

Operation

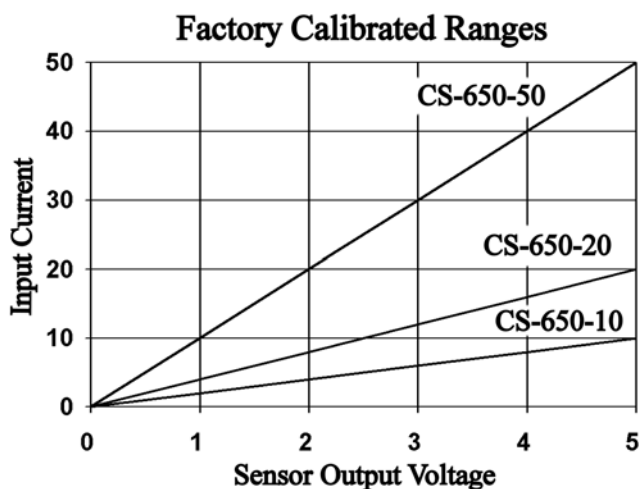
The CS-650-xx series of current sensors monitor line current for electrical loads such as pumps, conveyors, machine tools or fans and output an analog 0-5 Vdc signal to represent the load current.

The sensors requires no external power supply as they are totally powered by induction from the AC line being monitored. The output signal is clamped at < 6 Vdc and is factory calibrated to $\pm 1\%$ FSO.

The sensors are typically used to monitor motor operation and can be used to determine motor failure, belt loss, machine feed rates or tool wear.

⚠ WARNING ⚠

- **Electric Shock Hazard, Use Caution**
- Disconnect and lock out power before installation
- Follow national and local electrical codes
- Read and understand these instructions before installing
- Installation only by qualified electrical personnel
- Do not rely on this device to indicate line power
- Only install this device on insulated conductors
- Only install on 600 Vac maximum conductors
- Do not use this device for life-safety applications
- Do not install in hazardous or classified locations
- Install this product in a suitable electrical enclosure
- **Failure to follow these instructions will result in death or serious injury.**



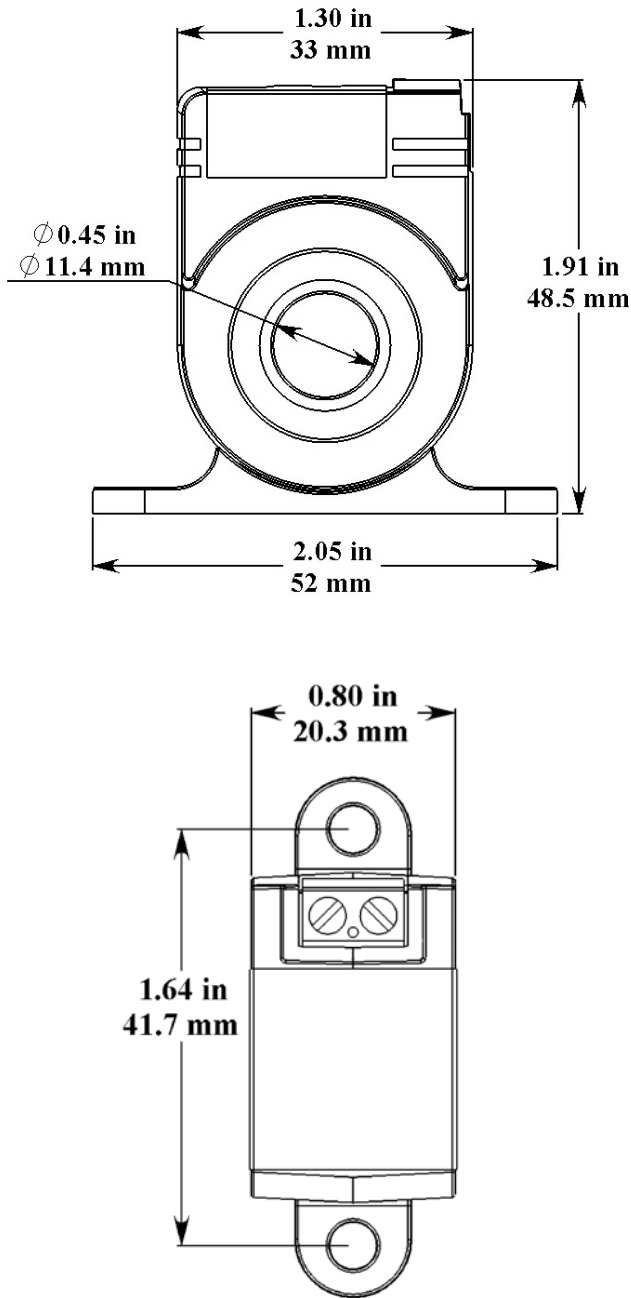
Specifications

Measurement Range	10/20/50 Amps (Select model)
Maximum Input Current ..	100 Amps continuous
Accuracy	± 1% FSO (10-100% of range)
Sensor Power	Self-powered
Output Signal	0-5 Vdc
Insulation Class	600 Vac, insulated conductors
Frequency	50/60 Hz
Response Time	200 mS (0-90%)
Output Load	1 MΩ typical
Loading Error	add 1.2% error with 100 KΩ
Operating Temperature . . .	-15 to 60 °C (5 to 140 °F)
Operating Humidity	5 to 90 %RH, non-condensing
Terminal Block	14 to 22 AWG
Dimensions	2.05 x 1.91 x 0.8 in (52 x 48.5 x 20.3 mm)
Sensor Aperture	0.45 in (11.4 mm)
Enclosure Material	ABS/PC, UL94 V-0
Manufacturing	ISO 9001 Certified
Agency Approvals	cULus Listed

Installation

- Read all warnings before beginning
- Ensure the selected device has the correct ratings
- Disconnect and lock out power
- Mount the sensor with two screws through the base
- Place the monitored conductor through the sensor hole
- Observe polarity and wire the output to the controller
- Ensure the controller scale matches the sensed range
- Reconnect the power

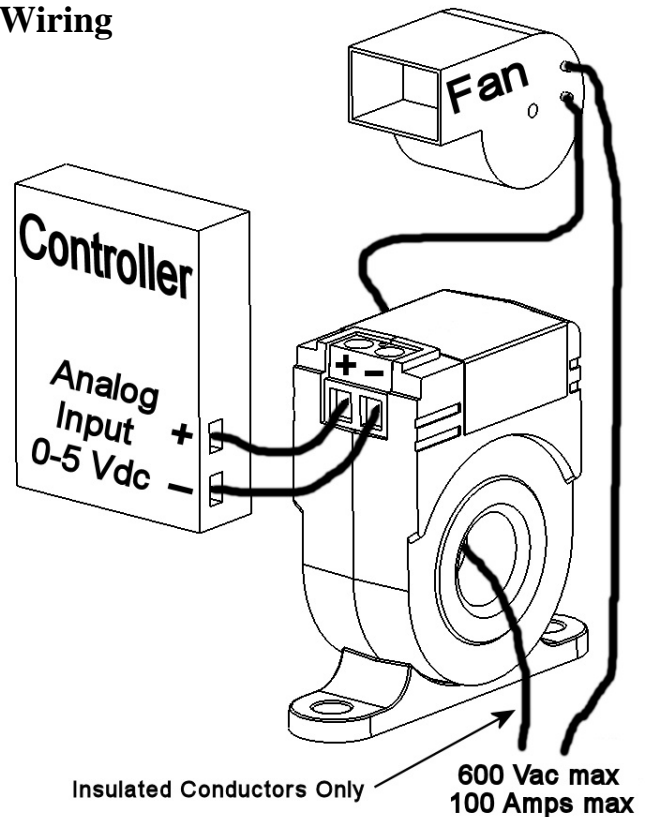
Dimensions



Calibration

All models are factory calibrated to operate within $\pm 1\%$ of FSO. If field calibration is required or a custom measurement range is desired, simply peel back the top label to expose the calibration pot. The adjustment pot sets the current span of the device and may be adjusted by about $\pm 20\%$ of FSO.

Wiring



Applications

For applications with load currents exceeding the sensor current range use an external CT to reduce the current to an acceptable value. For example, to measure a 200 Amp load current, use a 200A:5A CT and wrap the CT secondary through the CS-650-10 twice so the sensor output will be 0-5 Vdc = 0-200 Amps.

For applications with very small load currents (such as less than 1 Amp), wrap the monitored conductor through the sensor aperture several times to increase the current measured by the sensor. For example, to measure 0-1 Amps with a CS-650-10, wrap the conductor through the sensor aperture 5 times so the sensor output will be 0-2.5 Vdc = 0-1 Amps.

For any application using an external CT or with multiple wraps, ensure the controller is scaled accordingly to obtain the correct readings.

For any application with multiple wraps, note that the CS-650 maximum current rating must be divided by the number of wraps. For example, with one wrap the maximum current is 100 Amps, with 5 wraps the maximum current is $100/5 = 20$ Amps. Ensure the load current is < 20 Amps or the device may overheat and be damaged.