

**QUALIFIED PRODUCT POLICY 110  
PORTABLE TRAFFIC SIGNAL SYSTEMS**

Portable Traffic Signal Systems for SCDOT work shall only be devices from sources appearing on the Qualified Products Listing 110, "Portable Traffic Signal Systems." The SCDOT Qualified Products List (QPL) for Portable Traffic Signal Systems contains devices that comply with specifications set by the SCDOT and have been evaluated by SCDOT for inclusion on the QPL.

A designer, manufacturer or distributor/vendor wishing to submit an item for evaluation for the AFAD QPL, should submit product specifications and a product brochure for review. The submitted documentation should demonstrate that the below listed criteria has been met. SCDOT reserves the right, as guaranteed by the July 25, 1997 FHWA memorandum, "Action: Identifying Acceptable Highway Safety Features," to reject a product or place limitations on its use, require additional testing or require in-service evaluation.

**System Requirements:**

**A. Signal Heads:** Ensure that each trailer-mounted portable traffic signal contains two signal heads that include standard ITE approved signal indications with a minimum diameter of 12 in. Ensure that each signal indication, including the arrow indications, can be independently illuminated and can emit a single color — red, yellow, or green. Illuminate each signal indication with LED. Ensure that the typical arrangement of the signal indications complies with the MUTCD.

**B. Signal Head Placement:** Ensure that the bottom of a signal head and any related attachments located over a travel lane have a minimum distance of 15 ft above the pavement. Ensure that the top of the signal head does not exceed a distance of 25.5 ft above the pavement.

Ensure that the bottom of the signal head of the lower signal has a minimum distance of 8 ft above the grade elevation of the travel lane

**C. Controller:** Provide a controller that is an electronic unit housed in a weatherproof, rust resistant box, with a keyed lock and a light for night operation. Ensure that the unit has a jack that allows direct communications between the on-board controller and a compatible personal computer. Provide a unit that has a LCD display screen that allows the operator to review the status of the system.

Ensure that all radio communications between multiple trailer-mounted units comply with all FCC regulations.

Ensure that the controller provides default modes ("Red Flash" and "Yellow Flash") for the system during operation when necessary. Ensure that a failure of the controller, such as a power loss and total shut down of the system, results in removal of the signal system from the roadway. When the system enters into a default mode or total shut down, ensure that the system can immediately provide notification to the personnel responsible for the system status.

**D. Power System:** The electrical power for operation of the portable traffic signal system shall be supplied by a 12 VDC power source or a 110 VAC or a 120 VAC power source. Provide and mount a D/C power source for the unit on the trailer. An adaptable 110 VAC or 120 VAC power source may be used when available and selected for use.

- a. **Solar Assisted Powered:** Power the unit by means of a battery bank charged by photovoltaic solar panels and/or a built-in 110 VAC 20 amp battery charger. House the battery bank in a lockable heavy duty weatherproof box or cabinet. The battery bank shall have the capability to provide sufficient operating power to the unit for no less than 7 continuous days.
- b. **A/C Powered:** Power the unit by means of a 110 VAC or 120 VAC power source. Equip the unit with ground fault circuit interrupter circuit breakers. Conduct all A/C power adaptations with UL approved equipment and methods.

**E. Trailer:** Ensure that each trailer-complies with South Carolina laws governing motor vehicles. Satisfy the minimum requirement for lights and reflectors including turn signals, dual taillights, and brake lights. Equip the trailer with safety chains meeting SAE J-697 standards. Paint both the trailer and the sign support Federal Standard No. 595, Orange Color No. 12246.

Provide a trailer with an axle weight capacity rated for no less than 2000 lb. Fabricate and equip the trailer with a single axle, springs, signal head support assembly, and 4 leveling or adjustable stabilizer jacks. Ensure that the unit includes a manual crank or hydraulic system to permit one person to raise the traffic control device into its operating position.

Ensure that the trailer-mounted devices can remain stable in winds up to 80 mph when in the operating position.

**F. Operational Requirements:** Ensure that the portable signal system can operate in either a fixed timed mode, a vehicle actuation mode, or a remote control mode. In the fixed timed mode, the system operates according to preset times programmed into the controller by the operator. In the vehicle actuation mode, the system operates according to information inputs received from vehicle detectors. In the remote control mode, the system operates according to information inputs received from a manual radio.

When operating in the actuation mode, ensure that the system has the capability for pre-timed operation, traffic actuated operation, a variable green time interval dependent upon vehicle actuations, and programmable yellow clearance and red clearance intervals.

**SCDOT Contact:**

Will McConnell, P.E.

State Work Zone Engineer

SCDOT – Traffic Engineering

(803) 737-1049 / mcconnelwe@scdot.org