



TrafficClair Monthly Updates

2025.08

Kevin Gu

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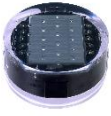
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AI Powered Smart Traffic Solutions

10,000+ installations

100+ intersections & counting

ClairSRS
Smart
Road Stud



ClairWay
Microwave
Radar
Detector



ClairEye
AI Video
Detector



ClairSaf
Road Safety
Warning
System



ClairLDR
LiDAR
Detector



Traffic
Lights



LED
Display



RT300
Signal
Controller



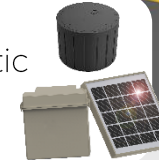
ClairBox
Edge Control Box



ClairLup
Inductive
Loop
Detector



ClairGeo
Geomagnetic
Vehicle
Detector



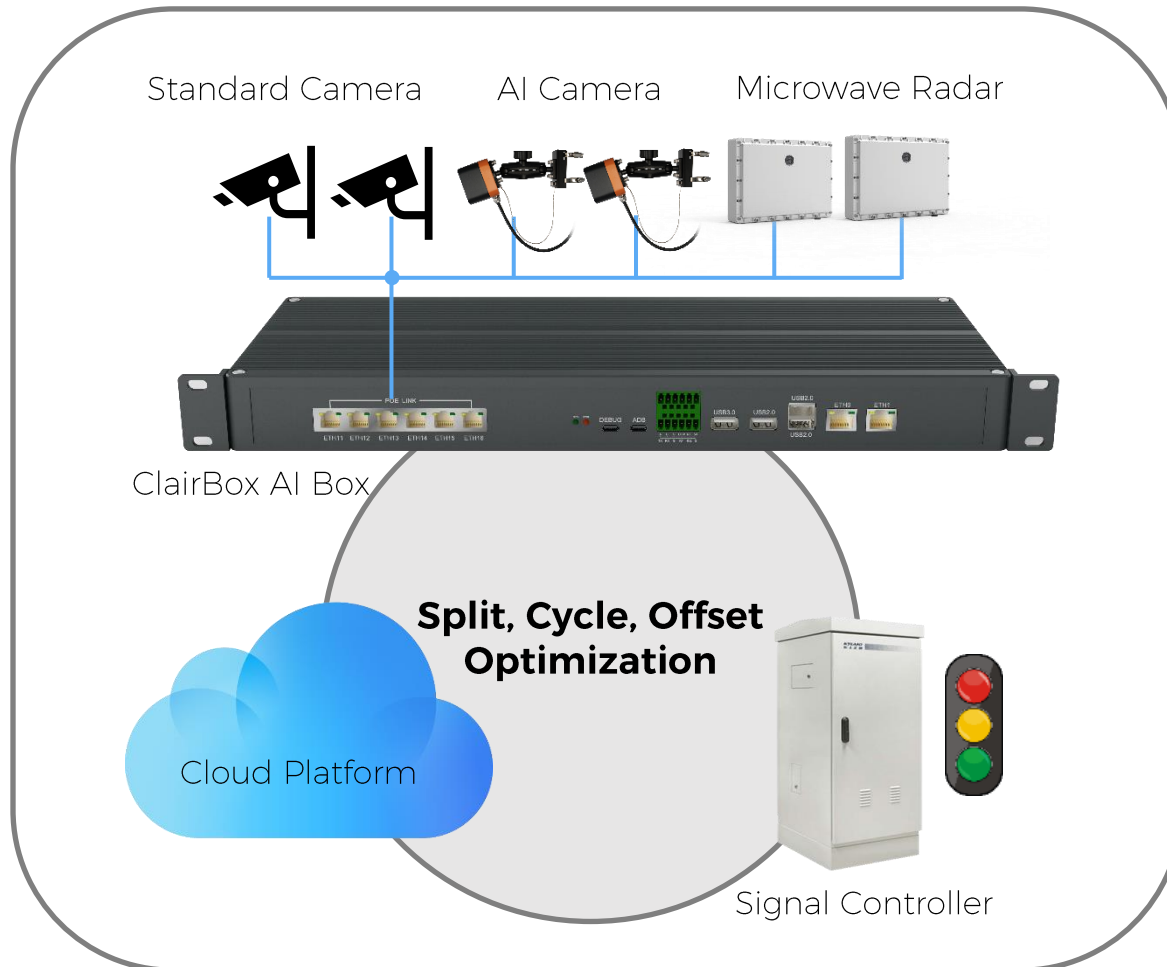
ClairPLC
PLC
Extender



7,000+ installations

150,000+ installations

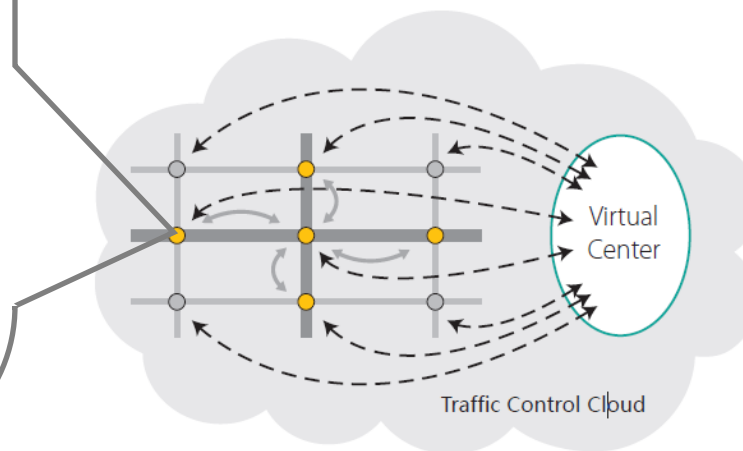
ClairBox Supports Integration of ClairWav Radar Family



We are excited to announce that ClairBox-R now supports integration with the ClairWav Radar family.

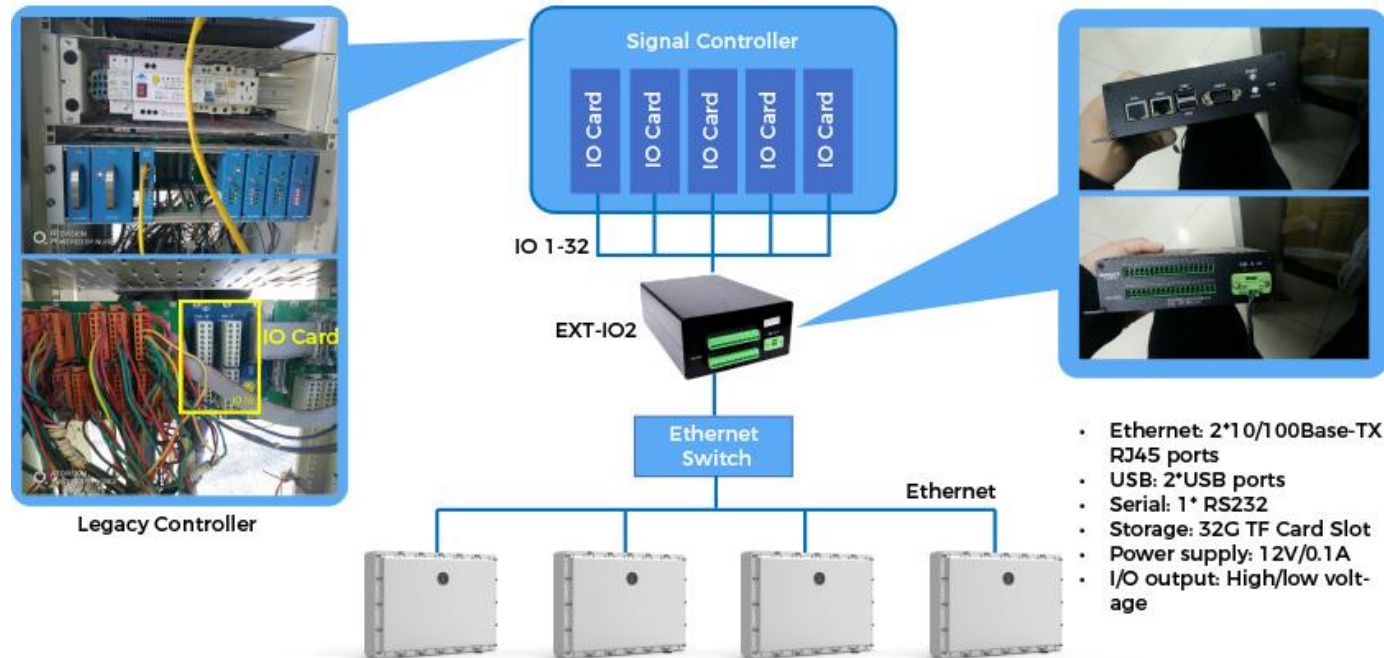
In addition to analyzing video streams from standard cameras, ClairBox-R can seamlessly incorporate detection data from both ClairEye AI camera and ClairWav radar systems, enabling the signal control brain to leverage richer and more comprehensive detection inputs for enhanced decision-making.

[Product Page](#)



EXT-IO2 for ClairWav Radar Family

Seamlessly Integration between Lagacy & Modern



Modernize Your Intersection, Protect Your Investment.

Your legacy traffic signal controllers are a critical part of your city's infrastructure. Upgrading to smart radar sensing shouldn't require a full, costly replacement.

The EXT-IO2 digital I/O interface box is designed specifically for this challenge. It allows your new ClairWav radar systems to communicate seamlessly with legacy controllers that require traditional IO inputs. By converting rich Ethernet data from up to 8 radars into simple contact closures, the EXT-IO2 bridges the gap between cutting-edge detection and existing hardware.

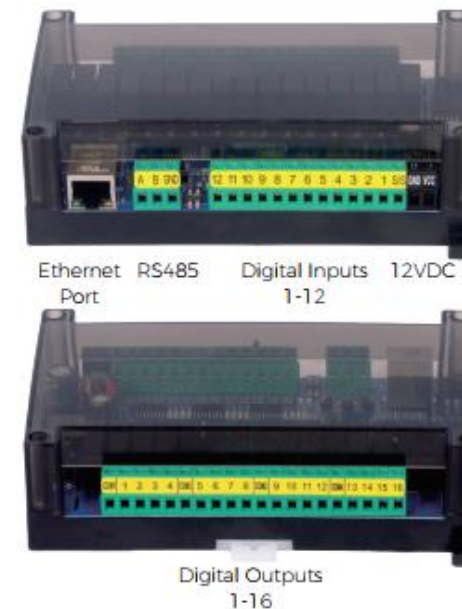
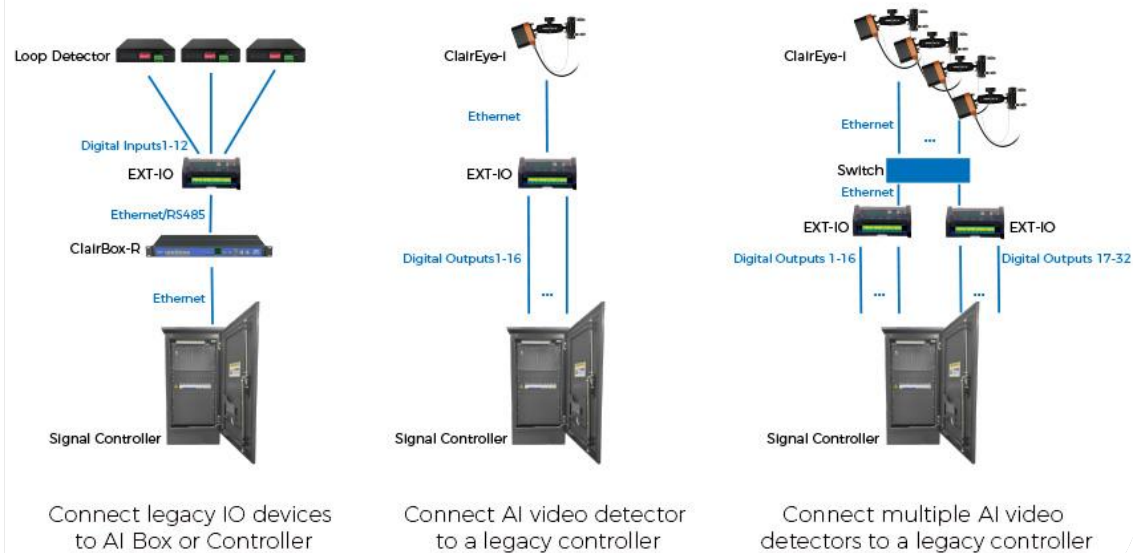
Unlock smart, data-driven traffic management without the high cost of a complete controller overhaul.

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EXT-IO for ClairEye & Others

Seamlessly Integration between Lagacy & Modern

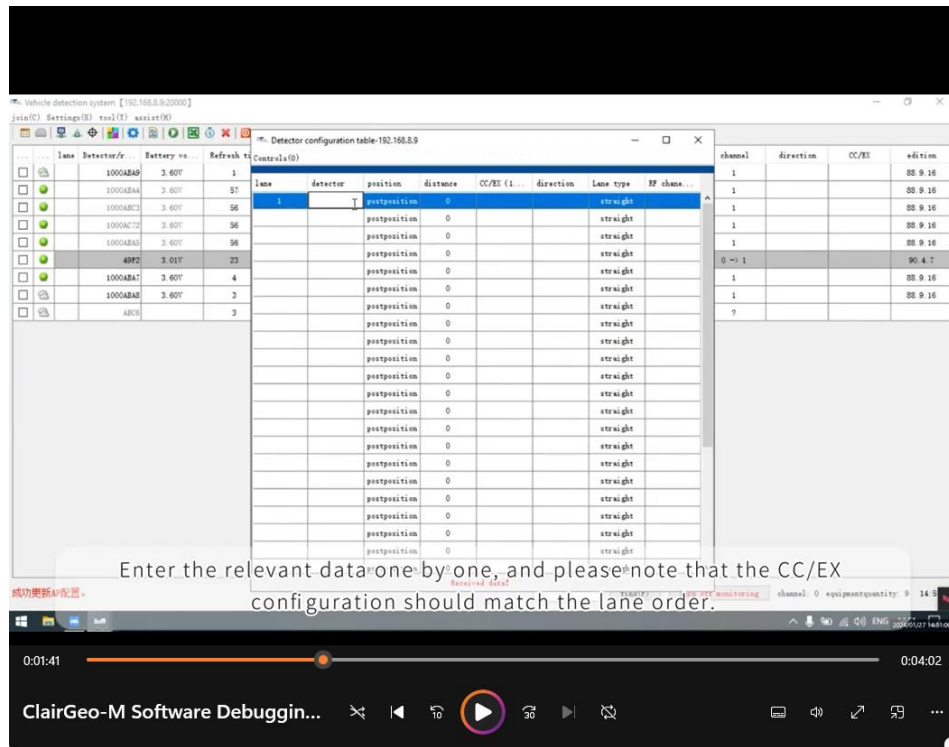
Application



[Product Page](#)

- **Interface Ethernet**
 - Port Type: 10/100Base-TX, RJ45
 - Supported Protocols: MODBUS TCP, TCP/IP
- **Interface RS485**
 - Interface Type: RS485 (Terminal Block)
 - Baud Rate: 9600 bps
 - Communication Format: Default 8 data bits, 1 stop bit, no parity
 - Transmission Distance: Up to 1200 meters (at 9600 baud rate for RS485 serial communication)
- **Digital Inputs**
 - Input Channels: 12
 - Voltage Level: 24VDC
- **Digital Outputs**
 - Output Channels: 16
 - Output Type: Relay (SPST-NO, Form A)
 - Max. Switching Capacity: 2A per point
 - Mechanical Isolation

ClairGeo-M Software Debugging Video Tutorial Guide



This video tutorial guide is about how to implement ClairGeo-M geomagnetic sensor, repeater, receiver and data processing center within the software tool **Vehicle Wireless Detection Management System** step by step.

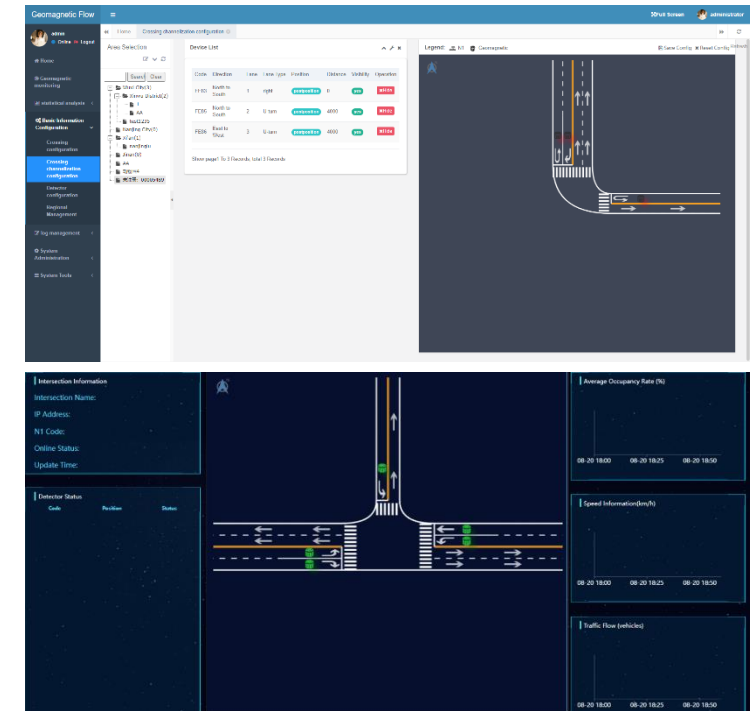
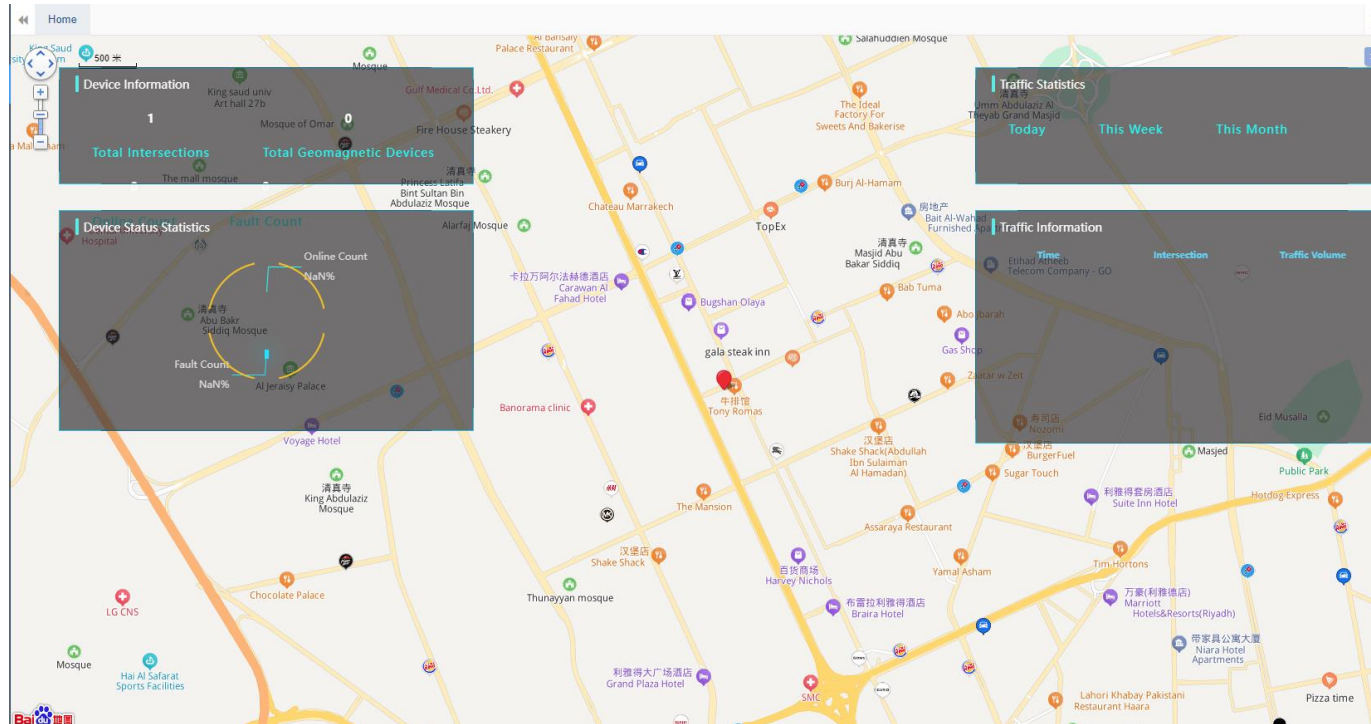
[Full Video on YouTube](#)

[ClairGeo-M Installation Guide](#)

[Vehicle Wireless Detection Management System](#)

[Product Page](#)

ClairGeo-MMGT Platform Software User Manual



[ClairGeo-MMGT Platform Software User Manual V1.0](#)

[Product Page](#)

Signal Controller : RT300

Intelligent Networked Coordinated Traffic Signal Controller

Key Features

- Intersection Traffic Signal Control
- Pedestrian Crossing Control for Road Sections
- Variable Lane Control
- Bus Priority Control
- Tidal Flow Lane Control
- Ramp Main Entrance Control
- Roundabout Traffic Control
- Expressway Merging/Dividing Control
- Tunnel Traffic Signal Control



Adaptive Signal Control

Internet Data Interface

**Intersection Facility
Power Distribution**

**Vehicle-to-Everything
(V2X) Cooperation**

**Traffic Sensing
Interface**

Video Services

Network Switching

**Remote Cabinet
Monitoring**

UPS Power Supply



Signal Controller : RT300

Intelligent Networked Coordinated Traffic Signal Controller

Control Channels	Supports up to 96 outputs (32 light groups)	Special Control	Supports remote manual control and special signal configurations.
Phase Control	Up to 32 phases	Short-Linked Intersection	Supports configuration for short-linked intersections for dual-intersection independent control.
Signal Group Outputs	Standard with 16 light groups, expandable to 32	Temporary Plans	Allows platform-based temporary preset plan configurations for dispatch and clearing.
Time-of-Day Scheduling	32 schedules with 128 time slots each	Variable Lane Control	Supports configurations for variable lanes, tidal lanes, and ramp control, operating independently of the main traffic light signals.
Pedestrian Crossing	Supports pedestrian crossing coordination and adaptive control	Waiting Areas	Waiting Areas Supports setting up waiting areas
Detection Control	Supports 32 logic detector inputs; up to 128 network protocol detectors (video, radar, geomagnetic sensors); allows dual-detector setup per lane.	Default Light Colors	Allows configuration of default light colors (all red, flashing yellow, lights off, flashing red) for unused phases and unassigned channels.
Manual Control	Offers manual control via side door switch, wireless remote, or remote control through upper-level systems for on-site management	Special Status	Allows special release light control for restrictions by time (e.g., all red, flashing yellow, lights off, flashing red).
Control Switching	Seamlessly switches between manual and automatic modes, ensuring minimum safety time with smooth signal transitions	Countdown Timer	Supports learning-based, pulse-based, and RS-485 communication-based countdown with configurable national standard protocol and baud rate.
Cable-Free Coordination	Enabled through GPS synchronization, setting phase offsets for coordinated control.	Time Synchronization	GPS synchronization, network synchronization with upper computer, and manual time setting.

Signal Controller : RT300

Intelligent Networked Coordinated Traffic Signal Controller

Phase Parameters	Independent phase parameter settings for each cycle and repeating phases	Voltage Monitoring	Supports input voltage monitoring (optional)
Signal Control Duration	Adjustable signal control duration	Automatic Maintenance	Supported
Automatic Phase Duration Allocation	Sets total cycle duration, with green time auto-allocated to phases based on green-to-signal ratio.	Control Switches	Includes main power switch, controller switch, yellow flasher switch, socket switch, 1 three-pin socket, 1 two-pin socket, lighting switch, and 4 spare switches.
Fault Monitoring	Green conflict monitoring and downgrade mechanism; signal failure downgrade with yellow flashing; fault information upload and query.	Power Input	One primary power input, one emergency power input (supports main-backup power switching).
Access Monitoring	Supports door access monitoring and reporting (optional).	Network Interfaces	Three 10/100M Ethernet ports (1 WAN, 2 LAN).
Network Control	Communicates with upper-level systems, supports temporary plans, and special duty tasks.	RS-232 Interfaces	4
Information Security	Includes identity authentication, control command validation, parameter update verification, and broadcast storm protection.	RS-485 Interfaces	4
Parameter Configuration	Configurable via PC client or remote server	TF Card Slot	1
Lighting System	Supports lighting linked with door access	GPS Interface	One, includes standard GPS antenna.

Software

Cloud-based Traffic Management Platform

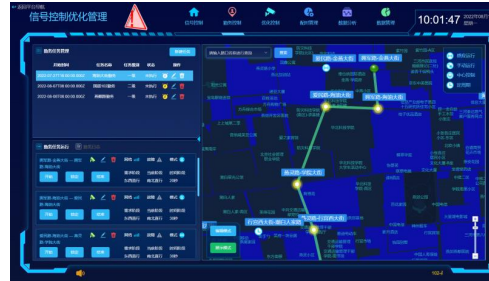


The Cloud Traffic Management and Control Platform, spearheaded by technologies such as big data and cloud computing, integrates a multitude of functions including intelligence analysis, command and dispatch, investigation and surveillance, traffic information dissemination, intelligent analysis of violations, supervision of duty enforcement, optimization of signal control, and special task protection. It achieves the consolidation and sharing of traffic information resources, enables rapid analysis and decision-making, and facilitates streamlined command and dispatch. This platform visualizes traffic command, digitizes management, and promotes the sharing of information, thereby enhancing the capabilities and service levels of road traffic management.

Software

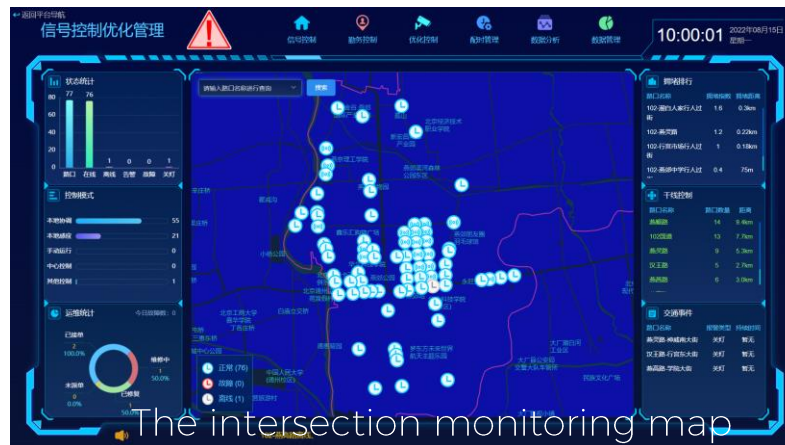
Central Control System

- The integrated traffic flow monitoring system,
- The integrated traffic signal control system,
- The integrated video surveillance system,
- The integrated guidance and traffic information service system,
- The control effectiveness evaluation and decision support system,
- Multi-system service sharing and coordinated control system,
- The duty control system,
- Real-time fault alarm and historical fault analysis,
- Traffic equipment and facilities operation and maintenance management,
- Internet traffic data access,
- 5G private network and vehicle-road coordination.



Software

Traffic Platform Display



Software

Traffic Data Analysis and Control Effectiveness Analysis



Vehicle Arrival Characteristics Distribution Analysis



Phase saturation analysis



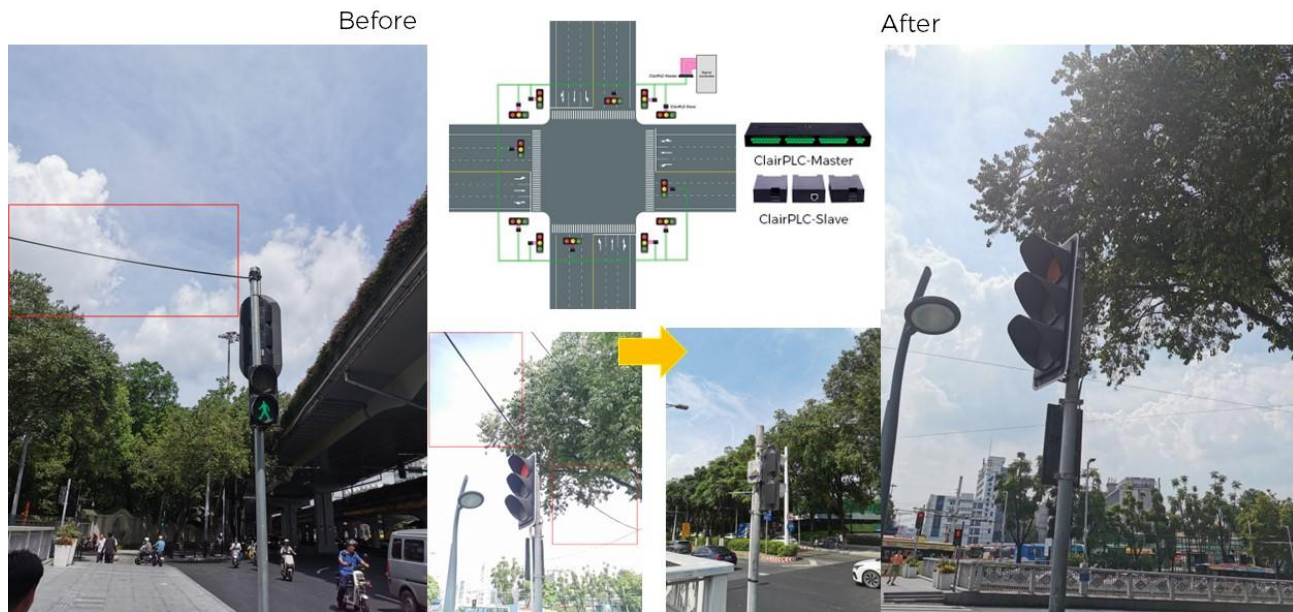
Intersection traffic turning ratio analysis



Sub-area control effectiveness analysis and evaluation

ClairPLC Case Study 1

Guangzhou's "Black Tech" Triumph: Overhead Wires Vanish at Key Intersection!



In Guangzhou's historic Yuexiu District, the iconic banyan trees and arcades tell stories of the past—but so do the tangled overhead cables, long a headache for urban aesthetics and safety. With limited underground space, new traffic signals often relied on these "spider webs," especially at the busy Dabei Overpass intersection (Jiefang North Rd. & Huanshi Middle Rd.).

This crucial hub connects major east-west and north-south routes, serving heavy pedestrian, bike, and vehicle traffic near Yuexiu Park (a 4A-grade scenic spot) and shopping districts. Adding bike signals seemed impossible without more overhead clutter—until ClairPLC's two-wire solution came in.

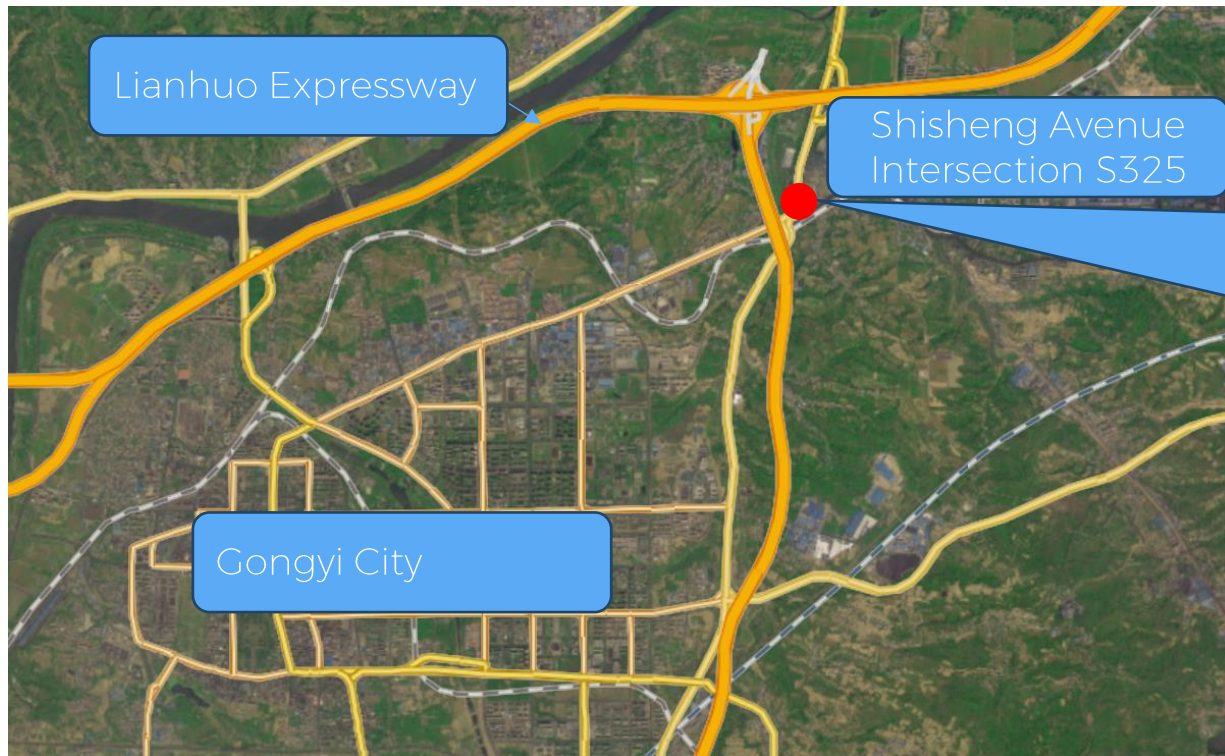
By transmitting signal data through existing power lines (no extra cables or road digging!), the tech cleared the skies, boosting safety and visual appeal. A win for smart cities!

[Detail Story](#) [Product Page](#)

ClairPLC Case Study 2

ClairPLC solves critical cable faults at Gongyi's key intersections while traditional repairs were impossible.

1. The Shisheng Avenue-S235 intersection is Gongyi's northern gateway, linking the Lianhuo Expressway to the city. It has heavy traffic, particularly large trucks, with the east-west direction being the busiest. **Reliable traffic signal operation here is critical for safety.**



[Detail Story](#)
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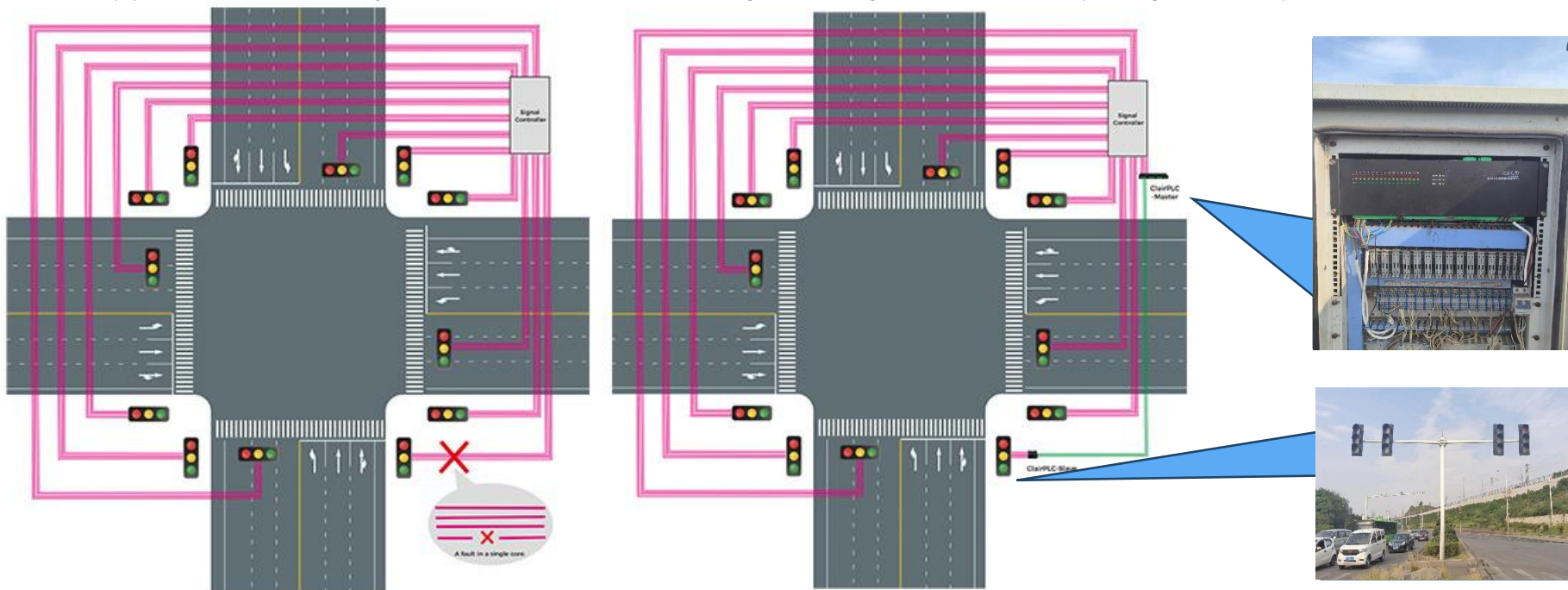
2. The Shisheng Avenue-S325 intersection has two closely spaced crossings controlled by one signal controller, with a bridge in between. **The signal cables were badly damaged during the 7.20 Zhengzhou floods and could not be fixed, causing failures in multiple traffic lights and disrupting signal control.**

Solution

The Gongyi Traffic Management Department upgraded the intersection's traditional wired signal system to an PLC (Power Line Communication) solution using ClairPLC Extender. By repurposing two intact wires from the existing bundled cables for both power and data transmission, they installed:

1. A ClairPLC-Master at the signal controller to encode control signals.
2. ClairPLC-Slave units at each signal light to decode the commands.

This approach successfully restored all malfunctioning traffic lights without requiring cable replacement.



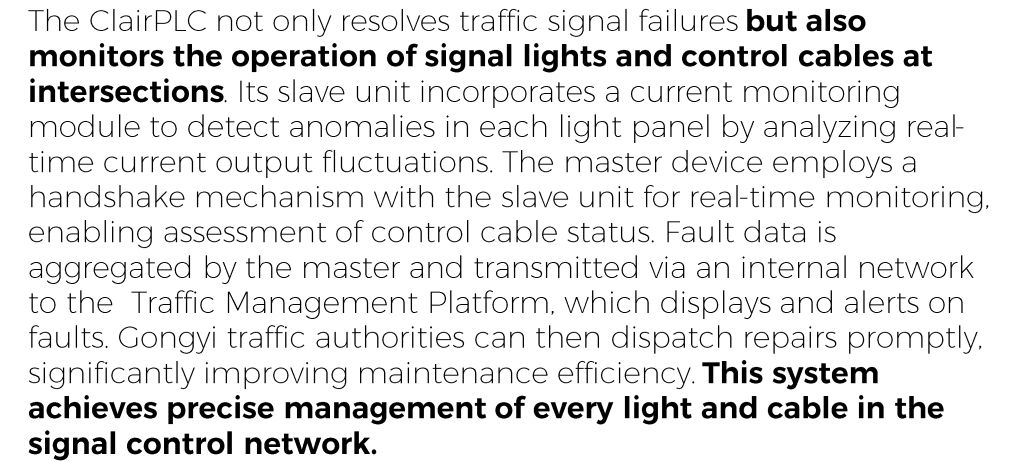
Fault in the cable

Fixed by PLC

Key Points:

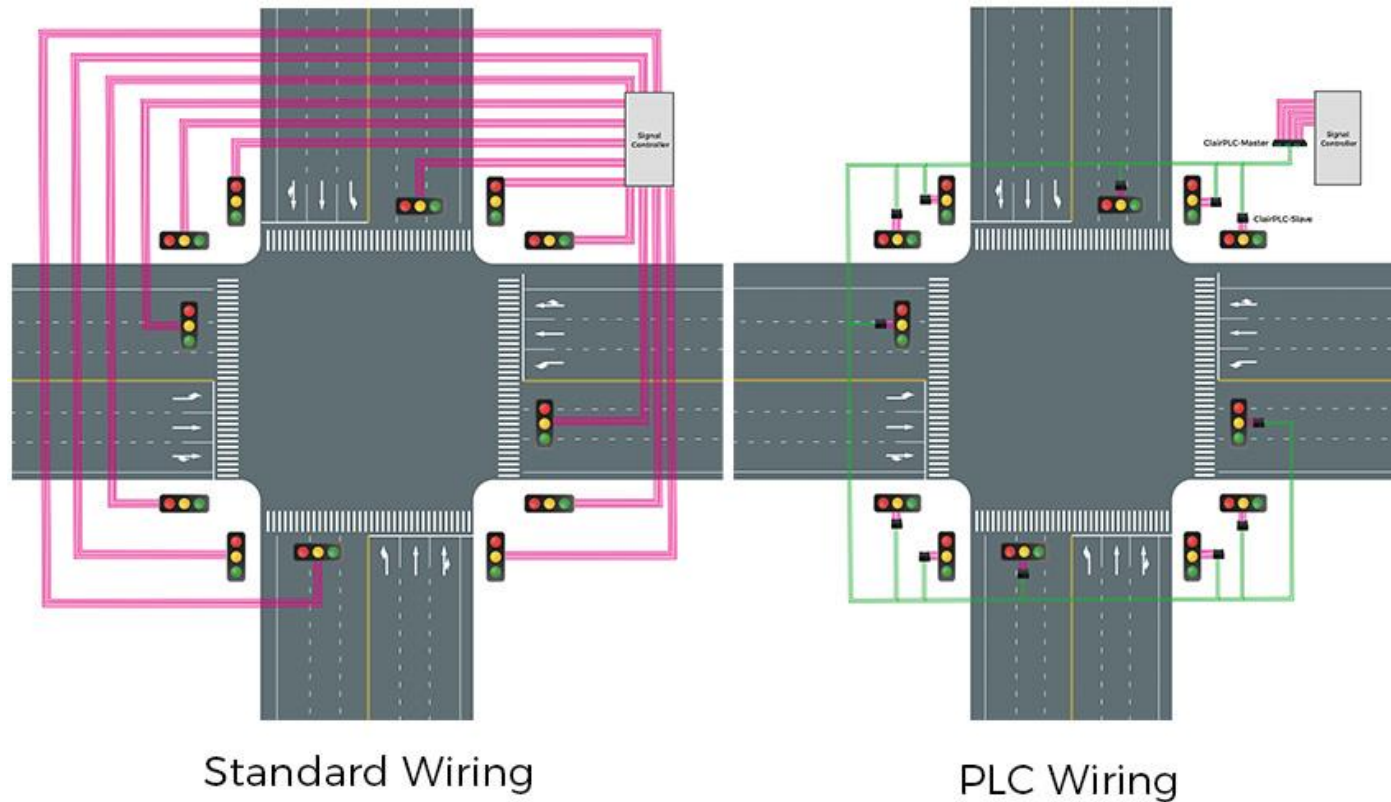
- Replaced traditional wiring with ClairPLC technology
- Utilized existing undamaged cables for dual power/data transmission.
- Deployed master/slave units to encode/decode signals.
- Fully repaired signal lights despite infrastructure constraints.

[Detail Story](#) [Product Page](#)



- Multi-Functional Solution – Resolves traffic signal faults while monitoring signal lights and control cables in real time.
- Current Monitoring – The slave unit detects light panel abnormalities by tracking real-time current fluctuations.
- Cable Status Detection – The host uses a handshake mechanism with slave units to assess control cable conditions.
- Smart Platform Integration – Fault data is aggregated and sent to the Smart Traffic Management Platform for alerts and visualization.
- Efficient Maintenance – Enables quick dispatch of repair teams based on alerts, improving operational efficiency.
- Precision Management – Ensures granular control over every signal light and cable.

Power Line Communication



ClairPLC Power Line Communication Extenders simplify traffic signal systems by using High-speed Power Line Communication (HPLC) technology to control lights over two-core power lines.

1. All signal lights are connected in series using two-core cables, enabling individual control output for each light.
2. By transforming the signal cable wiring from a radial layout to a bus-type layout, the system enables faster installation and significantly reduces cable usage. Reducing cabling costs by 70% and shortening installation time by 25%.
3. Achieves individual control of each light, previously only possible with a radial wiring structure (star topology).

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ClairPLC Case Study 3

The Traffic Lights That Heal Themselves: A Tech Revolution in Yiyang



TraffiClair PLC Extender Solution revolutionizes traditional traffic light maintenance by enabling simultaneous power delivery and data communication through a two-core power cable. This system not only resolves signal failures efficiently, but also continuously monitors the operational status of each signal light and its connecting cables—effectively equipping the infrastructure with a “digital nervous system”.

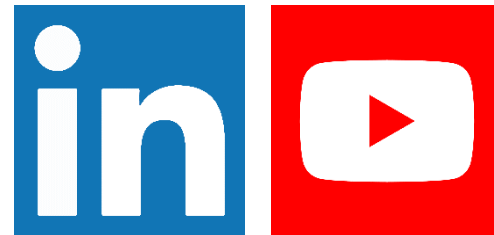
Without interfering with existing signal transmission, the solution transforms every traffic light into a smart IoT device. It collects real-time key parameters such as current and voltage from individual lamp assemblies, automatically analyzes equipment health, and accurately pinpoints abnormalities. Once a fault is detected, the system transmits diagnostic data via the power line to a gateway unit in the control cabinet, which then instantly reports the issue to the management platform.

This shift to proactive sensing and maintenance marks a dramatic departure from conventional reactive repair models. It upgrades urban traffic signal systems from being “passively reported” to “actively self-monitoring”—ensuring faster response, minimal downtime, and smoother city traffic flow.

[Detail Story](#) [Product Page](#)

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Thanks

sales@trafficclair.com

