



High Pressure Sodium



LED Technology

### Introducing CM LED Street Lighting!

Cities across the world are excited about the energy and maintenance savings potential of LED street lights. Benefits of street lights powered by LED include: much greater energy efficiency, improved night visibility due to higher color rendering, higher color temperature and increased luminance uniformity.

Chief among the advantages of LEDs is that they are very efficient and have extremely long lives -- they don't have filaments that can quickly burn out -- and they don't contain toxic chemicals like mercury, unlike traditional high-pressure sodium lamps or mercury-vapor lamps. An LED light can last 50K-100K hours. These lights also have reduced maintenance costs because of their long lives. Because they last so long, LEDs are suitable for places where replacing light bulbs is expensive, inconvenient or otherwise difficult such as street lighting in addition to the energy efficiency.

Because of their energy efficiency and long lifespan, LED streetlights are advocated as a means for reducing carbon emissions. According to one estimate, converting all American light fixtures to LEDs would halve the amount of energy used for lighting in the country. By integrating solar panels, the lights can become self-sufficient and even send excess energy back to the grid, with the adoption of so-called "smart" energy grids.

So what else do these lights have going for them? For one, there's no warm up needed -- they're quick to turn on. They don't produce ultraviolet light, which is what attracts insects.

Also since they produce "directional" light -- light emitted in one direction, rather than a diffused glow -- they can be used to direct light on specific areas efficiently. Unlike compact fluorescent lamps, they can be dimmed, allowing for more flexibility in controlling light levels if required. Some cities have harnessed LED lights to create clever effects, such as increasing in brightness when a pedestrian walks by or integrating systems that alert officials when a particular light needs maintenance. They can also be used to blink rapidly to signal to emergency responders where they are needed as an advanced capability.

## At a Glance

- High lumen output

LED offers up to eight times more brightness than incandescent lamps without emissions harmful to the environment.

- Tremendous energy savings

High power LED light sources are extremely efficient returning a 50 to 80% saving over conventional sodium or mercury lamps.

- Long life

Operating for an average of 10 hours per day LED has a life span of up to 13 years, 50,000 hours. Unlike traditional light bulbs LED is not fragile and susceptible to breakage or extreme temperatures.

- High colour index

LED has an unique colour index providing bright, true colours during nighttime hours aiding vehicles and pedestrians alike.

- Revolutionary photometric design

Highly focused LED optical system provides a regular rectangular beam pattern with uniform brightness, reducing dark patches and light loss between light sources.

- No glare or strobe effect

LED light sources do not produce glare or strobe effects common in conventional street lighting, reducing visual fatigue for drivers and pedestrians.

- No dust absorption or yellowing

Because LED operates at low voltage and low temperature there is no reduction in brightness or yellowing, which is associated with traditional street lighting, over the entire life span of the LED

- Instant start

Unlike sodium lights, LED lights do not require a time delay to reach optimum brightness levels.



High Pressure Sodium Light vs LED Street Light		
Items	High Pressure Sodium Light - HPS	LED Street Light
Photometric Performance	Poor	Excellent
Radiator Performance	Poor	Excellent
Electric Performance	Electric Shock Easy (High Voltage)	Safe (Low Voltage)
Working Life	Short (5,000 hours)	Long (>50,000 hours)
Working Voltage Range	Narrow ( $\pm 7\%$ )	Wide ( $\pm 20\%$ )
Power Consumption	High	Low
Startup Speed	Quite Slow (Up to 10 minutes)	Rapid (2 seconds)
Strobe	Yes (Alternating Current Drive)	No (Direct Current Drive)
Optical Efficiency	Low	High
Color Index / Distinguish Feature	Poor, Ra <50 (The Color Of Object Is Faith, Boring, Hypnosis)	Good, Ra >75 (The Color Of Object Is Fresh, Veritable And Comfortable)
Color Temperature	Quite Low (Yellow Or Amber , Uncomfortable)	Ideal Color Temperature (Comfortable)
Bad Glare	Strong Glare (Dazzle)	No Harmful Glare
Light Pollution	Strong	Almost none
Heating	Serious (>300°C)	Cold Light (<60°C)
Lampshade Turn Dark	Easy (Absorb Dust)	No (Static Proof)
Lamp Aging Turn Yellow	In A Short Time	No
Shockproof Performance	Poor (Fragile)	Good (No Filament Nor Glass)
Environment Pollution	Contains Lead Element Etc.	No
Maintenance Cost	High	Quite Low
Product Cubage	Big	Can be small (Slim Appearance)
Product Weight	Heavy	Light
Cost-Effectiveness	Low	High
<b>Integrated Performance</b>	<b>Poor</b>	<b>Excellent</b>

An additional benefit for LED street lighting is that motion sensors can turn LEDs on or off instantly, allowing lighting to be used only when needed. Typical outdoor lighting (MH or HPS) has a re-strike time of a few minutes before they can turn on and therefore cannot be used with motion sensors leading to even more savings and cost benefit than the already extremely efficient LED technology street lights.

To find out more contact CrossMetropolitan today!

