



FLOATING ACTUATORS

Normally Open Spring Return Up for Terminal Unit Valves

ME4640-60 (60 second cycle) and ME4640-30 (30 second cycle) Three Point Floating actuators.

They are normally open on power failure spring return floating microprocessor based control valve actuators.

These actuators are used on 2, 3 or 4 port terminal unit or zone valves for the control of hot water, chilled water, or 50% glycol using only an EB type balanced cartridge, & low pressure steam using an EV type cartridge.

A microprocessor is used to access the input signal, monitor and store the position count, determine the count difference and appropriately control the drive to the motor. The exact valve position can be determined from the 1-5V volts output from the green wire, to monitor by others.

Upon power failure the motor will be returned to its' default up or open position with the help of the internal spring in the valve cartridge.



GENERAL SPECIFICATIONS

Supply: 24Vac +10%/-5%, 60Hz/50Hz

Motor Type: AC hysteresis brushless

Nominal Consumption: 6 Watts (9VA)

Maximum 4 units per 40 VA transformer

Ambient operating temperature: 5-50°C (40-120°F)

Signal input: Dry contacts or solid state (triac) 24Vac line

Signal output: 1-5Vdc +/- 0.1 Volts, Impedance 1 Kohms.

0 V represents a loss of power,

1 V represents actuator in up position

5V represents actuator in down position

Note: Used for monitoring of valve position

Output force: 28lbs (124N)

Motor jam recovery: if an unexpected stall occurs – i.e. in midrange – the system reverses the motor, backs up, and then again attempts to move to the calculated position

Microprocessor: PIC16F1824 - 8-bit PIC Microcontrollers - Microchip

Position feedback (internal): Quadrature optical encoder using two LEDs and two photo transistors

Drift: no detectable drift after 100,000 cycles. Re-span automatically at each full close position

Input Protection: inputs will accept 30Vac continuously without damage. Misconnection (mixing) of the connections to unit will not cause damage

Wiring Connection: 36" PVC or optional Plenum cable

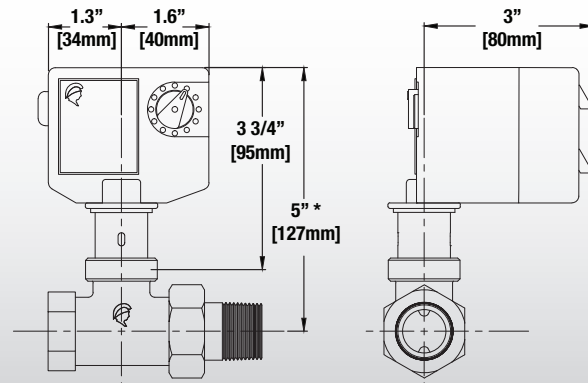
Enclosure: IP20 (NEMA 1)

Agency approval: Conforms to CE/ROHS requirements

Low voltage Class 2 as per UL/CSA standards

Disclaimer: This product must not be used outside of the specified applications. Installation should only be carried out by a licensed, and trained, installer. All local regulations and codes must be followed, and complied with, during the installation of this product.

DIMENSIONS



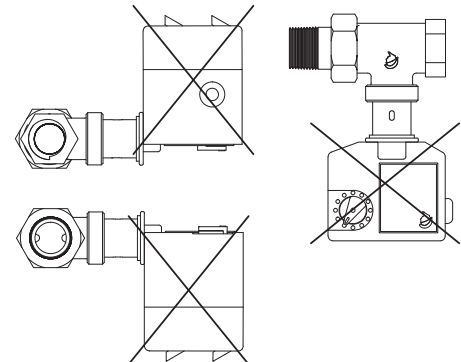
* Size changes with different valve bodies

INSTALLATION INSTRUCTIONS

Power Cube ME-4640 actuators can be installed on all **Spartan Zone valve bodies**.

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) in 0.50 Cv increments

Refer to Control Valve Bodies and Cartridge Data Sheets



Important: The actuator can be installed vertically, or at any angle not exceeding the horizontal. Fig1. Care must also be taken to not install the actuator with the back facing down or up. Fig 2.

The Actuator mounting thumbnut is to be hand-tightened only, using tools may result in over-tightening.



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FLOATING (ME4640-60 and ME4640-30)

Two inputs are used - one for Close (brown wire) and one for Open (red wire) commands. Both inputs are similarly configured either by external relay contact, or solid state device (triac). A network is connected across the input to assure adequate holding current for the triac (<10Ma). The input is normally biased low, **receives AC line for valid input**. The input de-bouncing requires a signal duration of not less than 0.1 seconds to register as valid.

The total range of the valve opening or closing signals is 60 seconds for the ME-4640-60, divided into 30 x 2 second pulses, or 30 seconds for the ME-4640-30, divided into 15 x 2 second pulses. Input activation is recorded cumulatively and algebraically, until the signal time exceeds 2 seconds (i.e. Open direction pulses accumulate and Close direction pulses subtract until a > 2 second time is registered). The motor then steps 1/30th or 1/15th of the 4mm travel.

Actuators self test is not required. On power up if the actuator receives a closed position signal it will start stepping and will continuously drive until the closed position is reached if a 60 seconds or 30 seconds signal is accumulated.

ME4640-60

Signal input:..... 0.1 to 60 seconds in either direction, inputs shorter than 0.1 seconds are ignored

Number of steps: end-to-end 30

ME4640-30

Signal input:..... 0.1 to 30 seconds in either direction, inputs shorter than 0.1 seconds are ignored

Number of steps: end-to-end 15

COMMON TO ME4640-60 & ME-4640-30

Input polarity:.....Input to 24Vac line (+/-10%)

Input Impedance/current: ..2KΩ or 12mA RMS

Switching:.....low energy (gold) dry contacts or solid state (triac). If triac is used the controller has to be 24Vac line fired (ground fired triAc is not acceptable).

Dead Band:0.12 seconds

Interlock:.....if both inputs are energized simultaneously, no movement results

IMPORTANT NOTE:

Software is factory installed when ordered.
For 60 second cycle order ME4640-60
For 30 second cycle order ME4640-30
This setting cannot be changed once set.

WIRING DIAGRAM

ME4640-60 and ME4640-30

TRI-STATE (spring return)

