MODEL CTR - TRUE RMS AC CURRENT TRANSUDER

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

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.

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.
7. INPUT RANGES: (Jumper Selectable)
8. ISOLATION VOLTAGE: 3 kV
9. CASE: UL 94V-0 Flammability rated thermoplastic
10. ENVIRONMENTAL: -4 to 122 °F (-20 to 50 °C)
11. TORQUE RATINGS: 9 in-lbs
12. LISTING: UL 508 Industrial Control Equipment, CSA C22.2 No. 14-M95, and CE Certified.
**INSTALLATION**

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 up to 14 AWG copper wire and tighten terminals to 9 inch-pounds torque. Be sure the output load or loop power requirements are met (see diagram).

**Connection Notes:**

- Captive screw terminals.
- 14-22 AWG solid or stranded.
- Observe Polarity
- See label for ranges & jumper positions

**Loop Voltage Requirements:**

\[ V_L = 12V + (R_L \times 20 \text{ mA}) \]

Where: \( V_L \) = Min. Loop voltage

\( R_L \) = Loop Resistance

**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 \( V_L \) 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.

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
<th>PART NUMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTR</td>
<td>50 A/4-20 mA, Split Case</td>
<td>CTR05000</td>
</tr>
<tr>
<td></td>
<td>200 A/4-20 mA, Split Case</td>
<td>CTR20000</td>
</tr>
</tbody>
</table>

**LIMITED WARRANTY**

The Company warrants the products it manufactures against defects in materials and workmanship for a period limited to two years from the date of shipment, provided the products have been stored, handled, installed, and used under proper conditions. The Company’s liability under this limited warranty shall extend only to the repair or replacement of a defective product, at The Company’s option. The Company disclaims all liability for any affirmation, promise or representation with respect to the products. The customer agrees to hold Red Lion Controls harmless from, defend, and indemnify RLC against damages, claims, and expenses arising out of subsequent sales of RLC products or products containing components manufactured by RLC and based upon personal injuries, deaths, property damage, lost profits, and other matters which Buyer, its employees, or sub-contractors are or may be to any extent liable, including without limitation penalties imposed by the Consumer Product Safety Act (P.L. 92-573) and liability imposed upon any person pursuant to the Magnuson-Moss Warranty Act (P.L. 93-637), as now in effect or as amended hereafter.

No warranties expressed or implied are created with respect to The Company’s products except those expressly contained herein. The Customer acknowledges the disclaimers and limitations contained herein and relies on no other warranties or affirmations.
MODEL CTS - AC CURRENT OPERATED SWITCH

- 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 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 solid-state switch
3. OUTPUT RATING: 0.15A, 240 VAC/VDC
4. OFF STATE LEAKAGE: <10 µA
5. RESPONSE TIME: 120 msec
6. HYSTERESIS: Approx 5% of Setpoint
7. OVERLOAD:

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<tr>
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<th>1 sec</th>
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<tbody>
<tr>
<td>CTSF</td>
<td>1-150 A</td>
<td>150 A</td>
<td>400 A</td>
<td>1000 A</td>
</tr>
<tr>
<td>CTSS</td>
<td>1.5-150 A</td>
<td>150 A</td>
<td>400 A</td>
<td>1000 A</td>
</tr>
<tr>
<td>CTSG</td>
<td>1.5 A</td>
<td>250 A</td>
<td>400 A</td>
<td>1000 A</td>
</tr>
</tbody>
</table>

8. SET POINT RANGES: Fixed-Core (CTSF): 1-150 A  
Split-Core (CTSS): 1.5-150 A  
Fixed-Core Go/No Go (CTSG): 1.5
9. SETPOINT ADJUST: 4 Turn potentiometer (CTSS)  
15 Turn Potentiometer (CTSF)
10. FREQUENCY RANGE: 6-100 Hz
11. ISOLATION VOLTAGE: UL Listed to 1,270 VAC. Tested to 5,000 VAC
12. CASE: UL 94V-0 Flammability rated thermoplastic
13. ENVIRONMENTAL: -58 to 149 °F (-50 to 65 °C)  
0-95% RH, non-condensing
14. TORQUE RATINGS: 5 in-lbs
15. LISTING: UL 508 Industrial Control Equipment, CSA C22.2 No. 14-M95, and CE Certified.

DIMENSIONS In inches (mm)

SPLIT-CORE

DIMENSIONS In inches (mm)

FIXED-CORE
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.

Important!
Keep Contact Area CLEAN!
To Open
Press Tab Toward Hinge.

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 up to 14 AWG copper wire and tighten terminals to 5 inch-pounds torque. 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.

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).

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
<th>PART NUMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTS</td>
<td>1.5-150 A Split-Core Current Switch</td>
<td>CTS0000</td>
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<tr>
<td></td>
<td>1-150 A Fixed-Core Current Switch</td>
<td>CTSS0000</td>
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<tr>
<td></td>
<td>1.5 A Fixed-Core Go-No Go Switch</td>
<td>CTSG0000</td>
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LIMITED WARRANTY
The Company warrants the products it manufactures against defects in materials and workmanship for a period limited to two years from the date of shipment, provided the products have been stored, handled, installed, and used under proper conditions. The Company’s liability under this limited warranty shall extend only to the repair or replacement of a defective product, at The Company’s option. The Company disclaims all liability for any affirmation, promise or representation with respect to the products. The customer agrees to hold Red Lion Controls harmless from, defend, and indemnify RLC against damages, claims, and expenses arising out of subsequent sales of RLC products or products containing components manufactured by RLC and based upon personal injuries, deaths, property damage, lost profits, and other matters which Buyer, its employees, or sub-contractors are or may be to any extent liable, including without limitation penalties imposed by the Consumer Product Safety Act (P.L. 92-573) and liability imposed upon any person pursuant to the Magnuson-Moss Warranty Act (P.L. 93-637), as now in effect or as amended hereafter.

No warranties expressed or implied are created with respect to The Company’s products except those expressly contained herein. The Customer acknowledges the disclaimers and limitations contained herein and relies on no other warranties or affirmations.
MODEL CTL - AVERAGE RESPONDING AC CURRENT TRANSUCERS

- 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

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.

SPECIFICATIONS

<table>
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<tr>
<th>MODEL</th>
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<th>MAXIMUM</th>
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<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>CTL1</td>
<td>2 A</td>
<td>80 A</td>
</tr>
<tr>
<td></td>
<td>5 A</td>
<td>100 A</td>
</tr>
<tr>
<td>CTL5</td>
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<td>80 A</td>
</tr>
<tr>
<td></td>
<td>20 A</td>
<td>110 A</td>
</tr>
<tr>
<td></td>
<td>50 A</td>
<td>175 A</td>
</tr>
<tr>
<td>CTL2</td>
<td>100 A</td>
<td>200 A</td>
</tr>
<tr>
<td></td>
<td>150 A</td>
<td>300 A</td>
</tr>
<tr>
<td></td>
<td>200 A</td>
<td>400 A</td>
</tr>
</tbody>
</table>

- OUTPUT SIGNAL: 0-10 VDC, 4-20 mA
- OUTPUT LIMIT: 15 VDC, 40 mA
- FREQUENCY RANGE: 50-60 Hz, 20-100 Hz
- RESPONSE TIME: 100 msec, 300 msec
- ACCURACY: ±1.0% FS, ±0.5% FS
- POWER SUPPLY: Self-powered, 24 VDC Nominal, 40 VDC max.
- INPUT RANGES: (Jumper Selectable)

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
11. TORQUE RATINGS: 7 in-lbs on Fixed-core models; 9 in-lbs on Split-core models.
12. LISTING: UL 508 Industrial Control Equipment, CSA C22.2 No. 14-M95, and CE Certified.

DIMENSIONS

SPLIT-CORE

DIMENSIONS In inches (mm)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tr>
<td></td>
<td>3.04</td>
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<tr>
<td></td>
<td>3.53</td>
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<td>(4.8)</td>
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<tr>
<td>1.19</td>
<td>(30.2)</td>
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<tr>
<td>2.40</td>
<td>(61.0)</td>
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<tr>
<td>0.85</td>
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<tr>
<td>2.25</td>
<td>(57.2)</td>
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DIMENSIONS In inches (mm)

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<tr>
<th></th>
<th>3.03</th>
<th>77.0</th>
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</thead>
<tbody>
<tr>
<td>Ø 0.19</td>
<td>(4.8)</td>
<td></td>
</tr>
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</table>

DIMENSIONS In inches (mm)

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<tr>
<th></th>
<th>0.93</th>
<th>(23.6)</th>
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</thead>
<tbody>
<tr>
<td>Ø 0.74</td>
<td>(19)</td>
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<tr>
<td>2.18</td>
<td>(55.4)</td>
<td></td>
</tr>
<tr>
<td>3.50</td>
<td>(88.9)</td>
<td></td>
</tr>
</tbody>
</table>

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
### INSTALLATION
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 CTL 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 up to 14 AWG copper wire and tighten terminals to 7 inch-pounds torque for solid-core models and 9 inch-pounds torque for split-core models. Be sure the output load or loop power requirements are met (see diagram).

### POWER SUPPLY

![Power Supply Graph]

**CONNECTIONS**

**4-20 mA Option**
- 24 VDC Power (+) (-) (+) (-)
- Load (+) (-) (Control, Meter, etc.)
- Range Jumper 1(-) 2(+)
- Output

**10 VDC Option**
- Range Jumper 1(-) 2(+)
- Output

**Notes:**
- Captive screw terminals.
- 12-22 AWG solid or stranded.
- Observe polarity.
- 1 MΩ Recommended
- 100 KΩ Acceptable (Add 1.3% error for 100 KΩ)

### 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 wire 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. Monitored load is not AC or is not on. Check that the monitored load is AC and that it is actually on.
   - 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 wire 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.

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
<th>PART NUMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 A / 10 VDC, Fixed Case</td>
<td>CTL0501F</td>
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<tr>
<td>50 A / 4-20 mA, Fixed Case</td>
<td>CTL0502F</td>
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<tr>
<td>200 A / 10 VDC, Fixed Case</td>
<td>CTL2001F</td>
<td></td>
</tr>
<tr>
<td>200 A / 4-20 mA, Fixed Case</td>
<td>CTL2002F</td>
<td></td>
</tr>
<tr>
<td>5 A / 4-20 mA, Split Case</td>
<td>CTL0052S</td>
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<tr>
<td>200 A / 4-20 mA, Split Case</td>
<td>CTL2002S</td>
<td></td>
</tr>
</tbody>
</table>
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.

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
   Power input and output signal are not isolated.
8. POWER CONSUMPTION: 2 VA
9. LOADING: 650Ω 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

DIMENSIONS  In inches (mm)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø</td>
<td>0.19</td>
<td>(4.8)</td>
</tr>
<tr>
<td>1.18</td>
<td></td>
<td>(30)</td>
</tr>
<tr>
<td>3.53</td>
<td></td>
<td>(89.7)</td>
</tr>
<tr>
<td>3.04</td>
<td></td>
<td>(77.2)</td>
</tr>
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</table>

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
INSTALLATION
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.

OUTPUT WIRING
Connect control or monitoring wires to the sensor. Use up to 14 AWG copper wire and tighten terminals to 4 inch-pounds torque.

4-20mA:
The current loop is powered by the CTD Transducer. Maximum loop impedance is 650 Ω.

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.
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. 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 650 Ω.
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.

ORDERING INFORMATION
MODEL NO. | DESCRIPTION | PART NUMBERS
--- | --- | ---
CTD | DC/DC, Split Case | CTD00000

LIMITED WARRANTY
The Company warrants the products it manufactures against defects in materials and workmanship for a period limited to two years from the date of shipment, provided the products have been stored, handled, installed, and used under proper conditions. The Company’s liability under this limited warranty shall extend only to the repair or replacement of a defective product, at The Company’s option. The Company disclaims all liability for any affirmation, promise or representation with respect to the products.

The customer agrees to hold Red Lion Controls harmless from, defend, and indemnify RLC against damages, claims, and expenses arising out of subsequent sales of RLC products or products containing components manufactured by RLC and based upon personal injuries, deaths, property damage, lost profits, and other matters which Buyer, its employees, or sub-contractors are or may be to any extent liable, including without limitation penalties imposed by the Consumer Product Safety Act (P.L. 92-573) and liability imposed upon any person pursuant to the Magnuson-Moss Warranty Act (P.L. 93-637), as now in effect or as amended hereafter.

No warranties expressed or implied are created with respect to The Company’s products except those expressly contained herein. The Customer acknowledges the disclaimers and limitations contained herein and relies on no other warranties or affirmations.