



**SOUTHERN  
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## **Clean Profile Internally Illuminated Street Name Sign Specification**

This specification provides technical information concerning the Clean Profile sign manufactured by Southern Manufacturing.

### **Sign Features include**

- Excellent day and night visibility
- Energy efficient/Very Low wattage required for LED
- Standard design requires no tools to open sign or replace lens.
- Rated to withstand 150 mph wind & physically tested at 110 mph.
- Radiant high temperature fail-safe circuit for LED to prevent premature burn out in extreme temperatures.
- UL 48 listed in US and Canada and approved by FDOT, NYDOT and PENNDOT.
- The signs are designated by the height of the viewable area in inches and the length in feet. The most common sizes are 16" x 6' or 8', 18" x 6' or 8', and 24" x 8'.
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### **1.1. Material**

Each sign body is constructed from 5052 H32 .125" thick aluminum. Single face signs are one-piece construction and all seams are continuously welded to ensure a watertight seal. Weep holes are incorporated in the bottom of the enclosure to prevent possible buildup of condensation. Double face sign bodies are continuously welded on all seams. The double face sign also features doors on both sides for easy access.

#### **1.1.1 Standard Design**

- 4 foot to 11 foot viewing width in one foot increments (Single and Double Face) with a body depth of 5.25" on double face signs and 3.75" on single face signs.
- 12 - 20 inch viewing height with an overall height of 15" to 27". The frame adds 3.0" to the viewing height for an overall height.

1.1.2 All signs use a UL approved neoprene gasket strip to provide a watertight seal between the body, lens and door.

- 1.1.3 Lenses are impact resistant UL approved white or clear polycarbonate with a minimum thickness of .125”.
- 1.1.4 Sign film is ultraviolet (UV) resistant and available in GMI or EC. Different sign film colors are available but must be specified at time of order.
- 1.1.5 Sign doors are fabricated from a single sheet of .125” 5052 H-32 aluminum. The inside edge has a radius in accordance with the Standard Highway Signs 2004 edition Design Standards. The boarder, if required, will have a radius that echoes that of the frame. Other frame styles are available as options.
- 1.1.6 Stainless Steel Hardware
  - 1.1.6.1 Door Latches and Keepers are a turn-lock style device that secures the door to the body, which requires no tools to open the sign.
  - 1.1.6.2 A piano hinge is used on the door to the body with downward motion for easy of accessibility.
- 1.1.7 Provision for photoelectric cell mounting is available on all signs. Southern carries Intermatic model K4221C and Tork 2001, which can control four signs per intersection. Other photocells including flush mounted are available.

**1.2. Finish**

The sign bodies and doors are polyester powder coated for durability using a satin black finish to the external aluminum surfaces. Other colors are available and must be specified at time of order.

**1.3. Mounting**

Standard mounting pattern is Tri-stud pattern on top of the sign body. The sign can also be fitted with adaptors to accept EZ Bar, Hawkins, or Pelco tops. A Saddle bracket is available with articulation at the top of the sign with hangar angles of variable lengths to accommodate severe rack angles in mast arms. Other options include adjustable mast arm bracket and rear rigid mount on single sided signs. The mounting method must be specified with the order whether Southern supplies the hardware or not.

**1.4. Weights (Excluding brackets)**

		Viewing Heights			
		<i>Single Face</i>		<i>Double Face</i>	
		15 inch	20 inch	15 inch	20 inch
Viewing Widths	4 ft	34 lbs	40 lbs	36 lbs	40 lbs
	6 ft	48 lbs	56 lbs	50 lbs	55 lbs
	8ft	63 lbs	72 lbs	64 lbs	71 lbs

**2. Electrical and Light Engine**

**2.1. General**

**2.1.1.** Each sign type consists of an electronic package that is custom designed for its particular application. In general, it consists of a power supply, Light Engine, and fuse.

**2.1.2.** All LEDs are mounted onto a circuit board which is mounted onto a .125” thick aluminum heat sink.

**2.1.3.** The standard length of a light strip is 2 feet. If the sign has a viewable area that is an odd number, then one 1 foot strip will be used.

**2.2. Power Supply**

Depending on sign size, one of the following power supplies or an equivalent will be used.

Power Supply Model	Meanwell LPV-60-24	PhilipsLEDINTA-0024V-41FO
Dimensions	6.37" L x 1.65" W x 1.81" H	8.91" L x 1.70" W x 1.18" H
Input Voltage Range (VAC)	90 – 264 VAC	108 – 277 VAC
Max Output Power (W)	60w	100w
Location Rating	IP 67	IP 66
Working Temp Range	-30°C through +70°C	-40°C through +90°C
UL Class	Class 2, UL 1310	Class 2, UL 1310

**2.3. LED Light Engine**

The LED drive current is regulated using a pulse width modulated 24v DC drive and limited to approximately 300ma through the LED chain at normal room temperature. This provides for a stable light intensity under varying voltage conditions. The LEDs have a wavelength of not less than 6,500 K which is commonly referred to as cool white.

LED’s within the light engine are series wired for increased efficiency and incorporate fault tolerant design. A LED bypass isolates a failure to that particular LED and will allow the remaining LEDs to operate normally. The constant current regulator will readjust the drive current to prevent overdriving the remaining operable LEDs in the chain.

Thermal monitoring provides temperature protection to the LED chain. As the heat sink temperature increases, the LED drive current is reduced along with LED intensity, helping to limit the junction temperature and contributing to the long LED lifespan. The current reduction follows a non-linear curve that is high temperature biased (greatest reduction occurs at the higher temperature). Thermal regulation of the drive current begins at ~ 40°C and continues until a complete shutdown occurs at ~ 100°C. An onboard display LED indicates when a overheat shutdown is present. Recovery occurs automatically with a reduction in the heat sink temperature.

## 2.4. AC Loading Matrix for typical sizes

		Sign Faces	Single			Double		
		Sign Width	4	6	8	4	6	8
		# Light Engines	2	3	4	4	6	8
Power Engine	V AC	Min / Max	90			277		
	Freq Hz	Min / Max	50			60		
	Temp Deg C	Min / Max	-20			80		
AC Load @ 120v AC		Amp Typical	0.2	0.3	0.3	0.3	0.5	0.6
		Watt Typical	21	28	36	36	51	66

## 2.5. Photometric Performance

The entire surface of the sign lens is illuminated at an average level of no less than four hundred (400) lux.

### Quality Assurance & Approvals

All signs are manufactured in accordance with the Quality Assurance procedures outlined in the Southern Manufacturing Quality Assurance Manual. Southern Manufacturing's quality system has been audited and approved by FDOT.

LED strips are burned-in for a minimum of 24 hours prior to assembly and are 100% tested upon assembly completion to ensure full functionality.

Wind load rating of 150 MPH has been certified by an independent Professional Engineer, Florida Reg. #49806 and physically tested at 110 MPH with rain at 8" per hour by an independent certified laboratory. Copies are available upon request.

All signs comply with FDOT standards. FDOT APL listing pending. This sign has been approved for use by the PENNDOT. Installations include Georgia, North Carolina, South Carolina, Kentucky, Pennsylvania, Virginia, Texas, Colorado, Washington, California, Nevada, and Oklahoma.

Signs are UL 48 listed Electric Sign File E166698. The sign also carries the C UL listing.

### Other

The Clean Profile sign meets is Made in America and qualifies meets the definition of "Made in America" as defined by the US Department of Energy for grants under the American Recover and Reinvestment Act of 2009 and other energy saving grant programs.

