



ANPR MOBILE Series

Automatic Number Plate Recognition

Original Instructions for Installation



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1 About this Document

1.1 Scope of this Document

This document shows the user how to correctly install and set up the Automatic Number Plate Reader MOBILE Series.

1.2 Who this Document is for

Table 1 summarizes the groups this document is aimed at, with a brief description of the type of information the manual must supply to help them understand the product.

Readership group	Description	Aim
Installer	Technician responsible for product installation in the traffic application.	Supply all information on: <ul style="list-style-type: none"> • Mechanical installation • Electrical installation • Product maintenance
System integrator	IT administrator responsible for product integration, configuration and software development.	Supply all information on: <ul style="list-style-type: none"> • Product characteristics • Product usage


Table 1: Who this document is for

1.3 Typographic Conventions

Table 2 summarizes typographic conventions and/or styles used in this document so it can be read and understood more easily.

Convention	Meaning
✓ Prerequisite	Preceding condition required before an action.
▶ Action	Single action.
1. Step	One of a sequence of actions.
– Sub step	Additional steps of an action or a step.
Intermediate outcome	Result of a step.
↪ Outcome	Result of an action or a sequence of actions.
• List	List of elements.
– Sub list	Additional elements of a list.
Save	Buttons, windows, tabs; software modules.
[CTRL]	Keyboard strikes
true	Inserted or selected value.
“Finished OK”	Program messages.

Table 2: Typographic conventions

 **DANGER! Type and source of danger! (indicates an hazardous situation, that if not avoided, will result in death or serious injury)!**


Possible consequences (optional).

▷ Preventive measure.

 **NOTICE! Type and source of danger! (used to address practices not related to physical injury)!**

Possible consequences (optional).


▷ Preventive measure.

 Useful suggestion or additional information.

▷ Preventive measure.

2 Precautions / Safety Instructions

2.1 Safety Instructions

- Read and understand this manual prior to use the product. Misuse of the product may result in damages. Tattile is not responsible for any damage due to negligence in reading this manual.
- Mount the device on a mechanically stable structure.
- The camera shall be reachable only by maintenance operator.
- Always observe the polarities of the power supplies and the power requirements specified in this manual.
- Turn off all electrical power before making or breaking any electrical connections. Making or breaking connections when power is on can result in damage to the device.
- Do not place the power supply and signal cables parallel to cables carrying high-current switching voltages.
-  **DANGER!**
High levels of artificial optical radiation can cause damage to both eyes and skin. Exposure limit values have been drawn up for such hazards. Every light system is placed within a Risk Group, which defines the level of risk when the light is used normally, higher level, higher risk group number, from 1 to 3. When the light emits less than the exposure limit values it is categorized as Exempt Group. Evaluation of risk group is made at 0.2 m distance, that is the minimum hazard distance considered. The hazard distance (HD) is the point furthest from the illuminator at which the Exempt Group exposure limit is exceeded.

Illuminator risk group and hazard distance evaluation

F01710, F01845 IR illuminator lens 36° (wavelength 860nm, ±15nm spectral bandwidth @ 50% of max intensity)					
Hazard	Ultraviolet hazard	Retinal blue light hazard	Retinal blue light or thermal hazard	Cornea/lens infrared hazard	Retinal thermal hazard, weak visual stimulus
	200 - 400 nm (Es/Euva)	300 - 400 nm (Lb)	400 - 780 nm (Lr)	780 - 3000 nm (Eir)	780 - 1400 nm (Lir)
Risk Group	Exempt Group	Exempt Group	Exempt Group	Exempt Group	Exempt Group
HD	–	–	–	–	–
HD = Hazard distance The product is in Exempt Group, no labelling required.					

F01696 IR illuminator lens 17° (wavelength 860nm, ±15nm spectral bandwidth @ 50% of max intensity)					
Hazard	Ultraviolet hazard	Retinal blue light hazard	Retinal blue light or thermal hazard	Cornea/lens infrared hazard	Retinal thermal hazard, weak visual stimulus
	200 - 400 nm (Es/Euva)	300 - 400 nm (Lb)	400 - 780 nm (Lr)	780 - 3000 nm (Eir)	780 - 1400 nm (Lir)
Risk Group	Exempt Group	Exempt Group	Exempt Group	Risk Group 1	Exempt Group
HD	–	–	–	0.27 m	–
HD = Hazard distance The product in excess of Exempt Group limit so it is labelled:					
<div style="border: 2px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p>RISK GROUP 1</p> <hr/> <p>NOTICE IR emitted from this product Use appropriate shielding or eye protection</p> </div>					

Table 3: IR illuminator Risk Group and Hazard Distance

For illuminator exceeding Exempt Group limit camera shall be installed as detailed in the figure below, at distance $L > HD$, there is no risk to the public.

Operator or maintenance staff working in front of the camera, facing the illuminator, at distance less HD must use appropriate shielding or eye protection, as written in the labelling.

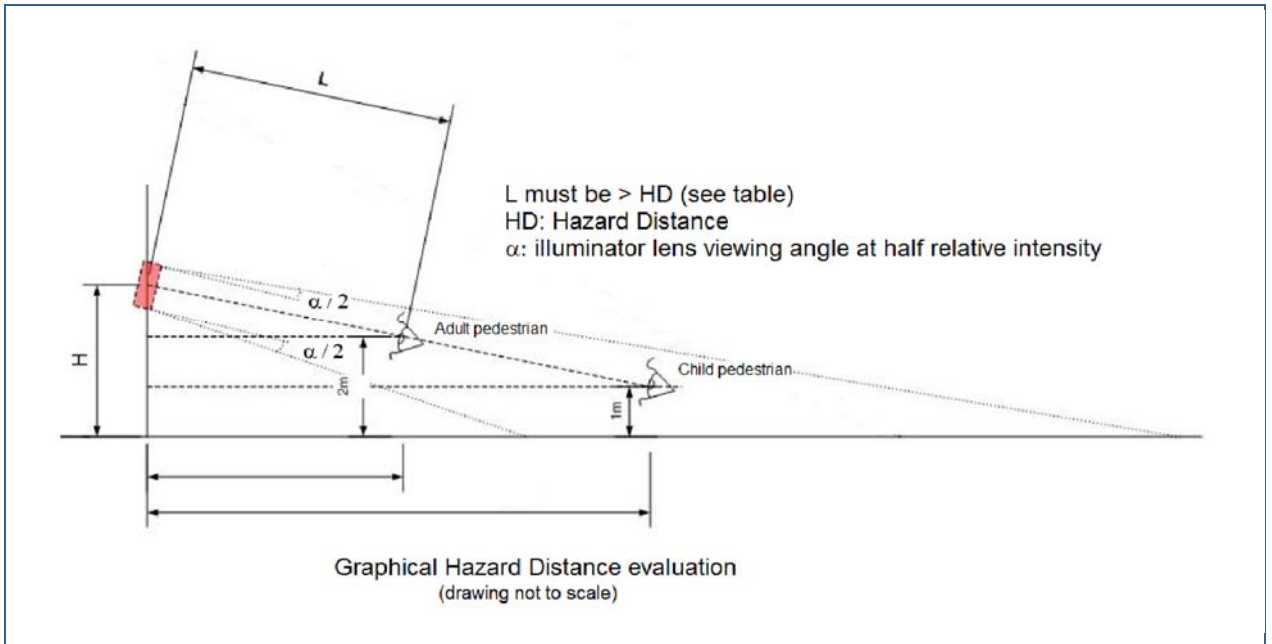


Figure 1: Hazard Distance evaluation

2.2 Intended Use of the Product

- The product is designed for automatic number plate recognition for the following applications:
 - Police enforcement
 - Crime prevention

2.3 Known or Foreseeable Misuse of the Product

- All other uses not included in the intended use of the product are considered as an improper use of the product.

3 General Characteristics

3.1 Features

Tattile ANPR Mobile is an embedded camera produced by Tattile for automatic license plate reading.

ANPR Mobile is suitable for Police enforcement, crime prevention, patrol enforcement and everywhere a portable solution is required.

It is equipped with Megapixel sensor, able to read license plate in all light conditions.

It combines multiple components in a compact solution, such as: sensor, infrared illuminator and processor with integrated OCR (Optical Character Recognition) to read automatically license Plate.

The system does not require the installation of processing units on board of the cars, nor of physical connection between the cameras and the on board computer/ tablet. In fact, the license Plate analysis is done directly from the cameras installed on the roof, bonnet or trunk of the car and the data transmission occurs in Wi-Fi mode. This way it is possible to speed up the installation, making ANPR Mobile easily transportable from a car to another, with a consequent costs reduction.

Tattile new solution is equipped with a sophisticated software that enables to capture images in both gray scale and color, with the best automatic selection of acquisition parameters with multiple auto exposure.

The ANPR Mobile devices are available in 3 version, depending on expected reading distance:

- **Short distance:** to satisfy the license plate reading in small parking lots, parallel parking and everywhere the plate to be read is at very closed distance from the camera (distance < 2,5m)
- **Medium distance:** to satisfy the license plate reading for curb side parking, diagonal parking, and everywhere it's needed to read license plates of vehicles parked at short-medium distance from the camera (3m<distance<7m)
- **Long distance:** for reading plates at various distances while patrolling on the road (distance up to 25 meters)

3.2 Dimensions

3.2.1 Product Dimensions

Figure 2 shows the overall view of the Tattile device, dimensions in millimeters.

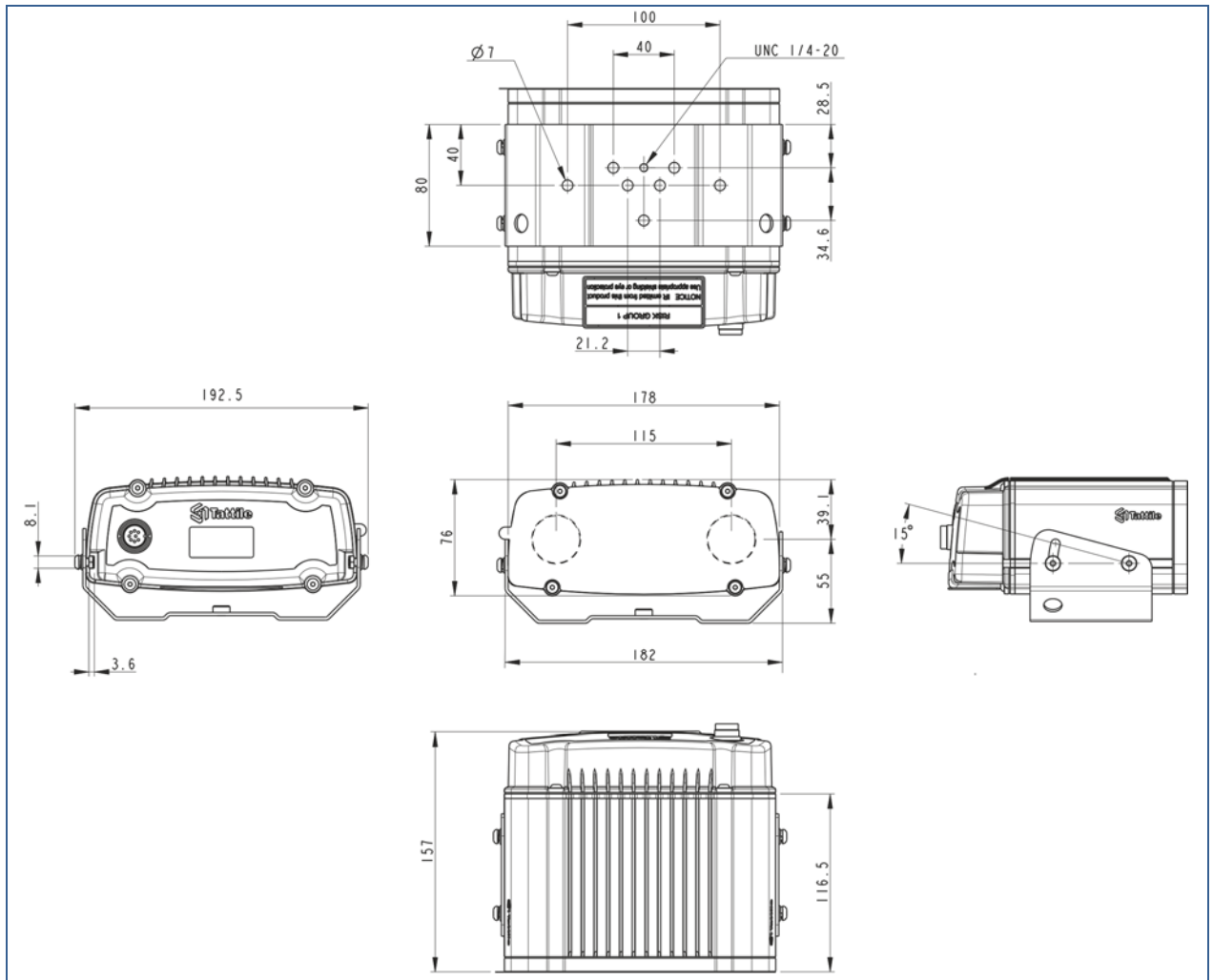


Figure 2: Tattile ANPR Mobile dimensions

3.3 Physical Interface

3.3.1 Product Overview

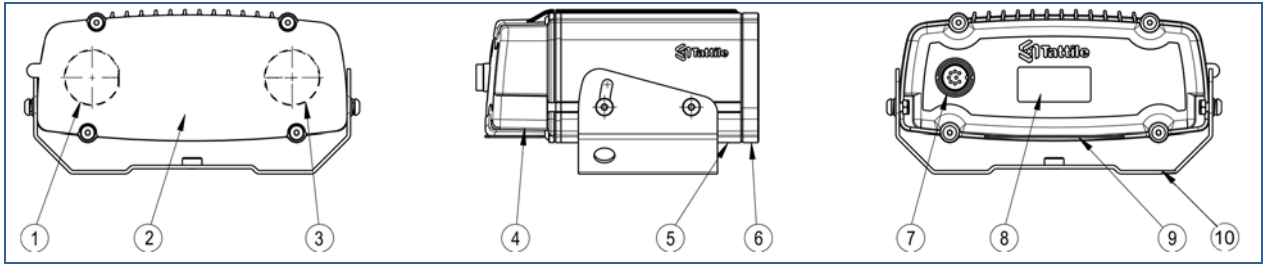


Figure 3: Product overview

Ref	Description
1	OCR camera (ANPR image)
2	Illuminator
3	Context camera (Overview image)
4	Back cover
5	Camera housing
6	Closing flange
7	Power Supply and Ethernet connector
8	Product label
9	Safety hazard label
10	Mounting bracket

Table 4: Product overview

3.3.2 Power Supply, Ethernet and strobe Connector

i The type of the power supply connector is: **M16 8 Pole Male**.

- ▷ Mating part included in the package.

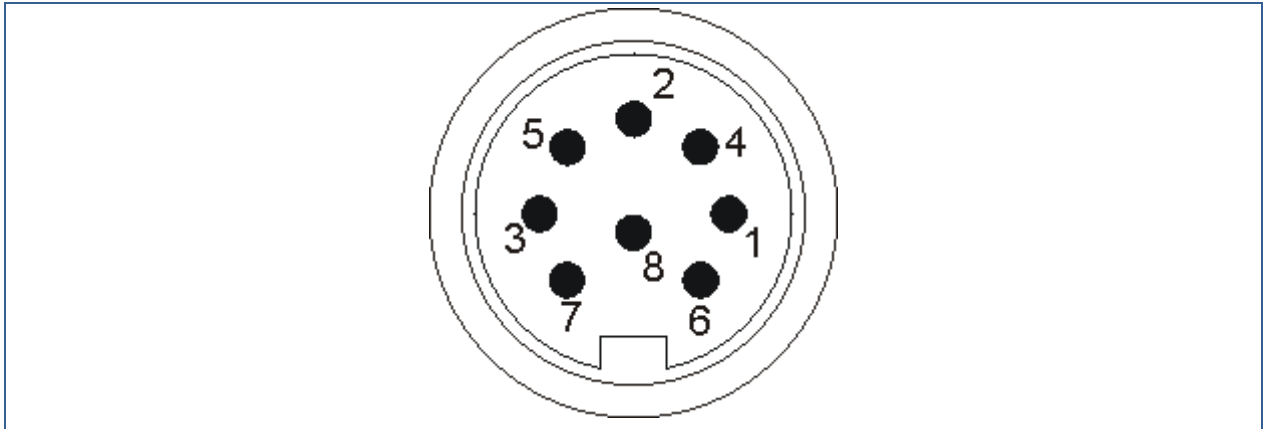


Figure 4: Power supply pinout connector

PIN	Signal name	Description
1	+ 12 Vdc	Power supply
2	TxP	Ethernet
3	RxP	Ethernet
4	Strobe Out	Output Strobe
5	TxN	Ethernet
6	GND	Ground (power supply)
7	RxN	Ethernet
8	Strobe GND	GND Output Strobe

Table 5: Power supply, Ethernet and strobe connector

- ▷ Mating part **M16 8 Pole Female** included in the package.

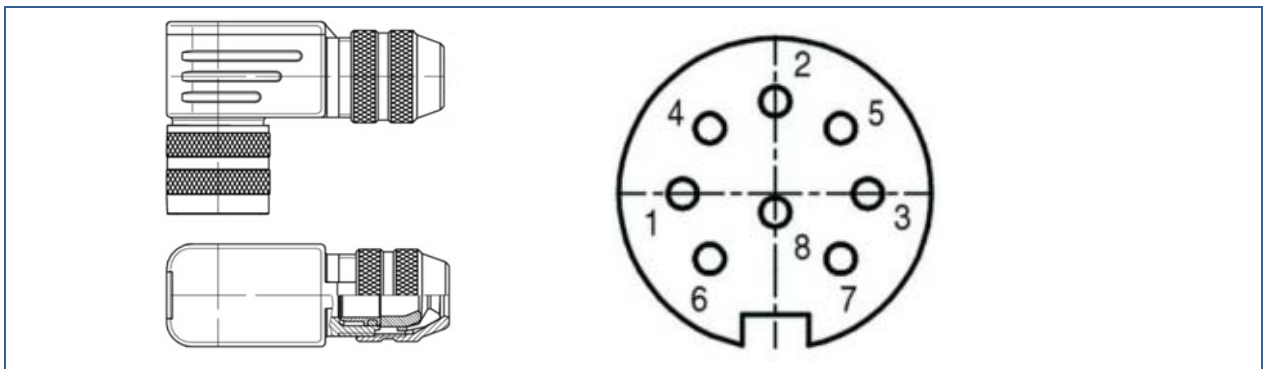


Figure 5: Mating pinout connector

Strobe Output

Feature	Description
Type	Optoisolated open collector
Channels	1
Max voltage	24 Vdc + 10%
Min voltage	3.3 Vdc - 10%
Max current	50 mA

Table 6: Strobe Interface

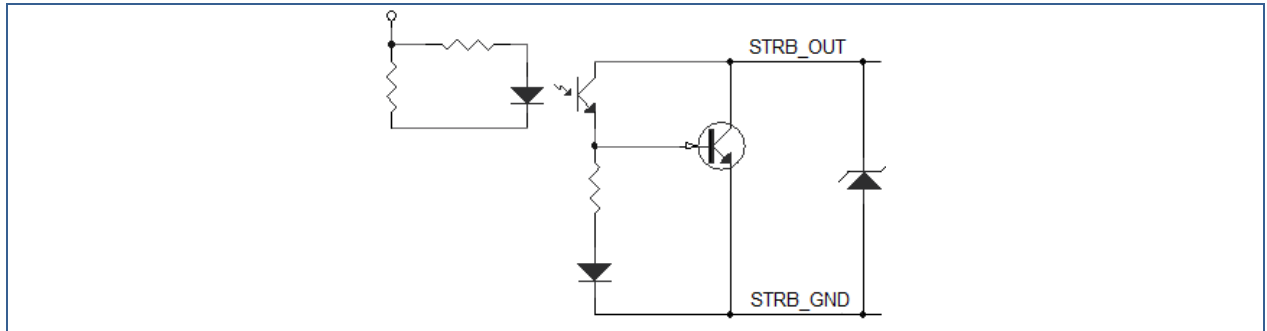


Figure 6: Strobe schematic section

3.4 Technical Sheet / Specifications

General						
ANPR MOBILE Range	Short Mono	Medium Mono	Long Mono			
Part Number	F01710	F01845	F01696			
Storage	microSD card up to 32 GB					
Strobe Output	1					
LAN	Fast Ethernet 10/100					
Wi-Fi	802.11 b/g/n					
Operating System	Linux					
Other Sensor	Integrated Tilt-roll sensor Integrated Temperature and Humidity sensor Power supply voltage and current monitoring sensor Real time clock					
GPS	Yes					
OCR Image Sensor (ANPR)						
Type	2/3" NIR CMOS Mono					
Resolution	1280x1024	1920 x 1080				
Capture rate (fps)	Up to 100	Up to 60				
Lens	C-Mount					
Context Image Sensor (Overview)						
Type	2/3" CMOS Color					
Resolution	1280x1024	1920 x 1080				
Capture rate (fps)	Up to 100	Up to 60				
Lens	C-Mount					
Illuminator						
Number of LED's	6 high power	10 high power				
Type	IR @ 850 nm					
Illuminator beam angle (@half radiant intensity)	36°		17°			

Electrical Characteristics	
Power supply Voltage	Nominal 12 Vdc (Min. 8,4 ÷ Max. 16,8) *Minimum operating voltage for integrated illuminator is 10,5 Vdc
Power consumption	15 W (@12 Vdc)
Starting current	5A (max)
Mechanical	
Dimension	178 x 141 x 76 mm (LxWxH)
Camera weight	1,650 kg
Housing	Color Anodized Aluminum and Plastic
Vibration	ISO 16750-3, test IV, Equipment mounted on vehicle body (at steady temp. T=23°C)
Environment	
Operating and Storage Temperature	-30 °C ÷ +60 °C
Operating and Storage Humidity	Up to 95 %
Protection Class	IP66 - IP67
SW features and performance	
Detection	99%
Reading	>95%
OCR	Onboard ANPR engine
AES256	Yes
SHA2	Yes
Compression	JPG
Configuration	
Web Server	Installation and configuration by web server on board
TCP/IP Server	Configuration and monitoring through TCP/IP protocol
Date and Hour	Synchronization via SNTP protocol or GPS
Software Update	Upgrading via web Interface and SDK
Data Transmission	
FTP	FTP Client to FTP Server mode for remote data transmission, two different FTP destination address
TCP/IP	Tattile TCP/IP open protocol; two different FTP destination address
Video Streaming	
H.264/MPEG4	Color video streaming H.264 or MPEG4
Operating Mode	
Free Run	Continuous image capture and processing

Table 11: Technical Sheet / Specifications

3.5 Identification of the Product

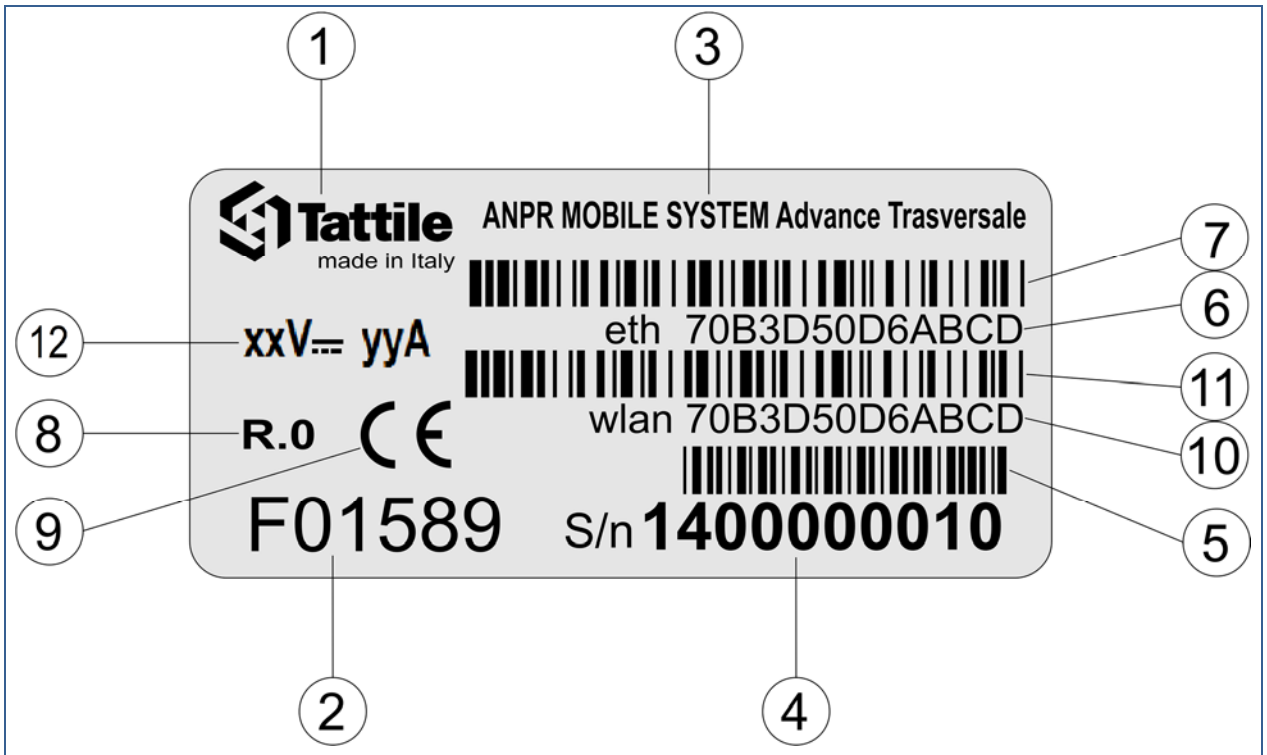




Figure 7: Product label

Part	Description
1	Company logo
2	Product part number
3	Product name
4	Product serial number
5	Serial number barcode (code 128)
6	Eth Mac Address number
7	Eth Mac Address number barcode (code 128)
8	Revision
9	CE mark
10	Wlan Mac Address number
11	Wlan Mac Address number barcode (code 128)
12	Rated Voltage and Current

Table 7: Product label

3.6 Conformity – Compliance

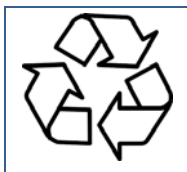
Tattile declares under sole responsibility that the products described in this manual are in conformity with the essential requirements of the following EU directives and standards:

Compliance	Description
	<ul style="list-style-type: none"> • 2014/53/EU, RED Directive (¹) • The objectives and protection requirements of the Low Voltage Directive 2014/35/EU and EMC Directive 2014/30/EU are applied under Directive 2014/53/EU, Article 3.1.
	<ul style="list-style-type: none"> • 2011/65/EU (Rohs Directive)
and that the standards and/or technical specifications reference below have been applied:	
Art 3.1a Safety specifications	<ul style="list-style-type: none"> • EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011 +AC:2011 Safety IT equipment
Art 3.1b EMC specifications	<ul style="list-style-type: none"> • EN 301 489-1 v1.9.2 ERM, EMC Common requirement • EN 301 489-3 v1.6.1 ERM, EMC, Specific for SRD, 1,5 GHz GPS receiver • EN 301 489-17 v2.2.1 ERM,EMC specific for Wideband 2.4 Ghz System <ul style="list-style-type: none"> - EN55022, emission class B - EN61000-4-3, RF radiated 3V/m - EN61000-4-6, RF conducted 3V - ISO7637-2 (pulse 1, 2a,2b,3a,3b,4) • EN 50498:2010 (Aftermarket electronic equipment in vehicles) <ul style="list-style-type: none"> - Emission EASs limit Narrow band and Broad Band (UN-ECE Reg.10) - Immunity ISO7637-2 (pulse 1, 2a , 2b , 3a , 3b ,4)
Art 3.2 Spectrum (Radio spec.)	<ul style="list-style-type: none"> • EN 300 328 v1.8.1 ERM, Spectrum for Wideband 2.4 GHz System • EN 303 413 v1.4.1 ERM, spectrum for SRD, 1.5 GHz GPS receiver
Art. 4.1 Prevention	<ul style="list-style-type: none"> • EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
Other standards	<ul style="list-style-type: none"> • EN 62471:2008 Photobiological safety of lamps and lamps systems <ul style="list-style-type: none"> - F01589,F01590,F01622,F01710: Exempt Group - F01696,F01845: Risk group 1 (Infrared eye) HD=270mm • EN 62311:2008 Limit to EM Field for human exposure • EN 60068-2-1 Environmental testing. Cold test (-30 °C, 16 h) • EN 60068-2-2 Environmental testing. Dry Heat test (+60 °C, 16 h) • EN 60529 Degrees of protection provided by enclosures (IP66)

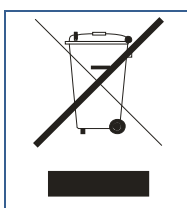
Compliance	Description
<p>FCC</p>	<p>Tattile herewith declares that this product is in compliance with the following US Federal Regulation:</p> <p>FCC 47CFR part 15 US Federal Regulations, emission limit Class B</p> <ul style="list-style-type: none"> ✓ <i>Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.</i> ✓ <i>This device contains FCC ID: 2AULGT17950</i> ✓ <i>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, and (2) this device must accept any interference received, including interference that may cause undesired operation.</i> ✓ <i>This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: <ul style="list-style-type: none"> - <i>Reorient or relocate the receiving antenna.</i> - <i>Increase the separation between the equipment and receiver.</i> - <i>Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.</i> - <i>Consult the dealer or an experienced radio/TV technician for help.</i> </i> ✓ <i>This product complies with FCC radiation exposure limits set forth for an uncontrolled environment. The device should be installed and operated with minimum distance of 20 cm between the radiator and your body.</i>

Table 8: Conformity standards

3.7 Disposal



Packaging materials are recyclable. Do not dispose packaging into unsorted waste but recycle it.



At the end of their life cycle all the electronic products must be sent to a Waste Electrical and Electronic Equipment recycling center!

4 Preparation and Installation

4.1 Package Content

The following products are included in the package:

- ANPR MOBILE Device.
- Mating parts kit, cod: T17493



For more information on the purchased device model refer to the Technical Specifications.

4.2 Building the Connector Cables

Good equipment operation is guaranteed only by respecting the instructions contained in this manual. Tattile declines all responsibility for anomalous equipment behavior, if the installation does not follow these instructions:

- Always observe the polarities of the power supplies and the power requirements specified in manual.
- Mount the device on a mechanically stable structure, well connected to electrical ground.
- Remove the power supply voltage from the device before unplugging the power connector.
- Turn off all electrical power before making or breaking any electrical connections. Making or breaking connections when power is on can result in damage to the device.
- Electromagnetic Interferences (EMI) and Electrostatic Discharges (ESD) can cause problems whit your device.
- Do not share the main power supply (V MAIN) with other equipment. Use a dedicated power supply.
- Do not place the power supply and signal cables parallel to cables carrying high-current switching voltages.
- The power supply cable must be shielded.

4.2.1 Cabling the Power Supply

This chapter shows how to correctly build the cables for the power supply connector. This procedure is useful to cable the device to the power supply, look at the following design description.

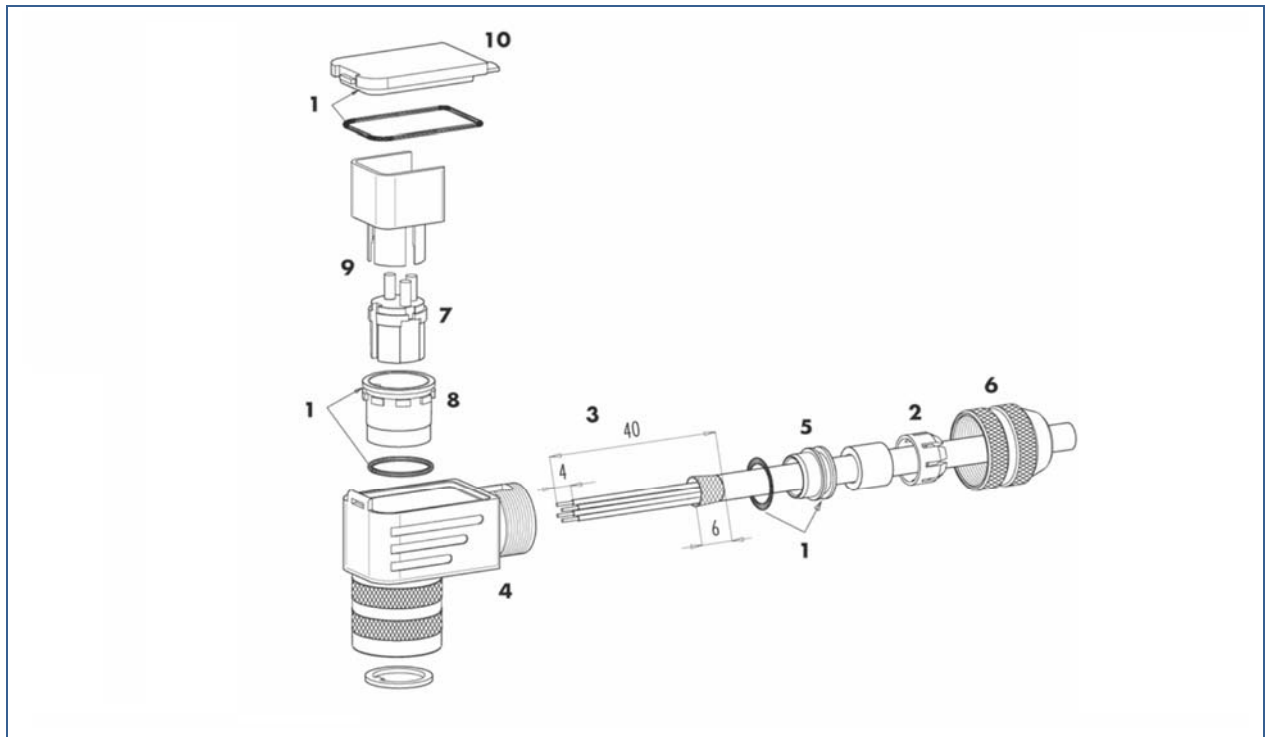


Figure 8: Assembly Connector instructions

Ref	Description
1	Assemble sealing rings (3x)
2	Bead cable parts
3	Dismantle cable and shielding braid.
4	Push single wires through housing.
5	Mount shielding ring and pitch ring
6	Slightly fix pressing screw.
7	Solder wires to insert.
8	Mount positioning sleeve in angled position
9	Put in insert and distance sleeve
10	Mount lid.
11	Fix pressing screw (100 cNm).

Table 9: Assembly Connector instructions

4.3 Mounting the Product

NOTICE! Electromagnetic interference (EMI) and Electrostatic discharge (ESD)

An installation environment with EMI and ESD can affect the quality of the data transmitted by the camera, or even cause the interruption of data transfer.

- ▷ Do not position cables parallel to wires carrying high-current, switching voltages (e.g., electrical devices that employ switching technology).
- ▷ Install the device and cables as far as possible from devices generating sparks.



Make sure:

- ✓ The device is correctly cabled.
- ✓ The IP address of the device is available.
- ✓ A PC for remote connection is available.

4.3.1 Device check



Make sure the camera complies with the focus distance defined during the project configuration.


For more information:

- ▷ Login to the web interface.
 - ▷ Open the **Device Information** section.
 - ▷ Check the values specified for the **Channel n best focus** parameter.
2. Cable the device and connect the device to a PC.
 3. Start up the device.
After about 60 seconds the operating system is ready for use.
 4. Search for the device using the specific command of the Tattile Pathfinder.
 5. Open the live stream of the device to check for the correct framing.
 6. If needed adjust the device orientation moving the wall-mount bracket.
- ➔ The device is ready for use.


5 Use

5.1 Searching the Device

This function allows the user to search for a device connected to the network. Tattile recommends the use of the freeware software tool **Tattile Pathfinder** to correctly search for a device into a network.

 The freeware software tool Tattile Pathfinder can be downloaded from Tattile website. For details, see chapter 5.2.

This function is useful, for example, when the default IP address of the device has changed and the new IP address is no longer available.

 The default IP address of the device is:
▷ 192.168.0.21

✓ Tattile Pathfinder software tool is correctly installed.


✓ The device is correctly cabled to the network.

1. Turn on the device.

After about 60 seconds the operating system is ready for use.

2. Use the freeware software tool **Tattile Pathfinder** to search for a device.

↪ The device is now available for use.

 For more information on the freeware software tool Tattile Pathfinder, read and follow the user manual of the product.

5.2 Downloading the Freeware Software Tool Tattile Pathfinder

The freeware software tool Tattile Pathfinder enables the user to search for a device into the network and to manage the device IP address.

✓ The user is already registered to the Tattile website.

1. Open the Tattile web page, www.tattile.com

2. Click the link **Downloads**.

3. From the first drop-down menu select **Traffic**.


4. From the second drop-down menu select **Traffic Common Area**.

5. Click the button **View the available files**.


– A list of available files is displayed.

6. Click on the corresponding link to save the file into the desired directory.

↪ The freeware software tool Tattile Pathfinder is now ready for installation.


 For more information on the freeware software tool Tattile Pathfinder, read and follow the user manual of the product.

5.3 Modifying the IP Address of the Device


 This operation must be performed using the freeware software tool **Tattile Pathfinder**.

This function allows the user to modify the IP address of the device. The function is useful, for example, when the host address of the device differs from the host of the Net interface.

- ✓ Tattile Pathfinder software tool is correctly installed.
 - ✓ The device is correctly cabled to the network.
1. Turn on the device.
After about 60 seconds the operating system is ready for use.
 2. Use the freeware software tool **Tattile Pathfinder** to search for the desired device.

 The default IP address of the device is:
▷ 192.168.0.21


3. Modify the IP address of the device.
- ↪ The device is now available for use.

 The device IP address must be configured by the user in the same subnet mask configured on the user PC.


5.4 Connecting to the Web Interface

The device web interface allows the user accessing all sections and parameters available to manage and customize the use of the device.

- ✓ The host IP address of the device is known.
 - ✓ The device is correctly cabled to the network.
1. Turn on the device.
After about 60 seconds the operating system is ready for use.
 2. Open your web browser.

 For a better visualization, Tattile recommends the use of Google Chrome.

3. In the address text field type the IP address of your device.

 The default IP address is:
▷ <http://192.168.0.21>

4. The web interface login page is displayed.
Login using the following credentials:
 - Username: **superuser**
 - Password: **superuser**
- ↪ It is now possible to manage the device.

5.5 What to Do When Starting the Device for the First Time

First of all, fix the system in a secure way.

Remove the transparent adhesive film from the device front.

Now connect electrical cables and data cables, you can see par. 3.3.2 for schematics.

To connect to the system you can have 2 options: wired network and wireless network. If you have a wired network system the default IP address is 192.168.0.21, while if you have a wireless network the IP address is 192.168.150.1. The subnet mask is 255.255.255.0 for both cases. The default user name is superuser and the default password is superuser for both cases.

For security reason change the default user and password after the first use.

For wired network you can enter into the system by a web browser typing <http://192.168.0.21:1080>

For wireless network the system is configured as an Access Point.

The wireless network has a visible SSID name configured without password.

The SSID is composed by the name "ANPR" plus the serial number of the system (example ANPR123456).

Once the user will be connected to the Wi-Fi network provided by ANPR Mobile will be possible to connect to the web interface of the system.

The ANPR Mobile has DHCP server enabled and will provide automatically the IP address to the user PC.

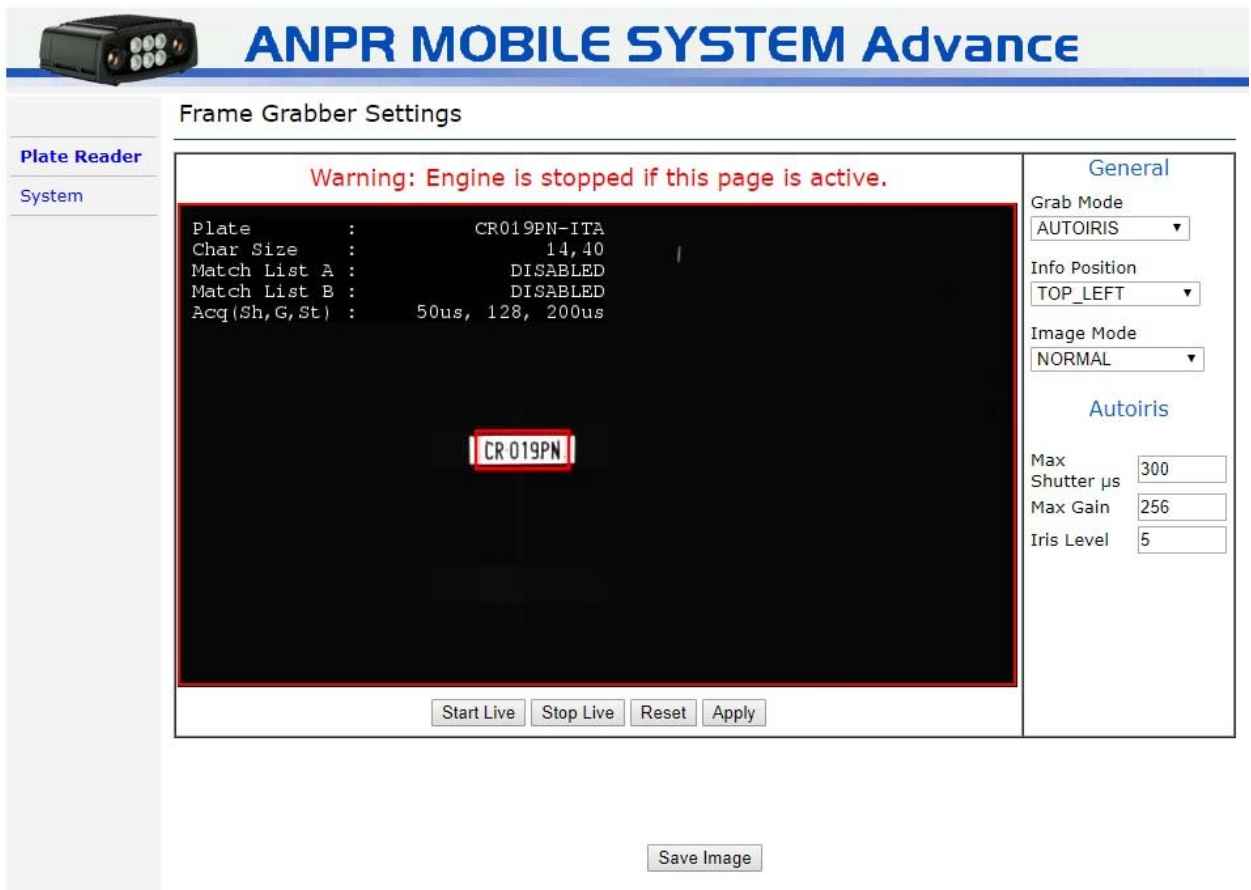
In order to connect via web browser with the system over wireless network type the following in the user browser: <http://192.168.150.1:1080>

In both cases you can see this web page:



Figure 9: ANPR Mobile Advanced main web page

On the left, select "Plate Reader" and on the right "Camera OCR" you can see the live view of the camera, like following figure:



www.tattile.com

Figure 10: Frame grabber setting

If a license plate is in the camera field of view, and the plate distance is in accordance with the camera specifications, the license plate is automatically read.

5.6 Updating the Firmware

i Before updating the firmware of your device, contact your sales representative.

The camera can be fully upgraded by uploading a package file. The Package file extensions for Tattile software upgrades is “gpg”.

To upgrade the software please follow the instructions below:

- ✓ The device is correctly cabled to the network.
- 1. Turn on the device.
After about 60 seconds the operating system is ready for use.
- 2. To update the device firmware use either the web interface or the freeware software tool **Tattile Pathfinder**.

i For details refer to the corresponding user manual SUM_00003.

5.7 Types of use for Camera models

Follow the instructions for your case.

5.7.1 F01710 Short distance reading - parallel parking

Short distance devices are designed to read license plate everywhere the plate is very closed to the ANPR device. The typical application is the enforcement of parallel parking while driving in the lane aside the parked vehicles.

Please refer to the drawing below to understand the application.

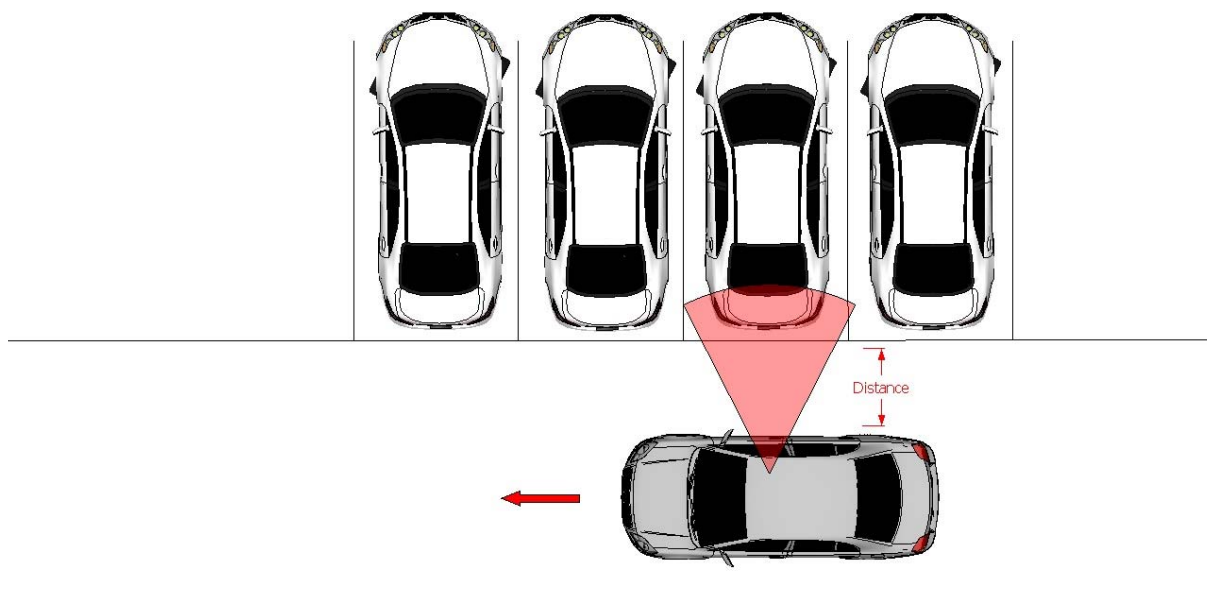


Figure 11: Short distance parallel parking

The possible working conditions are:

- Minimum reading distance: 1.5 m
- Maximum reading distance: 2.5 m

Install the ANPR system on the top of patrol car roof. The height (H) should be between 1,2 and 1,8 meters.

Point the camera at 90° respect to the travel direction, in such a way that the camera is looking straight to the parked vehicles.

Drive aside a vehicle parked at the distance of 2 meters.

Adjust the ANPR camera for having the license plate in the middle of the images.

5.7.2 F01845 Medium distance reading - curb side parking

The typical application for medium distance devices is the enforcement of curb side parking or diagonal parking.

The possible working conditions are:

- Minimum reading distance: 3 m
- Maximum reading distance: 7 m

Install the ANPR system on the patrol car roof. The height (H) should be between 1,2m and 1,8m.

Adjust the ANPR camera for having the license plate in the middle of the images when approximately at half range of reading interval.

NOTE: The maximum suggested camera rotation must be of 30 degree respect the direction of drive.

(PAN angle)

Extra rotation may lead to unreadable plates or read mistakes.

Please refer to the drawing below to understand the application.

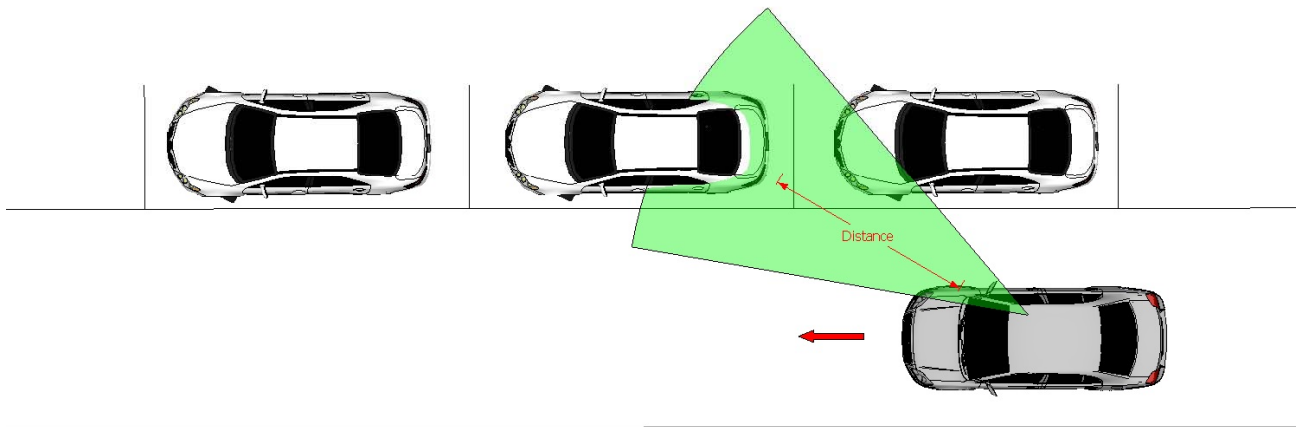


Figure 12: Medium range application

5.7.3 F01696 Long distance reading - patrolling

The typical application for long distance devices is the enforcement over free roads and highways.

The possible working conditions are:

- Minimum reading distance: 8 m
- Maximum reading distance: 15 m

Others range of distances can be operated with proper lens selection.

Install the ANPR system on the patrol car roof. The height (H) should be between 1,2m and 1,8m.

Adjust the ANPR camera for having the license plate in the middle of the images when approximately at half range of reading interval.

NOTE: The maximum suggested camera rotation must be of 30 degree. (PAN angle)

Extra rotation may lead to unreadable plates or read mistakes.

Please refer to the drawing below to understand the application.

NOTE: can be detected vehicles travelling in the same direction and opposite direction as well.

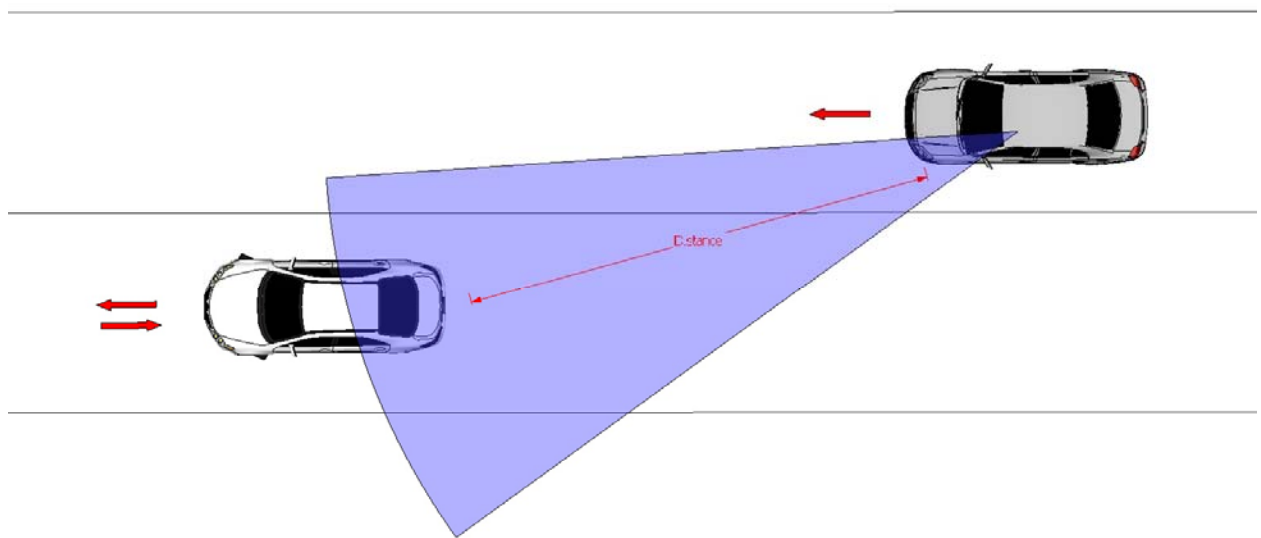


Figure 13: Long range application

6 Troubleshooting and Support

6.1 Troubleshooting

The freeware software tool Tattile Pathfinder cannot find the device

- *The device is not correctly powered*
 - Check the device is correctly cabled to the power supply
 - Check the power supply
 - Check the cable PIN OUT
- *The device network is not correctly cabled*
 - Check the Ethernet wiring
 - If necessary, cable a new connector

Cannot access the web interface

- *The device IP address does not belong to the same netmask of user's PC*
 - Modify the IP address of the device or of the PC
- *The PC is configured for DHCP IP assignment*
 - Define a static IP address to the PC belonging to the host address of the device

The web interface does not display the live stream of the device

- *The device is not responding*
 - Restart the device
 - If the problem persists, contact your sales representative

The device does not recognize a car plate

- *The position of the device does not comply with the configured distance*
 - Verify working conditions (see par.0)
 - Check the values specified for the Channel 0 best focus parameter in the Device info page of the web interface

The system can't be seen in remote connection

- Verify if you can see the system in Pathfinder utility (see par. 5.2)
- Verify the compatibility of IP address and subnet mask
- If the cables are wired correctly (see par 3.3.2)
- If wireless verify electromagnetic noise

6.2 Support

If you need advice or support, you can contact the Tattile technical support using the references located in the front pages of this manual.

7 Maintenance

This chapter describes the required maintenance for the ANPR Mobile devices.

- If you install new electronic devices near the system, be careful the power cable of the system will be away of any cable of the new electronic devices

DANGER! IR radiation damage!

The device emits invisible IR radiations.

- ▷ Never look directly into the infrared illuminator.

NOTICE! Product malfunction!

Never perform maintenance activity when the product is plugged to the power supply.

- ▷ Disconnect the product from the power supply.

NOTICE! Improper use!

Risk of damage to surfaces.

- ▷ Do not use abrasive or corrosive detergents on glass parts (e.g. powder products, stain removers and metallic sponges).
- ▷ Do not use rough or abrasive materials or sharp metal scrapers.

7.1 Cable Check

- ▶ Clean the wear of all cables every 12 months.
- In case of damages to cables, substitute cables with a new product.

7.2 Cleaning the Protection Glass

- ▶ Use a wet soft cloth or a microfiber cloth to clean the protection glass every 12 months or on case of low image quality.
- In case of damages, contact your sales representative.

7.3 Fastening System Check

- ▶ Check the presence of backlash every 12 months.
- Fasten the screws with the correct torque. For details, see chapter 4.3.

7.4 Water and Humidity Check

- ▶ Check the presence of humidity or water drops inside the protection glass of the device every 12 months.
- In case of humidity or water drops, contact your sales representative.

- ▶ Check the presence of humidity or water drops inside the connectors.
- In case of humidity or water drops, replace the seals.
- Clean the connectors.
- If necessary, build new connector cables.

8 Accessories

8.1 Mating Parts Kit

Order Code	Description
T17493	Mating parts kit (included in the package)

8.2 Magnetic Base

Order Code	Description
T18481	MAGNETIC BASE FOR ANPR MOBILE

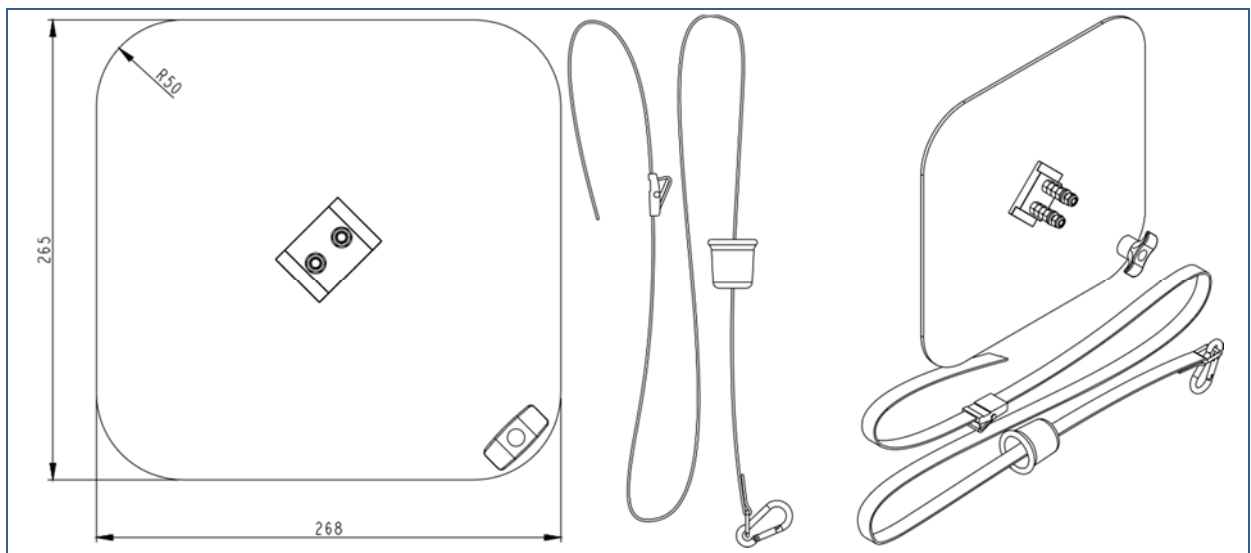


Figure 14: Magnetic Base with safety belt (included in the package)

⚠️ Prior to purchasing the Magnetic Base, carefully read the instructions below

8.2.1 Important safety warnings

- The magnetic Magnetic Base must strictly be fitted only onto the rooftop's flat surface area.
- Caution! The rounded-off side portions of the rooftop provide for very little grip-on strength.
- Carefully check to see that the rack's entire magnetic surface accurately grips onto the vehicle rooftop.
- Do not fit the magnetic Magnetic Base onto vehicles with a rounded or very short rooftop design.

- **Before starting off on each trip, check to see that magnet positioning is steady and stable. The grip strength of the Magnetic Base is decisively strong, meaning that even when endeavouring to tug the Magnetic Base off the rooftop at full strength, it should neither budge nor detach in the slightest. Be sure to always test the grip firmness before every use and do not use the Magnetic Base when in doubt of its condition or performance.**
- **Roof-mounted magnetic Magnetic Bases are liable to cause serious accidents if all given instructions are not accurately observed.**
- **Individuals that have not read these instructions should not be allowed to use the Magnetic Base.**
- **The vehicle driver is held responsible for correct Magnetic Base use.**
- **The “Supplier” declares that he cannot be held responsible for any possible damage occurred during the use of the Magnetic Base and especially if the instructions provided have not been followed correctly or in the event of improper use of the Magnetic Base outside of use as a support for an ANPR Mobile Device.**

8.2.2 Prior to purchasing the magnetic plate, following points need to be checked and verified

- Does your car have a steel plate rooftop?

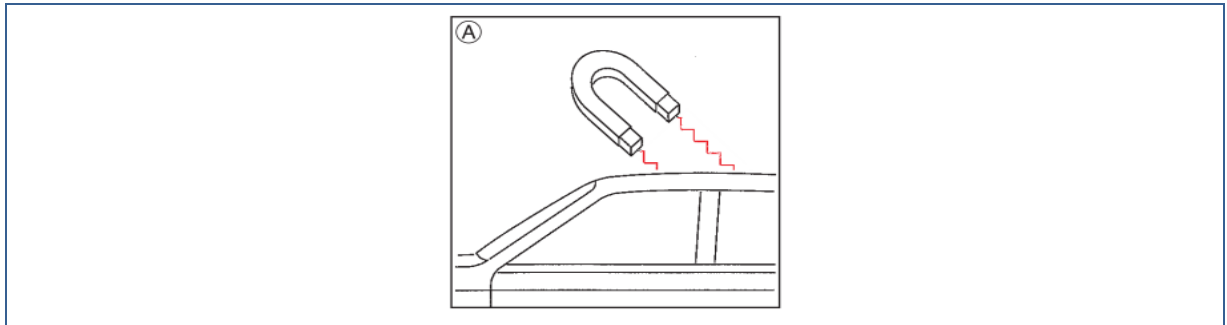


Figure 155: Metallic roof

- Does your car have a sliding or a pop-up style steel sunroof?
- If it does, would it be possible to fit the magnetic plate's **entire surface** over the sliding/pop-up style sunroof or car roof, without it protruding over the sides?



This item is not suited to cars featuring sliding glass sunroofs!

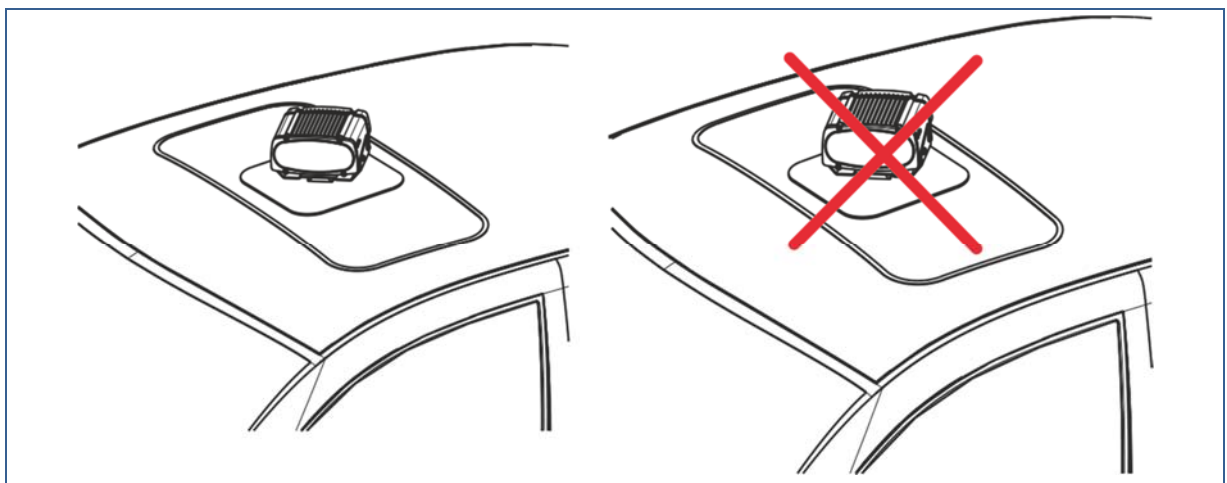


Figure 166: Sliding glass sunroofs

- Does your car avail of an absolutely flat rooftop surface or an adequately large flat rooftop area?
- Does the surface of magnetic plate entirely adhere to the rooftop?

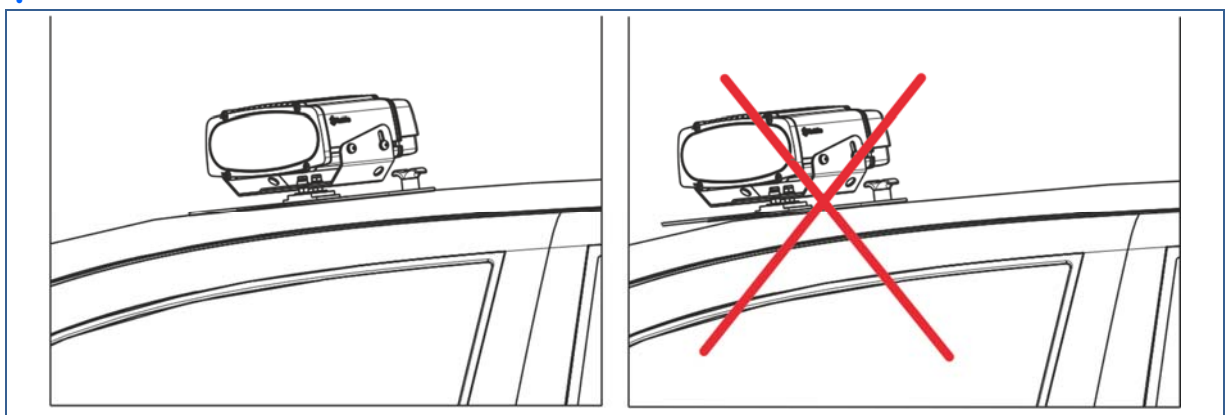


Figure 177: Correct/Incorrect mounting on the roof

- In the event of protruding relief profiles, grooves or other non-flat rooftop features, a Magnetic Base fitting trial must be conducted to ensure that the entire Magnetic Base surface perfectly grips onto the rooftop surface.

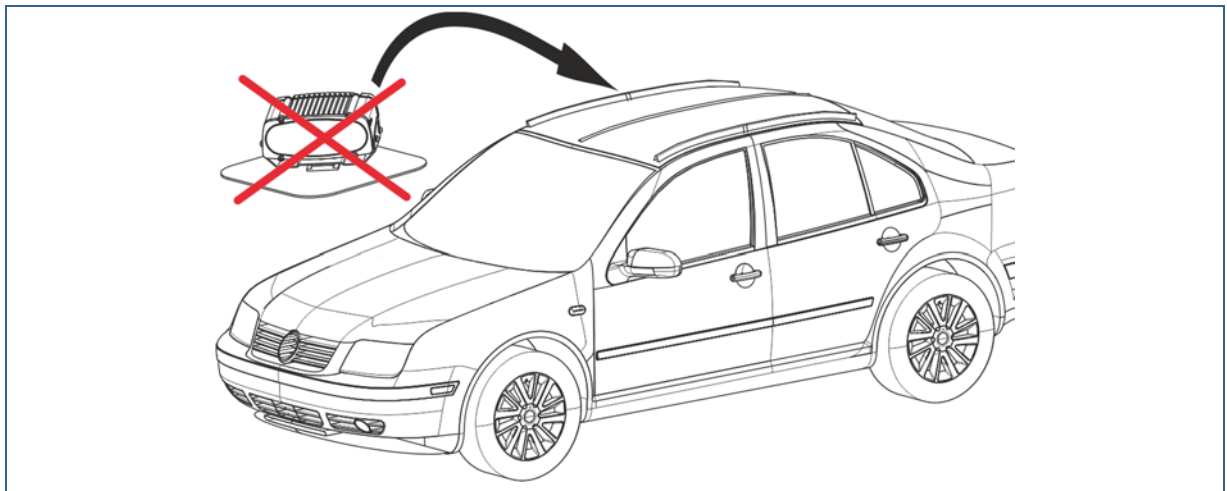


Figure 188: Verify mounting roof

- Has the vehicles rooftop varnish finish be touched up (due to damage caused by hail, transport, etc.)? This may be possible even if your car is new! Use of repair filler materials (e.g. tin, glass fibre, filler bases) will bear a considerable influence on efficient magnet grip force!
- When a car is new or if a used car has just been re-varnished, the varnish may not yet be entirely dry whereby use of the Magnetic Base might lead to said varnish alterations.
- **For any one of these cases, actual purchase or possible future use of the magnetic Magnetic Base is not recommended.**

8.2.3 Assembly

- Responsibility for perfect magnetic plate operation and functions is guaranteed only if the entire magnetic surface accurately adheres to the vehicle rooftop.
- Prior to proceeding with rack assembly, ensure that the magnetic plates and the car rooftop area are both perfectly clean and dry! If not, maximised Base grip and prevention of rooftop abrasion hazards due to fine particles (dust/sand) cannot be guaranteed.

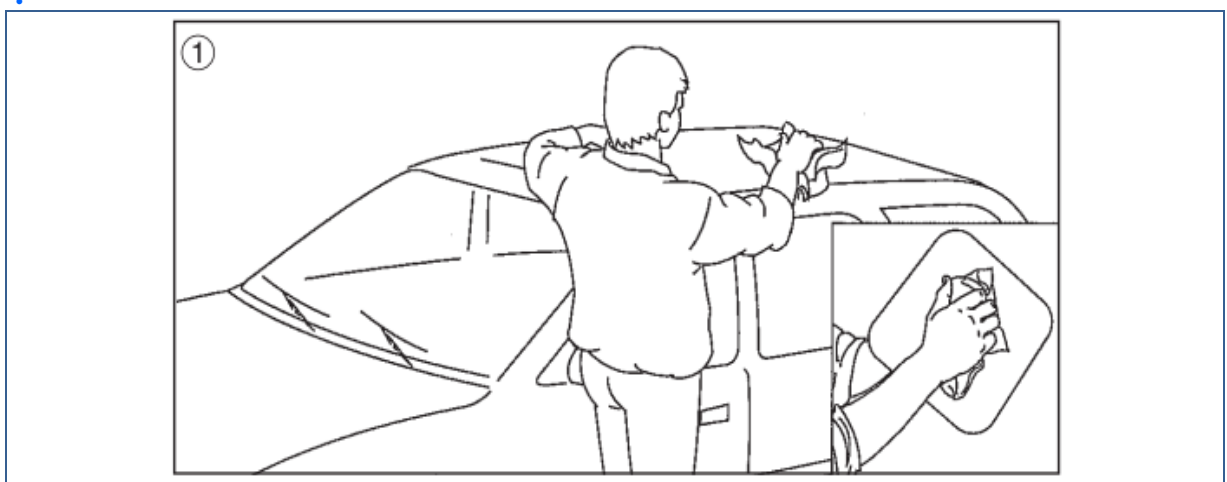


Figure 199: Clean roof and Magnetic Plate

- Carry out the perfect grip test: if it is not possible to slip a sheet of paper in under the magnetic plate, the plate is assembled on correctly.

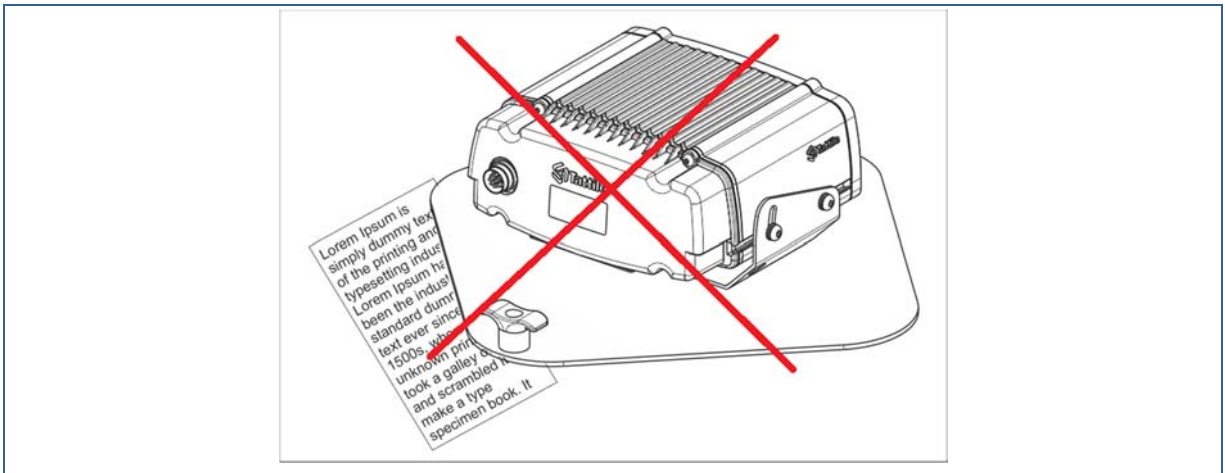


Figure 200: Paper sheet test

- **For safety reasons, the magnetic device must be fixed onto the car rooftop by means of the appropriate safety belt, as shown (per EC Directive 79/488).**
- Slip the safety belt internally to the car and position the plastic stop device so that the buckle is as close up as possible to the car door. In case of rainy weather, sling the safety belt only through the door strut to avoid water seeping in.

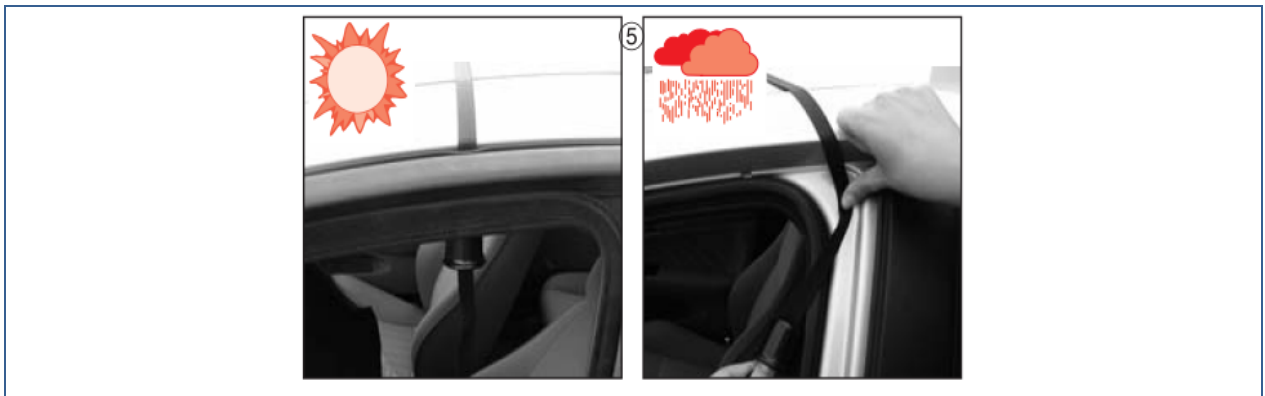


Figure 211: Safety Cable use

⚠ Warning!

If the Magnetic Base is assembled onto a sliding or a pop-up style still sunroof, be sure never to open the sunroof.

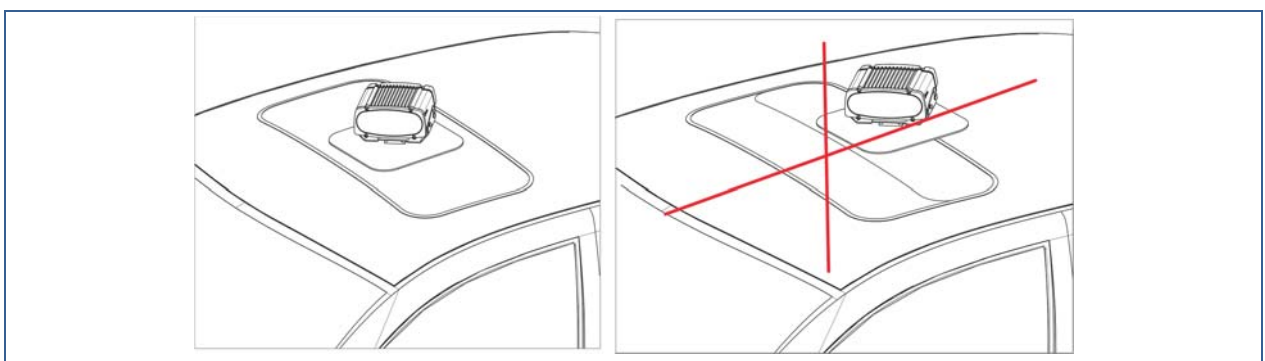


Figure 222: Prohibition of opening the sunroof

8.2.4 Disassembly

- You will note the magnetic plate has a disassembly knob.

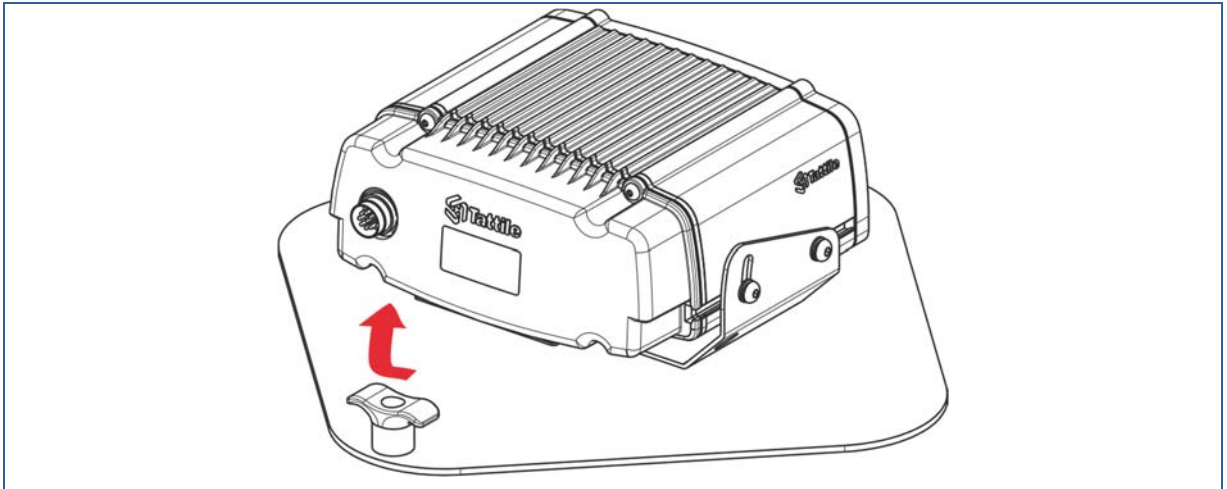


Figure 233: Dismantling of the Magnetic Base

- Carefully lift the plate off by manually prising up its higher rise area.
- Clean as instructed in the “Maintenance Tips” section then store the Magnetic base adequate place so that it will not be damaged.

8.2.5 Additional Directions

- Assemble the Magnetic Base only onto car rooftops.
- The magnetic plate must strictly be fitted only on absolutely clean and dry, snow, ice and frost free rooftop surfaces.
- Beware of the fact that in the event of accidental rack damages (i.e. if the magnetics plates crash to the floor) its magnetic properties may be subject to variations (due to deformation, scratches on the magnets, etc.) thus compromising safe device use.
- If the magnetic plates are put into direct contact with one another or are kept or held next to magnetic material, their magnetic force is considerably reduced. The magnetic plates can be influenced or damaged by electronic devices (such as MP3 players) or magnetic storage units (such as hard disks).

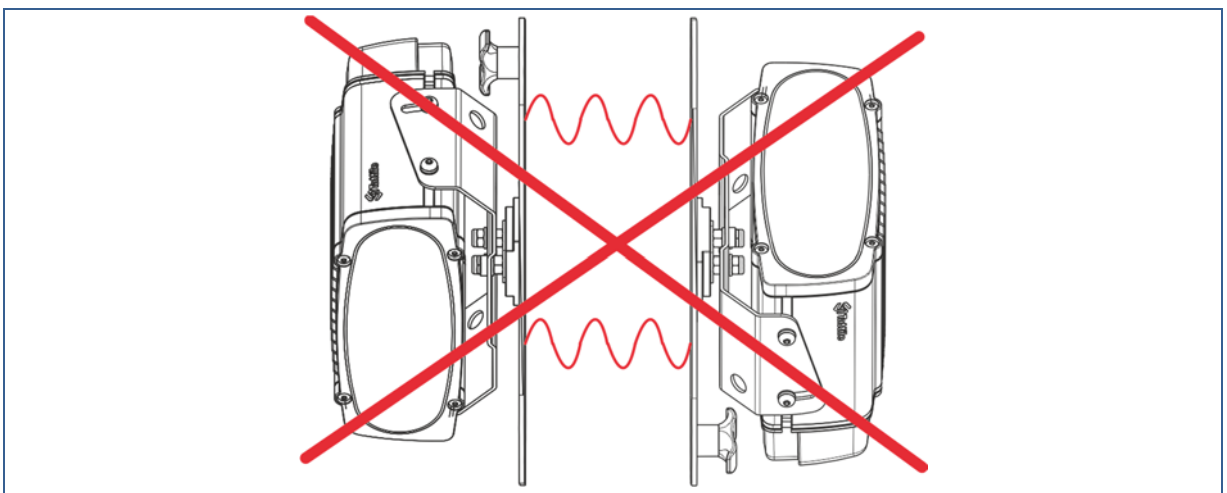


Figure 244: Warning magnetic damage

- The magnetic plate can damage magnet-sensitive elements, units or devices such as credit cards, wristwatches, electronic data books, discs, magnetic computer bands, video and audio devices.
- Leaving it assembled on will avoid dirt and snow deposits and the formation of ice and frost on the car roof surface.
- If the weather conditions were suddenly to change, the formation of frost and/or snow, twilight setting in, etc. might make reassembly of the Magnetic Base more difficult.
- Assembly of the Magnetic Base in difficult conditions will not ensure perfect grip force and safe carriage of the ANPR Mobile leading to accidents (as well as subsequent damages!)
- The Magnetic Base should not be left assembled on the rooftop for weeks on end to avoid damaging the car paint finish. Furthermore, window cleaner additives might seep in under the magnetic plates with an ensuing chemical reaction causing the magnetic plate to unglue down onto the rooftop surface. Exposure to direct sunlight and high temperatures will intensify this type of reaction.
- The use of Magnetic Base will not entirely exclude or avoid damaging the car paint. Tough dust particles combined with car motion vibrations will possibly form opaque spots. Said spots cannot in any way be considered as being a Magnetic Base defect and do not justify or permit claims accordingly, whatsoever.
- After every Magnetic Base use session, it is important to rinse the Magnetic Base off with some warm water, especially after combined use of the car windscreen wipers.

⚠ Warning!

The insertion or application of any form of packing or thickness layer between the magnetic plates and the car rooftop is strictly prohibited.

8.2.6 Driving Tips

- **Always remove the Magnetic Base prior to passing through car wash rollers.**

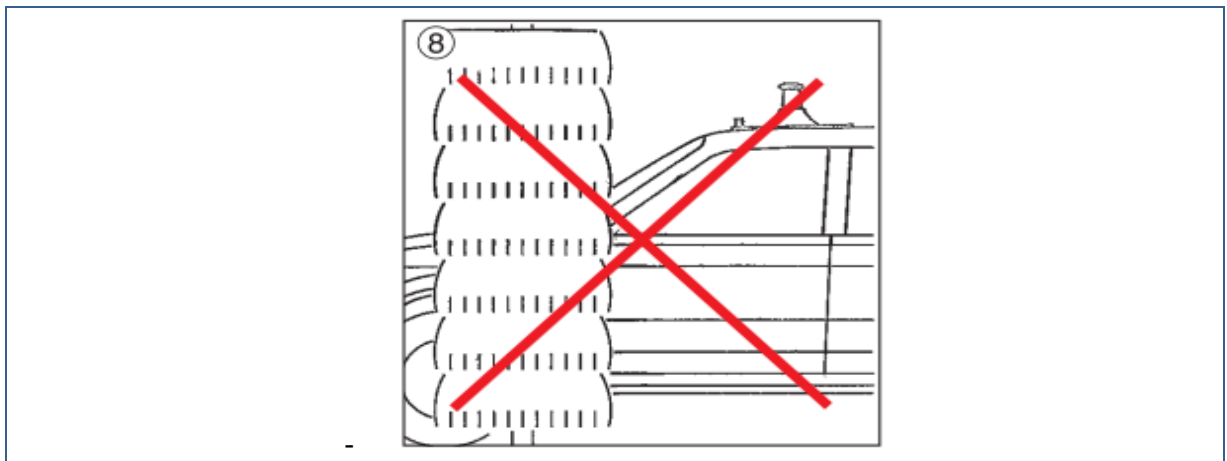


Figure 255: Remove before Car wash

- During travel breaks, check the Magnetic Base grip force and the position of the ANPR MOBILE.
- Depending on road surface and weather conditions (oncoming traffic lanes, heavy-duty trailers in tunnels, dangerous wind gusts) possibly ensuing turbulent flows might have a negative effect on the aerodynamic load and on the vehicle's on-road performance.
- In such cases, reduce the vehicle speed appropriately.
- Any rooftop loads will influence the vehicle's centre of gravity with subsequent influence on the car's travel performance. Drive with care!

8.2.7 Maintenance Directions

- Notwithstanding the implementation of rust prevention and antirust protection measures as well as synthetic weatherproof materials, the Magnetic Base do happen to be affected by winter use.
- For safety and maintenance of your Magnetic Base, clean at regular intervals only by hand, using car detergent diluted in warm water.
- We recommend use of a car window cleaning additive: beware though that if the additives are much too aggressive, they might lead to Magnetic Base damage.
- Check regularly the safety screw tight, for fixing nuts to the Base **5 nm**, for angle adjustment screws **3.5 nm**.

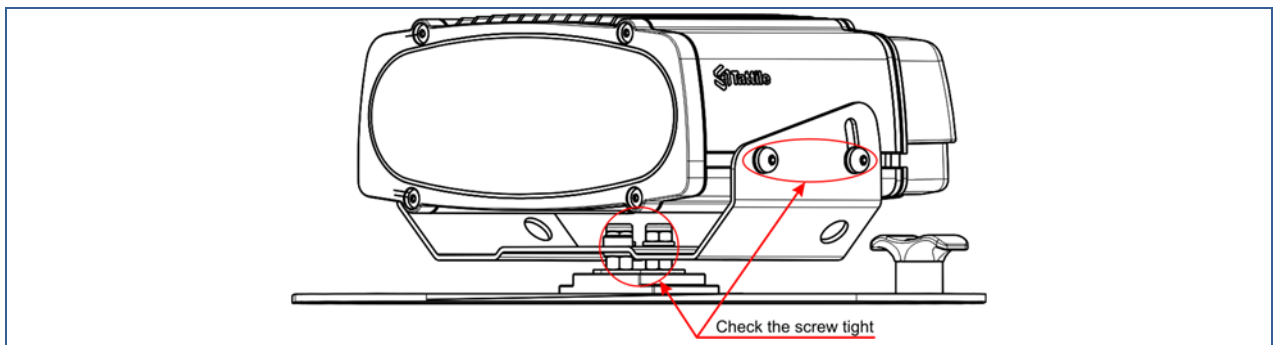


Figure 266: Check the screw tight

- When magnetic plates are removed after use, there might be a harmless film-like formation on the rooftop surface that is eliminated either using a car detergent or with some liquid car wax or Soft-Wax.
- Always keep the Magnetic Base stored away in clean and dry conditions
- Do not hang the plates up on walls or metal tubes. The two Magnetic Base must never be put into direct contact against one another (magnetic force reduction hazards).
- **Do not store the Magnetic Base in the vicinity of devices sensible to magnets/affected by magnetism such as computers / CDs / disks / magnetic films / tape recorders / video recorders / electric power supply panels, etc. (to avoid and prevent ensuing damages!)**
- The magnetic materials of the Base carriers may be subject to wear due to weather conditions or improper use. If damaged Magnetic Base can no longer be used.
- **The Supplier recommends to periodically carry out a general check of the integrity of all parts of the Magnetic Base and its correct grip strength, at least every six months.**

9 Revision History

Rev.	Date	Description	Author	Approved by
00	2014-04-04	First Release.	S. Gustinelli I. Paderno	P. Forti
01	2014-10-03	General updated of the document. Added reference to the code F01653	S. Gustinelli I. Paderno	P. Forti
02	2015-03-18	Added codes F01622 and F01675	S. Gustinelli I. Paderno	P. Forti
03	2016-09-13	Added codes F01696 and F01710 and "Angle of View" table	F. Conti	I. Paderno
04	2016-12-13	Housing table (pag. 25) corrected with the proper measures of the device	R. Marchioni	I. Paderno
05	2017-02-16	Removed from the list of Products p/n F01653 & F01675 and updated the section 5.3 General Characteristics	P. Forti	I. Paderno
06	2017-10-06	Insert Safety Instruction, updated drawing adding warning IR label	P. Forti	I. Paderno
07	2017-11-30	Adding new Product Code F01845	P. Forti	I. Paderno
08	2019-07-30	Newer document layout Updated images Enhanced Device description Complete revision of Chapter 8	P. Forti	L. Bonisoli
09	2020-01-10	Added FCC info	A.Tonini	L. Bonisoli

Table 10: Revision history