

**Manual for ZDEC V6 Series Product  
-V6 system (V1.0)**

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## Contents

<b>1. BRIEF INTRODUCTION .....</b>	<b>4</b>
<b>2. THE PRINCIPLE OF SYSTEM CONSTITUTION .....</b>	<b>4</b>
<b>3. THE APPLICATION OF SYSTEM .....</b>	<b>5</b>
<b>4. DISPLAY PERFORMANCE .....</b>	<b>5</b>
<b>5. SYSTEM CONSTITUTION .....</b>	<b>5</b>
<b>5.1 LED Panel controller .....</b>	<b>5</b>
<b>5.2 Applied environment .....</b>	<b>6</b>
<b>5.3 Configuration list .....</b>	<b>7</b>
<b>6. LED PANEL SYSTEM .....</b>	<b>7</b>
<b>6.1 Hardware constitution .....</b>	<b>7</b>
<b>6.2 Connection and use .....</b>	<b>7</b>
<b>6.3 Indicator troubleshooting .....</b>	<b>8</b>
<b>7. APPLICATION CASES .....</b>	<b>8</b>
<b>7.1 Panel application .....</b>	<b>8</b>
<b>7.2 ZQL9712 lamp strap application .....</b>	<b>13</b>



## Safety instructions

- \_ To avoid the accidents of fire or electric shock, please do not expose the product in rain (water) or damp environment.
- \_ Please place the product in well-ventilated area so as to avoid overheating.
- \_ To avoid electric shock, please use the power supply with three-phase plugs so as to ensure the reliable grounding.
- \_ To prevent burning out the product from shorted, please do not put the product directly on electro-conductive materials. If necessary, please use insulating substances. Please do not put electro-conductive materials on the product directly.
- \_ Before using the product, please check if the local voltage and power supply voltage are consistent with the requirements of this system, and if the anode and cathode definition of power supply are consistent with that of system plate.
- \_ Please use soft cloths dipped with little neutral detergent to clean the cabinet, and do not use any sand paper, polishing powder or solutions such as alcohol and gasoline.
- \_ Please do not tear or alter the label in the product for the convenience of the product maintenance afterward.
- \_ If the product comes into trouble, please contact professionals for maintenance, and do not dismantle the product privately.



## 1. Brief introduction

The ZQLS-PC-02 online video control system is commonly used LED as a Panel control system platform, which is newly developed by Zhongqing Company. Connecting with the computer, the system can accomplish the LED panel control .It supports two-color or three-color real pixel, virtual pixel screens which are based on ZQL9702X, ZQL9705X, ZQL9712 chips with good versatility, reliability and excellent display performance, and are easy to maintenance.

## 2. The principle of system constitution

- Consistency: the system conforms to the principle of opening. It has good flexibility, extendibility, compatibility and transplantability
- Advance: it can make the system program easy, facilitate the connection, improve the display effect and cut the cost; it is at the leading position in this area now.
- Reliability: the system can work for a long time stably, conforms to our country and the international standard on quality and reliability.
- Economical: performance-to-price ratio of the system can achieve the most superior, and it will be the best choice to users



### 3. The application of system

transmission medium	the maximal resolution	screen application	the longest transmission distance
(UTP5)	1280*1024	support line-control and array-control to light strip which based on the ZQL9712 chip support line-control to board unit which based on the ZQL9702X chip support line-control, array-control to board unit which based on the ZQL9705X chip	no more than 100M with UTP5

### 4. Display performance

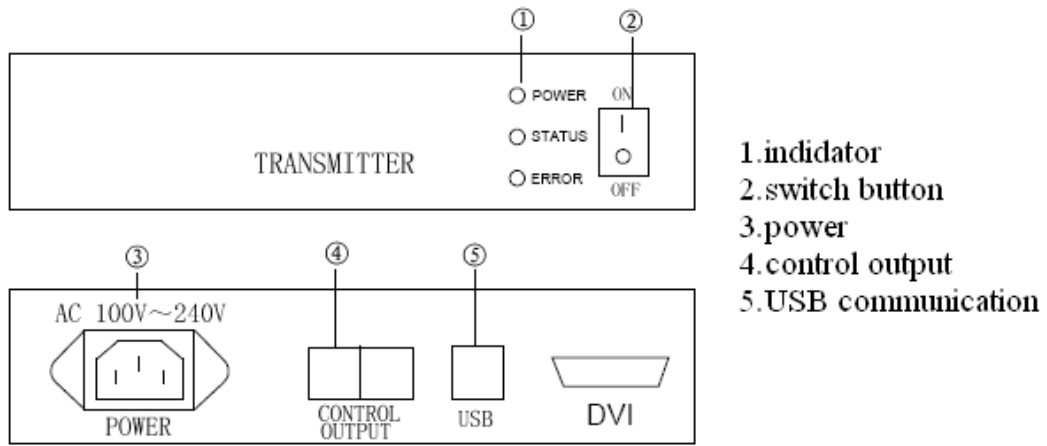
- support all kinds of virtual pixel and real pixel display screen which based on ZQL9702X,ZQL9705X,ZOL9712 chips
- support the screen resolution of 1024×768
- support the Gray display of 256 levels for R,G and B colors
- the frame frequency of system is 60Hz;
- the transmission distance can reach up to 100M
- support the capability control of CF card

### 5. System constitution

#### 5.1 LED Panel controller



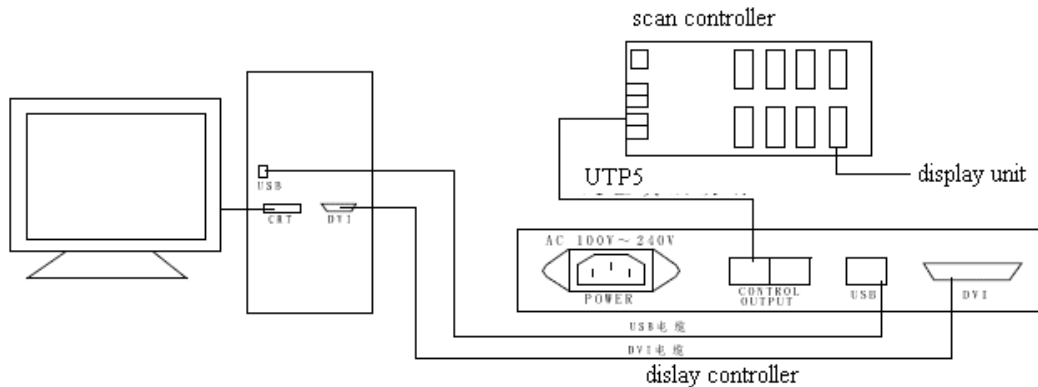
Front view and back view



Interface definition

## 5.2 Applied environment

LED panel controller+ scanning controller+ board units





## 5.3 Configuration list

configuration	name	number	mark
standard configuration	online display controller	one	LED panel controller
	USB cable	one	
	Power cord	one	
related fitting	scanning controller/ data divider	according to the number of screen	Buy from Zhongqing company
	UTP5	several	provide for oneself
	USB	several	provide for oneself
	Switch power	several	provide for oneself

Note: standard shipment only comprises of one panel controller, users can subscribe for scan controller (data divider) from Zhongqing Company, according to screen and light strip's demand,

## 6. LED Panel system

### 6.1 Hardware constitution

The system consists of computer, scanning controller (date divider) and online LED Panel controller.

### 6.2 Connection and use

Use DVI cable to connect panel controller with computer DVI interface, use one USE cable to connect panel controller with computer USB interface, use one UTP5 to connect the vertical date output port with the date input port of scanning controller (data

divider).

Note: must connect the vertical data output port of LED Panel controller.

Note: the way of connection from scanning controller to LED screen is decided by concrete solutions.

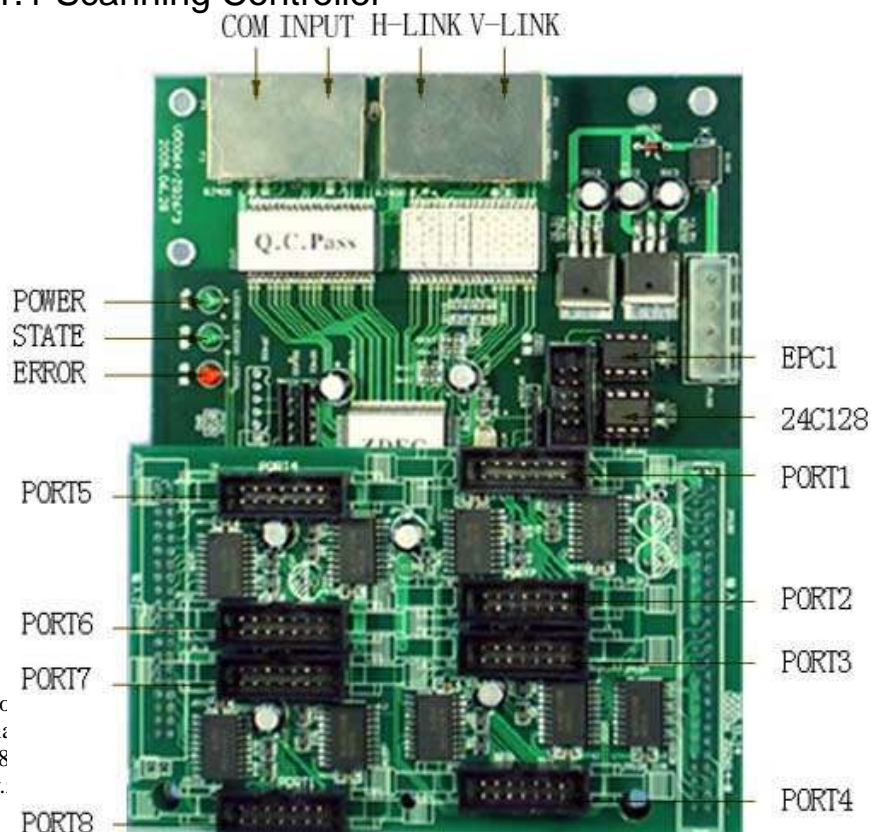
### 6.3 Indicator troubleshooting

Indicator	color	status	problem
power	green	on	normal
status	green	on	normal
		off	abnormal
error	red	off	normal
		flash	DVI cable is wrong

## 7. Application cases

### 7.1 Panel application

#### 7.1.1 Scanning Controller



### 7.1.2 Instructions for interface of Scanning Controller

\_COM: not used temporarily.

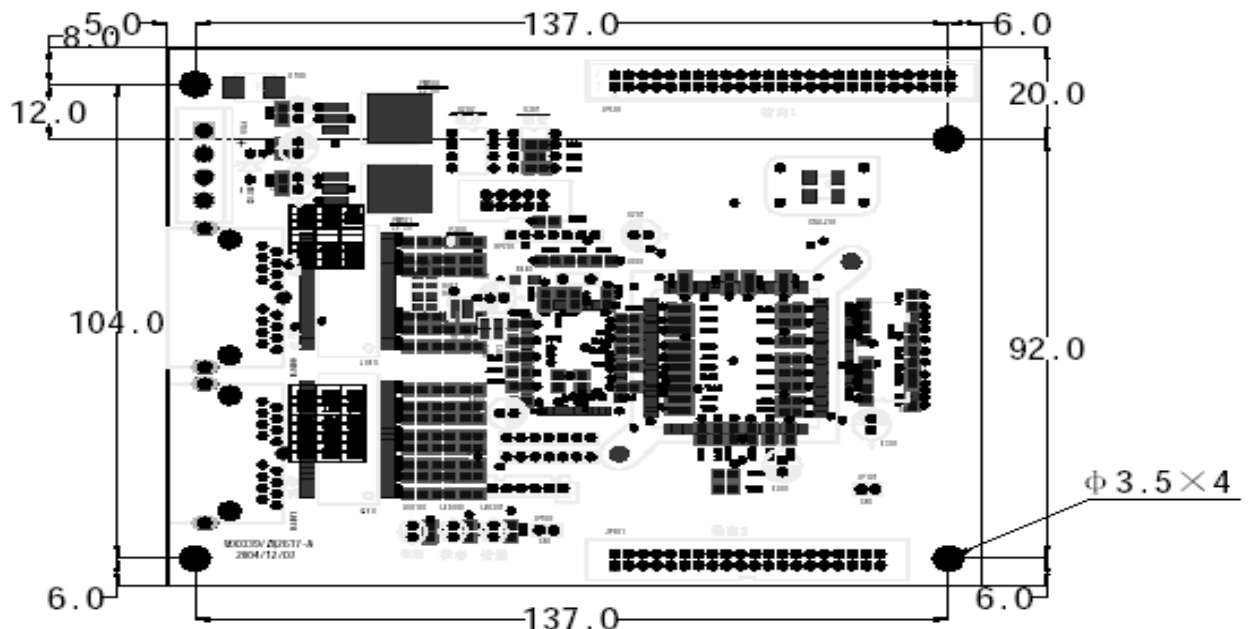
\_ INPUT: Data input of scanning controller.

\_ H-LINK: the horizontal data output of scanning controller is connected with the input of the next scanning board in the horizontal concatenation

\_ V-LINK: the vertical data output of scanning controller is connected with the input of the next scanning board in the vertical concatenation.

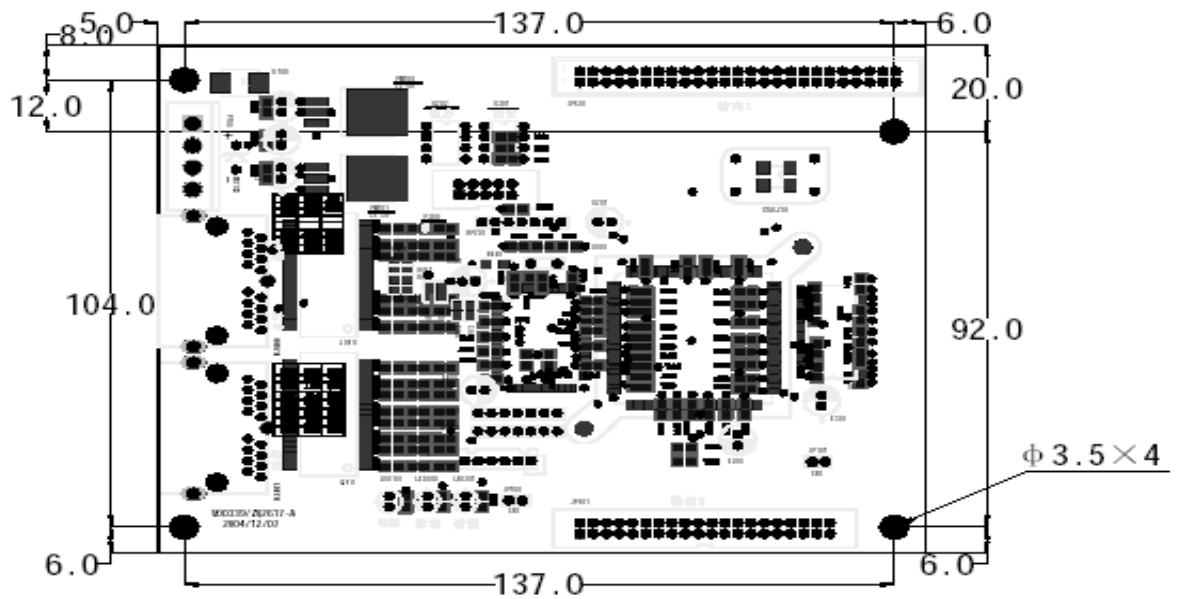
\_ PORT1~PORT8: The output port of scanning controller is connected with the cascading input of screen unit board. In these ports, the PORT1 controls the top unit board and the PORT 8 controls the bottom unit board.

### 7.1.3 Sketch map for physical dimension





### 7.1.3 Sketch map for physical dimension

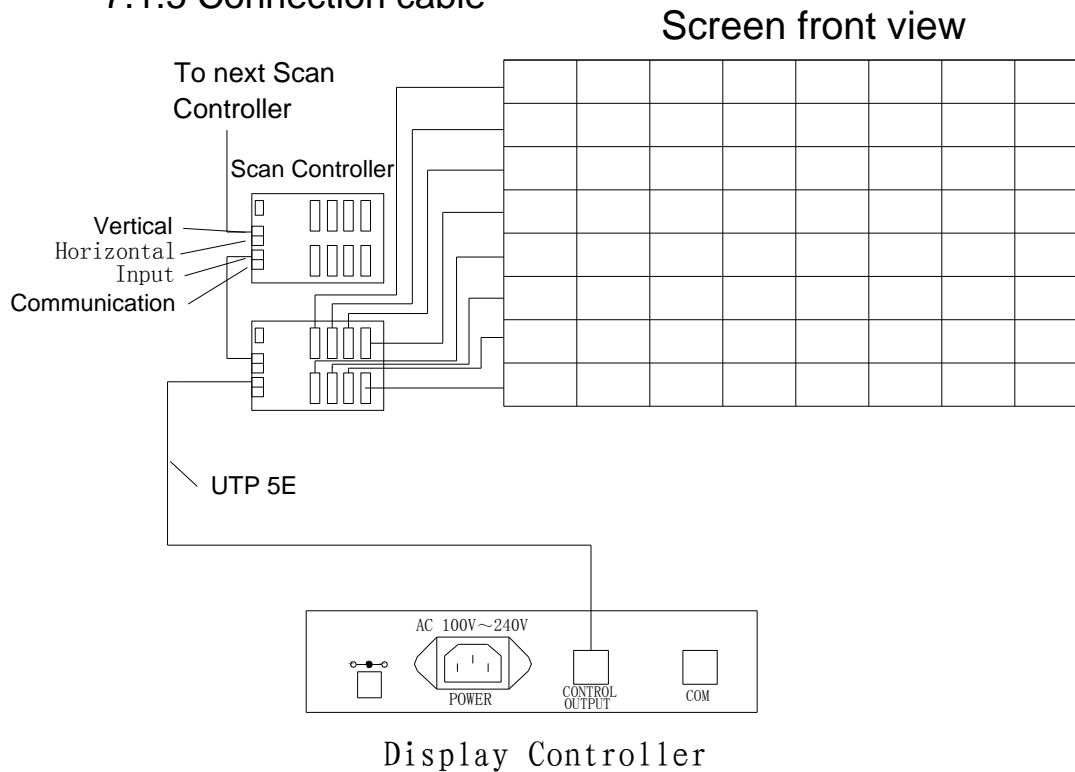


### 7.1.4 Instructions for indicator of scanning controller

Name	Color	Normal	Indicator	Wrong	Problem judgment	
LED100	Green	On	Power	Off	LED is damaged or no power	
LED200	Green	On	Status	Off	Programmer mistake or does not restore normally	
					BIN file mistake in EEPROM	
LED201	Red	Off	Mistake	Flash	Relevant hardwares of scanning controller are damaged	
					Input data mistake	
LED201	Red	Off	Mistake	Flash , black screen	Relevant hardwares of scanning controller are damaged	
					On	Programmer mistake or does not restore normally
					No data output from frame controller	
					DVI port cannot be opened	
					Connecting cable is disconnected	



### 7.1.5 Connection cable



### Application instructions

- Supported types of unit board: The system supports virtual pixel and real pixel unit boards with all kinds of scanning modes based on the ZQL9702/ZQL97021/ZQL97022A chips of Zhongqing . For detailed design rules of unit board, please see the Design Manual for Schematic Diagram of ZQL9702X Unit Board and the Design Rules for PCB Layout of ZQL9702X System Unit Board.
- EEPROM configuration:
  - \_ By means of adjusting the content of EEPROM file in the scanning controller, different types of unit boards can be supported, and the adjusting on the pixel number of scanning board can be realized.
  - \_ Each scanning controller can supply 8 output control interfaces of unit board at most, and each control interface can support 1024 pixels.



\_ For the preparation and generation methods of EEPROM files, please see the Instructions for Filling EEPROM Files and the Instructions for Generation Program of EEPROM for more details.

- Calculation of scanning controller number

Scanning controller number=rounded number of the line number of unit board/output port number used in each scanning controller.

- Application cases

**Case 1:** If one 512×384 (array × line) virtual pixel screen will be made in a certain project by adopting the ZQ2197 unit board with the characteristic of 64×32 (array × line) virtual points, how many scanning controllers need to be used in the V6 system?

Answer: The system is adopted with line control.

The unit board number of screen is  $384 \div 32 = 12$  (lines)

So the number of scanning controller is the rounded number of  $[12 \div 8] = 2$  (pieces)

For the two scanning controllers, the first one can be selected to control 8 lines of unit boards and the second one can control 4 lines of unit boards. And either can be selected to control 6 lines of unit boards respectively.

**Case 2:** If one 512×384 (array × line) real pixel screen will be made in a certain project by adopting the ZQ2197 unit board with the characteristic of 64×32 (array × line) virtual points, how many scanning controllers will need to be used in the V6 system?

Answer: The system is adopted with line control.

The unit board number of screen is  $384 \div 16 = 24$  (lines)

So the number of scanning board is  $24 \div 8 = 3$  (pieces)

It can also be selected to use 3 scanning controllers, each of which controls 8 lines of unit boards.

## 7.2 ZQL9712 lamp strap application

### 7.2.1 Data divider



Front view and back view of data divider

### 7.2.2 Instructions for interface of data distributor

\_COM: for communication between data divider and PC.

\_INPUT: Data input of date divider

\_H-LINK: the horizontal data output of date divider is connected with the input of the next date divider in the horizontal concatenation

\_V-LINK: the vertical data output of date divider is connected with the input of the next date divider in the vertical concatenation.

\_PORT1~PORT8: The output port of data divider is connected with input of LED lighting or the left. In these ports, the PORT1 controls the top line lighting or the left array lighting and the PORT 8 controls the bottom lighting or the top array lighting.

Note: using ZQLS-PF-01 and ZQLS-HUB- 01 together can solve the long cable problem. The longest control distance is 100M.

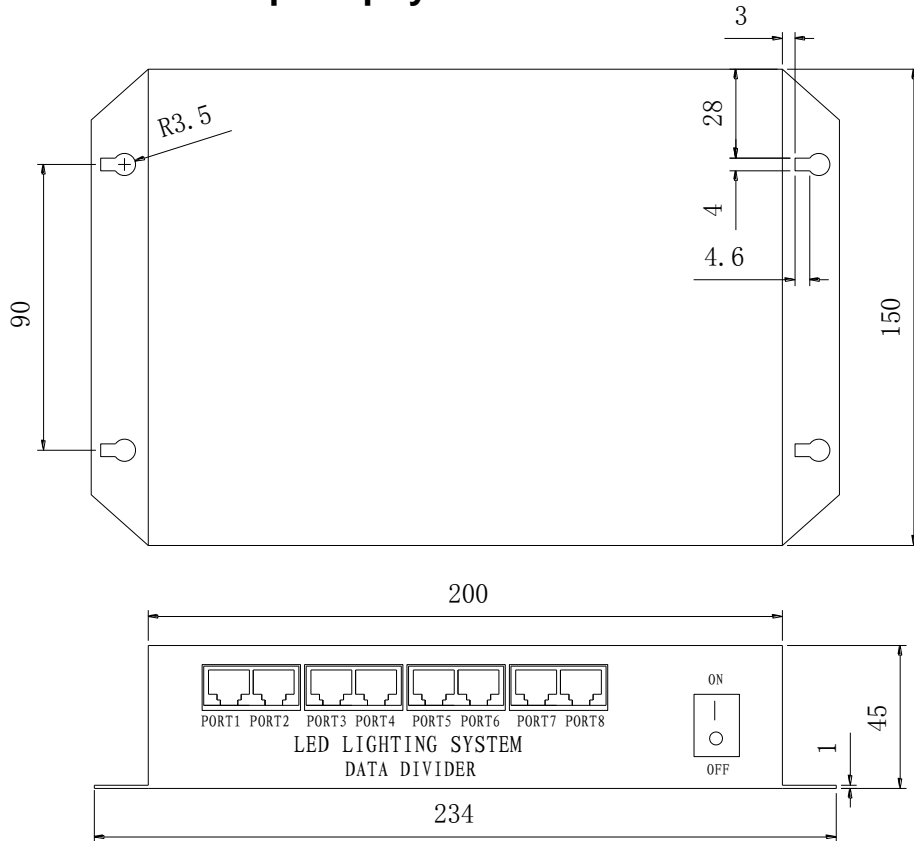
Note: I. connect the ZQLPS-FP-02 with lighting right, the length is no more than 1.5M, the preparation and generation of the UTP5, please refer to the appendix 1

II. instructions as follows: Orange /White—CK; Green/White



— DATA ; Blue/ White — LATCH ; Brown/ White — OE ; Orange ,Green, Blue ,Brown—GND.

### 7.2.3 Sketch map for physical dimension





## 7.2.4 Instructions for indicator of data divider

Name	Color	Normal	Indicator	Wrong	Problem judgment
LED100	Green	On	Power	Off	LED is damaged or no power
LED200	Green	On	Status	Off	Programmer mistake or does not restore normally
					BIN file mistake in EEPROM
					Relevant hardwares of scanning controller are damaged
				Flash	Input data mistake
Relevant hardwares of scanning controller are damaged					
LED201	Red	Off	Mistake	On	Programmer mistake or does not restore normally
					Flash , black screen
				DVI port cannot be opened	
				Connecting cable is disconnected	