

# HSR-10 Handheld Velocity Radar – Frequently Asked Questions.



## 1. What is the HSR-10 and its primary function?

The HSR-10 is a portable, handheld radar sensor for non-contact measurement of flow velocity in rivers and channels. It uses the Doppler effect to determine surface velocity without being submerged or in contact with the water.

## 2. What are the key benefits of using the HSR-10?

The HSR-10 offers a contact-free measurement method that prevents soiling and damage, reducing maintenance. It provides quick, safe measurements in high-velocity or turbulent waters and is ecologically compatible. The device features a user-friendly interface, self-checking system, and wireless data transmission via Wi-Fi.

## 3. How does the HSR-10 measure water velocity?

The HSR-10 emits radar waves to the water surface. By analyzing the frequency shift of the reflected waves, it determines the surface flow velocity.



## 4. What are the operating conditions and physical specs of the HSR-10?

The HSR-10 operates on 9-18V DC power with a battery capacity of 2.0 Ah or 3.0 Ah, charging in approximately 2 hours. It functions within temperatures of  $-40^{\circ}\text{C}$  to  $60^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $140^{\circ}\text{F}$ ) and stores between  $-40^{\circ}\text{C}$  and  $85^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $185^{\circ}\text{F}$ ). The device weighs 1.2 kg (2.71 lb), has an IP65 protection rating, and measures 263 x 123 x 271 mm (10.35 x 4.84 x 10.66 in). It transmits data via Wi-Fi at 2.4 GHz within 50 meters.

## 5. What is the measurement range and accuracy?

The HSR-10 detects velocities from 0.08 to 16 m/s (practical range) or 0.01 to 20 m/s (technical range). It offers an accuracy of  $\pm 0.01$  m/s and a resolution of 1 mm/s, with a measurement range from 0.5 to 100 meters (1.6 to 328 feet) from the water surface.

## 6. What data does the HSR-10 provide?

In addition to velocity, the HSR-10 provides direction recognition (+/-) and an internal measurement quality value. It uses Advanced Noise Reduction (ANR) based on velocity spectrum analysis. Measurements take approximately 10 seconds at a frequency of 24 GHz (K-band).

## 7. How do I use the HSR-10 with the app?

Download the "HSR Commander" app from Google Play, connect to the HSR-10's Wi-Fi network, and open the app. Choose whether measuring upstream or downstream, point the radar at the water, and take your reading. If there are connection issues, deactivate mobile data on your device.



## 8. What's included in the HSR-10 Bundle?

The HSR-10 Bundle includes the handheld radar, a charger for Makita® batteries, and a case. Batteries are sold separately.