

SR50A/AT Snow Depth Sensor



The SR50A, manufactured by Campbell Scientific Canada, is a rugged, acoustic sensor that provides a non-contact method for determining snow or water depth. The SR50A determines depth by emitting an ultrasonic pulse and then measuring the elapsed time between the emission and return of the pulse. An air temperature measurement is required to correct for variations of the speed of sound in air.*

The SR50A was designed to meet the stringent requirements of measuring depths and uses a multiple echo processing algorithm to help ensure measurement reliability. It is compatible with our CR200-series, CR800, CR850, CR1000, CR3000, and CR5000 dataloggers, as well as most

retired dataloggers. SDI-12, RS-232, and RS-485 output options are available for measuring the SR50A. Campbell Scientific's MD485 interface can be used to connect one or more SR50A sensors in RS-485 mode to an RS-232 device. This can be useful for sensors that require lead lengths that exceed the limits of either RS-232 or SDI-12 communications.

*A version with an on-board temperature sensor (SR50AT) is also available on special order: contact Campbell Scientific Ltd. for further information.

Specifications

Measurement time: <1.0 s

Output options (selected by configuring internal jumpers):
SDI-12 (version 1.3) RS-232,
RS-485

Baud Rates (RS-232, RS-485
modes): 1200 to 38400 bps

Power requirements: 9-18 Vdc,
typically powered by
datalogger's 12 Vdc power
supply

Power consumption
Active (typical): 250 mA
Quiescent (SDI-12 mode):
<1.0 mA

Quiescent (RS-232/RS485
modes): <1.25 mA (baud rates
≤9600 bps); <2.0 mA (baud
rates > 9600 bps)

Measurement range: 0.5-10 m
(1.6 to 32.8 ft)

Beam Acceptance: ~30°

Resolution: 0.25mm (0.01")

Accuracy: ±1 cm (0.4") or 0.4%
of distance to target (whichever
is greatest); requires external
temperature compensation

Operating Temperature: -45°C
to +50°C

Dimensions
Length: 10.1 cm (4 in)
Diameter: 7.5 cm (3 in)

Maximum Cable Length
SDI12: 60 m (200 ft)
RS-232: 60 m (200 ft) (9600
baud or less)
RS-485: 200 m (984 ft)

Weight: 1.0 kg (2.2 lbs)

Mounting

To achieve an unobstructed view for the SR50A's beam, the SR50A is typically mounted to a tripod mast, tower leg, or user-supplied pole.

There are two standard mounting options available for the SR50A/AT.

The first is the SR50A/AT Mounting Assembly, (part number 019SR50AE). This bracket is designed to mount the SR50A/AT parallel to a pipe, see Figure 1. This assembly includes mounting bracket (part number 19517) and a galvanized mild steel tube (1¼" N.B.)

Another mounting option shown in Figure 3 utilizes a mounting stem (part number 008164) - see Figure 2 and a crossarm (part number 019SR50E). The mounting stem is sized to fit a 1" NU-RAIL. This mounting method was used for the SR50 (predecessor to the SR50A/AT). This stem can also be used to fit the SR50A/AT into existing SR50 mounts.



Fig. 1 The 19517's bracket mounts directly to a crossarm. Two screws are used to attach the SR50A/AT to the 19517 bracket.



Fig. 2 This shows the SR50A/AT Mounting Stem attachment (008164) fitted to the SR50A/AT sensor body

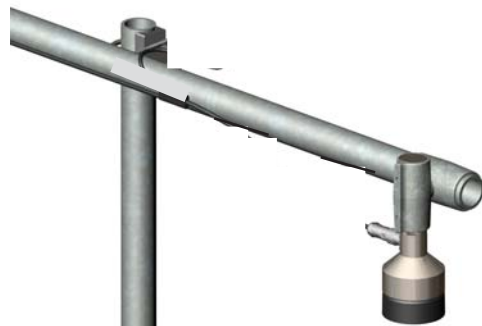


Fig. 3 This configuration uses crossarm (019SR50E) and mounting stem (008164)

Campbell Scientific products are available from: