

# ClairLup-V8

## 8-Channel Inductive Loop Detector

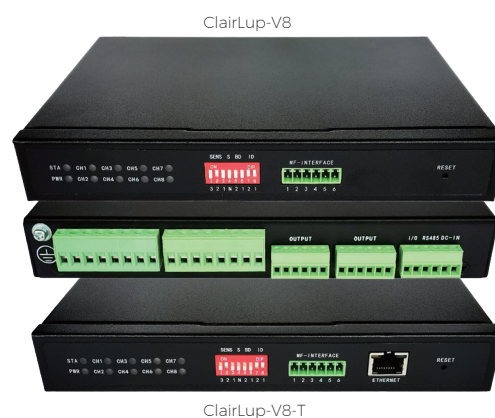


### Overview

The ClairLup-V8 8-channel vehicle detection loop detector utilizes a system architecture combining a 32-bit ARM core processor and an FPGA (Field-Programmable Gate Array). The core detection algorithm is implemented using pure hardware technology. The flexibility of ARM, coupled with the powerful processing capabilities of FPGA, makes the system highly responsive, accurate, resistant to interference, and flexible for expansion. It can be widely applied in various traffic-related systems, such as traffic flow monitoring, traffic enforcement, and security checkpoints, on urban roads, highways, bridges, tunnels, and other road segments.

### Key Features

- A single device supports the connection of 8 loop channels and allows for cascading multiple devices, providing flexible business expansion capabilities.
- It features an innovative polling + parallel detection mode that balances efficiency and resistance to interference. When devices are cascaded, the loops of different devices can effectively avoid interference.
- A response time of less than 5ms ensures real-time detection and measurement accuracy, fully supporting the use of traffic flow monitoring, electronic law enforcement, and security checkpoint systems.
- It rapidly and intelligently updates the background frequency, continuously tracking changes in environmental parameters.
- It supports advanced intelligent anti-lock algorithms, ensuring long-term, maintenance-free operation.
- Real-time display of passing vehicle waveforms allows for a detailed understanding of all vehicle passage details through the loops. This greatly facilitates on-site issue analysis and troubleshooting, making installation and environmental problems instantly apparent.
- It offers real-time loop fault detection and automatically restores normal operation after the fault is resolved.
- Supports loop open and short circuit detection, distinguishing loop fault types through fault indicator lights.
- The core detection unit uses pure hardware detection technology, ensuring stable and reliable operation.



## ■ Specification

| Model                                | ClairLup-V8                                                                                    |
|--------------------------------------|------------------------------------------------------------------------------------------------|
| <b>Processor</b>                     | 32-bit high-performance ARM                                                                    |
| <b>Coprocessor</b>                   | Highly powerful computational and processing-capable FPGA                                      |
| <b>Loop Connection</b>               | 8-channel loop input                                                                           |
| <b>Loop Protection</b>               | Supports TVS and transformer isolation                                                         |
| <b>I/O Output</b>                    | 8-channel solid-state relay outputs, configurable output modes                                 |
| <b>LED</b>                           | Bicolor indicator light, indicating loop and vehicle presence status                           |
| <b>Detection Mode</b>                | Polling & parallel detection mode                                                              |
| <b>Device Cascading</b>              | Supports multiple devices cascading, supports one master and multiple slave mode               |
| <b>Parameter Configuration</b>       | Flexibly configure various operational parameters of the vehicle detector through dip switches |
| <b>Fundamental Frequency Refresh</b> | Automatically update the reference frequency and track real-time environmental changes         |
| <b>Capture Rate</b>                  | ≥99.9%                                                                                         |
| <b>Vehicle Separation</b>            | Vehicle separation accuracy is ≥99% under normal driving conditions                            |
| <b>Fault Recovery</b>                | Real-time detection, automatic recovery after fault clearance                                  |
| <b>Auto-Tuning</b>                   | Supports automatic tuning function                                                             |
| <b>Response Time</b>                 | 5ms                                                                                            |
| <b>Oscillation Frequency</b>         | Supports 4-level frequency adjustment                                                          |
| <b>Baud Rate</b>                     | 9600, 38400, 57600, 115200                                                                     |
| <b>Loop Inductance</b>               | 10-2000μH                                                                                      |
| <b>Fault Detection</b>               | Supports loop open circuit and short circuit detection                                         |
| <b>Sensitivity Adjustment</b>        | 8-level adjustable (dip switch configuration)                                                  |
| <b>Communication Interface</b>       | 1 RS485 serial port.                                                                           |
| <b>Cascade Interface</b>             | Front panel reserved for a multifunctional interface, supports cascading                       |
| <b>Power Supply</b>                  | 12/24VDC, supports reverse polarity protection                                                 |
| <b>Power Consumption</b>             | 1.5W                                                                                           |
| <b>Operating Temperature</b>         | -40 to 70°C (-40 to 158°F)                                                                     |
| <b>Operating Humidity</b>            | 10-95%, (non-condensing)                                                                       |
| <b>Dimension</b>                     | W*D*H: 192*148*28 (mm), 7.56*5.83*1.10 (inches)                                                |
| <b>Weight</b>                        | 785g                                                                                           |

## ■ Ordering Information

**ClairLup-V8:** 8-channel inductive loop detector.

**ClairLup-V8-T:** 8-channel inductive loop detector, with one 10/100Base-T Ethernet port.