

Solar Powered TS1000 Installation Pictures

(Trench and Fill Method)

City of Vallejo, CA

12/04/09

Solar Powered TS1000 System Installation Steps

Pre-installation Phase



1. Main system components arrive on one or more pallets.



2. Optional pole kit shipped separately.



3. Crosswalk site before system installation.

In-Pavement Installation Phase



4. L-Bolts and electrical conduit are installed and a concrete foundation is poured at each pole base location.



5. Site prepared and ready for trenching to begin.



6. An outline of the trench is first sprayed onto the pavement.



7. A dry cut is then made to cut along the outline of the trench.

Solar Powered TS1000 System Installation Steps

In-Pavement Installation Phase



8. Next, a jack hammer is used to break-up the existing pavement within the trench.



9. A trench digger is then used to remove pavement pieces and dig the trench.



10. The final phase of the trenching is completed with the use of a trench shovel.



11. Trench is now completed and ready for Installing the Base Cans and Conduit.



12. Base cans are fitted with a mounting jig (used to hold base can flush with road surface), and the conduit fittings attached to the bottom of the base.



13. Drain and electrical conduit is then positioned for installation.

Solar Powered TS1000 System Installation Steps

In-Pavement Installation Phase



14. Drain conduit (PVC) is then installed between the base cans, and between base cans and the storm drain.



15. Drain conduit is positioned directly below the drain hole of each base can.



16. Base cans are then attached to drain conduit using the PVC fittings



17. Base cans are then lowered into the trench.



18. Dobie blocks are positioned under the conduit to prevent the base can from sinking after the mounting jig has been removed.



19. Electrical conduit is then installed above the drain conduit and connects with all base cans.

Solar Powered TS1000 System Installation Steps

In-Pavement Installation Phase



20. Wood stakes are put in place and attached to the electrical conduit with wire to support the conduit during the pouring of concrete.



21. With all base cans, mounting jigs, drain and electrical conduit, and supports in place the concrete is poured and leveled.



22. Quick dry concrete is generally used around the base cans; Standard concrete mix is used everywhere else.



23. The mounting jig is removed, base can cleaned, and the protective plywood cover bolted onto the base can.

Pole Assembly and Electrical Installation Phase



24. The treads of the L-Bolts are cleaned in preparation for mounting the pole base.



25. Pole base shown with access door positioned towards the side walk.

Solar Powered TS1000 System Installation Steps

Pole Assembly and Electrical Installation Phase



26. Access holes are cut into the pole at various locations to provide access for Electrical cabling between system components.



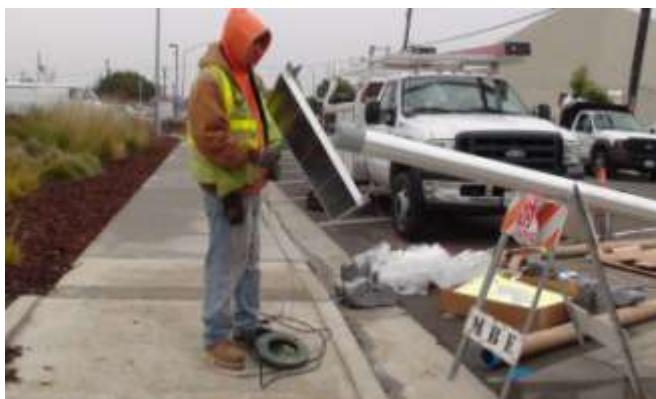
27. Waterproof Electrical Fittings are attached to the Pole for Flashing LED Sign Cabling.



28. Pole mounting hardware is attached to the solar panel.



29. Solar panel is then attached to the pole.



30. Using a steel tape, cabling is pulled through the inside of the pole and positioned to electrically connect system components.



31. Waterproof fittings are installed on pole cap and cabling attached to the terminals inside the solar panel J-Box

Solar Powered TS1000 System Installation Steps

Pole Assembly and Electrical Installation Phase



32. Pole and base are installed onto base foundation (base shown with access door open).



33. Flashing LED signs are installed using saddle brackets and metal straps.



34. Cabling is attached to the terminals at the back of the pushbutton, and the pushbutton attached to the pole.



35. Infrastructure (street cabling) for fixtures, signs, and pushbuttons are measured and prepared for placement into the electrical conduit



36. The process of passing the cabling through the base cans, to the pushbuttons and signs, and to the control system begins at the pole base.



37. All cabling passes through the base cans. Fixtures are wired in parallel using water proof splices (white-to-red and black-to-black).

Solar Powered TS1000 System Installation Steps

Pole Assembly and Electrical Installation Phase



38. After all street cabling has been completed; asphalt is shoveled into the trench and leveled with a rake.



39. An asphalt compactor is used to finish the leveling and smoothing of the asphalt.



40. In-Pavement installation completed and ready for fixtures to be plugged into their connectors.



41. The plywood covers are then removed and replaced with fixtures. The fixtures are bolted to the base can. Silicon sealant is then placed into the space between the base can and fixture, providing a water proof seal.



42. Final wiring is then made to the terminal block in the rear of the enclosure; the controller back panel is reinstalled, load and power cables connected, and the system's operating parameters set-up.



43. The solar powered TS1000 Crosswalk Warning Light System is now ready for testing.

Solar Powered TS1000 System Installation Steps

Completed System and Site Photos



44. View of crosswalk looking towards the main parking area and Solano County building complex.



45. View of crosswalk looking towards the secondary parking area



46. View of crosswalk from the driver's perspective (one way, single lane road)



47. Solano County Justice Building



48. Solano County Health Service Building



49. Solano County Social Service Building

Solar Powered TS1000 System Installation Steps

Completed System and Site Photos



50. View of pole assembly showing the solar panel facing True South, the Flashing LED Pedestrian Sign, the Crosswalk Arrow Sign, and the TS1000 System Enclosure.