AC Current Transmitters
Split Core

CTX-ACR-0, CTX-ACR-1
CTX-ACR-2

Input: ***0-2 Amps AC to 0-200 Amps AC True RMS***

Output: ***4-20 mA***

- ***4-20 mA Powered***
- ***Isolated Output***
- ***Measures Distorted or Sinusoidal Waveforms***
- ***Jumper Selectable Ranges***

Models

CTX-ACR-0 4-20 mA output, jumper selectable ranges
0 to 2 Amps true RMS
0 to 5 Amps true RMS

CTX-ACR-1 4-20 mA output, jumper selectable ranges
0 to 10 Amps true RMS
0 to 20 Amps true RMS
0 to 50 Amps true RMS

CTX-ACR-2 4-20 mA output, jumper selectable ranges
0 to100 Amps true RMS
0 to 150 Amps true RMS
0 to 200 Amps true RMS

Specifications

Input Ranges and Overload Ratings

Overload Ratings		Maximum Current		
Model	**Range**	**Continuous**	**6 Sec**	**1 Sec**
CTX-ACR-0	0-2 A	80 A	125 A	250 A
	0-5 A	100 A	125 A	250 A
CTX-ACR-1	0-10 A	80 A	125 A	250 A
	0-20 A	110 A	150 A	300 A
	0-50 A	175 A	215 A	400 A
	0-100 A	200 A	300 A	600 A
CTX-ACR-2	0-150 A	300 A	450 A	800 A
	0-200 A	400 A	500 A	1000 A

Output
Loop-powered, 4-20 mA DC

Loop Power
12 VDC to 40 VDC max.

$V_L = 12\ VDC + (R_L \times 0.020\ A)$

$R_L = (V_L - 12\ VDC) \div 0.020\ A$

V_L = Loop Voltage (40 VDC max.)
R_L = Loop Resistance

Output Limit
23 mA DC

Accuracy
±0.8% full scale

Response Time
600 milliseconds (to 90% step change)

Frequency Range
10 to 400 Hz

Isolation Voltage
UL listed to 1270 VAC, Tested to 5000 VAC

Sensing Aperture
0.85" x 0.85" square (21.5 mm x 21.5 mm)

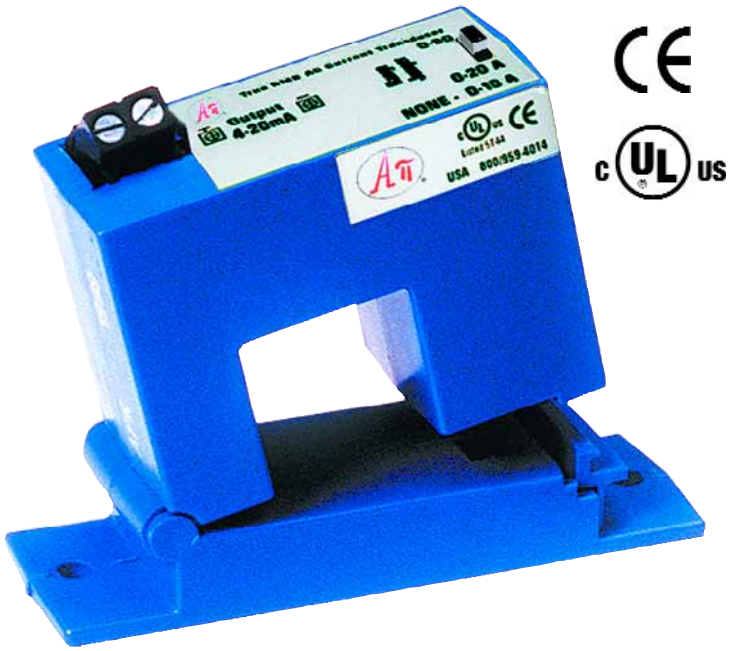
Case
UL 94V-0 flammability rated

Environmental
–4 to 122 °F (–20 to 50 °C), 0-95% RH, non-condensing

Listings
UL & CUL 508 industrial control equipment, CE certified

Dimensions
Width: 1.18" (30.0 mm)
Length: 3.53" (89.7 mm)
Height: 2.70" (68.6 mm)

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Features and Description

The split-core **CTX-ACR** series transmitters measure true RMS AC current in ranges up to 200 Amps AC and convert it to an isolated, loop-powered, 4-20 mA DC output. These two-wire transmitters consist of a current transformer and a true RMS signal conditioner in one compact package.

Applications include measuring motor, heater, or other AC electrical loads for preventive maintenance, load shedding, overload protection, control, etc. The true RMS output **CTX-ACR** series transmitters can be used for both linear (sinusoidal) or non-linear (distorted) waveform applications.

The **CTX-ACR** series transmitters operate over a wide frequency range of 10 to 400 Hz. They incorporate a mathematical algorithm that integrates the AC current waveform over time and provides an output equal to the true RMS value of the waveform. The true RMS output ensures accurate measurements in electrically noisy power environments as well as in applications where the waveform is a non-linear approximation of a sine wave such as outputs from variable frequency drives (VFDs) or SCRs.

The built-in current transformer physically isolates the high current from the 4-20 mA transmitter making this product much safer to use than other products or methods. The non-intrusive design also eliminates the insertion loss that exists when shunts are used.

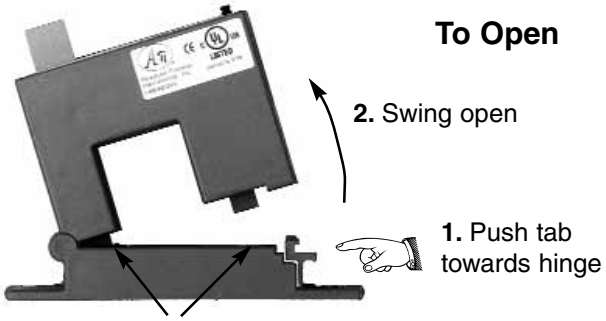
The transmitters are designed to withstand harsh industrial environments and can be mounted in virtually any position. They can be panel mounted using the built-in mounting bracket or hung directly on the wire and secured with a wire tie. The split core design makes installation quick and easy in existing or new circuits by snapping the core shut around the wire to be measured.

Only two wire connections are necessary for the 4-20 mA DC output. Power is derived from the output loop eliminating the need for additional power wiring.

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DESCRIPTION

CTX-ACR 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 CTX-ACR series provides a true RMS output which allows it to be used for variable speed or SCR controlled loads.



INSTALLATION

Press the tab in the direction as shown to open the sensor.

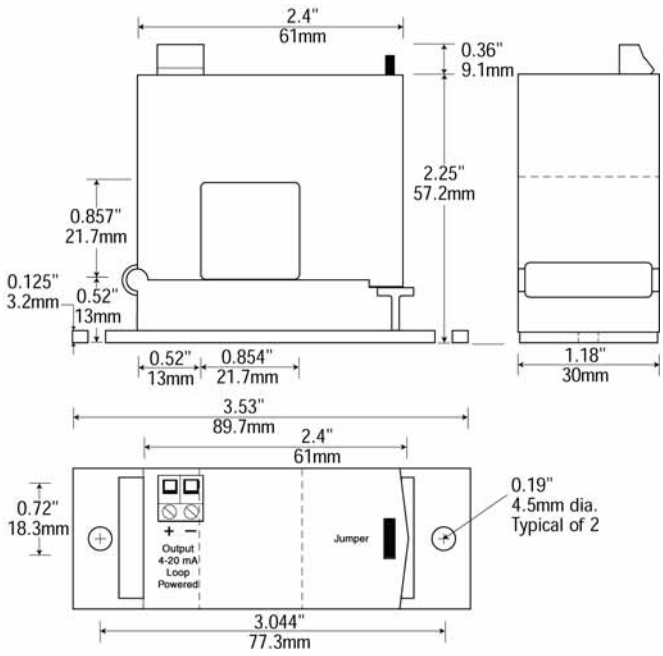
After placing the wire in the opening, press the hinged portion firmly downward until a definite click is heard and the tab pops out fully.

CTX-ACR series transducer 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 distance between sensor and other magnetic devices.

KEEP SPLIT-CORE CONTACT AREAS 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.



API maintains a constant effort to upgrade and improve its products. Specifications are subject to change without notice. Consult factory for your specific requirements.

OUTPUT WIRING

Connect control or monitoring wires to the sensor being careful to observe correct wiring polarity as shown in the diagram below.

Use up to 14 AWG solid or stranded copper wire and tighten terminals to 5 inch-pounds torque.

Be sure the output load or loop power requirements are met according to the formula below.

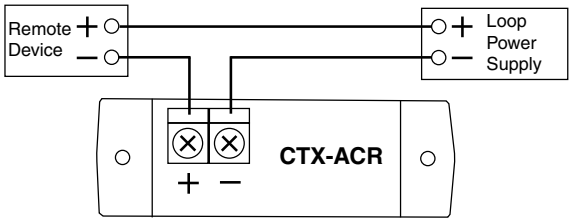
Loop Power Requirements

V_L = 12 VDC + (R_L x 0.020 A)

R_L = (V_L – 12 VDC) ÷ 0.020 A

Where: V_L = Loop Voltage (40 VDC max.)

R_L = Loop Resistance



RANGE SELECTION

CTX-ACR series transducers feature field selectable ranges. The ranges are factory calibrated and there is no need to field set 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.

TROUBLESHOOTING

1. **Sensor has no output**
   - A. Loop power supply is not properly sized. Check loop power supply voltage and current rating.
   - B. Wiring polarity is incorrect. Check and correct wiring polarity according to diagram above.
   - C. 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 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 only.
3. **Sensor is always at 4 mA**

   A. Monitored load is not AC or is not on. Check that the 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.

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