

ClairLup-V8F

8-Channel Flow Detection Inductive Loop Detector



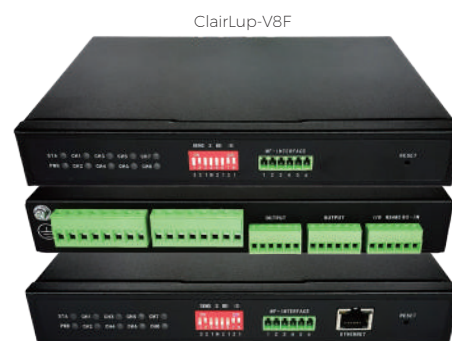
Overview

The ClairLup-V8F 8-channel flow detection loop detector utilizes a system architecture that combines a high-performance processor with an FPGA (Field-Programmable Gate Array). The core detection algorithm is implemented using pure hardware technology. The flexibility of ARM, combined with the powerful processing capabilities of FPGA, results in a system known for its quick response, high accuracy, strong resistance to interference, and flexible scalability.

The ClairLup-V8F supports comprehensive traffic flow data detection, including flow, occupancy, speed, inter-vehicle spacing, headway time, and the percentage of following vehicles. This system is widely applicable in traffic-related systems, such as traffic flow monitoring, traffic enforcement, and security checkpoints, on urban roads, highways, bridges, tunnels, and various other road segments.

Key Features

- A single device supports 8-channel loop connection and provides traffic flow statistics for 4 lanes.
- A unique combination of polling and parallel detection modes, balancing efficiency and resistance to interference.
- Response time of less than 3ms ensures real-time detection and measurement accuracy, fully supporting the use of traffic flow, electronic police, security checkpoint systems, and more.
- Quick and intelligent background frequency updates, tracking real-time changes in environmental parameters.
- Supports advanced intelligent anti-lock algorithms to ensure long-term maintenance-free operation.
- Supports real-time display of passing vehicle waveforms, allowing for a detailed understanding of all aspects of vehicles passing over the loops, greatly facilitating on-site issue analysis and identification,



making installation and environmental problems clear at a glance.

- Real-time loop fault detection, automatically restoring normal operation after fault resolution.
- Supports loop open and short circuit detection, enabling the differentiation of loop fault types through fault indicator lights.
- The core detection unit utilizes pure hardware detection technology, ensuring stable and reliable operation.

■ Specification

Model	ClairLup-V8F
Processor	32-bit high-performance ARM
Coprocessor	Highly powerful computational and processing-capable FPGA
Loop Connection	8-channel loop inputs
Loop Protection	Supports TVS and transformer isolation
I/O Output	8-channel solid-state relay outputs, configurable output modes
LED	Bicolor indicator light, indicating loop and vehicle presence status
Detection Mode	Polling & parallel detection mode
Device Cascading	Supports 2 devices cascading
Parameter Configuration	Flexibly configure various operational parameters of the vehicle detector through dip switches
Fundamental Frequency Refresh	Automatically update the reference frequency and track real-time environmental changes
Capture Rate	≥99.9%
Vehicle Separation	Vehicle separation accuracy is ≥99% under normal driving conditions
Fault Recovery	Real-time detection, automatic recovery after fault clearance
Auto-Tuning	Supports automatic tuning function
Response Time	3ms
Oscillation Frequency	Supports automatic adjustment
Baud Rate	9600, 38400, 57600, 115200
Loop Inductance	10-2000μH
Fault Detection	Supports loop open circuit and short circuit detection
Sensitivity Adjustment	8-level adjustable (dip switch configuration)
Real-Time Clock	Onboard high-precision RTC, supports system time synchronization
Communication Interface	1 RS485 serial port, and 1 expandable 10/100M Ethernet port
Traffic Flow Data	Vehicles per lane, range: 0 to 65535 Lane occupancy, range: 0% to 100% Average vehicle speed, range: 0 to 255 km/h Average inter-vehicle gap, range: 0 to 65535 meters Average headway time, range: 0 to 65535 seconds Percentage of following vehicles, range: 0% to 100%
Cascade Interface	Front panel reserved for a multifunctional interface, supports cascading
Power Supply	12/24VDC, supports reverse polarity protection
Power Consumption	4W
Operating Temperature	-40 to 70°C (-40 to 158°F)
Operating Humidity	10-95%, (non-condensing)
Dimension	W*D*H: 192*148*28(mm), 7.56*5.83*1.10(inches)
Weight	795g

■ Ordering Information

ClairLup-V8F: 8-channel flow detection version inductive loop detector.

ClairLup-V8F-T: 8-channel flow detection version inductive loop detector, with one 10/100Base-T Ethernet port.