

MODEL CTD - DC CURRENT TRANSDUCER

- THREE JUMPER SELECTABLE INPUT RANGES
- OUTPUT IS MAGNETICALLY ISOLATED FROM THE INPUT
- INTERNAL POWER REGULATION
- SPLIT-CORE CASE FOR EASY INSTALLATION



GENERAL DESCRIPTION

CTD transducer combines a Hall Effect sensor and a signal conditioner into a single package. This provides higher accuracy, lower wiring costs, easier installation and saves valuable panel space. The CTD has jumper selectable current input ranges and industry standard 4-20 mA output with a 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.



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. OUTPUT SIGNAL: 4-20 mA
- 2. OUTPUT LIMIT: 23 mA
- 3. ACCURACY: 1.0% FS
- 4. REPEATABILITY: 1.0% FS
- 5. RESPONSE TIME: to 90% of step change 100 msec
- 6. FREQUENCY RANGE: DC
- 7. POWER SUPPLY: 22 26 VAC/VDC, 50 60 Hz
 - Power input and output signal are not isolated.24 VDC powered device: A fuse rated a maximum of 5 A shall be placed in series with the main input power terminal.
 - 24 VAC powered device: A fused rated a maximum of 2.75 A shall be placed in series with the main input power terminal.
 - Copper busbars shall be sized at 1000 Amperes per square inch.
- 8. POWER CONSUMPTION: 2 VA
- 9. LOADING: 650 Ω max.
- 10. ISOLATION VOLTAGE: 3 kV (monitored line to output)
- 11. LINEARITY: 0.75% FS
- 12. CURRENT RANGES: Three selectable Ranges: 0 50 A

0 – 75 A

- $0-100 \ A$
- 13. CASE: UL 94V-0 Flammability rated thermoplastic
- 14. ENVIRONMENTAL: -4 to 122 °F (-20 to 50 °C)
 - 0-95% RH, non-condensing
 - Altitude: Up to 2000 meters

Installation Category II, Pollution Degree 2 as defined in IEC/EN 60664-1.



Run wire to be monitored through opening in the sensor. Be sure the monitored current flows in the same direction as the arrow on the sensor. The arrow is just above the hinge, with the "+" symbol on the left, the "-" symbol on the right. The CTD 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.

INPUT AND OUTPUT WIRING

Connect control or monitoring wires to the sensor. Use 30 to 12 AWG copper wire rated at 75 °C. Terminals should be tightened to 5 to 7 in-lbs torque.

4-20mA:

The current loop is powered by the CTD Transducer. Maximum loop impedance is $650 \ \Omega$.



RANGE SELECT

CTD transducers feature field selectable ranges. The ranges are factory calibrated, eliminating time consuming and inaccurate field setting of zero or span.

- 1. Determine the normal operating amperage of your monitored circuit.
- Select the range that is equal to or slightly higher than the normal operating amperage.
- 3. Place the range jumper in the appropriate position.

TROUBLE SHOOTING

1. Output Signal Too Low

- A. The jumper may be set in a range that is too high for current being monitored. Move jumper to the correct range.
- B. Power supply is inadequate. Check power supply. Make sure it is of sufficient voltage with all loads at maximum. CTD Series draw 2.0 VA.
- C. Output load too high. Check output load, be sure it is no more than 650Ω . 2. Output Signal is always at maximum
 - A. The jumper may be set in a range that is too low for current being monitored. Move jumper to the correct range.

3. Sensor has no output

- A. Polarity is not properly matched. Check and correct wiring polarity
- B. Monitored load is not DC or is not on. Check that the monitored load is DC and that it is actually on.
- C.Split Core models: The core contact area may be dirty. Open the sensor and clean the contact area.

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 Website: www.redlion.net Inside US: +1 (877) 432-9908 Outside US: +1 (717) 767-6511

ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBERS
CTD	DC/DC, Split Case	CTD00000

LIMITED WARRANTY

(a) Red Lion Controls Inc. (the "Company") warrants that all Products shall be free from defects in material and workmanship under normal use for the period of time provided in "Statement of Warranty Periods" (available at www.redlion.net) current at the time of shipment of the Products (the "Warranty Period"). EXCEPT FOR THE ABOVE-STATED WARRANTY, COMPANY MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO THE PRODUCTS, INCLUDING ANY (A) WARRANTY OF MERCHANTABILITY; (B) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; OR (C) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE. Customer shall be responsible for determining that a Product is suitable for Customer's use and that such use complies with any applicable local, state or federal law.

(b) The Company shall not be liable for a breach of the warranty set forth in paragraph (a) if (i) the defect is a result of Customer's failure to store, install, commission or maintain the Product according to specifications; (ii) Customer alters or repairs such Product without the prior written consent of Company.

(c) Subject to paragraph (b), with respect to any such Product during the Warranty Period, Company shall, in its sole discretion, either (i) repair or replace the Product; or (ii) credit or refund the price of Product provided that, if Company so requests, Customer shall, at Company's expense, return such Product to Company.

(d) THE REMEDIES SET FORTH IN PARAGRAPH (c) SHALL BE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDY AND COMPANY'S ENTIRE LIABILITY FOR ANY BREACH OF THE LIMITED WARRANTY SET FORTH IN PARAGRAPH (a).



MODEL CTL - AVERAGE RESPONDING AC CURRENT TRANSDUCERS

- AVERAGE RESPONDING OUTPUT: 0-10 VDC or 4-20 mA
- JUMPER SELECTABLE RANGES
- OUTPUT IS MAGNETICALLY ISOLATED FROM THE INPUT
- SPLIT-CORE AND FIXED-CORE CASES



CE

GENERAL DESCRIPTION

CTL Series transducers combine a current transformer and a signal conditioner into a single package. This provides higher accuracy, lower wiring costs, easier installation and saves valuable panel space.

The CTL Series transducers have jumper selected current input ranges and industry standard 0-10 VDC or 4-20 mA outputs. The CTL Series is designed for application on "linear" or sinusoidal AC loads. Available in a split-core or solid-core case. Select the CTL Series for constant speed loads or On/Off loads.

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.



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0.85

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lenlenl

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SPECIFICATIONS

	0-10 VDC	4-20 mA
1. OUTPUT SIGNAL:	0-10 VDC	4-20 mA
2. OUTPUT LIMIT:	15 VDC	32 mA
3. FREQUENCY RANGE:	50-60 Hz	20-100 Hz
4. RESPONSE TIME:	100 msec	300 msec
5. ACCURACY:	1.0% FS	0.5% FS
6. POWER SUPPLY:	Self-powered	24 VDC Nominal, 40 VDC max.

Must use an NEC Class 2 or Limited Power Source (LPS) rated power supply. 7. **INPUT RANGES**: (Jumper Selectable)

PART	PANCE	MAXIMUM		
NUMBER	KANGE	Continuous	6 sec	1 sec
	2 A	80 A	125 A	250 A
C1L005	5 A	100 A	125 A	250 A
	10 A	80 A	125 A	250 A
CTL050	20 A	110 A	150 A	300 A
	50 A	175 A	215 A	400 A
	100 A	200 A	300 A	600 A
CTL200	150 A	300 A	450 A	800 A
	200 A	400 A	500 A	1000 A

8. ISOLATION VOLTAGE: 3 kV

9. CASE: UL 94V-0 Flammability rated thermoplastic

10. ENVIRONMENTAL: -4 to 122 °F (-20 to 50 °C)

0-95% RH, non-condensing

Altitude: Up to 2000 meters

Installation Category, Pollution Degree 2 as defined in IEC/EN 60664-1.

11. TORQUE RATINGS: 9 in-lbs on Fixed-core models; 5-7 in-lbs on Splitcore models.

12. LISTING: UL 508 Industrial Control Equipment, CSA C22.2 No. 14-M95, and CE Certified.





Run wire to be monitored through opening in the sensor. The CTL Series transducers work in the same environment as motors, contactors, heaters, pullboxes, 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 7 inch-pounds torque for solid-core models and 9 inch-pounds torque for split-core models. Use copper conductors only. Be sure the output load or loop power requirements are met (see diagram).

POWER SUPPLY



CONNECTIONS



RANGE SELECT

CTL series transducers feature field selectable ranges. The ranges are factory calibrated, eliminating time consuming and inaccurate field setting of zero or span. 1. Determine the normal operating amperage of your monitored circuit

- 2. Select the range that is equal to or slightly higher than the normal operating amperage.
- 3. Place the range jumper in the appropriate position.

TROUBLE SHOOTING

0-10 VDC OUTPUT MODELS

1. Sensor Has No Output

- A. Polarity is not properly matched. Check and correct wiring polarity.
- B. Monitored load is not AC or is not on. Check that the monitored load is AC and that it is actually on.
- C. Split Core models: The core contact area may be dirty. Open the sensor and clean the contact area.

2. Output Signal Too Low

- A. The jumper may be set in a range that is too high for current being monitored. Move jumper to the correct range.
- B. Output load too low. Check output load, be sure that it is at least 100 K and preferably 1 M $\!\Omega$.
- C. 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.

3. Output Signal Is Always At Maximum

A. The jumper may be set in a range that is too low for current being monitored. Move jumper to the correct range.

4-20 mA OUTPUT MODELS

1. Sensor Has No Output

- A. Power supply is not properly sized. Check power supply voltage and current rating.
- B. Polarity is not properly matched. Check and correct wiring polarity
- C. Split Core models: The core contact area may be dirty. Open the sensor and clean the contact area.

2. Output Signal Too Low

- A. The jumper may be set in a range that is too high for current being monitored. Move jumper to the correct range.
- B. The load current is not sinusoidal.
- C. 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.

3. Sensor Is Always At 4 mA

A. Monitored load is not AC or is not on. Check that the monitored load is AC and that it is actually on.

4. Output Signal Is Always At 20 mA

A. The jumper may be set in a range that is too low for current being monitored. Move jumper to the correct range.

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 Website: www.redlion.net Inside US: +1 (877) 432-9908 Outside US: +1 (717) 767-6511

ORDERING INFORMATION

TYPE	MODEL NO.	DESCRIPTION	PART NUMBER
	CTL12S	2-5 A / 4-20 mA	CTL0052S
SPLIT CORE	CTL52S	10-50 A / 4-20 mA	CTL0502S
	CTL22S	100-200 A / 4-20 mA	CTL2002S
FIXED CORE	CTL52F	10-50 A / 4-20 mA	CTL0502F
4-20 mA	CTL22F	100-200 A / 4-20 mA	CTL2002F
FIXED CORE 0-10 VDC	CTL51F	10-50 A / 10 VDC	CTL0501F
	CTL21F	100-200 A / 10 VDC	CTL2001F



MODEL CTR - TRUE RMS AC CURRENT TRANSDUCER

- TRUE RMS OUTPUT
- JUMPER SELECTABLE RANGES
- OUTPUT IS MAGNETICALLY ISOLATED FROM THE INPUT
- SPLIT-CORE CASE



CE

GENERAL DESCRIPTION

CTR Series transducers combine a current transformer and a signal conditioner into a single package. This provides higher accuracy, lower wiring costs, easier installation and saves valuable panel space.

The CTR Series transducers are available in 4-20 mA output only. The CTR Series provides a "True RMS" output on distorted waveforms found on VFD or SCR outputs, and on linear loads in "noisy" power environments. Select the CTR Series for variable speed or SCR controlled loads.

The current waveform of a typical linear load is a pure sine wave. In VFD and SCR applications, however, output waveforms are rough approximations of a sine wave. There are numerous spikes and dips in each cycle. CTR transducers use a mathematical algorithm called "True RMS", that integrates the actual waveform over time. The output is the amperage component of the true power (heating value) of the AC current waveform. True RMS is the only way to accurately measure distorted AC waveforms.



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.





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. OUTPUT SIGNAL: 4 to 20 mA DC, loop-powered, True RMS
- 2. OUTPUT LIMIT: 23 mA
- 3. FREQUENCY RANGE: 10-400 Hz (All Waveforms)
- 4. RESPONSE TIME: to 90% of step change 600 msec
- 5. ACCURACY: 0.8% FS
- 6. **POWER SUPPLY**: 24 VDC Nominal, 40 VDC Max. Must use an NEC Class 2 or Limited Power Source (LPS) rated power supply.
- 7. INPUT RANGES: (Jumper Selectable)

MODEL	RANGE	MAXIMUM		
MODEL		Continuous	6 sec	1 sec
	10 A	80 A	125 A	250 A
CTR05	20 A	110 A	150 A	300 A
	50 A	175 A	215 A	400 A
	100 A	200 A	300 A	600 A
CTR2	150 A	300 A	450 A	800 A
	200 A	400 A	500 A	1000 A

8. ISOLATION VOLTAGE: 3 kV

9. CASE: UL 94V-0 Flammability rated thermoplastic

10. ENVIRONMENTAL: -4 to 122 °F (-20 to 50 °C)

0-95% RH, non-condensing

Altitude: Up to 2000 meters

Installation Category II, Pollution Degree 2 as defined in IEC/EN 60664-1.

- 11. TORQUE RATINGS: 9 in-lbs
- LISTING: UL 508 Industrial Control Equipment, CSA C22.2 No. 14-M95, and CE Certified.

Run wire to be monitored through opening in the sensor. Be sure the monitored current flows in the same direction as the arrow on the sensor. The CTR 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 5 to 7 in-lbs torque. Use copper conductors only. Be sure the output load or loop power requirements are met (see diagram).

Connection Notes:



RANGE SELECT

CTR series transducers feature field selectable ranges. The ranges are factory calibrated, eliminating time consuming and inaccurate field setting of zero or span.

- 1. Determine the normal operating amperage of your monitored circuit
- 2. Select the range that is equal to or slightly higher than the normal operating amperage.
- 3. Place the range jumper in the appropriate position.

TROUBLE SHOOTING

1. Sensor Has No Output

- A. Power supply is not properly sized. Check power supply voltage and current rating.
- B. Polarity is not properly matched. Check and correct wiring polarity.
- C. Split Core models: The core contact area may be dirty. Open the sensor and clean the contact area.

2. Output Signal Too Low

- A. The jumper may be set in a range that is too high for current being monitored. Move jumper to the correct range.
- B. Output load too high. Check output load, be sure that $V_{\rm L}$ does not exceed 40 VDC.
- C. 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.

3. Output Signal Is Always At 4mA

A. Monitored load is not AC or is not on. Check that the monitored load is AC and that it is actually on.

4. Output Signal Is Always At 20mA

A. The jumper may be set in a range that is too low for current being monitored. Move jumper to the correct range.

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 Website: www.redlion.net Inside US: +1 (877) 432-9908 Outside US: +1 (717) 767-6511

ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBERS
CTR	50 A/4-20 mA, Split Case	CTR05000
	200 A/4-20 mA, Split Case	CTR20000

LIMITED WARRANTY

(a) Red Lion Controls Inc. (the "Company") warrants that all Products shall be free from defects in material and workmanship under normal use for the period of time provided in "Statement of Warranty Periods" (available at www.redlion.net) current at the time of shipment of the Products (the "Warranty Period"). EXCEPT FOR THE ABOVE-STATED WARRANTY, COMPANY MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO THE PRODUCTS, INCLUDING ANY (A) WARRANTY OF MERCHANTABILITY; (B) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; OR (C) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE. Customer shall be responsible for determining that a Product is suitable for Customer's use and that such use complies with any applicable local, state or federal law.

(b) The Company shall not be liable for a breach of the warranty set forth in paragraph (a) if (i) the defect is a result of Customer's failure to store, install, commission or maintain the Product according to specifications; (ii) Customer alters or repairs such Product without the prior written consent of Company.

(c) Subject to paragraph (b), with respect to any such Product during the Warranty Period, Company shall, in its sole discretion, either (i) repair or replace the Product; or (ii) credit or refund the price of Product provided that, if Company so requests, Customer shall, at Company's expense, return such Product to Company.

(d) THE REMEDIES SET FORTH IN PARAGRAPH (c) SHALL BE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDY AND COMPANY'S ENTIRE LIABILITY FOR ANY BREACH OF THE LIMITED WARRANTY SET FORTH IN PARAGRAPH (a).



MODEL CTS - AC CURRENT OPERATED SWITCH

CE

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



GENERAL DESCRIPTION

CTS Series Transducers are self-powered, solid-state current-operated switches that trigger when the current level sensed through the aperature 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.







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.

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 μA

MODEL		MAXIMUM INPUT AMPS		
MODEL SETPOINT RANGE		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. SETPOINT RANGES AND MAXIMUM AMPS:
- 8. SETPOINT 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

 LISTING: UL 508 Industrial Control Equipment, CSA C22.2 No. 14-M95, and CE Certified.



Run wire to be monitored through opening in the sensor. The CTS Series transducers work in the same environment as motors, contactors, heaters, pullboxes, 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:

- 1. 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.
- 2. It is recommended that the setpoint be adjusted to allow for voltage variations of 10-15%.

Typical Adjustment

- 1. Turn the pot to minimum setpoint (4 or 15 turns CW).
- 2. 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).
- 3. 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.
- 4. Now turn the pot CW slowly until the unit trips again.
- It is now set at the current level being monitored.
- A. To Set UNDERLOAD Turn the pot about 1/8 turn further CW.
- B. To Set OVERLOAD Turn the pot about 1/8 turn further CCW.

MONITORED AMPS	OUTPUT	SMART-LED
None or <min.< td=""><td>OPEN</td><td>OFF</td></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

- A. The setpoint may be too low. Turn pot CCW to increase setpoint.
- B. 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

- A. The setpoint may be too high. Turn pot CW to decrease setpoint.
- B. Split Core models: The core contact area may be dirty. Open the sensor and clean the contact area.
- C. 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.
- D. 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 Website: www.redlion.net Inside US: +1 (877) 432-9908 Outside US: +1 (717) 767-6511

ORDERING INFORMATION

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