

Parking Light Installation and Configuration

Preparation

- Check of lights, make sure the fixture opponents are ready. Have a laser marking device to make all lights installed paralleled with lane.
- Make sure IoT gateway is ready.



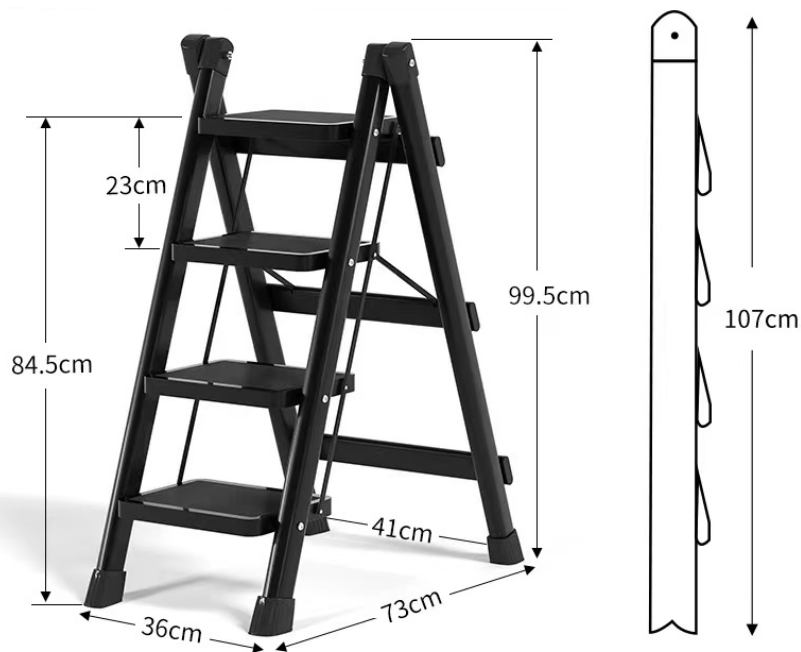
**Prepare a 12V/
2000mAh Li-on battery,
Supplied power to GW,
Portable for moving**

**GW should close with the
Light while doing binding
BLE mesh.**



**Make a plug with
Wago so that easy
For power on lights**

Preparation



Four steps ladder, 1 meter long while In fold, portable for car trunk

4th Step is 85cm height, steady for Worker with 160-170cm. With help of ladder, worker can touch Laser ranging sensor at 2.6-2.7 meters Height, easy for adjust laser shooting.

This ladder is portable and steady than others. But if need higher, choose others.



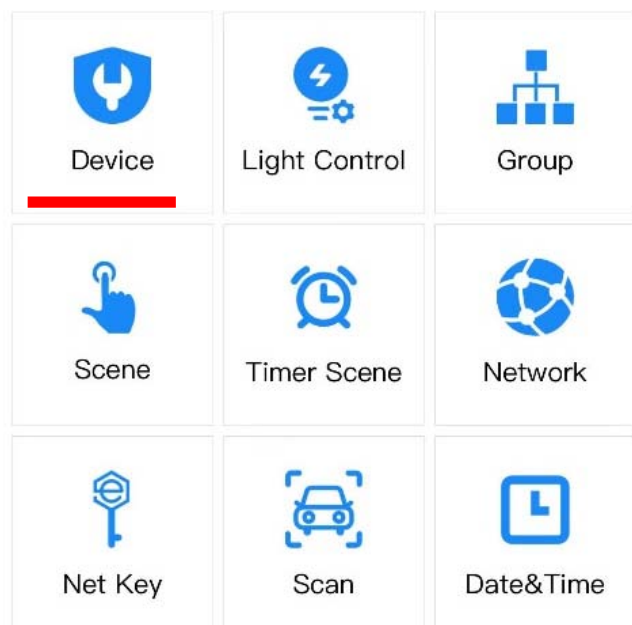
Laser Ranging Ruler

Binding lights with IoT gateway



Open IoT gateway assistant while phone is on line

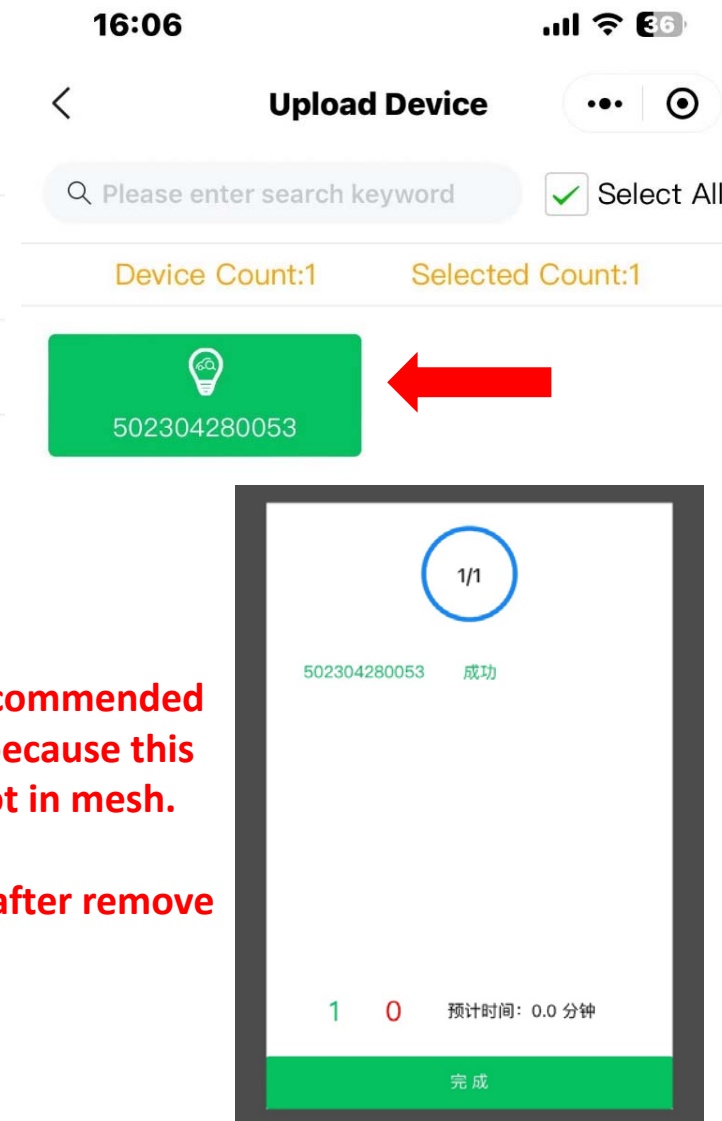
Binding lights with IoT gateway



Note: while in binding , it is strongly recommended to make GW and lights close enough, because this operation is done by point-to-point, not in mesh.

Similarly, it need to wait ten seconds after remove binding from gateway.

Device——》Binding——》 show lights isolate without binding. Choose light and binding one by one, not in batch operation. After binding successful, remember to record last 3 number of ID in paper.



Binding lights with IoT gateway

Q 053

Input last 3 number of ID for searching

Trigger Off: Please allocate sc

Reset

Total devices: 1

Binding Mesh

Upload Device

Parking control:

Buzzing

Flashing

Left

Mid

Right

Laser ranging
sensor:

428

cm

312

cm

424

cm

Query



502304280053

No.D9203CD64007



After binding, enter light device page, push flashing button to make sure it works. Then continue to next one, until all lights are binding totally. This flashing function is useful for locate specified light by ID.

Binding lights with IoT gateway



502304280048
No.D9203CD64008



502304280033
No.D9203CD64009



502304280045
No.D9203CD64010



502304280002
No.D9203CD64006



502304280029
No.D9203CD64001



502304280047
No.D9203CD6400F



502304280034
No.D9203CD64019



502304280020
No.D9203CD64018



502304280017
No.D9203CD64017



502304280013
No.D9203CD64016



502304280054
No.D9203CD64002



502304280036
No.D9203CD64015

The capacity of IoT gateway is maximum 100 lights as a whole network, usually 80 lights for 20 as margin.

If whole project plan need deployment of gateways in garage, it is better to divide garage into sections in advance, so that identify the correspondence of lights and lots, allocate specified gateway to bind and build mesh. Certainly gateways need to be installed in boxes on site.

If no need for gateway, just use as configuration tool, this means a temporary tool. Record lights ID and bind mesh into gateway before installation, remove bind relation after installation and configuration.

Light and gateway need to close enough while doing binding mesh.

During bind or unbind, illumination of light will be flashing, means light has been finish last procedure of operation.

Remove lights from IoT gateway

 502304280048
No.D9203CD64008

 502304280033
No.D9203CD64009

 502304280045
No.D9203CD64010

 502304280002
No.D9203CD64006

 502304280029
No.D9203CD64001

 502304280047
No.D9203CD6400F

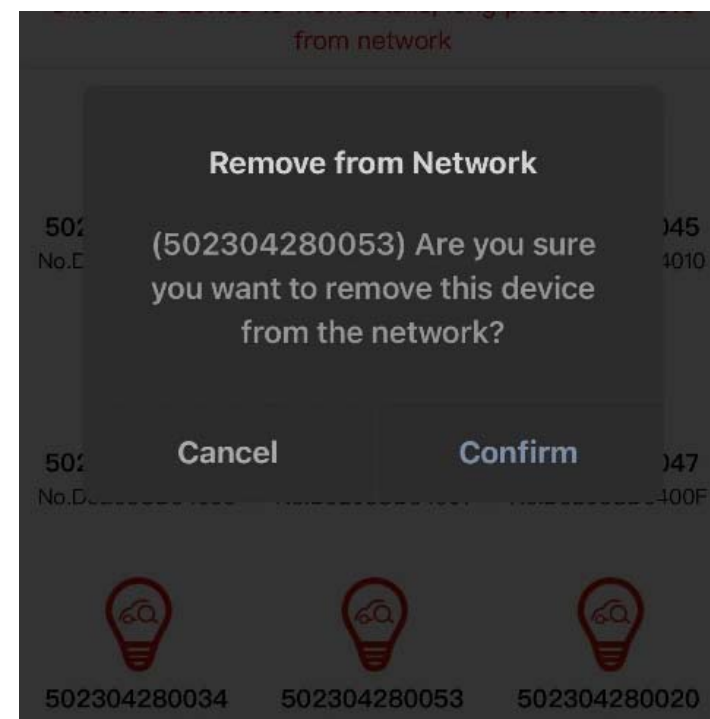
 502304280034
No.D9203CD64019

 502304280020
No.D9203CD64018

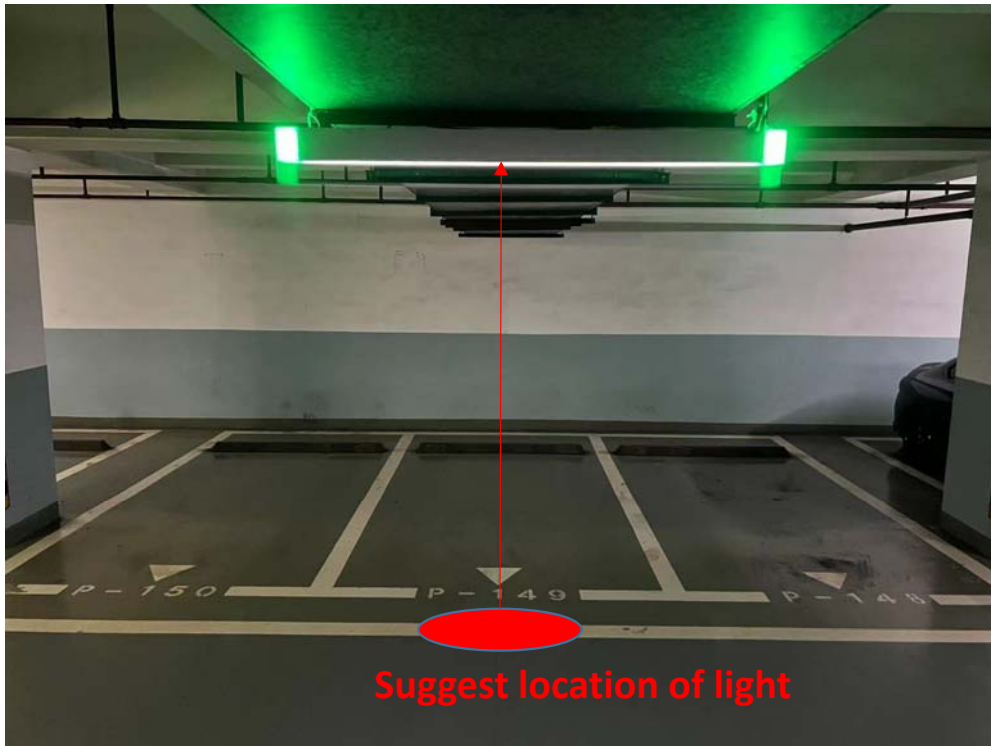
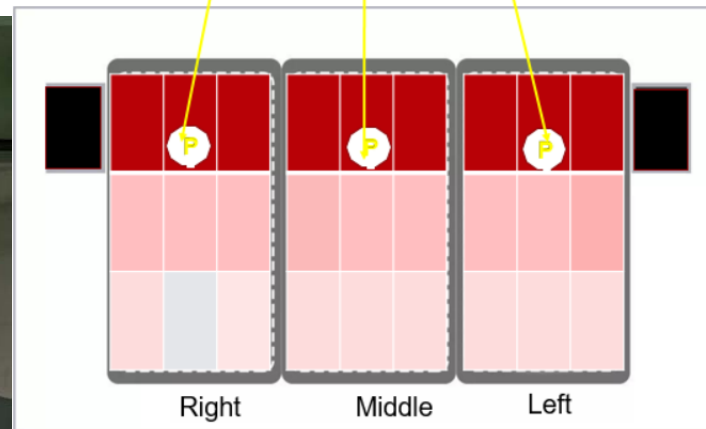
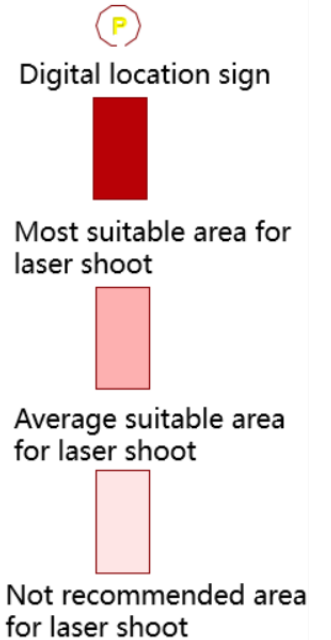
 502304280017
No.D9203CD64017

**Push device icon several seconds,
It will active page to remove binding.
After confirm, this light ID will be
deleted from gateway.**

**At this time, do not urge to close
applet or cut power of light and
gateway. Light will automatically
execute final procedure after ten
seconds. This will shown as
flashing of illumination, which means
light finish unbind successfully.**



Configuration for empty lots

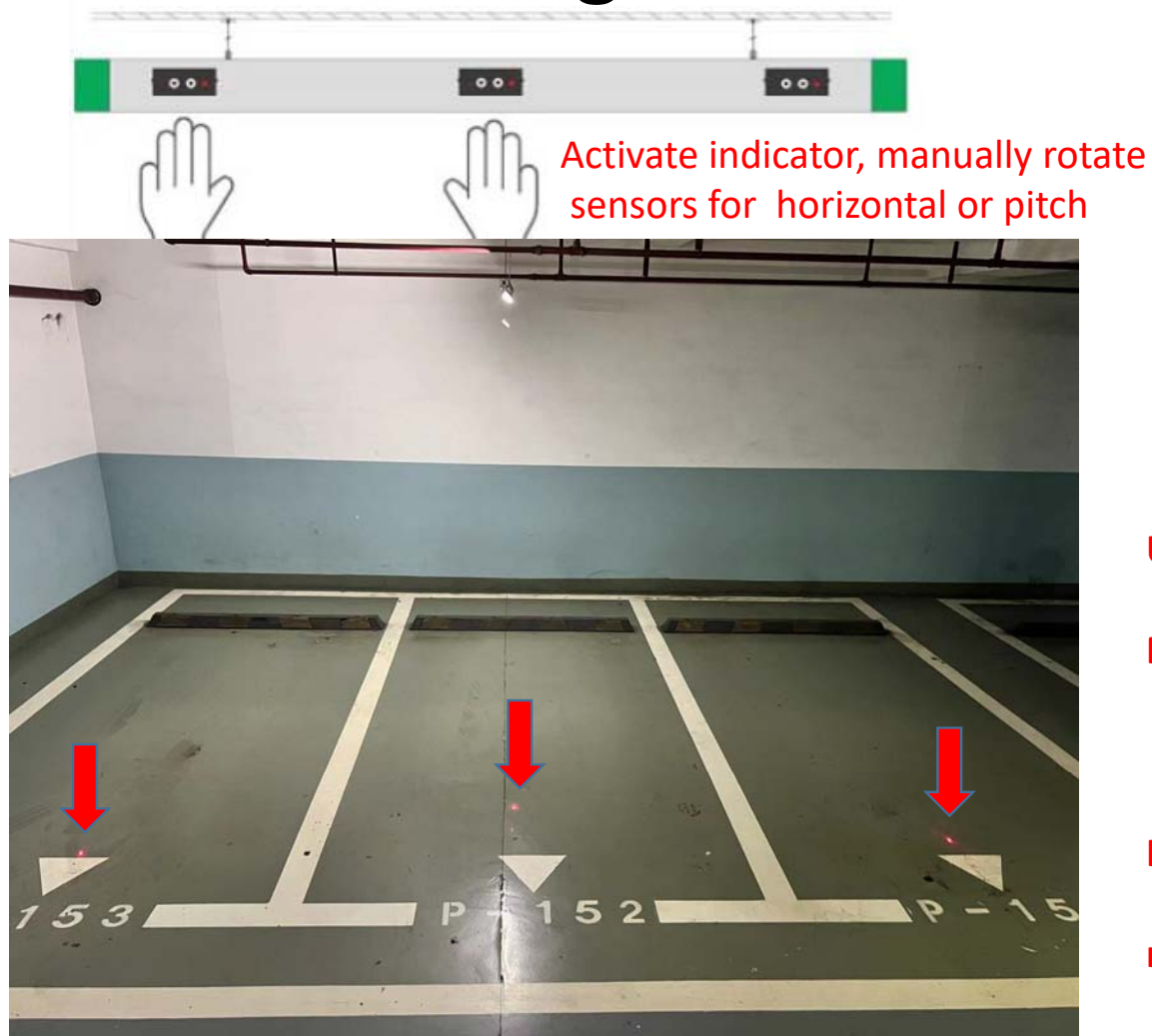


Lights should be installed as symmetrical to parking area and best for empty situation.

It is suggested to mount light over car lane, 2.6 – 3.0 meter high and project point with 1 meter with front of lots line.

Lights should be parallel with car lane.

Laser shooting rules



502304280048			RSSI:-71
Left ●	Middle ●	Right ●	
距离:496cm	距离:472cm	距离:492cm	
AMP:193	AMP:118	AMP:151	

Using scan of applet, worker can review BLE broadcast data of laser ranging sensors.
Make sure all AMP data should be large than 100, and have margin value. This means reflective rate of ground suitable for laser.

If reflective rate cannot satisfy with $> AMP100$, this can be solved by painting assistive logo or install other high reflective rate signs on ground.

Parking threshold setting

Left Mid Right

Laser ranging sensor: 460 cm 436 cm 416 cm

Query

Left Mid Right

Parking threshold: 360 cm 340 cm 360 cm

Query Set Fast Setting

Use fast setting for all lots empty situation, it just minus 20cm from current ranging data.

It also can directly input threshold setting manually by set button.

< Parameter Read an... ⋮

Laser ranging sensor:

Left 460 cm ☐ Small

Mid 448 cm ☐ Small

Right 416 cm ☐ Small

Calculated Parking threshold:

Left 440 cm

Mid 428 cm

Right 396 cm

Set

Configuration when have parking



Left Mid Right
Laser ranging sensor: 464 cm 340 cm 416 cm

Query

Left Mid Right
Parking threshold: 360 cm 340 cm 360 cm

Query

Set

Fast Setting

If lots have parking, laser will shoot at hood of car, choose suitable threshold settings, but need to check whether laser AMP data large than 100 when empty.

Configuration when have parking

When there is parking on lot, it can use fast setting page to config threshold by select full lot with different car size.

Small car, distance + 20cm
Normal car, distance + 60cm
Large car, distance + 100cm

It is estimated for threshold when there is parking on lot. For some cases, estimated threshold may not satisfied other cars even with 1 meter increments. So this need workers have more ability and experience to do adjustment for reality.

Laser ranging sensor:

Size of Car

Left	460	cm	<input type="checkbox"/>	▽ Small
Mid	336	cm	<input checked="" type="checkbox"/>	▽ Small
Right	416	cm	<input type="checkbox"/>	▽ Small

Calculated Parking threshold:

Left	440	cm
Mid	356	cm
Right	396	cm

Inspection and check

Use scan of applet, worker can inspect lights data from broadcasting, get realtime ranging data and parking status.

RSSI value, this is amplitude of BLE signal.

While worker using phone to inspect broadcasting, the first record on top of applet scan page should be the one over your head. That is, the light overhead should have strongest RSSI value ,which make its record popup at top of page.

This method usually use to find ID of light overhead.

Parking Scan		
Administrator		
Search		
502304280029		
		RSSI:-76
Left ●	Middle ●	Right ●
Range: 236cm	Range: 80cm	Range: 316cm
AMP:131	AMP:104	AMP:1970
502304280009		
		RSSI:-78
Left ●	Middle ●	Right ●
Range: 88cm	Range: 412cm	Range: 276cm
AMP:166	AMP:203	AMP:299
502304280054		
		RSSI:-80
Left ●	Middle ●	Right ●
Range: 252cm	Range: 296cm	Range: 420cm
AMP:169	AMP:1886	AMP:204

Inspection and check

It need some conditions for sensor to work. Because requirement of Parking detection, some simplifications has made on design of this laser ranging sensor, which cause some distortions in measurement under lower reflective rate cases.

Value of AMP is relevant with surface reflective rate, normally distance data is in fidelity in case of AMP large than 100

For white car, AMP value should be higher than 1000 -2000.
For silver or other bright color, AMP value always hundreds.
For black cars, especially Benz, etc. AMP value sometime reach 70-80 lower.

So for glass and some black painted cars, laser data will be much short or long, but AMP value will be reduced at same time. So this will cause lot be identified with full for AMP lower than 100. It needs more experiences for worker on site.

Left 左侧 ● 距离:324cm AMP:58	Range →	Middle 中间 ● 距离:32cm AMP:83	Right 右侧 ● 距离:360cm AMP:72
502304280009 Left 左侧 ● 距离:108cm AMP:88		Middle 中间 ● 距离:284cm AMP:589	RSSI:-80 Right 右侧 ● 距离:332cm AMP:2846
502304280011 Left 左侧 ● 距离:472cm AMP:143		Middle 中间 ● 距离:264cm AMP:6073	RSSI:-81 Right 右侧 ● 距离:152cm AMP:126
502304280002 Left 左侧 ● 距离:301cm AMP:100		Middle 中间 ● 距离:170cm AMP:100	RSSI:-81 Right 右侧 ● 距离:100cm AMP:100

Thanks !