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Os sistemas de telegestão para iluminação pública são tecnologias avançadas que permitem o controle remoto e a gestão inteligente da rede de iluminação de uma cidade ou área urbana. Esses sistemas utilizam tecnologias de comunicação, sensores e software para monitorar, controlar e otimizar o funcionamento das luminárias, trazendo diversos benefícios tanto para os gestores públicos quanto para a população.

Como Funciona um Sistema de Telegestão para Iluminação Pública?

Infraestrutura de Comunicação

Os postes de iluminação são equipados com dispositivos de comunicação, como módulos de rádio, celular (4G/5G), ou redes sem fio (LoRaWAN, ZigBee, etc.), que permitem a transmissão de dados entre as luminárias e um sistema central.

Sistema de Gestão Centralizado

Um software central coleta dados em tempo real de todas as luminárias, permitindo o monitoramento e o controle remoto. Esse sistema pode ser acessado por meio de uma interface web ou aplicativo.

Controladores Inteligentes

Cada luminária é equipada com um controlador inteligente que regula a intensidade da luz, monitora o consumo de energia e detecta falhas.

Sensores e Automação

Sensores de movimento, luminosidade e outras variáveis ambientais podem ser integrados ao sistema para ajustar automaticamente a iluminação conforme a necessidade (por exemplo, diminuir a intensidade da luz em horários de menor movimento).

Benefícios dos Sistemas de Telegestão para Iluminação Pública

Eficiência Energética

A capacidade de ajustar a intensidade da luz conforme a necessidade (diminuição em horários de menor movimento, por exemplo) reduz significativamente o consumo de energia, podendo gerar economias de até 50-70%.

Redução de Custos Operacionais

A detecção automática de falhas e a gestão remota diminuem a necessidade de equipes de manutenção para inspeções manuais, reduzindo custos com deslocamento e reparos.

Melhoria na Manutenção

O sistema alerta os gestores sobre falhas ou problemas nas luminárias, permitindo uma resposta rápida e eficiente. Isso aumenta a vida útil das lâmpadas e reduz o tempo de inatividade.

REPRESENTANTE EXCLUSIVO

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Benefícios dos Sistemas de Telegestão para Iluminação Pública

Sustentabilidade Ambiental

A redução no consumo de energia e a otimização do uso de recursos contribuem para a diminuição da pegada de carbono, alinhando-se a políticas de sustentabilidade.

Segurança Pública

A iluminação adequada e ajustável conforme as condições de tráfego e movimento contribui para a segurança de pedestres e motoristas, além de inibir a criminalidade.

Personalização e Flexibilidade

O sistema permite programar diferentes cenários de iluminação para diferentes áreas ou horários, atendendo às necessidades específicas de cada local.

Dados e Analytics

O sistema coleta dados em tempo real sobre o consumo de energia, status das luminárias e condições ambientais, fornecendo insights valiosos para a gestão urbana.

Integração com Outros Sistemas

A telegestão pode ser integrada a outras soluções de cidades inteligentes, como sistemas de monitoramento de tráfego, segurança pública e gestão de energia

Exemplos de Aplicação

Dimming (Regulação de Intensidade):
Reduzir a intensidade da luz em horários de menor movimento, como durante a madrugada.

Monitoramento em Tempo Real:
Identificar falhas instantaneamente, como lâmpadas queimadas ou problemas elétricos.

Iluminação Adaptativa:
Ajustar a iluminação conforme a presença de pedestres ou veículos, detectada por sensores.

Gestão de Tarifas:
Monitorar o consumo de energia para otimizar contratos com concessionárias de energia elétrica.

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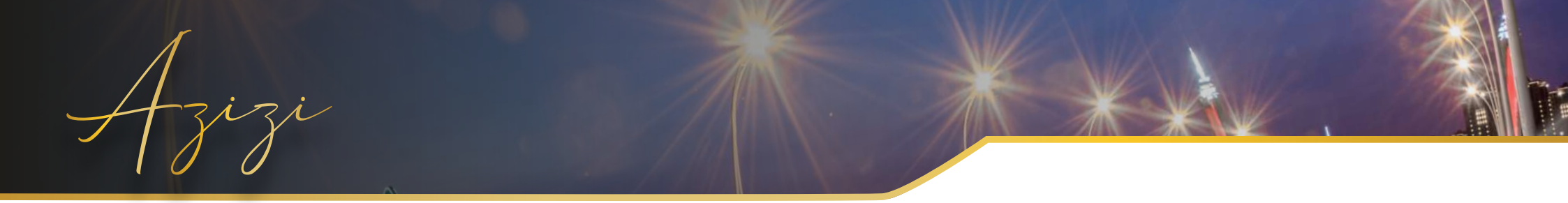


Desafios e Considerações

Investimento Inicial

A implantação de um sistema de telegestão requer um investimento inicial significativo em infraestrutura e tecnologia.

Integração com Infraestrutura Existente

Em cidades com redes de iluminação antigas, pode ser necessário modernizar a infraestrutura para suportar a telegestão.

Segurança de Dados

Como o sistema depende de comunicação de dados, é essencial garantir a segurança contra ciberataques.

Conclusão

Os sistemas de telegestão para iluminação pública representam um avanço importante na gestão urbana, oferecendo benefícios como economia de energia, redução de custos, maior segurança e sustentabilidade.

Com a crescente adoção de tecnologias de cidades inteligentes, esses sistemas tendem a se tornar cada vez mais comuns, transformando a maneira como as cidades gerenciam seus recursos e serviços públicos.

REPRESENTANTE EXCLUSIVO

Single Light Controller NEMA Interface

- **Optional Wireless Communication:**：LTE Cat1, Zigbee, NB-IoT

- **Remote Functions:** Includes remote on/off, dimming, AC power metering, cloud timing, and local timing switches.

- **Dimming Interfaces:** Features 0-10V and PWM dimming interfaces (DALI single-line dimming available upon customization).

- **Optional Features:** GPS positioning, light control, light pole tilt alarm, and more.

- **Easy Installation:** Standard NEMA rotary buckle type 7 PIN interface, IP65 waterproof grade for outdoor applications.

Product Name	NEMA NB-IoT Controller	NEMA Cat1 Controller	NEMA Zigbee Controller
Product Number	TY-NBLC01-AC	TY-C1LC01-AC	TY-ZBLC01G-AC
Protocol	NB-IoT	Cat1	Zigbee
Interface	NEMA interface (84mm x 98mm)		
Input Voltage	AC 96-264V,50-60Hz		
Input Current	≤2A@AC220V		
Output Signal	either 0-10V or PWM, DALI dimming needs to be customized		
Major Function	Remote switching, dimming, timing, GPS, light control, AC power metering, etc		

REPRESENTANTE EXCLUSIVO

Tuya Streetlight Features

- NB-IoT, LTE Cat.1, or LTE CatM;
- Compatible with **0-10V, PWM dimming**, optional customization for DALI dimming;
- **Remote** switching, dimming, individual lamp control, group control, and other functions;
- High-precision **data acquisition and monitoring** such as illuminance, temperature, humidity, latitude, and longitude;
- Data statistics functions such as **current, voltage, power, energy, frequency, power factor, and operating time**;

- Various **fault reporting** including current, voltage, power, frequency, power factor, etc.;
- **Photosensitive switch**, automatically controls light switching based on differences in ambient light intensity;
- **Local RTC (Real-Time Clock) scheduling**, automatically executes local device configuration strategies in case of network failure or no network access;
- **Power-off memory**, automatically stores and recalls user-set parameters after device power loss and restart;
- **Standard NEMA and ZHAGA** interfaces for plug-and-play use, supports installation registration through **scanning network configuration.**

REPRESENTANTE EXCLUSIVO

Cellular street lamp software capability light control switchtlight

Light-sensing setting UI design

- Photosensitive sensor to detect the difference of environmental light intensity, to realize the automatic switch function of street lamp;

- When the light control function is turned on, the threshold of light control can be set through the UI terminal, that is, when the light control threshold set by the ambient illumination value>, the lamp will be automatically turned off, otherwise, the lamp will be automatically turned on;

Optical control switch function UI design

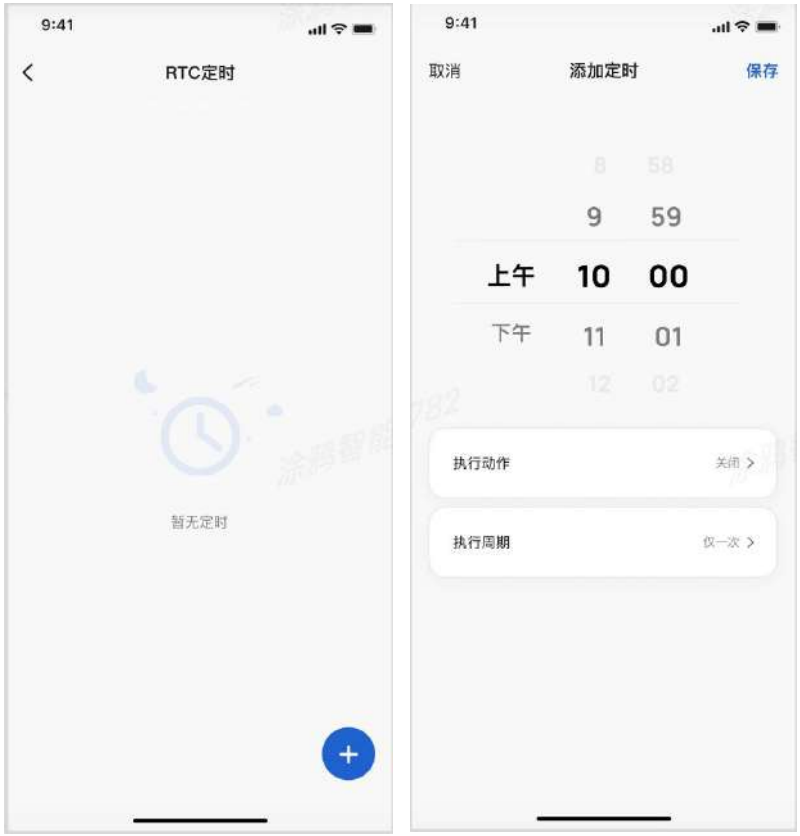
- The single device UI terminal can set the light control command to issue, and the group UI terminal can also use the light emitting control command to all the group devices through the group panel, providing users with a very convenient debugging and construction mode;

REPRESENTANTE EXCLUSIVO

Cellular street lamp software capability for RTC timing

Local timing control for the off-grid state

- When the device is connected with a network connection, the device can still perform the timing task normally, even if the application scenario is offline.

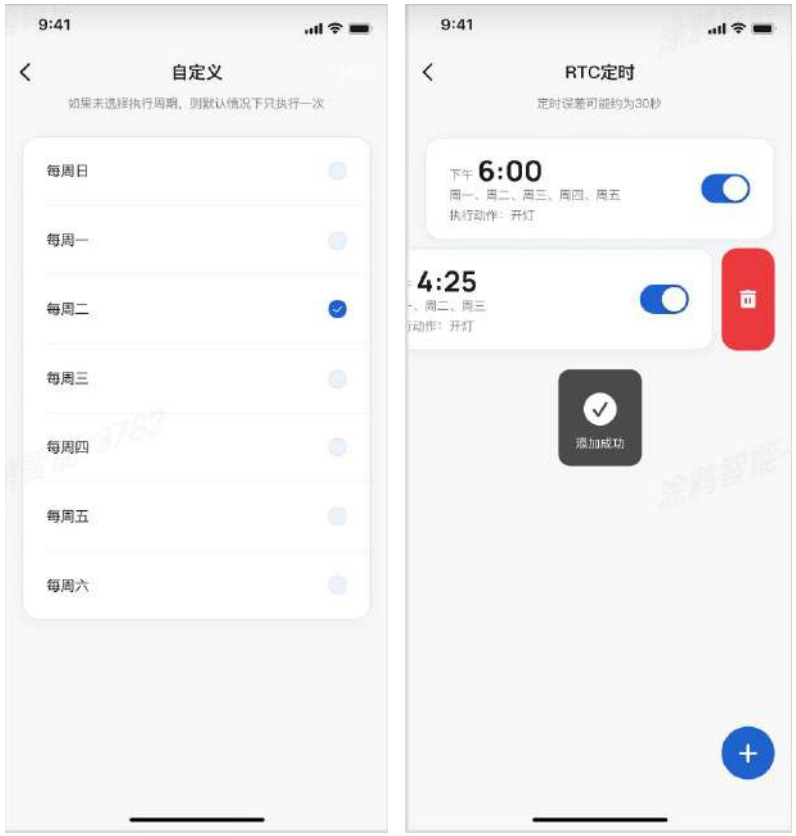


The RTC timing function UI design

Flexible and powerful Timed task capability

- Local devices can store up to 10 timed tasks to better meet the automation control requirements of differentapplication scenarios.

- Regular control repeat cycle supports automatic execution at single, daily and weekly latitude, which greatly reduces labor costs and improves the efficiency of operation and maintenance.



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Cellular street lamp software capability
Power quantity statistics & fault reporting

Power statistical function

- Realize the data collection and display function of 7 parameters including current, voltage, power, electric quantity, frequency, power factor and operation time;
- Adopt high-precision data collection hardware scheme to meet the national industry standard of electricity meter measurement;

Power quantity statistics & fault reporting Functional UI design

Fault reporting function

- Realize the abnormal reporting and display function of 5 parameters including current, voltage, power, frequency and power factor;
- When the abnormality occurs, the UI panel indicates the fault, and when the abnormality is removed, the UI panel returns to normal;

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Cellular street lamp software capability and function monitoring

Implement the data acquisition and display functions of five parameters including illumination, temperature, humidity, longitude and latitude:

Functional monitoring function UI design

Latitude:
Based on the base station of cellular operators, the equipment latitude data is reported

Longitude:
Based on the base station of the cellular operator, realize the equipment longitude data reporting

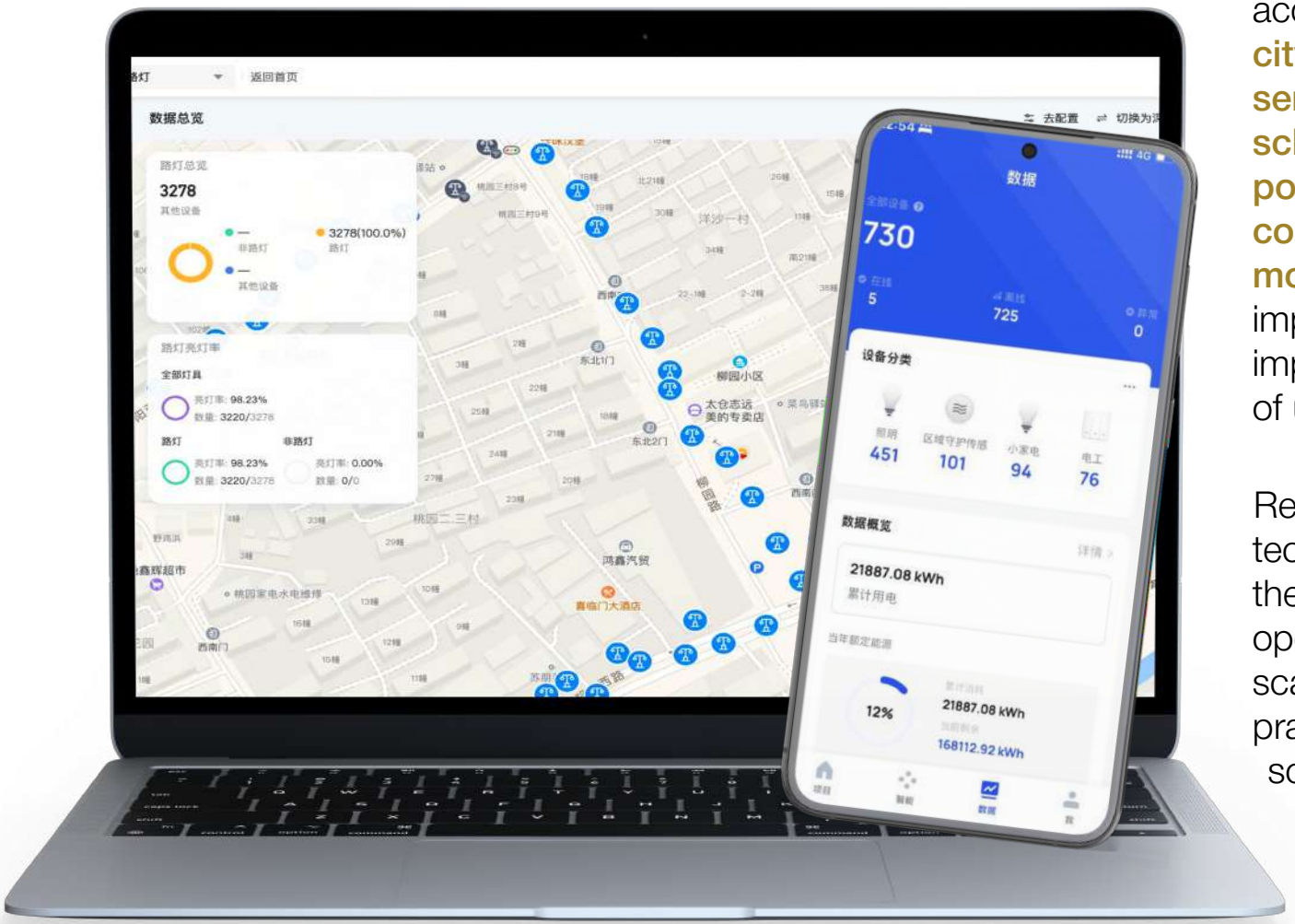
Temperature:
Report the equipment temperature data through the external temperature sensor

Illuminance:
Through the external photosensitive sensor

Humidity:
Through the external humidity sensor

REPRESENTANTE EXCLUSIVO

Intelligent street lamp system management platform



Tuya intelligent lighting SAAS management platform using data acquisition technology, combined with **city map geographic information GIS services**, urban street lamp facilities **schedule control, group control, point and other means of effective control, realize remote centralized monitoring**, to save electricity and improve the efficiency of operations, improve the modern management level of urban lighting facilities.

Relying on the integration of high technology, combined with the reality, the system has standardization, openness, universality, stability and scalability. It provides a powerful and practical means for the control, scheduling, planning and decision-making of the city street lamp.

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Centralized management

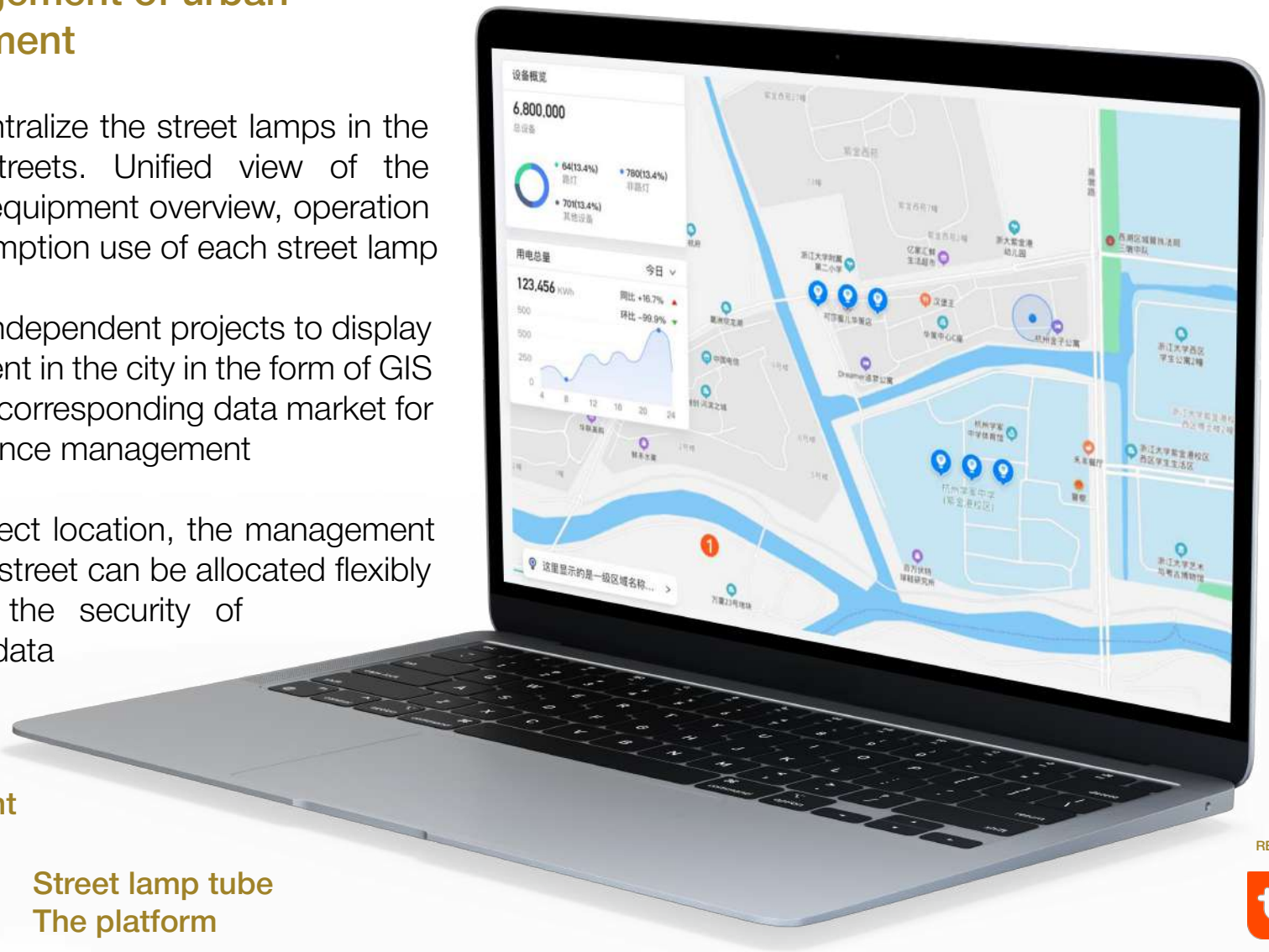
Centralized management of urban street lamp equipment

• Use a platform to centralize the street lamps in the city by areas and streets. Unified view of the geographical location, equipment overview, operation data and energy consumption use of each street lamp

• Each city can set up independent projects to display the street lamp equipment in the city in the form of GIS map. And generate the corresponding data market for operation and maintenance management

• According to the project location, the management authority of each area / street can be allocated flexibly and freely to ensure the security of system control and data query.

Street lamp area

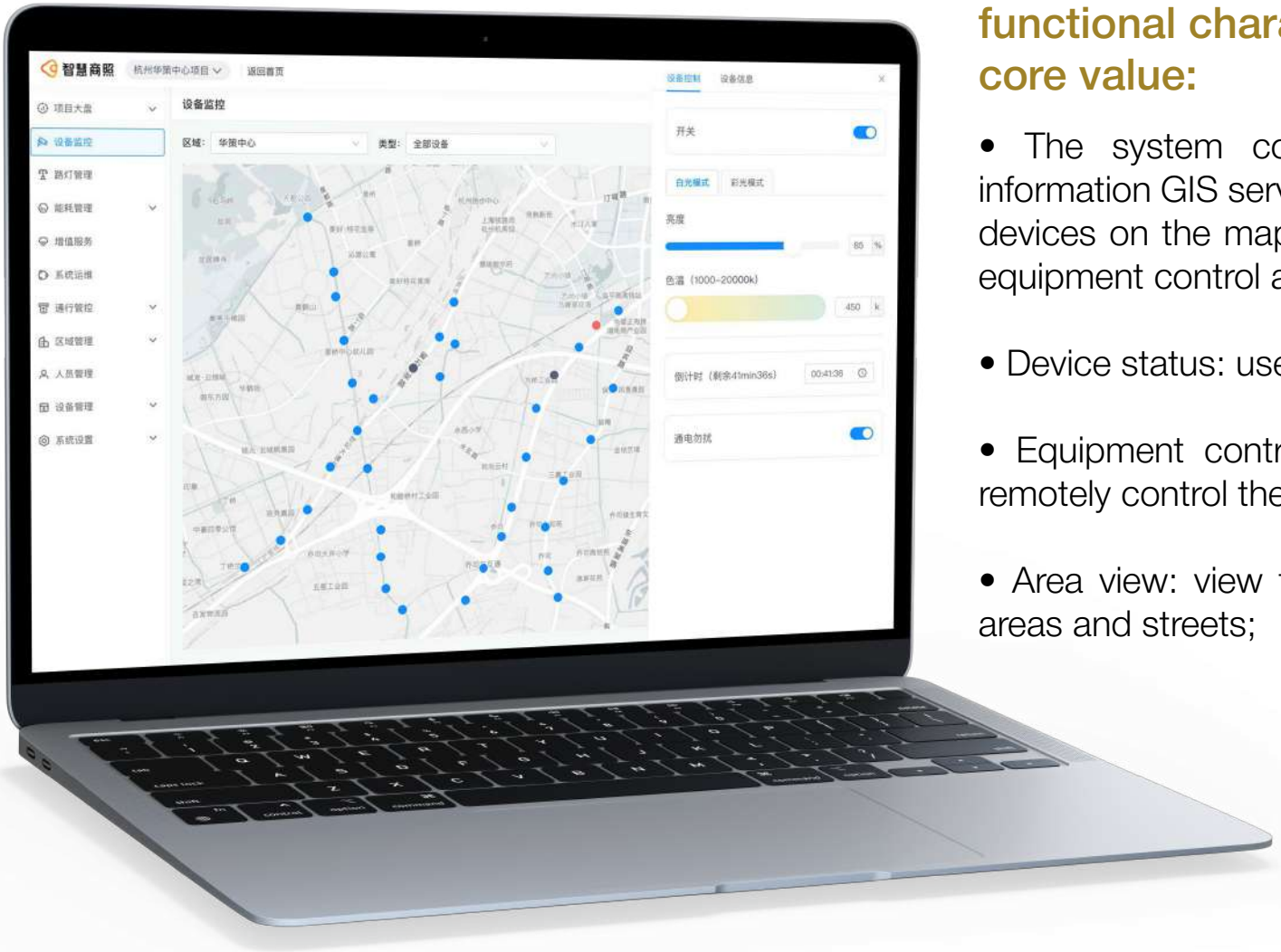


Centralized management

Street lamp tube
The platform

REPRESENTANTE EXCLUSIVO

Equipment monitoring



functional characteristics:
core value:

- The system combines the city map geographic information GIS service to display the display collection of devices on the map. Realize the equipment status view, equipment control and other functions

- Device status: use color to mark device status;

- Equipment control: Click on the equipment icon to remotely control the equipment;

- Area view: view the equipment according to different areas and streets;

Device status control

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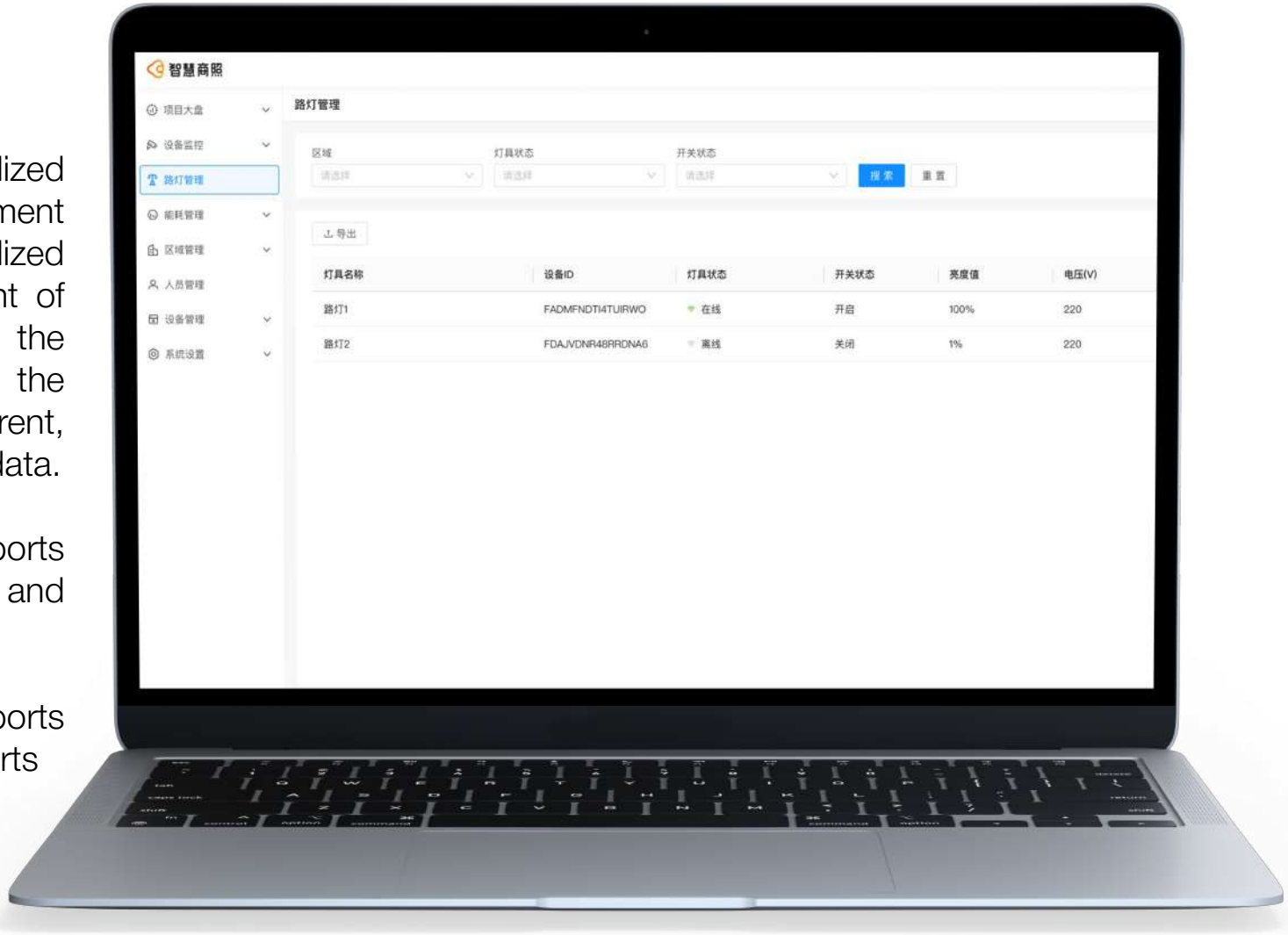
Street lamp management

Centralized equipment management

•The system can realize the centralized management of street lamp equipment under the project, and the centralized real-time and remote management of equipment status. Such as the equipment in the offline state, the current brightness, voltage, current, electricity consumption and other data.

•Equipment management supports viewing equipment status by region and status.

•Equipment management supports one-click export of equipment reports according to the region and equipment.



Device management

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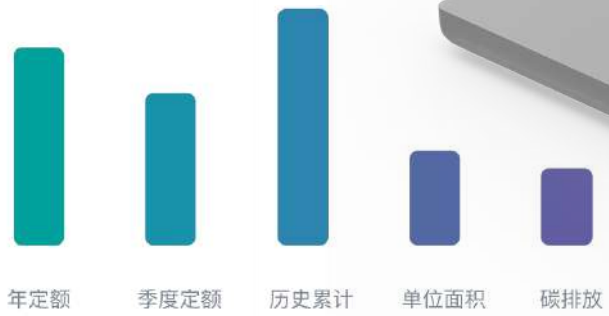
Energy consumption management

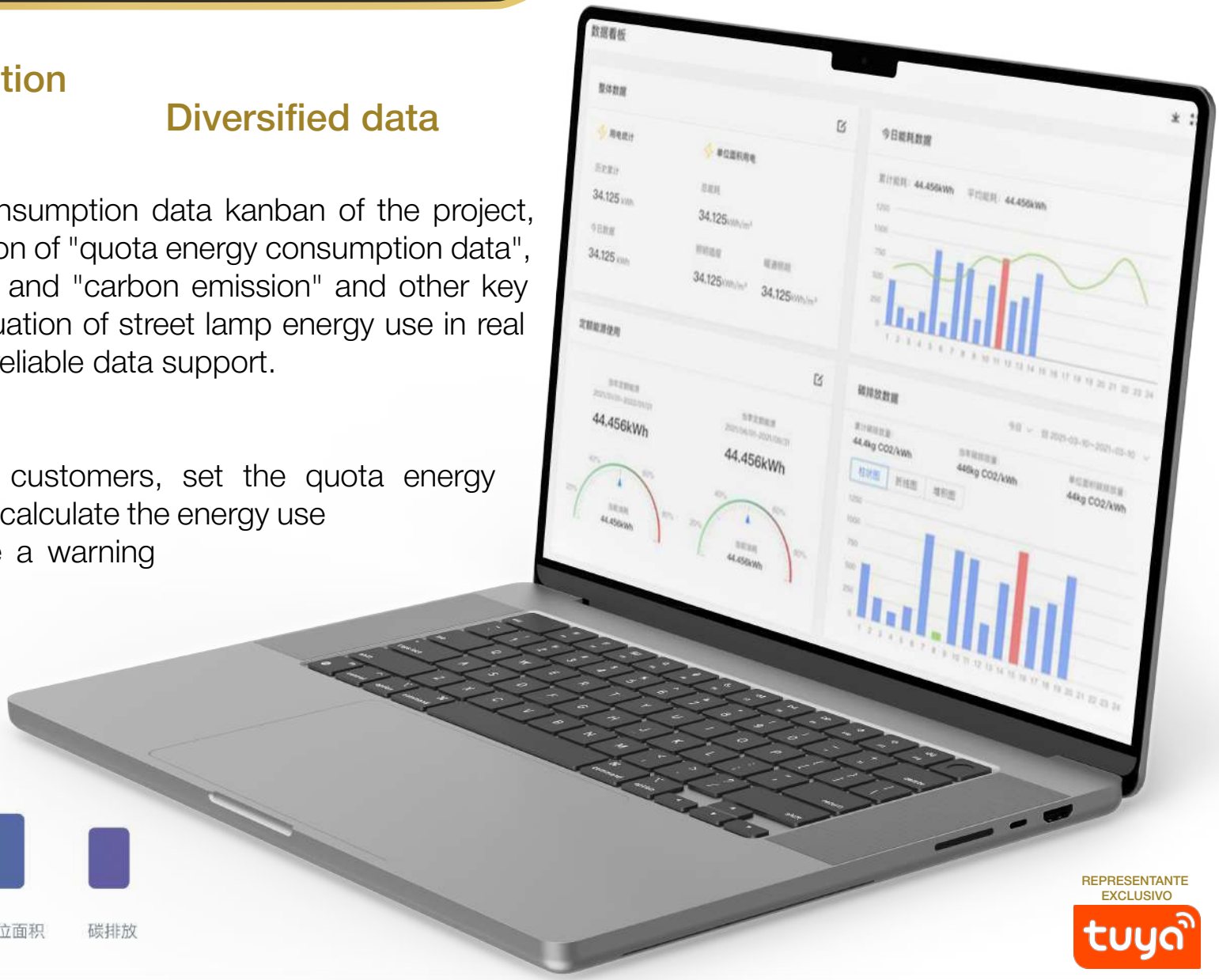
Project energy consumption Dashboard

Diversified data

The comprehensive energy consumption data kanban of the project, through the dynamic presentation of "quota energy consumption data", "regional energy consumption" and "carbon emission" and other key data, can grasp the current situation of street lamp energy use in real time and provide effective and reliable data support.

Based on the actual use of customers, set the quota energy consumption data, dynamically calculate the energy use statusof the energy, and issue a warning when the energy is overspeed.



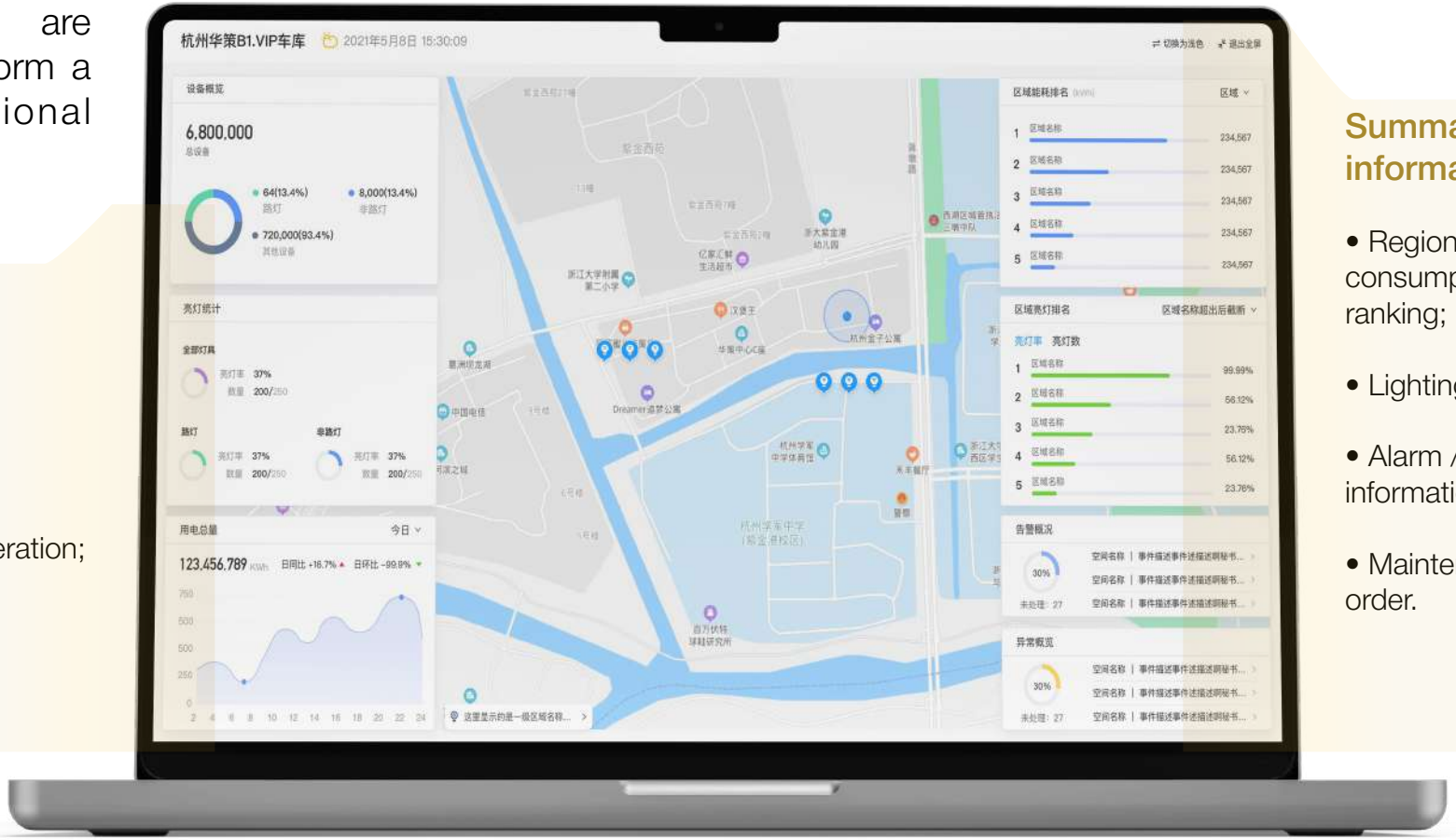


REPRESENTANTE EXCLUSIVO

Visualize the data market

Through comprehensive data monitoring, the number of equipment starts, power consumption, equipment operation and maintenance information in each area and each section of the project are integrated to form a multi-dimensional data display.

Effectively solve the problems of "difficult global data display" and "difficult operation decision-making" in street lamp management.



Equipment overview statistics:

- Light rate;
- Equipment operation;
- Total electricity consumption statistics.

Summary of key information:

- Regional energy consumption ranking;
- Lighting rate ranking;
- Alarm / exception information;
- Maintenance work order.

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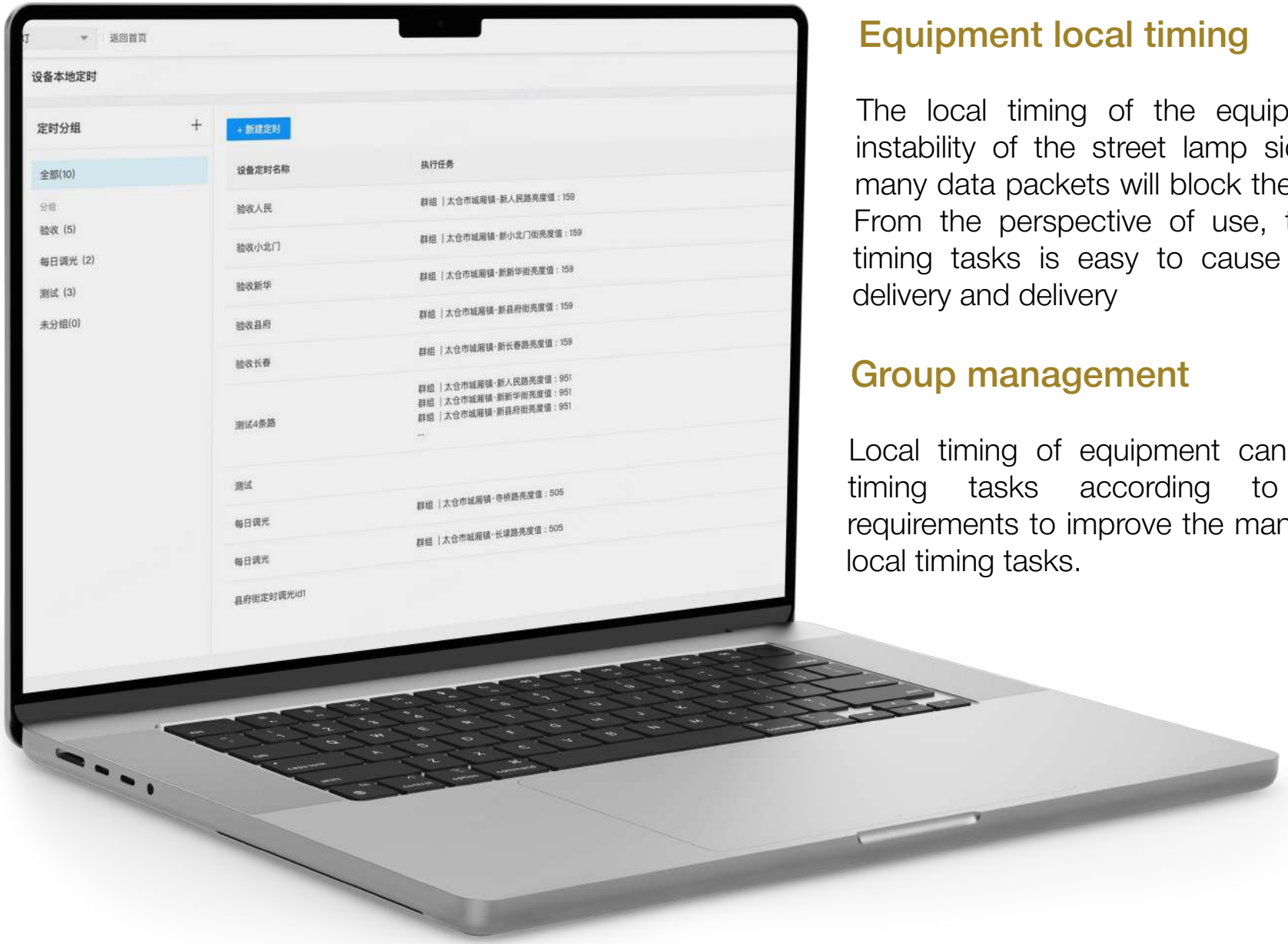
Equipment local timing



Equipment local timing

The local timing of the equipment can solve the instability of the street lamp side network, and too many data packets will block the street lamp network. From the perspective of use, the delivery of cloud timing tasks is easy to cause the failure of timing delivery and delivery

Group management

Local timing of equipment can group and manage timing tasks according to the management requirements to improve the management efficiency of local timing tasks.

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Efficient operation and maintenance

Active alarm

•The system detects the running status of the equipment, and automatically sends abnormal information in the form of SMS or station letter or GSM SMS;

•Manage the remaining use time of the equipment. When the equipment is near replacement, the system sends a replacement reminder in advance.

Maintenance

•The system automatically transfers the equipment failure and equipment replacement to the repair work order.

•The administrator can send maintenance tasks to the operation and maintenance personnel through SaaS to manage the equipment maintenance progress;

•You can check the equipment loss of all street lights, spare parts can be purchased in advance.

Speed replacement

•Supports one-click migration of original device configuration data to new devices on the SaaS side, so that device replacement does not require field configuration.

"Alarm" - "Work Order" - "Replace" to form a complete equipment maintenance link

REPRESENTANTE EXCLUSIVO

NEMA interface controller
Street lamp

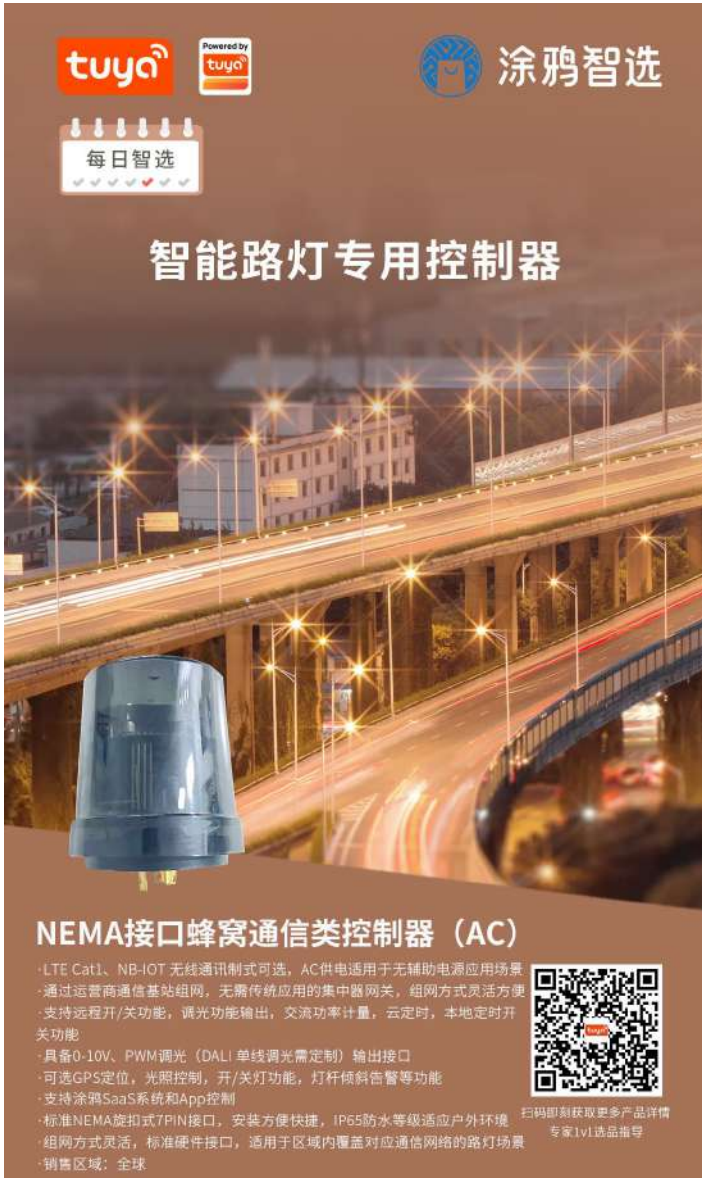
Features:

•LTE Cat1, Catm, NB-IOT 3 wireless communication systems are optional, AC power supply is suitable for the application of no auxiliary source output.

•Through the operator communication base station networking, without the traditional application of the concentrator gateway, the networking mode is flexible and convenient.

•It has remote on and off function, dimming function output, AC power metering, cloud timing and local timing switch functions.

•With 0-10V, PWM dimming (DALI single line dimming needs to be customized) output interface.



•Optional GPS positioning, light control on and off the light function, light pole tilt alarm and other functions.

•Support for doodle Saas system and APP control.

•Standard NEMA rotary buckle type 7 PIN interface, convenient and fast installation, waterproof grade IP65 is suitable for outdoor applications.

•The networking mode is flexible, and the standard hardware interface is suitable for the street lamp applications in the area covered by the corresponding communication network.

REPRESENTANTE EXCLUSIVO
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product name	NEMA NB Single lightcontroller	NEMA Cat1 Single lightcontroller
product model	TY-NBLC01-AC	TY-C1LC01-AC
Communication system	NB-IOT	Cat1
interface standard	NEMA joggle(Bottom: 84mm * 98mm high)	NEMA interface (bottom 84mm*98mm)
input voltage	AC 96-264V,50-60Hz	AC 96-264V ,50-60Hz
load current	≤2A@AC220V	≤2A @AC220V
output signal	0-10V or PWM, either the DALI dimming needs to be customized	0-10V or PWM, either of the two The DALI dimming needs to be customized
major function	Remote switching, dimming, timing, GPS, light control, AC power metering, etc	Remote switching, dimming, timing, GPS, light control, AC power metering, etc
sales territory		
PLM No.	7.02.11.00054	7.02.11.00055

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ZHAGA Interface controller Street lamp

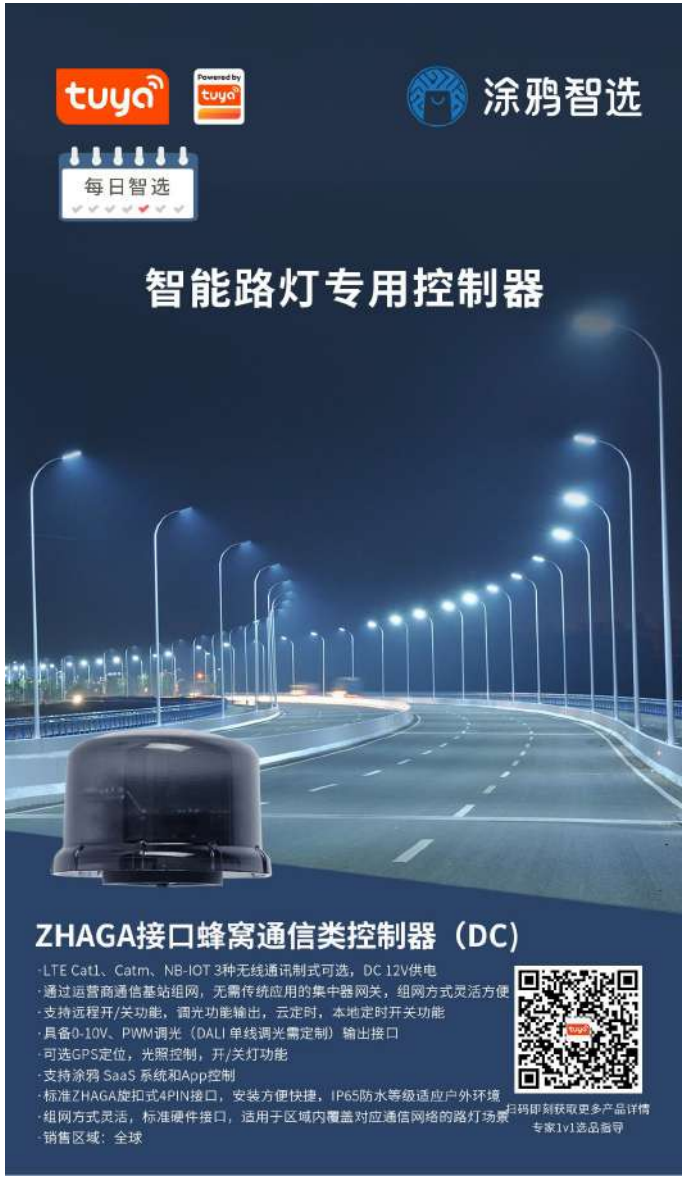
Features:

• LTE Cat1, Catm, NB-IOT 3 wireless communication systems are optional, DC 12V power supply.

• Through the operator communication base station networking, without the traditional application of the concentrator gateway, the networking mode is flexible and convenient.

• With remote on and off function, dimming function output, cloud timing, local timing switch function.

• With 0-10V, PWM dimming (DALI si ngle line dimming needs to be customized) output interface.



• Optional GPS positioning, light control on and off the light function.

• Support for doodle Saas system and APP control.

• Standard ZHAGA rotary buckle type 4 PIN interface, convenient and quick installation, waterproof grade IP65 is suitable for outdoor use.

• The networking mode is flexible, and the standard hardware interface is suitable for the street lamp applications in the area covered by the corresponding communication network.

REPRESENTANTE EXCLUSIVO

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product name	ZhagaNB single lampcontroller	ZhagaCat1 single lampcontroller	Zhaga Catm Single-light controller
product model	TY-NBLC01-AC	TY-C1LC04-DC	TY-CMLC03-DC
Communication system	NB-IOT	Cat1	Catm
interface standard	Zhaga joggle(Bottom 50.4mm *35mm high)	ZhagaInterface (bottom 70.4mm *50mm high)	Zhaga joggle(Bottom 50.4mm *35mm high)
input voltage	DC 12V-18V	DC 12V -18V	DC 12V -18V
maximum current	≤0.15A@+12V	≤0.5A@+12V	≤0.5@+12V
output signal	0-10V or PWM, either the DALI dimming needs to be customized	0-10V or PWM, either of the two The DALI dimming needs to be customized	0-10V or PWM, either of the two The DALI dimming needs to be customized
major function	Remote switching, dimming, timing, GPS, optical control, etc	Remote switching, dimming, timing, GPS, optical control, etc	Remote switching, dimming, timing, GPS, optical control, etc
sales territory		the whole world	
PLM No.	7.02.11.00052	7.02.11.00053	7.02.11.00057

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