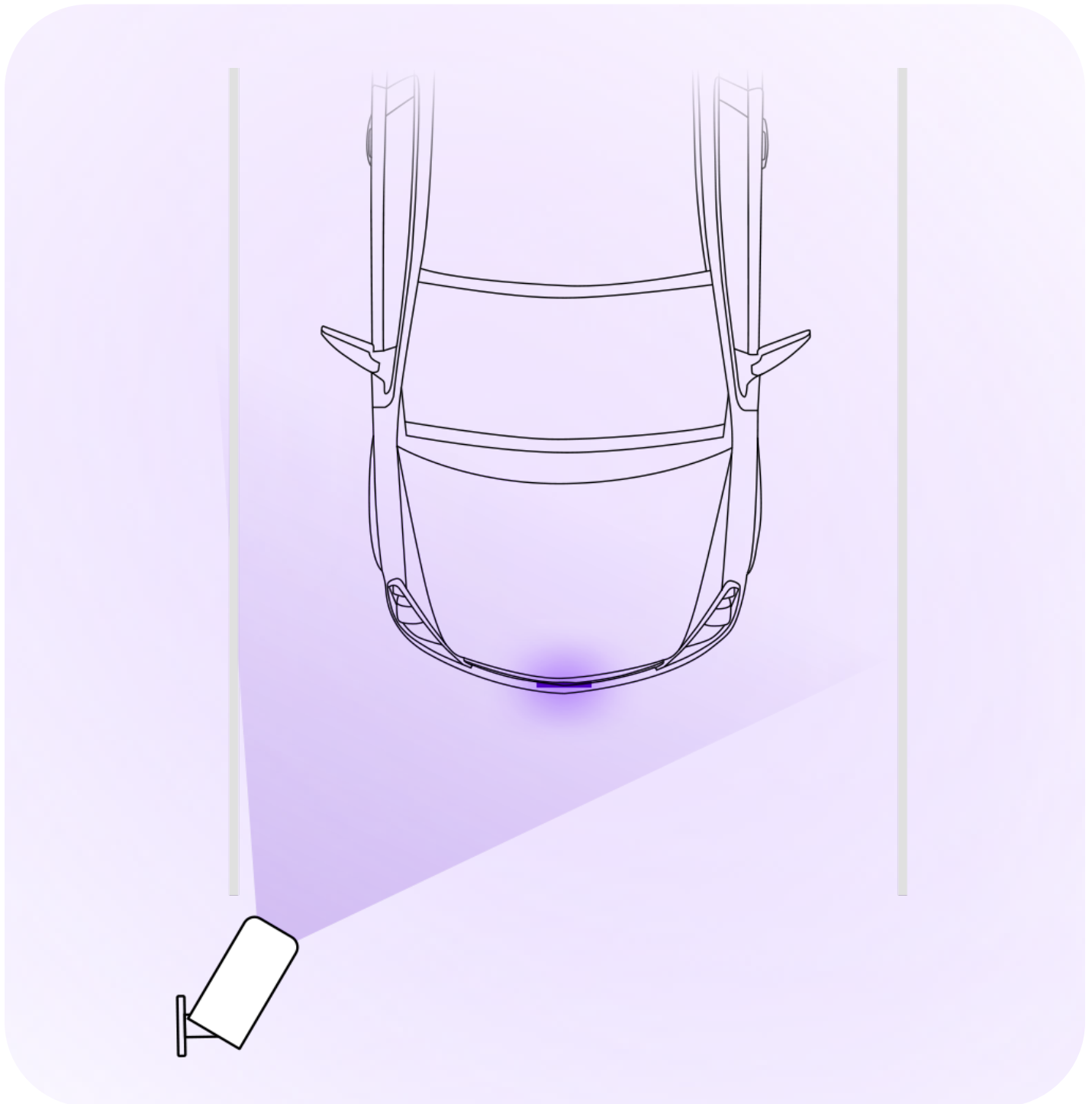


## LPR Access Implementation Guide



This guide covers hardware components, camera placement, and configuration standards required for the ButterflyMX LPR Access system. Use this guide alongside the individual hardware installation guides for the Camera, Gateway, and Controller.

## Hardware Components

1. **ButterflyMX LPR Bullet Camera** — Strongly recommended for all LPR implementations. This camera has been extensively tested and validated for license plate capture, including low-light and nighttime conditions, and serves as the basis for all ButterflyMX LPR performance standards. Third-party ONVIF-compatible cameras may be technically compatible, but have not been tested for LPR performance, and results cannot be guaranteed.
2. **AI Camera Gateway** — Processes license plate recognition. One gateway supports up to 10 cameras.
3. **Two-Door Controller** — Makes the access decision, triggers the access point, and logs events in the ButterflyMX OS. Required for all configurations, including logging-only.



Images are not to scale.

**Note:** All components must be on the same local network. Hard-wired Ethernet is preferred, with a minimum of 6 Mbps dedicated upload/download per camera. Cellular connections may not consistently meet bandwidth requirements — test to confirm before committing to a wireless setup.

## Camera Mounting

Camera mounting is the most important factor in LPR read accuracy. Use the following guidelines to determine the best placement for each site.

### 1. Capture Position: Front or Rear Plates

Determine which plate will be captured before selecting a mount location.

**Front Plate Capture:** Best for states that legally require front plates. Position the camera to face oncoming vehicles.

**Rear Plate Capture:** Recommended for properties expecting out-of-state vehicles or in states without front plate requirements. The entrance should be at least 10 ft wide to support proper camera angles and at least 20 ft deep so the full vehicle and plate are visible to the camera when stopped at the access point.

**Both:** Requires two separate cameras, each independently positioned for its respective plate. Capturing both front and rear plates doubles the chances of a successful read — if one capture is affected by glare, weather, a dirty plate, or another environmental factor, the system has a second opportunity to capture a clean read.

## 2. Placement: Speed vs. Selectivity

*Applies to rear capture installations only.*

Position within the 15–100 ft capture range involves a tradeoff:

**Prioritizing speed:** Mount the camera further back so the system reads the plate earlier. This gives it more time to process the plate and trigger the access point before the vehicle arrives.

**Prioritizing selectivity:** Mount the camera closer to the access point so it captures only the vehicle immediately at the access point, reducing the chance of a vehicle further back triggering access.

## 3. Capture Distance

**Front Capture:** the camera is mounted at or adjacent to the access point — there is no minimum distance requirement.

**Rear Capture:** the effective range is 15–100 ft from the access point (depending on the LPR Bullet Camera model). In both configurations, confirm during the live test that the plate is clear and legible in the camera's field of view at the intended capture point.

## 4. Mounting Height

Mount the camera between **3 and 6 ft** from the ground. This range covers the plate height of most vehicle types, including sedans, SUVs, and trucks. Mounting lower in the range helps minimize the vertical angle to the plate; Mounting higher in the range may be appropriate where a lower mount isn't structurally feasible and should be paired with a slight downward tilt.

## 5. Camera Angles

Position the camera as straight-on to the license plate as possible — both horizontally and vertically. The more perpendicular the camera is to the vehicle's path, the more legible the plate characters will be. Angled shots can compress or skew characters, reducing recognition accuracy.

For best results, target under 20° horizontal and under 25° vertical for the best results. Neither angle should exceed 30°.

**Practical check:** Use the camera's live view during installation to confirm the plate appears flat and undistorted. If characters look skewed or compressed, the angle is too steep — adjust the mount before proceeding.

## 6. Optimal Framing

At the point of closest approach, the vehicle and license plate should fill at least 30% of the frame. Verify framing in the camera's live view during installation and adjust zoom as needed, either directly on the camera or by contacting ButterflyMX OS Support.

## 7. Camera Settings & IR Illumination

ButterflyMX automatically configures Image settings and IR illumination for nighttime capture; no manual adjustment is required. If image quality or nighttime performance is poor after go-live, contact ButterflyMX OS Support to adjust settings remotely.

## Site & Environmental Factors

The following conditions can affect LPR read accuracy and should be evaluated during site assessment and accounted for during installation.

**Sun Glare:** Avoid pointing the camera directly into the sunrise or sunset. If this is unavoidable, use a camera hood or shield.

**Headlight Glare:** Mounting at the recommended height with a slight downward tilt reduces direct headlight exposure during nighttime operation.

**Obstructions:** Confirm a clear line of sight to the plate in all access point states, both open and closed. Gate arms, pillars, signage, and foliage are common problem points.

**Camera stability:** Mount to a solid, vibration-free structure. Vibration can blur images and reduce recognition accuracy.

**Lane Coverage:** One optimally positioned camera covers one standard lane. Wider entrances or multi-lane configurations may require additional cameras.

**Weather:** Rain, snow, and fog can reduce accuracy. Proper framing, angle, and IR illumination mitigate most conditions, but performance will vary in extreme weather.

**Plate condition:** Dirty, damaged, or obscured plates may not be read accurately.

## Backup Access Method

The ButterflyMX LPR system delivers high recognition accuracy across a wide range of real-world conditions. In the rare event a plate is not read due to a dirty or damaged plate, extreme glare, heavy snow, or other obstructions, residents can still use Swipe-to-Open in the ButterflyMX App to gain entry without interruption. Confirm this backup method is active and working during the implementation test.

## Testing

A live test is strongly recommended before sign-off. Conduct the test during the ButterflyMX support call with a vehicle on site.

### Step 1 Test Denied Entry

Drive an unauthorized vehicle toward the camera. Confirm access is correctly denied.

### Step 2 Test Granted Entry

Have the ButterflyMX support team add the test vehicle's plate as a temporary visitor. Drive toward the camera again. Confirm the plate is recognized and access is granted.

### Step 3 Revoke and Retest

Revoke the temporary pass. Confirm the vehicle is once again denied.

### Step 4 Test Backup Access

Confirm the Swipe-to-Open function in the ButterflyMX App is active and working at this location.

## Frequently Asked Questions (FAQs)

### How accurate is the system, and what happens if it fails to read a resident's plate?

ButterflyMX LPR system delivers best-in-class recognition accuracy, consistently performing at the top of the industry in controlled testing. Real-world performance will vary based on site-specific factors, including camera placement and angle, lighting conditions, weather or glare, and the condition of the license plate itself, which is why proper configuration is critical to maximizing accuracy.

In the rare event that the system does not read a plate, residents are not left without access. Similar to how a smartphone falls back to a PIN when Face ID doesn't work, the system seamlessly falls back to credential swipe via the ButterflyMX App, so residents can still enter.

### Can the system distinguish between real, registered license plates and fake or handwritten ones?

The system requires a vehicle to be detected before attempting to read a plate, so a handwritten sign or piece of paper held without a vehicle present will not be read. However, if a counterfeit plate is physically mounted on a vehicle and visually resembles a real plate, the system cannot distinguish it from a legitimate one. Verification of whether a plate is officially registered requires external database lookups, which are outside the scope of the LPR system.

### How do we get all current resident license plates into the system at setup?

The system supports bulk vehicle uploads via a CSV file. An administrator can add all resident license plates, along with optional vehicle details such as make, model, and color, in a single import. Residents can also be granted permission to manage their own vehicles directly through the ButterflyMX App.

### How do we handle temporary guest access for contractors or delivery drivers?

Staff and residents can issue time-sensitive, LPR-enabled Visitor Passes directly from the ButterflyMX mobile app or OS. A resident or staff member adds the guest's license plate to a Vehicle Visitor Pass, and the system automatically recognizes and grants that vehicle access for the specified duration — no manual intervention needed at the access point.

### How quickly does the system read a plate and trigger the access point?

Under normal conditions, detection, recognition, and access point triggering happen within seconds. For faster response, mount the camera farther back in the capture zone so the system has more time to process the plate before the vehicle reaches the access point.

### What if recognition performance is poor after go-live?

First, verify all mounting parameters are within specification, including angle, height, distance, framing, and line of sight. If the physical setup is correct, contact ButterflyMX OS Support. Camera image settings are managed by ButterflyMX and can be adjusted remotely.

### **Does LPR continue to work during an internet outage?**

Yes. The gateway, controller, and camera communicate over the local network, so LPR access control continues to function without an internet connection. Event logs will sync to the ButterflyMX OS once connectivity is restored.

### **Where can I see logs for vehicles detected by the LPR system?**

All vehicle activity is logged in the Door Releases page of the ButterflyMX portal. This includes every vehicle detected by the system — whether the plate was authorized and the access point was opened, or the plate was unauthorized and access was denied. Each event is logged with the captured plate, access decision, any associated vehicle or resident details on file, and a snapshot and video clip of the vehicle.

### **Do LPR cameras function as regular security cameras as well?**

Yes. LPR cameras operate just like standard security cameras. When a vehicle event is detected, the camera captures a high-resolution recording. During periods without activity, footage is recorded at low resolution to conserve storage. Live streaming is also available at any time through the ButterflyMX portal.