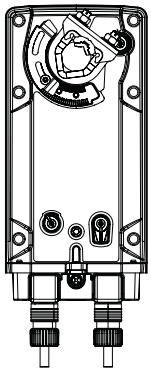
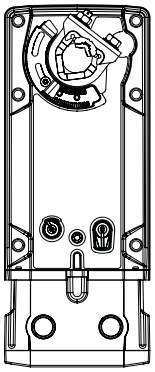
Mx41-730x Series

SmartX Spring Return Damper Actuators



*



CE** c UL us LISTED

MA41-7303
MA41-7303-502
MA41-7300
MA41-7300-502
MS41-7303
MS41-7303-502*

CE** c UL us LISTED

MS41-7303-W02
MS41-7303-WH2

* MS41-7303-502 is shown (other part numbers are similar in appearance).
** The CE mark indicates RoHS2 compliance. Please refer to the CE Declaration of Conformity for additional details.

Product Description

The Mx41-730x-xxx series spring return SmartX Actuators are used with two-position and modulating controllers for positioning large dampers and other HVAC equipment.

MA41-730x-xxx Two-Position models are controlled by 24 Vac/Vdc (MA41-7303-xxx) or 100…240 Vac (MA41-7300-xxx).

MS41-7303-xxx Proportional models are controlled by 2…10 Vdc, or 4…20 mA with the addition of an optional AM-708 500 ohm resistor.

Features

- 270 lb-in (30 N-m) of torque with mechanical spring return and Brushless DC Motor
- Stall protected throughout rotation and reversible mounting
- Rugged die-cast housings rated for NEMA 2 / IP54, UL enclosure Type 2
- Optional models with rugged die-cast housings rated for NEMA 4 / IP66, UL enclosure Type 4
- Optional models with built-in auxiliary switches to provide for interfacing or signaling
- Direct mount to ½"… ¾" round or ½"…11/16" square damper shafts or to ¾"…1.05" round or to ½"…11/16" square damper shafts with the field removal of a clamp insert
- 95° of rotation, adjustable with mechanical end stops and graduated position indicator showing 0˚…95˚
- True mechanical clockwise or counterclockwise spring return operation for reliable operation and positive close-off in air-tight damper applications
- Switches on both actuator sides for selection of direct or reverse acting control mode (for MS41-7303-xxx proportional input signal models)
- Can be double-mounted (gang mounting) to accommodate high torque application requirements
- Manual override, hex crank and 9" (229 mm) long anti-rotation bracket included with actuator
- Shipped with 5˚ preload from the full spring return position to provide automatic compression against the damper gaskets for tight close-off

Available Products

Part Number	Description
MA41-7303	Two-position input, 24 Vac/Vdc, 50/60 Hz, NEMA 2 housing
MA41-7303-502	Two-position input, 24 Vac/Vdc, 50/60 Hz, two aux. switches, NEMA 2 housing
MA41-7300	Two-position input, 100…240 Vac, 100…125 Vdc, 50/60 Hz, NEMA 2 housing
MA41-7300-502	Two-position input, 100…240 Vac, 100…125 Vdc, 50/60 Hz, two aux. switches, NEMA 2 housing
MS41-7303	2…10 Vdc input, 24 Vac/Vdc, 50/60 Hz, NEMA 2 housing
MS41-7303-502	2…10 Vdc input, 24 Vac/Vdc, 50/60 Hz, two aux. switches, NEMA 2 housing
MS41-7303-W02	2…10 Vdc input, 24 Vac/Vdc, 50/60 Hz, two aux. switches, NEMA 4 housing
MS41-7303-WH2	2…10 Vdc input, 24 Vac/Vdc, 50/60 Hz, two aux. switches, NEMA 4 housing with heater

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Specifications

Input Power and Ratings

Part Number	Input Signal	Voltage	Transformer Sizing (VA)	Running Watts	Holding Watts	Approx. Timing in Seconds (Powered)	Approx. Timing in Seconds (Spring Return)	Aux. Sw.	NEMA 4	Heater
MA41-7303	Two Position	24 Vac ± 20%, 50/60 Hz, 24 Vdc +20%/-10%	16 VA [1]	9.5	4.5	75	<20 at -4…122 °F, <60 at -22 °F	-	-	-
MA41-7303-502	Two Position	24 Vac ± 20% 50/60 Hz, 24 Vdc +20%/-10%	16 VA [1]	9.5	4.5	75	<20 at -4…122 °F, <60 at -22 °F	2	-	-
MA41-7300	Two Position	100…240 Vac +10/-20% 50/60 Hz, 100 to 125 Vdc +10/-10%	21 VA at 100 Vac, 29 VA at 240 Vac	9.5	4.5	75	<20 at -4…122 °F, <60 at -22 °F	-	-	-
MA41-7300-502	Two Position	100…240 Vac +10/-20% 50/60 Hz, 100 to 125 Vdc + 10/-10%	21 VA at 100 Vac, 29 VA at 240 Vac	9.5	4.5	75	<20 at -4…122 °F, <60 at -22 °F	2	-	-
MS41-7303	2…10 Vdc[2, 3]	24 Vac ± 20% 50/60 Hz, 24 Vdc +20%/-10%	16 VA [1]	9.5	4.5	150[4]	<20 at -4…122 °F, <60 at -22 °F	-	-	-
MS41-7303-502	2…10 Vdc[2, 3]	24 Vac ± 20% 50/60 Hz, 24 Vdc +20%/-10%	16 VA [1]	9.5	4.5	150 [4]	<20 at -4…122 °F, <60 at -22 °F	2	-	-
MS41-7303-W02	2…10 Vdc[2, 3]	24 Vac ± 20% 50/60 Hz, 24 Vdc +20%/-10%	16 VA [1]	9.5	4.5	150 [4]	<20 at -4…122 °F, <60 at -22 °F	2	Yes	-
MS41-7303-WH2	2…10 Vdc[2, 3]	24 Vac ± 20% 50/60 Hz, 24 Vdc +20%/-10%	16 VA and 21 w/heater [1]	9.5 and 21 w/ heater	4.5	150 [4]	<20 at -4…122 °F, <60 at -40 °F w/heater	2	Yes	Yes

[1] Class 2 power source.
[2] 2…10 Vdc input signal has 100KΩ input impedance. Also compatible with two-position 24 Vac/Vdc input signals. See MS41-7303-xxx Alternate Input Signals section in this document. Use optional AM-708 500 ohm resistor for 4…20 mA input signal.
[3] Also compatible with floating, pulse width modulating (PWM), and other DC signal inputs with use of the BEL-ZTH US Handheld Interface Module for Field Programming.
[4] Timing field adjustable from 60…150 seconds with use of the BEL-ZTH US Handheld Interface Module for Field Programming.

Optional Input Signals MS41 models only	Floating, Pulse width modulating (PWM), Adjustable start point, and Span DC signal inputs with use of the BEL-ZTH US handheld interface module for field programming
Electrical Connections MA41-7303, MA41-7300, MS41-7303	3' appliance cord with 18 Ga. (0.9 mm) conductors and one 1/2" conduit connector
MA41-7303-502, MA41-7300-502, MS41-7303-502	3' appliance cord with 18 Ga. (0.9 mm) conductors and two 1/2" conduit connectors
MS41-7303-W02, MS41-7303-WH2	Removable terminal blocks for 12 (3.4 mm) to 22 (0.4 mm) Ga. wire inside junction box with six 1/2" knockouts
Electrical Outputs Position Feedback, MS41-7303, MS41-7303-502, MS41-7303-W02, MS41-7303-WH2	2…10 Vdc, 0.5 mA max, adjustable with optional BEL-ZTH US Handheld Interface Module for Field Programming
Auxiliary Switches, MA41-7303-502, MA41-7300-502, MS41-7303-502	2 SPDT 3 A (0.5 A) @ 250 Vac, UL approved, one fixed at 10°, one adjustable from 10°…85°
Auxiliary Switches, MS41-7303-W02, MS41-7303-WH2	2 SPDT 3 A (0.5 A) @ 250 Vac, UL approved, one fixed at 10°, one fixed at 85°

Mechanical Stroke	Angle of rotation 95° max. (adjustable with integral end stop 35°…95°)
Damper Shaft Clamp Size	1/2"…3/4" round or 1/2" to 11/16" square damper shafts or to 3/4"…1.05" round or to 1/2"…11/16" square damper shafts with the field removal of a clamp and hub insert
Position Indicator	Graduated position indicator showing 0°…95°; 0° is full spring return position
Nominal Damper Area	Actuator sizing should be done in accordance with damper manufacturer's specifications
Direction of Actuator Rotation	Clockwise or counterclockwise determined by the actuator mounting
Manual Override	Actuators provided with 5 mm hex crank (3/16" Allen)
Input Signal Action Switch MS41-7303, MS41-7303-502, MS41-7303-W02, MS41-7303-WH2	Provides selectable reverse acting/direct acting actuator rotation, accessible from both sides
Enclosure	Double insulated rugged aluminum die-cast and plastic casing

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Weight MA41-7303, MA41-7300, MS41-7303 MA41-7303-502, MA41-7300-502, MS41-7303-502, MS41-7303-W02, MS41-7303-WH2	 9.82 lbs. (4.45 kg) 10.14 lbs. (4.6 kg)
Environment Operating Temperature Range MA41-7303, MA41-7303-502, MA41-7300, MA41-7300-502, MS41-7303, MS41-7303-502, MS41-7303-W02	 -22…122 °F (-30 to 50 °C)
Operating Temperature Range MS41-7303-WH2 (with heater connected)	-40…122 °F (-40 to 50 °C)
Shipping and Storage Temperature Range	-40…176 °F (-40 to 80 °C)
Operating Humidity Range	0…95% non-condensing
Location MA41-7303, MA41-7303-502, MA41-7300, MA41-7300-502, MS41-7303, MS41-7303-502 MS41-7303-W02, MS41-7303-WH2	 NEMA 2 (IP 54) Enclosure Type 2 NEMA 4 (IP 66) Enclosure Type 4
Noise Level MS41-7303, MS41-7303-502, MS41-7303-W02, MS41-7303-WH2 MA41-7303, MA41-7303-502, MA41-7300, MA41-7300-502	 ≤ 45.3 dB (A) motor @ 150 seconds, run time dependent ≤ 71.4 dB (A) spring return ≤ 56.5 dB (A) motor @ 75 second ≤ 71.4 dB (A) spring return

Accessories

AM-708	500 ohm resistor kit to replace 4…20 mA input signals to 2…10 Vdc signals
AM-801	Mx41-730x-xxx actuator crank arm kit
AM-802	Mx41-730x-xxx actuator crank arm kit with actuator mounting brackets, two ball joints, and fasteners
AM-803	9-3/4” damper shaft extension for 5/16”…1” diameter round shafts
BEL-ZTH US	Handheld interface module for field programming
AM-804	Jackshaft linkage (requires AM-805 support plate – order separately)
AM-805	Support plate for AM-804 used with Mx41-730x-xxx actuators

Agency Listings

cULus according to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC & 2006/95/EC, Rated Impulse Voltage 2.5kV for 100-240 Vac models (800V for 24 Vac models), Type of action 1.AA (1.AA.B for actuators with auxiliary switches)

Precautions

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK

- Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Read, understand and follow the instructions before installing this product.
- Turn off all power supplying equipment before working on or inside the equipment.
- Use a properly rated voltage sensing device to confirm power is off.

DO NOT DEPEND ON THIS PRODUCT FOR VOLTAGE INDICATION

Failure to follow these instructions will result in death or serious injury.

A qualified person is one who has skills and knowledge related to the construction and operation of this electrical equipment and the installation, and has received safety training to recognize and avoid the hazards involved. NEC2011 Article 100

No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

NOTICE

RISK OF EQUIPMENT DAMAGE

- Avoid electrical noise interference.
- Do not install near large contactors, electrical machinery, or welding equipment.
- Only use manual override when power is off.
- Do not use manual override with actuators mounted in tandem.

Failure to follow these instructions will result in damage to the gear train or other mechanical damage.

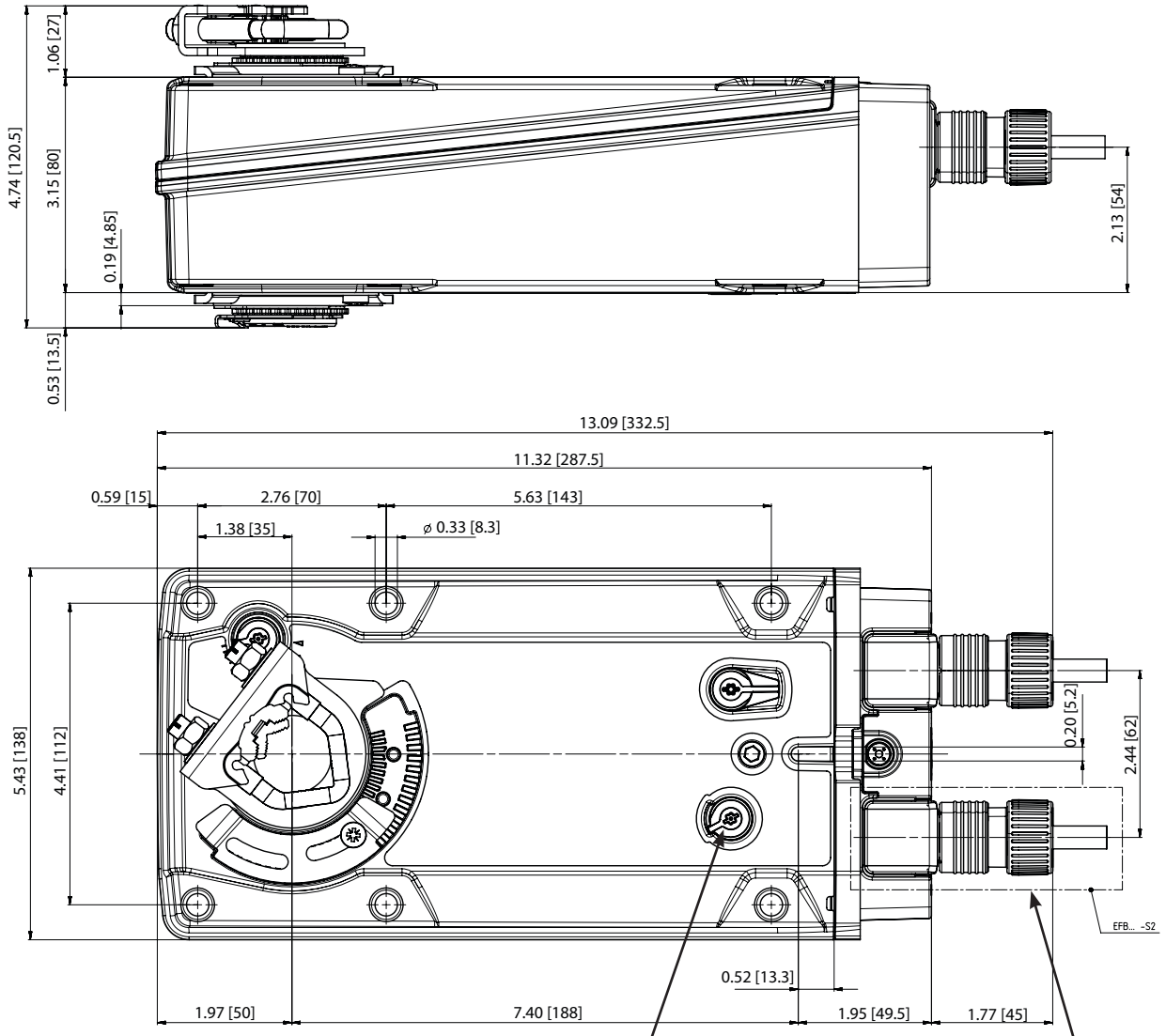
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Dimensions

(inch [mm])

NEMA 2 models:

MA41-7303, MA41-7303-502, MA41-7300, MA41-7300-502, MS41-7303, MS41-7303-502



[2] This direct or reverse acting control mode switch is not included with the MA41-7300-xxx and MA41-7303-xxx actuators.

[1] This conduit connector and cable is not included with the MA41-7303, MA41-7300, and MS41-7303 actuators.

Note: The above view is with the CCW actuator side facing upward.

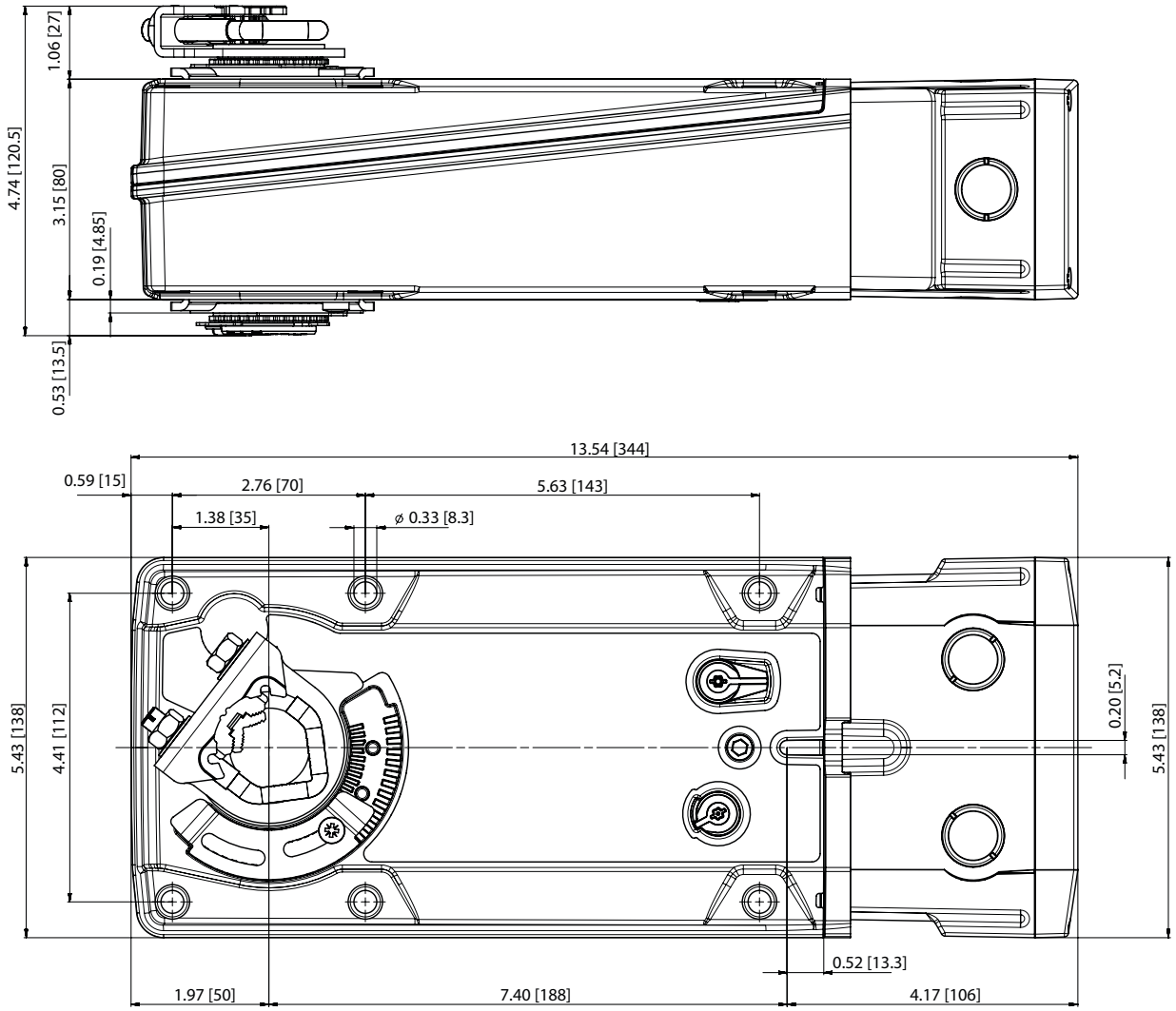
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Dimensions

(inch [mm])

NEMA 4 models:

MS41-7303-W02, MS41-7303-WH2



Note: The above view is with the CCW actuator side facing upward.

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