

## **EveRRay - Frequently Asked Questions**

**Why would I want to use an LED signal that costs hundreds of dollars when a light bulb only costs \$5? I am most concerned about the long term cost of using LED signals.**

During the lifetime of 1 EveRRay 12 inch signal; you would need to use 280 long life high precision light bulbs at a material cost of \$1,400 and a cost with labor of almost \$30,000.

On this basis EveRRay is 137 times more economical than an incandescent bulb.

It is 3.6 times more economical than its closest competitor.

Multiply these numbers across a typical 16 light crossing or a railroad with several thousand crossings and the numbers are absolutely staggering.

The better question: What are you waiting for?

### **Why doesn't EveRRay use a constant current power supply?**

Constant current power supplies are complicated. They can have upwards of 30 components which not only reduce the reliability of the signal; but also offer up many opportunities for a single point of failure.

Constant current or switching type power supplies also emit harmful electromagnetic interference. They require careful attention to shielding and may even require FCC approval.

These power supplies also make it nearly impossible to monitor signal light conditions by monitoring current. This is because the current draw of the power supply is not usually proportional to the intensity of the light.

With EveRRay; we chose to use a linear power supply which is voltage regulated. This provides compatibility with existing light-out detection systems which are based on current monitoring schemes.

### **Why are the sidelights red on EveRRay?**

Sidelight LEDs are red - this is so that the sidelight can utilize the same proven LED that has provided over 1 billion hours of RR service. Some manufacturers use white LEDs. These white LEDs have significantly lower reliability.

AREMA does not specify the color of the sidelight.

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## **Does EveRRay meet the EMI requirements of AREMA?**

Absolutely. No version of the EveRRay signals uses components or combinations of components that are EMI generators.

## **Do LED signals require EMI shielding?**

If they utilize a constant current or switching type power supply; consideration must be given to EMI.

EveRRay requires no EMI shielding.

## **Will EveRRay work with SEAR(iLOD) and SEAR II event recorder units?**

SEAR and SEAR II units provide light out detection by monitoring the current that is being drawn by the lighting circuit.

With both versions of the EveRRay 12 inch light unit; the current draw of the light is proportional to the intensity of the light.

The event recorder can be set to detect a total failure of the light or a partial failure by adjusting the current that triggers the device.

## **Other LED lights are brighter when viewed straight on. Why? Which is better?**

Crossing lights traditionally come in many beam forms. Some are very narrow so that they direct the light a long distance down the road (ex. 30-15). Others are wide (70 degree) so that they can be seen from an angle and up close.

EveRRay was designed to provide the best of both worlds. The LED light that it puts out is wide enough to provide very good "off axis" viewing.

At the same time; EveRRay can be seen clearly from over 2500 feet down the road when viewed from straight on.

A wider viewing angle also makes the light easier to install and aim. It can be easily aimed down the roadway. Signals that utilize a tight viewing angle require precise alignment and may require the use of a precision sighting device and additional personnel to act as observers.

A signal with a wider beam is also going to be less susceptible to the affects of slight heaving, shifting, or other minute movement that might occur with poles and cantilevers.

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## **What is the benefit of a ¼ inch thick lens? It won't stop a bullet anyway.**

True - the ¼ inch thick lens of the EverRay will not stop a bullet. In fact, the EverRay signal is designed to allow a bullet to pass cleanly through the lens and the LED board. The result is a failure of only the individual LEDs that are hit directly.

What the ¼ inch thick UV stabilized lens does provide is optimal protection from the damaging influence of UV and maximum protection from sticks and stones.

It is sure to keep the EverRay shining brighter and longer than any signal out there.

## **What is a phantom signal?**

A phantom signal is a signal that looks lit when it is not supposed to be. It gives the false impression that the signal is illuminated.

Many times if you view a grade crossing with the sun at your back; the signals may appear illuminated. This is caused when sun light enters the signal and is reflected back out by the facets of the lens system and/or the parabolic mirrored reflector if the signal is the incandescent type.

Incandescent signals are most susceptible to this condition; especially at East/West facing grade crossings. They are most susceptible because they contain both a parabolic mirror and a fresnel lens system.

LED based signals that utilize fresnel lens for secondary beam formation are also susceptible to this condition because ambient light reflects off the facets of the fresnel lens that makes up the outer lens of the unit.

LED signals that utilize a plano lens system; i.e. one that does not provide any type of beam formation, are the least susceptible. This is because there are no lens facets for light to reflect off.

EverRay uses a plano outer lens and a black LED circuit board to prevent phantom signals from occurring.