



Gemini Incorporated Lighting Injection Molded Channel Letters

Technical Product Overview

Enclosed are your Gemini injection molded channel letters designed to be face-lit with Neon or LEDs.

These channel letters have been tested and approved as recognized sign components by Underwriters Laboratory in the US and CND, along with the CND Stnds Asso. (CSA). Injection molded channel letters are made in the U.S. with ARTEK®, an engineering grade performance polymer.

This product meets or exceeds the following specifications:

- UL 48 for Electric Signs
- UL 94V-0
- UL 746C for Weatherability
- CSA Certification

Gemini channel letters are injection molded to ensure exact dimensions every time. These engineered plastic cans eliminate arcing, are flame retardant, and pass impact tests from -31F to 184F.



Choosing the Proper Lighting System

Since Gemini's injection molded channel letters are designed and UL approved for lighting with neon or LEDs, considerations must be made when evaluating your lighting options. Items such as color requirements, voltage demands, maintenance, warranty, ease of servicing, power consumption, desired light output and environmental concerns are just a few of the factors to evaluate when choosing the best lighting for your letters.

LED System Considerations

Gemini injection molded channel letters are 5" deep so, therefore, can be LED lit with most any LED system that is designed for lighting sign letters.

Do NOT use an LED system that requires a metal can for heat sink.

Viewing Angle

Typical LED systems for deeper channel letters will have a lamp viewing angle of at least 90-100 degrees.

Color Match

Make sure you match the LED color with your channel letter face color. A white LED may appear bright, but may not properly light a red faced letter. Typically, you want to match the LED color with your face color. If your face color does not have a LED color match, then use white or warm white LEDs.

Ease of Installation

Make sure you choose a system that is designed for lighting letters. The best systems allow modules to be secured inside cans with a quality double faced tape and have enough built-in flexibility to navigate inside corners.

Warranty

Based on your desire for future service work, select an LED system that has been well tested and carries some form of warranty.



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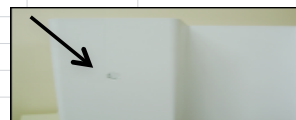
Installation Instructions - Lighting with LEDs

Preparing Letters for LEDs



Drill Holes

- 1) Depending on where and how you plan to mount your letters, locate and drill a 1/4" diameter lead wire hole through the back of each letter can.
- 2) Place letter faces over cans and drill 3 to 4 (1/16" diameter) holes through the return of each letter face and can. Locate holes in tops, sides and bottoms of letters.
- 3) If using letters outside, UL requires weep holes in each letter drop. Drill 1/4" diameter weep holes in the drops of letter cans. Example: The letter "H" has two drops.



Clean Out Cans

Before you secure any modules to letter cans, thoroughly wipe the inside of the cans using alcohol or a cleaner such as Windex. This will help with your LED module tape bonding.



Filling Letters with LEDs

Layout LEDs

Balancing visible light output in letter faces is your main goal when lighting with LEDs. Layout your modules in a manner than provides a consistent light output from letter to letter. Less bright LED colors such as Blue and Green may require extra modules to properly illuminate. Layout modules into cans and lightly press down each module. Keep spacing consistent from letter to letter.

As a general rule, a string of lights will be needed for each 4" of letter stroke.



Test Light

After modules are aligned, strip wires on the first module and connect to your system power supply (do **NOT** connect direct to standard 110v plugs).

Secure letter faces onto cans and test light each letter to ensure proper connections and consistent light output from letter to letter.

Remove letter face and adjust modules as needed to create lighting balance.



Secure Modules

Once module placement is finalized, press down and firmly set each module onto letter cans. Double faced tape alone may not be sufficient to secure LED modules to cans, so it is recommended to further secure modules to cans with additional screws, pop-rivets, or hold down blocks. (see photo)

Some installers will also run an additional bead of silicone onto module wires to further secure when installing in exterior or damp locations.



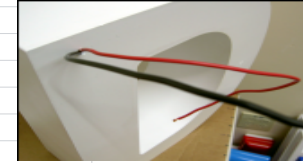
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Electrical Connections

Many installers run a pigtail (lead wire) from the last module through the power supply hole in the back of each can. These lead wires will be used to connect letters to a main line.

It is recommended that all final electrical connections from this point be performed by a licensed electrical contractor. Although these LED systems are low (12V) systems, proper electrical connections and procedures must still be followed. UL codes and requirements must always be evaluated and followed.

Required Class 2 power supplies cannot be installed directly into Gemini channel letters, so proper NEMA enclosures must be used. Always follow LED system recommendations and comply with your local and state electrical rules, codes and laws.



Mounting Letters (Two Options)

Wall Mount

Based on the mounting surface, choose your installation hardware for securing the letter backs to the wall.

Plot out or make a full sized drawing of your copy, then align, level and tape this plot to the wall.

One letter at a time, align backs over the plot and drill holes through the backs and into the wall.

Drill enough holes to properly secure. As an example, a typical 12" high letter can be secured with 4-5 screws. Remove plot, insert anchors (if using) into holes and secure letter backs to wall (keep lead wires in the letters). Once all backs are secure, drill your power supply wire hole through the wall.

Blow out drilled holes and feed lead wires through holes. Complete final wiring on back of wall.

Perform final wiring following local and state electrical codes, rules and laws and UL requirements.

Once final wiring is complete and tested, secure letter faces to cans with small #4 screws (paint to match face color), using pre-drilled face holes. Use care to not over-tighten screws.



Raceway Mount

Channel letters can be pre-assembled onto a raceway in your shop. As LED systems are low voltage, use of thin narrow raceways may be possible. Consult with your local electrical codes or UL representative.

Plot out your full sized copy. Align and tape plot onto your raceway. Align letter backs over plot and drill

holes through backs and raceway. Round letters such as C and G may require additional support in areas not touching the raceway. Secure as needed.

Remove paper plot, re-align letter backs to raceway and secure with self tapping sheet metal screws.

Drill out power supply holes, feed lead wires through raceway, flip unit over and perform letter connections.

When wiring is complete, secure letter faces to backs using small #4 screws (paint to match letter face color). At the jobsite, align, level and secure raceway to wall using screws through raceway flange.

Perform final wiring following local and state electrical codes, rules and laws and UL requirements.



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Installation Instructions - Lighting with Neon

1) If mounting onto a raceway; raceway height must be at least 6" minimum. Letters must be centered from top to bottom on raceway and extended to the entire width of the letters.

2) Locate and drill neon electrode receptacle mounting holes with appropriate sized Forstner, hole saw and spade bits. If GTO cable boots, sleeves and conduit are used, a 1/2" trade size conduit connector should be utilized.

3) Install UL listed neon electrode receptacle following the manufacturer's instructions. Use PK, APSCO and other similar UL recognized devices.

4) Gas tubing must be kept a minimum distance of 1/8" from the inside walls of the housing and 1/2" from the plastic faces.

5) Gemini channel letters are NOT to be used as a housing for transformers.

6) Fasten each letter in the most extreme horizontal and vertical directions possible. Use four (4) of the following fasteners or equivalent:

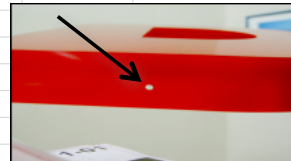
- A) #10 ANSI Standard sheet metal self-tapping screw type AB, B, or BP with #8 (3/16") flat washers
- B) 1/4-20 NC bolt, nut and flat washers



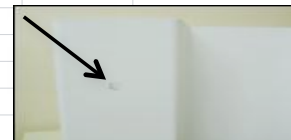
7) Fasten neon tube stand-offs with pop rivets. Pre-drill backs of letters with appropriate sized holes to accommodate pop rivets.



8) When using plastic faces, pre-drill face returns and can with .125 (1/8") diameter holes and secure each face to can with four (4) #6 sheet metal screws.



9) If using letters outside, UL requires weep holes in each letter drop. Drill (1/4") diameter weep holes into the drops of each letter can. Example: The letter "H" has two drops.



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