



SOUTHERN MANUFACTURING
2000 E Lake Mary Blvd
Sanford, FL 32773
(407) 894-8851 Ph
(407) 831-1508 Fx

Blank Out Sign Specification (BOT)

This specification will provide information concerning the blank out and lane control signs manufactured by Southern Manufacturing.

1. Body

1.1. Material

1.1.1. Enclosure

1.1.1.1. Each enclosure is constructed from 5052 H32 sheet aluminum in a variety of sizes. Smaller signs are constructed from .090" thick materials while the larger bodies and the LCS bodies are of .125". The top and bottom of the sign body has a .125" thick reinforcement plate welded in place for additional strength when hanging the sign. This reinforcement has been tested to withstand a load greater than 6,600 lbs or 2 metric tons. 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.

Enclosures can be custom manufactured to virtually any height and width, up to 36"x36" viewable area.

Enclosures use a neoprene gasket strip to provide a watertight seal between the door and the display lens.

Glare shields are available for each enclosure size and are retained with stainless steel hardware.

1.1.2. Lens

Lenses are cut from .120" matte finish polycarbonate lexan.

1.1.3. Hardware

All hardware is stainless steel to prevent corrosion. Door latches and keepers are a turn-lock style requiring no tools to open the enclosure. The hinges are also stainless steel lift off hinge style construction. Hinges are typically riveted to the door and bolted to the enclosure body, allowing for removal of door without tools.

1.2. Finish

The standard finish is satin black powder coat applied on the external aluminum surfaces. The message board mask is finished in a flat black powder coat. Other colors can be available and must be specified in advance.

1.3. Mounting

Standard mounting patterns include Hub and Tri-stud patterns. Other patterns can be provided if specified in advance. The type of mounting must be supplied with the order. Mounting brackets are available at extra cost.

2. Operations

Blank Out Signs have two states of operation. The first state occurs when the sign is energized with 120VAC illuminating the symbol. The second state occurs when power is removed from the sign, de-energizing the symbol going "blank".

Most blank out signs have only one symbol. Signs with multiple symbol displays require multiple 120VAC input lines to illuminate each symbol.

Status and/or alarms (if any) are controlled by the control cabinet controller and/or conflict monitor.

3. Electrical

3.1. General

Each sign consists of electronics package that is custom designed for its particular application. In general, it consists of dual AC to DC power supplies, LED Light Engine, and progressive dimming circuitry. Electronics are mounted onto a panel located on the door. The modules are rated for use throughout an ambient operating temperature range of -40°C (-40°F) to +74°C (+165°F).

3.2. Light Engine

All light engines comply with the applicable ITE, Vehicle Traffic Control Signal Heads specifications. Including but not limited to the LED Circular Signal Supplement and LED Vehicle Arrow Traffic Signal Supplement.

The light engine consists of discrete LED's mounted onto printed circuit boards (PCB) which are custom designed for each type of application. The PCBs are mounted onto a message board mask and protected from the elements by the body lens.

Boards are constructed from multiple PCB's to form one complete display.

3.3. Power Supply

The sign model and series determines which specific power supply is used.

The Blank Out signs use redundant Mean Well model MDR-60-12 power supplies or equivalent. Each power supply is a 60W switching class 1 power supply. This is a standard power supply and is used unless the application specifics require an alternate model.

Power Supply models and the manufacturer specifications are listed below.

*Mean Well or Equivalent Mfg Power Supply

	*MDR-60
Electrical specifications:	12v
Input voltage:	90 VAC to 264 VAC
Input current:	< 1.8A @ 115v
Input frequency:	47 Hz - 63 Hz
Output current:	0 – 5A
Output power (rated):	60 watts max
Output ripple (peak to peak):	120mV p-p
Adjustability:	12 ~ 15V
Output indicator:	Green led, output present
Output regulation (line/load):	±1.0%
Hold-up time:	20 mSec min at nominal input 115 Vac and full load
Inrush current:	Cold start 30A@230VAC
Efficiency:	86%
Over-voltage protection:	105 ~ 150% rated output
Over-current / short circuit:	Hiccup with auto recovery
MTBF	299.2 Khrs at 25° c ambient
Operating temperature:	-20~+70° c
Storage temperature:	-40~+85° c
Humidity:	20 ~ 90% RH non-condensing

3.4. Testing

- 3.4.1. Signs will comply with all internal testing procedures, including but not limited to EP-SGN-WI-001 – Work Instruction for Checking and Recording PCB Burn In, and EP-SGN-WI-002 – Work Instruction for Checking LED Array Signs.

3.5. Dimming & Flashing

Flashing is an optional feature that is easily incorporated into the Blank Out Signs upon request.

Dimming is a standard feature on Blank Out Signs and Lane Control Signs.

The dimmer is a progressive dimming design. Each board section contains a photocell for auto photo dimming in a redundant configuration. As the light intensity changes around the sign, the photo dimming circuit will limit the current to the light engine, thus reducing the LED intensity.