 1/2" FNPT
 Switches: Two (2) single pole, double throw
 (2-SPDT) 15 amp rated
 Cycle Time per 90°: 27 sec
 Enclosure: UL1203 CL.I, Div. 1&2

Options

- Auxiliary limit switches
- Heater and Thermostat
- RHM Module
- 4-20mA Positioner
- 4-20mA transmitter
- DC control relay
- Hand wheel manual override
- TYPE 7 Breathe
- Custom wiring configurations

Engineering Data

Model	Torque (in/lbs)	12 VDC		24 VDC		Cycle time Per 90 degrees (Seconds)*	Weight
		Amp Draw	Duty Cycle	Amp Draw	Duty Cycle		
C92GXW	5000	2.0	75%	4.0	75%	53 Sec	117

Amp rating is considered locked rotor

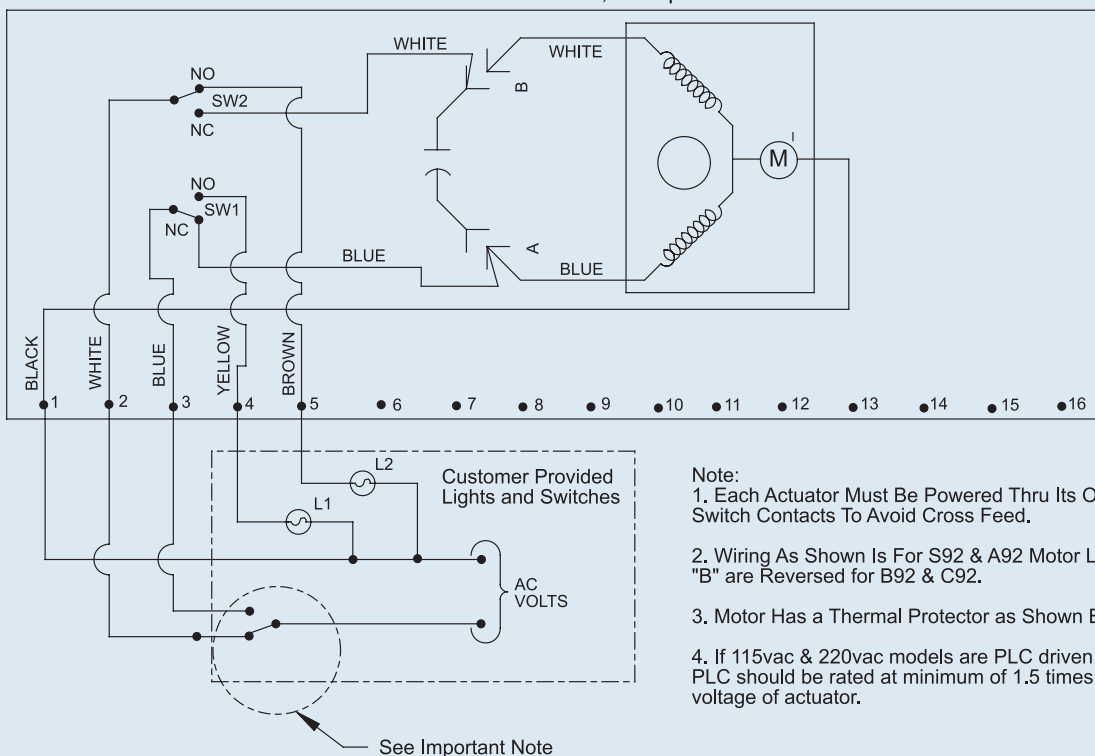
Duty cycles are for ambient temperature (73F)

*Cycle times are approximate and will vary depending on load

Series 92 & 94 Non-RHM Wiring Schematics

Wiring Diagram for 120 VAC or 220 VAC Units

Actuator Shown is Counter-Clockwise Extreme of Travel, or "Open" Position

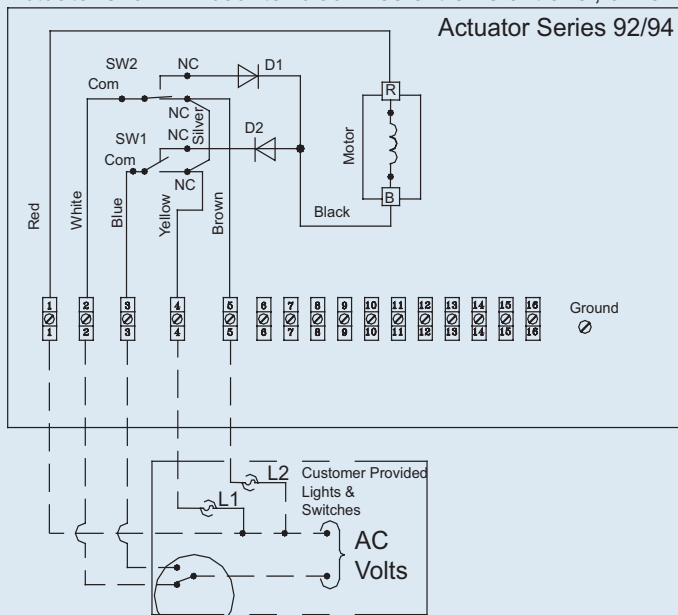


- Note:
1. Each Actuator Must Be Powered Thru Its Own Individual Switch Contacts To Avoid Cross Feed.
 2. Wiring As Shown Is For S92 & A92 Motor Leads at "A" And "B" are Reversed for B92 & C92.
 3. Motor Has a Thermal Protector as Shown By \textcircled{M} in Diagram.
 4. If 115vac & 220vac models are PLC driven, output contacts of PLC should be rated at minimum of 1.5 times required input voltage of actuator.

See Important Note

Wiring Diagram for 12 VAC & 24 VAC Units

Actuator shown in counter-clockwise extreme of travel, or "OPEN" Position



- Notes:
1. Each Actuator must be powered thru its own individual switch contact to avoid cross feed
 2. Motor leads are reversed for 1100 & 2000 in/lb actuator

Switch Location Viewed from Terminal Strip Front

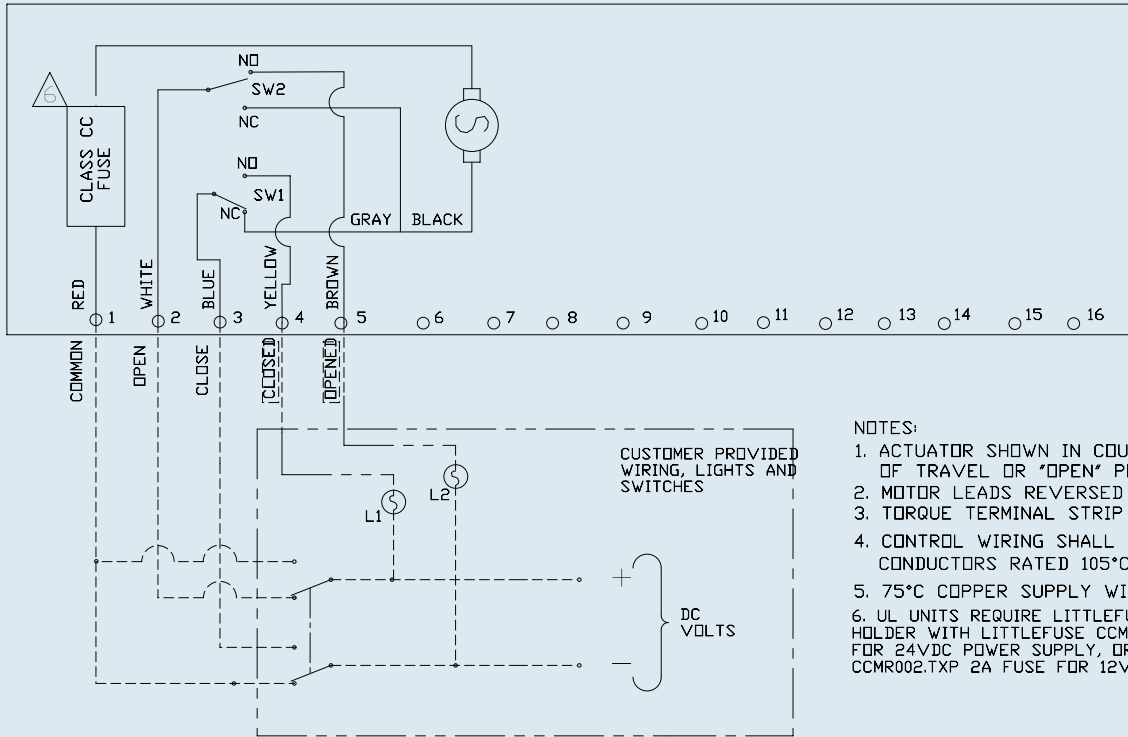
- SW-2 - Open
 SW-1 - Close

See Important Note

Series 92 & 94 Non-RHM Wiring Schematics

Series 92/94

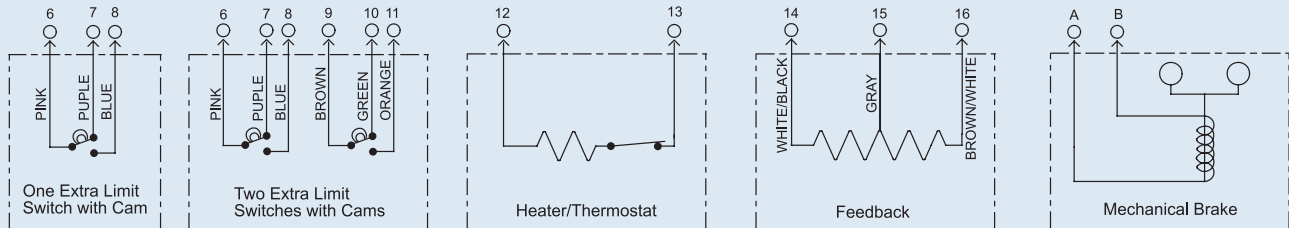
DC WIRING DIAGRAM



NOTES:

1. ACTUATOR SHOWN IN COUNTER CLOCKWISE EXTREME OF TRAVEL OR "OPEN" POSITION.
2. MOTOR LEADS REVERSED FOR 1100 & 2200 IN-LBS
3. TORQUE TERMINAL STRIP WIRING TO 5 IN-LBS.
4. CONTROL WIRING SHALL BE INSULATED WITH CONDUCTORS RATED 105°C, 300V MINIMUM.
5. 75°C COPPER SUPPLY WIRES ONLY.
6. UL UNITS REQUIRE LITTLEFUSE L60030C1C FUSE HOLDER WITH LITTLEFUSE CCMR004.TXP 4A FUSE FOR 24VDC POWER SUPPLY, OR LITTLEFUSE CCMR002.TXP 2A FUSE FOR 12VDC POWER SUPPLY

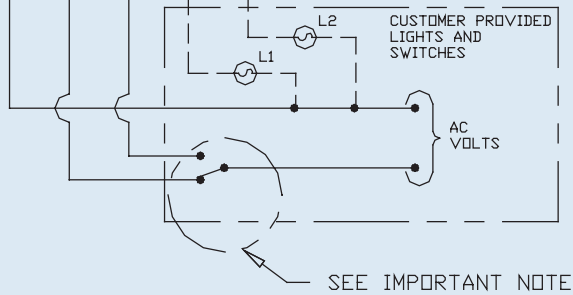
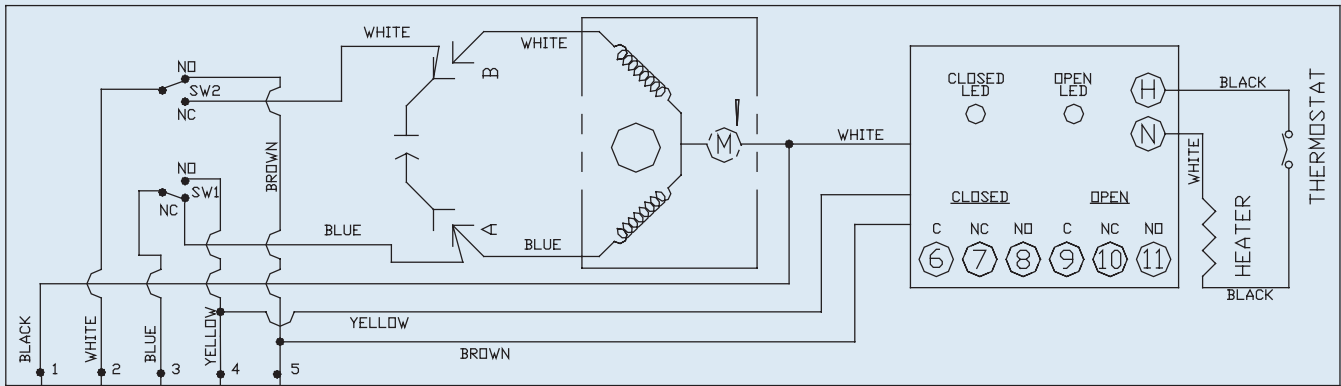
Wiring for Optional Equipment



Series 92 & 94 RHM Wiring Schematics

Wiring Diagram for 120 VAC and 220 VAC only

Actuator shown in counter-clockwise extreme of travel, or "Open" position

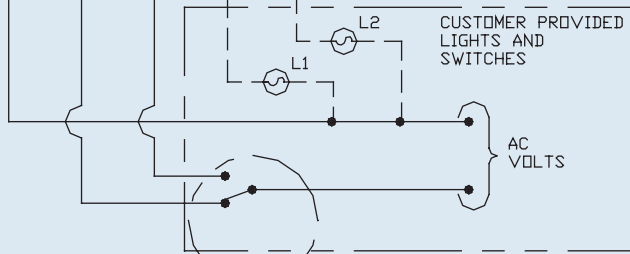
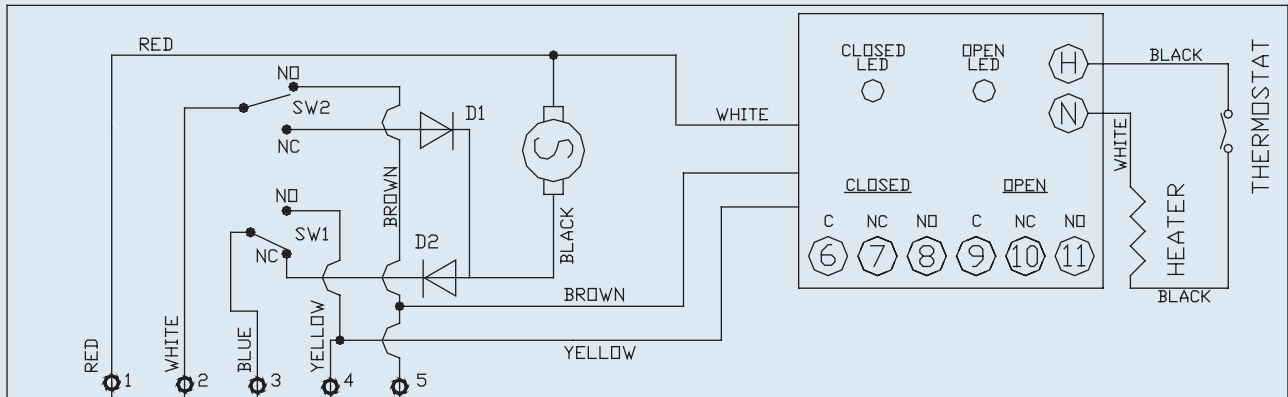


SEE IMPORTANT NOTE

NOTE:

1. EACH ACTUATOR MUST BE POWERED THRU ITS OWN INDIVIDUAL SWITCH CONTACTS TO AVOID CROSS FEED.
2. WIRING AS SHOWN IS FOR S92 & A92 MOTOR LEADS AT "A" AND "B" ARE REVERSED FOR B92 AND C92.
3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM.
4. TORQUE TERMINAL STRIP WIRING TO 5 IN-LBS.
5. CONTROL WIRING SHALL BE INSULATED WITH CONDUCTORS RATED 105°C, 300V MINIMUM.
6. 75°C COPPER SUPPLY WIRES ONLY.

Series 92/94 with RHM 12-24 VAC AC Wiring Diagram



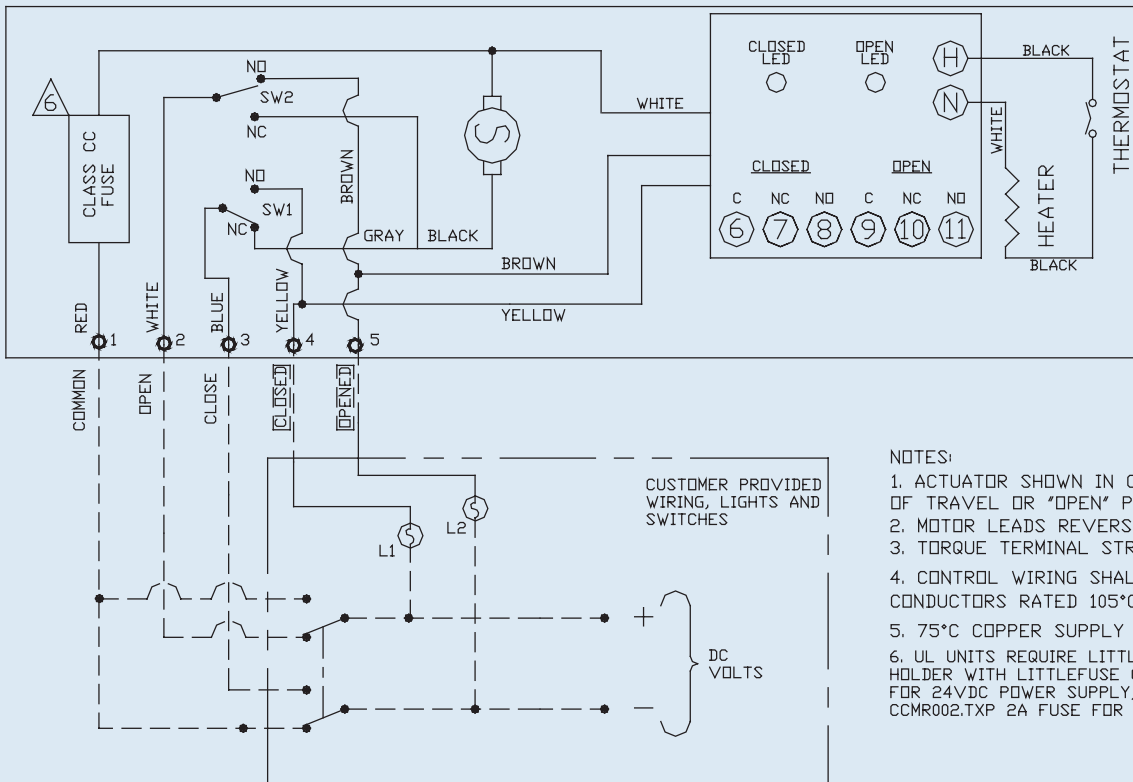
SEE IMPORTANT NOTE

NOTES:

1. ACTUATOR SHOWN IN COUNTER CLOCKWISE EXTREME OF TRAVEL OR "OPEN" POSITION.
2. MOTOR LEADS REVERSED FOR 1100 & 2200 IN*LB'S
3. TORQUE TERMINAL STRIP WIRING TO 5 IN-LBS.
4. CONTROL WIRING SHALL BE INSULATED WITH CONDUCTORS RATED 105°C, 300V MINIMUM.
5. 75°C COPPER SUPPLY WIRES ONLY.

Series 92 & 94 RHM Wiring Schematics

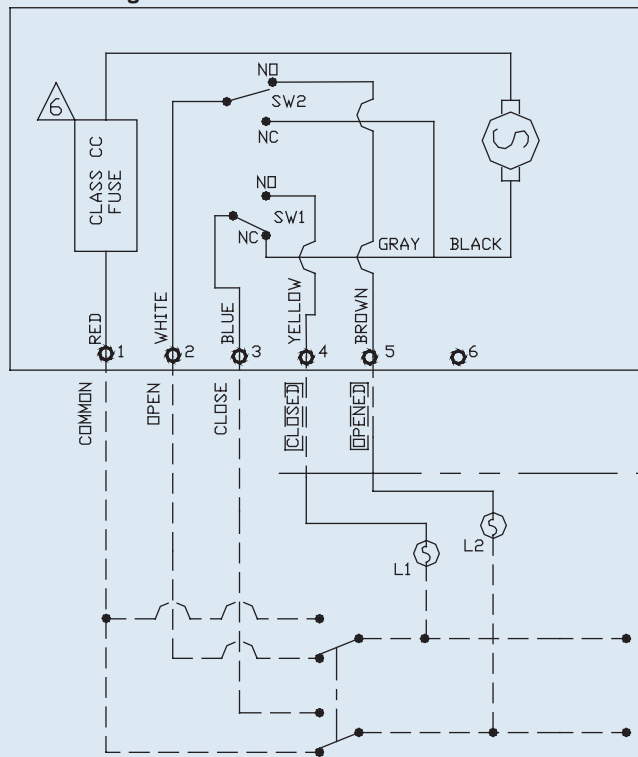
Series 92/94 with RHM 12-24 VDC



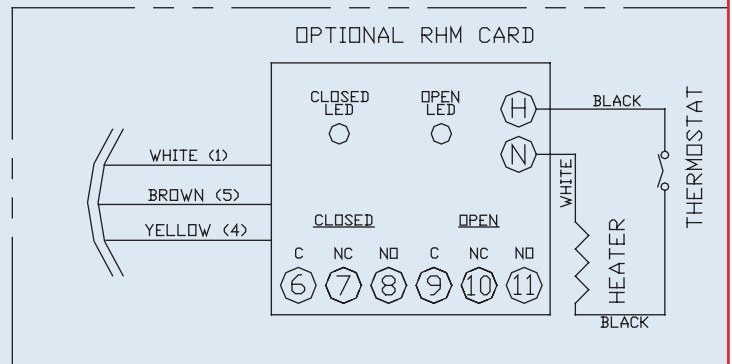
NOTES:

1. ACTUATOR SHOWN IN COUNTER CLOCKWISE EXTREME OF TRAVEL OR 'OPEN' POSITION.
2. MOTOR LEADS REVERSED FOR 1100 & 2200 IN-LBS
3. TORQUE TERMINAL STRIP WIRING TO 5 IN-LBS.
4. CONTROL WIRING SHALL BE INSULATED WITH CONDUCTORS RATED 105°C, 300V MINIMUM.
5. 75°C COPPER SUPPLY WIRES ONLY.
6. UL UNITS REQUIRE LITTLEFUSE L60030C1C FUSE HOLDER WITH LITTLEFUSE CCMR004.TXP 4A FUSE FOR 24VDC POWER SUPPLY, OR LITTLEFUSE CCMR002.TXP 2A FUSE FOR 12VDC POWER SUPPLY

DC Wiring Series C92G



OPTIONAL RHM CARD



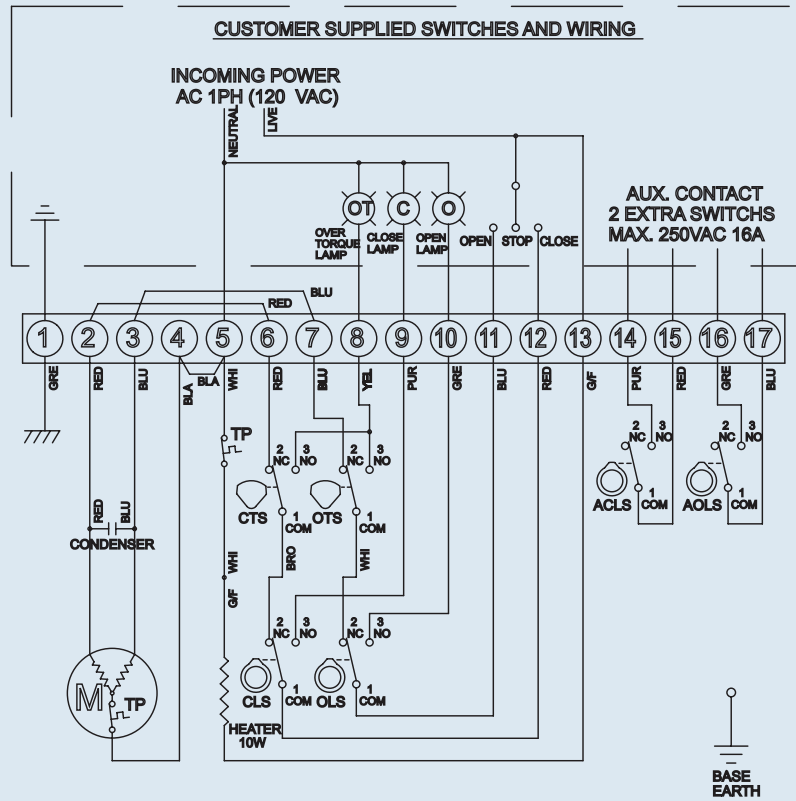
NOTES:

1. ACTUATOR SHOWN IN OPEN POSITION
2. ACTUATOR SHAFT ROTATES CW TO OPEN WHILE FINAL OUTPUT IS CCW TO OPEN
3. TORQUE TERMINAL STRIP WIRING TO 5 IN-LBS.
4. CONTROL WIRING SHALL BE INSULATED WITH CONDUCTORS RATED 105°C, 300V MINIMUM.
5. 75°C COPPER SUPPLY WIRES ONLY.
6. UL UNITS REQUIRE LITTLEFUSE L60030C1C FUSE HOLDER WITH LITTLEFUSE CCMR004.TXP 4A FUSE FOR 24VDC POWER SUPPLY, OR LITTLEFUSE CCMR002.TXP 2A FUSE FOR 12VDC POWER SUPPLY

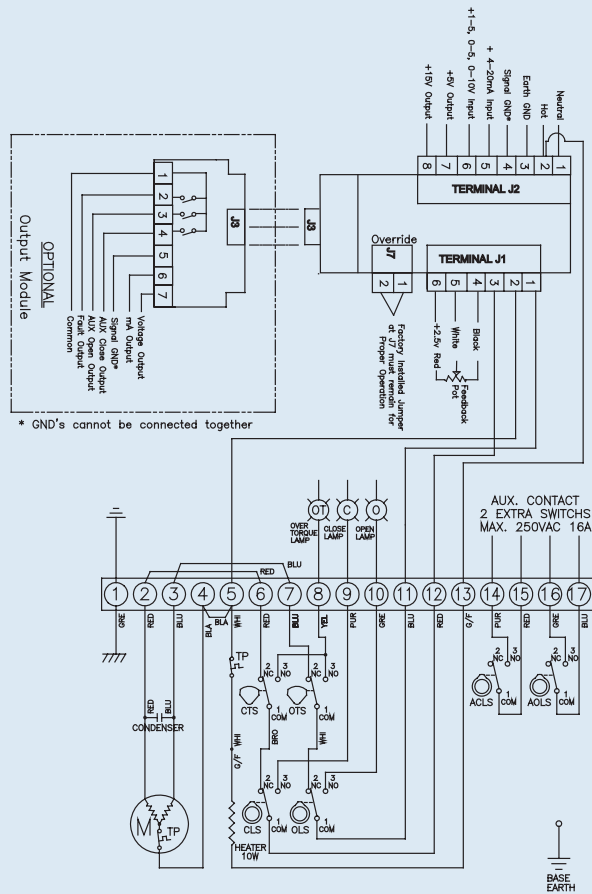
- 1 +2 = CW ROTATION OF CAM SHAFT = OPEN
- +1 -3 = CCW ROTATION OF CAM SHAFT = CLOSE

10P Wiring Schematics

Series 10P 110\1\60



Series 10P Modulating





Series 92 Electric Actuators

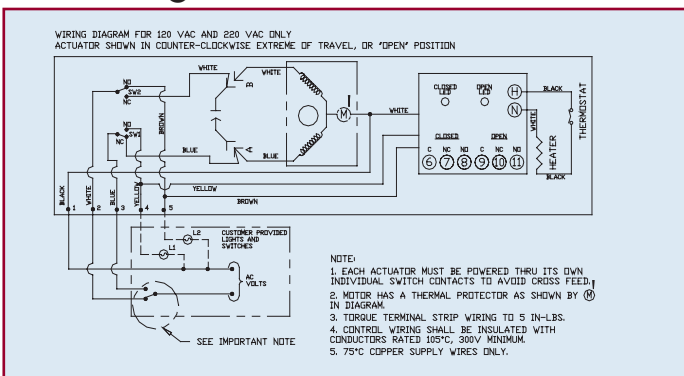
Standard Features (Sizes 1/2" - 4")

- Brushless, capacitor-run motors (AC models)
- Integral thermal overload protection with auto-reset (AC models)
- Permanently lubricated gear train
- High duty cycle motor for high cycle applications
- Weatherproof enclosure rated Type 4X has a thermally bonded powder coat finish with SS trim
- ISO mounting
- Two 1/2" NPT conduit ports prevent interference between control and power signals
- Declutchable manual override
- Standard travel stop limit switches can simultaneously be used for indicator lights
- Highly visible position indicator
- Captivated SS hex head slotted cover screws
- RHM module (consists of 2-SPDT 8A relays/dry contacts) and heater and thermostat (see page 26)

Options

- Fail safe battery pack
- Feedback potentiometer
- Positioner: 4-20 mA or 0-10 VDC input
- 4-20 mA output position transmitter
- Voltages: 220 VAC, 24 VAC, 12 VAC, 24 VDC, 12 VDC
- Mechanical brake (eliminates seating oscillation)
- Explosion-proof enclosure (UL1203)

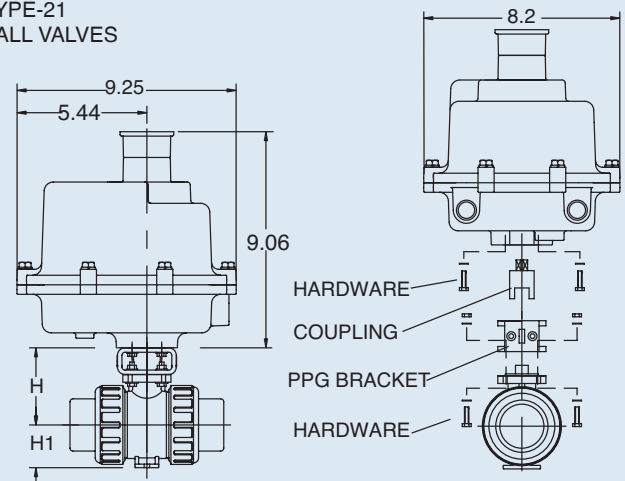
AC Wiring (For 120 VAC and 220 VAC only)



Specifications

- Motor Type:** Reversing, 1/4 turn single phase
- Sizes:** S92, A92 for sizes 1/2" - 4" ball valves
- Torque:** 400 to 700 in-lbs.
- Voltage:** 120 VAC, 50/60 Hz
- Amp Draw:** For S92: .50 Amps
For A92: .80 Amps
- Max Ambient Temp:** 150° F
- Switches:** Two single pole, double throw (15 Amp rating)

SERIES 92 ON TYPE-21 BALL VALVES



Engineering Data

Actuator Model	Torque (in-lbs.)	Duty Cycle	Cycle Time* (sec)	Weight (lbs.)	Amp Draw					
					120 VAC	220 VAC	24 VAC	12 VAC	24 VDC	12 VDC
S92	400	100	15	15.3	0.5	0.4	3.0	2.0	4.0	2.0
A92	700	75	15	15.3	0.8	0.6	3.0	2.0	4.0	2.0

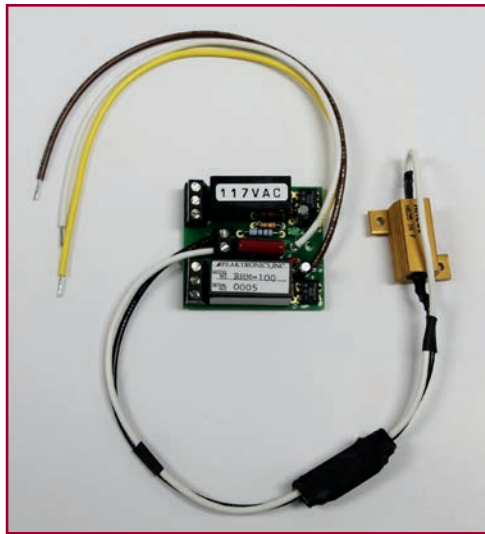
Cycle times are approximate.

Duty cycle show for ambient temp. (73° F)

- NOTE TO WIRING DIAGRAM:**
1. EACH ACTUATOR MUST BE POWERED THROUGH ITS OWN INDIVIDUAL SWITCH CONTACTS TO AVOID CROSS FEED.
 2. WIRING AS SHOWN IS FOR S92 AND A92 MODELS.
 3. MOTOR HAS A THERMAL PROTECTOR AS SHOWN BY (M) IN DIAGRAM. (120 AND 220 VAC MODEL).
 4. IF 120 & 220 VAC MODELS ARE PLC DRIVEN, OUTPUT CONTACTS OF PLC SHOULD BE RATED AT A MINIMUM OF 1.5 TIMES REQUIRED INPUT VOLTAGE OF ACTUATOR.

Dimensions (in.)

NOMINAL SIZE		H	H1
INCHES	mm		
1/2	15	2.76	1.14
3/4	20	3.01	1.38
1	25	3.29	1.54
1-1/4	30	3.64	1.85
1-1/2	40	3.98	2.17
2	50	4.43	2.60
2-1/2	65	5.12	2.83
3	80	5.47	3.35
4	100	6.97	4.33



Specifications

Standard Operating Voltage: 120 VAC
Optional Voltages: 220 VAC, 12 VAC, 24 VAC, 12 VDC, 24 VDC
Operating Current: 42mA @ 120 VAC
 39mA @ 220 VAC
 89mA @ 12 VAC
 43mA @ 24 VAC
 37mA @ 12 VDC
 23mA @ 24 VDC

Relay Outputs (Form C): 8A
Operating Temperature: -40 to 85 C

Approved for UL508 & UL1203 Actuators

Series 92/Series 94 Optional RHM (Relay Heater Module)

The RHM (Relay Heater Module) is a means of powering an optional heater and thermostat without requiring an additional constant power source or wiring. These modules also provide open and close Form C dry contacts that replace auxiliary switches. A 2-pin terminal block provides wiring connection of the heater and thermostat, while two 3-pin terminal blocks provide easy connection to the relays by the user.

When the actuator is powered to open, the motor runs until the open limit switch is tripped, then sends power to the RHM open connection. At that time power is provided to the heater and thermostat, the open relay coil, and to the on board Red LED. This provides contact closure at the end of the open cycle and confirms that power is provided to the heater and thermostat.

When the actuator is powered to close, the motor runs until the close limit switch is tripped, then sends power to the RHM close connection. At that time power is provided to the heater and thermostat, the close relay coil, and to the on board Green LED. This provides contact closure at the end of the close cycle and confirms that power is provided to the heater and thermostat.

*Power must be maintained at the end of travel for power to be applied to heater and thermostat. Also note that no power is provided to heater and thermostat when the actuator is in mid travel.

AC Wiring (For 120 VAC and 220 VAC only)

