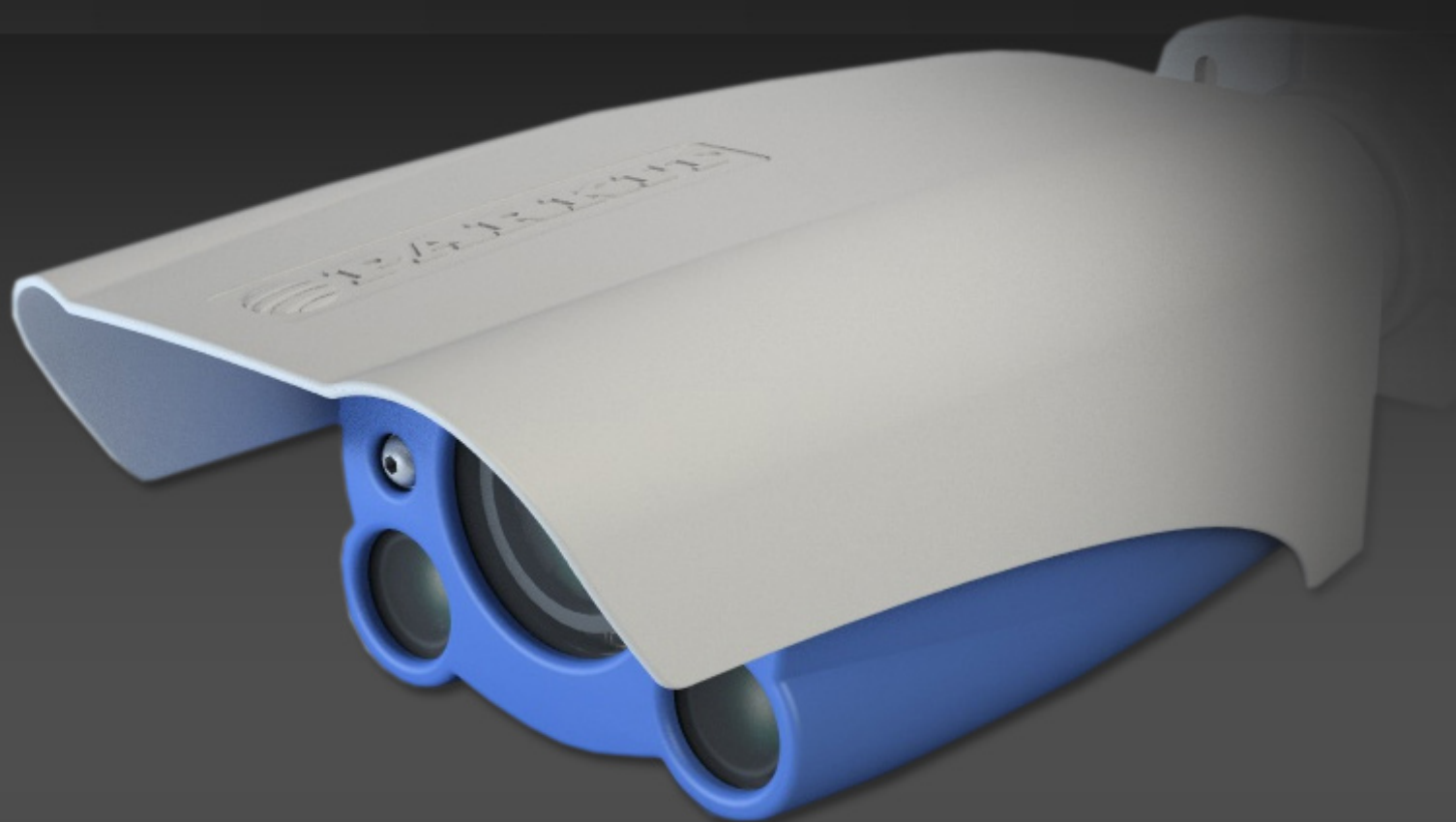


ParkIT

ANPR camera

Install guide



ParkIT Install Guide

Version 1.0

Document version: 11.10.27

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CAUTION!

The camera emits invisible, high power infrared light. Do not look into the light directly to avoid the risk eye damage.

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

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%

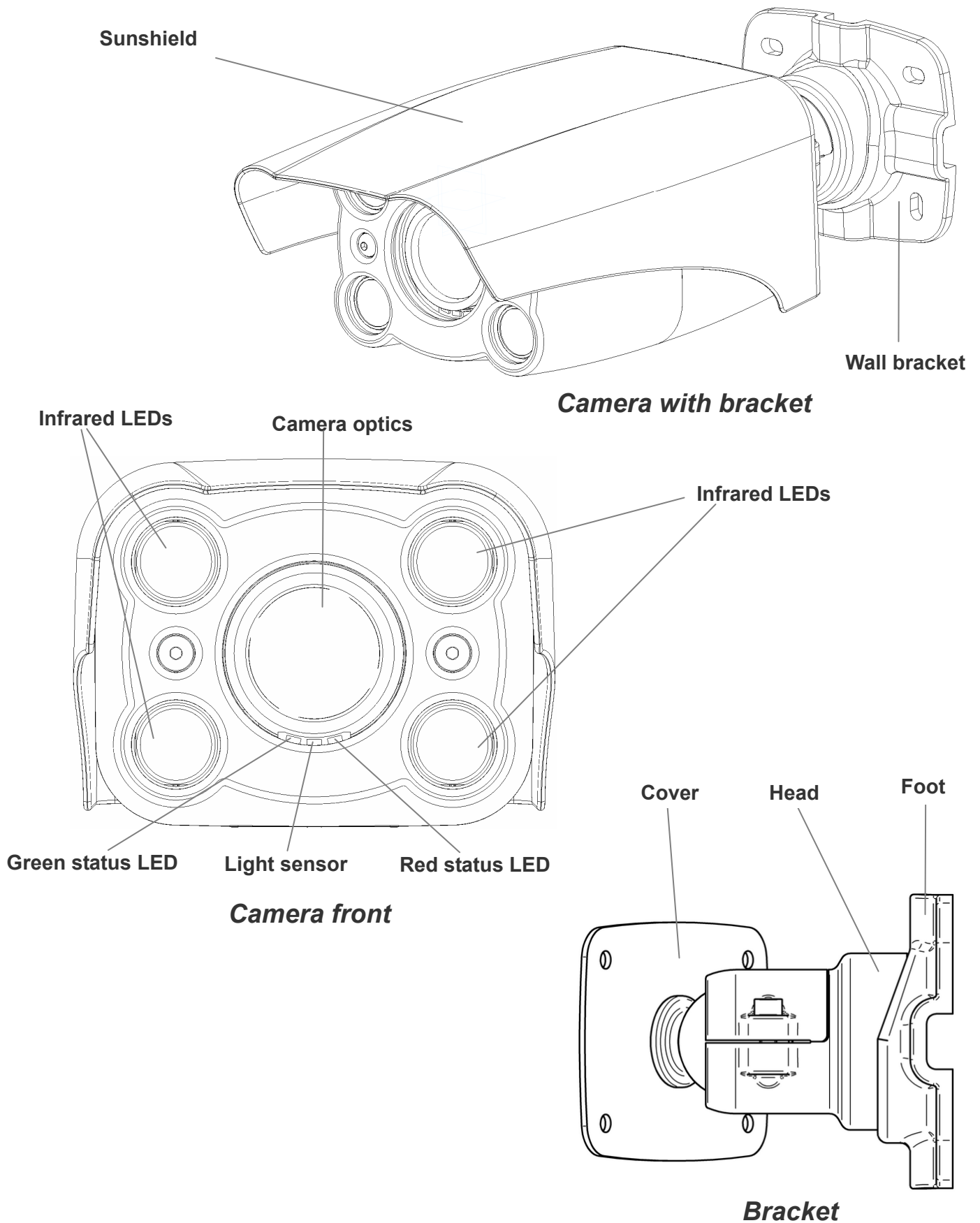
Above the indicated maximum concentration values by weight in homogeneous materials unless the substance is subject to an exemption specified in the Directive or in subsequent Commission Decisions.

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

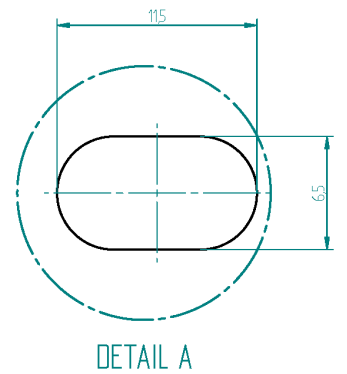
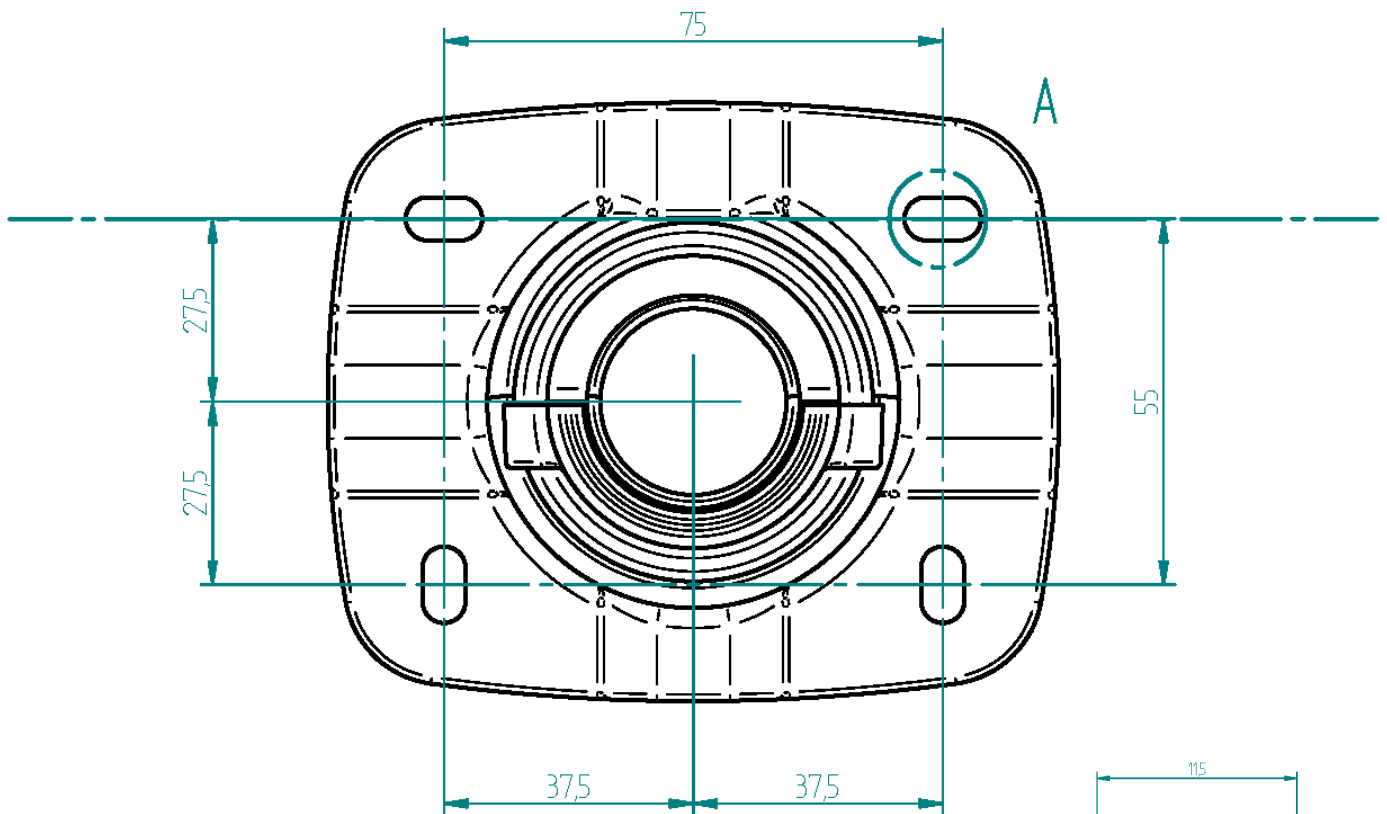
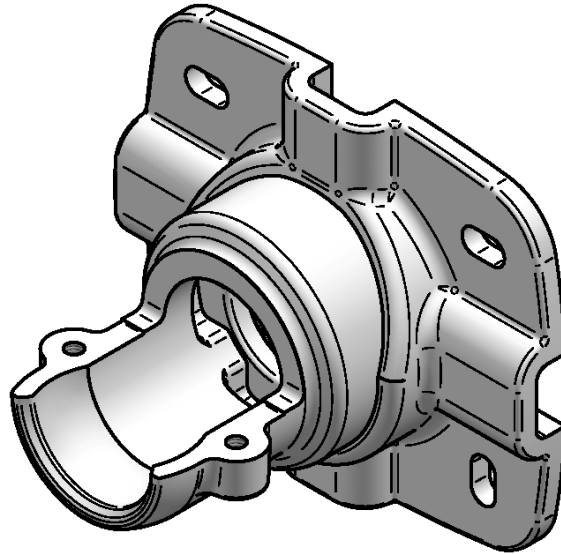
Equipment modifications:

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



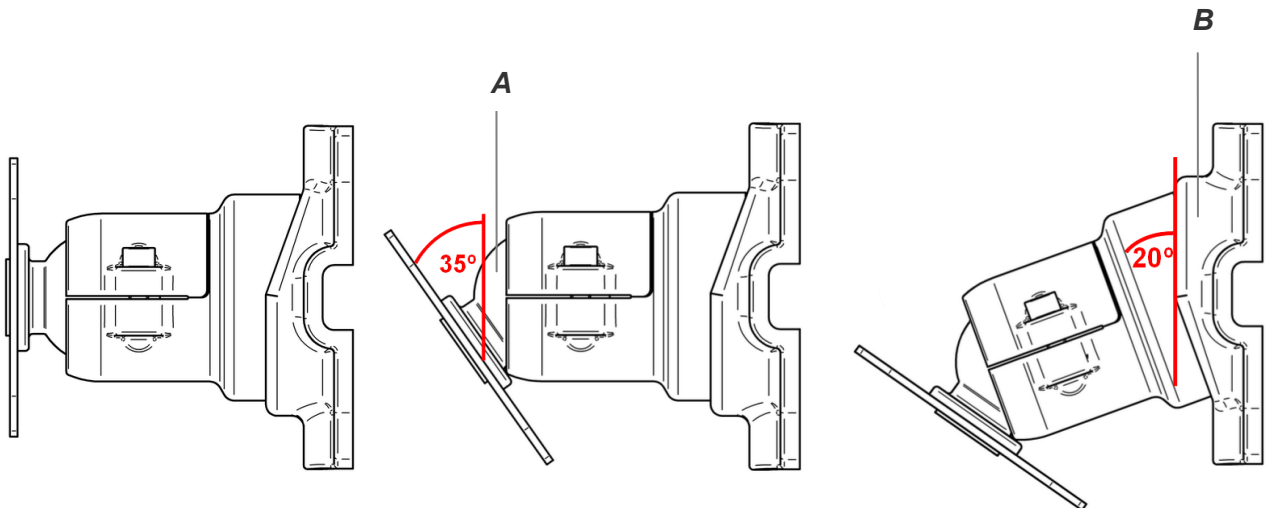
Bracket Details and Sizes



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 exceed 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.

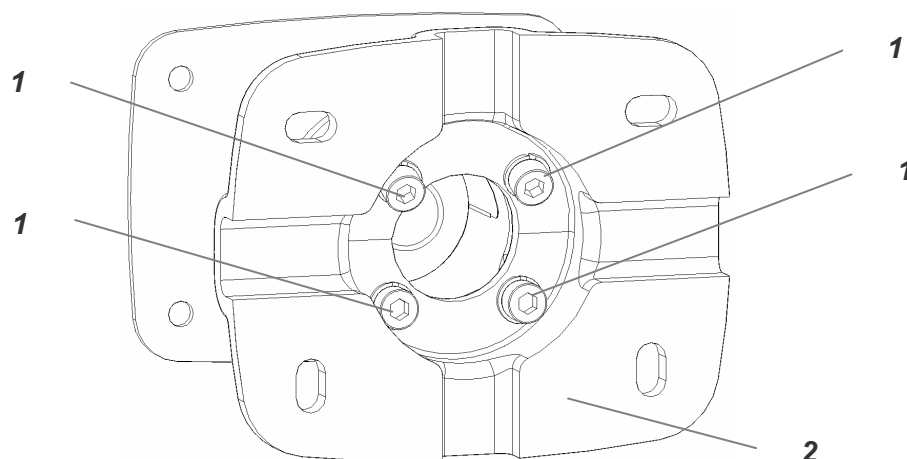


Bracket foot rotated by 180°
enables additional 20°
to rotate the camera by.

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 over tighten 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.

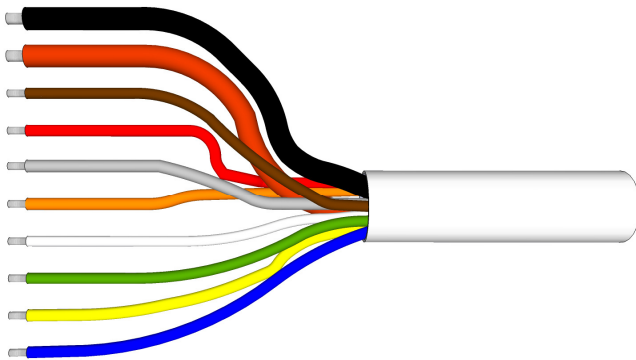
The camera is equipped with two cables. The first cable is responsible for the power, trigger and serial connections while the second cable is for communication via TCP/IP. The lengths of the pre-assembled cables are 1.5 meters and they can be extended (if necessary) according to the followings:

- ▶ 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! Note that camera cables are not weatherproof! Protect the cable endings from water to avoid damaging the camera inside.

3.1 Power / trigger/ serial connection

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



NOTE: Avoid accidental contacting of the end sleeves. It may cause permanent damages.

POWER SPECIFICATION:

The required input voltage is: 12V DC. Consider voltage drop when using long cables!

DC input: 12V nominal (10V..15V), reverse polarity protected

Power: 10W

Input current: 1.0A (Max 2.5A transients occur for a few µsecs)

Over-current protection: by fuse

NOTE: Use smooth circular cables only (6-8mm diameter).

TRIGGER SPECIFICATION:

Output: Open Collector (max. 12V DC/ 10mA)

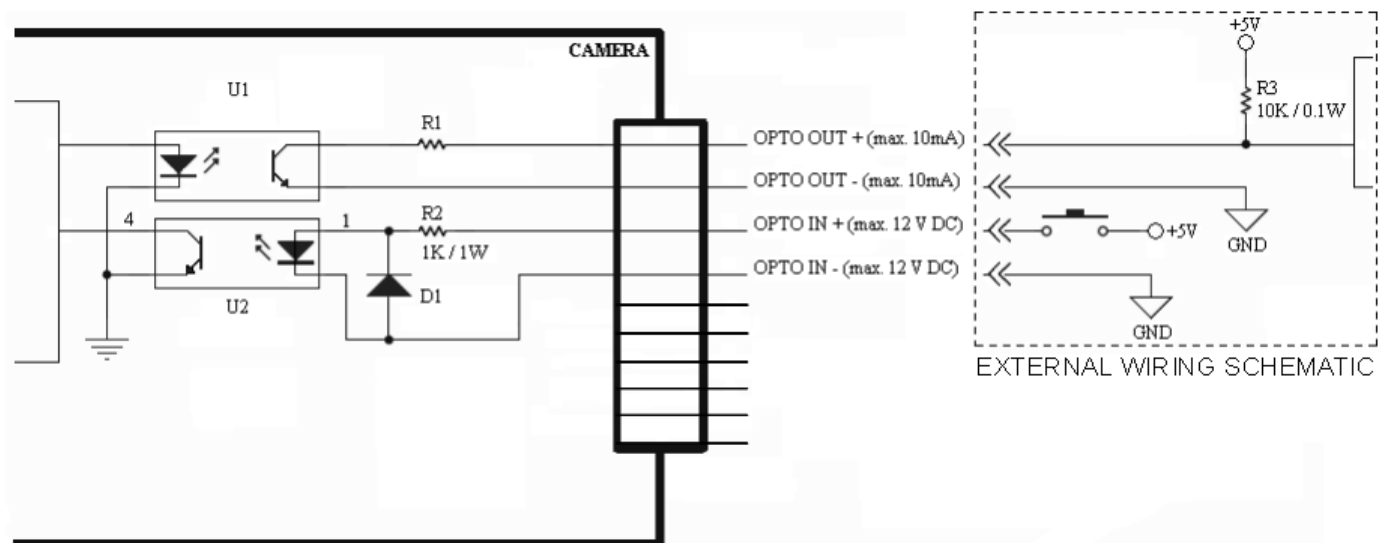
Input: min. 5V, max. 12V

Pulse width: min. 10 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 CAT5 UTP crossover cable with RJ45 plug. It is ready to connect both to PC and network switches 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

- Windows or Linux operating system
- Web browser: Mozilla Firefox 4, Internet Explorer 8, Google Chrome 14.X.X.X or later editions

NOTE: To enable all camera functions, enable and update JavaScript and ActiveX controls 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. If the green LED does not turn off then the input voltage is too low.



2. Set your computer's IP address to 192.0.2.x where x is an integer number between 1 and 254 **except 3** and your subnet mask to 255.255.255.0. For more information on changing the IP address, 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, power off then on and enter the previous ping command again. After 3 seconds, the camera will try to get IP address automatically via DHCP.
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 (and update) JavaScript and ActiveX controls in your browser.

6. Configure the Camera

The ParkIT camera must be configured before using. With the Configuration Wizard, the camera features (e.g. zoom, triggering etc.) can be set up quickly and easily. Of course, the use of the wizard is optional – camera properties can be set up manually as well.

Steps of the Wizard:

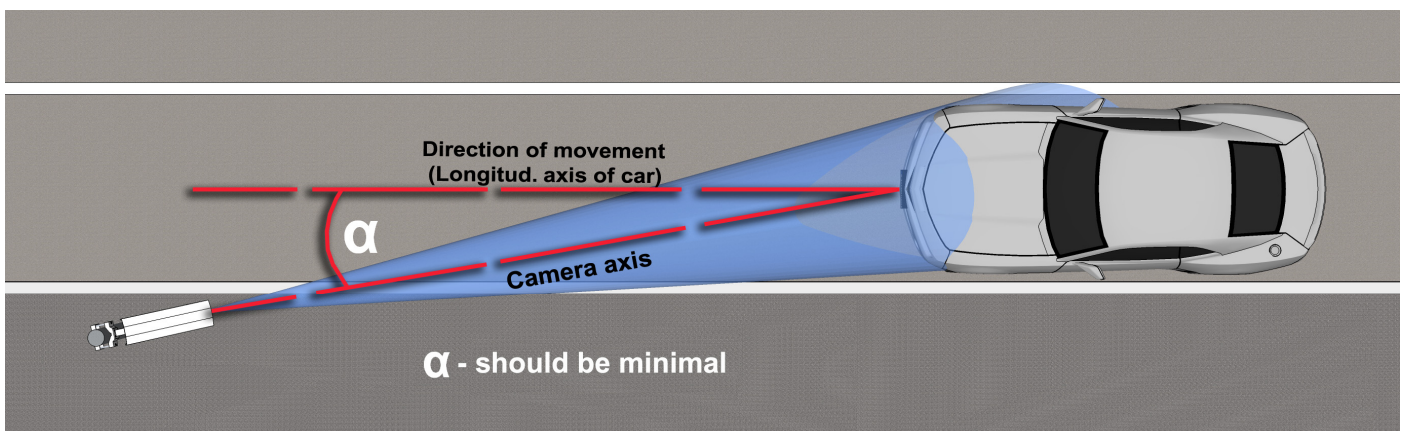
Network setup (Changing the default IP address of the camera is strongly recommended), time and date settings, camera task selection, configuration of image properties, autozoom and autofocus, event managing and profile settings. For more information on the Wizard, see ParkIT User's Manual.

Web interface after configuring the camera:



6. Recommended camera position

A good ANPR engine can read plates from images captured in various conditions. However, to achieve over 95% recognition rate with short recognition times, the position of the camera have to be calculated accurately. The best position is if the angle between the camera axis and the direction of the vehicle movement is minimal (see below).



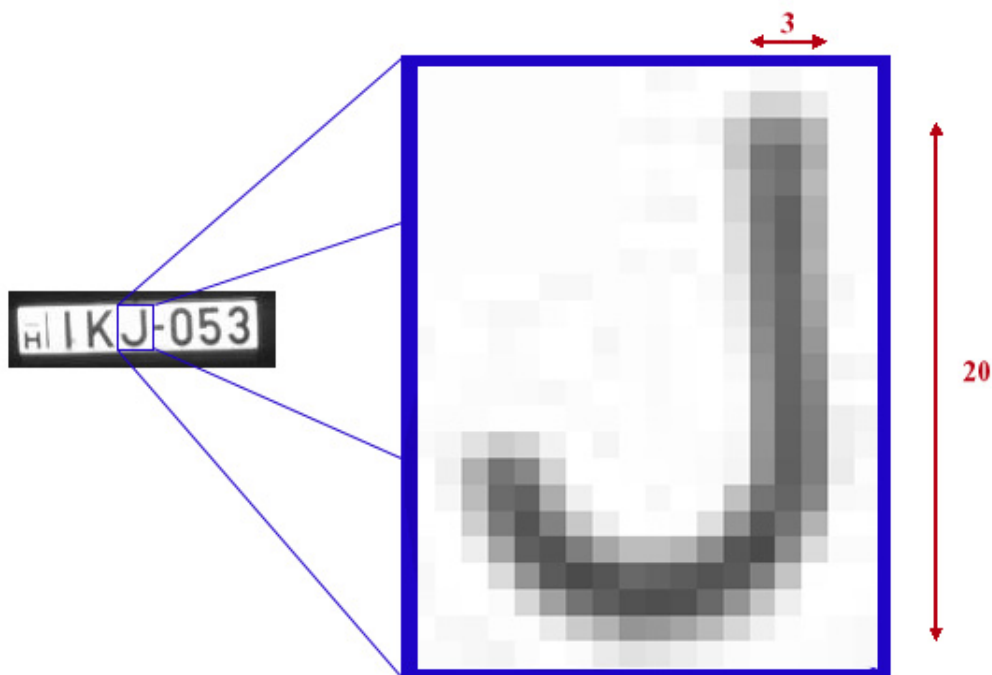
The distance between the camera and plate is also important. If the camera is too far from the plate, the characters may not be large enough for recognizing them. In this case, zoom-in until you reach the proper size. If the distance is too short it may happen that, a part of the plate is over the camera's 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).

Generally, sharp and characters easily readable to the human eye are appropriate for ANPR/LPR purposes. The most important factor is the size of the characters on the image. For Latin characters it is recommended to have at least 16 pixel character height, for Arabic or other special characters it is recommended to have 20 pixel height (since they are more calligraphic than Latin characters). 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.

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.

Appendix

Changing the IP address of the Computer

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 change the IP address of (to which the camera has been connected) and select **Properties**.
6. Select **Internet Protocol Version 4** and then click on **Properties**.
7. Select **Use the following IP address** and then enter e.g. the 192.0.2.25 **IP address** and the 255.255.255.0 **subnet mask** as shown on *Figure 1*.
8. Click **OK** in the opened windows.

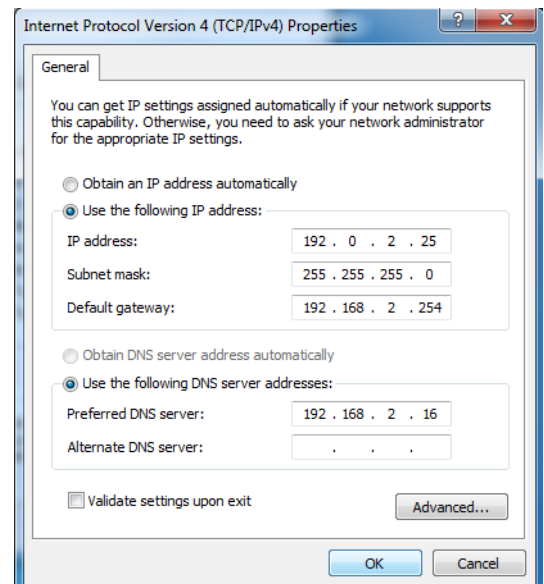


Figure 1.

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. In the **General** tab, click **Use the following IP address**, and enter e.g. the 192.0.2.25 as **IP address** and 255.255.255.0 as **Subnet mask** as shown on *Figure 2*.
7. Click **OK** in the opened windows.

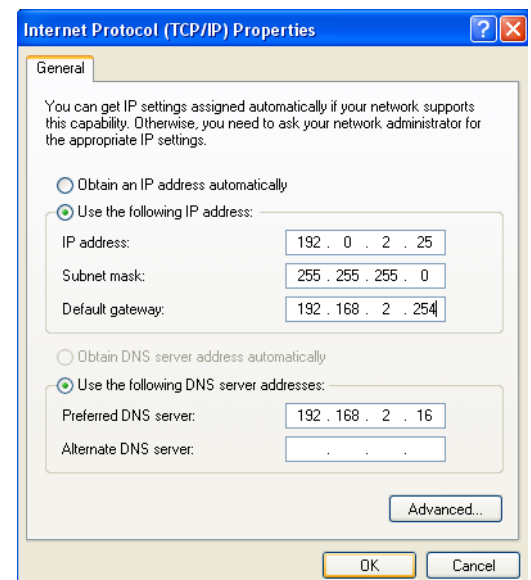


Figure 2.

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.

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!**

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