

## MODEL CTS - AC CURRENT OPERATED SWITCH

- UNIVERSAL OUTPUT
- SELF-POWERED
- EASILY ADJUSTABLE SETPOINT
- FIXED OR SPLIT-CORE CASE



**WARNING - EXPLOSION HAZARD - DISCONNECT POWER AND ENSURE THE AREA IS KNOWN TO BE NON-HAZARDOUS BEFORE SERVICING/ REPLACING THE UNIT AND BEFORE INSTALLING OR REMOVING I/O WIRING.**

### GENERAL DESCRIPTION

CTS Series Transducers are self-powered, solid-state current-operated switches that trigger when the current level sensed through the aperture exceeds the adjusted setpoint. The solid state output contacts can switch AC or DC; this "universal" output makes them well suited for application in automation systems.

CTS Series Current Operated Switches combine a current transformer, signal conditioner and limit alarm into a single package for use in status monitoring or proof of operation applications. Offering an extended setpoint range of 1-150 A and universal, solid-state outputs, the self-powered CTS can be tailored to provide accurate and dependable digital indication of over-current conditions across a broad range of applications. Available in solid-core enclosure styles or in a split-core case to maximize ease of installation.

### SAFETY SUMMARY

All safety related regulations, local codes and instructions that appear in the literature or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Do not use this unit to directly command motors, valves, or other actuators not equipped with safeguards. To do so, can be potentially harmful to persons or equipment in the event of a fault to the unit.

### SPECIFICATIONS

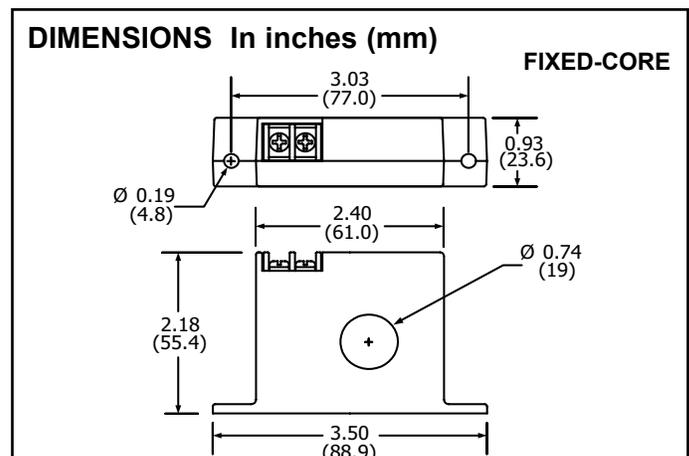
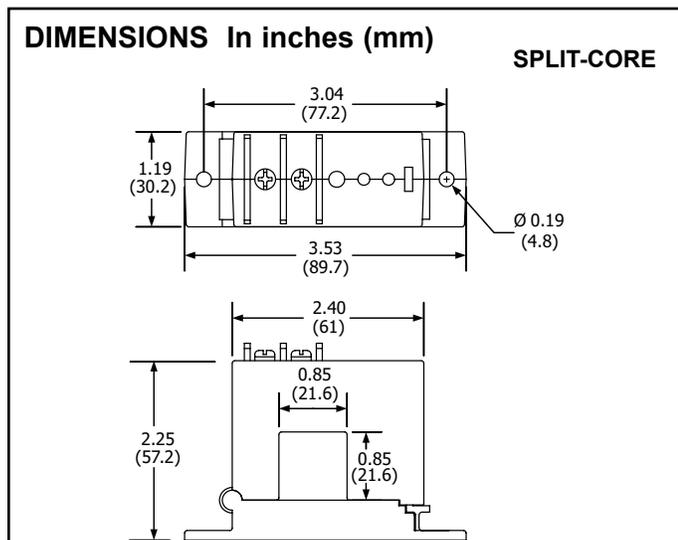
1. **POWER SUPPLY:** None - self powered
2. **OUTPUT:** Magnetically isolated normally open solid-state switch
3. **OUTPUT RATING:** 0.15A, 240 VAC/VDC
4. **OFF STATE LEAKAGE:** <10  $\mu$ A

MODEL	SETPPOINT RANGE	MAXIMUM INPUT AMPS		
		Continuous	6 sec	1 sec
CTSF	Fixed-Core: 1 - 150 A	150 A	400 A	1000 A
CTSS	Split-Core: 1.75 - 150 A	150 A	400 A	1000 A
CTSG	Fixed-Core Go/No Go: 0.75 A max	250 A	400 A	1000 A

5. **RESPONSE TIME:** 120 msec
6. **HYSTERESIS:** Approx 5% of Setpoint
7. **SETPPOINT RANGES AND MAXIMUM AMPS:**
8. **SETPPOINT ADJUST:** 4 Turn potentiometer (CTSS)  
15 Turn Potentiometer (CTSF)
9. **FREQUENCY RANGE:** 6-100 Hz
10. **ISOLATION VOLTAGE:** UL Listed to 1,270 VAC. Tested to 5,000 VAC
11. **CASE:** UL 94V-0 Flammability rated thermoplastic
12. **ENVIRONMENTAL:** -4 to 122 °F (-20 to 50 °C)  
Operating and Storage Humidity: 0-95% RH, non-condensing  
Altitude: Up to 2000 meters  
Installation Category II, Pollution Degree 2 as defined in IEC/EN 60664-1.
13. **TORQUE RATINGS:** 5 in-lbs
14. **LISTING:** UL 508 Industrial Control Equipment, CSA C22.2 No. 14-M95, and CE Certified.

**CAUTION: Risk of Danger.**  
Read complete instructions prior to installation and operation of the unit.

**CAUTION: Risk of electric shock.**

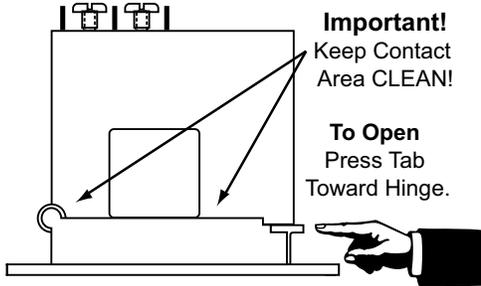


## INSTALLATION

Run wire to be monitored through opening in the sensor. The CTS Series transducers work in the same environment as motors, contactors, heaters, pull-boxes, and other electrical enclosures. They can be mounted in any position or hung directly on wires with a wire tie. Just leave at least one inch (25.4 mm) distance between sensor and other magnetic devices.

### Split-Core Versions

Press the tab in the direction as shown to open the sensor. After placing the wire in the opening, press the hinged portion firmly downward until a definite click is heard and the tab pops out fully.

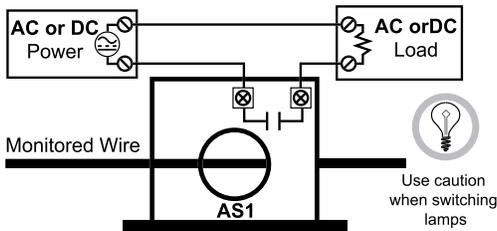


### KEEP SPLIT-CORE SENSORS CLEAN.

Silicone grease is factory applied on the mating surfaces to prevent rust and improve performance. Be careful not to allow grit or dirt onto the grease in the contact area. Operation can be impaired if the mating surfaces do not have good contact. Check visually before closing.

### OUTPUT WIRING

Connect control or monitoring wires to the sensor. Use 14 to 22 AWG copper wires rated at 75/90 °C. Terminals should be tightened to 9 in-lbs torque. Use copper conductors only. Be sure the output load does not exceed the switch rating.



**CAUTION:** Incandescent lamps can have “Cold Filament Inrush” current of up to 10 times their rated amperage. Use caution when switching lamps.

### SETPOINT ADJUSTMENT

CTS Series SETPOINT is adjusted with a 4-turn potentiometer (CTSS) or a 15-turn potentiometer (CTSF). The pot is shipped factory set to the lowest setpoint, fully clockwise (CW). Turning the pot counter-clockwise (CCW) will increase the setpoint. The pot has a slip-clutch to prevent damage at either end of its rotation. To determine where the adjustment is, turn the pot all the way CW. This will return it to the minimum setpoint.

### Adjustment Notes:

- Output contacts are solid-state. Check output status by applying voltage to the contacts and reading the voltage drop across the contacts. An Ohmmeter set on “Continuity” will give misleading results.
- It is recommended that the setpoint be adjusted to allow for voltage variations of 10-15%.

#### Typical Adjustment

- Turn the pot to minimum setpoint (4 or 15 turns CW).
- Have normal operating current running through the sensor. The output should be tripped since the pot is at its minimum setpoint. For units with LED, it should be flashing fast (2 to 3 times per second).
- Turn the pot CCW until the unit un-trips. This is indicated by the slow flashing of the LED (once every 2 to 3 seconds), or by the changing of the output switch status.
- Now turn the pot CW slowly until the unit trips again. It is now set at the current level being monitored.
  - To Set UNDERLOAD - Turn the pot about 1/8 turn further CW.
  - To Set OVERLOAD - Turn the pot about 1/8 turn further CCW.

MONITORED AMPS	OUTPUT	SMART-LED
None or <Min.	OPEN	OFF
Below Trip Level	OPEN	SLOW (2 sec)
Above Trip Level	CLOSED	FAST (0.5 sec)

## TROUBLE SHOOTING

### 1. Sensor Is Always Tripped

- The setpoint may be too low. Turn pot CCW to increase setpoint.
- Switch has been overloaded and contacts are burned out. Check the output load, remembering to include inrush on inductive loads (coils, motors, ballasts).

### 2. Sensor Will Not Trip

- The setpoint may be too high. Turn pot CW to decrease setpoint.
- Split Core models: The core contact area may be dirty. Open the sensor and clean the contact area.
- Monitored current is below minimum required. Loop the monitored wire several times through the aperture until the “sensed” current rises above minimum. Sensed Amps = (Actual Amps) x (Number of Loops). Count loops on the inside of the aperture.
- Switch has been overloaded and contacts are burned out. Check the output load, remembering to include inrush on inductive loads (coils, motors, ballasts).

## RED LION CONTROLS TECHNICAL SUPPORT

If for any reason you have trouble operating, connecting, or simply have questions concerning your new unit, contact Red Lion’s technical support.

Support: [support.redlion.net](mailto:support.redlion.net)

Website: [www.redlion.net](http://www.redlion.net)

Inside US: +1 (877) 432-9908

Outside US: +1 (717) 767-6511

## ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBERS
CTS	1.75-150 A Split-Core Current Switch, Adjustable	CTSS0000
	1-150 A Fixed-Core Current Switch, Adjustable	CTSF0000
	0.75 A Fixed-Core Current Switch, Go-No Go	CTSG0000