DHI-ITC206-RF1A HD Camera System
Installation Manual
(Coil, video, coil/video switch series)

V 1.0

Table of Contents

Installation Safety Notice

Construction personnel requirements: construction safety shall require a reflective vests and other protective device for the construction work.
Construction area requirements: the construction area and should set security tips, to ensure the construction of regional security, provides as follows:

Normal road: to place the vehicle 150 meters away from the construction site construction area warning signs followed by [], [construction road speed limit], [oriented brand], after setting a reasonable distance side of the road to the construction site safe direction, forming construction isolate area.
Freeway: to place in the vehicle to 1.5 km away from the construction site by the hard shoulder or central barrier (a safe place) at the [construction] job warning signs, directions to the construction site about 150 meters intervals in order to place the construction of road speed limits, respectively [brand], [oriented card], [from the construction site from the prompt card], after setting a reasonable distance side of the road to the construction site safe direction, and placed in the corner side of the road traffic guide [brand] isolation region formed construction and vehicle the whereabouts of the construction area 150 meters away from the safe place to put speed limit signs [Cancel].

Lifting or climbing work area requirements: the surrounding area should be set clear danger signs, hazard warning lights at night should be clearly set. Around shall be provided with special care, counseling pedestrian detour traffic. Below the work area strictly prohibited.
Engineering vehicle parking requirements: It should be noted truck parking position is suitable for overhead work, whether working vehicle support legs required to support the project in car extension arm operating range is a strong electric lines, stretching to touch the next time whether objects, etc. precautions.
Requirements when climbing: required to wear seat belts, wearing helmets, put good device, tools and belongings, to prevent falling objects wounding.

Strong electricity requirements: wiring, exposed part of the joint strong electrical specifications should be insulated and waterproof bandage, attention aging insulation box of waterproof materials; strong radio access device end, the cable insulation shall at the same time ensuring the smooth lines Leather pressed into the terminals to avoid insulating layer and copper wire from the emergence of live wire exposed after heating; when the old line construction, to examine the electrical circuit should be carried out to ensure that no power lines after the construction operations.

1 Overview

1.1 Objective

To guide the engineering and technical personnel, engineering refer to standard construction, device installation to meet regulatory requirements, to ensure construction quality.

1.2 Scope

The instructions apply to model for the construction guide DHI-ITC206-RF1A full range of HD camera video detection, detection coil and coil Video Switching Systems.DH-ITC206-RF1A includes ANPR and e-police which may adjust business type via WEB work mode option.

1.3 Range of Reader

Products Division, regional technical personnel, installation personnel, excluding customers.

1.4 System Composition

1.4.1 Front-end System Composition (Standard)

1.4.1.1 ANPR System Composition

No.	Material No.	Device Name	Model	Quantity	Note
1	1.0.01.09.10174	HD camera	DHI-ITC206-RF1A	1	
2	1.2.01.11.1701	18 inch outdoor housing	DH-ITABX-018BA	1	
3	1.0.01.16.0005	HD fixed focus 35mm lens	OPT-23C35M-MP	1	

4	1.0.01.09.0201	LED strobe light	DH-ITALE-080BA	1	
5	1.0.01.09.0275	Flashing light	DH-ITALF-300AC	1	
6	1.2.41.16.10161-000	Cardan mounted	DH-PFA161	3	
7	1.0.01.09.0237	ITC Mini terminal management device	DH-ITSE0400-GN5A-B	1	
8	1.0.01.09.0125	Vehicle detector	DH-ITACD-004B	1	(Pure video detection system reduce device)

1.4.1.2 E-police System Composition

No.	Material No.	Device Name	Model	Quantity	Note
1	1.0.01.09.10174	HD camera	DHI-ITC206-RF1A	1	
2	1.2.01.11.1701	18 inch outdoor housing	DH-ITABX-018BA	1	
3	1.0.01.16.0009	HD fixed 12mm lens	DH-OPT-34C12M-MP	1	
4	1.0.01.09.0201	LED strobe light	DH-ITALE-080BA	2	One in each lane

5	1.0.01.09.0275	Flashing light 【optional】	DH-ITALF-300AC	1	Optional device to enhance the effect of illegal images at night; △ NOTE: pure video detection system ineffective;	
6	1.2.41.16.10161-000	Cardan mounted	DH-PFA161	3	If there is flashing light, need one more	
7	1.0.01.09.0284	ITC terminal management device	DH-ITSE0804-GN5B-D	1	Maximum support 64Mbps 64Mbps stream access code stream forwarding	
8	1.0.01.09.0109	Vehicle detector	DH-ITACD-004A	1	Each vehicle inspection unit board supports 4-channel coil input	Coil, coil switching system use video
9	1.0.01.09.0129	Signal detector	DH-ITASD-012B	1	A direction of a station (up to 12 laps line input)	
10	1.2.01.25.1449	Schneider relay	RXM2LB2P7	N	Depending on the number	
1	1.2.01.25.1450	Schneider	RXZE1M2C	N		

1		relay pedestal			of traffic lights lamp set the direction property to determine	
12	1.0.01.09.0196	Traffic light signal detector	DH-ITASD-016RA	1		Pure video system

1.4.2 Front-end System Device Checklist Config Notice

When the system configuration list, please note the following:

- ✧ Install protective devices are not listed in the list, as required configuration;
- ✧ In case no external light or ambient light intensity is lower than the 15lux less, strobe lights should be increased to ensure that the system is installed point effect;
- ✧ According to the project implementation experience, system and network must be configured to power mine lightning protection module;
- ✧ Inventory systems to the final release version shall prevail.

1.4.3 **Front-end Subsystem Composition**

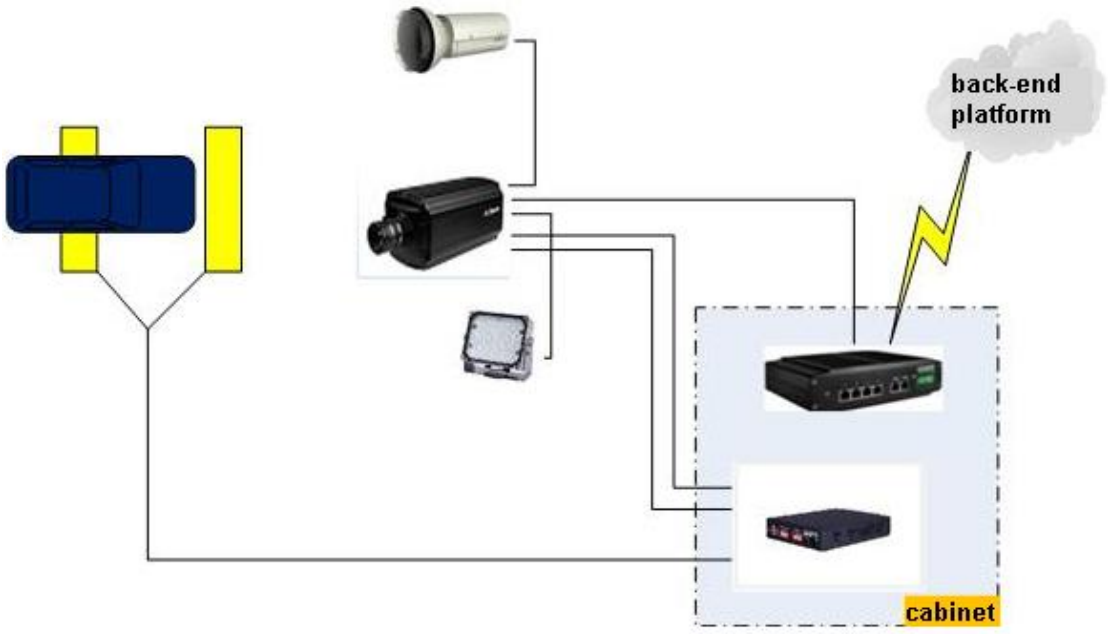

Figure 1- 1

1.5 **System Main Device**

1.5.1 **HD Camera**

Dimensions are in Figure 1- 2.

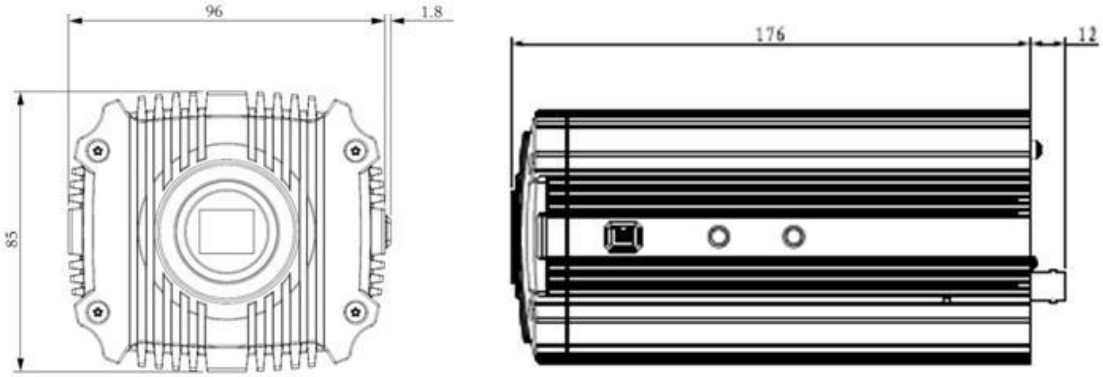

Figure 1- 2

Rear panel of camera is in Figure 1- 3.

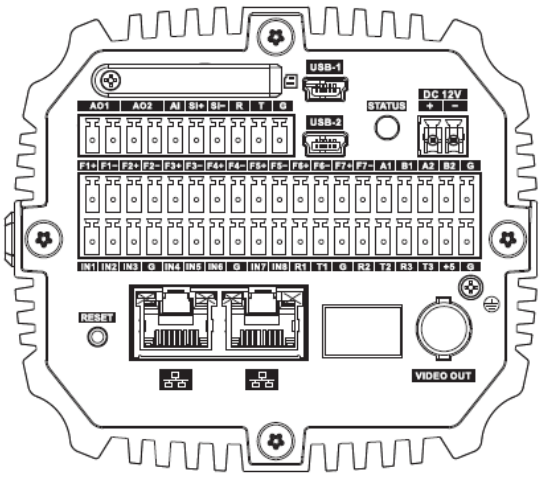

Figure 1- 3

Port Name		Port Function
DC 12V		Power supply interface, input 12V DC.
SD	SD car port	SD card connection. SD card use: When ● Installed SD card, make sure SD card is not write-protected status and then inserted into the SD card slot. When ● Remove the SD card, make sure the SD card is a non-write state, otherwise it may cause data loss and SD card damage. When hot-swappable SD card, stop recording after the operation.
AO1, AO2	2-ch alarm output	It can be configured as alarm output interface and output interface wipers
AI	Alarm input port	Alarm input interface for receiving external alarm switch signal sources.
SI+, SI-	External frequency source sync input port	Camera Sync external signal source (select external sync option automatically take effect, voltage Range 12 ~ 36Vp-p or AC 12V ~ AC 24V).
R	RS232 serial	RS232_RX，RS232 serial receiver
T		RS232_TX，RS232 serial sender
G	GND	GND

Port Name		Port Function
STATUS	Indicator	It is used to indicate the camera status. Working status indicator as follows: After the system is powered for the red light is off, becoming a blue light at this time that the application is running, you can log in via the network. Status light will turn off when the system is restarted it. ● Blue lights flashing (reserved): video. ● Flashing red: software upgrades. ● Long red flash: in safe mode.
RESET	Reset button	Restore the device to factory default settings. Device under normal operating conditions (power indicator is blue), press and hold this button after more than five seconds, the system configuration information to restore to factory default settings.
F1+, F1-, F2+, F2-, F3+, F3-, F4+, F4-, F5+, F5-, F6+, F6-, F7+, F7-	7-ch output port	Switch can be separately configured output signals and strobes flash output signal
A1	RS485 port	RS485_A1 port, external signal detectors, vehicle inspection and so on.
B1		RS485_B1 port, external signal detectors, vehicle inspection and so on.
A2		RS485_A2 port, external signal detectors, vehicle inspection and so on.
B2		RS485_B2 port, external signal detectors, vehicle inspection and so on.
G	GND	Customers in the use of the device, the interface is connected to the earth, in order to avoid being struck by lightning and other device problems.
IN1, IN2, IN3, IN4, IN5, IN6, IN7, IN8	IO input port	Provide 8 IO trigger snapshot ports.
R1 T1 G R2 T2 G R3 T3 G	3-ch radar port	Provide 3 radar sync input ports.
+5	-	Power supply for device with power under 2W.

Port Name		Port Function
 USB1/USB2	2 USB ports	Used to expand 3G and Wifi.
	2 network ports	Connect to standard Ethernet.
VIDEO OUT	Video output BNC	BNC（1.0Vp-p，75Ω）。

DHI-ITC206-RF1A series HD camera parameter:

Parameter \ Product Model		DH-ITC206-RF1A
General	Valid Pixel	2.0 megapixel，1600（H） ×1200（V）
	Sensor Type and Dimensions	Progressive scanning CCD, diagonal length: 1/1.8 inch, target surface dimensions：7.20mm（H）×5.40mm（V）
	Sensor Pixel Dimensions	4.4 μm（H）×4.4 μm（V）
	Dynamic Range	64dB
	HD Image Compression	JPEG
	HD Video Format	Standard H.264 high profile 5.0
	HD Image Resolution	1600×1264
	HD Video Resolution	1600×1200
	HD Video	50fps

	Frequency	
	Camera Shutter Speed	1/50~1/100000
ISP	Anti Smear	Support
	Multi-ch Combination	Support
	Edge Enhance	Support
	Bad Point Calibration	Support
	AUTO NR	Support（3D NR）
	AE	Support（Automatic / Custom Interval Auto / Custom）
	AWB	Support（Automatic / Color Temperature Range Auto / Custom Color Temperature）
	Holographic Dual Shutter	Support（Photos and videos of all ISP parameters）
	Day/Night	Support（Photos and videos of all ISP parameters）
Port Type	Coil I/O Input Port	8-ch，Optocoupler input (switch)
	Alarm Input Port	1-ch，Optocoupler input (switch)，
	Alarm Output Port	2-ch，Relay outputs; configured as alarm output interface and output interface wipers.
	External Frequency Source Sync Input Port	1(Select external synchronization options take effect automatically, the voltage range 12～36Vp-p or AC 12V～AC 24V)
	LED Strobe sync output interface	1 (fixed port F7), frequency can be set

	Flashlight sync output interface	6, switch signal output
	Video Signal Port	1 BNC port video output
	Network COM Port	2 Ethernet Port
	Data COM Port	1 debugging serial port (RS232), 3 radar serial (RS232), 2 vehicle inspection device / signal detector interface (RS485)
	USB Port	2，for 3G and wifi expansion
	Lens Port Type	C port
Trigger Type	I/O	Support
	RS485	Support
	Radar trigger (RS232)	Support
	Video Detection Trigger	Support
	Plate Recognition Function	Support
More	ANPR Business Function	Support
	E-police Business Function	Support
	SD Card Storage Function	Support
	Remote Control Function	My remote config and control via Web
	OSD Info Overlay Function	Support. Image In addition to the time and place (channel address) information, but also includes lane information (lane number / direction),

		license plate information (license plate and color), vehicle information (speed, vehicle length, color and type of vehicle body), illegal information (a violation of code names and illegal), and other.
	Waterproof	Support. Video / Photo possess watermark and check function.
	Power	DC12V
Environment	External Power Supply Sync	Support（Support synchronous phase trimming）
	External Frequency Source Sync	Support（Support synchronous phase trimming）
	Average Consumption	<15W（not include adaptor）
	Dimensions	176mm × 96mm × 85mm
	Weight	1.3Kg

1.5.2 **Lens**

General lens are as follows:

No.	Business Type	Brand	Model	Focus	Port
1	ANPR	HD fixed focus 35mm lens	OPT-23 C35M-MP	25mm	C port
2	E-police	HD fixed 12mm lens	OPT-34 C12M-MP	12mm	C port

In the selection of the lens when taking into account the customer's requirements and license plates snapshotd lanes problem in the picture inside the pixel, pixels license plate recognition system most appropriate between 80-180. Focal length is the distance between the lens and the sensor, by changing the focal length of the lens, you can change the magnification of the lens, change the size of the snapshotd image. The larger the focal

length, the greater the magnification. Increase the focal length of the lens, magnification increases, the vision can be closer to the range of the small screen, and the vision to see more clearly the details; if you reduce the focal length of the lens magnification is reduced, expanded the scope of the screen, and can see the bigger scene, close-range detail see more clearly.

F is the flux of the lens means. Each lens has the aperture, the larger the aperture open, the light passing through the lens, the greater, the higher the sharpness of the image; The smaller the aperture opening, the smaller the amount of light through the lens, the lower the image sharpness. Flux F = focal length (f) / aperture. In the technical specifications of the camera, we can often see 6mm / F1.4 such parameters, it indicates the lens focal length of 6mm, the luminous flux of 1.4, then we can easily calculate the aperture of 4.29mm. In the same case the focal length f, F value is smaller, the larger the aperture, the luminous flux reaches the CCD chip greater, the lens, the better. Marked on the lens aperture value 1.4,2,2.8,4,4.6,8,11 index series, 16, 22, etc., which the law is the amount of exposure before a standard value happens to be a scalar value corresponding to the amount of exposure 2 times. That is the lens aperture are 1 / 1.4,1 / 2,1 / 2.8,1 / 4,1 / 4.6,1 / 8, 1 / 11,1 / 16,1 / 22, the former value is root of 2 times the value of the latter, and therefore the smaller the aperture index, the larger the aperture, illumination imaging target surface is greater.

1.5.3 **Flash Light**

System recommends DH-ITALF-300AC type flash, the lamp is dry contact trigger, with most of the same camera on the market for signal docking. See Figure 1- 4.

Figure 1- 4

Model	Output	Work Voltage	Work	Relative	Trigger

	Power		Temperature	Humidity	Mode
	64GN	AC220V/50Hz	-30~70℃	<95%	Switch
DH-ITALF-300AC	Call Time	Flash Duration	Flash Interval	Snapshot Distance	Tube Life
	80ms	1/3000	40ms	18-26m	3 million

1.5.4 **Strobe Light**

Strobe light system used for the company's own research and development of DH-ITALE-080BA-P-type strobe light, the light is 25 °, at 18 meters can cover a standard lane width, from 18 to 22 m is it the best energy efficiency fill light range

Parameter / Model	Consumption	Work Voltage	Work Temperature	Relative Humidity	Color Temperature
	50W	AC220V/50 Hz	-30~70℃	<95%	5000~7000
DH-ITALE-080BA	light decay	Output view angle	output intensity	Protection Level	Dimensions
	10000 hours later 10%	25 degree	1000Lux(8M)	IP65	249.6mm*210mm *109mm

Figure 1- 5

1.5.5 Vehicle Detector

1. DH-ITACD-004B vehicle detector (ANPR system optional)
   See Figure 1- 6.

Figure 1- 6

2. DH-ITACD-004A vehicle detector (E-police system optional)

See Figure 1- 7/

Figure 1- 7

Model	Parameter	Reference
DH-ITACD-004B/ DH-ITACD-004A	Adaptive Inductance Range	20~1500uH
	Sensitivity	0. 1%~0.7%
	Frequency Range	20~100KHz
	Response Time	8ms
	Limited Existence Time	30s/1 min optional

	Detection Capability	4-ch separate detection output
	Output Status	Existence I/O output
	Power Supply	DC12V
	Work Environment	-30~70℃

1.5.6 Signal Detector (E-police system use)

1. DH-ITASD-012B (coil / coils video switch type use)

   See Figure 1- 8.

Figure 1- 8

Model / Parameter	DH-ITASD-012B
Main Processor	ATMEL ATXMEG series of high-performance MCU
Vehicle detector	After passage of the process when the vehicle is traveling vehicle detector coil region, it supports up to 12 simultaneous detection coil
Run Red Light	It can be configured to detect and analyze the second coil through a red light

Detection	snapshot, snapshot a trigger, three configurable
Speed Measure	Supported can be configured for each lane 2 or 3 coil winding speed speed mode, set the mode to the second coil gun up to six lanes at the same time speed. (△ Note: Only 5 lanes may correspond flash)
Flash Light Distributio n	Support 1 channel flash signal input, automatically divided into 5-way flash signal output
Coil Status Detection	Real-time status of the detection coil, and through the RS485 upload to the camera
Coil Video Mode Switch	With the camera can achieve detection coil detection mode and video mode switching function
Parameter Setup	Through the RS485 interface, DIP switches, signal detector set various operating parameters
Status Display	Via RS485 connectors, LEDs, signal detector status display various operating parameters
Serial Upgrade	Through the RS485 interface to the system software upgrade
COM Port	RS485 port 1
Trigger Signal Output	Switch output 1
Traffic Light Signal Input	High trigger input 3
Vehicle Detector	12 pairs, support 12 sense coil

Input	
Flash Light Port	Input 1, switch trigger low-level output 5
Indicator	Power indicator, work lights, detect lights each one, lane indicator 6, a red signal lights 3
Dial Switch	Eight DIP switches 2
Button	Automatic detection button 1
Power Input	DC12V ± 20%, with over voltage, over current, reverse polarity protection, safe and stable power supply for the device
Consumption	<1W
Work Environment	Operating temperature -30 ℃ ~ + 70 ℃, working humidity less than 95%
Dimensions	219mm*124mm*205mm
Unit Weight	1.5Kg

2. DH-ITASD-016RA(for pure video detection type use)

   DH-ITASD-016RA traffic light signal detector is a pure video detection system must be configured auxiliary device for external traffic light signal system to use in order to improve the system of traffic light signal detection is correct.

   Total traffic light signal detector 16 AC220v traffic light signal input, a combination of every 4 channels into one direction, from left to right respectively left, go straight, turn right, turn around, there are 485 facilities corresponding signal output four directions, for 4-way camera use.

   See Figure 1- 9.

Figure 1- 9

Model / Parameter	DH-ITASD-016RA
Traffic light signal input	You can access up to 16 220V / AC traffic light signal
Red light / green light signal mode switch	It can be red / green light signal detection mode switching function
Serial Upgrade	Via RS232 interface to the system software upgrade
Communication Interface	4 RS485 ports
Indicator	16 power indicator, work lights, detect lights
DIP switch	1 eight DIP switches
Power input	A power connector, AC85 ~ 265V 50 + 2% Hz
Consumption	<3W
Working environment	Working temperature -30 ℃ ~ + 70 ℃, working humidity less than 95%
Dimensions (mm)	440×300×42.6
Unit Weight	2.5Kg

1.5.7 **Front-end Storage Unit**

1. ITC Mini terminal management device (ANPR system optional)
   Front-end storage unit configured model DH-ITSE0400-GN5A-B intelligent traffic management device Mini terminal. JPEG stream can encode and decode, H.264 streams simultaneously. The default configuration 1T-capacity hard disk storage device is delivered, in order to facilitate user expansion, an expansion device has built-in SATA interface (2.5-inch drives). Device also supports HTTP, pictures video retrieval, video and other functions illegal images.
   See Figure 1- 10.

Figure 1- 10

Model / Parameter	DH-ITSE0400-GN5A-B
Os	Embedded Linux OS
User Interface	WEB
Video Input	4-channel network uncompressed HD video input
Alarm Input	2 alarm input
Alarm Output	2 alarm outputs, relay contacts
Memory	2 internal SATA interface (2.5-inch drives)
RS232 Serial Port	2 RS232 serial ports for serial data debug
Rs485 Interface	An RS485 interface, support for multiple protocols
Usb Interface	An external USB 2.0 Interface
Network Interface	Dual card, two RJ45 100M / 1000M adaptive Ethernet port, four RJ45 100M Industrial switching network interface
Power Interface	DC 12V
Clock	Built-in real time clock
Indicator	1 indicator
Consumption	-10 ℃ above: <20W (without hard drive), <30W (including hard disk); -10 ℃ the following: 40W (heating)
Working	-30℃~+70℃

Temperature	
Humidity	< 95%
Atmospheric Pressure	86kpa~106kpa
Dimensions （mm）	210×138×52
Installation	Desktop

See Figure 1- 11.

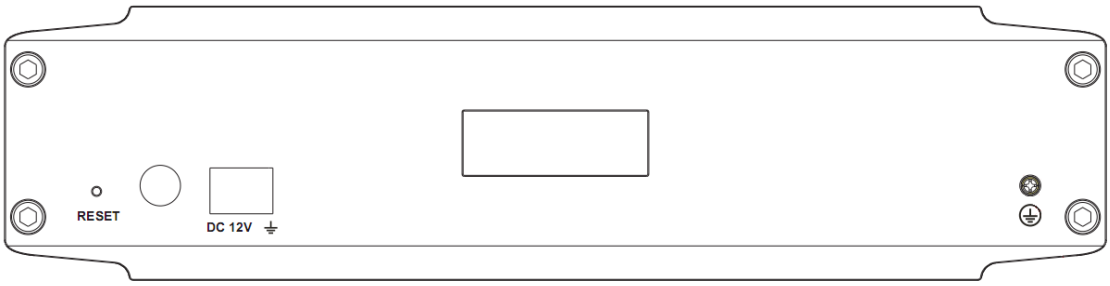

Figure 1- 11

RESET	Reset ● restore the device to factory default settings. ● restore the device to factory default settings Description: Under normal working conditions after the device (power indicator is green), press and hold the button for more than 10 seconds, the system configuration information to restore to factory default settings
DC 12V	Power port

See Figure 1- 12.

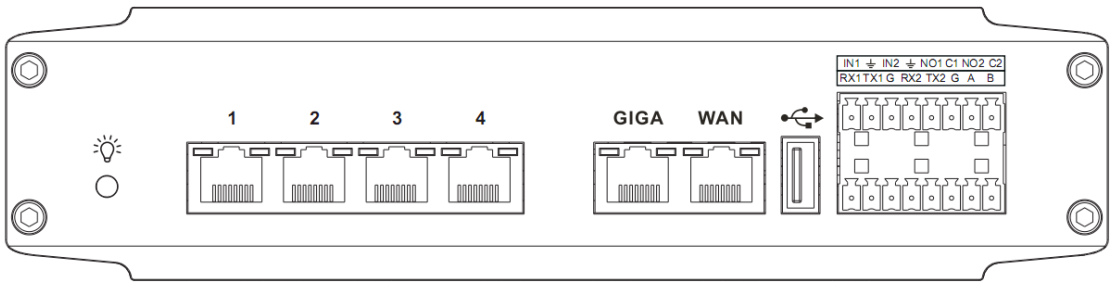

Figure 1- 12

Port Name	Port Function
	Operation indicator • Program operation, NO • Program upgrade flash
1, 2, 3, 4	RJ45 100M switching network interface
GIGA	100M/1000M Adaptive Ethernet port (the same network segment switch)
WAN	100M/1000M Adaptive Ethernet port
	USB port
IN1, IN2	Alarm input interface for receiving external alarm switch signal source
	GND
NO1, NO2	NO alarm output end
C1, C2	Alarm output public end

2. DH-ITSE0804-GN5B-D ITC terminal management device (e-police system optional)

   Front-end storage unit configured model DH-ITSE0804-GN5B-D intelligent transportation terminal management device. The device supports 12 channels of 140W ~ 800W high-definition intelligent cameras and four analog cameras access, can be JPEG streams simultaneously, the codec H.264 streams. The device is delivered default configuration 2T-capacity hard disk storage, expansion in order to facilitate the user, the device has built-in four (total) SATA (3.5-inch hard disk) interface. Device also supports HTTP, pictures video retrieval, video and other functions illegal images.

   See Figure 1- 13.

Figure 1- 13

Model / Parameter	DH-ITSE0804-GN5B-D
System Resources	You can access 12 channels HD network camera (for video and pictures simultaneously access), 4 standard definition analog cameras BNC connectors
Os	Embedded Linux OS
User Interface	WEB
Audio Input	1-ch
Audio Output	1-ch
Video Input	12-channel network uncompressed HD video inputs, four analog video inputs
Alarm Input	4 alarm inputs
Alarm Output	4 alarm outputs
Memory	Four internal SATA interface (3.5-inch drive)
RS232 Serial	2 RS232 serial ports for serial data debug
RS485 Port	4 RS485 interface, support for multiple protocols
USB Port	Two external USB 2.0 ports
Display Output Interface	1 VGA，1 HDMI
Network	Dual card, two RJ45 100M / 1000M adaptive Ethernet port, eight RJ45 100M Industrial switching network interfaces,

Interface	1 1000M SFP optical interface
Power Interface	DC 12V
Switch	A power switch, located on the rear panel
Clock	Built-in real time clock
Indicator	A power / heating status indicator; an alarm status indicator; a running indicator; a hard drive status indicator
Consumption	<20W (without hard drive), <30W (including a hard drive)
Working Temperature	-30℃~+70℃
Working Humidity	<95%
Atmospheric Pressure	86kpa~106kpa
Dimensions （Mm）	355.0 mm×250.0 mm×112.0 mm
Weight	8KG
Installation	Bracket, desktop

See Figure 1- 14.

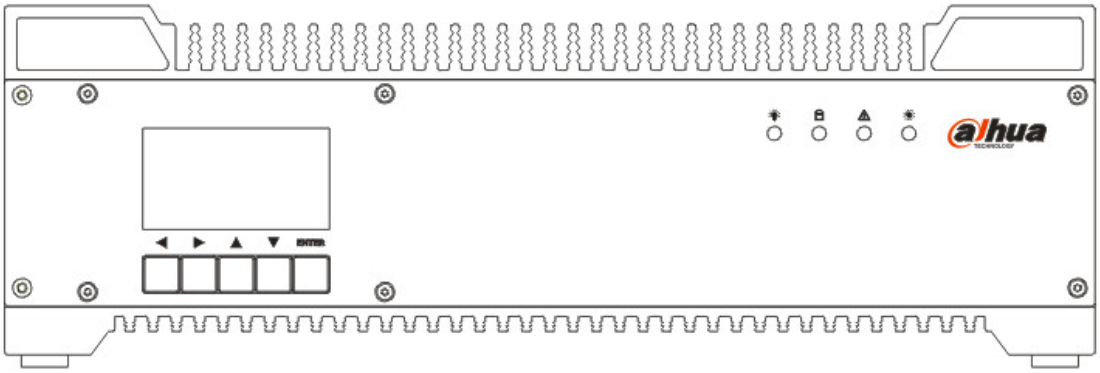

Figure 1- 14

The indicator has three statuses: NO, NC and flash.

Icon Name	Port Function

Icon Name		Port Function
	Running indicator	• indicator light is green, indicating normal operation procedures • indicator flashes green, indicating that the program upgrade
	HDD indicator	indicator flashes green, indicating that the hard disk is being accessed
	Alarm indicator	• indicator light is red, the opening alarm • indicator flashes red to indicate an alarm is triggered
	Power indicator	• indicator light is red, the power supply is working properly • indicator flashes red, it indicates the device is heated
▲、▼	Up/Down	Up and down to adjust the time decrease
◀、▶	Left/Right	When moving around to adjust the minutes and seconds
Enter	Confirm	Confirm

See Figure 1- 15.

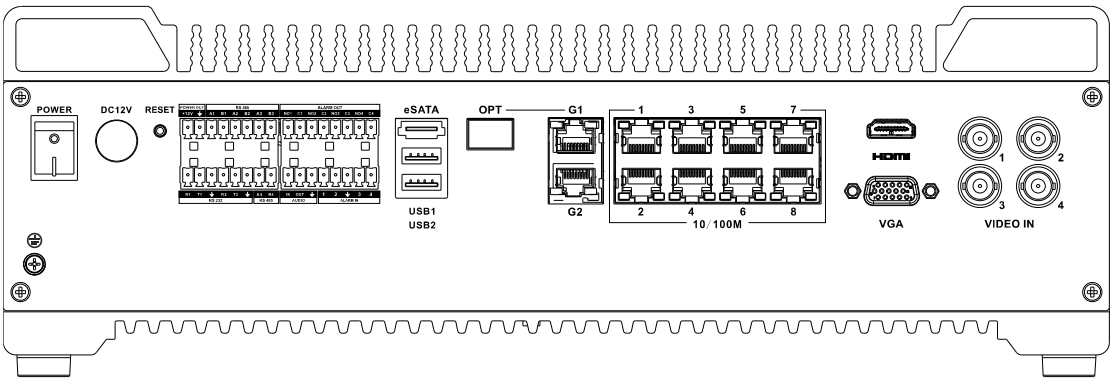

Figure 1- 15

Port Name		Port Function
POWER	Power Button	Toggle switch on the device switch
DC 12V	Power Port	DC 12V power input
RESET	Reset	• Restore defaulting settings Note: The device is working properly, the power indicator is green, press and hold the button for more than 10 seconds, the system configuration information to restore to factory default settings.

+12V	Power Out	• Power output port
		• Input grounding
A1、B1 A2、B2 A3、B3 A4、B4	Rs485 Port	• Reserved，4 RS485 ports
R1、T1 R2、T2	Rs232 Serial	• 2 RS232 ports, R is the receiver, T is the sender
ALARM OUT	No1～No4	• 4 groups of alarm output port (group 1: Port NO1 ~ C1, group 2: Port NO2 ~ C2, Group 3: Port NO3 ~ C3, Group 4: Port NO4 ~ C4), output alarm signals to external alarm devices, external alarm equipment power supply is required. • NO: normally-open alarm output. • C: alarm output common terminal.
	C1～C4	
ALARM IN	1～4	• Alarm input port
AUDIO IN	Audio Input Port	N/A
AUDIOOUT	Audio Output Port	N/A
eSATA	Esata Port	The external SATA port, the external SATA device port.
USB1、USB2	Usb Port	2 USB port, an external USB storage device, mouse, etc.
OPT	-	1 1000M SFP optical port, and G1 in the same network segment
G1、G2	Dual Network Port Cards	2 1000M network port, not the same network segment, one of which can 1000M photoelectric conversion port
10/100M	Network Port	8 RJ45 10M / 100M adaptive Ethernet port, and G2 are in the same network segment
HDMI	High-Definition Multimedia Port	HD audio and video signal output port, transmission of uncompressed HD video and multi-channel audio data to the display device has an HDMI port
VGA	Video Output Port	Connect a monitor, watch videos and pictures
VIDEO IN	Video Input Port	4 analog cameras Port

	Input Ground	-

1.5.8 AUX Device

1.5.8.1 DH-PFA161 Bracket and DH-ITABX-018BA Housing

1. DH-PFA161 bracket

See Figure 1- 16.

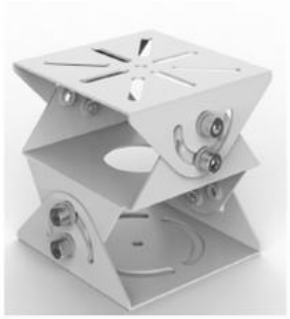

Figure 1- 16

- Material: SUS304
- Installation: wall mounting
- Load: 20kg
- Scope: DH-ITABX-018BA shield
- Weight: 0.5k
- Stent length: 117.4 × 117.4 × 100.5mm

2. DH-ITABX-018BA housing

See Figure 1- 17

Figure 1- 17

- Window size: 102 (w) × 89 (h)
- Protection: ip66

- Material: aluminum
- Window: transparent glass, optional optical glass
- Camera maximum size: 280 (l) × 125 (w) × 104 (h)
- Optional accessories: heater, fan, sun shade, wipers, optical glass
- Weight: 5.0kg / 4.5kg

1.5.8.2 Cable

System cable as follows:

- Cable: UTP FTP shielded cable
- AC220 power line: RVV3 * 1.5^2;
- Camera power line: RVV3 * 1.5^2;
- Flash trigger lines: RVSP2 * 0.5^2;
- Strobe trigger lines: RVSP2 * 0.5^2;
- Vehicle inspection device to the host signal line: RVSP2 * 0.5^2;

- A sense (ring) coil cable: FVN2.5^2;
- Feeder: RVSP2 * 1.5^2;

1.5.8.3 Pole

Fixed camera flash, Strobe with specific dimensions determined according to the construction site. 12 requires anti-typhoon, anti-earthquake six.

1.5.8.4 Outdoor Distribution Box

To install air switch, mine, signal detection, sockets and fiber splicing boxes. It requires protection class IP54, built-in thermostat and fan.

1.5.8.5 Air switch, mine, mine network

Recommend Zhengtai air switch, power DXH06-F mine, the choice of model for FRX-SL-RJ45 network SPD.

1.5.8.6 Fiber Optic Transceivers, Switches (Optional)

Recommend to use of industrial-grade switch, we recommend the HF-500 system class optical transceivers.

2 System Installation Plan

2.1 System Installation Plan

2.1.1 ANPR System

See Figure 2- 1.

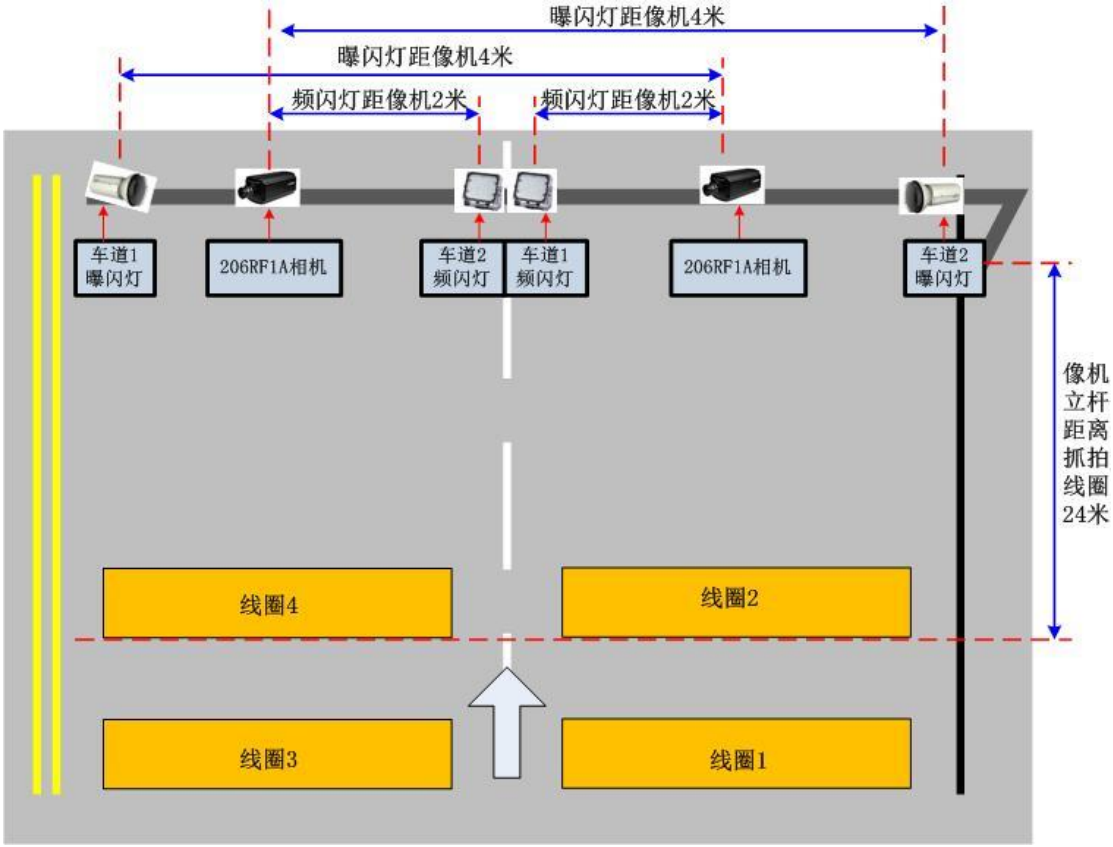

Figure 2- 1

System installation method figure explanation:

- snapshot coil 24 meters away from the host, allowing displacement +1 meters Top 24 m;
- Use Dahua 35mm fixed focus lens;
- host installation in the middle of a scene;
- LED Strobe light with positive play way up from the nearest camera LED lamp should be greater than 2 meters or more;
- Separation distance ¬ camera with flash is greater than 4 meters.

2.1.2 E-police System

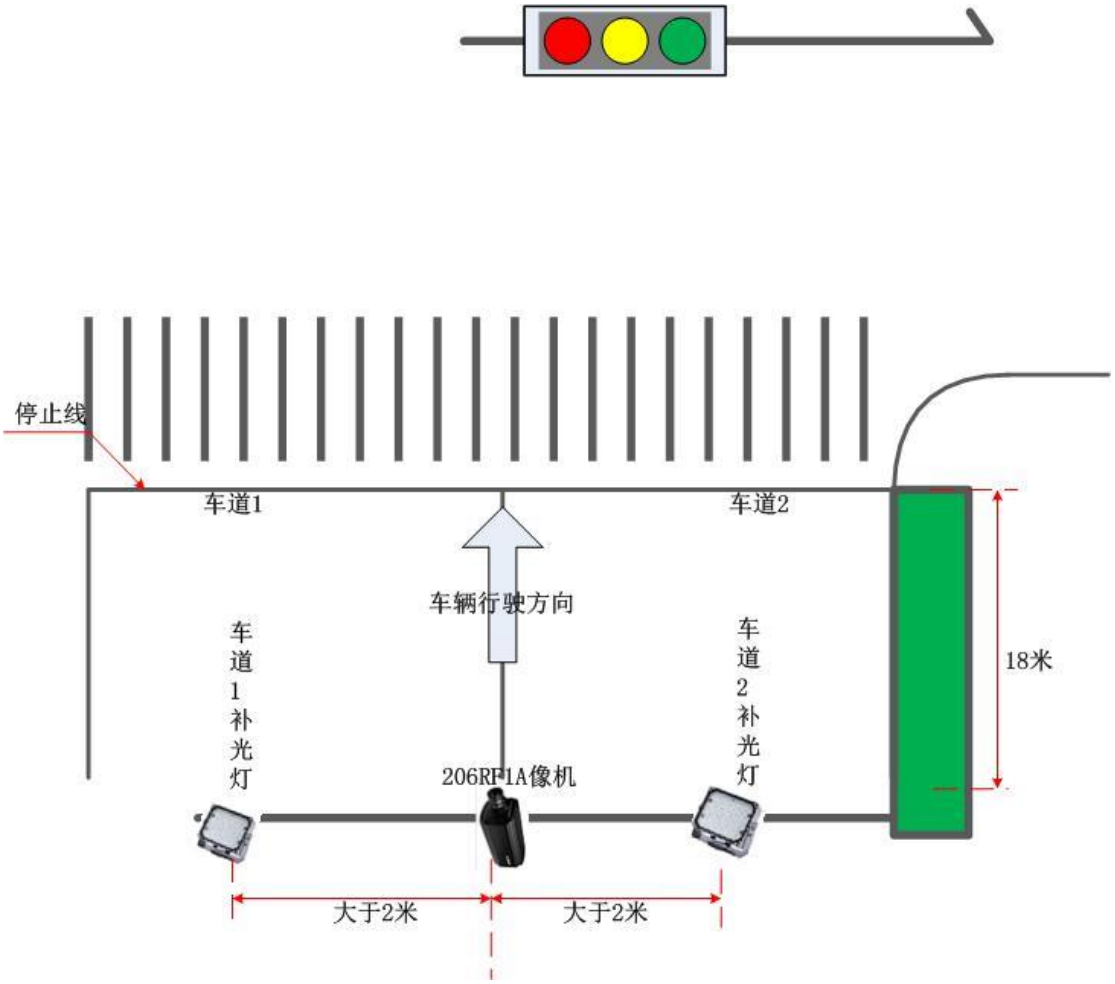

Figure 2- 2

System installation method figure explanation:

- Host 18 meters from the stop line, allowing displacement +1 meters Top 18 m;
- Use Dahua 12mm fixed focus lens;
- Host installation in the middle of a scene;
- LED strobe light adopts upright compensation method, the closest LED light to the camera shall be greater than 2 meters.

2.2 Coil Cut Plan

2.2.1 ANPR Coil Cut Plan

See Figure 2- 3.

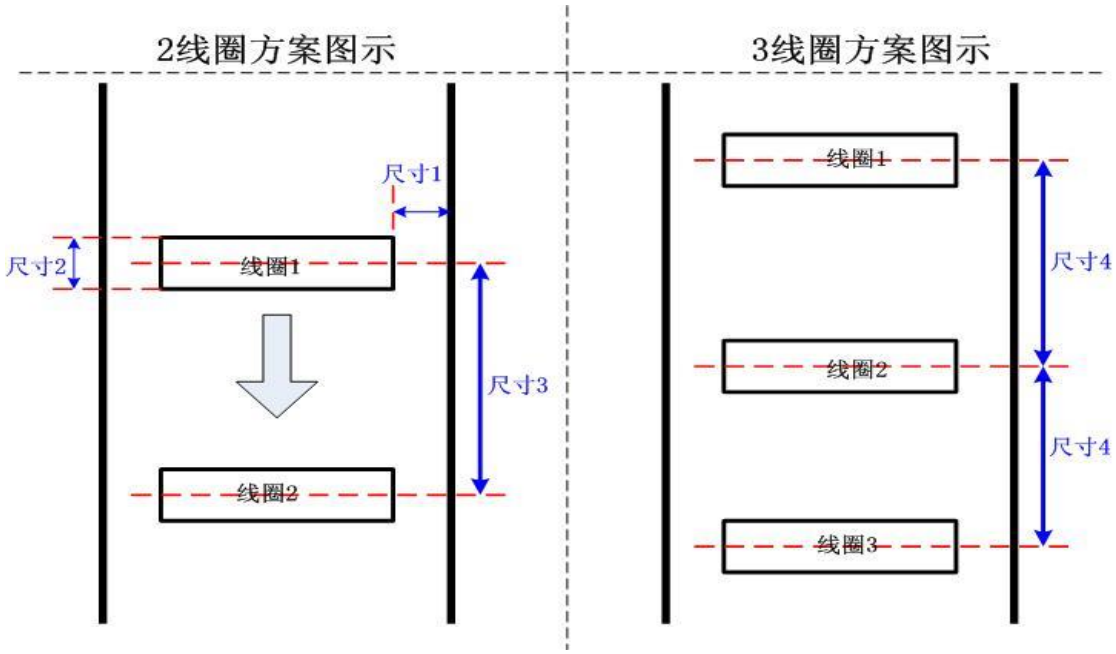

Figure 2- 3

Coil plan explanation:

- Dimension 1: Indicates coil edges from the lane dividing line distance that requires> 0.3 m;
- Dimension 2: the length of the coil (vehicle traveling direction), length: 1 m;
- Dimension 3: Indicates coil center distance, the coil center distance: 4 m;
- Dimension 4: 3 coil program represents the center of the coil from the coil center distance: 4 meters.
- Coil width requirements, covering more than 75% of the lane.

Note:

If the project plan using two coils, for "retrograde" "speeding" violation of the detector will influence the election does not recommend this program to snapshot the "retrograde" and "speeding" These illegal!

2.2.2 **E-police System Coil Cut Plan**

1. Three coil plan

It depends on the width of the annular coil lane width, typically 65% to 75% coverage of a lane width of not less than 0.5 m. For example: A typical lane width is 3.75 meters wide,

2.75 meters wide circular coil, length (vehicle traveling direction) of 0.6 m. General ring coil width = lane width - 2 * 0.5 m, from the lane dividing lines on both sides of the coil center line 0.3 m, see Figure 2- 4.

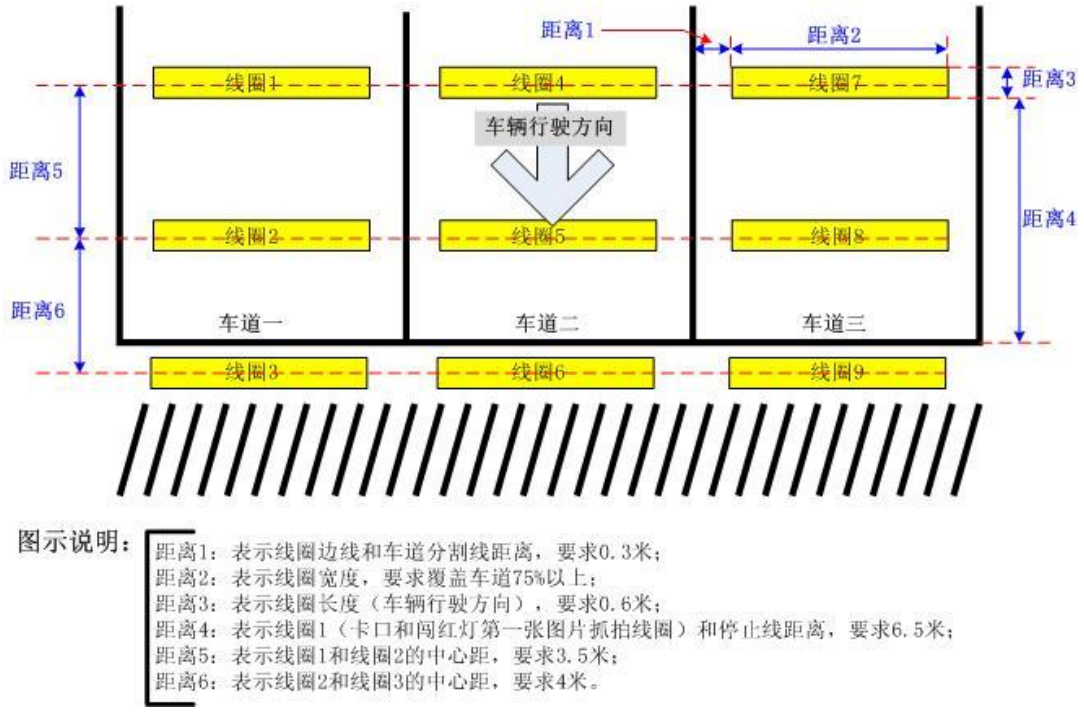

Figure 2- 4

Figure coil dimension:

- Distance 1: Indicates distance between the coil edges and lane dividing line, 0.3 m;
- Distance 2: the coil width, lane requirements cover 75%;
- Distance 3: Indicates coil length (vehicle traveling direction), 0.6 m;
- Distance 4: Indicates coil 1 (system mount or through a red light the first image snapshot coil) and stop line distance 6.5 meters;
- Distance of 5: representation and the center coil 1 from coil 2, 3.5 m;
- Distance 6: Indicates coil 2 and the coil 3 center distance, 4 m.

Warning:

2/3 coil spacing is generally not critical, if the three coil cutting lines in the parking visual effects, a third coil may be appropriate to move the stop line outside, but not too far.

2. Two coil plan

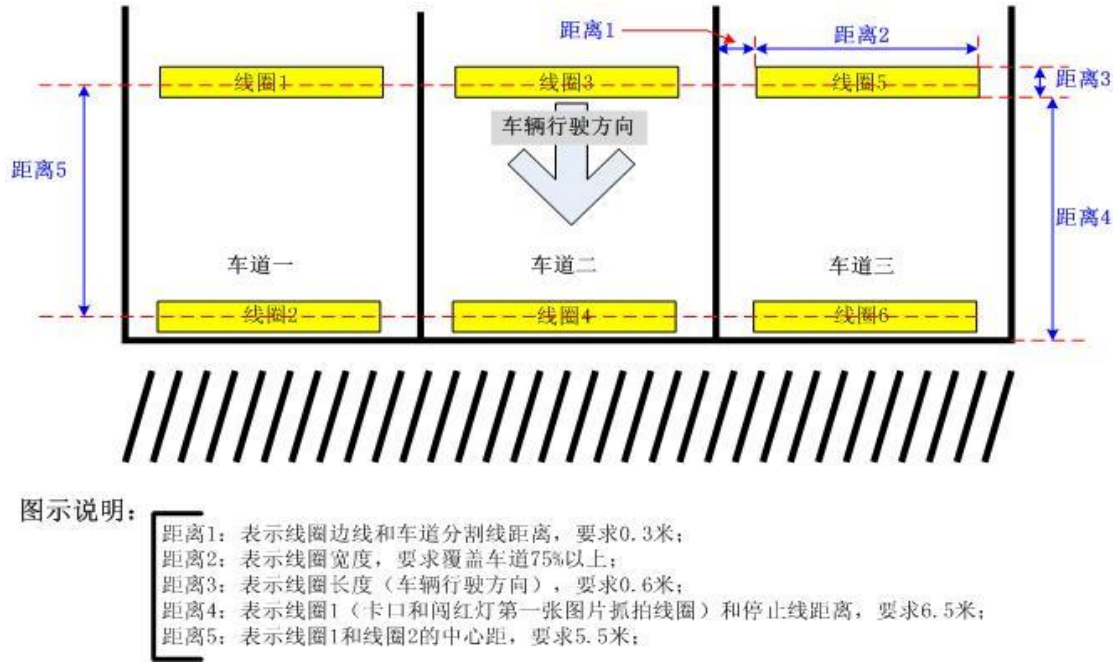

Figure 2- 5

Figure coil dimension:

- Distance 1: Indicates distance between the coil edges and lane dividing line, 0.3 m;
- Distance 2: the coil width, lane requirements cover 75%;
- Distance 3: Indicates coil length (vehicle traveling direction), 0.6 m;
- Distance 4: Indicates coil 1 (system mount or through a red light the first image snapshot coil) and stop line distance 6.5 meters;
- Distance of 5: representation and the center coil 1 from coil 2, 5.5 m;

Warning:

If the project plan using two coils, for "retrograde" "speeding" violation of the detector will influence the election does not recommend this program to snapshot the "retrograde" and "speeding" These illegal!

2.2.3 Advantages and Disadvantages of Two Coil Cutting Plan

The system has several coil plans for selection, according to actual usage options, such as law and order mount (item no requirement for speed) choose single coil or coil program. The speed accuracy requirements, generally carried out speeding violation penalties are recommended for use 3 coil program. When construction of the project, according to project requirements focus for flexible options. The advantages and disadvantages are as follows:

Two coil plan:

- Advantage: save cost.
- Disadvantage: may have speed measurement abnormality.

Three coil plan:

- Advantage: high measurement accuracy, can well avoid abnormality in speed measurement.
- Disadvantage: higher cost.

The system recommends three coil plan!

2.3 Nonstandard Road System Safety Operation Standard

System installation program of standard construction program, does not apply in the installation of unmarked point!

Standard construction program point that is applicable outside the place of non-punctuation, for example: camera pole, lane width, stop line irregular point, are non punctuation bits.
The construction of non-standard junction can not complete reference standard construction program recommended installation program or coil cutting programs for the construction. To be based on field measurements of environmental data on the back end associated analog validation, and then verify that conclusion, given the point of the executable installation and coil cutting program. The tip should be based on the construction program for the point of final given to carry out the point of construction operations.

When project construction encounters special points, please follow:

1. Check on-site condition, collect some data related to the site. The data to be measured as follows:
   - HD camera installation distance L lever snapshot coil size;
   - high-definition camera can range pole;
   - scene lane width;
   - within the curve lane width L pole crossbar;
   - L rod and coil gap on the same horizon distance.

2. Draw analog field icon, expressed the actual size of the data field.
3. Related conditions can conduct their own verification, validation later for construction; no conditions this demand and said the site information submitted products division, they will coordinate personnel-related verification, will provide a special construction program after the verification is complete. Please refer to the product section will provide separate "special construction plan" for construction.

3 System Wiring, Device Installation and Check

3.1 System Wiring

3.1.1 System Wiring Graph

3.1.1.1 ANPR System Wiring Graph

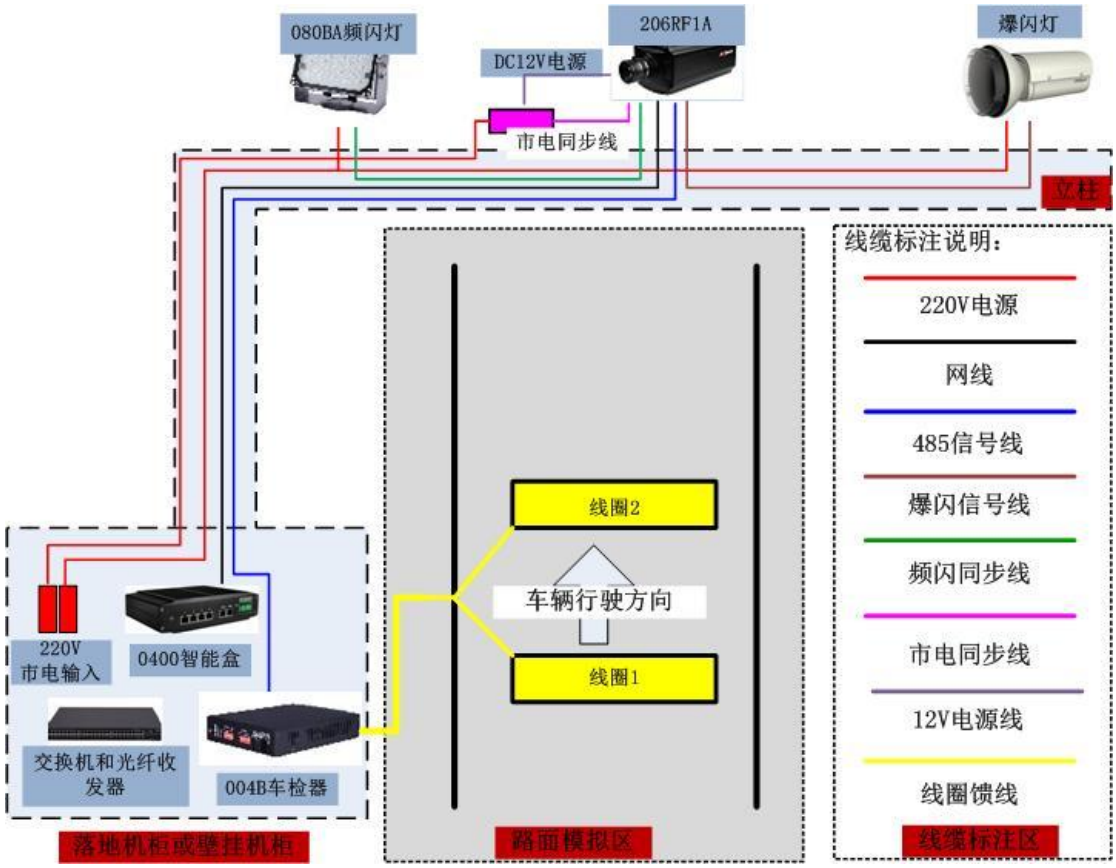

Figure 3- 1

Note:

SOY-1200330 power output DC12 used in the housing is used for camera power supply, and carry city grid sync signal line, wiring, cable use, AUX device config, grounding requirements referring to system standard scheme recommendation. Non-standard system will cause risks.

3.1.2 System Wiring Steps

Step 1: camera wiring

The camera uses 220V to 12V power adapter, power adapter placed in the DH-ITABX-018BA shield, 220V mains lead from the cabinet to the DH-ITABX-018BA protective cover. From the cabinet lead to DH-ITABX-018BA power cable shield inside the cable using RVV3 * 1.5²cm,, see Figure 3- 2:

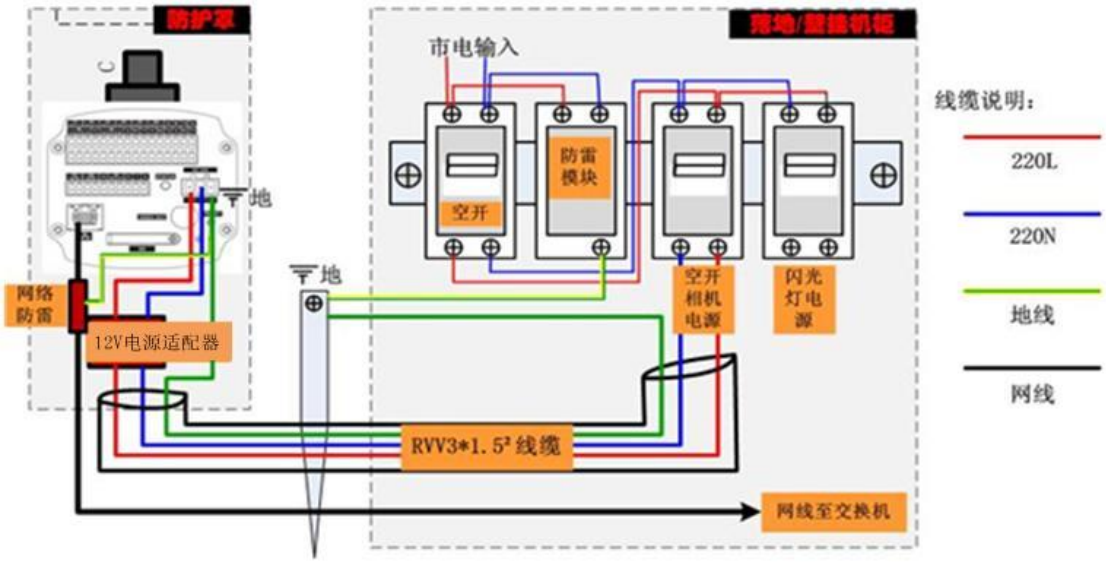

Figure 3- 2

Step 2: Camera and strobes signal line and the signal line between strobes cascade wiring methods

Camera and strobes signal line and the signal line between strobes cascade connection method, refer to Figure 3- 3.

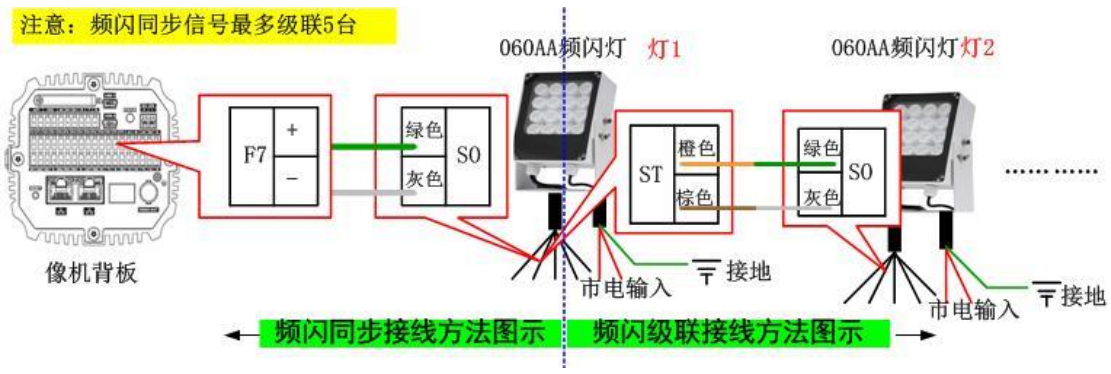

Figure 3- 3

Step 3: Wring of camera and vehicle detector [pure video detection system skipped]

Vehicle detector signal line, requires RVSP2*0.5² wire.

Camera snapshot vehicle inspection device using signal detection coil, camera support vehicle inspection access to the two signals: a, RS485 signal, two, I / O signals. System selection RS485 communication, see Figure 3- 4 and IO communication, see Figure 3- 5.

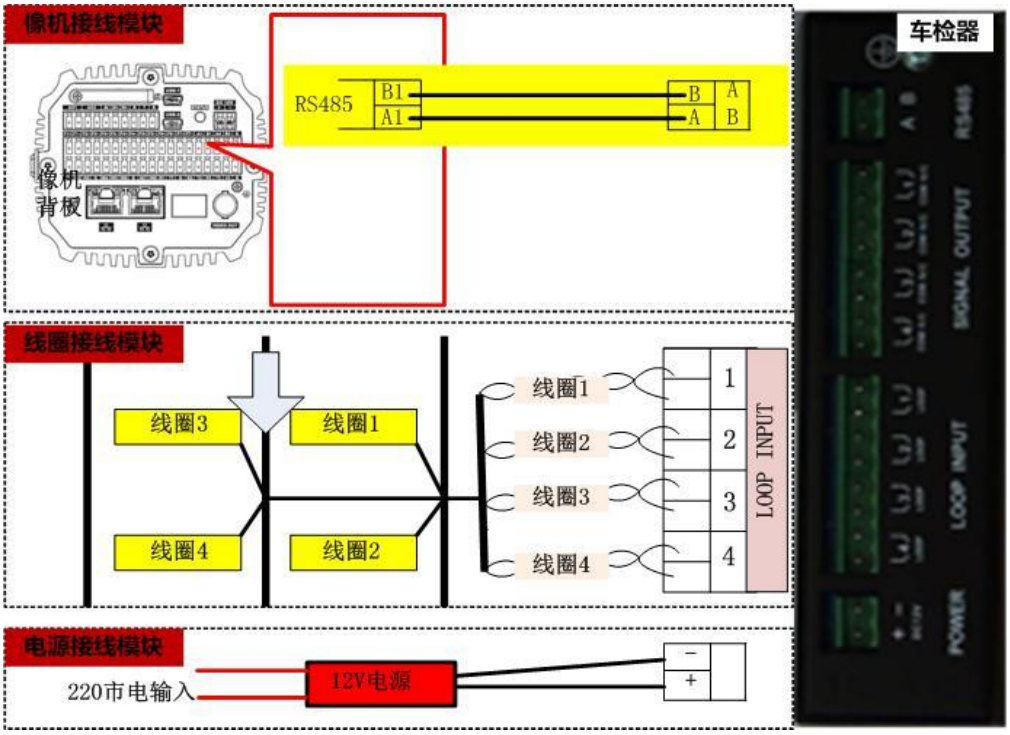

Figure 3- 4

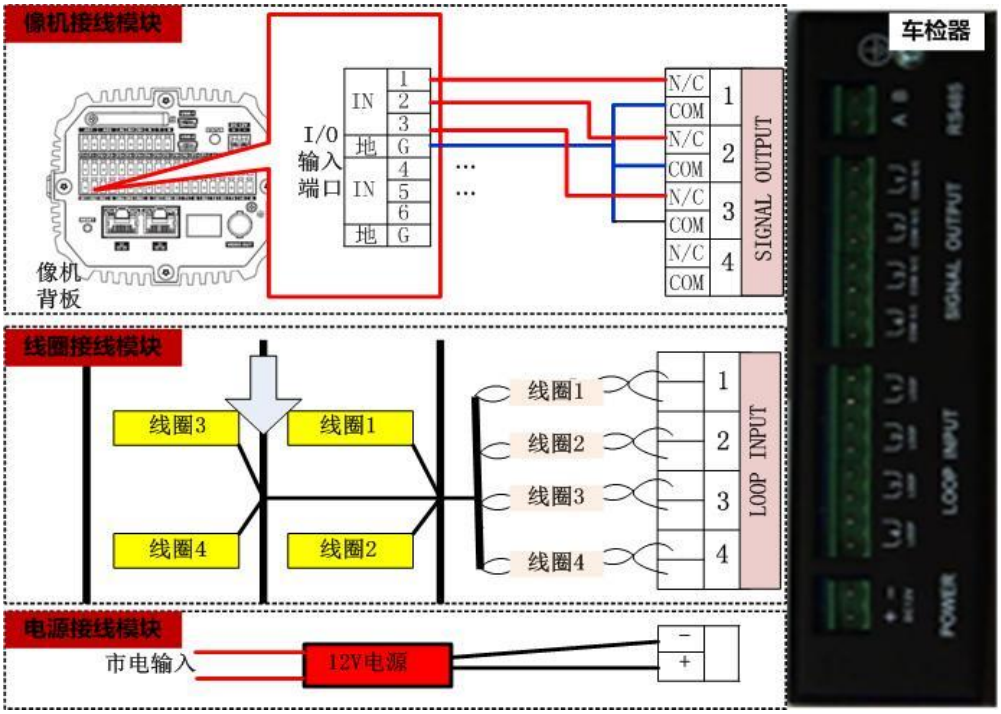

Figure 3- 5

Step 4: strobe light wiring

The system definition camera, maximum support 5-way flash signal output, according to the driveway or picture type of supplemental lighting requirements for flash shunt. Strobe trigger line directly connected to the backplane as the machine burst light signal output port (F1 ...), see Figure 3- 6.

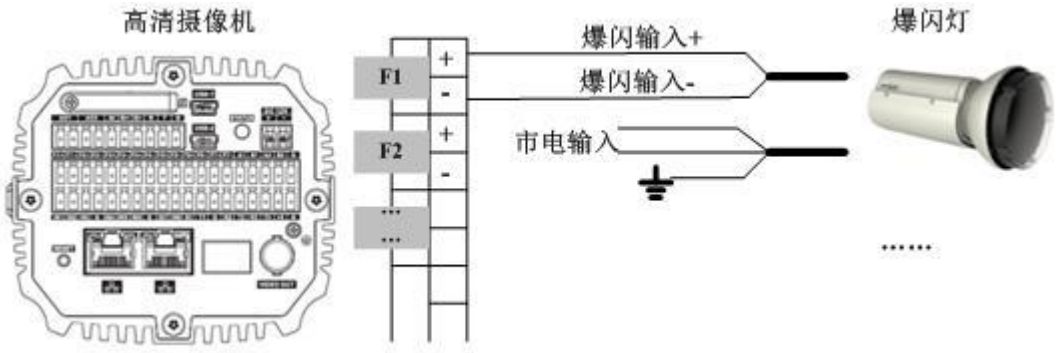

Figure 3- 6

Note:

Please refer flash trigger signal line flash "user's manual" for instructions. Strobe also have strobe function, strobe wiring, directly replace strobe wire.

Warning: during installation, all device in the system shall be well grounded!

3.1.3 **HD Camera Installation**

206RF1A ANPR system, adopts upright installation (device not rotated).

206RF1A E-police system, adopts side installation (rotate 90°).

4 System Debugging

4.1 Camera Debugging

4.1.1 Scene Requirement

4.1.2 Camera Parameter Setup

See the following:


大华交通高清摄像机_WEB使用说明书_


大华智能交通高清摄像机_使用说明书

4.2 004B/004A Vehicle detector Debugging [skip here for pure video detection system]

4.2.1 Vehicle detector Parameter Step

When set parameter for 004B, follow:

Step 1: Check vehicle inspection device RS485 communication enable and baud rate;
Step Two: there is a time to set the vehicle inspection DIP;
Step 3: Set vehicle inspection sensitivity.

Refer to DH-ITACD-004B user's manual.


DH-ITACD-004B_独立盒式四通道车辆检

4.2.2 Vehicle Detector Parameter Setup Validity Confirmation and Guide

After completing vehicle inspection parameter settings, you need to check the status of vehicle inspection, confirm the correctness vehicle inspection parameter settings.

Vehicle inspection parameter settings are correct, the system can snapshot the picture to confirm. Carefully compared the system to snapshot the image, if there are multiple pictures in the film, shot leak, empty lots, adjacent lane trigger snapshot, snapshot abnormal position, abnormal abnormal image velocimetry system, represents vehicle inspection device parameters are not set up, to be based on problems phenomenon adjust the parameters of vehicle inspection; if the picture above does not show up, the parameter settings of vehicle inspection is reasonable.

According to the above types of problems arise, you can distinguish the subject out of the bus which parameter set unreasonable, given reasonable solution. For example: The system appears more shot, empty lots, adjacent lane interference, snapshot abnormal position, the system speed abnormal phenomena, represents vehicle inspection sensitivity is too high or interference. System if the above phenomenon, please adjust the vehicle inspection device and operating frequency sensitive parameters to resolve, through repeated optimizing vehicle inspection sensitivity and operating frequency parameters, until the state disappears and optimum operation so far (note: for sensitivity When adjusted, the need to refer the project to the testing requirements of the vehicle may be); carts snapshot system has more than one (hub location to snapshot), leak shoot, snapshot abnormal position, the system speed abnormal phenomena, represents vehicle inspection sensitivity is too low, please be solved by increasing the sensitivity.

Debugging Tips Share: vehicle inspection is a detection mode coil mount system is the basis for image snapshot system. Vehicle inspection parameter setting is appropriate, directly affect the system's snapshot. Vehicle inspection Detection principle: to enter the coil inductance change detection medium to determine the cause of the target, when the inductance of which meet criteria, it is determined that there are targets (vehicles). A variety of conditions can cause changes in the magnetic field inductance: 1, into the magnetic field of the medium (vehicle); 2, the surrounding material (iron manhole cover and other items); 3, the magnetic field around the source; 4, the coil wire itself jitter or vehicle inspection The oscillation circuit, etc. These circumstances, in addition to media-induced inductance variation is normal, the rest are interfering signals. Therefore vehicle inspection device is most difficult to solve the interference problem, the problem will be raised when the late vehicle inspection parameter settings, it is difficult to find a compromise so that the vehicle inspection parameters in normal operation (difficult to adjust). Vehicle inspection is number one, "Enemies" is interference, the choice of site pre-construction of the coil, the coil and the coil feeder layout, coil cutting technology and embedded technology, the coil feeder select, do avoid wiring phases, so that the construction is solved according to specifications or The best way vehicle inspection device in addition to the mitigation of interference. By standardizing construction, during the construction phase we will create a vehicle inspection is an excellent application with

minimal disruption to the environment, so that the interference vehicle inspection can be reduced to a great extent, to prevent vehicle inspection debug "trouble" - Interference seriously affect the normal operation.

4.2.3 Vehicle Detector Debugging Notice and Warning

1. Vehicle inspection present interval set reminders

Vehicle inspection is applied when the ANPR system that requires the presence of vehicle inspection time is set to 30 seconds. Specific parameter settings requirements, refer to DH-ITACD-004B vehicle inspection instruction manual.

2. The vehicle inspection the AB logic function enable set reminders

DH-ITACD-004B vehicle inspection device having a logic function AB, is set on the first eight SW5 DIP, set enable or disable these two states. AB logic function is used for special occasions, while the ANPR and card warning system is a non-specific applications, and therefore need to turn this feature off.

3. The vehicle inspection sensitivity stalls set reminders

Vehicle inspection sensitivity is set according to project requirements, if the following requirements to capture two-wheeled vehicle projects, vehicle inspection sensitivity to be improved; if you do not capture the two-wheeled vehicle on the following items, vehicle inspection sensitivity can be reduced. The lower the sensitivity of the vehicle inspection, vehicle inspection, the stronger anti-interference.

4. The vehicle inspection operating frequency set reminders

Mount system placed inside a cabinet multiple vehicle inspection and signal detector integrated chip card vehicle inspection device, the above application environment will lead to mutual interference between vehicle inspection. Thus requiring: vehicle inspection device operating frequency must be between the board shifted.

5. The vehicle inspection device 485 is enabled and the communication baud rate settings

Vehicle inspection and signal detector heartbeat packets through 485, so the 485 vehicle inspection function must be enabled, communication baud rate vehicle inspection between the detector and signal must be consistent.

4.3 Strobe Light Debugging

4.3.1 Strobe Light Debugging Step

Strobe debugging subject to the following aspects:

- ✧ Check physical wiring of strobe light;
- ✧ Adjust light angle of strobe light;

4.3.2 Strobe Light Debugging Details

4.3.2.1 Step 1: Check Physical Wiring

Check Strobe physical wiring is correct job should be scheduled at night, whether by video viewing strobes have "flashes" approach to confirm the blinking strobe light is not synchronized, otherwise normal; specific steps described below:
Step 1: the camera shutter time is set to 0 to 3, the gain is set to: 30, the phase is set to external synchronization;
Step 2: Open the video camera;
Step 3: Check the video scene Strobe fill light is flashing (while light while off) the presence, if the bright and dark either the physical wiring fault, no bright dark either the physical connection is correct;
Step 4: Video no abnormal flow measurement completion; abnormal physical wiring the repair and re-launch the process.

4.3.2.2 Step 2: Adjust Light Angle

Strobe light angle adjustment up work should be scheduled at night, by looking at the video monitor brightness of the scene to determine the requirements: Strobe center spot in the middle of a scene horizontal, vertical 1/2, as in Figure 4.6-1 FIG. Specific steps described below:
Step 1: the camera shutter time is set to 0 to 3, the gain is set to: 30, the phase is set to external synchronization;
Step 2: Open the video camera;
Step 3: Check strobe light spot within the video scene in which the position of the spot position if normal, end the process; if the spot abnormal position, adjust the fill angle strobe light to re-launch the process; see Figure 4- 1.

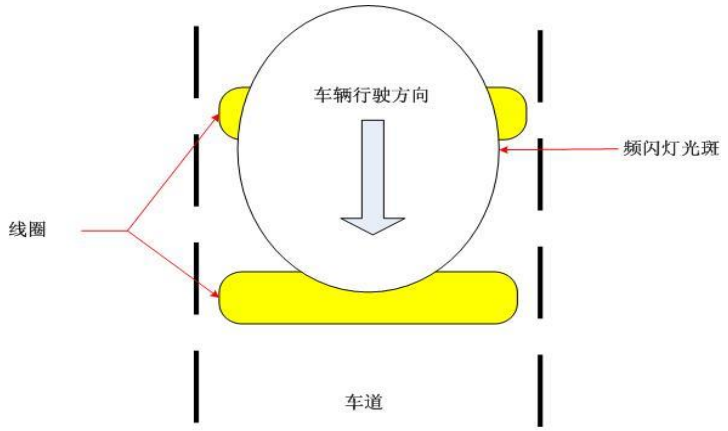

Figure 4- 1

Note:

Strobe angle adjustment, should take into account the effect of the license plate within the scene. If the license plate had burst, but also make appropriate corrective Strobe light angle, through constantly corrected, Strobe position until the best so far.

4.4 Flash Light Debugging

4.4.1 Flash Light Debugging Guide

Flash debugging subject to the following aspects:

- ✧ Check physical wiring of strobe light;
- ✧ Adjust light angle of strobe light;

4.4.2 Flash Light Debugging Guide

4.4.2.1 Step 1: Check Physical Wiring

Check the flash physical wiring is correct job should be scheduled at night, through the camera shots through flash if "Flash" method to confirm that flashes to indicate that the physical wiring normal flash. Otherwise abnormal, need repair flash physical wiring; specific steps described below:

Step 1: the camera shutter time is set to 0 to 3, the gain is set to: 30, the phase is set to external synchronization;

Step 2: like the "flash" parameter setting machine parameter to "Always", and branching

strategies based flash flash wire port settings;
Step 3: WEB preview window open, open real-time picture browsing;

Step 4: Click "Manual capture" or view the situation through the fill flash when the car capture;
Step 5: The flash flashes to indicate that there is a physical connection to normal flash, no flash either the physical wiring fault, which required repair.

4.4.2.2 Step 2: Adjust Light Angle

Adjust the angle of flash fill light work should be scheduled at night, by looking at the system snapped images of flash brightness to judge. Specific steps described below:
Step 1: the camera shutter time is set to 0 to 3, the gain is set to: 30, the phase is set to external synchronization;
Step 2: Check the system is set flash parameters, if the flash parameter is turned off, please turn on the flash. Check the flash branch and are set correctly;
Step 3: by looking at the overall brightness within the scene and license plates brightness two factors determine if overall brightness within a scene centered, license plate is not overexposed, the end of the process; if the overall brightness within a scene centered, license plate overexposure, the flash optimization fill light angle, until the best so far;

4.5 ITC Terminal Device Guide

4.5.1 ITC Mini Terminal Device Networking

Intelligent transportation terminal management device will function switches and fiber optic transceivers integrated on a single device, and offers a variety of networking, to meet the different needs of customers. Device has two network cards, the factory default IP are: WAN card 192.168.1.108; GIGA card 192.168.0.108. The following is a detailed description of the various networking:

4.5.1.1 Method 1: One Segment (wired) Networking Intro

Single network segment means: front and rear ends of the device using the same IP subnet, make no distinction. This card default IP: 192.168.0.108.

Single segment networking, connect the rear end of the network cable access GIGA port, the network cable mount camera access other switch ports.

See Figure 4- 2.

Figure 4- 2

4.5.1.2 Method 2: Dual Segment (wired) Networking Intro

Dual network segment (cable) networking means: the front (camera or other device) to an IP network, the back-end platform to an IP network segment, the front and rear ends of two IP subnet network. The card default IP: 192.168.1.108.

See Figure 4- 3.

Figure 4- 3

Note:

The networking backend (center) can not directly access the front end, you need a smart box by proxy, in order to maintain the front camera parameters.

4.5.2 0804 Networking Intro

Intelligent transportation terminal management device will function switches and fiber optic transceivers integrated on a single device, and offers a variety of networking, to meet the different needs of customers. Device has two network cards, the factory default IP are: G1 NIC 192.168.1.108; G2 card 192.168.0.108. The following is a detailed description of the various networking:

4.5.2.1 Method 1: Single Segment Networking Intro

Single network segment means: front and rear ends of the device using the same IP subnet, make no distinction. This card default ip: 192.168.0.108.
Single segment networking, the rear end of the network cable connection G2 port, the network cable junction camera access other switch ports. See Figure 4- 4.

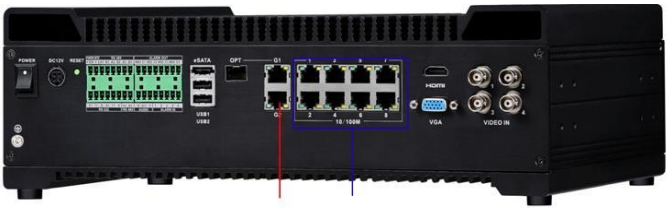

Figure 4- 4

4.5.2.2 Method 2: Dual Segment Networking Intro

Dual segment (wired) networking: Front-end (camera or other device) to an IP network, the back-end platform to an IP network segment, the front and rear ends of two IP subnet network. The card default IP: 192.168.1.108. See Figure 4- 5.

Figure 4- 5

Note: The networking backend (center) can not directly access the front end, you need a smart box by proxy, in order to maintain the front camera parameters.

4.5.2.3 Method 3: Dual Segment (Fiber) Networking

Dual segment (fiber) networking: Front-end (camera or other device) to an IP network, the back-end platform to an IP network segment, the front and rear ends of two IP network networking. See Figure 4- 6.

Figure 4- 6

Note:

The networking backend (center) can not directly access the front end, you need a smart box by proxy, in order to maintain the front camera parameters.

When use dual-network segment (fiber) networking, integrated fiber optic transceiver device only port, does not offer optical modules. Thus, for an increase in the construction of light module, fiber module of product see following chart.

Name	Model	Material No.
SFP fiber module-1.25G-SFP single fiber dual direction -1310nm-10km	ART-S1001	1.2.02.07.0100
SFP fiber module-1.25G-SFP single fiber dual direction-1550nm-10km	ART-S1002	1.2.02.07.0101

Model of optical module at both ends shall be the same, but not the same wavelength. For example: the front end of the optical wavelength selection module is 1310nm, 1550nm wavelength of the backend should be, the light wavelength optical modules at both ends should be staggered.

Note: After the optical module is powered, must see with the naked eye optical output, to avoid damage to the eyes.

Note:

- **This installation manual is for reference only. Slight difference may be found in user interface.**
- **All the designs and software here are subject to change without prior written notice.**
- **All trademarks and registered trademarks are the properties of their respective owners.**
- **If there is any uncertainty or controversy, please refer to the final explanation of us.**
- **Please visit our website or contact your local service engineer for more information.**