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重要说明 Important Notes

我司对本说明文档中的错误和疏忽不负任何责任, 文档中的信息可能随时会发生变更, 恕不另行通知。

如果用户对本设备的安装、调试、操作或维修存有任何疑问, 应联系我司的业务或售后。

文档版本号: 20251118-0

Our company shall not be liable for any errors or omissions in this documentation. The information contained herein is subject to change without prior notice.

If you have any doubts regarding the installation, commissioning, operation, or maintenance of this equipment, please contact our sales or after-sales service team.

Document Version No.: 20251118-0

标准型金属检测机使用说明

Operation Manual for Standard Metal Detection



此说明书适用机型 Applicable Models of the Documentation

衡天下品牌的标准型系列金属检测机, 部分定制型金属检测机亦适用。

Applicable to HTX standard Metal Detection and some customized types.

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catalogue

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1.安全注意事项 Safety Precautions

为避免事故和危险,请您按着如下注意事项正确而安全使用本产品。

To avoid accidents and hazards, please use this product correctly and safely in accordance with the following precautions.



警告

若违反此指示事项,将导致严重的伤亡事故。

Warning

Violation of these instructions may result in serious personal injury or death.

- 1、电1、源插头要插入防水插座。
 - 因电路合线而引发火灾或伤害。
- 2、接入电源之后,切勿随意拆卸。
 - 因触电而引发伤害,或因电路合线而引发火灾。
- 3、清洗仪器时切勿使用引火性物质。
 - 由于发生火灾而引起伤害。
- 4、不要损伤电源插头,插座松弛时请不要使用仪器。
 - 电路连接不稳定时,将引起发热及燃火危险。
- 5、输送机工作时请不要接触移送部及驱动部。
 - 会导致手的卷入而发生严重的伤害。

- 1、Insert the power plug into a waterproof socket. Improper wiring may cause fire or injury.
- 2、Do not disassemble the equipment arbitrarily after connecting to the power supply. This may result in electric shock, fire, or injury due to improper wiring.
- 3、Do not use flammable substances when cleaning the instrument. This may cause fire and subsequent injury.
- 4、Do not damage the power plug. Do not use the instrument if the socket is loose. Unstable circuit connections may lead to overheating and fire hazards.
- 5、Do not touch the conveying part or driving part when the conveyor is in operation. This may result in serious injury caused by hand entanglement.



注意

若违反此指示事项,将导致轻微的伤害或产品的异常。

Caution

Violation of these instructions may result in minor injury or equipment malfunction.

- 1、切勿以尖锐的工具或手指按开关。
 - 可破坏防水层而导致仪器的异常。
- 2、勿让温度变化过大。
 - 温度急剧变化时,仪器将发生致命的故障。
- 3、安装时,请避开发热体或直射光线。
 - 若产品内部的温度偏差过大时,仪器将发生致命的故障。
- 4、安装时请避开有严重振动之处。
 - 否则,因噪音而导致错误动作。
- 5、务必要连接接地线。
 - 否则,因漏电而引发触电现象。

- 1、Do not press the switch with sharp tools or fingers. This may damage the waterproof layer and cause equipment malfunction.
- 2、Avoid extreme temperature changes. Sudden temperature fluctuations may lead to fatal equipment failures.
- 3、During installation, keep the equipment away from heat sources or direct sunlight. Excessive internal temperature deviation caused by improper placement may result in fatal equipment failures.
- 4、Install the equipment in a location free of severe vibration. Otherwise, noise may cause incorrect operation.
- 5、Ensure a reliable ground connection is made. Failure to do so may result in electric shock due to leakage current.

特别说明

除指定维修员或本公司认可的人员之外,任何人不得拆卸或改造产品。
(会引发致命的伤害危险或因私自改动导致的故障时要支付维修费用)

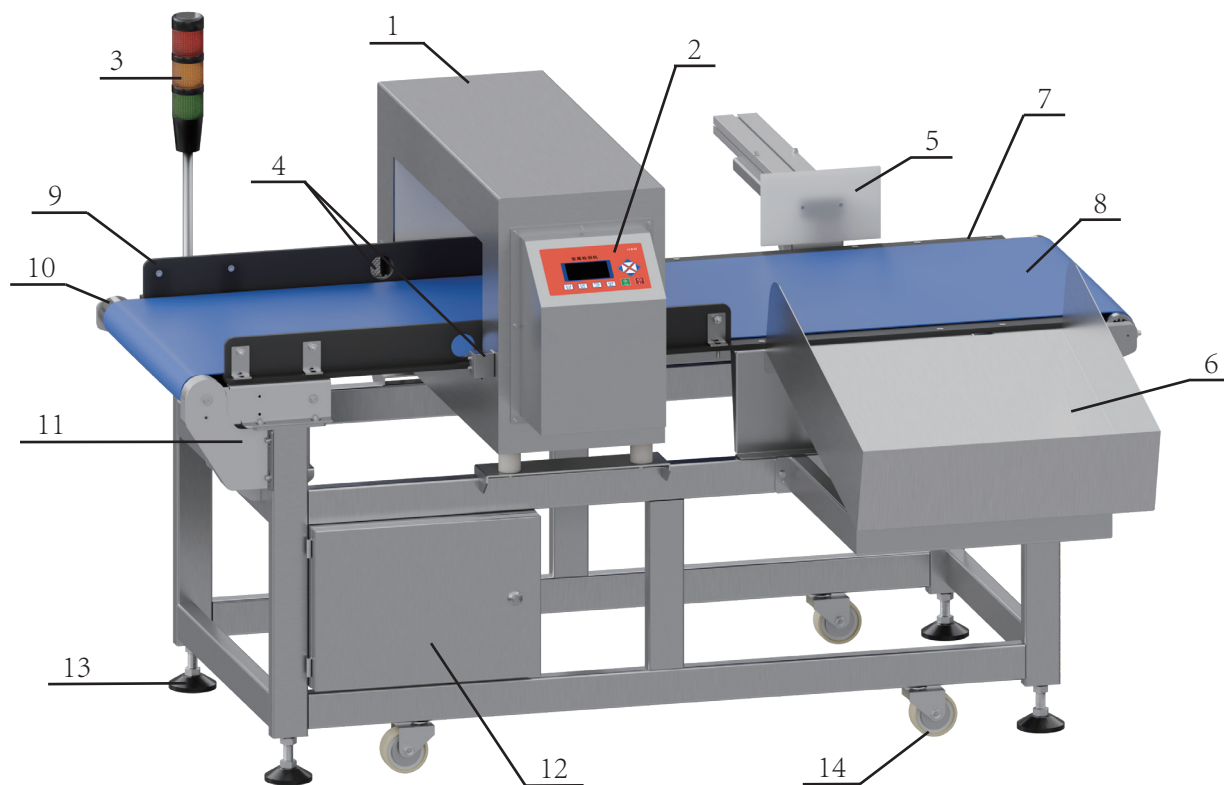
Special Notes

Except for designated maintenance personnel or personnel authorized by our company, no one is allowed to disassemble or modify this product.
(Failure to comply may result in fatal injury risks, and repair costs shall be borne by the user for malfunctions caused by unauthorized disassembly or modification.)

2.设备结构介绍 Equipment Structure Introduction

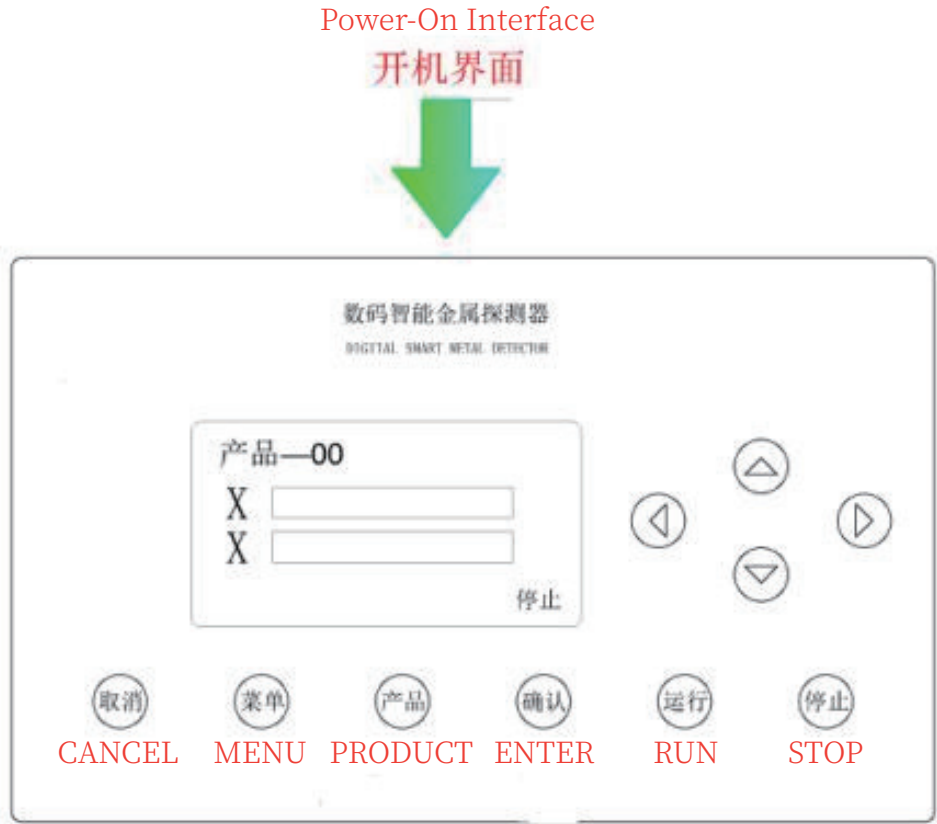
以下是金属检测机图示与部件介绍:

The following is the diagram and component introduction of the metal detector:



- | | |
|----------|------------------------------|
| 1.金属探测头 | 1. Metal Detection Head |
| 2.控制显示面板 | 2. Control and Display Panel |
| 3.报警灯 | 3. Alarm Light |
| 4.光眼 | 4. Photoelectric Sensor |
| 5.剔除器 | 5. Rejector |
| 6.剔除收集器 | 6. Rejected Collector |
| 7.电木板 | 7. Bakelite Plate |
| 8.皮带 | 8. Conveyor Belt |
| 9.挡板 | 9. Baffle |
| 10.主动辊筒 | 10. Driving Roller |
| 11.电机 | 11. Motor |
| 12.电源箱 | 12. Power Supply Box |
| 13.脚杯 | 13. Leveling Foot |
| 14.脚轮 | 14. Caster |

3.按键说明 Key Instructions



按键动作说明

- 按操作面板上的上、下键移动光标条, 将光标条移到需要选择的菜单上。
- 一级二级按操作面板上确认(ENTER)键, 可进入下一级菜单。
- 三级菜单按面板上确认键(ENTER)将设置或调整好的参数存储, 并返回上一级菜单。
- 按操作面板上取消键(CANCEL)返回上一级菜单, 此动作在有对参数进行设置或调整时, 将不会存储置过好的参数。

Key Operation Instructions

- Press the Up/Down keys on the operation panel to move the cursor bar to the desired menu.
- For the first-level and second-level menus, press the ENTER key on the operation panel to access the next-level menu.
- For the third-level menu, press the ENTER key on the panel to save the set or adjusted parameters and return to the previous-level menu.
- Press the CANCEL key on the operation panel to return to the previous-level menu. If parameters have been set or adjusted, this action will not save the modified parameters.

调机密码: 8526

Calibration Password: 8526

4.设置操作说明 Setup and Operation Instructions

“产品参数”的菜单级别及操作说明:

Menu Levels and Operation Instructions for Product Parameters:

一级菜单显示操作界面

The first-level menu displays the operation interface.



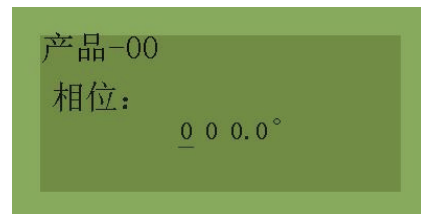
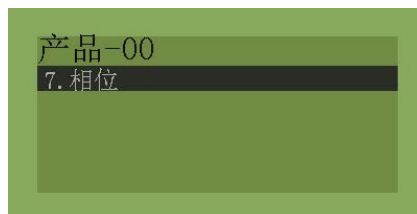
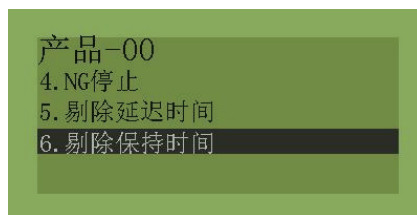
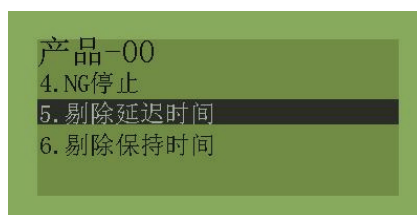
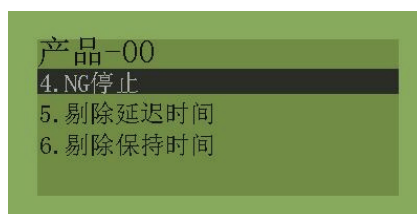
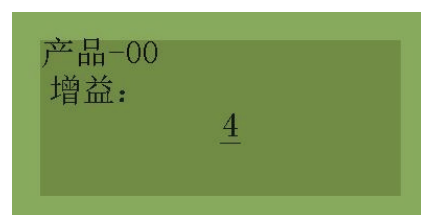
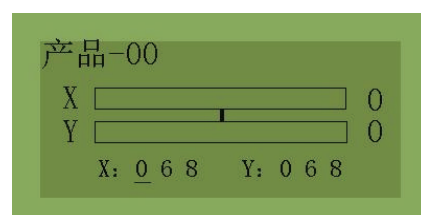
二级菜单显示操作界面

The second-level menu displays the operation interface.



三级菜单显示操作界面

The third-level menu displays the operation interface.



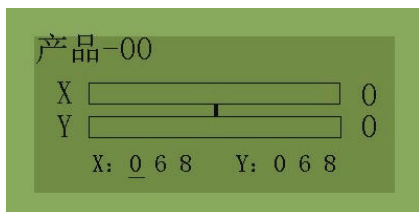
“产品参数”三级菜单的参数设置操作说明:

Operation Instructions for Parameter Setting in the Third-level "Product Parameters" Menu:



产品名称 Product Name

- 参数设置操作说明: 按上、下、左、右键将光标条移动到需要的字母上, 按确认件选取该字母, 依旧此类推, 选取完需要的字母后将光标条移动显示屏中“确定”处, 按下“确认”(ENTER)键存储返回至上一级菜单; 按“取消”(CANCEL)键则不存储参数返回上一级菜单。
 - 参数说明及注意事项: 设置产品名称时只能设置产品的中文拼音名称或英文名称, 产品名称长度不超过 9 个字母。
- Parameter Setting Operation Instructions: Press the Up, Down, Left, and Right keys to move the cursor bar to the desired letter, then press the ENTER key to select it. Repeat this process. After selecting all required letters, move the cursor bar to the "Confirm" option on the display screen and press the ENTER key to save the settings and return to the previous-level menu. Press the CANCEL key to return to the previous-level menu without saving the parameters.
 - Parameter Description and Notes: When setting the product name, only Chinese Pinyin names or English names are allowed. The length of the product name shall not exceed 9 characters.



灵敏度 Sensitivity

- 参数设置操作说明: 按左、右键将光标条移动到需要的数字上, 按上、下键将对该数字进行增减, 数值设置完成后按下“确认”(ENTER)键存储设置好的参数并返回至上一级菜单; 按“取消”(CANCEL)键则不存储参数返回上一级菜单。
 - 参数说明及注意事项: 灵敏度的参数设置一般是在手动设置产品参数时, 或是在产品参数“自动设定”完成后需要对灵敏度参数进行微调时, 才会进行设置。X值、Y值范围为0-300, 数值越大灵敏度越高。
- Parameter Setting Operation Instructions: Move the cursor bar to the desired number by pressing the Left/Right keys. Adjust the number up or down using the Up/Down keys. After setting the value, press the ENTER key to save the configured parameter and return to the previous-level menu. Press the CANCEL key to return to the previous-level menu without saving the parameter.
 - Parameter Description and Notes: The sensitivity parameter is generally set when manually configuring product parameters, or when fine-tuning the sensitivity parameter is required after the "Auto Setup" of product parameters is completed. The range of X value and Y value is 0-300; the larger the value, the higher the sensitivity.

产品-00
增益:

4

增益 Gain

- 参数设置操作说明: 按上、下键将对该数字进行增减, 数值设置完成后按下“确认”(ENTER)键存储设置好的参数并返回至上一级菜单; 按“取消”(CANCEL)键则不存储参数返回上一级菜单。
 - 参数说明及注意事项: 灵敏度的参数设置一般是在手动设置产品参数时, 或是在产品参数“自动设定”完成后需要对灵敏度参数进行微调时, 才会进行设置。增益值范围为 1-4, 数值越大灵敏度越高。
- Parameter Setting Operation Instructions: Adjust the number up or down using the Up/Down keys. After setting the value, press the ENTER key to save the configured parameter and return to the previous-level menu. Press the CANCEL key to return to the previous-level menu without saving the parameter.
 - Parameter Description and Notes: The gain parameter is generally set when manually configuring product parameters, or when fine-tuning the sensitivity parameter is required after the "Auto Setup" of product parameters is completed. The gain value range is 1-4; the larger the value, the higher the sensitivity.

产品-00
NG停止:

允许 禁止

NG停止 NG Stop

- 参数设置操作说明: 按左、右键将光标条移动到需要的选择项上, 参数设置完成后按下“确认”(ENTER)键存储设置好的参数并返回至上一级菜单; 按“取消”(CANCEL)键则不存储参数返回上一级菜单。
 - 参数说明及注意事项: NG停止的“允许”和“禁止”选择项是机器报警时输送带是允许继续运转还是禁止运转, 一般情况下报警停机模式时选择“禁止”, 报警不停机自动剔除不合格品时选择“允许”。
- Parameter Setting Operation Instructions: Press the Left/Right keys to move the cursor bar to the desired option. After completing the parameter setting, press the ENTER key to save the configured parameter and return to the previous-level menu. Press the CANCEL key to return to the previous-level menu without saving the parameter.
 - Parameter Description and Notes: The "Enable" and "Disable" options for NG Stop determine whether the conveyor belt continues to operate or stops when the machine alarms. Generally, select "Disable" for the alarm stop mode, and select "Enable" for the mode where the machine alarms but does not stop, automatically rejecting unqualified products.

产品-00

剔除延迟时间:
1.0 0 0 S

剔除延迟时间 Rejection Delay Time

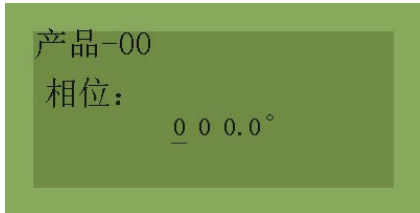
- 参数设置操作说明:按左、右键将光标条移动到需要的数字上,按上、下键将对该数字进行增减,数值设置完成后按下“确认”(ENTER)键存储设置好的参数并返回至上一级菜单;按“取消”(CANCEL)键则不存储参数返回上一级菜单。
 - 参数说明及注意事项:剔除延迟时间是指机器检测到金属产生报警后间隔多长时间输出动作信号到剔除机构进行剔除动作。数字越大,间隔时间越长,具体设置依据现场工作情况而定。
- Parameter Setting Operation Instructions: Press the Left/Right keys to move the cursor bar to the desired number. Adjust the number up or down using the Up/Down keys. After setting the value, press the ENTER key to save the configured parameter and return to the previous-level menu. Press the CANCEL key to return to the previous-level menu without saving the parameter.
 - Parameter Description and Notes: Rejection Delay Time refers to the interval between when the machine detects metal and triggers an alarm, and when it outputs an action signal to the rejection mechanism to execute the rejection. The larger the value, the longer the interval. The specific setting shall be determined according to on-site working conditions.

产品-00

剔除保持时间:
0.0 0 0 S

剔除保持时间 Rejection Hold Time

- 参数设置操作说明:按左、右键将光标条移动到需要的数字上,按上、下键将对该数字进行增减,数值设置完成后按下“确认”(ENTER)键存储设置好的参数并返回至上一级菜单;按“取消”(CANCEL)键则不存储参数返回上一级菜单。
 - 参数说明及注意事项:剔除保持时间是指机器的剔除机构进行剔除动作时,该动作连续保持多长时间。数字越大,保持时间越长,具体设置依据现场工作情况而定。
- Parameter Setting Operation Instructions: Press the Left/Right keys to move the cursor bar to the desired number. Adjust the number up or down using the Up/Down keys. After setting the value, press the ENTER key to save the configured parameter and return to the previous-level menu. Press the CANCEL key to return to the previous-level menu without saving the parameter.
 - Parameter Description and Notes: Rejection Hold Time refers to the duration for which the machine's rejection mechanism maintains the rejection action continuously when executing it. The larger the value, the longer the hold time. The specific setting shall be determined according to on-site working conditions.



相位 Phase

- 参数设置操作说明: 按左、右键将光标条移动到需要的数字上, 按上、下键将对该数字进行增减, 数值设置完成后按下“确认”(ENTER)键存储设置好的参数并返回至上一级菜单; 按“取消”(CANCEL)键则不存储参数返回上一级菜单。
- 参数说明及注意事项: 相位是指正弦波的相位角, 默认值为零, 一般在被检测产品有“产品效应”时, 在自动设定或手动设定产品参数时, 都会启用相位来抑制“产品效应”以取得最佳检测效果, 相位值为0-360°。

- Parameter Setting Operation Instructions: Press the Left/Right keys to move the cursor bar to the desired number. Adjust the number up or down using the Up/Down keys. After setting the value, press the ENTER key to save the configured parameter and return to the previous-level menu. Press the CANCEL key to return to the previous-level menu without saving the parameter.
- Parameter Description and Notes: Phase refers to the phase angle of the sine wave, with a default value of zero. Generally, when the detected product has a "product effect", the phase will be enabled during automatic or manual product parameter setting to suppress the "product effect" for optimal detection results. The phase value ranges from 0° to 360°.

“自动设定”操作说明:

Operation Instructions for "Auto Setup":

一级菜单显示操作界面
The first-level menu displays the operation interface.



二级菜单显示操作界面
The second-level menu displays the operation interface.



操作说明及注意事项
Operation Instructions and Notes

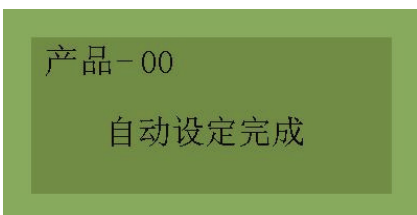
显示屏显示“等待”时, 必须保持检测通道或输送管道中干净无任何杂物。

When "Waiting" is displayed on the screen, the detection channel or conveying pipeline must be kept clean and free of any debris.

二级菜单显示操作界面
The second-level menu displays the operation interface.



机器自动向下一动作进行
The machine automatically proceeds to the next operation



按确认键(ENTER)一次将设置或调整好的参数存储,并返回一级菜单显示操作界面菜单。
Press the ENTER key once to save the configured or adjusted parameters and return to the first-level menu display operation interface.

将确认无金属杂质的待检测产品放在输送带上或通过输送管道自动通过检测通道 1 次,当产品通过后再次显示“等待”时,表明产品本身的干扰强烈,此时显示屏会随即再次提示“产品流入”,此时可按提示再次流入产品。一般情况下,只需将带检产品通过检测通道一次,即可自动完成产品参数的自动设定。

Place the product to be tested (confirmed free of metal impurities) on the conveyor belt or let it automatically pass through the detection channel once via the conveying pipeline. When "Waiting" is displayed again after the product passes through, it indicates that the interference from the product itself is strong. At this time, the screen will immediately prompt "Product Inflow" again, and you can feed the product again as instructed. Generally, the automatic setup of product parameters can be completed automatically by letting the product to be tested pass through the detection channel only once.

当产品通过检测通道 1-2 次后,机器会自动进行产品参数的计算和设置,此时需耐心等待 10 秒中,计算和设置完成后,显示屏显示“自动设定完成”时,表示产品参数自动设定成功,按“确认(ENTER)”一次保存产品参数并自动返回上一级菜单。

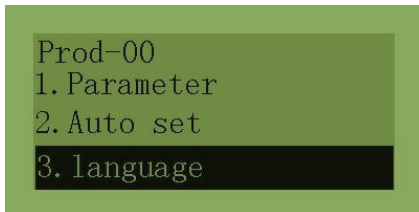
After the product passes through the detection channel 1-2 times, the machine will automatically calculate and configure the product parameters. At this time, please wait patiently for 10 seconds. When the calculation and configuration are completed and "Auto Setup Completed" is displayed on the screen, it indicates that the automatic setup of product parameters is successful. Press the ENTER key once to save the product parameters and automatically return to the previous-level menu.

“语言”选择操作说明:

Operation Instructions for Language Selection:

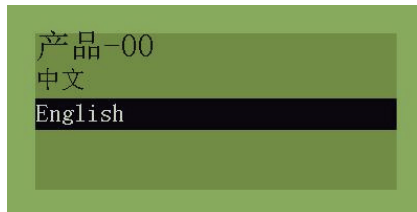
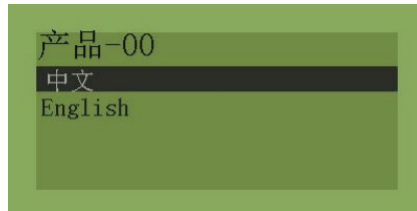
一级菜单显示操作界面

The first-level menu displays the operation interface.



二级菜单显示操作界面

The second-level menu displays the operation interface.



操作说明及注意事项

Operation Instructions and Notes

在一级菜单界面下将移动光标条至 3.语言菜单条,按“确认(ENTER)”键进入二级菜单的语言选择向,一般有“中文”、“English”两个选项,通过按键的上下键将光标条移动到需要选择的菜单选项上,按“确认(ENTER)”选取存储选择项返回上一级菜单,按“取消(CANCEL)”不存储选择项返回上一级菜单。操作语言选项可根据客户需要进行定制,如中、英、日、韩、俄、西班牙、土耳其等多种语言。

On the first-level menu interface, move the cursor bar to the "3. Language" menu item and press the ENTER key to access the language selection in the second-level menu. There are generally two options: "Chinese" and "English". Use the Up/Down keys to move the cursor bar to the desired menu option. Press the ENTER key to select and save the option, then return to the previous-level menu. Press the CANCEL key to return to the previous-level menu without saving the selection. Operating language options can be customized according to customer needs, such as Chinese, English, Japanese, Korean, Russian, Spanish, Turkish, and more.

5.使用与保养注意事项 Notes on Operation and Maintenance

为维护金属检测仪而须检查的事项。

Items to Be Inspected for Maintaining the Metal Detector.

日常检查事项 Daily Inspection Items

- 关闭电源 S/W,并将电源插头从插座上拔出。
- 将柔软的布(毛巾,绒)蘸上少许水或肥皂水,合成洗剂等,然后擦拭输送机的胶带及仪器的外部。
- 转动输送带并除去表面及内部的污垢,同时应彻底除去湿气。(为使金属检测仪常维持检测敏感度,输送带的清洁状态是关键条件,因此要彻底施行)。
- 输送带表面与本仪器要保持一定间隔,以保证互不接触。
- 稀料,苯,丙酮,轻油,煤油,汽油等具有强刺激性的物质及过多水份将导致输送带的损伤及变形,因此要严禁使用。
- Turn off the power switch and unplug the power plug from the socket.
- Dampen a soft cloth (towel, flannel) with a little water, soapy water, synthetic detergent, etc., then wipe the conveyor belt and the exterior of the instrument.
- Rotate the conveyor belt to remove dirt from the surface and interior, and thoroughly remove moisture. (To maintain the detection sensitivity of the metal detector, the cleanliness of the conveyor belt is a key condition, so this must be performed thoroughly.)
- Maintain a certain distance between the conveyor belt surface and the instrument to ensure they do not come into contact with each other.
- Strongly irritating substances such as thinner, benzene, acetone, light oil, coal oil, gasoline, and excessive water can cause damage and deformation of the conveyor belt, so their use is strictly prohibited.

月检查事项 Monthly Inspection Items

- 检查金属检测功能。
- 检查输送带的破损与否。
- 检查电机及驱动部的磨耗与否。
- 检查电气方面有无缺陷。
- 为使金属检测仪维持灵活的性能,应接受公司所提供的年度检查。
- Check the metal detection function.
- Check whether the conveyor belt is damaged.
- Check for wear on the motor and drive unit.
- Check for electrical defects.
- To maintain the flexible performance of the metal detector, annual inspections provided by the company should be conducted.

6. 仪器发生异常时的应付要领 Response Guidelines for Abnormalities

故障现象

Malfunction Phenomena

连接电源后仪器仍不工作。

The instrument still does not work after connecting to the power supply.

简单的维修方法

Simple Maintenance Methods

1、确认电源连接口。

2、确认电源设备中的电源开关。

3、确认电源设备中的保险丝。

4、确认电源设备是否与仪器中的连接器相连接。

1. Confirm the power connection port.

2. Confirm the power switch on the power supply device.

3. Confirm the fuse in the power supply device.

4. Confirm whether the power supply device is connected to the connector in the instrument.

未能检测出金属。

Failed to detect metal.

1、确认产品的特性是否被正确登录。

2、确认产品的灵敏度是否被设定成过低。

1. Confirm whether the product characteristics have been correctly registered.

2. Confirm whether the product sensitivity has been set too low.

无金属,但仍报警动作。

No metal present, but the alarm still activates.

1、确认输送带的清洁状态。

2、确认产品及输送带是否接触着隧道内部而通过。

3、确认周围是否存在可导致振动或撞击的因素。

4、确认本仪器之附近是否有金属体,异常物及使用强电力的机器。

5、产品的检测灵敏度是否被设定成过高。

6、所通过的产品是否过量含有可对本仪器造成影响的异常物[如碳,盐,化学成份等]。

1. Confirm the cleanliness of the conveyor belt.

2. Confirm whether the product and the conveyor belt pass while contacting the inside of the tunnel.

3. Confirm if there are any factors around that may cause vibration or impact.

4. Confirm if there are any metal objects, foreign substances, or machines using high power near the instrument.

5. Confirm whether the detection sensitivity of the product has been set too high.

6. Confirm whether the passing products contain excessive foreign substances [such as carbon, salt, chemical components, etc.] that may affect the instrument.

故障现象

Malfunction Phenomena

难以选择并登录产品的特性。

It is difficult to select and register the product characteristics.

简单的维修方法

Simple Maintenance Methods

- 1、将产品的灵敏度调小后再试。
 - 2、该产品的特性(位相)过大而发生的问题。(请向本公司咨询)。
 - 3、输送带无法驱动或无法停止。
 - 4、确认输送机的连接装置。确认延迟时间的设定,再确认电源设备的连接状态。
1. Reduce the product sensitivity and try again.
 2. This issue occurs because the characteristics (phase) of the product are excessively large. (Please consult our company.)
 3. The conveyor belt cannot be driven or stopped.
 4. Confirm the connection device of the conveyor. Verify the setting of the delay time, then confirm the connection status of the power supply device.

7.主要技术指标 Main Technical Specifications

电源电压: AC220V/380V ; 50HZ \pm 10%

总功率: 130-1140W ; (仪器 40W;电机 60W-400W)

输送带速度:定速:24m/min, 调速:0-35 m/min

- 备注:有加装变频器调试的设备,建议速度值在 18-24 米/分钟,(变频器显示的频率范围在 38-55 之间)。

Power Supply Voltage: AC220V/380V; 50HZ \pm 10%

Total Power: 130-1140W; (Instrument: 40W; Motor: 60W-400W)

Conveyor Belt Speed: Fixed speed: 24m/min; Variable speed: 0-35 m/min

Remarks: For equipment equipped with an inverter for speed adjustment, the recommended speed is 18-24 meters per minute (the frequency range displayed on the inverter is 38-55).