



FAQ's- Panel Lights

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General LED Technology

Q: How do LED's work?

A: The Wikipedia entry for LED's does a good job of describing the technology and operation of LED's. Rather than re-invent the wheel, Mallory recommends using this source to investigate LED's more. Wikipedia is also useful for understanding the terminology used with LED's.

Q: What is the difference between an LED and a panel light?

A: An LED is a Light Emitting Diode component which can come in various colors and typically have low voltage ranges (2 or 3 volts). In order to be useful, an LED must be put into some kind of package so it can be connected to electrically and physically. A panel light incorporates the LED into a physical package that can be used on a panel (either snap-in or screw & threads), and will include a series resistor for higher voltage ratings.

Q: What else are panel lights called?

A: Panel lights were originally known as pilot lights when incandescent bulbs were used. Now, they are known as panel lights, panel LED's, and panel indicators.

Electrical Application Issues

Q: Are your panel LED's polar (DC Only) or non-polar (AC/DC)?

A: Most models are non-polar which means that it can be used on AC/DC applications. Another way of saying this is that it doesn't matter how the leads are connected. However, there are some models which are polar and can be used on DC voltage only. Refer to the website or data sheet to confirm if the part is DC only (polar), or AC/DC (non-polar).

Q: My panel light has two of the same color wires- how do I connect to it?

A: If your panel light has two of the same color wires, it is a non-polar model and works on AC or DC voltage lines. It does not matter in which direction electrically the panel light is hooked up.

Q: Do Mallory AC/DC models work with 50 Hz and 60 Hz systems?

A: Yes. Mallory Sonalert AC/DC models work with both 50 Hz and 60 Hz systems.

Q: How was the voltage range established for each model?

A: For the 2V and 3V models, the voltage range comes straight from the LED supplier since these models do not have resistors. For the models rated 6V and higher, a resistor is in series with the LED, and the resistor is designed such that the voltage can vary +/- 10% and still have good performance for the LED in terms of brightness and long life.

Q: What is the typical current draw?

A: Mallory's panel lights typically draw less than 10 mA. Contact Mallory if you need further information on typical current draw for one of our panel light models.

Mechanical Application Issues

Q: What size hole do I need for my panel light?

A: Refer to the website or the data sheet for the panel hole size.

Q: According to the data sheet, the tolerance of the threads is such that the part may not fit in the recommended panel hole size. Do I need to make the panel hole bigger?

A: Technically, you are correct. If you look at how threads are specified, it is theoretically possible that they will be too big to fit in the recommended panel hole size. That being said, the thread tooling is maintained on the low side such that Mallory can always guarantee that all panel lights will fit in the recommended hole size. If this issue still bothers you (i.e. over-lapping tolerances), you can make the hole slightly bigger (say 0.3 mm) to avoid running foul of the thread tolerance.

Q: For the Threads & Nut models, how much torque is recommended to tighten the nut?

A: This information is listed on the data sheet under Max Nut Torque in the table at the top of the page.

Q: What is the acceptable panel thickness?

A: This information is listed on the data sheet under Panel Thickness in the table at the top of the page.

Q: How do I connect to your Flat Blade (Quick Connect) terminal models?

A: Mallory recommends using a fast-on terminal connection which can be pushed onto the terminal. The Mallory spec. sheet gives the dimensions of the terminal so that the correct size fast-on terminal can be sourced. It is also acceptable to solder to the terminal.

Q: My panel light has two same colored wires- how do I connect to it?

A: If your panel light has two same colored wires, it is a non-polar model and works on AC or DC voltage lines. It does not matter in which direction electrically the panel light is hooked up.

Q: My panel light has a connector. How do I connect to it?

A: For the models with connectors (suffix -MX), Mallory uses Molex Microfit 3.0 P/N 43025-0200. The mating connector part number is Molex P/N 43020-0201.

Q: The plastic separator at the back of my panel light is crooked or a different color, is this okay?

A: The plastic separator is included on panel lights with quick connect (flat blade) terminals to keep the power connections from touching (shorting). While we do our best to keep the plastic separator straight during assembly, and we do our best to keep the color consistent (or even match the color of that particular panel light model), this is not always possible. As long as the plastic separator physically separates the two terminals, then it is okay.

Q: I've got some panel lights with round PC Pins and some with square PC Pins- is this okay?

A: Mallory has the option of using either a square or round PC Pin during assembly due to piece part availability. Since the part has to be soldered manually, the square and round PC Pins will work equally well.

Q: The rubber gasket is too small to fit over the back of the panel light, so how do I get it on?

A: When the rubber gasket cannot be easily inserted over the back of the panel light, it can be put on from the front by carefully stretching it over the front of the light.

Q: I am missing a rubber gasket, washer, or nut. Where can I get replacements?

A: Mallory has a list of replacement part numbers on our website under accessories on the product page, or you can also find them on the panel light Product Application Guide (PAG). You can also contact Mallory at info@mspindy.com or 317-612-1000 (ph).

Q: What is the soldering condition for soldering to the panel light terminations?

A: 260 °C for 3 seconds maximum.

Q: Can Mallory provide custom terminations?

A: Yes! Visit our contact page on the website or email info@mspindy.com or call 317-612-1000

Light Issues

Q: What technology is used to produce the light?

A: Mallory uses solid state LED's. The LED technology varies depending on the LED used for the body style you are interested in, so contact Mallory if you need further information on the LED used in the part you are looking at.

Q: How bright is the light?

A: The data sheet lists the min and max luminous intensity (in mcd) for the different colors. The green and blue will generally be brighter than then red, yellow, or white. There are many factors that affect how bright the light looks in any application, so they should be tested in the application under the various conditions that the application will see.

Q: Are your parts daylight viewable?

A: The short answer is yes. That being said, there are many things to consider when using an LED in daylight applications. For example, all LED's can be difficult to see when the sun is shining directly on them. This is why vehicles are generally designed with a dash board to provide a little shade to the panel lights. In general, blue and green lights will show up a little better than red or yellow in bright daylight, and if you turn the light off-and-on (i.e. blink it), that will make it even more noticeable. There are many factors that affect how bright the light looks in any application, so they should be tested in the application under the various conditions that the application will see.

Q: Why does my yellow light look more amber?

A: Amber LED's are more cost effective and perform better than what most people would call a yellow LED's, so it is common in the industry to go with the amber LED's and still call the color, yellow.

Q: Can you do a custom color or brightness?

A: Mallory does work on custom requests, so contact Mallory with your need.

Environmental Issues

Q: Are your parts waterproof (i.e. what is the IP rating)?

A: All part numbers that start with "FL1M" come with a rubber gasket and are rated IP-65. There is also one panel light which has a substantial plastic body that starts with "FL1P-8NJ-1" which also comes with a rubber gasket and is rated IP-65. All other part numbers are rated IP-50 and are not waterproof (only dust proof).

Q: Are any parts UL or CUL Approved?

A: The following parts are UL and CUL approved: Any part number that starts with "FL1M-8FJ-2" or "FL1P-10QW-1". In addition, the following 110V and 220V parts numbers are CUL approved: FL1M-8FW-1-R110V, FL1M-8FW-1-R220V, FL1M-8FW-1-G110V, FL1M-8FW-1-G220V, FL1M-8FW-1-Y110V, FL1M-8FW-1-Y220V, FL1M-8FW-1-B110V, FL1M-8FW-1-B220V, FL1M-8FW-1-W110V, FL1M-8FW-1-W220V. Contact Mallory if you need a copy of the on-line certificate.

Q: What is the difference between "UL Listed" and "UL Recognized"

A: UL Listed means that a piece of equipment has met the requirements spelled out by UL for that type of equipment. UL Recognized means that the individual component has met the requirements spelled out by UL for that type of component. The main difference is that equipment is UL Listed while components are UL Recognized. Since Mallory panel lights are components, they are only required to be UL Recognized in order to be used in UL Listed equipment.

Q: What is the Flammability Rating of Mallory panel lights?

A: As mentioned above, several models have CUL approval. From the certificate issued by UL, those models are rated UL94-V2. Since all other non-CUL models use the same construction materials, they would be rated the same.

Q: Are your panel lights CE Marked?

A: The panel lights sold by Mallory Sonalert Products, Inc. are individual components that must be incorporated into final equipment in order to be useful. Since their safety and use depends to a very large extent on how they are incorporated, they are not covered by the various European Directives, and need not be CE marked. In fact, per the Low Voltage Directive, components must **not** be CE Marked.

Q: Do you have FAA Certification on your panel lights?

A: While Mallory panel lights are mainly used in industrial and non-aerospace applications, they can be used in Aerospace applications. While Mallory has not been directly involved with the FAA during the PMA (Parts Manufacturer Approval) process, Mallory has (and will) supply all needed information for any certification and/or approvals that are required by the application to the user. It is up to the user to work with the FAA to gain approval.

Q: What is the shelf life of a panel light?

A: There is nothing internal in the panel light that limits the shelf life. For those units with solder lugs, PC Pins, or flat blade terminals (quick connect terminals), the solder coating may oxidize over a long period of time (10+ years), so the user may want to check the solderability of the termination before using.

Q: What is the dielectric rating of Mallory panel lights (Hi-Pot Test)?

A: The dielectric rating is a minimum of 1500 VAC for all models. For models with a substantial metal body, the dielectric rating is 2000 VAC. Contact Mallory for the dielectric rating of any specific model.

Q: What is LED life of your panel lights?

A: The LED life (in hours) is listed in the top table of the specification sheet. This life rating comes directly from the LED manufacturer. For those models with a resistor (6V rating and up), this life rating is conservative. When using 2V and 3V models (which do not have a resistor), it is recommended to stay at or below the nominal rated voltage to ensure a long life.

Q: What is the ECCN Number for Mallory panel lights?

A: Mallory Sonalert Products panel lights do not require an ECCN Number. However, if you absolutely need to assign an ECCN Number, use EAR99 (which means that our product is not regulated).

Q: Are These Products Subject to ITAR?

A: No. Mallory panel lights can be used in a variety of consumer, industrial, military, and aerospace applications. However, these products do not meet the criteria of a defense article on the U.S. Munitions List nor do they have the equivalent performance or capabilities of a defense article on the U.S. Munitions List. Therefore, Mallory Sonalert panel lights are not subject to ITAR regulations or restrictions.

Q: What are the typical failure modes for panel lights?

A: Over-voltage in the user application is the main reason that panel LEDs will fail sooner than their life rating. Panel lights that are polar (DC Only) will fail if reverse voltage is applied. Failure modes other than these voltage related ones are rare.

Q: I need a colder temperature rating. Can you provide one?

A: Contact Mallory to discuss- info@mspindy.com (email) or call 317-612-1000

Q: What environmental tests do your panel lights meet?

A: Design Engineering uses a variety of tests during the verification and validation design phases. These tests can include: surge voltage, reverse voltage, hot & cold life tests, room temperature life test,

humidity, vibration, shock, salt spray, and terminal strength. The Environmental Tests for each panel light are listed in the Environmental Durability PDF available on the website.

Q: What is the Moisture Sensitivity Level (MSL) of Mallory panel lights?

A: MSL 1 (Unlimited)

Q: I have a special environmental requirement, can Mallory help me?

A: Yes! Use our CONTACT US webpage, email info@mspindy.com or call 317-612-1000

Warranty

The seller warrants the goods to be supplied hereunder will conform to the pertinent specifications, drawings and approved samples, if furnished, and that such goods will be of good materials and workmanship and free of defects if properly installed and used as sold by Seller. If within one-year period from the date of shipment to Purchaser such goods, not having been subject to misuse, alteration, modification, neglect. Improper installation or unauthorized repairs not exposed to an abnormal environment, are shown not to be in conformity or are shown to be defective in workmanship or materials, Seller's sole and exclusive obligation under this warranty is to repair or replace such goods, provided return is made prepaid to Seller or its designated representative with the following tagged information: (i) date of shipment of such goods to Purchaser; (ii) date such goods are determined to be non-conforming or defective; and (iii) specifying the apparent non-conformity or defect. No claim will be allowed under this warranty unless Purchaser notifies Seller of such claim within 30 days after Purchaser learns of facts giving rise to such claim. Purchaser's failure to test, inspect and make claim within such one-year period shall be conclusive evidence that the goods shipped were satisfactory in all respects. The liability of Seller under the forgoing warranty shall not exceed the price charged by Seller for the goods which give rise to the Purchaser's claim. THE AFORESAID WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE), EXCEPT OF TITLE. SELLER ASSUMES NO LIABILITY FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR OTHER DAMAGES OF ANY TYPE (INCLUDING, BUT NOT LIMITED TO, DAMAGES RELATED TO LOST SALES AND PROFITS, EXCESSIVE OR INCREASED COSTS AND EXPENSES, FIELD RECALL AND RETROFIT, COSTS AND EXPENSES , DOWNTIME COSTS AND CLAIMS OF CUSTOMERS OR PURCHASER FOR SUCH DAMAGES) RESULTING FROM NON-CONFORMING OR DEFECTIVE CONDITION OF ANY GOODS SOLD BY SELLER TO PURCHASER HEREUNDER, AND PURCHASER ASSUMES ALL LIABILITY FOR ALL CONSEQUENCES ARISING OUT OF ITS USE OR SALES OF SUCH GOODS. THE AFORESAID REMEDY OF PURCHASER IS EXCLUSIVE AND THIS LIMITATION OF LIABILITY PROVISION SHALL APPLY TO ANY AND ALL CLAIMS OR SUITS BASED UPON NEGLIGENCE, BREACH OF CONTRACT, BREACH OF WARRANTY, STRICT LIABILITY, OR ANY OTHER LEGAL THEORY UPON WHICH LIABILITY MAY BE ASSERTED AGAINST SELLER BY PURCHASER OR OTHERS.