

## Application

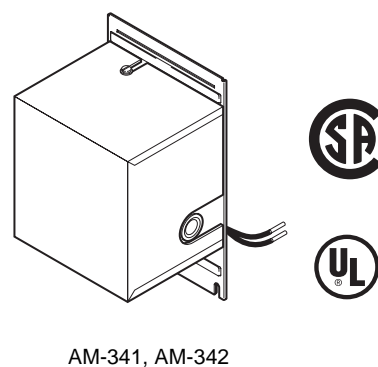
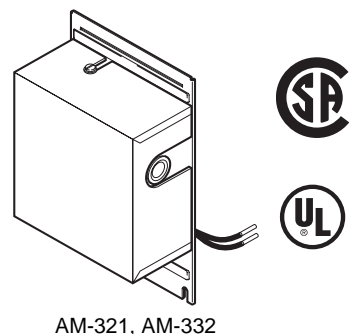
These actuator accessory kits are designed for installation on MC, MF, MP, MU, and MUP type oil-submerged gear train actuators. The accessory kits are coupled to the rear of an actuator output shaft by means of an interlocking drive disc.

## Features

- Potentiometers provide accurate feedback of actuator position for indication and precision control
- Adjustable differential SPDT auxiliary switches may be adjusted to operate at any point in the actuator stroke for maximum application flexibility

## Applicable Literature

- TAC Cross-Reference Guide, F-23638
- TAC Reference Manual, F-12683
- TAC Application Manual, F-21335
- TAC Electric/Electronic Products Catalog, F-27382
- AM-348 Accessory Kit Mounting Bracket General Instructions, F-10538
- MC-351, MC-421, MC-431, MC-4311 Three-Wire, Two-Position Actuators General Instructions, F-8366
- MP-3XX Series, MP-4XX Series, MP-2XXX Series, and MP-4XXX Series Reversible and Proportional Electric Actuators General Instructions, F-15479



## SPECIFICATIONS

### Outputs

#### Auxiliary Switch:

**AM-321, 341, 342**, Snap-action SPDT switches. AM-321 and AM-342 contain two auxiliary switches, and AM-341 contains four auxiliary switches. The setting of each switch is adjustable, using the wrench included. The differential of each switch is adjustable, with a minimum differential of 9°.

#### Potentiometer:

**AM-332, 342**, Spring-loaded, friction-driven copper wiper arm with a contact that rides on a uniformly wound wire resistance card.

**Resistance Card**, Resistance of 100  $\Omega$ ; use with a power supply not to exceed 25 Vac. Electrical capacity of 3 watts.

**Connections:** Coded screw terminals.

**Mounting:** To back of actuator, or AM-348.

**Case:** Aluminum. 1/2" conduit knockouts on right and left hand sides.

**Ratings (All models except AM-332)**, Refer to Table-1.

### Environment

#### Ambient Temperature Limits:

**Shipping & Handling**, -40 to 176° F (-40 to 80° C).

**Operating**, -22 to 122° F (-30 to 50° C).

**Humidity:** 5 to 80% relative humidity, non-condensing.

**Table-1 Electrical Ratings for Accessory Kits with Electrical Switches.**

Part Number	Full Load Amps		Locked Rotor Amps		Non-Inductive Amps		Max. Total Load Not to Exceed
	120 Vac	240 Vac	120 Vac	240 Vac	120 Vac	240 Vac	
AM-321 AM-341 AM-342	5.8	2.9	34.8	17.4	15	7.5	2000 VA

#### ACCESSORIES

None

#### TOOLS

Screwdriver to install the screws which secure the accessory kit to the actuator or mounting bracket.

# INSTALLATION

## Inspection

Inspect the package for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

## Requirements



- Tools (not provided): Appropriate screwdriver for accessory kit mounting screws
- Training: Installer must be a qualified, experienced technician
- Appropriate accessories
- Wiring diagrams

### ▼ **WARNING**

- Disconnect the power supply (line power) before installation to prevent injury and equipment damage.
- Make all connections in accordance with national and local electrical codes and the wiring diagram.
- Use copper conductors only.

### ▼ **CAUTION**

- Do not exceed the ratings of the device(s).
- Do not apply power to the unit unless the damper linkage and/or the valve assembly have been installed.
- Avoid locations where excessive moisture, corrosive fumes, or vibration is present.
- Do not install insulation on any part of the actuator.

## Mounting

The AM-321, AM-332, AM-341 and AM-342 accessory kits can be mounted onto the MC, MF, MP, MU and MUP type oil-submerged gear train actuators.

To mount an accessory kit onto a nonspring-return actuator, proceed as follows:

1. Remove the actuator terminal cover and remove the four screws which secure the actuator back plate. Discard the back plate.
2. Remove the cover from the accessory kit.
3. Align, on the actuator, the back plate supplied with the accessory kit.
4. Align the interlocking drive discs on the accessory kit and the actuator. Note that each disc features one drive lug that is larger than the other, to ensure proper alignment. Assemble the accessory kit to the actuator so that the drive discs are engaged. Secure the accessory kit to the actuator with the four screws obtained when the actuator back plate was removed.
5. Replace the cover onto the accessory kit.

To mount an accessory kit onto a spring-return actuator, proceed as follows:

1. Remove and discard the back plate which comes assembled to the accessory kit.
2. Remove the four external screws from the face of the actuator's spring-return housing.

### ▼ **CAUTION**

Do not remove the screws which have anti-backup heads from the actuator. These screws are used to secure the cover which retains the return spring in the casting.

3. Engage the drive discs on the accessory kit and the actuator. Note that each disc features one drive lug that is larger than the other, to ensure proper alignment. Align the accessory base holes with those on the spring-return housing. Secure the accessory kit to the housing with the four screws previously removed from the spring-return case.

## WIRING

AM-321, AM-341 and AM-342 accessory kits must be connected to Class 1 circuits unless all circuits are powered from a Class 2 circuit. Make all electrical connections in accordance with the job wiring diagram and in compliance with national and local electrical codes.

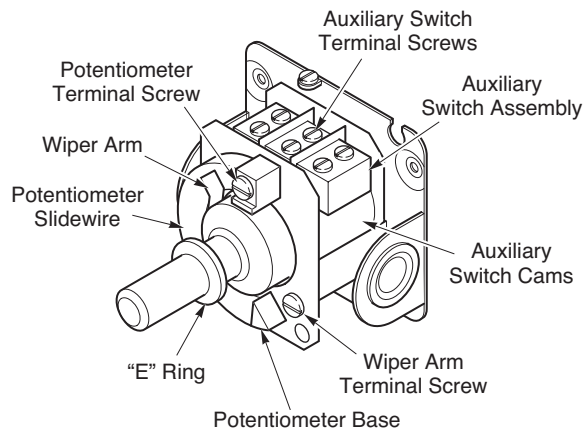
## ADJUSTMENTS

### Auxiliary Switch Adjustment

Accessory kits AM-321 and AM-342 each contain two SPDT, snap-acting auxiliary switches. Accessory kit AM-341 contains four such switches. All switches are independently adjusted to operate at any point in the actuator stroke. Large screw-type terminals, marked "C," "B," and "R," are provided for connections. The terminals marked "C" are common for each SPDT switch, and those marked "B" and "R" are the contact terminals. On CW rotation of the actuator, the "B" contact closes. On CCW rotation of the actuator, the "R" contact closes. Refer to Figure-1 for an internal view of an AM-342 accessory kit showing the features of an auxiliary switch assembly.

Set the operating points of the auxiliary switches as follows:

1. With the accessory kit mounted onto the actuator, run the actuator CCW to the end of its travel. Refer to the diagram on the underside of the actuator cover and/or the actuator instruction sheet.
2. Using a wrench, turn the black cam CW or the white cam CCW (as determined when viewing the actuator output shaft), until both cams move simultaneously. This provides the minimum switch differential of approximately 9°.
3. Turn the black cam CW until the depression in the cam is at the point on the scale where the switch is to make "B" the upper contact. Both cams should move when the black cam is turned.
4. If the minimum switch differential is required, the switch adjustment is now completed.
5. If a setting other than the minimum differential is required, turn the white cam CW until its lobe is at the desired position on the scale, where the switch is to make "R" the lower contact.
6. Run the actuator through its entire travel to verify the switch settings.



**Figure-1 Internal Features of AM-342 Accessory Kit.**

## Potentiometer Adjustment

Accessory kit AM-332 contains a potentiometer. This potentiometer consists of a spring-loaded, friction-driven, copper wiper arm with a contact that rides on a uniformly wound wire resistance card. The standard card has a resistance of 100  $\Omega$ , and is to be used only with a power supply which does not exceed 25 Vac. The electrical capacity of the resistance card is approximately 3 watts. For a view showing features of such a potentiometer, refer to Figure-1 for the internal view of an AM-342 accessory kit.

Adjust the potentiometer as follows:

1. With the accessory kit mounted onto the actuator, run the actuator to the CCW end of its travel.
2. Manually position the wiper arm at the CCW end of the resistance card.

## MAINTENANCE

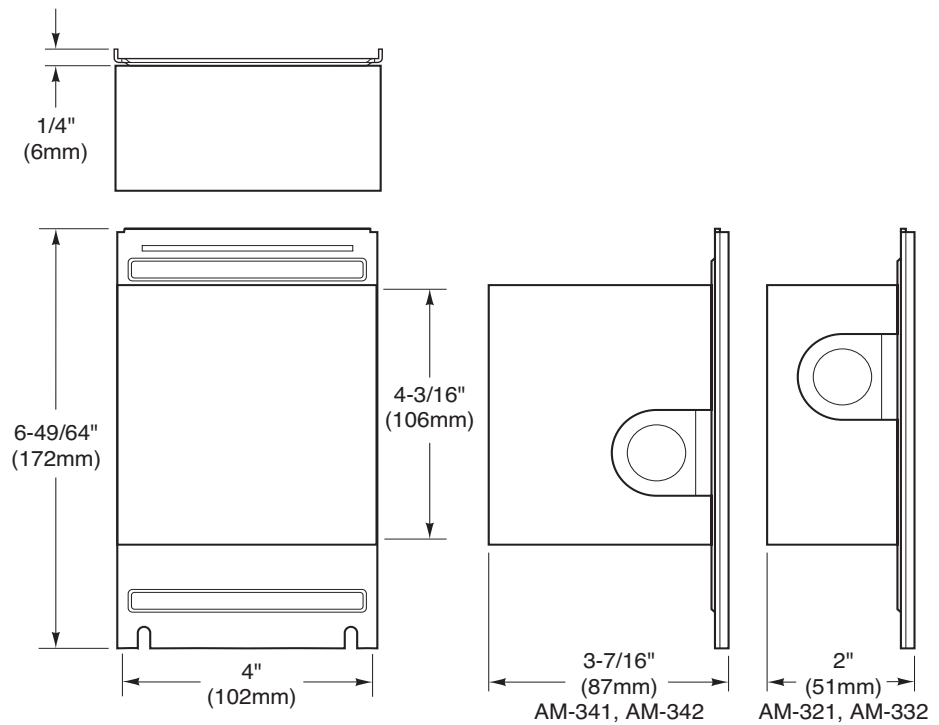
The accessory kits require no maintenance.

Regular maintenance of the total system is recommended to assure sustained, optimum performance.

## FIELD REPAIR

None. Replace an inoperative accessory kit with a functional unit.

## DIMENSIONAL DATA



**Figure-2 Dimensions of Accessory Kits  
AM-321, AM-332, AM-341 and AM-342.**



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