CS4500

Ultrasonic, ultra-accurate speed measurement.

High Precision, Low Maintenance!

Innovation at its finest! If one consistently demands the best, Airmar's CS4500 Ultrasonic Speed Sensor delivers. Ultra-accuracy is foremost! With no moving parts, the ultrasonic sensor is capable of speed reading accuracy as low as 0.1 knots (0.1 MPH). By eliminating the traditional paddlewheel, there is no fouling, and drag is reduced to a minimum. Unlike paddlewheels, the CS4500 is engineered to measure water speed below the turbulent boundary layer of the hull resulting in accurate clean-water readings.

Tried and True Technology

The innovation doesn't stop here. Ultrasonic sensing is a proven technology that has been used on ships for nearly 20 years. Building on this technology, Airmar developed an advanced design which operates at a higher-frequency, enabling reliable operation in both salt and fresh water. The state-of-the-art processor in the CS4500 calculates speed every half second, so it can respond to rapid changes in vessel speed. This translates into the most reliable and accurate ultrasonic speed sensor on the market—at a very competitive price.

- **Unparalleled accuracy as low as 0.1 knots (0.1 MPH)**
- **No moving parts**
- **Makes retrofitting a breeze—the retractable insert fits most Airmar 51 mm (2") housings**
- **Built-in temperature sensor**
- **Optional NMEA converter box converts analog signal to NMEA 0183 data stream**

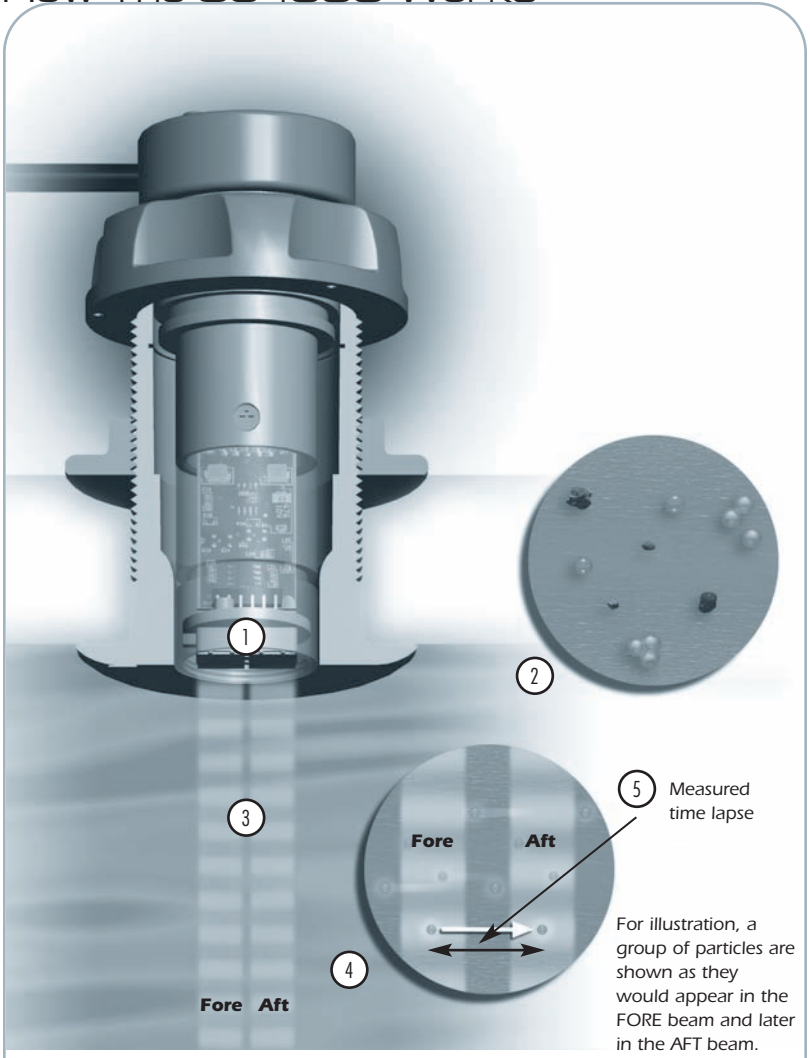
Universal NMEA Converter

AIRMAR® TECHNOLOGY CORPORATION

ISO 9001:2000

CS4500
Technical Information

How The CS4500 Works



For illustration, a group of particles are shown as they would appear in the FORE beam and later in the AFT beam.

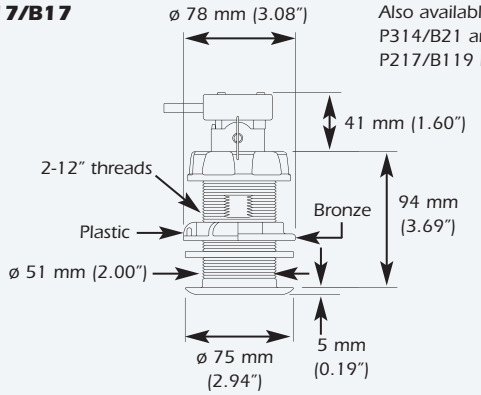
1. In the CS4500, two transducers are incorporated in a single housing.
2. Small particles present in the water pass through the beam.
3. The speed sensor uses ultrasonic pulses to collect echoes from the small particles in the water as they pass under two ceramics embedded in the sensor.
4. As the boat travels through the water, both ceramics "view" the same stream of particles.

   Because it takes time for particles to travel between the two ceramics, the aft ceramic detects the particles later than does the fore ceramic.
5. By measuring this time lapse, the instrument is able to calculate the boat speed.

Available Housing Options

CS4500-650 insert options

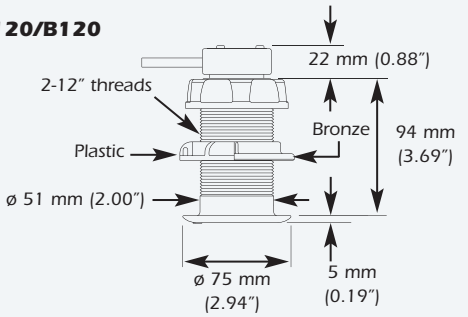
P17/B17



Also available in P314/B21 and P217/B119 housings

CS4500-610 insert options

P120/B120



Specifications*

Speed Measured	.77 mm to 178 mm (3" to 5") below the hull (outside the boundary layer)
Frequency	.4.5 MHz
Pulse Repetition Frequency	.5.5 kHz
Signal Output	.Airmar paddlewheel format
Data Update Rate	.2/seconds
Speed Range	.0.1 to 40 knots (0.1 to 46 MPH)
CE Compliant	.Yes
Supply Voltage	.10 VDC to 15 VDC
Current	.155 mA @ 12 VDC
Operating Temperature Range	.0°C to 40°C (32°F to 104°F)
Sensor Insert Material	.Bronze
Thru-Hull Housing Material	.Bronze or plastic
Sensor Cable Type	.Airmar C190
Sensor Cable Length	.10 m (33') standard
Instrument Cable Length	.3 m (1') standard, up to 30 m (10') possible
Blanking Plug	.Yes

As Airmar constantly improves its products, all specifications are subject to change without notice. All Airmar products are designed to provide high levels of accuracy and reliability; however, they should only be used as aids to navigation and not as a replacement for traditional navigation aids and techniques.

AIRMAR® TECHNOLOGY CORPORATION
Tel: 603.673.9570 ▪ Fax: 603.673.4624 ▪ www.airmar.com