

## Basic Functions of Intelligent Inductive Rack

Quickly locate materials, prevent errors in material storage and retrieval, prioritize the use of leftover materials, prevent material loss, real-time monitoring of materials, and data system integration.

### 1. Storage

Main function: Collect tray codes for storage and automatically record placement locations.

### 2. Work Order Material Issuance

Main function: Calculate material issuance according to work orders, first-in-first-out (FIFO), first-out of remaining materials.

### 3. Specified Material Issuance

Main function: Locate and dispense specified items based on filtering conditions.

### 4. Material List Material Issuance

Main function: Import material lists and light up indicators based on the list.

### 5. Exception Handling

Main function: After abnormal operations by personnel, exceptions must be resolved before normal operations can resume; exception recovery functionality.

### 6. Error Prevention Warning

Main function: Light up indicators to alert personnel in case of incorrect material handling.

### 7. Record Query

Main function: Query entry and exit records based on tray numbers.

### 8. Inventory Function

Main function: 24/7 monitoring throughout the year, real-time material inventory; export current material list.

### 9. Data Integration

Main function: Equipped with data interfaces for integration with MES and ERP systems, enabling bidirectional communication (requires mutual access support for interfaces).

### 10. Features:

Convenient storage: Materials can be placed arbitrarily, with automatic binding of storage locations and materials.
Work order material issuance: Dispensing based on work orders (requires integration with a work order system or manual import), batch lighting for dispensing, improving efficiency.
Specified material issuance: Issue specified materials, single-item issuance
Power-off memory: Real-time saving of material information
Real-time inventory: Real-time statistics of inventory status
Material Issuance management: Visual management of the dispensing process, error-proof,

First-In-First-Out, prioritizing leftover materials.
Inventory warning: Low inventory alerts for materials.
Hardware stability: Uses renowned brand sensors to ensure hardware stability.
Sensing method: After extensive research and testing, a specific tilt angle sensing method is adopted, with independently developed sensing programs to ensure stable sensing.
Software interface: Unified WebAPI interface for integration with other systems.
Supports secondary development and provides necessary technical support services.

## 11. Other Customer Requirements

### AI Intelligent Rack Requirements

Indicator Type	Indicator Item	Indicator Requirements
Equipment Structure	Appearance	High-strength, high-stability, rust-proof material
	structure material	required
	LED lights	LED lifespan approximately 80,000 cycles.
	Rack configuration	
	Operation mode	Standalone software operation and integration with MES.
Control System	Operating system	Windows system
	Language Interface	Chinese Operation Interface
	Display device	With display screen (optional)
	Ports	Supports multiple port communications, Web API.
Software system	Storage Management	Materials placed in storage locations, automatic sensing, automatic binding of materials and storage locations.
	Retrieval management	Receives retrieval commands, lights up for material retrieval, information unbinding only after removal.
	Storage status management	Material specifications and quantities can be queried in real time.
	Interface	Supports MES, WMS, etc.

	management	
	Inventory management	Real-time inventory monitoring, inventory checks, supports exporting to Excel documents.
	Storage location management	Supports random placement and binding of storage locations, manages storage location status.
	Warning management	Warning alerts for expiration, stagnation, low inventory, loss, etc.
	Data loss prevention	Data must not be lost during equipment or communication failures; stored on the server.
	Equipment compatibility	Compatible with other devices (provides required communication file formats), Web API format, provides standard format files.
Material storage system	料架承重	Rack load capacity >120kg.
	Material storage mode	Automatic sensing material storage mode
	Storage specifications	
	Storage capacity	
	Scalability	Supports connecting multiple devices in series.
Material retrieval system	Retrieval mode	<p>Supports single-item retrieval, work order mode retrieval, and multi-order retrieval.</p> <p>1. Single-item retrieval: Operator scans or inputs material information, device automatically lights up the material indicator, and guides the operator to retrieve.</p> <p>2. Work order retrieval: Operator imports the material BOM list into the smart rack storage device, which automatically lights up all required materials and</p>

		guides the operator to retrieve.  3.Multi-order retrieval: Operator can import multiple work orders into the smart rack storage device, which processes and guides retrieval in an orderly sequence.
	Retrieval indicator lights	Retrieval indicator lights up during retrieval and turns off after removal.
	Retrieval logic	First-In-First-Out, prioritize leftover materials, lock expired items.
	Retrieval time	Retrieval time <5S per tray; if material is not retrieved, the light remains on as a reminder.
Equipment installation conditions	Equipment dimensions	≤2300 * 550 * 1880 mm (excluding three-color light height)
	Power supply	Single-phase, 220V AC