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WHEN MEASUREMENTS MATTER

SR50AH

Heated Sonic Distance Sensor

Rugged, heated acoustic distance sensor

Prevents ice from coating the transducer

Overview

Note: This product has limited availability. Please consider the SnowVue™10 Digital Snow-Depth Sensor for snow-depth measurements and the TempVue™20 Pt100 Digital Air Temperature Sensor or HygroVue™10 Digital Temperature and Relative Humidity Sensor with M12 Connector for air temperature measurements.

The SR50AH Heated Sonic Distance Sensor provides a non-contact method for determining snow depth. It 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 SR50AH includes an integrated heater that prevents ice and rime from coating the transducer.

Benefits and Features

- Non-contact method for determining snow depth
- Integrated transducer heater; rugged enough for rime and ice environments
- Wide operating temperature range
- User-selectable options for output
- Uses a multiple echo processing algorithm to help ensure measurement reliability
- Compatible with most Campbell Scientific data loggers

Detailed Description

The SR50AH was designed to meet the stringent requirements of measuring depths and uses a multiple echo processing algorithm to help ensure measurement reliability. The addition of a heating element around the transducer prevents ice and rime from coating the transducer with minimal power requirements.

SDI-12, RS-232, and RS-485 output options are available for measuring the SR50AH. Campbell Scientific's MD485 interface can be used to connect one or more SR50AH 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.

Specifications

Measurement Time	< 1.0 s
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 data logger's 12 Vdc power supply)
Measurement Range	0.5 to 10 m (1.6 to 32.8 ft)
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.
Temperature Accuracy	❱ ±0.2° (at 0° to 50°C) ❱ ±0.75° (at -45° to 0°C)
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

Maximum Cable Length

-NOTE-	*Cable lengths greater than 60 m require a heavier gage wire if the power supply drops below 11 Vdc.*
SDI-12	60 m (200 ft)
RS-232	60 m (200 ft) Baud rates ≤ 9600 bps
RS-485	300 m (984 ft)

Heater

Heater Resistance	75 ohm
Nominal Operating Voltage	12 V (ac or dc) Use a properly conditioned low-noise power source. A noisy power source will affect operation of the sensor.
Maximum Rated Wattage	3 W
Maximum Rated Voltage	15 V (ac or dc)
Maximum Operating Temperature	25°C Turn the heater power off at temperatures above 25°C. This prevents damage to the sensor and reduces power consumption.

For comprehensive details, visit: www.campbellsci.com/sr50ah