

## **ELECTRIC ACTUATORS**

### FEATURES

- **50 or 100 Foot-Pound Rated with Rugged Construction for Demanding Combustion and Process Control Applications**
- **100% Duty Cycle Motor, Impedance Protected**
- **Control Response in Less Than 1/10<sup>th</sup> Second**
- **90° in 30 Seconds for Control Accuracy**
- **Rotation Field Adjustable, 90° to 130°, Permits Flow Characterization not Possible with Fixed Rotation Actuators**
- **Maintains Last Position with Loss of Power**
- **Standard Manual Handwheel for Emergency Operation**
- **Limit and Proof-of-Travel Switches and Position Potentiometers are Output Shaft Coupled for Safety and Accuracy**
- **Easily Configured to meet Special Requirements**

### APPLICATIONS

**Hays Cleveland ELECTRIC ACTUATORS** are widely employed to position final elements such as air or flue dampers, fuel and feedwater control valves, stoker speed and variable speed drive levers. They are used for the control of boilers, incinerators, curing ovens, dryers, spray



booths, evaporators, and other process unit applications. Developed by **Hays Cleveland**, a leader in combustion control since 1901, these actuators perform to meet the demands of electric, electronic, and microprocessor control systems.

### CONSTRUCTION

Two models are available, and are conservatively rated for 50 or 100 foot-pound output torque. A permanent magnet **AC motor**, with bi-directional windings, is coupled to the **handwheel** and **gear box**, with its rugged cast iron body and hardened steel and bronze gears. The dual-ended **drive shaft** is terminated on one end into the electrical enclosure, with end-of-travel and auxiliary limit switches. The output end of the shaft is linked to optional position potentiometers, and is keyed to the output lever.

### OPERATION

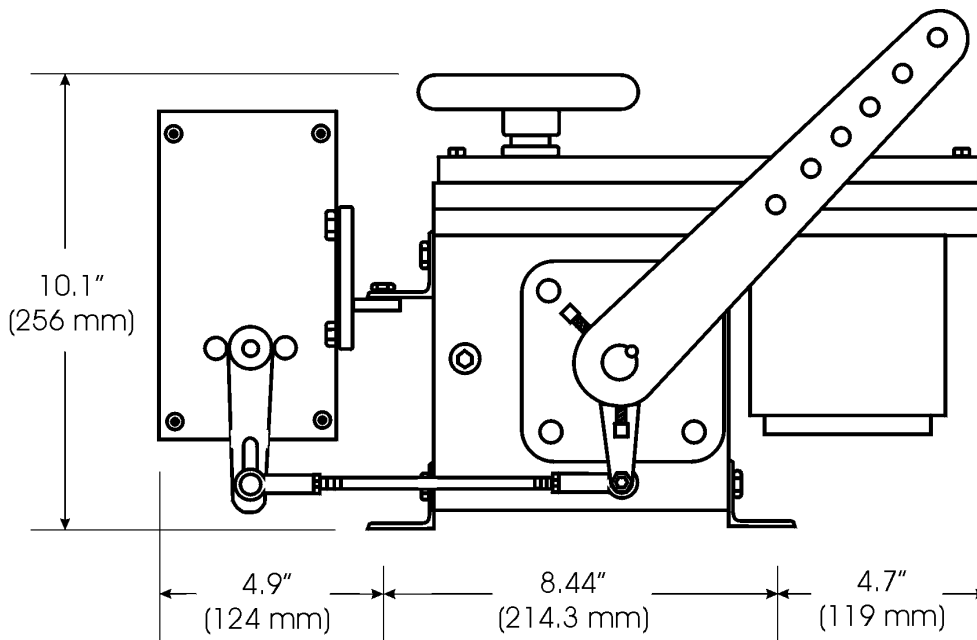
115 v AC switched inputs are electrically connected to the motor through **end-of-travel limit switches**. Solid-state relay

circuitry is available, if required by 115 v AC control circuits. All 1-5 v DC (4-20 ma DC) input signals are processed through an **actuator control driver (ACD)**.

Full-stroke angular rotation of 90° to 130° is adjusted with the end-of-travel switches. Auxiliary **proof-of-travel switches** can be set to open or close near each end of travel, and will interface with external safety systems.

Full-stroke **potentiometers** are wired to position controllers and indicators, or are used in feed-forward and feedback control loops or systems.

**Hays Cleveland** can supply these actuators for use with our own controllers and control systems, or for use by others. **Hays Cleveland** manufactures a complete line of combustion controls and analyzers, draft gauges, recorders, and panels. Contact your local representative for more information.

**SPECIFICATIONS****GENERAL****Base Model Codes:****50 foot-pound:** F-00874-K0-(model suffix codes)**100 foot-pound:** F-00875-K0-(model suffix codes)**Speed:** 0.5 RPM at 60 Hz, 0.4 RPM at 50 Hz.**Overload Protection:** Impedance protected.**Standard End-of-Travel Limit Switches:** CW & CCW, normally closed.**Stroke (Rotation for Full Potentiometer Stroke):** Adjustable at both ends of rotation for angular rotation adjustment. 90° minimum to 130° maximum.**Output Shaft, Lever, & Rod Ends:** 3/4" output shaft, with 10" lever and rod ends for 1/2" NPT pipe (linkage).**Ambient Temperature:** 0 to 140F (-18 to 60C).**Humidity:** 0 to 100%, non-condensing.**Overall Size:** 18.0" long x 15.6" wide x 10.1" high (46 cm long x 40 cm wide x 26 cm high).**Weight:** 61 lbs. (28 kg) net, 70 lbs. (32 kg) shipping.**POWER INPUT SELECTIONS****Low Power Control Input (-A01):** Dual solid-state relays – input of 115 v AC (COM, INC, & DEC) at 1.3 VA, plus 115 v AC power at 100 VA (typical).**Standard Control Input (-A02):** 115 v AC +/- 10%, 50/60 Hz, F-00874-K0: 50 VA, F-00875-K0: 100 VA with COM, INC, & DEC motor windings to power/input wiring terminals.**AUXILIARY SWITCHES****Proof of End-of-Travel:** Normally open (-B01) or normally closed (-B02) set of contacts, end adjustable, rated for 115 v AC, 10 A non-inductive, 1/8 HP inductive.**POSITION POTENTIOMETERS****Codes (-C01) to (-Dxx):** Up to four are optionally provided. Select 135, 500, and 1000 ohm slidewires, in various combinations. 4w at 70°C.**FEEDBACK / STABILIZER PISTONS****Single (code -C02-E01) or Dual (code -C03-E02):** Available for interfacing with early models of Hays Cleveland Series 840 Controllers.**ACTUATOR CONTROLLER DRIVER (ACD)****Code (-F01):** Specify 1-5 v DC or 4-20 ma DC input signal. Control input signals are converted to 115 v dual solid-state relay output for use with model code suffixes -A02-C01-D03, using a 1000 ohm Position Potentiometer.**Specifications Subject to Change**

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