

# VTK Traffic Vision

Safe and Timely Traffic Monitoring.



## Features

- Advanced NVIDIA® Jetson AGX Orin™ platform delivers up to 275 TOPS AI performance
- The latest NVIDIA Ampere™ architecture, featuring with 2048 NVIDIA® CUDA® cores and 64 Tensor cores
- 1 PCIe Gen4 x8 expansion slot supports optional multiple 10GigE/ PoE LAN/USB connections
- 6 GigE LAN with 4 PoE+, 1 Digital Display supports 8K60
- 2 Isolated CAN Bus support Flexible Data-rate, 2 COM RS232/422/485, 5 USB 3.1
- Supports device remote management by Allxon
- DC 9V to 50V wide range power input, Ignition Power Control



## EAC-5100 Specifications

System	
CPU	12-core Arm® Cortex®-A78AE v8.2 64-bit CPU
Memory	64GB LPDDR5 DRAM
OS	Linux OS
Graphics	
Graphics Processor	2048-core NVIDIA Ampere™ architecture GPU with 64 Tensor Cores
Interface	Digital Display, up to 8K60
I/O Interface	
Serial	2 COM RS-232/422/485
USB	<ul style="list-style-type: none"> <li>1 USB 3.1 Gen 2, supports up to 10Gbps</li> <li>4 USB 3.1, support up to 5Gbps</li> </ul>
LAN	<ul style="list-style-type: none"> <li>LAN 1 to LAN 2: 10/100/1000 Base-T Ethernet GigE LAN, RJ45 Connector</li> <li>LAN 3 to LAN 6: IEEE 802.3at (25.5W/48V) GigE PoE+ LAN, RJ45 Connector</li> </ul>
IsolatedDIO	16 Isolated DIO (8 DI, 8 DO)
SIM Card	2 SIM Card Socket
Storage	
eMMC	1 eMMC 5.1, 64GB
M.2	2 M.2 Key M Socket (2280, PCIe Gen3 x4)
Expansion	
PCIe	1 PCIe x16 slot with PCIe 3.0 x8 signal
M.2	<ul style="list-style-type: none"> <li>1 M.2 Key B Socket (3042/3052, USB3)</li> <li>1 M.2 Key E Socket (2230, PCIe/USB)</li> </ul>
Power	
Power Input	DC 9V to 50V
Remote Switch	3-pin Remote Switch Terminal Block
Mechanical	
Dimensions	260 mm x 182 mm x 69 mm (10.24" x 7.17" x 2.72")
Mounting	Wallmount DIN Rail and VESA Mount (Optional)
Environment	
Operating Temperature	<ul style="list-style-type: none"> <li>30W TDP Mode : -25°C to 70°C (-13°F to 158°F)</li> <li>40/50W TDP Mode : -25°C to 55°C (-13°F to 131°F)</li> </ul>
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 95% Humidity, non-condensing

## Camera Specifications

Series	
Model Name	5MP: MBL050M-ORF028
Camera	
Lens Type	f2.8mm, F1.6, fixed
Field of View	97°(H) 71°(V)
Minimum Illumination	Color: 0.0572 Lux F1.6, B/W: 0.00460 Lux when IR on
IR Distance	30M, smart IR
Image	
Exposure Mode	Auto, Shutter-Priority, Manual, Flickerless, True WDR
Shutter Speed	1/2s~1/10,000s
WDR	True WDR
Video	
Maximum Frame Rate	3 simultaneous streams, up to 5MP@30fps
General	
On Board Storage	1 x micro SDHC/SDXC Slot (card not included), Recording & Playback
I/O Interface	<ul style="list-style-type: none"> <li>1 Reset Button, 1 Default Button</li> <li>1 DC 12V Terminal Block</li> <li>1 RJ45 IEEE 802.3, 10/100 Base-T/TX</li> </ul>
Memory	RAM 512MB, Flash 128MB
ONVIF Compliance	Profile S/G/T/M, test tool 21.06
Mechanical	
Casing Material	Metal Housing- Aluminum Alloy
Weathering Resistance	IP67
Vandal Resistance	IK08
Dimension	84mm x 79mm x 147mm
Weight	490g
Electrical	
Power Source	DC 12V, PoE
Power-over-Ethernet	IEEE 802.3af, Class 3
Power Consumption	6.7W (Max)

# Software License



## Features

- License plate recognition: Up to 200 km/h of License plate recognition speed
- Violation Detection: Up to 6 kinds of Violation can be detected
- Traffic Flow Analytics: Calculating the number of traffic flow
- Obstacle Detection: Capable of simultaneously detecting multiple recognition boxes and intruders
- High accuracy rate of more than 90% (80% at night)
- Real-time alert for personnel intrusion, reducing the chances of dangerous incident

### Specifications

<b>Model Name</b>	Traffic Vision Software License
<b>Product Description</b>	Traffic Flow Analytics, License Plate Recognition, Violation Detection
<b>Accuracy</b>	Day: 90% above/Night: 80% above
<b>Image Recognition</b>	Day: full-color camera/Night: cameras for low illumination level
<b>Multi-Object Recognition</b>	Pedestrian, bicycle, motorcycle, car, truck and bus etc. at the same time (Traffic Flow Analytics, Violation Detection)
<b>Multi-Events Zone Detecting</b>	<ul style="list-style-type: none"> <li>▪ Traffic Flow Analytics: Detecting 5 turning traffic in one channel</li> <li>▪ Violation Detection: 6-12 violation event detection in one channel</li> </ul>
<b>Recognition range</b>	3 lanes each camera (Traffic Flow Analytics, License Plate Recognition, Violation Detection)
<b>Video</b>	<ul style="list-style-type: none"> <li>▪ Encoding with H.264 and H.265, save as MP4 / AVI / MKV</li> <li>▪ Support SDK / API, utilizes the RTSP connection protocol</li> </ul>

### License Plate Recognition

<b>Recognition Details</b>	<ul style="list-style-type: none"> <li>▪ single-license: Parking management and place require high accuracy (99%)</li> <li>▪ Multi-license: Providing running vehicle license plate records</li> <li>▪ Recognition of speedlimit: 200 km/h, 80km/s with 95% accuracy</li> <li>▪ Time of recognition: 20-70 milliseconds</li> <li>▪ Character Recognition: English alphabets, numbers and symbols</li> <li>▪ Recognition Record: Recording date, time, license plate(Optional) and screenshot</li> </ul>
<b>I/O Equipment Integration</b>	integrating I/O module management for access control
<b>Angle Of Camera</b>	<ul style="list-style-type: none"> <li>▪ Horizontal/vertical angle &lt; 30 degrees</li> <li>▪ Tilt angle &lt; +/- 5 degrees</li> </ul>
<b>Setting of Camera</b>	<ul style="list-style-type: none"> <li>▪ Distance between car and camera: 10-20 meters</li> <li>▪ The height of camera:3-4 meters</li> </ul>
<b>Environmental Requirement</b>	minimum of width of license plate is 100 pixels

### Violation Detection

<b>Event detection</b>	Red light running, illegal parking, wrong-way driving, double yellow lines running, road without clearance
<b>Real time alert</b>	Integrate the central management system and send notifications uniformly, facilitating management by managers
<b>Violation record &amp; management</b>	<ul style="list-style-type: none"> <li>▪ information: Violation incident searching, management, Certain license plate searching, video replaying</li> <li>▪ Video record: On-site video provides full-time video/ event video, which is more comprehensive and precise for subsequent verification</li> </ul>
<b>Alert Report</b>	Event triggering: <ul style="list-style-type: none"> <li>▪ JSON over HTTP(s)/TCP</li> <li>▪ NVR alert through EZPRO</li> <li>▪ Through digital DO output or network smart I/O box</li> </ul>
<b>Minimum of width</b>	<ul style="list-style-type: none"> <li>▪ Vehicles: 100 pixels</li> <li>▪ Traffic lights: 60 pixels</li> <li>▪ License plate: 100 pixels</li> <li>▪ Objection cannot be occluded by 30%</li> </ul>
<b>The installation of the camera</b>	The height of camera is above 3-6 meters

### Traffic Flow Analytics

<b>Data analysis</b>	<ul style="list-style-type: none"> <li>▪ Sorting and analyzing data by time/ vehicle types/ cameras/ events</li> <li>▪ Calculating the number of traffic flow with vehicle type identification</li> </ul>
<b>Environmental requirement</b>	The installation of the camera: The height of camera is above 4.5-6 meters the recognition of each camera are three lanes
<b>Minimum width</b>	<ul style="list-style-type: none"> <li>▪ Fisheye camera: 200 pixels</li> <li>▪ Normal camera: 100 pixels</li> <li>▪ Objection cannot be occluded by 30%</li> </ul>

## Order Information

<b>EAC-5100</b>	EAC-5100, NVIDIA Jetson AGX Orin, with On-board 32GB RAM and 64GB eMMC, 4 PoE+, -20°C to 70°C
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### Software Selection

<b>Traffic Flow Analytics</b>	Traffic Flow Analytics Software Kit
<b>License Plate Recognition</b>	License Plate Recognition Software Kit
<b>Violation Detection</b>	<ul style="list-style-type: none"> <li>▪ Red Light Left Turn</li> <li>▪ Run Over Red Light</li> <li>▪ Wrong-Way Driving</li> <li>▪ Not Yielding to Pedestrians</li> <li>▪ Jaywalking</li> <li>▪ Car Park in Motorbike Area</li> <li>▪ Road With Obstructions</li> <li>▪ Red Light Right Turn</li> <li>▪ Illegal Parking</li> <li>▪ Double Line Crossing</li> </ul>

### Optional Accessories

<b>PWA-160WB-WT</b>	160W, 24V, 85V AC to 264V AC Power Adapter with 3-pin. Terminal Block, Wide Temperature -30°C to +70°C
<b>PWA-180WB</b>	180W, 24V, 90V AC to 264V AC Power Adapter with 3-pin. Terminal Block
<b>PWA-280WB-WT</b>	280W, 24V, 85V AC to 264V AC Power Adapter with 3-pin. Terminal Block, Wide Temperature -30°C to +70°C
<b>4G Module</b>	4G/GPS Module with Antenna
<b>5G Module</b>	5G Module with Antenna
<b>WiFi &amp; Bluetooth</b>	WiFi & Bluetooth Module with Antenna