

LED Standard Body

Illuminated Street Name Sign Specification



1.0 General

1.1 LED Internally Illuminated Street Name Signs manufactured by Traffic Signs, Inc. are designed to display the required street name clearly and legibly in the daylight hours without being energized and at night, when energized. Standard sign lengths are four, six, or eight foot (see section 2.0). Two-way signs display the street name in both directions and most commonly mount on free swinging brackets below a mast arm. Single sided signs can mount in the same fashion as a two-way sign but most commonly are rigidly mounted to the mast arm. Street names shall be displayed on a translucent sign face that shall be white or white reflective material (see Section 3.0)

2.0 Mechanical Construction

2.1 The sign shall be constructed using a weatherproof, aluminum housing consisting of an extruded aluminum top with a minimum thickness of .140" x 10 3/4" deep (including the drip edge). The extruded aluminum bottom is .094" thick x 5 7/8" deep. The ends of the housing shall be cast aluminum with a minimum thickness of .250". A six-foot sign shall be 72 5/8" long and 22 5/16" tall and weigh approximately 77 pounds. An eight-foot sign shall be 96 5/8" long and 22 5/16" tall and weigh approximately 92 pounds. All corners are continuous TIG (Tungsten Inert Gas) welded to provide a weatherproof seal around the entire housing.

2.2 The door shall be constructed of extruded aluminum. The two bottom corners are TIG welded with the top two corners screwed together to make the top section of the door removable for installation of the sign face. The door is fastened to the housing on the bottom by a full length, .040" x 1 1/8" open stainless steel hinge. The door(s) shall be held secure onto a 1" wide by 5/32" thick neoprene gasket by three (two on a four or six foot sign) stainless steel quarter-turn fasteners on the top, per door, to form a watertight seal between the door and the housing.

2.3 The sign face(s) shall be .125" clear sign grade, impact modified acrylic for reflective faces or .125" white polycarbonate for non-reflective sign faces. The letters shall be 8" Highway Series D, Clearview Highway font, or as specified.

2.4 The exterior finish of the sign shall be provided as a wet coat paint or powder coat in the desired color. A mill, natural aluminum finish will be provided if desired.

2.5 All fasteners and hardware shall be corrosion resistant stainless steel.

3.0 **Sign Face**

3.1 The sign face shall display the required street name. The face material used will be white, .125" thick Sign Grade Polycarbonate sheet with translucent vinyl of the required color applied as either the background color with white lettering, or if specified, the letter color with white background. If a reflective sign is required as well as illuminated, the sign face material used will be clear, Impact Modified Acrylic with 3M DG³ (#4090T) translucent, reflective sheet. Electronically cuttable film of the specified color shall be applied as per the above description for vinyl application. The completed sign face shall be housed in the hinged, extruded aluminum doorframe as described in section 2.2.

4.0 **Electrical**

4.1 LED Light Engines are manufactured using LED strips from J & J Electronics. SN series light engines are designed for easy installation and removal from the sign housing. This feature makes the light engine very simple to work on for future maintenance if required and also ideal for retrofitting older signs to update from fluorescent or outdated or failed LED units.

4.2 Insulated wire compression connectors shall secure all wiring splices, where necessary.

4.3 A wire entrance junction box shall be supplied as a standard with the sign assembly. The box will be mounted to the exterior of the sign and provide a weather tight seal for connection of field wires.

4.4 An optional photoelectric switch shall be mounted to the wire entrance junction box to control lighting functions for day and night display.

Note: Warranty requires control of the duty cycle limiting operation to dusk-to-dawn hours only. This function can be accomplished at the controller for all signs in the intersection.

4.5 The LED street name sign will be powered by one or more (depending on size of sign) 24VDC, Class 2 power supplies to reduce incoming 120VAC to 24VDC.

5.0 **Brackets and Mounting**

5.1 LED internally illuminated street name signs can be factory drilled to accommodate free swinging, mast arm two-point support assembly mounting brackets. As mentioned, one-way signs can be manufactured with internal stiffeners to support rigid mounting to a mast arm. Other mounting options are available to accommodate special requirements.

LED Light Engine Specification

1.0 PURPOSE

The purpose of this specification is to provide the minimum performance requirements for the LED Light Engine, manufactured by Traffic Signs, Inc., for illuminated street signs. This specification is not intended to impose restrictions upon specific designs and materials that conform to the purpose and intent of this specification. The LEDs utilized in this product shall be white in color and utilize InGaN or UV thermally efficient technology.

2.0 PHYSICAL AND MECHANICAL REQUIREMENTS

2.1 General

TSI, LED Light Engines are designed for use in new installations, or to retrofit standard illuminated street name signs in lieu of old fluorescent lamps and ballast or other LED engines to improve efficiency and maintenance requirements.

2.2 Environmental Requirements

The LED lamp shall be rated for use in the ambient operating temperature range of -40 to 122°F and for storage in the ambient temperature range of -40 to 158°F.

2.3 Construction

2.3.1 The LED Light Engine shall be a single, self-contained device, for installation in an existing street sign housing. The power supply shelf is designed to be mounted on the inside wall at the end of the street sign housing. The LED Light Engine shall be mounted within the inner top portion of the housing and no components of the light source shall sit between the sign faces.

2.3.2 The assembly and manufacturing processes of the LED Light Engine shall be designed to ensure that all LED and electronic components are adequately supported to withstand mechanical shocks and vibrations in compliance with the specifications of the ANSI, C136.31-2001 standards.

3.0 ELECTRICAL

3.1 Voltage Range

3.1.1 The LED Light Engine shall operate from a 60 ± 3 cycle AC line power over a voltage range of 80 to 135 Vac rms.

3.1.2 Fluctuations in line voltage over the range of 80 to 135 Vac shall not affect luminous intensity by more than ± 10 %.

3.2 Power Factor (PF) and AC Harmonics

3.2.1 The LED Light Engine shall provide a power factor of 0.90, or greater, when operated at nominal operating voltage and at a temperature of +25°C (+77°F).

3.2.2 Total harmonic distortion induced into the AC power line by the LED Light Engine, operated at a nominal operating voltage, and at a temperature of +25°C (+77°F), shall not exceed 20 %.

3.2 Duty Cycle

The LED Light Engine shall be cycled ON and OFF with a photocell, timer, or other device that would only turn the unit ON during the hours of darkness.

4.0 PHOTOMETRIC REQUIREMENTS

4.1 Luminous Intensity & Distribution

4.1.1 The entire surface of the sign panel shall be evenly illuminated. The average maintained luminous intensity measured across the letters, operating under the conditions defined in Sections 2.2 and 3.3, shall be of a minimum value of 100 cd/m².

5.0 QUALITY ASSURANCE

5.1 General

5.1.1 Quality Assurance Program

The LED Light Engine shall be manufactured in accordance with a vendor quality assurance (QA) program. The production QA shall include statistically controlled routine tests to ensure minimum performance levels of the LED Light Engine build to meet this specification.

5.1.2 Conformance

The LED Light Engine that does not satisfy the production QA testing performance requirements shall not be labeled, advertised, or sold as conforming to these specifications.

5.2 Manufacturers Serial Numbers

Each LED Light Engine shall be identified by a manufacturer's serial number for warranty purposes.

6.0 WARRANTY

Seven-year limited warranty on light engine (5 year on power supply); full statement provided separately.