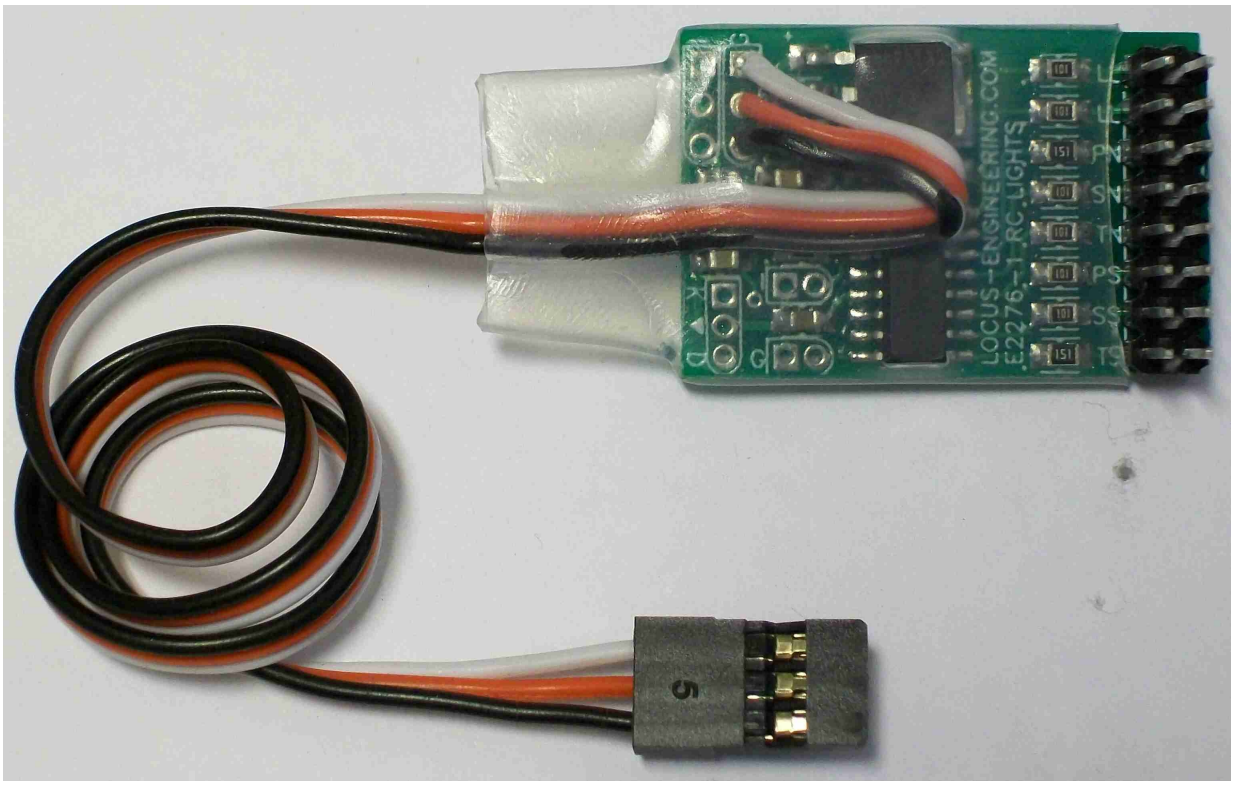
Locus Engineering Inc. E2276

RC Aircraft Light Controller



FEATURES

- Standard connection to receiver
- Red & green wingtip & white tail static position light outputs
- Red tail & two white wingtip strobe light outputs
- Left & right white landing light outputs
- 20mA current limit for LEDs
- Navigation position lights are continuously on
- Landing lights are turned on by gear servo channel with switch point at 1.5 msec (halfway)
- 5V to 12V input, 110mA average current with all LEDs connected
- 0.1” pitch paired male pins for LED connections
- 1.8” by 0.9”, 4 gram package

DESCRIPTION

The E2276 RC Aircraft Light Controller adds realistic aircraft navigation and landing lights to your RC aircraft. Powered from a standard 5V to 12V receiver, both position and strobed navigation lights are powered through current limiting resistors matched to the red, green, and white LEDs for 20mA. The landing lights are run from the gear channel while the navigation lights run continuously. The lights are enabled at the servo pulse halfway point and feature jitter free switching due to a 10ms hysterisis deadband. LEDs are easily connected to the 0.1” pitch paired male pins on the board periphery.

Custom light timing is available.

LED cables are available separately at custom lengths.

APPLICATIONS

- RC navigation and landing light control

Table 1. Absolute Maximum Ratings

Parameter	Rating
Voltage Input to GND	-0.3 to +12.7V
Servo signal input voltage to GND	-0.3 to +5.8V
Operating temperature range	-40 to +85°C
Storage temperature range	-65 to +150°C
Maximum output current (short)	100mA
Maximum total current (all outputs shorted)	500mA

Table 2. Electrical Characteristics

Test Conditions: Supply Voltage V_{dd} = +5.0V, $T_{ambient}$ = 25° C, unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{dd}	Supply voltage	3.6	5.0	12.0	V
I_{avg}	Average supply current	15 (Tail Strobe)		110 8 LEDs	mA
I_{led}	LED current		20		mA
V_{IL}	Digital low input voltage			0.6	V
V_{IH}	Digital high input voltage	2.5V			
PW_{servo}	Landing light turn on/turn off servo pulse width	1.45		1.55	ms
F_{strobe}	Tail Strobe frequency		1.0		Hz

General Precautions

Charged devices and circuit boards can discharge without warning. Proper ESD precautions should be followed to avoid failure.

This device is not authorized for use in any product where the failure or malfunction of the product can reasonably be expected to cause failure in a life support system or to significantly affect its operation.

Locus Engineering Inc. reserves the right to make changes at any time without notice to improve product features or reliability.

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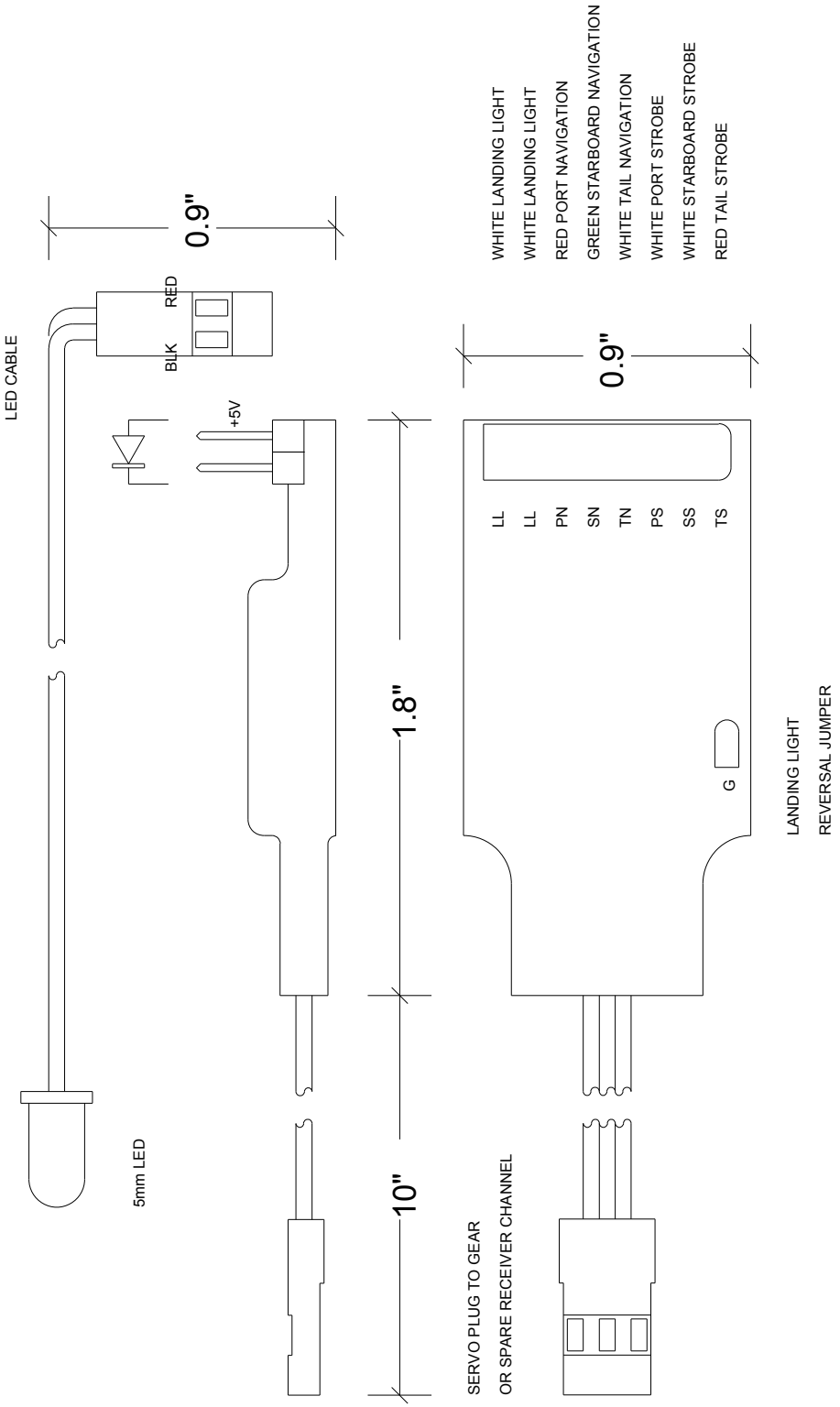

Figure 1. Module Dimensions

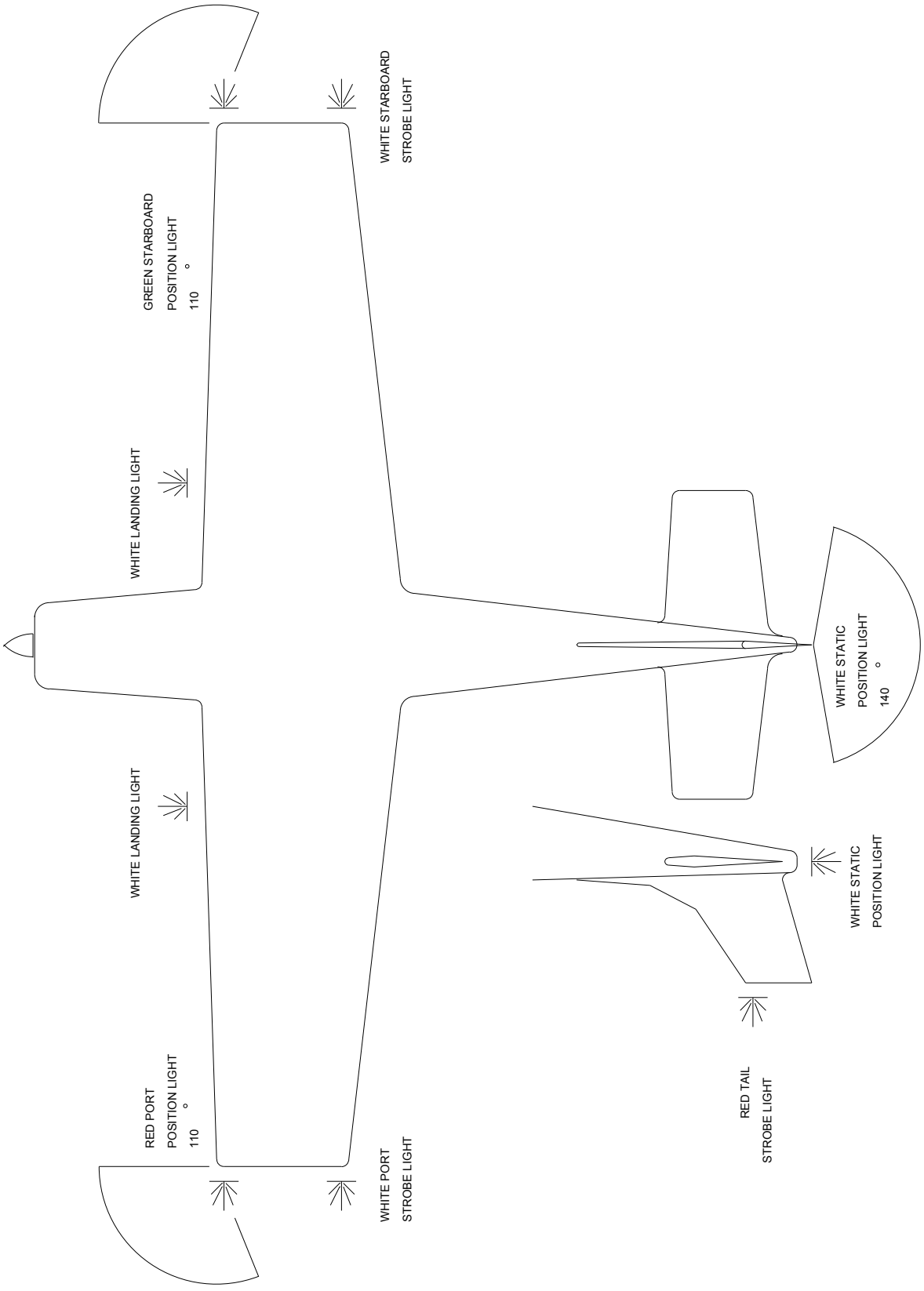

Figure 2. Suggested Navigation Light Placement

Installation

-Velcro the module in an accessible location within reach of the receiver
-connect the module servo cable to the gear or spare receiver channel
-connect the LEDs to the module so that red leads are connected to the outside pins
-cover the unused LED outputs with insulating tape

Testing

-connect the battery to the receiver
-the navigation position lights should function immediately
-test the gear or spare receiver channel switch; the landing lights should switch on/off
-if the gear or spare receiver channel polarity is reversed, short the landing light reversal jumper by cutting part of the heatshrink and soldering a short piece of wire across the two pads. See Figure 1 for the location of the landing light reversal jumper.

Strobe Light Timing

The wingtip and tail strobe light timing is divided into 17 time slots adding up to one second.

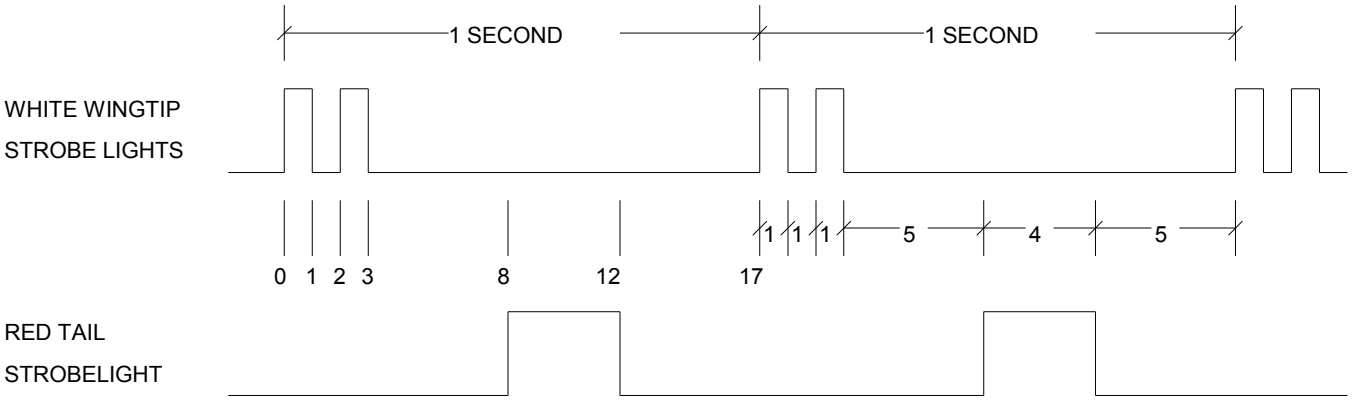

Figure 3. Strobe Light Timing

Operating Current vs Installed LEDs

The operating current will vary depending on the number of installed LEDs. The wingtip and tail position LEDs are always on, and contribute 60mA to the control board's operating current of 10mA for a total of 70mA. The tail strobe uses 20mA times the duty cycle of 4/17 or about 5mA. The wingtip strobes use 40mA times the duty cycle of 2/17 or about 5mA. The landing lights use 20mA each.

If only the tail strobe is used, the total operating current would be about 15mA.

If only the tail strobe and red & green wingtip position lights are installed, the total operating current would be 55mA.

The following table summarizes the average operating current.

Table 3. Operating Current vs. Installed LEDs

E2276 Controller Board	10	mA
Red & Green Wingtip Position LEDs	+40	mA
White Tail Position LED	+20	mA
Red Tail Strobe	+4.7	mA
White & White Wingtip Strobe LEDs	+4.7	mA
White & White Landing Lights	+40	mA
Total operating current	110	mA

To calculate the operating time for a given battery capacity, divide the battery capacity by the operating current draw, e.g.

Time (hrs) = mAh/Ioperate

LED Cables

LED cables are available at custom lengths. Each LED cable includes a high intensity 5mm LED soldered to a custom length 26AWG servo cable with crimped two contact connector. The heatshrink on the soldered leads identifies the LED color. To order, specify the LED color, function, and cable length, e.g. White-landing- 54” or Red-tailstrobe-36”.