

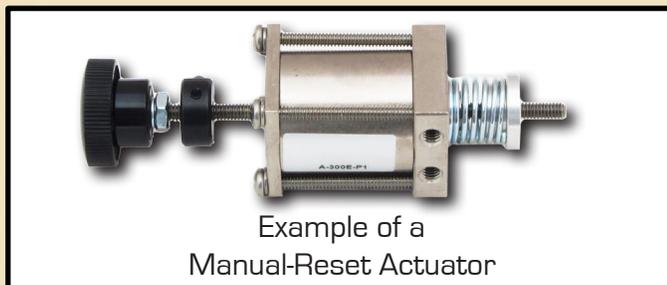
# ACTUATORS

## Actuators for use in Utility Relay Company Retrofit Kits for Low Voltage Breakers

Utility Relay Company (URC) manufactures actuators for use with our AC-PRO and ZERO-Hertz series of retrofit kits. Each actuator is built and tested at our Chagrin Falls, Ohio facility. URC manufactures many types and variations of actuators for use on different breakers but they fall into two general categories; manual-reset and auto-reset. The type of actuator supplied with a kit is specified at the time of order.

### Manual-Reset Actuators

For most breakers, URC offers the option of a manual-reset actuator. After a trip event, the manual-reset actuator stays in the trip position and keeps the breaker trip free. This requires a person to go to the breaker, open the cubicle door, pull or push on a knob to reset the actuator and then ideally review the last trip data saved in the trip unit. After the overload/fault condition is addressed and the actuator is reset, the breaker can be closed. The advantage is that human intervention is required before the breaker is closed again. The disadvantage is that the person resetting the actuator must wear the appropriate PPE.



Example of a  
Manual-Reset Actuator

### Mechanical Auto-Reset Actuators

For most breakers, URC offers the option of a mechanical auto-reset actuator. The mechanical auto-reset actuator includes a linkage system that connects to the breaker mechanism and resets the actuator as the breaker opens. The advantage is that no one has to open the cubicle door to reset the actuator before the breaker can be closed again after the overload/fault condition is addressed.



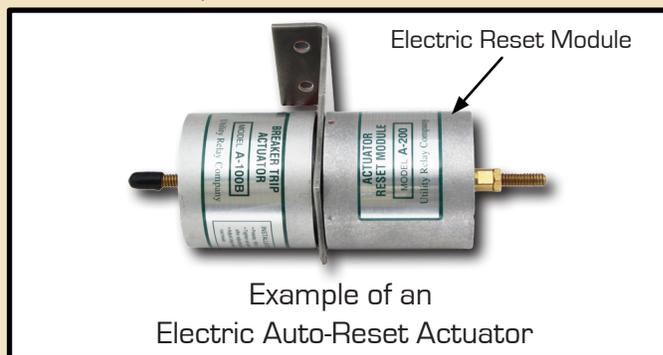
Example of a  
Mechanical Auto-Reset Actuator

### OEM Actuators

One of the three actuator types on this sheet is included with each complete retrofit kit sold by Utility Relay Company. In addition, URC trip units can sometimes use existing OEM actuators. If you are interested in one of those applications please contact URC for more information.

### Electric Auto-Reset Actuators

For some breakers, URC offers the option of an electric auto-reset actuator. The electric auto-reset system does not use linkages to reset the actuator. It includes a reset module that uses the breaker line side voltage to energize a reset coil in the module that resets the actuator after a trip event. The line side voltage taps are protected with current limiting fuses. The electronic circuit in the reset module energizes the reset coil for approximately one electrical cycle after the actuator reaches its end of travel. The advantage is that no one has to open the cubicle door to reset the actuator before the breaker can be closed again after the overload/fault condition is addressed.



Example of an  
Electric Auto-Reset Actuator

### Why is an Actuator Needed?

The AC-PRO or ZERO-Hertz trip units need a way to convert the electrical trip signal into a mechanical force that is used to trip the breaker. The actuator provides this force through stored energy in a spring. This energy is stored in the spring by:

- The manual resetting operation for the manual-reset actuator.
- The breaker linkage for the mechanical auto-reset actuator.
- The breaker line side voltage for the electrical auto-reset actuator.

Once reset, the actuator is held in the reset position by the magnetic force from a permanent magnet. When the trip unit applies the trip signal to a coil inside the actuator, the magnetic force is counteracted and the spring is released, pushing out a plunger and tripping the breaker.