Intelligent Cargo Camera

Z5

Product Specification

(Version 1.1)

Contents

Preface

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Product Overview

Product Introduction

Z5 is a highly integrated AI device designed for efficient cargo management and video monitoring. It is equipped with a high-speed processor, advanced operating system, and video compression technology, supporting dual-channel video recording with resolutions up to 4K and 1080p. The Z5 is equipped with GPS positioning, 4G connectivity and Bluetooth functions, and can connect to external sensors to ensure real-time alarm transmission and cargo door status monitoring. Additionally, the Z5 is equipped with advanced AI visual recognition technology that can intelligently identify the cargo loading rate, helping users track the cargo location and loading status in real-time. The device can intelligently switch modes to optimize power consumption and extend battery runtime while collecting cargo data and detecting anomalies. Its robust, minimalist design offers high impact resistance, stability, and ease of use, making it ideal for complex cargo transportation environments.

Product Features

- **Dual-channel video monitoring**: Supports one channel for 4K images for cargo interior monitoring and one channel for 1080p for cargo exterior monitoring.
- **AI visual recognition**: Features cargo loading rate recognition, providing real-time analysis of cargo loading conditions.
- **Local storage**: Supports one Micro SD card for local recording, with a maximum capacity of 512GB.
- **Efficient compression technology**: Supports H.264 compression technology, saving storage space.
- **Wireless connection**: Support WiFi to facilitate connecting equipment for operation and maintenance; support BT5.1 to facilitate connecting sensor peripherals
- **Mobile network**: Supports 3G/4G network connection with a Nano SIM card.
- **Solar Charging**: Supports external solar panels, providing solar charging capability.
- **GPS positioning**: Supports GPS tracking for real-time location monitoring.
- **Low power and sleep modes**: Supports two power-saving modes. In low power mode, the device can detect door status but cannot be remotely awakened through the platform. In sleep mode, the device can detect door status, stay 4G on line, and can be remotely awakened through the platform。
- **Smart cargo management**: Supports cargo management algorithms and various anomaly detection and alarm functions.
- **Remote management**: Supports remote control, data visualization, and report generation through the FT platform.

AI Features

Z5 revolutionizes trailer transport management with advanced AI and high-definition video technology. Leveraging big data and AI deep learning, the Z5 can monitor cargo volume in real time and analyze loading rates, providing users with accurate loading data insights. The device integrates AI cameras and high-precision sensors, ensuring full visibility of the cargo and enabling intelligent management of the loading process. Additionally, the Z5 features an illegal door opening detection function, effectively preventing security risks during transport and safeguarding the cargo. The Z5 offers a smarter and more efficient solution for cargo transportation, helping users optimize transport efficiency and reduce operational costs.

Cargo Loading Rate (Volume Measurement)

Loading/Unloading Timeout

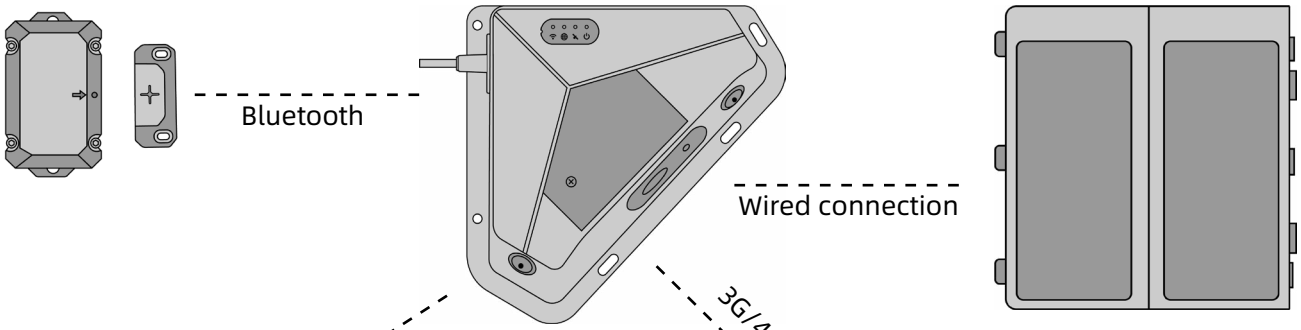
Loading/Unloading Timeout

Main Products

Door sensor: Used to detect the opening and closing status of the cargo compartment door.

Z5: Built-in one channel for the in-cargo camera and one channel for the external cargo camera. Integrated volume measurement (loading rate) algorithm

ABS Box:Built-in rechargeable battery, GPS antenna, 4G main/ auxiliary antennas, and solar charging panel



Veyes App: Mobile/Tablet Operations and Maintenance App: Used for function parameter configuration, calibration, and other tasks

FT Cloud: Professional SaaS video service platform for PC

Product Specifications

Basic Information	
Product Model	Z5
Operating System	Embedded Linux System
Maintenance App	Veyes
Language Support	● Default Language: English ● Optional Languages: Simplified Chinese, English, Spanish, Portuguese, French, Japanese, Russian, Traditional Chinese, Turkish
Cargo Interior Camera Parameters	
Resolution	2160*3840
Frame Rate	10fps
Field of View (FOV)	Vertical FOV (VFOV): 125°, Horizontal FOV (HFOV): 67
Focal Length	3.7 mm
Aperture	F1.7
Shutter Speed	1/30s-1/10000s
Minimum Illumination	0 Lux (supports white light supplement in low-light or no-light environments)
Blacklight Technology	Supported
Cargo Door Camera Parameters	
Resolution	1920*1080
Frame Rate	25fps
Field of View (FOV)	Vertical FOV (VFOV): 83°, Horizontal FOV (HFOV): 152°
Focal Length	2.19mm
Aperture	F2.45
Shutter Speed	1/30s-1/10000s
Minimum Illumination	0 Lux (supports white light supplement in low-light or no-light environments)
Blacklight Technology	Supported
Recording Parameters	
Video Compression Format	H.264
Image Quality	Adjustable, supports multiple levels from level 1 (best quality) to level 8 (lower quality)
Recording Mode	Power-on recording, manual recording, time (scheduled) recording, alarm event recording
Pre-record Time	0-60min
Post-record Time	0-30min

LED Indicator Status			
Indicator Light	**Icon**	**Off**	**On ● / Flashing ○**
WIFI Status Indicator		In disable or client mode	● In AP mode ● WIFI error
Network Status Indicator		In sleep or low-power mode	● Server connection successful ● Server connection error
GPS Signal Indicator		In sleep or low-power mode	● Positioning successful ● Positioning error
Power Indicator		In sleep or low-power mode	● Power supply normal ● Power disconnected Battery level above 10% ○ Power disconnected Battery level below 10%

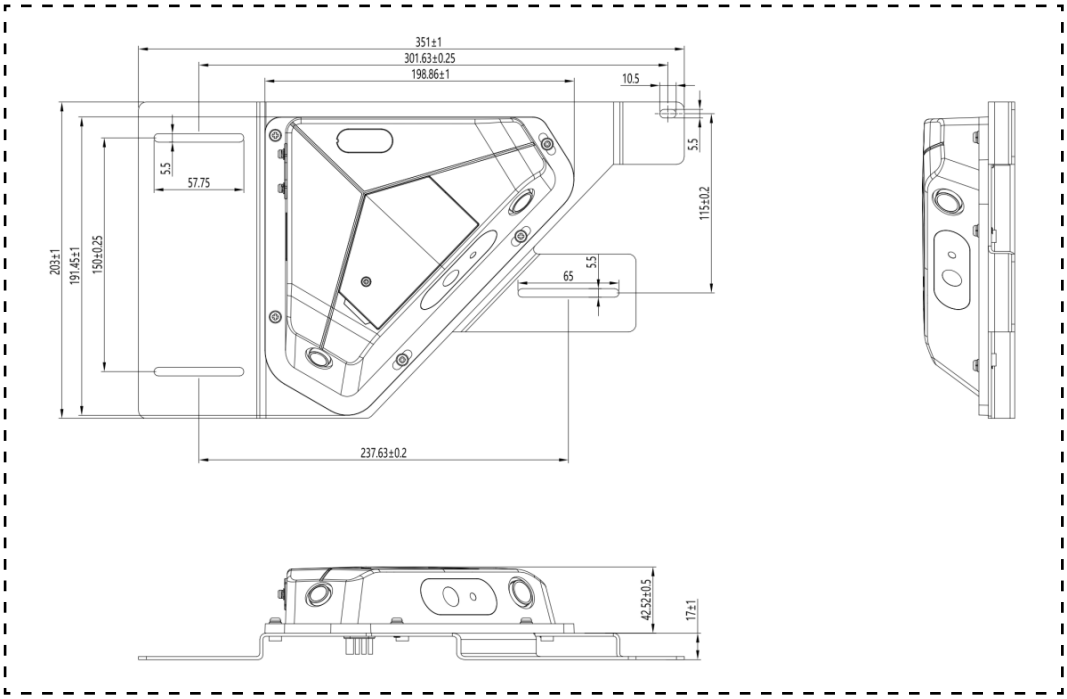
Local Preview	
Preview Channel	Supports local single-channel and dual-channel preview
Local Playback	
Playback Channel	Supports local single-channel playback
Playback Mode	Supports playback by time, channel, or event
Sensor	
Accelerometer	Built-in 6-axis inertial sensor
Interfaces	
RS232	1 channel
I/O Port	2 input channels, 1 output channel
USB	1 × mini-USB port

Network	
4G **Warning** Requires industrial-grade Nano SIM card (MP2). Standard-grade Nano SIM cards (MP1) are prohibited. The company is not responsible for any issues arising from the use of standard-grade SIM cards.	● North America: LTE FDD: B2/B4/B5/B12/B13/B14/B66/B71 WCDMA: B2/B4/B5 ● Europe and Asia: LTE FDD: B1/B3/B7/B8/B20/B28A WCDMA: B1/B8 GSM: B3/B8 ● Latin America: LTE FDD: B1/ B2/B3/B4/B5/B7/B8/B28 LTE TDD: B40 WCDMA: B1/B2/B5/B8 GSM: B2/B3/B5/B8 ● Mainland China: LTE-FDD：B1/B3/B5/B8 LTE-TDD：B34/B38/B39/B40/B41 WCDMA：B1/B5/B8 ● Japan: LTE-FDD：B1/B3/B8/B18/B19/B26 LTE-TDD：B41 WCDMA：B1/B6/B8/B19
Wi-Fi	2.4G: Supports 802.11 b/g/n/ax protocols 5G: Supports 802.11 a/n/ac/ax protocols
Positioning Function	
GPS	Supports location tracking, speed detection, and time synchronization functions
Storage	
Micro SD Card	1 Micro SD card slot, supports up to 512GB storage capacity
Power	
Power Input	DC 10-36V
Vehicle Charging Power	Maximum 26W (including device operating load)
Solar Charging Power	Maximum 7W (laboratory conditions)
Battery Capacity	Built-in 10.2Ah/73.44Wh battery
Door Sensor Battery Voltage	1.5V Type: AA Battery Recommended Model: L91
Typical Maximum Power Consumption	≈6W(white light on); ≈4W(white light off)
Sleep Mode Power Consumption	≈0.35W
Low-power Mode Power Consumption	≈0.22W
GPS Tracking Mode Power Consumption	≈0.02W
Note The above power consumption data is based on specific laboratory testing conditions. Actual results may vary due to product variations, usage environments, and testing methods.	

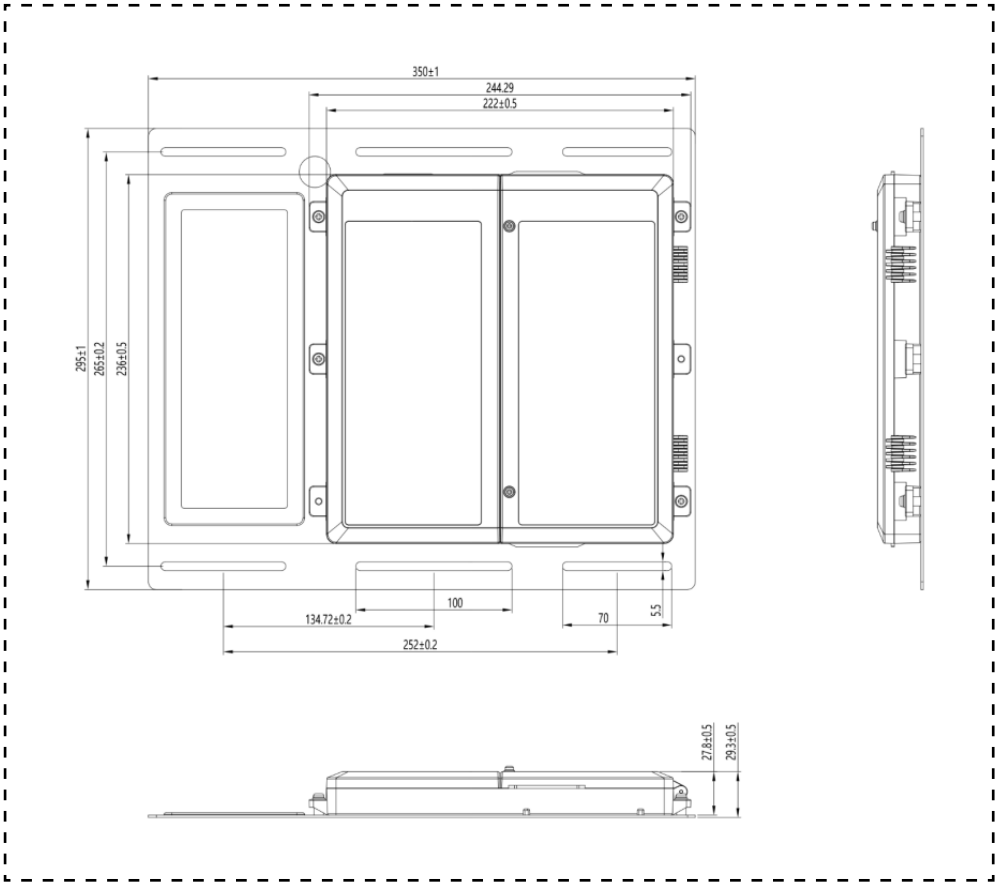
Battery heating via vehicle power in low-temperature conditions	Supported
Environmental Parameters	
Operating Temperature	-40°C ~ +70°C (-40°F ~ +158°F)
Battery Charge/ Discharge Temperature	Charging: 0°C ~ +60°C (32°F ~ 140°F) Discharging: -20°C ~ +70°C (-4°F ~ 158°F)
Storage Temperature	-40°C ~ +85°C (-40°F ~ +185°F)
Operating Humidity	8~95% non-condensing
Storage Humidity	8~95% non-condensing
Protection Rating	IP69K
Dimensions and Weight **Note** Actual dimensions and weight may vary slightly due to product differences, manufacturing processes, and testing methods.	
Z5 Dimensions	198mm × 191mm × 42mm
ABS Box Dimensions	244mm × 236mm × 27mm
Door Sensor Dimensions	Door Sensor Detector：106mm × 53mm × 29mm Door Sensor Magnet：80mm × 28mm × 20mm
Z5 Weight	1.19kg (Including bracket)
ABS Box Weight	2.12kg (Including bracket)
Door Sensor Weight	0.13kg
Packaging Information (Includes Z5, ABS box, door sensor, and other accessories)	
Units per Box	2Pcs
Individual Product Package Dimensions	455mm (L) × 390mm (W) × 160mm (H)
Individual Product Package Weight	4.34kg
Outer Box Dimensions	475mm (L) × 338mm (W) × 410mm (H)
Full Box Dimensions	9.56kg

Product Dimensions Diagram

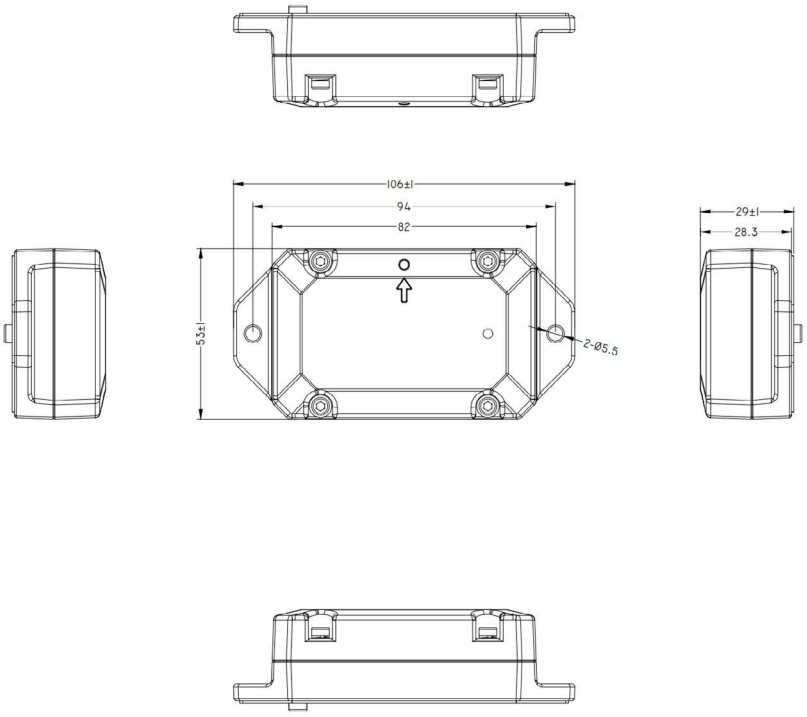
Z5



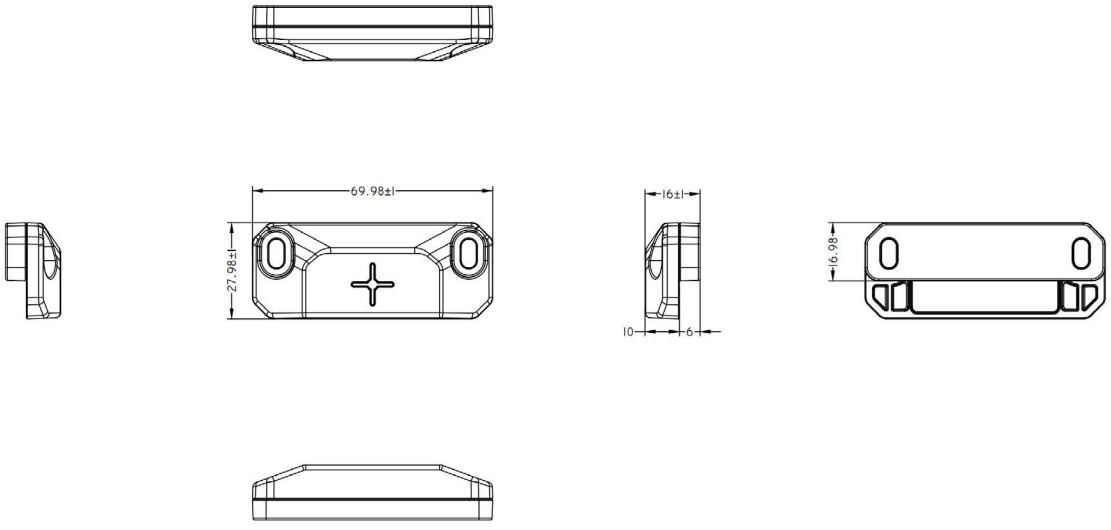
ABS Box



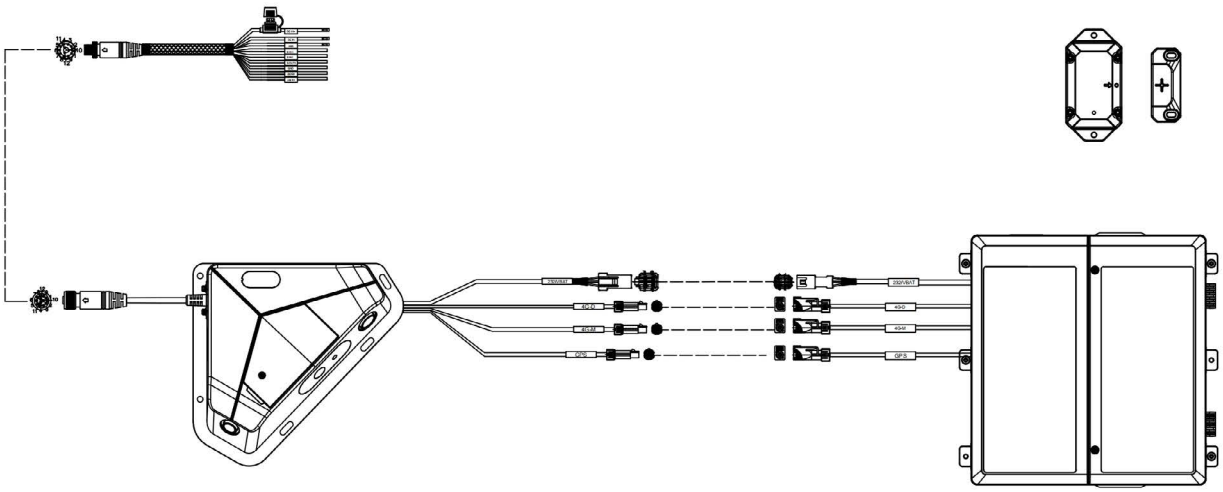
Door Sensor (Detector)



Door Sensor (Magnet)

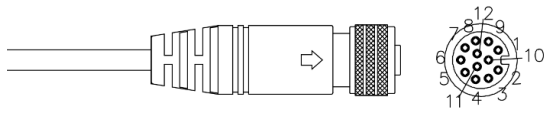


System Connection Diagram

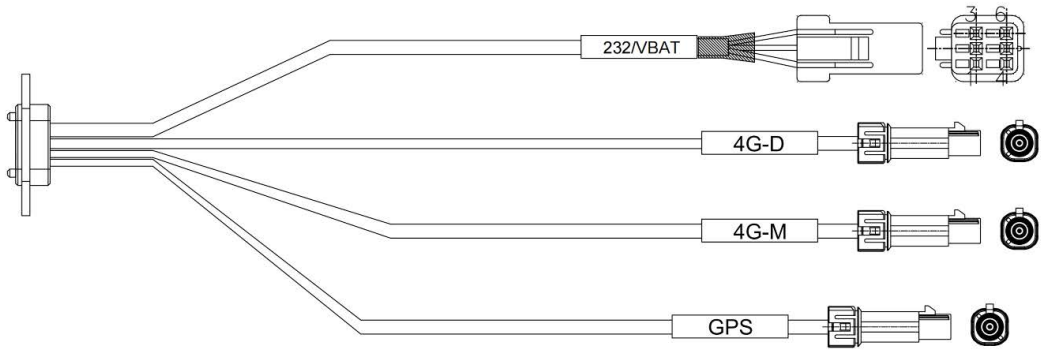


Cables

Z5 Tail Wire（Signal Output A）



Z5 Tail Wire（Signal Output B）



Signal Input Wire