Milesight Intelligent Traffic Cameras

Installation Guide

AI Outdoor Parking Management

Pro Bullet Plus Camera

Thank you for purchasing Milesight products. We highly recommend following the instructions for installation and positioning of this product. Proper installation is crucial for optimal recognition performance. We appreciate your cooperation and assistance!

Installation Compliance Statement

To ensure the product performs as intended, all installation steps — including mounting position, alignment angle, height, and environmental considerations — must be strictly followed according to the guidelines provided in this manual.
Improper installation or deviation from the specified parameters may lead to reduced detection accuracy, unstable system behavior, or even failure to function under certain conditions. Such issues may not be covered under warranty or after-sales support.
It is the installer's responsibility to verify that the mounting environment complies with the required conditions. The manufacturer shall not be held liable for any malfunctions, inaccuracies, or damages resulting from installation that does not conform to the specified standards.
For assistance or clarification during the installation process, please contact our technical support team.

Camera Introduction

Camera Series: Intelligent Traffic - Parking Management
Model: PMC8266-FPE
Website:
https://www.milesight.com/security/product/ai-outdoor-parking-management-pro-bullet-plus-camera
Attached Diagram:

Application and Functional Description:
Occupancy Detection: Supports monitoring of up to 100 parking spaces.
Parking Detection with LPR: Supports detection of up to 5 parking spaces with vehicle attribute recognition.
Full Data Transmission: Supports data push via TCP, HTTP, and MQTT protocols.
Parking Violation Detection: Supports real-time detection of unauthorized parking with alert notifications.

Minimum Image Requirements for License Plate Recognition

To ensure consistent and reliable license plate recognition performance, all deployed devices must meet the following minimum image quality standards:

1. Plate Focus and Clarity

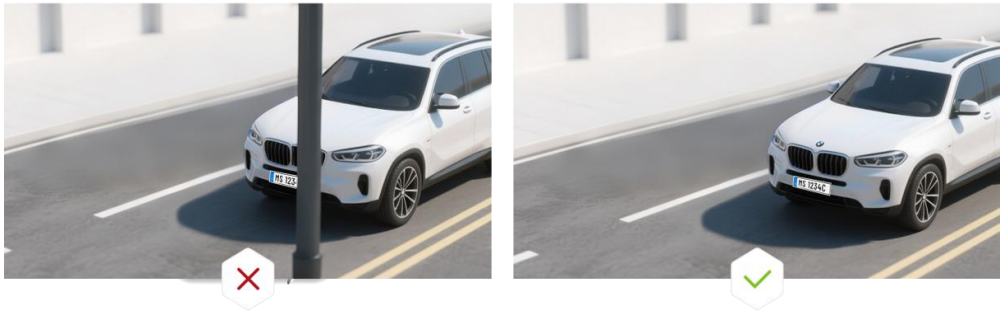
The license plate area must be in sharp focus, with all alphanumeric characters clearly visible and legible.
Images must be free from motion blur, glare, reflections, or severe over-/underexposure.

2. Plate Alignment

License plates should be horizontally aligned within the image, with minimal tilt (within ±5°). Plates that are significantly skewed may not be reliably recognized.

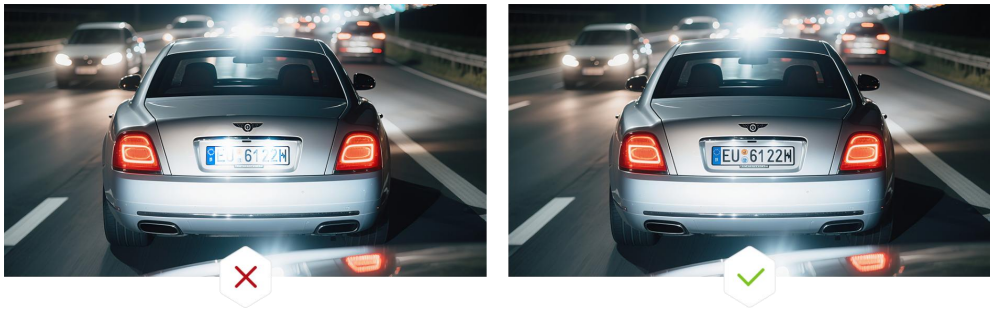
3. Frame Positioning

The license plate must remain within the designated recognition area throughout the monitoring process.
Plates should not be cut off, blocked, or positioned at the extreme edges of the frame.



4. Environmental Considerations

Avoid excessive exposure of bright sky regions or vehicle headlights, which may affect image contrast and recognition accuracy, especially under low-light conditions. Ensure the license plate area is evenly illuminated under both daytime and nighttime conditions.



Note:

All field deployments must comply with the above specifications to maintain recognition accuracy and consistency across installations.

Recommended Installation

A. High-position Occupancy Detection:

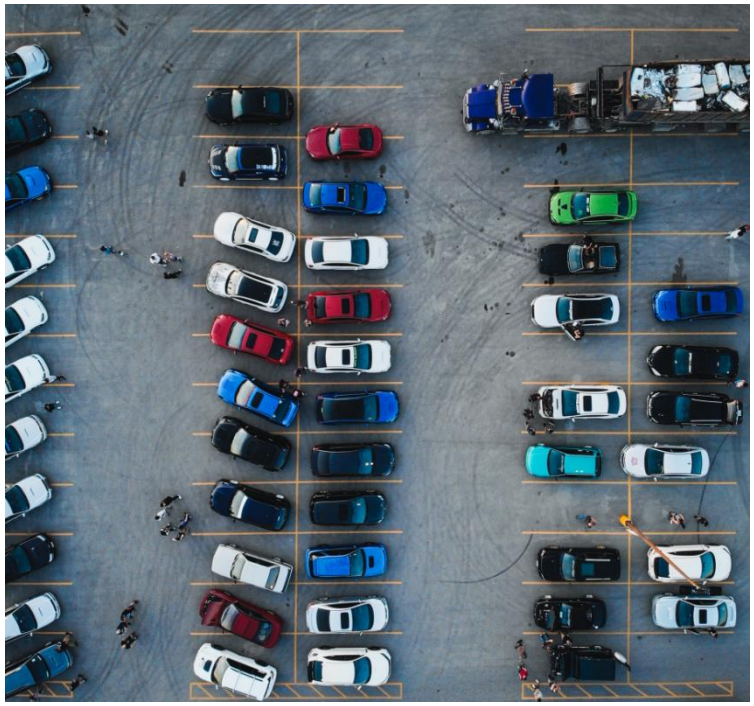


Figure 1 Installation Scenario

Figure 2 Installation Height

	Height
Maximum	20m (65.6 ft.)
Optimal	/
Minimum	/

Minimum detectable pixel resolution for vehicle bounding boxes: 150×150 pixels
The number of vehicles that can be detected, up to 100 vehicles, with an IR distance of 20m (65.6 ft.) at night.

Note:
1) Elevated positioning beyond maximum height may reduce image clarity, while installations below minimum height could introduce blind spots.
2) Recommended only for detecting parallel-parked vehicles. Perpendicular parking layouts carry high risks due to:
Perspective Limitations - Vertical alignment increases blind zones in camera FOV
Occlusion Vulnerability - Vehicle stacking amplifies detection failures

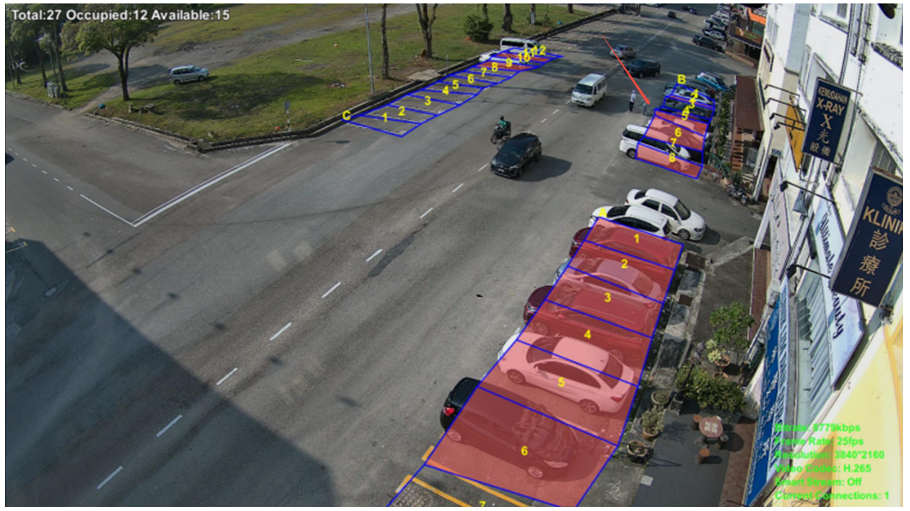


Figure 3 Not Recommended Installation

B. Mid-low-position Parking Detection with LPR:

Figure 4 Installation Scenario

Figure 5 Installation Height

Figure 6 Installation Width & Length

	Height	Width	Length
Maximum	6m (19.7 ft.)	5 parking spaces 13m (42.7 ft.)	15m (49.2 ft.)
Optimal	5m (16.4 ft.)	4 parking spaces 5~7.5m (16.4~24.6 ft.)	6.5~9.5m (21.3~31.2 ft.)
Minimum	4m (13.1 ft.)	5m (16.4 ft.)	6.5m (21.3 ft.)

Optimal detectable height of license plate: 50~70 pixels

The number of vehicles that can be detected, up to 5 vehicles, with an IR distance of 20m (65.6 ft.) at night.

Note:

1) Elevated positioning beyond maximum height may reduce image clarity, while installations below minimum height could introduce blind spots.

2) Recommended Installation: Frontally aligned with mid-bay parking spaces. Angular installations are strongly discouraged.

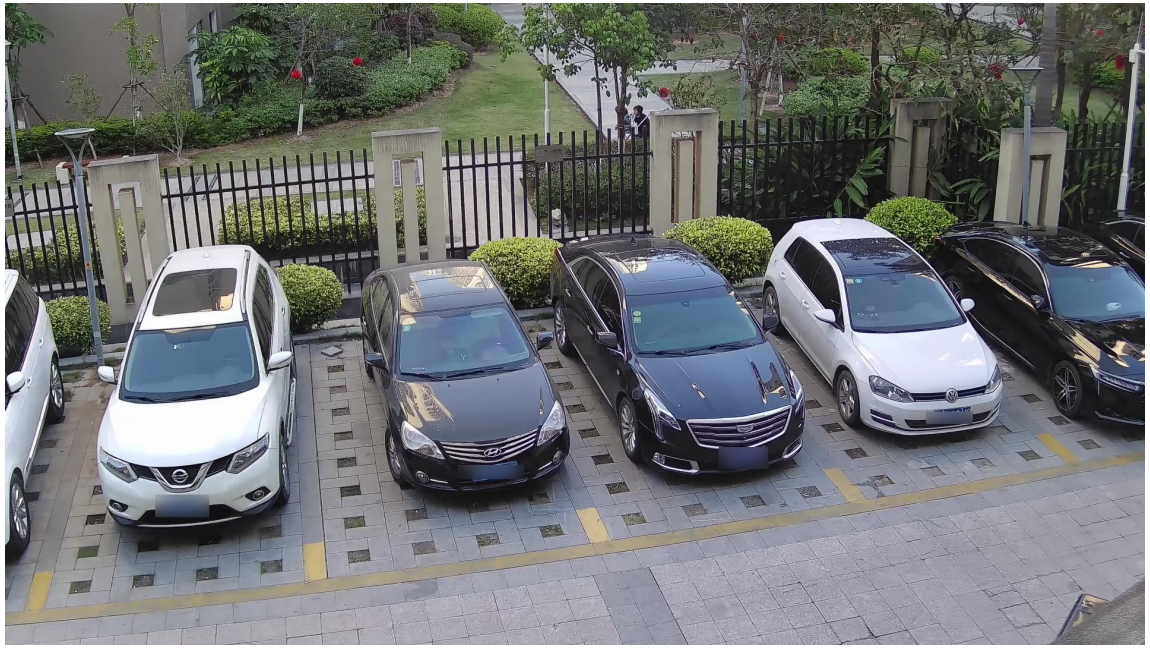


Figure 7 Recommended Installation

Figure 8 Not Recommended Installation

C. Parking Violation Detection - Parallel Parking (Opposite-Side Lateral View):

Figure 9 Installation Scenario

Figure 10 Installation Height

Figure 11 Installation Width & Length

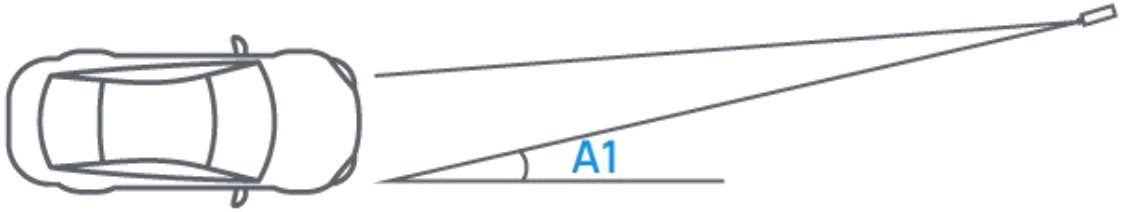


Figure 12 Installation Horizontal Tilt Angle

Figure 13 Installation Vertical Pitch Angle

	Height	Width	Length	A1 Horizontal Tilt Angle	A2 Vertical Pitch Angle
Maximum	8m (26.2 ft.)	9m (29.5 ft.)	9.5m (31.2 ft.)	30°	25°
Optimal	7m (23.0 ft.)	8m (26.2 ft.)	/	25°	20°
Minimum	6m (19.7 ft.)	6m (19.7 ft.)	6m (19.7 ft.)	20°	15°

Optimal detectable height of license plate: 50~70 pixels
The number of vehicles that can be detected, up to 4 vehicles, with an IR distance of 30m (98.4 ft.) at night.

Note:
To achieve 4-space recognition, standard installation requirements must be met. Non-standard installations may only support space detection without reliable license plate recognition. Elevated positioning beyond the maximum height may reduce image clarity, while installations below the minimum height could introduce blind spots.

Figure 14 Recommended Installation

D. Parking Violation Detection - Parallel Parking (Top-Down Vertical View):

Figure 15 Installation Scenario

Figure 16 Installation Height

Figure 17 Installation Length

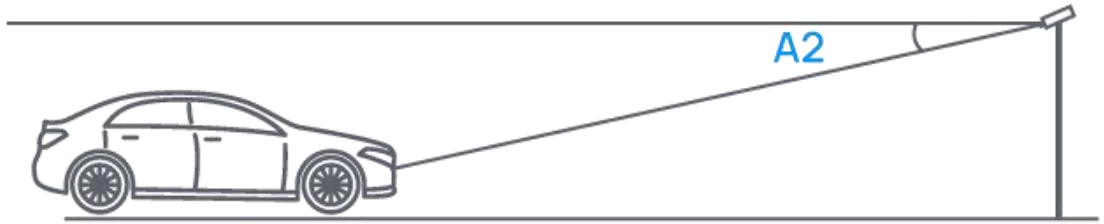


Figure 18 Installation Vertical Pitch Angle

	Height	Length	A2 Vertical Pitch Angle
Maximum	9m (29.5 ft.)	12m (39.4 ft.)	27°
Optimal	8m (26.2 ft.)	/	25°
Minimum	7m (23.0 ft.)	9m (29.5 ft.)	23°

Minimum detected pixels for license plate: 115*25 pixels
Minimum detectable height of license plate: 40 pixels
Optimal detectable height of license plate: 50~70 pixels

The number of vehicles that can be detected, up to 3 vehicles, with an IR distance of 30m (98.4 ft.) at night.

Note:
Elevated positioning beyond maximum height may reduce image clarity, while installations below minimum height could introduce blind spots.

Figure 19 Recommended Installation