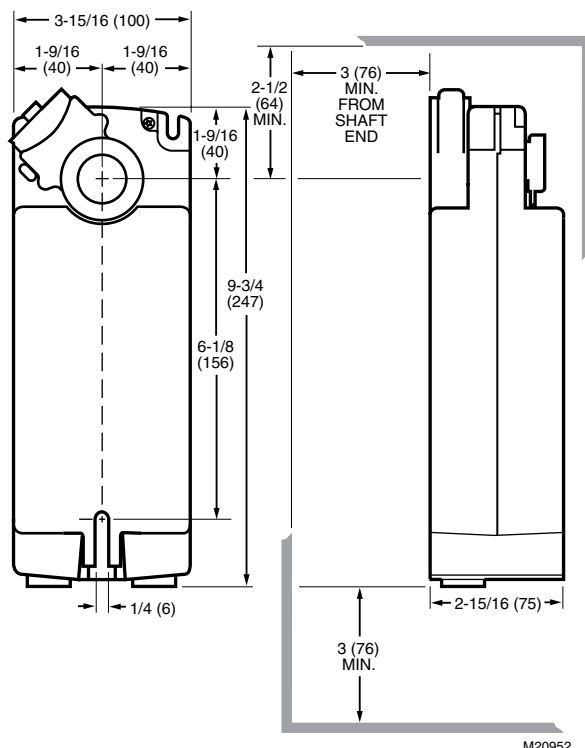


S10 Series: MS3110; MS4110; MS7510; MS8110 Spring Return Direct Coupled Actuator, 88 lb-in.



Dimensions in inches (millimeters)



MS3110, MS4110, MS7510, and MS8110 Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements requiring spring return fail-safe operation.

- Brushless DC submotor with electronic stall protection for floating/modulating models.
- Brush DC submotor with electronic stall protection for 2-position models.
- Self-centering shaft adapter (shaft coupling) for wide range of shaft sizes.
- Models available for use with two-position, single pole single throw (SPST), line- (Series 40) or low- (Series 80) voltage controls.
- Models available for use with floating or switched single-pole, double-throw (SPDT) (Series 60) controls.
- Models available for use with proportional current or voltage (Series 70) controls.
- Models available with combined floating/modulating control in a single device.
- Models available with adjustable zero and span.
- Models available with line-voltage internal end switches.
- Models available with three-foot, 18 AWG color-coded cable.
- Access cover to facilitate connectivity.
- Metal housing with built-in mechanical end limits.
- Spring return direction field-selectable.
- Shaft position indicator and scale.
- Manual winding capability with locking function.
- UL (cUL) listed and CE compliant.
- All Models are plenum-rated per UL873.

Application: HVAC

Actuator Type: Damper; Valve

Frequency: 50 Hz; 60 Hz

Fail Safe Mode: Spring Return

Torque Rating (lb-in.): 88 lb-in.

Torque Rating (Nm): 10 Nm

Spring Return Torque/Force (lb-in., lbf): 88 lb-in.

Spring Return Torque/Force (Nm, N): 10 Nm

Additional Torque Ratings (lb-in.): Maximum Stall – 150 lb-in.

Additional Torque Ratings (Nm): Maximum Stall – 17 Nm

External Auxiliary Switches Available: Yes, SW2-US

Rotational Stroke Adjustment: Mechanically limited 5 degree increments

Stroke: 95 ±3 degrees

Mounting: Direct Coupled

Spring Return Timing: Maximum – 20 sec

Environmental, Electrical, or Ingress Protection Rating: NEMA 2

Materials: Aluminum housing, Plenum rated plastic access cover

Maximum Noise Rating: Driving (dB(A) @ 1m) – 40; Holding (dB(A) @ 1m) – 20 (no audible noise)

Shaft Adapter Type: Self-centering clamping

Manual operation: Manual crank

Shaft Dimensions: 3/8 to 1.06 in. round or 3/8 to 11/16 in. square (10 to 27 mm round or 10 to 18 mm square)

Spring Return Direction: By orientation

Weight: 6 lb (2.72 kg)

Ambient Temperature Range: -40°F to +140°F (-40°C to +60°C)

Shipping and Storage Temperature Range: -40°F to +158°F (-40°C to +70°C)

Approvals, Canadian Underwriters Laboratories Inc.: cUL C22.2 No. 24-93

Approvals, C-Tick: N314

Approvals, Underwriters Laboratories Inc.: UL873, Plenum Rated

Approvals, CE: 89/336/ECC, 73/23/EEC

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Includes: Mounting bracket, self-centering shaft adapter, 3 mm crank

Comments: Integral 1/2 in. NPSM conduit connection

Direct Coupled Actuators - Spring Return

Material Number	Electrical Connections Size	Feedback	Internal Auxiliary Switch	Rotation to Open	Switch Ratings	Electrical Connections	Power Consumption	Timing, Nominal	Cable	Input Impedance	Supply Voltage	Control Signal
MS3110J1008/U		Sylk-enabled	0	By switch		Enclosed screw terminal strip (22 to 14 AWG)	Driving – 14 VA, Holding – 5 VA	Driving @ 60 Hz – 90 sec			24 Vac ±20% or Vdc	Sylk-enabled
MS3110J1206/U		Sylk-enabled	2	By switch	250 Vac, 5 A res	Enclosed screw terminal strip (22 to 14 AWG)	Driving – 14 VA, Holding – 5 VA	Driving @ 60 Hz – 90 sec			24 Vac ±20% or Vdc	Sylk-enabled
MS4110A1002/U			0			Enclosed screw terminal strip (22 to 14 AWG)	Driving – 45 VA, Holding – 13 VA	Driving @ 60 Hz – 45 sec			100 to 250 Vac	Two position; SPST
MS4110A1200/U			2		250 Vac, 5 A res	Enclosed screw terminal strip (22 to 14 AWG)	Driving – 45 VA, Holding – 13 VA	Driving @ 60 Hz – 45 sec			100 to 250 Vac	Two position; SPST
MS7510A2008/U		2-10 Vdc (max. output: ±1.0 mA)	0	By switch		Enclosed screw terminal strip (22 to 14 AWG)	Driving – 14 VA, Holding – 5 VA	Driving @ 60 Hz – 90 sec		Min. 95 kOhm	24 Vac ±20% or Vdc	Floating; On/Off; (0) 2-10 Vdc (4-20 mA w/500 ohm resistor); SPDT
MS7510A2206/U		2-10 Vdc (max. output: ±1.0 mA)	2	By switch	250 Vac, 5 A res	Enclosed screw terminal strip (22 to 14 AWG)	Driving – 14 VA, Holding – 5 VA	Driving @ 60 Hz – 90 sec		Min. 95 kOhm	24 Vac ±20% or Vdc	Floating; On/Off; (0) 2-10 Vdc (4-20 mA w/500 ohm resistor); SPDT
MS7510H2209/U		2-10 Vdc (max. output: ±1.0 mA)	2	By switch	250 Vac, 5 A res (3 A ind)	Enclosed screw terminal strip (22 to 14 AWG)	Driving – 14 VA, Holding – 5 VA	Driving @ 60 Hz – 90 sec		Min. 95 kOhm	24 Vac ±20% or Vdc	Floating; On/Off; (0) 2-10 Vdc (4-20 mA w/500 ohm resistor); SPDT
MS7510W2008/U	36 in. (0.9 m)	2-10 Vdc (max. output: ±1.0 mA)	0	By switch		18 AWG color-coded cable	Driving – 14 VA, Holding – 5 VA	Driving @ 60 Hz – 90 sec	Threaded conduit connector	Min. 95 kOhm	24 Vac ±20% or Vdc	Floating; (0) 2-10 Vdc (4-20 mA w/500 ohm resistor)
MS7510W2206/U	36 in. (0.9 m)	2-10 Vdc (max. output: ±1.0 mA)	2	By switch	250 Vac, 5 A res (3 A ind)	18 AWG color-coded cable	Driving – 14 VA, Holding – 5 VA	Driving @ 60 Hz – 90 sec	Threaded conduit connector	Min. 95 kOhm	24 Vac ±20% or Vdc	Floating; (0) 2-10 Vdc (4-20 mA w/500 ohm resistor)
MS8110A1008/U			0			Enclosed screw terminal strip (22 to 14 AWG)	Driving – 30 VA, Holding – 8 VA	Driving @ 60 Hz – 45 sec			24 Vac ±20% or Vdc	Two position; SPST
MS8110A1206/U			2		250 Vac, 5 A res	Enclosed screw terminal strip (22 to 14 AWG)	Driving – 30 VA, Holding – 8 VA	Driving @ 60 Hz – 45 sec			24 Vac ±20% or Vdc	Two position; SPST
MS8110W1008/U	36 in. (0.9 m)		0			18 AWG color-coded cable	Driving – 30 VA, Holding – 8 VA	Driving @ 60 Hz – 45 sec	Threaded conduit connector		24 Vac ±20% or Vdc	Two position; SPST
MS8110W1206/U	36 in. (0.9 m)		2		250 Vac, 5 A res (3 A ind)	18 AWG color-coded cable	Driving – 30 VA, Holding – 8 VA	Driving @ 60 Hz – 45 sec	Threaded conduit connector		24 Vac ±20% or Vdc	Two position; SPST