File No：HURYS-J2610001

DTAM D09-V 50m Presence Detection Radar White Paper

Nanjing Hurys Intelligence Technology Co.,LTD

March 2026

Contents

1. Product Overview

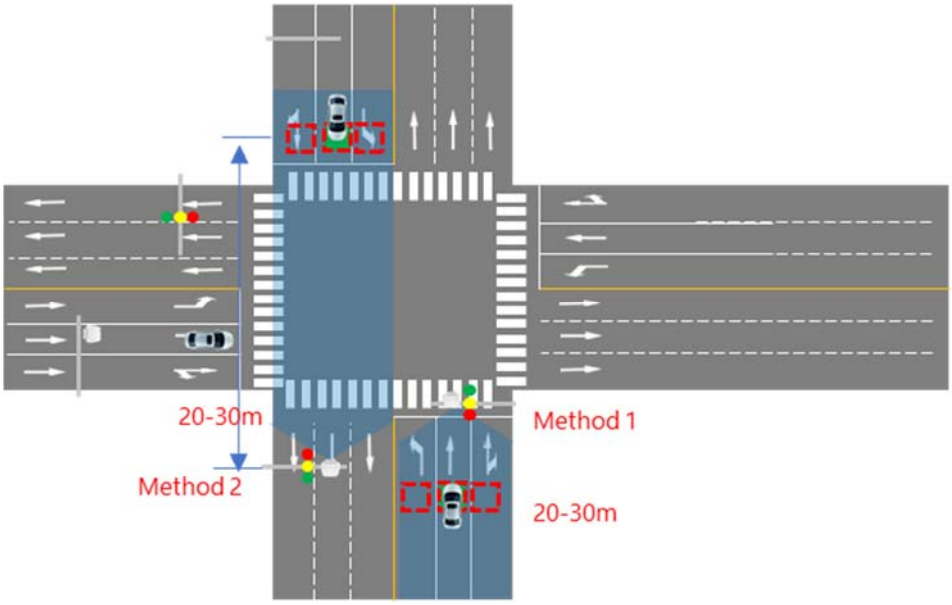
The DTAM D09-V multi-lane inductive radar detector is an intersection traffic flow detection device independently developed by our company. It features stable all-weather operation, radar-video fusion with a streamlined design, and highly adaptable sensing control. The product is installed using traffic light poles or electric police poles and supports vehicle detection in a single direction across 4 lanes within a 50-meter range. It provides real-time vehicle passage information, accurate traffic flow statistics, and efficiently integrates with intersection signal control systems. It has been widely and successfully applied in various traffic conditions and complex weather environments.

2. Product Features

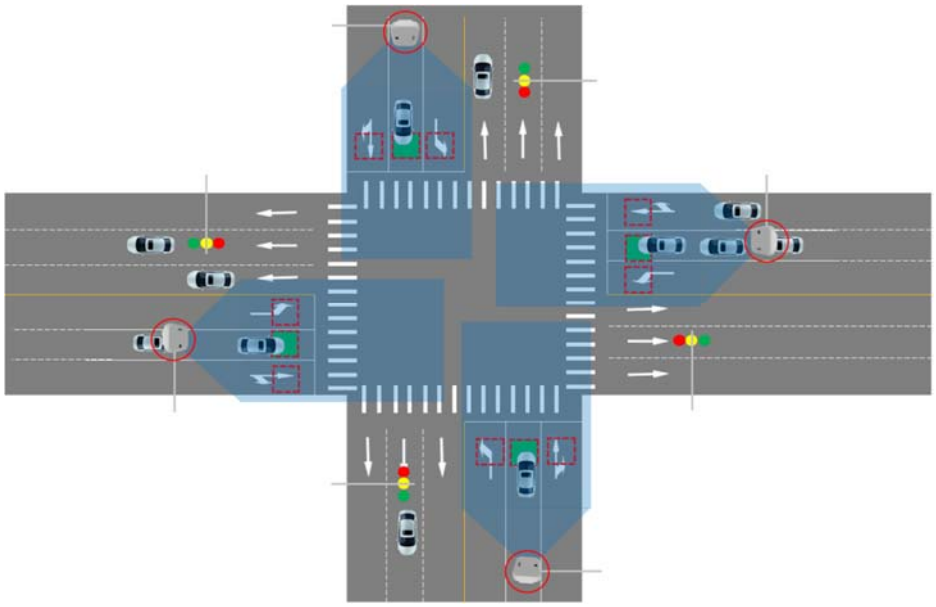
- The detector uses a two-dimensional active scanning array radar microwave detection technology, with microwave signals scanning at a frequency of about 17 times per second, reliably detecting dynamic or static targets on each lane of the road.
- It supports large-area detection, with the detection range in the direction of incoming vehicles reaching up to 50 meters, and can detect up to 4 lanes simultaneously.
- It can track and detect up to 32 targets at the same time.
- The detector adopts an integrated "radar + video" design, and the radar-video fusion algorithm enhances detection accuracy.

- The detector can detect the presence of vehicles passing through virtual coils on each lane and display departure signals when vehicles leave, while maintaining stable presence signals when vehicles are stationary.
- The detector can perform traffic statistics by lane or detection section, including traffic volume, average speed, time occupancy, headway, vehicle spacing, and 85th percentile speed.
- Detection accuracy: presence detection accuracy ≥ 95%; flow detection accuracy ≥ 95%; time occupancy accuracy ≥ 85%.
- The detector can detect both incoming and outgoing targets and can be easily installed using existing traffic light poles or electric police poles at a height of 6 to 8 meters, with an inclination of 14 to 18 degrees. The blind zone is about 20 meters.
- The detector has a scanning interval of 60ms, and the statistical cycle can be set within a range of 1 to 3600 seconds.
- Remote debugging and upgrading are convenient through the network.
- It can work stably in all weather conditions, including rain, snow, fog, haze, strong winds, freezing, hail, sandstorms, and other severe weather conditions.

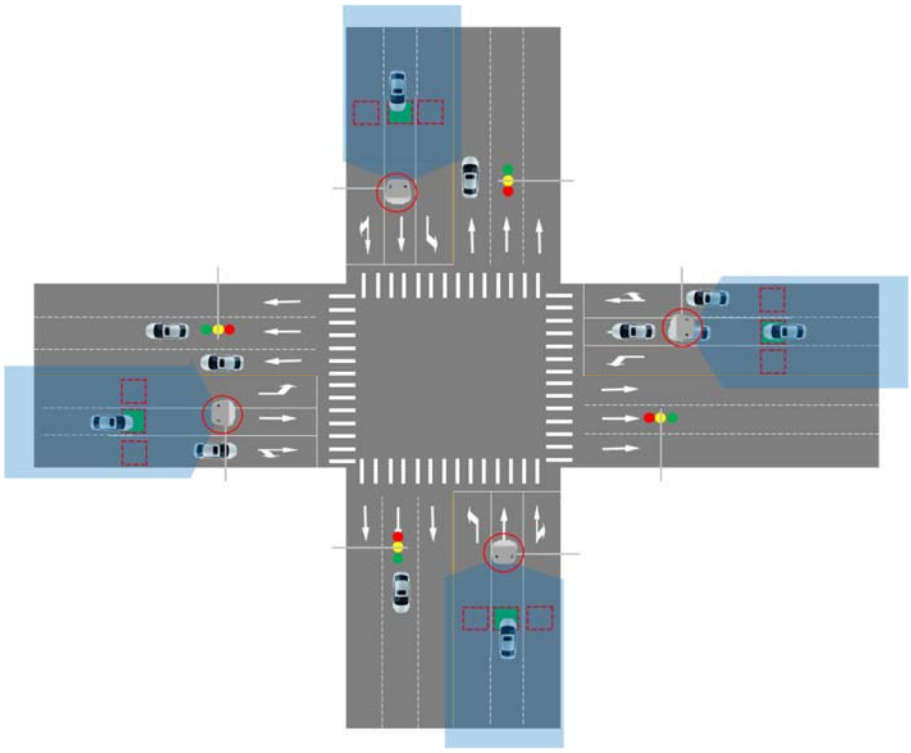
3. Installation Instructions



Triffic Light Poles Front Detection Mode Deployment Diagram



Electronic Police Pole Front Detection Mode Deployment Diagram



Electronic Police Pole Rear Detection Mode Deployment Diagram

The radar is installed on the electric police pole and is divided into two modes: detecting incoming vehicles and detecting outgoing vehicles.

4. Application Instructions

The D09-V, as a multi-lane inductive radar detector installed on intersection traffic light poles or electric police poles for vehicle presence detection, primarily functions by detecting traffic flow, presence time, and other presence information through virtual coils. This data is transmitted to the traffic signal controller, which processes the data and adjusts the signal timing accordingly, improving intersection traffic efficiency.

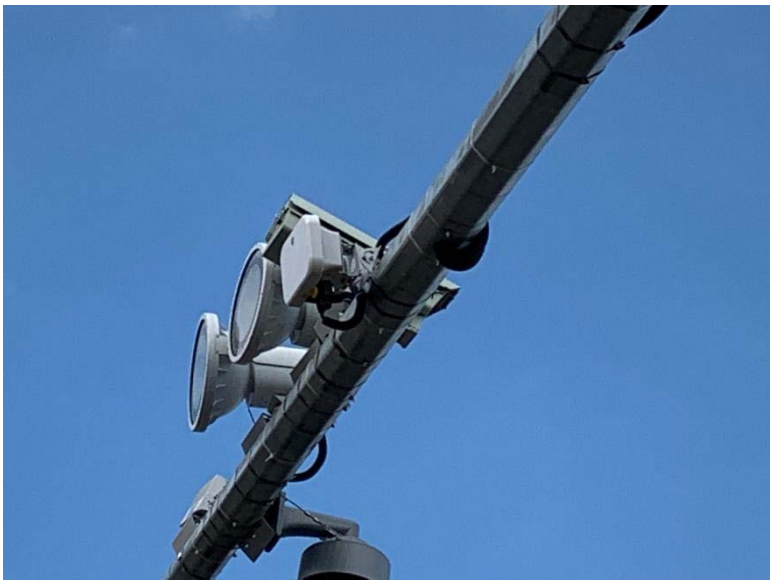
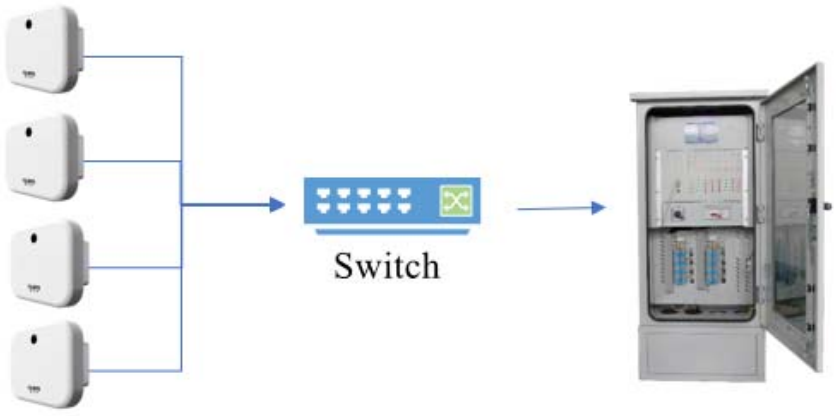


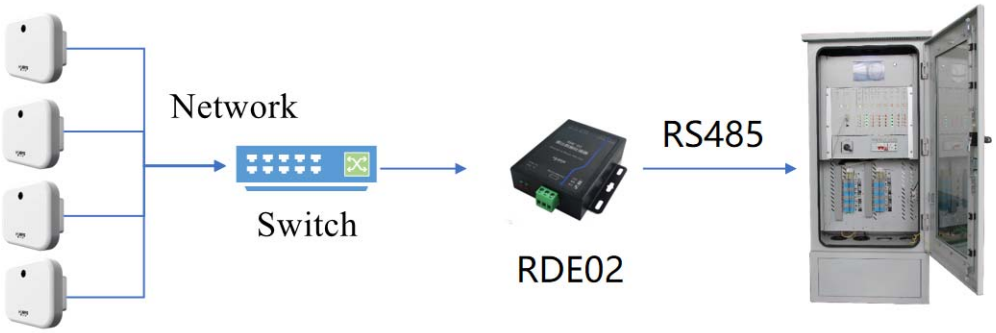
Table 1: Traffic Data Table

No	Data Categories	Data Contents
1	Pulse data	Presence state
2	Vehicle Passage Data	Entry/Exit Speed, Entry/Exit time, Occupancy Time
3	Statistical data	Traffic Volume, Average Speed, Time Occupancy Rate

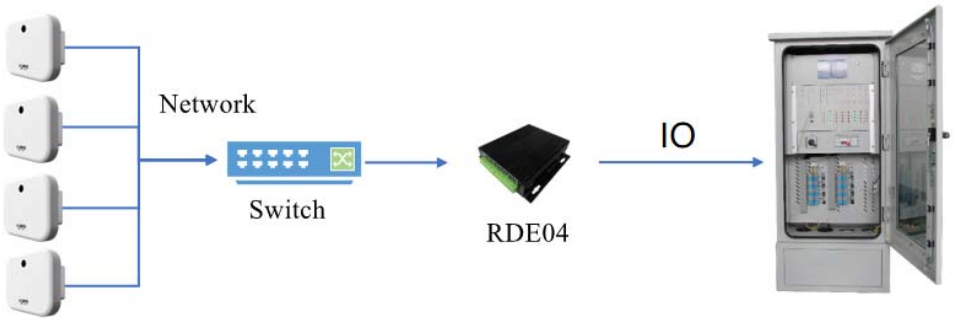
Attached: Typical cases of docking with intersection controller



Case #1: docking with intersection controller



Case #2: docking with intersection controller



Case #3: docking with intersection controller

5. Product Parameters

Table 2: Radar Parameters

No	Specifications	Parameters
1	Frequency Band	60GHz
2	Coverage	4 lanes in one direction
	Detection range	Longitudinal 50m
3	FOV	Horizontal Field of View: 60°; Vertical Field of View: 20° Radar Parameters
4	Detection speed	-80km/h～+80km/h
5	Simultaneous Detection	32
6	Max number of detection sections	1

Table 3: Video parameters

No	Specifications	Parameters
1	Sensor	1/2.5 inch CMOS
2	lens	6mm fixed focus lens
3	Pixel	2592*1944 px
4	Video FOV	±27°
5	Image format	JPEG
6	Video protocol	Supports docking with ONVIF protocol and national standard GB/T 28181 protocol
7	Network protocols	Supports TCP/IP, HTTP, DNS, RTP, RTSP and FTP transfer
8	Mini illumination	Color 0.1Lux@(F1.2,AGC ON) Black and white0.01Lux @(F1.2,AGC ON)
9	Max resolution	2592*1944
10	Compression standards	H.265/H.264/MJPEG
11	Video frame rate	Mainstream:2592*1944 2560*1440 1920*1080 1-20 fps Sub-stream: 1280*720 704*576 640*480 352*288 1-20 fps
12	Output bit rate	16kbps~20Mbps adjustable

Table 4：Other radar parameters

No	Specifications	Parameters
1	Operating temperature	-40℃～+70℃
2	Working voltage	DC 24V（20V~28V）
3	Working humidity	0～95%
4	Power Consumption	≤7 W
5	Installation height	6～8 meters
6	IP rating	IP67

6. Hardware interface and dimensions

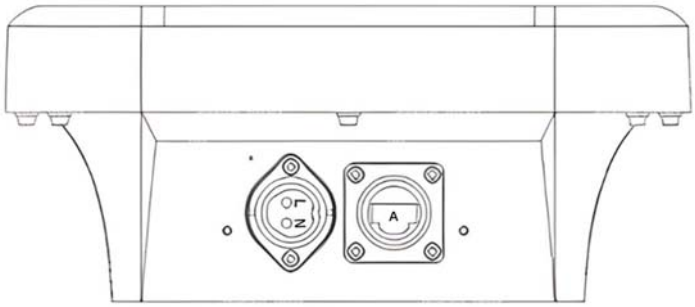


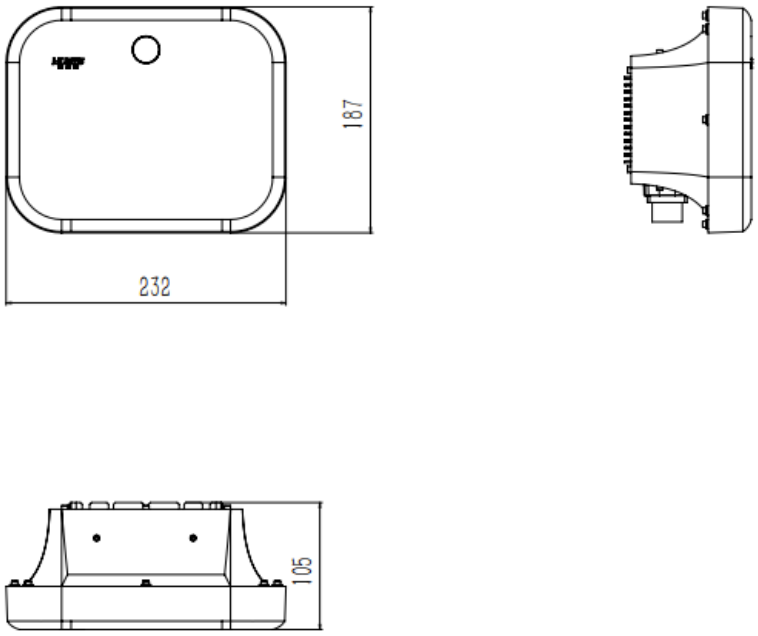
Table 5: Functions corresponding to each interface

Mark	Name	Description
L	V+	DC 24V
N	V-	GND
A	RJ45	Interface

Notes:

✧ It is strictly forbidden to use AC 220V voltage to directly power the radar.

✧ When selecting the installation point, avoid placing the radar too far away from the power supply or transmission node. If the radar data transmission exceeds 80 meters, optical fiber must be used for link access.



DTAM D09-V Layout

Table 6: Product dimension

No	Name	Description
1	Dimensions	232*187*105mm (length*width*height)
2	Weight	1020g
3	Material	PC