

Solar Street Light Manufacturer: TX Solar's Custom Lighting Solutions for Roads, Highways and Urban Areas

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EINPresswire.com/ -- Municipal transit corridors, regional highways, and expanding urban districts require dependable outdoor illumination to guarantee night-time traffic safety and pedestrian mobility. Deploying conventional grid-tied street lighting across remote roadway extensions involves substantial trenching expenditures, cable infrastructure costs, and lengthy utility grid approvals. To address grid-connection constraints and significantly compress infrastructure deployment cycles, Yangzhou Tianxiang Road Lamp Equipment Co., Ltd. ([TX Solar](#) / Tianxiang Group) manufactures engineered [custom solar street lighting solutions](#) tailored to specific road cross-sections and local solar irradiance. Established in 2008 with

manufacturing roots dating back to 1996, TX Solar integrates high-efficiency monocrystalline solar panels, LiFePO4 energy storage, and hot-dip galvanized poles to deliver dependable off-grid lighting for municipal road contractors worldwide.

To ensure continuous night-time visibility across complex traffic corridors, TX Solar engineers custom solar lighting solutions across five core technical pillars:

Road Application and Pole Height Configuration: Engineering luminaire output, optics, and pole heights to achieve uniform illuminance across diverse road widths.

Photovoltaic Panel and Solar Cell Efficiency: Selecting high efficiency monocrystalline modules with high transmission glass to maintain daily charging performance under varying conditions.

Lithium Energy Storage and Operating Autonomy: Sizing dedicated lithium iron phosphate



batteries to ensure dependable operating autonomy during extended periods without direct sunlight.

Intelligent Charge and Lighting Control: Integrating intelligent digital micro-controllers with programmable multi-stage dimming profiles to optimize nighttime illuminance and preserve energy reserves.

Structural Weather Resistance and Wind Load Engineering: Fabricating hot-dip galvanized steel poles with robotic welding and protective coatings to ensure long-term outdoor durability.

Road Application and Pole Height Configuration

Public roadway illumination standards define mandatory lux levels, uniformity ratios, and glare restrictions based on traffic volume and road categorization. TX Solar manufactures split and integrated solar street lights across pole heights from 6 to 12 meters. Available configurations provide versatile luminaire ratings tailored to specific road cross-sections. Secondary urban streets typically deploy compact integrated fixtures on 6 to 8 meter poles. Selected packages offer optional CCTV security monitoring modules for municipal surveillance. For major multi-lane arterials requiring 9 to 12 meter poles, engineering teams apply DIALux photometric simulations. Specialized bat-wing optical lenses expand longitudinal roadway illuminance, widen pole spacing, and maintain optical comfort. Where project sites require expanded battery capacity or independent panel tilt adjustment, modular all-in-two configurations provide scalable energy architecture.

Photovoltaic Panel and Solar Cell Efficiency

Photovoltaic conversion efficiency determines how effectively a solar lighting system replenishes battery reserves during peak sunshine hours. TX Solar operates dedicated manufacturing lines producing high efficiency monocrystalline photovoltaic modules. These panels integrate high transmission, low-iron tempered glass to enhance energy collection under low-light conditions. Weather-sealed backing films and protective junction boxes shield internal photovoltaic cells across wide industrial temperature ranges. To maintain sustained charging performance along arid highways, selected configurations can incorporate physical bird arresters. Optional automatic self-cleaning mechanisms are also available to clear surface dust accumulation in low-rainfall environments.

Lithium Energy Storage and Operating Autonomy

Reliable energy storage ensures uninterrupted roadway illumination during overcast weather and rainy conditions. For designated system configurations, TX Solar integrates premium lithium iron phosphate battery packs. These lithium cells deliver superior thermal stability, wide operating temperature thresholds, and extended deep-cycle durability. With high usable depth of discharge and rapid charge acceptance, the modular storage maintains dependable energy reserves. Engineers configure battery capacity according to historical meteorological data to ensure reliable operating autonomy during periods without direct sunlight.

Intelligent Charge and Lighting Control

Digital charge controllers coordinate photovoltaic energy capture, battery charging regulation,

and luminaire power distribution. TX Solar equips its solar systems with intelligent micro-controllers featuring high constant current conversion efficiency. These industrial-grade controllers provide high-precision current regulation to maintain uniform LED luminous output. The controller continuously monitors electrical parameters and operating temperatures to maintain optimal battery health. Municipal operators can implement customized multi-stage dimming profiles tailored to local traffic density. The system delivers peak illuminance during high-traffic evening hours and transitions smoothly to conservation modes during early morning periods. This dynamic energy management preserves storage capacity while maintaining compliant roadway visibility throughout the entire night.

Structural Weather Resistance and Wind Load Engineering

Lighting poles installed along public highways must withstand continuous wind pressures and demanding climatic conditions. TX Solar fabricates conical, octagonal, and customized polygonal structural steel poles using certified engineering grades. The manufacturing facility utilizes automated laser cutting and robotic seam welding to produce uniform, high-penetration longitudinal welds. All steel poles undergo complete internal and external hot-dip galvanizing followed by electrostatic polyester powder coating. This dual surface treatment delivers long-term corrosion resistance against humid, industrial, and outdoor weathering environments. For coastal corridors and high salinity zones, optional stainless steel and anodized aluminum poles provide specialized structural resilience.

Direct Factory Procurement Advantages for Contractors and Municipalities

Sourcing solar street lighting systems directly from an integrated source manufacturer eliminates intermediary markups while ensuring complete electrical and mechanical compatibility across all sub-assemblies. TX Solar operates dedicated in-house production workshops for photovoltaic panels, lithium storage, LED luminaires, and steel poles. Backed by over 63 technical patents and 16 engineering specialists, the technical department provides customized DIALux lighting layouts for international tenders. Before dispatch, the quality assurance team conducts thorough multi-point functional inspections on every lighting assembly. With over 1,700,000 luminaires delivered to infrastructure projects across more than 20 countries, TX Solar ensures dependable mass-production capacity and experienced export logistics for major municipal contracts.

Discover our complete range of certified municipal solar street lights by visiting the official TX Solar international portal. Highway engineers can obtain verified photometric files, road layout simulations, and factory direct quotations at <https://www.txzmlamp.com/>.

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