



ACTUATOR

MFN Electrical Actuator



FEATURES / CHARACTERISTICS

MFN.0.2

Supply voltage	: 24V AC/DC $\pm 10\%$, 50/60 Hz
Type	: Electrical, bi-directional synchronous motor
Power consumption	: 24V AC: 2.5VA operating (4.7VA max.) 24V DC: 1.2W operating (2.2W max.)
Inrush current	: 10A (peak)
Control signal	: Analog 0(2)-10V DC, <0.5mA
Resolution	: 1:100 (0-10V) and 1:80 (2-10V)
Feedback	: Yes, control signal
Failsafe function	: No
Electrical override	: Yes
Position indicator	: Yes
Operation time	: 22 sec/mm
Actuating force	: High (250N -30N/+70N)
Stroke	: 5.8 mm / 0.23 in (compensated)
Ambient temperature ¹	: 0°C to +50°C / +32°F to +122°F
Media temperature	: 0°C to +120°C / +32°F to +248°F
Humidity rating	: 0..85% rH, no condensation
Protection	: IP54 incl. upside-down, class III, indoor use only
CE conformity	: EN 60730
Cable	: Fixed, 5 wires x 0.50 mm ² , 1.5 meter Fixed, 5 wires x AWG20, 4.9 ft
Closing point adjustment	: During operation the actuator will self-adjust according to the closing point and stroke length of the valve

Note 1: Including +5°C self-generated heat based on UL requirements.

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FEATURES / CHARACTERISTICS

MFN.0.3

Supply voltage	: 110/230V AC $\pm 10\%$, 50/60 Hz
Type	: Electrical, bi-directional synchronous motor
Power consumption	: 5VA
Control signal	: Digital (2-position / 3-point-floating)
Feedback	: No
Failsafe function	: No
Operation time	: 50 Hz: 18.5 sec/mm
Actuating force	: High (230N -10N/+40N)
Ambient temperature	: +2°C to +50°C / +36°F to +122°F
Humidity rating	: <95% rH, no condensation
Protection	: IP54, class II
Cable	: Fixed, 3 wires x 0.30 mm ² halogen free, 1 m Fixed, 3 wires x AWG22 halogen free, 3 ft
Closing point adjustment	: During operation the actuator will self-adjust according to the closing point of the valve.

MFN.0.4

Supply voltage	: 24V AC/DC $\pm 10\%$, 50/60 Hz
Type:	Electrical, bi-directional synchronous motor
Power consumption	: 24V AC: 2.5VA operating (4.7VA max.) 24V DC: 1.2W operating (2.2W max.)
Inrush current	: 10A (peak)
Control signal	: Digital 3-point floating and ON/OFF
Feedback	: No
Failsafe function	: No
Electrical override	: Yes
Position indicator	: Yes
Operation time	: 22 sec/mm
Actuating force	: High (250N -30N/+70N)
Stroke	: 5.8 mm / 0.23 in (compensated)
Ambient temperature ²	: 0°C to +50°C / +32°F to +122°F
Media temperature	: 0°C to +120°C / +32°F to +248°F
Humidity rating	: 0..85% rH, no condensation
Protection	: IP54 incl. upside-down, class III, indoor use only
CE conformity	: EN 60730
Cable	: Fixed, 3 wires x 0.50 mm ² , 1.5 meter Fixed, 3 wires x AWG20, 4.9 ft
Closing point adjustment	: During operation the actuator will self-adjust according to the closing point and stroke length of the valve.

Note 2: Including +5°C self-generated heat based on UL requirements.

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FEATURES / CHARACTERISTICS

MFN.1.2

Supply voltage	: 24V AC/DC $\pm 10\%$, 50/60 Hz
Type	: Electrical, bi-directional synchronous motor
Power consumption	: 24V AC: 5.8VA operating (6.8VA max.) 24V DC: 2.9W operating (3.3W max.)
Inrush current	: 12A (peak)
Control signal	: Analog 0(2)-10V DC or digital 2-position with constant power supply
Feedback	: Yes, control signal (analog) or 0-10V DC (digital)
Failsafe function	: Yes, optional open or close
Electrical override	: Yes
Position indicator	: Yes
Operation time	: 22 sec/mm (failsafe mode: 5 sec/mm)
Actuating force	: High (250N -30N/+70N)
Stroke	: 5.8 mm / 0.23 in (compensated)
Ambient temperature ³	: 0°C to +50°C / +32°F to +122°F
Media temperature	: 0°C to +120°C / +32°F to +248°F
Humidity rating	: 0..85% rH, no condensation
Protection	: IP54 incl. upside-down, class III, indoor use only
CE conformity	: EN 60730
Cable	: Fixed, 5 wires x 0.50 mm ² , 1.5 meter Fixed, 5 wires x AWG20, 4.9 ft
Closing point adjustment	: During operation the actuator will self-adjust according to the closing point and stroke length of the valve.

MFN.1.4

Supply voltage	: 24V AC/DC $\pm 10\%$, 50/60 Hz
Type	: Electrical, bi-directional synchronous motor
Power consumption	: 6VA, 10VA peaks
Control signal	: Digital (2-position / 3-point-floating)
Feedback	: No
Failsafe function	: Yes, optional open or close
Operation time	: 50 Hz: 18.5 sec/mm
Actuating force	: High (230N -10N/+40N)
Ambient temperature	: +2°C to +50°C / +36°F to +122°F
Humidity rating	: <95% rH, no condensation
Protection	: IP54, class II
Cable	: Fixed, 4 wires x 0.30 mm ² halogen free, 1 m Fixed, 4 wires x AWG22 halogen free, 3 ft
Closing point adjustment	: During operation the actuator will self-adjust according to the closing point of the valve.

Note 3: Including +5°C self-generated heat based on UL requirements.



ACTUATOR

MFN Electrical Actuator

FEATURES / CHARACTERISTICS

MFN.5.2

Supply voltage	: 24V AC/DC $\pm 10\%$, 50/60 Hz
Type	: Electrical, bi-directional synchronous motor
Power consumption	: 5VA
Control signal	: Analog 0(2)-10V DC
Feedback	: Yes, 0(2)-10V DC
Failsafe function	: No
Autostroke	: Optional
Operation time	: 50 Hz: 18.5 sec/mm
Actuating force	: Low (120N -10N/+10N)
Ambient temperature	: +2°C to +50°C / +36°F to +122°F
Humidity rating	: <95% rH, no condensation
Protection	: IP54, class II
Cable	: Fixed, 4 wires x 0.30 mm ² halogen free, 1 m Fixed, 4 wires x AWG22 halogen free, 3 ft
Closing point adjustment	: During operation the actuator will self-adjust according to the closing point of the valve according to the closing point and stroke length of the valve.

MFN.5.4

Supply voltage	: 24V AC/DC $\pm 10\%$, 50/60 Hz
Type	: Electrical, bi-directional synchronous motor
Power consumption	: 5VA
Control signal	: Digital (2-position / 3-point-floating)
Feedback	: No
Failsafe function	: No
Operation time	: 50 Hz: 18.5 sec/mm
Actuating force	: Low (120N -10N/+10N)
Ambient temperature	: +2°C to +50°C / +36°F to +122°F
Humidity rating	: <95% rH, no condensation
Protection	: IP54, class II
Cable	: Fixed, 3 wires x 0.30 mm ² halogen free, 1 m Fixed, 3 wires x AWG22 halogen free, 3 ft
Closing point adjustment	: During operation the actuator will self-adjust according to the closing point of the valve.

MFN.6.2

Supply voltage	: 24V AC/DC $\pm 10\%$, 50/60 Hz
Type	: Electrical, bi-directional synchronous motor
Power consumption	: 6VA, 10VA peaks
Control signal	: Analog 0(2)-10V DC
Feedback	: Yes, 0(2)-10V DC
Failsafe function	: Yes, optional open or close
Autostroke	: Optional
Operation time	: 50 Hz: 19 sec/mm
Actuating force	: Low (120N -10N/+10N)
Ambient temperature	: +2°C to +50°C / +36°F to +122°F
Humidity rating	: <95% rH, no condensation
Protection	: IP54, class II
Cable	: Fixed, 4 wires x 0.30 mm ² halogen free, 1 m Fixed, 4 wires x AWG22 halogen free, 3 ft
Closing point adjustment	: During operation the actuator will self-adjust according to the closing point of the valve.

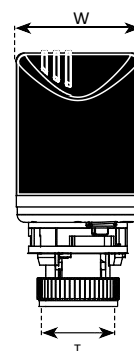
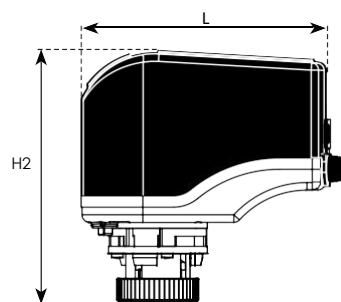
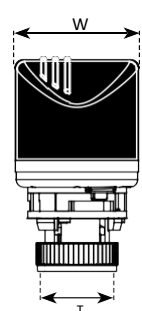
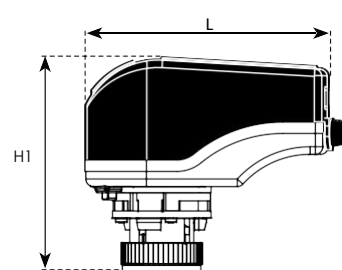
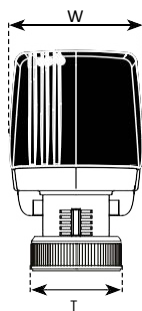
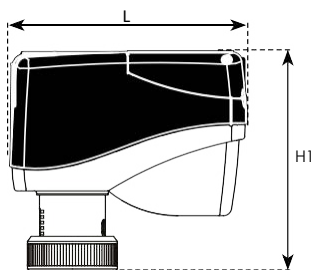
ACTUATOR

MFN Electrical Actuator



DIMENSIONS AND WEIGHTS (NOMINAL)

Actuator	L mm (in)	W mm (in)	H1 mm (in)	H2 mm (in)	T	Weight ² Kg (lb)
MFN.0.2	86.5 (3.41)	48.5 (1.91)	80 (3.15)	-	M30x1.5	0.25 (0.55)
MFN.0.4						
MFN.1.2						0.27 (0.60)
MFN.0.3	104 (4.09)	51 (2.01)	92 (3.62)	-	M30x1.5	0.25 (0.55)
MFN.1.4			-	107 (4.21)		0.30 (0.66)
MFN.5.X			92 (3.62)	-		0.25 (0.55)
MFN.6.2			-	107 (4.21)		0.30 (0.66)



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MODEL NUMBER SELECTION

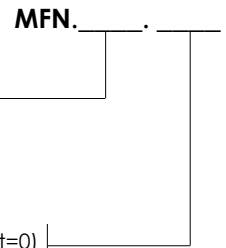
Insert actuating force and failsafe function:

0=High (no failsafe)
1=High and failsafe
5=Low (no failsafe)
6=Low and failsafe

Insert control mode:

2=24V modulating
3=110/230V digital (only available in high actuating force version and without failsafe - first digit=0)
4=24V digital (first digit=0, 1 or 5)

Example: MFN.0.2=Maple MFN actuator 24V modulating, high actuating force without failsafe function.



VALVE FUNCTION

The valve functions are adjusted with the DIP switches under the connection cover.

Maple MFN.0.2

Switch #1: Auto cycle ON/OFF

If the plant specifications permit it, the auto cycle can be activated during commissioning. Auto cycle prevents the valve from jamming when the valve is not moved for a longer period of inactivity, e.g. for heating system during the summer.

When the auto cycle is activated, the actuator will perform 50% stroke cycle if no stroke movement has occurred during a 3-week period.

Factory setting = OFF.

Switch #2: Analog 2-10V DC / 0-10V DC

Setting control range by the continuous actuating signal 0-10V DC or 2-10V DC. Factory setting = 0-10V DC.

Switch #3: Normally open / Normally closed

Setting actuating direction with 10V DC control signal to "valve open" or "valve closed" as well as the position feedback.

Factory setting = Normally closed; 0V DC = valve closed.

Switch #4: Equal % control / Linear control

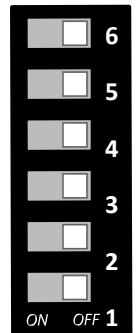
Setting of actuating control curve either equal percentage or linear control. Factory setting = Linear control.

Switch #5: No function.

Switch #6: Electrical override

Setting override function to ON and the actuator will open valve fully. When set to OFF again, the actuator will re-calibrate and thereafter go into normal operation mode.

Factory setting = OFF.



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VALVE FUNCTION

Maple MFN.0.4

Switch #1: No function.

Switch #2: No function.

Switch #3: Normally open / Normally closed

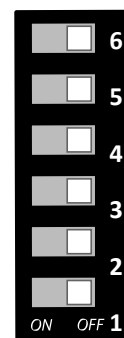
Setting actuating direction to "valve open" or "valve closed". Factory setting = Normally closed; 0V DC = valve closed.

Switch #4: No function.

Switch #5: No function.

Switch #6: Electrical override

Setting override function to ON and the actuator will open valve fully. When set to OFF again, the actuator will re-calibrate and thereafter go into normal operation mode. Factory setting = OFF.



Maple MFN.1.2

Switch #1: Auto cycle ON/OFF

If the plant specifications permit it, the auto cycle can be activated during commissioning. Auto cycle prevents the valve from jamming when the valve is not moved for a longer period of inactivity, e.g. for heating system during the summer.

When the auto cycle is activated, the actuator will perform 50% stroke cycle if no stroke movement has occurred during a 3-week period.

Factory setting = OFF.

Switch #2: Analog 2-10V DC / 0-10V DC

Setting control range by the continuous actuating signal 0-10V DC or 2-10V DC. Factory setting = 0-10V DC.

Switch #3: Normally open / Normally closed

Setting actuating direction with 10V DC control signal to "valve open" or "valve closed" as well as the position feedback.

Factory setting = Normally closed; 0V DC = valve closed.

Switch #4: Equal % control / Linear control

Setting of actuating control curve either equal percentage or linear control. Factory setting = Linear control.

Switch #5: Failsafe Open/Close

Setting actuator direction at power failure to "valve open" or "valve closed". Factory setting = close.

Switch #6: Electrical override

Setting override function to ON and the actuator will open valve fully. When set to OFF again, the actuator will re-calibrate and thereafter go into normal operation mode.

Factory setting = OFF.



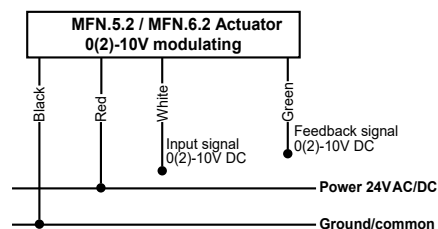
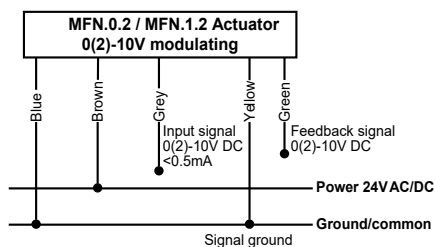


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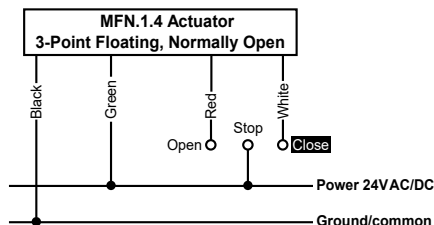
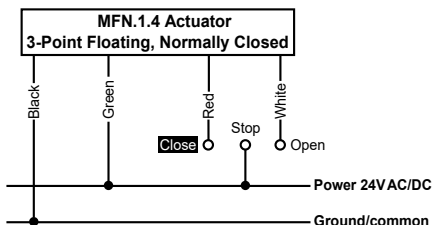
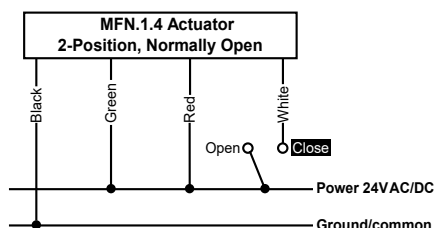
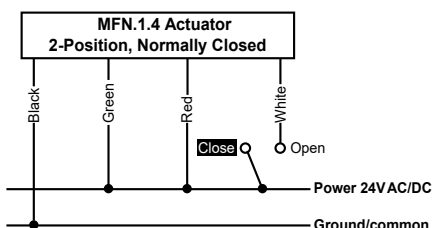
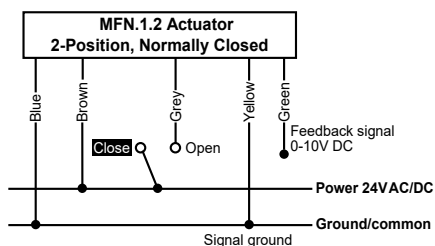
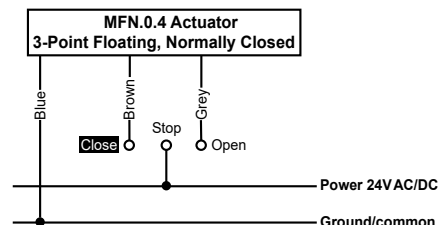
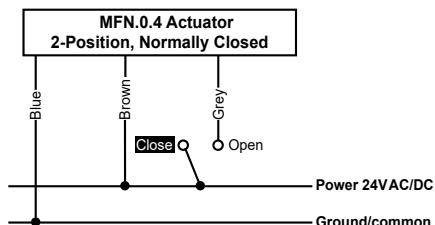
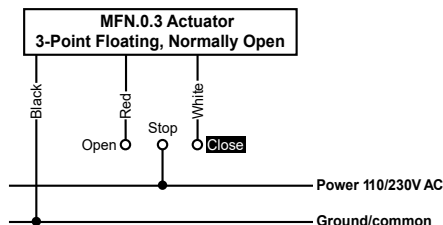
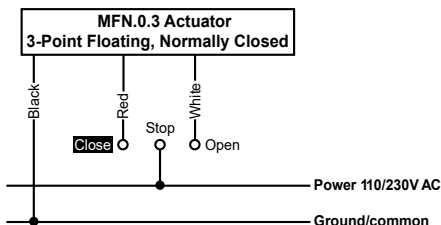
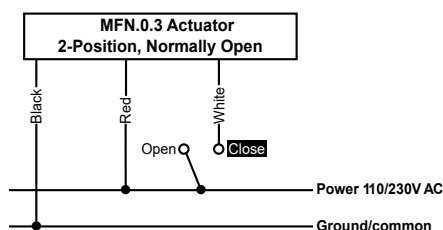
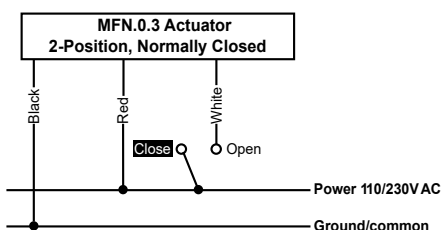
MFN Electrical Actuator

WIRING INSTRUCTION

Maplef MFN (analog)



Maplef MFN (digital)





ACTUATOR

MFN Electrical Actuator

WIRING INSTRUCTION

Maplef MFN (digital)

