

AI+3D 检测设备领导品牌



ALPHA Z510D
ALPHA Z510TB

波峰焊后下照式AOI

POST WAVE SOLDERING AOI FOR BOTTOM

ALPHA Z510D

波峰焊后双照式AOI

POST WAVE SOLDERING AOI FOR TOP&BOTTOM

ALPHA Z510TB



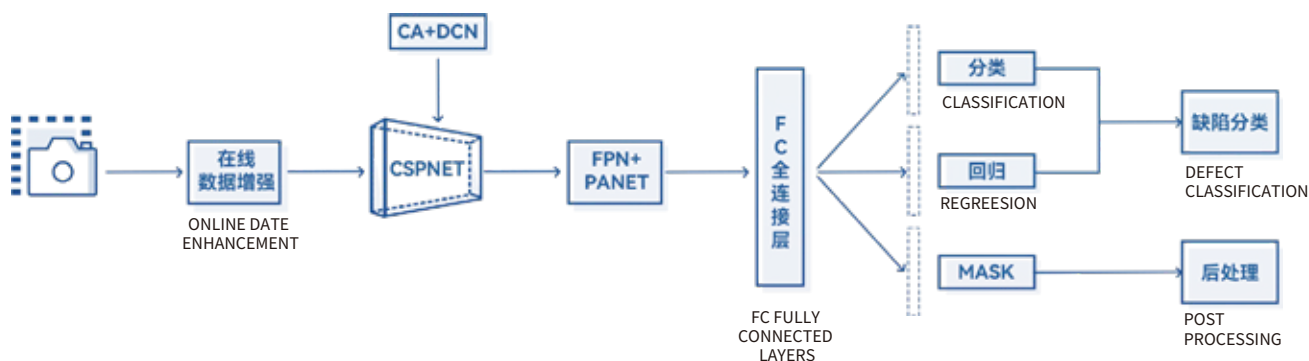
核心优势 CORE ADVANTAGES

AI算法 极简编程

AI algorithm, minimalist programming

○ 集泛半导体行业图像缺陷检测与分类的成功经验,深度学习神经网络模型,通过训练海量PCBA缺陷数据,能够兼容焊点的形态变化、自动识别器件/焊点位置与缺陷类型。可解决传统AOI操作复杂、调试时间长、误判过高、人员操作一致性差等问题。

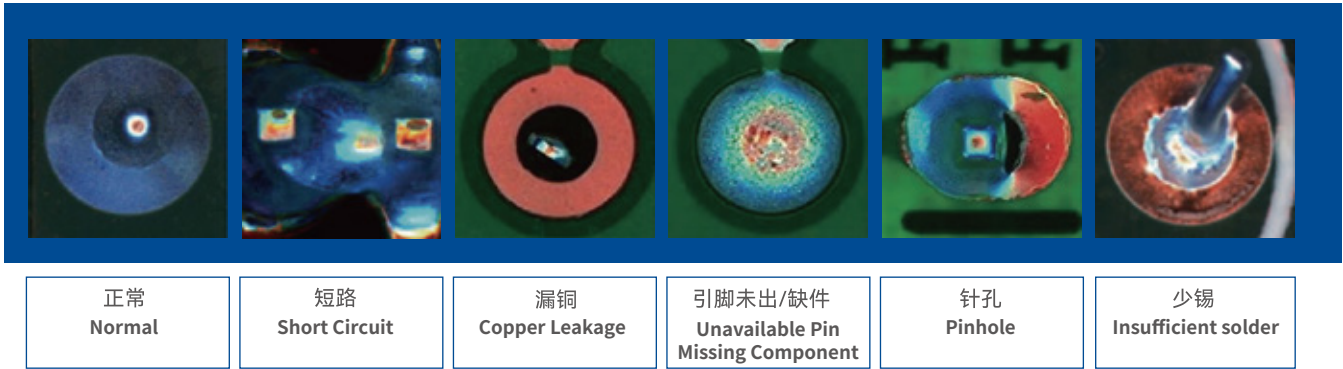
○ Combining the successful experience of image defect detection and classification in the extensive semiconductor industry and deep learning neural network, it can be compatible with the morphological changes of solder points, by training massive PCBA defect data. It can automatically identify devices / solder positions and defect types and solve the problems of complex traditional AOI operation, long debugging time, high miscalculation, and poor consistency of personnel operation.



精细化 缺陷分类

Refined defect classification

- 领先的深度学习目标检测模型,通过精准定位缺陷位置及精准缺陷分类 可解决传统算法仅OK/NG粗分类问题达到极少人工发刊的效果,帮助工厂节省人力。
- The leading in-depth learning target detection model can solve the problem of only OK/NG rough classification in traditional algorithms by accurately locating defect locations and accurately classifying defects.Achieve the effect of very little manual re-judgment and help the factory to save manpower.



AI模型 自主学习进化

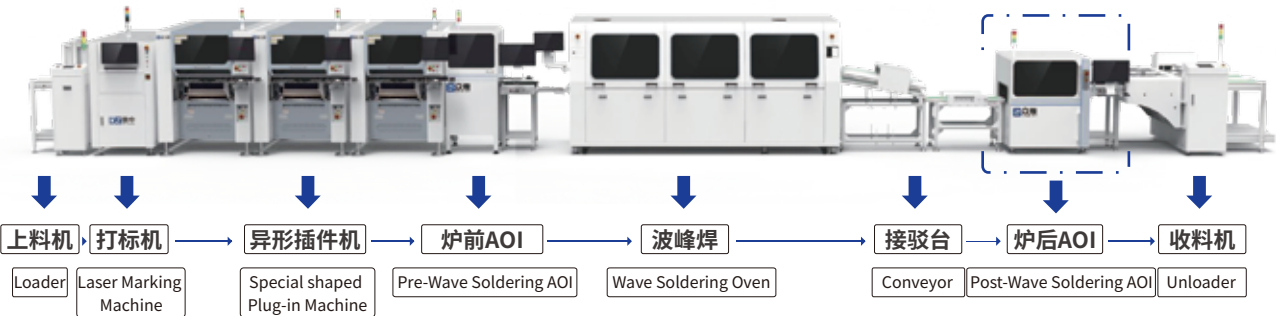
AI Model Independent learning evolution

- 自研深度学习训练平台,可定期收集产线生产数据,使AI模型不断增量学习,让设备始终保持高检出、低误判,保障工厂持续正常生产。
- Zhonghui's self-developed in-depth learning training platform can regularly collect production line production data, so that AI model can continuously learn incrementally, so that the equipment can always maintain high detection and low misjudgment, and ensure the continuous normal production of the factory.

高效 的数据资产体系

Efficient data asset system

- 过硬的大数据技术能力,能进一步利用AOI机台数据发挥效用,在此基础上可扩展不良根因分析、过程品质分析等后续应用,打造闭环数据体系,助力工厂可持续化提升工艺品质。
- Excellent mass data technology ability can further use the AOI machine data to play a role. On this basis, it can expand the defect analysis, process,quality analysis and other follow-up applications, to create a closed-loop data system, help the factory sustainable to improve the quality of handicrafts.



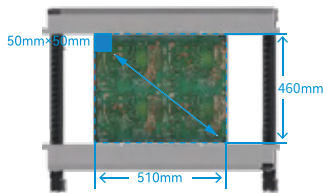
自主设计 力求极致 INDEPENDENT DESIGN, AND STRIVE FOR THE EXTREME



UPH $\geq$ 400
*A4纸大小PCB板

最快的速度 FASTEST SPEED

自主研发的运动模组高速运作实现更高的UPH提升工厂效率
The self-developed movement module operates at a high speed
Realize higher UPH to improve plant efficiency



最大的检板 LARGEST INSPECTION BOARD

在同规格系列产品中能处理全行业最大的PCB版
(支持尺寸:50mm*50mm-510mm*460mm)
In the same specification series of products
Can handle the whole industry's largest PCB board



最小的体积 COMPACT SIZE

在同规格系列产品中全行业体积最小帮助工厂节省厂房空间
In the same specification series of products
Compact size helps factories to save space



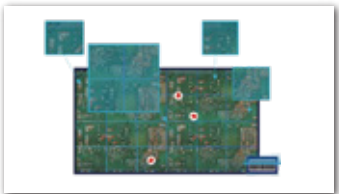
便捷的人机交互 CONVENIENT HUMAN-COMPUTER INTERACTION

工程师:拖拽、快捷键、尽量少输入。
操作员:快捷键尽量少鼠标操作。
Engineer: Drag and drop, shortcut key, input as little as possible.
Operator: shortcut key, mouse operation as little as possible.



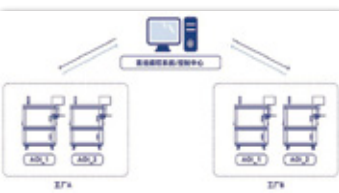
完善的SPC系统 PERFECT SPC SYSTEM

共能丰富的SPC系统,支持对检测数据的多维度统计分。
支持多种数据格式的导出,可满足工厂日常的报表需求。
The feature-rich SPC system supports multi-dimensional statistical analysis of test data.
Support the export of multiple data formats to meet the daily needs of the factory.



全链条数据追溯 FULL-CHAIN DATA TRACEABILITY

整板图像,完整保留检测结果。
后续可通过条码追溯,100%复现当时检测状态。
Whole board image, complete retention of the detection results.
It can be traced through barcode and 100% reproduce the detection status at that time.



云边端一体化 CLOUD EDGE INTEGRATION

具备成熟的云边一体化解决方案,可帮助工厂实现多厂设备互联数据互通,
实时远程跟踪生产状态,降低运维成本,提高管理效率
With a mature cloud-side-terminal integrated solution, it can help factories to realize multi-plant equipment
interconnection, data exchange, real-time remote tracking of production status, reduce operation and
maintenance costs, and improve management efficiency.

设备参数 EQUIPMENT PARAMETERS

类别	项目	Alpha Z510D	Alpha Z510TB
PCBA规格	尺寸	标准50mm*50mm-510*460mm	
	厚度	0.5mm-6mm	
	元件高度	顶面：120mm 底面：35mm	顶面：120mm 底面：40mm
光学规格	相机	1200万全彩	器件面：标配1200万全彩；焊点面：标配 1200万全彩
	光源	RGBW四色环形LED光源	
	FOV	38mm*48mm	
	分辨率	13.8μm	
检测相关	元件检测	PCBA波峰焊炉后多锡、少锡、连锡、不出脚、空焊、锡洞、锡珠、错件、漏件等不良缺陷	PCBA波峰焊炉后多锡、少锡、连锡、不出脚、空焊、锡洞、锡珠、错件、漏件等不良缺陷；器件面错件、漏件、反向、多件、歪斜/浮高等不良
	检测速度	0.22sec/FOV	
	在线编辑	生产的同时可编辑模板，多任务软件架构设计测试同时可在线编辑，保存即自动同步，且支持编辑过程中间断自动保存	
	学习功能	支持持续补充学习	
	条码识别	支持识别一维码（128码等），二维码（QR码、DM码等多种常规码）	
	混板测试	最多可支持4种	
	算法	卷积神经网络、先进深度学习模型等多重算法	
软件系统	操作系统	Ubuntu.20.04 LTS 64bit	
	控制系统	上位机控制	
	集中管理	一台主机控制多台AOI使用，编程、调试等	
	远程服务	可满足，内网/外网远程调控、远程调试、远程指导等	
	数据输出	具备SPC功能，动静结合的报表体现形式，新颖且灵活	
	数据查询，追溯	可与mes系统对接；可实时输出，支持按照条码、二维码、机型、时间等多维度进行追溯	
	联机通信	支持SMEMA通信，支持MES等系统通信	
	特色功能	1.AI智能编程、无需设置参数、易学易用；2.极简的操作界面，快捷高效；3.强大的学习能力，支持持续补充学习，学习越多效果越好；4.数百万级样本训练学习，适应场景更广、误报更少；5.支持载具顶部或底部回流；6.独特轨道设计，光源照射角度更佳，避免暗区；7.安全门设计；8.SPC报警	
硬件	工控机	研华/艾讯	
	CPU	Intel i5 12代	
	GPU（显卡）	NVIDIA 12G	
	内存	64G DDR4	
	存储	1T固态硬盘+8T机械硬盘	
	光源	RGBW四色环形LED光源	
	显示器	24寸	
	鼠标键盘	有线鼠标键盘	
	承载平台	大理石平台，稳定且精度高	
	运动机构	高精度伺服丝杆导轨	
	轨道调宽	自动	
	轨道负载	链条<12KG	
	进板方向	左进右出/右进左出/左进左出/右进右出	
外观/电气	整机尺寸及重量	长*宽*高= 1060mm*1340mm*1500mm(备注：不含三色灯),550KG	
	电源及功率	AC 220V±10%，50Hz，MAX600W（不同配置功耗略有差异）	
	气源	0.4Mpa-0.6Mpa	
	传送高度	850±100mm	
	工作环境	0~45℃ 20%-80%RH无冷凝	

设备参数 EQUIPMENT PARAMETERS

Name	Item	Alpha Z510D	Alpha Z510TB
PCBA Specifications	Size range	5mm*5mm-510*460mm	
	Thickness	0.5mm-6mm	
	Component height	Top: 120mm Bottom：35mm	Top: 120mm Bottom：40mm
Optical Specifications	Camera	Welding：12MP full color	Components：12MP full color； Welding： 12MP full color
	Light source	RGBW four color ring-LED light source	
	FOV	38mm*48mm	
	resolution	13.8μm	
Inspections	Component inspection	Bottom face: excess solder、insufficient solder、birdge、twisted pin、 Empty welding、 solder hole、 solder ball、 wrong part、 missing part defects；	Bottom face: excess solder、 insufficient solder、 birdge、twisted pin、 Empty welding、 solder hole、 solder ball、 wrong part、 missing part defects； Top face: Missing part、 Reverse、 Extra components、 offset 、 etc
	Inspection speed	0.22sec/FOV	
	Online programming	Production template can be edited at the same time, multi-task software architecture design test can be edited online at the same time, saving is automatic synchronization, and support intermittent automatic saving during the editing process	
	Learning function	Support continuous supplementary learning	
	Barcode reader	Support 1D/2D barcode	
	Mixed-board inspection	Support four types of products	
	Algorithm	Convolutional Neural Networks and Deep learing model	
Software System	Operation system	Ubuntu.20.04 LTS 64bit	
	Control system	Upper computer control	
	Centralized management	One host controls multiple AOI use, programming, debugging, etc	
	Remote service	Can meet the internal network and external network remote regulation, debugging and guidance etc	
	Data export	With flexiable SPC	
	Date traceability	Connect with MES	
	Connecting communication	SMEMA	
	Features	1.AI intelligent program, no paramter and easy to use 2.easy operation interface 3.Strong learning skill 4.More applicable solution and lower false alarm 5.Support the fixture back and forth	
Hardware	IPC	MSI	
	CPU	Intel i5 12代	
	GPU graphics card	NVIDIA 12G	
	Internal storage	64G DDR4	
	Memory	1T SSD +8T mechanical hard disk	
	Light source	RGBW four color ring LED	
	Display	24 inches	
	Mouse/Keyboard	yes	
	Loading platform	Marbl platform	
	Motion	high precision Servo screw slide	
	Rail adjustment	Auto	
	Rail load	Chain <12KG	
	Direction	Left--right / right--left / left--left / right--right	
Appearance Electrical	Dimension & Weight	L*W*H = 1060mm*1340mm*1500mm(excluding tri-color lamp),850KG	
	Power supply	AC 220V±10%, 50Hz, MAX600W	
	Air supply	0.4Mpa-0.6Mpa	
	Working height	850±100mm	
	Working enviroment	0~45℃ 20%-80%RH No condensation	

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