



## CS475A-L Radar Water-Level Sensor



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## Non-Contact Water Level Monitoring

FCC approved for outdoor use

### Overview

The CS475A radar sensor monitors the water level of rivers, lakes, tidal seas, and reservoirs. The sensor is ideal for areas where submersed sensors can be damaged due to corrosion, contamination, flood-related debris, lightning, or vandalism. It emits short microwave pulses and then measures the elapsed time between the emission and return of the pulses. The elapsed time measurement is used to calculate the distance

between the sensor and the target (for example, water, grain, slurry). The distance value can then be used to determine depth of the medium.

The CS475A outputs a digital SDI-12 signal to indicate distance and stage. This output is acceptable for recording devices with SDI-12 capability, including Campbell Scientific data loggers.

### Benefits and Features

- › Meets USGS Office of Surface Water (OSW) requirements for accuracy
- › SDI-12 version 1.4 functionality
- › Makes 1 Hz measurements
- › Monitors tides for NOAA physical oceanographic real-time systems (PORTS)
- › Easy to set up and configure over USB or SDI-12
- › FCC compliant (FCC IC# MOIPULS 616263); individual FCC license not required
- › Low maintenance—no moving parts significantly reduces maintenance cost and time
- › Low power mode available
- › Rugged enough for harsh environments—IP68 rating
- › Optional display available

### Detailed Description

Features of the SDI-12 version 1.4 functionality:

- › M! commands return stage, distance, voltage, and error codes
- › SHEF coded meta data

## Specifications

Measurement Description	Distance
Output Options	SDI-12
Measurement Range	0.5 to 35 m (1.6 to 114.8 ft)
Accuracy	±2 mm (±0.0065 ft)
Resolution	1 mm (0.0033 ft)
Communications Output	SDI-12 version 1.4
Radar Frequency	K band (~26 GHz)
Pulse Energy	1 mW (maximum)
Beam Angle	10°
Input Voltage	9.6 to 32 Vdc
Surge Protection	1.5 KVA
Operating Temperature Range	-40° to +80°C
Vibration Resistance	Mechanical vibrations with 4 g and 5 to 100 Hz

Mechanical Rating	IP66/68
Housing Material	Aluminum
Horn Material	PVDF plastic
Measurement Time	<ul style="list-style-type: none"> <li>› &lt; 1.0 s (normal power mode)</li> <li>› 60.0 s + (5 • Integration Time) + (Measurement Time) (low power mode)</li> </ul>
Housing Height	129 mm (5.1 in.)
Horn Diameter	115 mm (4.5 in.)
Horn Height	122 mm (4.8 in.)
Weight	2 kg (4 lb)

### Nominal Current Drain

Normal Power Mode	<ul style="list-style-type: none"> <li>› &lt; 7 mA (measurement state)</li> <li>› &lt; 5 mA (sleep state)</li> </ul>
Low Power Mode	<ul style="list-style-type: none"> <li>› &lt; 550 µA (sleep state)</li> <li>› &lt; 7 mA (measurement state)</li> </ul>



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