AUTOMATIC NUMBER PLATE RECOGNITION

# CARMEN<sup>®</sup> NNC neural network controllers

# Software Components

The Neural Network Controllers contain a special code that tightly cooperates with the ANPR engine during the automatic number plate recognition process. All Neural Network Controllers run a special neural network code of the license plate recognition process. The main parts of the license plate recognition run on the CPU of the PC, but some functions of the code are outsourced to the microcontroller. That requires the presence of the Neural Network Controller during image processing.

#### Carmen® FXMC USB

The FXMC USB Neural Network Controller (NNC) is a non-transparent neural network controller that connects to the USB port of a computer. When using this device, there is no need for free PCI slots

or PC104+ layers, only operating system USB support.

Interface	USB 2.0
Processor	50 MHz
Supported operating systems	Windows or Linux
System requirements	Free USB 2.0 port
Power consumption	Approx. 85 mA
Size	68 mm × 19 mm × 9 mm



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#### Carmen<sup>®</sup> FXMC USB

This is a neutral design version of the USB NNC – for OEM use. Its functionality is the same as the ARH branded one but with a slightly different size.	Interface	USB 2.0
	Processor	50 MHz
	Supported operating systems	Windows or Linux
	System requirements	Free USB 2.0 port
	Power consumption	Approx. 85 mA
	Size	62 mm × 20 mm × 10 mm



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## Carmen<sup>®</sup> NNC

## **Specifications**

#### Carmen® FXMC INTERNAL USB

This NNC is an internal device that directly connects to the motherboard through the 4-pin vertical USB connector (Samtec SSM-102). Since installed internally, it is ideal for system integrators, as the hardware key is protected from theft or physical damage.

Interface	USB 2.0 (connector: 2-row 4-pin socket)
Processor	50 MHz
Supported operating systems	Windows or Linux
System requirements	Free USB 2.0 port
Power consumption	Approx. 85 mA
Size	75mm × 20 mm × 10.5 mm



### Carmen<sup>®</sup> FXMC PCIE

The CARMEN® FXMC PCIe Neural Network Controller has a PCIe x1 interface to be inserted into a free PCIe slot of a PC. The high speed PCIe interface provides exceptionally fast response time.

Interface	PCIe X1
Supported operating systems	Windows or Linux
System requirements	Free PCIe slot x1 (or higher)
Power consumption	Approx. 300 mA
Size	87 mm × 6.07 mm



### Carmen<sup>®</sup> FXMC MINI-PCIE

In functionality, the mini-PCIe NNC is on par with the USB version. The only difference is it's connecting interface.

This NNC connects to the mini PCI Express slot, using its USB pins.

		(New)	
	Interface	USB 2.0	
	Processor	50MHz	
	Supported operating systems	Windows or Linux	
	System requirements	Free PCI Express Mini Card Slot (Full or Half size)	
	Power consumption	Approx. 85 mA	
-	Size	50.95 mm × 30 mm (Full-Mini Card format)	
		26.80 mm × 30 mm (Half-Mini Card format)	



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