

CARMEN[®] ANPR

OCR RESULTS:



• NUMBER PLATE:	ARH 001
• VEHICLE TYPE:	MERCEDES BENZ
• NATIONALITY:	EU-HUNGARY
• SPEED:	158 MPH / 254 KMH
• BLACKLIST:	--- NO ---
• COLOR:	BLUE METAL
• OWNER:	ZSOLT VANYI
• RECOGNITION TIME:	2015-01-12T15:19:21+00:00



INSTALL GUIDE

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For Versions 7.3.1.18 and above

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Table of Contents

1. SYSTEM REQUIREMENTS.....	6
2. HARDWARE INSTALLATION.....	7
2.1. INSTALLATION OF THE PCIE (X1) NNC.....	7
2.2. INSTALLATION OF THE USB 2.0 PORT NNC.....	7
3. SOFTWARE INSTALLATION	8
3.1. INSTALLATION ON WINDOWS PLATFORMS.....	8
3.2. INSTALLATION OF REGIONAL ENGINES.....	9
4. INPUT IMAGE REQUIREMENTS:.....	10
4.1. CHARACTER SIZE	10
4.2. IMAGE QUALITY REQUIREMENTS	10
4.3. EXAMPLES TO AVOID.....	11
4.4. IMAGES ADEQUATE FOR ANPR.....	12

INTRODUCTION

This documentation contains a step by step guide on how to install both the hardware and software components of the CARMEN® ANPR engine. It also gives a brief description on input image requirements.

This guide only details the installation procedure for **Windows** based systems, Linux users please follow this link: [CARMEN® for Linux install guide](#)

If you would like to read more about the demo software that is provided with the software package, please follow the links below:

- [ANPR Demo for Images User's Manual](#)
- [ANPR Demo for Videos User's Manual](#)

HANDLING PRECAUTIONS

There are some standard precautions that should be followed when handling the Neural Network Controller (NNC) card or any other electronic hardware component:

1. Keep the card in its anti-static bag until it is ready to be installed.
2. Protect the card from static electricity by grounding your body and the equipment during installation. Wear a grounded wrist strap, or touch the metal case or chassis of the PC before touching the card.
3. Always grasp the card by its edges.
4. Do not touch the components on the card or the "gold finger" connectors plugged into the expansion slot. Instead, grasp the card by its mounting bracket.
5. Ensure the system power is completely turned-off before doing any installation work. In case of PCs with ATX power supplies, it is recommended to unplug the power cord before installation.

! Important

During hardware installation, exercise caution when handling hardware components as these might have sharp edges or protruding parts that can cause hand injuries.

PACKAGE CONTENTS

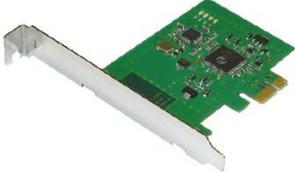
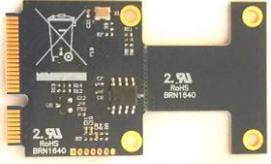
A CARMEN® ANPR license has both hardware and software components. Hardware components are shipped physically via a courier service, software components are downloaded via the ARH Technical Support System (ATTS) following registration.

Software Components:

- Software development libraries
- Sample codes for all supported languages:
 - C/C++, C#, VB.NET and Java programming languages for Windows
 - C/C++ and Java for Linux
- Manual for the API in electronic format
- Drivers for the PCIe(x1)/USB port Neural Network Controller (NNC)
- ANPR Demo software (ADI, ADV)
- General LPR engine for reading common license plates with Latin characters

Hardware components:

- One of the following Neural Network Controllers (NNC)

			
FXMC USB	FXMC Internal USB	FXMC PCIe	FXMC miniPCle

INSTALLING CARMEN[®] ANPR

1. SYSTEM REQUIREMENTS

Minimum system requirements:

- Intel Pentium III 1GHz CPU or higher (or any other fast x86 or x64 compatible CPU)
- 512 Mbytes of RAM or more
- Free PCIe or miniPCIe slot with bus mastering option or USB 2.0 port
- Windows 8, 8.1, 10 32/64 bit operating system
- For CARMEN[®] ANPR: image files (.jpg, .bmp, .png, .jpeg2000) loaded from a mass storage drive or directly from memory as input

In order to run CARMEN[®] ANPR, you should either have a USB 2.0 port / internal USB NNC or PCIe / mini-PCIe NNC. This is a form of HW protection for the software, the dongle includes the license.

2. HARDWARE INSTALLATION

2.1. INSTALLATION OF THE PCIE (X1) NNC

1. Turn the computer off and unplug the power cord.
2. Remove the cover from the computer (refer to the user's manual of the PC for specific instructions).
3. Locate an available empty PCIe expansion slot.
4. Remove the slot cover screw and slot cover if possible.
5. Open the antistatic protective sleeve of the CARMEN[®] NNC card, grasp the circuit board by the edge of its mounting bracket and take it out from the sleeve.
6. Insert the card into the empty PCIe expansion slot by its gold finger connectors and gently press down on the top edges of the board to ensure that all connecting points are seated securely. Fasten the mounting bracket of the board using the screw removed earlier.
7. Reinstall the cover of the PC and reconnect the power cord.
8. Turn the computer on.
9. During system boot, enter the BIOS setup program of the computer and check whether the **Bus mastering** option is enabled. If not, enable it. Save and exit setup. (This option is not available in every BIOS setup program; check the user's manual of the PC for specific information).
10. When the New Hardware Found wizard starts, click on **[Cancel]**.

2.2. INSTALLATION OF THE USB 2.0 PORT NNC

1. Connect the NNC to one of the USB 2.0 ports of the computer.
2. The key will only be detected and recognized once the software package has been installed.

3. SOFTWARE INSTALLATION

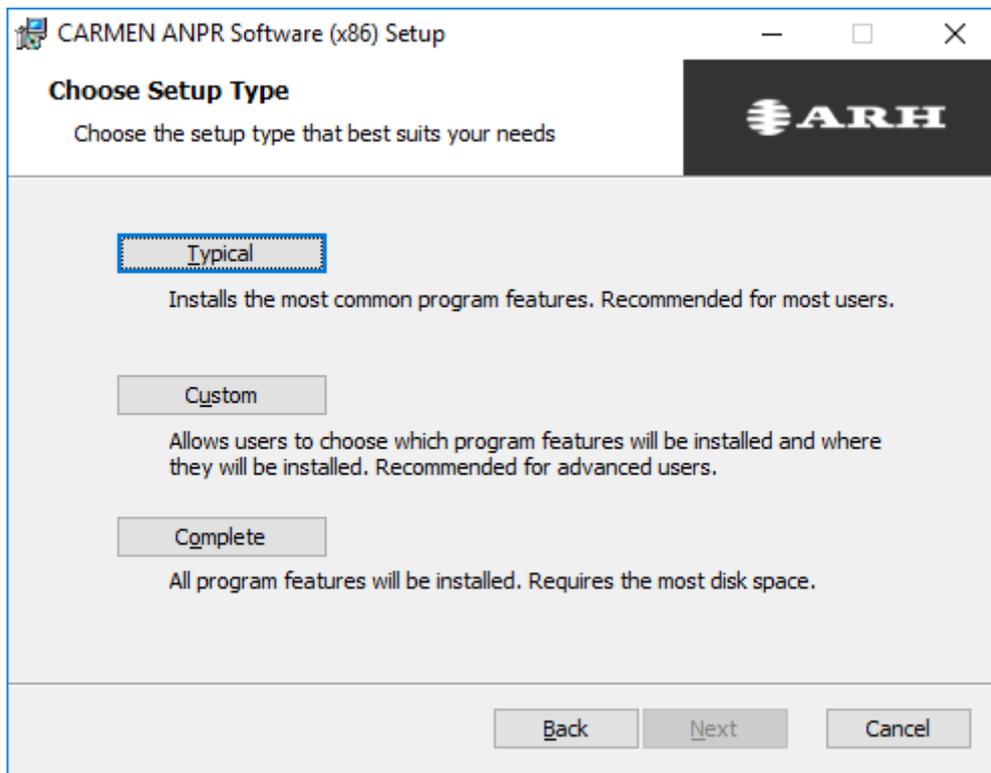
Download links for the CARMEN® Installation Package are distributed via the ARH Technical Support System (ATSS). The links are sent out automatically once your order is processed. If you did not receive a download link, please open a ticket in ATSS.

3.1. INSTALLATION ON WINDOWS PLATFORMS

1. Before installing a new CARMEN® ANPR version, uninstall any previous versions of CARMEN® ANPR from your system (if applicable) and reboot the computer.
2. Extract the received zip file to a folder on the hard disk of your computer.
3. CARMEN® setup does not start automatically; locate and double-click "**CARMEN ANPR-7.3.X.XX-x86.msi**" (32bit version) or "**CARMEN ANPR-7.3.X.XX-x64.msi**" (64bit version) within the Installation Package to start the installation.



4. Follow the installation steps and accept the END-USER LICENSE AGREEMENT
5. Once this is done, select the method of installation in the pop-up window.



Three options are available:

- a) Typical: Recommended for most users, installs the most common program features.
- b) Custom: Allows users to select or deselect components for installation.
- c) Complete: recommended for developers. Selecting this option will install the entire package on the PC.

6. Click on **[Next]** to start copying files to your computer.

7. Connect the USB or Express Card Hardware Key into the computer.

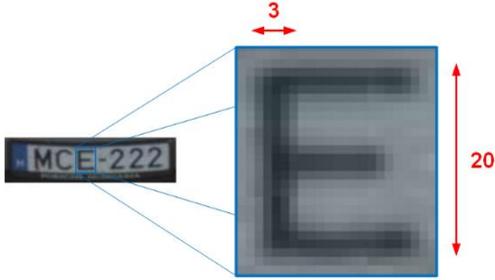
3.2. INSTALLATION OF REGIONAL ENGINE(S)

CARMEN software package comes with a general engine installed. For exact license plate type - including country and state recognition - don't forget to install your regional engine(s).

For instructions, see: http://doc.arh.hu/carmen/engine_manager_pro_users_manual.pdf

4. INPUT IMAGE REQUIREMENTS:

4.1. CHARACTER SIZE



Proper character sizes (in pixels) on the sample image

For optimal ANPR/LPR results, the most important factor is the size of the characters on the image. For Latin characters it is recommended to have an average character height of at least 16 pixels. For Arabic or other special characters, it is recommended to have characters that are at least 20 pixels in height. A higher resolution is needed in the latter case as these characters are more intricate in their design.

Very low-resolution images are unusable for ANPR, but so are very high-resolution images as well. Therefore, avoid settings where the character height is greater than 50 pixels. The line width of a character on the image should be at least 2 pixels.

Recommended character sizes in pixels:

- Height, Latin characters: 16-50 pixels
- Height, Arabic characters: 20-50 pixels
- Line width: min. 2-3 pixels

4.2. IMAGE QUALITY REQUIREMENTS

In order to expect the most accurate result from CARMEN® ANPR software, the processed images should contain a plate:

- with reasonably good spatial resolution (on the license plate the minimum character height is 16 pixels for Latin and 20 pixels for Arabic characters, 2 pixels line-width on the image),
- with reasonably good sharpness,
- with reasonably high contrast,
- under reasonably good lighting conditions,
- in a reasonably good position and angle of view.

Although "reasonably" is not an exact definition, it can still be easily understood if you look at the sample images below. The first six images are **NOT** usable for ANPR. The ones on the next page however, can be properly used for ANPR.

4.3. EXAMPLES TO AVOID



LOW SPATIAL RESOLUTION



LOW CONTRAST



HIGH DISTORTION



BLURRED IMAGE



OVEREXPOSURE



BAD LIGHTING CONDITIONS
(SHADOW AND STRONG LIGHT)

4.4. IMAGES ADEQUATE FOR ANPR

DAYTIME



NIGHT-TIME



- GOOD SPATIAL RESOLUTION
- GOOD SHARPNESS
- HIGH CONTRAST
- GOOD LIGHTING CONDITIONS
- GOOD POSITION AND GOOD ANGLE OF VIEW

For a more detailed input image guide, please visit: http://doc.arh.hu/carmen/brief_guide_for_input_images.pdf

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The ARH Technical Support System (ATSS) is designed to provide clients with fast and proficient assistance.

Information regarding hardware, software, manuals and FAQs are easily accessible for clients who are already registered in ATSS. In addition to offering assistance, the system is also designed to provide high levels of protection while managing your business information.

NEW USERS

If this is your first online support request, please create an account by clicking on this [link](#).

RETURNING USERS

All registered ATSS customers receive a personal access link by email. If you previously received a confirmation message from ATSS, it contains an embedded link that allows you to securely enter the support site.

If you need assistance with login or registration, please contact atsshhelp@arh.hu for help.