



CCD照相  
CCD Camera



视觉  
Vision



检测产品  
Inspection Objects

### 视觉检测的优势 Advantages of Vision Inspection

- 1、非接触测量，对于观测者与被观测者都不会产生任何损伤，从而提高系统的可靠性。  
Non-contact measurement will not cause any damage to the observer and the observed, thereby improving the reliability of the system.
- 2、具有较宽的光谱响应范围，例如使用人眼看不见的红外测量，扩展了人眼的视觉范围。  
It has a wide spectral response range, such as using infrared measurement that is invisible to the human eyes, which expands the visual range of the human eyes.
- 3、长时间稳定工作，人类难以长时间对同一对象进行观察，而机器视觉则可以长时间地作测量、分析和识别任务。  
Working stably for a long time, it is difficult for humans to observe the same object for a long time, while machine vision can do measurement, analysis and recognition for a long time.
- 4、利用了机器视觉解决方案，可以节省大量劳动力资源，为公司带来更可观利益。  
The use of machine vision solutions can save a lot of labor resources and bring more substantial benefits to the company.

### 产品简介

视觉检测的工作原理：机器视觉检测系统采用CCD照相机将被摄取目标转换成图像信号，传送给图像系统，根据像素分布和亮度、颜色等信息，转变为数字化信号；图像系统对这些信号进行各种运算来抽取目标的特征，如面积、数量、位置、长度，再根据预设的允许度和其他条件输出结果，包括尺寸、角度、个数、合格/不合格、有/无等，实现自动识别功能。

### Introduction

Working Principle of Vision Inspection: The machine vision inspection system uses a CCD camera to convert the captured target into an image signal, which is transmitted to the image system, and converted into a digital signal according to the pixel distribution, brightness, color and other information; the image system performs various operations on these signals to extract the characteristics of the target, such as area, quantity, location, length, then output the result according to the preset tolerance and other conditions, including size, angle, number, pass/fail, yes/no, etc., to realize the automatic identification function.

性能特点	Characteristics
● 产品检测状态：在线动态检测	● Product Inspection Status: online dynamic inspection
● 取图型式：线扫描或帧拍照（视产品形状及需求决定黑白或彩色相机）	● Picture-Taking Type: line scan or frame photography (depending on the shape and requirements of the product to determine the black and white or color camera)
● 系统性能：能够适应缺少光线、或光照以及焦距的变化	● System Performance: able to adapt to lack of light, or changes in light and focal length
● 软件算法：深度学习视教算法、产品动态自学习算法和产品深度自动分区算法	● Software Algorithms: deep self-learning video teaching algorithm, product dynamic self-learning algorithm and product depth automatic partitioning algorithm
● 同一机台同一电脑可实现同时运行缺陷检测和印刷定位双系统	● The same machine and the same computer can realize the simultaneous operation of defect detection and printing positioning dual systems

### 技术参数(Specifications)

产品形状 Shape of Inspection Object	圆形Cylindrical, 椭圆Elliptical, 方形Square, 平面Flat等etc.
产品尺寸 Size of Inspection Object	直径D 16-60mm 长度L 30-280mm
产品类型 Type of Inspection Object	有平面缺陷的所有产品，膏霜罐、笔杆、乳液瓶、瓶盖、硬塑料瓶、玻璃瓶、金属瓶、软管、软塑料瓶等（可定制标签、PCB板、汽车灯、药品、刀具等检测） all products with plane defects, such as cream jars, penholders, lotion bottles, bottle caps, hard plastic bottles, glass bottles, metal bottles, hoses, soft plastic bottles, etc. (labels, PCB boards, car lights, medicines, knives inspection can be customized)
产品检测速度 Speed of Object Inspection	50-200个/分钟（视产品图形复杂程度） 50-200 pcs/min (depending on the complexity of product graphics)
产品质量监测及精度 Product Quality Monitoring and Accuracy	多印（面积） $\geq 0.1\text{mm}^2$ 、少印（面积） $\geq 0.1\text{mm}^2$ 、污点（面积） $\geq 0.5\text{mm}^2$ 、刮痕（面积） $\geq 0.1\text{mm}$ 、套色不准（尺寸） $\geq 0.2\text{mm}$ 、烫金偏差（尺寸） $0.2\text{mm}-2.5\text{mm}$ 、色差 $\geq \Delta E4$ 剔除；以上检测精度可自由调节 more printing (area) $\geq 0.1\text{mm}^2$ , less printing (area) $\geq 0.1\text{mm}^2$ , stains (area) $\geq 0.5\text{mm}^2$ , scratches (area) $\geq 0.1\text{mm}^2$ , inaccurate color registration (size) $\geq 0.2\text{mm}$ , hot stamping deviation (size) $0.2\text{mm}-2.5\text{mm}$ , color difference $\geq \Delta E4$ elimination; the above detection accuracy can be adjusted freely
检测产品允许最佳在线跳动 Best Online Beating of Inspection Object	0-0.9mm
视觉处理响应速度 Vision Processing Response Speed	$\geq 80$ 毫秒(ms)
检测形式 Detection form	可实现分区不同精度要求检测（最多可设定16区） realize the inspection of different precision requirements of the partition (up to 16 areas can be set)
产品误检率 Product false detection rate	$\leq 0.3\%$ （只会误检成不合格品，通过检测的产品绝对100%合格品） only falsely detected as unqualified products, products that pass the test are absolutely 100% qualified products
整机电源 Machine Power Supply	AC220V 50HZ
最大总功率 Max. Total Power	2.5KW
压缩空气 Compressed Air	0.4-0.6Mpa
整机尺寸(长宽高) Machine Dimension	2300(L)X1500(W)X2200(H)mm

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