

# Surepower Series Sure 65


## Installation, Operation and Maintenance Manual


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# 1. Actuator Use

	<b>WARNING</b>
	<b>PPE</b> Approved Personal Protection Equipment for the site must be worn.

	<b>ATTENTION</b>
	<b>EPI</b> Un équipement de protection personnelle approuvé pour le site doit être porté.

This manual gives instructions for storing, installing, operating and servicing the RCS Surepower\* Series Sure 65 electromechanical actuator. Refer all questions not covered in this manual to:

**Industrial Products Group**  
**RCS Actuators**  
16240 Port Northwest Drive  
Houston, TX 77041  
T: 832-590-2306  
Toll Free: 1-800-945-9898  
F: 713-849-2879

Check the compatibility of the actuator's nameplate markings with the classification of the installation area's environment and its ambient and admissible surface temperatures.

Only qualified, certified and properly trained personnel shall conduct actuator installation and maintenance.

## 2. Actuator Ratings

Model	Input Voltage 1-Phase, 50/60 Hz.	Output Torque	Electrical Speed of Operation 90° Revolution	Spring Speed of Operation 90° Revolution~	Duty Cycle Rating ** (22.5° C)	Current Rating		
						N.L.A.	F.L.A.	L.R.A.
Sure 65-10	120 VAC	780 lb. in (88 N-m)	10 Seconds	3 Seconds	45%	1.10 A	1.60 A	1.90 A
Sure 65-10	240 VAC	780 lb. in (88 N-m)	10 Seconds	3 Seconds	45%	0.80 A	0.85 A	0.98 A
Sure 65-30	120 VAC	780 lb. in (88 N-m)	30 Seconds	7 Seconds	75%	0.52 A	0.64 A	0.89 A
Sure 65-30	240 VAC	780 lb. in (88 N-m)	30 Seconds	7 Seconds	75%	0.27 A	0.32 A	0.44 A

(F.L.A.) – Full Load Ampere (N.L.A.) - No Load Ampere (L.R.A.) - Locked Rotor Ampere ~ Approximate, Based on Load - Weight Without Manual Override [Lb / Kg] - 75/34

### Certification North America:

Class I, Group C and D, Class II, Group E, F and G, Class III

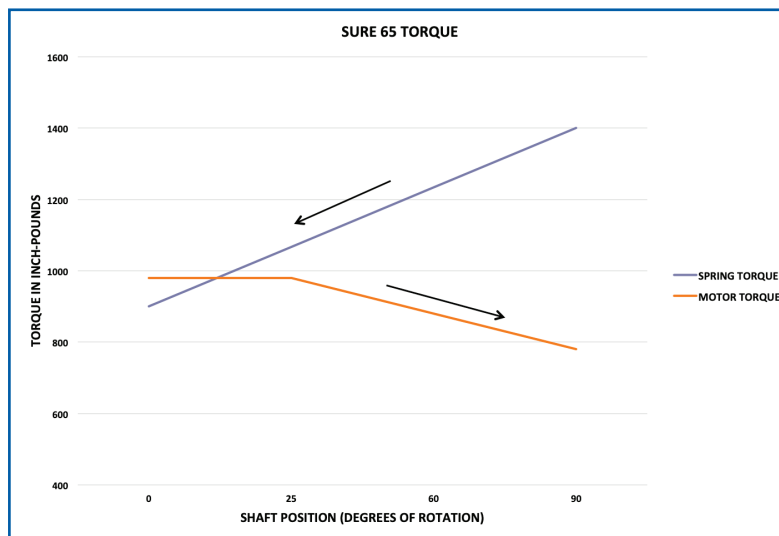
Ex d IIB Gb, Ex tb IIIC T85 Db IP 66/67;

Class I, Zone 1, AEx d IIB. Zone 21, AEx tD, T85

Enclosure Types 4/4X & 6; Ambient Rating: -40°C to +65°C

#### APPLICABLE STANDARDS:

C22.2 No. 0-10	CAN/CSA-C22.2 No. 60529:16
C22.2 No. 25-1966	UL 50, 12th Ed.
C22.2 No. 30-M1986	UL 50E, 2nd Ed.
C22.2 No. 94.1-07	UL 429, 7th Ed.
C22.2 No. 94.2, 2nd Ed.	UL 1203, 5th Ed.
C22.2 No. 139-13	UL 60079-0, 6th Ed.
CAN/CSA-C22.2 No. 60079-0:2015	UL 60079-1, 7th Ed.
CAN/CSA-C22.2 No. 60079-1:2016	UL 60079-31, 2nd Ed.
CAN/CSA-C22.2 No. 60079-31:2015	ANSI/IEC 60529 (2004)



### 3. Safety


#### Safety First!


In the maintenance and operation of mechanical equipment, safety must be considered at all times. Through the use of the proper clothes, tools, and methods of handling, serious accidents can be prevented.

A number of safety precautions are listed throughout this manual. Study them carefully and follow them, and insist that those working for and with you do the same. Remember, an accident is usually caused by carelessness, neglect, or oversight.

#### Warnings and Notices


Pictograms are used throughout this manual to denote important or dangerous situations. If warnings are not respected, dangerous situations may result that may cause serious personal injury or death. Examples of the pictograms throughout this manual:


	<b>WARNING</b>
	<p><b>GROUNDING LUG:</b> Unit must be grounded with minimum size 10 AWG wire.</p>

	<b>ATTENTION</b>
	<p><b>COSSE DE MISE À LA TERRE :</b> l'appareil doit être mis à la terre à l'aide d'un fil d'un calibre minimal de 10 AWG.</p>

<b>WARNING</b>
Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

<b>AVERTISSEMENT</b>
Indique une situation dangereuse qui, si elle n'est pas évitée, pourrait entraîner la mort ou des blessures graves.

	<b>WARNING</b>
	<p><b>ELECTRICAL SHOCK WARNING:</b> Indicates a risk of death or serious injury due to electrical shock if safety measures are not adhered to.</p>

	<b>ATTENTION</b>
	<p><b>AVERTISSEMENT DE CHOC ÉLECTRIQUE :</b> indique un risque de mort ou de blessure grave par électrocution si les mesures de sécurité ne sont pas respectées.</p>


<b>NOTICE</b>
Indicates practices not related to personal injury, but addresses important information regarding the installation, operation or maintenance of the unit.


<b>NOTIFICATION</b>
indique les pratiques qui ne sont pas liées à des blessures corporelles, mais aborde des informations importantes concernant le montage, l'exploitation ou la maintenance de l'appareil.


<b>CAUTION</b>
Indicates a potentially hazardous situation that, if not avoided, can result in minor to moderate injury, or serious damage to the product. The situation described in the CAUTION may, if not avoided, lead to serious results. Important safety measures are described in CAUTION (as well as WARNING), so be sure to observe them.

<b>PRÉCAUTION</b>
indique une situation potentiellement dangereuse qui, si elle n'est pas évitée, peut entraîner des blessures mineures ou modérées ou de graves dommages matériels. La situation décrite sous le titre ATTENTION peut, si elle n'est pas évitée, dégénérer avec des conséquences graves. Les mesures de sécurité importantes sont décrites sous le titre ATTENTION (et sous le titre AVERTISSEMENT), par conséquent, il est impératif de les observer.


Observe these and all other warnings at all times during installation, operation and maintenance of this product:


	<b>WARNING</b>
	<p><b>EXPLOSION HAZARD</b> Death or serious injury could result. Do not open unless power to actuator has been disconnected.</p>

	<b>ATTENTION</b>
	<p><b>RISQUE D'EXPLOSION</b> Peut entraîner la mort ou de graves blessures. Ne pas ouvrir à moins que l'actionneur ne soit mis hors tension.</p>

	<b>WARNING</b>
	<p><b>EXPLOSION HAZARD</b></p> <p>Death or serious injury could result.</p> <p>Do not open if an explosive atmosphere may be present.</p>

	<b>ATTENTION</b>
	<p><b>RISQUE D'EXPLOSION</b></p> <p>Peut entraîner la mort ou de graves blessures.</p> <p>Ne pas ouvrir en présence d'une atmosphère potentiellement explosive.</p>

	<b>WARNING</b>
	<p><b>ELECTRICAL SHOCK WARNING:</b></p> <p>Indicates a risk of death or serious injury due to electrical shock if safety measures are not adhered to.</p>

	<b>ATTENTION</b>
	<p><b>AVERTISSEMENT DE CHOC ÉLECTRIQUE :</b></p> <p>indique un risque de mort ou de blessure grave par électrocution si les mesures de sécurité ne sont pas respectées.</p>

	<b>WARNING</b>
	<p><b>HIGH ENERGY HAZARD</b></p> <p>Death or serious injury could result.</p> <p>Do not attempt to repair actuator unless properly trained in specific repair methods for this device.</p>

	<b>ATTENTION</b>
	<p><b>RISQUE D'ÉNERGIE ÉLEVÉE</b></p> <p>Peut entraîner la mort ou de graves blessures.</p> <p>Ne pas tenter de réparer l'actionneur à moins d'être bien formé aux méthodes de réparation spécifiques pour cet appareil.</p>


## Joint Handling

Do not open actuator cover if there is risk of an explosive environment. Care must be taken with the joint surface when handling, installing or storing to preserve the integrity of the explosion-proof joint. See joint handling instructions under the Installation section of this manual. Failure to observe these instructions may compromise the enclosure protection rating.

## Fasteners

Both Metric and Imperial fasteners are used, use applicable tools. The enclosure cover bolts and the hard stop assemblies are metric threads and the rest are imperial threads.


All fasteners must be installed and properly tightened. Enclosure cover screws, mounting fasteners and cable glands must be tightened to specified torque values. Failure to maintain specified torque for cover screws and cable glands may compromise the enclosure protection rating. Failure to maintain specified torque for mounting fasteners may compromise actuator operation. See **Installation and Maintenance sections** of this manual for specified fastener and torque requirements, as well as safety and maintenance information.


	<b>WARNING</b>
	<p><b>EXPLOSION HAZARD</b></p> <p>Death or serious injury could result.</p> <p>Maintain cover screw and cable gland fastener torque specifications to ensure enclosure protection.</p>

	<b>ATTENTION</b>
	<p><b>RISQUE D'EXPLOSION</b></p> <p>Peut entraîner la mort ou de graves blessures.</p> <p>Veuillez respecter les spécifications de couple de serrage de la vis du couvercle et du presse-étoupe afin d'assurer la protection de l'enceinte.</p>

### Lifting


Lifting Lug holes are available in Sure 65. Special care must be given during handling and lifting of both Sure 65.


	<b>WARNING</b>
	<p><b>LIFTING HAZARD</b></p> <p>May result in injury.</p> <p>See safety manual for lifting instructions.</p>

	<b>ATTENTION</b>
	<p><b>RISQUE LIÉ AU LEVAGE</b></p> <p>Peut entraîner des blessures.</p> <p>Voir le manuel de sécurité pour les instructions de levage.</p>

### Seals

All seals must be routinely checked to ensure that they are in good condition, properly sealed and replaced as needed. Failure to do so may compromise the enclosure protection rating. **See Installation and Maintenance sections for instructions.**


	<b>WARNING</b>
	<p><b>EXPLOSION HAZARD</b></p> <p>Death or serious injury could result.</p> <p>Maintain all seals to ensure enclosure protection.</p>

	<b>ATTENTION</b>
	<p><b>RISQUE D'EXPLOSION</b></p> <p>Peut entraîner la mort ou de graves blessures.</p> <p>Veuillez à l'étanchéité des joints afin d'assurer la protection de l'enceinte.</p>

### Cable Glands

Cable glands must be installed and maintained and properly torqued according to the Installation and Maintenance specifications. Failure to do so may compromise the enclosure protection rating.


**See Installation and Maintenance sections for instructions.**


	<b>WARNING</b>
	<p><b>EXPLOSION HAZARD</b></p> <p>Death or serious injury could result.</p> <p>Maintain cable gland torque specifications to ensure enclosure protection.</p>

	<b>ATTENTION</b>
	<p><b>RISQUE D'EXPLOSION</b></p> <p>Peut entraîner la mort ou de graves blessures.</p> <p>Veuillez respecter les spécifications de couple du presse-étoupe afin d'assurer la protection de l'enceinte.</p>

### Grounding and Bonding

Failure to properly ground or bond the device may result in death or serious injury due to explosive hazards. **See Bonding and Grounding under the Installation section of this manual for proper specifications.**

	<b>WARNING</b>
	<p><b>EXPLOSION HAZARD</b></p> <p>Death or serious injury could result.</p> <p>Ensure device is properly grounded to avoid explosion hazard.</p>


	<b>ATTENTION</b>
	<p><b>RISQUE D'EXPLOSION</b></p> <p>Peut entraîner la mort ou de graves blessures.</p> <p>Assurez-vous de la bonne mise à la terre du dispositif afin d'éviter tout risque d'explosion.</p>

### Spring Housing

<b>CAUTION</b>
<p>Loaded spring inside actuator.</p> <p>Do not attempt to repair actuator below top gear plate, unless properly trained on repair methods.</p>

<b>ATTENTION</b>
<p>ressort à l'intérieur de l'actionneur.</p> <p>Ne pas essayer de réparer l'actionneur en dessous de la plaque supérieure de vitesse, à moins d'être bien formé sur les méthodes de réparation.</p>

## 4. Installation

	<b>WARNING</b>
	<b>HIGH ENERGY HAZARD – LOADED SPRING</b> Death or serious injury could result. Do not attempt to repair actuator unless properly trained in specific repair methods for this device.

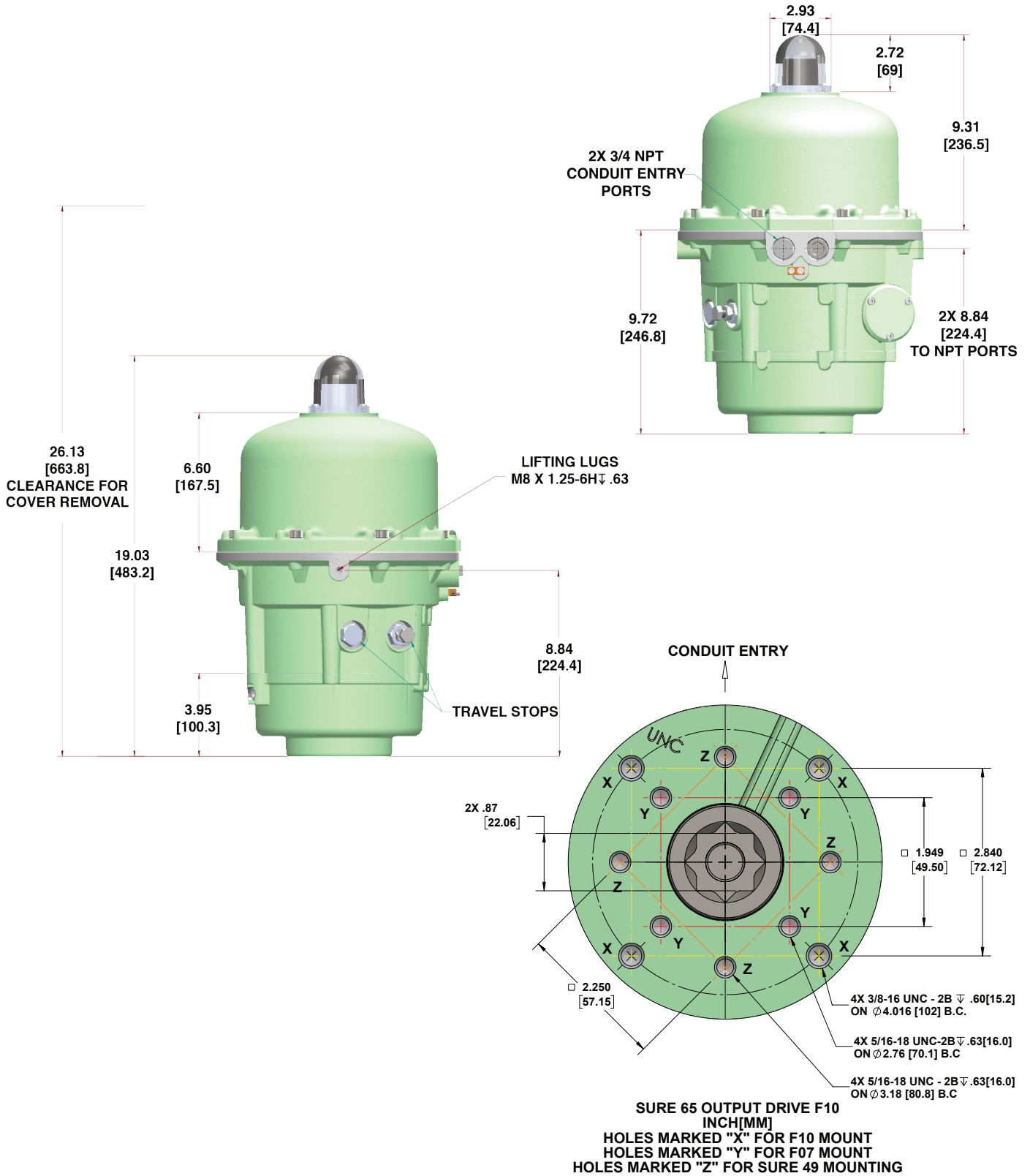
	<b>ATTENTION</b>
	<b>RISQUE D'ÉNERGIE ÉLEVÉE - À RESSORT</b> Peut entraîner la mort ou de graves blessures. Ne pas tenter de réparer l'actionneur à moins d'être bien formé aux méthodes de réparation spécifiques pour cet appareil.

<b>NOTICE</b>
SurePowr actuators can be supplied for clockwise or counter-clockwise spring-driven rotation (viewed from the top of the actuator). The spring drive rotation is noted on the actuator name tag and wiring diagram. Ensure that the actuator has been supplied with the proper spring drive operation for the application prior to installation on the driven device.

<b>NOTIFICATION</b>
les actionneurs SurePowr peuvent être fournis pour une rotation par ressort dans le sens horaire ou anti-horaire (vue du haut de l'actionneur). La rotation de l'entraînement à ressort est indiquée sur l'étiquette du nom de l'actionneur ainsi que sur le schéma de câblage. Assurez-vous que l'opération d'entraînement à ressort de l'actionneur qui vous a été fourni soit appropriée avant de la monter sur le dispositif entraîné.


# Actuator Outline Dimensions


ALL DIMENSIONS ARE IN INCHES [MM]






## Cover Removal and Assembly

	<b>WARNING</b>
	<p style="text-align: center;"><b>Explosion Hazard – Remove Power</b></p> <p>Death or Serious Injury could result. Do not open unless power to actuator has been disconnected.</p>

	<b>WARNING</b>
	<p style="text-align: center;"><b>Explosive Atmosphere Hazard</b></p> <p>Death or Serious Injury could result. Do not open if an explosive atmosphere may be present.</p>

	<b>WARNING</b>
	<p style="text-align: center;"><b>Explosion Hazard</b></p> <p>Death or Serious Injury could result. After De-energizing, delay X minutes before opening.</p>

	<b>WARNING</b>
	<p style="text-align: center;"><b>Explosion Hazard</b></p> <p>Death or Serious injury could result. Maintain Cover Screw torque specifications to avoid hazard.</p>


Do not store or set actuator cover with the flange surface down. To preserve the explosion-proof integrity of the joint, care must be taken not to damage, scuff or score the flange joint surfaces and associated parts (cable glands, joints, etc.). Take care not to damage the cover joint when removing or installing the cover. Ensure that the joint is clean and free of debris or damage and ensure that O-ring is intact and in place before replacing cover. The explosion-proof joint may be lubricated with an appropriate, non-corrosive, non-hardening grease, such as petroleum jelly.

When replacing the actuator cover, ensure the 8 Cover Screws are tightened to specified torque value and that all screws are intact. Failure to maintain specified screw torque may compromise the enclosure protection rating.

### Enclosure Cover Screw Specifications:

Eight 10 X 1.5 X 35mm long, Grade A2-70 Stainless Steel, torqued to 25 Ft-Lbs [34 N-m]

## Mounting

	<b>WARNING</b>
	<p style="text-align: center;"><b>High Energy Hazard – Loaded Spring</b></p> <p>Death or Serious Injury could result. Do not attempt to un-mount the Actuator while under load.</p>

The actuator is shipped in the power off spring return position. Ensure that the driven device is orientated to its spring return position prior to installation of the actuator.

Care should be taken to maintain proper alignment between the actuator and the device shaft. The actuator should install on the shaft without binding. The mounting face should be centered on the bracket without binding or side load.

Mount the actuator to the device. Ensure the actuator is centered properly on the device shaft, and then tighten all fasteners evenly.

## Mounting Fastener Specification

Minimum four, 5/16"-18 UNC, Grade 8 or equivalent, torqued to 23Ft-Lb (31 N-m)

## Horizontal Mounting

The Actuator is suitable for mounting in any orientation; however, for horizontal mounting, additional support is recommended and to be attached at the Lifting Lug screw holes.

## Conduit Locations and Thread Sizes

The actuator is supplied with two - ¾" NPT conduit entries.

Refer to the Sure50/75 outline drawing for conduit entry locations. One Metal Plug and Other plastic plug for only shipping purpose.

## Cable Glands

Ensure that the cable glands and wiring conform to the applicable Explosion-Proof Equipment Standards and to the Explosion-Proof Classification.

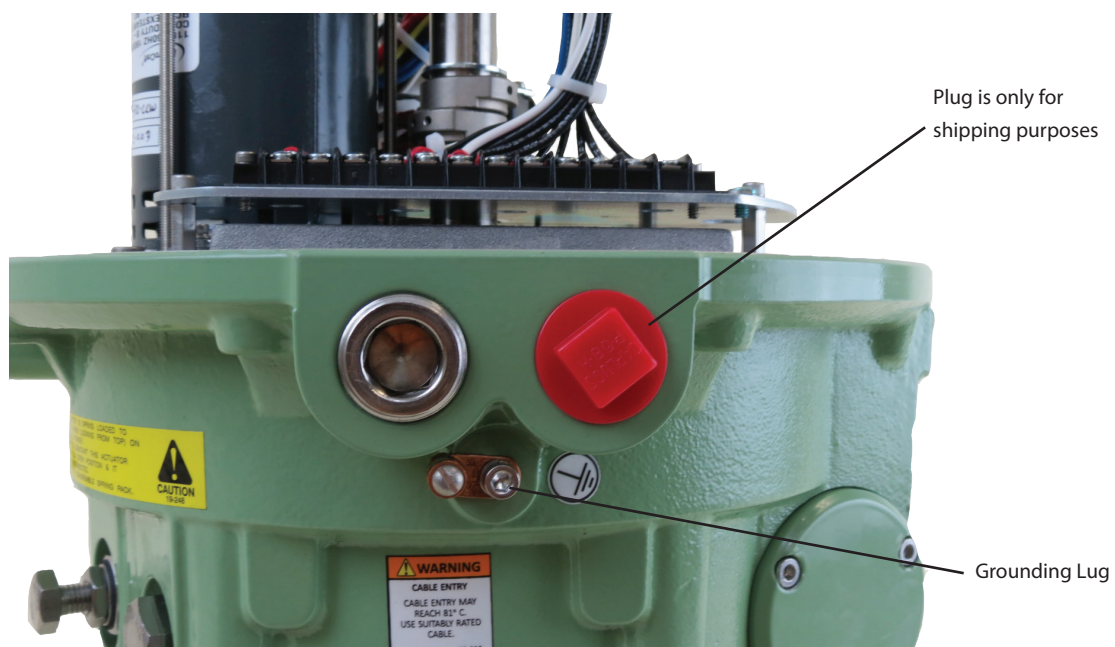
If an adapter is necessary to fit a cable gland, only one adapter is allowed at cable entry.

If one of the cable entries is not used, it should be sealed with a certified metal plug, without an adapter.

Cable glands should be fastened firmly to prevent ingress of water or dirt and should be tightened to the manufacturer's specified torque to ensure the required enclosure protection.


## Grounding and Bonding


The internal and external grounding points are electrically connected within the actuator. The Internal Grounding Point is a green Grounding Screw located on the surface of the top gear plate near the conduit entry. The External Grounding Point location is below the conduit entries and tightened with a 3/32" hex key wrench.




## Wiring

Wiring diagrams vary according to specific product configuration. Refer to the wiring diagram supplied with the actuator for field wiring connections.

	<b>WARNING</b>
	<p><b>EXPLOSION HAZARD</b></p> <p>Death or serious injury could result.</p> <p>Maintain cover screw torque specifications to ensure enclosure protection.</p>

	<b>ATTENTION</b>
	<p><b>RISQUE D'EXPLOSION</b></p> <p>Peut entraîner la mort ou de graves blessures.</p> <p>Veuillez respecter les spécifications de couple de la vis du couvercle afin d'assurer la protection de l'enceinte.</p>

	<b>WARNING</b>
	<p><b>HIGH ENERGY HAZARD – LOADED SPRING</b></p> <p>Death or serious injury could result.</p> <p>Do not attempt to repair actuator unless properly trained in specific repair methods for this device.</p>

	<b>ATTENTION</b>
	<p><b>RISQUE D'ÉNERGIE ÉLEVÉE - À RESSORT</b></p> <p>Peut entraîner la mort ou de graves blessures.</p> <p>Ne pas tenter de réparer l'actionneur à moins d'être bien formé aux méthodes de réparation spécifiques pour cet appareil.</p>

<b>NOTICE</b>
Use a minimum of #18 AWG stranded wire.

<b>NOTIFICATION</b>
utiliser un fil torsadé d'un calibre minimal de #18 AWG.

<b>NOTICE</b>
Units should be connected using the wiring diagram supplied with the actuator.

<b>NOTIFICATION</b>
les dispositifs doivent être raccordés en utilisant le schéma de câblage fourni avec l'actionneur.

<b>NOTICE:</b>
Direction of rotation is based on viewing the actuator from the top.

<b>NOTIFICATION</b>
sens de rotation vue du haut de l'actionneur.

<b>NOTICE</b>
To operate multiple actuators in parallel from a single source requires isolating relays in the field wiring.

<b>NOTIFICATION</b>
les relais dans le câblage doivent être isolés afin de faire fonctionner plusieurs actionneurs en parallèle à partir d'une source unique.

## Setting Mechanical Travel Stops

### NOTICE

Only the spring return End Travel Stop may be adjusted mechanically. The total adjustment available is +/- 5°.

### NOTICE

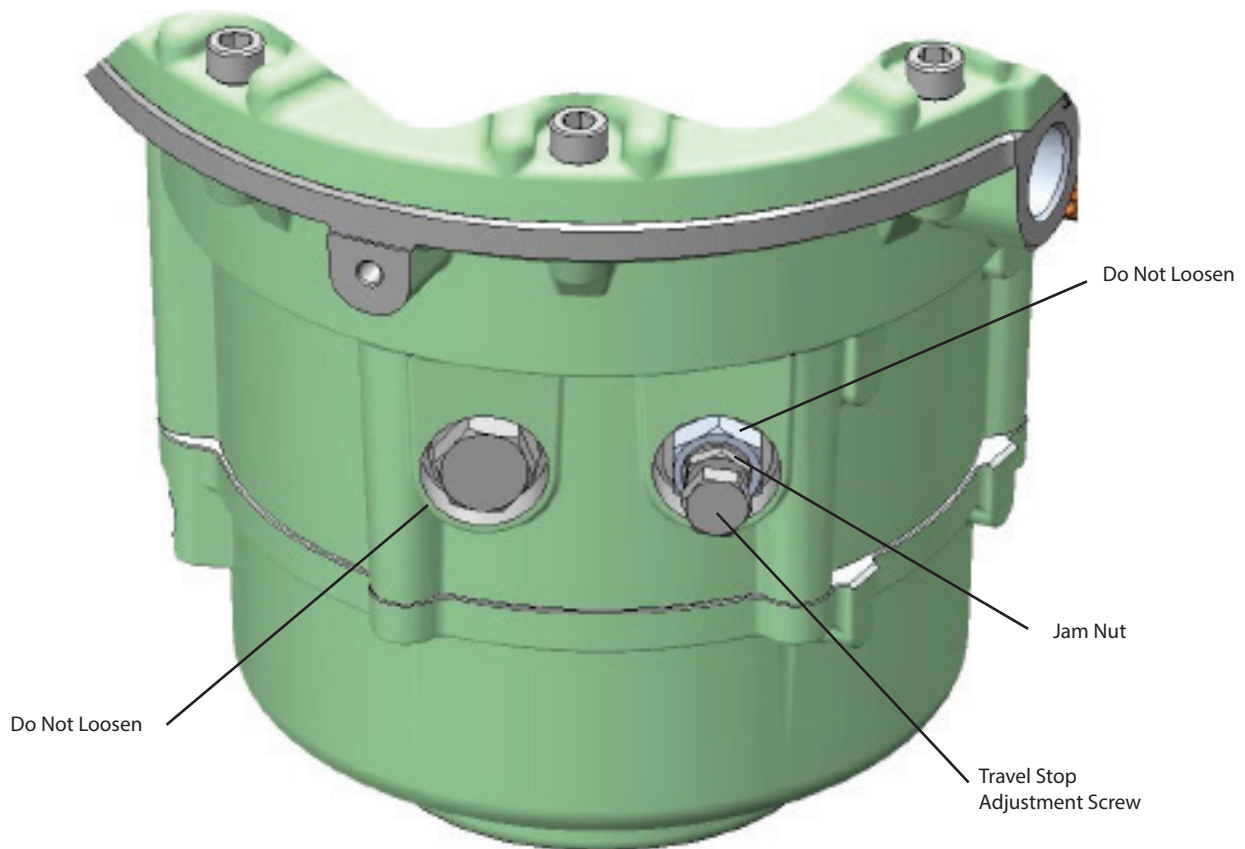
Do not loosen the large hex screw in the travel stop assembly, this will result in spring release and will remove the spring pre-load.

To adjust the spring return end position, perform the following:

- Back off Jam Nut on spring return end travel stop.
- Rotate travel stop adjustment screw inward or outward to adjust the spring return end position.
- Hold the adjustment screw from turning and re-tighten Jam Nut in order to lock this adjustment screw in place and maintain enclosure rating.
- Readjust the spring return cam as necessary

### NOTICE

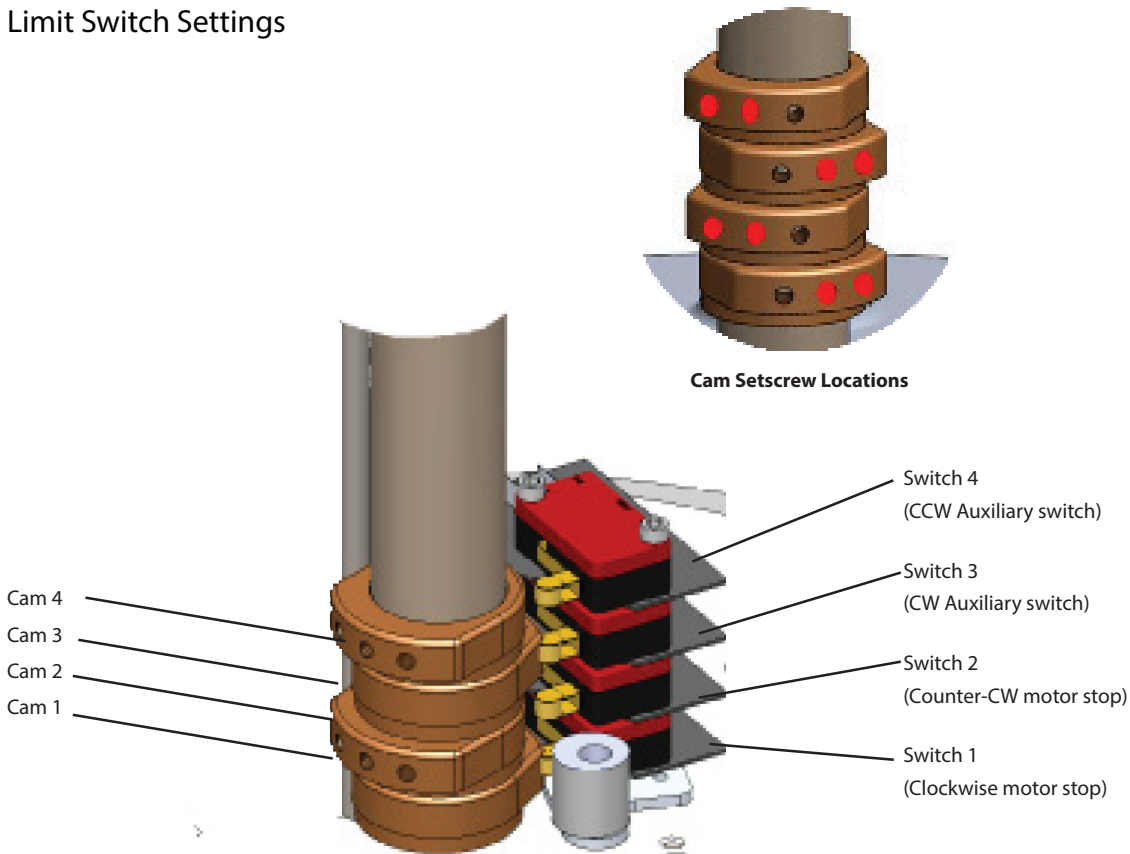
After adjusting the travel stop, actuator spring return end limit switches must be readjusted.




### **Clock-Wise Spring Return Version**

(Counter Clock-Wise orientation will be seen as a mirror image)

## Limit Switch Settings



	<b>WARNING</b>
	<p><b>EXPLOSION HAZARD</b> Death or serious injury may result.</p> <p>Switches must stop motor.</p>

	<b>ATTENTION</b>
	<p><b>RISQUE D'EXPLOSION</b> Peut entraîner la mort ou de graves blessures.</p> <p>Les commutateurs doivent arrêter le moteur.</p>

### Switch adjustments for clockwise spring return operation

Cam 1 actuates the clockwise motor stop switch.

Cam 2 actuates the counter-clockwise motor stop switch.

Cams 3 and 4 actuate the auxiliary switches.

#### Setting the clockwise (spring return position) switch:

1. Ensure actuator is positioned in the clockwise (spring return) position. Ensure the end of travel stop is properly adjusted (see Setting Mechanical Travel Stops section).

2. Loosen the two setscrews on Cam 1 (1/16" hex drive). Rotate Cam 1 counter-clockwise away from its switch until it clears the switch lever
3. Rotate Cam 1 CW until it contacts the switch lever and the switch "breaks" – a slight "click" can be heard. Continue to rotate the cam slightly in the clockwise direction; this ensures that the motor will be switched off before the actuator reaches its end of travel stop. An ohmmeter might have to be used in some cases.
4. Retighten both set screws in the cam.

<b>NOTICE</b>
<p>Spring Return end limit switch should trip well before the actuator drives into the mechanical travel stop. Failure to properly set the limit switch will result in continuous motor operation after driving into the mechanical travel stop.</p>

**Setting the counter-clockwise (motor drive position) switch:**

1. With actuator in its full counter-clockwise position, loosen set screws on Cam 2 and rotate the Cam CW until it clears the switch lever.
2. Rotate the cam CCW until it contacts the switch lever and the switch "breaks" A slight click can be heard. An ohmmeter might have to be used in some cases.
3. Retighten both set screws in the cam.

**Auxiliary Switches:**

Set Cams 3 and 4 to trip auxiliary switches as required for the application. If used for end of travel indication they should be set to trip before the corresponding end of travel switch.

**NOTICE**

Replace Cover and Cover Screws in accordance with the specifications stated in the Installation Section of this manual.

**Setting the clockwise (motor drive position) switch:**

1. With actuator in its full clockwise position, loosen set screws on Cam 1 and rotate the cam CW until it clears the switch lever.
2. Rotate the cam CCW until it contacts the switch lever and the switch "breaks" A slight click can be heard. An ohmmeter might have to be used in some cases.
3. Retighten both set screws in the cam.

**Auxiliary Switches:**

Set Cams 3 and 4 to trip auxiliary switches as required for the application. If used for end of travel indication they should be set to trip before the corresponding end of travel switch.

**NOTICE**

Replace Cover and Cover Screws in accordance with the specifications stated in the Installation Section of this manual.

**Switch adjustments for counter-clockwise spring return operation**

Cam 1 actuates the clockwise motor stop switch.

Cam 2 actuates the counter-clockwise motor stop switch.

Cams 3 and 4 actuate the auxiliary switches.

**Setting the counter clockwise (spring return position) switch:**

1. Ensure actuator is positioned in the counter clockwise spring return position. Ensure the end of travel stop is properly adjusted (see Setting Mechanical Travel Stops section). Loosen the two setscrews on Cam 2 (1/16" hex drive). Rotate Cam 2 clockwise away from its switch until it clears the switch lever.
2. Rotate the Cam 2 CCW until it contacts the switch lever and the switch "breaks" – a slight "click" can be heard. Continue to rotate the cam slightly in the counter clockwise direction; this ensures that the motor will be switched off before the actuator reaches its end of travel stop. Tighten both set-screws on Cam 2. An ohmmeter might have to be used in some cases.
3. Retighten both set screws in the cam.

**NOTICE**

Spring return end limit switch should trip well before the actuator drives into the mechanical travel stop. Failure to properly set the limit switch will result in continuous motor operation after driving into the mechanical travel stop.

## 5. Operation

**Power On:** The electric motor drives the gear train, which in turn winds the spring and turns the device. An internal limit switch de-energizes the motor and energizes the brake which holds the return spring and device in position.

**Power Loss:** When the current is interrupted by either a control signal or a power failure, the return spring drives the device to its original position.

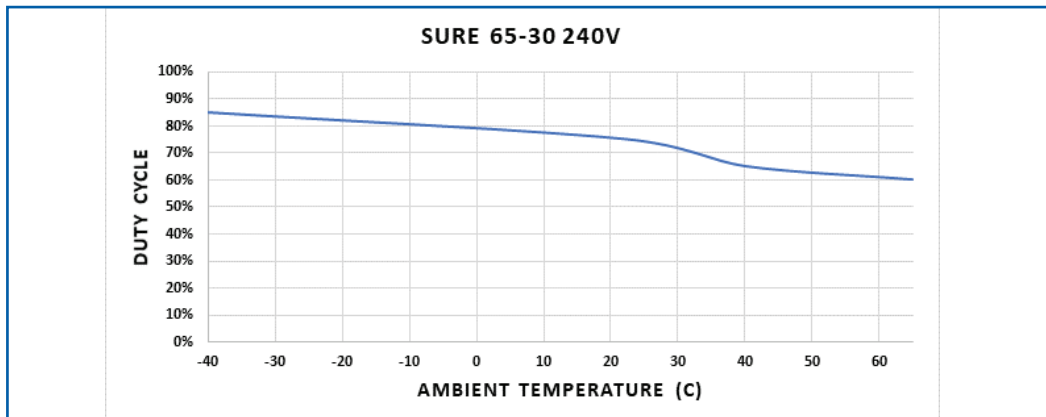
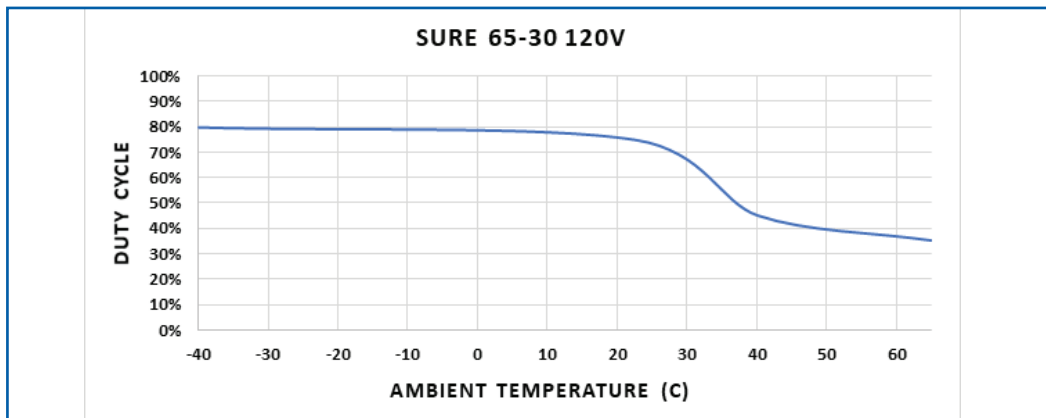
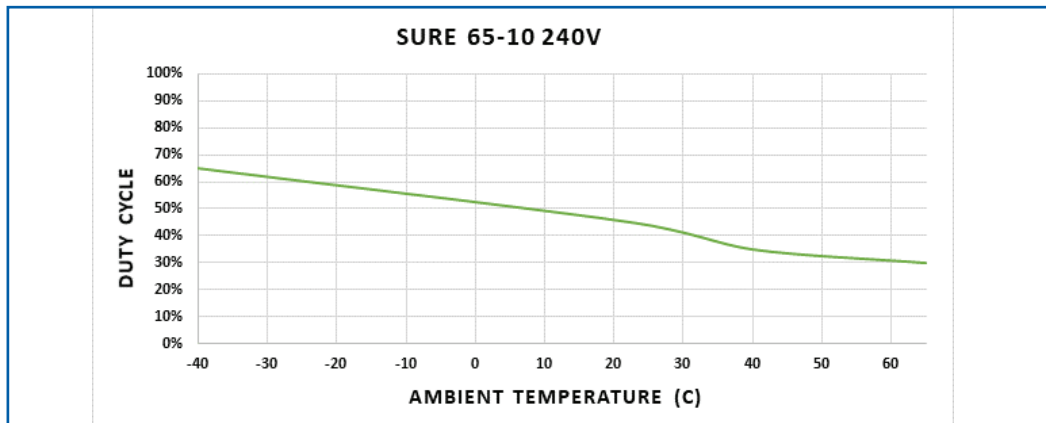
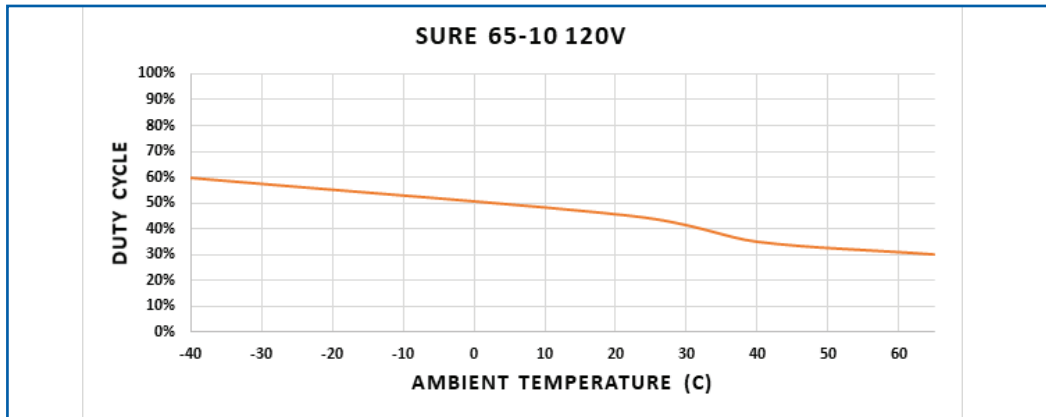
### NOTICE

It is recommended that the actuator be driven electrically in both directions for normal operation to prolong unit life.

### Thermal Overload

The internal thermal overload switch de-energizes the motor and prevents overheating of the motor windings due to excessive operation, stalling or high ambient temperatures. De-energizing the motor due to thermal overload will result in actuator spring-driving to the power loss position.

# Sure 65 Duty Cycle Ratings



\*\* 120VAC Actuators Certified Duty Cycle Rating is -40°C To +40°C is 25% and +40°C to +65°C is 20% per UL429, 7th Ed., Clause 27

\*\* 240VAC Actuators Certified Duty Cycle Rating is -40°C To +40°C is 30% and +40°C to +65°C is 20% per UL429, 7th Ed., Clause 27



## 6. Maintenance

Only qualified, certified and properly trained personnel shall conduct actuator maintenance.

The gear train is permanently lubricated at the factory for the average life of the actuator. No further attention is required.

Commissioned actuators should be checked routinely for damage to paint finish and touch-up paint applied where necessary to prevent corrosion.

Actuators which are infrequently operated should be tested every 6 months to ensure that it is ready to operate.

### Mounting Fasteners

For Mounting Fastener Specifications, refer to the Installation section of this manual.

Six months after commissioning, and annually thereafter, check fasteners between the actuator and the driven device for tightness. If required, tighten fasteners being sure to apply the correct specified torque. Failure to maintain specified torque may compromise actuator operation.

### Enclosure Cover Screws

For Enclosure Cover Screw Specifications and torque, refer to the Installation section of this manual.

**Six months after commissioning, and** annually thereafter, check the actuator Cover screws for tightness. If required, tighten screws applying the correct specified torque. Failure to maintain specified screw torque may compromise the enclosure protection rating.


**The explosion-proof joint may be lubricated with an appropriate, non-corrosive, non-hardening grease, such as petroleum jelly.**


### Seals and Cable Glands

Elastomer-based seals may degrade as they age; the seals must be regularly checked and replaced as needed. When replacing seals, be sure the sealing surfaces are clean.

O-rings should be checked regularly to ensure that they are in good condition. Ensure that O-rings are in good condition, placed correctly and that the sealing faces are clean. You may apply a thin film of non-acidic grease, such as petroleum jelly, to the sealing faces.

Cable glands should be checked regularly to ensure they are tightened according to specifications to prevent ingress of water or dirt. Routinely check that cable glands are tightened to the manufacturer's specified torque to ensure the required enclosure protection.

	<b>WARNING</b>
	<b>HIGH ENERGY HAZARD – LOADED SPRING</b> Death or serious injury could result. Do not attempt to repair actuator unless properly trained in specific repair methods for this device.

	<b>ATTENTION</b>
	<b>RISQUE D'ÉNERGIE ÉLEVÉE - À RESSORT</b> Peut entraîner la mort ou de graves blessures. Ne pas tenter de réparer l'actionneur à moins d'être bien formé aux méthodes de répara- tion spécifiques pour cet appareil.

	<b>WARNING</b>
	<b>EXPLOSION HAZARD</b> Death or serious injury may result. Switches must stop motor.

	<b>ATTENTION</b>
	<b>RISQUE D'EXPLOSION</b> Peut entraîner la mort ou de graves blessures. Les commutateurs doivent arrêter le moteur.

## 7. Storage

The Surepowr actuator must be stored in a clean, dry, temperature controlled building which is protected from the weather. Precautions shall be taken to prevent condensation inside or outside the actuator. If there is insufficient temperature and humidity control, the internal heaters must be energized to protect the unit against condensation from extreme temperature variations. The actuators shall be stored off the floor on suitable pallets and must be covered with an unsealed dust protector allowing side and bottom ventilation. Conduit entries must be sealed with the shipping plugs provided or other suitable means. The control cover is to be installed tightly.

## 8. Troubleshooting

### NOTICE

Most actuator problems occur due to incorrect cam/travel limit switch setting or the incorrect setting of an external travel stop on the device that the actuator is operating.

#### **Problem 1: Actuator is receiving electric power but the motor does not respond.**

- Check actuator nameplate to insure correct model, voltage and spring return direction.
- Check field wiring against the wiring diagram provided with the actuator.
- Check travel limit switch cam settings per Installation Section in this manual.

#### **Problem 2: Actuator is receiving electric power but the motor only hums.**

- Check actuator nameplate to insure correct model, voltage and spring return direction.
- Check field wiring against the wiring diagram provided with the actuator.
- Check travel limit switch cam settings per Installation Section in this manual.
- Check to insure the motor brake is completely disengaged when power is applied to the motor.
- Ensure that actuator is not stalled which could be due to any of the following reasons:
  - Incorrect travel limit switch settings resulting in actuator stalling against device being driven.
  - Incorrect travel stop settings on device being actuated.
  - Overloading the actuator with a torque above the rating. See Rating Section in this manual.
- Confirm that the orientation of the driven device matches the actuator shaft. When not powered, Sure Powr actuators will be in their spring return position, either fully CW or fully CCW depending on the model. The shaft of the driven device must be in the same orientation when the actuator is being installed.

#### **Problem 3: Actuator runs but operation is erratic.**

- Check actuator nameplate to insure correct model, voltage and spring return direction.
- Check field wiring against the wiring diagram provided with the actuator.

- Check travel limit switch cam settings per Installation Section in this manual.
- Check ambient temperature. Standard Surepowr actuators have a maximum ambient operating temperature rating of -40°C to +65°C.
- Check duty cycle (frequency of operation). See Operation Section in this manual.
- Ensure that actuator is not stalled which could be due to any of the following reasons:
  - Incorrect travel limit switch settings resulting in actuator stalling against device being driven.
  - Incorrect travel stop settings on device being actuated.
  - Overloading the actuator with a torque above the rating. See Rating Section in this manual.

#### **Problem 4: Motor runs continuously in spring return direction after actuator output shaft stops rotating.**

- Adjust spring return side travel limit switch so that the cam trips the switch well before the shaft stops motion.

### NOTICE

Standard Surepowr actuators are manufactured with thermal over- load protectors in series with the motor common. Should any of the above problems cause the protector to open, it will automatically reset when the motor temperature drops to a safe level.

### Locating and Ordering Parts

For ease and accuracy in identifying and ordering spare or replacement parts, submit the following information from unit nameplate:

1. Serial Number
2. Voltage
3. Spring return direction (CW or CCW)

**Industrial Products Group**  
**RCS Actuators**  
16240 Port Northwest Drive  
Houston, TX 77041  
T: 832-590-2306  
Toll Free: 1-800-945-9898  
F: 713-849-2879

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