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SPEEDCHECK™

Selection Guide

Guide for Selecting the Best Radar Speed Display

Individuals responsible for specifying and purchasing traffic calming signs are not always the traffic engineers who work most closely with them once they are installed. Often purchases are made by those more familiar with consumer items designed to last two or three years rather than decades, or items operated in climate controlled environments rather than outdoors.

Traffic engineers understand that traffic control devices must endure exposure to a vastly different environment—one that for the most part cannot be controlled. Radar speed displays must operate decade after decade, enduring extreme temperatures, direct sunlight, snow, wind-driven rain, and vandalism.

Traffic engineer or not, this guide will give you factors to consider when specifying a radar speed display.



1. What to look for in quality radar speed displays?

Is the radar speed display effective in slowing traffic?

To be effective, radar speed displays must quickly and clearly communicate to speeding drivers that they need to slow down. To accomplish this, the display must perform three key tasks:

- (a) gain quick attention
- (b) convey a clear, simple message
- (c) command respect from the driver.

Let's take a closer look at each principle.

a) Does the radar speed display gain quick attention?

Radar speed displays are often used to slow traffic as it approaches a hazard such as roadwork or construction. The display must grab the driver's attention soon enough to allow reaction time before arriving at the hazard.

While most radar speed displays can pick up vehicle speed at distances up to 1000 feet, most drivers cannot read a display until they are within 200 to 300 feet. Depending on speed and distance, this means that the driver will have **only two to six seconds** to read process and respond to the message on the display. If the display is poorly lit and the numerals are difficult to read, time to respond will be even shorter.

The chart below illustrates available reaction times, depending on speed and distance.

Note: These are approximate values	25 MPH	35 MPH	45 MPH
200 feet	4 seconds	5 seconds	2 seconds
300 feet	6 seconds	5 seconds	4 seconds

The better job a display does of grabbing driver attention and conveying a quick, clear message, the more effective it will be at slowing them down safely.

b) Does the radar speed display convey a clear message? Will speeding drivers quickly understand how fast they are going and that they need to slow down?



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In California radar speed displays have been widely adopted. The California Traffic Control Devices Committee experimented with various messages and communication designs and determined that radar speed displays should have a fixed “Your Speed” message along with the two display digits conveying actual driver speed.

Below are excerpts from the minutes of a meeting of the California Traffic Control Devices Committee (CTCDC) on October 26, 2006, discussing the findings of a study submitted by San Jose, California.

- Joe Whiteford stated that the sign displaying “speed limit and your speed” is confusing and in his opinion a **“your speed” sign should be used with the speed limit sign.**
- John Fisher further stated the sign that flips back and forth is confusing to motorists.
- Hamid Bahadori stated that if the Committee does not make recommendations, then all the agencies that have installed these signs are not in compliance with the CA MUTCD.
- Moved by Ed von Borstel, seconded by John Fisher, to accept the report submitted by the City of San Jose and to continue to retain the California MUTCD language regarding speed feedback signing.
- The second part was to have Caltrans communicate with all agencies that have installed these signs to inform them that **the only approved sign is a speed feedback (Your Speed) sign.**

Does the radar speed display command respect?

- c) Driver respect for a road sign or display depends on several factors. Do drivers see the display as an official traffic control sign or as a gimmick? Does the display meet government requirements? Does it show clearly display speeds that accurate?

The FHWA Manual on Uniform Traffic Control Devices (MUTCD) manual specifies and standardizes all traffic control devices throughout the US.

- Is the product you are considering eligible for grant funding? Many grants, particularly those at the Federal level, require that traffic control devices purchased with the grant funds be MUTCD compliant.

It is not uncommon for companies to claim their products to be MUTCD compliant when in fact they are not. Your company representative should be able to show you the MUTCD requirements applicable to the specific type of electronic sign you are considering.

A "Your Speed" radar speed display must gain the respect of motorists by providing consistent readings accurately representing vehicle speed.



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“Next to visibility, correct speed reporting is critical to effectiveness. If it shows the wrong speed, drivers will disregard your investment. Many communities and states can tell horror stories about radar displays/trailers which consistently show the incorrect speed.” **Carl Fors, Speed Measurement Laboratories, Inc.**

Many displays produce erratic readings when there are multiple vehicles approaching, or when opposing traffic passes as the target vehicle approaches. Some displays have been known to pick up bicyclists or even joggers.

2. How do you determine which products work best?

Test competitive products under real-world conditions, including multiple approaching vehicles of various sizes, at various distances and varying speeds.

In side-by-side comparisons, the display with more refined signal processing will really stand out. While the displayed speed on inferior signs may jump around, the more refined signs will display a rock-solid reading.

3. Will the radar speed display be reliable, easy to repair and deliver top performance over time?

It may be difficult to assess the reliability of each manufacturer's radar speed display. Here are some items that you can look for as indicators that the product has been designed with reliability in mind.

a) Vandal resistance.

Your displays will be targets for vandals who will hit them with rocks and bottles. Be sure your supplier has a reputation for building products to withstand this kind of abuse.

b) Reliability.

- Make sure the display actually meets MUTCD standards and that it is able to withstand the rigors of extreme outdoor environments.
- Look for redundant connections, meaning multiple points of contact for all connections.
- Look for professional gas-tight terminations on crimped connectors. Avoid connectors that have been crimped by hand.
- Check enclosures, fasteners, and mounting brackets to be sure they are all made of naturally corrosion-resistant materials such as aluminum or stainless steel, or of galvanized materials.



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c) Brightness and longevity of LEDs.

The type of electronic circuit used to drive the LED display makes a dramatic difference in the life expectancy of an electronic sign. With DC display drive design on the main board, the LED display will still be bright and clear long after the display of a multiplexed drive sign has become noticeably dim.

d) Maintenance and service.

Given the vast array of products agencies have to support and high employee turnover, be sure to factor in the overhead costs of installing and maintaining your radar speed display. Look for a product design that minimizes ongoing repair and maintenance costs. Ideally, you want to find a product that can be repaired or upgraded in the field by untrained personnel.

4. What do you need to look for in a quality manufacturer?

If there is a singularly important guideline to follow when selecting a radar speed display, it is to focus on the company rather than the product. Many manufacturers have been around only a short while and their products have not established a track record. Look for displays built by a company with industry standing to increase the likelihood that the display you buy will be built to traffic control standards, and that the company will be there to support the product for years to come.

In other words, does the manufacturer back its product with a warranty, and are you confident that they will still be around when you need them?

a) How long has the company been in the radar speed display business?

Only reputable manufacturers with quality products can survive over time. By choosing to work with a company with a long history of providing quality products and services, you help ensure that the equipment you buy will be both durable and effective and that the manufacturer will be there to honor warranties and to service your needs for years to come.

Be sure the manufacturer has a large installed base. Radar speed displays are used in a wide variety of applications and environments. By choosing a product that is sold and installed in cities across the country, you can be assured that the display you buy will pass the rigors of time in the field.



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Take the time to check references. Does the company have a track record of supporting its customers? How satisfied are its customers? Poor product performance may lead to complaints, causing as many problems as cures.

b) Is the company profitable?

Everybody loves a bargain, but will the manufacturer be around when you want to upgrade or the display needs repairs? Avoid waiting until a sign gets damaged to decide that the viability of the manufacturer is an important part of your initial purchasing equation.

Is one manufacturer's price substantially lower than others? A low up-front cost should be a big red flag to you. A number of low cost providers have come and gone, leaving customers stranded with no way to service equipment.

A company losing money on every sale with the idea of gaining market share will not likely be around for long.

c) Does the manufacturer have the right experience? Is it focused on providing the right solution for your specific application(s)?

Be sure the manufacturer you choose has a strong background and thorough understanding of the various design considerations necessary for effective traffic control systems and products.

A prospective vendor should carefully consider your application so that you will have a radar speed display best suited to your specific purpose. A vendor that asks a lot of detailed questions about your requirements is one that understands the factors that go in to successful installations.

Below are a few examples of important design considerations.

Display size. Higher speed roads require larger signs in order to be seen at an appropriate distance. That same size sign may be entirely inappropriate for a neighborhood or a school zone.

Green solution. Solar panels can sometimes provide the lowest cost solution even in urban environments. There are, however, tremendous differences from one application to the next, meaning that one size does not fit all. If you are installing a timer-controlled sign in Phoenix, you might need only 1/10 as much solar panel as is required for a high volume traffic site in Seattle.



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When discussing a solar powered sign, your vendor should ask you an extensive list of questions to accurately determine the size of the solar panel you require. With the right solar panel, you won't be paying for solar capacity you don't need, and you won't have a sign that doesn't work in the dreary days of winter.

5. Why SpeedCheck radar speed displays?

SpeedCheck products reflect our 15 years of continuous improvement. Here are additional features to consider:

- a) **The industry leader, responding to customer needs.**
 - The first radar speed displays with integrated radar.
 - The first to offer pole mounted radar speed displays.
 - The first using LED displays that are legible in direct sunlight
- b) **The only company with SafetyMask**, which eliminates rubbernecking and keeps driver attention focused on the road ahead.
- c) **UltraClear™ display light focuses on the roadway**
 - No stray flashing light in neighboring windows.
 - Dramatically improved display contrast and legibility.
 - Glare from sunlight and headlights completely eliminated while maintaining the highest contrast display available.
- d) **Best warranty**
 - Backed by a company that will still be here when you need them.
 - An unbeatable record of prompt and reliable service.
- e) **Best vandal resistance. Designed to last.**
 - ¼ polycarbonate window with the ability to deflect inwards up to 2 ½ inches without hitting any components.
 - 100% naturally corrosion resistant materials that will still look good 20 years from now.
- f) **A Green solution with the lowest power draw**
 - Uses smaller solar panels
 - Delivers lower electric bills.