



在线式系列
ZMH Inline series

智能焊锡机器人
Intelligent Soldering Robot



扫码查看公众号



扫码查看视频号

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智能焊锡机器人

Intelligent Soldering Robot

专为焊锡应用开发的机器人

A Robot Developed Specifically for Soldering Applications

智

高智能

High Intelligence

卡锡智能警报
Intelligent alarm for tin
clogging
缺锡智能警报
Intelligent alarm for tin
shortage
耗材监控预警
Real-time material
monitoring and
adjustment
智能生产报表
Smart production reports

速

高效率

High Efficiency

高效焊锡工艺
High-efficiency soldering
process
运行灵活稳定
Flexible and stable
operation
大功率输出
High-output
performance
高速热传导
Fast heat conduction

准

高精度

High Precision

新型精准算法
New precision algorithm
高精度编码器
High-accuracy encoder
精准控制控温
Precision control driver
智能总线控制
Intelligent integrated
control system

易

易上手

Easy to use

工艺简单易懂
Simple and intuitive
process
操作简单便捷
Easy and convenient
operation
人机交互优越
Optimized human-
machine interaction
可视化显示直观
Visualized real-time
display

洁

高清洁

High Cleanliness

精配烟雾处理
Precise fume treatment
快速净化空气
Rapid air purification
高效锡渣回收
Efficient tin slag
recycling
减少锡渣飞溅
Reduced solder spatter

应用场景：军工、汽车、医疗、新能源、3C、等行业

Application Scenarios: Military, Automotive, Medical, New Energy, 3C Electronics, and more.

智能温控器 Intelligent Temperature Controller

智能控温液晶显示;
室温-370 度升温 50秒; 精准 ± 2
RS485通信设定和读取;
温度上下限IO报警;
发热芯, 传感器故障报警;
休眠设定。
Intelligent tin temperature display:
Room Temperature-370 °C adjustable, resolution 0.5 °C, ± 2
°C accuracy
RS485 communication for remote read/write
Temperature upper/lower limit alarm
Tin outflow alarm, transmission disconnection alarm, rest mode, etc.



烙铁头清洁盒

Soldering Iron Cleaning Box

内置电磁阀, 自动控制;
后抽式锡渣贮料盒;
缓冲钢丝球, 避免锡渣飞溅
多角度; 气流量可调。
Built-in tin slag collection
Automatic control
Supports both steel wire cleaning and air blowing
Effectively reduces solder spatter
Ensures consistent soldering quality



读码器/扫码枪 Barcode Scanner / QR Code Reader

读取产品一维码或者
二维码
For reading product barcodes
Supports 1D and 2D codes



支持选配视觉相机 Optional Vision Camera Supported

支持Socket通讯\坐标数据交互
Socket-based communication
Coordinate data exchange supported



破锡型精密送丝机 Precision Solder Wire Feeder (Stepper Motor Type)

卡锡缺锡报警功能;
送丝压紧力自适应;
锡丝直径范围0.8-1.2;
有效减少锡珠的产生和飞溅;
送锡精度 ± 1 mm;速度-50mm/s
Built-in wire jamming detection
Self-adaptive to wire pushing force
Suitable wire diameter: 0.8-1.2 mm
Feeding accuracy: ± 1 mm
Speed: ≤ 50 mm/s



普通型精密送丝机 Precision Solder Wire Feeder (DC Motor Type)

送丝压紧力自适应;
锡丝直径范围0.8-1.2;
送锡精度 ± 1 mm;
速度-50mm/s
Cost-effective wire feeding option
Suitable wire diameter: 0.8-1.2 mm
Feeding accuracy: ± 1 mm
Speed: ≤ 50 mm/s



烟雾采集嘴 Smoke collection nozzle



工控电脑 Industrial Control Computer

运行上位机系统
采集存储焊点数据
对接MES
Runs upper-layer control systems
Compatible with barcode scanners
and MES integration



焊锡模组 Soldering Module

320W大功率、0-45度, 多角度焊接;
专利定位烙铁头设计、Z 轴同心设计。
320 W high power, 0-45 °C adjustable angle
Modular design for flexible configurations
Professional-grade design
Z-axis vertical motion supported



人机交互:

Human-Machine Interaction:

运行, 暂停, 急停, 待机等, 弹出式交互信息
视觉拍照引导定位, 数据交互
耗材寿命预警提示

Status display: Running, paused, emergency stop, standby, alarms, etc.

Pop-up information prompts

Visual and voice guidance + data interaction=

Support for barcode scanning and material changeover confirmation



报错信息:

Alarm Notifications:

锡丝缺料, 锡丝卡料, 温控异常报警等

焊点焊接结果: 完成, 未完成等

其他: X/Y/Z 轴报错等

Solder joint abnormalities, solder wire breakage, temperature out-of-range alarms

Soldering results classification: OK, NG, incomplete, unknown, etc.

Others: XYZ axis abnormal alarms, etc.



便捷维护:

Easy Maintenance & Upgrade:

模块化设计, 便于升级更换

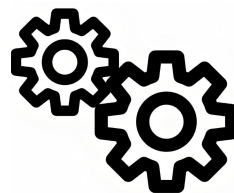
丰富的线上视频教程

专业技术人员远程支持

Modular design for easy expansion and upgrades

Rich diagnostic information interface

Remote support by professional technicians



硬件配置:

Hardware Configuration:

汇川Ethercat总线伺服高速电机

台湾上银谐波减速机, 丝杠, 导轨, 亚德客气动部件

自研开发专用16轴控制系统

Ethercat bus-based high-speed motion controller

TAIWAN Hiwin Harmonic Drive, Ball Screw, Linear Guide, AIRTAC

Pneumatic Components

Proprietary 16-axis control system



设备自检:

Device Self-Diagnosis:

上电检查各轴伺服电机状态

传感器状态

机械手姿态, 位置区域, 复位状态

Real-time monitoring of motor and drive statuses

Sensor State

Manipulator Posture, Position Zone, Reset Status



安全防护:

Safety Protection:

机器人: 安全电子围栏, 底座围栏, 关节角度限值

防护IO端口: 光栅, 门磁, 急停, 暂停, 停止

Robot: Safety electronic fence, base enclosure, joint angle limit

Protection IO ports: Light curtain, door sensor, emergency stop,

pause, stop

ZMH

在线焊锡机器人
Inline Soldering Robot

610

机器人编号
Robot No

R

旋转轴
Rotary Shaft

15/32

15: 150W温控器
32: 320W温控器
15: 150W Temperature Controller
32: 320W Temperature Controller

T/P

T: 普通送丝机
P: 破锡型送丝机
T: Standard Feeder
P: Breaking-Point Feeder

产品选型 Product Model	温控器 Temperature Controller	送丝机 Feeder Type	适用锡丝 Applicable Solder Wire
ZMH-610R-15T	150W	标准送丝机 Standard Feeder	Φ0.5-1.2mm
ZMH-610R-15P	150W	破锡型送丝机 Breaking-Point Feeder	Φ0.8-1.2mm
ZMH-610R-32T	320W	标准送丝机 Standard Feeder	Φ0.5-1.2mm
ZMH-610R-32P	320W	破锡型送丝机 Breaking-Point Feeder	Φ0.8-1.2mm

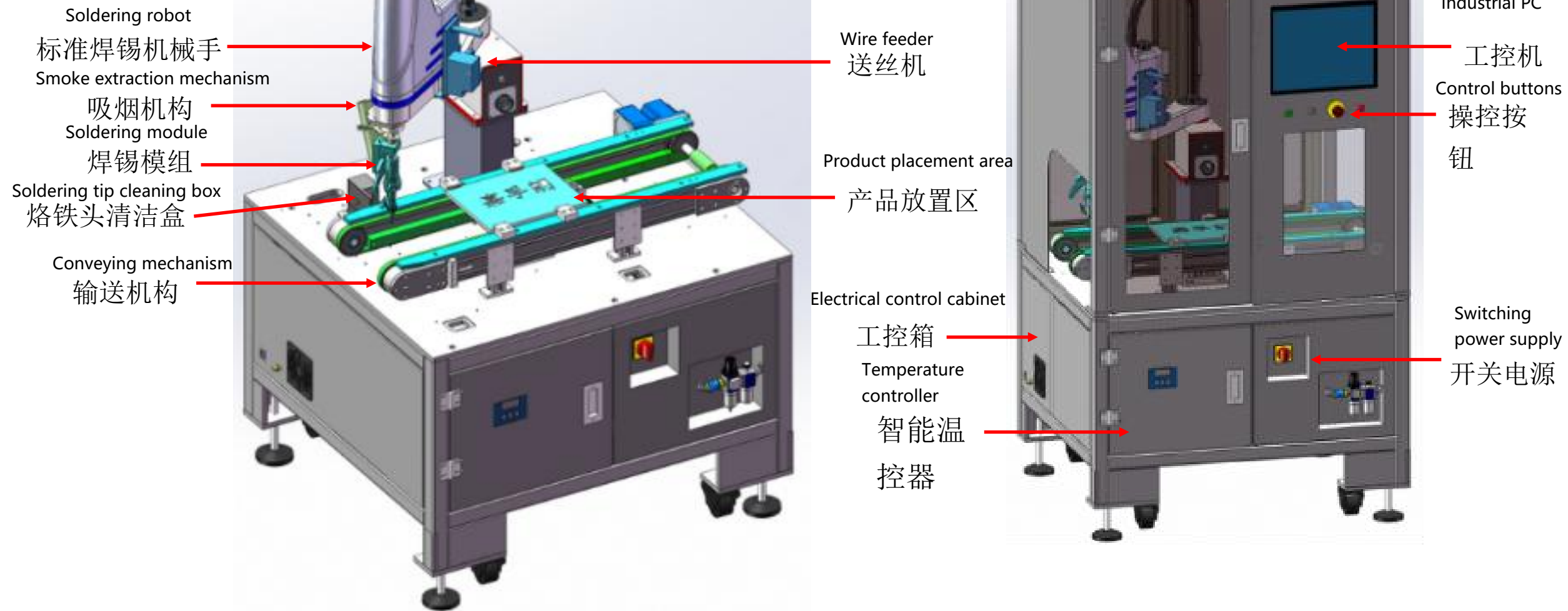
功能Functions

- ✧ SCARA机械手运动控制软件，支持点，直线运动;
- ✧ 水平多关节机械手机构，轻松驾驭各种空间;
- ✧ 支持150W/320W焊锡模组;
- ✧ 预置专用焊锡工艺包，点焊，拖焊，抖焊等;
- ✧ 支持IO输入、输出、等待、逻辑控制功能;
- ✧ 治具及物料传输IO控制功能;
- ✧ 支持与上位机通讯，传递生产数据(数据和方式详询);
- ✧ 安全防护接口(急停，光栅，门磁，暂停);
- ✧ 支持相机引导定位(详见第11项);
- ✧ RJ45网口1：支持Ethercat扩展;
- ✧ RJ45网口2：支持Modbus-RTU(主机)/RS-485;
- ✧ RJ45网口3：支持EthernetTCP;
- ✧ 串口：输入25Pin，输出15Pin;(IO数量见IO表);
- ✧ USB接口：U盘。

- ✧ SCARA Robotic Arm Motion Control Software – Supports point-to-point and linear motion.
- ✧ Horizontal Multi-Joint SCARA Structure – Easily handles complex spatial operations;
- ✧ Supports 150W / 320W Soldering Modules.
- ✧ Preloaded Specialized Soldering Packages – Spot soldering, drag soldering, shaking soldering.
- ✧ Supports I/O Functions – Input, output, delay, logic control.
- ✧ Fixture and Material Transfer I/O Control.
- ✧ Supports Communication with Host System – Production data transfer (details available upon request).
- ✧ Safety Protection Interfaces – Emergency stop, light curtain, door sensor, pause.
- ✧ Supports Vision-Guided Positioning (see Item 11 for details).
- ✧ RJ45 Port 1 – Supports EtherCAT expansion.
- ✧ RJ45 Port 2 – Supports Modbus-RTU (Master) / RS-485.
- ✧ RJ45 Port 3 – Supports Ethernet TCP.
- ✧ Serial Port – 25-pin input, 15-pin output (see I/O specification for details).
- ✧ USB Port – U-disk support.

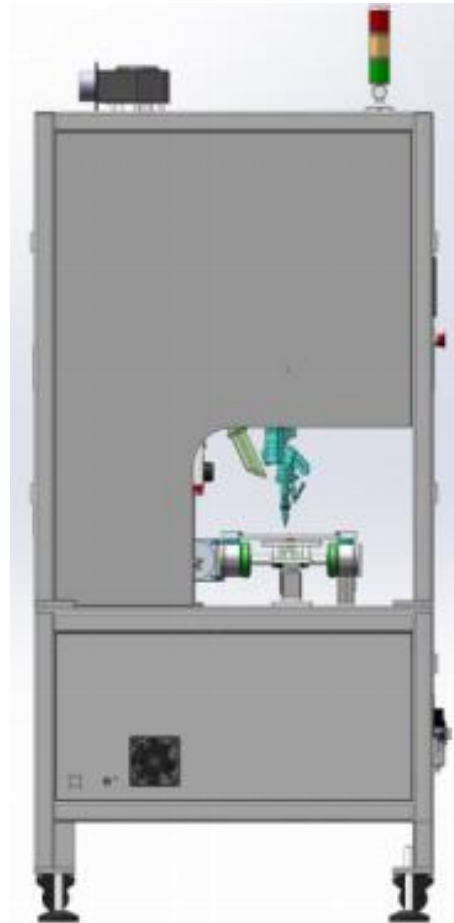
产品型号：	ZMH-610R系列	臂展：	600mm
重复精度：	±0.02mm		
最大速度：	轴1/2： 350°/s、 Z轴： 500mm/s、 R轴： 0.1-300°/s		
焊锡效率：	1-5秒/焊点（不同焊点会有差异）		
输入电压：	AC 210~230V		
示教方式：	使用编程器示教		
文件容量：	可预存1000组程序， 每组程序可编辑2000个焊点		
工作范围：	轴 1：	±135°	Z 轴： 0-200mm
	轴 2：	±135°	R轴： 360°
温度控制：	控温精度：	空载状态， ±2℃（150W ） ±5℃（320W）	
	控温范围：	50-500℃	温度补偿： ±50℃
加热模组：	发热芯功率：	150W 、 320W 二选一	
送丝机构：	适用锡丝：	标准送丝机：Φ0.5-1.2mm、破锡型送丝机： Φ0.8-1.2mm	
设备重量：	单机器人重量≈25kg， 不含温控器。电控箱重量≈19kg		

Product Model：	ZMH-610R Series	Arm Span：	600mm
Repeatability:	±0.02mm		
Max Speed:	Axis 1/2： 350°/s、 Z-Axi： 500mm/s、 R-Axi： 0.1-300°/s		
Soldering Efficiency：	1—5 seconds per point (depending on solder joint type)		
Input Voltage：	AC 210-240V		
Teaching Method：	Teaching via handheld programmer		
Program Capacity：	Up to 1000 programs, each with up to 2000 solder points		
Working Range：	Axis 1：	±135°	
	Axis 2：	±135°	
	Z-Axis：	200mm	R-Axis：
Temperature Control:	Accuracy：	±2°C（150W no-load） 、 ±5°C（320W/500W no-load）	
	Temperature Range:	50-500°C	Temperature Compensation：
Heating Module：	Heating Core Powe：	150W or 320W (select one)	
Wire Feeding Mechanism：	Applicable Solder Wire：	Standard Feeder： Φ0.5-1.2mm、 Breaking-Point Feeder： Φ0.8-1.2mm	
Equipment weight：	Robot unit weight: approx. 25 kg (excluding temperature controller); electrical control box weight: approx. 19 kg.		





W1000mm



D 1100mm

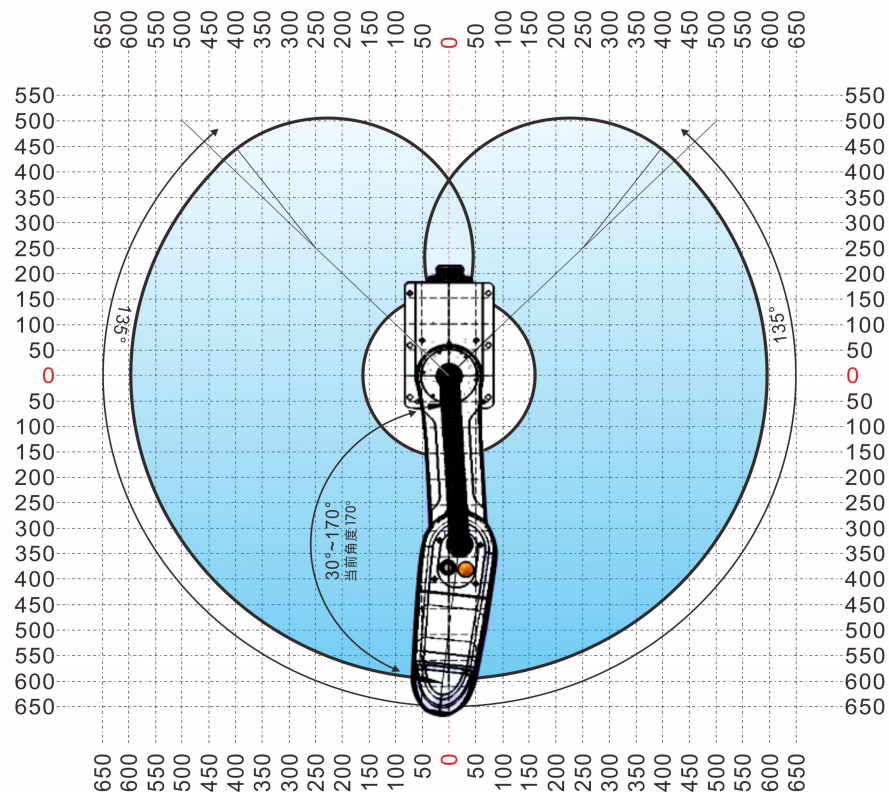
H 2020mm



焊锡机器人
Soldering robot

本尺寸为外形描述尺寸，具体以3D模拟为准

The dimensions shown are for outline description only; please refer to the 3D simulation for exact specifications.



600mm臂展行程图

具体行程覆盖范围可提供3D图实际模拟

600 mm Arm Reach Travel Diagram

The exact coverage of the motion range can be provided via 3D simulation upon request.

600mm臂展工作区域对应表
600 mm Arm Reach Travel Diagram

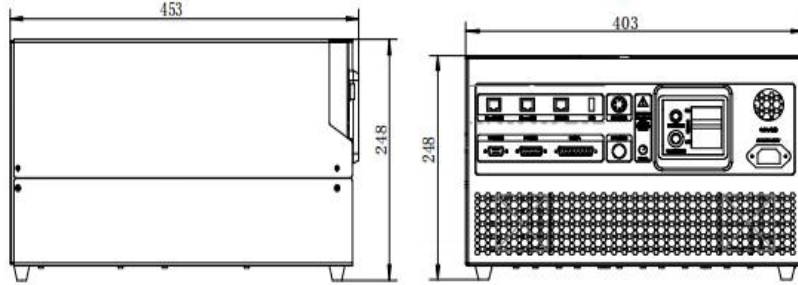
长 (mm) L (mm)	宽 (mm) W (mm)	高 (mm) H (mm)
1000	160	0~200
950	199	
900	230	
850	255	
800	280	
750	300	
700	320	
650	338	
600	352	
550	366	
500	379	
450	390	
400	400	
350	408	

450mm臂展工作区域对应表
450 mm Arm Reach Travel Diagram

长 (mm) L (mm)	宽 (mm) W (mm)	高 (mm) H (mm)
700	50	0~200
650	130	
600	150	
550	165	
500	185	
450	205	
400	220	
350	230	
300	240	
250	245	
200	260	
150	265	
100	270	



外形尺寸: W403XH248XD453mm
Boundary Dimension: W403XH248XD453mm



电控箱接口说明

Electrical control box interface description

1	Ethercat总线 EtherCAT bus	7	DO/输出(15Pin) DO / Digital Output (15-pin)
2	EthernetTCP网口 Ethernet TCP/IP port	8	DI/输入(25Pin) DI / Digital Input (25-pin)
3	Modbus-RTU/RS-485 (主机模式 Host Mode)	9	ATP2/航插2(备用) ATP2 / Aviation Connector 2 (Spare)
4	USB接口 USB interface	10	电控箱电源开关盒 Electrical control box power switch box
5	ATP1/航插1(供料器) ATP1 / Aviation Connector 1 (Screw Feeder)	11	Cable电缆口 Cable / Cable Port
6	示教器接口 (TP) Teach pendant interface (TP)	12	电源接口 (AC200V-235V) Power Input (AC200V-235V)

标配线束清单 Standard Wiring Harness List

序号 No	名称 Name	订货号 Order Number	数量 QTY	图片 Image
1	连接主电缆 Connecting main cable 3M	BZ230612004	1PCS	
2	25Pin线缆 25Pin cable 2M	HC3210716	1PCS	
3	15Pin线缆 15Pin cable 2M	HC3210715	1PCS	
4	电源线 Power cord 1.5M	DL3070960	1PCS	
5	示教器及连接线 Demonstrator and connecting cable	BZ2210517	1PCS	
6	吹锡盒信号线2.5M Feeder Signal Cable 2M	/	1PCS	/

说明: 机箱电缆接口端最大直径为: 40mm, 设备电缆过孔建议开孔直径 > 45mm

Note: The maximum diameter of the cable interface port on the control cabinet is 40mm. It is recommended that the cable entry hole on the equipment be larger than 45mm in diameter.

焊锡机IO端口线功能定义说明

Screw Machine IO Port Cable Function Definition

DB25输入接口/线缆定义(NPN型,共地有效) DB25 Input Interface / Cable Definition (NPN type, common ground effective)				DB15输出接口/线缆定义(NPN型,共地有效) DB15 Output Interface / Cable Definition (NPN type, common ground)					
引脚/线色 Pin / Wire Color	IO功能 IO Function	引脚/线色 Pin / Wire Color	IO功能 IO Function	引脚/线色 Pin / Wire Color	IO功能 IO Function	引脚/线色 Connector (GX16-5)		IO功能 IO Function	
1黑(IN1) 1Black(IN1)	自定义 Customizable	14棕白(IN14) 14Brown-White(IN14)	手动进锡 Manual solder feeding	1黑(OUT5) 1Black(OUT5)	Ready	14浅绿 14Light Green		COM(GND)必接 COM(GND) Must Connected	
2棕(IN2) 2Brown(IN2)	自定义 Customizable	15 红白(IN15) 15Red-White(IN15)	手动退锡 Manual solder retraction	2棕(OUT6) 2Brown (OUT6)	Running	15浅蓝 15Light Blue		内置24V+ Internal 24V+	
3红(IN3) 3Red(IN3)	自定义 Customizable	16橙白(IN16) 16Orange-White(IN16)	默认光栅 Default: Light Curtain	3红(OUT7) 3Red (OUT7)	Paused	航插接口(GX16-5) Aviation Connector(GX16-5)			
4橙(IN4) 4Orange (IN4)	自定义 Customizable	17绿白(IN17) 17Green-White(IN17)	默认跳过 Default skip	4橙(OUT8) 4Orange (OUT8)	错误输出 Error Output	1	GND	吹锡盒 Soldering tip cleaner box	
5黄(IN5) 5Yellow(IN5)	自定义 Customizable	18蓝白(IN18) 18Blue-White(IN18)	默认继续 Default: Continue	5黄(OUT9) 5Yellow (OUT9)	信息组合1 Info Combination 1	2	自定义 Customizable		
6绿(IN6) 6Green(IN6)	自定义 Customizable	19紫白(IN22) 19 Purple-White(IN22)	启动(固定) Start (Fixed)	6绿(OUT10) 6Green (OUT10)	信息组合2 Info Combination 2	3	GND		
7蓝(IN7) 7Blue(IN7)	自定义 Customizable	20红黑(IN23) 20Red-Blac(IN23)	暂停(固定) Pause (Fixed)	7蓝(OUT11) 7Blue (OUT11)	信息组合3 Info Combination 3	4	清洗吹气 Air blow cleaning		
8紫(IN8) 8Purple(IN8)	自定义 Customizable	21橙黑(IN19) 21Orange-Black(IN19)	复位(固定) Reset (Fixed)	8紫(OUT12) 8Purple (OUT12)	信息组合4 Info Combination 4	5	内置+24V Internal +24V		
9灰(IN9) 9Gray(IN9)	自定义 Customizable	22黄黑(IN24) 22Yellow-Black(IN24)	紧急停止_1 Emergency Stop 1	9灰(OUT13) 9Gray(OUT13)	自定义 Customizable	485网口(RJ45) 485 Network Port (RJ45)			
10白(IN10) 10White(IN10)	自定义 Customizable	23绿黑(IN24) 23Green-Black(IN24)	紧急停止_2 Emergency Stop 2	10白(OUT14) 10White (OUT14)	自定义 Customizable	1		5	485_B
11粉红(IN11) 11Pink(IN11)	自定义 Customizable	24灰黑 24Gray-Black	COM(GND)必接 COM(GND) Must connect	11黑白(OUT15) 11Black-White(OUT15)	自定义 Customizable	2		6	
12浅绿(IN12) 12Light Green(IN12)	自定义 Customizable	25粉红黑 25Pink-Black	内置24V+ Internal 24V+	12棕白(OUT16) 12Brown-White(OUT16)	自定义 Customizable	3	GND	7	
13黑白(IN13) 13Black-White(IN13)	手动清洗 Manual Cleaning			13粉红 13Pink	悬空 Floating	4	485_A	8	

DB15输出默认信息组合(二进制)定义: 0表示OFF, 1表示ON

DB15 output default information combinations (binary) definition: 0 means OFF and 1 means ON

引脚编号 Pin numbers	8	7	6	5	引脚编号 Pin numbers	8	7	6	5	引脚编号 Pin numbers	8	7	6	5	引脚编号 Pin numbers	8	7	6	5
工作完成 Work Completed	0	0	0	1	X轴报错 X-axis Error	0	1	0	1	A轴报错 A-axis error	1	0	0	1	自定义 Customizable	1	1	0	1
卡锡报警 Solder feeding jam alarm	0	0	1	0	Y轴报错 Y-axis Error	0	1	1	0	数据异常 Data abnormality	1	0	1	0	自定义 Customizable	1	1	1	0
工艺异常 Process abnormality	0	0	1	1	Z轴报错 Z-axis Error	0	1	1	1	自定义 Customizable	1	0	1	1	自定义 Customizable	1	1	1	1
温控报警 Temperature control alarm	0	1	0	0	缺锡报警 Solder empty alarm	1	0	0	0	自定义 Customizable	1	1	0	0	自定义 Customizable	0	0	0	0

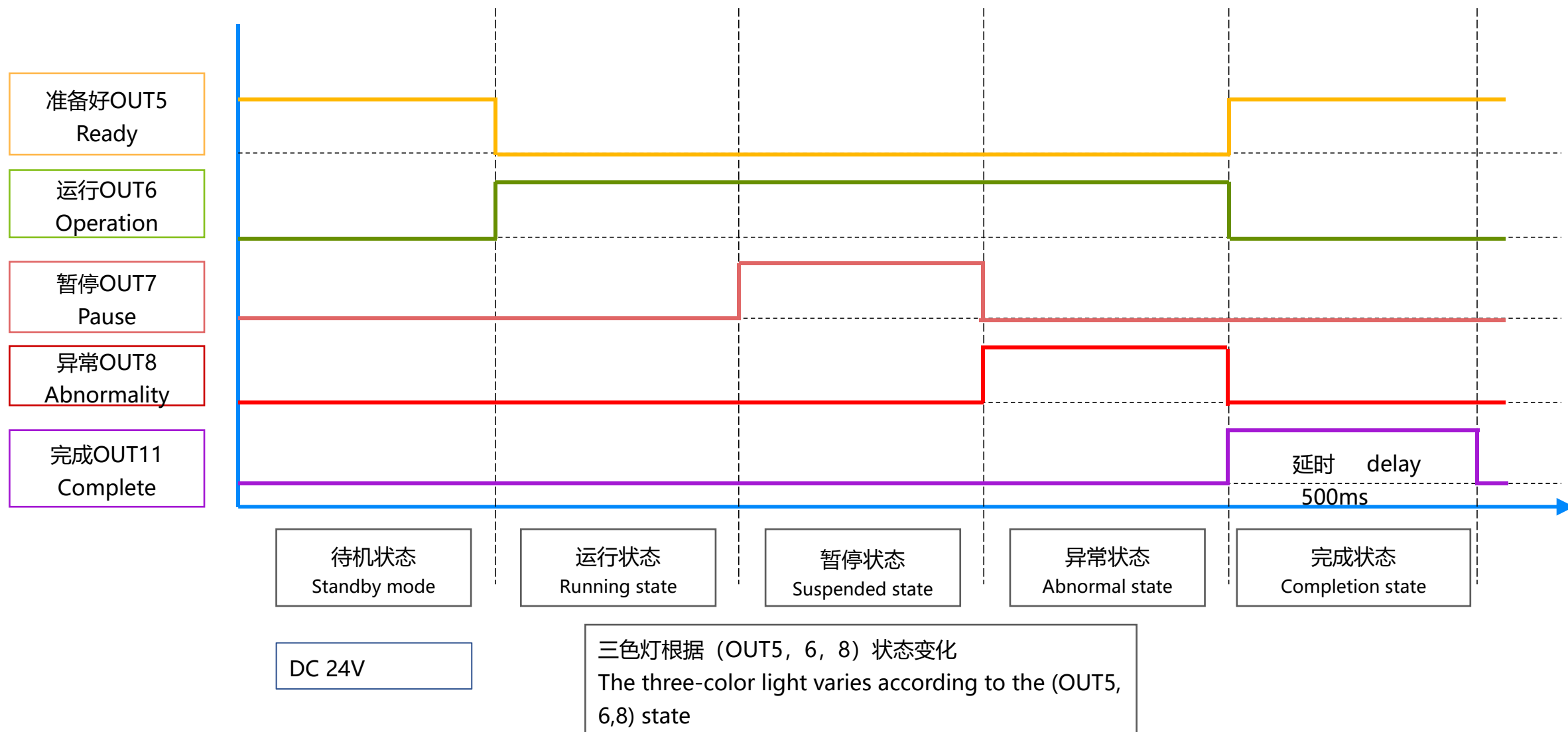
示教器IO信号功能定义

IO名称 IO Name	焊锡定义 Locking Function	端口引脚 Port (Pin)	IO名称 IO Name	焊锡定义 Soldering function	端口(引脚) Port (Pin)	IO名称 IO Name	焊锡定义 Soldering function	端口引脚 Port (Pin)
IN1	自定义 Custom	25PIN(1)	IN19	复位 Reset	25PIN(21)	OUT1		内部使用 Internal use
IN2	自定义 Custom	25PIN(2)	IN20		内部使用 Internal use	OUT2	吹锡 Blow solder	航插1(4) Aviation Connector1(4)
IN3	自定义 Custom	25PIN(3)	IN21		内部使用 Internal use	OUT3		内部使用 Internal use
IN4	自定义 Custom	25PIN(4)	IN22	启动 Start	25PIN(19)	OUT4		内部使用 Internal use
IN5	自定义 Custom	25PIN(5)	IN23	暂停 Pause	25PIN(20)	OUT5	Ready	15PIN(1)
IN6	自定义 Custom	25PIN(6)	IN24	急停 Emergency Stop	25PIN(22-23)	OUT6	Running	15PIN(2)
IN7	自定义 Custom	25PIN(7)	IN25(原点1) IN25(origin1)		航插1(2) Aviation Connector 1(2)	OUT7	Paused	15PIN(3)
IN8	自定义 Custom	25PIN(8)	IN26(原点2) IN26(origin2)	卡锡监控 Solder jam monitoring	内部使用 Internal use	OUT8	报警 Alarm	15PIN(4)
IN9	自定义 Custom	25PIN(9)	IN27(原点3) IN27(origin3)	缺锡监控 Solder shortage monitoring	内部使用 Internal use	OUT9	信息组合1 Info Combination 1	15PIN(5)

IN10	自定义 Custom	25PIN(10)	IN28(原点4) IN28(origin4)		内部使用 Internal use	OUT10	信息组合2 Info Combination 2	15PIN(6)
IN11	自定义 Custom	25PIN(11)	IN29(原点5) IN29(origin5)		内部使用 Internal use	OUT11	信息组合3 Info Combination 3	15PIN(7)
IN12	自定义 Custom	25PIN(12)	IN30(原点6) IN30(origin6)		内部使用 Internal use	OUT12	信息组合4 Info Combination 4	15PIN(8)
IN13	手动清洗 Manual Cleaning	25PIN(13)	IN31(原点7) IN31(origin7)		内部使用 Internal use	OUT13	自定义 Custom	15PIN(9)
IN14	手动进锡 Manual solder feeding	25PIN(14)	IN32(原点8) IN32(origin8)		内部使用 Internal use	OUT14	自定义 Custom	15PIN(10)
IN15	手动退锡 Manual solder retraction	25PIN(15)	IN33(原点9) IN33(origin9)		内部使用 Internal use	OUT15	自定义 Custom	15PIN(11)
IN16	光栅 Light curtain	25PIN(16)	IN34(原点10) IN34(origin10)		内部使用 Internal use	OUT16	自定义 Custom	15PIN(12)
IN17	跳过 Skip	25PIN(17)	IN35(原点11) IN35(origin11)		内部使用 Internal use			
IN18	继续 Continue	25PIN(18)	IN36(原点12) IN36(origin12)		内部使用 Internal use			

14

信号交互逻辑/interaction logicSignal



基本流程:

Basic Process:

1. 相机软件与机器人进行标定
2. 相机软件为服务端，机械手为客户端，通过IP,端口，建立Socket连接。
3. 机械手运动到拍照点后、延时、发送拍照指令。
4. 接收数据，检验数据合法性，并处理数据。

1. **Calibration:** Calibrate the camera and robot to align coordinate systems;
2. **Communication Setup:** The camera software acts as a server, and the robot acts as a client. They establish a Socket connection via IP and port;
3. **Triggering Image Capture:** The robot moves to the shooting position, delays briefly, and sends a trigger command;
4. **Receiving Data:** The robot receives the returned data, verifies its validity, and executes the screw locking operation accordingly.

例：数据交互

Data Exchange Format:

发送数据：2,1,3

Send Example:2,1,3

接收数据：2,1,1,200,230,2,0,220,230,3,0,240,230.....,3

Receive Example: 2,1,1,200,230,2,0,220,230,3,0,240,230,...,3

第一位：2 开始标识符。

1st digit: 2, start identifier.

第二位：1为第一个焊点位置序号

2nd digit: 1, indicates the position number of the first solder joint.

第三位：1视觉识别成功，0视觉识别失败，（0时，可以跳过，可以选择原坐标继续，根据实际情况而定）

3rd digit: 1 means visual recognition successful, 0 means visual recognition failed, (When 0, it can be skipped; you may choose to continue at the original coordinates, depending on the actual situation.)

第四位：X坐标

4th digit: X coordinate

第五位：Y坐标

5th digit: Y coordinate

第六位：2为第二个焊点位置序号，以此类推最后一位：3为结尾标识符

6th digit: 2 is the position number of the second solder joint, and so on. The last digit: 3 is the end identifier.

例：拍照形式

Image Capture Modes:

模式1：拍对角焊盘或对角两个Mark点

Mode 1: Capture diagonal pads or two diagonal Mark points.

PC—交互

PC Interaction

支持Socket通讯
坐标数据交互

Supports Socket

Communication

Coordinate Data Exchange



MES对接 MES integration

焊锡机器人MES功能:

Soldering robot MES functions:

数据记录:

Data Recording:

存储格式: csv. 程序在运行的过程中, 如果有条码, 则按照条码为文件名存储每个焊点的记录, 包括时间、条码、工艺编号、焊接温度、锡丝用量、焊接时间、焊接类型、当前作业员、结果(结果都是 OK), 例如:

123456789.csv;

Storage format: CSV. During program execution, if a barcode is available, the records for each solder joint will be saved with the barcode as the file name, including time, barcode, process number, soldering temperature, solder wire consumption, soldering time, soldering type, current operator, and result (all results are OK). Example: 123456789.csv.

如果没有条码, 则按照设备开始启动的时间为文件名存储每个焊点的焊锡过程数据, 例如: 20240606132359.csv.

If no barcode is available, the soldering process data for each solder joint will be saved with the device startup time as the file name, for example: 20240606132359.csv.

存储位置: (需要电脑和对应软件支持)

Storage location: (Requires a computer and corresponding software support)

本地工控机的自定义路径+系统年月日自动生成的文件夹

A custom path on the local industrial PC, plus a folder automatically generated based on the system date (YYYYMMDD).

MES 交互方式: 不主动上传, 需要 MES 过来抓取。

MES interaction method: No active upload; MES must pull/fetch the data.

MES抓取数据的一般方式:

Common methods for MES to fetch data:

1、通过有线网络或者无线网络让 MES 系统与本设备的电脑组成局域网。

1. Connect the MES system and the device's computer to the same local area network (LAN) via wired or wireless network.

2、MES 根据本设备电脑数据文档存储的路径, 获取焊接数据。

2. MES retrieves the soldering data from the file storage path on the device's computer.

3、解析并存储数据。

3. Parse and store the data.

数据发送

Data Transmission

1) 上位机为服务端, 机械手为客户端

2) 通过IP,端口, 建立Socket连接。

3) 发送数据, 发送执行结果记录。

1) The host computer acts as the server, and the robot acts as the client.

2) Establish a Socket connection via IP address and port.

3) Send data and transmit the execution result records.

上传数据的形式:

Data Upload Method:

1) 焊接一个焊点, 上传一个焊点的数据,

2) 全部焊接完成后, 一次上传多个焊点的数据 (受Socket传送字节的限制 建议在10个数据以内)

1) Upload the data for each solder joint immediately after it is completed.

2) After all soldering is finished, upload the data for multiple solder joints in one batch (due to Socket byte transmission limitations, it is recommended to keep within 10 data records per batch).

PC—交互 PC—interaction

支持Socket通讯

焊点数据上传

程序切换

启动, 复位

暂停, 急停

Supports Socket

communication

Screw data upload

Program switching

Start, reset

Pause, emergency stop



例: 发送数据:

Example: Data sent:

2,NO-1,1,完成,200,230,350,15,2,3

第一位: 2为标识符,

第二位: NO-1为设备编号

第三位: 1为焊点位置序号,

第四位: 完成/未完成 焊点的状态

第五位: X坐标

第六位: Y坐标

第七位: 焊点当前的温度

第八位: 焊点焊锡长度mm

第九位: 单个焊点焊接时长/s

最后位: 3结尾标识符

2,NO-1,1,Completed,200,230,350,15,2,3

1st field: 2 — Identifier

2nd field: NO-1 — Device number

3rd field: 1 — Solder joint position number

4th field: Completed/Incomplete — Solder joint status

5th field: 200 — X coordinate

6th field: 230 — Y coordinate

7th field: 350 — Current temperature at the solder joint

8th field: 15 — Solder wire consumption in mm

9th field: 2 — Soldering time per joint in seconds

Last field: 3 — End identifier

根据实际需求, 可以自定义发送数据, 需要二次开发

The data to be sent can be customized according to actual needs, but secondary development is required.

PLC—交互 PLC—interaction

支持IO握手信号的处理

信号方式: NPN

电压: DC 24V

Modbus-RTU(主机模式)、IO程序切换

启动, 复位、暂停, 急停

Supports IO handshake signal processing

Signal type: NPN

Voltage: DC 24V

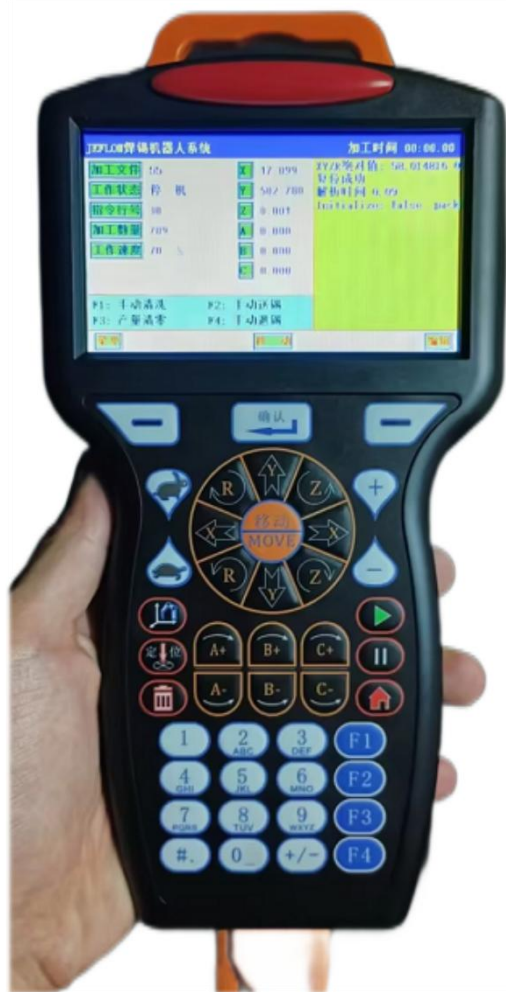
Modbus-RTU (master mode)

IO program switching

Start, reset

Pause, emergency stop





编辑 多选状态下, 会批量修改相同类型的参数项 F1: 选项

序号	类型	01/13	02/13	03/13	04/13	05/13	06/13	07/13	08/13	09/13
0001	清洗	预热出锡速度	20							
0002	工艺	预热时间(s)	2							
0003	焊点	焊接锡量(mm)	0							
		焊接出锡速度	0							
		焊接时间(s)	0							
		结束锡量(mm)	0							
		结束出锡速度	0							
		结束延时(s)	0							

返回

编辑 多选状态下, 会批量修改相同类型的参数项 F1: 选项

序号	类型	01/10	02/10	03/10	04/10	05/10	06/10	07/10	08/10	09/10
0001	清洗	x	-278.741							
0002	工艺	y	407.819							
0003	焊点	z	102.534							
		a	82.567							
		清洗锡量(mm)	0							
		出锡速度(mm)	20							
		清洗时间(s)	0.500							
		上拾高度(mm)	50							
		补偿锡量(mm)	10							

返回

编辑 多选状态下, 会批量修改相同类型的参数项 F1: 选项

序号	类型	01/10	02/10	03/10	04/10	05/10	06/10	07/10	08/10	09/10
0001	清洗	x	-159.062							
0002	工艺	y	468.963							
0003	焊点	z	86.313							
		a	21.983							
		联动出锡	1							
		进枪角度(°)	0							
		进枪高度(mm)	0							
		上拾高度(mm)	20							
		焊点序号	0							

返回

高分辨彩屏、全中文操作界面, 易学易用

High-resolution color screen with a fully Chinese interface, easy to learn and use

手持式编程示教器, 示教轻松, 便捷

Handheld programming teaching pendant, making teaching simple and convenient

专业的工艺指令, 应对各种焊锡需求

Professional process commands to meet various soldering requirements.

多种指令应对, 阵列, 复制, 平移, 批量

Multiple command types supported: array, copy, translate, batch operations

单步执行, 全自动及循环运行

Supports single-step execution, full automatic, and loop running modes

I/O输入输出, 条件判断, 逻辑

I/O input/output, condition judgment, and logic control

产量设定, 耗材预警

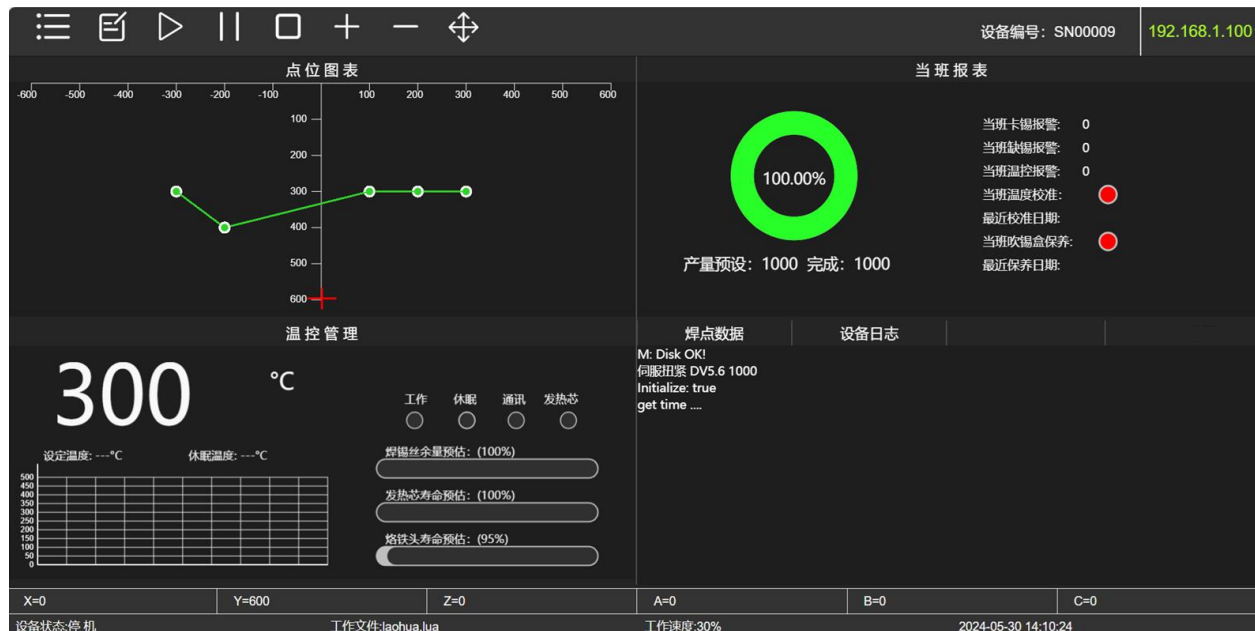
Production target setting, consumable early warning.

脱机, 独立运行

大容量储存1000个加工文件

Offline, standalone operation

Large capacity storage for 100 processing files



点位轨迹图

Point Trajectory Diagram

耗材预警

Consumables Warning

温度监控

Temperature Monitoring

生产报表

Production Report

生产数据

Production Data

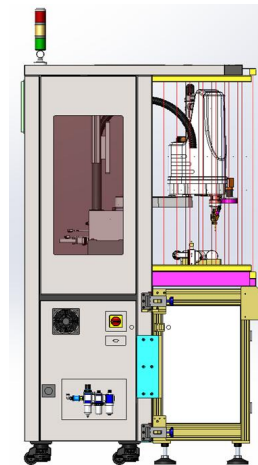
焊点数据		设备日志				
条形码	序号	温度/°C	锡量/mm	CT/ms	结果	日期
SF0001	6	370	20	1100.00	完成	2024-05-30
SF0001	5	370	20	1100.00	完成	2024-05-30
SF0001	4	370	20	1100.00	完成	2024-05-30
SF0001	3	370	20	1100.00	完成	2024-05-30
SF0001	2	370	20	1100.00	完成	2024-05-30
SF0001	1	370	20	1100.00	完成	2024-05-30



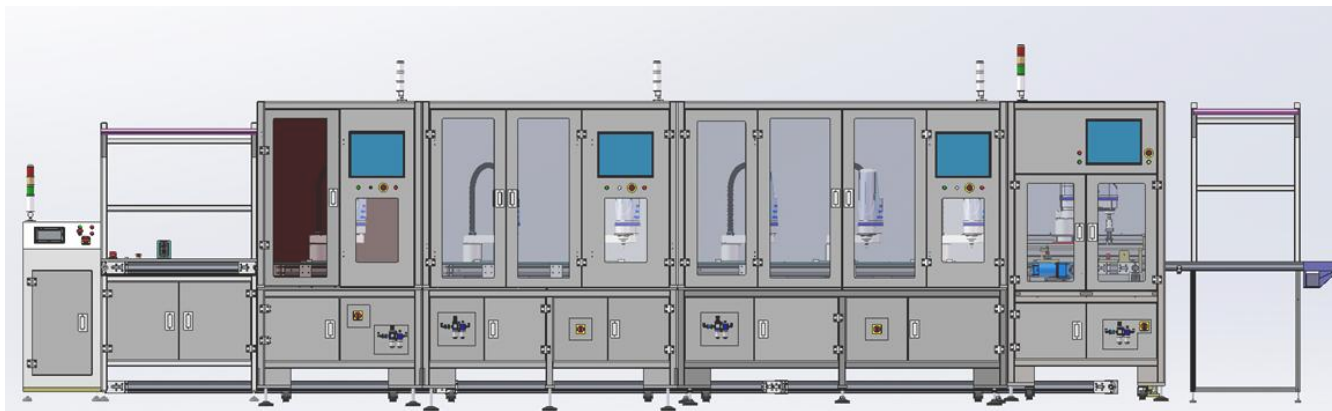
标准单机
Standard Standalone Machine



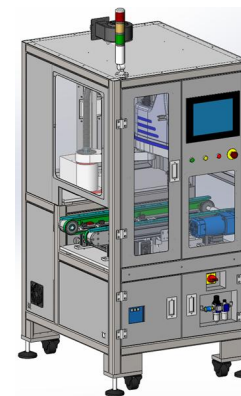
在线式
Inline Configuration



立式线边
Vertical At-Line Configuration



组线式
Assembly-Line Configuration



立式在线
Vertical Inline Configuration

项目风险控制**Project risk control**

协助评估验证工艺难点
Assist in evaluating and
verifying process difficulties
减少项目风险
Reduce project risk

01

设备工艺调试服务**Equipment process
commissioning services**

专业技术团队服务
Professional technical team services
现场及远程技术支持
On-site and remote technical support

03

模块化设计**Modular design**

模块化设计
Modular design
应对柔性生产需求
Responding to flexible
production needs

05

项目周期控制**Project cycle control**

方案设计周期短
The scheme design cycle is short
设备制作周期短
The production cycle of the
equipment is short

02

04

项目成本控制**Project cost control**

设计制作成本节省最高达50%
Design and production cost savings
of up to 50%
售后成本节省最高可达50%
After-sales cost savings of up to
50%

专业自动焊锡
焊锡技术顾问在线售前支持
大量行业成熟案例
提升项目评估准确性
Professional Automatic Soldering
Online pre-sales support from expert
soldering consultants
Extensive library of proven industry
application cases
Enhanced accuracy in project
assessment

众多设计工程师
专职设计开发焊锡机构
工艺软件、烙铁头
Dedicated R&D team focused on soldering
hardware, process software, and iron tip
engineering.



十余名专业应用工艺工程师，丰富的项目实战经验，提供自动焊锡过程的专业分析，为项目调试提供技术支持服务
Over ten professional application process engineers with extensive hands-on project experience, providing expert analysis of the automated soldering process and technical support services for project commissioning.

离线、在线等多种形式样机，随时进行产品测试，出具测试报告，为项目方案设计提供数据支持
Offline, online and other forms of prototype, product testing at any time, issue test reports, to provide data support for project design

多种类焊锡机构配件，包含：发热芯、烙铁头、温控、焊锡模组等
A wide range of soldering mechanism accessories, including: heating cores, soldering iron tips, temperature controllers, soldering modules, etc.



34 National Patented Technologies

国家专利技术34项



质量管理体系认证

软件著作权

Quality Management System Certification

Software Patent



感谢支持

Thanks for the support



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