

*New*

## Lumatech™ LED Panels

make your present annunciators obsolete



**Replace your old incandescent annunciators with reliable LED panels**

- Cut maintenance cost to zero
- Eliminate dispatch delays from faulty annunciators
- Add value to your aircraft
- Improve flight safety

*Never replace another bulb or cap assembly*

## Why your old annunciators are obsolete – and are costing you money

### Obsolete design

The annunciators on your aircraft are still using obsolete 1960's incandescent technology – with up to 136 incandescent light bulbs running red hot in small enclosures. This intense heat means 136 chances for a bulb to suddenly fail – compared to new cool-running LEDs that never burn out.

### Unreadable legends

The high temperature of the incandescent lamps degrades the plastic cap components on your annunciator panels so *the assemblies don't fit properly and break easily*. Heat also causes the legends to get fuzzy and to change color. With age and heat, the legends become harder to read.

### Costly maintenance

Incandescent panels require on-going and sometimes expensive maintenance. Besides sudden death from overheating, the bulbs have fragile filaments, subject to vibration and shock failure. One large fleet operator reported

that he had 15 unscheduled caution/warning removals in one year – a significant expense. And every year the maintenance cost of your old incandescent panels goes up. Old annunciators require more repair and replacement parts are getting harder to find and cost more.

### Dispatch delays

When an annunciator panel fails on the ramp it causes a maintenance event and often a dispatch delay. This costs you serious money – all because of a burned out light bulb. And lamp failures are most likely to be discovered just before departure when system test and engine starts can cycle each station multiple times.

### Safety cost

The cost of flight safety is difficult to quantify, but common sense says that unreliable, hard-to-read annunciator panels reduce flight safety – and reduced flight safety is the nightmare of all expenses.

## How Lumatech™ Panels save you money – and improve safety

### LEDs – lifetime reliability

Lumatech annunciators use lifetime LEDs. Old annunciators with incandescent lamps waste 80% of their power generating destructive heat, instead of light. LEDs generate almost no heat, so they can last up to 100,000 hours – virtually the life of the aircraft. And solid state LEDs don't have a fragile filament to break.

### Bright legends – readable in direct sunlight

LEDs provide brighter, more uniform illumination. Each legend is crisp and evenly lit, and the displays are bright enough to read in direct sunlight. The lettering of Lumatech legends is laser sharp and readable. And the letters will never get fuzzy or change color from heat or age.

### Flat panel appearance

Like modern glass cockpit systems, Lumatech Panels have a one-piece flat surface for easy reading. There is no visual clutter – not like your present annunciators with 36 to 48 individual cap assemblies.

### High contrast

For sharper contrast, Lumatech Panels have an anti-reflective coating so they are absolutely deadfront when not illuminated. The LEDs for each legend are enclosed to prevent light leakage to adjacent cells. The legends cannot be seen until they are illuminated, so there is no ghosting that can lead to misinterpretation or pilot error.

### Fail-safe circuits

LED circuits can be designed for greater redundancy. In Lumatech Panels, all LEDs have both series and parallel

fail-safe circuits. Even with multiple single point failures, all legends remain brightly illuminated.

### Zero maintenance cost

You will never have to replace another light bulb or cap assembly. Your only maintenance will be a dust rag. And we back this up with our full bumper-to-bumper 5-year warranty (see back page).

### No more dispatch delays from faulty annunciators

Imagine the money you can save with reliable LED caution-warning panels that will never cause a flight delay. Sudden failures are a thing of the past with Lumatech's solid-state LEDs and fail-safe circuitry.

### Plug and Play installation – no flight tests

Lumatech Panels are STC certified as one for one replacements for most King Air models (see back page). Installation is quick plug-and-play. After installing your new LED panels, just run a quick validation ground test. No flight test is required.

### An investment that pays for itself

Lumatech Panels will quickly pay for themselves with *direct savings in maintenance costs, fewer dispatch delays, and improved safety*. And the initial cost of new Lumatech Panels is low compared to the cost of your present panels (now fully amortized). Also, modern LED Lumatech Panels will add resale value to your aircraft. So why keep wasting money on obsolete annunciators? Start saving money right now with Lumatech Panels. **Please give us a call today: 425-643-4000, x305.**

# Lumatech™ Panels... ...as modern and reliable as a glass cockpit



**Lifetime LEDs**  
Last the life of the aircraft.  
Zero maintenance.

**Cool to the touch**  
Lumatech LED panels  
generate almost no heat.  
Cockpit stays comfortable.



**Flat front surface**  
No cap assemblies,  
no visual clutter.

**Permanent colors**  
Colors never change –  
always instantly  
recognizable.

**Readable in  
direct sunlight**  
Non-reflective background.  
High contrast legends.

**Sharp, clear lettering**  
Legends never get fuzzy  
from heat or age. Always  
bright and readable.

**No ghosting**  
Pilot sees only the ON legends.  
No ghosting from stray or reflected light.

**Uniform illumination**  
All legends uniformly bright and readable –  
illuminated by arrays of multiple LEDs

**Rugged solid state**  
No filaments to burn out or  
fail from shock or vibration.

- **Damage resistant legend plate** The legend plate is molded of a tough high-density polymer. Won't deteriorate from age or wear. Even if gouged by a tool, the legends remain readable and easily replaced.
- **Saves weight** A set of Lumatech caution/warning panels weighs 3 to 4 pounds less than comparable incandescent panels.
- **Lowers power consumption** Lumatech LED panels draw only 10 to 20 percent as many amps as equivalent incandescent panels.
- **Legends easy to update** If indicia needs to be updated, the legend plate can be quickly replaced. One week factory turn around.
- **Adds resale value – Quick return on investment** Lumatech Panels add resale value and a quick return on your investment with direct savings from zero maintenance costs and reduced dispatch delays.
- **5-Year warranty from Luma Technologies** If any part fails within 5 years after installation and during normal use, we will repair or replace it at no charge. (See back page.)

## Plug and Play



Lumatech Panels are certified drop-in replacements for King Air aircraft (see back page.) Easy installation. Just run a quick check to confirm validation. No flight test is required.

## Off-angle viewing

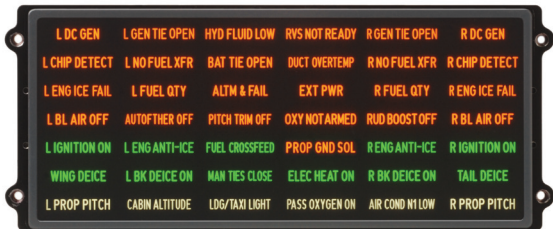


With bright, bold, crisp letters, each panel can be easily read by either pilot. No fuzzy legends or uneven illumination. Saves time. Adds to safety.

## More than 4000 installed Lumatech products

More than 4000 Lumatech brand panels, switches, and annunciators have been installed in fixed and rotary-wing aircraft. Luma products are preferred both in civil and military aircraft where they can withstand the harsh environment of shock and vibration, and are instantly readable in direct sunlight.

**See specifications and more...back page >>>**



## Lumatech LED Caution/Warning Panels for King Air

### Certified for the following King Air models 200/B200, 300/B300 (350), & 1900D Series

|       |        |         |        |
|-------|--------|---------|--------|
| 200   | B200C  | B200CGT | UC-12M |
| 200C  | B200CT | C12F    | 300    |
| 200CT | B200T  | C12R    | B300C  |
| 200T  | B200GT | UC-12   | 1900D  |
| B200  |        |         |        |

### Configurations available

| Configuration                           | Model Applicability                                   |
|---|---|
| 20-Station Upper Warning Panel          | Common to all 200/300/350 models                      |
| 25-Station Upper Warning Panel          | Model 1900D   |
| 36-Station Lower Caution Advisory Panel | All 200 Series models including military "C" variants |
| 42-Station Lower Caution Advisory Panel | All 300 and older 350 models                          |
| 48-Station Lower Caution Advisory Panel | Newer 350 and all 350i models                         |
| 63-Station Lower Caution Advisory Panel | Model 1900D   |

### Certified to the following specifications

|   |   |
|---|---|
| Temperature and altitude                | RTCA DO-160E, section 4, category A1            |
| Temperature variation                   | RTCA DO-160E, section 5, category C             |
| Humidity                                | RTCA DO-160E, section 6, category A             |
| Operational shock and crash safety      | RTCA DO-160E, section 7, category B             |
| Vibration                               | RTCA DO-160E, section 8, category S, curve M    |
| Fungus                                  | RTCA DO-160E, section 13, category F (analysis) |
| Magnetic effect                         | RTCA DO-160E, section 15, category Z            |
| Induced signal susceptibility           | RTCA DO-160E, section 19, category AC           |
| Radio frequency susceptibility          | RTCA DO-160E, section 20, category AA           |
| Emission of RF energy                   | RTCA DO-160E, section B 21, category M          |
| Lightning induced signal susceptibility | DO-160E, section 22, category A3G33             |
| Electrostatic discharge                 | RTCA DO-160E, section 25, category A            |
| Flammability                            | RTCA DO-160E, section 26, category C            |

### Warranty

Each Lumatech Panel has a calculated MTBF in excess of twenty five thousand hours. If any panel fails during normal use, Luma will immediately repair or replace it at no charge for five years from the date of installation.

Available directly from Luma Technologies or through your preferred maintenance center.

