

M100 Series

# Actuator



**M100 Series Actuator**

## Description

The M100 Series Actuator positions dampers, valves, and related equipment in a variety of HVAC and industrial applications.

There are five basic actuator models: the M110, M120, M130, M140, and M150, with torques ranging from 25 to 150 lb-n, two spring return models, choice of control inputs, and a variety of accessories to cover any application. The return-to-normal function is standard on the M110 and M130 spring return models.

The M100 Series Actuator operates on 24 or 120 VAC power, and is available with on-off, floating, or proportional control inputs. The five basic actuators can be ordered as base units without the R81 Plug-in Electronic Interface Boards installed or with the input electronics factory installed. Changeable boards provide greater application versatility, easy conversion for changing requirements, and quick replacement.

## Features

- output versatility allows both ends of the output shaft to be used for linkage connections for dampers
- load versatility available in torques of 25, 35, 50, 75, and 150 lb-in. (2.8, 4.0, 5.6, 8.5, and 16.9 N-m)
- travel adjustment located in top wiring compartment, allowing easy screwdriver adjustments
- M100X combines with multiple options to reduce service inventory
- M100 models available to match any control signal protocol including digital for application versatility
- R81 Plug-in Electronic Interface Boards provide faster replacement or conversions and shorter service times
- continuously lubricated gear train assure the longest life cycle cost/benefit in the industry

## Applications

The M100 is used to position dampers, valves, and related equipment in a variety of HVAC and industrial applications. The actuator moves in response to input signals from a variety of electronic controllers, depending on the model selected.

Damper linkage kits include the Y20DAA-2 and Y20DAB-2 for commercial dampers and Y20DFC-1 for the CD1300 family of dampers.

M100 actuators can be field coupled or factory coupled to Johnson Controls VG and VB Series Valves. 1/2 inch VT Series Valves also require a Y20EBE-2 adapter kit. Specify factory coupling by listing the appropriate Q99 designations on the order. Y20 kits are also available for replacement or conversion of competitive valves.

The M110 and M130 come equipped with spring return to normal position for switched off conditions or on system power failure. The spring return is a heavy duty spring mechanism that returns the actuator shaft to its zero mechanical position against its rated torque. A brake mechanism will keep the return spring from driving the motor actuator towards its return position during normal reversible operations.

## To Order

Use the selection charts on the following pages to determine the code number for the actuator that fits your application.

## Replacement Parts

Original Code Number	Action	Replacement Code Number	Description
M100A	On-Off / Floating	—	SPDT On-Off or floating control input. Mechanical limit switches on ends. Conversion of this unit to proportional control is not possible.
M100C	Proportional	R81CAA-2	Communicates on the Zone Bus of a Metasys AHU or UNT Controller. Digital protocol compatible with Level 1 Bus. Factory calibrated for direct acting, field selectable for reverse acting by switch settings.
M100E	Proportional	R81EAA-2	Thermistor sensor input economizer control with changeover relay, refrigeration programming relay, minimum position, mixed air set point and proportional band.
M100F	Incremental with Feedback	R81FAA-1	12 VDC incremental control input with position feedback. Used with Johnson Controls DSC-8500 using the FIC-101 Field Interface Card. This unit has no physical travel limits and will move as long as input command is provided.
M100G	Proportional	R81GAA-2	0 to 24 VDC, 0 to 24 mA input, adjustable zero and span, jumper selectable clockwise or counterclockwise action on signal increase. Factory set for 4 to 20 mA DC controller, clockwise action and signal increase.
M100J	Proportional	R81JAA-1	3-wire 135 to 1000 ohm input, 6 to 10 VDC, and 0 to -2 VDC, clockwise action on signal increase.
M100M	Proportional	R81MAA-1	Direct interface with Honeywell Series 90, W973, and W7100 controllers.
M100Q	Proportional	R81QAA-1 R81QAA-2, or R81QAA-3	Thermistor sensor input: R81QAA-1, 40 to 90°F (5 to 32°C) R81QAA-2, 15 to 50°F (-10 to 10°C) R81QAA-3, 60 to 120°F (15 to 50°C)
M110 Models	Motor Only	M110XGA-1	Field installation of R81 kit required. This unit is not UL listed for use as a new installation.
M120 Models		M120XGA-1	
M130 Models		M130XGA-1	
M140 Models		M140XGA-1	
M150 Models		M150XGA-1	