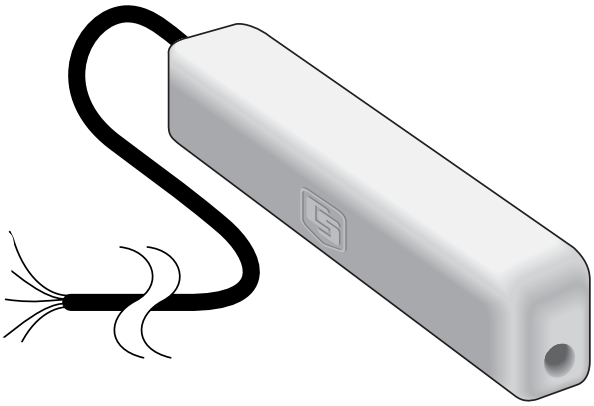
CS547A

Conductivity and Temperature Probe

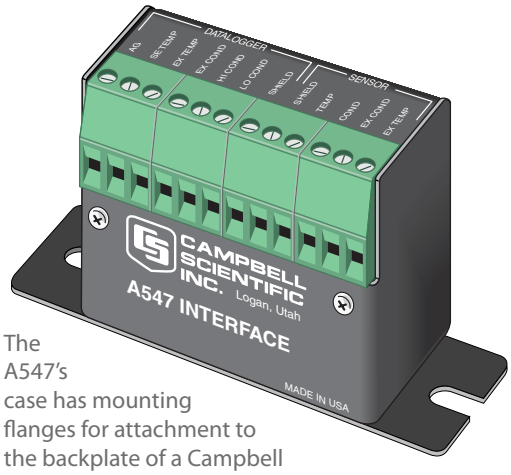
Campbell Scientific's CS547A probe monitors the electrical conductivity (EC) and temperature of water. EC is measured with three cylindrical stainless steel electrodes mounted in an epoxy housing. The electrode configuration eliminates ground loop problems associated with sensors in electrical contact with earth ground. The electrodes are ac coupled, and the datalogger applies a bipolar excitation. These features reduce electrochemical reactions, minimize corrosion, and extend the probe's life. Temperature is sensed with a thermistor.

The CS547A is easy to clean and resistant to corrosion. It has rounded ends to facilitate installation and removal. The CS547A is shipped with a cell constant calibrated in a 0.01 molal KCl solution at 25°C. The solution has an EC of 1.408 mS cm^{-1}.

The A547 Conductivity Interface contains the blocking capacitors and bridge completion resistors necessary for the conductivity measurement. One A547 is required for each CS547A when used directly with the datalogger; multiple CS547A probes can be used with a AM16/32B multiplexer and one A547.



The CS547A is suitable in most surface water, laboratory, and industrial applications. A weighted cable is available to facilitate stand-alone submersion.



The A547's case has mounting flanges for attachment to the backplate of a Campbell Scientific environmental enclosure.

Ordering Information

Conductivity and Temperature probe	
CS547A -L	Conductivity and temperature probe with user-specified cable length. Enter the cable length, in feet, after the -L. Must choose a cable termination option, and use an A547 Conductivity Interface (see below).
Weighted Cable Options (choose one)	
-NW	No Weight on Cable. This option is recommended when the CS547A will be secured to a fixed or retractable object.
-CW	2.7 oz. Weight added to Cable. The extra weight facilitates submersion of the CS547A, and is required for stand-alone submersion.
Cable Termination Options (choose one)	
-PT	Cable terminates in stripped and tinned leads for direct connection to a A547's terminals.
-PW	Cable terminates in connector for attachment to a prewired enclosure.
Common Accessories	
A547	CS547A Conductivity Interface that contains blocking capacitors and bridge completion resistors necessary for measurement of the CS547A.
7421	Split Mesh Cable Grip

Multiple sensors can be measured by connecting the probes to an AM16/32B multiplexer and then connecting the multiplexer to the A547 interface.

Specifications

CS547A Probe

Measurement Range

EC: ~0.005 to 7.0 mS cm^{-1}. Contact factory for extended ranges.

Temperature: 0° to 50°C

Accuracy

EC[1]: ±5% of reading (for 0.44 to 7.0 mS cm^{-1} range)
±10% of reading (for 0.005 to 0.44 mS cm^{-1} range)

Temperature: Polynomial linearization error typically <0.1°C over 0° to 48°C. Thermistor interchangeability typically <0.2°C over 0° to 50°C.

Wetted Materials: Epoxy housing, 316 stainless steel rings, polyurethane cable

pH Operating Range: Solution pH of less than 3.0 or greater than 9.0 may damage the stainless steel housing.

Minimum Pipe ID in which CS547A Fits: 1.1″ (2.79 cm)

Depth Rating: 1000 ft (305 m) maximum

Maximum Cable Length: 1000 ft (305 m)

Datalogger Requirements: One differential analog input, one single-ended analog input, and two excitation channels. One excitation channel must be capable of delivering ac excitation. The CS547A is not compatible with the CR200 series.

Dimensions: 1″ x 0.75″ x 3.5″ (2.54 x 1.91 x 8.89 cm)

Weight

Sensor with 4 ft Cable: 4.2 oz (120 g)

Weighted Cable: 2.8 oz (80 g)

A547 Interface

Dimensions: 2.5″ x .0.9″ x 1.8″ (6.4 x 2.3 x 4.6 cm)

Weight: 2 oz. (45 g)

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[1]The EC accuracy is in a KCl and Na_2SO_4, $NaHCO_3$, and NaCl Standard Solutions @ 25°C.

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