Table of Contents

1 About This Manual........................................................................................................... 1

2 Cameras ............................................................................................................................ 2

2.1 Available Models .......................................................................................................... 2
2.2 Basic Parameters .......................................................................................................... 2
2.3 Wiegand Interface Appearance .................................................................................. 3

3 Solutions .......................................................................................................................... 4

3.1 Access Control Card No. ............................................................................................... 4
  3.1.1 Overview .................................................................................................................. 4
  3.1.2 Advantage ................................................................................................................ 4
  3.1.3 Software Version ..................................................................................................... 4
  3.1.4 Applicable Wiegand Protocol ................................................................................ 4
  3.1.5 Card No. Encoding Mode ....................................................................................... 4
  3.1.6 Use Wiegand Protocol to Transfer Card No. ............................................................ 4

3.2 Configure Parameters ..................................................................................................... 5
  3.2.1 Set Wiegand Type as CardID .................................................................................. 5
  3.2.2 Enable Vehicle Detection ....................................................................................... 6
  3.2.3 Configure Blacklist & Whitelist .............................................................................. 6

3.3 Transfer Plate Number via Wiegand Interface .............................................................. 10
  3.3.1 Overview ................................................................................................................ 10
  3.3.2 Advantage ................................................................................................................ 10
  3.3.3 Applicable Wiegand Protocol ................................................................................ 10
  3.3.4 Plate Number Encoding Mode ................................................................................. 10
  3.3.5 Configure Parameters ............................................................................................ 10

4 Appendix .......................................................................................................................... 11

4.1 Paxton Configuration ..................................................................................................... 11
  4.1.1 Connect Net2 ACU ............................................................................................... 11
  4.1.2 View ANPR Captured Image in Net2 ..................................................................... 13

4.2 FTP Server Creation ..................................................................................................... 15
1 About This Manual

This manual is about the Wiegand configuration and features of network cameras. The manual is created as a guide for the technical support engineer, sales engineer, etc.
2 Cameras

2.1 Available Models
The available models of network cameras are:
DS-2CD4A26FWD-IZS/P-WG (2.8-12mm)
DS-2CD4A26FWD-IZS/P-WG (8-32mm)
DS-2CD4A26FWD-LZS/P-WG (2.8-12mm)

2.2 Basic Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image sensor</td>
<td>1/1.8&quot;Progressive Scan CMOS</td>
</tr>
<tr>
<td>Max. resolution</td>
<td>1920 x 1080@ 60fps</td>
</tr>
<tr>
<td>Illumination</td>
<td>Ultra-low</td>
</tr>
<tr>
<td>Iris</td>
<td>Auto</td>
</tr>
<tr>
<td>WDR</td>
<td>120 dB</td>
</tr>
<tr>
<td>Protection level</td>
<td>IP 67</td>
</tr>
<tr>
<td>Supplement light</td>
<td>IR Light/White Light</td>
</tr>
<tr>
<td>ANPR technology</td>
<td>Supported</td>
</tr>
</tbody>
</table>
2.3 Wiegand Interface Appearance

Connection:
Connect the block’s D0, D1 and GND to those of receiving terminal accordingly.

Figure 2-1 Wiegand Interface
3 Solutions

3.1 Access Control Card No.

3.1.1 Overview
Map the license plate number with the access control card number.
Find the related card number in black and white list, then transfer the card information via Wiegand interface.

3.1.2 Advantage
1. Compatible with any standard access control system
2. Use camera as card-reader

3.1.3 Software Version
V5.4.5 build 171116 (Software may update, check with the R&D engineer)

3.1.4 Applicable Wiegand Protocol
26-bit Wiegand Protocol

3.1.5 Card No. Encoding Mode

![Figure 3-1 Card No. Encoding Mode]

3.1.6 Use Wiegand Protocol to Transfer Card No.

<table>
<thead>
<tr>
<th>Even Parity Bit</th>
<th>8-bit</th>
<th>16-bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>(To express the site code ID, if the site code ID is less than 8 digits, 0 will be added before the ID until it is)</td>
<td>(To express the card ID, if the card ID is less than 8 digits, 0 will be added before the ID until it is)</td>
<td>Odd parity bit</td>
</tr>
</tbody>
</table>
Here we take card number 12345 011 as example. The coding process are show as below.

- Split the card number as the card data (12345) and site data (011).
- Convert 12345 to binary format, as: 0011000000111001.
- Convert 011 to binary format, as: 00001011.
- Site data and card data as: 00001011 0011000000111001.
- Bit 1 is an even parity bit for the following 8 bits (bit 2 to bit 9), as 1.
- Bit 26 is an odd parity bit for the previous 16 bits (bit 10 to bit 25), as 1.
- According to the converting mode (Even parity bit + site data + card data + odd parity bit), you can get a binary code as: 1 00001011 0011000000111001 1.

3.2 Configure Parameters

3.2.1 Set Wiegand Type as CardID

Steps

1. Go to Configuration->Network->Basic setting->Wiegand.
2. Select the Wiegand Type as Card ID 26bit.
3.2.2 Enable Vehicle Detection

Steps:
1. Go to Configuration->Road Traffic->Detection Configuration.
2. Check the checkbox of Enable to enable Vehicle Detection.
3. Set the specific detection parameters.

![Detection Configuration Interface](image)

Figure 3-3 Detection Configuration Interface

3.2.3 Configure Blacklist & Whitelist

Steps:
1. Go to Configuration->Road Traffic->Blacklist & Whitelist.
2. Click Export to download Blacklist & Whitelist template.
3. Fill in the template.
You can set at most 4096 license plates in the whitelist and blacklist in total. You should enter 8-digit Card ID in the ID row. Otherwise, an unknown error may occur. If you enter Card ID more than 8 digits, the last 8 digits will be kept. 989842118 in the 7th line will be saved as 89842118. If you enter Card ID less than 8 digits, 0 will be added before the ID until it is an 8-digit number. For example, 9842119 in the 8th line will be saved as 09842119. If you accidentally enter the same plate number in the template, the bigger No. will take effect.

**Update Blacklist & Whitelist Manually**

**Steps:**
1. Go to **Configuration->Road Traffic-> Blacklist & Whitelist.**
2. Click **Browse** to select the file you have finished.
3. Click **Import** to upload the list.

**Auto Update via FTP**

**Steps:**
1. Set a FTP address.
The Blacklist and Whitelist can be acquired via the FTP address to update the lists. The update frequency can be set.
The update frequency, update time, file name, etc. can be set. The corresponding URL protocol are listed as follows.

http://10.5.148.102/ISAPI/System/Network/ftpUploadTimeUrl?enable=1&cycle=1&customDay=2&hour=0&name=test.xls

**Key Parameters Description:**
- **10.5.148.102:** replace it for the IP address of the device
- **enable:** enable the update for Blacklist & Whitelist. 0 stands for Close, 1 stands for Enable. The default status is 1.
- **cycle:** 1 stands for daily update; 2 stands for weekly update; 3 stands for customized update. The default cycle is 1.
- **customDay:** when you set cycle as 3(customized), customDay represents time interval (day). The default day is 1.
- **hour:** it is the time to update. Only integral hour and the 24-hour system are supported. The default time is 0.
- **name:** it is the file name for Blacklist & Whitelist. The full name should be kept, including .xls. Only English name and path are supported.

**NOTE**
When configuring the FTP parameters of the Blacklist & Whitelist via URL, the Blacklist & Whitelist is off by default.

You can tell whether the configuration succeeds or not by checking the **Last Update** and **Upload Info**.
2. **Configure FTP Server.**

   **Steps:**
   1. Go to **Configuration** -> **Network** -> **Advanced Settings** -> **FTP**
   2. Fill in the blanks based on the authority distributed by FTP Server.
   3. Set the **Directory Structure** as **Save in the root directory**.

3. **Test**

   Adjust the device time of few seconds prior to the FTP auto update time. Then the device can update the Blacklist & Whitelist.
3.3 Transfer Plate Number via Wiegand Interface

3.3.1 Overview
Transfer the plate number via Wiegand interface, which is the private protocol.

3.3.2 Advantage
Compatible directly with PAXTON access control system (managed by NET2 platform).

3.3.3 Applicable Wiegand Protocol
26-bit Wiegand Protocol

3.3.4 Plate Number Encoding Mode

![Wiegand Protocol Flow Chart](image)

Example
Plate No.: 2180870
- The 24 bit encoded by SHA1 mode is 0x54 0x52 0x22
- Add parity bit based on 3.1.6 Use Wiegand Protocol to Transfer Card No
- Add parity bit to 26 bit both before and after the number based on 26 bit protocol

3.3.5 Configure Parameters
Set the Wiegand Type as Paxton.

Steps:
1. Go to >Network->Basic setting->Wiegand.
2. Select Wiegand Type as Paxton 26bit.
3. Click Save.
4 Appendix

4.1 Paxton Configuration

4.1.1 Connect Net2 ACU

Steps
1. The connections for the ANPR Camera and Reader port using a Belden reader cable (as per Paxton specification) on the Net2 ACU are as follows:
   - **Blue wire**: D1 at ANPR – Clock/D1 on Net2 ACU Reader Port.
   - **Yellow wire**: D0 at ANPR – Data/D0 on Net2 ACU Reader Port.
   - **Black wire**: GND at ANPR – 0v on Net2 ACU Reader Port.
2. In the door settings for the ACU that will be connected to the ANPR camera, set the door up as follows and apply:

<table>
<thead>
<tr>
<th>HikVision ANPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACU serial number: 04861892</td>
</tr>
<tr>
<td>Door name: HikVision ANPR</td>
</tr>
<tr>
<td>Door group: (none)</td>
</tr>
<tr>
<td>Door open time: 2 seconds</td>
</tr>
<tr>
<td>Unlock the door during: At no time</td>
</tr>
<tr>
<td>Unlock relay 2 during: At no time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reader 1</th>
<th>Reader 2</th>
<th>Alarm</th>
<th>Event</th>
<th>Fire alarm inputs</th>
<th>Multizone Intrusion/Telecom integration</th>
<th>Access rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: HikVision ANPR [led]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reader type: ANPR - 26 Bit Wiegand reader</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keypad type: None</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Token data format: ANPR - 26 bit Wiegand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating mode</th>
<th>Reader operating mode</th>
<th>Timed operating mode: This allows for different reader operation during a selected time zone.</th>
</tr>
</thead>
<tbody>
<tr>
<td>During this time zone: All day, every day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This reader will operate as: Inactive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reader action: This is what will happen when a valid access is granted: Relay 1 and relay 2 open for door open time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. In the user record, select the ‘Tokens’ tab and select ‘New Token’ to open the ‘Add new token’ window:
4. Select **Vehicle number plate** and enter the license plate number you wish to add for the user; e.g. BR07 UMM

5. Click **OK** then Apply.

6. As the license plate is read by the ANPR camera, it will send the converted token number to the Net2 ACU.

### 4.1.2 View ANPR Captured Image in Net2

Hikvision has a second integration with Net2 that allows users to view DVR/NVR video from within the Net2 UI. This integration can be used in conjunction with the ANPR camera to show the capture of the licence plate as it is read by the camera.

**Steps**

1. Download the plugin from here: [ftp://Hik_Paxton:Paxton_Hik@ftp.hikvision.com](ftp://Hik_Paxton:Paxton_Hik@ftp.hikvision.com)
2. Once installed, in Net2 go to **Options>Camera Integration>Add**, and select Hikvision DVR System from the list of camera servers.
3. Add the DVR credentials to authenticate and detect the associated cameras:

4. Click OK, then go to the ACU that is associated with the ANPR camera and select it as the camera that is monitoring the door.
5. As the ANPR camera generates events in Net2, a camera icon will appear next to the event. Clicking the icon will show the video associated with the ANPR event.

4.2 FTP Server Creation

Steps
1. Use FTP server tool to create the FTP server in your PC.

2. Set the permission information like user name and password in the server.
3. Set the path for the communication between the terminal and the server.
4. Keep the software turned on.
5. Put the blacklist and whitelist to be updated in the appointed directory in the server.
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