



## Project

Energy-Saving Upgrade for Manual Electric Motor Starter.

## Application Characteristics

Like the name implies, a manual electric motor starter is used to turn a motor on and off using a button or switch mounted directly to the wall or machine cavity. But that is only half of the story — they also control the current throughout, establishing and interrupting the electric power in order to prevent the motor from drawing too much current and overheating or burning out.



In industrial applications, manual electric starters are ideal for protecting from dangerous motor overload while providing safe and low-cost operation.

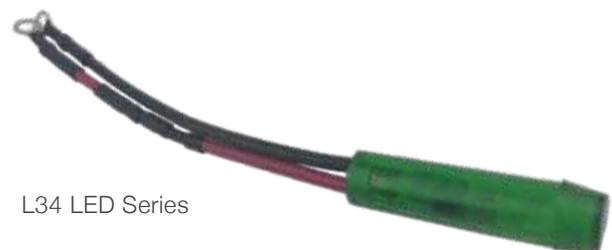
Common uses for manual electric motor starters are low-horsepower, single-phase motor loads, such as small air compressors and exhaust fans.

## Solution & Design

A pilot light encased in the panel illuminates to communicate with the operator. By replacing the neon pilot light indicator with a more efficient LED lamp, the client's manual electric motor starter would provide users with a longer-lasting bulb that is much more efficient.

But the manufacturer's design specifications would not work with any available standard LED indicators. In order to save the client the expense of redesigning the motor starter units themselves, **VCC designed a custom solution tailored to very specific design requirements, including:**

- Four different voltage ranges
- Red and green color options
- High visibility during daylight hours
- Wire leads 4.25" long
- LED width at tip not to exceed 0.40"
- Entire voltage range recognized by cULus
- Compliance with REACH and RoHS



L34 LED Series

Are you ready for next level illuminated components?

To achieve the client's goal of replacing its neon indicators with energy-saving LEDs, VCC designed eight custom additions to the L34 Series, two red and two green, in the following voltage ranges:

- 110-120VAC/DC
- 110-240VAC/DC
- 208-277VAC/DC
- 440-600VAC/DC

To achieve the client's goals for maximum daytime visibility, the custom VCC L34 Series indicators provided a 120-degree viewing angle.

The L34 Series indicators were designed to easily snap into place without the use of additional hardware. Color-coded wire leads also improved assembly speed during production.

## L34 Series

The L34 Series was used to enhance the design with custom and rugged LED indicators, which included a cylindrical housing that could fit inside a small domed lens. The indicators use a snap-fit for installation without additional hardware.

In addition to red and green indicators, the L34 Series includes yellow options for greater flexibility in visual communication. While there are several standard options in the L34 Series, VCC can customize a solution to fit a wide range of unique design specifications.



L34 Series

## Results & Benefits

By upgrading from a neon indicator to custom L34 Series indicators, the client — and its end users — can enjoy:

### Enhanced energy efficiency and bulb life that LEDs deliver

- Significant energy savings  
up to 50 percent less energy consumption
- Extended bulb life  
lamps last four times longer life than neon
- Reduced downtime for maintenance  
no maintenance associated with bulb replacement



### Daylight visibility for enhanced safety

By upgrading from a neon indicator to custom L34 Series indicators, the client — and its end users — can enjoy:

### Custom fit prevents costly redesign of motor starter units

The custom indicator solutions provided in the L34 Series saved the client from the costly endeavor of redesigning the motor starter units to accommodate standard illumination components.

### Streamlined production times with snap-fit design

Production times were streamlined thanks to color-coded lead wires and snap-fit LED components.

## Value-Added Services

The VCC team leveraged extensive engineering expertise to quickly design a prototype that met the client's unique specifications. The custom solution prevented the client from having to redesign its motor starter units while providing a long-lasting, energy-efficient solution.

Are you ready for next level illuminated components?