



MULTI-FUNCTIONAL GUARDRAIL LIGHT

MAKE SAFETY EASIER

EVERY LITTLE LIGHT FOR SAFETY

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1 Scope

This specification covers the detailed Specification and Performance for the following products listed as below:

2 System Introduction

2.1 System Background

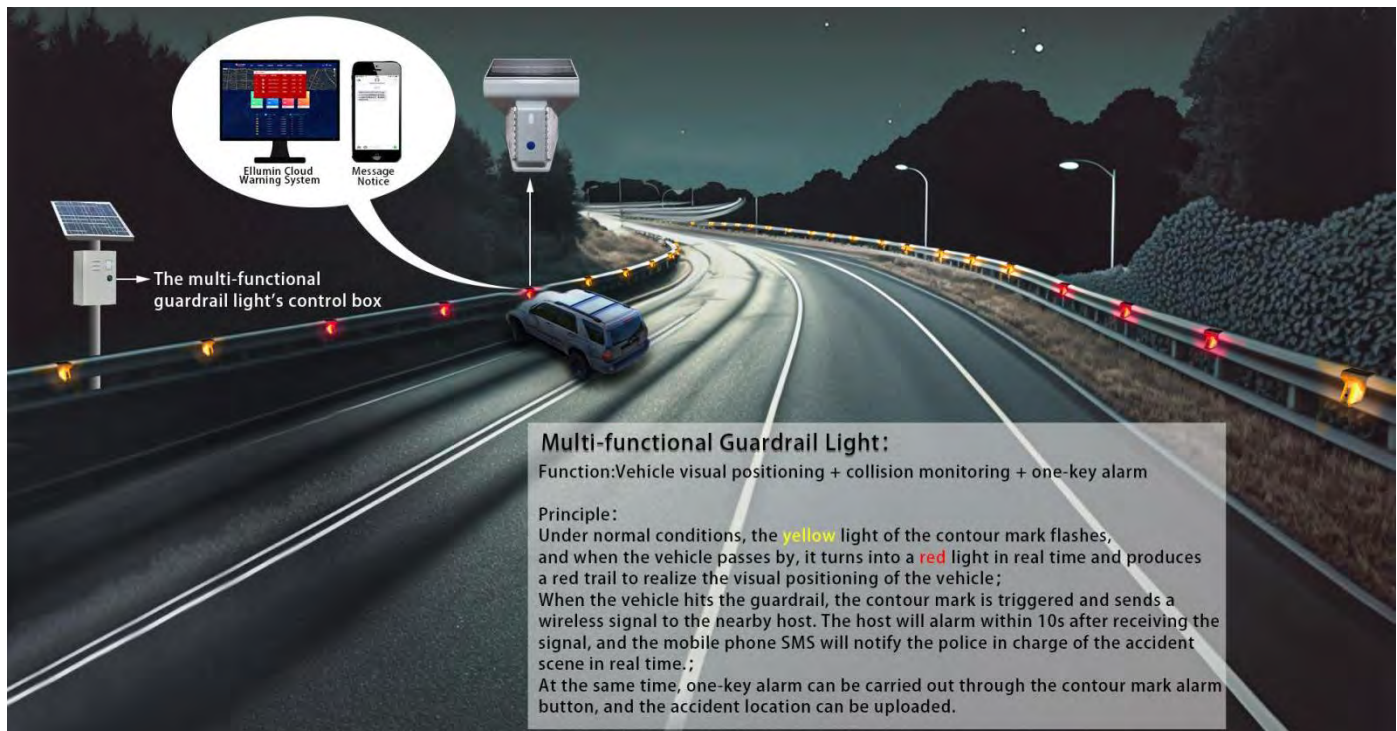
Drivers who drive while fatigued, at excessive speeds, or in emergency situations are prone to losing control of their vehicles and colliding with guardrails, crash barrels, water barriers, and other objects, resulting in traffic accidents. Additionally, because guardrails are made of steel, if they are not maintained in a timely manner after an accident, they can easily cause secondary injuries. However, since the police do not know the location and time of the accident, they cannot quickly rescue trapped individuals and vehicles, which can easily lead to further accidents.

2.2 System Principle

The installation of a multifunctional guardrail light and control host on a waveform guardrail can enable real-time monitoring of highways, and the collection of location information for highway assets based on GPS and other technologies.

Under normal conditions, the yellow lights on the profile markers flash, and when a vehicle passes by, they instantly turn into red lights and produce red tail marks, enabling the vehicle to be visually located. Once a vehicle collides with the guardrail or the guardrail tilts due to soft shoulders, the detector will send an alert through the cloud warning platform, and notify the police in real-time via mobile phone messages.

Additionally, there is a one-click alarm button on the profile marker. In the event of an accident, the accident personnel can report the incident to the background via the button and send location information, so that the police can arrive at the scene as soon as possible based on the location provided by the alarm, and handle the accident to avoid its escalation.



2.3 System Features

2.3.1 Timeliness, Effectiveness

Once the system is installed, in the event of a vehicle colliding with the guardrail or the guardrail tilting due to soft shoulders, relevant personnel will be promptly notified of the location of the accident. This can prevent the accident from further escalating and enable more accurate and efficient handling of the accident.

2.3.2 High functional integration

Includes vehicle visual positioning function, collision monitoring function, and one-click alarm function

2.3.3 The multi-functional guardrail light can run for a long time

The battery has a wide operating temperature range, can adapt to harsh environments, can be used for 3 years after charging, and has a long service life.

2.3.4 Easy to transport and install

The unique of the multi-functional guardrail light design is suitable for waveform guardrails and is easy to transport and install.

3 Multi-functional Guardrail Light

3.1 The multi-functional guardrail light's control box



3.1.1 Item name:	Electric box carrier
3.1.2 Material:	Stainless steel/iron
3.1.3 Waterproof:	IP55
3.1.4 Work voltage:	DC12V
3.1.5 Standby power consumption:	≈60mA
3.1.6 Power:	Solar power
3.1.7 Battery:	12V 24Ah Li-battery
3.1.8 Working hours:	> 300h (Fully charged)
3.1.9 Wireless band:	433MHZ
3.1.10 Solar panel:	DC12V 40W
3.1.11 Location/network mode:	GPS/4G
3.1.12 Trigger method:	Receive the wireless alarm signal from the slave

3.1.13 Alarm method:	Email/Message
3.1.14 Work life:	Around 3 years
3.1.15 Functional principle:	After the device is turned on, it will automatically seek the location through GPS. After the location is completed, it will enter the standby mode. After receiving the wireless alarm signal from the slave, it will send an alarm to the cloud through 4G, and then send it to the grid staff and the police in charge by SMS.

3.2 Multi-functional guardrail light



3.2.1 Item No.:	SGL-002Y-HW
3.2.2 Material:	PP, Acrylic plate reflective sheet (3M diamond grade reflective film), galvanized iron plate
3.2.3 Product weight:	740g
3.2.4 Waterproof:	IP65
3.2.5 Power supply:	5V 360mA solar panel
3.2.6 Battery:	3.7V 6Ah Li-battery
3.2.7 LED quantity:	8pcs +8pcs LED
3.2.8 LED type:	Φ8mm
3.2.9 Visible distance:	500 meters
3.2.10 Work mode:	Wireless synchronized flash
3.2.11 Flash frequency:	60 times/min
3.2.12 Duty cycle:	10%
3.2.13 Energy saving mode:	Light control, LED does not flicker, vibration monitoring works
3.2.14 Max consumption:	2.5W
3.2.15 Peak current:	70mA

3.2.16 Standby power consumption:	3MW
3.2.17 Average working current:	Around 6MA
3.2.18 Sync frequency:	433M
3.2.19 Trigger mode:	Vibration alarm
3.2.20 Sensing element:	Vibration sensor
3.2.21 Communication mode:	Slave mode (synchronize signal to host, upload to cloud platform)
3.2.22 Collision detection distance:	> 20 meters
3.2.23 Work temperature:	-20°C-+60°C

4 Ellumin Cloud Warning System

After the device is turned on, the host device can be added by using mobile phones, tablets, computers and other devices.

Under normal circumstances, equipment is added to the construction site on site. In case of special circumstances, the equipment number can be recorded for later addition. The following is an example of adding a device to a mobile phone:

4.1 <https://iot.ellumin.com/>

Note: Opening the cloud warning platform on the mobile phone is only added as a device. If you need to control the device, you need to use a computer.

4.2 Log in Ellumin Cloud Warning System

Enter the relevant account number and password to log in.

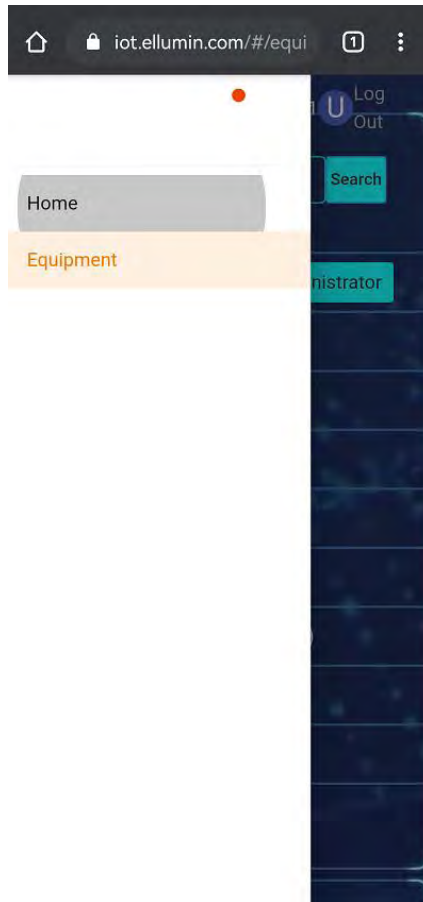
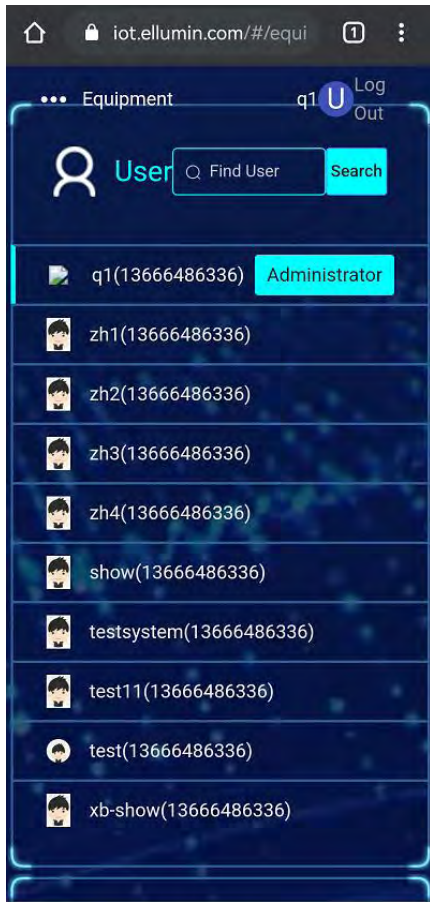


4.3 Go to the device management add page

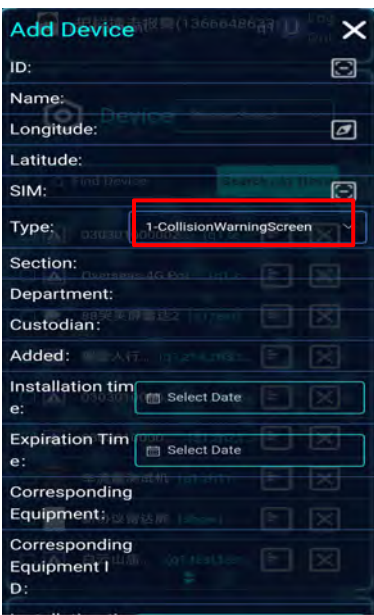
4.3.1 After entering this page, click on the upper left corner (●●●Home Page)

4.3.2 Then click (Device Management)

4.3.3 After entering the device management page, pull down the page to the Add Device page, and click (Add Device).



4.4 Add/bind device



Note: After entering this page, first select the device type.

(1-CollisionWarningScreen)

Otherwise the add device page will be inconsistent.

ID: The ID number of the current device.

Name: Current equipment name (can be entered according to key information such as the actual location of the road, road section, direction of travel, stake number, etc. The alarm information will be accompanied by the equipment name to make the alarm information more accurate),
 Longitude/latitude: that is, the installation location of the device (but the actual GPS signal in the device shall prevail).

SIM: SIM phone number

Fill in the relevant information.

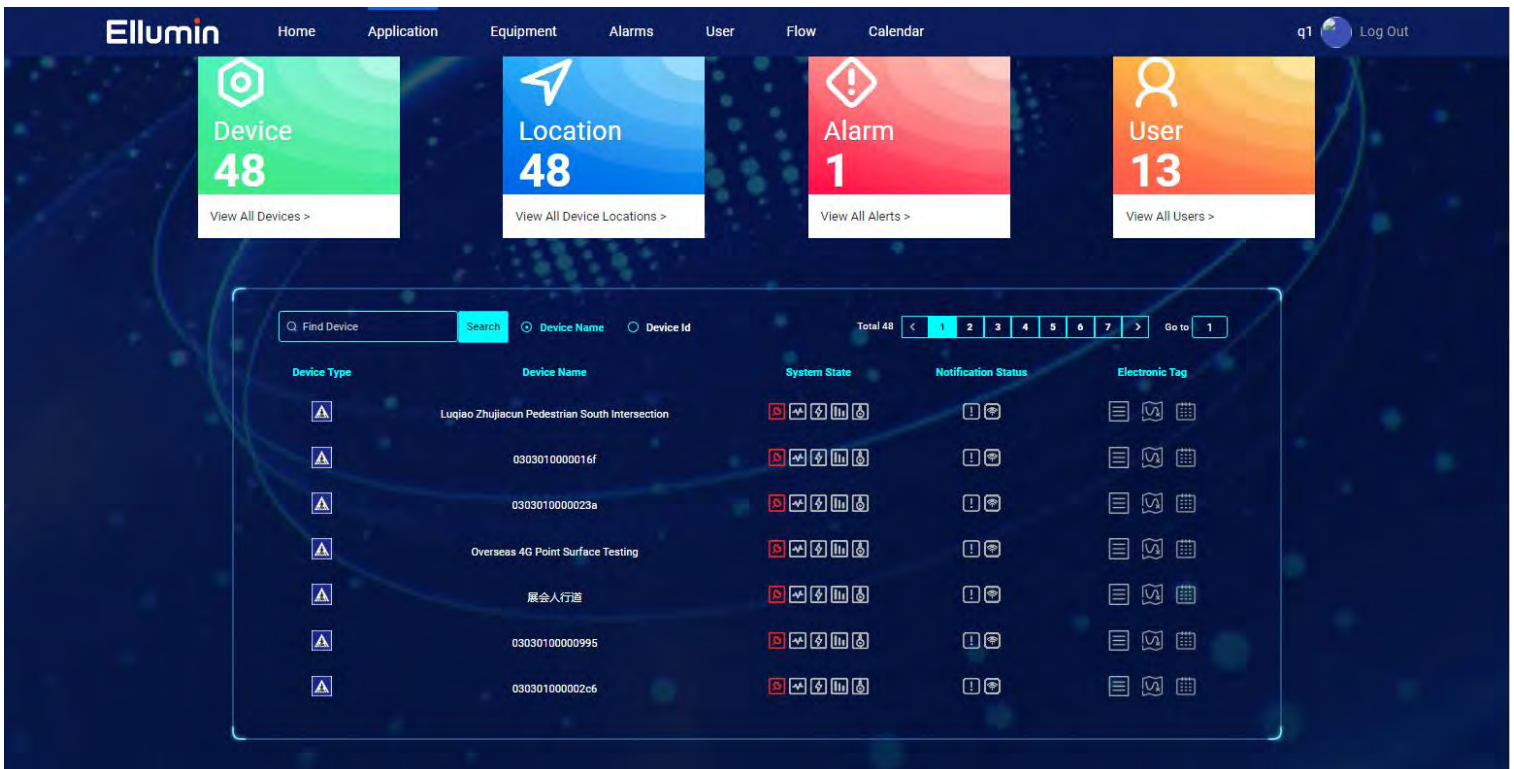
Click (Submit) after completing the filling.

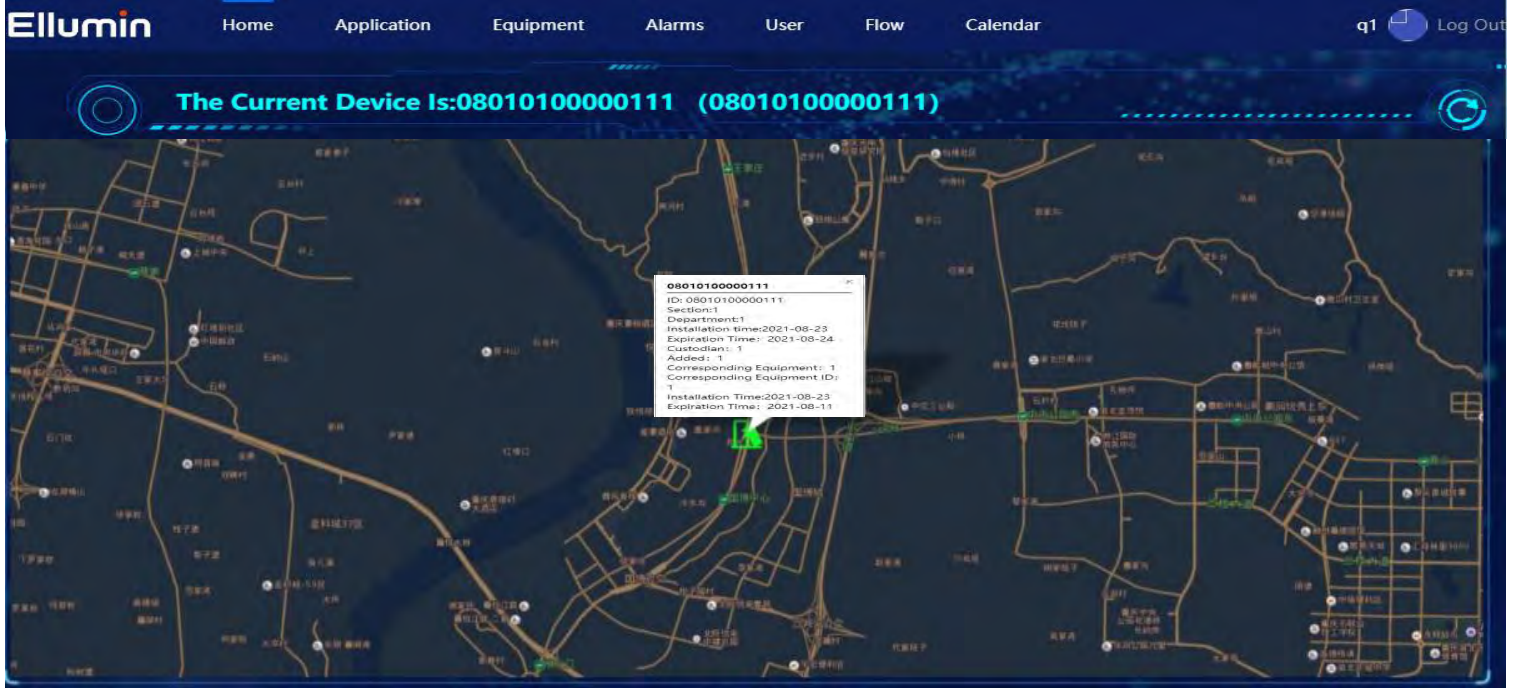


Select the device to manage the bound account.

4.5 Control equipment

After the account binding is completed, use the computer terminal to log in to the URL to make a final confirmation of the device's boot status and whether the positioning is accurate.





4.6 Trigger Alarm

After the device is triggered, it will prompt an alarm on the cloud alarm platform, and at the same time send a text message alarm to the mobile phone of the relevant person in charge.

