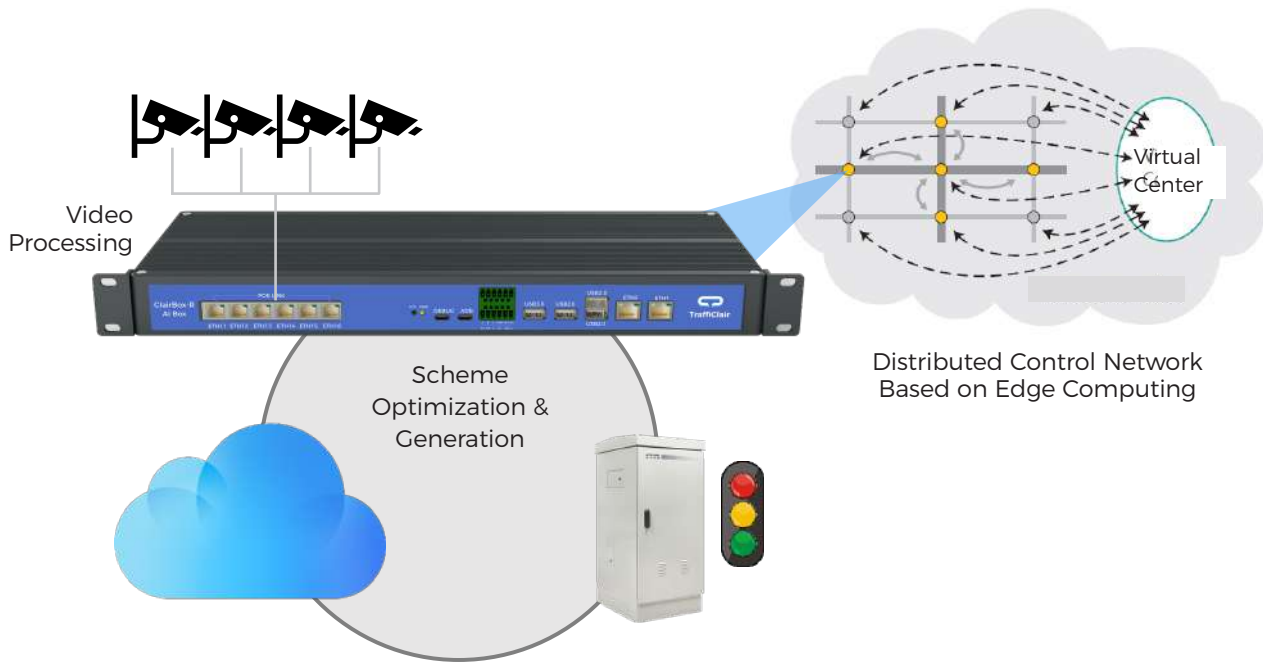


ClairBox-R AI Box

Traffic AI Box with AI Video Processing and Signal Optimization



Overview

ClairBox-R AI Box represents the pinnacle of intelligent video recognition devices tailored for traffic applications. Powered by cutting-edge AI technology and boasting formidable video processing capabilities, AI Box excels in real-time capture and analysis of video content. Its core strength lies in its deep learning algorithms, endowing the device with human-like understanding and recognition abilities, accurately identifying shapes of road users and environmental features. With millisecond-level processing speed, it achieves high accuracy vehicle detection, road user classification, and event identification, revolutionizing traffic detection.

Beyond its prowess in video recognition, AI Box serves as a signal algorithm generation hub, streamlining signal optimization processes by providing split, cycle, offset optimization, and scheme generation based on real-time traffic data. Its expanded software functionalities enable green wave generation, special vehicle pre-emption, traffic signal performance evaluation, incident alert, and touchless pedestrian button activation. By fostering distributed computing among AI Boxes across different intersections, it autonomously generates region-based signal optimization solutions, achieving optimal control effects with minimal human intervention.

In essence, ClairBox-R AI Box seamlessly integrates traffic video detection with signal optimization, paving the way for smarter cities and safer travels.

Key Features

- Integrated with Gigabit PoE switch support up to 6 standard or existing PoE cameras.
- AI & neural network video processing for high accuracy vehicle detection, road user classification & event identification.
- Control optimization including split, cycle, offset optimization and scheme generation.
- Group intelligence based on distributed computing.
- Open protocol to any type of legacy controllers.

■ Specification

Hardware Specification		
Processor	NPU processor, 18 TOPS @ INT8	
Storage	RAM8GB, EMMC32G Extendable: SSD(M.2) hard disk *1 or SATA hard disk *1 Detection data storage: 365 days (without extended storage)	
Interface	6*Gigabit Ethernet PoE ports, 802.3af & 802.3at	
	USB debug port, USB ADB port for firmware upgrading	
	3*USB2.0, 1*USB3.0 ports for expanding all types of devices	
	2* Ethernet outputs	
Power Supply	90-264 VAC 50/60Hz	
Power Consumption	10W (without PoE), PoE 120W max	
Dimension	48.26cm * 16cm * 4.45cm	
Installation	Rack mounting	
IP Class	IP40	
Operating Temperature	-40 to 74°C (-40 to 165°F)	
Humidity	0-95% non-condensing	
Software Specifications		
AI Video Detection	Video Processing	Up to 32 * 1080P video stream @25fps
	Detection Objectives	1. Stop bar vehicle detection 2. Road user identification 3. Traffic event identification 4. Traffic data collection 5. HD video surveillance
	Traffic Data Output	1. Vehicle presence, traffic flow, occupancy, and road user identification 2. Identification targets include truck, car, motorbike, bicycle, pedestrian, light rail 3. Event identification like fog, smoke, illegal reversing on expressway, road congestion, vehicle abnormal driving event and accident detection
AI Signal Optimization	Control Scheme Optimization	Split, cycle, offset optimization.
	Control Scheme Generation	Full scheme generation
Expandable Modules		
Green wave generation	Coordinating the timing of traffic signals to allow a continuous flow of vehicles through a series of intersections.	
Special vehicle pre-emption	With the support of V2X module (both on sensor and box), vehicles with V2X OBU could get pre-emption signals.	
Traffic signal performance evaluation	Through the flow data collected by the sensors, the AI box can evaluate the efficiency of existing control scheme.	
Incident alert	Supported event identification include fog, fire, illegal reversing on expressway, road congestion, vehicle abnormal driving event and accident detection. Other events can be expanded per requirements.	
Touchless pedestrian button	Use ClairEye to monitor the pending pedestrians in the certain area and also the speed pedestrians walk cross the street, realize touchless pedestrian cross solutions.	