

# SERVO ACTUATOR

Model SM

- 90° rotary electric actuator (adjustable over 270°)
- 3, 15 or 37 ft-lb. torque output
- Designed for modulation service
- Self-locking drive system to hold in last position
- Electrically isolated feedback potentiometer provides indication of shaft position
- Two (2) auxiliary limit switch position output

## Description

The **Model SM Servo Actuator** provides directly connected and precise modulating control of fuel valves and combustion air & flue gas control dampers. The actuator opens, modulates, and closes the valves and/or dampers in accordance with the integrated combustion control and burner management system programs. An integral interlock switch provides proof of open or closed position for safe burner operation. In addition, the feedback potentiometer provides indication of the motor's shaft position. The SM Actuator is used on boiler control applications that have a maximum of 37 ft-lbs torque required. For heavier-duty service, consult the factory.

## Operation

The Model SM Actuator utilizes an instantly reversible motor to rotate a hardened steel output shaft through a reduction of precision hobbled gears. The output shaft actuates four adjustable cam operated switches: two (2) travel limit switches to stop motor operation at pre-selected positions and two (2) auxiliary switches to provide valve and damper position proving interlocks. The motor has an integral brake for positive positioning and can be stopped, started, or instantly reversed at any time within its travel without overheating or loss of power. For maximum durability, the motor and gear train are sealed in an oil-filled compartment.

## Suggested Specification

Provide a separate direct acting Servo Actuator for the fuel gas and fuel oil flow control valves and the combustion air damper. The servo actuator shall modulate the fuel valves without the use of linkage. The actuator shall be totally enclosed in a dust-tight, splash-proof housing, have two (2) integral, snap-action, travel limit proving switches, electrically isolated shaft position feedback potentiometer, integral brake, 90° rotation in 30 seconds and maintenance-free oil immersed motor and gear train. The actuator shall be capable of being stopped, started, or instantly reversed without loss of power or overloading. The actuator shall be a Preferred Instruments, Danbury, CT, **Model SM-x** [ 'x' = 3, 15 or 37 rated torque in ft-lbs].

## Ordering Information:

1. **SM-[3, 15 or 37]** Specify 3, 15 or 37 nominal torque rating
2. Consult Factory for mating valves and mounting options.



*Model SM Servo Actuator*

## Specifications:

<b>Power:</b>	120 VAC - 50 / 60 Hz
<b>Ambient Temperature:</b>	14° F to 104° F (-10° C to + 40° C)
<b>Input:</b>	Switching SPDT or floating contacts
<b>Torque:</b>	3, 15 or 37 ft-lbs (depending on model selected)
<b>Duty cycle:</b>	100%
<b>Linearity</b>	± 1%
<b>Rotation:</b>	90° in 30 seconds, maximum rotation 270 degrees
<b>Feedback Potentiometer:</b>	5000 ohm change for 270° stroke
<b>Auxiliary Switch:</b>	Two (2) Integral SPDT, adjustable
<b>Integral Brake:</b>	Fail-safe, self locking
<b>Installation Position:</b>	Any
<b>Output Shaft:</b>	3/8" Hardened Steel
<b>Motor:</b>	Reversible, split phase, capacitor type, oil submerged
<b>Enclosure:</b>	SM-3: NEMA 2 SM-15 & SM-37: NEMA 4