

# Fresh Aero EasyBrow Technical Data

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This data can be used to facilitate the FAA “337” form approval process for the Fresh Aero EasyBrow Light.

The Grumman EasyBrow light is comprised of 48 LEDs spaced 16.5 mm apart on a 8 mm printed circuit strip, 31 inches long. 3M double-sided self-adhesive tape is mounted on the back of printed circuit strip for installing the light on the lower Grumman eyebrow. EasyBrow Light thickness is 2.5 mm. The unit mounts centered on the underside of the Grumman lower eyebrow panel – on the same plane as the existing eyebrow light lenses.

The circuit is a series/parallel configuration. Groups of 3 LEDs are connected in series with a current limiting resistor and all LED groups are connected in parallel on bus strands running the length of the light strip. This arraignment greatly contributes to light redundancy, because even if one LED fails and opens the circuit (very unlikely), the light array would loose only 3 lights – hardly noticeable with 48 LEDs.

## **Total EasyBrow current draw:**

Blue – 12/14 vdc, 56 milliamps (.056 amperes); 24/28 vdc, 38 milliamps (.038 amperes)  
Red – 12/14 vdc, 54 milliamps (.054 amperes); 24/28 vdc, 34 milliamps (.034 amperes)  
Green – 12/14 vdc, 59 milliamps (.059 amperes); 24/28 vdc, 36 milliamps (.036 amperes)

The existing 3 Grumman eyebrow incandescent light bulbs draw 390-400 milliamps each for a total draw of approximately 1.2 amps. The total EasyBrow current draw is less 1/6th the original design draw – for 48 LEDs.

The EasyBrow Light uses a 100 ohm 6.5 watt resistor (250 ohm for the 24/28 vdc version) integrated with the plug-in adaptor plug to reduce brightness that is consistent with other panel lighting and to provide consistent and linear dimming control with the existing Grumman instrument rheostat. The resistor is substantially overrated (.3 watt through a 6.5 watt\ resistor) to provide excellent heat dissipation across the resistor. There is no objectionable heat buildup.

## **Additional Specifications**

Light beam angle: 120 degrees  
RoHS CE compliant  
Starting temperature range: -40 to 122 degrees F.  
Operating temperature range: -14 to 122 degrees F.  
Brightness: 25–40 Lux per LED  
Total EasyBrow weight: 1 oz (2 oz with protective cover)  
All components meet or exceed FAA Sec. 23.853  
All components: non-flammable or self extinguishing.  
All wiring is self extinguishing Mil-W22759/16 and meets FAA Sec. 23.1359.

The EasyBrow Light uses a T3-1/4 bayonet adaptor plug that replaces one of the existing OEM type incandescent bulbs. No change in aircraft wiring or airframe is necessary. The unit just plugs into existing power receptacles and the application is similar to plug-in headsets and other power receptacle plug-in devices. There are no permanent connections to the aircraft. Power consumption is significantly lower than the incandescent bulb the unit replaces.

## **Fresh Aero EasyBrow Technical Data Continued .....**

### **Pilot Compartment View:**

The EasyBrow Light has been tested for glare issues per FAA Sec. 23.773 ( a ) and meets these requirements.

Pilot's view is sufficiently extensive, clear and undistorted for safe operation.

The EasyBrow Light has been tested and complies with all parts of FAA Sec. 23.1381 ( a ) ( b ) ( c ) and 25.1381 ( a ) ( b )

### **Function and installation:**

The Easy Light meets all parts of FAA Sec. 23.1301 ( a ) ( b ) ( c ) and 25.1381 ( a ) ( b )

The fact that the EasyBrow Eyebrow Light just plugs into an existing light socket with no modifications to the electrical system or airframe contribute to an easy IA logbook entry or FAA 337 Field Approval.