Specification for LED Modules

City of Mesa Transportation Department
Traffic Engineering
Intelligent Transportation Systems Group (ITS)

Approved Vendors (Must meet specifications): GE, Leotek, Dialight

Vendors no longer currently approved:
11/08/16: Duralight by Trastar Inc.

To be put on approved products list, samples must be submitted along with references to
City of Mesa ITS Operations Supervisor 480-644-3129

Change log:
2/17/16: Added “insulated” disconnect terminals
11/08/16: Added Approved Vendors List
Purpose

The purpose of this specification is to provide the minimum performance requirements for 200 mm (8 inch), 300 mm (12 inch), 16x18 inch countdown pedestrian signal modules (international symbol type) LED traffic signal modules and LED lamp modules for programmable visibility signals. This specification refers to definitions and practices described in “Vehicle Traffic Control Signal Heads: Light Emitting Diode Vehicle Arrow Traffic Signal Supplement”, “Vehicle Traffic Control Signal Heads: Light Emitting Diode Vehicle Circular Traffic Signal Supplement” (VTCSH) and “Pedestrian Traffic Control Signal Indications” (PTCSI), as published by The Institute of Transportation Engineers.

General Description

Referenced vehicle type LED retrofit modules shall fit in all standard, incandescent vehicle traffic signal housings. These modules are to be used for the replacement of the reflector, socket, gasket, and lens assembly of an incandescent vehicle signal indication. Each retrofit module shall be complete, consisting of:

- A smooth lens with the same appearance and color as incandescent lenses
- Lens shall be tinted, clear lens not accepted
- LED circuit board inclusive of all of the LEDs and required circuit components
- The Power Supply shall be integral to the LED Module and shall be one piece
- 36 inch 16-18 AWG wire leads with insulated female disconnect terminals and provide male disconnect terminal to # 10 adaptors
- A rigid housing for protection in shipping, handling and installation
- A one-piece neoprene gasket

Vehicle type LED retrofit modules covered by this specification include the following types:

- 200 mm (8 inch) Circular Yellow
- 300 mm (12 inch) Circular Red
- 300 mm (12 inch) Circular Yellow
- 300 mm (12 inch) Circular Green
- 300 mm (12 inch) Red Arrow
- 300 mm (12 inch) Yellow Arrow
- 300 mm (12 inch) Green Arrow
LED Lamp Modules for Programmable Visibility Signals:

- Shall be direct replacement for incandescent PAR Lamp
- Shall not require any special tools during installation
- Shall be sealed to prevent dust and moisture intrusion
- Lens and shell material shall be made of UV stabilized polycarbonate material
- Operating Voltage range shall be 80 to 135 V (60HZ AC)
- AC Voltage shall be 120 V-60 HZ
- Power Factor shall be greater than 90%
- Total Harmonic Distortion (THD) shall be less than 20%
- Shall be FCC Compliant for Electrical Noise
- Surge Suppression shall exceed ITE requirements
- ETL/Intertek LED Traffic Signal Module Certification program does not apply to this item only

**Identification and labeling**

Each individual LED signal module shall be identified for Warranty purposes and clearly marked with:

- Manufacturer’s name
- Date of manufacture. If the date is not in a standard format, the manufacturer is to provide details on how to decode the manufacture date.
- Unit serial number
- Nominal operating voltage
- Manufactured in Conformance with the ITE LED Circular Signal Supplement – most current revision
- Manufactured in Conformance with the ITE LED Arrow Signal Supplement – most current revision
- Manufactured in Conformance with the ITE LED Pedestrian Traffic Signal Module – most current revision
- ETL/INTERTEK LED Traffic Signal Modules Certification Program with manufacturer tracking serial number

**Performance, Certification and Testing Standards**

- All indications shall operate from -40 to 165 degrees Fahrenheit with the same intensity.
- All 8 & 12 Inch Circular LED Signal Indications shall fully and completely comply with all sections of the most current ITE VTCSH LED Circular Supplement. No 12” circular vehicle indication may exceed 10 watts.
- All 12” Arrow LED Signal Indications shall fully and completely comply with all sections of the most current ITE VTCSH LED Vehicle Arrow Traffic Signal Supplement. No 12” arrow indication may exceed 8 watts.
- All 16”x18” Countdown Pedestrian Traffic Signal Modules shall fully and completely comply with all sections of the most current ITE PTSCI Part 2 LED Pedestrian Traffic Signal Module Specifications. Modules shall be fully compliant with the most current revision of the MUTCD Section 4E.07 and be fully preemption compatible. They shall require no special wiring or electronic modules to operate. No countdown module shall exceed 20 watts (countdown timer + hand). The digits shall not flash and remain steady during the pedestrian clearance interval.
- All indications shall be tested to be in full compliance to all sections of the most current revisions of ITE VTCSH & PTSCI standards without exception and reports for each module provided by third party tester ETL/Intertek. Test report must list the LED manufacturer’s model number and that model number must match the bid model number.
- In addition to design verification tests for initial production units, the manufacturer must participate in routine random sample production tests performed in the ETL/Intertek Traffic Signal Module Certification Program.
**Optical Visibility**

All LED Arrow indications shall be OMNI-DIRECTIONAL. That is, an LED traffic signal module that provides the same luminous intensity signal to the driver regardless of the orientation of the arrow icon or placement of the circular indication.

**Warranty**

All LED traffic signal modules supplied shall be warranted for ten (10) years against manufacturing defects. Failures due to acts of God, abuse, and accidents are excluded from warranty coverage.

Vendor expressly warrants that all goods furnished shall conform to all specifications and appropriate standards, will be new, and will be free from defects in material or workmanship. Vendor warrants that all goods will conform to any statements made on the containers or labels or advertisements for such goods and that any goods will be adequately contained, packaged, marked and labeled. Vendor warrants that all goods furnished will be merchantable, and will be safe and appropriate for the purpose for which the City intends to use the goods. Vendor’s warranty shall run to City, its successors, and assigns. Vendor shall replace or correct defects of any goods not conforming to the foregoing warranty promptly; this shall be done at no additional cost to the City, when notified of such non-conformity by City. In the event Vendor fails to correct defects or replace non-conforming goods promptly, the City after reasonable notice to Vendor, may make such corrections or replace such goods and charge Vendor for the costs incurred by the City in doing so.

For each defective unit returned, one new unit meeting the most current City specification shall be returned to City. Vendor shall pay shipping both ways for modules found to be defective and under warranty. A shipper call tag shall be issued for pickups.

Warranty shall commence from date of receipt by the City. Product shipped shall be “fresh stock’ and shall not deviate more than (45) forty-five days between the manufacture date and the date it was received by CITY.