Modulating & On/Off Globe Valve Actuators

MVT

DESCRIPTION

Synchronous, bidirectional, motor-driven, noiseless, non-spring return zone globe valve actuators. Contains a synthetic enclosure, motor, gearbox, magnetic coupling, and screw spindle drive.

certified
ISO 9000

APPLICATION

Actuators with integrated pop-on coupling on 2-way or 3-way zone globe valves for fan coil units, reheat of VAV/VVT boxes, base boards, and other AC units. Can be controlled by any compatible electric or electronic analog controller, DDC/PLC control or automation system.

FEATURES

- *Direct-coupled, pop-on valve actuator*
- *Tool-less installation*
- *Manual override*
- *Overload protected*
- *Low power consumption*
- *Easy plug-in wiring cable*
- *Compact size*
- *Quiet operation*
- *Maintenance free*
- *Two-year warranty*

SPECIFICATIONS

Control	
Input signal	Refer to table
- connection	3-wire
Electrical	
Power supply	Refer to table
Frequency	50/60 Hz
Power consumption	Refer to table
Performance	
Positioning force	
- actuator	45 lbf (200 N)
Positioning stroke	0.26 in. (6.5 mm)
Running time	
- full valve stroke, 5.5 mm, V.T series	100 sec. @ 50 Hz (18 sec./mm) 83 sec. @ 60 Hz (15 sec./mm)
Power failure	Stays in last position of operation
Position indicator	Markers on actuator neck indicates piston/stem position
Overload protection	Electronic throughout stroke
Manual override	w/ Standard 3 mm allen wrench
Motor type	Reversible synchronous motor
Noise level	< max. 30 dB(A)

Environmental	
Permissible ambient	
- working temperature	23°F to 131°F (-5°C to 55°C)
- storage temperature	-13°F to 149°F (-25°C to 65°C)
- humidity	5-95% RH, non-condensing
Physical	
Enclosure	Fire retardant, UL94-HB
- cover (top) material	ABS
- base material	PA66
- color	Clear cover, black base
- protection	NEMA 2 (IP 43), conforms to CEI EN 60529
- protection class	III (IEC 950)
Mounting position	Horizontal or vertical, avoid cable outlet pointing downwards
Wire connection	
- MVTC1, supplied	Plug-in cable, 4.9 ft (1.5 m), fire retardant, UL 94-VO, CEI 20-22/II standard, 3 color coded wires
- wire size	18 AWG (0.75 mm²)
Weight	0.44 lbs. (0.2 kg)

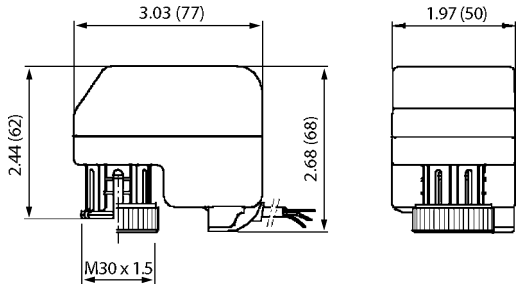
Input Signal	Power		Part Numbers
	Supply	Consumption	
Tri-state (3-point floating), or On/Off, 24 VAC	24 VAC ± 10%	0.5 VA	**MVT44**
Proportional, range/action selectable: • 0-10 VDC • 6-10 VDC • 1-5 VDC • 2-10 VDC • 4-7 VDC • 6-9 VDC • 8-11 VDC • Direct action • Reverse action	24 VAC ± 10%	1.0 VA	**MVT56**
0-10 VDC -direct action-			**MVT57**

SPECIFICATIONS

Valve Body, Compatibilities	VSXT, VMXT, VST, VMT, VSBT, VMBT valve series
Valve Coupling	Threaded, knurled ring nut, tool-less pop-on hand connection
Manufacturing	ISO 9000 certified
Listings/Approvals	CE
Conformity	EMC 2004/108/CE directive, EN 61326-1 standard
Warranty	Two-year material and workmanship

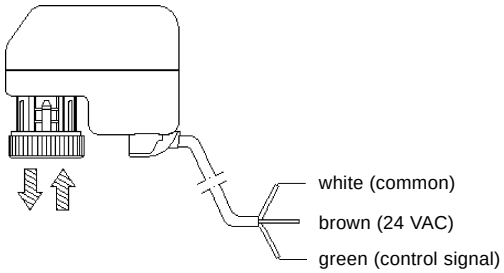
DIMENSIONS

inches (mm)

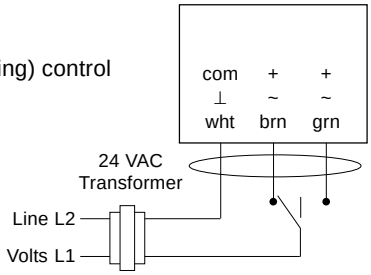


WIRING CONFIGURATION

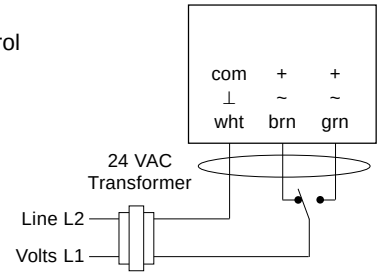
The MVT44, MVT56 and MVT57 are supplied with one (1) color coded plug-in cable (MVTC1)



MVT44
Tri-state
(3-point floating) control



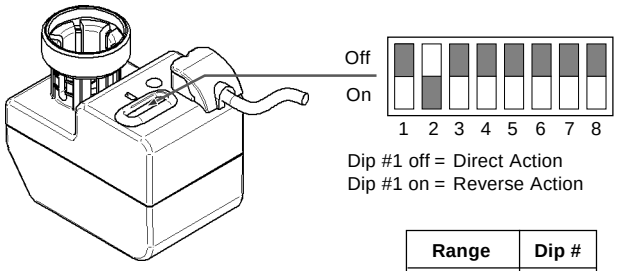
MVT44
On/Off control



Actuator stroke direction, valve position				
Actuator / Valve stem stroke direction (A to AB)	**MVT44** Tri-state or On/Off	**MVT56** 0-10 VDC (selectable ranges)		**MVT57** 0-10 VDC
		Direct Action	Reverse Action	Direct Action
Downwards, V.T valve opens	white-brown connect	w/ increased signal	w/ decreased signal	w/ increased signal
Upwards, V.T valve closes	white-green connect	w/ decreased signal	w/ increased signal	w/ decreased signal

WIRING CONFIGURATION *(Cont...)*

MVT56 VDC signal range and control action selection



Dip #1 off = Direct Action
Dip #1 on = Reverse Action

Range	Dip #
0-10 VDC	2
6-9 VDC	3
1-5 VDC	4
2-10 VDC	5
4-7 VDC	6
6-10 VDC	7
8-11 VDC	8

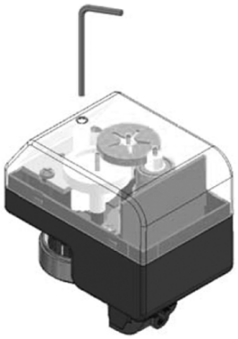
Factory setting:
- Direct Action (dip #1 off)
- 0-10 VDC (dip #2 on)

MVT57 VDC signal and control action
Fixed: 0-10 VDC range and direct action

Notes:
- **Do not supply power to the actuator unless the actuator has been coupled to the valve body appropriately.**
- Actuator will be damaged if power of 26.5 VAC or higher is applied to the 24 VAC actuators.
- Observe polarity on secondary of transformers. All common and signal (–) must be connected in line. Incorrect polarity can cause controller damage or operation error.
- Provide overload protection for line voltage and disconnect as required.

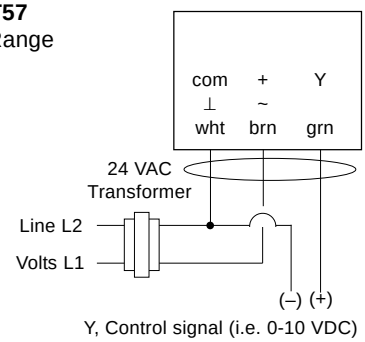
MANUAL OVERRIDE

Use standard 3 mm allen wrench.



It is mandatory to switch off the power to the actuator before operating the manual override.

MVT56 / MVT57
VDC Signal Range

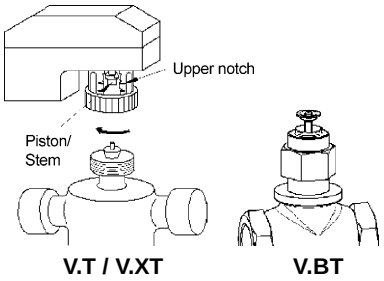


Additionally, for MVT56, MVT57

- Always use a separate transformer when controller power is full-wave rectified.
- When 24 VAC is supplied initially, it will automatically adjust to the upper piston/stem stroke and remains in this position for about 2 min. The process will recur when 24 VAC power is interrupted and reapplied.
- Due to the presence of the magnetic clutch, the actuator could be continuously powered up without damage, but for increased life and energy savings, it is highly recommended to use a controller equipped with a cut-off function (suggested timing 120% of stroke time).

COUPLING TO THE VALVE BODY

Remove protective/manual override cap from the valve. Insure that the actuator piston/stem is



V.T / V.XT **V.BT**

lined-up with the “Upper notch” (upper mark) of actuator mounting neck. Screw the actuator’s knurled ring nut (M30 x 1.5 mm) onto the threaded neck portion of the valve body by hand only.

- Allowable mounting position