TimeTec Smart License Plate Recognition System
Securely Automate Authorized Vehicle Access

Hardware Installation Guide
V1.0
CONTENTS

1 • Introduction 3
2 • LPR Camera Setup 4-6
3 • Setup LPR region in Software 7-8
4 • Arm Barrier Auto-Opening Setup 9
5 • LPR Relay Board Diagram 10-11
1 • Introduction

License plate recognition (LPR) has been widely used in security access and surveillance application. TimeTec LPR Smart License Plate Recognition System provides high accuracy and reliable LPR solutions that can perform automated recognition of vehicle plate numbers (motorbikes, cars, lorries) for premises access control, parking and logistics analysis.

This document detailing the installation guidelines for TimeTec LPR system.
2 • LPR Camera Setup

The main components are:

• LPR camera
• Pole and bracket for holding the camera

Figures below show the suggested LPR camera location, relative to the security barrier and RFID reader.

All dimensions are in cm.

Figure 1: Camera location relative to the barrier
To get the best LPR detection, the vehicle is suggested to stop at the yellow box shown in Figure 4. Figure 5 shows an example of a car stopping at the suggested area.
Figure 5: An example of a car stopping at the suggested location
3 • Setup LPR region in Software

The LPR detection region needs to be setup in the LPR software. The settings page is located at Main Menu > Tools > Settings, as shown in Figure 6 below.

Firstly, setup the entry and exit LPR cameras by entering their IP addresses. Then, logout from the system and relogin again. Now click the Setup button in the red box.

![Figure 6: LPR software setup page](image)

The system will provide a default LPR detection region. To redraw a region, click on the redraw button. The region should cover the minimum height of the plate (from the highest point to the lowest point) and the width should be slightly larger than the plate width. Figure 7 shows an example of the region
**Note:** The purpose of detection region setup is to provide a reference size for the LPR processing. Although a vehicle’s plate may not appear at the same region during actual operations, the software can still recognize the plate.

![LPR Setup](image)

*Figure 7: LPR region setup for one-line plate*

![LPR Setup](image)

*Figure 8: LPR region setup for two-line plate*
4 • Arm Barrier Auto-Opening Setup

The main components are:

• Relay board
• Serial-USB cable

The system can be made to trigger and open the arm barrier automatically once a registered license plate number is detected by the LPR system. Figure 9 shows the connection needed between the computer, relay board and the arm barrier controller for this purpose.

Figure 9: Connection for arm barrier auto-opening setup
5 • LPR Relay Board Diagram

License Plate Recognition (LPR) system diagram showing power input, computer connection with LPR software, and relay connections for Entrance 1 and Entrance 2.

- **+12V GND +12VDC 3A power input**
- **Computer installs with LPR software and connects to camera**

Diagram includes 9-pin serial port to USB converter connections.
**Remark:**
*All relays in used are NO (normally open) type thus no polarity is required during wiring.*

**SPECIFICATION**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>12V, 1A</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>0 – 75 degree Celsius</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>15%-95%</td>
</tr>
<tr>
<td>Total Relay Output</td>
<td>4 NO Output, Dry Contact</td>
</tr>
<tr>
<td>Maximum Current for Relay Output</td>
<td>10A</td>
</tr>
<tr>
<td>Maximum Voltage for Relay Output</td>
<td>250VAC</td>
</tr>
<tr>
<td>Communication Interface</td>
<td>RS232, 115200</td>
</tr>
<tr>
<td>Relay Response Time</td>
<td>100ms</td>
</tr>
</tbody>
</table>