

AVIATION LIGHTING



LED LIGHTING SOLUTION

Designed to tackle your precise aviation needs and enhanced aviation safety.

At JMR, we offer innovative airfield lighting solutions that take advantage of latest technologies, resonating professionalism and commitment at every move. Lighting and lighting choices can potentially account for a substantial portion of an organizations cost considerations- be it the initial purchase cost, installation cost, energy consumption, planned or unplanned maintenance and often even safety issues. **JMR Infra Solutions** are meticulously built over these key considerations.

Airports are also increasingly emphasizing on becoming greener. We are already equipped to serve these noble requirements by including carbon neutral programs as much as possible.

We are customer agnostic, keeping their best interests in mind, by being flexible with our approach, creative with our thinking, competitive with our pricing and always working to make interacting with you an exceptional experience.

Our capabilities include design, supply, installation, testing, commissioning, training and servicing. Our unique approach is designed to offer best-in-class end-to-end services that are long lasting, guarantees full support from the design process to implementation and maintenance. Our expert design team has been providing lighting solutions with a wholly luminous appearance that provides sparkling beauty by day, and visual comfort by night.

The range of airfield solutions that we offer include a complete airport lighting solution, runway lighting, apron lighting and control systems, that specifically engineered for applications that solve the challenging and complex airfield requirements while adhering to ICAO, and other regional standards and regulations. Our innovations are always driven by customer needs, which are predominantly focused on safety, energy efficiency and environment friendliness -bringing new possibilities and boundless customer satisfaction- that ensure you receive a solution which meets your precise requirements.



- Unrivalled expertise.
- A solution and design-driven approach.
- Customer first attitude.
- Embracing challenges.
- A team you can trust.
- Exceptional customer support.

Solution Modeling



- Reduced energy consumption.
- Lowering CapEx costs.
- Cutting maintenance costs.
- Achieving compliance to national and international standards.
- Minimising environmental impact.
- Providing smart control functionality.
- Forward looking.
- Assured timelines.

That's not all. We're an innovation and knowledge hub that works with design engineers and architects on lighting solution design, where quality and reliability are always at the heart of what we do, ensuring your operations run safely and smoothly. We can fulfill virtually any need for your current or upcoming airport lighting projects.

A TRULY COST EFFECTIVE EVOLUTION

The key difference between an LED and a Halogen light is efficiency. Light dissipates within a halogen bulb, but does not with an LED. This allows an LED to be significantly brighter, and also better at concentrating light in one direction.

This efficiency makes LED lights cheaper to run and burn at lower temperatures. The cost of running a light bulb is based on how many watts it takes to run it continuously for one hour. LEDs can use anywhere from 7-20 watts per hour, whereas halogens use anywhere from 35 to 500 watts an hour to emit the same amount of light.

By using less power, LED lights reduce the demand on the power system. This helps cut down on greenhouse emissions. LEDs also do not contain any toxic substances like mercury, though halogen lights are still used in special purpose applications. Reducing emissions is an ongoing strategic initiative for many airports around the world.

There is another added benefit to this efficiency: Product Lifespan. An LED's average life span is also about 41 times more than a halogen bulb. Specifically, an LED has about 50,000 hours of life compared to the 1,200 of halogen lights. This means you don't need to replace them for over ten years.

JMR Estrella Aviation Lighting – At a glance:

- We supply the most modern LED lighting systems for airfields.
- Our lighting designs are always fully compliant to stringent standards and regulations.
- Our luminaires are heavy-duty, energy efficient, and highly durable.

Our Solutions are Low Glare



This means you can trust us to:

- Reduce your energy consumption.
- Cut maintenance costs.
- Meet local or international requirements.
- Reduce pilot glare.
- Optimize design layouts.
- Provide smart controls for dimming or zoning.

Unrivalled Expertise

We're more than just lighting suppliers; rather act as partners genuinely invested in your success. So, we deliver a quality solution that gives you more for less – making JMR the right choice for your next project.

Our experienced in-house Lighting Design and Engineering teams design and deliver fully compliant, custom-made airport LED lighting solutions that assures the ultimate in lighting quality, economy, light distribution, energy efficiency and glare control. We do it on-time, within budget.

We prioritize creating an exceptional customer service experience at every interaction we make. Our experts take the time to listen to your project requirements, make product and configuration recommendations, so as to deliver optimized solution that perfectly fits your expectations and schedules.

Getting you to a solution that works – FOR YOU

Unlike other 'specialist' lighting companies, we truly deliver full turnkey solutions. From day one to the final sign-off of your aviation project and beyond, we can and do take care of everything.

- Airport lighting with LED technology needs the right products and level of Expertise to deliver results that meet design specifications and regulations. We have that expertise.

- Our high-power LED aviation lighting products allow us to deliver projects to the most exacting specifications. Whether working to industry regulations, or local governmental requirements, we know and meet what's needed.
- Our experienced teams have a deep level of knowledge and combined expertise across all manner of high power, full turnkey airport lighting solutions.

Maintenance & Warranty – protecting your investment

We offer fully managed turnkey services to our client, providing them with additional value and a service experience throughout the lifecycle of the project – and beyond. The great thing about airport LED lighting is it requires far less maintenance. It's important though that you protect your investment to maximize the life span and return on investment. This is especially in true sectors like aviation where compliance and stringent regulations come into play. So, most of our Airport Lighting series Warranty lasts for 10 years!

Advising & Consulting – lets help you make the right choice

We've got many years of in-depth experience across the aviation sector, and a very experienced management and advisory team. So, we can support, advise and consult at any time. Whether for a completely new project or to look at existing solutions, we are there to help – any time , any where.

JMR products and solutions – A winning Package

Product performance and reliability are non-negotiable when airfield safety is concerned. We have a range of 1st class products that can be tailored to your specific needs. Our clients are able to optimize projects and costs by allowing us to collaborate with them to supply design, product sourcing, implementation and maintenance services.

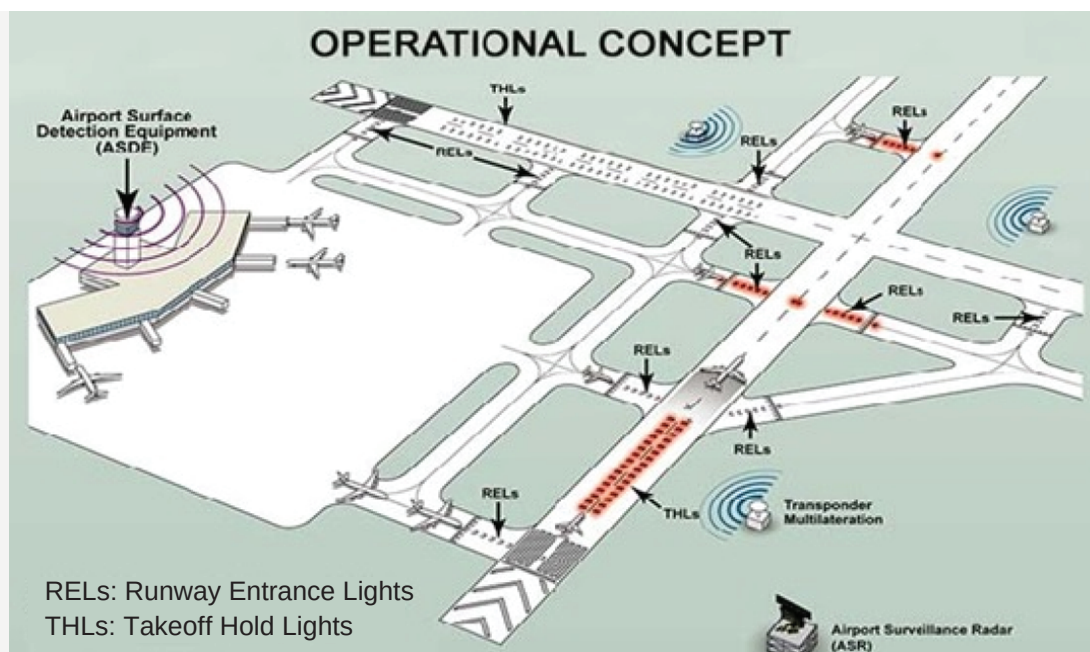
Estrella offers a wide range of Airfield lights, that fits-in any small-medium-large requirements and budget, that the client look for.

Airfield ground lighting (AGL) for visual guidance is at the heart of airfield operations. 'Intelligent' lighting makes the visual guiding process easier and improves situational awareness by switching lights on and off according to information shared by airfield surveillance and aircraft tracking systems. This ensures the safety and efficiency of aviation operations, especially for pilots.

Here are several reasons why it is so important:

- Visibility in Low Light Conditions:
- Spatial Awareness
- Precision Guidance
- Runway Identification
- Emergency Situations
- Operational Efficiency

We can also offer modular solutions, allowing for future expansion and full integration with easy maintenance. With a holistic approach to the airfield lighting systems, it is possible to decrease runway incursions, increase throughput and minimise maintenance downtime. With more efficient and flexible flow of aircraft, the carbon footprint of the airport is decreased.



Range of Lighting Category



- **Approach Light Systems (ALS)**
- **Visual Approach Slope Indicator (VASI)**
- **Precision Approach Path Indicator (PAPI).**
- **In-runway Lighting**
- **Runway End Identifier Lights (REIL)**
- **Runway Edge Light Systems**
- **Runway Centerline Lighting System (RCLS).**
- **Touchdown Zone Lights (TDZL)**
- **Taxiway Centerline Lead-On/Off Lights**
- **Taxiway Edge Lights**
- **Taxiway Centerline Lights**
- **Clearance Bar Lights**
- **Stop Bar Lights**
- **Runway Guard Lights**

Approach Light Systems (ALS)

The approach lighting system is the first component of runway lighting that pilots encounter during landing. Whether VFR or IFR, approach lights can help pilot identify and line up with the runway at night. ALS provide the basic means to transition from instrument flight (IFR) to visual flight (VFR) for landing.

Operational requirements dictate the sophistication and configuration of the approach light system for a particular runway. High Intensity Runway Lights (HIRL), Medium Intensity Runway Lights (MIRL), and the Low Intensity Runway Lights (LIRL).

Visual Approach Slope Indicator (VASI)

VASI is a system of lights that provides visual descent guidance. VASI installations may consist of either 2, 4, 6, 12, or 16 light units arranged in bars referred to as near, middle, and far bars. Most VASI installations consist of 2 bars, near and far, and may consist of 2, 4, or 12 light units. Some VASIs consist of three bars, near, middle, and far, which provide an additional visual glide path to accommodate high cockpit aircraft.

Precision Approach Path Indicator (PAPI)

The precision approach path indicator (PAPI) works similarly to a VASI. But it provides a more accurate glide path reading. The PAPI is a row of two or four light units, typically installed on the left side of the runway. These lights are visible from about 5 miles during the day and up to 20 miles at night. The visual glide path of the PAPI typically provides safe obstruction clearance within plus or minus 10 degrees of the extended runway centerline and to 3.4 NM from the runway threshold.



**ESTRELLA ALS
MX Series**

FEATURES

- Reliable photometric performance
- Redundant lens heater for slae, uninterrupted operation
- Estimated life of LEDS >150,000 hours
- Digital LED display indicates status without opening
- No optical bench or special tools required for servicing
- Compact and light weight (less than 40 lbs LHA)
- Intuitive design of digital aiming / tilt sensor simplifies setting elevation angles
- Interlock feature allows PAPI operations only in conjunction with runway lights

A runway threshold identification light (RTIL) or runway end identifier light (REIL) system consists of two synchronized, unidirectional flashing lights visible from 3 miles during the day and 20 miles at night or poor weather conditions. Installed facing the approach, REIL/RTIL lights mark the end of an active runway.

The FTS 812(L) is an LED voltage-driven RTIL that complies with FAA L-849 Styles A and E. Used as a simple REIL, the FTS 812(L) offers 3 intensity settings. The flashhead and power converter may be mounted together or separately to adapt to specific terrain needs.

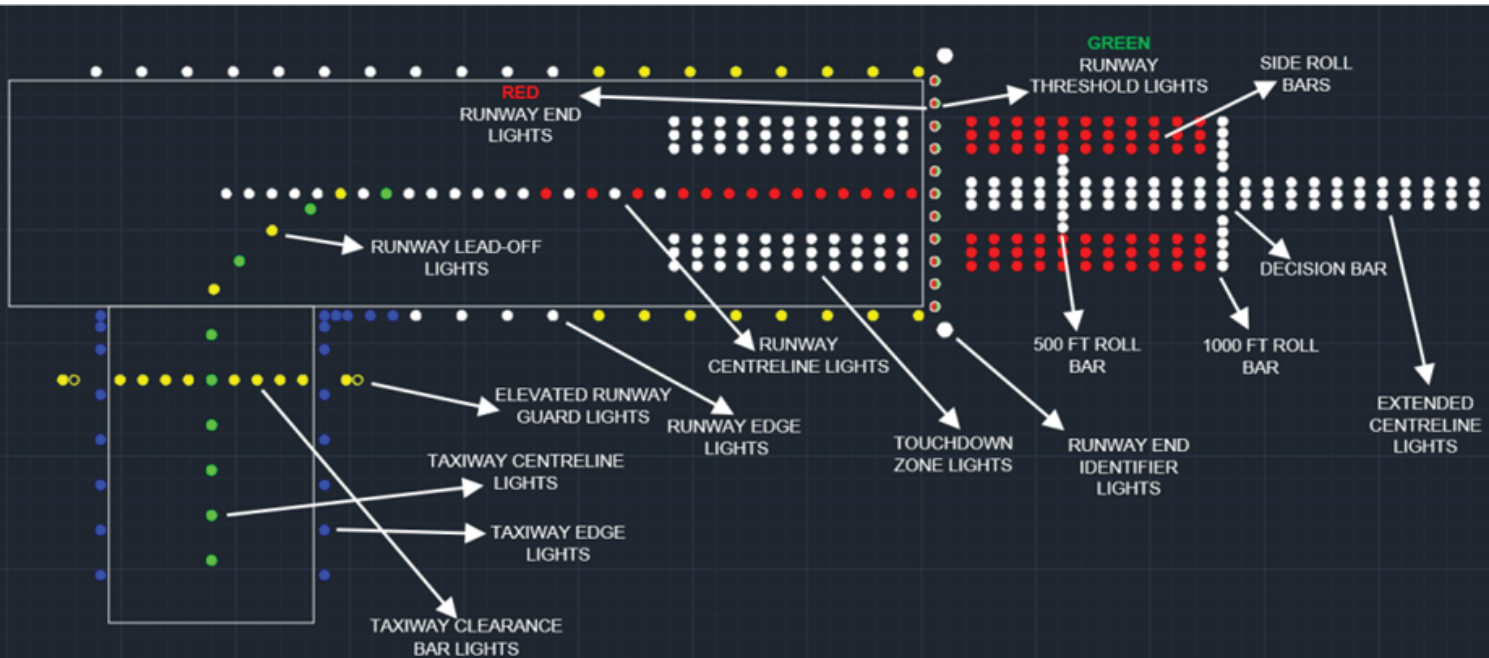


- Modular design for easy maintenance
- Long-lasting LED flashheads require a low operational voltage
- Configure for 1- or 3-step intensity
- Compatible with air-to-ground radio controllers and ground-to-ground remote systems
- Optional remote-mounted power controller

Airport Runway Lighting

The airport runway lighting is crucial for pilots, air traffic controllers, and airport personnel to ensure safe and efficient operations on the runway. It provides a visual representation of the various types of lighting systems installed on the runway, including the approach lighting system, runway edge lights, and runway centerline lights.

At night or when visibility is low, the painted runway markings you can see during the day disappear. Pilots must rely on runway lights to give them critical visual cues. Runway lights enable safe and efficient airport operations during takeoff, landing, and taxiing. These lights typically indicate the runway edge, threshold, centerline, and touchdown zone. Some runways have approach lights and descent guidance that direct pilots during landing.



Runway Edge Light Systems:

- High intensity runway lights (HIRL)
- Medium intensity runway lights (MIRL)
- Low intensity runway lights (LIRL)

Runway Edge Light Systems (HIRL/MIRL/LIRL): Runway edge lights are used to outline the edges of runways during periods of darkness or restricted visibility conditions. Pilots use the edge lights to align themselves with the runway during approach. They are steady white lights on the edges of the runways. On instrument runways, the white lights change to yellow during last 2,000 feet, or half the runway length, whichever is less, and then they turn red as the aircraft reaches the end of the runway. They can be high-intensity (HIRL), medium-intensity (MIRL) or low-intensity (LIRL).

Runway Centerline Lighting System (RCLS) – On some precision runways, a runway centerline light system is installed, with white lights spaced at 50-ft intervals on the centerline of the runway. With 3,000 feet remaining, the white lights change to alternating white and red, and then all red during last 1,000 feet.

Touchdown Zone Lights (TDZL) highlight the touchdown zone on precision approach runways. TDZLs overlay the touchdown zone pavement markings. They provide pilots with a visual aiming point at night. Aircraft must touch down within this area to ensure they have enough distance to stop. TDZLs are steady white lights placed in two rows next to the centerline, starting at 100 feet and extending to the midpoint of the runway, or 3,000 feet beyond the threshold, whichever is less.

ESTRELLA PRO-SERIES



ELEVATED RUNWAY EDGE LIGHT



CENTERLINE & TDZ BI-DIRECTIONAL LIGHT



CENTERLINE & TDZ HIGH INTENSITY LIGHT



INSET RUNWAY EDGE LIGHT



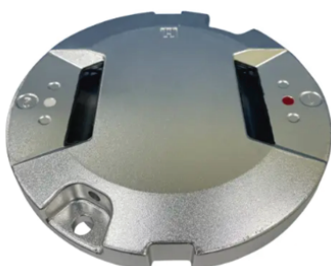
RUNWAY EDGE BI-DIRECTIONAL LIGHT



INSET RUNWAY END LIGHT

RUNWAY CENTERLINE LIGHTING

The use of Runway Centerline Lighting significantly enhances the safety and efficiency of runway operations. By providing pilots with a clear visual reference, this lighting system helps to reduce the risk of runway incursions, improve aircraft guidance, and facilitate smoother takeoffs and landings.

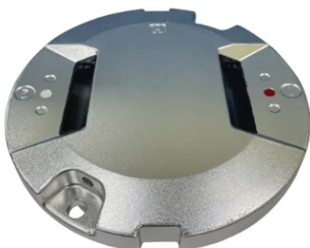
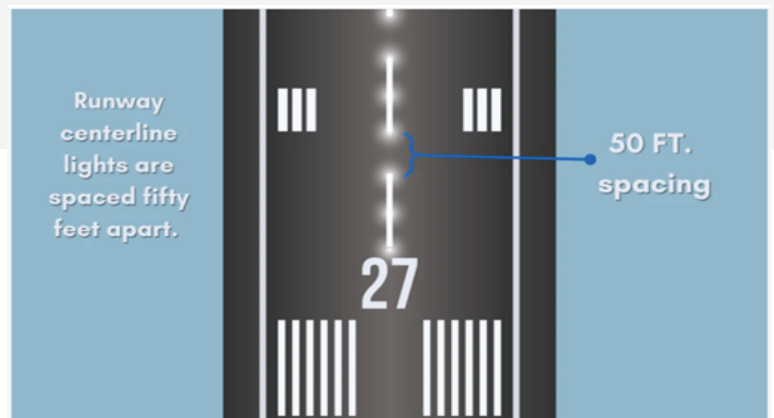


The lights provide a continuous visual reference that assists pilots in keeping their aircraft centered and on the intended path. This is especially important during low visibility conditions such as fog or heavy rain, when visual cues from the surrounding environment may be limited.

ESTRELLA RCL - VX Series

FEATURES

- New Prism deflector design helps to prevent damage from snowplows and other equipment rolling over the fixture.
- Improved mechanical design strengthens and consolidates components, improving the customer maintenance experience.
- Improved optics enhance photometrics and assure optimum LED Life.
- Low profile (Style 3) with no negative slope in prism window, preventing debris from obscuring prism.
- Reinforced top cover enhances durability and longevity.
- Lightweight and robust due to its aluminium alloy construction.
- Low energy consumption compared with the tungsten halogen equivalent.
- Greatly reduced maintenance: calculated MTBF of 75,000 hours at 6.6A.
- Fully dimmable lights, replicating the response curve of traditional halogen lights.
- Full compatibility with existing airfield lighting series circuits
- Monitoring function of the individual light arrays for open circuit, short circuit, and over temperature.
- All fasteners are stainless steel.



Runway Centerline Lighting is designed to be highly visible and easily distinguishable from other types of lighting on the runway. It is an essential component of the overall airport lighting system, working in conjunction with other lighting elements to ensure safe and accurate aircraft operations.

TAXIWAY LIGHTING

Taxiway edge lighting fixtures can be utilised on all taxiways where centreline lighting is not provided. Edge lighting can also be installed to denote the limits of aprons, parking areas, hard standings, servicing areas and other designated paved areas. Generally, this type of lighting would be elevated, but where manoeuvring is difficult it is likely to be inset.



TAXIWAY EDGE LIGHT



TAXIWAY STOPBAR LIGHTING



RUNWAY GUARD LIGHTS

Our Elevated LED Runway Guard Light (ERGL) is a unidirectional, alternately flashing fixture that provides a warning to pilots and vehicles that they are approaching an active runway. The ERGL provides 24 hour unidirectional marking for runways and taxiway intersections with 45 – 50 alternating yellow flashes per minute at the hold position. It is typically installed in a pair, with one on either side of the taxiway holding position. The ERGL installs in minutes with no trenching, cabling, or mains power required and can be easily and quickly relocated in solar configuration.

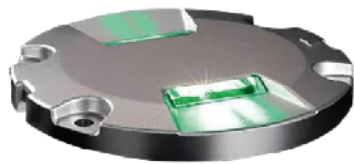


DESIGN FEATURES

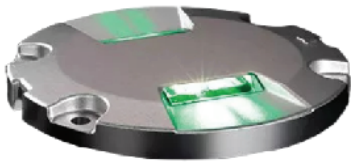
- L-823, Style 7 cable standard
- Uses two 21W LED optical assemblies
- Average LED life of 50,000 hours
- Operates on FAA constant current regulators, both 3 and 5 step
- Adjustable light beam elevation with positive locking in one-degree increments
- Minimum average intensity exceeds 3000 candelas in traffic yellow
- Alternately flashes 45-50 times per minute
- Easy to maintain – no special tools required
- External ON/OFF switch
- High strength frame and aluminum housing
- Base mounted with 2-inch frangible coupling and tether
- 300 MPH jet blast resistant
- Computer control and monitoring available (consult factory for assistance)

ESTRELLA RGL - EV Series

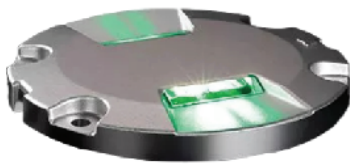
TAXIWAY CENTERLINE LIGHTING



LOW INTENSITY LIGHT



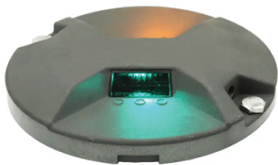
HIGH INTENSITY LIGHT (NARROW)



HIGH-INTENSITY LIGHT (OFFSET)

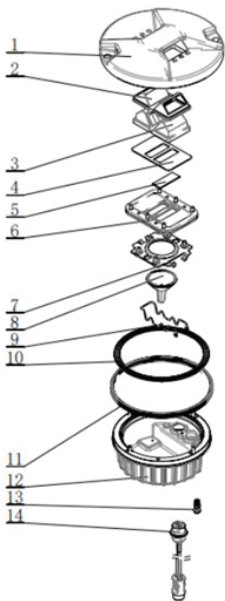
ESTRELLA TCL - MX Series

FEATURES



- New prism deflector design helps to prevent damage from snowplows and other equipment rolling over the fixture
- Reduced bottom pan profile allows for a very shallow base can installation
- Low profile (Style 3) with no negative slope in prism window, preventing debris from obscuring prism
- Reinforced top cover enhances durability and longevity
- Lightweight and robust due to its aluminium alloy construction
- Robust SO style cord set protects against insulation damage and 'water wicking'
- Extra-large bolt opening, lifting hole and pry slot ease maintenance and torquing

STRUCTURE



1	Upper cover	8	Lamp
2	Prism gasket sleeve	9	Pressure spring for lamp
3	Prism	10	Light body gasket
4	Prism gasket	11	Lighting fixture gasket
5	Filter	12	Inner cover
6	Prism pressing bracket	13	Valve
7	Lamp holder	14	Plug

More Options



LED APPROACH LIGHT



LED THRESHOLD LIGHT



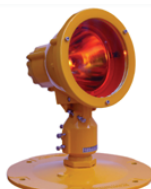
LED RUNWAY END



LIGHT ELEVATED APPROACH & SIDEROW



ELEVATED THRESHOLD & THRESHOLD WINGBAR



ELEVATED RUNWAY END



LEMIRL



LERE



LETP

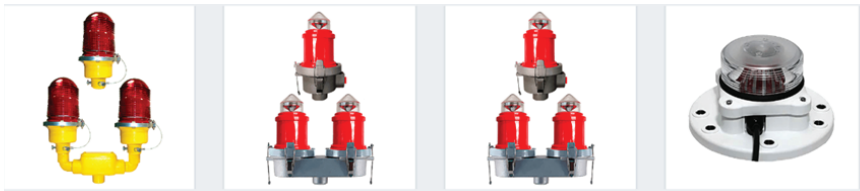


Aiming point lights

Solar Series



Obstruction Lights



LED Taxiway and Runway Signs



LED Distance Marker (DMM)

For More Information:

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*At JMR, we can fulfill virtually any need for your
lighting projects, to power your airfield.*

