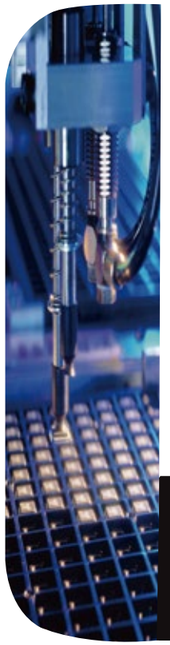
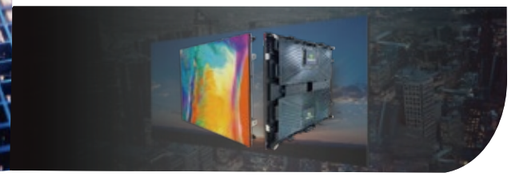
依鲁光电

— SHOW THE WORLD WITH WISDOM —



INTELLIGENT TRANSPORTATION AND SMART HIGHWAY PRODUCT





依鲁光电

SHANDONG ELU PHOTOELECTRIC TECHNOLOGY CO., LTD.

ADD：6F, Building 3#, Chunyang Road No.88, Chengyang District, Qingdao, China

TEL：0532-89087077　FAX：0532-89087079

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SHANDONG ELU PHOTOELECTRIC TECHNOLOGY CO., LTD.



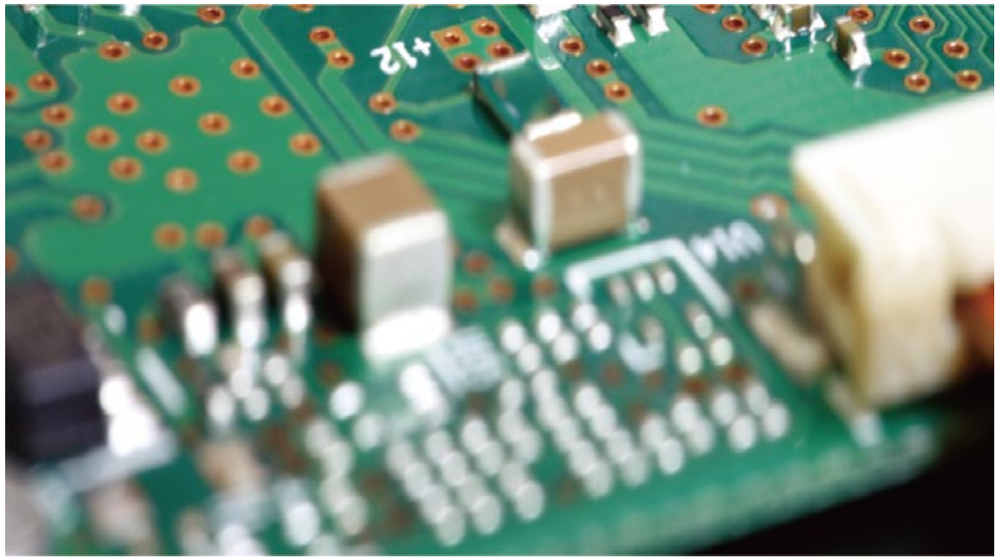
COMPANY INTRODUCTION

Shandong Elu Photoelectric Technology Co., Ltd. is located in Qingdao, a city with red-tiled roofs, green trees, blue seas, and clear skies, with its headquarters in the Tian'an Digital City in the core area of Chengyang District. For 27 years since its establishment, the company has focused on developing and manufacturing LED displays and their control systems based on cutting-edge technologies such as advanced electronics, control, software, and intelligence. It provides comprehensive solutions for LED display systems tailored to various scenarios. Supporting customization, from demand analysis and solution design to production and delivery, we offer customized product services for special models, ensuring perfect alignment with clients' application scenarios and requirements.

In recent years, we have accelerated the deep integration of our company's products with 5G communication technology, cloud data, modern artificial intelligence, and information technology. Significant progress has been made in the fields of information integration and empowerment within application scenarios centered around our core products. We possess strong technical capabilities and extensive project experience in cluster management and intelligent control of outdoor LED displays, as well as in energy-saving and protection technologies. Our services primarily cater to public institutions, large enterprises, and SMEs, covering areas such as smart transportation, outdoor electronic media, big data centers, digital exhibition halls, smart cities, and smart cultural tourism. The company is an innovative high-tech enterprise, recognized as both a "High-Tech Enterprise" and a "Specialized and Innovative Enterprise." It has obtained ISO 9001 Quality Management System certification, as well as product quality certifications like "3C, " "CE," and "RoHS." Additionally, it has been awarded the "China Green Energy-Saving Product" certification, is a well-known trademark in Qingdao, a Shandong brand, and serves as the Qingdao LED Optoelectronic Display Application Technology Innovation Center

Partnering with outdoor display expert workstation hosting units, the company boasts tens of thousands of successful cases and provides services to thousands of users across China and some overseas countries with its unique products and technologies.

Innovation









As a high-tech enterprise, Elu Photoelectric has established a strategic plan to drive company growth through technological innovation since its inception. The company serves as the Qingdao LED Optoelectronic Display Application Technology Innovation Center, which includes the Electronic and Electrical R&D Department, Software R&D Department, Structural Design Department, and Laboratory. Equipped with various advanced testing and experimental instruments, the center provides an excellent R&D and innovation platform for specialized high-end talents in software design, hardware circuit design, process design, inspection and testing, structural design, and project planning.

Meanwhile, the R&D center has established industry-academia-research collaboration bases with multiple universities and research institutes, as well as a municipal-level expert workstation, focusing primarily on LED display technology and intelligent control technology. Since its inception, the R&D center has adopted a forward-looking market-oriented approach, leveraging its unique strengths to achieve significant scientific and technological advancements in areas such as technical breakthroughs and innovation. It has secured dozens of original intellectual property rights, including national invention patents, utility model patents, and software copyrights.

Implementation

Elu Photoelectric has professional engineering construction capabilities and on-site implementation solution capabilities, as well as construction labor resources

With a quality and safety production license, the company has a construction and design team with solid business foundation, skilled technology, excellent professionalism, and years of construction and installation experience. It is composed of several construction design backbones who have grown together with the company, leading a group of young engineering and technical personnel. Their construction footprint covers various regional markets in China and overseas markets,

The total installed screen quantity of LED electronic screens at home and abroad exceeds 30000, which has been widely praised by people from all walks of life and trusted by users.



Production






Excellent talent resources and advanced equipment resources: Elu Photoelectric deeply understands the imp ortance of talent for enterprise development, especially in the production of high-precision and cutting-edg e products. Therefore, it has been striving to build a broad development platform for employees, focusing on cultivating their professional and technical abilities. Gradually, it has cultivated a group of technically out standing, hardworking, and dedicated technical backbone and excellent employees, effectively ensuring the speed of technological innovation iteration, product quality, and production efficiency, and ensuring the ef ficiency of delivering products on time or even ahead of schedule.

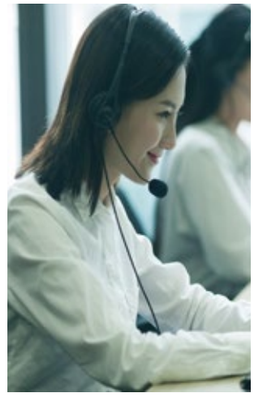
Elu Photoelectric has gradually introduced and built an automatic production line for high-end LED display screens. We have a series of professional automatic production equipment, including high-speed SMT surfa ce mount machines, reflow soldering machines, wave soldering machines, lamp tube corner cutting machin es, computer wire stripping machines, automatic printing machines, glue filling machines, automatic LED ve rtical plug-in machines, spiral air compressors, fully automatic soldering robots, automatic screw machines, automatic spraying machines, automatic cutting machines, as well as testing and inspection equipment suc h as light guns, high and low temperature experimental cabinets, photoelectric testers, oscilloscopes, volta ge testers, signal generators, etc. Our annual LED display screen production capacity reaches 30000 square meters. In terms of production management, Yilu Optoelectronics strictly implements the ISO 9001 quality management system. Its products have passed CCC certification, CE certification, ROHS certification, and tr ansportation products have been tested and issued batch production licenses by the Ministry of Transport a nd the Ministry of Public Security. The LED display series products have been awarded the title of "Shandon g Famous Brand" and China Energy saving Product Certification.

Service

The LED display industry is a scenario based customization and empowerment industry. After the pre-sales consultants and business personnel of Elu Photoelectric have a preliminary understanding and communication with customers' needs and product (or project) uses, the R&D center develops targeted software and hardware technology designs based on customer needs, provides reasonable and professional product purchase or project construction suggestions for customers, and after reaching a consensus with customers, cooperates with professional technical personnel to conduct on-site investigation and research, and effectively communicates with customers again. Based on the specific situation on site, a reasonable and in line with customer expectations proposal is designed.

We have ITSS operation and maintenance service qualifications. We have established a smart operation and maintenance system through smart IoT, which enables automatic fault feedback, rapid personnel response, timely resolution, user training, and timely follow-up. This is our requirement for after-sales engineers and a strong guarantee for customers. Based on these advantages, Elu Photoelectric will comprehensively enhance its brand, strengthen innovation, and improve services in the future, laying a solid foundation for becoming a leading first-class optoelectronic enterprise in China.






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Qualifications









































01 Company Profile
1. Innovation
2. Production
3. Implementation
4. Service
5. Qualifications

02 Static Traffic Management
Parking Guidance Display and Parking Management Service System
① Parking Guidance Cloud Platform
② Urban Smart Parking Tier 1, 2, and 3 Guidance Displays
③ Smart Parking Tier 1, 2, and 3 Guidance Displays for Scenic Areas
④ Parking Space Management and Reservation Service Cloud Platform System
⑤ Parking Lot Zoned Guidance System

03 Dynamic Traffic Management
1. Variable Message Signs and Control System for Roadways
① LED Variable Message Signs / Variable Message Boards for Expressways
② Cantilever-Type Variable Message Boards
③ Pole-Mounted Variable Message Boards
④ Variable Speed Limit Signs
⑤ Flashing Warning Message Boards
⑥ ETC Lane Indicators
⑦ Lane Indicators
⑧ Toll Amount Displays
⑨ Tunnel Variable Message Signs
⑩ Introduction to the Intelligent Traffic Guidance Display Information Publishing and Control Platform

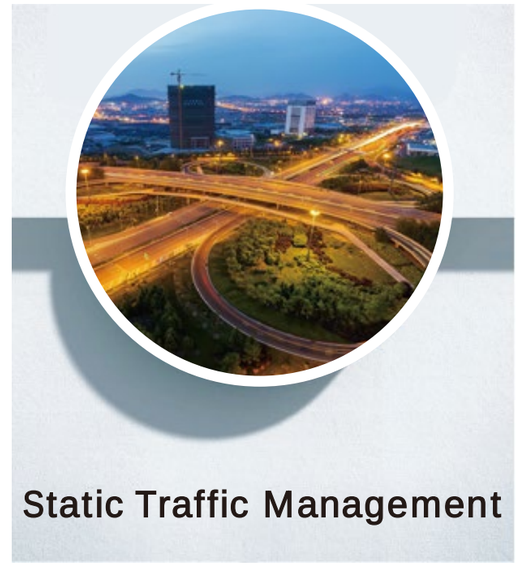
03 Dynamic Traffic Management
2. Urban Traffic Guidance Displays and Control System
① LED Road Traffic Guidance Variable Message Signs
② F-Type Traffic Guidance Displays
③ Pole-Mounted Traffic Guidance Displays
④ Elevated Road Guidance Displays
⑤ Light-Belt Composite Traffic Guidance Displays
⑥ Traffic Command Center
⑦ BRT Bus Rapid Transit
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04 Urban Intelligent Governance
1. Red-Light Violation Automatic Recording System
2. Introduction to the Hazardous Gas Detection and Early Warning System for Special (or Enclosed/Semi-Enclosed) Space Environments
3. Early Warning Displays – The Nerve Endings of Intelligent Transportation Systems
4. Off-Site Overload Enforcement
5. Oncoming Vehicle Warning System for Corner Intersections

05 Core Technology R&D
1. Dedicated Control System for Traffic Guidance Displays – EL-ARM2017
2. Smart Parking Guidance Cloud Control System – EL2022
3. Display Screen Operating Environment Monitoring and Control System – EL-SE-MC

06 Partners

07 Track Record / Achievements



Static Traffic Management

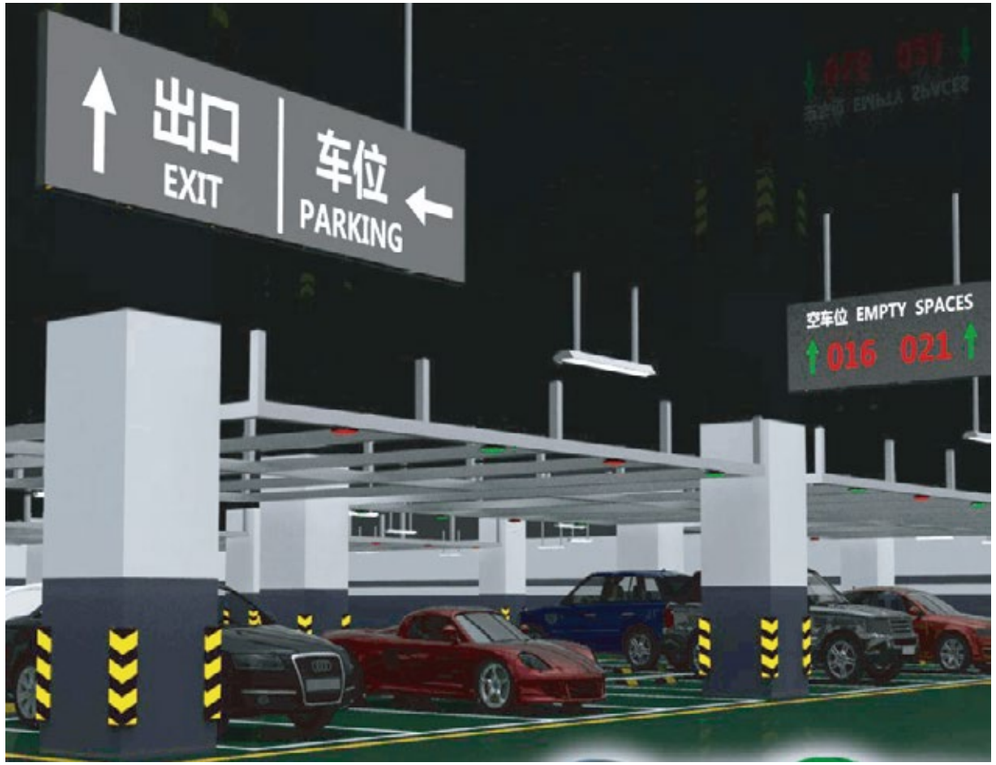
Parking Guidance Display and Parking Management Service System

Parking Guidance Cloud Platform

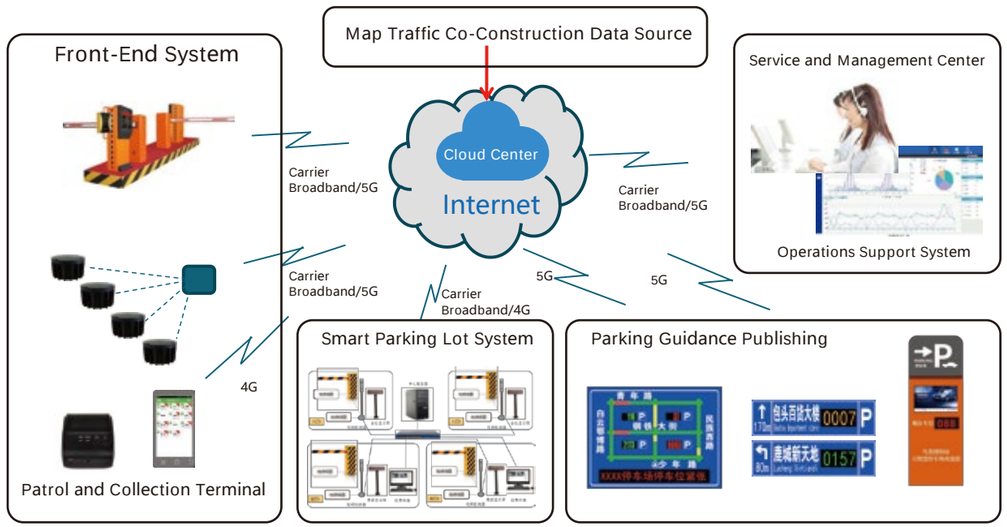
Features:

1. The platform enables seamless information interfacing with intelligent traffic management and control systems.
2. Contingency information is centrally managed by each user unit, enabling intelligent and efficient publishing.
3. Supports remote on-site management, allowing real-time preview of terminal playback effects via the preview window.
4. Parking guidance information supports emergency insertion, enabling timely delivery of special bulletins and major announcements to users.
5. Parking guidance terminal devices are managed and controlled via a GIS map interface for enhanced supervision.
6. In compliance with standardization and open architecture principles, XML data interfaces are provided free of charge to facilitate secondary development.
7. Multi-zone publishing meets the dynamic display requirements for parking space status in parking guidance systems.
8. Information publishing is secured via 4G wireless/wired encrypted transmission, ensuring reliable and secure data delivery.
9. The control platform automatically logs daily device operating status and user operation records.





The business process of the Smart Parking Guidance Cloud Service Platform is primarily focus ed on full-process management and control of parking guidance information publishing. The platform automatically collects parking space status information from parking lot terminals, i ntegrates it with traffic guidance data from intelligent transportation interfaces, and directly p ublishes the consolidated parking guidance information onto traffic guidance displays.



Urban Smart Parking Tier 1, 2, and 3 Guidance Displays



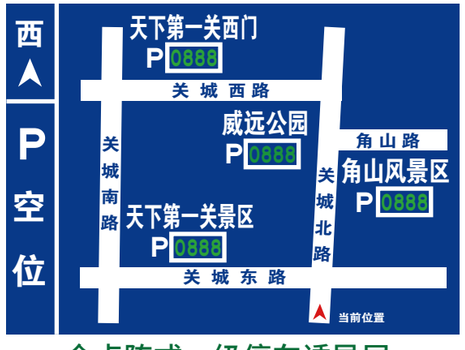
Schematic Diagram of City-Level Tier-1 Parking Guidance Display



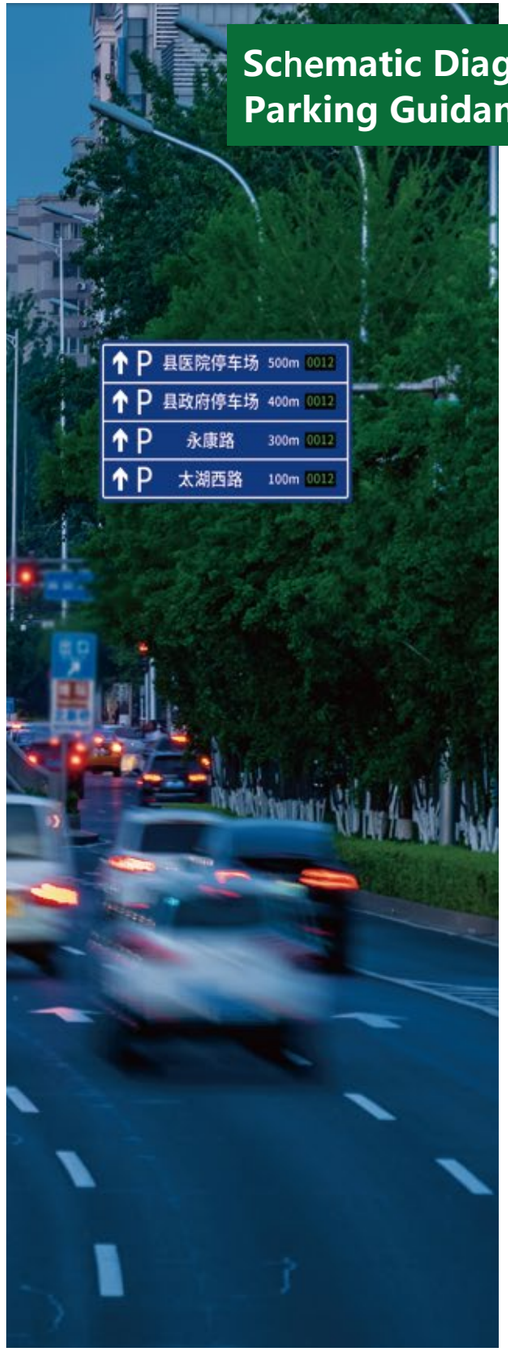
常规一级停车诱导屏



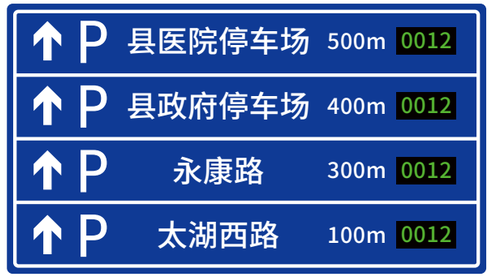
滚动显示一级停车诱导屏



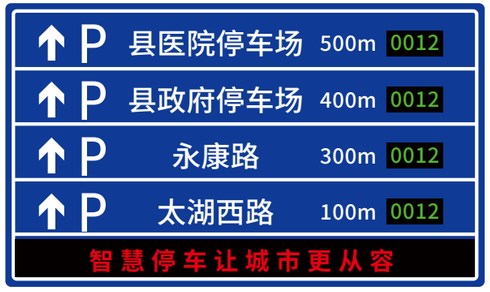
全点阵式一级停车诱导屏



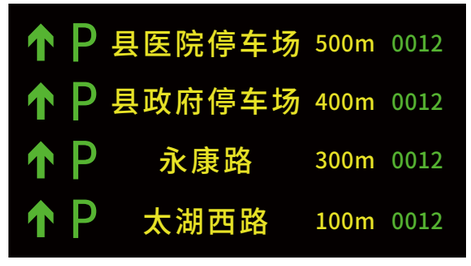
Schematic Diagram of City-Level Tier-2 Parking Guidance Display



常规二级停车诱导屏



滚动显示二级停车诱导屏



全点阵式二级停车诱导屏

Schematic Diagram of City-Level Tier-3 Parking Guidance Display





Schematic Diagram of Tier-3 Parking Guidance Display









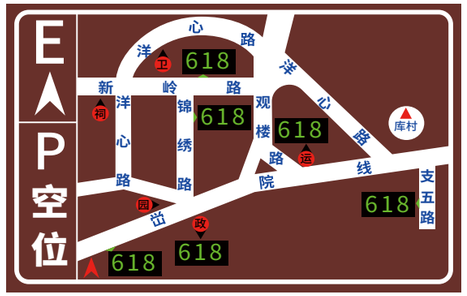




Smart Parking Tier 1, 2, and 3 Guidance Displays for Scenic Areas

Schematic Diagram of Scenic Area Tier-1 Parking Guidance Display




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空位
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Schematic Diagram of Scenic Area Tier-3 Parking Guidance Display



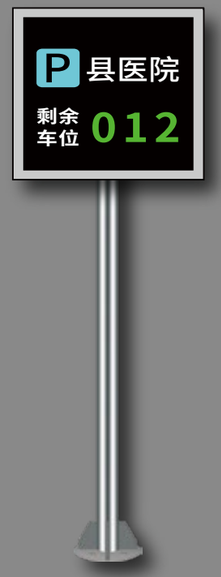




Scenic Area Pole-Mounted Tier-3 Parking Guidance Display



City Pole-Mounted Tier-3 Parking Guidance Display



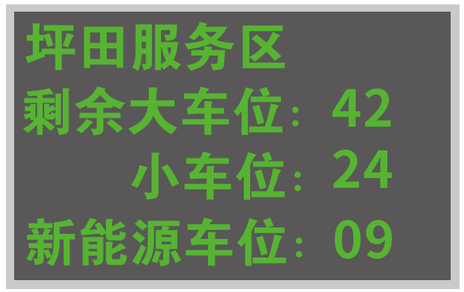
Pole-Mounted Full-Dot-Matrix Tier-3 Parking Guidance Display

Item	Tier-1 Guidance Display	Tier-2 Guidance Display	Tier-3 Guidance Display
Product Model	YDBZ series		
Maximum Brightness	＞8000cd/㎡		
Viewing Angle	＞75°		
Display Color	Full Color, Red/Green/Yellow		
Brightness Adjustment	Manual, Automatic, Scheduled, with Remote Configuration Capability		
Drive Mode	Constant-Current Drive		
Control Method	Synchronous, Asynchronous, Wired Network, Wireless 5G, etc.		
Communication Interface	RJ45、RS232、RS485		
Pixel Failure Rate	＜0.0001, and are distributed in a discrete manner		
Mean Time Between Failures	＞10,000 hours		
Service Life	＞100,000 hours		
Protection Performance	Short Circuit / Open Circuit / Overvoltage / Overcurrent / Overload / Overtemperature / Leakage / Lightning Protection, etc.		
Operating Temp. and Humidity	-10°C—40°C、10-80% No Frost Formation		
Storage Temp. and Humidity	-20°C—60°C、10-85% No Frost Formation		
Wind Load Resistance	40m/s		
Protection Rating (IP Rating)	IP56		
Grounding Resistance	Operating Grounding Resistance <4Ω, Lightning Protection Grounding Resistance <10Ω		
Recognition Distance	Maximum Dynamic Recognition Distance >210m, Maximum Static Recognition Distance >250m		
Installation Method	Gantry-Type, Cantilever-Type, Pole-Mounted		
Input Voltage	AC220 (1±15%) V, 50±2Hz		
Environmental Monitoring	Temperature, Humidity, Smoke, Brightness, Power Supply Status, Cabinet Door Status		

Smart Parking Tier-2 and Tier-3 Guidance Displays for Service Areas

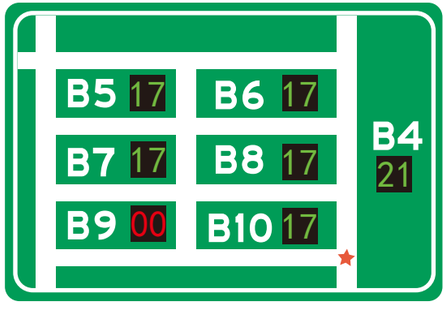
Schematic Diagram of Service Area Tier-2 Parking Guidance Display





全点阵式二级停车诱导屏





常规二级停车诱导屏

Tier-2 Parking Guidance Display Application Photo







Schematic Diagram of Service Area Tier-3 Parking Guidance Display





Tier-3 Parking Guidance Display Application Photo











Parking Space Management and Reservation Service Cloud Platform System



The construction of smart parking is an urgent need for urban development, as cities are increasingly constrained by limited land and spatial resources. Urban management faces enormous pressure from rapid population and vehicle growth, traffic congestion, and parking issues, with the public voicing strong concerns over parking difficulties. Solving urban parking problems is a systematic endeavor, in which intelligent management plays a critical role. Only by addressing both symptoms and root causes—starting from urban resource management, combining operation with governance, and balancing the needs of the city, enterprises, and vehicle owners—can a sustainable solution be achieved. The dynamic imbalance of parking demand requires that urban static traffic intelligence be not merely a technology, but an integrated framework encompassing management and service, as well as a set of standards and a strategic direction.

The development of an urban parking guidance system is centered on the overarching goal of "optimizing the allocation of parking resources, enhancing user convenience, ensuring smooth traffic flow, and standardizing parking order." Through roadside space display screens, the system provides drivers with real-time information on parking space availability, parking lot locations, and guidance routes, integrated with dynamic road traffic conditions. This assists drivers in finding parking efficiently, reduces time spent searching for spaces, and lowers vehicle emissions, road congestion, and noise pollution caused by cruising, thereby making parking less challenging.

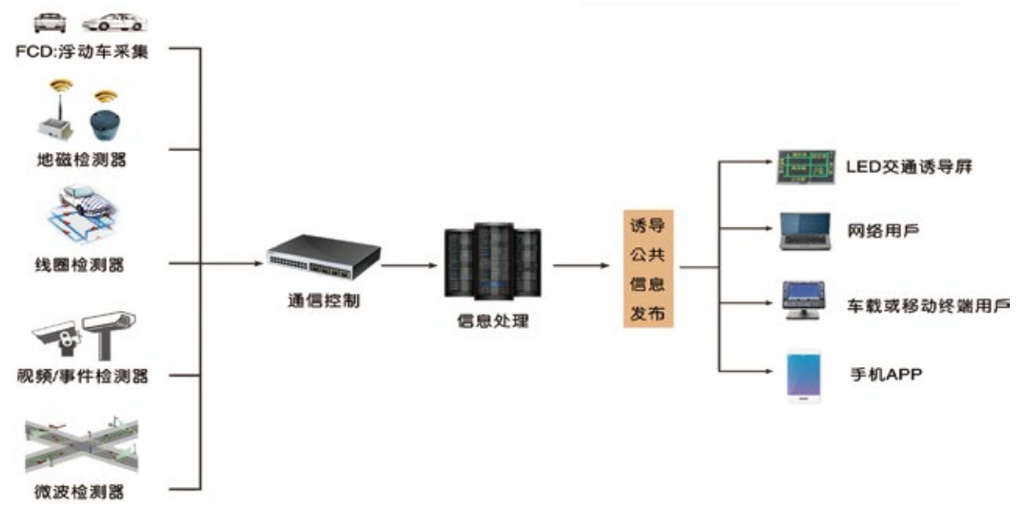
The system is designed to create a parking space management environment that facilitates vehicle parking, emphasizes guidance, and meets humanized service requirements. It offers high reliability, advanced technology, and a degree of flexibility and scalability, enabling rational use of parking facilities and improved utilization efficiency.

Adaptable to the demands of social informatization and intelligence, the system leverages advanced technologies to achieve efficient, energy-saving, and environmentally friendly parking lot operations, ensuring it maintains a leading position for a considerable period to come.

System R&D Background

The urban intelligent traffic guidance system is a key component of modern intelligent transportation solutions. It is primarily designed to guide motor vehicles through the urban road network, reduce their occupancy time on the roads, and achieve a dynamically balanced distribution of traffic volume across the entire network, thereby facilitating public travel and alleviating congestion.

Developed and constructed by Yilu Optoelectronics, this intelligent traffic guidance system collects traffic flow data through multiple methods including microwave radar, geomagnetic sensors, video detection, and inductive loops. Using GIS maps as the carrier, it integrates and analyzes multi-source traffic data, and employs analytical models to predict traffic conditions for upcoming time periods, enabling real-time publishing and display of traffic conditions on electronic maps and traffic guidance displays. The system comprises the following subsystems: Traffic Flow Data Collection Subsystem, Traffic Information Analysis Subsystem, and Intelligent Traffic Guidance Publishing Subsystem.

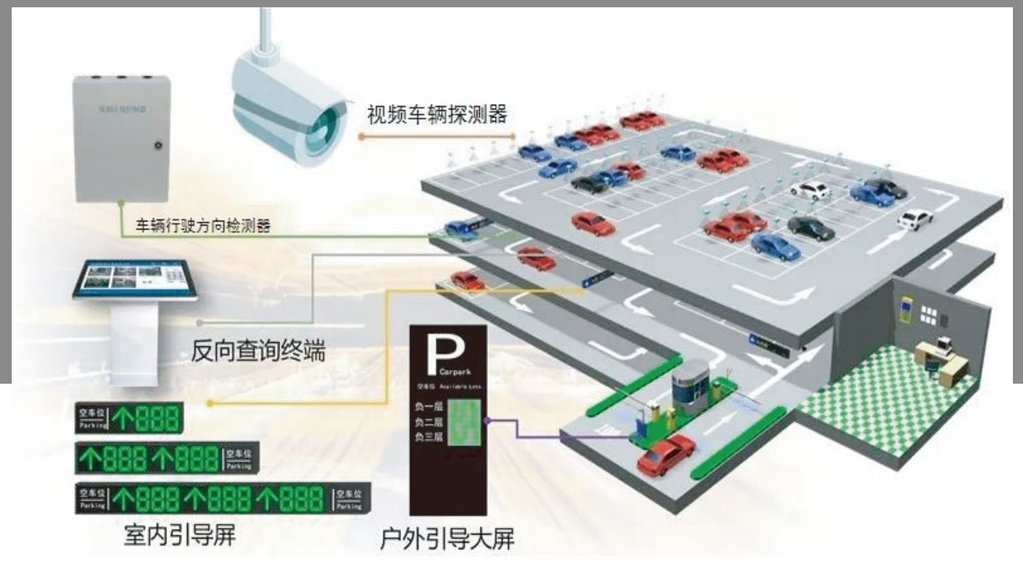


Smart Parking Guidance System Topology Diagram

Parking Lot Zoned Guidance System

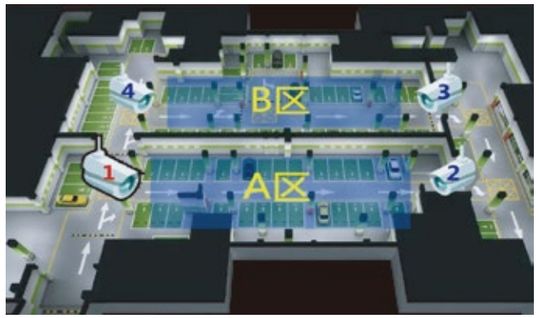
Shandong Elu Photoelectric Technology Co., Ltd. has launched a smart parking lot management system and solution. Targeting the pain points mentioned above, it directly employs big data combined with software and hardware equipment to implement intelligent upgrades to parking lots through a parking management platform, thereby optimizing and resolving parking issues and enhancing the intelligent management level of parking facilities.

Brief introduction to the Elu Photoelectric parking lot intelligent management system: It consists of three major components, namely: Parking Space Status Information Collection System, Information Management System, and Information Publishing and Display System.



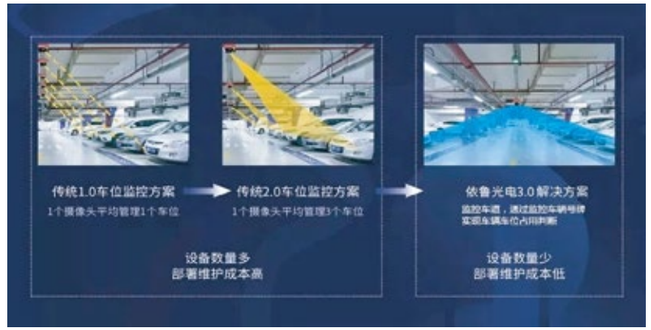


I. Parking Space Status Information Collection System



Through Elu Photoelectric innovative design, combined with its proprietary parking management system and dedicated algorithms, the engineering workload for hundreds of surveillance cameras and their cabling in a parking lot has been directly reduced to just a dozen or so , saving millions in investment costs—a truly epoch-making design.

The zoned parking lot control system features low cost, simple cabling, low upgrade costs, and low maintenance expenses, while maintaining high accuracy and efficiency. It is the optimal choice for smart parking lot retrofits.



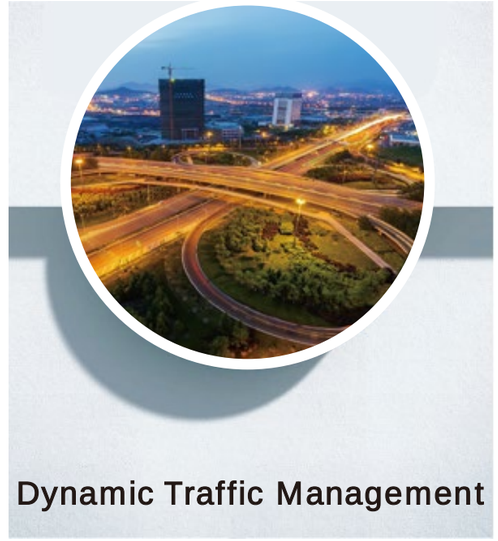
II. Information Management System



The Information Management System is the core intelligent component. All collected parking space data is automatically processed by the parking management system, which autonomously determines space availability, generates occupancy analysis, and assesses lane congestion. Staff can also quickly compose and publish special announcements when needed.

By integrating the above software, hardware, and infrastructure upgrades, intelligent retrofitting of existing parking lots can be achieved at very low cost, significantly improving parking lot utilization efficiency and enhancing the customer experience. Once parking difficulties are resolved, the business performance of commercial establishments will directly improve, and the investment can be recouped within one year, enabling sustainable and virtuous development.



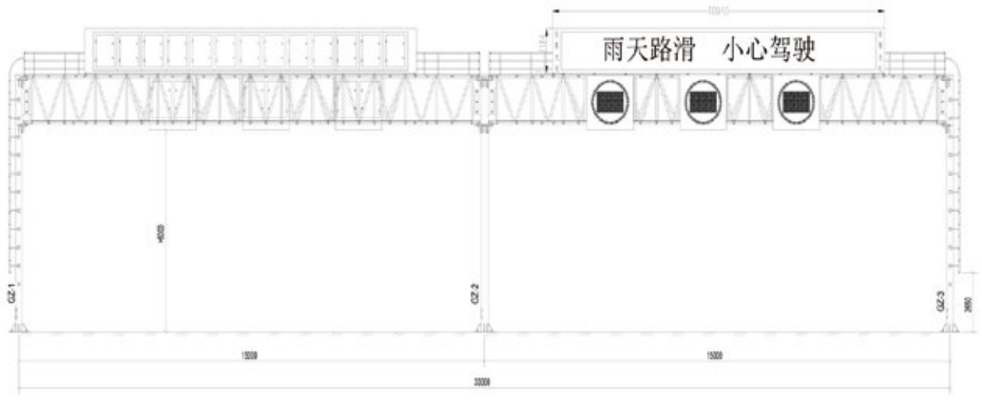


1. Variable Message Signs and Control System for Roadways

LED Variable Message Signs / Variable Message Boards for Expressways



As a critical media tool for information dissemination on expressways, the gantry-mounted variable message sign delivers traffic information to drivers, including road conditions and environmental status. It enhances travel safety and comfort, serving as essential guidance equipment for high-grade highways.



尺寸图







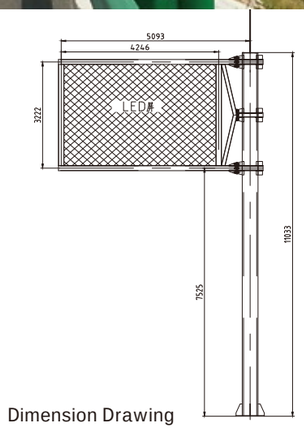
Product Parameters

Product Series	KXB Series	KXB Series	KXB Series	KXB Series
Pixel Pitch	15.625mm	20mm	25mm	31.25mm
Pixel Density	4,096 dots/m²	2,500 dots/m²	1,600 dots/m²	1,024 dots/m²
Pixel Configuration	1R1G1B, 2R1G, 2A	1R1G1B, 2R1G, 2A	2R1G1B, 2R1G, 2A	4R2G1B, 4R2G, 3R2G, 4A
Display Color	Full Color, Red/Green/Yellow, Amber	Red/Green/Yellow, Amber	Full Color, Red/Green/Yellow, Amber	Full Color, Red/Green/Yellow, Amber
Module Unit Size	250mm × 250mm	320mm × 160mm	200mm × 200mm	250mm × 250mm
Module Unit Resolution	16 × 16	16 × 8	8 × 8	8 × 8
Overall Screen Size	L 10m × H 1m	L 0.96m × H 0.96m	L 10m × H 1m	L 10m × H 1m
Overall Screen Resolution	640 × 64	480 × 48	400 × 40	320 × 32
Average Power	≤50W/m²	≤50W/m²	≤50W/m²	≤50W/m²
Maximum Power	≤100W/m²	≤100W/m²	≤100W/m²	≤100W/m²
Display Material	Red LEDs: Al-In-Ga-P four-element chips; Pure Green & Blue LEDs: GaN chips. Red wavelength: 620 – 630nm; Pure Green: 520 – 530nm; Pure Blue: 465 – 480nm			
Brightness	≥10,000 cd/m²			
Brightness Adjustment	256-level control, Manual/Auto/Timed, remotely configurable			
Viewing Angle	≥30°			
Effective Viewing Distance	At vehicle speed of 120km/h, under ambient illumination >50,000 lx (sunny, direct sunlight), including snow, rain, and nighttime, within specified viewing angle: Dynamic recognition distance ≥220m, Static ≥250m			
Wind Load Resistance	40m/s			
Pixel Failure Rate	<0.1%			
Drive Mode	Static Constant-Current Drive			
Communication Interface & Transfer Rate	RS232 or RS485, 2400 – 115200bps; Ethernet 10M/100M auto-sensing			
Voltage	AC380V (or AC220V) ±10%, 50±3Hz			
Operating Temp. & Humidity	– 40°C to +65°C, 0 – 98%			
Grounding Resistance	Operating ground <4Ω; Lightning protection ground <10Ω			
Cabinet	Outdoor painted steel or aluminum alloy (optional); double-layer construction, wind-resistant, lightning-protected, corrosion-resistant, dustproof; Protection rating IP66			
Installation Method	Gantry-mounted, Cantilever (F-type), Tunnel ceiling-suspended			

Cantilever-Type Variable Message Boards







Dimension Drawing

As a critical media tool for information dissemination on expressways, the cantilever-mounted variable message sign delivers traffic information to drivers, including road conditions and environmental status. It enhances travel safety and comfort, serving as essential guidance equipment for high-grade highways.



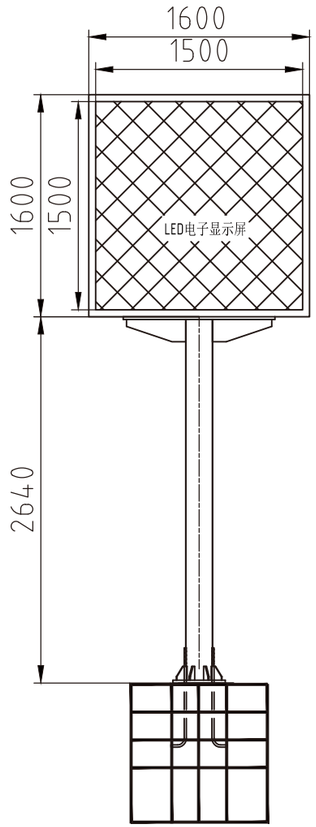


Product Parameters

Product Series	KXB Series	KXB Series	KXB Series
Pixel Pitch	15.625mm	20mm	25mm
Pixel Density	4,096 dots/m²	2,500 dots/m²	1,600 dots/m²
Pixel Configuration	1R1G1B, 2R1G, 2A	1R1G1B, 2R1G, 2A	2R1G1B, 2R1G, 2A
Display Color	Full Color, Red/Green/Yellow, Amber	Red/Green/Yellow, Amber	Full Color, Red/Green/Yellow, Amber
Module Unit Size	250mm × 250mm	320mm × 160mm	200mm × 200mm
Module Unit Resolution	16 × 16	16 × 8	8 × 8
Overall Screen Size	L 3m × H 2m	L 3.2m × H 1.92m	L 10m × H 1m
Overall Screen Resolution	192 × 128	160 × 96	400 × 40
Average Power	≤50W/m²	≤50W/m²	≤50W/m²
Maximum Power	≤100W/m²	≤100W/m²	≤100W/m²
Display Material	Red LEDs: Al-In-Ga-P four-element chips; Pure Green & Blue LEDs: GaN chips. Red wavelength: 620 – 630nm; Pure Green: 520 – 530nm; Pure Blue: 465 – 480nm		
Brightness	≥10,000 cd/m²		
Brightness Adjustment	Manual/Auto/Timed, remotely configurable		
Viewing Angle	≥30°		
Effective Viewing Distance	At vehicle speed of 120km/h, under ambient illumination >50,000 lx (sunny, direct sunlight), including snow, rain, and nighttime, within specified viewing angle: Dynamic recognition distance ≥220m, Static ≥250m		
Wind Load Resistance	40m/s		
Pixel Failure Rate	<0.1%		
Drive Mode	Static Constant-Current Drive		
Communication Interface & Transfer Rate	RS232 or RS485, 2400 – 115200bps; Ethernet 10M/100M auto-sensing		
Voltage	AC380V (or AC220V) ±10%, 50±3Hz		
Operating Temp. & Humidity	– 40°C to +65°C, 0 – 98%		
Grounding Resistance	Operating ground <4Ω; Lightning protection ground <10Ω		
Cabinet	Outdoor painted steel or aluminum alloy (optional); double-layer construction, wind-resistant, lightning-protected, corrosion-resistant, dustproof; Protection rating IP66		
Installation Method	Gantry-mounted, Cantilever (F-type), Tunnel ceiling-suspended		

Pole-Mounted Variable Message Board





Dimension Drawing

As a critical media tool for information dissemination on expressways, the pole-mounted variable message sign delivers traffic information to drivers, including road conditions and environmental status. It enhances travel safety and comfort, serving as essential guidance equipment for high-grade highways.



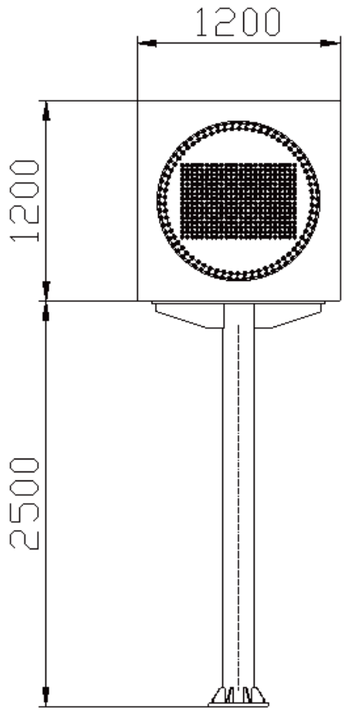


Product Parameters

Product Series	KXB Series	KXB Series	KXB Series	KXB Series
Pixel Pitch	15.625mm	16mm	20mm	25mm
Pixel Density	4,096 dots/m²	3,906 dots/m²	2,500 dots/m²	1,600 dots/m²
Pixel Configuration	1R1G1B, 2R1G, 2A	2R1G, 1R1G1B	2R1G, 1R1G1B	2R1G, 1R1G1B, 3R2G, 4R2G
Display Color	Full Color, Red/Green/Yellow, Amber	Full Color, Red/Green/Yellow, Amber	Full Color, Red/Green/Yellow, Amber	Red/Green/Yellow, Amber
Module Unit Size	250mm × 250mm	256mm × 256mm	320mm × 160mm	200mm × 200mm
Module Unit Resolution	16 × 16	16 × 16	16 × 8	8 × 8
Overall Screen Size	L 1.5m × H 1.5m	L 1.28m × H 1.28m	L 1.28m × H 1.28m	L 1.4m × H 1.4m
Overall Screen Resolution	96 × 96	80 × 80	64 × 64	56 × 56
Average Power	≤50W/m²	≤50W/m²	≤50W/m²	≤50W/m²
Maximum Power	≤100W/m²	≤100W/m²	≤100W/m²	≤100W/m²
Display Material	Red LEDs: Al-In-Ga-P four-element chips; Pure Green & Blue LEDs: GaN chips. Red wavelength: 620 – 630nm; Pure Green: 520 – 530nm; Pure Blue: 465 – 480nm			
Brightness	≥10,000 cd/m²			
Brightness Adjustment	Manual/Auto/Timed, remotely configurable			
Viewing Angle	≥30°			
Effective Viewing Distance	At vehicle speed of 120km/h, under ambient illumination >50,000 lx (sunny, direct sunlight), including snow, rain, and nighttime, within specified viewing angle: Dynamic recognition distance ≥220m, Static ≥250m			
Wind Load Resistance	40m/s			
Pixel Failure Rate	<0.1%			
Drive Mode	Static Constant-Current Drive			
Communication Interface & Transfer Rate	RS232 or RS485, 2400 – 115200bps; Ethernet 10M/100M auto-sensing			
Voltage	AC380V (or AC220V) ±10%, 50±3Hz			
Operating Temp. & Humidity	– 40°C to +65°C, 0 – 98%			
Grounding Resistance	Operating ground <4Ω; Lightning protection ground <10Ω			
Cabinet	Outdoor painted steel or aluminum alloy (optional); double-layer construction, wind-resistant, lightning-protected, corrosion-resistant, dustproof; Protection rating IP66			
Installation Method	Gantry-mounted, Cantilever (F-type), Tunnel ceiling-suspended			

Variable Speed Limit Sign

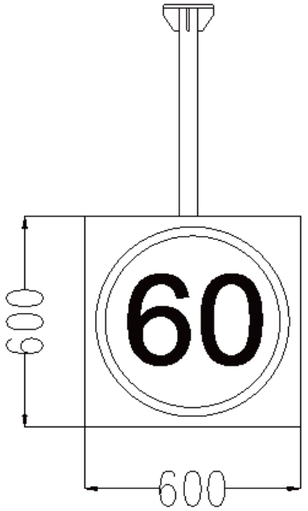




Dimension Drawing







尺寸图

The variable speed limit sign promptly advises drivers of the optimal traveling speed based o n weather conditions, visibility, and actual traffic conditions, thereby achieving the purpose of guid ing traffic safety.

Product Parameters

Product Series	KXS-12F-B1-EL	KXS-14F-B1-EL	KXS-16F-B1-EL
Side Length or Diameter	1500mm	1600mm	1800mm
Outer Ring Diameter	1200mm	1400mm	1600mm
Brightness Adjustment	Manual/Auto/Timed, remotely configurable		
Viewing Angle	≥30°		
Effective Viewing Distance	At vehicle speed of 120km/h, under ambient illumination >50,000 lx (sunny, direct sunlight), including snow, rain, and nighttime, within specified viewing angle: Dynamic recognition distance ≥250m, Static ≥300m		
Wind Load Resistance	40m/s		
Refresh Rate	120Hz		
Pixel Failure Rate	<0.1%		
Drive Mode	Static Constant-Current Drive		
Communication Interface & Transfer Rate	RS232 or RS485, 2400 – 115200bps; Ethernet 10M/100M auto-sensing		
Voltage	AC380V (or AC220V) ±10%, 50±3Hz		
Operating Temp. & Humidity	– 40°C to +65°C, 0 – 98%		
Grounding Resistance	Operating ground <4Ω; Lightning protection ground <10Ω		
Cabinet	Outdoor painted steel or aluminum alloy (optional); single-layer construction, wind-resistant, lightning-protected, corrosion-resistant, dustproof; Protection rating IP65		

Flashing Warning Message Board





The flashing warning message board utilizes the toll system ETC gantry and the surveillance system message board gantry as data analysis points and information release points respectively. Flashing lights, two-way high-power speakers, and audible-visual alarms are installed on both sides of the road between the gantries and above the message boards. Through triple-warning alerts combining text, sound, and light, the system achieves integrated audio-visual delivery to alert fatigued drivers to exit the highway at the nearest off-ramp for rest.





ETC Lane Indicator



ETC is particularly suitable for expressways and heavily trafficked road sections. Implementing non-stop toll collection allows vehicles to pass through at high speeds, significantly enhancing road capacity. The shift toward electronic toll collection reduces toll management costs, improves vehicle operational efficiency, and greatly lowers noise and exhaust emissions at toll plazas.

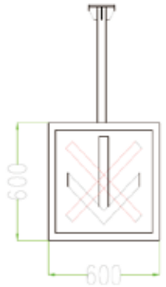




Lane Indicator









Lane indicators are installed near the left and right tunnel portals, as well as above the lanes before the traffic cross-passages. Each set of lane indicators features double-sided display, composed of ultra-high-brightness LEDs with pure colors, strong penetration, low power consumption, and long service life. They are designed with fully sealed dustproof, waterproof, and rustproof construction. Display sizes can be customized according to different customer requirements.

Product Parameters

	Parameter	Specification
	Model	EL-CKB-600II-B1
	Product Type	Lane Indicator
Red Cross	LED Specification	Φ5 lamp tube
	LED Quantity	320 pcs
	Single LED Brightness	4000 – 6000 mcd
	Wavelength	620 – 625 nm
	Viewing Angle (H/V)	30°
	Power	≤15W
Green Arrow	LED Specification	Φ5 lamp tube
	LED Quantity	320 pcs
	Single LED Brightness	16000 – 20000 mcd
	Wavelength	525 – 530 nm
	Viewing Angle (H/V)	30°
	Power	≤15W
	AC220V	AC220V
	– 40°C to +50°C	– 40°C to +50°C
	100,000 hours	100,000 hours
	≥500m	≥500m
	600mm × 600mm	600mm × 600mm

Toll Amount Display



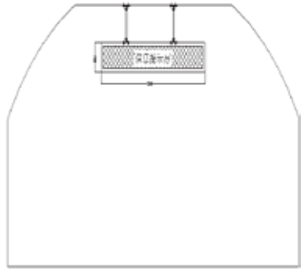




The toll amount display is an integrated unit combining lane traffic signals, alarm lights, and toll amount display. It is suitable for provincial highways, national highways, expressway toll stations, and other traffic control locations. Installed in front of the toll lane at toll stations, it serves as a display screen indicating toll collection, passage, and alarm information for vehicles.

Tunnel Variable Message Signs





Dimension Drawing

Due to dim lighting and poor visibility inside tunnels, the installation of tunnel variable speed limit signs , variable message signs, emergency indicators, and other facilities can guide vehicles through tunnels safely and in an orderly manner. Tunnel variable message signs publish various information in real time , alerting drivers to upcoming road conditions and guiding their driving behavior, thereby reducing the occurrence of traffic accidents within tunnels.

Product Parameters

产品系列	YDBZ系列			
像素点间距	16mm	20mm	25mm	25mm
物理密度	3906点/m²	2500点/m²	1600点/m²	1600点/m²
像素配置	2R1G、1R1G1B	2R1G、1R1G1B	2R1G、1R1G1B、3R2G、4R2G	2R1G、1R1G1B、3R2G、4R2G
显示颜色	全彩色、红绿黄、琥珀色	全彩色、红绿黄、琥珀色	全彩色、红绿黄、琥珀色	全彩色、红绿黄、琥珀色
单元模块尺寸	256mm×256mm	320mm×160mm	200mm×200mm	200mmx200mm
单元模块分辨率	16×16	16×8	8×8	8x8
整屏尺寸	长2.048m×高1.042m	长1.92m×高0.96m	长2.4m×高1.2m	长6m×高1m
整屏分辨率	128×64	96×48	96×48	240×40
平均功率	≤50W/m²	≤50W/m²	≤50W/m²	≤50W/m²
最大功率	≤100W/m²	≤100W/m²	≤100W/m²	≤100W/m²
显示材料	红色LED管采用晶元管芯；纯绿、蓝色LED管采用士兰管芯。红色单管波长范围：620nm-630nm；绿色单管波长范围：520nm-530nm			
亮度	≥8000 cd/m²			
亮度调节	手动/自动/定时，可远程设置			
可视角度	≥30°			
有效可视距离	车辆以小于120km/h速度行驶时，观察者（正常人，矫正视力1.0以上），在规定的视角内能正确认读标志内容的最大距离（动态视认距离）≥220m,静态 ≥250m			
抗风强度	40m/s			
像素失控率	<0.1‰			
驱动方式	恒流驱动			
通讯接口与传输速率	RS232或RS485,速率2400bps-115200bps；以太网10M/100M自适应			
电压	AC380V（或AC220V）±10%，50±3HZ			
工作温度、湿度	-40℃-+65℃、0-98%			
接地电阻	工作接地电阻＜4欧姆，防雷接地＜10欧姆			
箱体	户外型烤漆钢板或铝合金材料可选；双层机箱、抗风、防雷、防腐蚀、防尘等性能，防护等级达IP66			
安装方式	门架式、隧道内吊装式			

Introduction to the Intelligent Traffic Guidance Display Information Publishing and Control Platform





Shandong Elu Photoelectric Technology Co., Ltd. has been engaged in the R&D and production of intelligent transportation systems for nearly two decades. Over these twenty years, the company has consistently prioritized scientific innovation and diligent market cultivation, striving to build a leading brand in the intelligent traffic guidance industry. The company serves as the host institution for the Qingdao LED Optoelectronic Display Technology Innovation Center and the Qingdao Expert Workstation for Outdoor LED Display Technology. Its R&D center is staffed with over a dozen top-tier technical experts in the field, continuously driving product development and technological innovation in intelligent transportation, with remarkable achievements.

The company holds 19 patents and 12 software copyrights in the transportation sector. It has successfully developed the proprietary high-performance asynchronous control system dedicated to intelligent traffic guidance displays and the main control system for environmental monitoring of traffic guidance display screens—both of which are critical core components of traffic guidance displays, with performance ranking at the national forefront.

The company also continuously innovates and improves the cabinet structures, light modules, and pole assemblies for traffic guidance displays, and has developed a dual-door sealed cabinet with excellent protection and heat dissipation performance specifically for traffic guidance applications. The company's F -type cantilever structure features a rational load-bearing design and an aesthetically pleasing appearance, both of which have been awarded national patents. Shandong Elu Photoelectric remains committed to continuous refinement and excellence in innovation and research for intelligent transportation products. To reduce the energy consumption of traffic guidance displays, the company established a dedicated task force and developed patented energy-saving light modules, achieving exceptional performance in high brightness, high reliability, and low power consumption. To address maintenance challenges during operation, the company's in-house control system team developed an intelligent traffic guidance operations and maintenance system, enabling remote diagnosis of fault causes and damaged components across the entire intelligent transportation system without on-site visits. This system supports automated repair requests and single-visit resolution, significantly improving O&M efficiency and reducing operating costs.

In addition to hardware products, Shandong Elu Photoelectric has successfully developed a GIS-based intelligent traffic management and control platform that seamlessly interfaces with most traffic management systems, achieving full coverage from hardware to software—ranking among the top security enterprises nationwide.

Shandong Elu Photoelectric possesses professional engineering construction capabilities and on-site solution implementation expertise. The company maintains a highly skilled, experienced, and specialized construction and design team with years of installation experience. The company's projects cover most provinces and autonomous regions across China. Its strong on-site professional implementation team is a key guarantee for the final high-quality delivery of products, giving project owners and system integrators confidence in using the company's product series while reducing associated project costs.





2. Urban Traffic Guidance Displays and Control System

LED Road Traffic Guidance Variable Message Signs



The gantry-type traffic guidance display presents road alignment and directional information to drivers in a graphical format, showing the overall route outline ahead and serving a function similar to directional signposts. This display offers notable advantages including intuitive visualization, large information capacity, relatively short recognition time, and guidance for drivers unfamiliar with the road conditions. It is well-suited for dense road network sections of urban roads and major arterial highways.

Product Parameters

Parameter	YDBZ Series	YDBZ Series	YDBZ Series
Pixel Pitch	10mm	15.625mm	16mm
Pixel Density	10,000 dots/m²	4,096 dots/m²	3,906 dots/m²
Pixel Configuration	1R1G, 2R1G, 1R1G1B	2R1G, 1R1G1B	2R1G, 1R1G1B
Display Color	Full Color, Red/Green/Yellow, Amber	Full Color, Red/Green/Yellow, Amber	Full Color, Red/Green/Yellow, Amber
Module Unit Size	320mm × 160mm	250mm × 250mm	256mm × 256mm
Module Unit Resolution	32 × 16	16 × 16	16 × 16
Overall Screen Size	L 4.16m × H 3.04m	L 4m × H 3m	L 4.096m × H 3.072m
Overall Screen Resolution	416 × 304	256 × 192	256 × 192
Average Power	120W/m²	120W/m²	120W/m²
Maximum Power	240W/m²	240W/m²	240W/m²
Display Material	Red LEDs: Epistar chips; Pure Green & Blue LEDs: Silan chips. Red wavelength: 620 – 630nm; Green wavelength: 520 – 530nm		
Brightness	≥8000 cd/m²		
Brightness Adjustment	Manual/Auto/Timed, remotely configurable		
Viewing Angle	≥70°		
Effective Viewing Distance	At vehicle speed of 80km/h, under ambient illumination >50,000 lx (sunny, direct sunlight), including snow, rain, and nighttime, within specified viewing angle: Dynamic recognition distance ≥220m, Static ≥250m		
Wind Load Resistance	40m/s		
Refresh Rate	120Hz		
Pixel Failure Rate	<0.1%		
Drive Mode	Static Constant-Current Drive		
Communication Interface & Transfer Rate	RS232 or RS485, 2400 – 115200bps; Ethernet 10M/100M auto-sensing		
Voltage	AC380V (or AC220V) ±10%, 50±3Hz		
Operating Temp. & Humidity	– 40°C to +65°C, 0 – 98%		
Grounding Resistance	Operating ground <4Ω; Lightning protection ground <10Ω		
Cabinet	Outdoor painted steel or aluminum alloy (optional); double-layer construction, wind-resistant, lightning-protected, corrosion-resistant, dustproof; Protection rating IP66		



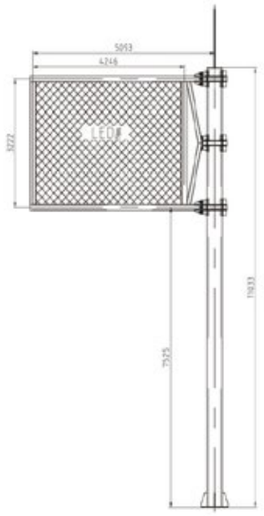






F-Type Traffic Guidance Display





Dimension Drawing







The F-Type traffic guidance display presents road alignment and directional information to drivers in a graphical format, showing the overall route outline ahead and serving a function similar to directional signposts. This display offers notable advantages including intuitive visualization, large information capacity, relatively short recognition time, and guidance for drivers unfamiliar with the road conditions. It is well-suited for dense road network sections of urban roads and major arterial highways.

Product Parameters

Parameter	YDBZ Series	YDBZ Series	YDBZ Series	YDBZ Series
Pixel Pitch	5mm	6mm	8mm	10mm
Pixel Density	40,000 dots/m²	27,777 dots/m²	15,625 dots/m²	10,000 dots/m²
Pixel Configuration	1R1G1B	1R1G1B	1R1G1B	1R1G1B, 2R1G, 1R1G
Display Color	Full Color	Full Color	Full Color	Full Color
Module Unit Size	320mm × 160mm	192mm × 192mm	320mm × 160mm	320mm × 160mm
Module Unit Resolution	64 × 32	32 × 32	40 × 20	32 × 16
Overall Screen Size	L 4.16m × H 2.88m	L 4.032m × H 3.072m	L 4.16m × H 2.88m	L 4.16m × H 2.88m
Overall Screen Resolution	416 × 288	672 × 512	416 × 288	416 × 288
Average Power	50W/m²	50W/m²	50W/m²	50W/m²
Maximum Power	300W/m²	300W/m²	300W/m²	300W/m²
Display Material	Red LEDs: Epistar chips; Pure Green & Blue LEDs: Silan chips. Red wavelength: 620 – 630nm; Green wavelength: 520 – 530nm			
Brightness	≥8000 cd/m²			
Brightness Adjustment	32-level control, Manual/Auto/Timed, remotely configurable			
Viewing Angle	≥70°			
Effective Viewing Distance	At vehicle speed of 80km/h, under ambient illumination >50,000 lx (sunny, direct sunlight), including snow, rain, and nighttime, within specified viewing angle: Dynamic recognition distance ≥220m, Static ≥250m			
Wind Load Resistance	40m/s			
Refresh Rate	120Hz			
Pixel Failure Rate	<0.1%			
Drive Mode	Static Constant-Current Drive			
Communication Interface & Transfer Rate	RS232 or RS485, 2400 – 115200bps; Ethernet 10M/100M auto-sensing			
Voltage	AC380V (or AC220V) ±10%, 50±3Hz			
Operating Temp. & Humidity	– 40°C to +65°C, 0 – 98%			
Grounding Resistance	Operating ground <4Ω; Lightning protection ground <10Ω			
Cabinet	Outdoor painted steel or aluminum alloy (optional); double-layer construction, wind-resistant, lightning-protected, corrosion-resistant, dustproof; Protection rating IP66			

Pole-Mounted Traffic Guidance Display

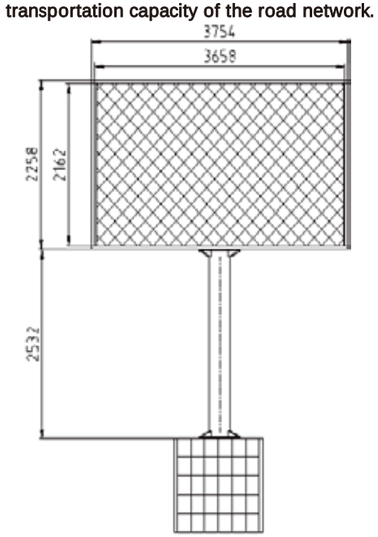






The pole-mounted traffic guidance display is a widely used display product for expressways and urban roads. It features high brightness, strong penetration, excellent reliability, and a high protection rating. It can display various information in real time based on traffic conditions, weather, and instructions from command and dispatch centers, thereby providing quality services to ensure safe and rapid driving, guiding traffic flow, and enhancing the transportation capacity of the road network.





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Product Parameters

Parameter	YDBZ Series	YDBZ Series	YDBZ Series	YDBZ Series
Pixel Pitch	2.5mm	3mm	3.84mm	4mm
Pixel Density	62,500 dots/m²	40,000 dots/m²	27,777 dots/m²	15,625 dots/m²
Pixel Configuration	1R1G1B	1R1G1B	1R1G1B	1R1G1B
Display Color	Full Color	Full Color	Full Color	Full Color
Module Unit Size	320mm × 160mm	192mm × 192mm	200mm × 200mm	320mm × 160mm
Module Unit Resolution	128 × 70.4	115.2 × 64	937.5 × 520	96 × 56
Overall Screen Size	L 3.2m × H 1.76m	L 3.456m × H 1.92m	L 3.6m × H 2m	L 3.84m × H 2.24m
Overall Screen Resolution	1280 × 704	1152 × 640	936 × 520	960 × 560
Average Power	400W/m²	400W/m²	400W/m²	400W/m²
Maximum Power	800W/m²	800W/m²	800W/m²	800W/m²
Display Material	Red LEDs: Epistar chips; Pure Green & Blue LEDs: Silan chips. Red wavelength: 620 – 630nm; Green wavelength: 520 – 530nm			
Brightness	5500 cd/m²			
Brightness Adjustment	256-level control, Manual/Auto/Timed, remotely configurable			
Viewing Angle	110°			
Effective Viewing Distance	At vehicle speed <120km/h, normal observer (corrected vision ≥1.0), within specified viewing angle: Dynamic recognition distance ≥220m, Static ≥250m			
Wind Load Resistance	40m/s			
Pixel Failure Rate	<0.1%			
Drive Mode	Constant-Current Drive			
Communication Interface & Transfer Rate	RS232 or RS485, 2400 – 115200bps; Ethernet 10M/100M auto-sensing			
Voltage	AC380V (or AC220V) ±10%, 50±3Hz			
Operating Temp. & Humidity	– 40°C to +65°C, 0 – 98%			
Grounding Resistance	Operating ground <4Ω; Lightning protection ground <10Ω			
Cabinet	Outdoor painted steel or aluminum alloy (optional); double-layer construction, wind-resistant, lightning-protected, corrosion-resistant, dustproof; Protection rating IP66			
Installation Method	Gantry-mounted, tunnel ceiling-suspended			

Elevated Road Guidance Display



Urban congestion is a major drawback of modern urban transportation, and cities are actively seeking solutions to address it. The development of intelligent urban expressways has become a popular choice for many cities. By constructing urban expressways and elevated roads, cities can achieve urban renewal, revitalize old districts, optimize road networks, and ultimately upgrade transportation systems to alleviate congestion.

As a new form of transportation infrastructure in the digital age, intelligence is a fundamental requirement for modern expressways. As an established player in the intelligent transportation industry, Shandong Elu Photoelectric Technology Co., Ltd. has kept pace with the demands of intelligent transportation, continuously investing in R&D and optimization. The company has launched a wide range of intelligent expressway traffic products, including expressway variable message signs, expressway lane controllers, real-time violation capture systems, traffic congestion guidance displays, dynamic speed control displays, and various intelligent guidance signs. Integrating big data, mobile internet, and other technologies, these products are coupled with a backend platform that combines traffic guidance, media display, emergency display, data visualization, and information feedback functions, truly realizing intelligent and smart road infrastructure.

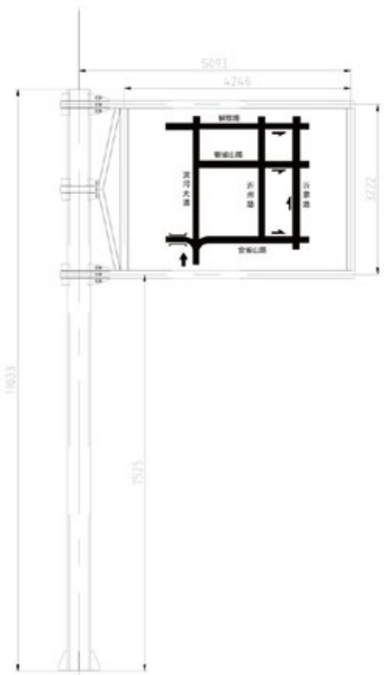
Shandong Elu Photoelectric Technology Co., Ltd. has successively provided intelligent traffic guidance and display products for expressways in multiple cities, including Linyi, Yangzhou, and Xuzhou. These products feature rich application scenarios, powerful functionality, and interconnectivity, systematically addressing the challenges of intelligent expressway management. Below is a summary of expressway intelligent traffic products from projects across the country:

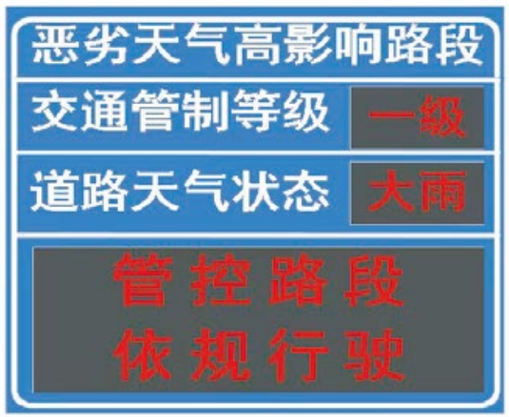




Light-Belt Composite Traffic Guidance Display









The light-belt composite traffic guidance display is a dynamic integrated information board that enables drivers to intuitively understand surrounding road condition information. It can accurately reproduce the road network structure and corresponding traffic status information on the display based on road hierarchy and geometry. LED variable light strips are embedded within the static graphic road segment identification areas. Through different LED color emissions, these strips visually indicate real-time traffic conditions of road segments—green for smooth, red for congested, and yellow for crowded. Featuring short recognition time and intuitive regional network guidance, this display significantly enhances the efficiency of traffic guidance.





Product Parameters

Model	YDP-1B1-22-18-EL-01	YDP-1B1-20-16-EL-06
Type	Light-Belt Screen / Bar Screen	Light-Belt Screen / Bar Screen
Pixel Pitch	22mm / 18mm	20mm / 16mm
Pixel Density	2,066 dots/m² / 3,086 dots/m²	2,500 dots/m² / 3,906 dots/m²
Pixel Configuration	2R1G	2R1G
Display Color	Red, Green, Yellow	Red, Green, Yellow
Module Unit Size	176mm × 176mm / 144mm × 144mm	320mm × 160mm / 256mm × 256mm
Module Unit Resolution	8 × 8	16 × 8 / 16 × 16
Display Material	Red LEDs: Epistar chips; Pure Green & Blue LEDs: Silan chips. Red wavelength: 620 – 630nm; Green wavelength: 520 – 530nm	
Brightness Adjustment	256-level control, Manual/Auto/Timed, remotely configurable	
Viewing Angle	70°	
Effective Viewing Distance	At vehicle speed of 80km/h, under ambient illumination >50,000 lx (sunny, direct sunlight), including snow, rain, and nighttime, the maximum distance at which a normal observer (corrected vision ≥1.0) can correctly read the sign content within the specified viewing angle: Dynamic ≥250m, Static ≥300m	
Wind Load Resistance	40m/s	
Refresh Rate	120Hz	
Pixel Failure Rate	<0.1%	
Drive Mode	Static Constant-Current Drive	
Communication Interface & Transfer Rate	RS232 or RS485, 2400 – 115200bps; Ethernet 10M/100M auto-sensing	
Voltage	AC380V (or AC220V) ±10%, 50±3Hz	
Operating Temp. & Humidity	– 40°C to +65°C, 0 – 98%	
Grounding Resistance	Operating ground <4Ω; Lightning protection ground <10Ω	
Cabinet	Outdoor painted steel or aluminum alloy (optional); double-layer construction, wind-resistant, lightning-protected, corrosion-resistant, dustproof; Protection rating IP66	
Installation Method	Pole-Mounted, Cantilever (F-type), Gantry	

Traffic Command Center







Elu Photoelectric has developed an integrated solution for government departments, comprising a gridded full-color LED display, control system, and conference system. The display utilizes indoor high-definition fine-pitch LED screens, paired with a touch-control LED system, enabling analog and digital video signal switching, video image behavior analysis, video encoding/decoding, centralized management and storage of compressed video data, real-time network preview, logging, user and permission management, and device maintenance functions—all in one. It supports full-screen touch interaction on the LED display for presenting operations and maintenance data, courseware demonstrations, on-screen annotations, and more.

BRT (Bus Rapid Transit







Bus Rapid Transit (BRT) is a new type of public passenger transport system positioned between rapid rail transit and conventional bus services. Its investment and operating costs are lower than those of rail transit, while its operational performance is close to that of rail systems. By utilizing modern bus technologies combined with intelligent transportation and operations management, BRT incorporates dedicated bus lanes and modernized bus stations to deliver rail-like operational services, achieving light rail service standards as a distinctive urban passenger transport system.

Traffic Intersection Signal-Linked Display





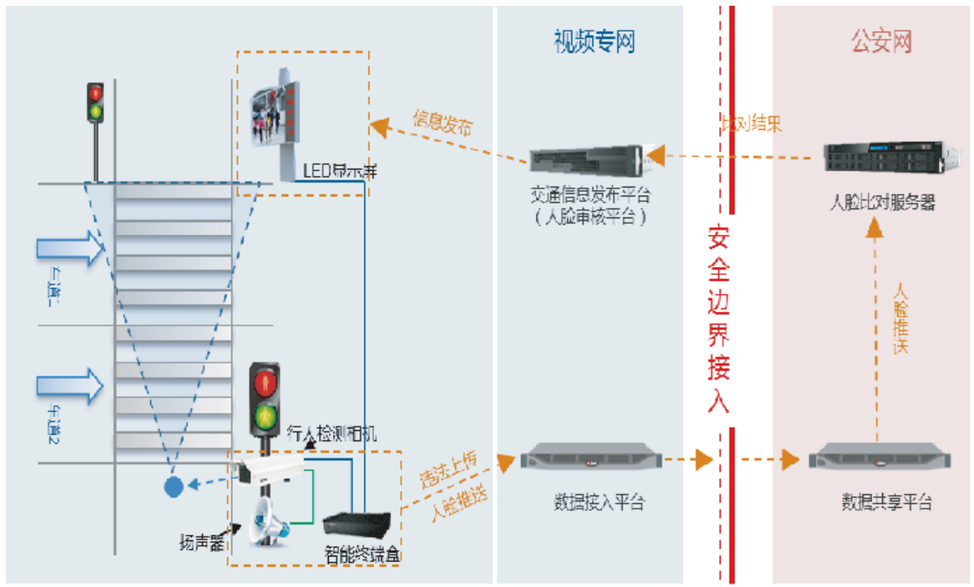
"The term 'green wave' refers to a traffic signal control technology that coordinates green light timing so that vehicles traveling at a certain speed can encounter green lights at every intersection. It serves as an alternative solution similar to expressways, helping to expand a city's coverage.

The green wave guidance display provides real-time general prompts and slogans. When linked with the traffic guidance service platform and the traffic signal control system, it can display specific messages such as 'Enter Waiting Zone for Left Turn' or 'Do Not Enter Waiting Zone.' Through intuitive visual information, it delivers precise guidance to vehicles and pedestrians, thereby improving road traffic efficiency."

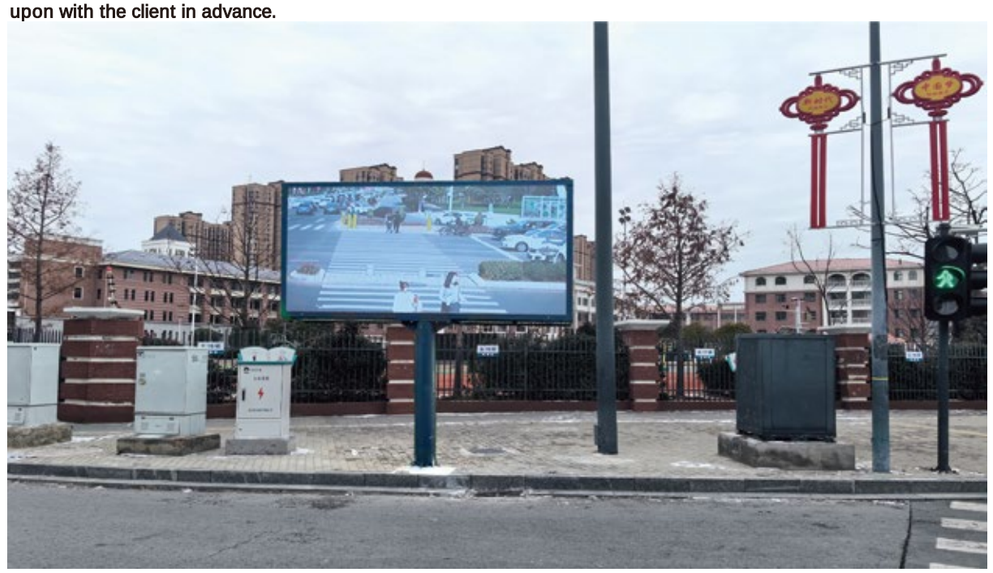
Product Parameters

Parameter	YDBZ Series	YDBZ Series
Pixel Pitch	10mm	10mm
Pixel Density	10,000 dots/m²	10,000 dots/m²
Pixel Configuration	1R1G, 2R1G	1R1G, 2R1G
Display Color	Red/Green/Yellow	Red/Green/Yellow
Module Unit Size	320mm × 160mm	320mm × 160mm
Module Unit Resolution	32 × 16	32 × 16
Overall Screen Size	2880mm × 480mm	1600mm × 800mm
Overall Screen Resolution	288 × 48	160 × 80
Average Power	≤80W/m²	≤80W/m²
Maximum Power	≤240W/m²	≤240W/m²
Display Material	Red LEDs: Al-In-Ga-P four-element chips; Pure Green & Blue LEDs: GaN chips. Red wavelength: 620 – 630nm; Pure Green: 520 – 530nm; Pure Blue: 465 – 480nm	
Brightness	≥8000 cd/m²	
Brightness Adjustment	256-level control, Manual/Auto/Timed, remotely configurable	
Viewing Angle	≥70°	
Effective Viewing Distance	At vehicle speed of 80km/h, under ambient illumination >50,000 lx (sunny, direct sunlight), including snow, rain, and nighttime conditions, the maximum distance at which a normal observer (corrected vision ≥1.0) can correctly read the sign content within the specified viewing angle: Dynamic ≥250m, Static ≥300m	
Wind Load Resistance	40m/s	
Refresh Rate	120Hz	
Pixel Failure Rate	<0.1%	
Drive Mode	Static Constant-Current Drive	
Communication Interface & Transfer Rate	RS232 or RS485, 2400 – 115200bps; Ethernet 10M/100M auto-sensing	
Voltage	AC380V (or AC220V) ±10%, 50±3Hz	
Operating Temp. & Humidity	– 40°C to +65°C, 0 – 98%	
Grounding Resistance	Operating ground <4Ω; Lightning protection ground <10Ω	
Cabinet	Outdoor painted steel or aluminum alloy (optional); double-layer construction, wind-resistant, lightning-protected, corrosion-resistant, dustproof; Protection rating IP66	
Installation Method	Cantilever (F-type), Gantry	

Traffic Intersection Signal-Linked Pedestrian Guidance Display

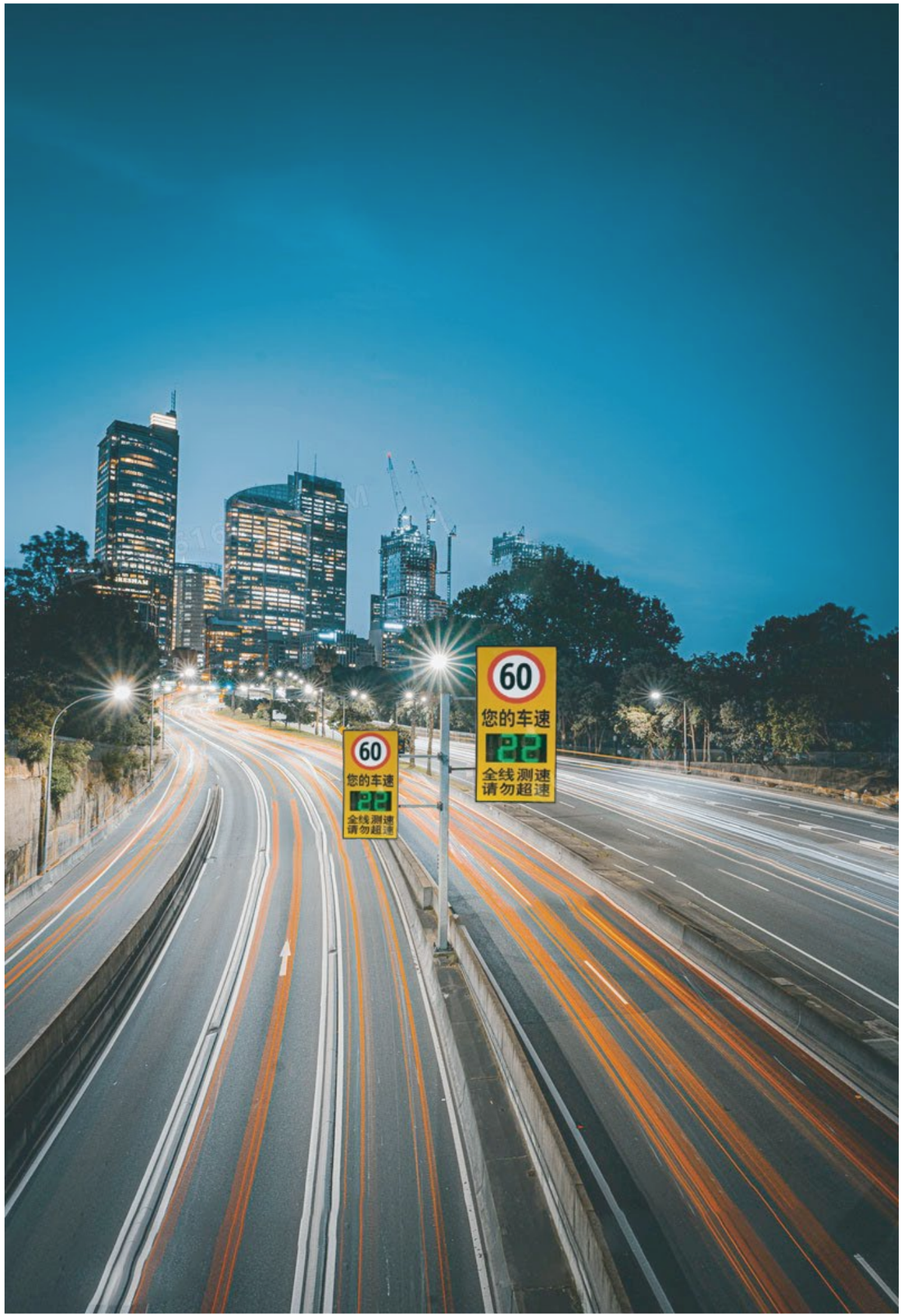


The facial recognition comparison platform is deployed on the Public Security Network, while the traffic information publishing platform (facial review platform) is deployed on the Video Surveillance Network. According to regulatory requirements, data can only flow from the Video Surveillance Network to the Public Security Network, and not in the reverse direction. To enable the comparison of pedestrian red-light violation facial data on the Public Security Network and the subsequent review and public exposure on the Video Surveillance Network after identity information is obtained, network connectivity between the facial recognition comparison platform and the traffic information publishing platform (facial review platform) must be established (e.g., via port mapping), allowing facial comparison results to be fed back to the Video Surveillance Network. This point must be clearly stated and agreed upon with the client in advance.

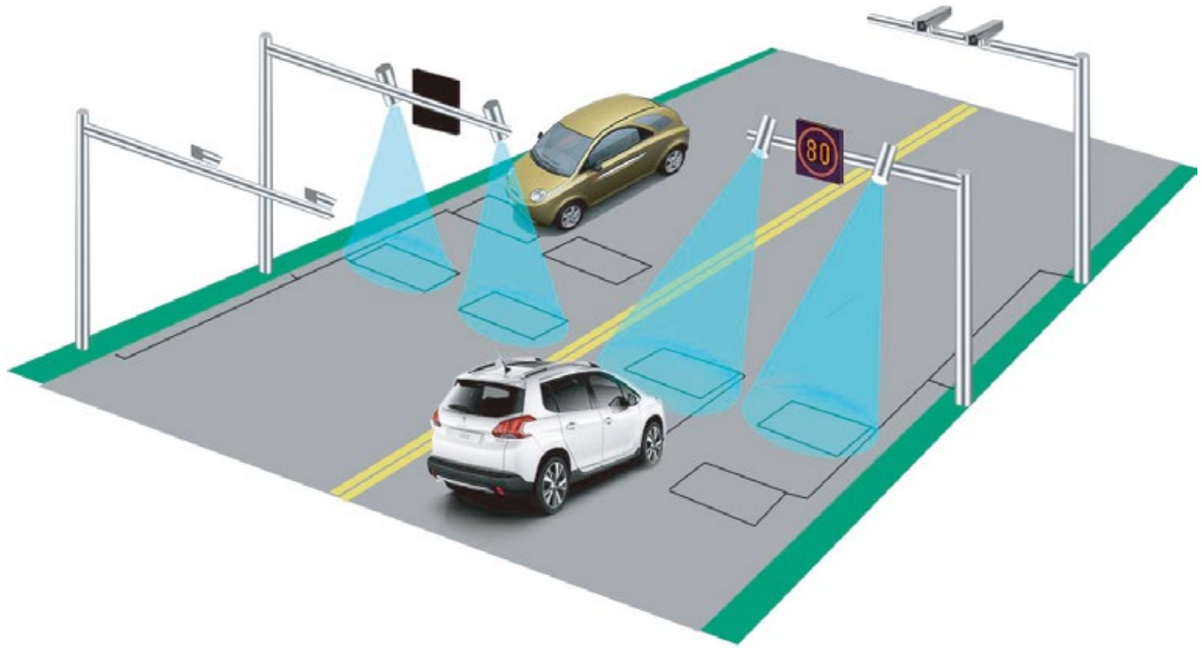








Speed Enforcement Real-Time Display Screen

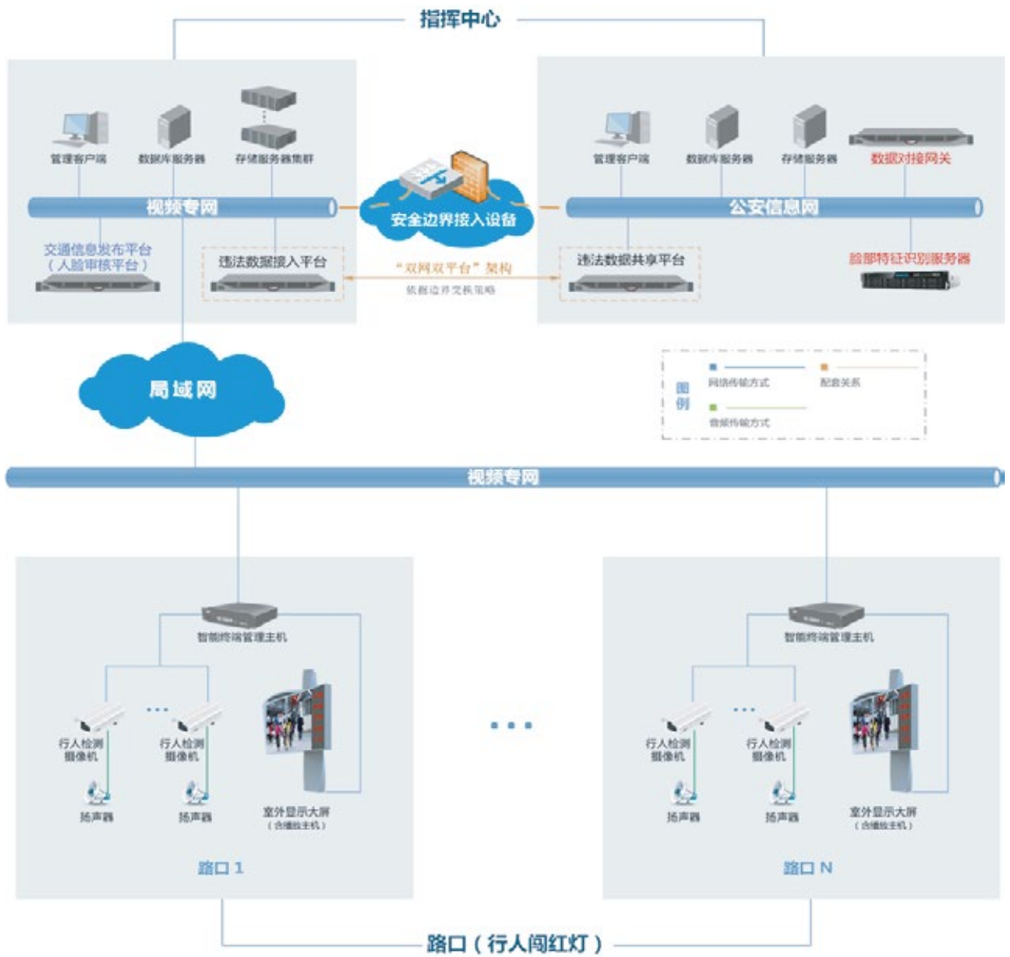




When a vehicle enters the detection range of the radar speed sensor (approximately 0m to 300m in front of the sign), the microwave radar automatically detects the vehicle's traveling speed and displays it on the LED display screen, providing the driver with a prompt to reduce speed. This effectively helps reduce traffic accidents caused by speeding.

Urban Intelligent Governance

Red-Light Violation Automatic Recording System



The Red-Light Violation Automatic Recording System consists of multiple components, including high-definition cameras, intelligent analysis software, a data analysis platform, and a behavior database. The system captures video and human faces, takes snapshots of red-light violators, extracts facial features, and transmits the data to a comprehensive facial information application system, enabling functions such as dynamic facial comparison and real-time alerting. A large display screen is installed at the intersection front-end to broadcast close-up photos of violators in real time, supplemented by voice prompts and audible warnings to deter and expose traffic violations.

行人闯红灯抓拍"神器"



On one hand, the system enhances urban traffic management—particularly by raising pedestrians' self-protection awareness and reducing pedestrian violations—thereby achieving safer and more harmonious urban road traffic.

On the other hand, through technical means such as big data analysis and data mining, the system can also provide urban management authorities with key information and indicators regarding traffic flow and urban traffic management, enabling targeted management and decision-making.

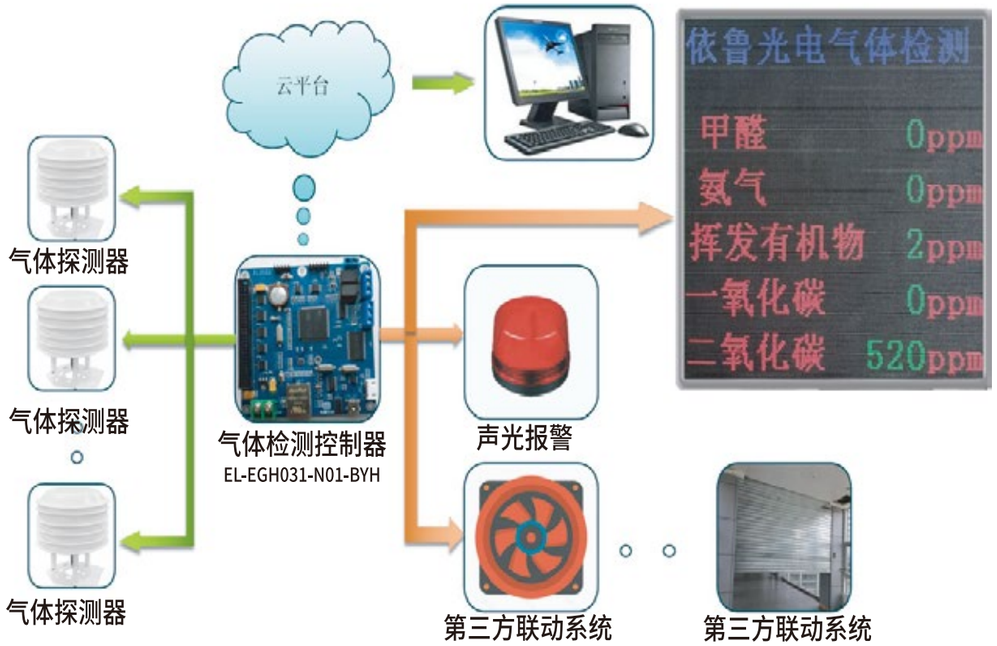
抓拍效果





The Pedestrian Red-Light Violation Traffic Management System plays a significant role in urban management. Additionally, the system can replace part of traffic police duties, enabling round-the-clock enforcement. Deploying this system at a city's core intersections can greatly improve road fluency and enhance urban management. Yilu Optoelectronics' Pedestrian Red-Light Violation Traffic Management System is already highly mature, having been deployed and installed in multiple cities. The system operates stably with demonstrable effectiveness, and has received recognition and endorsement from local traffic authorities.

Introduction to the Hazardous Gas Detection and Early Warning System for Special (or Enclosed/Semi-Enclosed) Space Environments



The Distributed Multi-Point Gas Detection, Analysis, Display, Warning, and Disposal System for Special (or Enclosed/Semi-Enclosed) Spaces is built upon Yilu Optoelectronics' self-developed dedicated environmental display control system EL2022-Q, in collaboration with professional environmental monitoring equipment manufacturers, and integrated with the company's proprietary special-space environmental management software . The system performs distributed multi-point, uninterrupted detection and analysis of hazardous gases in special (or enclosed/semi-enclosed) spaces. It provides on-site real-time display of current environmental data, automatically activates local alarm indicators upon detecting abnormal conditions, and uploads abnormal status and data to the management and control platform for alerts. Based on the severity of the alert, the system can autonomously determine whether to initiate automatic countermeasures, or it may be operated through manual intervention and control.

Application Scenarios: Underground parking lots, underground shopping malls, underground civil defense projects, various scientific research and experimental facilities, crowd-gathering venues, large warehouses, critical production facilities, and flammable/explosive enterprises.

产品特点

1. Based on a powerful ARM hardware platform, with 1M runtime memory and 16M storage capacity.
2. Equipped with input power reverse connection protection circuitry.
3. Supports ultra-large-area LED displays, with maximum load capacity: 512×256 pixels.
4. Supports monochrome and dual-color displays, multiple scanning modes, and custom scanning programs.
5. Onboard multiple communication interfaces, supporting RJ45, RS232, and RS485.
6. Supports brightness sensors and remote power on/off; features one ambient light input and one relay output.
7. Supports cloud-based publishing and management.
8. Supports multi-screen cluster management.
9. UV-resistant: constructed with high-quality UV-resistant materials that effectively block UV radiation, preventing premature aging and ensuring long service life.

10. Lightweight and compact: lightweight louvered enclosure with radiation shield, compliant with WMO standards; standard 6-tier design, adjustable upon request; equipped with waterproof PG7 cable gland for strain relief.
11. Rain/snow-proof exterior design: high-density waterproof housing with sealed rubber gaskets to protect the circuit board, providing excellent moisture protection.
12. High-quality 4-core data cable: ensures efficient data transmission and stable device operation.
13. High-precision sensors: employ electrochemical and catalytic combustion sensors, offering excellent sensitivity and repeatability.
14. High-accuracy measurement: features high-sensitivity probes and high-quality housing materials with strong anti-interference capability for more precise measurements.
15. High-performance signal acquisition circuitry: ensures stable signals and high accuracy.
16. Multi-gas integrated design: the multi-gas combined louver box is widely applicable for environmental monitoring, integrating multiple measurement parameters in one unit—powerful, safe, reliable, easy to install, and durable.
17. Detectable gas types: Oxygen (O), Carbon Monoxide (CO), Carbon Dioxide (CO), Hydrogen (H), Sulfur Dioxide (SO), Hydrogen Sulfide (HS), Methane (CH), Ammonia (NH), Ozone (O), Formaldehyde (CHO), and Total Volatile Organic Compounds (TVOC).
18. Operating voltage: AC220V, 50Hz.
19. Operating environment: temperature –10°C to +55°C, humidity 0–95% RH (non-condensing).

Early Warning Displays
– The Nerve Endings of Intelligent Transportation Systems







In recent years, with the acceleration of urbanization and the increasing complexity of traffic systems, the application of warning displays in the transportation sector has become increasingly widespread. As a product of the convergence of technology, policy, and social demand, warning displays are reshaping modern traffic governance models by delivering real-time road conditions, weather updates, and safety alerts, establishing themselves as indispensable "nerve endings" in the development of smart cities. Ranging from flood warning terminals and waterway alerts to overload enforcement warnings and intersection vehicle collision warnings, their functions cover multiple scenarios including vehicle alerts, congestion notifications, and accident broadcasts. Through differentiated designs tailored to highways, urban areas, and mountain roads, they build a three-dimensional traffic sensing network .

Flood Warning Display

Urban Flood Warning Displays and Systems are a critical technological solution for addressing extreme weather and urban waterlogging. The system uses IoT sensors to monitor real-time data including rainfall, river water levels, manhole liquid levels, and road water depth. Combined with meteorological forecasts and historical waterlogging models, it employs big data analytics to predict flood risks. When water levels at monitoring points exceed preset thresholds, the system automatically activates the warning mechanism, displaying real-time water levels, alert grades, and safety instructions via LED information displays to the public. Simultaneously, it coordinates with emergency management authorities to activate drainage pumping stations and adjust traffic signals as emergency response measures.



Product Parameters

Parameter	Specification
Pixel Pitch	10mm
Pixel Density	10,000 dots/m²
Pixel Configuration	1R1G
LED Encapsulation	DIP349
Display Color	Red, Green, Yellow (Red-Green Mixed)
Display Size	1280mm × 960mm
Display Resolution	128 dots × 96 dots
Scan Mode	1/4 Scan
Module Interface	**Hub12**
Viewing Angle	Horizontal ≥70°, Vertical ≥40°
Brightness	≥8000 cd/m²
Max. Power Consumption	≤260W
Avg. Power Consumption	≤80W
Control Method	Wired Network / Wireless 4G
Pixel Failure Rate	<0.0001, discretely distributed
Module Brightness Uniformity	>95%
Brightness Adjustment	Auto or Manual
MTBF	**≥10,000 hours**
Service Life	≥100,000 hours
Cabinet Material	Galvanized Steel Plate
Protection Rating	IP65
Operating Temperature	–40°C to +65°C
Operating Humidity	10 – 98%, no frost formation
Storage Temperature	–40°C to +70°C
Storage Humidity	10 – 98%, no frost formation
Installation Method	Single Pole-Mounted, Cantilever, Wall-Mounted
Power Supply	**Mains AC220V / Solar System**
Additional Features	Integrable with Voice, Flashing Light

Grade Crossing Warning System LED Display

The Grade Crossing Warning System LED Display is a critical device for intelligent traffic management, specifically designed for scenarios such as railway-highway grade crossings. Its core function is to use high-brightness LED display modules to show real-time vehicle passage status, speed limit signs, and safety warning messages—such as "Crossing Ahead, Reduce Speed"—effectively alerting drivers to exercise caution. The device employs dynamic scanning technology to ensure clear visibility even under strong light or adverse weather conditions. In addition, integrated with infrared or radar sensing technology, it can automatically detect approaching vehicles and trigger warning displays, enabling intelligent management.





Product Parameters

Parameter	Specification
Pixel Pitch	10mm
Pixel Density	10,000 dots/m²
Pixel Configuration	1R1G
LED Encapsulation	DIP349
Display Color	Red, Green, Yellow (Red-Green Mixed)
Display Size	**1280mm × 640mm**
Display Resolution	128 dots × 64 dots
Scan Mode	1/4 Scan
Module Interface	Hub12
Viewing Angle	Horizontal ≥70°, Vertical ≥40°
Brightness	≥8000 cd/m²
Max. Power Consumption	**≤200W**
Avg. Power Consumption	≤60W
Control Method	Wired Network / Wireless 4G
Pixel Failure Rate	<0.0001, discretely distributed
Module Brightness Uniformity	>95%
Brightness Adjustment	Auto or Manual
MTBF	**≥10,000 hours**
Service Life	≥100,000 hours
Cabinet Material	Galvanized Steel Plate
Protection Rating	IP65
Operating Temperature	–40°C to +65°C
Operating Humidity	10 – 98%, no frost formation
Storage Temperature	**– 40°C to +70°C**
Storage Humidity	10 – 98%, no frost formation
Installation Method	Single Pole-Mounted, Cantilever
Power Supply	Mains AC220V / Solar System
Additional Features	Integrable with Voice, Flashing Light, Radar

Overheight Warning LED Display



The Overheight Warning LED Display is a key device for intelligent transportation, specifically designed for height-restricted scenarios such as bridges and tunnels. Its core function is to monitor vehicle height in real time using LiDAR or ultrasonic sensors, combined with high-definition cameras for license plate recognition. Once an overheight vehicle is detected, the front LED display immediately shows red warning messages—such as "Overheight Restricted – Please Detour"—while simultaneously triggering voice announcements and SMS notifications to alert the driver to adjust their route in a timely manner.

Product Parameters

Parameter	Specification 1	Specification 2	Specification 3
Pixel Pitch	10mm	16mm	20mm
Pixel Density	10,000 dots/m²	3,906 dots/m²	2,500 dots/m²
Pixel Configuration	1R1G	2R1G	2R1G
LED Encapsulation	DIP349	DIP349	DIP349
Display Color	Red, Green, Yellow (Red-Green Mixed)	Red, Green, Yellow (Red-Green Mixed)	Red, Green, Blue (Red-Green Mixed)
Display Size	6400mm × 640mm	6400mm × 768mm	6400mm × 640mm
Display Resolution	640 dots × 64 dots	400 dots × 48 dots	320 dots × 32 dots
Scan Mode	1/4 Scan	Static Scan	Static Scan
Module Interface	Hub12	Hub12	Hub12
Viewing Angle	Horizontal ≥70°, Vertical ≥40°	Horizontal ≥70°, Vertical ≥40°	Horizontal ≥70°, Vertical ≥40°
Brightness	≥8000 cd/m²	≥8000 cd/m²	≥8000 cd/m²
Max. Power Consumption	≤900W	≤1000W	≤900W
Avg. Power Consumption	≤300W	≤320W/m²	≤300W
Control Method	Wired Network / Wireless 4G	Wired Network / Wireless 4G	Wired Network / Wireless 4G
Pixel Failure Rate	<0.0001, discretely distributed	<0.0001, discretely distributed	<0.0002, discretely distributed
Module Brightness Uniformity	>95%	>95%	>95%
Brightness Adjustment	Auto or Manual	Auto or Manual	Auto or Manual
MTBF	≥10,000 hours	≥10,000 hours	≥10,000 hours
Service Life	≥100,000 hours	≥100,000 hours	≥100,000 hours
Cabinet Material	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Protection Rating	IP65	IP65	IP65
Operating Temperature	– 40°C to +65°C	– 40°C to +65°C	– 40°C to +65°C
Operating Humidity	10 – 98%, no frost formation	10 – 98%, no frost formation	10 – 98%, no frost formation
Storage Temperature	– 40°C to +70°C	– 40°C to +70°C	– 40°C to +70°C
Storage Humidity	10 – 98%, no frost formation	10 – 98%, no frost formation	10 – 98%, no frost formation
Installation Method	Cantilever, Gantry	Cantilever, Gantry	Cantilever, Gantry
Power Supply	Mains AC220V / Solar System	Mains AC220V / Solar System	Mains AC220V / Solar System
Additional Features	Integrable with Voice, Flashing Light, Radar	Integrable with Voice, Flashing Light, Radar	Integrable with Voice, Flashing Light, Radar

Mountain Road Curve Oncoming Vehicle Warning LED Display

The Mountain Road Curve Oncoming Vehicle Warning LED Display is an intelligent safety device specifically designed for sharp curves on mountain roads. Integrating millimeter -wave radar, high-brightness LED displays, and wireless communication technology, it enables real-time detection and warning of oncoming vehicles around curves. When the radar detects a vehicle approaching within a 150-meter range, the LED display immediately shows red warning text, while simultaneously triggering voice announcements and red/blue flashing strobe lights, forming a "visual -audio-tactile" multimodal warning system that effectively mitigates collision risks caused by insufficient sight distance on mountain roads.



Product Parameters

Parameter	Specification
Pixel Pitch	10mm
Pixel Density	10,000 dots/m²
Pixel Configuration	1R1G
LED Encapsulation	DIP349
Display Color	Red, Green, Yellow (Red-Green Mixed)
Display Size	640mm × 2560mm
Display Resolution	64 dots × 256 dots
Scan Mode	1/4 Scan
Module Interface	Hub12
Viewing Angle	Horizontal ≥70°, Vertical ≥40°
Brightness	≥8000 cd/m²
Max. Power Consumption	≤360W
Avg. Power Consumption	≤120W
Control Method	Wired Network / Wireless 4G
Pixel Failure Rate	<0.0001, discretely distributed
Module Brightness Uniformity	>95%
Brightness Adjustment	Auto or Manual
MTBF	≥10,000 hours
Service Life	≥100,000 hours
Cabinet Material	Galvanized Steel Plate
Protection Rating	IP65
Operating Temperature	–40°C to +65°C
Operating Humidity	10 – 98%, no frost formation
Storage Temperature	–40°C to +70°C
Storage Humidity	10 – 98%, no frost formation
Installation Method	Single Pole-Mounted, Cantilever
Power Supply	Mains AC220V / Solar System
Additional Features	Integrable with Voice, Flashing Light, Radar

Waterway Warning LED Display

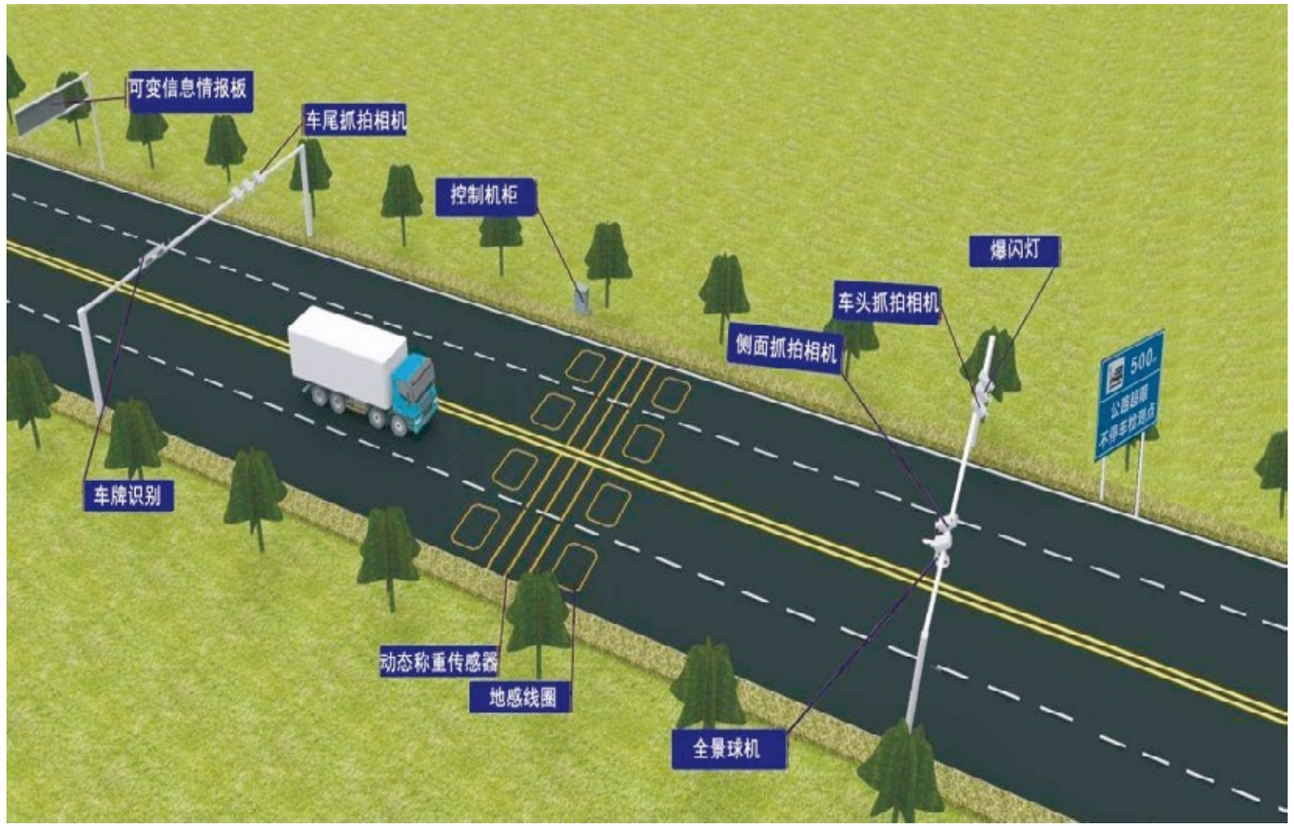
The Waterway Warning LED Display is an intelligent early-warning device specifically designed for waterway safety. Its core functions include: real-time hydrological monitoring and display. Through front-end sensing devices such as water level gauges and current meters, it collects real-time data on water levels, flow velocity, water temperature, and meteorological conditions from rivers, lakes, or waterways, and transmits the data via wireless or wired networks to the control center. The LED display presents information through high-brightness digital or graphical interfaces, ensuring clear visibility for vessel operators at long distances or under strong light conditions. For example, when the water level approaches the warning threshold, the screen will display " Water Level Exceedance – Proceed with Caution" in red text with simultaneous flashing alerts.



Product Parameters

Parameter	Specification 1	Specification 2	Specification 3
Pixel Pitch	10mm	16mm	20mm
Pixel Density	10,000 dots/m²	3,906 dots/m²	2,500 dots/m²
Pixel Configuration	1R1G	2R1G	2R1G
LED Encapsulation	DIP349	DIP349	DIP349
Display Color	Red, Green, Yellow (Red-Green Mixed)	Red, Green, Yellow (Red-Green Mixed)	Red, Green, Yellow (Red-Green Mixed)
Display Size	2560mm × 640mm	2560mm × 768mm	2560mm × 640mm
Display Resolution	256 dots × 64 dots	160 dots × 48 dots	128 dots × 32 dots
Scan Mode	1/4 Scan	Static Scan	Static Scan
Module Interface	Hub12	Hub08	Hub12
Viewing Angle	Horizontal ≥70°, Vertical ≥40°	Horizontal ≥70°, Vertical ≥40°	Horizontal ≥70°, Vertical ≥40°
Brightness	≥8000 cd/m²	≥8000 cd/m²	≥8000 cd/m²
Max. Power Consumption	≤360W	≤450W	≤360W
Avg. Power Consumption	≤120W	≤130W	≤120W
Control Method	Wired Network / Wireless 4G	Wired Network / Wireless 4G	Wired Network / Wireless 4G
Pixel Failure Rate	<0.0001, discretely distributed	<0.0001, discretely distributed	<0.0001, discretely distributed
Module Brightness Uniformity	>95%	>95%	>95%
Brightness Adjustment	Auto or Manual	Auto or Manual	Auto or Manual
MTBF	≥10,000 hours	≥10,000 hours	≥10,000 hours
Service Life	≥100,000 hours	≥100,000 hours	≥100,000 hours
Cabinet Material	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Protection Rating	IP65	IP65	IP65
Operating Temperature	–40°C to +65°C	–40°C to +65°C	–40°C to +65°C
Operating Humidity	10 – 98%, no frost formation	10 – 98%, no frost formation	10 – 98%, no frost formation
Storage Temperature	–40°C to +70°C	–40°C to +70°C	–40°C to +70°C
Storage Humidity	10 – 98%, no frost formation	10 – 98%, no frost formation	10 – 98%, no frost formation
Installation Method	Wall-Mounted, Cantilever, Gantry	Wall-Mounted, Cantilever, Gantry	Wall-Mounted, Cantilever, Gantry
Power Supply	Mains AC220V / Solar System	Mains AC220V / Solar System	Mains AC220V / Solar System
Additional Features	Integrable with Voice, Flashing Light, Radar	Integrable with Voice, Flashing Light, Radar	Integrable with Voice, Flashing Light, Radar

Off-Site Overload Enforcement







This system primarily consists of five major subsystems: the dynamic weighing subsystem, the high-definition license plate recognition subsystem (including license plate recognition cameras and rear-capture cameras), the information display and guidance subsystem, the vehicle width and height detection system, the data transmission subsystem, and the information management subsystem. Off-site overload enforcement represents a beneficial attempt to transition highway overload control from traditional methods to modern, intelligent enforcement. It serves as an effective supplement to existing overload control measures, efficiently addressing the "hollowing-out" issue in hinterland areas during overload monitoring. It provides robust support for round-the-clock supervision and cross-regional, cross-departmental joint enforcement, alleviating the pressure on mobile enforcement. Its precision-targeted service capability drives the modernization of comprehensive governance in the transportation industry.

Off-site overload enforcement is a new technology-based enforcement model for overload control. The system employs current weigh-in-motion (WIM) detection technology to monitor vehicles. Currently, WIM systems primarily use two types of sensors: piezoelectric film weighing sensors and quartz weighing sensors. Piezoelectric film sensors offer relatively longer service life and cause less pavement damage, and are suitable for both concrete and asphalt pavements. Quartz weighing sensors are relatively more stable but can only be used on concrete pavements.

Technical monitoring record—i.e., overweight electronic detection—refers to the practice of using automatic weighing and image capture equipment installed on key road sections to automatically detect, record, and capture the total vehicle weight, axle count, vehicle images, and video data of freight vehicles in motion.



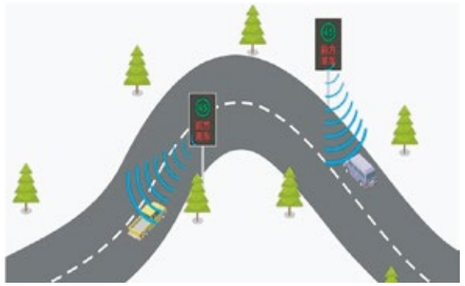
Off-Site Overload Enforcement



Product Parameters

Product Series	YDBZ Series	YDBZ Series	YDBZ Series	YDBZ Series
Pixel Pitch	10mm	10mm	20mm	20mm
Pixel Density	3,906 dots/m²	2,500 dots/m²	1,600 dots/m²	1,600 dots/m²
Pixel Configuration	1R1G, 2R1G, 1R1G1B	1R1G, 2R1G, 1R1G1B	2R1G, 1R1G1B	2R1G, 1R1G1B
Display Color	Full Color, Red/Green/ Yellow, Amber	Full Color, Red/Green/ Yellow, Amber	Full Color, Red/Green/ Yellow, Amber	Full Color, Red/Green /Yellow, Amber
Module Unit Size	320mm×160mm	320mm×160mm	320mm×160mm	320mm×160mm
Module Unit Resolution	32×16	38.4×19.2	16×8	19.2×9.6
Overall Screen Size	L 3.2m × H 1.6m	L 3.84m × H 1.92m	L 3.2m × H 1.6m	L 3.84m × H 1.92m
Overall Screen Resolution	320×160	384×192	160×80	192×96
Average Power	≤50W/m²	≤50W/m²	≤50W/m²	≤50W/m²
Maximum Power	≤300W/m²	≤300W/m²	≤300W/m²	≤300W/m²
Display Material	Red LEDs: Epistar chips; Pure Green & Blue LEDs: Silan chips. Red wavelength: 620nm – 630nm; Green wavelength: 520nm – 530nm			
Brightness	≥5,000 cd/m²			
Brightness Adjustment	256-level brightness control; Manual/Auto/Timed, remotely configurable			
Viewing Angle	≥70°			
Effective Viewing Distance	Dynamic recognition distance ≥220m, static ≥250m (at vehicle speed <120km/h, normal observer with corrected vision ≥1.0, within specified viewing angle)			
Wind Load Resistance	40m/s			
Pixel Failure Rate	<0.1%			
Drive Mode	Constant-current drive			
Communication Interface & Transfer Rate	RS232 or RS485, 2400bps – 115200bps; Ethernet 10M/100M auto-sensing			
Voltage	AC380V (or AC220V) ±10%, 50±3Hz			
Operating Temp. & Humidity	– 40°C to +65°C, 0 – 98%			
Grounding Resistance	Operating ground <4Ω; Lightning protection ground <10Ω			
Cabinet	Outdoor painted steel or aluminum alloy (optional); double-layer construction, wind-resistant, lightning-protected, corrosion-resistant, dustproof; Protection rating IP66			
Installation Method	Gantry-mounted, tunnel ceiling-suspended			

Oncoming Vehicle Warning System for Corner Intersections





Corner intersections have long been high-risk locations for traffic accidents. Adverse weather conditions (such as rain, snow, fog, and haze) and complex road situations (e.g., slippery roads and low visibility) can impair driver capability and judgment, thereby increasing the risk of collisions at intersections. Traditional traffic management approaches often rely on manual patrols and surveillance, which are inefficient and error-prone.

The Oncoming Vehicle Warning System for Corner Intersections is specifically designed to enhance traffic safety at intersections. By compensating for the sight distance of motor vehicle drivers, pedestrians, and non-motor vehicle users within the intersection area, the system reduces visual blind spots and mitigates safety hazards at grade crossings, offering significant value. It provides robust support to alleviate the pressure on mobile enforcement, enables precision-targeted services, and advances the modernization of comprehensive transportation industry governance.

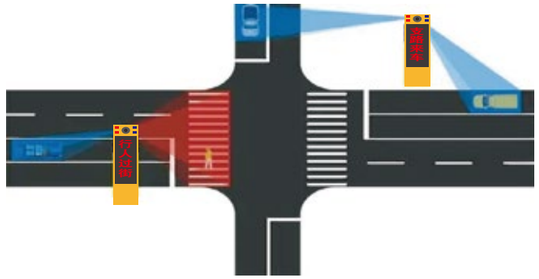


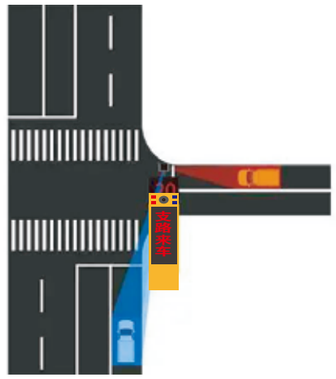
Product Parameters

Parameter	Specification 1	Specification 2
Pixel Pitch	10mm	16mm
Pixel Density	10,000 dots/m²	3,906 dots/m²
Pixel Configuration	1R1G	2R1G
LED Encapsulation	DIP349	DIP349
Display Color	Red, Green, Yellow (Red-Green Mixed)	Red, Green, Yellow (Red-Green Mixed)
Display Size	1920mm × 320mm	2048mm × 512mm
Display Resolution	192 dots × 32 dots	128 dots × 32 dots
Scan Mode	1/4 Scan	Static Scan
Module Interface	Hub12	Hub08
Viewing Angle	Horizontal ≥70°, Vertical ≥40°	Horizontal ≥70°, Vertical ≥40°
Brightness	≥8000 cd/m²	≥8000 cd/m²
Max. Power Consumption	≤120W	≤220W
Avg. Power Consumption	≤40W	≤70W
Control Method	Wired Network / Wireless 4G	Wired Network / Wireless 4G
Pixel Failure Rate	<0.0001, discretely distributed	<0.0001, discretely distributed
Module Brightness Uniformity	>95%	>95%
Brightness Adjustment	Auto or Manual	Auto or Manual
MTBF	≥10,000 hours	≥10,000 hours
Service Life	≥100,000 hours	≥100,000 hours
Cabinet Material	Galvanized Steel Plate	Galvanized Steel Plate
Protection Rating	IP65	IP65
Operating Temperature	–40°C to +65°C	–40°C to +65°C
Operating Humidity	10 – 98%, no frost formation	10 – 98%, no frost formation
Storage Temperature	–40°C to +70°C	–40°C to +70°C
Storage Humidity	10 – 98%, no frost formation	10 – 98%, no frost formation
Installation Method	Wall-Mounted, Cantilever, Gantry	Wall-Mounted, Cantilever, Gantry
Power Supply	Mains AC220V / Solar System	Mains AC220V / Solar System
Additional Features	Integrable with Voice, Flashing Light, Radar	Integrable with Voice, Flashing Light, Radar

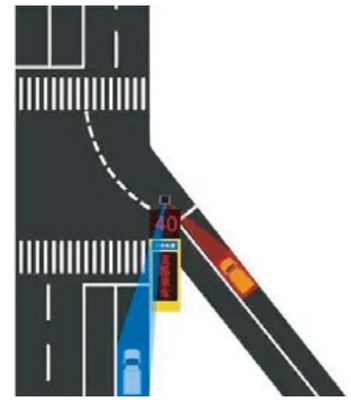
The primary application scenarios of this system include the following:

1. Intersection Warning: Compared with general road sections, grade crossings involve complex traffic characteristics due to turning movements that cause conflicts, merging, and diverging traffic flows, making them one of the most frequent sites for traffic accidents.

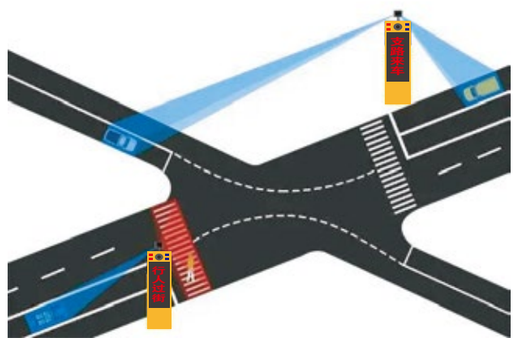




2. T-Junction Warning: As a common type of grade crossing between rural roads and national/provincial highways, T-junctions are typically formed where major roads intersect with county or township roads, or with service roads leading to enterprises, residential communities, villages, and other roadside developments. They are also one of the high-frequency sites for traffic accidents.



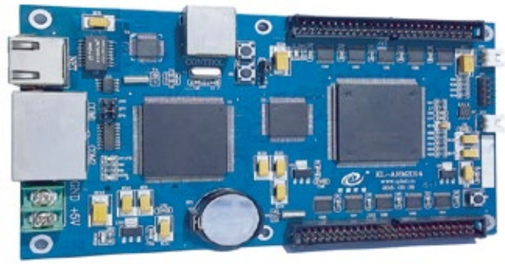
3. Y-Junction Warning: At Y-shaped intersections for by county/township roads and national highways, roadside greenery often obscures the view of adjace lanes, creating blind spots. Installing a warning syster such locations helps drivers anticipate oncoming conditions in advance.



4. X-Intersection Warning: Primarily deployed at junctions between small rural roads, village entrance roads, and main arterial highways (national roads). Such intersections often feature dense vegetation, obstructed visibility, limited internal space, inadequate sight distance, improper channelization, and a lack of corresponding traffic safety facilities, all of which contribute to a higher risk of traffic accidents.



Dedicated Control System for Traffic Guidance Displays – EL-ARM2017



Main Card



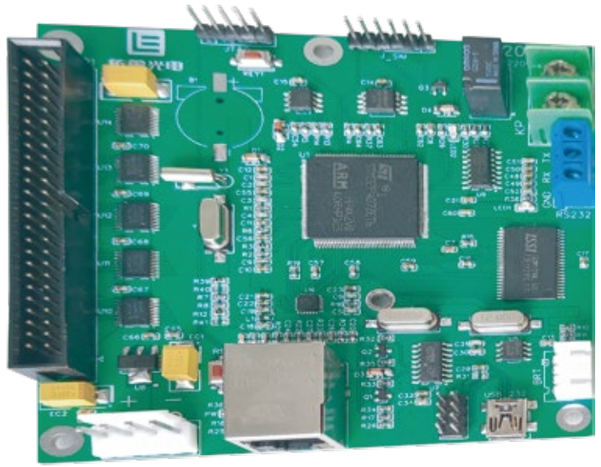
Auxiliary Card

The display control system and its management and control platform, independently developed by Elu Photoelectric specifically for traffic guidance displays (variable message signs), are fully proprietary in intellectual property. The system offers rich, precise, secure, and rapid information publishing capabilities with simplified operation, strong application specificity, and easy integration and management.

Key Features:

1. Industry-unique emergency cluster insertion technology enables urgent information such as road landslides or major traffic accidents to be inserted on top of the currently playing program during emergency notifications, significantly improving response efficiency.
2. Program read-back and screenshot functions support current program playback read-back, all-played-program read-back, and an industry-unique online real-time screenshot read-back function. Playback effects can be viewed in the preview window, ensuring information security and validity while preventing operational errors.
3. Built-in preset fixed information entries (no fewer than 100), displayed in rotation as a playlist. Supports both multi-page cyclic display and single-page immediate display. Playback and switching can be triggered via the control center, on-site remote control, or other devices, and also supports linkage with external equipment such as traffic lights.
4. Timed program playback allows programs to be scheduled for playback during designated time periods.
5. Separation of guidance and promotional information enables independent transmission of guidance and promotional content without mutual interference, improving program delivery efficiency.
6. Fast program response: the control system uses a 32-bit processor with 256MB memory, achieving response to commands and programs from the management platform within 1 second.
7. Encrypted wireless communication ensures accurate and reliable data transmission while eliminating on-site cabling complexities, making information publishing secure and controllable.
8. Programs can be sent via command-word transmission, resulting in small data payloads, fast response, and simplified program editing.
9. Automatic dimming based on received ambient light levels prevents light pollution in low-light conditions and enhances energy efficiency and environmental protection.
10. Display self-diagnosis and reporting function: detects pixel failures, module faults, ribbon cable issues, etc., and reports fault causes to the control platform.
11. oad capacity: 1024×512 pixels, applicable to monochrome and dual-color displays, covering the load requirements of traffic guidance displays (variable message signs) across various specifications.

Smart Parking Guidance Cloud Control System – EL2022



The display control system and cloud-service-based management and control platform developed by Elu Photoelectric specifically for Tier-1, Tier-2, and Tier-3 parking guidance displays are custom-engineered to address the market application characteristics of current urban and scenic area parking guidance displays.

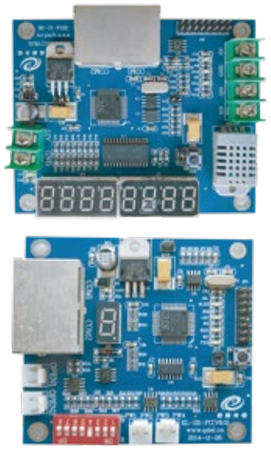
Product Features

1. Based on a powerful ARM hardware platform, with 1M runtime memory and 16M storage capacity.
2. Supports ultra-large-area LED displays, with maximum load capacity: 512×256 pixels.
3. Supports monochrome and dual-color displays, multiple scanning modes, and custom scanning programs.
4. Onboard multiple communication interfaces, supporting RJ45, RS232, and RS485.
5. Onboard standard 50-pin general-purpose interface output.
6. Supports brightness sensors and remote power on/off; features one ambient light input and one relay output.
7. Supports multi-program, multi-zone display, including dynamic zone display.
8. Supports cloud-based publishing and management.
9. Supports multi-screen cluster management.
10. Supports subtitles, graphics, time, countdown, and other functions.
11. Supports preset program scheduling.
12. Supports remote online firmware updates.
13. Equipped with an EL-4G module for wireless 4G communication, supporting full-network compatibility (China Telecom/Unicom/Mobile).
14. The EL-4G module uses a data SIM or IoT SIM card; card slot type: Micro SIM, card dimensions: 15×12mm.
15. Supports both static IP binding and domain name binding for wireless 4G communication.
16. Input voltage: DC 4.8 – 5.2V.
17. Operating temperature: –40°C to +80°C.

Display Screen Operating Environment Monitoring and Control System – EL-SE-MC



Main Card



Auxiliary Card

The LED Display Screen Operating Environment Monitoring and Control System is developed to ensure the safe and reliable operation of LED display projects that are often left unattended. It is a custom-designed intelligent management and control system by Elu Photoelectric tailored for the reliable and safe operation of traffic guidance displays (variable message signs) and large outdoor commercial displays. The system is organically composed of a main control card, multiple auxiliary function cards, and management and control software. It monitors the status of every link critical to the normal operation of the display—particularly those prone to faults—and automatically executes emergency countermeasures in response to sudden severe conditions.

Key Features:
1. The display is a high-power device whose service life is significantly affected by temperature and humidity. The system employs distributed multi-point temperature and humidity sensing. When localized or overall temperature/humidity inside the cabinet exceeds preset thresholds, the system automatically activates corresponding cooling and dehumidification equipment—either locally or globally—until normal values are restored.
2. As a high-power installation, the fire risk arising from aging wiring poses a constant threat to display safety. The system employs multi-point autonomous smoke detection within the cabinet, issues early warnings upon detecting abnormal conditions, and automatically cuts off the display's main power supply.
3. The display contains numerous switching power supplies that convert 220V AC to stable low-voltage DC to power the display modules. Any voltage instability or failure in these power supplies directly causes abnormal display performance. The system provides voltage monitoring and abnormal alarm functionality for all switching power supplies within the display.
4. The system utilizes ambient light sensors to detect changes in environmental brightness and automatically adjusts the display brightness accordingly.
5. Monitors communication status between the display and the management and control platform, and issues alerts in case of abnormal communication.
6. Monitors the status of cabinet doors and access doors to the display enclosure and issues alarms, ensuring display security.
7. Detects the AC supply voltage status of the display and issues warnings.