

**CALTRANS - LED VEHICLE SIGNAL MODULES, TYPE 2 & PV
LED LAMPS**

- I. VEHICLE TYPE 2 LED LAMPS (Screw-in) / HEADS & PV LED LAMPS / HEADS
- A. Vehicle signal faces shall be in accordance with the CTSS, Section 86-4.01, "VEHICLE SIGNAL FACES," through Section 86-4.04, "Programmed Visibility Vehicle Signal Faces," inclusive, except as amended as follows:
 - B. Programmed visibility signals shall be delivered with no dimmer modules installed. Units shall be delivered with dimmer module receptacle sealed (water tight) or without receptacle.
 - C. Signal section housing shall be dye cast aluminum, equipped with stainless steel hardware and neoprene door gasket. The signal shall have tunnel visors, glass lens, and alsak reflectors with cast aluminum reflector rings. Sockets are to be held by a bail, have four (4) position adjustments, and leads shall be wired directly to the terminal block with one (1) stakon or quick disconnect. No quick disconnect shall be directly on the socket. Signal shall have matching green, amber and red sockets. Terminal block shall be mounted in yellow section only.
 - D. The signal door lip, where it closes against the housing, shall be a minimum 7/16-inch thick for 8-inch signals and ½ inch for 12-inch signals.
 - E. The shape of each signal face section housing or housing door without back plate shall be square when viewed from the front.
 - F. Signal doors shall open 180 degrees. The 8-inch shall have only one (1) latch and the 12-inch shall have only two (2) latches.
 - G. Vehicle signal illumination for all colors shall be LED. Vehicle signal LED module shall comply with current Caltrans specifications for Type 2 LED signal modules with the following provisions:
 - 1. Type 2 LED signal modules may exceed the maximum power consumption values listed in Table 2-1 by up to 25% (overrides Caltrans specification section 2.5.1.1)
 - 2. Test units and manufacturer's testing data shall be submitted to SF DPT at 1 South Van Ness Avenue, 7th Floor, SF CA 94103-5417, not Caltrans (overrides Caltrans LED vehicle specification sections 9.4.2.1 and 9.4.2.2).
 - 3. DPT may perform random sample testing on all shipments (overrides Caltrans LED vehicle specification 9.6.1).

4. All warranty documentation shall be given to MTA/DPT/Traffic Signals at 901 Rankin Street, SFCA 94124 (revises Caltrans LED vehicle section 10).
5. All units shall meet one of the following conditions:
 - a. Model shall be on the Caltrans pre-qualified product list of LED Traffic Signal Modules, or
 - b. Manufacturer shall provide verification that the submitted model(s) have been submitted to and tested by an independent testing lab, and that the submitted model has passed all tests as identified in the Caltrans LED specifications and these contract documents (see item 1 above).
6. For PV red arrow indications, 5-inch red ball LED signal modules shall be installed with a red arrow front lens. For PV yellow arrow indications, 5-inch yellow ball LED signal modules shall be installed with a yellow arrow front lens. For PV green arrow indications, 5-inch green ball LED signal modules shall be installed with a green arrow front lens.
- H. Conductors to the end terminal of lamp receptacles shall be with insulation color-coded red, yellow and one of the following: Black, blue or brown.
- I. The visor bolt pattern on the signal head housing shall match the bolt pattern of heads and visor stocked by the DPT Signal Shop as follows:
8 and 7/8 inches center-to-center for 8-inch heads
12 and 5/8 inches center-to-center for 12-inch heads.
- J. No vehicle signal heads shall be considered pre-accepted by the City. Some signal heads manufactured by PEEK (TCT), Traffic Parts, Inc, and McCain Traffic Supply have demonstrated the ability to meet the City's specifications in the past. It is the Contractor's responsibility to demonstrate that each traffic signal head meets or exceeds the City's requirements as set forth in this Section. In order for a manufacturer other than those specified above to be considered for acceptance, a working sample must be submitted to the City's Traffic Signal Division for a minimum of one year for installation and field testing prior to being allowed for use on any of the traffic signals within the City.
- K. Testing and warranty information for LED vehicle modules shall be submitted as follows:
 1. Manufacturer's testing data shall be submitted to DPT Traffic Engineer at SF DPT, 1 South Van Ness Avenue, 7th Floor, SF CA 94103-5417.
 2. All warranty documentation shall be given to DPT Traffic Engineer at SF DPT, 1 South Van Ness Avenue, 7th Floor, SF CA 94103-5417.