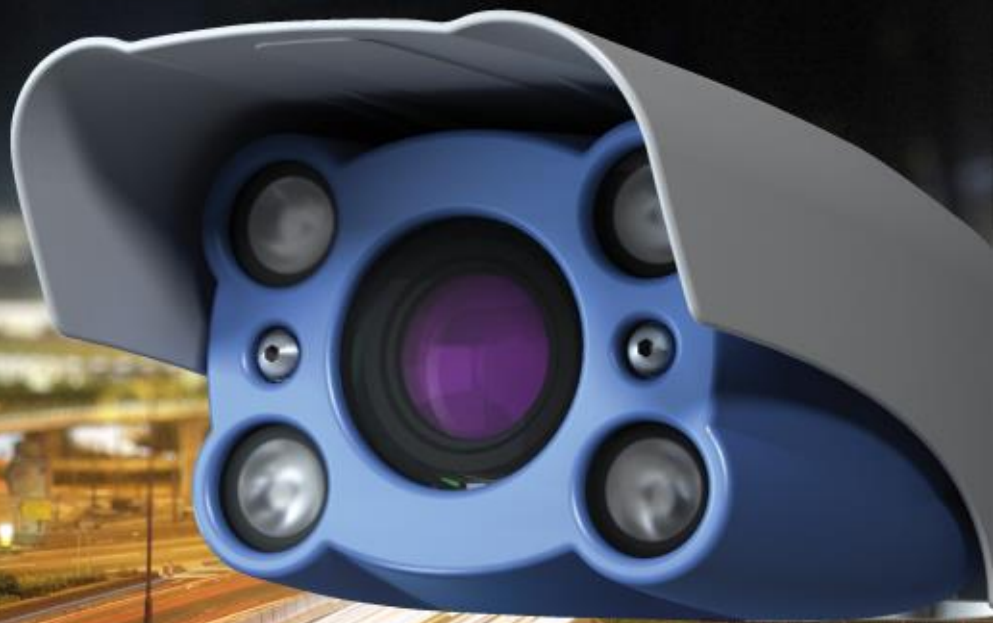


# ParkIT

DIGITAL (IP) CAMERA



**INSTALL GUIDE**



# ParkIT Install Guide

For versions from 3.1

Document version: 14.04.03

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### WARNING

**The camera emits invisible, high-power infrared light. Prolonged direct exposure to this radiant energy can cause permanent damage to the eye!**



## Compliances

### CE Certificates:

The ARH ParkIT ANPR digital camera family complies with the European CE requirements specified in the EMC Directive 89/336/EEC.

The ANPR cameras conform to the following Product Specifications:

Emission:

EN 55022, EN 55024

Immunity:

EN 61000-4-2, -3, -4, -5, -6, -8, -11

### FCC Compliance:

This product has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1) This device may not cause harmful interference.
- 2) This device must accept any interference received, including interference that may cause undesired operation.

**Notice:** The FCC regulations provide that changes or modifications not expressly approved by ARH Inc. could void your authority to operate this equipment.

These limits are designed to provide reasonable protection against harmful interference in a non-residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the antenna of the radio/television receiver.
- Increase the separation between this equipment and the radio/television receiver.
- Connect the equipment into a different outlet so that the equipment and the radio/television receiver are on different power mains branch circuits.
- Consult a distributor of ARH Inc. or an experienced radio/television technician for additional suggestions.

### Declaration of RoHS Compliance for Electrical and Electronic Products:

ARH Inc. ("the Company") hereby declares that the ParkIT ANPR camera family placed on the European Community market by the Company after 1st July 2006 are compliant with EC Directive 2002/95/EC on the Restrict of Certain Hazardous Substances in Electrical and Electronic Equipment (commonly known as the EU RoHS Directive.)

Compliance with RoHS means that where the product falls under the scope of the EU RoHS Directive, the product does not contain the following substances:

- Mercury (Hg) 0.1%
- Lead (Pb) 0.1%
- Cadmium (Cd) 0.01%
- Hexavalent Chromium (Cr+6) 0.1%
- Polybrominated Biphenyls (PBB) 0.1%
- Polybrominated Diphenyl Ethers (PBDE) 0.1%

above the indicated maximum concentration values by weight in homogeneous materials unless the substance is subject to an exemption specified in the Directive or in subsequent Commission Decisions.

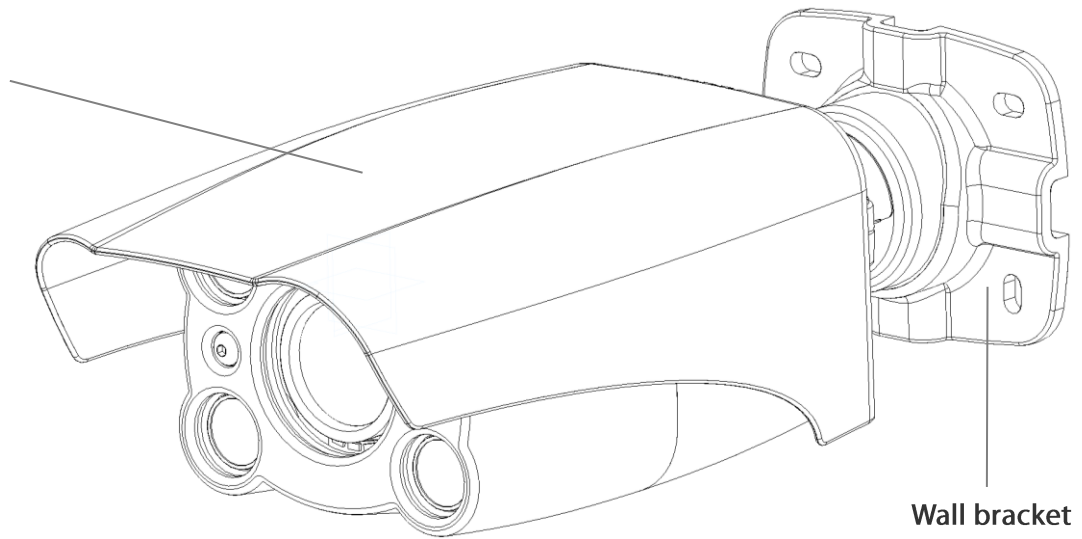
This declaration represents the Company's best knowledge, which is partially based on information provided by third party suppliers.

### Equipment modifications:

This equipment must be installed and used according with the instructions given in its documentation. This equipment contains no serviceable components. Unauthorized equipment changes or modifications cause warranty to void.

# 1. Hardware Overview

Sunshield

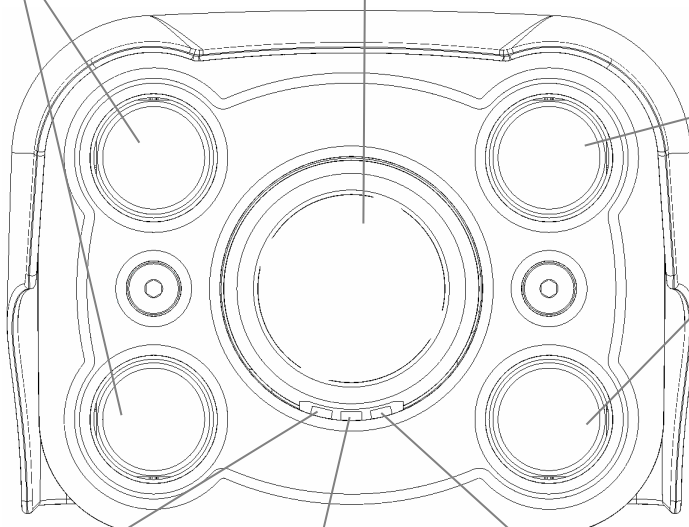


Wall bracket

*Camera with bracket*

Infrared LEDs

Camera optics



Infrared LEDs

Green status LED

Light sensor

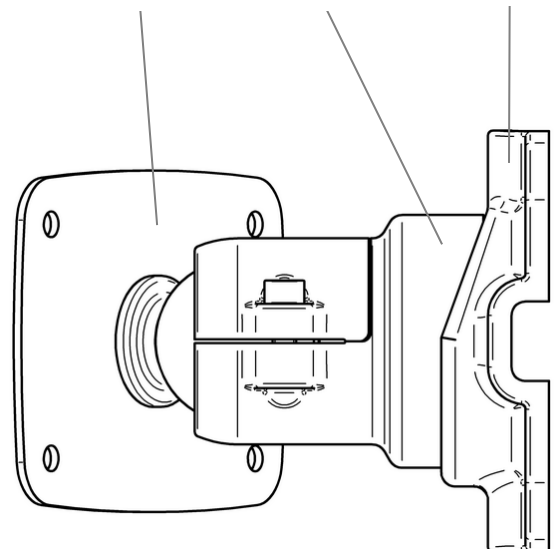
Red status LED

*Camera front*

Cover

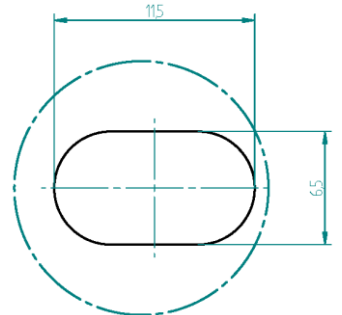
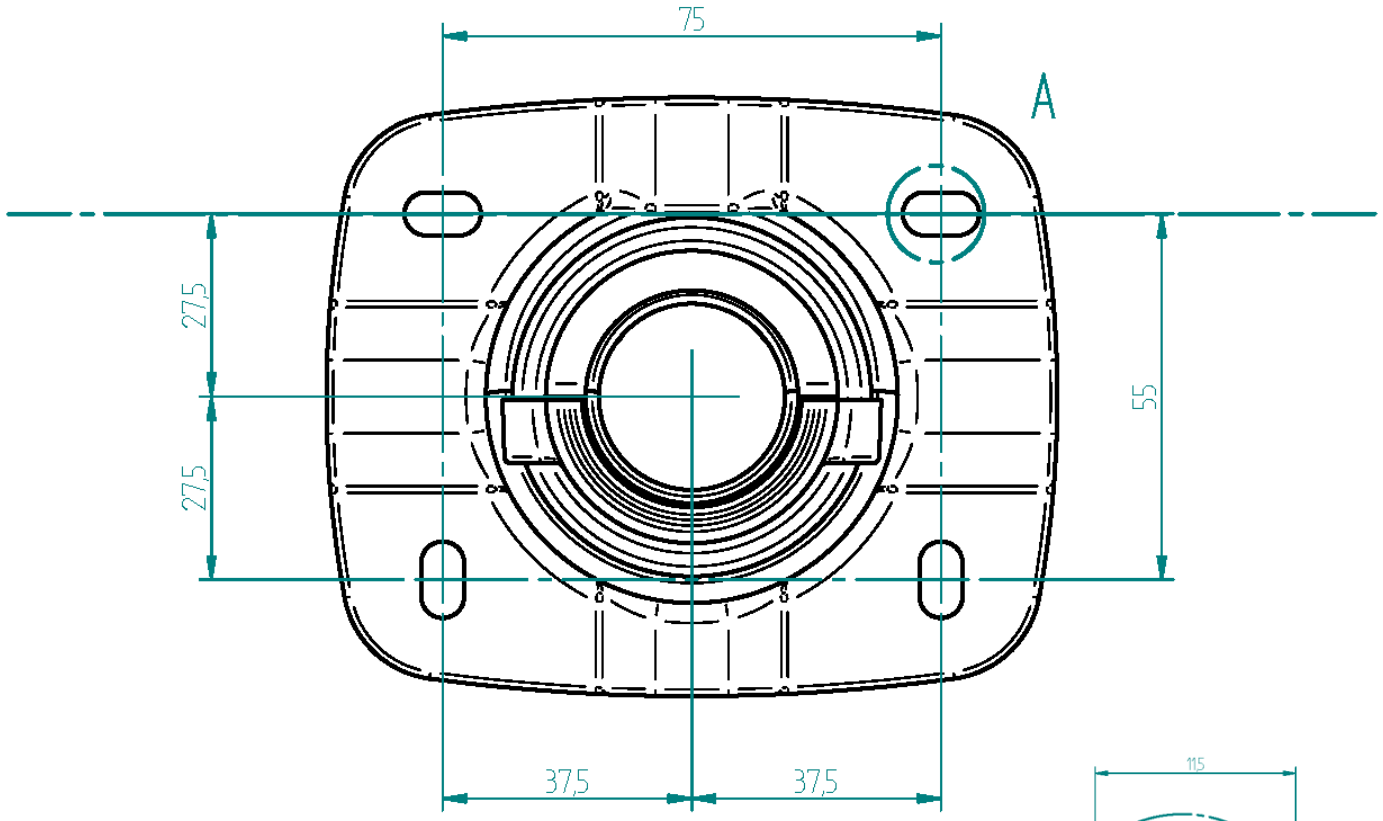
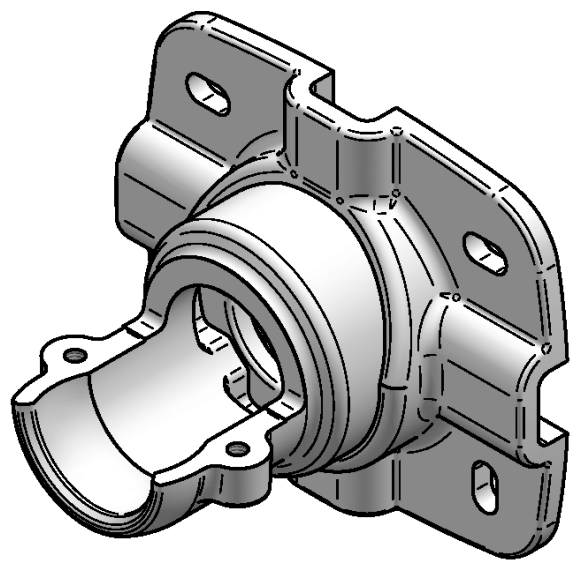
Head

Foot



*Bracket*

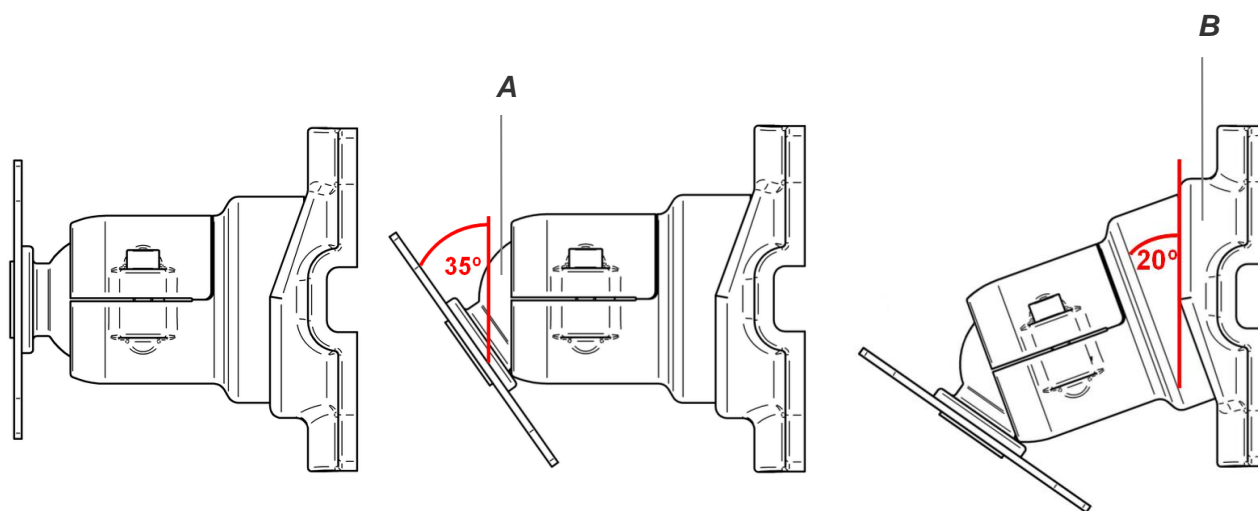
### Bracket Details and Sizes



## 2. Install the Bracket

The bracket can be adjusted at two different points:

1. Adjusting the ball joint (A). The bracket allows rotating the ball joint in a 35-degree spatial angle in any direction.
2. Adjusting the foot (B). If the necessary extent of rotation exceeds 35 degrees then the foot of the bracket can be rotated by 180° extending the 35 degree spatial angle with additional 20° according to the figure.

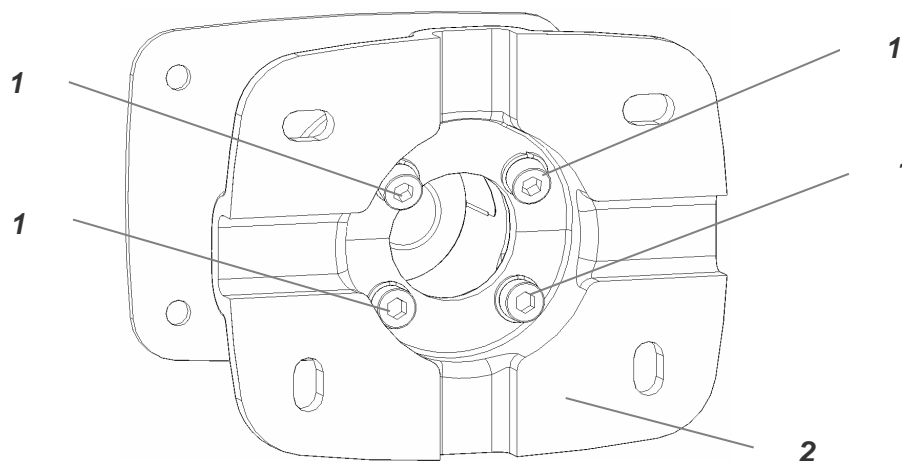


Bracket foot rotated by 180° enables additional 20° to rotate the camera by.

### Steps of rotating the foot

1. Remove the four screws (1) located at the back of the foot. (Use size 4 Allen key).
2. Rotate the foot (2) by 180 degrees.
3. Place the screws back into the holes and screw them back on.

**NOTE:** Do not overtighten the screws.



## 2.1 Mounting

The bracket can be mounted into different surfaces. Use appropriate screws for installation according to the mountable surface.

**NOTE:** Failures due to inappropriate installation void the warranty.

## 3. Setting up the Camera

**NOTE:** Technical specifications are subject to change without prior notice.

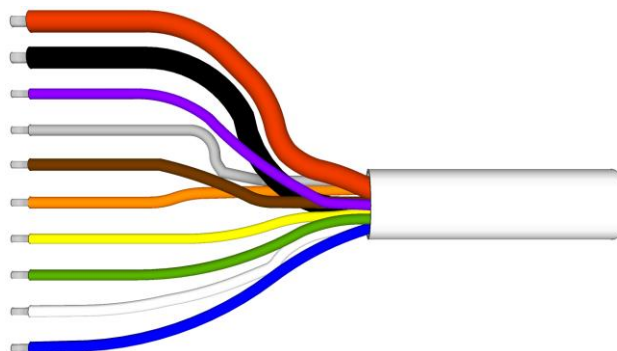
The camera is equipped with two cables. The first cable is responsible for the power, trigger and serial connections while the second cable is for communication via TCP/IP. The lengths of the pre-assembled cables are 1.5 meters and they can be extended (if necessary) according to the followings:

- ▶ RJ45: with e.g. inline coupler
- ▶ Power/Trigger/Serial: with e.g. junction box

**IMPORTANT NOTICE! For cabling use quality, outdoor-certified cables!  
Improper cabling causes warranty to void! Water may enter into the camera inside through loose cable ends. Use smooth circular cables only (6-8mm diameter).**

### 3.1 Power / Trigger/ Serial Connection

<u>Description</u>	<u>Cable color</u>
1. +12V <sub>DC</sub> .....	Red
2. GND.....	Black
3. Opto out G (-)** .....	Purple/Red
4. Opto out S (+)** .....	Grey
5. Opto in S (+)* .....	Brown
6. Opto in G (-)* .....	Orange
7. NC (no connect).....	Yellow
8. Serial RX*** .....	Green
9. Serial TX*** .....	White
10. Serial GND*** .....	Blue



\* For trigger input  
 \*\* For trigger output  
 \*\*\* General-purpose serial port

**IMPORTANT: SEAL THE UNUSED CABLE ENDINGS (END SLEEVES) BEFORE CONNECTING TO POWER IN ORDER TO AVOID DAMAGES DUE TO SHORT CIRCUIT!**

#### POWER SPECIFICATIONS:

	ParkIT WideVGA	ParkIT HD
DC Input	isolated 12V nominal (11V..15V), reverse polarity protected	
Power	12W	14W
Input Current	1.0A (max. 2.5A transients occur for a few msec)	1.1A (max. 2.5A transients occur for a few msec)
Over-current Protection	by fuse	

## TRIGGER SPECIFICATIONS:

**Logic output:** Open Collector (max. 12V<sub>DC</sub> / max. 10mA)

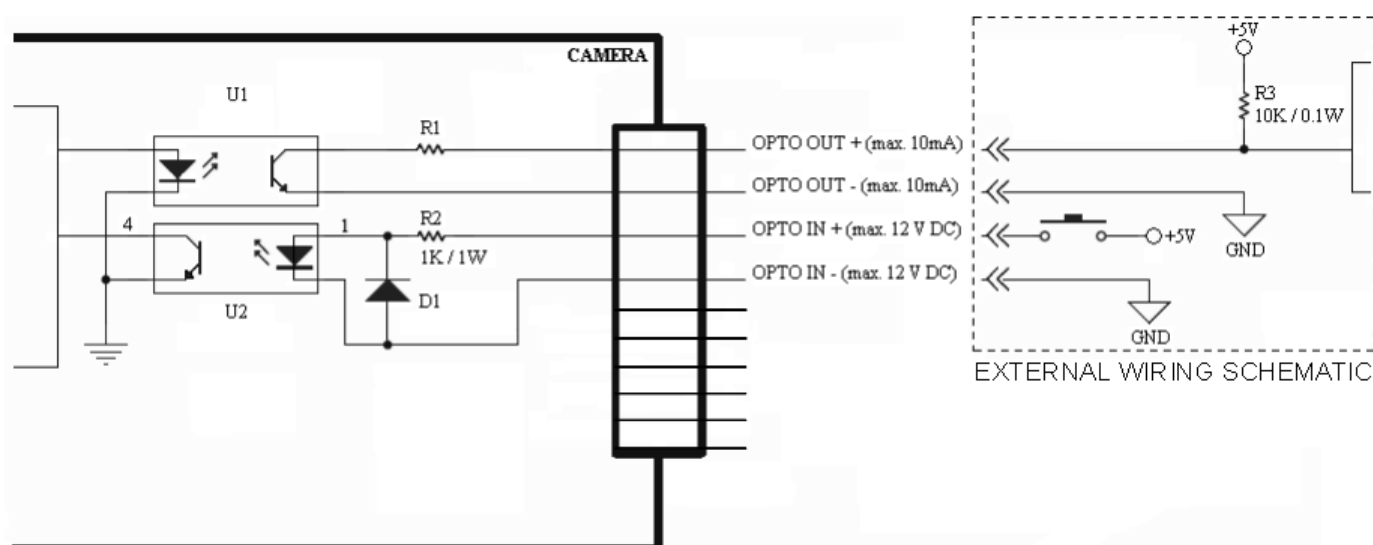
**Input:** min. 5V, max. 12V

**Pulse width:** min. 1 ms

## SERIAL CONNECTION:

The serial port of the camera complies with the RS 232 standard.

### Sample application for trigger input and output



## 3.2 Ethernet Connection

The camera is equipped with CAT5e UTP crossover cable with RJ45 plug. It is ready to connect both to PC and network switch directly.

**NOTE:** The RJ45 plug is not weatherproof.

## 4. Software Requirements

The ParkIT camera is developed to operate without any kind of special software.

### Software requirements

- For network setup, administrator (root) privileges are necessary.
- Web browser: Mozilla Firefox 4, Internet Explorer 8, Google Chrome 14.X.X.X or later editions. If it is possible, update your browser (Firefox or Chrome) to the newest available version.

**NOTE:** To enable all camera functions, enable JavaScript control in your browser.



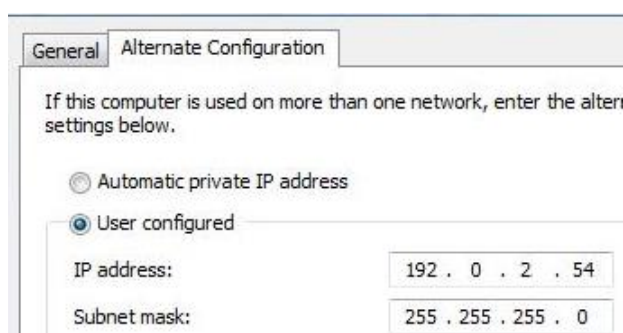
## 5. Accessing the Camera

Steps of accessing the web interface of the camera from a browser:

1. Connect the camera to a computer or network switch, then power on the camera. After it is turned on, both status LEDs (red and green on the camera front) are turned on while the camera is booting. After finished, the green status LED flashes two times signaling that the camera is ready for operation.



2. Enter an alternate IP address in the 192.0.2.x subnet – where x is an integer number between 1 and 254 except 3 – with the subnet mask of 255.255.255.0. For more information, see [Appendix](#).



3. Use the ping command to test the communication with the camera

**Windows:**

```
C:\>ping -t 192.0.2.3
```

**Linux:**

```
username@mylinux:~$ ping 192.0.2.3
```

4. Soon, the ping package returns: **Reply from 192.0.2.3**. If not:
  - o first check the Ethernet LEDs at the PC or the switch side
  - o check whether the IP address is set correctly; the own IP address of the PC can be pinged.
  - o proxy is set in the browser or the browser is not set to offline.

If these obstacles are checked and there is still no reply, power off then on and enter the previous ping command again.

5. Start a browser then enter the default IP address of the camera into the address bar (<http://192.0.2.3>). After this, the camera starts with administrator privileges, ready to be set up and configured.

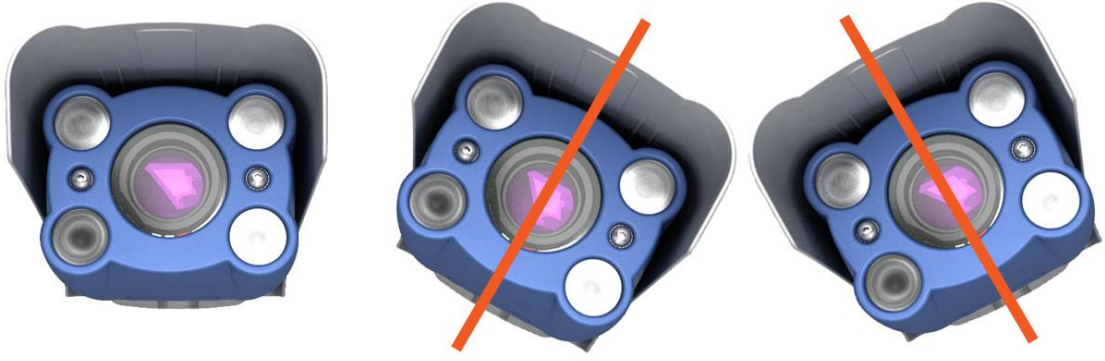
**NOTE:** To enable all camera functions, enable JavaScript and ActiveX controls in your browser.

## 6. Recommended Camera Position

A good ANPR engine can read the plates from images taken in various conditions. However, if you want to achieve over 95% recognition rate with short recognition times, you have to calculate the position of the camera accurately. The best position is if the angle between the camera axis and the direction of the vehicle movement is minimal and the camera should be installed 1 – 1,5 meters above the headlights of the vehicles.

The distance between the camera and plate is also important. If the camera is too far from the plate, the characters may not be large enough for recognizing them. In this case, zoom-in until you reach the proper size. If the distance is too short it may happen that a part of the plate is over the camera's field of view (when the vehicle is near to the side of the lane or the plate is not at the middle of the vehicle).

From the point of ANPR/LPR the most important is the size of the characters on the image. For English characters it is recommended to have at least 16 pixel average character height, for Arabic or other special characters it is recommended to have 20 pixel height (due to they are more calligraphic than the English characters). The too large characters are also not suitable for ANPR, therefore try to avoid settings where the character size is greater than 50 pixels in height. A line width of a character on the image should be at least 2 pixels.



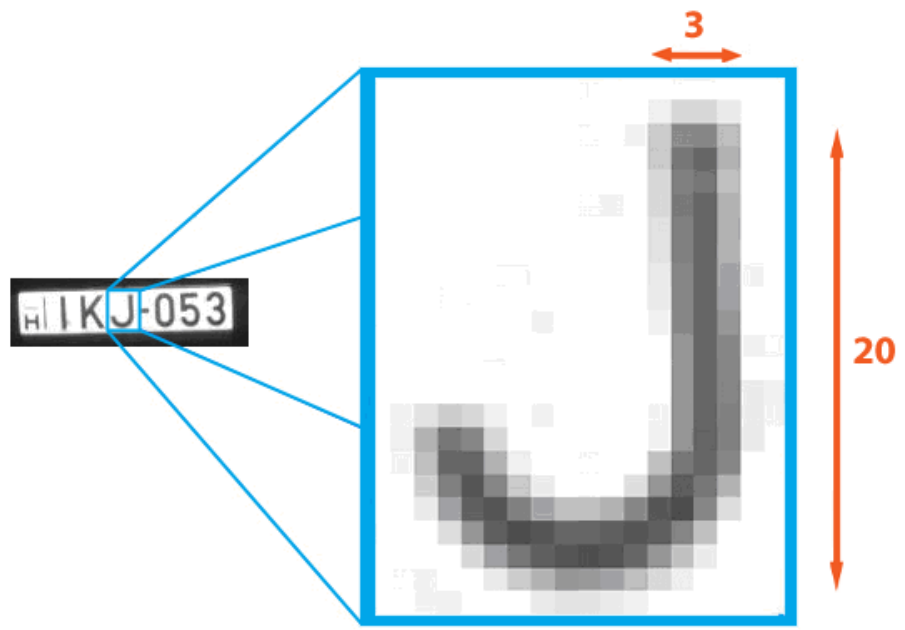
Correct camera position

Do not tilt the camera right or left!

A properly set camera should provide a similar image:



A proper sample image



Proper character sizes (in pixels) on the sample image

## 7. Maintenance / Storage

The cameras are designed for 24/7/365 work under every weather condition and they do not need special maintenance. Please keep clean the camera front. During the cleaning process, avoid scratching the front cover.

Never use the camera without its sunshield as it was specially designed to protect the device against environmental effects such as heat, moisture or contamination.

The cameras should be stored in low humidity environment in the temperature range of -35 °C – +55 °C.

**NOTE:** The startup temperature of the camera is -20 °C.

The maintenance of the devices is recommended on a quarterly basis. In case of extreme weather conditions more often.

During the maintenance make sure that:

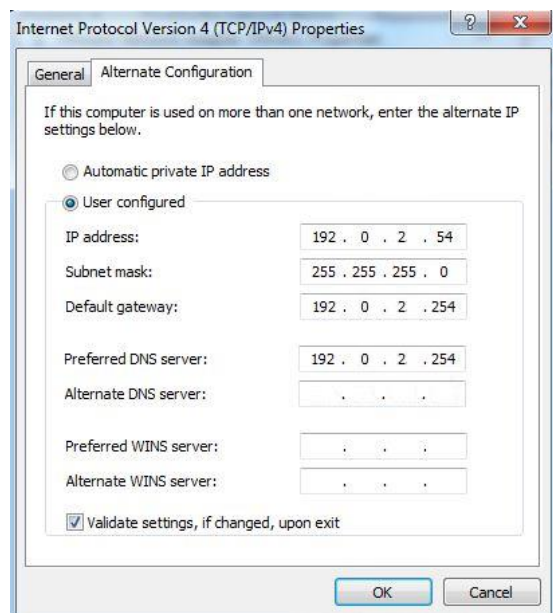
- the camera operates properly,
- it is facing to the previously set direction,
- the fastening is not slack,
- the front of the camera and the camera itself is clean (no spider webs or any other contaminants inhibit the visibility),
- there are no strange circumstances (vapor, damage).

## Appendix

### Adding Alternate IP Address

#### Windows Vista/Windows 7

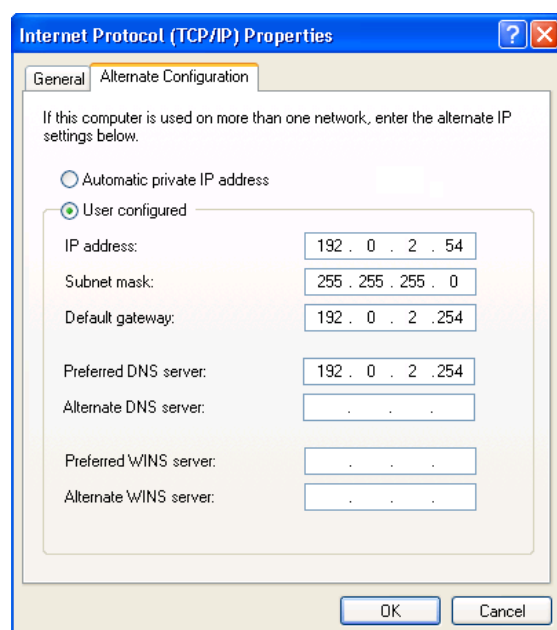
1. Click **Start** and select **Control Panel**.
2. Make sure you are in **Classic View** by clicking **Classic View** on the left of the Control Panel.
3. Open **Network and Sharing Center**.
4. Click **Manage Network Connections** on the left side of Network and Sharing Center.
5. Right click on the network connection you want to add an IP address for (to which the camera has been connected) and select **Properties**.
6. Select **Obtain an IP address automatically** and click on the **Alternate Configuration** tab.
7. Select **User configured** and enter e.g. the **192.0.2.54 IP address** and **255.255.255.0** as **Subnet mask** as shown on *Figure 1*.
8. Click **OK** in the opened windows.



*Figure 1.*

#### Windows XP

1. Click **Start** and select **Settings / Control Panel**.
2. Make sure you are in **Classic View** by clicking **Classic View** on the left of the Control Panel.
3. Click **Network Connections**.
4. Right click on the network connection you want to change the IP address of (to which the camera has been connected) and select **Properties**.
5. On the **General** tab click once the **Internet Protocol (TCP/IP)** item, and click **Properties**.
6. Select **Obtain an IP address automatically** and click on the **Alternate Configuration** tab.
7. Select **User configured** and enter e.g. the **192.0.2.88 IP address** and **255.255.255.0** as **Subnet mask** as shown on *Figure 2*.
8. Click **OK** in the opened windows.



*Figure 2.*

#### Linux

1. Open a terminal.
2. Enter the `ifconfig` command to see the reserved Ethernets (e.g. eth0).
3. Enter the following command: `ifconfig ethY 192.0.2.25`  
 where **Y** is a free eth (e.g. eth1) and `192.0.2.25` is a sample IP address.

## Position of the sticker



The sticker, indicating the Name, IP address, MAC address and the Serial Number of the camera, can be found on the bottom of the device.

## Contact Information

Should you have any problem during operating the ParkIT cameras, our support team is at your disposal. Please try to explain the problem as detailed as possible and do not forget to send the following information to make it easier to help you:

- The name of your company (for administration purposes).
- The **exact type** of the **product** you have (serial number is appreciated).
- If you have problems **during recognition**, **send images** in the original file format.
- If there is any **error code or message** appearing, please send us the code snippet where it occurs (a screenshot may also be helpful).
- If you noticed the problem while running a Demo or a sample application, please let us know the **name of the application** you tested.
- If you have some problem while **developing your own** application, please specify the followings:
  - your programming language
  - your operating system
  - the name and version number of the compiler you use
  - the programming technology (e.g. native C/C++ / ActiveX / .NET)
  - If possible please send a short part of the source code. Please try to determine the place where the error occurs (e.g. "the scapture?getshutter command returns a negative number...").

### IMPORTANT NOTES:

- **Before sending back a faulty device, always contact ARH Support Team.**
- **Repairs may be executed by the manufacturer only!**

#### Office address:

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