



Rugged acoustic distance sensor

Typically used for snow depth or water depth measurements

Overview

The SR50A is a rugged acoustic sensor for measuring the distance from the sensor to a target. This sensor is typically used for snow depth or water depth measurements, but it is well-suited for other uses.

Because the speed of sound in air varies with temperature, an independent temperature measurement is required to compensate the distance reading. A simple calculation is applied to initial readings for this purpose.

Note: Campbell Scientific recommends model [SR50A-316SS-L](#) for marine environments.

Benefits and Features

- › Wide operating temperature range
- › User-selectable options for output
- › Compatible with most Campbell Scientific dataloggers

Detailed Description

The SR50A was designed to meet the stringent requirements of measuring snow depth and water depth, and it uses a multiple echo processing algorithm to help ensure measurement reliability.

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.

The SR50A replaced the SR50 in March 2007. The newer SR50A is smaller and has different output options than its predecessor. The [SR50AH](#) is available with a heater option for locations where rime ice is a problem.

Specifications

Measurement Time < 1.0 s

Measurement Range 0.5 to 10 m (1.6 to 32.8 ft)

Output Options	SDI-12 version 1.3, RS-232, RS-485 (output options selected by configuring internal jumpers)
Baud Rates	1200 to 38400 bps (RS-232, RS-485 modes)
Power Requirements	9 to 18 Vdc (typically powered by datalogger's 12 Vdc power supply)
Beam Acceptance	~30°
Resolution	0.25 mm (0.01 in.)
Accuracy	±1 cm (0.4 in.) or 0.4% of distance to target (whichever is greatest). Requires external temperature compensation.
Operating Temperature Range	-45° to +50°C
Compliance	CE Compliant
Length	10.1 cm (4.0 in.)
Diameter	7.5 cm (3 in.)

Cable Weight	250 g (8.2 oz) for a 4.57-m (15-ft) cable
Weight	<ul style="list-style-type: none"> › 375 g (13.2 oz) without cable › 1.0 kg (2.2 lb)

Maximum Cable Length

-NOTE-	<i>Cable lengths greater than 60 m require a heavier gage wire if the power supply drops below 11 Vdc.</i>
SDI-12	60 m (196.9 ft)
RS-232	30 m (98.4 ft) Baud rates ≤ 9600 bps
RS-485	300 m (984.3 ft)

Power Consumption

Active	250 mA (typical)
Quiescent SDI-12 Mode	< 1.0 mA
Quiescent RS-232/RS-485 Modes	<ul style="list-style-type: none"> › < 1.25 mA (≤ 9600 bps) › < 2.0 mA (> 9600 bps)

For comprehensive details, visit: www.campbellsci.com/sr50a 



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