



**A Portable Actuator for Remotely Operating
Pistol-grip Circuit Breaker Control Switches**



CS Models

User's Manual



User's Manual
for the following CS models
CS-01, CS-02, CS-03, CS-04, CS-05, CS-06

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1.0 Arc-blast Hazards

The hazards associated with electrical arc-blasts are well documented. Studies conducted by numerous industries and professional organizations have sought to quantify the intensity of arc-blast, the risks to personnel, and various methodologies for mitigating the risks.

Without doubt, increasing the distance between the arc and a human is the single greatest favorable factor in reducing injuries.

The Chicken Switch® is not a panacea but rather one more tool available for protecting workers while they are performing electrical switching.

Using a Chicken Switch® may not negate the need for additional personal protective measures. The user is ultimately responsible for evaluating each situation to determine if additional protective measures are needed.



WARNING

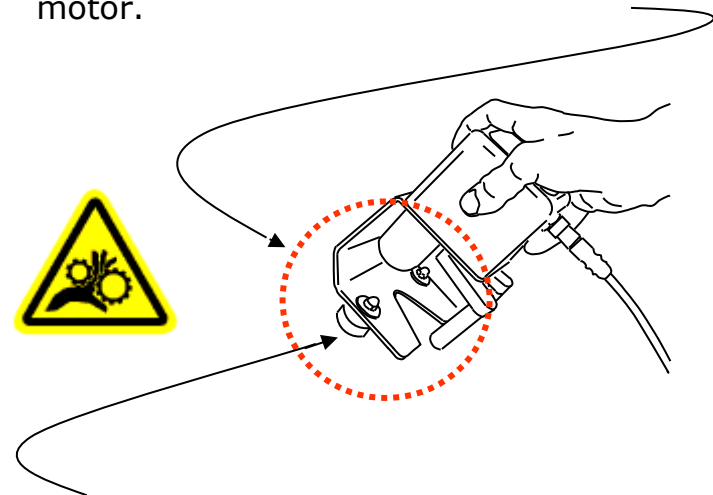
Electrical switching may present risk of serious injury or death. This device should only be used by qualified persons after careful analysis of the hazards.

2.0 Safety Information

ALWAYS connect the control cable to the actuator BEFORE installing the Chicken Switch®.

2.1 Finger pinch points

NEVER place your fingers below the red gearbox enclosure when the control station is connected to the actuator. The actuator arm/rollers could pinch your hand/fingers against the frame or motor.



Keep fingers clear of the bottom of the actuator when the actuator is near a ferrous surface.

2.2 Strong magnets

The holding magnets are very strong. Keep magnetically-sensitive objects such as watches or computer disks away from the bottom of the actuator.

3.0 Battery Requirements

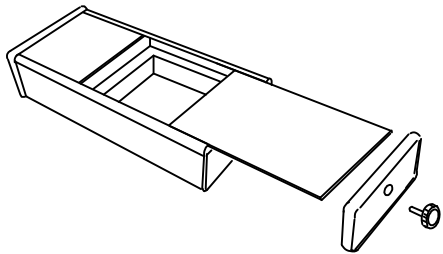
- Sixteen (16) AA alkaline cells are required – eight cells in each battery holder. Carefully observe polarity when installing cells.
- Rechargeable NiMh or NiCd can be used.

3.1 Battery Life

- A set of fresh alkaline cells should give over 700 operations.

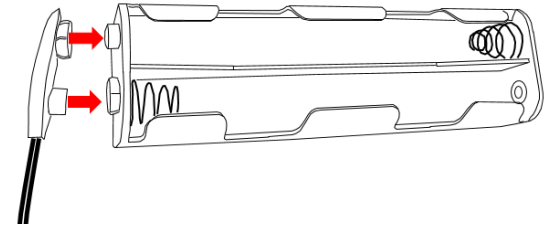
3.2 Battery Replacement

- ALWAYS disconnect the control cable before replacing batteries to avoid possible static damage of the electronics!



- Turn the control station upside down, remove the endplate retaining knob. Remove the endplate and slide the cover out as shown below.

3.3 To connect/disconnect batteries:



3.4 CAUTION: Static Discharge Potential

- To avoid possible damage to electronic components disconnect the control cable before replacing batteries.

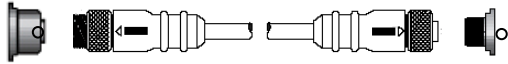
WARNING

To avoid possible damage to electronic components disconnect control cable before replacing batteries.

4.0 Operation

ALWAYS connect the control cable to the actuator BEFORE installing the Chicken Switch®.

4.1 Connecting the control cable:

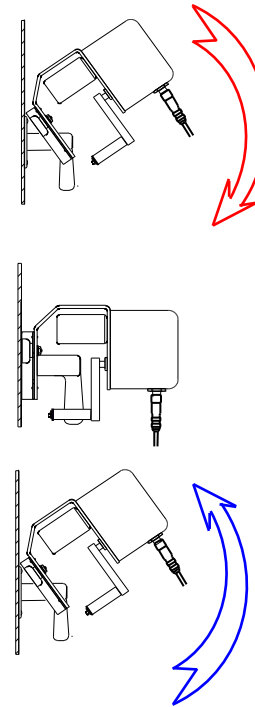


1. Align the arrow on the cable end with the top of the receptacle.
2. Push in and engage the threads on the coupling nut and turn clockwise.
3. After one or two turns of the coupling nut, push in on the cable end. Repeat this until the connector is fully seated.
4. Use a similar technique of turn-stop-and-pull to disengage the cable ends.

4.2 Sequence of Operation:

1. Connect the control cable to the actuator (do not connect the cable to the control station yet).
2. If the actuator arm is not in neutral, it is OK to manually rotate it to neutral.
3. Position the actuator on the circuit breaker control switch that is to be operated. The black rollers on the actuating arm should be on either side of the pistol-grip control switch handle.
4. Plug the control cable into the control station.
5. Ensure you are at a safe distance from the circuit breaker that is to be operated.

4.3 Attaching and Removing the Actuator:



To Attach:

Tip the actuator and place the edge of the frame on top of the switch escutcheon plate. Center the actuator with the control switch as much as possible. Rotate the actuator downward, making sure the actuator arm properly engages the control switch handle.

To remove:

Grasp the red gearbox cover and rotate the actuator upward. Once the magnets have separated from the switchgear enclosure, lift the actuator clear of the control switch.

NOTICE:

The Chicken Switch® is designed as a *portable* device. It is not designed to remain with the control unit connected to the actuator for extended periods of time. To do so will deplete a fresh set of batteries in approximately four to five days.

4.4 The indicator lights & controls:

NOTE: the indicator lights only work when the ENABLE button is depressed.

GREEN: indicates the actuator is being commanded to rotate in the TRIP direction (CCW).

RED: indicates the actuator is being commanded to rotate in the CLOSE direction (CW).

YELLOW: indicates the actuator is in the neutral position and the controller and batteries are healthy.

Rapidly blinking YELLOW indicates the battery voltage with zero load has fallen to an unacceptable level. Operation is inhibited until batteries with an acceptable voltage level are installed.

The ENABLE button:

The Enable button must be continuously depressed in order to command the actuator.

Releasing the enable button has the same affect as returning the selector switch to neutral – the actuator moves to neutral.

Note:

If the control switch is held in the trip or close position for longer than approximately 3 seconds the drive motor will de-energize and the arm will remain in driven position. When the control switch or the enable button is released, the motor will energize to drive the actuator arm to neutral.

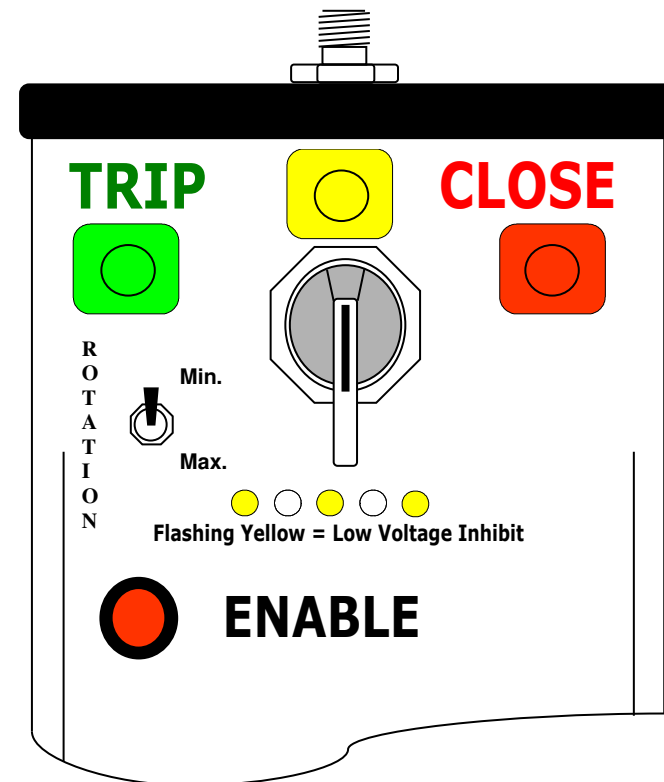
4.5 Rotation selector switch (only on select models):

Some Chicken Switch models have a selectable rotation switch.

If equipped, the “Rotation” toggle switch causes the Chicken Switch® to limit its angle of rotation, to accommodate switches that require more or less rotation.

If it is unknown how much rotation a particular switch requires, the user should start with the selector in the ‘Min.’ position. If this amount of movement is inadequate, return the control switch to neutral and move the Rotation toggle switch to ‘Max’ and try again.

The ‘Min’ position should be used for control switches that rotate approximately 30 degrees. ‘Max’ should be used for both, 45 and 90 degree movements.



5.0 Care and Storage

5.1 Cleaning the magnets

Over a period of time, the magnets may attract ferrous debris. Exercise care to avoid setting the actuator where the magnets might attract debris. If this does occur, use a paper towel or nylon bristle brush to clean the face of the magnets. Keeping the magnet faces clean ensures that maximum holding power is maintained.

5.2 Storage

Remove all batteries from the control station if the device will not be used for longer than 6 months.

Never store the batteries where the ambient temperature might exceed 110° F.

Avoid getting the unit wet or storing it in a high humidity location.

6.0 Warranty

MarTek Ltd. guarantees all products manufactured by MarTek Ltd. only against defects in materials and/or workmanship for a period of twelve (12) months commencing on the date the product is received by the customer. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

MarTek Ltd. will, at its option and its cost (excluding shipping expenses) repair, replace or refund the purchase price of any product manufactured by MarTek Ltd. which has a defect in materials and/or workmanship. THIS IS CUSTOMER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY. IN NO EVENT WILL MARTEK LTD'S LIABILITY FOR DAMAGES (WHETHER ARISING FROM BREACH OF CONTRACT OR WARRANTY, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE) EXCEED THE PURCHASE PRICE OF THE PRODUCT CONCERNED NOR WILL MARTEK LTD. BE LIABLE FOR PUNITIVE, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS) EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

MarTek Ltd. reserves the right to disallow warranty repairs if the unit has been disassembled or misused, as determined by MarTek Ltd. in good faith. Please contact us at (800)-248-4958 for a return authorization.

MarTek Ltd.

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7.0

Specifications

MECHANICAL

| | |
|--------------------------|--|
| Holding magnets: | Two magnets, each rated @ 55.1 lbs force, 12,600 Gauss. |
| Gearmotor: | All metal gears, in a formed metallic housing. DC brushed, permanent magnet motor with .375 inch diameter shaft (9.5 mm). |
| Torque: | Approximately 70 inch-pounds (7.9 N-m) |
| Typical operating speed: | 290 milliseconds (average rotation time) to close the contacts on a pistol-grip switch with 45 degrees of handle rotation. |
| Projected life: | 20,000 operations |

ELECTRICAL

| | |
|--------------------|---|
| Operating voltage: | 24 volts DC |
| Fuse: | 5 amp, quick-blow, AGC-5 |
| Power supply: | 16 AA alkaline disposable batteries. When used properly, one set of batteries should yield over 700 operations. |
| Control Cable: | 30 feet in length (9.1 meters), 5-conductor, extra-flexible, PUR insulation |
| Controller: | <p>Requires two-hand operation. The 'enable' button must be depressed while rotating the controller selector switch.</p> <p>A separate toggle switch allows the user to select between two levels of rotation (of the actuator).</p> <p>A programmable micro-controller manages control inputs, motor functions, monitors and limits mechanical travel and performs timing functions to protect the motor in a stalled condition.</p> <p>An intelligent 'H-bridge' motor driver provides start/stop/braking motor functions. The H-bridge has integral thermal shutdown protection.</p> |

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www.chickenswitch.com

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