

3 YEAR
GUARANTEE
SPARTAN PERIPHERAL DEVICES

Spartan non-spring-return Syncube Actuators ME-4140, ME-4240, ME-4340 and ME-4344

DESCRIPTION

There are three different Syncube actuator models available.

ME-4140 three point floating,

ME-4240 PWM 0.25-5.0 sec,

ME-4340 modulating 0-10 or 2-10Vdc

ME-4344 modulating 0-5 or 5 -10Vdc

They drive 2-, 3- and 4-port control valves with a unique, patented, non-spring-return movement having five robust moving parts. Without small toothed, high pitched gears to wear out or whine, the compact movement has a life expectancy in excess of 500,000 cycles. The reversible, brushless, synchronous, electric motor maintains accurate positioning and provides creep-free control with extreme accuracy. All of the actuators ride high and clear of pipes, insulation (lagging) & heat, yet the overall height above the actuator remains low.

Features:

The maximum stem output is force-balance controlled in floating ME-4140 types, electronically controlled in PWM ME-4240 and modulating ME-4340/4344 types. However, in all cases, valve stem force is enough to maintain and control high differential pressures to at least 60 psig (4.0 Bar) or more, except on steam (see valve body specifications).

A blue/semi-clear case or an opaque cream white case are both available, the former allowing viewing of the moving parts, the latter not. (check with your distributor to ascertain which is kept in local stock). In both cases, a top mounted position indicator is available for viewing or for feeling its rise and fall (useful in dark, cramped places such as ceiling spaces and/or inside fan coil cabinets, etc.).



Patent No.
6471 182B1

GENERAL ACTUATOR SPECIFICATIONS

All versions of these actuators share a common rail mechanical design with specific electronic variations for floating, PWM and modulating with end of travel shut off.

Mounting yoke: Glass filled nylon based, high temperature composite to brass fixing ring. M30 x 1.5

Ambient temperature: 5°C to +50°C; 40°F to 120°F non-condensing

Cover: Standard Clear-blue 'K' resin

Optional Off white ABS (add WT to part number ie ME4340WT)

Motor: Synchronous reversible brushless

Output cable: PVC coated copper 20ga wire or optional 18ga Plenum cable

Output cable length: 36" (1m) standard, optional lengths available.

Stroke: 0.177" (4.5mm) **Enclosure:** IP51 (IP54 optional in vertical installation)

Input voltage: 24 Vac, 60/50 Hz, +10% -5% all versions

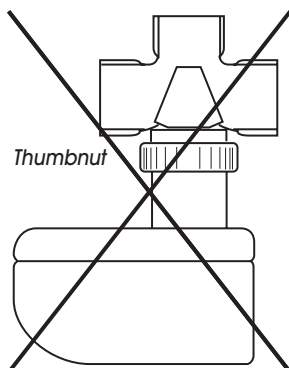
Noise Level: 35 dB **Consumption:** 45mA, 1 Va

Position indication: Top mounted stem position height both visual and touch sensitive. Clear case unit gearing is also visible through the cover.

Conforms to: CE and ROHS requirements. Low voltage as per CSA Class II 24Vac device

INSTALLATION INSTRUCTIONS

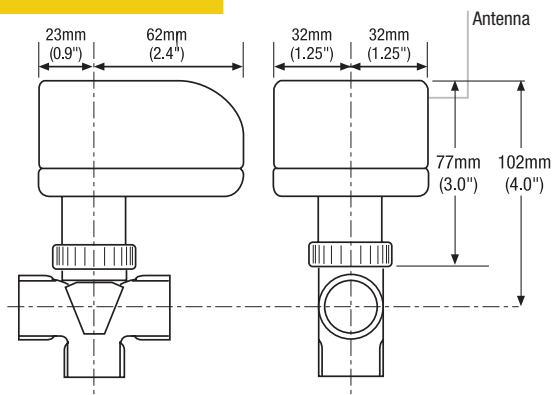
All Syncube ME-4140, ME-4240 and ME-4340 actuators can be installed on all Spartan zone valve bodies which are designed for use on hot or chilled water, up to 50% glycol mix, or for low-pressure steam. The commercial type valve bodies all utilise low zinc anti-dezincification bronze coupled with long life replaceable and inter-changeable internals from 0.15 to 9.0 Cv (0.13 to 7.75 Kv's). Refer to Control Valve Bodies Data Sheet.



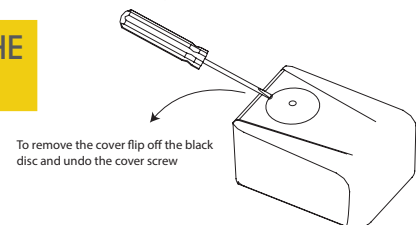
The actuator can be installed vertically, or at any angle not exceeding the horizontal. The Actuator mounting thumbnut is to be hand-tightened only, using tools may result in over-tightening.

Take note that the actuator should never be attached to the valve if its stem has been electrically driven down for fear of damaging the operating mechanism inside. Actuators shipped separately from the factory are always delivered stem up.

DIMENSIONS



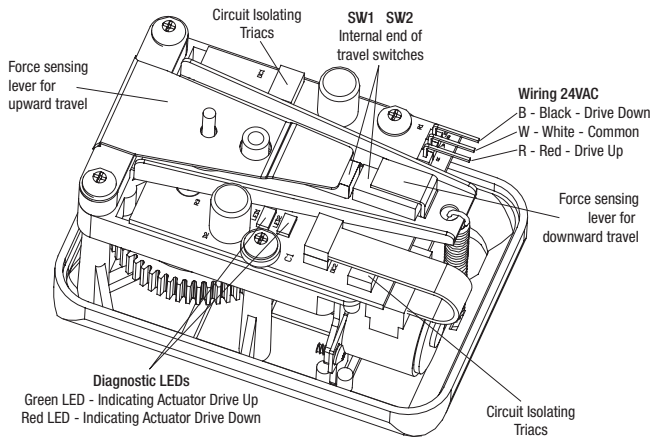
RELEASING THE COVER



To remove the cover flip off the black disc and undo the cover screw

ME-4140 SYNCUBE NON SPRING RETURN

Floating (tri-state: increase-decrease) Valve Actuators



The ME-4140 3 point (raise lower) floating actuator utilizes a brushless, reversible synchronous A/C motor with constant torque and constant speed for accurate positioning over the full span of the travel. The ME4140 can be controlled by a triac or dry contact relays.

Stroke: 0.177" (4.5mm)

Force: 36Lbs (160N)
48Lbs (213N) ME4140H

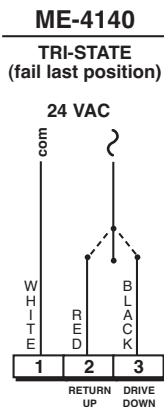
Travel time: From fully open to fully closed position, 60 seconds on 60Hz and 72 seconds on 50Hz, over 4mm travel. The same for the reverse.

End of travel shut off: ME4140, floating actuator has a controlled force balanced output and an end of the travel shut off for long life expectancy. The unit can be left powered by the controller indefinitely without damaging or wearing out the base motor.

Parallel connection: Isolating triacs will allow the units to be connected in parallel from the same output point without electrical interference.

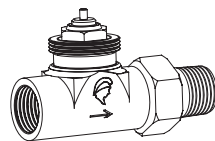
Diagnostics: Diagnostic LED's, green for up travel and red for down travel will be lit while the signal is on in their particular direction. When the unit achieves its end position or when there is no signal, the LED's will turn off.

WIRING DIAGRAM



These actuators are used with standard BCXX, EPXX, or EVXX valve cartridges. The use of EB balanced cartridges is not required.

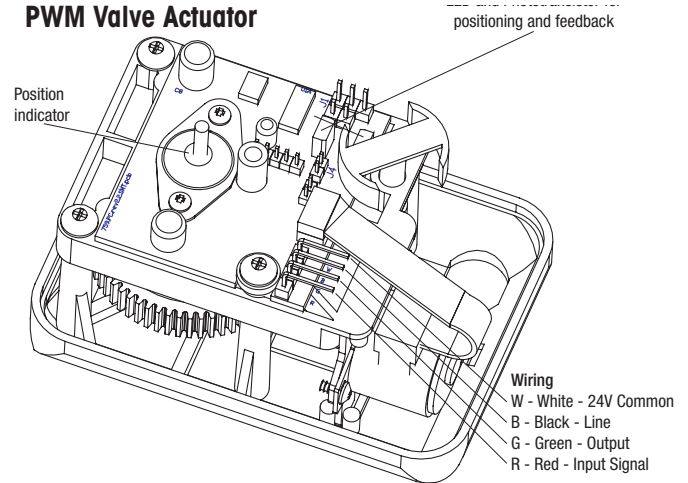
THE ME-4140 ACTUATOR FITS ALL VALVE BODIES



All Spartan Peripheral Devices Syncube actuators can be installed on a multitude of Spartan 2 way and 3 way zone control valve bodies with different type of connections: female x female threads in 1/2", 3/4" and 1", single or double male or solder unions in 1/2", 3/4" and 1" and direct solder in 1/2" and 3/4" sizes. These actuators are used with standard BCXX, EPXX, or EVXX valve cartridges. The use of EB balanced cartridges is not required.

ME-4240 SYNCUBE NON SPRING RETURN

PWM Valve Actuator



The ME-4240 microprocessor based 24 Vac PWM actuator uses an LED and photo transistor pick up for precise positioning and for end travel automatic shut off. On start up an automatic calibration sequence takes place with the unit running from open to closed position during which the two ends of travel are programmed. The microprocessor also transmits a 1 to 5 Vdc signal (0 volts indicates loss of power) on the fourth (green) wire for position transmission to remote BAS system. There is a two second delay before the actuators direction change is implemented.

Input Signal: 0.2 seconds to 5 seconds impedance

2 Kilo ohms, current 12mA RMS, 24 Vac

Output Signal: Used for monitoring of valve position.

1-5 Vdc, 1 Kohms impedance. 0.50 mA max.

0 Vdc = no power to the unit,

1 Vdc = actuator stem up,

5 Vdc = actuator stem down

Output Force: 50Lbs (222N) **Stroke:** 0.177" (4.5mm)

Travel Time: Fully open to fully closed, 70 seconds on 60Hz and 84 seconds on 50Hz, over 4mm travel.

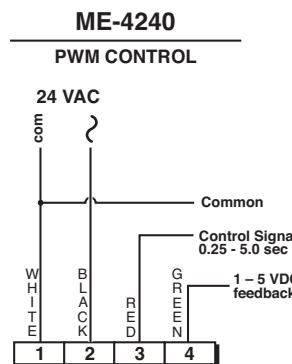
Actuator Resolution: 90:1

Direct Acting Mode: 0.25 secs drive up, 5.0 secs drive down

Input Polarity: Input to common (white wire)

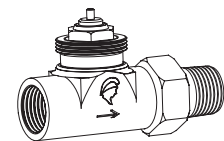
Minimum off cycle required: 250 milliseconds

WIRING DIAGRAM



These actuators are used with standard BCXX, EPXX, or EVXX valve cartridges. The use of EB balanced cartridges is not required.

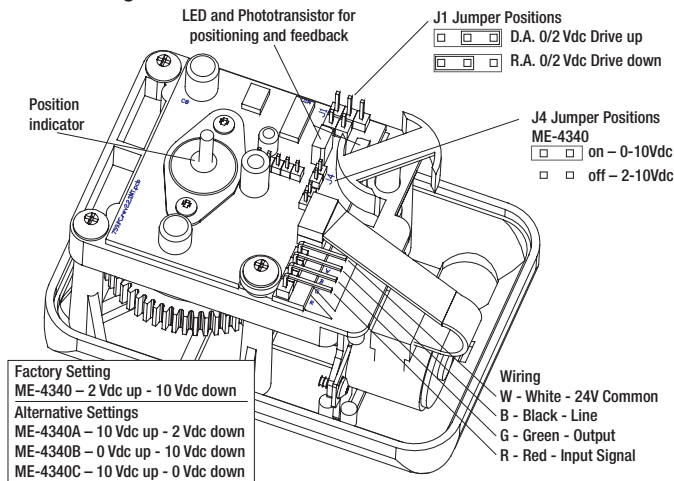
THE ME-4240 ACTUATOR FITS ALL VALVE BODIES



All Spartan Peripheral Devices Syncube actuators can be installed on a multitude of Spartan 2 way and 3 way zone control valve bodies with different type of connections: female x female threads in 1/2", 3/4" and 1", single or double male or solder unions in 1/2", 3/4" and 1" and direct solder in 1/2" and 3/4" sizes. These actuators are used with standard BCXX, EPXX, or EVXX valve cartridges. The use of EB balanced cartridges is not required.

ME-4340 SYNCUBE NON SPRING RETURN

Modulating Valve Actuator - 0/2-10Vdc



The ME-4340, 0/2-10 Vdc microprocessor based modulating actuator uses a LED and photo transistor pick up for precise positioning and for end travel automatic shut off. On start up an automatic calibration sequence takes place with the unit running from open to closed position during which the two ends of travel are programmed. The microprocessor also transmits a 1 to 5Vdc signal (0 volts indicates loss of power) on the fourth (green) wire for position transmission to remote BAS system. There is a two second delay before the actuators direction change is implemented.

Input Signal ME-4340: 0-10 Vdc or 2-10 Vdc, 100 Kohms impedance.

Selected by jumper J4. See wiring diagram

* If 4-20 mA input is used, select 2-10 Vdc with 500 Ohm 1% resistor.

* If 0-20 mA input is used, select 0-10 Vdc with 500 Ohm 1% resistor.

Positioning: 0.10V steps over 0-10Vdc input signal

Output Signal: Used for monitoring of valve position.

1-5 Vdc, 1 Kohms impedance. 0.50 mA max.

0 Vdc = no power to the unit, 1 Vdc = actuator stem up,

5 Vdc = actuator stem down

Output Force: 50Lbs (222N)

Stroke: 0.177" (4.5mm)

Travel Time: Fully open to fully closed, 70 seconds on 60Hz and 84 seconds on 50Hz, over 4mm travel.

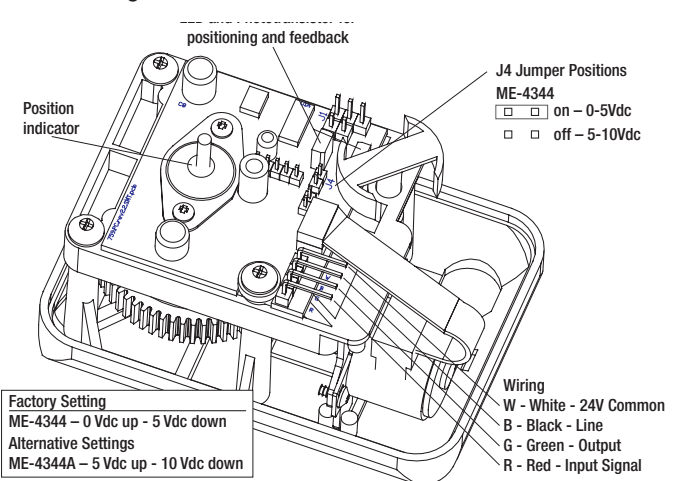
Actuator Resolution: 90:1

Direct/Reverse Acting: Jumper J1 positions - see diagram above

Input Polarity: Input to common (white wire)

ME-4344 SYNCUBE NON SPRING RETURN

Modulating Valve Actuator - 0-5Vdc, 5-10Vdc



The ME-4344, 0-5/5-10 Vdc microprocessor based modulating actuator uses a LED and photo transistor pick up for precise positioning and for end travel automatic shut off. On start up an automatic calibration sequence takes place with the unit running from open to closed position during which the two ends of travel are programmed. The microprocessor also transmits a 1 to 5Vdc signal (0 volts indicates loss of power) on the fourth (green) wire for position transmission to remote BAS system. There is a two second delay before the actuators direction change is implemented.

Input Signal ME-4344: 0-5 Vdc or 5-10 Vdc, 100 Kohms impedance.

Selected by jumper J4

Positioning: 0.10V steps over 0-5Vdc or 5-10Vdc input signal

Output Signal: Used for monitoring of valve position.

1-5 Vdc, 1 Kohms impedance. 0.50 mA max.

0 Vdc = no power to the unit,

1 Vdc = actuator stem up,

5 Vdc = actuator stem down

Used for monitoring of valve position.

Output Force: 50Lbs (222N)

Stroke: 0.177" (4.5mm)

Travel Time: Fully open to fully closed, 70 seconds on 60Hz and 84 seconds on 50Hz, over 4mm travel.

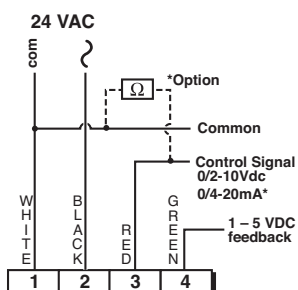
Actuator Resolution: 90:1

Input Polarity: Input to common (white wire)

WIRING DIAGRAM

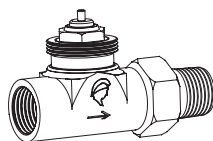
ME-4340

MODULATING CONTROL



These actuators are used with standard BCXX, EPXX, or EVXX valve cartridges. The use of EB balanced cartridges is not required.

THE ME-4340 ACTUATOR FITS ALL VALVE BODIES

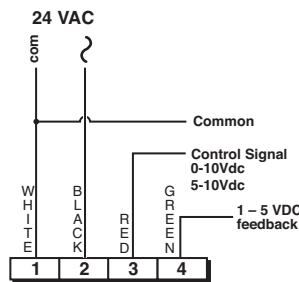


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WIRING DIAGRAM

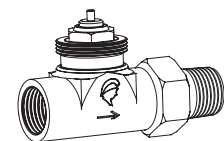
ME-4344

MODULATING CONTROL



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THE ME-4344 ACTUATOR FITS ALL VALVE BODIES



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