

# How to Choose a Speed and Distance Monitor

<http://www.rei.com/expertadvice/articles/speed+distance+monitor.html>

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How far is your favorite trail run? How fast is your pace? What is the distance of that sweet bike ride? A **speed and distance monitor (SDM)** can help you solve all of those mysteries.

Speed and distance information can be a valuable part of a training program that helps you achieve peak performance. An SDM is a tool that gives you real-time speed and distance data on a wristwatch-style computer. Many models include a **heart rate monitor (HRM)**.

## The 2 Tracking Methods

All speed and distance monitors feature a wristwatch-style data center that includes training watch basics such as time, date, stopwatch and alarm. There are 2 distinct ways of capturing your data:



## GPS Receiver

Just like the GPS units used for backcountry and road navigation, many SDMs use signals from orbiting Global Positioning System satellites to calculate your position, speed and distance traveled. Wrist-mounted devices with this technology look like watches, but they are actually small GPS receivers.

### Pros:

- Highly precise when optimally receiving satellite signals.
- Requires no special accessories to go from running to cycling to skiing.
- Needs no calibration.
- Provides exact positioning data, a nice feature when navigation is an element of your training (e.g., adventure racing).

### Cons:

- Substantial tree cover and tall buildings can block satellite signals, compromising accuracy.
- Wrist mounting may not allow for a continuous, optimal view of the sky overhead, which is necessary for a satellite lock.
- Swinging arm motions and negotiating tight curves can interrupt signal reception.



## Foot Pod

Unlike wrist- or arm-mounted GPS receivers, a foot pod is a tiny unit attached to your shoe. It uses an accelerometer to estimate the length of each stride, taking into account variations due to terrain, fatigue, etc. Your SDM watch then combines all of your foot pod's stride data with other calibrating information to approximate your speed and distance.

### Pros:

- Works equally well in open terrain, under cover or in a gym.
- Accurate on flat or hilly terrain and when making quick, sharp turns (e.g., when trail running or on an indoor track).

- Lightweight design is sleeker than most GPS-enabled SDMs.

#### **Cons:**

- Must be calibrated for either running or walking.
- Less accurate for interval training.
- Not compatible with all watch-style units; foot pods and watches are brand specific.
- Often not included as standard equipment but require purchase as an extra option.
- Does not offer any navigation functions.

Some models feature both a GPS receiver for outdoor use and a foot pod for indoor use. A heart rate monitor with a properly calibrated foot pod can provide distance measurements with accuracy approaching that of a GPS receiver. A foot pod's accuracy can surpass a GPS receiver's in locations where satellite signal penetration is poor, such as indoor tracks.

## **Key Speed and Distance Monitor Features**

Other features can help you train with your speed and distance monitor.

**Heart rate monitor:** Many SDMs offer a heart rate monitor (HRM) either included with the device or as an additional purchase. An HRM lets you keep your workouts in the right target zone. On most models, you don a chest strap that wirelessly transmits cardio data to your wrist-mounted speed and distance monitor.

**Caution: Before initiating any exercise program, you should consult a physician to design the program that's best suited for your goals and current conditioning.**

**Running route/elevation profile:** The GPS-enabled SDM gives you a profile of the altitude traveled—ascents and descents—during a workout. Coupled with a heart rate monitor, you can graph how your heart rate changed with the ups and downs.

**Altitude tracking:** This feature provides an estimate of the peak altitude you attained during a workout. It also supplies total elevation gain or loss during a workout.

**Target pace and alarms:** Enable this feature when you want to run at a certain pace (e.g., a 7-minute mile); an alarm will sound if your speed drops below that pace.

**Bicycling accessories:** Track your cadence, speed or distance by mounting an SDM to your bicycle along with a foot pod and/or cadence sensor. Add an HRM to get your heart rate, too.

**GPS receiver pod:** Wear this on your upper arm to wirelessly transmit speed and distance data to your watch the same way a chest strap does with HRM data. Leave the pod behind on race day when you only need to know your time and heart rate.

**Water resistance:** All speed and distance monitors are weatherproof, and you can even swim in some. Though GPS signals do not penetrate the water's surface, triathletes will appreciate starting the race with their SDM instead of waiting for the first transition.

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## Speed and Distance Systems

<http://www.hdosport.com/tips.php?id=118>

I really like being able to track the specifics of my runs ? I find it useful to know exactly how far I've run so I can be sure of my pace and mark my improvement. To get some idea of my runs' lengths, I used to measure their distances using my car's odometer. I quickly found this method to have its limitations. First, unless I was to run on the right side of the road (and follow my car's exact path), my car's measurement would be imprecise. The method also didn't work on my trail runs. I live in a city and so like to get into nature as often as possible ? at least once or twice a week. I needed to know how long I'd run on those days as well.

That's why I recently decided to invest in a ?speed and distance monitor? (better known as an advanced pedometer). There are a lot of speed and distance options out there ? several brands sell these monitors, and they vary in terms of features and the way they actually measure speed and distance. I narrowed it down to three brands that had received the best reviews and were the most widely distributed in the market. I then had to make a choice between Nike, Timex and Garmin.

Whether you should choose a Nike, a Timex or a Garmin Speed and Distance Monitor depends on several factors, the most important of which being where you'll be using the monitor. Timex and Garmin use GPS to measure speed and distance, whereas Nike uses an inertial Foot Pod. My research, as well as my own experience in testing a Timex Speed and Distance System, made me lean away from the GPS. Timex and Garmin's GPS Systems, though perfectly accurate in most conditions, tend to cut out when used in heavily forested areas and in areas with a lot of skyscrapers. I live in a city and train downtown and in a forest, so opted for a system using a SDM Foot Pod.

This is the only drawback that I found in GPS systems. I therefore recommend Timex and Garmin systems to anyone who trains in an area with little to no interference. The Timex's GPS unit was barely even noticeable on my arm when I tried it. A few months ago they reduced its size by about 1/3, and it is now the size of an Oreo cookie. The Garmin 201 (Garmin's speed and distance monitor) is great because its GPS is housed in the wrist unit. Although this makes the wrist unit larger than that of its competitors, it frees you from all arm straps and Foot Pods. Everything you need is right there on your wrist. GPS is also useful if you want your Speed and Distance System on a bike as well.

A few of my friends swear by their Timex Bodylink Systems because they track all of their workouts ? biking, hiking and running.

I finally decided on the Nike V10 because it doesn't use GPS and is as such more accurate for my chosen training locales. The V10, like all other Nike Speed and Distance Monitors, uses a foot pod (also known as an SDM Pod). To personalize a Nike SDM Pod, all you have to do is run 800 meters on a marked 400 meter track. Once calibrated to your unique stride, the Nike V10 manual says that its foot pod is more than 97% accurate. I maintain that it is 100% accurate except on very long steep hills and in other situations in which your leg stride drastically changes. I run the same 5.2 mile loop a couple times a week, and my V10 has always shown it to be the exact same distance, and so has always been 100% accurate. It was slightly off one day when I had a sore hamstring ? as a result of my leg pain, I must have shortened my stride. Even so, my V10 only showed my route to be 0.09 miles off.

Nike sells a few different types of Speed and Distance Monitors ? they range from basic (the Nike SDM Tailwind) to very advanced (the Nike SDM Triax Elite). The Tailwind is just a foot unit, and does not come with a wrist monitor. They all use the same SDM Foot Pod, so you just need to decide which other features you'd like. The Triax Elite allows you to store and analyze your Heart Rate and Speed and Distance from several workouts on a computer program. The Nike CV10 measures Heart Rate Monitor and a Speed and Distance and stores data several workouts. I chose the V10, because I wanted all the features of the CV10 except had no need for the Heart Monitor.

I've been very happy with my Nike V10, and hopefully my review will help you find the System that works best for you.