SIEMENS

Technical Specification Sheet
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A-Series Industrial Electric Actuator (600 to 18,000 lb-in)

Description

The A-Series quarter-turn industrial electric actuator features a compact, reliable design that mounts directly to Siemens resilient seat butterfly valves without the need for brackets and linkages. Available in torque outputs from 600 to 18,000 lb-in (68 to 2,033 Nm), 24V and 120 Vac, Two-position (On/Off) and Modulating units all in NEMA 4x and IP65-rated housings.

Features

- Compact, lightweight design and direct mounting
- High visibility Beacon position indicator
- Manual, declutchable override handwheel
- Terminal strip for cable terminations
- Servo NXT option for modulating control
- Travel limit cams adjustable by hand or screwdriver
- UL-approved (120 Vac only)
- On/off or modulating control
- Available in 120, 24 Vac 50/60 Hz, single-phase, 24 Vdc voltages
- Output torque 600 lb-in (68 Nm) to 18,000 lb-in (2,033 Nm)
- ISO 5211 for direct mounting
- All actuators include a heater to prevent condensation build-up
- All modulating units include a feedback potentiometer

Servo NXT Features
(for Modulating Actuators)

- Provides precise modulating control of valve position
- Single Finger Technology (SFT) menu driven, pushbutton, programming with LED confirmation of all settings:
    - Input Control – 4 to 20 mA, 0 to 10 Vdc, 0 to 5 Vdc or 2 to 10 Vdc
    - Position Feedback – 4 to 20 mA, 0 to 10 Vdc, or 0 to 5 Vdc
    - Auto Calibrating
    - Fail Position:
        - Loss of supply power - fail-in-place
        - Loss of control signal - selectable
    - Adjustable Speed Control
- Including:
    - Manual mode
    - Onboard signal generator to simplify field set-up
    - Fault display – Simplifies troubleshooting
    - Stall detection – Eliminates mechanical damage in case of obstruction or bad switch settings
- Optical isolation of all inputs/outputs
    - Provides interoperability with all controllers
    - Earth ground tolerant
    - Allows for parallel operation

Applications

These actuators are ideal for use on valves for chillers, cooling towers, boilers, heat exchangers and other outdoor applications. The actuators' advanced electronics assure reliable compatibility with virtually any analog control signal used in today's building automation and temperature control systems.

Specifications

Operating Conditions	Ambient Temperature	-20°F to 150°F (-29°C to 65°C)
	Fail Position	Loss of supply power - fail-in-place
	Motor Insulation	
	120 Vac**:**	Class F, 311°F (155°C) thermal trip at 275°F (135°C)
	24 Vac/dc:	Class B, Slow Blow Fuse 5A @ 250 Vac
Physical Description	Housing	ASTM B85 Pressure Die Cast Aluminum, Polyester Powder Coated
	Motor	
	120 Vac	Single-Phase, Reversible, Permanent Split Capacitor Induction Motor
	24 Vac/Vdc	Single-Phase, Permanent Magnet-Brush D.C. Motor
	Auxiliary/Limit Switches SPDT	
	120 Vac	10A- 1/3 HP
	12 Vdc	2A
	Terminal Strip	
	Switch Plate	12 to 22 AWG (2.0 to 0.65 mm)
	Servo	14 to 24 AWG (1.63 to 0.51 mm)
	Heater	5-Watt, PTC style
	Dimensions and weight	See Dimensions.
	Enclosure	Designed to meet NEMA Type 4, 4x and IP65 specifications
	Travel stops	Externally adjustable at both 0 and 90 degrees.
	Conduit entries	
	600 lb-in	Two 1/2” NPT (BSP)
	1200 lb-in and higher	Two 3/4” NPT
	Manual operation	Pull to engage, push to disengage - 30:1 drive ratio, 12 and18K lb.-in. models are 90:1
Certifications		UL508 certified (120 Vac only)

Servo Specifications (for Use with Modulating Actuators)

Power Requirements		120 Vac 50/60 Hz +/- 10% 24 Vac 50/60 Hz +/- 10% 24 Vdc -10%, +30% 5 VA average (no load) Fuse: 5A Slow Blow 5 mm × 20 mm
Input Signal	Control Signal	4 to 20 mA, 0 to 10 Vdc, 0 to 5 Vdc, 2 to 10 Vdc
	Input Impedance	>100 Meg Ohms (0 to 10V, 2 to 10V, 0 to 5V)
Output Signal	Operating Modes	4 to 20 mA, 0 to 10 Vdc, 0 to 5 Vdc
	Output Impedance	<10 Ohms (0 to 5 Vdc, output, 0 to 10 V output) 200 Ohms (4 to 20 mA output mode)
	Loop Voltage	12 Vdc (4 to 20 mA output mode)
Resolution	Absolute Position Accuracy	<1%
	Dead Band Adjustment	1% (+/- 0.5%) to 6% (+/-3%) (3% default) 1% minimum increment
Potentiometer Feedback Signal	Supply Voltage External Feedback Potentiometer	3.3 Vdc 1K to 10K Ohms
Speed Control	Open/Close Speed	0% to 100% (default). Step size: 20%. Actuator open/close speed as a percentage of full speed. (See motor speed specification for maximum 90° run times.)
Operating Mode	Normal Mode	Modulating – follow setpoint
	Loss of Control Signal	Selectable to Open, Close, or Last
	Loss of Supply Power	Fail-in-place
	Reverse Acting Mode	Configurable for inverted input signal
	Autocalibration	Automatic endpoint detection
	Manual Operation	Keypad electrical manual operation of actuator (Open, Stop, Close)
Torque Protection	Stall Detection	Motor detected stationary >2 seconds (600 to 6500 lb-in units only)
	Torque Limit	*(Optional)* externally connected Open/Close torque limit switch
	Electronic Torque Limit	*(Optional)* factory-programmable current/torque limit switch
Environmental	Ambient Temperature	-20°F to 150°F (-29°C to 65°C)
	Compliance	120V units comply with UL, cUL, and CSA. All models are CE certified.

CAUTION:

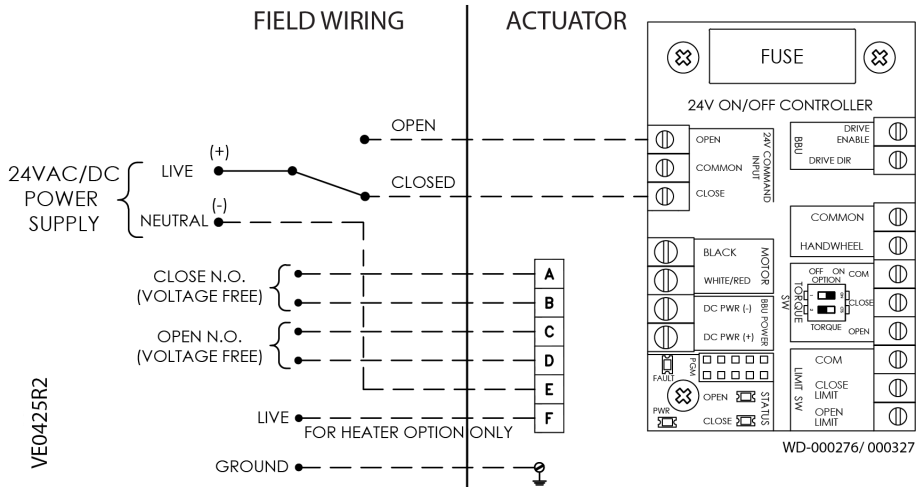
Do not install or use the A-Series Industrial Electric Actuator in or near environments where corrosive substances or vapors could be present. Exposure of the electric actuator to corrosive environments may damage the internal components of the device and will void the warranty.

Ordering Information

Product Number	Operating Mode	Voltage 50/60 Hz	Torque		90° Stroke Time*	Current Draw (Amps)	
			(lb-in)	(Nm)		Full Load	Locked Rotor
A126.600	On/Off	24 Vac/dc	600	68	60 sec. AC 40 sec. DC	1.80	--
A126.2K			2,000	226	60 sec.	2.00	--
A126.5K		24 Vac	5,000	565	60 sec.	3.00	--
A166.600	Modulating	24 Vac	600	68	60 sec.	1.80	--
A166.2K			2,000	226	60 sec.	2.00	--
A166.5K			5,000	565	60 sec.	3.00	--
A226.600	On/Off	120 Vac	600	68	30 sec.	0.80	1.00
A226.1K			1,200	135	30 sec.	0.78	2.10
A226.2K			2,000	226	30 sec.	1.00	2.10
A226.3K			3,000	339	30 sec.	1.20	3.00
A226.5K			5,000	565	30 sec.	1.60	3.00
A226.6K			6,500	734	30 sec.	2.30	3.10
A226.13K			13,000	1,470	110 sec.	2.30	3.10
A226.18K			18,000	2,034	110 sec.	2.50	3.10
A266.600	Modulating	120 Vac	600	68	30 sec.	0.80	1.00
A266.1K			1,200	135	30 sec.	0.78	2.10
A266.2K			2,000	226	30 sec.	1.00	2.10
A266.3K			3,000	339	30 sec.	1.20	3.00
A266.5K			5,000	565	30 sec.	1.60	3.00
A266.6K			6,500	734	30 sec.	2.30	3.10
A266.13K			13,000	1,470	110 sec.	2.30	3.10
A266.18K			18,000	2,034	110 sec.	2.50	3.10

* Operating times shown are with 60 Hz power supply. Actuators with 50 Hz power supply will be 20% slower.
NOTE: 13K and 18K torque models are available starting July 2020.

Wiring



NOTE:
Use this A-Series Industrial Electric Actuator only to control equipment under normal operating conditions. Where failure or malfunction of the electric actuator could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices such as supervisory or alarm systems or safety or limit controls intended to warn of, or protect against, failure or malfunction of the electric actuator.

Figure 1. 24 Vac/dc On/Off Wiring 600 and 2000 lb.-in. Models.

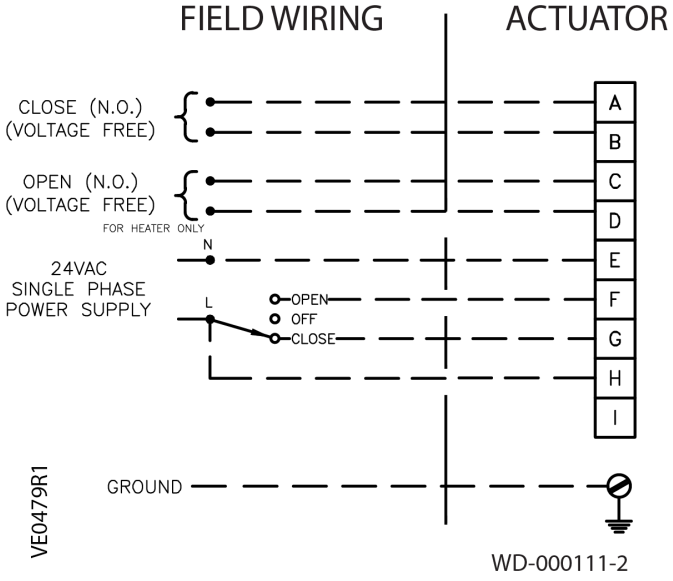


Figure 2. 24 Vac Wiring 5000 lb.-in. Models.

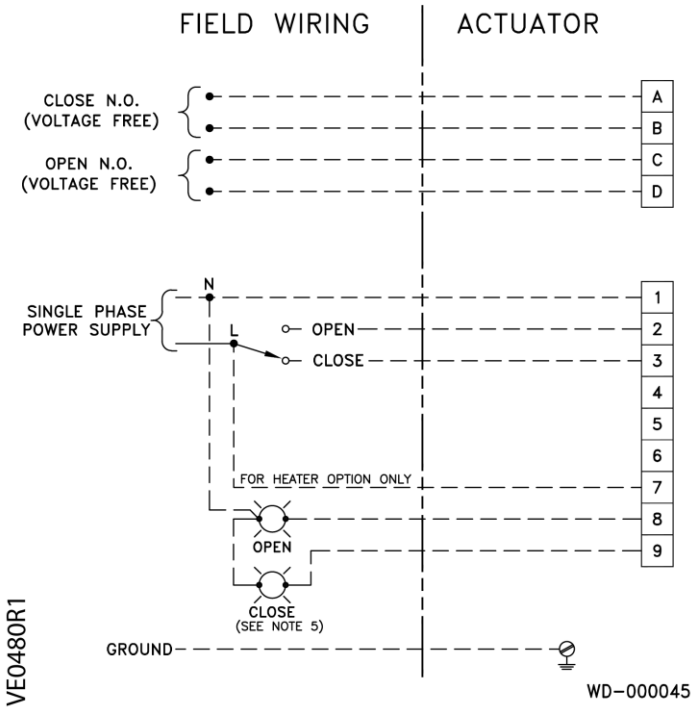


Figure 3. 120 Vac Wiring, All Models.

Wiring, Continued

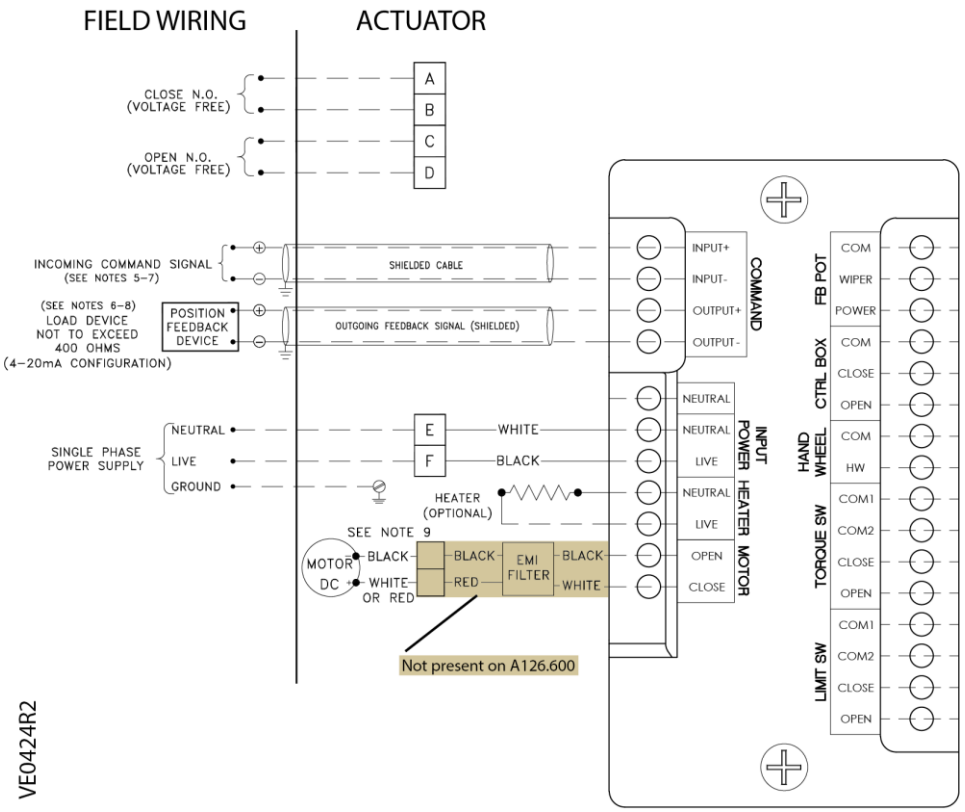


Figure 4. 24 Vac Modulating.

NOTES:

1. Command signal and feedback wires must be shielded and grounded for proper servo operation.
2. The command signal input (-) terminal is internally connected to the Servo neutral terminal. DO NOT connect the live to the neutral terminal on the servo.
3. Command signal and feedback signal must be isolated from each other and any other circuits. When using 0 to 10 Vdc, 0 to 5 Vdc, and 2 to 10 Vdc, the common of the command signal should NOT be ground/earth referenced.
4. Feedback loop is powered by the servo. Do NOT supply external power.
5. Command signal and feedback signal wires should be shielded properly, and shield should be grounded on one end only, preferably the controller end.
6. The 24V Servo (NXT) can be wired 3 or 4 wire configured.

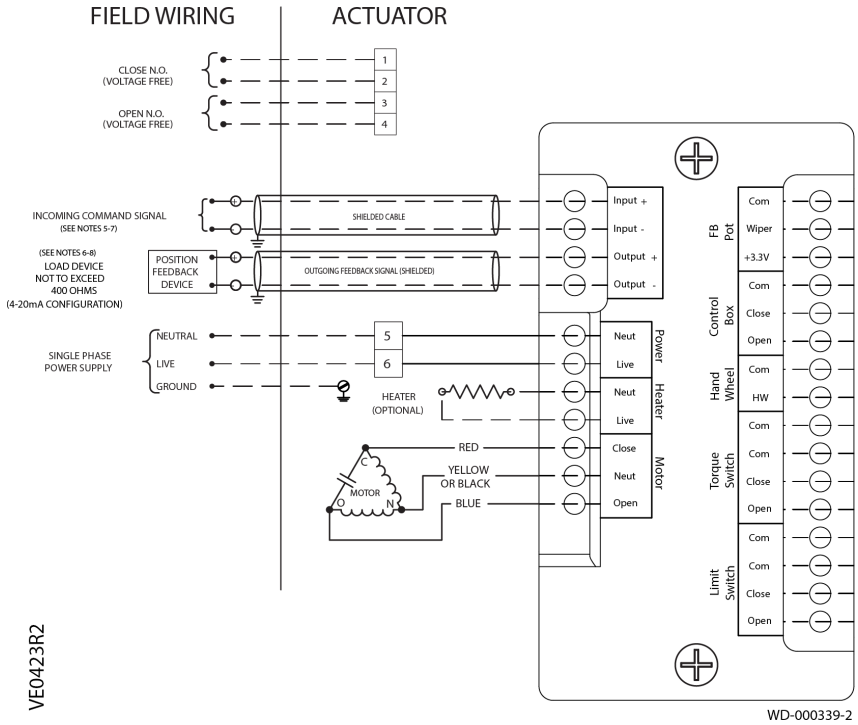


Figure 5. 120 Vac Modulating.

Dimensions

Actuator Model Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	Wt lbs (kgs)
Axx6.600	7.5 (191)	5.8 (147)	5.6 (141)	1 (48)	1.94 (49.2)	.19 (4.7)	1/2	2.2 (55)	5/16-18 ×Ø 2.76 (F07)	–	L75 (19)	.51 (31)	1.75 (44.5)	3.5 (89)	–	–	–	13 (6)
Axx6.1K Axx6.2K	10.1 (256)	7.8 (198)	6.6 (168)	2.4 (62)	2.69 (68.3)	.56 (14.3)	3/4	2.6 (66)	5/16-18 ×Ø 2.76 (F07)	1/2-13 x ø4.92 (F12)	1.18 (30)	.87 (22)	2.22 (56.3)	8.0 (203)	8.0	8.0	8.0	28 (13)
Axx6.3K Axx6.5K Axx6.6K	12.1 (308)	9.5 (242)	7.2 (183)	2.9 (73)	3.19 (80.9)	.56 (14.3)	3/4	3.1 (78)	1/2-13 x ø4.92 (F12)	3/4-10 x ø6.50 (F16)	See Detail A1			12 (304.8)	–	–	–	48 (22)
Axx6.13K Axx6.18K	12.1 (308)	9.5 (242)	12.5 (317)	8.1 (206)	9.2 (234)	.56 (14.2)	3/4	8.3 (211)	1/2-13 x ø4.92 (F12)	3/4-10 x ø6.50 (F16)	See Detail A1			12 (305)	6.1 (155)	12.7 (323)	8 (203)	118 (54)

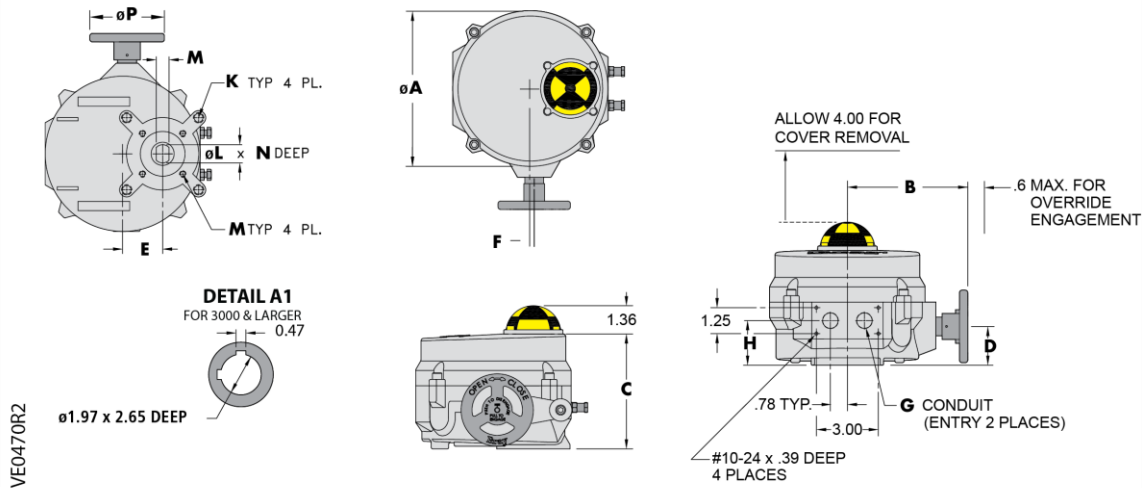
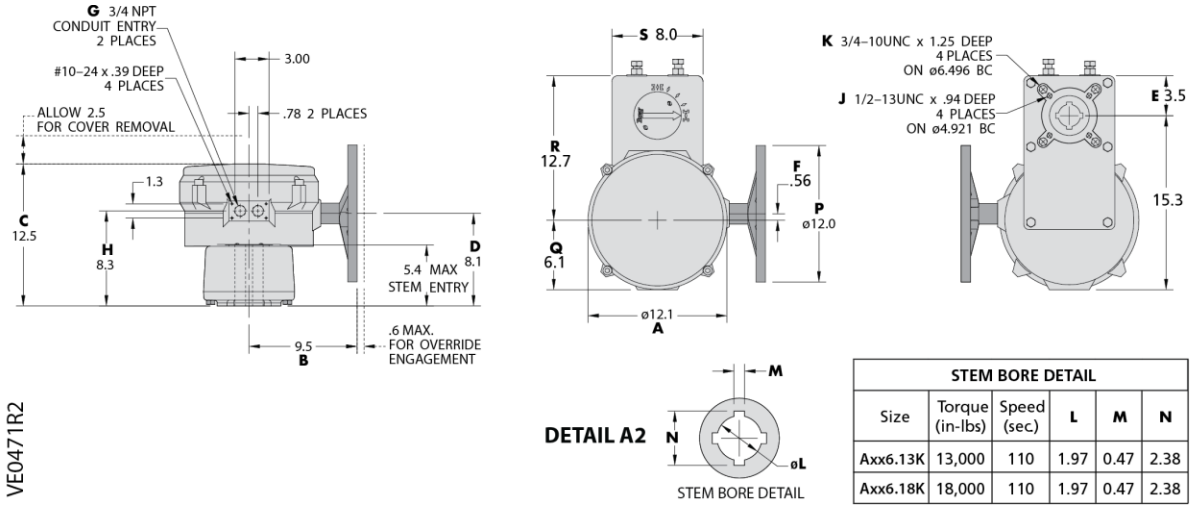


Figure 6. Models Axx6.600 to Axx6.6K.



STEM BORE DETAIL					
Size	Torque (in-lbs)	Speed (sec.)	L	M	N
Axx6.13K	13,000	110	1.97	0.47	2.38
Axx6.18K	18,000	110	1.97	0.47	2.38

Figure 7. Models Axx6.13K and Axx6.18K.