ADAPTIVE RECOGNITION

GUIDE

ANPR/ALPR CAMERAS FOR ACCESS CONTROL AND PARKING

Install Guide

Einar

Easy install PoE+ camera with onboard ANPR and video results. An all-in-one device for parking access control and slow traffic monitoring.

EINAR

Datasheet and Install Guide

Document version: 2022.02.15.

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1. EINAR DATASHEET

	EINAR 5	EINAR 5T	EINAR 5W
Camera			
Sensor size	1/2.5"		
Max. Resolution	5 MP (2560x1920)		
Video Streams	Primary Stream: 25 fps (2560x1920, 2048x1536) Secondary Stream: 25 fps (1920x1440, 1280x960, 960x720, 640x480)		
Light sensitivity	Day/Night/IR: 0,65 lux / 0,01 / 0 lux		Day/Night: 0,65 lux / 0,01 lux
Shutter	1/6,25 s - 1/6400 s		
Day/Night mode	True		
Lens focal length	3-10 mm	9-22 mm	3-10 mm
Lens FOV	Horizontal: 27°-87° Vertical: 21°-71°	Horizontal: 15°-35° Vertical: 12°-26°	Horizontal: 27°-87° Vertical: 21°-71°
IR LED	4 high power IR LEDs, 850nm IR	4 high power IR LEDs, 850nm IR	4 high power LEDs, White
WDR mode	True (120dB)		
Compression			
Video compression	H.264 SVC (Hierarchical P), MJPEG		
Bit rate	500Kbps - 18Mbps		
Video stream	Dual streaming via RTSP(H.264) and HTTP(MJPEG)		
Network			
Protocols	TCP/IP, DHCP, DNS, SNMP, HTTP, HTTPS, RTSP, NTP, UPnP		
Security	Camera side username and password		
Interface			
Ethernet	10BaseT/100BaseTX, RJ-45 socket		
Storage	microSD card		
Reset button	Factory reset (IP address reset)		
General			
Design	IP67 metal housing		
Operating temp. range	-30 - +55 °C		
Power requirement	POE+ (802.3 at)		
Power consumption	Max. 17W, tip. 5 W		
Dimensions	165×124×100 mm (L×W×H) – without bracket		
Weight	1540g (with bracket)		
Certification	CE: EN 55022, EN 55024, RoHS, FCC		

* Please note that the camera will not operate until its internal temperature reaches + 10 ° C, which can be up to 5 minutes at -25 ° C.

2. INSTALLATION INSTRUCTIONS

Tools required
• 4 mm Allen key
• TX10 screwdriver

Contents of the box
• Quick Install Guide
• Mountable, IP67 protected RJ45 connector housing
• Eyelet lugs for grounding

2.1. MOUNTING THE CAMERA

The camera can be mounted using 3 mounting holes with a diameter of 6 mm on the console. When mounting, take into consideration the weight of the camera (1540g), always happen with the appropriate fittings for the given wall structure.

| Weight (base camera)	1200g
Weight (wall bracket)	340g

2.2. GROUND THE CAMERA

Grounding should be done at the ground point on the camera with the bearing provided as it is shown on the picture. Make sure that the metallic contact is secured at the ground point (e.g. a metal pole) and that the ground point itself is properly led to the ground. The STP / FTP cable is only allowed on the remote side (patch panel, PoE switch, server) and must be grounded.
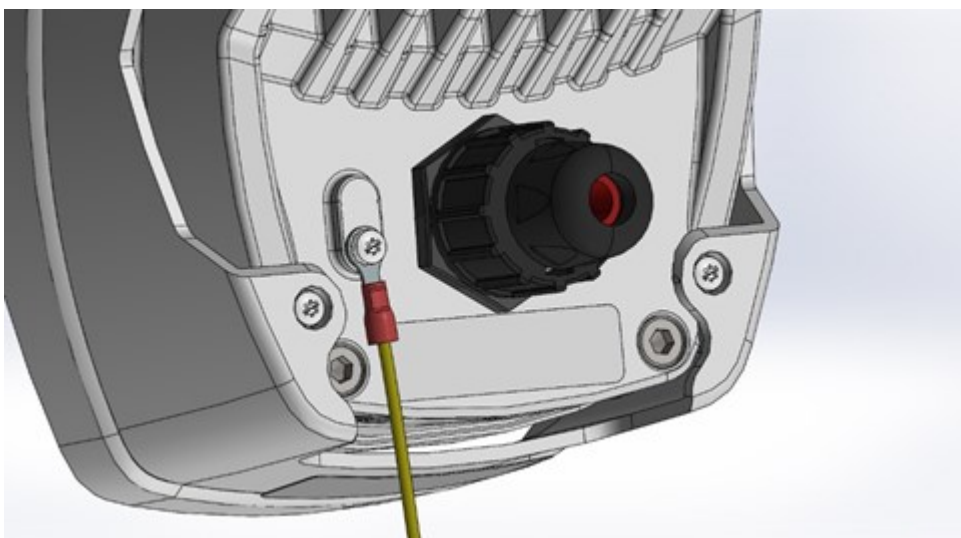
2.3. ADJUST THE VIEW DIRECTION OF THE CAMERA

Loosen the screws marked **2, 3** (tilt) and **4** (turn) by using a 4 mm Allen key, while holding the camera so that it does not "knock down", then set it to the desired position. The horizontal direction can be adjusted by loosening screw **1**. If the device is in the correct direction, tighten all screws on the bracket.
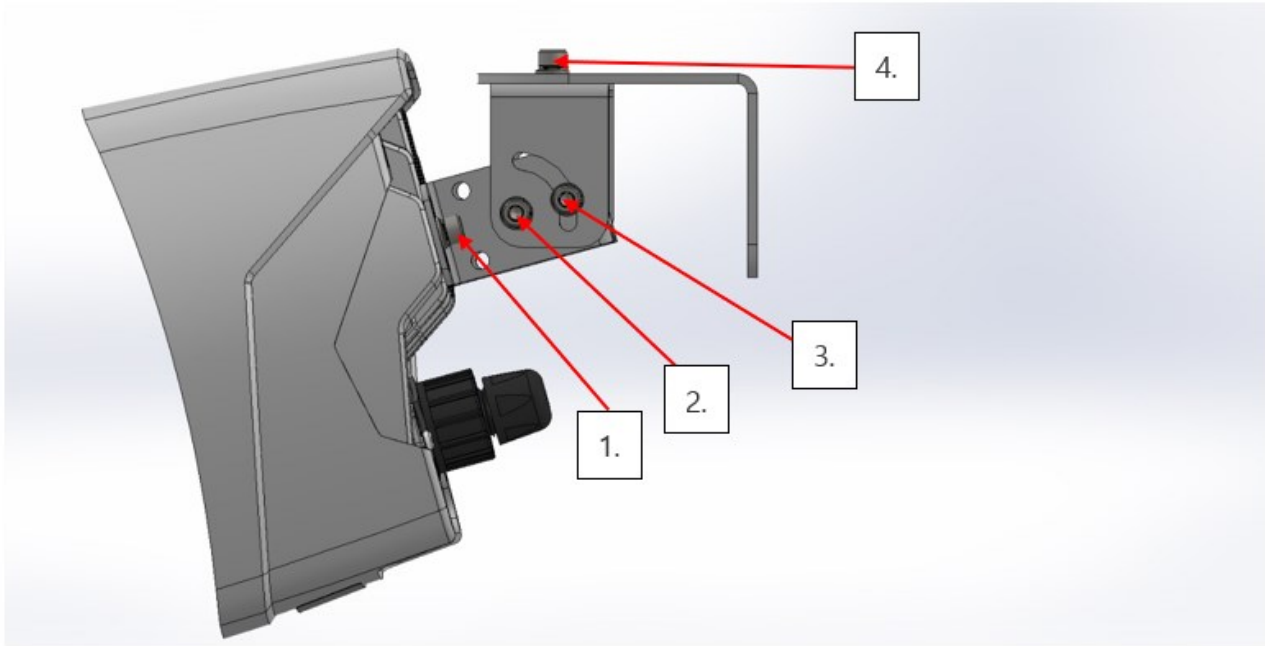
2.4.   ASSEMBLE THE WATERPROOF COVER OF THE RJ45 CONNECTOR

The enclosed IP67 shielded RJ45 connector housing must be assembled as shown. **Before** damaging the RJ45 insert, the components of the connector housing must be pulled onto the cable in the order shown! The crimped RJ45 insert is placed in the housing **A**. The fastener **B** is pulled onto the housing A, and then the sealing insert **C** is pushed all the way between the clamping arms of the housing **A** on the cable. The seal is then clamped to the cable with the clamping part **D**.
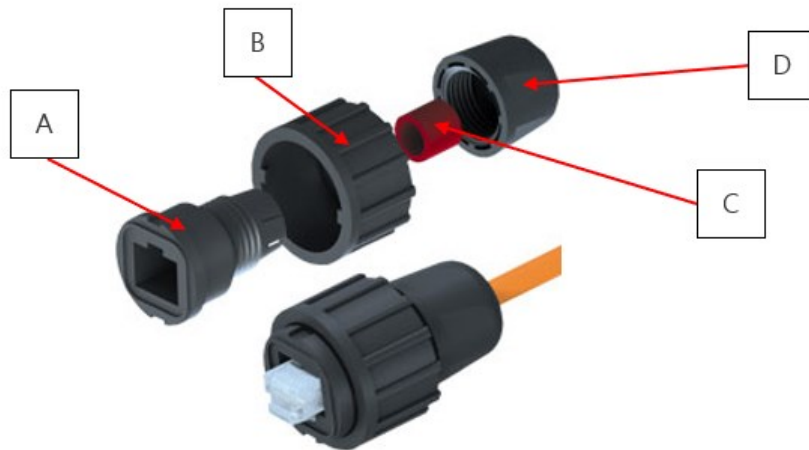
Disconnect the connector

The connector can only be disassembled with the cable connected to the device, otherwise the mounting tab of the RJ45 insert will not be accessible. First loosen **D**, then pull back on the cable, then release **B** so we can pull parts **A** and **C** off the cable. The RJ45 insert then remains in the connector thanks to its own retaining tab and can be removed by pressing it.

2.5.   ADJUST THE ZOOM AND FOCUS

The camera lens can be remotely controlled, so zoom and focus can be adjusted from the camera web interface or Intellio Video Management Software (IVS).
Once the angle of view has been adjusted remotely, the autofocus function automatically adjusts the focus after a few seconds, which can be adjusted as needed in both the web interface and the management software.

For a detailed description of the lens remote control, see the description of the camera's web interface and the Intellio Video System's user manual.

2.6. RESTORE FACTORY DEFAULTS

If you experience some malfunctions or critical errors in the camera, and the software-based reset does not help, you have an option to physically reset it. In this case, press and hold the **reset button (1)** until the **status LED (2)** lights up continuously (approx. 10 s) and then release the button.

To access the reset button, you must first remove the service port cover with a TX10 screwdriver.

Perform the operation in a clean, low-humidity room!
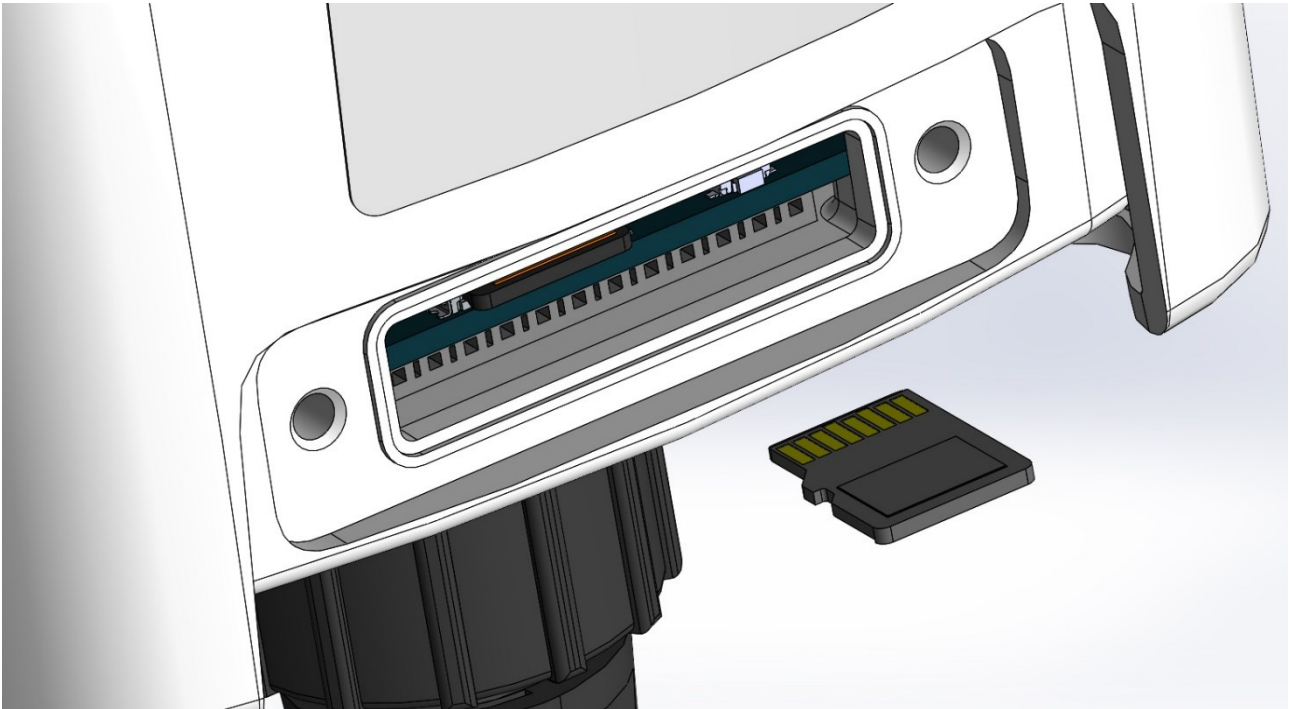
Further disassembly of the camera is prohibited, as this may void the warranty and damage the watertight insulation!
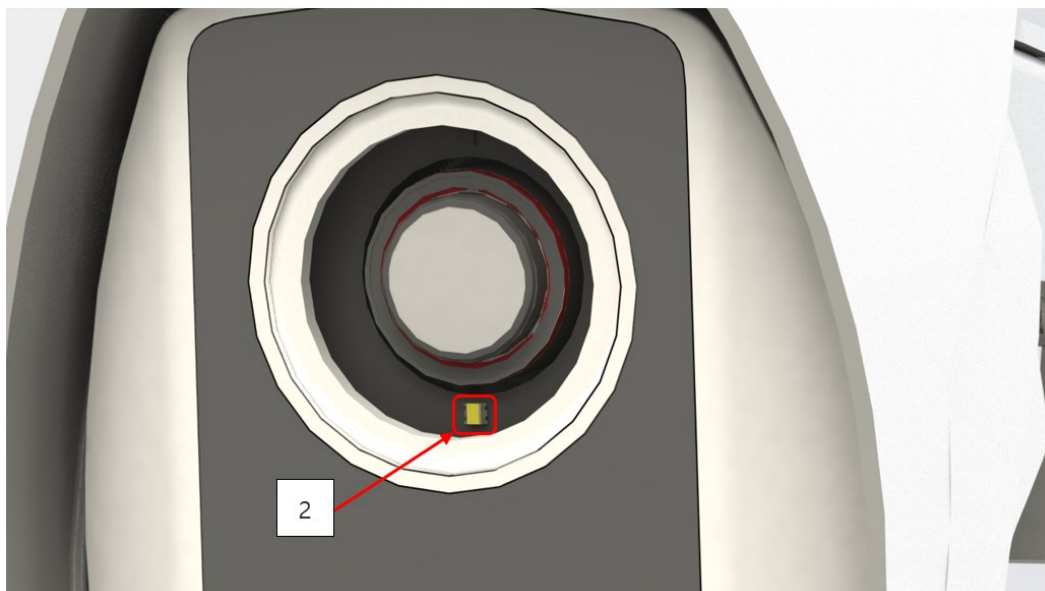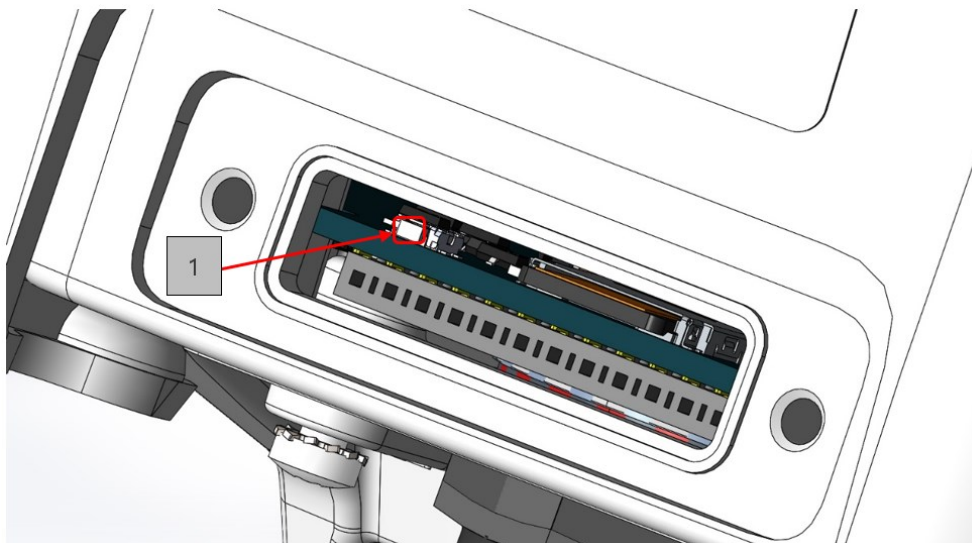
2.7.   INSERT THE MICROSD CARD

You can insert a microSD card into the device by removing the service port cover as shown in the attached figure. The use of the card is described in the user manual.

Perform the operation in a clean, low-humidity room!

2.8.   CLEANING INSTRUCTIONS

The camera must be cleaned with a damp microfiber cloth and regular glass cleaner.

Do not clean the camera with a high-pressure washer as it may void the warranty!
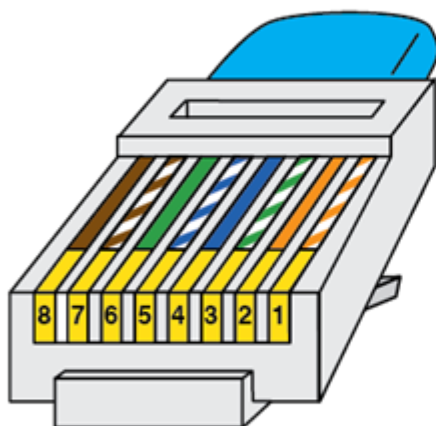
3. CABLE LAYOUTS

3.1. ETHERNET CONNECTION

| Pin#	Data		POE (802.3at/af)
	10/100BaseTX	**1000BaseT**	
1	TX+	TP1+	A1
2	TX-	TP1-	A1
3	RX+	TP2+	A2
4	-	TP3+	B1
5	-	TP3-	B1
6	RX-	TP2-	A2
7	-	TP4+	B2
8	-	TP4-	B2

Connector allocation standard: EIA / TIA-568B (straight cable pinout)

Due to the POE power supply, all 4 pairs of wires must be connected even with a 10 / 100BaseTX data connection!

RJ45 PINOUT T-568B

1 | White/Orange
2 | Orange
3 | White/Green
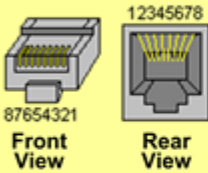4 | Blue
5 | White/Blue
6 | Green
7 | White/Brown
8 | Brown
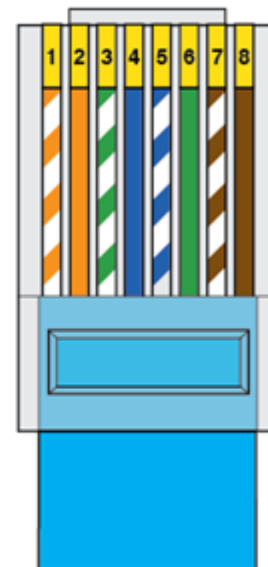
Networking – Cable Configuration
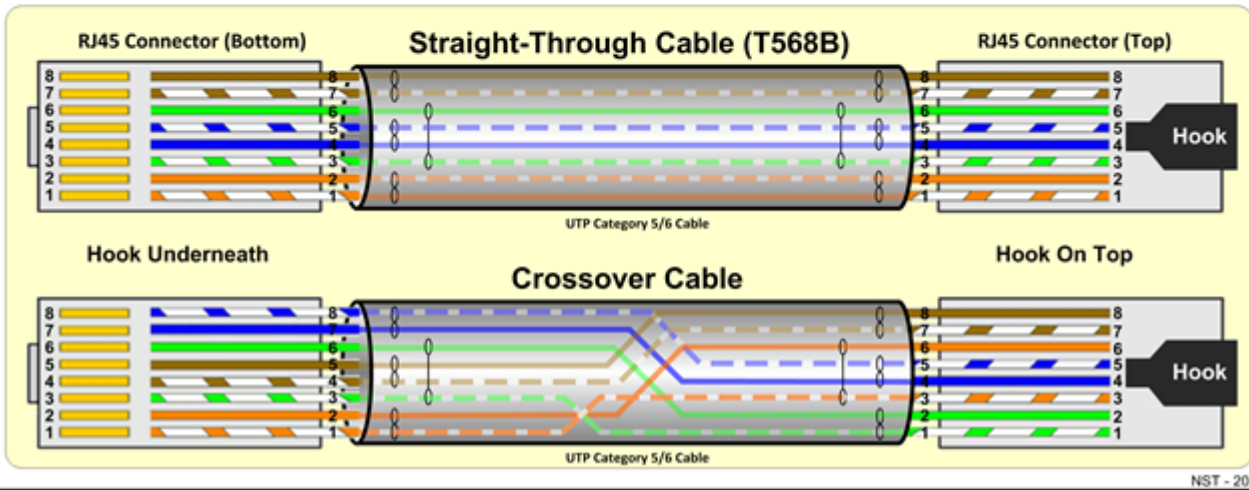Network Cabling and Signal Identification for Ethernet LAN Standards

Note: GigaBit Ethernet Requires All 4 Pairs.

RJ45 3D View

12345678

87654321

Front View   **Rear View**

RJ45 - Pinout, Wire Pair Color Coding, and Signal Identification

Pin	T568A	T568B	Signal 10/100BaseTx	Signal 1000BaseT
1	Wht/Grn	Wht/Org	Tx+	TP1+
2	Grn	Org	Tx-	TP1-
3	Wht/Org	Wht/Grn	Rx+	TP2+
4	Blu	Blu	Unused	TP3-
5	Wht/Blu	Wht/Blu	Unused	TP3+
6	Org	Grn	Rx-	TP2-
7	Wht/Brn	Wht/Brn	Unused	TP4+
8	Brn	Brn	Unused	TP4-

Straight-Through Cable (T568B)

RJ45 Connector (Bottom)

RJ45 Connector (Top)

Hook

UTP Category 5/6 Cable

Crossover Cable

Hook Underneath

Hook On Top
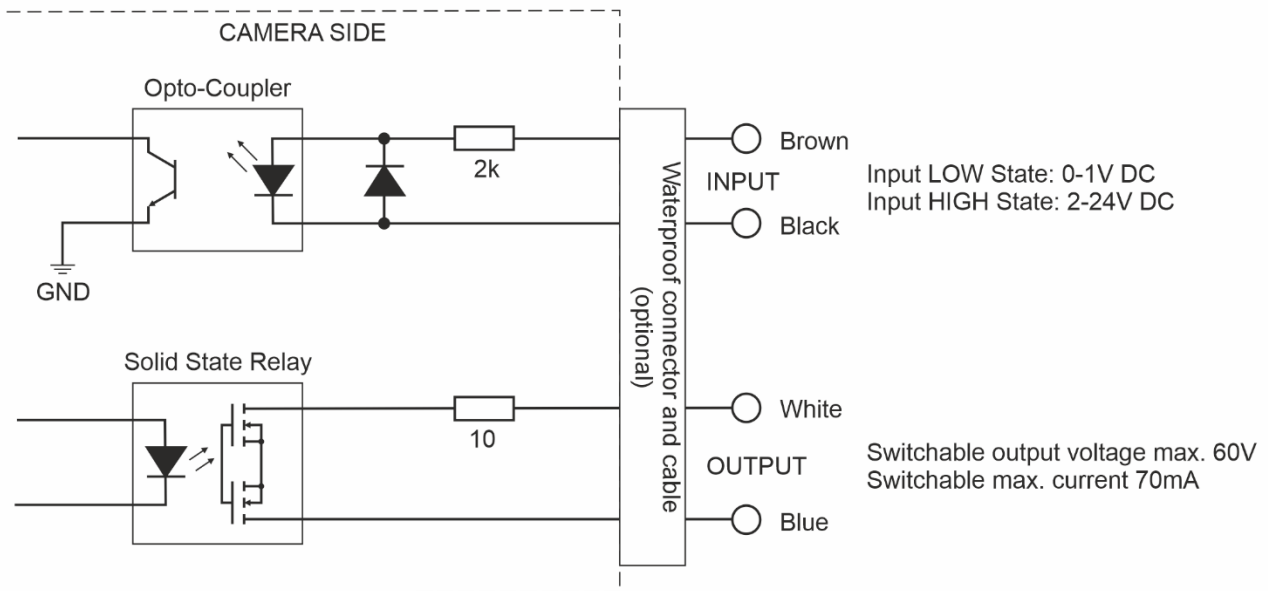
Hook

UTP Category 5/6 Cable
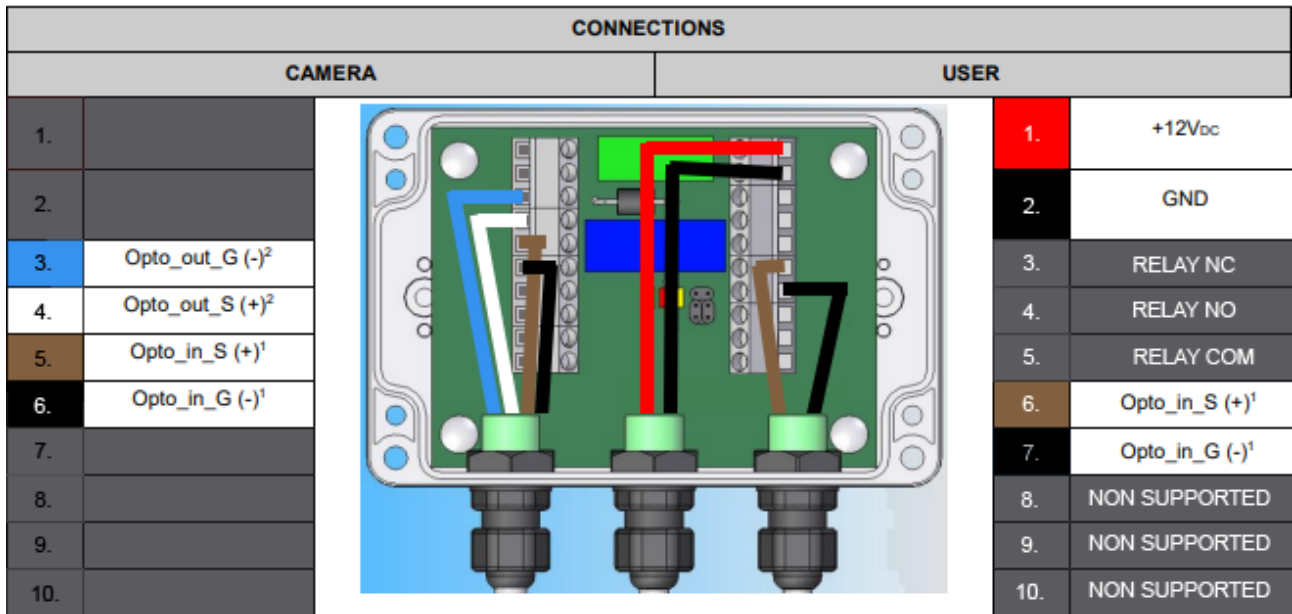
NST - 2011

3.2. IO CONNECTION

3.2.1. EINAR IO waterproof connector and cable pin layout:
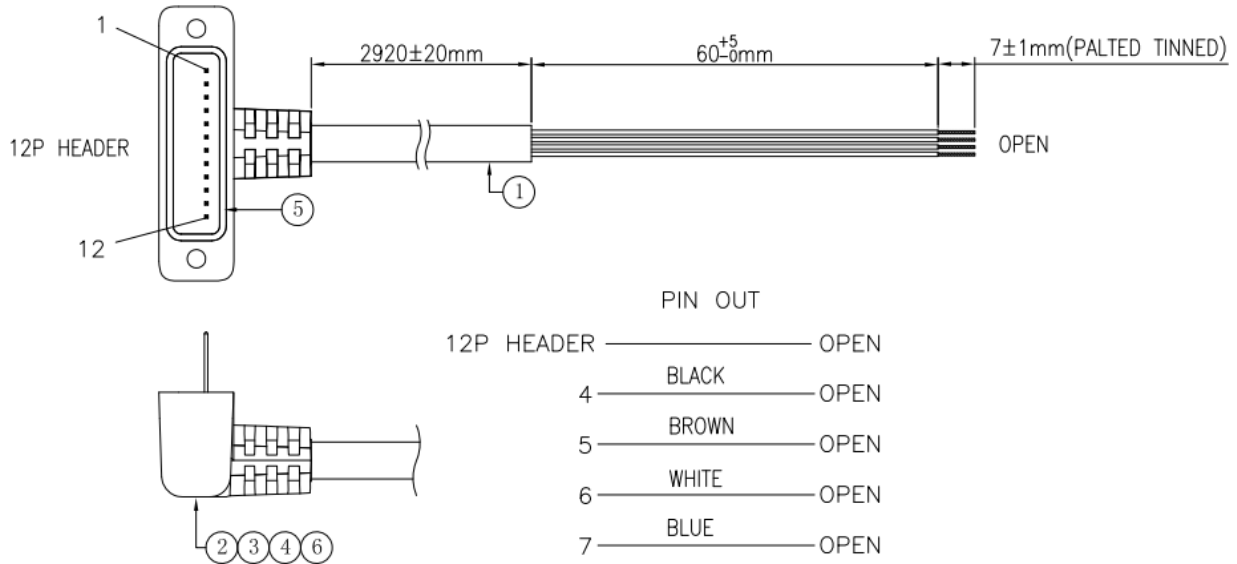
PIN4: IO_I_N (black)
PIN5: IO_I_P (brown)
PIN6: IO_O_A (white)
PIN7: IO_O_B (blue)

3.2.2. Einar camera connection diagram with IO cable and ParkIT junction box:

| CONNECTIONS				
CAMERA			**USER**	
1.			1.	+12V$_{DC}$
2.			2.	GND
3.	Opto_out_G (-)[2]		3.	RELAY NC
4.	Opto_out_S (+)[2]		4.	RELAY NO
5.	Opto_in_S (+)[1]		5.	RELAY COM
6.	Opto_in_G (-)[1]		6.	Opto_in_S (+)[1]
7.			7.	Opto_in_G (-)[1]
8.			8.	NON SUPPORTED
9.			9.	NON SUPPORTED
10.			10.	NON SUPPORTED

More info about the ParkIT junction box can be found [here](#).

4.   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).
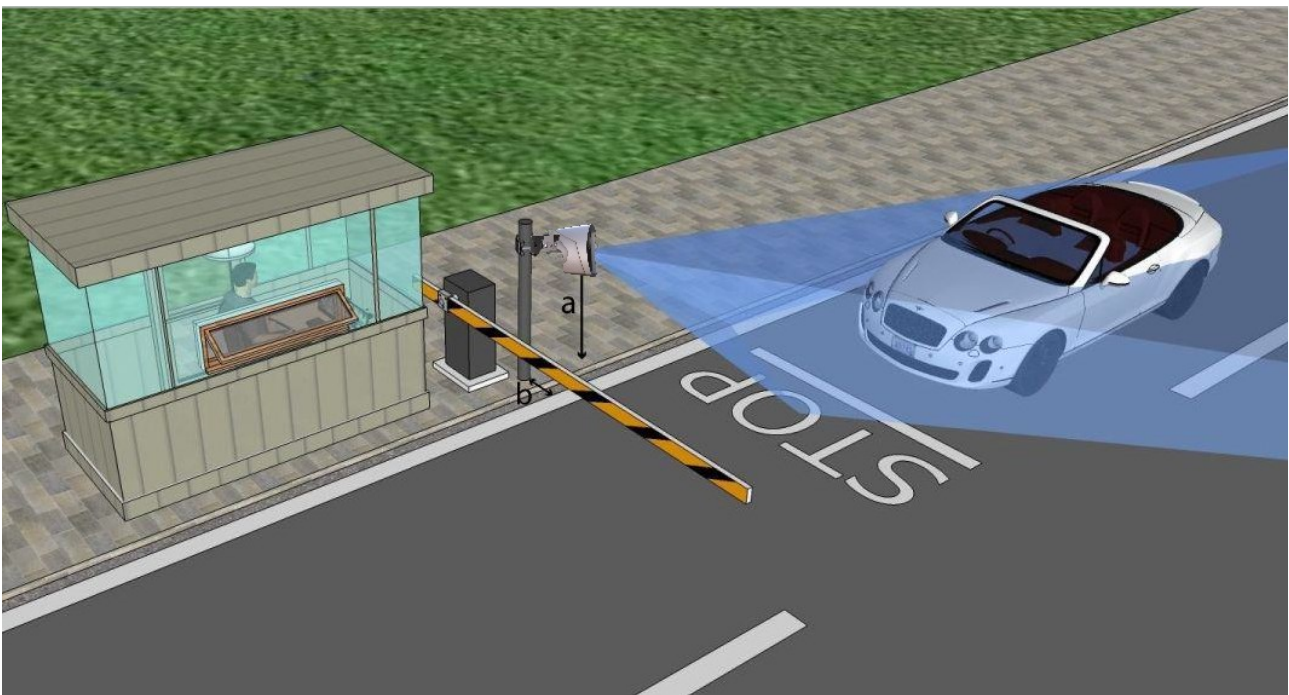
Try to adjust the direction of the camera so that the number plates are horizontal in the picture!

From the point of ANPR/LPR the most important is the size of the characters on the image. It is recommended to have at least 25 pixel average character height. 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.

For more information, check How to Install an ANPR camera video on Adaptive Recognition channel. Also check Einar User Manual on page http://doc.arh.hu/cameras/einar_vidar/ where additional installation tips can be found.
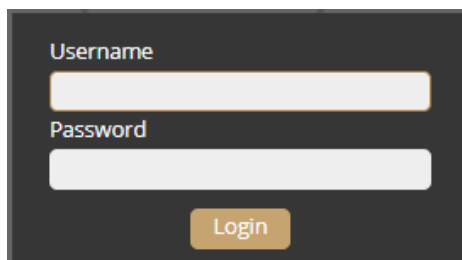
5. ACCESSING THE WEB INTERFACE

1. Start a browser and enter the camera IP address into the address bar of the browser.
2. Type the username and the password on the displayed login interface and click on [Login].

   The default user account is the following:

   Username: admin
   Password: admin

3. After signing in, the web interface of the camera is displayed on which the required settings can be performed.

Default IP Address

The camera – by default – obtains its IP address from the local DHCP server. A second link-local IP-address is always present on the primary network interface.

Link-Local IP Address

The link-local IP address of the camera can be calculated using the device's MAC address or serial number. The last four characters are two hexadecimal numbers that can be converted into the last two parts of a link-local address (169.254.XX.YY).
Example: the camera with the MAC address 00-19-B4-01-42-1A ends with 42 and 1A, representing the decimal values 66 and 26. The link-local address of this camera is 169.254.66.26.

Finding Cameras

You can find the camera on the network using the AR DeviceTool. Double-click on the selected camera, and the Einar camera web interface will open in the default browser.
While running, the program continuously looks for detectible cameras on the network and displays them in a list with their current IP addresses. If the camera does not appear, ensure that the firewall does not block the multicast protocol on the network and that the camera and the PC are in the same network range.

6.   CONTACT INFORMATION

Headquarters:
Adaptive Recognition, Hungary Inc.
Alkotás utca 41 HU-
1123 Budapest Hungary
Phone: +36 1 201 9650
Fax: +36 1 201 9651
Web: adaptiverecognition.com

Service Address:
Adaptive Recognition, Hungary Inc.
Ipari Park HRSZ1113/1 HU
2074 Perbál Hungary
Phone: +36 1 2019650
E-mail: rmarequest@adaptiverecognition.com

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