



specification

KEY CABINET PRODUCT SPECIFICATION

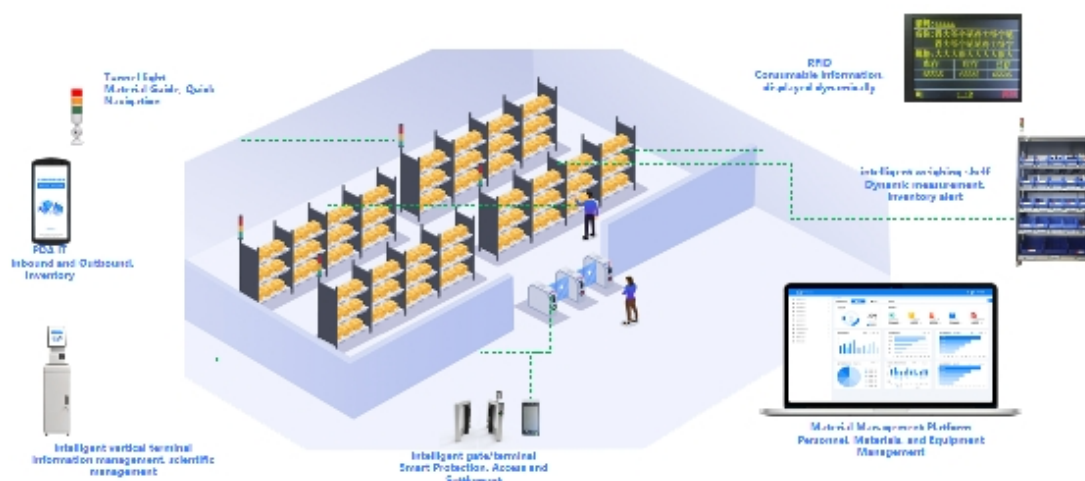
Intelligent unmanned warehouse (consumables)



1、summary

The Zebra Smart Unmanned Warehouse addresses issues such as low efficiency, high error rates, and difficult traceability in traditional material management through the integration of "smart devices + intelligent systems + scenario adaptation." It delivers significant value for warehouse material management across three dimensions: cost, efficiency, and accuracy.

2、Flowchart of the Unmanned Warehouse System Components



3、system composition

order number	device name	model	remarks
1	Vertical settlement terminal	ZSW-D05	●
2	Intelligent smart weighing shelf	ZSW-W01	○
3	Hall light	ZSW-D09	○

4	Integrated Smart Access Control System	ZSW-D01	•
5	Smart passage gate	ZSW-D04	□
6	Intelligent handheld terminal	ZSW-D08	□
7	Material Management Platform	-	•

Note: • Required ○ Configured as needed □ Optional

4、ZSW-D05 Vertical Settlement Terminal

The ZSW-D05 is Zebra Intelligence's latest intelligent vertical desktop terminal, designed specifically for managing materials, consumables, and assets in warehouses. Serving as the core management device for automated warehouse systems, it integrates seamlessly with smart shelving, handheld terminals, access control systems, and RFID-enabled aisles to enable efficient and intelligent management of both warehouse operations and office storage environments.



(1) Product Features

- Material location tracking: Supports integrated operation of smart shelves, lighting systems, and intelligent gates, enabling automatic cargo positioning based on orders or specific items to enhance outbound efficiency.
- Real-time inventory management: Supports real-time recording and dynamic updates for goods receipt and dispatch.
- Automated inventory management: Integrates RFID and barcode scanning technologies to automatically identify product information, minimizing manual entry errors.
- Local Upgrade: Supports upgrading applications via an

upgrade package connected through a USB external interface.

- Remote Upgrade: Supports deploying upgrade packages remotely, with the system automatically completing the upgrade installation.

(2) Specification Parameters

Main specification parameters	
product model	ZSW-D05
performance parameter	
operating system	Android 11
Industrial Control Configuration	RK3568 quad-core processor with 2GB RAM and 16GB storage
RFID identification (optional)	High frequency; identification frequency: 13.56 MHz; reading time ≤ 3 seconds
Weighing module (optional)	Precision: 1 g; Range: 0–40 kg
Card recognition (optional)	Operating frequency band: 13.56 MHz, card reading distance: 0–30 mm
UPS power supply (optional)	Provide UPS power supply
Specification Parameters	
Overall dimensions of the machine	330*420*1460 mm (width*depth*height)
screen	15.6-inch 1080p high-definition touchscreen
face recognition	Dual-camera system with 2 million pixels each
QR Code Recognition	Reading code accuracy ≥ 7 mil
	Effectively identify codes from various media such as mobile phone screens, paper, and plastic.
Internal speaker	3W×2
Work Environment Requirements	Working temperature: -10°C to 50°C; Working humidity: 10% to 90% RH

power requirement	Single-phase AC 220V,50 – 60 Hz
Secondary development interface (optional)	support
network interface	WIFI, RJ-45,4G (optional)

5、ZSW-W01 Intelligent Weighing Shelf

The Intelligent Weighing Racking (ZSW-W01) utilizes advanced weighing technology to enable real-time weight measurement and inventory management of products. Designed for indoor warehouse environments, this system operates without human supervision through automated weighing, running 24/7. It integrates seamlessly with smart access control systems and vertical payment terminals to facilitate inventory counting and management of warehouse goods.



(1) Product Features

- Fully automated management: Automatic identification of material quantities eliminates the cumbersome and error-prone processes of manual scanning and data entry.
- One-click inventory check feature: Complete daily and monthly inspections within 10 seconds;
- Data collection and scientific analysis: Each shelf is equipped with 23 standard weighing points, enabling efficient management of various items.
- Storage Location Binding: Items can be linked to specific storage locations, enabling real-time updates when products are collected or returned.
- Shelf labeling: Each storage location is equipped with a

display screen that allows real-time adjustment of product quantities based on weight changes.

(2) Specification Parameters

product model	ZSW-W01
Total dimensions	1982*1400*450 mm (height * width * depth)
capacity	5 floors, totaling 23 storage spaces
material quality	High-quality galvanized sheet with a thickness of 1.2 mm
Weighing Module	Equipped with a high-precision weighing module, offering maximum capacities of 10 kg or 40 kg, with a weight recognition accuracy of 1 g.
Electronic shelf label	2.8-inch LCD screen
supply electricity	AC220V 50Hz 150W

6、ZSW-D09 roadway light

The roadway indicator light (ZSW-D09) assists warehouse staff in quickly locating target areas, reducing inventory retrieval time.

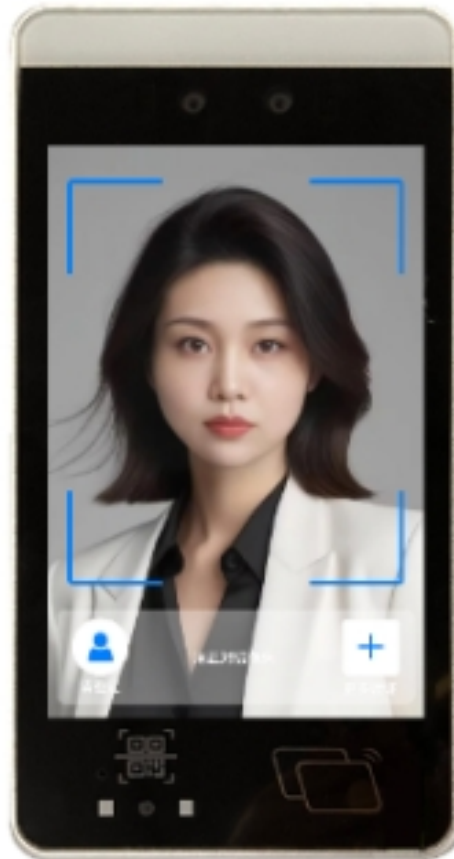


product model	ZSW-D09
Total dimensions	φ 50mm*300mm(H)
light color	Red, Yellow, Green
supply electricity	DC 12V

7、ZSW-D01 Intelligent Access Control All-in-One Device

The ZSW-D01 intelligent access control all-in-one system, developed by Zebra Intelligence, is a smart terminal designed for retrofitting traditional access control systems. Equipped with facial recognition algorithms and proprietary activity detection capabilities, it delivers financial-grade security with a recognition accuracy exceeding 99.99%. The system integrates with access control devices to enable efficient, secure, and convenient contactless personnel management, significantly enhancing both throughput efficiency and security.

It can be directly integrated into various types of door systems with easy installation without altering the cabinet structure. Identification methods include facial recognition, account verification, electronic ID cards, and card swiping (optional).



(1) Product Features

- No need to modify the door structure for rapid intelligent access control upgrade
- Supports multiple login authentication methods: facial recognition, account verification, electronic ID card, and card swiping (optional)

- 8-inch touchscreen display with a 16:9 aspect ratio and 1280 × 800 resolution, featuring real-time facial recognition prompts
- 2-megapixel wide-angle dynamic camera, adaptable to various complex environments
- Intelligent management with interconnected data interoperability and configurable personnel permission settings for access control

(2) Specification Parameters

Main specification parameters	
product model	ZSW-D01
operating system	Android 11
Industrial Control Configuration	RK3568 has 2 GB of RAM and 16 GB of storage
Overall dimensions of the machine	130*30*265 mm (width*depth*height)
screen	8-inch HD screen with a resolution of 1280 × 800 and multi-touch support
material	Panel: Tempered glass Shell: Cold-rolled steel plate
Lock unlock control	Relay-controlled unlocking (default)
Accessories	Access control power supply, magnetic lock
life length	500,000 times
working temperature	-16°C-45°C
Working humidity	5– 95% pH (no condensation)
face recognition	Camera: 2 megapixels

Card Reading Module (Optional)	Operating frequency band: 13.56 MHz, card reading distance: 0– 30 mm
Lock opening method	Face recognition/Account verification/Electronic badge/Card swipe verification (optional)
working power supply	Single-phase AC 220V,50 – 60 Hz

8、ZSW-D04 Intelligent Passage Gate

The ZSW-D04 intelligent passageway gate integrates sophisticated mechanical transmission, PCB-based control, LED lighting effects, and various read/write technologies into a unified system. By configuring different read/write devices, it enables intelligent control and management of passage flow.

The entire product rack is manufactured using stainless steel laser cutting and CNC bending molding, featuring an elegant and aesthetically pleasing design. It employs a servo control system that offers simple operation and a wide speed adjustment range. The servo motor delivers high speed and stable torque characteristics, and is equipped with an integrated encoder, enabling a high-precision, high-performance control system. The system features standard quick-connect electronic interfaces and integrates components such as QR code scanners and card readers, allowing for easy integration of barcode, QR code, ID card, and IC card reading/writing devices. This facilitates orderly and

civilized access for personnel while preventing unauthorized entry and exit. Additionally, to meet fire escape requirements, the system includes a dedicated fire alarm button interface that automatically opens the gates in emergencies, facilitating efficient evacuation.



(1) Product Features

- The system features collision prevention functionality. When an external object strikes the gate without authorization and the gate's movement angle reaches the preset value (e.g., 2°), the controller activates the braking mechanism to halt the gate's movement and triggers an audible and visual alarm. If the external force increases further, the braking controller protects the gate from fracture; upon removal of the force, the gate automatically resets, and the system resumes normal operation.
- Features a fault alarm notification function;

- The two drivers communicate via RS485 protocol, enabling real-time data exchange between them. This high-performance, highly reliable fieldbus supports distributed or real-time control, ensuring effective communication between drivers and maintaining synchronized operation and unified status of the access gates.

- The brushless motor employs a fully closed-loop control system, utilizing highly stable bevel gears combined with an advanced proportional-integral-differential (PID) algorithm. This ensures precise position accuracy, rapid response, smooth operation, and absence of jitter or delay during gate movement. The motor operates without harsh noises, ensures uninterrupted and error-free performance, delivers optimal torque, and offers extended service life.

- Multiple anti-clamping protection features: When the gate door is obstructed and the actual operating current exceeds the anti-clamping protection threshold, the physical anti-clamping protection mechanism is activated. Combined with infrared anti-clamping protection, these integrated safeguards significantly reduce the risk of accidental injury.

- Features an automatic reset function: if a pedestrian fails to pass through within the system-specified time after successfully scanning a valid card, the system will automatically revoke their

passage permission for that attempt.

- A unified standard external electrical interface compatible with various card readers, enabling remote control and management via a management computer;
- The entire system operates smoothly with minimal noise;

(2) Specification Parameters

Main specification parameters	
product model	ZSW-D04
outline dimension	Length * Width * Height: 900 mm * 160 mm * 980 mm
Box material	Top cover: 1.2 mm; Body: 1.0 mm; Material: SUS 304
Door panel material	8mm transparent acrylic
Material of the intermediate gate flap	8mm tempered glass
production engineering	Fully computer-controlled CNC laser cutting; fully computer-controlled CNC bending
gangway width	≤ 900mm
ambient temperature	-20°C to 70°C
work environment	Indoor and outdoor (with an additional awning installed outdoors)
input voltage	100V~240V
Drive Motor	24V brushless motor
plant capacity	120W
response time	0.2S
Passage Speed	Always open: 50 people/min; Always closed: 35 people/min

communication interface	RS485
communication distance	Less than 1200 m
Gate opening signal input	Dry contact
Door opening and closing time	Less than 1 second

9、ZSW-D08 Intelligent Handheld Terminal

The ZSW-D08 intelligent handheld terminal is an all-in-one device developed by Zebra Energy, supporting warehouse inbound/outbound management and inventory counting functions. It facilitates the management of material movements — including inbound/outbound operations, returns, transfers, and inventory counts — for consumables, assets, and reagents. A single PDA device meets all relevant inbound/outbound management requirements for various materials.



(1) Product Features

1. Integrated 5.5-inch touchscreen with QR code recognition
2. The software system runs on the Android operating system.
3. Integrated functions for inventory management of consumables, assets, and reagents, including inbound/outbound storage, return storage, transfer storage, and inventory counting
4. Support account verification login
5. Supports batch inventory operations for consumables, assets, and reagents
6. Supports transferring items from Warehouse A Area A to Warehouse B

Area B, enabling rapid inventory relocation.

7. Support returning multiple items to the warehouse, allowing selection of another storage area for re-stocking.

8. Supports conducting inventory counts of stored consumables, assets, and reagents according to predefined inventory tasks.

9. Local Upgrade: Supports upgrading applications by connecting the upgrade package via a USB external interface.

10. Remote Upgrade: Supports deploying upgrade packages remotely, with the system automatically completing the upgrade installation

(2) Specification Parameters

1. Basic Parameters

performance parameter	model	DS08
	operating system	Android 12.0
	processor	Eight-core, 64-bit, 2.2 GHz
	internal storage	RAM : 4GB , ROM : 64GB
	extended memory	Micro SD card, supporting up to 256 GB SDXC
Basic Specifications	outline dimension	156.9mm×72.3mm×16.9mm
	Total weight of the machine	The host (with battery) weighs no more than 266 g.
	display screen	5.5-inch color full-screen display (720×1440)
	touch screen	Supports multi-touch, glove touch, water-resistant operation, and passive pen signature
	main battery	5000mAh, removable
	charging interval	5V2A, not exceeding 4 hours
	audio frequency	1.5W speaker, microphone (with noise cancellation support), earpiece (with echo cancellation support)

	Interface	USB Type-C port: Supports OTG and headphone signal Bottom pogo pins*4: Support charging/data transfer
	key	Physical buttons: Volume +/- keys, Power button, Scan buttons (2)
	camera	Front 5MP camera Rear 13MP camera with PDAF and flash support
	sensor	Distance, light sensor, acceleration, geomagnetism, gyroscope
	scan	Professional scanning engine supports scanning mainstream one-dimensional and QR codes, as well as screen scanning
	Slot type	Single card slot, choose either Nano-SIM or Micro SD (SD card supports maximum 256GB expansion)
data communications	wireless wide area network	Supports all networks: 4G, 3G, and 2G
	PDA	BT5.0 + BR/EDR + BLE
	Wi-Fi	2.4G/5G dual-band IEEE 802.11a/b/g/n/ac/d/h/i/k/r/v/w protocol Fast roaming: PMKID caching; 802.11r (Over-the-Air); OKC: You can set a Wi-Fi roaming threshold.
	fixed position	Supports GPS, A-GPS, Beidou, GLONASS, and Galileo
	NFC	RFID 13.56 MHz, supporting ISO 15693, ISO 14443A/B, Mifare, and Felica
service environment	working temperature	-20 ~ +60 °C
	storage temperature	-40 ~ +70 °C
	humidity	5% RH to 95% RH (no condensation)
	Seismic resistance height upon impact	Capable of withstanding repeated impacts from a height of 1.5 meters onto a smooth cement surface.
	levels of protection	IP67

	electrostatic protection	Air discharge: ± 15 kV; Contact discharge: ± 8 kV
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2. Number of data collection functions

1) Camera

camera	Forward
Photo Function	Prime focus, 1080p video recording
pixel	5MP
camera	postposition
Function Type	Supports flash, autofocus, and 1080p video recording
pixel	13MP, optional 8MP

2) Scan Head

	two dimension
Rotation Angle	360°
Up and down tilt perspective	$\pm 60^\circ$
Left and right offset view	$\pm 60^\circ$
Support Code Format	Linear: Codabar, Code 11, Code 128, Code 2 of 5, Code 39, Code 93 and 93i, EAN/JAN-13, EAN/JAN 8, IATA Code 2 of 5, Interleaved 2 of 5, Matrix 2 of 5, MSI, GS1 Databar, UPC-A, UPC E, UPC-A/EAN-13 with Extended Coupon Code, Coupon GS1 Code 32(PARAF), EAN-UCC Emulation, GS1 Data Bar 2D Stacked: Codablock A, Codablock F, PDF417, MicroPDF417 2D Matrix: Aztec Code, Data Matrix, MaxiCode, QR Code, Chinese Sensible (Han Xin), Grid Matrix, Dot Code Postal: Australian Post, British Post, Canadian Post, China Post, Japanese Post, Korea Post, Netherlands Post, Planet Code, Postnet

3) RFID (HF/NFC)

RFID	Read/Write (HF)
protocol standard	High frequency of 13.56 MHz, supporting ISO 15693, ISO 14443A/B, Mifare, and Felica protocols
Reading distance	0-6cm (ISO15693) , 0-4cm (ISO14443A/B)

work pattern	Card Emulation 、 Peer-to-Peer 、 Reader via Host and U ICC
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3. Data Communication Parameters

1) GPS positioning

fixed position	location parameter
Support Mode	Supports GPS, A-GPS, Beidou, GLONASS, and Galileo
frequency	GPS (L1 at 1.575 GHz, C/A code), Beidou (B1 at 1.561 GHz), GLONASS (L1 at 1.602 GHz), and Galileo (E1 at 1.589 GHz/E2 at 1.561 GHz)
Cold start time	Less than 40 seconds
Maximum channel count	31channel
sensitivity	-130 dB (SNR value: 40 dB Hz)
accuracy	5– 10 meters (open space)

2) Wireless communication function

Wi-Fi	WLAN Wireless Local Area Networks
protocol	IEEE 802.11a/b/g/n/ac/d/h/i/k/r/v/w protocol (2.4G/5G dual-band Wi-Fi)
frequency range	2.4G、 5G
Work Channel	CH1~CH13, CH34 – CH140, CH149~CH165 (depending on country/region)
safety	Enhanced Open/WEP/WPA/WPA2-Personal/WPA3-Personal/WPA/WPA2/WPA3-Enterprise
go on a pleasure trip	PMKID caching; 802.11r (Over-the-Air); OKC – allows setting of Wi-Fi roaming thresholds

3) Wireless Wide Area Network

wireless wide area network	WAN Communication Parameters
frequency range	TD-LTE(B34/B38/B39/B40/B41) FDD-LTE(B1/B2/B3/B4/B5/B7/B8/B20/B28A/B28B) WCDMA(B1/B2/B4/B5/B8) TD-SCDMA(B34/B39) CDMA&EVDO:BC0

	GSM/EDGE/GPRS(850/900/1800/1900)
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4) Bluetooth

standard	Bluetooth parameter
Support Mode	BT5.0 + BR/EDR + BLE
Connection distance	More than 10 meters