



**American LED-gible®**

Reducing Downtime Across the Nation!

## **Application Note**

Controlling an ALI Stacklight with a SLC5/05 PLC

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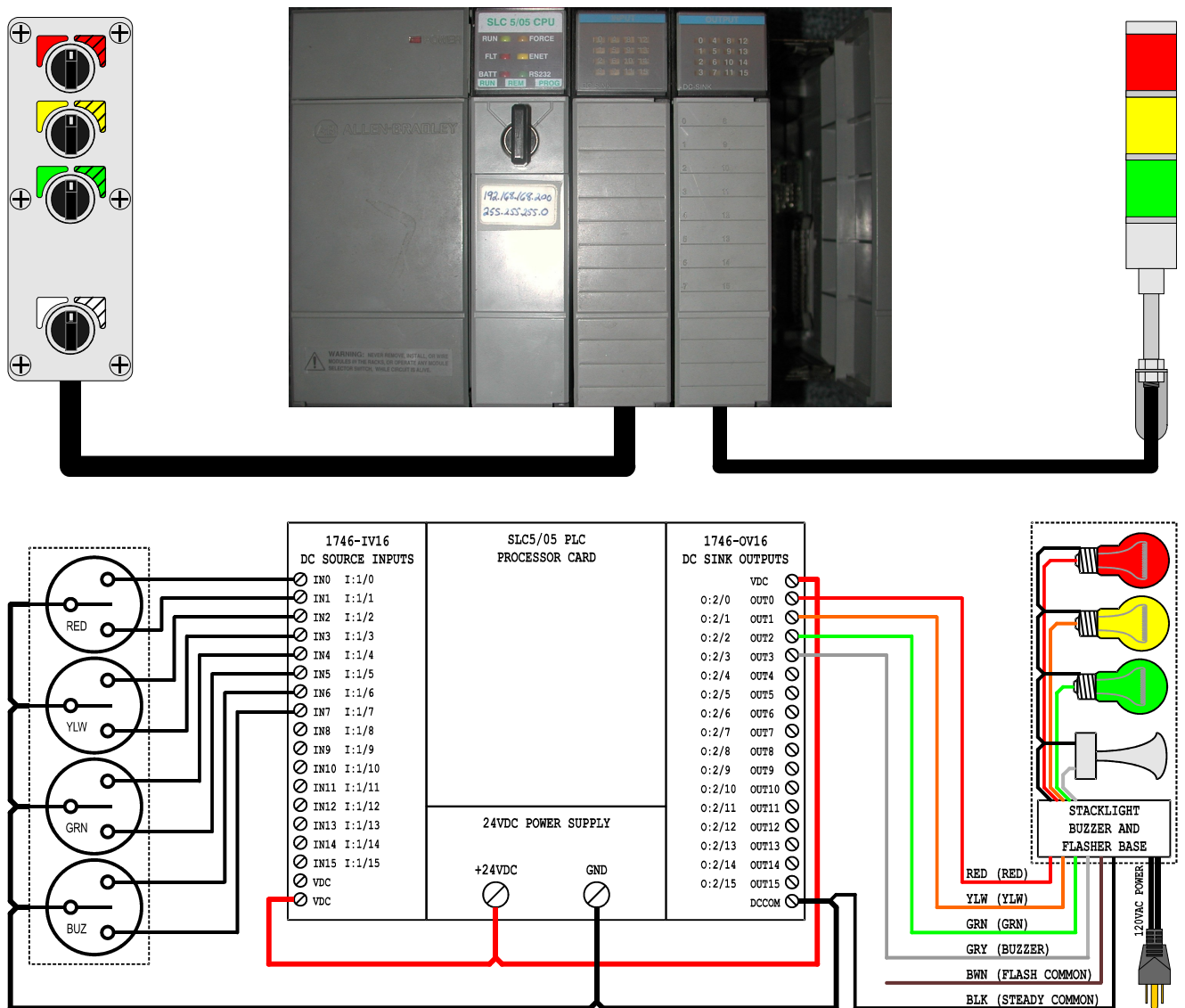
## 1.0 Connecting the Stacklight to the PLC

This application note describes how to control an American LED-gible stacklight from an Allen-Bradley SLC5/05 PLC. There are four basic wiring variations depending on the stacklight power requirement (120VAC or 24VDC) and depending on if the stacklight has or does not have the optional buzzer/flasher base.

### 1.1 120VAC Powered Stacklight with Buzzer/Flasher Base

To control a 120VAC powered stacklight with buzzer/flasher base, provision the PLC with a 1746-OV16 DC Current Sinking output card and wire the stacklight to the output card as shown below.

Note that the stacklight flashing common wire is not connected to anything. We will flash the stacklight by toggling the PLC outputs off/on in ladder logic.



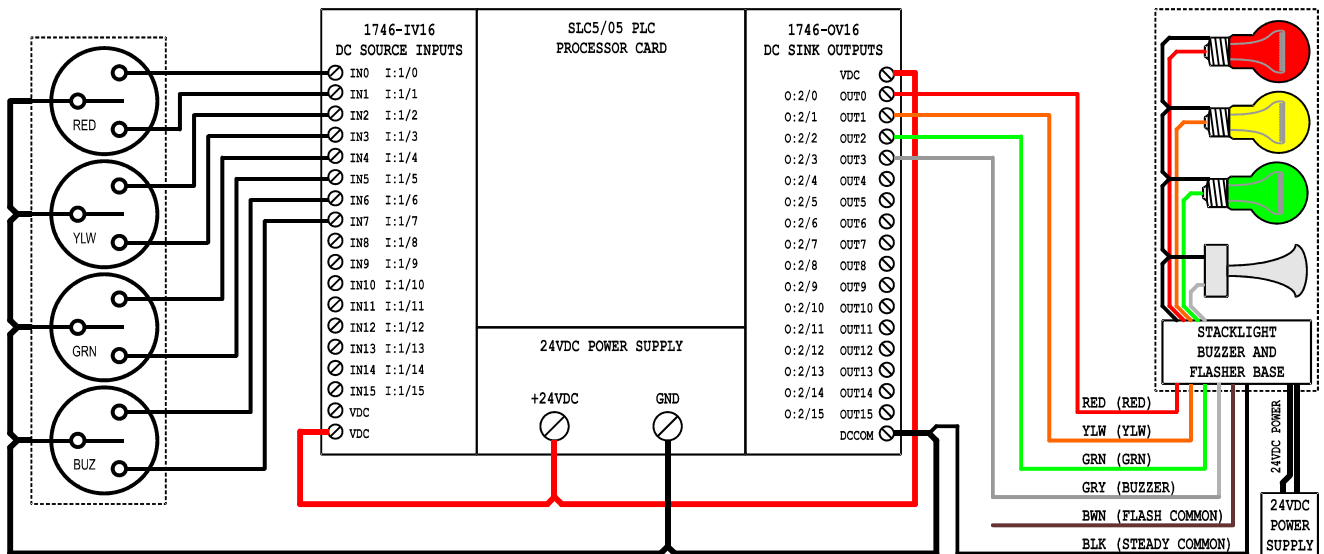
# Application Note

## Controlling a Stacklight

### 1.2 24VDC Powered Stacklight with Buzzer/Flasher Base

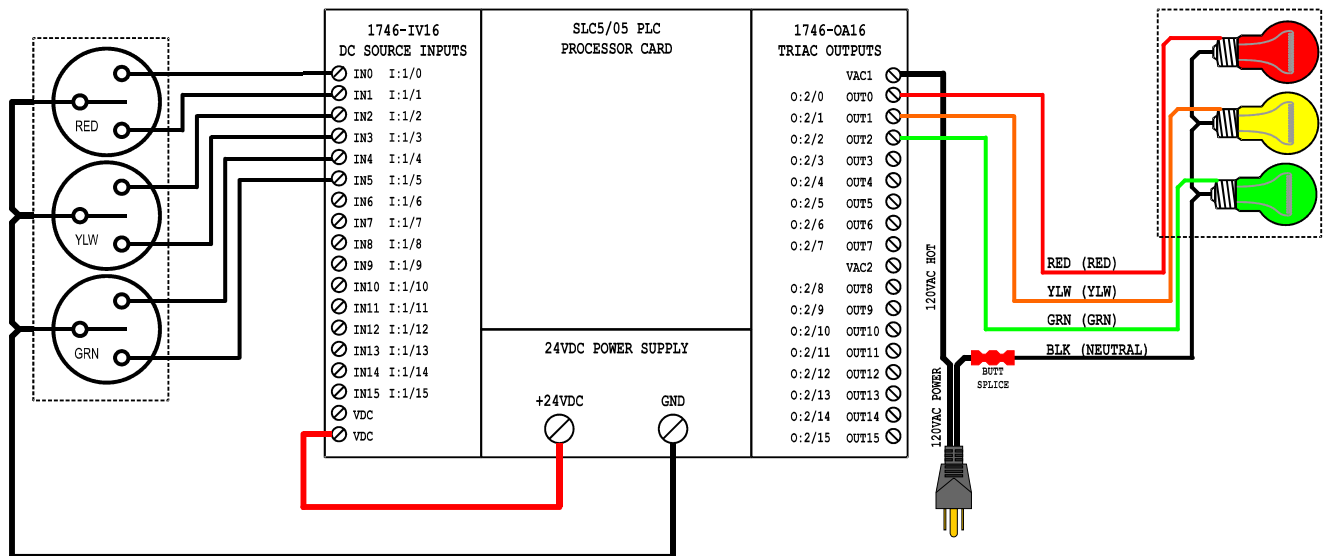
To control a 24VDC powered stacklight with buzzer/flasher base, provision the PLC with a 1746-OV16 DC Current Sinking output card and wire the stacklight to the output card as shown below. You will also need a 24VDC power supply rated to supply at least 2W per light/base. For the three light plus base stacklight shown below, the 24VDC power supply must provide a minimum of eight watts of power.

Note that the stacklight flashing common wire is not connected to anything. We will flash the stacklight by toggling the PLC outputs off/on in the example ladder logic.



## 1.3 120VAC Powered Stacklight

To control a 120VAC powered stacklight without buzzer/flasher base, provision the PLC with a 1746-OA16 120VAC Triac output card and wire the output card to the stacklight as shown below.

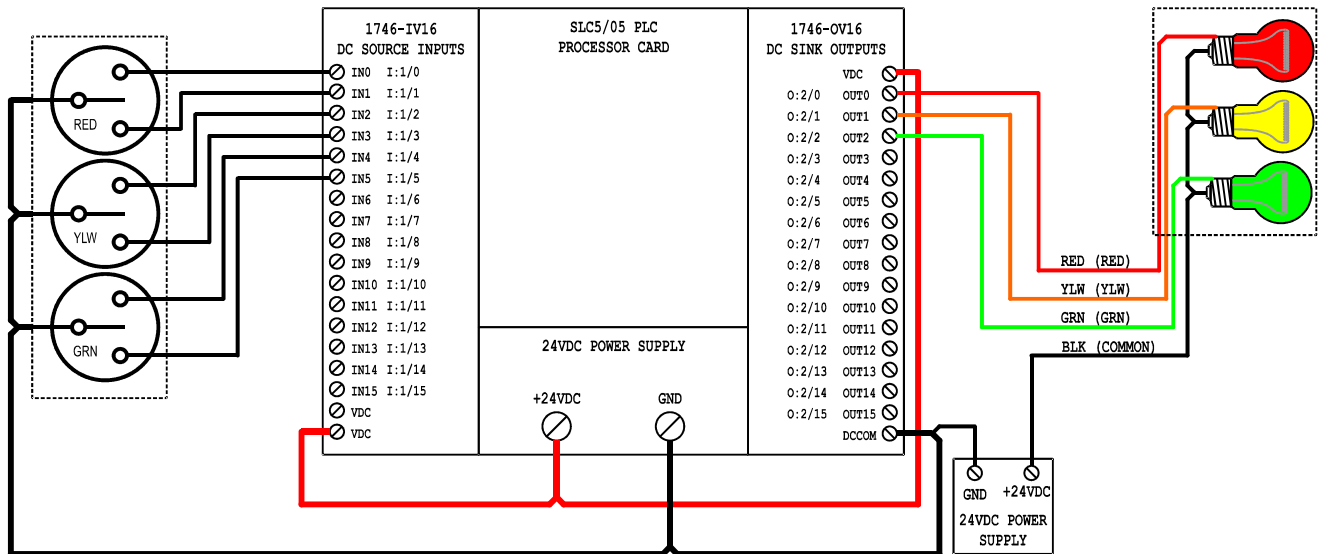


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## Controlling a Stacklight

### 1.4 24VDC Powered Stacklight

To control a 24VDC powered stacklight without buzzer/flasher base, provision the PLC with a 1746-OV16 DC Current Sinking output card and wire the stacklight to the output card as shown below. You will also need a 24VDC power supply rated to supply at least 2W per light/base. For the three light stacklight shown below, the 24VDC power supply must provide a minimum of six watts of power.

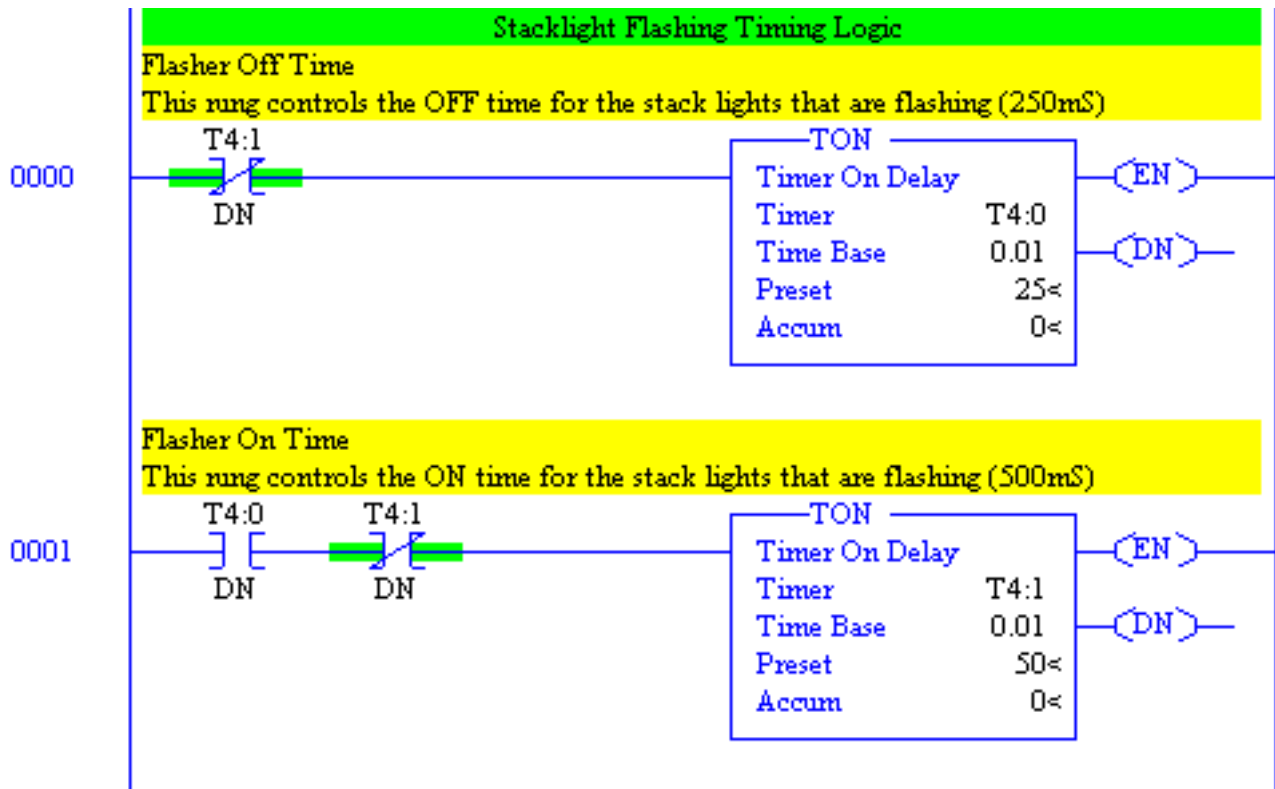


## 2.0 Writing the PLC Ladder Logic

First we are going to use two timers to construct a “flashing” signal that is off for 250mS / on for 500mS. Rung 0000 instructs timer T4:0 to time up from 0 to 250mS when timer T4:1 is not done timing.

Rung 0001 instructs timer T4:1 to time up from 0 to 500mS when timer T4:0 is done timing up and T4:1 is not done timing up.

With these two rungs setup like this, the timer T4:1 ENABLED bit (T4:1/EN) will oscillate off/on with the desired timing. We will use this bit to “flash” the stacklights as required in the following rungs.



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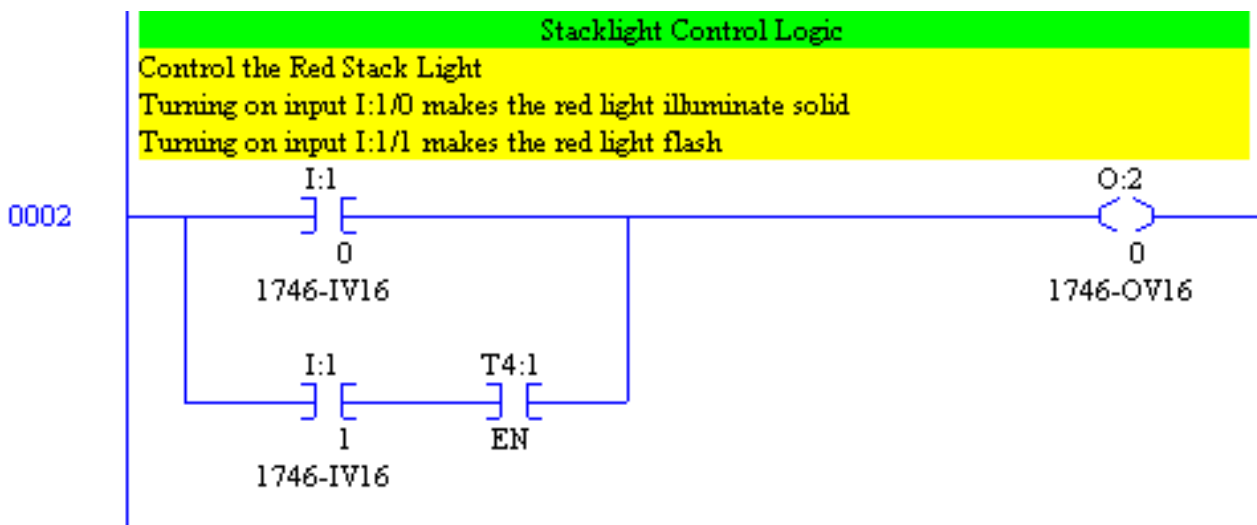
## Controlling a Stacklight

Rung 0002 shown below controls the red stacklight.

Input I:1/0 turns on when the red control switch is in the left position. Input I:1/1 turns on when the red control switch is in the right position. Status bit T4:1/EN is “flashing” off/on due to the timers in rungs 0000 and 0001. Output O:2/0 turns the red stack light off/on.

The logic shown below turns the red stack light on if input I:1/0 is on, or if both input I:1/1 and timer bit T4:1/EN are on.

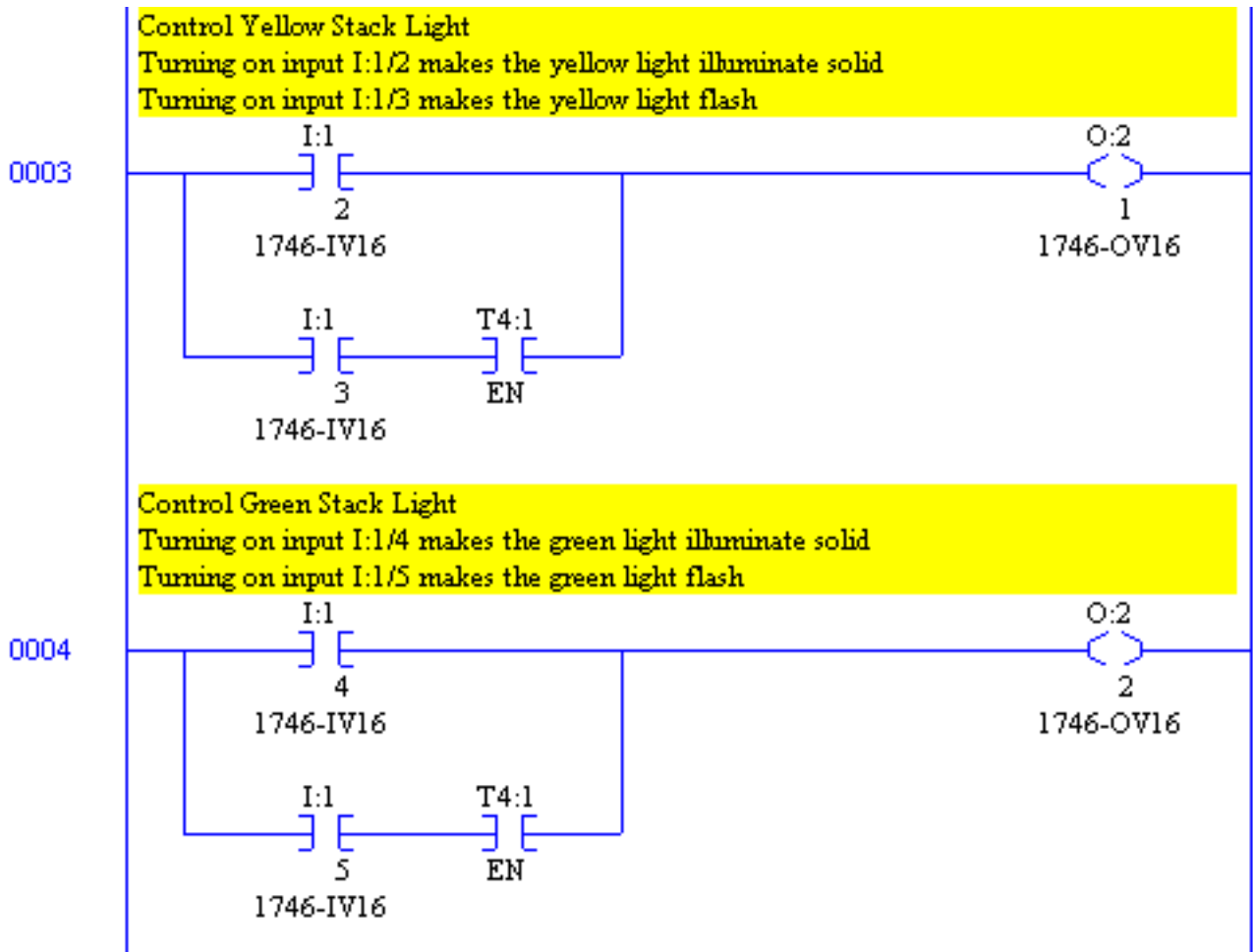
The result is turning the red control switch to the left makes the red stacklight illuminate steady. Turning the red control switch to the right makes the red stacklight flash.



Rungs 0003 and 0004 use similar logic to control the yellow and green stack lights.

Input I:1/2 turns on when the yellow control switch is in the left position. Input I:1/3 turns on when the yellow control switch is in the right position.

Input I:1/4 turns on when the green control switch is in the left position. Input I:1/5 turns on when the green control switch is in the right position.

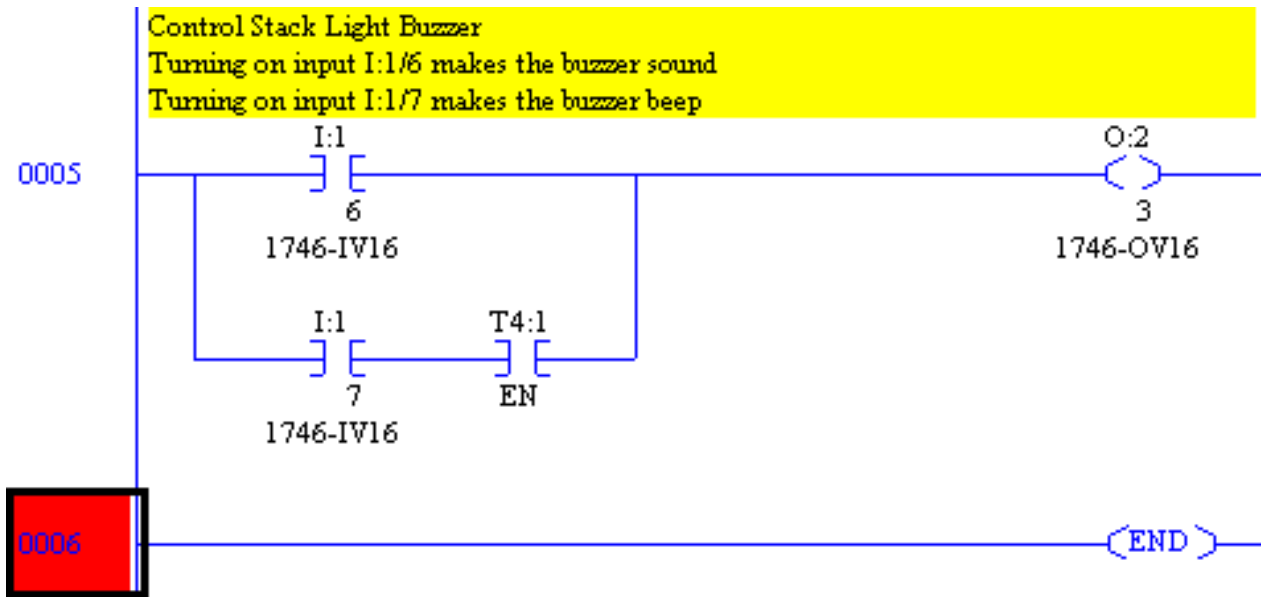


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## Controlling a Stacklight

Rung 0005 uses similar logic to control the buzzer (if your stacklight has the optional buzzer/flash base). If your stacklight does not have the optional buzzer/flasher base, omit rung 0005.

Input I:1/6 turns on when the buzzer control switch is in the left position. Input I:1/7 turns on when the buzzer control switch is in the right position.



And that's all the logic we need to control the stacklight. Rung 0006 ends the program.

## 3.0 Getting Technical Support by Phone or Fax

American LED-gible technical support may be reached at:

**American LED-gible® Inc.**  
**Technical Support**  
(614) 851-1100 Phone  
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