

PART B
SPECIFICATIONS

DRIVER FEEDBACK SPEED AWARENESS SIGNS

1.0 General

The Driver Feedback Sign is a dynamic sign that provides motorists real-time feedback of their vehicle's speed via radar speed detection. By providing this feedback, it is intended that motorists will better obey the speed limit and overall safety will be enhanced. The vehicle speed is to be detected via a radar module mounted within an enclosure. This document outlines the basic requirements for a Driver Feedback Sign.

2.0 Display/Enclosure

- 2.1 The display will be a 2 character, red LED type with a visibility of 1000 feet in direct sunlight.
- 2.2 The intensity of the display shall automatically adjust for daytime, dusk, twilight, nighttime and adverse weather conditions.
- 2.3 The display shall have numeric characters between 18 and 20 inches in height.
- 2.4 The display/enclosure will have a viewing window to allow the user to view the status of the battery charge.
- 2.5 All components will be contained in the display/enclosure so that it is easily transported.
- 2.6 The display/enclosure shall be vandal and tamper resistant by utilizing high impact .250 inch thick shatterproof MR-10 LEXAN® on the display face and using appropriate tamper resistant nuts.
- 2.7 The display/enclosure will be a NEMA TYPE 4 rated (weather-tight) environment for the radar, display, battery, and associated solar charge controller and will be painted with a high solids epoxy coating inside and outside.
- 2.8 The display/enclosure will be equipped with a main power switch that activates and deactivates the radar and display.
- 2.9 The K band radar, mounted inside the display/enclosure will display the speed of approaching vehicles only and will have a 12 degree beam width for precise lane selectivity with at least 1000 ft range.
- 2.10 All components in display/enclosure (radar, display, battery, and associated solar charge controller) will be easily removable for calibration, service, or replacement.

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- 2.11 The display will have an over speed detection alarm that flashes the displayed speed to warn the driver that he/she is exceeding the posted speed limit. As such, a method will be available to pre-select the posted speed limit.
 - 2.12 The display will also have an over speed alarm assembly that will disable or blank out the display should the approaching vehicle excessively exceed the pre-selected posted speed limit.
- 3.0 Power Source
- 3.1 The display shall be capable of being powered by either of the below two options:
 - 3.1.1 Power Company AC, 90 to 130 volts, 60 Hz.
or
 - 3.1.2 Solar charging system for DC signs.
 - 3.1.2.1 The battery/solar power supply shall be capable of operating the radar and display 24 hours a day, seven days a week.
 - 3.1.2.2 The solar charger assembly shall provide a minimum of 110 watts charge to the battery.
 - 3.1.2.3 The battery shall be a sealed gel type deep cycle solar battery of 100 amp/hours. The battery shall fit inside the display/enclosure.
 - 3.1.2.4 The solar bracket shall be capable of adjusting the angle of the solar panel, to the sun.
 - 3.2 The display shall be fully capable of either AC or DC operation giving the user the flexibility of using the local power company or solar as the power source. No additional modifications will be required to the display/enclosure to switch from one power source to the other.
 - 3.3 There will be a weatherproof and tamperproof cable entry point to allow the sign to be connected to the AC mains.
- 4.0 Display/Controller
- 4.1 The display/controller shall be capable of taking radar generated speed input and displaying it on the sign.
- 5.0 The Driver Feedback Sign assembly will be delivered as a complete assembly and will have all necessary hardware to enable the assembly to be mounted on a 4-1/2" OD aluminum pole. After delivery, the only additional items necessary to install in the assembly in the field will be a 4 -1/2" aluminum pole, pole breakaway devices (slip base or transformer), speed limit sign , and sign brackets for the speed limit sign. Any other hardware necessary will be provided as part of the assembly.

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**Specification for Furnishing and Installation of
Driver Feedback Sign Assembly (Solar Powered)**

1.0 General

1.1 This specification describes the furnishing and installation of Driver Feedback Signs. The Driver Feedback Sign is a dynamic sign that provides motorists real-time feedback of their vehicle's speed via radar speed detection. By providing this feedback, it is intended that motorists will better obey the speed limit and overall safety will be enhanced. The vehicle speed is to be detected via a radar module mounted within an enclosure. This document outlines the basic requirements for a Driver Feedback Sign.

Representative Model: Radarsign Model TC-500S

2.0 Display/Housing

- 2.1 The display shall be a 2 character, super bright amber LED type with 100,000 life hours.
- 2.2 The intensity of the display shall automatically adjust for Light conditions, up to 100 levels.
- 2.3 The display shall have numeric characters 12" inches in height.
- 2.4 All components will be contained in the display/housing so that it is easily transported.
- 2.5 The display/housing shall be vandal and tamper resistant by utilizing high impact .25" inch thick shatter resistant LEXAN™ on the display face.
- 2.6 The display/housing shall be 15.8" high x 22.2" wide x 5.25" deep and be aluminum with white power coated finish.
- 2.7 The K band radar, mounted inside the display/enclosure shall be single direction, Doppler radar, FCC part 15 compliant, with sensor range of 1000' with a 10 degree beam width, while operated at 24.125 GHZ.
- 2.8 The display will have an over speed detection alarm that flashes the displayed speed to warn the driver that he/she is exceeding the posted speed limit. As such, a method will be available to pre-select the posted speed limit.

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- 2.9 The unit shall have a .375" aluminum internal BASHPLATE™ to protect the components from abuse or vandalism. LED holes shall provide directed viewing of display to oncoming traffic.
- 2.10 Operating temperature range shall be -4 degrees F to + 138 degrees F.
- 2.11 Faceplate shall be full size 24" wide x 21" high with "YOUR SPEED" with MUTCD compliant colors & reflectiveness.
- 3.0 Power Source
 - 3.1 The display/housing shall be capable of being powered by solar power.
 - 3.2 The battery/solar power supply shall be capable of operating the radar and display 24 hours a day, seven days a week.
 - 3.3 The solar charger assembly shall provide 40 watts charge to the battery. Voltage at Pmax = 16.9v, current at Pmax = 2.34 amps.
 - 3.4 Battery shall be dual 12V, 18amp, AGM batteries. The battery shall fit inside the housing.
 - 3.5 Unit shall have a battery controller that manages the flow of solar energy input up to 80W from the solar panel to the battery.
 - 3.6 Unit shall have a smartcharge® software package to prevent overcharging and intelligent shutdown when the battery falls below acceptable voltage, also a auto restart when sufficiently recharged.
 - 3.7 The battery status, charge levels, solar amperage shall be checked via Bluetooth enabled laptop PC.
 - 3.8 The solar bracket shall be capable of adjusting the angle of the solar panel, to the sun, and shall be capable of mounting to a 4.5" O.D. aluminum pole.
- 4.0 Display/Controller
 - 4.1 The display/controller shall be capable of taking radar generated speed input and displaying it on the sign.
 - 4.2 The unit shall have the ability to store data on over 500,000 vehicle by mini SD card.