



TrafficClair Monthly Updates

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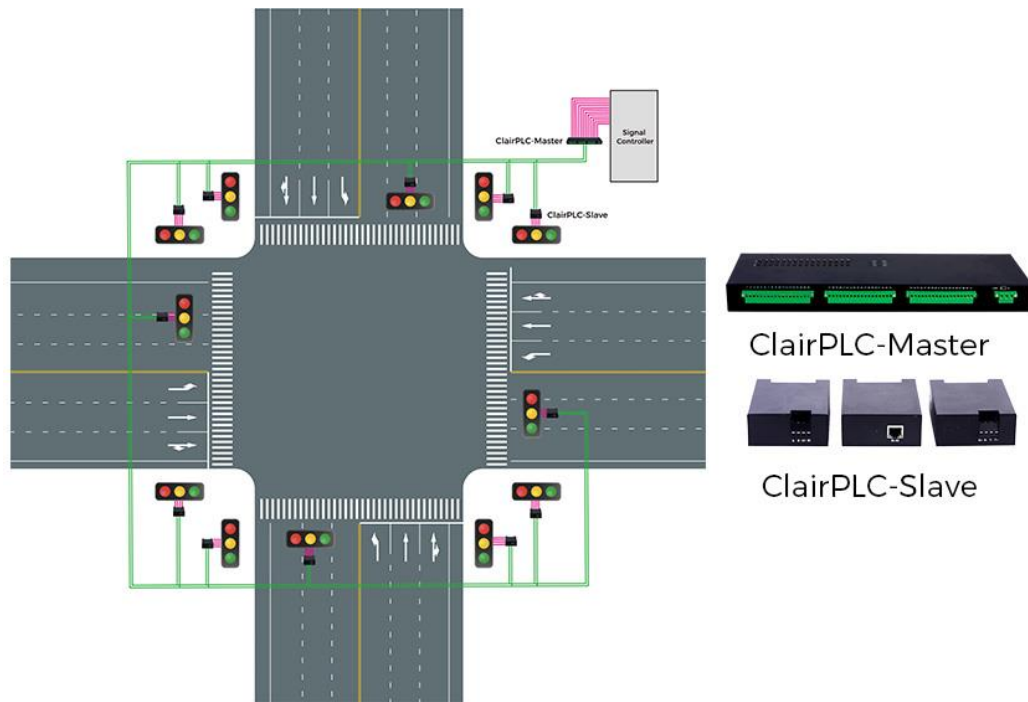
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ClairPLC Overview

Saving 70% on wiring effort with power line communication solutions



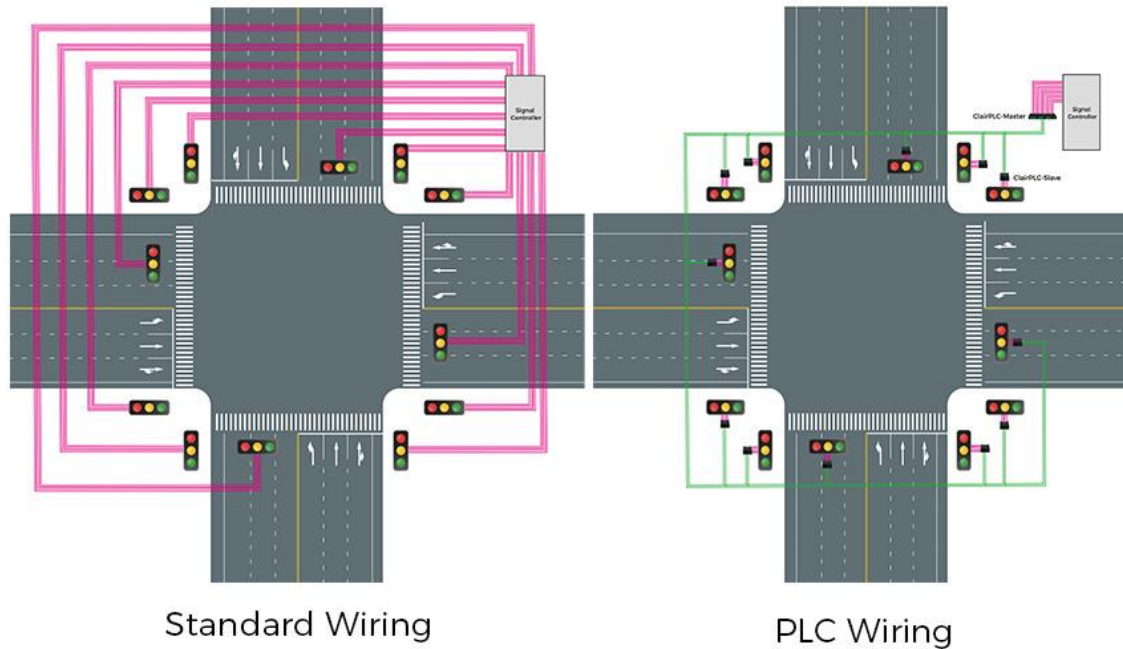
ClairPLC Power Line Communication Extenders utilize High-speed Power Line Communication (HPLC) technology combined with IoT capabilities to transmit traffic signal control signals and monitor their status over two-core power lines. This upgrades traditional star topology power line signal control systems into intelligent bus-network-based control solutions, significantly reducing cabling costs by 70% and shortening installation time by 25%. For older systems where trenching and conduit installation are not feasible, this solution enables the expansion of lighting and equipment without additional cabling.

- Reduced Cabling and Construction Costs
- High Security and Reliability with Dual Communication Redundancy
- Enhanced Scalability and Compatibility for Traffic Signal Systems

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ClairPLC Application Scenario 1

Streamlined bus wiring for signal lights with independent control



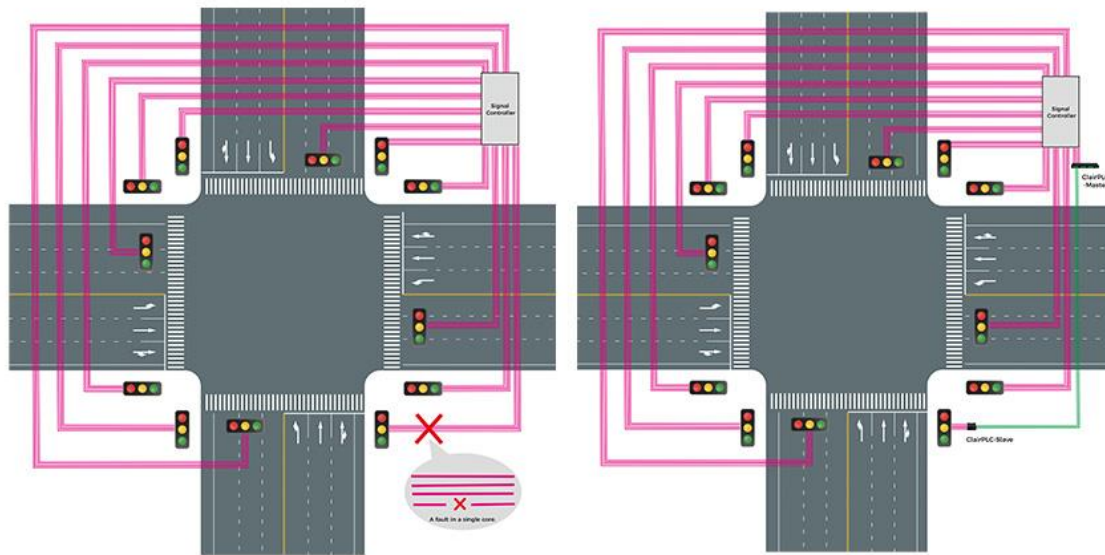
ClairPLC Power Line Communication Extenders simplify traffic signal systems by using High-speed Power Line Communication (HPLC) technology to control lights over two-core power lines.

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 Application Scenario 2

Quick repairs for signal light cable faults



Fault in the cable

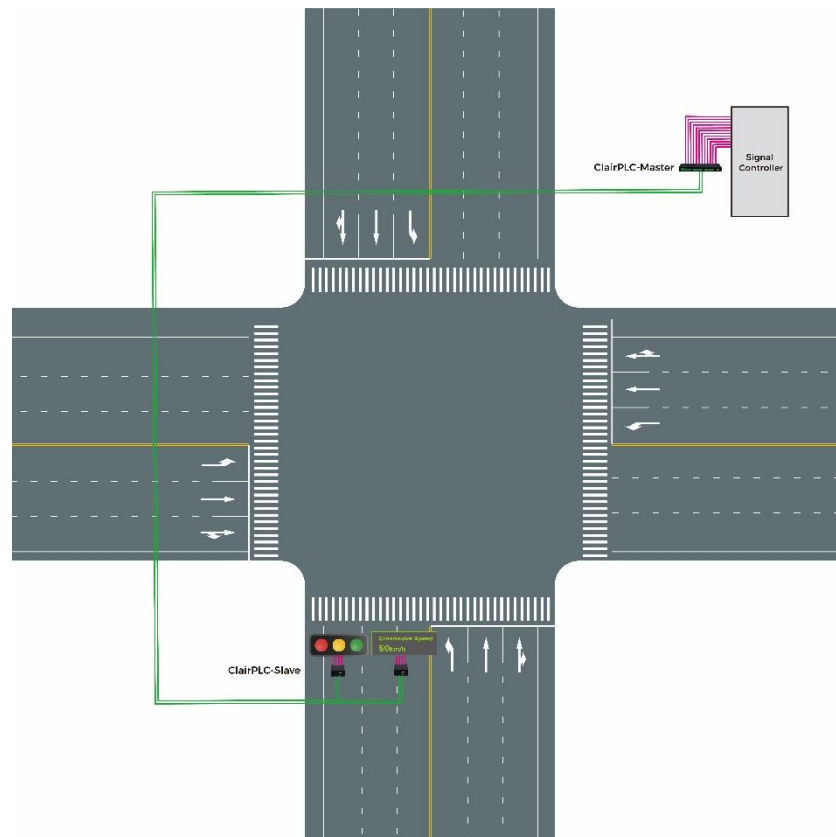
Fixed by PLC

Signal light faults at intersections often arise from specific issues, such as a single core failure causing individual light outages or conduit damage leading to multiple light failures. Traditional repair methods like temporary fly wiring, slot cutting for new cables, or re-excavation are time-consuming and disruptive. ClairPLC provides a seamless solution by leveraging existing cables for communication and control, enabling rapid fault resolution without the need for extensive infrastructure work. This approach ensures minimal downtime and cost-effective repairs.

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ClairPLC Application Scenario 3

Reusing existing signal light cables enables data transmission



By utilizing the two-core cables from the original power supply lines as data communication lines, and adding an ClairPLC-Master unit along with two slave units, the system can parse and identify the corresponding signals of the signal lights. This enables individual control of the green light for straight-through traffic and the collection and publishing of the signal status for green wave control. This method significantly expands the scalability of the signal control system and reduces the hassle of roadwork and construction.

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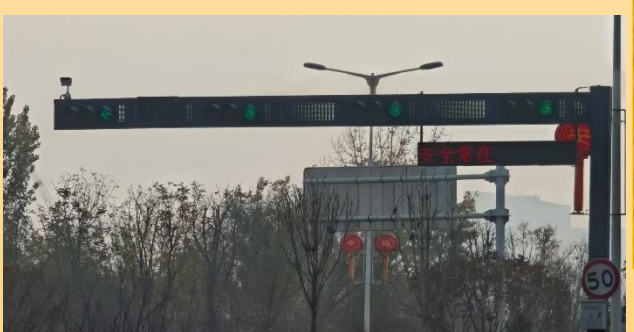


ClairPLC Case Study

Separating Left-Turn and Straight-Through Signal Lights Without Additional Wiring

Phase Splitting Demands





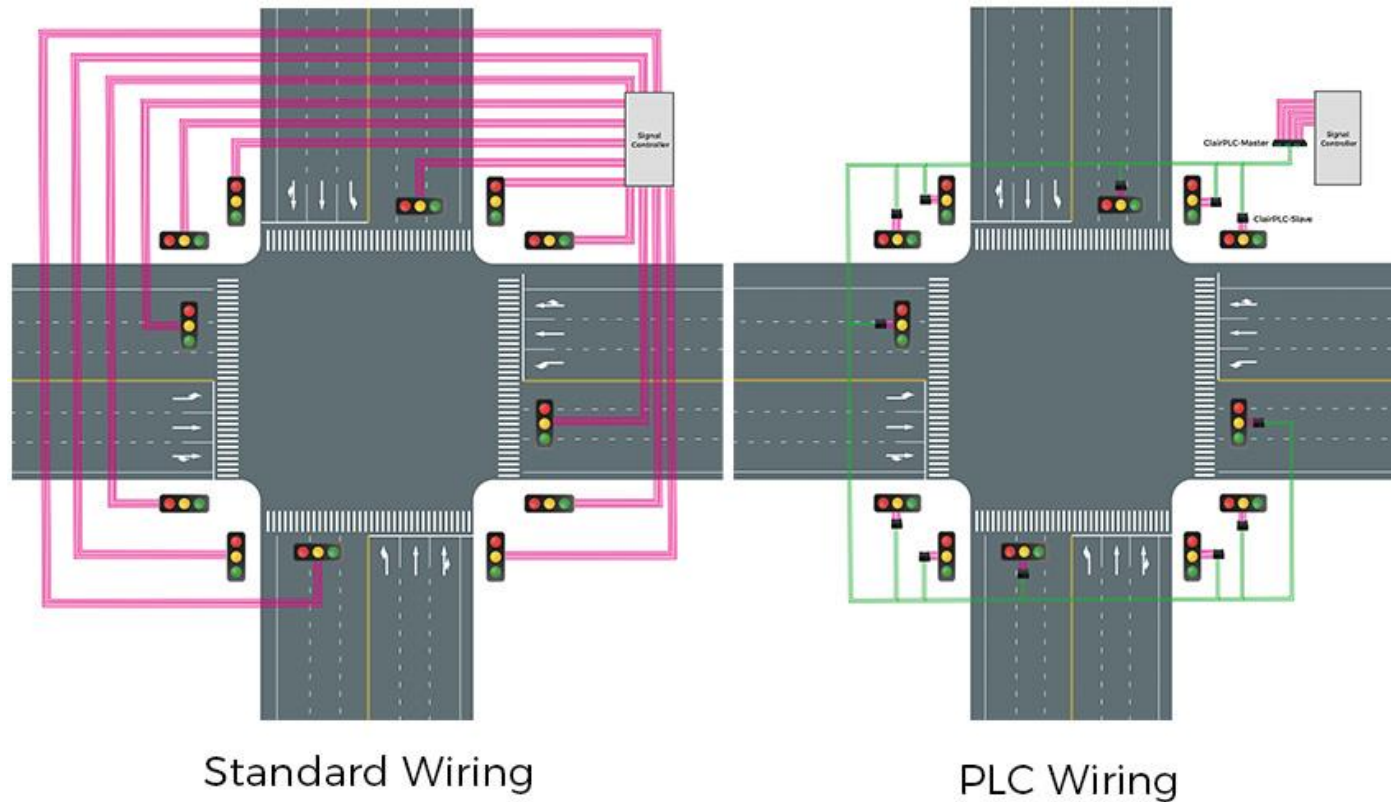
North-South Direction
Left-Turn and Straight-Through sharing the same phase for wire limitation



East-West Direction
Left-Turn and Straight-Through sharing the same phase for wire limitation

1. The intersection near Xi'an North Station and a local market experiences uneven traffic flow due to multiple nearby attractors, requiring phase optimization to address increasing directional traffic demands.
2. However, aging infrastructure prevents phase splitting without extensive road excavation and rewiring, leading to prolonged construction and significant traffic disruption.

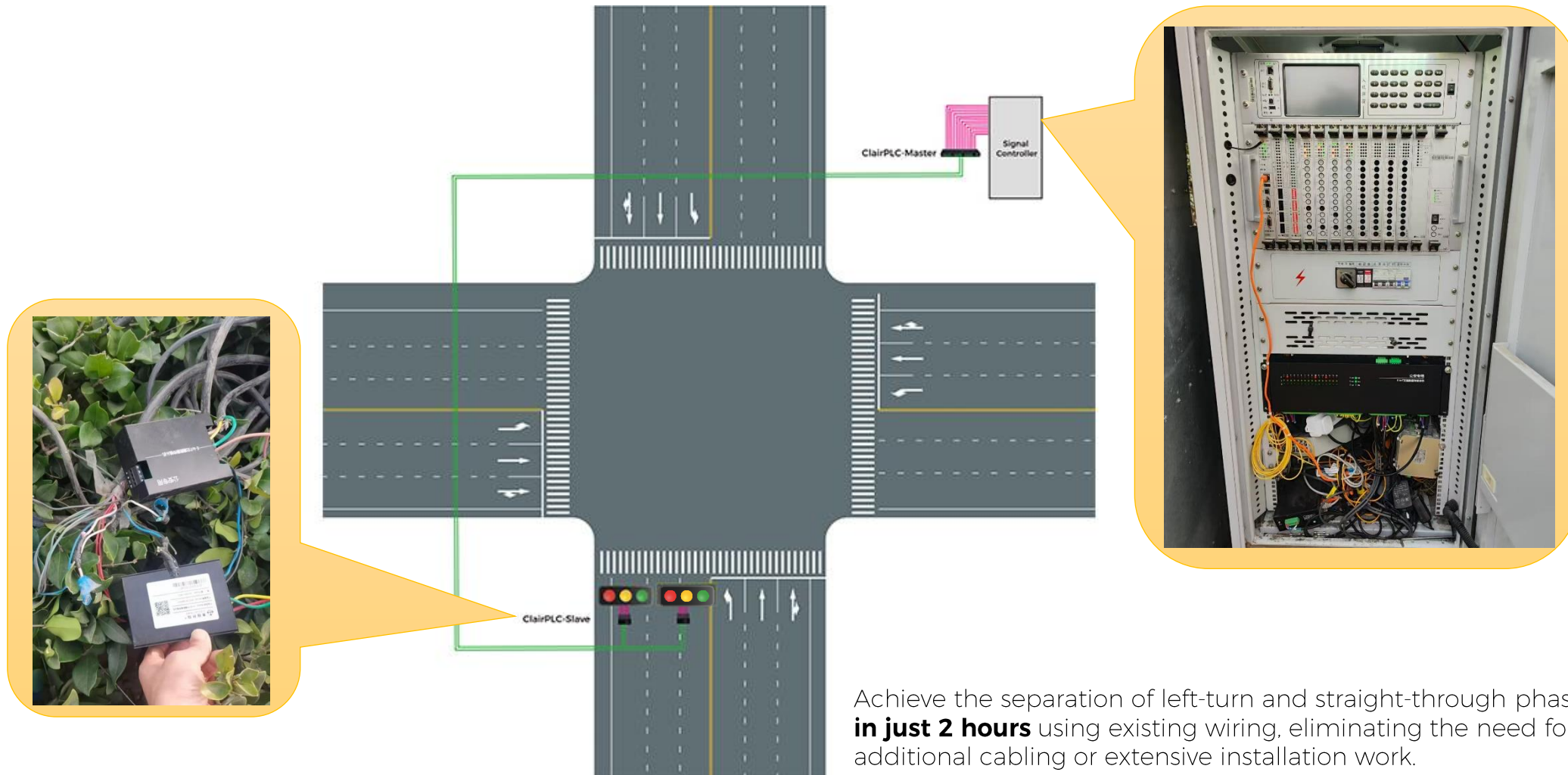
Power Line Communication



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ClairPLC Solution



Result

After Optimization



North-South



East-West

The traffic speed
at the intersection



5.17%

The congestion index



4.45%

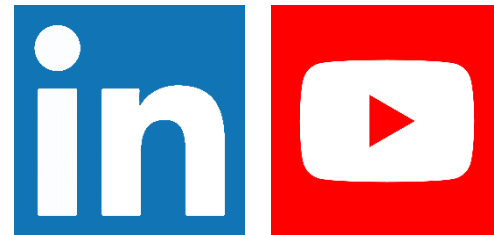
The intersection
throughput capacity



4.32%

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[202410](#), [202411](#), [202412](#), [all previous issues...](#)



Thanks

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