

ALPR PARKING INSTALATION GUIDE

车牌识别停车系统安装说明

Shenzhen Karsun Access Technology Co.,Ltd
深圳市佳顺智能科技有限公司



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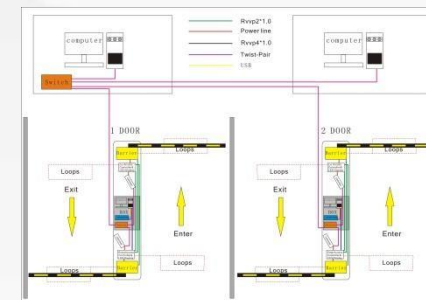
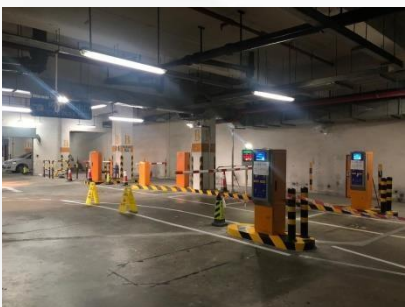
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Installation Preparation

安装准备



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INSTALLATION SITE

安装环境

- **Number of each entrances and exits** 入口，出口的数量

Considering the number of entrance and exits, and configure the corresponding hardware to ensure that the equipment runs efficiently.
考虑入口与出口的数量，配置相应的硬件设备，确保设备高效的运行。

- **Distance between each entrance and exit** 入口与出口之间的距离

The wiring distance between any two entrances and exits should not be too long, as more than 120 meters, the network communication requires optical fiber to ensure network operation efficiency.
任何两个出入口之间的布线距离不宜过长，超过120米，网络通讯需要用光纤来保证网络运行效率。

- **Location of toll center** 收费中心的位置

In principle, the charging center should be set at a suitable point to facilitate the users of the parking lot to pay fees and handle special circumstances. Therefore, it should not be too far away from vehicle entrances and person entrances channels. Export payment, central payment or self-service terminal payment will have a huge effect on the overall system configuration and installation design.
原则上，收费中心应设置在合适的点，以方便车场用户缴费和处理特殊情况。所以与车辆出入口和人员出入口的距离不宜过远。出口缴费，中央缴费或者自助终端缴费会对整个系统配置和安装设计产生巨大影响。

- **Whether there is a turn at the entrance or exit and its distance.** 出入口处是否有转弯，转弯处与出入口的距离

Turning has a great influence on the position and angle of the camera at the entrance and exit, its better to provide photos of the site for judgment.
转弯对出入口相机的位置和角度影响大，提供现场的照片做判断。

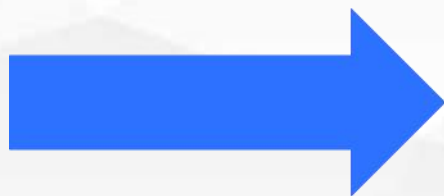
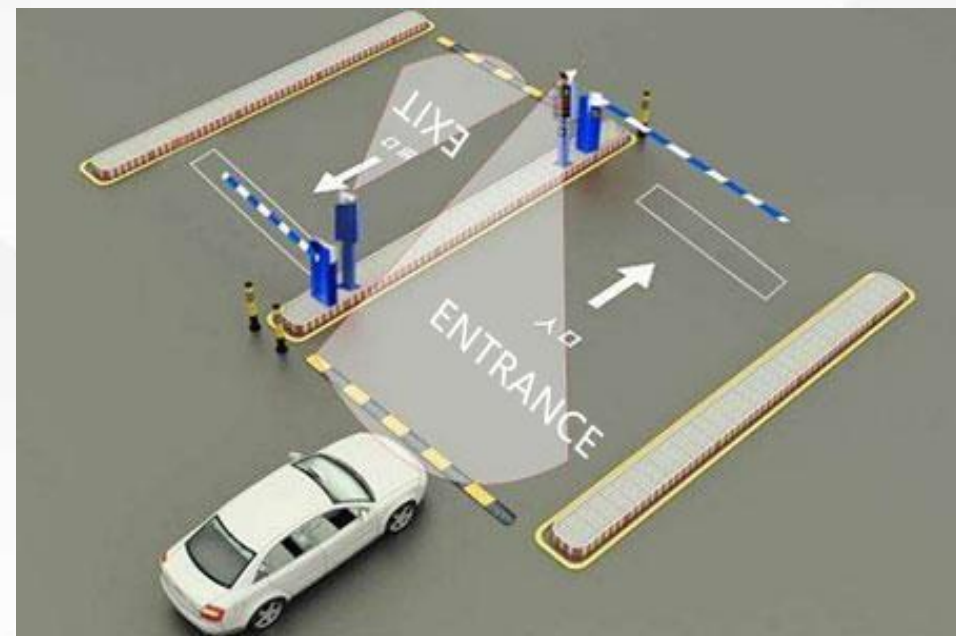
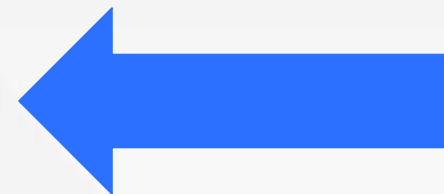
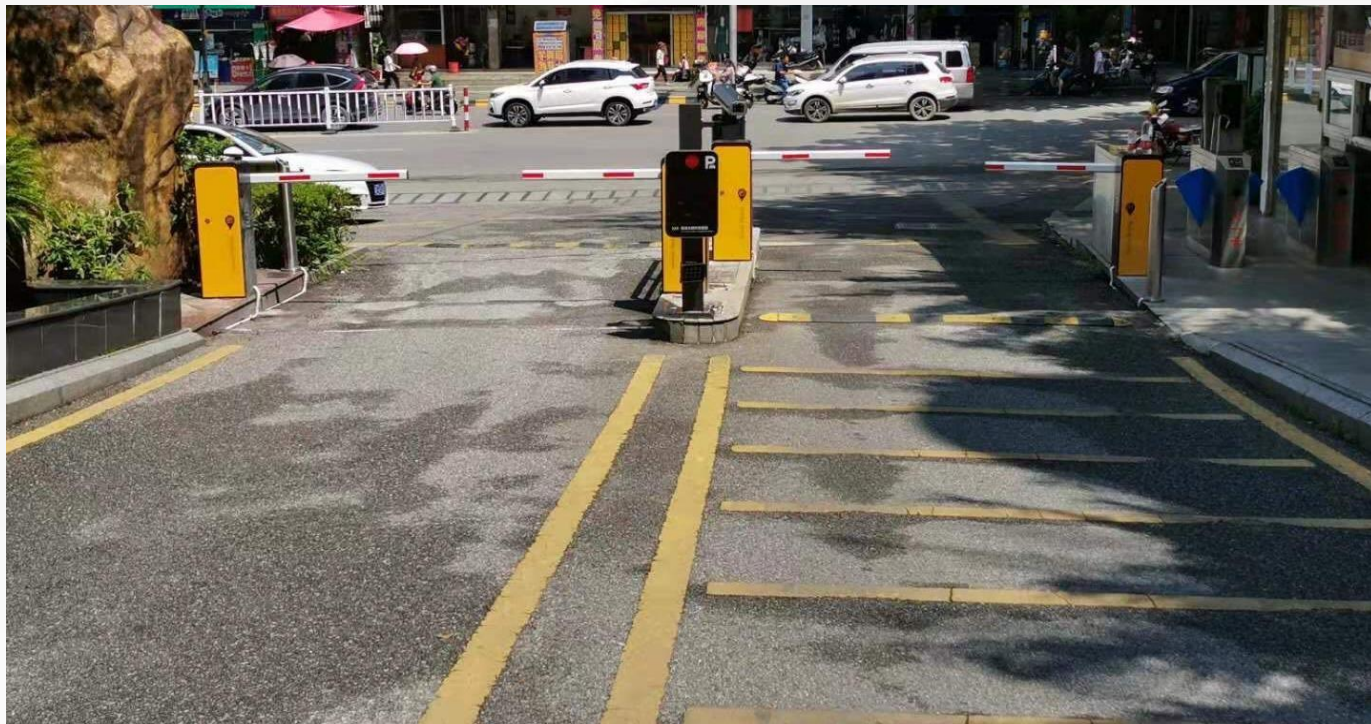
- **Whether the entrance and exit are slopes and underground and its angle.** 出入口是否为斜坡或者地下，以及其它角度

The slope has an influence on the camera installation position and angle, and whether the ground sense coil can be installed smoothly. Provide the site photos for judgment.
斜坡对相机安装位置和角度，地下停车场的光线及排水对顺利安装相机和地感线圈有影响，提供现场照片做判断。

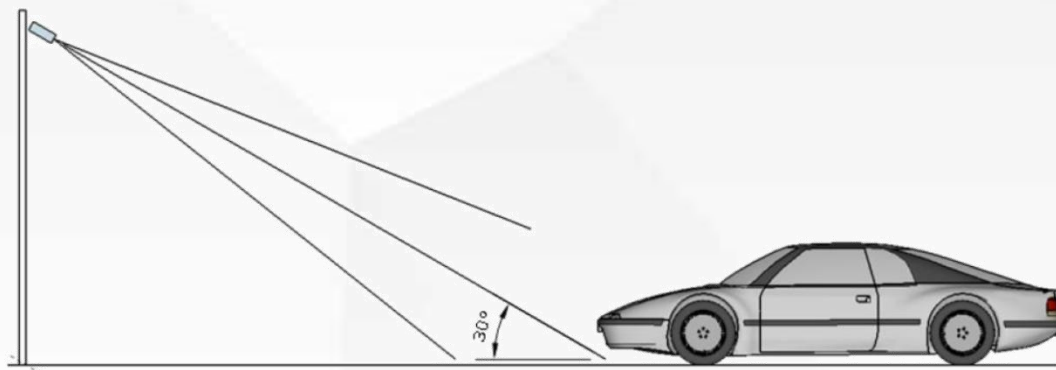
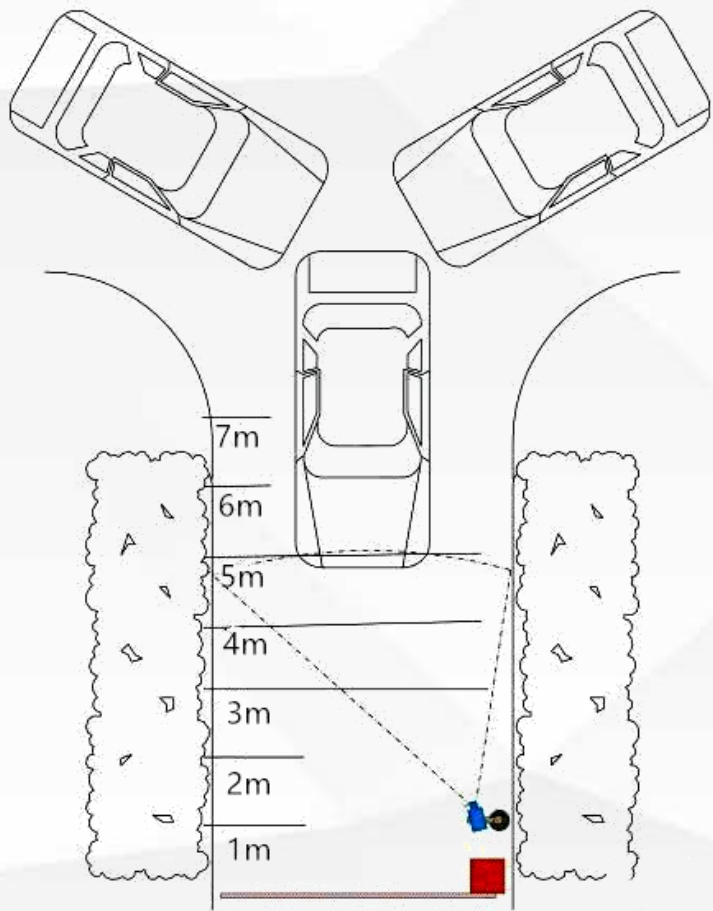
- **Whether the management office allows ground construction and buried lines.** 物业管理处是否允许地面施工和埋线

If the management office does not allow construction on the ground, the ground-sensing coils of the barriers are replaced with microwave radar.
如果物业管理处不允许对地面进行施工，则道闸的地感线圈更换为微波雷达。

STANDARD INSTALLATION SITE 标准安装环境



SPECIAL INSTALLATION SITE-TURN 特殊安装环境-弯道



- There is no turn of the lane, the recognition distance shall be 4-5 meters from the camera horizontal line, and the vertical angle should not exceed 30 degree, the horizontal angle not exceed 55 degree.
- 在标准车道无弯角时，车牌识别区域为距离相机水平线4-5米，并且垂直倾斜角度不大于30度，水平倾斜角度不大于55度。
- When there is a turn, leave enough space for the vehicle to turn to ensure that the vehicle is straight before entering the recognition area.
- 有转弯时，为车辆转弯预留足够的空间，确保车辆在进入识别区域前摆正。

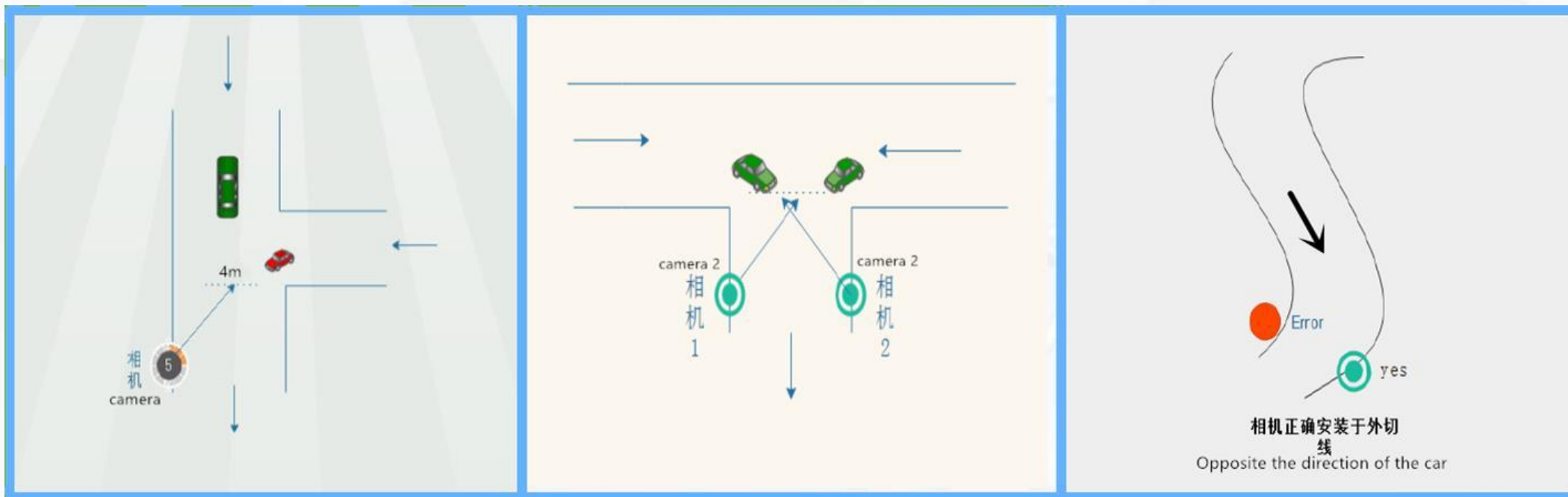
SPECIAL INSTALLATION SITE-SLOPE 特殊安装环境-斜坡

- If there is a distance of 4-5 meters before entering the slope, it is recommended that the entrance and exit be installed before entering the slope. Please be careful to avoid backlighting.
- 如车辆在进入斜坡前有4-5米的距离，建议出入口安装在进入斜坡前，请注意避免逆光的情况。
- If there is not enough distance, the equipment can be disassembled to choose a suitable installation location. Confirming the camera's recognition distance of 4-5 meters, and adjust the camera's elevation or depression to ensure that the license plate is displayed horizontally in the lens. Generally, the angle of a straight slope does not exceed 15%, and the angle of a curved ramp does not exceed 12%. During construction, the installation angle of the camera can be adjusted according to the angle of the slope.
- 如果没有足够的距离，可将设备分拆来选择合适安装位置。满足相机的识别距离4-5米，并且调整相机的仰角或者俯角，保证车牌在镜头中显示为水平居中。一般来说直线坡道角度不超过15%，曲线坡道角度不超过12%。施工中可根据坡道的角度对相机的安装角度进行调整。
- The position of the ground sensing coil and the vehicle detector in the slope can be constructed according to the texture of the slope. If the site conditions permit, the ground sensing coil should be constructed on a level ground as much as possible.
- 斜坡中地感线圈与车辆检测器的位置可根据斜坡的纹路情况进行施工，如果现场情况允许，地感线圈尽量在水平地面进行施工。
- If the camera's position is somewhere above the slope, then two reduction gear should be installed at 6 and 7 meters from the camera's horizontal line to ensure that the vehicle's travel speed is less than 30km / h. At the exit, the installation principles are similar, but only one reduction gear is required at 6 meters.
- 如果相机位置位于斜坡上方某个位置，那么需要在距离相机水平线6米和7米处安装减速装置，确保车辆行进速度不大于30km/h。在出口处，安装原则相似，但是只需要在6米处安装一条减速装备即可。



SPECIAL INSTALLATION SITE-OTHERS

特殊安装环境-其它



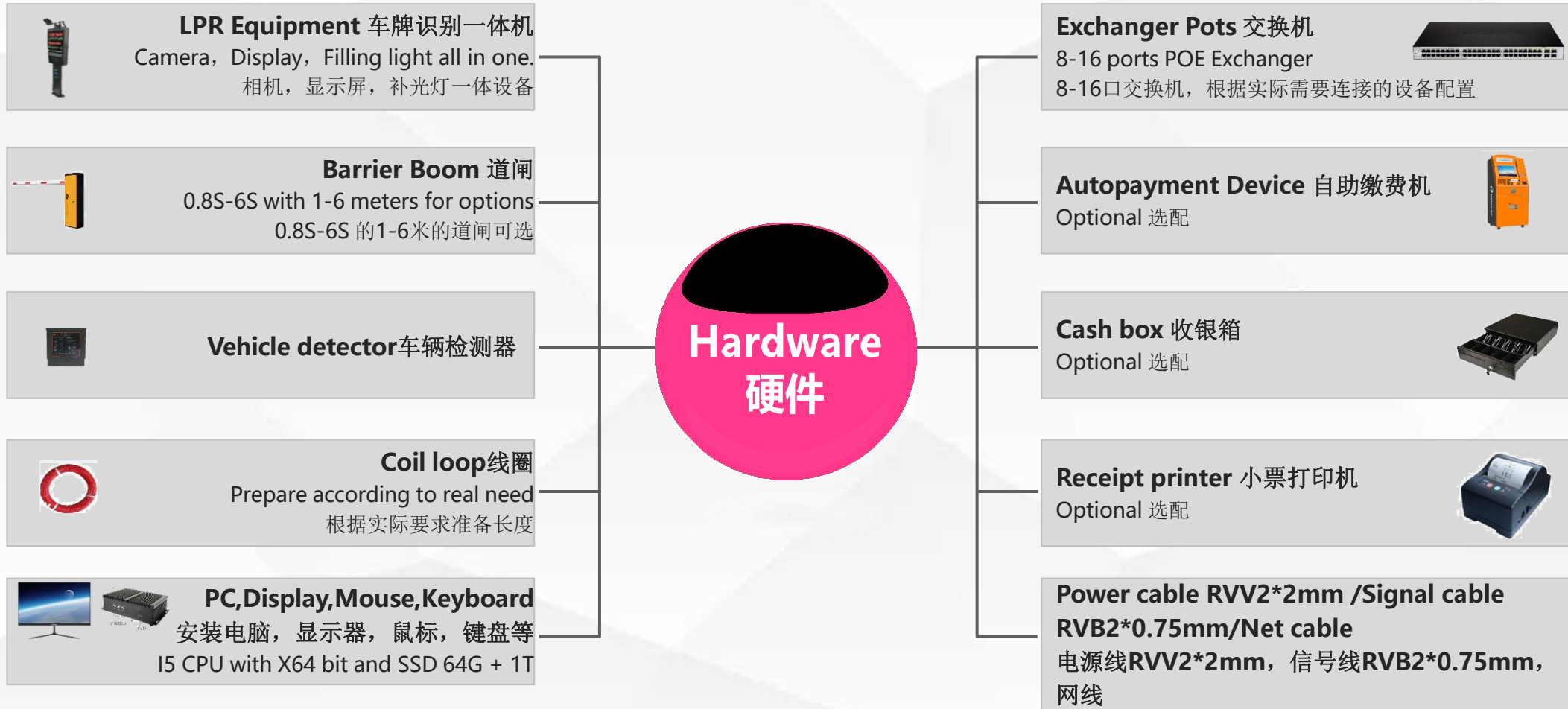
One-way T-junction
单向丁字路口

Two way T junction
双向丁字路口

S curve
S 弯道

Hardware Preparation

硬件检查及准备



Tools Preparation

安装工具准备

Wire stripper 剥线钳



Network pliers 网线钳



Allen wrench 内六角扳手



Screwdriver 螺丝刀



Drill 电钻



Cement cutting machine
水泥切割机



Construction preparation- security booth foundation and guard booth

施工准备-安全岛和保安亭

1. **Before construction of the safety booth, the design and construction drawings need to be determined according to the actual situation on the site, the size of the equipment and the requirements of the constructor. (Location, routing, wiring)**

安全岛施工前，需要根据现场的实际情况，设备的尺寸以及施工方的要求确定设计施工图。（位置，布管，布线）

2. **Wiring diagrams need to take into account factors such as the location of power draw, pipeline consumables, and metal objects.**

布线图需要考虑取电位置，管线耗材，金属物等相关影响因素。

3. **Pipe routing principles: Minimal lines and pipes, no bending, smooth connection.**

布管布线原则：最少的线路和管道，无弯折，平滑换接。

4. **PVC pipe size: 4 pipe, 6 pipe, 2 inch pipe, elbow**

PVC管道尺寸：4分管，6分管，2寸管，弯头

5. **The general height of the safety island is 15-20 cm, and the length and width are determined according to the installation distance of the equipment and the maximum width or length.**

安全岛常规的高度范围15-20厘米，长宽根据设备安装的距离及最大的宽度或者长度来确定。

6. **The layout of the pipe considers that the ground sense coil access is reserved. The coil in the same lane are separated by more than 1 meters. Each ground sense coil has a different number of windings.**

布管布线考虑预留地感线圈接口，同车道线圈与线圈相隔1米以上，每个地感线圈不同的绕线圈数。

7. **The cement: stone: water ratio of Cement Island is 1: 2: 3.**

水泥岛的水泥：石头：水比例为1:2:3.

8. **The safety island is generally in the middle of the road .**

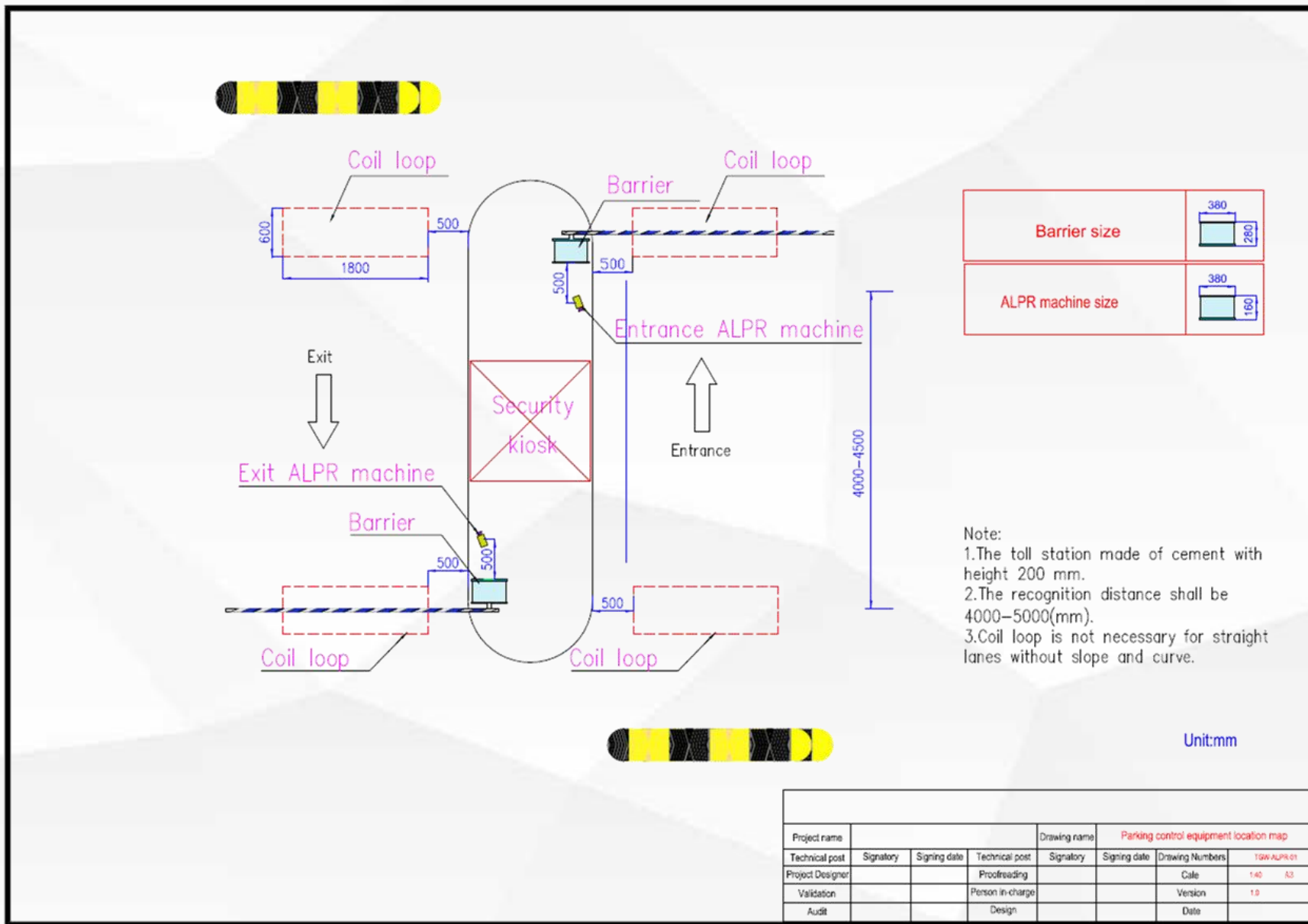
安全岛一般为路面宽度的中间位置。



Security booth foundation
and guard booth
安全岛与保安亭

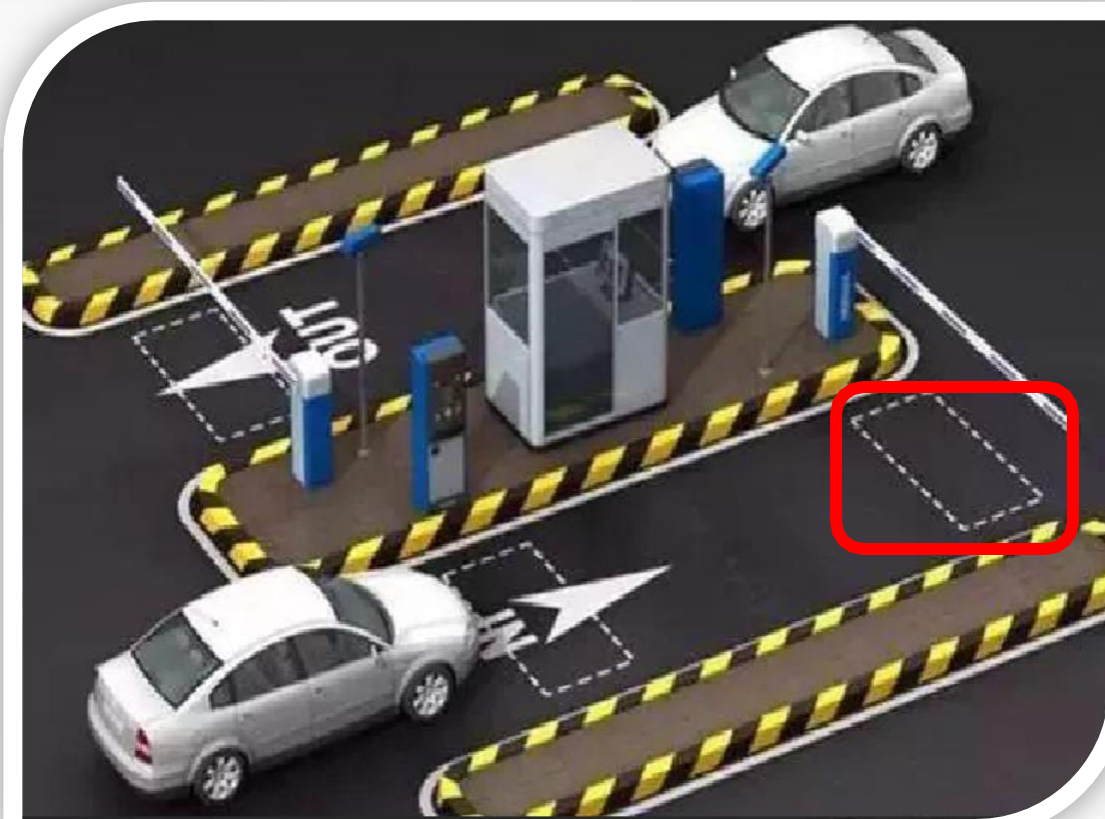
Standard safety security booth foundation diagram

标准安全岛位置施工图例



Construction preparation-Coil Loop

施工准备-地感线圈



COIL LOOP 地感线圈

1. Before construction of the coil loop, the position, size and number of turns shall be confirmed according to the overall wiring arrangement of the project. The number of turns does determine the inductance of the entire coil between 100-200 (UHF), and 150-180 (UHF) is recommended to ensure the perfect working range of the vehicle detector.

地感线施工前，根据工程整体布线安排确定地感线位置，尺寸，圈数。圈数的确以定整个线圈电感值在100-200（UHF）间，建议150-180（UHF）保证车辆检测器完美工作范围。

2.The coil loop must not damage the protective layer. Use a digital meter to measure the resistance to ground is greater than or equal to 10MΩ, and the DC resistance is 4-6Ω.

地感线不得破损保护层，用数字表测对地电阻大于或等于10MΩ,直流电阻为4-6Ω。

3. There must not be a large amount of metal in the surrounding 50 cm, such as well covers, rain gutter covers, etc.

周围50公分范围内不能有大量的金属，如井盖、雨水沟盖板等。

4. There must not have the power supply lines of 220V within 1 meter.

周围1米范围内不能有超过220V的供电线路。

5.When making multiple coils, the distance between the coils should be greater than 2 meters, and the number of turns should not be equal to each other, otherwise they will interfere with each other .

制作多个线圈时，线圈与线圈之间的距离要大于2米,而且彼此圈数不相等，否则会互相干扰。

6. Make 45-degree chamfers on the four corners and smooth them to prevent sharp corners from damaging the coil cable.

在四个角上进行45度倒角，并打磨光滑防止尖角破坏线圈电缆。

7.The cable length should be calculated in advance and sufficient margin should be reserved (including the coil lead-out wire). Between connectors, cables must not be broken. Route the cables as far as possible at the bottom of the slot, and arrange the cables in an orderly manner, without crossover or overlap.

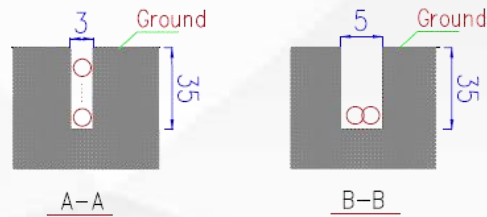
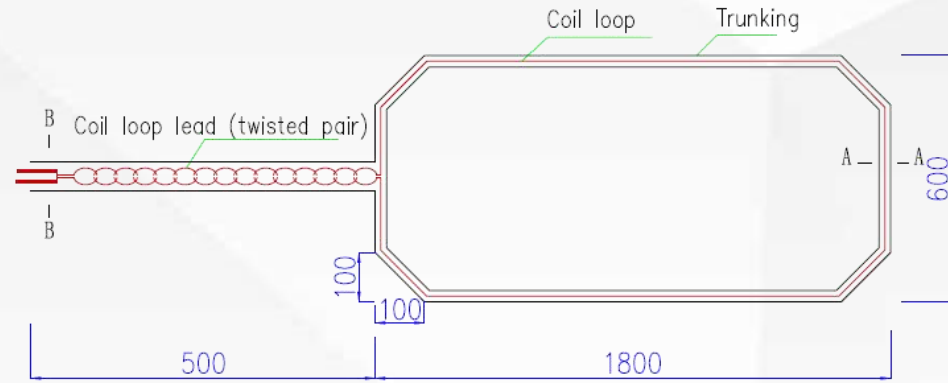
应事先计算好线缆长度并预留足够余量（包括线圈引出线），严禁在线圈铺设中间有中间接头，线缆不得有破皮、断裂等。走线尽可能在槽底，并且线缆排列有序，而不应出现交叉、重叠等现象。

8.The lead wire from the coil to the "ground sensor" should be twisted at more than 20 cycles / meter, and the distance between the lead and the ground sensor should be as short as possible (if the lead at this end is too long, it will cause Ground sensitivity is reduced), it is recommended that this section be within 1 meter and the maximum should not exceed 5 meters

线圈到“地感处理器”的引出线，应按大于20周/米进行扭绞，且该引出线到地感处理器间的距离应尽可能短（如该端引线过长，将导致地感灵敏度降低），建议该段在1米以内，最大不要超过5米

Coil Loop Installation

地感线圈施工标准图



Note:

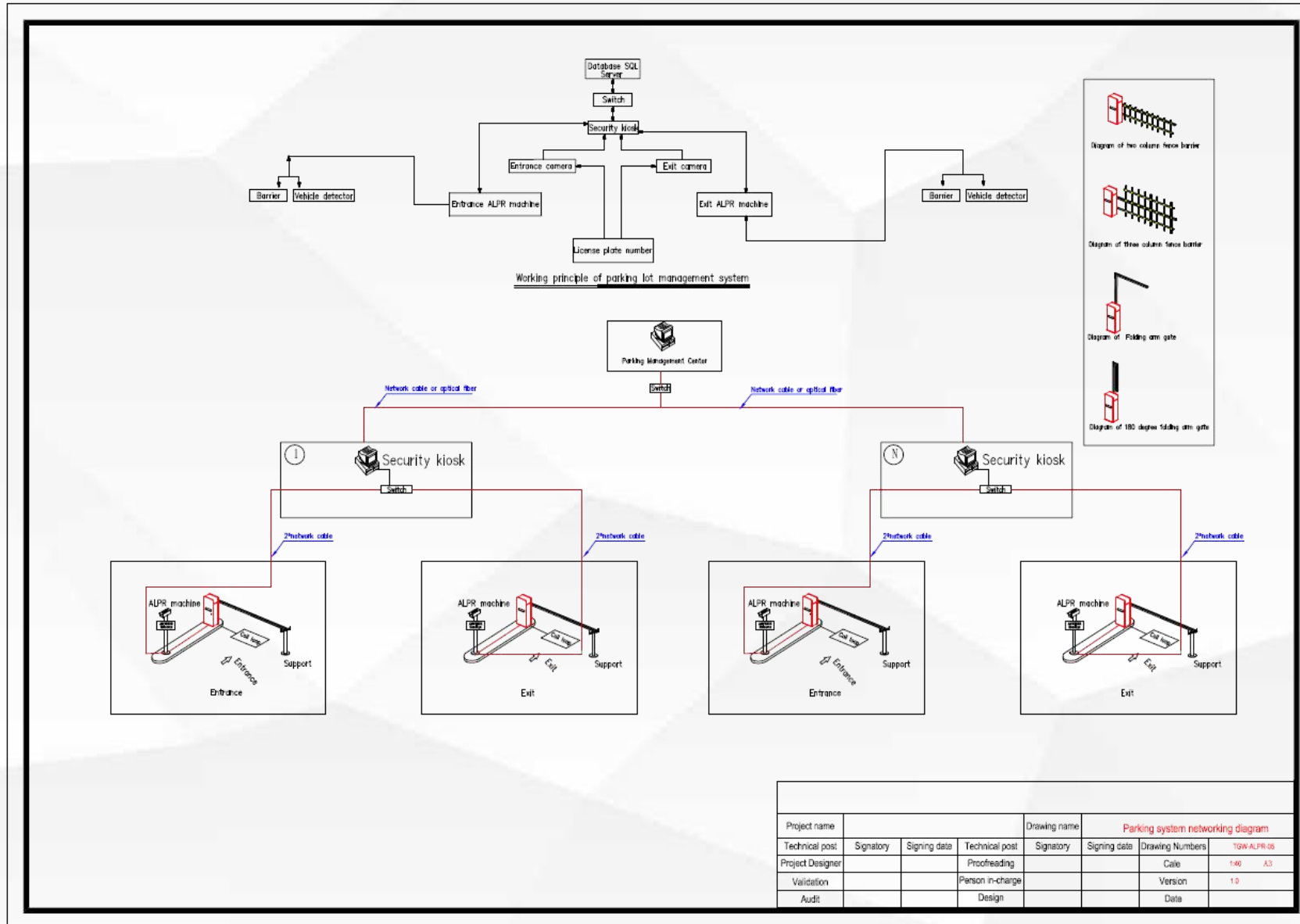
1. Making a rectangular wire trunking of width 3-5 mm, depth 30-50mm, the 4 corners shall be smoothly turning, and the leading wire trunking width 5-8mm. Cleaning the dust and dross after finished the cutting.
2. The ground sense coil is tightly wound along the inner wall of the groove.
3. The ground-sensing coil is wound on average 4-6 times, with a buried depth of 35-50mm.
4. Twist the coil leads to the terminals of vehicle detector in the lpr all in one machine or the barrier gate.
5. The ground sense coil loop (including the lead-out wire) is directly sealed and fixed by dry cement or asphalt without any pipe.
6. The ground-sensing coil must be carefully inspected before being buried, and it must not be damaged or the copper wires exposed.

Unit: mm

Project name				Drawing name			
				Schematic diagram of parking lot coil loop			
Technical post	Signatory	Signing date	Technical post	Signatory	Signing date	Drawing Numbers	TGW-ALPR-04
Project Designer			Proofreading			Calc	1:50 A3
Validation			Person in-charge			Version	1.0
Audit			Design			Date	

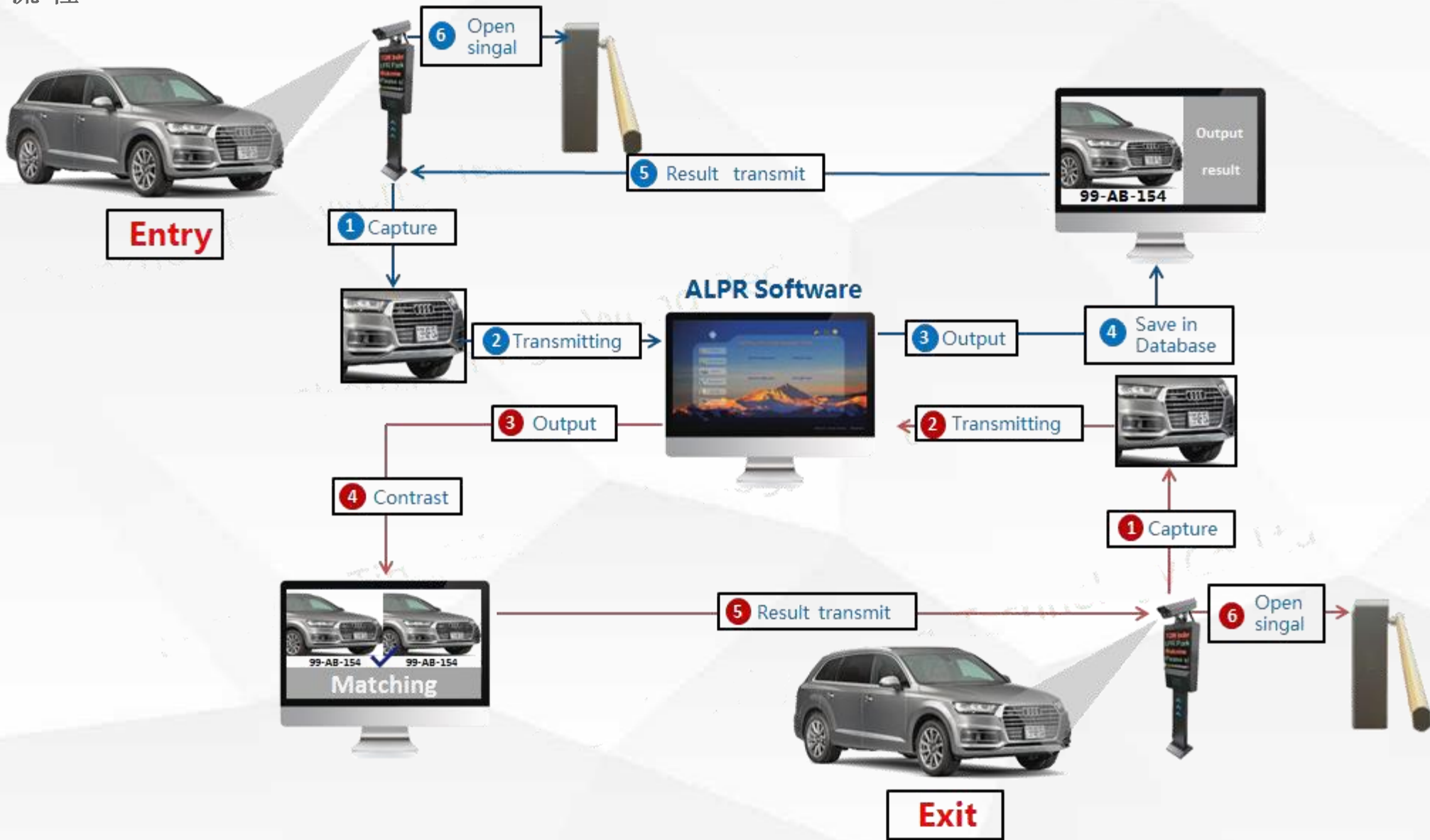
System Diagram

系统规划例图



Working Process

工作流程



02

Hardware Installation

硬件安装

Equipment Diagram

设备间布线图

EQUIPMENT WIRING DIAGRAM



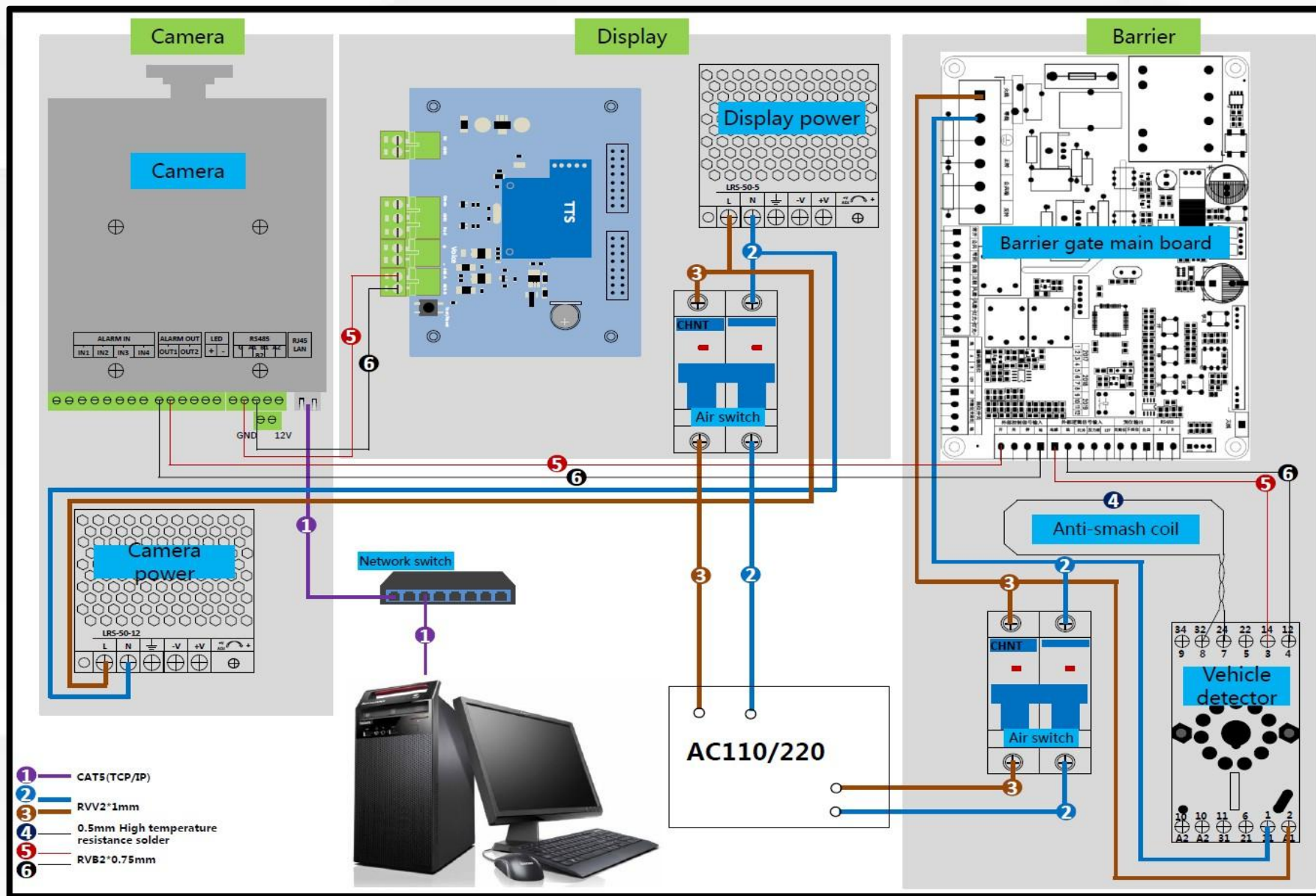
Note 备注:

alpr all in one machine, barrier, pc, switch, autopayment machine shall connect with power supply 220-240V/110V .

车牌识别一体机, 道闸, 电脑, 交换机, 自助缴费机应当接入220-240V/110V 电源

Equipment Diagram

设备间接线标准图

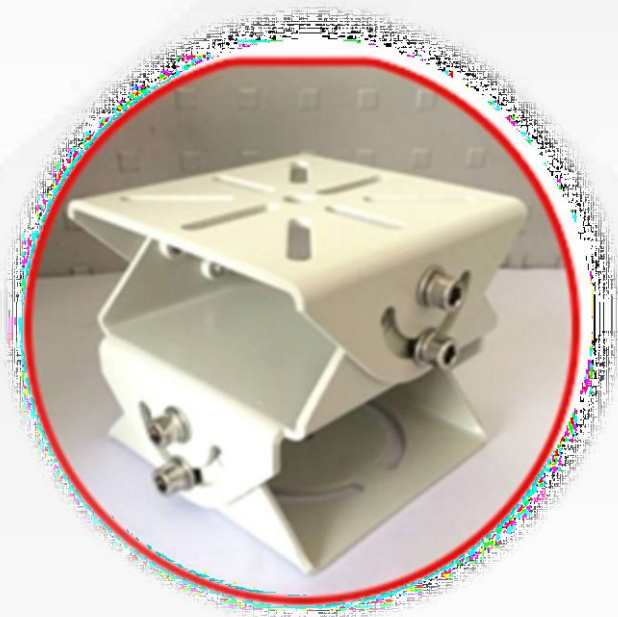


Camera Debugging

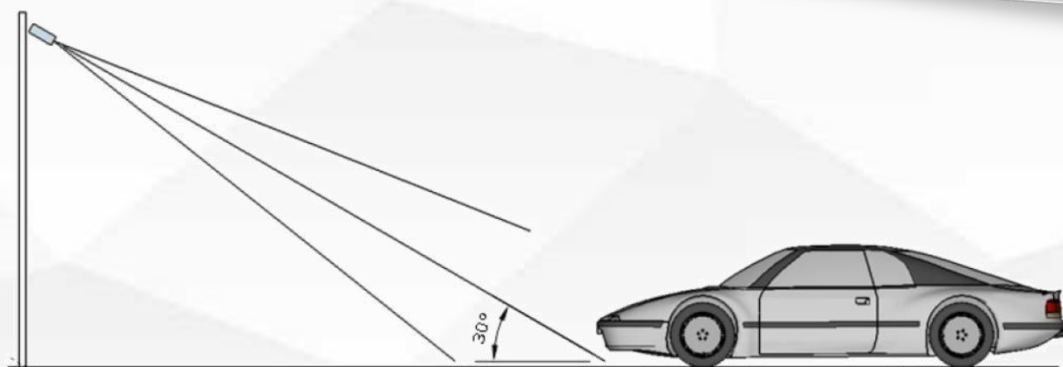
相机调试

The license plate recognition integrated camera's top-down angle to the recognition area cannot be greater than 40 degrees.

The angle between the vehicle license plate recognition integrated camera and the vehicle traveling in a straight direction cannot be greater than 45 degrees, and the parallel angle between the license plate and the recognition area of the vehicle license plate recognition integrated machine within the recognition area cannot be greater than 15 degrees.



车牌识别一体摄像机对识别区域的俯视角不能大于40度。车牌识别一体摄像机与车辆行进直线方向角度不能大于45度，车牌在识别区域内车牌与车牌识别一体机的识别区域的平行角不能大于15度。



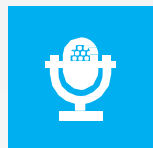
Camera Tool

相机调试工具



Search camera IP automatically, fill in camera username and password automatically

自动搜索相机IP，自动填入相机用户名密码



Video output, manual capture and automatic capture are optional

视频输出，手动抓拍与自动抓拍可选



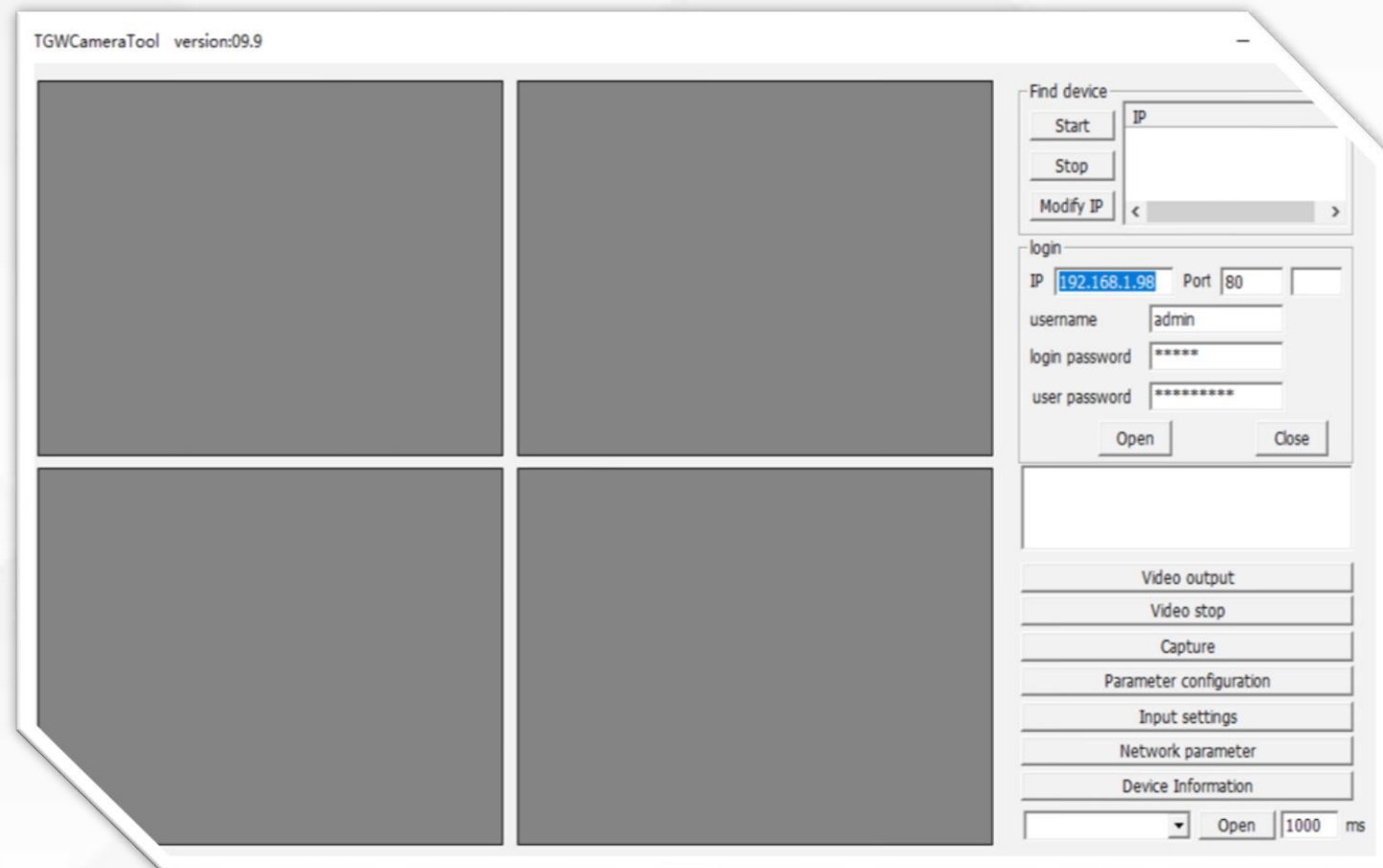
Image pixels debugging, snap direction and area setting

相机画质效果调试，抓拍方向区域设置



Network debugging

网络调试



Others Debugging

其它配件调试



- Checking the position of the boom: Use controller switch to lift and lower the gate. Carefully observe whether the boom is accurate in the horizontal and vertical limit stop positions. If there is an error, adjust the position of the limit switch.
- 闸杆位置检查：用遥控开关按钮对道闸进行升降操作，仔细观察闸杆在水平、垂直两个极限停止位置是否准确，若有误差，则调整限位开关位置。
- Opening operation: When the boom is in a stationary state that is not in place, press the start button of the triple button. At this time, the brake lever will rise and it should stop in the vertical position.
- 开闸操作：闸杆在未开到位的静止状态，按遥控的开闸键，这时闸杆会升起，并应在垂直位置停止。
- Closing operation: The boom is in the static state when it is not closed in place. Press the close button of the controller. At this time, the boom will fall and stop at the horizontal position.
- 关闸操作：闸杆在未关到位静止状态，按遥控钮的关闸键，这时闸杆会降落，并应在水平位置停止。
- Stop operation: During the opening or closing process, the intelligent remote control stop button, the brake lever should stop immediately
- 停闸操作：在开闸或关闸过程中，智能遥控停止键，闸杆应立即停止。
- Anti-smashing test: Open the brake lever in place, and press the closing button to simulate the ground of the vehicle under the road brake (can be simulated with iron blocks). The brake lever should immediately stop landing and open the brake.
- 防砸测试：将闸杆开到位，按关闸按钮降落过程中模拟车辆压道闸下方地（可用铁块模拟）闸杆应立即停止降落并进行开闸操作。



- When the detector is powered up, it will automatically detect and tune to the connected coil. This process takes about 5 seconds, while the LED on the top panel flashes quickly.
- 当检测器加电后，它会自动检测并调谐到所连接的线圈。这一过程约有5秒钟左右，同时顶部面板上的LED会快速闪烁。
- The detector will test the coil during the tuning process. When the LED on the top panel flashes at a frequency of 1HZ, the detector enters the normal working state (at this time, the relay does not pull in)
- 检测器在调谐过程将对线圈进行测试，顶部面板上的LED以1HZ的频率闪烁时，检测器进入正常工作状态（此时，继电器不吸合。
- When the detector detects the arrival of a vehicle, it will engage the relay corresponding to the standard output and light up the corresponding LED indicator; when the vehicle leaves, it will release the relay corresponding to the standard output and turn off the corresponding LED indicator .
- 检测器在检测到有车辆到来时，会吸合标准输出相对应的继电器，同时点亮对应的LED指示灯；当车辆离开时，将释放标准输出相对应的继电器，同时熄灭对应的LED指示灯。
- If the detector does not respond when the coil is inductive, double check the detector for crashes, and then check whether the coil is working properly.
- 如果检测器在线圈有感应时没有反应，应重检查检测器是否死机，然后检查线圈是否工作正常。

03

Software Installation

软件安装

Software Installation Preparation

软件安装准备

Computer 电脑



01

KARSUN PC

Offered from KARSUN PC, ignore the step of software installation.

从KARSUN配置的工业PC，可跳过此软件安装步骤。

Database 数据库



02

Normal PC Requirement

win7 win10 X64 bit operating system,
cpu above i3 supports AVX instruction set,
memory 4G-8G

win7 win10 X64 bit操作系统, i3 以上 CPU
支持AVX 指令集, 内存4G-8G

Software Dongle 软件狗



03

Database

SQL 2008, 2012

04

Software Dongle

Offered by KARSUN
由KARSUN出货提供

Installation Steps

安装步骤



1. Database 数据库

Database FAQ

数据库常见问题

1. Turn off the firewall before installation.
安装前关闭防火墙
2. Select mode SQL Server and Windows mixed mode
选择模式SQL Server 与 Windows 混合模式。
3. Default password: 123456
默认密码: 123456



2. Software Dongle Drive 软件狗驱动

Software Dongle Drive FAQ

软件狗常见问题

1. The dongle is not detected.
软件狗检测失败。
2. License plate recognition algorithm failed to start
车牌识别算法启动失败。



3. Software 软件

Software FAQ

软件常见问题

1. SQL connection failed
连接SQL失败
2. Object name is invalid
对象名无效
3. Login passwords do not match
登陆密码不匹配

4. Camera Debugging Tool 相机调试工具

Follow the guide

根据操作指示

Software Dongle FAQ

Software dongle Drive
软件狗驱动

Install softdog drive from
TGW
安装对应的软件狗驱动

The dongle is not detected
软件狗检测失败

1.Dongle is not plugged into USB correctly.
软件狗没有正确插入USB
2.USB interface problem
USB接口无效。

Algrithom start failure
算法启动失败

1.Install VC 2015 then 2017.
依次安装 VC2015 和 VC2017.
2.Computer setting not support.
电脑配置不支持。

Software FAQ

DLL files missing
DLL 动态库
文件缺失

Contact sales for after sales.
联系售后服务

SQL connection failed
连接SQL失败

Correspondingly change the server name, database name, and database login password in the configuration file.
对应更改配置文件中的服务器名称,数据库名称, 数据库登录密码

Object name is invalid
对象名无效

Database table result generation is incomplete
数据库表结果生成不完全

Login passwords do not match
登陆密码不匹配

Default password:666666
软件初始密码: 666666

04

Debugging

调 试

Device networking test

设备联网测试

1. Before debugging the device, please turn off the computer firewall.

调试设备前，请关闭电脑防火墙。

2.The camera IP is affixed to the camera case, and the camera IP is input to the setting of the software. After the connection is normal, you can see the camera dynamic screen in surveillance.

相机IP贴在相机的机壳上，将相机IP输入到软件的后台。连接正常后，可以在监控画面看到相机动态画面。

3.Server, management PC, camera must be in the same LAN segment, such as 192.168.1.2

服务器, 管理主机, 相机必须同处于一个局域网网段内, 如**192.168.1.2**

4. Network operation test, enter the operation interface, enter "cmd", check whether the computer and camera network operation returns to normal.

网络运行测试, 进入到运行界面, 输入 "cmd", 检测电脑与相机网络运行是否返回正常。

5.Park a car on the alpr recognition area or detection coil, take a snap shot and trigger test, adjust the recognition distance and pixels, and ensure that the pixel height of the license plate characters is 30-40 pixels.

停一辆车在车牌识别区域或者检测线圈上, 进行抓拍和触发测试, 调节识别距离与像素, 确保车牌字符的像素高度在30-40 像素。

The screenshot displays a parking management software interface. It features two camera feeds: 'Park Lot' (left) and 'Exit Cam' (right). The 'Park Lot' feed shows a white car with license plate 1810YHY. The 'Exit Cam' feed shows a white car with license plate 0705YHH. Below the feeds, there are control buttons: 'Change Shifts', 'Entry Gate Open(F6)', and 'Exit Gate Open(F8)'. A central panel displays financial information: 'Parking Fee: 12500', 'Total Cash: 12000', 'Amount Due: 9000', and 'Balance Due: 9000'. A 'Current Records' table is visible, listing vehicle numbers, entry times, and types. The table has columns for 'Vehicle No.', 'Entry's time', and 'Type of car'. The records are as follows:

Vehicle No.	Entry's time	Type of car
1810YHY	05/22/2019 18:52:14	Temporary
6165YBO	05/22/2019 18:51:54	Temporary
7736YD1	05/22/2019 18:49:28	Temporary
7959T A	05/22/2019 18:48:59	
4277YHA	05/22/2019 18:37:31	

At the bottom of the interface, there are buttons for 'Free Vehicle(F9)', 'Confirm(F10)', and 'Cancel(F11)'. The bottom status bar shows the date and time: '05/22/2019 18:52:37 Wednesday Administrator'.

感 谢

THANKS

A decorative graphic consisting of several colored circles of varying sizes. On the left side, there is a large pink circle, a medium blue circle, and a small blue circle. On the right side, there is a large pink circle, a medium blue circle, and a small blue circle. The circles are arranged symmetrically around the word 'THANKS'.