The Sensibulb™ Story

The Sensibulb project was set in motion about two years ago due to our dissatisfaction with halogen, xenon and LED cabin lighting.

Halogens and xenons are just plain dangerous due to their hazardous temperatures not to mention they're energy inefficient compared to LED's.

Most LED's, on the other hand give a harsh white light and have a narrowly focused beam. Lot's of these “Super Bright” units soldered together will be easy on your batteries but they won't be very comfortable to read by or applicable for overhead dome lighting. Some people find LED’s sort of OK to read by and put up with the inconvenience to save energy. For most of us the LED beam is too narrow and the color is just too harsh.

We here at Sailor’s Solutions, (a group of tech-head sailors that used to have real jobs) tried various combinations of optics and LED types and along the way tried various electronic drivers that could get the most efficiency out of the LED's we were testing. We were able to get OK results with a lot of tweaking but the tradeoffs were too great. Broad focus meant lots of LED's in a spread pattern or a few higher power units that needed a specialized fixture.

Long term reliability is also an issue with LED's. An LED uses a silicon based PN junction that releases photons when an electrical current passes through the junction. This creates heat, albeit a lot less than a filament light. If LED's are allowed to operate over their critical temperature, (somewhere around 140˚ F) this PN junction's geometry changes and the LED fails.

We were about to table our efforts when we started working with a Japanese company that had created a LED crystal which solved both the brightness and tight focus problem. Along with a local engineering firm they helped us develop a color spectrum that is similar to a halogen but has a more pleasant hue, a touch of gold like an old style tungsten lamp. Wow, they were bright if only we could control them and keep them at their peak operating temperature.

Around that same time we applied for engineering assistance from NASA’s Space Alliance Technology Outreach Program. Much to our surprise, we were granted free engineering time complements of Boeing Aerospace at the Johnson Space Center! Their modifications of our heat sink design did the trick. The Sensibulb™ reaches its maximum efficiency temperature and holds it steady inside any type of boat lighting fixture! As a result, our crystals put out a reliable and “stellar” performance.

Along the way we included a non-linear dimmer as an internal component to the circuit. It dims the brightness by about half but reduces the current all the way down to 0.025 Amps, one-sixth or our already low consumption of 0.140 Amps. This is an excellent feature for blue water sailors or if you just want to leave the lights on when you’re ashore for security reasons.

Once we were satisfied that our prototypes worked reliably we concentrated on packaging the whole system into a "plug and play" unit that would fit into most cabin fixtures as a light bulb replacement. We also added a logic component that eliminates polarity (+/-) as an issue. The Sensibulb™ functions equally regardless of which way you plug it in.

Eureka! We did it! It's really bright; the hue is very comfortable the viewing angle is wide. It’s great to read by and is excellent inside an overhead dome light. The Sensibulb™ replaces existing halogens, xenons and most other types of bulbs found in marine cabin fixtures.

“If you can change a light bulb you can install a Sensibulb™”

Many thanks for your interest in the Sensibulb™ - The team at Sailor’s Solutions, Inc.