PROVISION ISR®
Now you can see!

SMART PLATE

LICENSE PLATE RECOGNITION CAMERAS

INSTALLATION GUIDE

PROVISION- ISR SMART PLATE CAMERAS

	I6-320LPR-MVF1	I6-320LPR-MVF2
Image sensor	1 / 2.8" CMOS	1 / 2.8" CMOS
Effective Pixels	1920x1080	1920x1080
Frame rate	1-25/30FPS In Normal Mode 1-50/60FPS in HFR Mode***	1-25/30FPS In Normal Mode 1-50/60FPS in HFR Mode***
Day/night	ICR	ICR
Min. Illumination	Day: 0.1lux / Night: 0.005lux (@F1.6, AGC On) 0lux with IR on	Day: 0.1lux / Night: 0.005lux (@F1.6, AGC On) 0lux with IR on
Lens	2.8-12mm MVF(103.4°-32.4°)	7-22mm MVF (44°-17.6°)
IR distance	60m (4 High Power IR LED)	60m (4 High Power IR LED)
Image enhancement	True WDR(120dB), BLC, HLC, ROI	True WDR(120dB), BLC, HLC, ROI
Noise reduction	3D-DNR	3D-DNR
Privacy mask	Yes	Yes
Motion detection	Yes	Yes
Standard analytics	Camera Tampering	Camera Tampering
AI analytics	LPR: License plate recognition	LPR: License plate recognition
LPR database	10000 plates	10000 plates
LPR recognition speed	0-70 Km/h	0-70 Km/h
LPR recognition distance	15 m	26 m
Video compression	H.265S/H.264S*, H.265+/H.264+/H.265/H.264, MJPEG**	H.265S/H.264S*, H.265+/H.264+/H.265/H.264, MJPEG**
Streams	3	3
SD card	Event/Schedule based Main/Sub-Stream recording (Up to 128Gb)	Event/Schedule based Main/Sub-Stream recording (Up to 128Gb)
Audio	Two-way Audio	Two-way Audio
Alarm	1 IN + 1 OUT	1 IN + 1 OUT
Power supply	DC12V/~910mA / PoE/~11W	DC12V/~910mA / PoE/~11W
Working temperature	-30°C~60°C, 10%~90% Humidity	-30°C~60°C, 10%~90% Humidity
Protection	IP67	IP67
Dimensions	271.8x92.4x79.4mm	271.8x92.4x79.4mm
Junction box	PR-JB14IP66 - PR-JB14IP64	PR-JB14IP66 - PR-JB14IP64

*Main-Streams Only, **Sub-Streams Only, *** No true-WDR

SMART PLATE CAMERAS CAPABILITIES AND KEY STRENGTHS

Industry leading accuracy
(99% in optimal conditions)

50+
ABC - 123
More than 50 international
license plates supported

ABC✱123
Ability to distinguish relevant
signs from irrelevant ones.

Fast reading
(2 license plates per second)

Vehicle speed:
0-70 km/h / 40 Mp/h

AI
On-board artificial
intelligence based on deep
learning algorithms

SD
Built-in SD Card

Excellent night performances

SHOB
P
Dedicated parking
management software

INSTALLATION GUIDE

INTRODUCTION

When it comes of license plates recognition, each Country has its own standard defining the main characteristics such as:

- DIMENSION
- GEOMETRIC FORMAT
- SYNTAX AND CHARACTER FORM

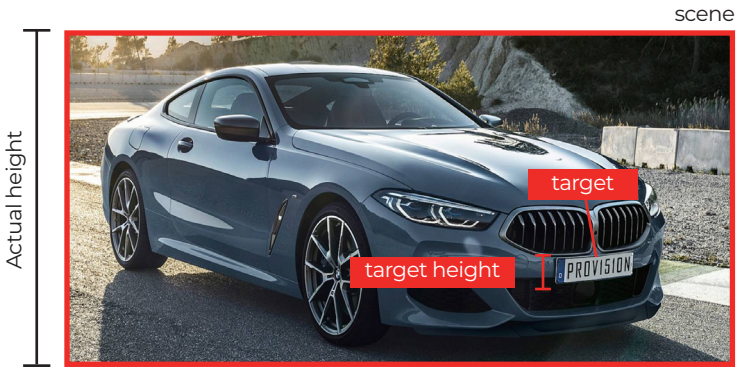
A quite common feature is their RETRO-REFLECTANCE, able to facilitate the correct reading in all lighting conditions.

Provision-ISR Smart Plate cameras are able to recognize license plates from over 50 countries around the world.

PLATE SIZE

Target Height should be:
- More than 10% of the scene
- Less than 50% of the scene

Overall Target Size should be:
- More than 6% of the scene
- Less than 50% of the scene



6% ≤ Plate Proportion ≤ 50%


3.4% (too far)


4,5% (too far)


6.3%

14.8%

24.0%

As we said, each country has it's own plates and the plate's width is not always the same.
Therefore, it is important to choose a lens that will fit to the plate's size.
A thumb rule will be: "if you can read the plate, so can the camera".
Use the table below to know where to install the camera distance-wise and to select a proper lens.

License plate Width (cm)	Lens	Max. Recognition Distance (cm)	Min. Recognition Distance (cm)
30.48	7-22mm	1576	197
30.48	2.8-12mm	840	105
52 (Standard EU Size)	7-22mm	2688	336
52 (Standard EU Size)	2.8-12mm	1432	179
44 (Standard US Size)	7-22mm	2274	284
44 (Standard US Size)	2.8-12mm	1212	152

TILT ANGLE, OBSTACLES, FOCUS

License plate camera tilt angle should be within -5° ~ 5°

OK OK NO

Make sure there are no “obstacles” between the camera and license plate

Put the detection area into focus

NO

OK

Fill Light (optional and depending on country)
Fill light may be used where the license plate is fully reflective (Characters + Background)
In such case IR cannot be used. The strength of the fill light should not overexpose the license plate.

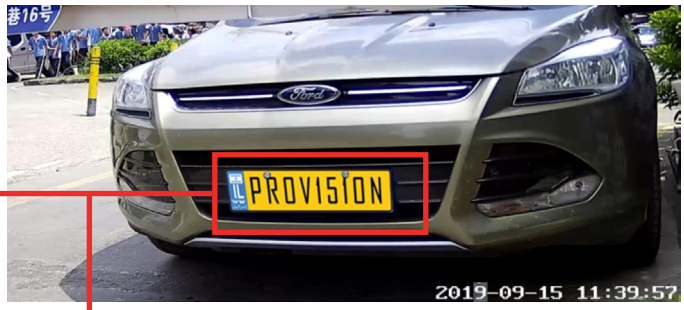
APPLICATION: GATE ENTRANCE/EXIT

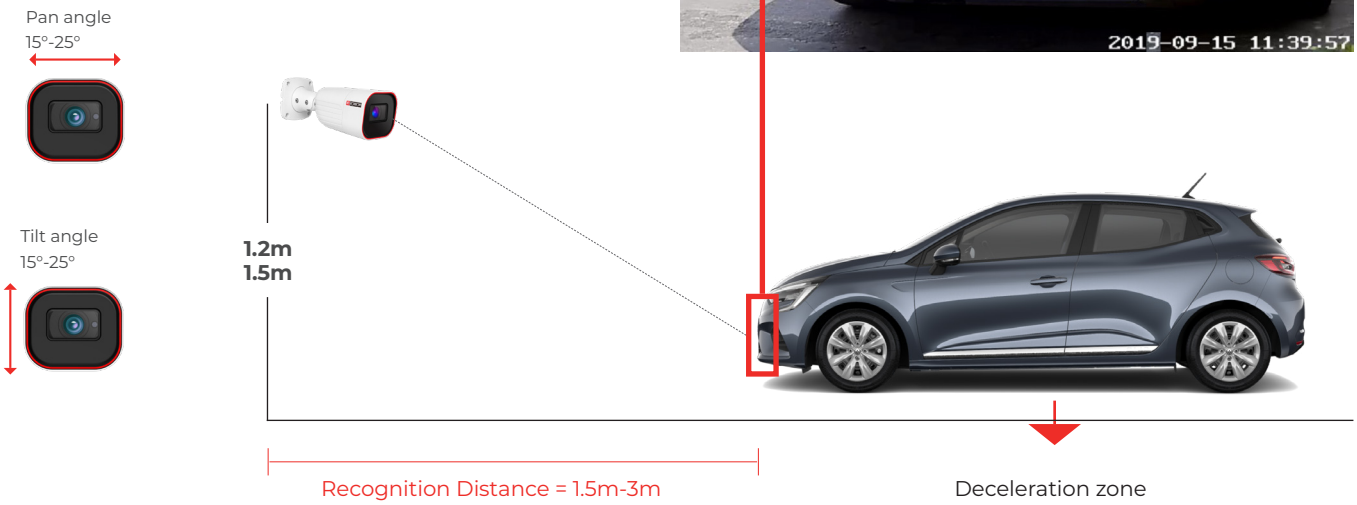
INSTALLATION HEIGHT

Recommended Height: 1.2 M - 1.5 M (Parking Lots)

License plates proportions

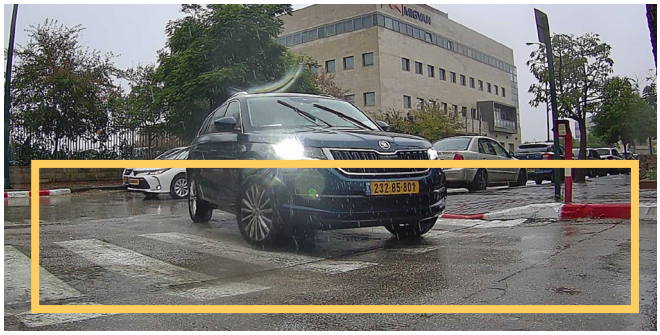
The width of the license plate should be
between 6% to 50% of the screen width





DETECTION AREA (ROI)

When it comes of gate control, we recommend to draw the detection area where the vehicle slows down: near a speed bump, entrance gate, stop sign (etc..)



EXAMPLE OF GOOD AND BAD INSTALLATION

OK

NO

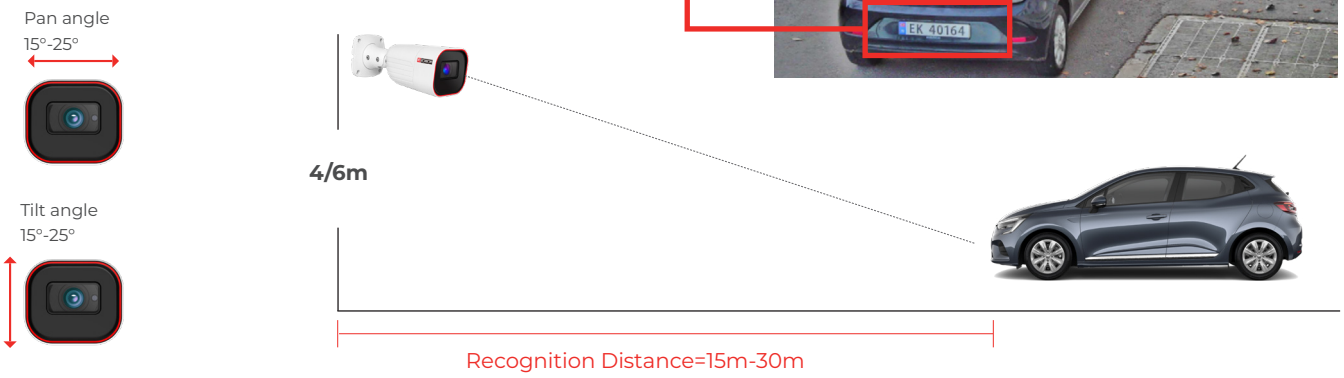
APPLICATION: STREET MONITORING

INSTALLATION HEIGHT

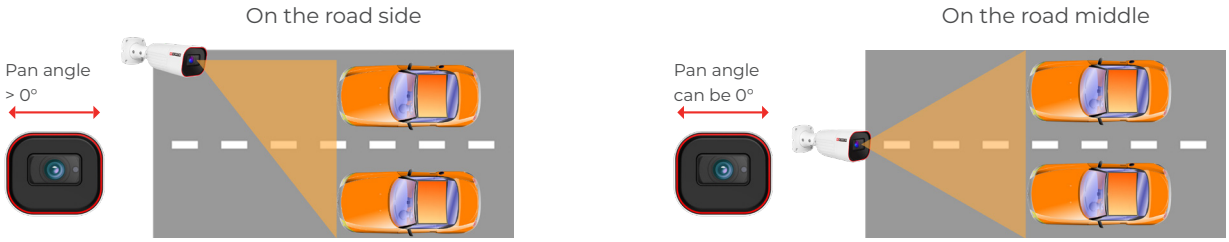
Recommended Height: 4m - 6m (Junctions Or Roads)

License plates proportions

The width of the license plate should be
between 6% to 50% of the screen width

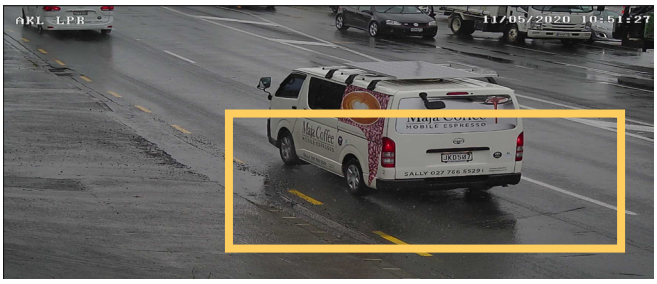


When it comes of street monitoring LPR cameras can be installed:



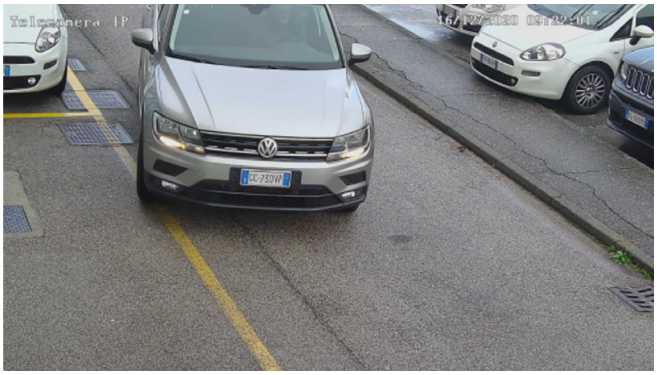
DETECTION AREA (ROI)

When it comes of street monitoring, we recommend to draw the detection area only in the closer lane, at the bottom of the screen, covering about one third of the area.



EXAMPLE OF GOOD AND BAD INSTALLATION

OK



NO

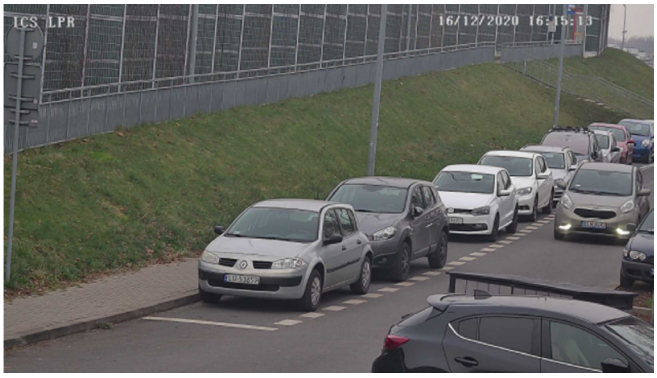


IMAGE SETTINGS

INTRODUCTION

The main aspects to be considered before installing any LPR camera should be:

Vehicle speed

The speed of the vehicle is strictly connected to the camera exposure time: if the exposure time is not the right one, the images will be “blurred”.
Provision-ISR LPR cameras, recognize vehicle’s plates at a speed up to 70km/h and work with exposure times suitable for capturing clear images, without the typical “light trails” caused by the vehicle movement.

Environmental conditions

The shooting conditions can significantly change during the 24 hours. The same location, can be clearly visible when lit by the low sun, or extremely dark at night, during a storm.
Provision-ISR LPR cameras relay on the most advanced image-processing technology able to provide the best results in a variety of environmental conditions.

External “interferences“

By interferences we mean all those lighting sources that can affect the recognition process: from the front or rear headlights of the vehicle, to the license plate illuminator, passing through the lighting fittings along the street.

The user should be able to rapidly set the LPR camera in order to get the best recognition results even under extreme light conditions.

DAY & NIGHT

The best night results will be achieved when the camera is at night mode with IR ON.

This can be achieved by setting the camera to “Scheduled Day/Night” which will solve the following problems:

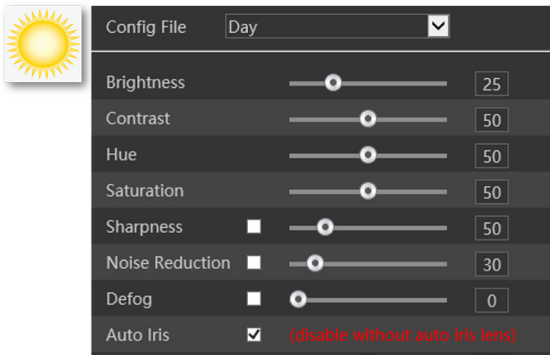
1) Headlights directly from the Vehicle will cause the image to switch from B/W mode to color mode.
2) Street-lights might cause the camera to stay in color mode while the LPR detection area is not well lit.

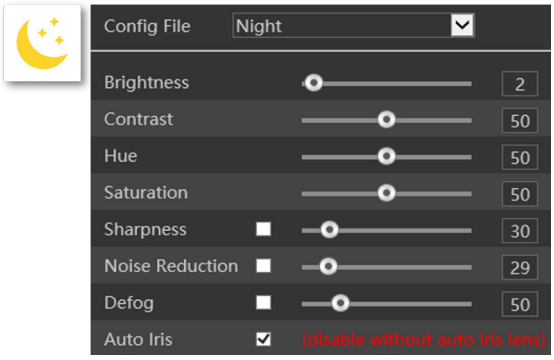
1

2

RECOMMENDED IMAGE SETTINGS FOR DAY & NIGHT

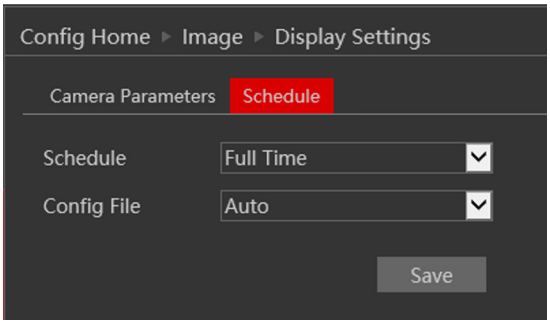
Image settings that works good in day time, won't necessarily work for night as well.
To solve the issue, it is recommended to use 2 sets of configurations



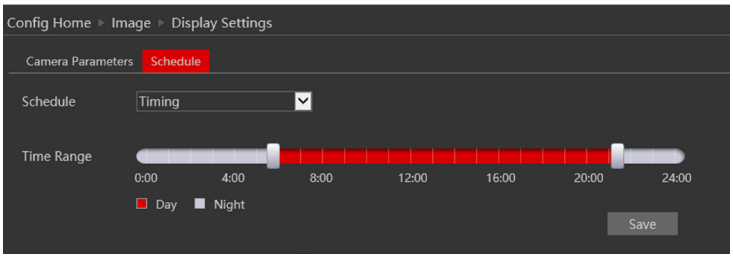


We have 2 ways to switch between day and night:
1. Automatically, if there isn't background lighting
2. By schedule, if the camera doesn't switch automatically

1

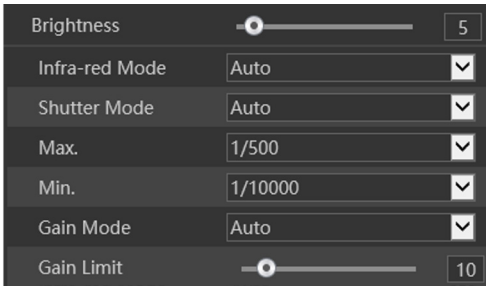


2



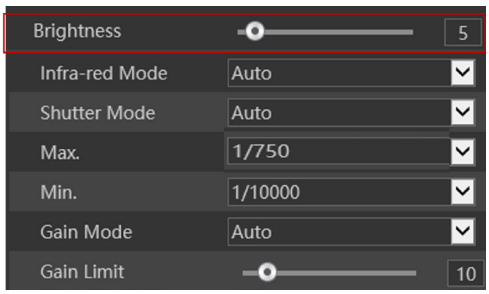
RECOMMENDED DAY MODE IMAGE SETTING

Brightness: Default value
Day/Night Mode: Day
Infra-Red Mode: Auto
Max. (Shutter): According to the live scene.
For static vehicles (gate) use ~1/100.
The faster the vehicle speed, the smaller the value needs to be set (~1/500)
Gain Mode: Auto
Gain Value: ~10



RECOMMENDED NIGHT MODE IMAGE SETTING

Brightness:
If the license plate is reflective, the brightness should be set to ~5. (General Image will be darker)
Day/Night Mode: Night
Infra-Red Mode: Auto
Max. (Shutter): According to the live scene. For static vehicles (gate) use ~1/100.
The faster the vehicle speed, the smaller the value needs to be set (~1/750)
Gain Mode: Auto
Gain Value: ~10



BRIGHTNESS

Setting a lower brightness to the camera (2) will cause the image to be darker overall, but it will be better for reflective license plates

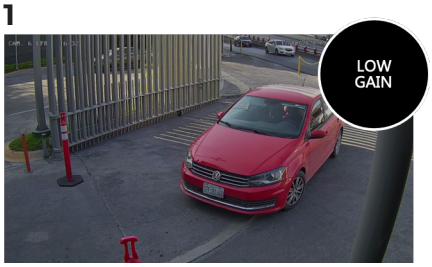
1

2

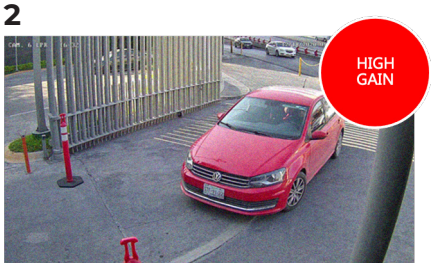
GAIN

Under insufficient light environments, Higher Gain values can improve the image brightness, but will create image noise

1



2



SHUTTER UPPER LIMIT

In the evening, the shutter values will start to increase to allow more light in the sensor.
Higher shutter limit results with blurrier image for moving objects, which can decrease recognition ability (1/25 is higher than 1/750)

1/25

More light enters the sensor
fast moving objects might appear blurry

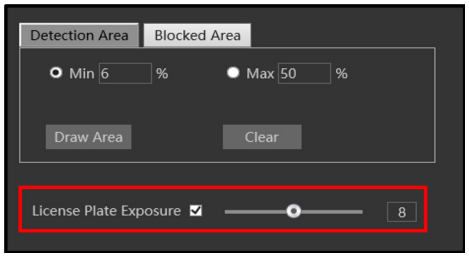
1/100

1/750

Less light enters the sensor
Image is generally sharper

LICENSE PLATE EXPOSURE

This setting is used to perform automatic exposure based on the area marked for license plate recognition (detection area).
The idea is to get visible plate, with less consideration on other parts of the image.
Note: when the image is already too bright/dark, this feature won't be enough for capturing license plates. Repositioning the camera or changing the detection area might be needed.



Provision-ISR

Headquarters:
11 Atir Yeda St, Kfar Saba, Israel
Postal Code: 44425
Tel: (972-9) 741 7511 Fax: (972-9) 745 7182
Web: www.provision-isr.com