

AF-ACT-1 Laboratory / Fume Hood Actuator

DESCRIPTION

The AF-ACT-1 is a microprocessor-based actuator with conditioned feedback option that operates on 24 VAC nominal power supply. The AF-ACT-1 delivers a minimum of 25 in./lb (2.8 Nm) torque at rated voltage. The minimum duration through the 90° angle of rotation is 1.5 seconds.

CONTROLLING CAPABILITIES

The AF-ACT-1 is factory programmed for a 90° stroke and full span modulating control input and will function as designed within those parameters. However, the AF-ACT-1 may be reprogrammed to respond to a PWM modulating signal or a digital control signal, to electronically adjust the stroke or to limit the control response of the AF-ACT-1 to a portion of the 2-10 VDC input signal.

The AF-ACT-1 will respond to either analog, PWM, or digital control. The AF-ACT-1 is factory set to respond to the analog signal, 2-10 VDC, which may be externally wired in the field to accept 4-20 mA. The AF-ACT-1 may be wired and reprogrammed to respond to a PWM signal with a time base of either 0.1 to 5 seconds or 0.1 to 25 seconds, 2 position or 3 point floating control (digital).

The feedback signal which is 4-20 mA may be externally wired to produce a 2-10 VDC signal.



STROKE ADJUSTMENT FEATURE

The AF-ACT-1 is factory programmed with a 90° stroke. In the event that the desired stroke of the damper is less than 90°, the stroke must be limited to prevent damage to the damper. Once the device has been installed as directed, a stroke of equal to or greater than 45° and less than 90° may be established by repositioning the 90° stop screw between 45° and 90°. The AF-ACT-1 will require recalibration during its initial operation so that the location of the physical end stop is retained by the microprocessor.

Subsequently, as the AF-ACT-1 travels through the arc, it will anticipate and stop as it reaches either position where it will remain, motionless, until activated by the control signal. This capability greatly reduces stress on both the damper and the AF-ACT-1 ensuring long life. Lastly, in the event that a change in the stroke is necessary, the AF-ACT-1 may be readjusted and recalibrated as many times as necessary.

ZERO & SPAN FEATURE

The AF-ACT-1 is also equipped with a zero & span feature that may be set to adjust the control response of the motor to a portion of the 0-10 VDC input signal. This allows for the sequencing of several motors from the same input signal. Once the AF-ACT-1 has been programmed with the required parameters, the information is permanently stored in the chip.

Due to the fact that the microprocessor is supported by nonvolatile memory (EEPROM) and internal feedback, the motor will not have to re-stroke to “find itself” on start-up or following a power outage or subsequent to repositioning with the clutch.

ENERDRIVE FEATURE

The Enerdrive System is a patented electronic circuit integral to the PC board of the AF-ACT-1 that relies upon the inherent characteristics of a super capacitor to retain energy. Initiated by an interruption of the power supply, the Enerdrive System engages and, utilizing this stored energy, drives the motor at full-rated torque in a clockwise or counter-clockwise direction such that the controlled device arrives at a fully closed or fully open position where it can remain indefinitely or until the power is restored.

As this is an electronic, not a mechanical feature, the life-span is unlimited if used in accordance with the instructions on installation and operation.

AF-ACT-1 SPECIFICATIONS

| | |
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| Power Supply | 24 VAC +/- 10% or 30 VDC +/- 10% |
| Maximum Power Consumption | 24 VA at 26 VAC Peak at startup, 15 VA at 26 VAC operating at full load |
| Electrical Connections | 18 AWG minimum, 25 ft (7.6 m) maximum per actuator - screw terminals |
| Inlet Bushing | one 5/8 in (15.9 mm) and one 7/8 in (22 mm) knock outs |
| Control Signals | |
| Analog | A) 2-10 VDC or B) may be externally wired with a 500Ω resistor (supplied) for 4-20 mA; zero & span adjustable |
| Pulse Width Modulation | time base of 0.1 to .25 second resolution or 0.1 to 1.25 seconds selected by dip switch position |
| Switch Hot | triac or dry contact - 40 mA maximum switching current |
| Switch Neutral | NPN transistor, SCR, triac or dry contact, 75 mA maximum switching current |
| Digital | 3 wire / 2 position or 4 wire / 3 point floating |
| Torque | 25 in./lb or 2.8 Nm at rated voltage |
| Angle of Rotation | 0° - 90° - mechanically adjustable |
| Direction of Rotation | reversible |
| Rotation Time Through 90° | 1.5 to 2.5 seconds |
| Ambient Temperature | 0°-122° F (18°-50° C) |
| Position Output | 4-20 mA output which may be externally wired with a 500 Ω resistor (supplied) to produce a 2-10 VDC signal |
| Gear Train Enclosure | die-cast with a steel base |
| Weight | 3 lbs (1.4 kg) |



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