



AC Current Transmitters, High Current, Solid Core

CTX-AC-3S, -AC-4S, -ACR-3S, -ACR-4S Series

Input: 0-375 Amps AC to 0-2000 Amps AC
Output: 4-20 mA DC Loop Powered

Quick Link api-usa.com/current

- 4-20 mA Powered Isolated Output
- CTX-ACR True RMS for Distorted Waveforms
- CTX-AC for Sinusoidal Waveforms
- Switch Selectable Ranges

Applications

- Convert Amps to a DC Process Signal
- Monitor Current Ranges and Overload Protection
- Monitor Large Motors, Pumps, Heaters

AC Current Input Ranges

Three position slide switch for range selection

Output

Loop-powered, 4-20 mA DC output, 800 Ohm max. load
CTX-AC 32 mA DC over-range limit
CTX-ACR 23 mA DC over-range limit

Loop Power

12 VDC to 40 VDC max.
Use Class 2 or limited power source supply only
 $V_L = 12 \text{ VDC} + (R_L \times 0.020 \text{ A})$
 $R_L = (V_L - 12 \text{ VDC}) \div 0.020 \text{ A}$
Where: V_L = Loop Voltage
 R_L = Loop Resistance

Accuracy

±1% full scale

Response Time

600 milliseconds (to 90% step change)

Frequency Range

CTX-AC 50 to 60 Hz sinusoidal
CTX-ACR 10 to 400 Hz all waveforms

Isolation Voltage

3000 VAC

Housing

UL 94V-0 flammability rated

Environmental

-4 to 122 °F (-20 to 50 °C)
0-95% RH, non-condensing
Protect from weather, water, condensation, corrosion
Max. altitude 2000 meters

Model	Range	Overload Current		
		Cont.	6 Sec	1 Sec
CTX-AC-3S	0-375 A	750 A	1500 A	3750 A
	0-500 A			
	0-750 A			
CTX-ACR-3S True RMS	0-375 A	750 A	1500 A	3750 A
	0-500 A			
	0-750 A			
CTX-AC-4S	0-1000 A	2000 A	4000 A	10000 A
	0-1333 A			
	0-2000 A			
CTX-ACR-4S True RMS	0-1000 A	2000 A	4000 A	10000 A
	0-1333 A			
	0-2000 A			

Description

The solid-core CTX-AC and CTX-ACR series transmitters measure AC current in ranges up to 2000 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 signal conditioner in one compact package.

The CTX-AC is an economical solution for sinusoidal or undistorted wave forms, such as resistive loads.

The true RMS output CTX-ACR can be used for both linear (sinusoidal) or non-linear (distorted) waveforms. The CTX-ACR integrates the AC current waveform over time and provides a true RMS output allowing accurate measurements in electrically noisy power environments and in applications such as variable frequency drives (VFDs) or SCRs.

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.

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



Instructions

Range Selection

The sensing ranges are switch-selectable. It is often easier to set ranges before installation. See product label for ranges. The ranges are factory calibrated.

Determine the desired amperage to be monitored. Depending on your application this may be normal or maximum amperage. See the product label and place the range switch in the appropriate position that is equal to or slightly higher than the desired amperage.

Installation

WARNING! Turn all power off before connecting or disconnecting wiring, or removing or installing this device. All wiring must be performed by a qualified electrician or instrumentation engineer.

This device must be protected from the environment or mounted in an enclosure. It can be mounted in any position or hung directly on wires with a wire tie. Leave at least one inch distance between sensor and other magnetic devices.

If this equipment is not used as specified, safety and reliability may be impaired.

Run wire to be monitored through the sensing aperture.

Wiring Connections

For the output signal use 14-22 AWG copper wires rated 75/90 °C. Terminals should be tightened to 5-7 in-lbs torque. Polarity must be observed for output wiring connections. If the output does not function, check wiring and polarity. Be sure the output load does not exceed 800 ohms. The output load or loop power requirements are determined by the formula in the specifications.

Troubleshooting

- 1. No 4-20 mA output**
Loop power supply is not properly sized. Check loop power supply voltage and current rating.
Wiring polarity is incorrect. Check and correct wiring polarity according to diagram above.
- 2. Output signal too low**
The switch may be set in a range that is too high for current being monitored. Set switch to the correct range.
Monitored current is below minimum required. Loop the monitored wire several times through the aperture until the sensed current rises above minimum.
 $\text{Sensed Amps} = (\text{Actual Amps}) \times (\text{Number of Loops})$
Count loops on the inside of the aperture only.
- 3. Output signal is always at 4 mA**
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**
The switch may be set in a range that is too low for current being monitored. Set switch to a higher range.

