# Louisiana
# Department of Transportation
# And
# Development

**Traffic Control Standard**

## Number 35

## LED Countdown Pedestrian Signal Head

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**LED Countdown Pedestrian Signal Head Housing with Z-Crate Visor (SAP# 50632)**
**LED Countdown Pedestrian Signal Module (SAP# 10933, Stock# 14-04-5430)**

## 1. LED Countdown Pedestrian Signal Head Housing with Z-Crate Visor (SAP # 50632)

### 1.1 General

- The pedestrian signal housing shall consist of single section housing, hinged door, z-crate visor, and required hardware to form a complete assembly.
- The housing shall be built to the PTCSI Standard and shall be constructed from one (1) piece of injection molded polycarbonate resin in black or aluminum **(See Figure 2)**. Aluminum shall be painted inside and out with two (2) coats of high-grade black finish paint or a thick black powder coat.
- The fully constructed housing shall be free from any defects.
- Four (4) integrally cast hinged lug pairs and two (2) flanges shall be provided with two (2) lug pairs located on the top and two (2) on the bottom, equally spaced, to allow the door to swing open. All mounting locations within the housing shall be symmetrical.
- The housing shall provide a dust-proof and weatherproof enclosure when properly mounted.
- Housings shall be provided with two (2) 2" ports. One (1) port shall be located on the top and one (1) on the bottom. Each port shall have a 2" boss integrally cast to eliminate rotation or misalignment of the signal.
- All teeth shall be clean and sharp to provide full engagement and positive locking with standard signal mounting equipment and hardware.
- Reinforcing ribs shall be provided to project load-bearing stress.
- Terminal block with ground lug inside the housing shall be provided.
- At the time of delivery housing and visor shall be furnished with a Certification of Compliance.

### 1.2 Door/Visor Frame

- The door shall be constructed from one (1) piece of injection molded polycarbonate resin in black or aluminum **(See Figure 2)**. Aluminum shall be painted inside and out with two (2) coats of high-grade black finish paint or a thick black powder coat.
- The door shall mount to the housing by use of clevis pins, eyebolt/wing nut assemblies, and flanges. Each eyebolt shall be held securely to the housing and include one (1) wing nut. The clevis pins, together with the eyebolt and wing nut assemblies, shall be designed to allow the door to latch and unlatch without the use of tools.

- The door shall include an additional frame, molded as a part of the door, to protect and hold the visor.

### 1.3 Z-Crate Visor

- A z-crate visor shall be attached to the doorframe.

- The visor shall be constructed of one (1) piece of injection molded polycarbonate in black or aluminum. Aluminum shall be painted inside and out with two (2) coats of high-grade black finish paint or a thick black powder coat.

## 2. LED COUNTDOWN PEDESTRIAN SIGNAL MODULE (SAP# 10933 - Stock# 14-04-5430)

### 2.1 General

- All LED pedestrian signal modules shall conform to the Institute of Transportation Engineers (ITE) March 19, 2004 specifications of Pedestrian Traffic Control Signal Indications – Part 2: Light Emitting Diode (LED) LED pedestrian signal modules or most recent version.

- All LED pedestrian signal modules must be certified by Intertek testing lab to meet all ITE specifications. Each pedestrian module shall have a Intertek certification sticker attached.

- LED pedestrian signal modules shall not require special tools for installation. They shall fit into the existing traffic housings built to the VTCSH Standard without any modification to the housing. Installation of a replacement LED module into the existing pedestrian housing shall only require the removal of the existing optical unit components, i.e., lens, lamp, gaskets, and reflector.

- Message configuration shall be the solid "HAND" symbol overlapping with solid "WALKING PERSON" symbol on the left half of the MBS (message bearing surface) and the countdown "NUMBER" on the right half of the MBS.

- Thickness of LED lens shall be maximum ½".

- The pedestrian signal shall be capable of displaying both brightly and uniformly while subjected to powerful ambient light conditions. Under the same light conditions, the message(s) shall blank-out when the signal is not energized.

- The pedestrian signal shall use one (1) 2-Symbol/2-Color message LED countdown module. International Symbol indications, the upraised "HAND" and the "WALKING PERSON" (See Figure 1). The pedestrian LED traffic signal modules shall be designed for the message bearing surface of a 16" × 18". This message-bearing surface shall be

designed so that it can be removed from the sealed unit for replacement without further damage to the module.

- All signal hardware shall be of stainless steel construction.

- At the time of delivery, the LED module shall be furnished with a label stating: The manufacturer's name, individual serial number, manufactured date, model number, and batch number permanently marked on the backside of the LED traffic signal lamp unit. Also, a label shall be placed on the unit certifying compliance to ITE standards and that each unit has been tested prior to delivery and is functioning properly.

**2.2 Led Countdown Pedestrian Signal Module Construction**

- The LED pedestrian signal module shall be a single, self-contained device, not requiring on-site assembly for installation into signal housing.

- All Portland Orange LEDs shall be "AlInGaP" technology, and rated for 100,000 hours or more at 25°C and 20 mA. "ALGaAS" technology is not acceptable.

- All internal LED and electronic components shall be adequately supported to withstand mechanical shock and vibration from high winds and other sources.

- The signal module shall be made of UL94VO flame-retardant materials. The lens is excluded from this requirement.

- Each individual LED traffic module shall be identified for warranty purposes with the manufacturer's trade name, serial number and operating characteristics, i.e., rated voltage, power consumption, and volt-ampere.

**2.3 Environmental Requirements**

- The LED pedestrian signal modules shall be rated for use in the ambient operating temperature range of -40°C to +74°C (-40°F to +165°F).

- The LED pedestrian signal modules shall be protected against dust and moisture intrusion per requirements of NEMA Standard 250-1991, sections 4.7.2.1 and 4.7.3.2, for type 4 enclosures to protect all internal LED, electronic, and electrical components.

**2.4 Luminous Intensity and Chromaticity**

- Each module shall provide an average luminous of at least 1400 candela per square meter of lighting surface for the "HAND", 2200 candela per square meter for the "WALKING PERSON", and 1400 candela per square meter for "Countdown Digits" symbol throughout the warranty period over the operating temperature range.

- The luminous intensity of the LED pedestrian signal module shall not vary more than ± 10 % for voltage range of 80 VAC to 135 VAC.

- The measured chromaticity coordinates of the LED signal modules shall conform to the chromaticity requirements of the PTCSI standard Section 5.3, Figure C.

**2.5 Electrical**

- The secured, color coded, 914 mm (36 in) long, 600V, 20 AWG minimum, jacketed wires, conforming to the National Electrical Code, rated for service at +105°C, ½ inch stripped and tinned are to be provided for electrical connection.

- The LED pedestrian signal module shall operate from a 60 ±3 Hz AC line over a voltage range of 80 VAC to 135 VAC. Rated voltage for all measurements shall be 120 ±3 volts rms.

- The LED circuitry shall prevent perceptible flicker over the voltage range specified above.

- The LED pedestrian signal module circuitry shall include voltage surge protection against high-repetition noise transients and low-repetition noise transients as stated in NEMA Standard TS-2, 1992, Section 2.1.6,.

- Catastrophic failure of one (1) LED light source shall not result in the loss of more than the light from that one (1) LED.

- The LED pedestrian module shall be operationally compatible with the currently used controller assemblies. The LED pedestrian module shall be operationally compatible with conflict monitors.

- The LED pedestrian module including its circuitry must meet Federal Communications Commission (FCC) Title 47, Subpart B, Section 15 regulations concerning the emission of noise.

- The LED pedestrian module shall provide a power factor of .90 or greater over the operating voltage range and temperature range specified above for modules with 6 watts or more.

- Total harmonic distortion (current and voltage) induced into an AC power line by an LED pedestrian module shall not exceed 20% over the operating voltage range and temperature range specified above.

- For abnormal conditions when nominal voltage is applied to the unit across the two phase wires (rather than nominal voltage being applied to the phase wire and the neutral wire), the pedestrian signal unit shall default to the upraised hand symbol.

**2.6 Countdown Functionality**

- The countdown module shall be compatible with controllers that are compliant to NEMA TS-2 controller specifications.

- The countdown timer module shall have a micro-processor capable of recording its own time when connected to a traffic controller.

- When connected, the module shall blank out the display during the initial cycle while it records the countdown time using the Walk and Don't Walk signal indications.

- The countdown timer module shall continuously monitor the traffic controller for any changes to the pedestrian phase time and re-program itself automatically if needed.

- The countdown module shall register the time for the walk and clearance intervals individually and shall begin counting down at the beginning of the pedestrian change interval.

- When the flashing Hand becomes solid, the module shall display 0 and then blank-out. The display shall remain dark until the beginning of the next countdown.

- The countdown shall remain synchronized with the signal indications and always reach 0 at the same time as the flashing Hand becomes solid.

**2.7 Display**

- The LED countdown signal module shall consist of a double overlay message combining the symbols of a "Hand" and "Walking Person" and two (2) "7 segment" digits forming the time display.

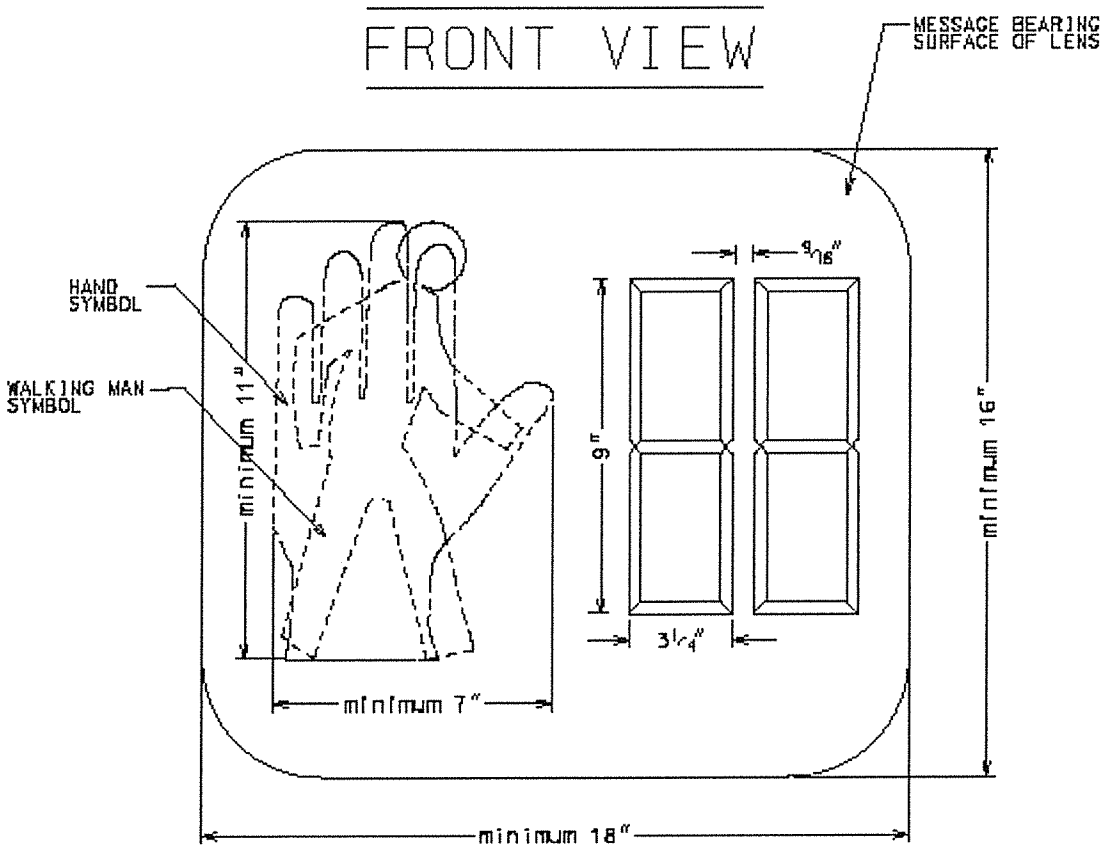
- The Pedestrian icon LEDs shall be arranged in a manner to form solid icon symbols. The shape of the symbols shall conform to the standard symbols for pedestrian signals.

- The Hand/Walking Person symbols shall be not less than 11" in height and 6.5" in width.

- The countdown digits shall be 9" high, and shall be MUTCD compliant for crosswalks over 100 feet.

- The countdown digits shall consist of two (2) rows of LEDs in a staggered configuration, producing rounded numeral corners. Each of the two (2) "7 segment" digits shall be 3.25" wide, with 9/16" of space between each "7 segment" digit.

TCS # 35
LED COUNTDOWN PEDESTRIAN SIGNAL HEAD



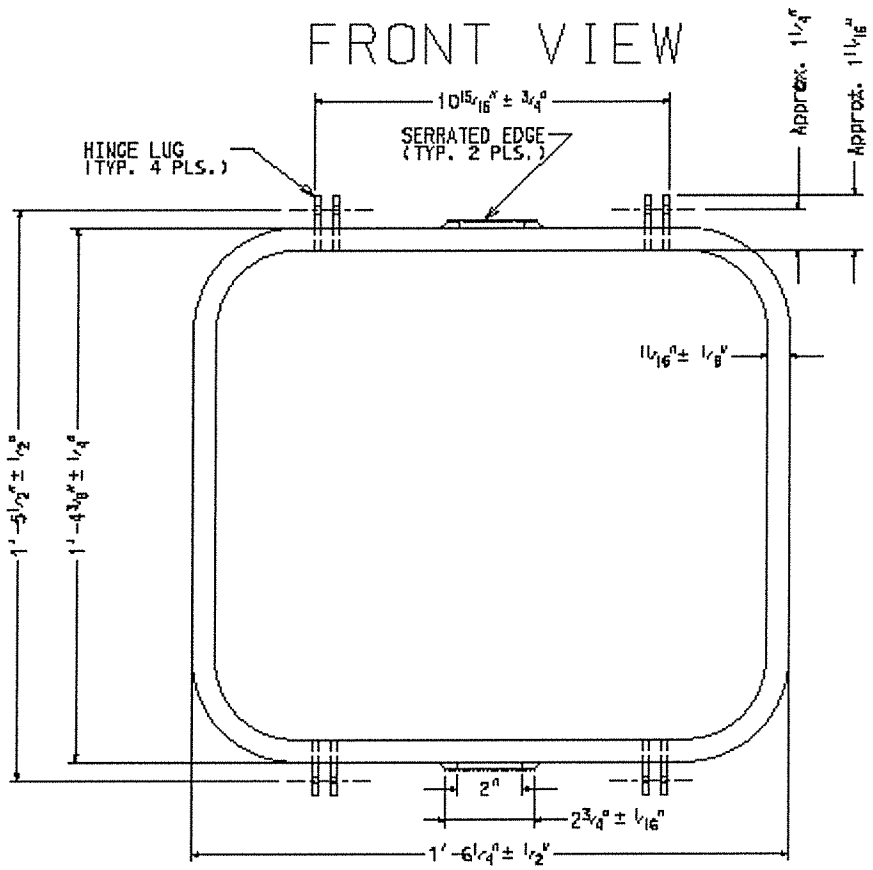

NOTE:

1. INTERNATIONAL SYMBOLS SHOWN ABOVE IN THEIR RESPECTIVE POSITIONS WITH ONLY ONE (1) SYMBOL ENERGIZING AND DISPLAYING AT ONE (1) TIME.
2. HAND SYMBOL TO BE OF COLOR "PORTLAND ORANGE": WALKING MAN SYMBOL TO BE OF COLOR "LUNAR WHITE".
3. MINIMUM DIMENSIONS ARE SHOWN ABOVE ON EACH INDICATION.
4. SEE TCS #35 WRITTEN SPECIFICATIONS FOR MORE INFORMATION.

FIGURE NO. 1

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
TRAFFIC CONTROL STANDARD NO. 35
COUNTDOWN PEDESTRIAN SYMBOL DISPLAY LOCATIONS
DRAWN BY: SDM REVISION DATE: 01/22/2013

TCS #35B
LED COUNTDOWN PEDESTRIAN SIGNAL HEAD




NOTE:

1. THE HOUSING SHALL BE FREE FROM ANY DEFECTS LIKE SHARP BURRS, DENTS, SCRATCHES, ETC.
2. FOUR (4) HINGE LUG PAIRS SHALL BE EQUALLY SPACED TO ALLOW THE DOOR TO SWING OPEN.
3. ALL MOUNTING LOCATIONS WITHIN THE HOUSING SHALL BE SYMMETRICAL.
4. HOUSING DOOR SHALL INCLUDE Z-CRATE VISOR.
5. ALL EQUIPMENT HARDWARE SHALL BE STAINLESS STEEL.
6. THE HOUSING SHALL PROVIDE WEATHERPROOF PROTECTION WHEN PROPERLY INSTALLED.
7. MINIMUM DIMENSIONS SHOWN ABOVE FOR EACH HOUSING.
8. SEE TCS #35 WRITTEN SPECIFICATIONS FOR MORE INFORMATION.

FIGURE NO. 2

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
TRAFFIC CONTROL STANDARD NO. 35
COUNTDOWN PEDESTRIAN HOUSING
DRAWN BY: SDM REVISION DATE: 04/01/2013