

TrafficXRoads-NX-B000

TrafficXRoads-NX-B000 unit is a video analytics embedded computer designed for real-time detection tasks for dynamic control of traffic light signaling and the collection of traffic data from IP cameras. It has an industrial NVIDIA processor, the Jetson NX that runs the AI-based detection and tracking algorithm which turns any video stream into high quality trajectory data about each road user. The system is powerful enough to analyze data from up to 6 connected cameras in real-time with an operating range of up to 120 meters. The highly optimized and fully configurable trajectory processing engine is able to evaluate dozens of detection tasks in each camera view in parallel.

The configuration of detection tasks is performed using the visual programming language called FLOW, specifically by parallel or serial connection of spatial, temporal or attribution filters or other operators. For example the emulation of an inductive loop at any location in the camera view is a matter of just a few clicks and it is the same for more complex scenarios such as U-turn detection, blocking vehicle detection, queue detection or average speed measuring. The system is fully interactive and responds to new settings configurations live.

The system is also able to provide statistical data about the events in different aggregation modes such as whole history, time blocks, floating window or defined time interval. This data can be visualized on a user defined dashboard using interactive widgets for heatmap data, tables, trajectories, statistical values etc. The historical data together with the real-time detected events are available via open APIs for 3rd parties or can be exported in various formats.

The unit has multiple connectivity options with traffic controllers including data communication (UDP/REST/webhook), relay or SDLC expander. The actions/outputs are scriptable and can react to any single detected event in the video or user-defined performance metrics. The operating temperature is from -20°C to 60°C. 2x Giga LAN ports allow it to easily connect enough cameras to cover any intersection no matter its shape. The is a small which allows its easy installation into the traffic cabinet on DIN rail. The system supports remote configuration if the internet connection is available including updates.

TrafficXRoads is a multifunction traffic analyzer prepared for the new era of dynamic traffic control.

Dynamic control

- Vehicle presence
- Speed data, level of service
- Queue length & occupancy
- Distances - time & space

Traffic violations

- U-turn detection
- Wrong-way detection
- Illegal lane change
- Red-light violation

Vulnerable road user protection

- Pedestrian/cyclist presence
- Conflict detections
- Jaywalking

Powered by FLOW, the most powerful traffic framework

FLOW is a fully interactive video analytical traffic framework designed for real-time driven applications. It is the fastest and the most efficient way to transform any video stream into a stream of actionable insights. The first tool ever which visualizes traffic data live right at your fingertips and communicates with the other parts of your smart infrastructure using open APIs. FLOW is built for all thinkable traffic scenarios thanks to the powerful combination of unique visual traffic programming language, trajectory-driven design and AI-based image processing. Take the advantage of the one unified solution for smart traffic, parking, retail and security, which runs everywhere.

Video detection features

FLOW is powered by a proprietary developed and globally trusted video analytical engine utilizing deep-learning. This engine is capable of detecting and tracking hundreds of objects in multi-camera environments simultaneously.

Interactive data visualization

FLOW allows you to visualize the extracted information and analyses using interactive widgets on the customizable dashboards. Create a beautiful and live visualization of the current traffic situation.

Traffic analysis functions

FLOW supports various traffic analytic functions and operators that can be combined into a comprehensive traffic analysis running in real-time. Thanks to the unique visual traffic programming language, you will be a designer of a monitoring solution tailored to your specific needs.

Data interfaces

FLOW was born for integration with other parts of smart infrastructure. Any type of extracted traffic insights can be continuously delivered to 3rd party systems using an open API which supports multiple communication protocols including UDP and REST.

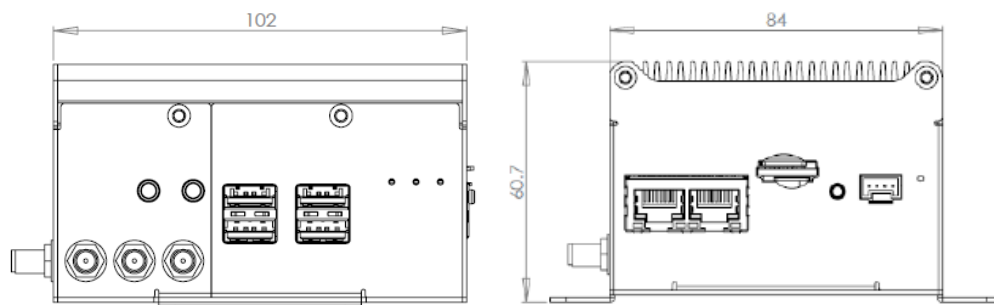


Model

TrafficXRoads-NX-B000

Description

Real time video-analytics unit for installation into the traffic control cabinet.



General properties

Processor	NVIDIA Jetson NX
Memory	8 GB 128-bit LPDDR4x, 16 GB eMMC 5.1
Expansion slots	M.2 2280 M key × 1 for NVMe SSD, M.2 3052 or 3042 B key × 1 for 5G or 4G, M.2 2030 E key × 1 for WiFi/BT module
Ethernet	Supports 2 Giga LAN ports
Video output	HDMI × 1 (2.0 maximum 3840 × 2160) DP × 1
Power supply and consumption	DC 12V (3-pin terminal block), 50W
Dimensions	W84 × D102 × H54.7 mm
Gross weight	0.3 kg
Operating / storage temperature	-20 °C ~ +50 °C / -40 °C ~ +85 °C
Storage humidity	10% ~ 90% (non-condensing)
Certification	CE/ FCC Class A, according to EN 55032 & EN55035, MIL-STD-810G, Method 514.7, Category 4 MIL-STD-810G, Method 516.7, Procedure I (Shock)
Designed for installation	traffic control cabinet / outdoor cabinet / DIN rail

Video analytics

Video analytic engine	exact object traces, 14 categories, in-built ALPR for LP with alphanumeric characters (EU, USA, UK, RUS), traffic light state recognition, dynamic and static anonymization, georegistration, detection masks
Processing power in FPS (B/B+A/B+LP/B+LP+A)	@544x320: 151/112/64/58; @704x419: 100/83/53/48 (B = basic detection, A = add-ons img. processing modules, LP = license plate recognition)
Camera support	IP cameras with H.264 or H.265 codec and RTSP or ONVIF cameras / capable of processing at least 6 camera streams in the real time / supporting narrow and wide angle cameras and cameras with motorized lens / detection range up to 120 meters

Traffic analytics

Multifunctional engine	fully configurable trajectory processing pipeline via visual programming language FLOW / ability to evaluate multiple detection tasks in parallel (100+)
Available filters	zone, gate, movement, duration, time of occurrence, class, LP, color (without a limit on the number)
Other operators	level or services, union, intersection, complement, volume
Data statistics	incremental / whole history, time blocks, floating window, fixed interval
Outputs	events, actions / commands, statistics, tables, histograms, images
Possible tasks	presence detection, u-turn detection, blocking vehicle detection, red light violation, average speed, detection of specific traffic events, OD matrix, conflict detection, traffic data collection

Interfaces

Data interfaces	UDP, REST, WEBHOOK, MJPEG, XProtect (VMS-Milestone), MJPEG
HW interfaces	support for IO expanders (relay outputs), SDLC expanders, V2X RSUs
Visual	fully configurable dashboards with interactive widgets

Accessories

- SDLC expander - 64 channels
- IO expander - 4/8/16 relays
- M.2 2280 M key x 1 for NVMe SSD
- M.2 3052 or 3042 B key x 1 for 5G or 4G
- M.2 2030 E key x 1 for WiFi/BT module
- V2X RSU

Other features

- NTP time synchronization
- User management - admin, analyst, viewer
- Remote updates - over-the-air
- Data reduction profiles for remote configuration

Packing List

- TrafficXRoads unit x 1 with DIN rail kit
- Power harness cable x 1

All specifications are subject to change without notice.

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