Metal Detector Manual

Installation, Operation and Maintenance Guide

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Chapter 1 Equipment Overview

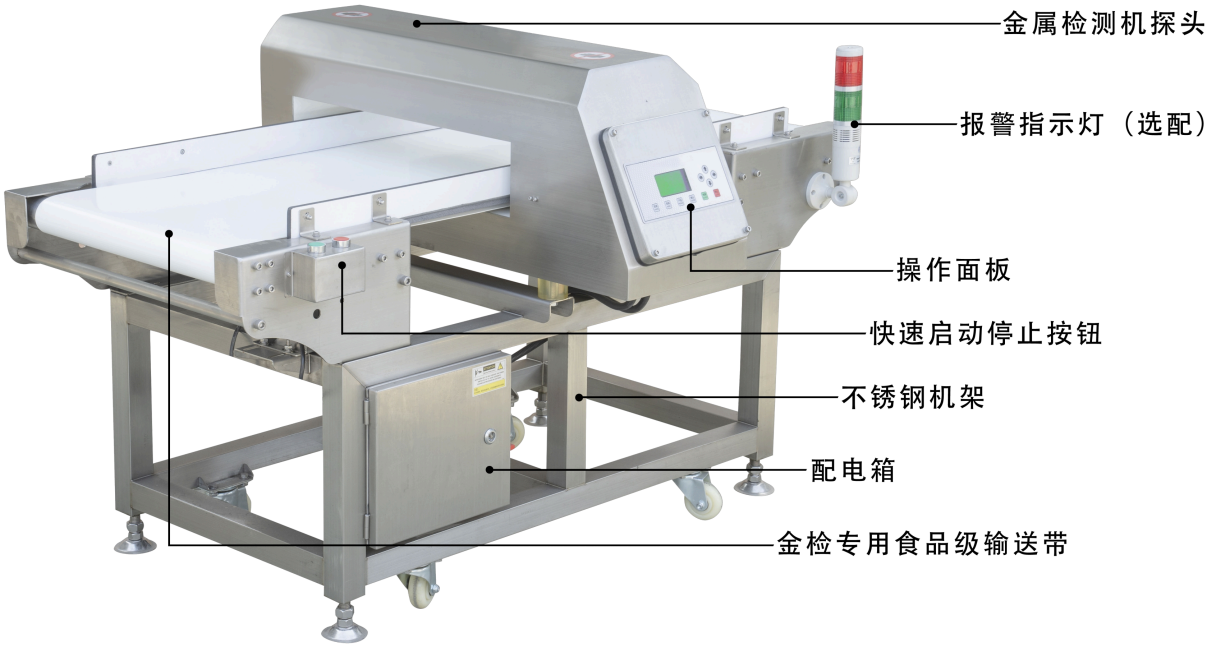
1.1 Introduction to the Metal Detector

The metal detector is a device that uses electromagnetic waves to detect items on the conveyor production line. When a metal signal exceeding the set value is detected, it outputs a metal-contamination alarm and issues a stop command or a rejection command signal.

1.2 Standard Package Contents

Metal detector: 1 unit; Test card: supplied; Manual: 1 copy; Hex wrench: 1 pc; Electrical box key: 1 pc (if locked); Dust-proof packaging: supplied.

1.3 Names and Functions of Parts



· Metal detector probe

· Alarm indicator light (optional)

· Operation panel

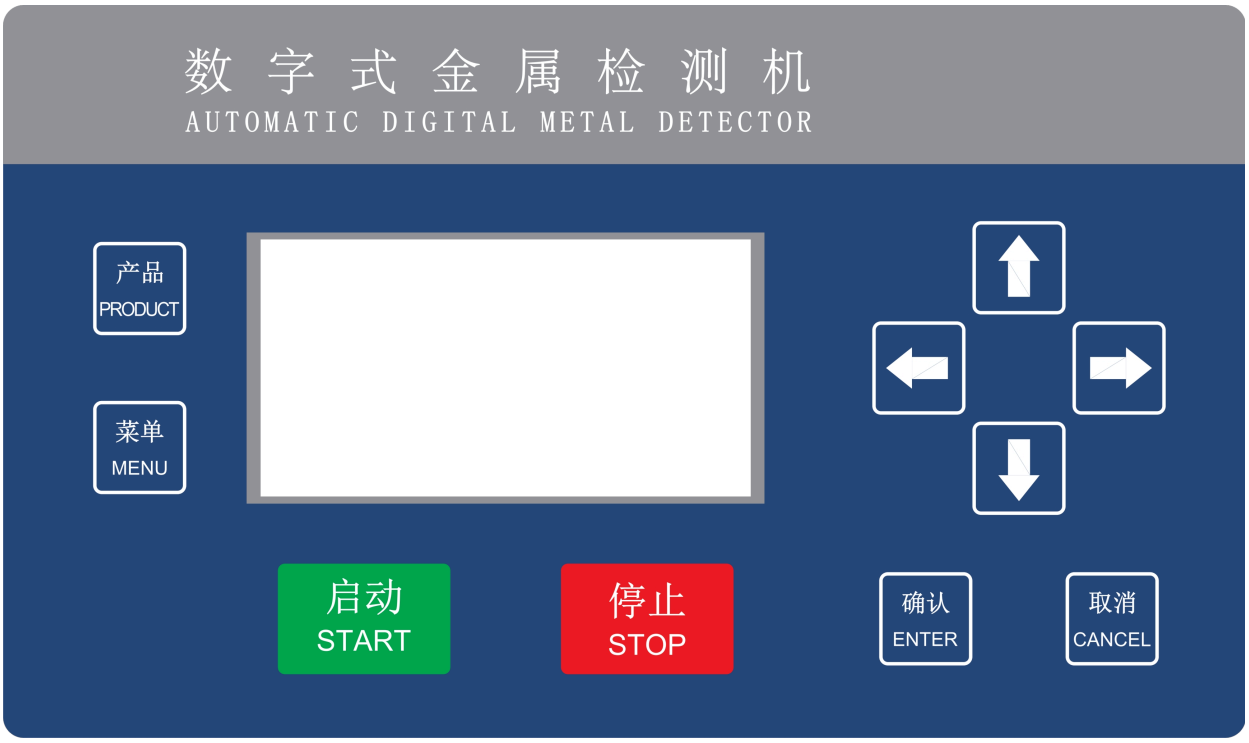
· Quick start/stop button

· Stainless steel frame

· Power distribution box

· Metal detector conveyor belt

1.4 Control Panel Functions



Note: To prevent damage to the protective film, do not press the keys with sharp objects (ballpoint pens, etc.).

LCD display — Displays the product No., product name, judgment result, operation mode, etc.

Up/Down/Left/Right arrow keys — Used for item selection and screen page switching.

[Star] Run key — Press this key to light the conveyor indicator and start the conveyor.

[Stop] Stop key — Press this key to turn off the conveyor indicator and stop the conveyor.

[Product] Product key — On the basic screen, press this key to switch to the product list screen for product setting.

[Menu] Menu key — On the basic screen, press this key to switch to the menu screen for menu selection.

[Cancel] Cancel key — Exits the current screen and returns to the previous page.

[Enter] Confirm key — Used to confirm items or settings.

Chapter 2 Equipment Installation

2.1 Packing List

1. Metal detector × 1

2. Iron test card × N, stainless steel test card × N

3. Document bag × 1

2.2 Product Installation

1. A place where the temperature is not lower than 0 °C and not higher than 40 °C.

2. A place where the humidity is within 30%–85% and without condensation.

3. A place not exposed to direct sunlight, with no heat-generating appliances such as stoves or heaters nearby.

4. The power supply voltage fluctuation range should be within +10% to –15% of the rated voltage.

5. A place away from vibration sources and not prone to vibration.

6. A place with little dust.

7. A place free of volatile flammable materials, corrosive gases and salt water.

8. A place where the cold/hot air from air conditioners does not blow directly on the equipment.

2.3 Installation Precautions

1. The power supply should be an independent system, separated from the power supply of noise-generating equipment and other devices (such as large motors, packaging machines, etc.), and should be connected to a socket close to the power source.

2. Do not multi-tap or excessively bend the power cord. Placing heavy objects on the power cord will damage the wire and may cause fire or electric shock.

3. Keep the power cord away from heat-generating appliances. Before unplugging the power plug, first turn off the power switch, and grasp the plug to pull it out.

4. When this equipment is connected to (in contact with) front/rear equipment (such as conveyors), interference may cause malfunction. In this case, do not contact other equipment and ground it separately.

2.4 Height Adjustment

1. Adjust the plane height between this equipment and the front and rear conveyors to the same level. Adjust the equipment foot bolts to ensure full contact with the ground and no shaking; after adjustment, tighten the locking nuts with a wrench.

2.5 Power Connection

1. To avoid danger, install a circuit breaker in the middle of the power supply to this equipment. Also, if used in a humid environment, install a leakage circuit breaker.

2. To avoid electric shock and ensure stable operation of the equipment, the power plug must be grounded. (Use a soft copper wire of 1.6 mm diameter for the ground wire, or a metal wire of equivalent strength and not easily corroded. The grounding impedance must be less than 100 ohms.)

Chapter 3 Operation Instructions

3.1 Home Screen

Open the distribution box at the front lower right of the equipment and press the power switch to turn the power ON. After the display screen starts and the equipment's automatic adjustment is complete, the [Home] screen is displayed.

Note: Because the machine uses dual-channel detection, in the [Basic] screen, X and Y respectively represent the two channels; the cursor bars indicate the signal strength of the two channels; the numbers after the cursor bars (such as “12” and “7” in the figure) respectively indicate the specific values of the two-channel signal strength. When any value is greater than 50, the machine will alarm and stop.

3.2 New Product Registration

3.2.1 Auto Setup (Recommended)

Prepare the sample to be inspected, which should represent the average characteristics (size, weight, composition and packaging form) of the items on the production line.

1. Adjust the LCD display to the home screen, press the [Menu] key to enter the menu (menu setting screen), and select Auto Setup.

2. The LCD display prompts “Waiting”. Please wait.

3. After a few seconds, “Product Inflow” is displayed. Please place the item to be inspected on the conveyor belt.

4. (Second time) The LCD display prompts “Waiting”. Please wait.

5. (Second time) After a few seconds, “Product Inflow” is displayed. Please place the item to be inspected on the conveyor belt.

6. Auto setup is complete; press [Enter] to return to the menu.

7. After auto setup is complete, use the supplied test card to confirm the sensitivity of the current product.

3.2.2 Product Parameters

Adjust the LCD display to the home screen, press the [Menu] key to enter the menu (menu setting screen), and select Product Parameters.

Enter the product parameter setting screen. Each page displays three parameters. Select Name.

Product parameters: 1. Name 2. Sensitivity 3. Gain 4. NG Stop 5. Reject delay time 6. Reject hold time 7. Photoelectric sensor 8. Detection time 9. Phase

3.2.3 Name Setting

Use the Up/Down/Left/Right [arrow keys] to select characters, and the [Enter key] to input the selected characters. “Cancel” on the LCD display deletes the entered characters. After input, select “Confirm” on the LCD display to complete the product name setting.

3.2.4 Sensitivity Setting

Use the [arrow keys] to adjust the sensitivity value. The larger the value, the smaller the metal diameter that can be detected, using the test card as the standard. After adjusting the value, press

the [Enter] key to save the parameter and return to the [Product Parameters] screen.

3.2.5 Gain Setting

Use the [arrow keys] to adjust the gain value 1–4. The larger the value, the smaller the metal diameter that can be detected, using the test card as the standard.

After adjusting the gain value, press the [Enter] key to save the parameter and return to the [Product Parameters] screen.

3.2.6 NG Stop Setting

Whether to allow the conveyor to continue running after a metal foreign object is detected. Use the left/right [arrow keys] to select Allow or Not Allow.

3.2.7 Reject Delay Time Setting

Use the Up/Down/Left/Right [arrow keys] to adjust the time. After adjusting the reject delay time, press the [Enter] key to save the reject delay time parameter and return to the [Product Parameters] screen.

Note: The reject delay time refers to the period from when the detector detects a metal foreign object to when the rejector starts to act.

3.2.8 Reject Hold Time Setting

Use the Up/Down/Left/Right [arrow keys] to adjust the time. After adjusting the reject hold time, press the [Enter] key to save the parameter and return to the [Product Parameters] screen.

Note: The reject hold time refers to the period from when the rejector starts to act to when it finishes acting.

3.2.9 Photoelectric Sensor Setting

The photoelectric sensor provides a trigger signal to the system by detecting whether a product is present, and serves as the reference for the rejection mechanism to judge the precise position of the product, thus ensuring accurate alarming and rejection only when a product is present and metal impurities are detected. If the photoelectric sensor is turned off, the whole system loses its “product position sensing” capability, and its rejection accuracy will significantly decrease.

*Dedicated setting for equipment with photoelectric sensing. Use the left/right [arrow keys] to select Allow or Prohibit.

3.2.10 Detection Time Setting

Use the Up/Down/Left/Right [arrow keys] to adjust the time. After adjusting the detection time, press the [Enter] key to save the detection time parameter and return to the [Product Parameters] screen.

Note: The detection time refers to the period when the product passes through the detection probe after passing the photoelectric sensor.

3.2.11 Phase Setting

Manual adjustment may cause detection signal distortion and may only be modified under the guidance of professional technicians.

3.3 Language Setting

Adjust the LCD display to the home screen, press the [Menu] key to enter the menu (menu setting screen), and select Language.

Use the Up/Down/Left/Right [arrow keys] to select the language and confirm. (Simplified Chinese / English)

Chapter 4 Daily Maintenance of the Metal Detector

Daily Maintenance

Before operation — confirm the detection sensitivity.

After operation — remove the conveyor belt and clean both sides of the conveyor belt.

Weekly inspection items — 1. Remove the conveyor belt and check whether the end face is cracked. 2. Check the conveyor belt running status: no abnormal sound, no creeping.

Cleaning Precautions

1. Unplug the power plug before cleaning.

2. Use cleaning tools such as a soft plastic brush or cloth. Never use a metal brush, etc.

3. Use a neutral detergent for cleaning. Never use organic solvents such as thinner and benzene.

4. For rust caused by iron powder or salt, wipe with a sponge or cloth soaked in neutral detergent or soapy water to easily remove it. Then rinse thoroughly with clean water, leaving no detergent residue on the equipment.

5. For contamination from touching and fingerprints that cannot be completely removed with neutral detergent and soap, wipe with a sponge or cloth containing an organic solvent (alcohol, gasoline, acetone, etc.).

Product Warranty Card

Dear user:

First of all, thank you for choosing our products. In order to make our service more satisfactory and for your benefit, please carefully fill in this card after purchase and keep this product warranty card properly.

Warranty Notes

If the company determines that any of the following factors apply, it is not within the scope of free warranty service, and the company has the right to charge maintenance fees:

· Beyond the warranty period provided by the company;

· Damage caused by irresistible external forces (such as flood, fire, earthquake, lightning, typhoon, etc.) or improper manual operation;

· The user repairs, modifies, changes components, or modifies circuits by himself or by a third party without authorization;

· Altering the warranty card or it does not match the product;

※ The conveyor belt is a consumable part and is not within the free warranty scope; users can contact the dealer to purchase a replacement;

※ Products exported to overseas regions do not enjoy free warranty service; you can consult the dealer to purchase paid repair services.

Warranty period: One year

User Information

User name _____ Purchase date _____

Contact person _____ Contact phone _____

Contact address _____

Dealer name _____ Product name _____

Model & specification _____ Product serial number _____

Dealer's stamp area _____