SVF Flow Controls
INCORPORATED

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E Series Electric Actuators

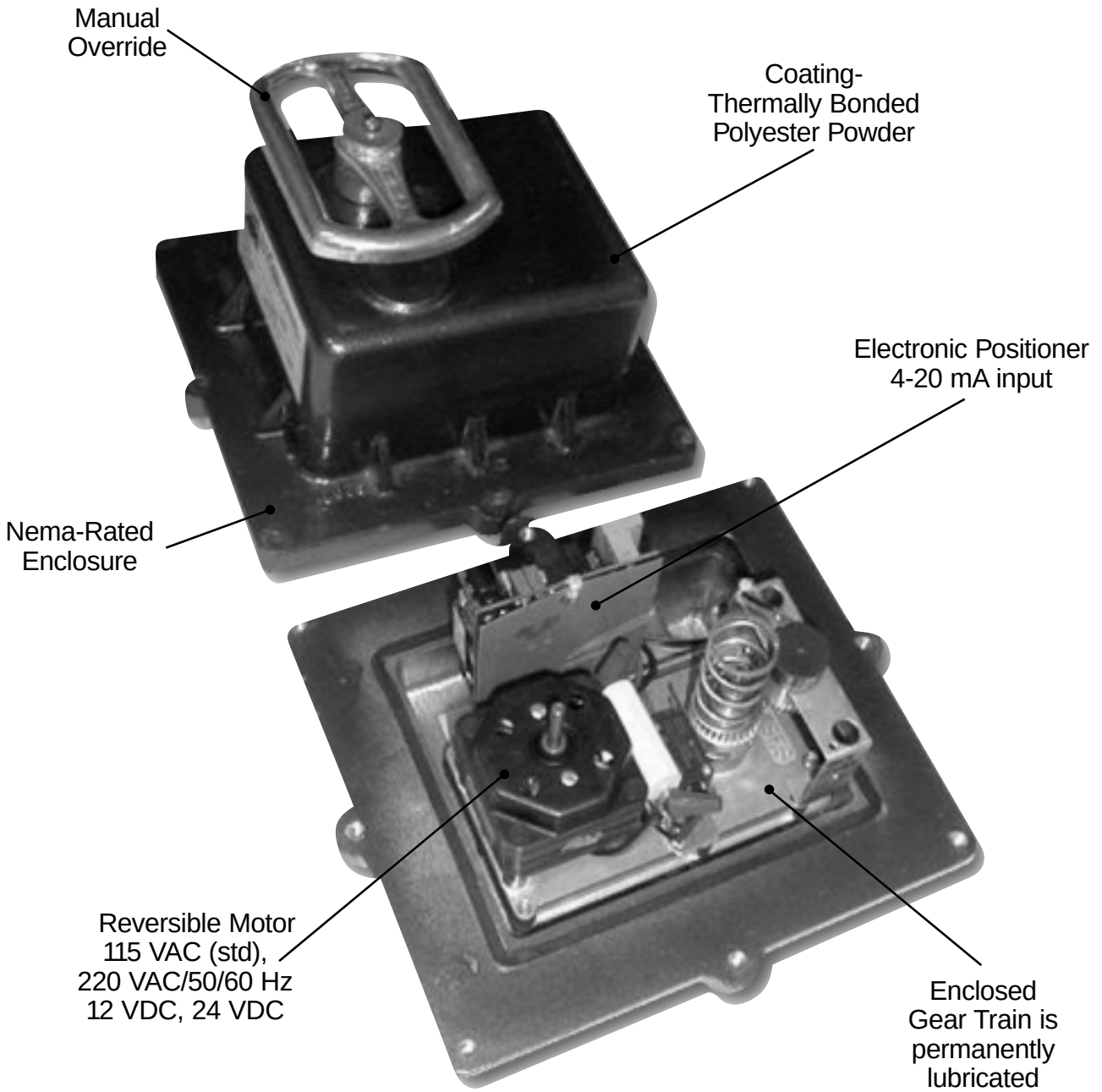
ELECTRO

SAMPLE SPECIFICATION

All "E" series Electric Actuators shall be reversible type, capacitor run motor design, thermally protected and with a permanently lubricated hardened steel gear train.

Housing/enclosure shall be die cast aluminum with a thermally bonded polyester powder coating and stainless steel trim to meet NEMA-4X for corrosion resistance.

Each actuator shall be available with a manual override, visual position indication and ISO standard mounting arrangement as offered by SVF Flow Controls, Inc.



SVF Electric actuators are geared motors that provide rotary output (torque) to power all types of rotary valves (ball, plug and butterfly valves as well as dampers and diverters). Output is achieved through the application of a supply voltage (AC or DC). Rotary action is controlled through two limit switches (one for "open" and one for "closed") located in the unit and in conjunction with two cams. Precise setting of either position is achieved by adjusting the cam to activate the switch at exactly the desired point in the rotary cycle. The power wiring procedure is indicated on the wiring diagram supplied with each unit.

REVERSING MOTORS

Reversible motors open the valve in one direction and close the valve in the reverse direction. Reversible motors are ideal for precise flow control, since the actuator does not have to travel through the full stroke to start the reverse stroke. For example, one coil in the motor controls the counter-clockwise rotation or open cycle while the other coil controls the clockwise or closing cycle.

APPLICATIONS

E series electric actuators are ideally suited for a wide range of flow control applications.

- Excellent for use in systems where compressed air for actuation is either unavailable or impractical.
- Electric control circuits may be designed for virtually any control scheme.
- Simple to install and easy to use. Readily interfaces with all electric control schemes.
- Ideal for multi-ported valves. Provides three or four distinct position stops.
- May be used in manual jogging systems.
- When fitted with a heater, electric actuators are well suited for use in sub-freezing environment.

DESIGN FEATURES

"E" series electric, rotary actuators are designed to provide the operating torque required to automate our full line of process-quality ball valves. All SVF electric actuators are available with the following features:

- Heavy-duty, fully enclosed, high performance motor is rated for both on/off and modulating service.
- Actuator housing meets NEMA-4 (weatherproof) or NEMA-7 (hazardous area) requirements.
- Corrosion protection with thermally bonded polyester coating.
- Operating speeds and output torque generated through a permanently lubricated gear train.
- All motors feature integral thermal overload protection.
- Output shaft and fasteners are stainless steel (NEMA-4X rating).
- Designed for operation in temperatures from – 40°F to 150°F.
- All models feature a manual override, ISO mounting pad and are wired for light indication.
- Standard travel-stop limit switches can simultaneously be used for light indication.

OPTIONAL EQUIPMENT

- **Electromechanical brake**
  Eliminates oscillation when seating butterfly valves.
- **Voltages 115 VAC standard**
  or 220 VAC/50/60 Hz, 12 VDC, 24VDC.
- **Auxiliary switches**
  Two additional limit switches may be added for interlocking other equipment such as pumps, compressors, mixers or other valves.
- **Heater & Thermostat**
  For operation at low temperature (to -40°F). Also used to combat condensation in high humidity areas. The combination heater/ thermostat will maintain the temperature of the enclosure at 40°F.
- **Analog Positioner**
  Accepts 4-20 mA input signal or optional 1-5 and 10-50 mA, 0-10 VDC are available.
- **Speed Control Circuit**
  Pulsing circuit to adjust (slow) the overall cycle time.
- **Timer Control**
  Operates the actuator at specified intervals.
- **Three-Position Control**
  For use with multi-ported valves.
- **Local Control Station**
  Externally mounted pushbutton station.
- **Two-Wire Control**
  To meet some digital interface control systems.
- **Torque Sensor Control**
  Protects the actuator in the event of unforeseen torque increases often associated with valve wear or pipeline obstructions.
- **Reversing Contactor**
  For three-phase motor operation. Not available on all models.

WIRING DIAGRAM AND DIMENSIONS

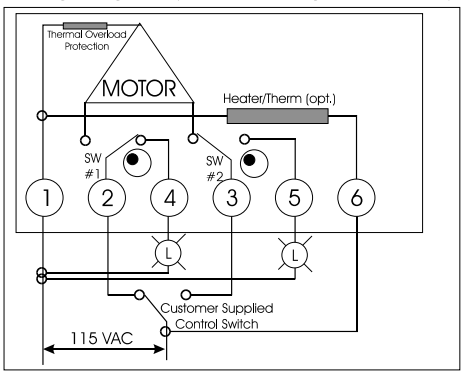
Model # E-100
Output Torque: 100 Lbf.in.
Speed: 2.5 sec/90 Degrees
Supply: 115VAC, 60Hz, 1 Phase

Motor:
Reversible, 75% Duty Cycle
Thermal Overload Protection

Enclosure:
Cast Aluminum, epoxy coated
ISO 5211 mounting pad
Permanent lubrication
Universal mounting

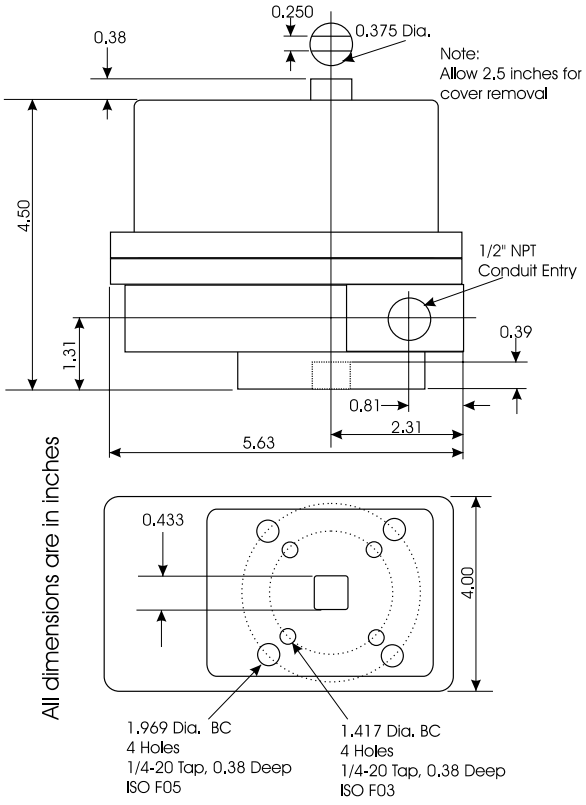
Temperature: -40 to 150°F
(Heater recommended below zero degrees ambient)

Wiring Diagram (Standard Single Phase AC)



Operation

Power to Terminals 1 and 2 drives CCW (Open)
Power to Terminals 1 and 3 drives CW (Close)
Lamp connected to Terminals 1 and 4 indicates OPEN
Lamp connected to Terminals 1 and 5 indicates CLOSED



WIRING DIAGRAM AND DIMENSIONS

Models # E-200, E-300

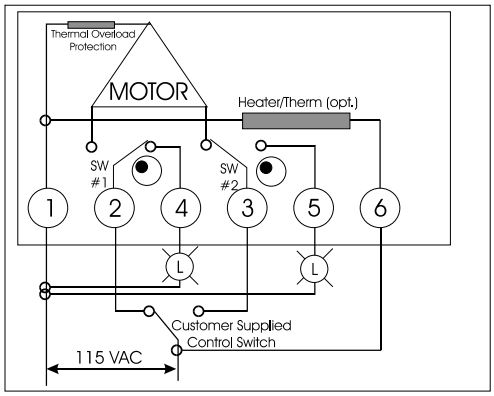
Output Torque:
E-200 = 200 Lbf.in.
E-300 = 300 Lbf.in.
Speed: 5 sec/90 Degrees
Supply: 115VAC, 60Hz, 1 Phase

Motor:
Reversible, 25% Duty Cycle
Thermal Overload Protection

Enclosure:
Cast Aluminum, epoxy coated
ISO 5211 mounting pad
Permanent lubrication
Universal mounting

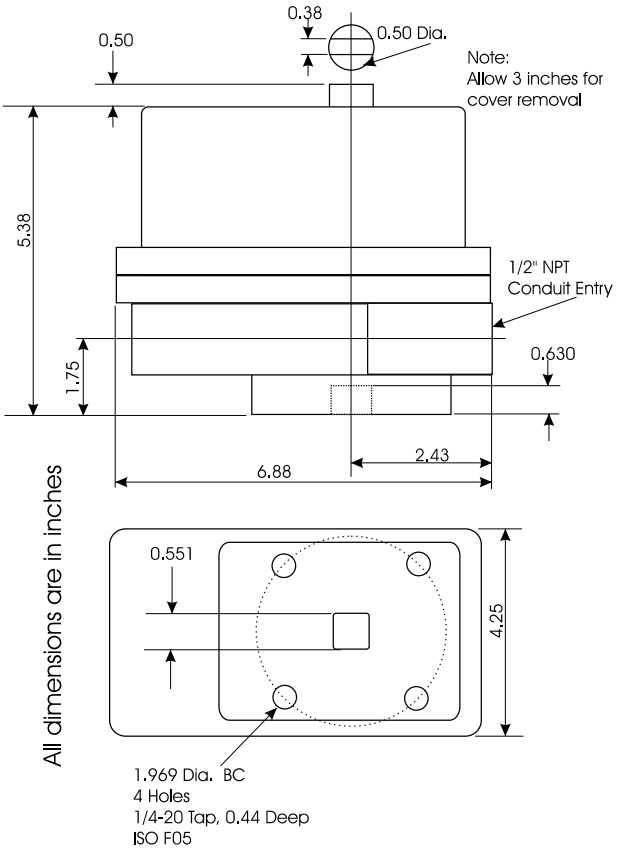
Temperature: -40 to 150°F
(Heater recommended below zero degrees ambient)

Wiring Diagram (Standard Single Phase AC)



Operation

Power to Terminals 1 and 2 drives CCW (Open)
Power to Terminals 1 and 3 drives CW (Close)
Lamp connected to Terminals 1 and 4 indicates OPEN
Lamp connected to Terminals 1 and 5 indicates CLOSED



Models # E-675, E-1000, E-1500

Model / Torque / Speed per 90°
E-675 / 675 Lbf.in. / 15sec
E-1000 / 1000 Lbf.in. / 15sec
E-1500 / 1500 Lbf.in. / 30sec

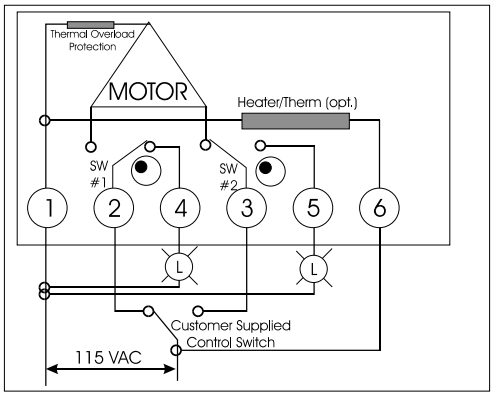
Supply: 115VAC, 60Hz, 1 Phase

Motor:
Reversible, 25% Duty Cycle
Thermal Overload Protection

Enclosure:
Cast Aluminum, epoxy coated
ISO 5211 mounting pad
Permanent lubrication
Universal mounting

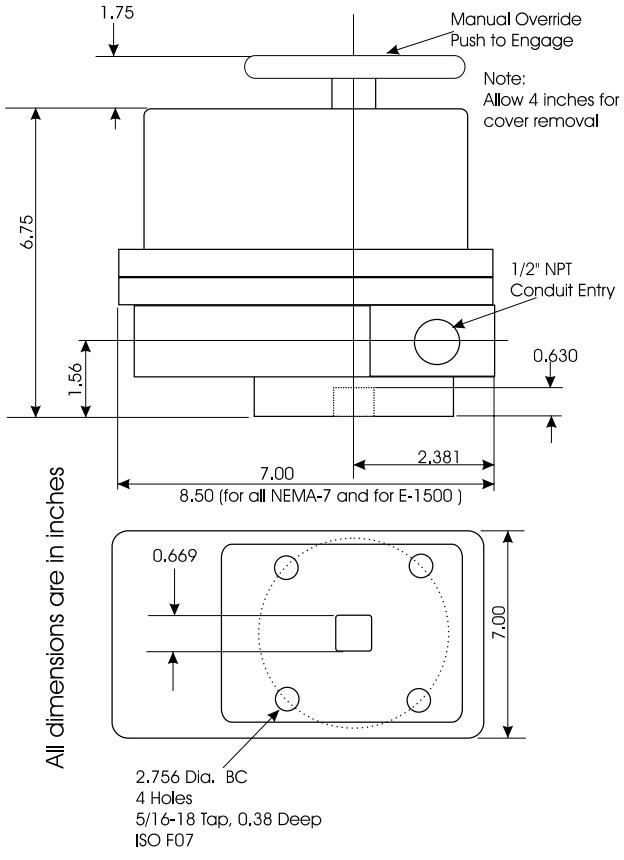
Temperature: -40 to 150°F
(Heater recommended below zero degrees ambient)

Wiring Diagram (Standard Single Phase AC)



Operation

Power to Terminals 1 and 2 drives CCW (Open)
Power to Terminals 1 and 3 drives CW (Close)
Lamp connected to Terminals 1 and 4 indicates OPEN
Lamp connected to Terminals 1 and 5 indicates CLOSED



PRODUCT SPECIFICATIONS

Models # E-2000, E-3840

Model / Torque / Speed per 90°
E-2000/ 2,000 Lbf.in./ 12 Sec.
E-3840/ 3,840 Lbf.in./ 14 Sec.

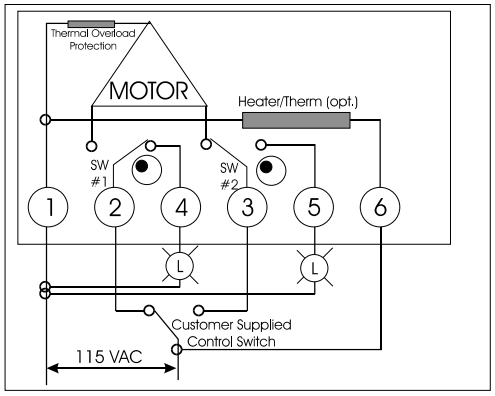
Supply: 115VAC, 60Hz, 1 Phase

Motor:
Reversible, 100% Duty Cycle
Thermal Overload Protection

Enclosure:
Cast Aluminum, epoxy coated
Permanent lubrication
Universal mounting

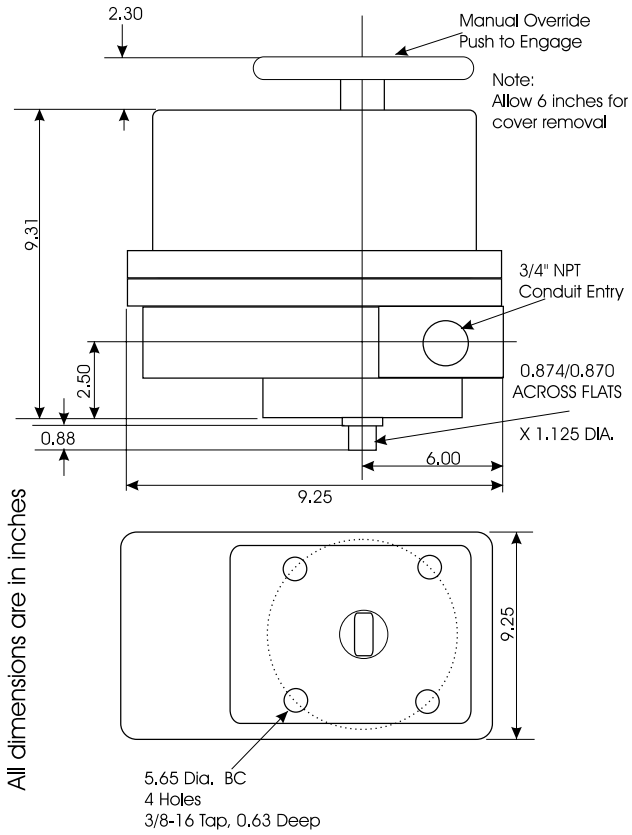
Temperature: -40 to 150°F
(Heater recommended below zero degrees ambient)

Wiring Diagram (Standard Single Phase AC)



Operation

Power to Terminals 1 and 2 drives CCW (Open)
Power to Terminals 1 and 3 drives CW (Close)
Lamp connected to Terminals 1 and 4 indicates OPEN
Lamp connected to Terminals 1 and 5 indicates CLOSED



Models # E-200, E-300 (Modulating)

4-20 mADC Positioning Electric Actuator

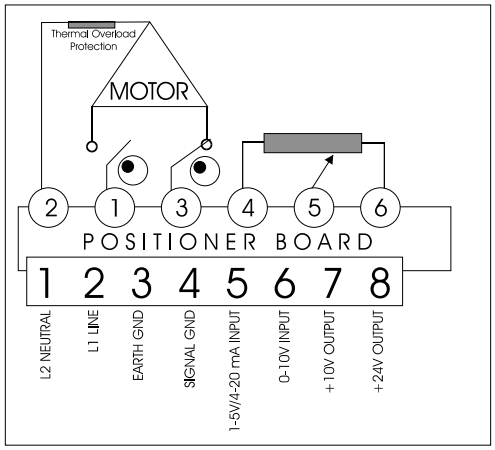
Output Torque:
E-200 = 200 Lbf.in.
E-300 = 300 Lbf.in.
Speed: 10 sec/90 Degrees
Supply: 115VAC, 60Hz, 1 Phase

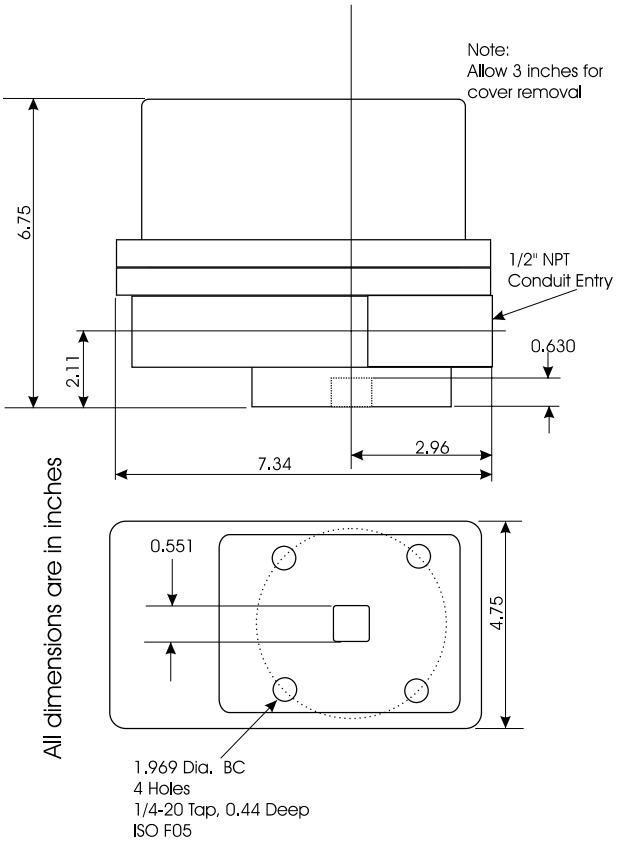
Motor:
Reversible, 75% Duty Cycle
Thermal Overload Protection

Enclosure:
Cast Aluminum, epoxy coated
ISO 5211 mounting pad
Permanent lubrication
Universal mounting

Temperature: -40 to 150°F
(Heater recommended below zero degrees ambient)

Wiring Diagram (4-20 maDC Positioner)





ELECTRIC ACTUATOR - QUICK REFERENCE

Output Torque (lbf.in.)	SVF Model	Standard Voltage	Locked Rotor Current	Wire Size	Conduit Size	Speed Sec/90	Duty Cycle	Weight Lbs.
100	E100	115/60/1	0.55	AWG 14	1 x 1/2″	2.5	75%	5
200	E200	115/60/1	0.75	AWG 14	1 x 1/2″	5	25%	7
300	E300	115/60/1	0.99	AWG 14	1 x 1/2″	5	25%	7
675	E675	115/60/1	0.75	AWG 14	1 x 1/2″	15	25%	13
1000	E1000	115/60/1	1.1	AWG 14	1 x 1/2″	15	25%	13
1500	E1500	115/60/1	1.1	AWG 14	1 x 1/2″	30	25%	13
2000	E2000	115/60/1	1.5	AWG 14	1 x 3/4″	12	100%	30
3840	E3840	115/60/1	2.9	AWG 14	1 x 3/4″	14	100%	30

LIMIT SWITCH SPECIFICATIONS

All limit switches are rated 15A, 1/2 HP at 125-250 VAC; 0.5A at 125 VDC

HAZARDOUS AREA RATINGS

NEMA-7 enclosures are designed to meet or exceed specifications for use in:
Class I, Groups C and D
Class II, Groups E, F and G
Divisions I and II
Max Temperature = 140°F

Models E200 and E300 are CSA certified. File# LR79567
Class I, Groups C and D
Class II, Groups E, F and G
Divisions I and II

MATERIALS OF CONSTRUCTION

Housing . . . . . Cast Aluminum
Coating . . . . . Thermally Bonded Polyester Powder
Gearing . . . . . Hardened Steel
Output Shaft . . . . . Stainless Steel
Cover Bolts . . . . . Stainless Steel

MOUNTING DIMENSIONS BY MODEL

Model	B.C. #1 (Inches)	B.C. #1 ISO	Mounting Bolts (4)	Recessed Drive (Square @ 90)	Recessed Drive (Depth)	Weight Pounds
E100 (BC1)*	1.969	F05	1/4-20 x 0.38	0.433	0.39	5
E100 (BC2)*	1.417	F03	1/4-20 x 0.38	0.433	0.39	5
E200	1.969	F05	1/4-20 x 0.44	0.551	0.63	7
E300	1.969	F05	1/4-20 x 0.44	0.551	0.63	7
E675	2.756	F07	5/16-18 x 0.38	0.669	0.63	13
E1000	2.756	F07	5/16-18 x 0.38	0.669	0.63	13
E1500	2.756	F07	5/16-18 x 0.38	0.669	0.63	13
E2000	This model has male output drive. See SVF Data Sheet.					30
E3840	This model has male output drive. See SVF Data Sheet.					30

*This model has two bolt circles.

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AUTOMATED PRODUCTS

Three piece construction of the SVF "8" Series ball valve readily lends itself to automation with either factory assembly or infield retrofit. All SVF actuators may be removed without affecting valve integrity.

Pneumatic Actuators

- Double Acting
- Spring Return
- Solenoids
- Limit Switches
- Positioners 3-15 PSI
- Positioners 4-20 MA

Electric Actuators

- 115 VAC
- 12/24 VDC
- NEMA 4/7
- Positioners 4-20 MA
- Reversing

Manual Valves

- Oval Handle
- Spring - Return
- Stem Extensions
- Fusible Link
- Locking Device
- Gear Operators

HOW TO ORDER

E-100	-W	-4	-E	-T
ACTUATOR	**ENCLOSURE**	**VOLTAGE**	**DUTY CYCLE**	**OPTIONS**
E100	W-NEMA 4, Weather Proof	1-12 VDC	S-25% Duty Cycle	C-Control Package
E200		2-24VDC	E-75%DutyCycle	P-Potentiometer
E300	X-NEMA 7, Explosion Proof	4-115 VAC		S-Limit Switch Kit
E675		5-230 VAC		T-Heater and Thermostat
E1000		6-24 VAC		D-180° 3 Position
E1500		7-440 VAC		K-Brake
E2000				
E3840				