

Vision Desktop System Solution

(Dispensing & Locking & Soldering)

High-Speed & High-Precision | Rich Functions

Flexible Teaching | Economical & Practical



Vision Desktop Motion Control Solution

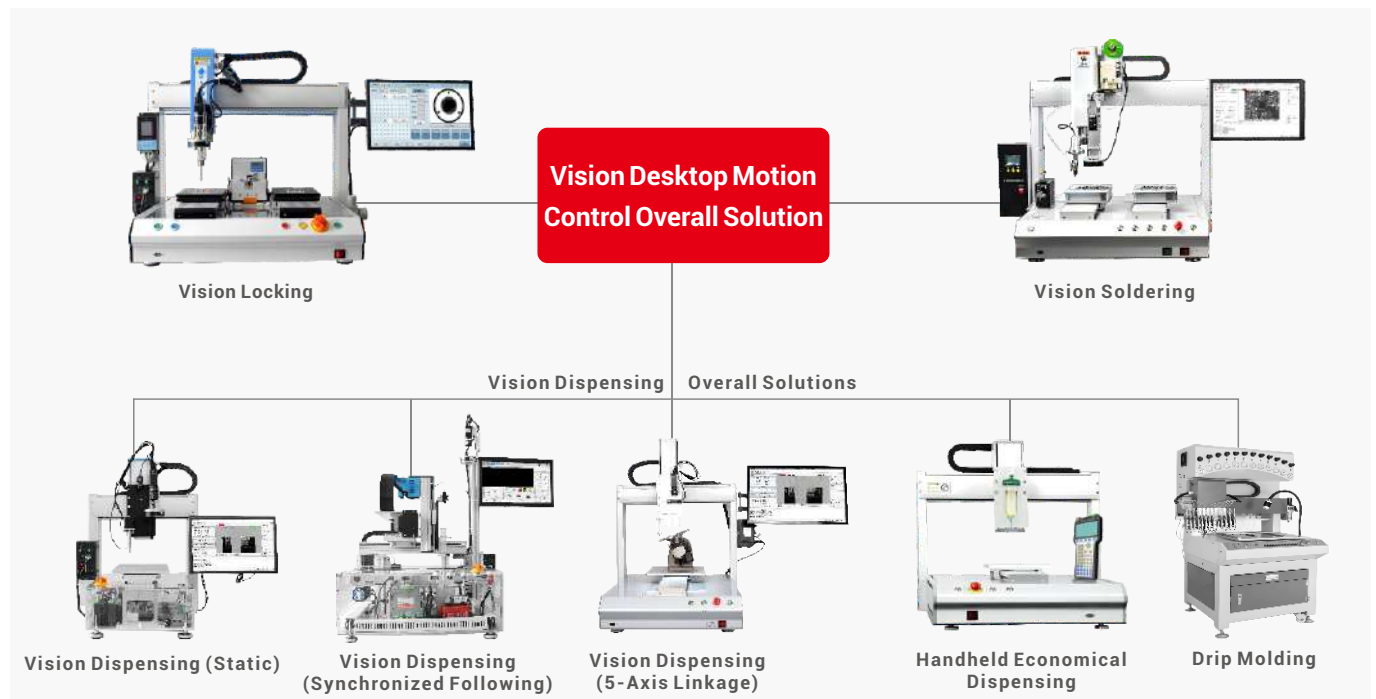
Solution Introduction

With the development of "integration" for the production equipment, more and more control systems combine with machine vision together, which solves traditional solutions' problems (too many interfaces & complicated operations) that are caused by low integration (several systems used).

Here, Zmotion has developed "Vision Desktop System Solutions" that integrate hardware with software, combine machine vision with motion control. That is, one motion controller can achieve vision control and motion control, which can save installment space, increase interaction speed, and make it easy to use, convenient to maintain.

Applications: *vision dispensing, vision locking, vision welding, etc.*

Solutions



Solution Typical Applications



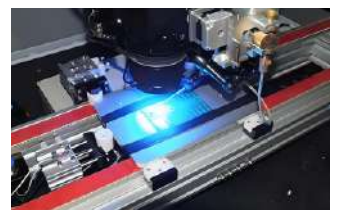
Medicine Dripping Machine



Glue Filling Machine



Screw Machine



Welding Machine



Glue Detection



Intelligent Speaker



Following Dispensing

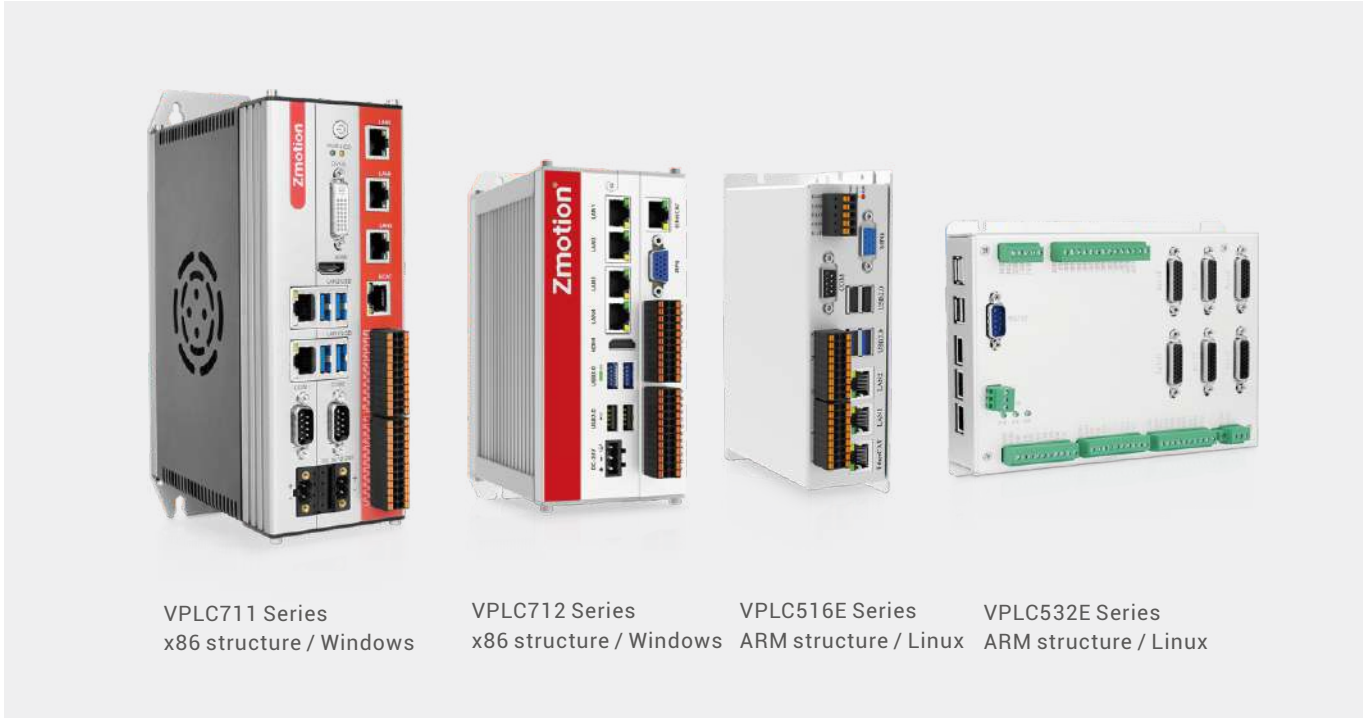


Carton Dispensing

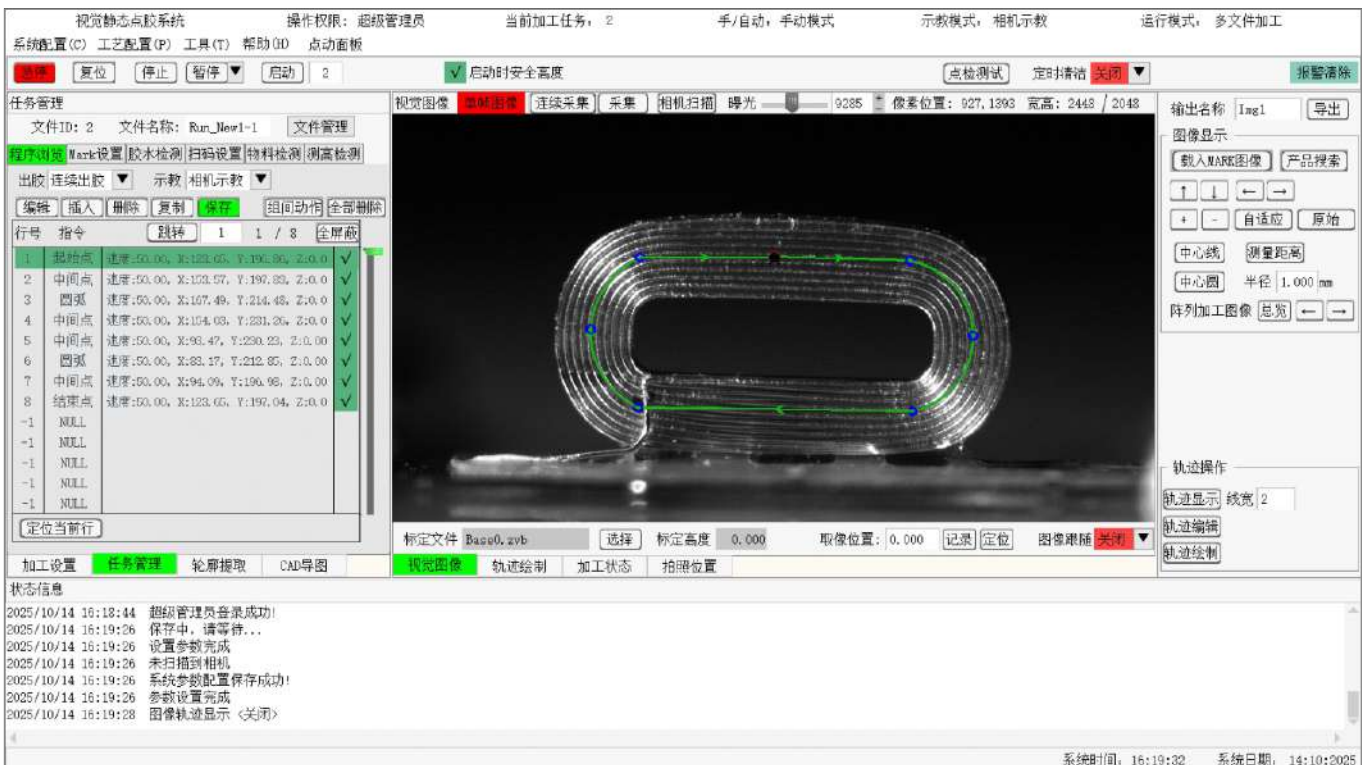
Vision Dispensing Overall Solution

Solution Introduction

Zmotion vision dispensing solution is based on the vision motion controller, which supports high-precision, high-speed, and high-consistence. After programming dispensing actions with the help of vision, different technology requirements can be achieved.



Solution – Main Operation Interface



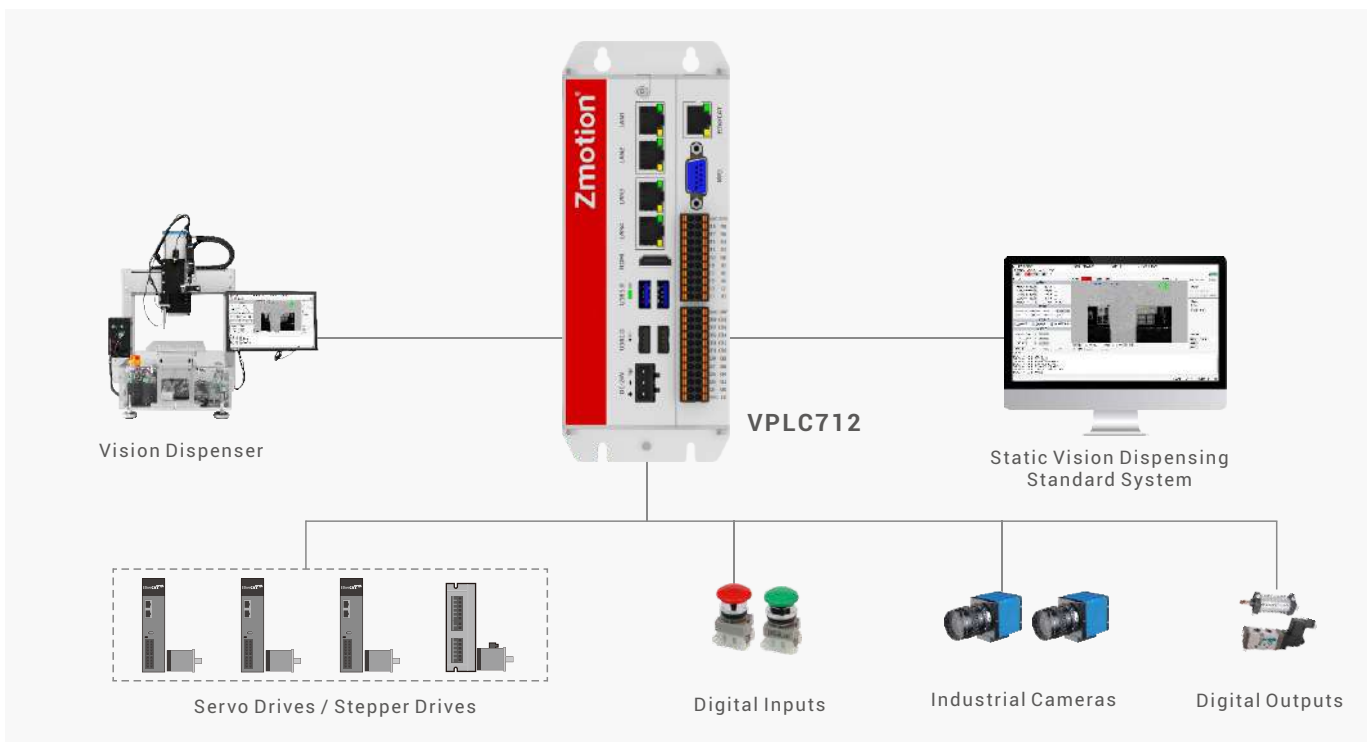
Static Vision Dispensing Solution

Solution Introduction

This solution integrates scanning before processing, dispensing, and glue detection, which can save the cost of one set of vision detection (whether there is glue, glue path detection).



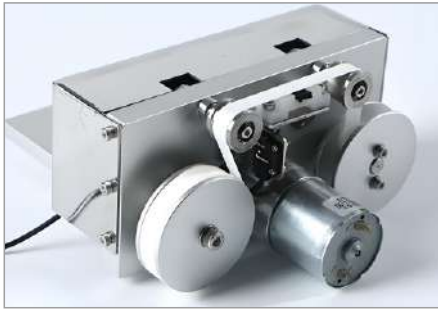
Solution -- Hardware Structure



Solution Functions

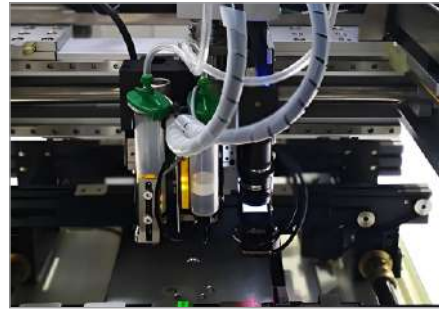
- support multi-axis (4/5-axis) linkage, motors can be pulse & bus types.
- it can recognize the template automatically (multi-file) to process.
- be compatible with local & global view calibration; support light source IO control, communication control.
- it can output and save processed and detected graphics, import & export parameters.
- support material scanning, material detection, glue detection, vision positioning deviation.
- be compatible with loading and unloading control in assembly line.
- support 3 kinds of technologies (to output glue): continuous outputting, spraying by point, and glue filling by screw.
- support glue-gun auto-clearing; before processing, it can measure the weight & height (not real-time), and support vacuum.

Desktop Dispensing Optional Functions



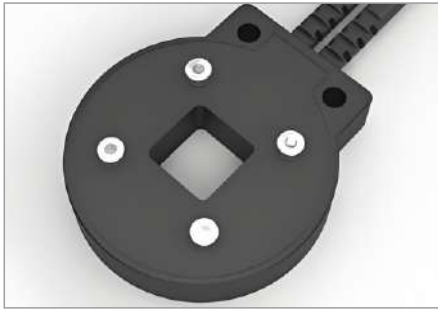
Glue-Valve Clearing

timed dispensing;
suit to needle & nozzle;
avoid glue blocking



Level Detection

real-time detect the liquor
level height: <limit -- alarm



Auto-Needle Setting

quick to correct after
new needle;
reduce debugging time



Touched Sensor

auto-correct Z axis height,
before dispensing, measure
the distance to the product,
suit to product that is with
different heights.



Titled Dispensing

calibrate & calculate 4th
axis rotate center to do
dispensing with multi-
angle and in different-
direction.



Workpiece Dual-Rotate

calibrate & calculate 4th &
5th axis rotate center to do
dispensing in any space
position.



Laser Height Measurement

auto check the product
dispensing plane height to
ensure consistency
(avoid scratch, needle
plunger).



Glue Weight- Measurement

precision: up to 0.01mg;
optional intelligent balance
communication;
output needed glue by file
information.



Glue-Valve Offset

calculate the distance
between needle head &
camera center: precise
alignment by vision, it
can auto-run in cycle.



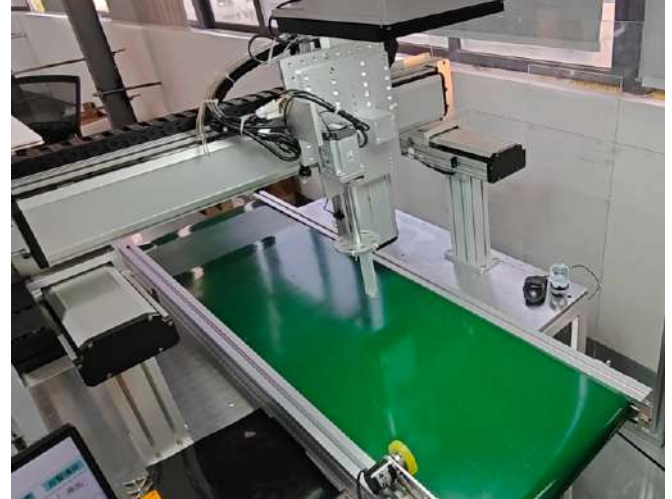
Multi-Valve Config

max 4 valves output at the
same time, achieving multi-
dispensing technologies.

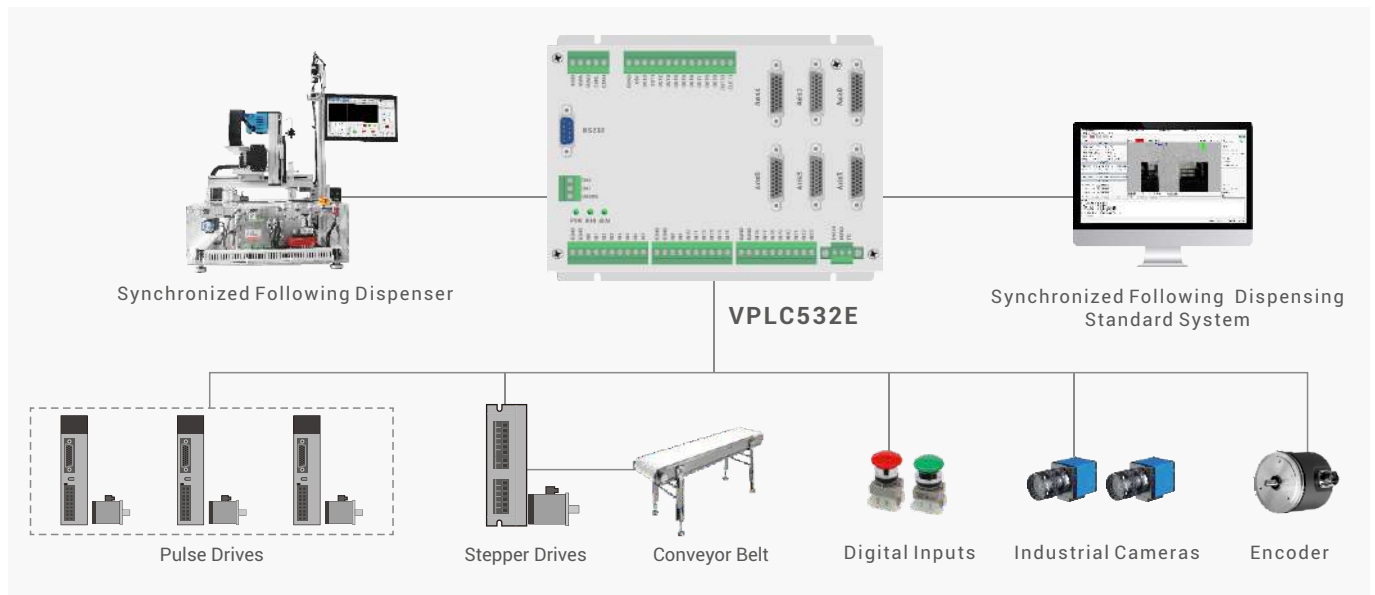
Synchronized Following Dispensing Solution

Solution Introduction

This can achieve dynamic dispensing for assembly line by dispensing path planning, workpiece position compensation, and visual inspection and recognition, which effectively solves the problem of traditional dispensing, no need to use product-specific fixtures, and manual placement.



Solution -- Hardware Structure



Solution Advantages

- optimize traditional dispensing technology: ON/OFF glue in advance, corner deceleration, and hardware comparison output functions, which can achieve precise spraying, reduce materials wasting, cut down cost.
- flexible & easy to use: convenient to install the device, then it can change the production line quickly because there is no complex disassembly and assembly process.
- promote automation level: it can automatically set the belt speed according to dispensing speed, then multi-position dispensing, high freedom dispensing can be achieved.
- enhance production efficiency: the belt can do continuous motion (no pause) while dispensing, increasing the whole production efficiency obviously.
- large-batch dispensing: save time and labor, suitable for unmanned workshops and highly automated production environments.
- support vision positioning correction, circle detection and correction, making speaker circle-dispensing more precisely.
- support belt intelligent ON/OFF: it stops before the glue head reaching the position limit, after processed, restarts it (prevent collision).
- support belt placement angle offsetting: automatically compensating XYZ through correction, to realize synchronized following.

Solution – Main Interface Operation



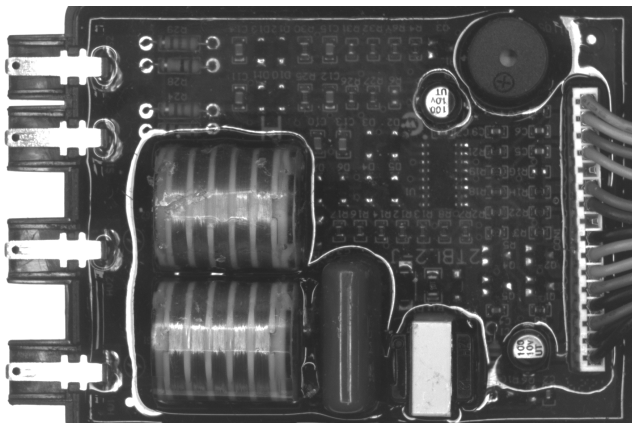
Solution – Applications



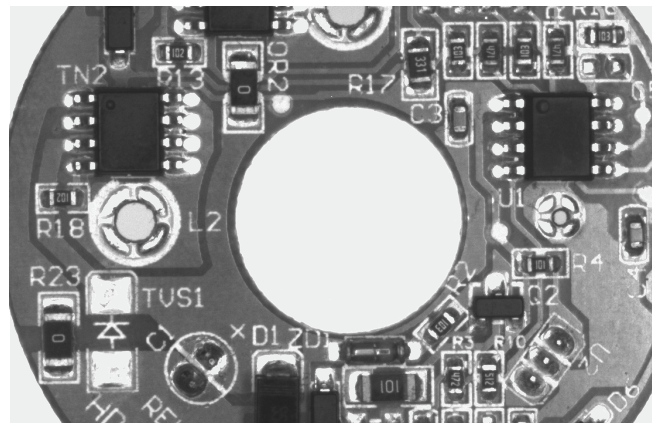
Speaker Following Dispensing



PCB Following Dispensing



Panel Following Dispensing



Soldering Point Following Dispensing

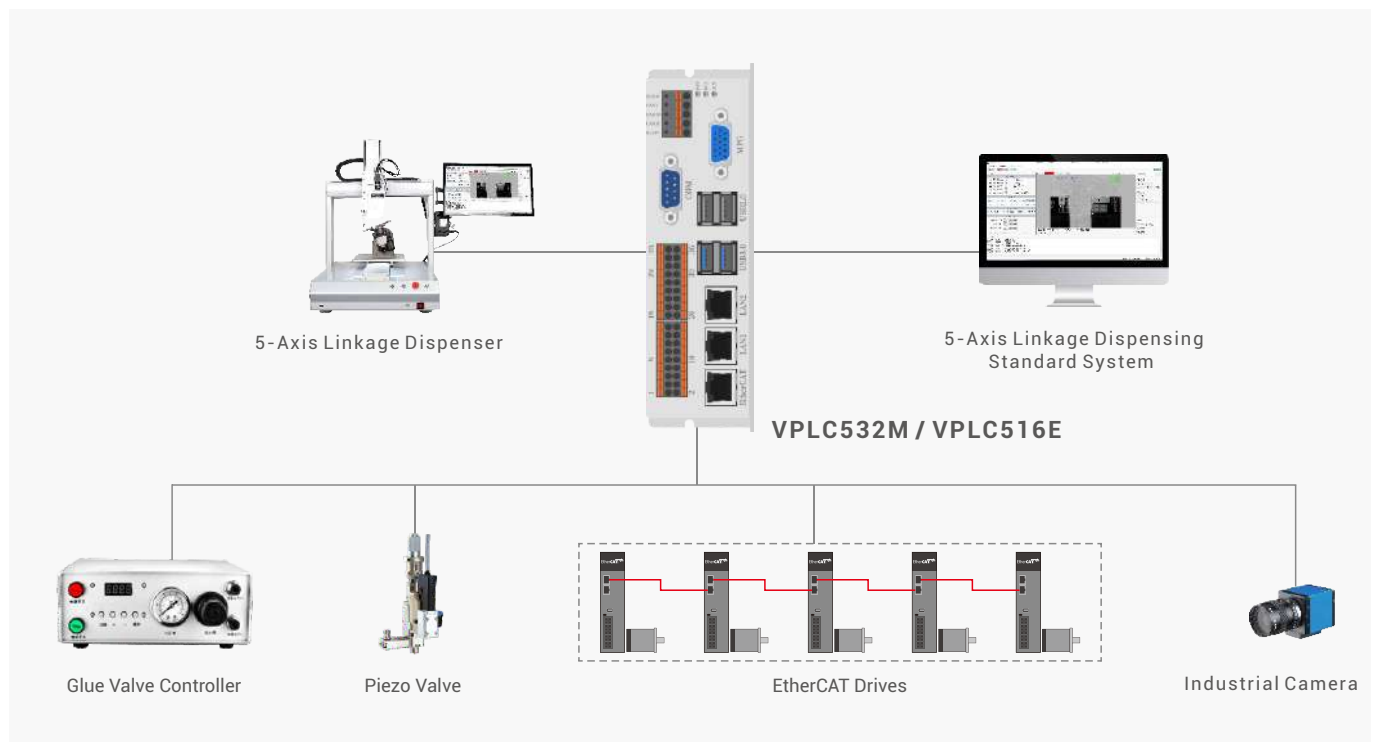
5-Axis Linkage Dispensing Solution

Solution Introduction

This is one high-precision dispensing solution mainly for the complex structure's workpiece, which can make it keep the best attitude relation between the needle head and the workpiece during dispensing. In this way, easy to complete all kinds of curve dispensing.



Solution -- Hardware Structure



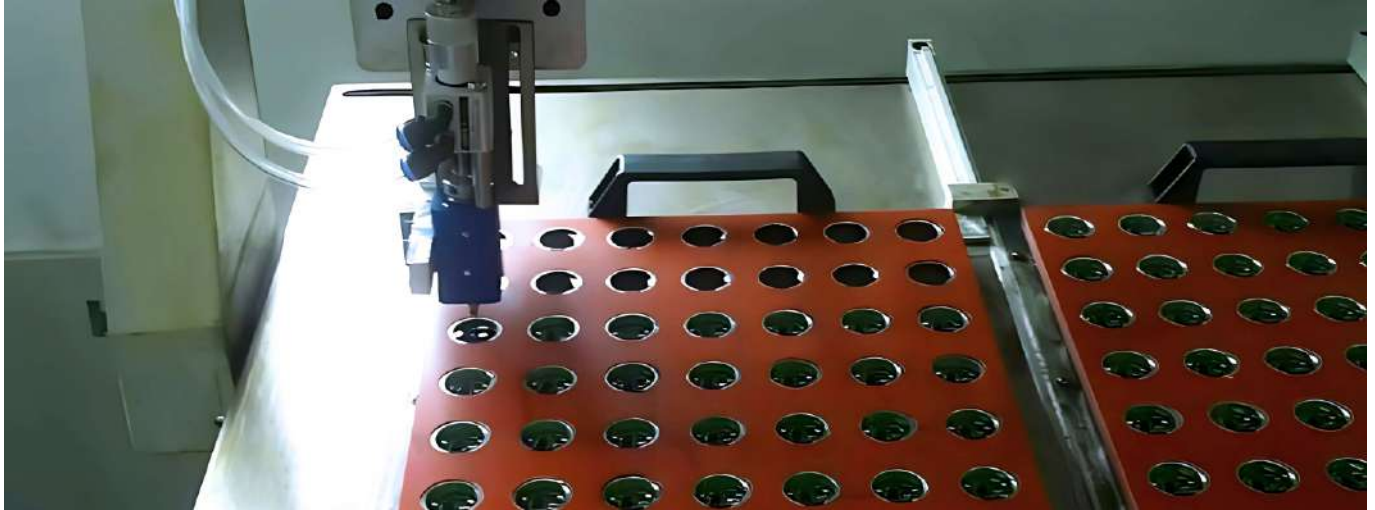
Solution Advantages

- **RTCP Technology:** single/dual 5-axis RTCP linkage control
- **Smoothing Control:** ensure interpolation's precision & efficiency
- **Uniform Glue at Corner:** dispensing of high-precision and equal space
- **Auto-Correction:** support horizontal & offset correction for dual-rotary table.
- **Look-Ahead:** improve whole trajectory running speed
- **Multi-Glue-Valve Control:** types of syringe, screw, piezoelectric injection.
- **High-Speed & High-Precision & High-Efficiency:** reduce debugging time, increase production progress

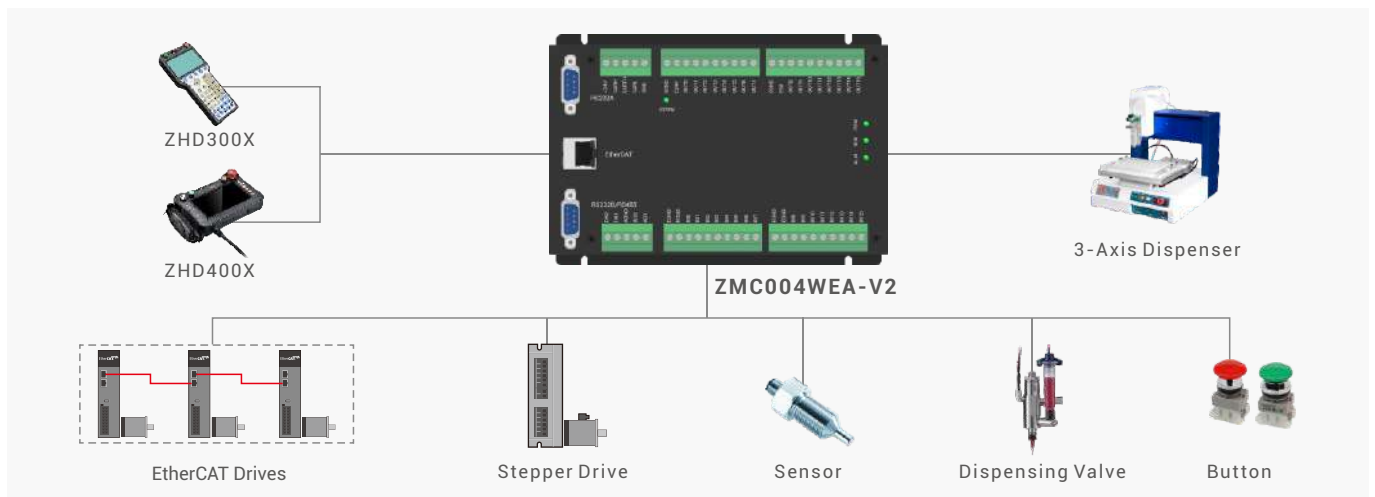
Economical Dispensing Overall Solution

Solution Introduction

This solution is applied in desktop standard dispensing device, which supports standard 3-axis & dual Y 4-axis auto-dispensing. Additionally, it uses handheld box together to control and configure trajectory, achieving high-speed, high-precision, and high-consistence dispensing. It can be widely applied in "automatic dispensing" in modern industrial production manufacturing.



Solution -- Hardware Structure



Solution Configurations

Control Model	Pulse Frequency	Command Rows	File Recipes	USB	EtherCAT	CAD
ZMC004WEA-V2	500k	120	100	-	-	-
ZMC004CE-V2	5M	500	100	-	-	-
XPLC104E8	500k	200	100	-	√	-
XPLC204H8	500k	800	1000	√	√	√

Drip-Molding Machine Solution

Solution Introduction

There is one solution that is mainly for complex applications of full auto-dispensing, which can dispense at high-speed and with high-precision, including multi-head (12-24 heads) synchronous dispensing . What's more, all kinds of colors can be used for the product that needs different colors.

Solution -- Main Interface

任务加工										Run_New1										
X: 53.312	加工状态: 停止									F1 加工										
Y: 0.828	速度: 0.000			时间: 0.00s							F2 停止									
Z: 0.000	剩余加工次数: 0									F3 复位										
									文件加工次数: 0			F4 设置								
									总加工次数: 0			CLR 清零								
输入	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	2 快捷	
输出	1	2	3	4	5	6	7	8	9	0	1	2							ESC 返回	
	3	4	5	6	7	8	9	0	1	2	3	4								

Solution -- Typical Applications



Refrigerator Magnets



Trademark



Cartoon



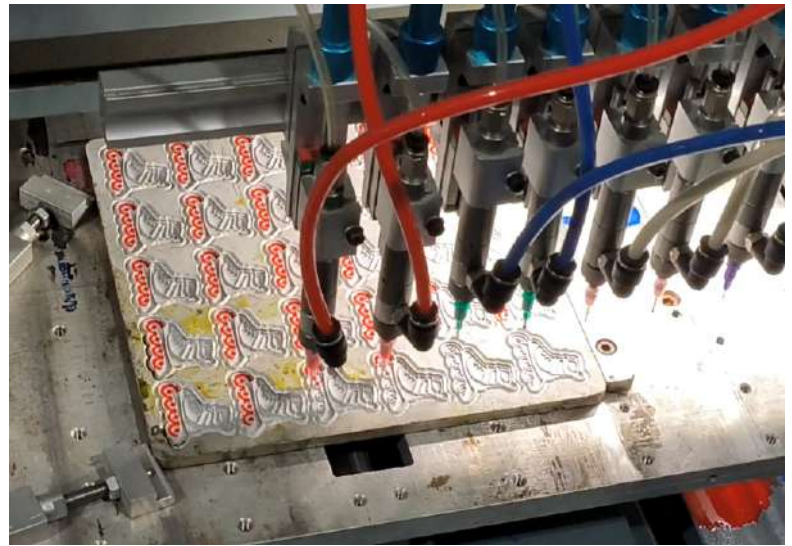
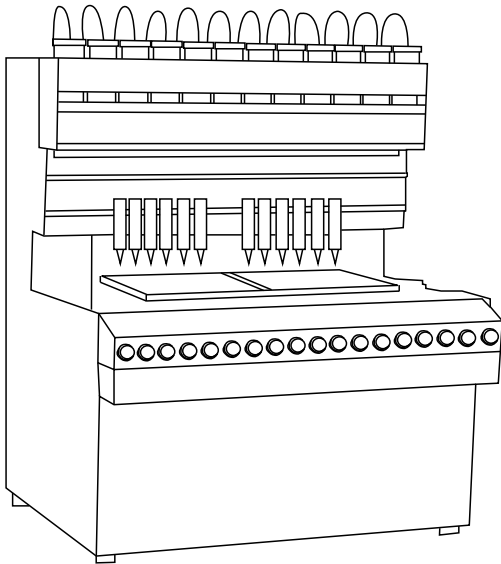
Phone Case



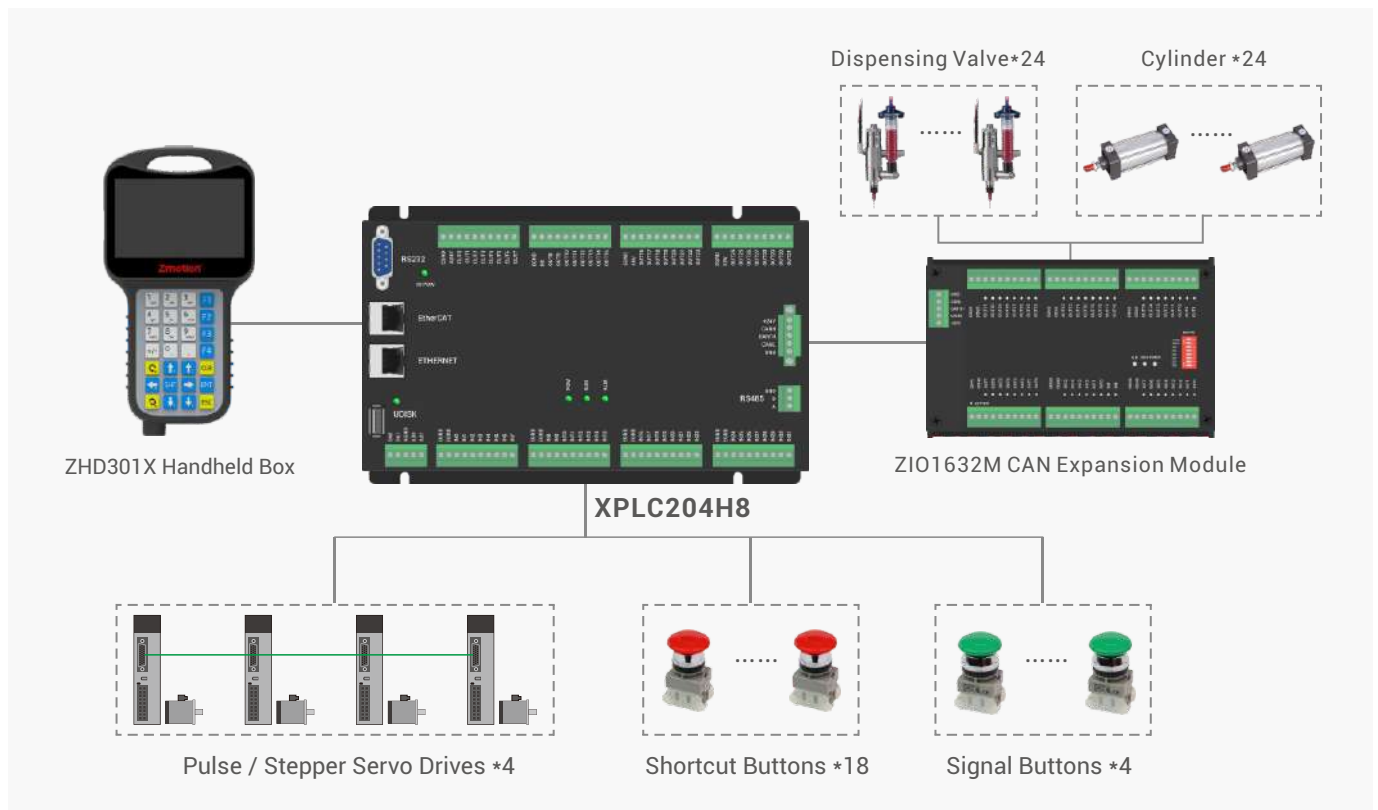
Heat Insulation Pad



Keychain



Solution -- Hardware Structure



Solution Functions

Multi-Head Synchronized

it can do synchronous dispensing with multiple heads (max 24 heads, 24 lifting cylinder).

Dual-Station Machining

for dual-station program, it can be operated alternately.

Intelligent Loading & Unloading

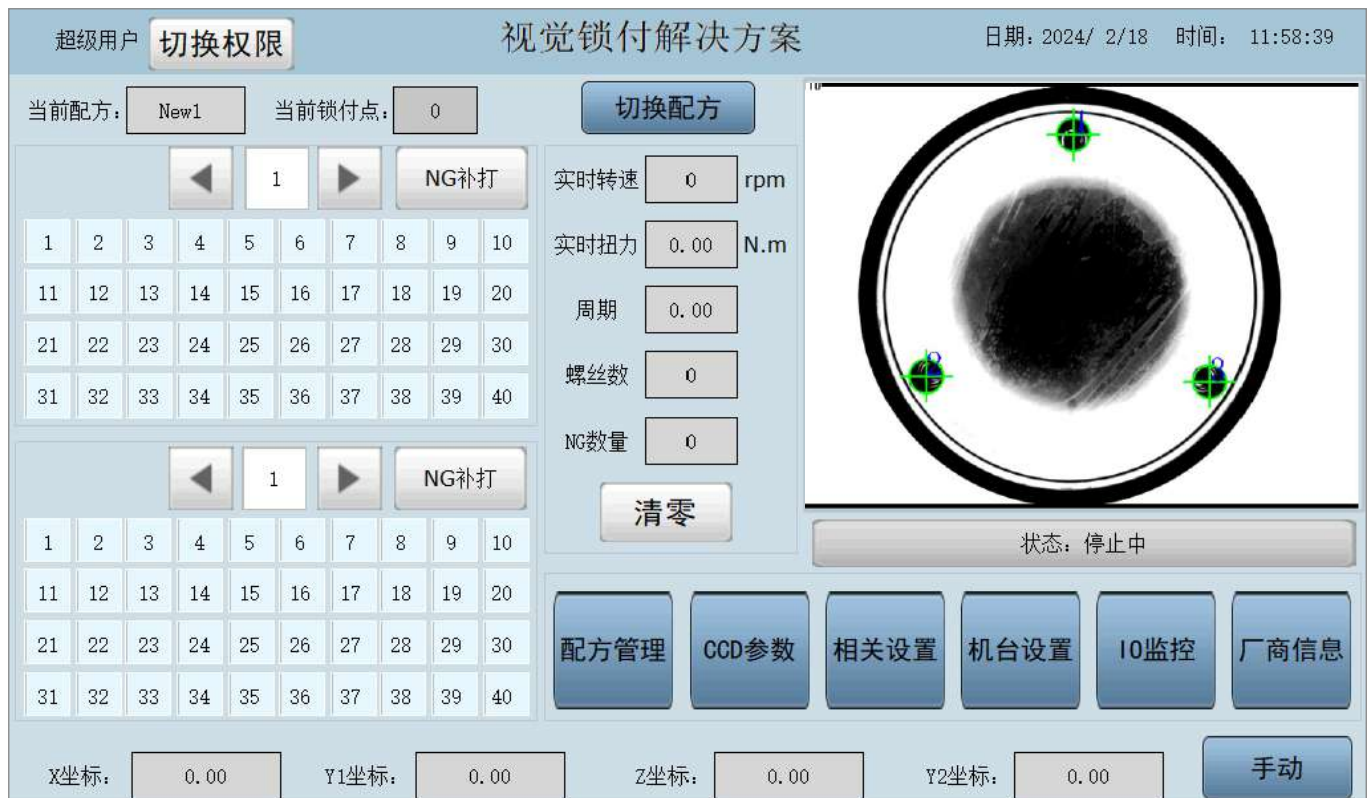
it can automatically feed the materials, including continuous dispensing, saving the time.

Vision Locking Overall Solution

Solution Introduction

This solution is mainly used in assembly process that needs to do screw locking in one single or dual station, the product is located and locked automatically by machine vision, which means no need labor to do repeatable and exhausting locking, then the production efficiency is enhanced.

Solution -- Main Interface



Solution Features

Cost-Effective & Space Optimization

integrate motion control with machine vision, no need extra IPC, saving costs and reducing space.

Defective Product Rate Reduced

in traditional servo control, actual pressure value may exceed target value (overwhelming) or the pressure can't reach target value caused by the inertia and control precision, then affect the product quality.

Production Progress Increased

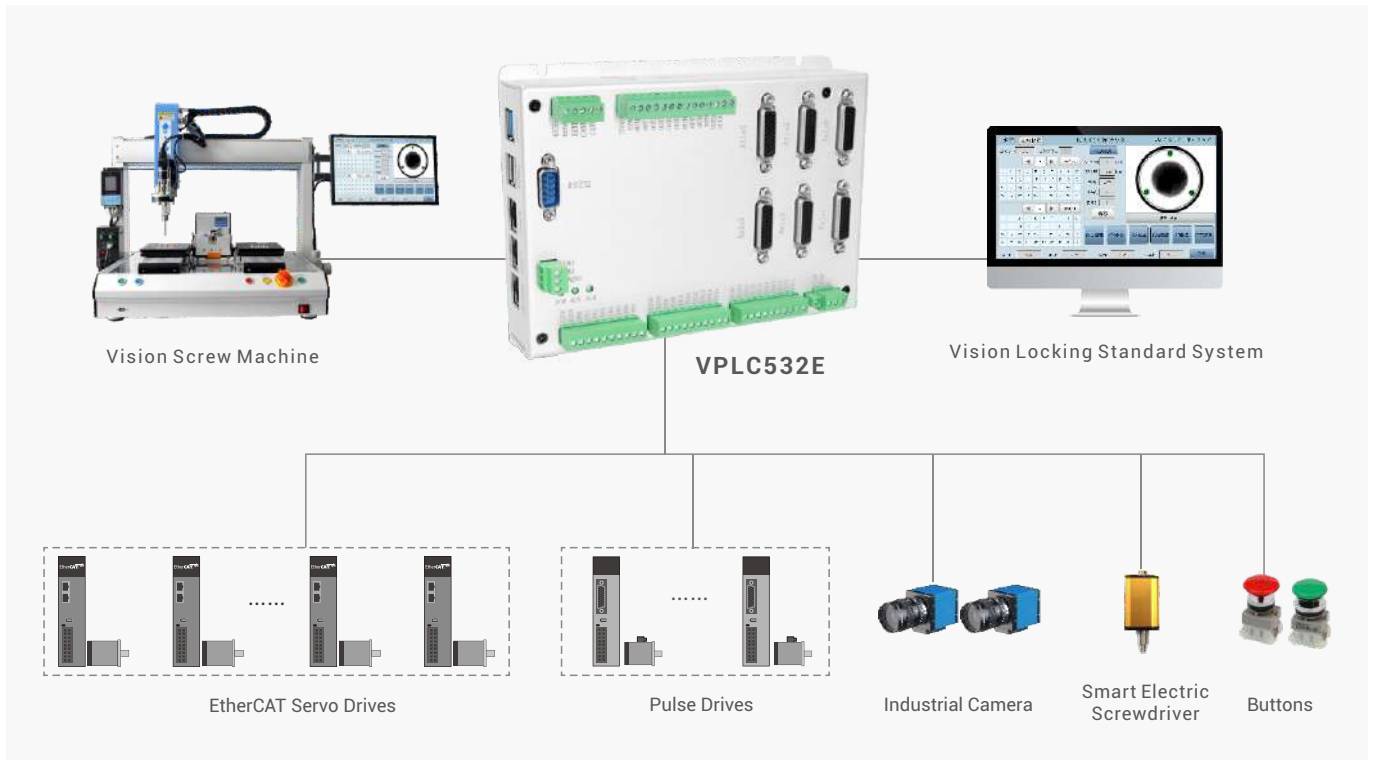
when there are types of screws, it needs to obtain materials from multi-screw hoppers, through speed + torque + position control, the time of changing the screw type can be saved, that is, while tightening, it can be switched from speed control to torque control.

Adjustment Time Saved

cumbersome program compiling can be avoided through control system, because after importing functional modules, it only needs to enter required data, like, target value, no need labor to adjust repeatedly.



Solution -- Hardware Structure



Solution Functions

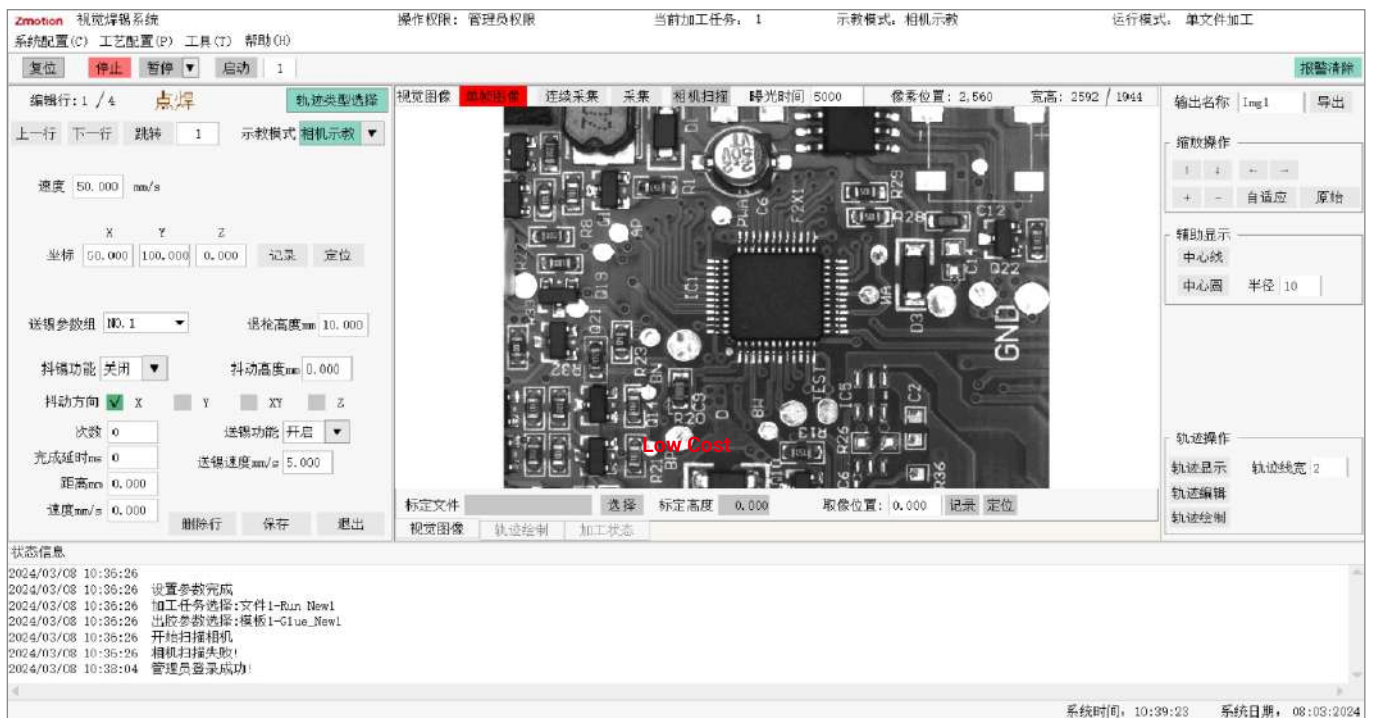
- support visible teaching operations
- support machine vision automatic/manual calibration
- standard single/dual station vision screw locking solution
- support vision correction, it can automatically match the position when the sample offsets.
- it can "find the hole by vision", replacing manual teaching, then locking speed and precision are promoted.
- support "power-off storage", "configuration management", "multi-level user operation", "alarm", "log", etc.

Vision Welding Overall Solution

Solution Introduction

It can find the welding point quickly, the time of single-point positioning programming is saved, and the process is watched by vision. This solution makes welding high-accuracy and strong flexibility. It can be widely applied in welding that is with compact space, like, PCB welding, etc., achieving auto-welding, promoting production efficiency.

Solution -- Main Interface



Solution Features

High Reliability

in auto-welding machine, it uses digital & adjustable time, pressure, power, and temperature, so that ideal welding can be achieved in each point and with different welding methods.

Low Cost

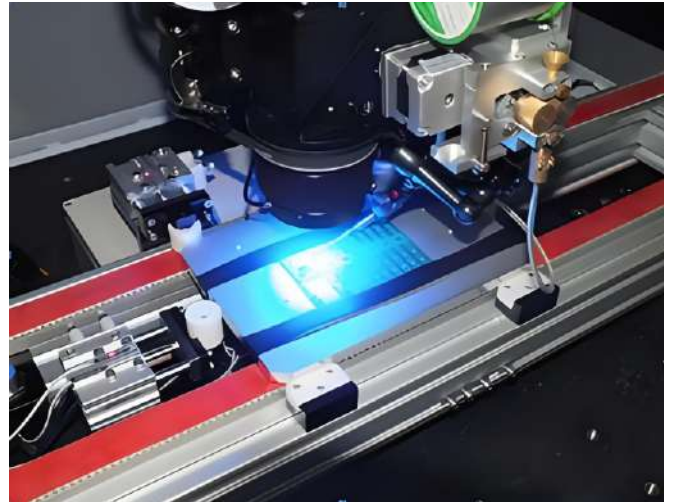
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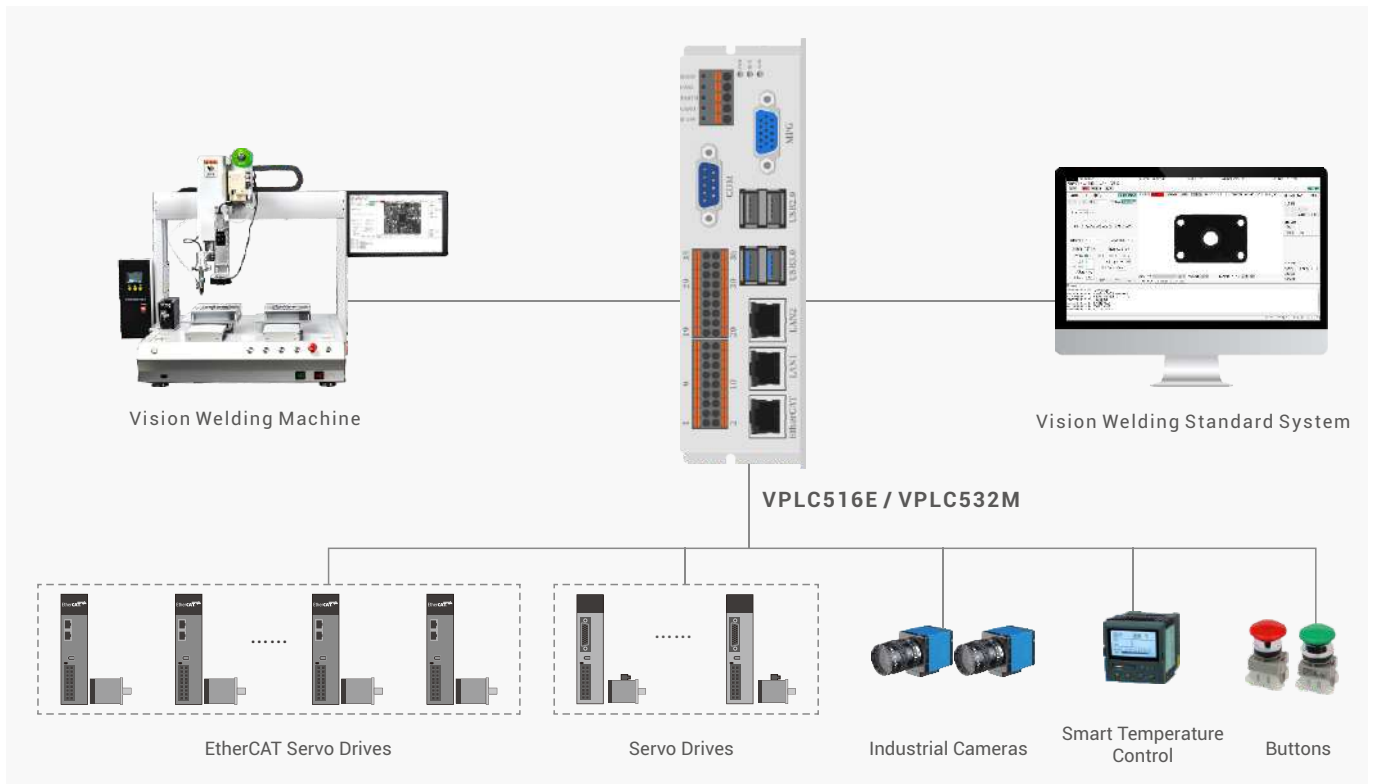
The welding speed is several times that of traditional semi-automatic soldering machines, because it uses full CCD vision positioning auto-welding robot, it can find welding point automatically and rapidly, single-point positioning, programming time can be saved.

Auto MARK Point Positioning

It can automatically correct the deviation caused by fixture. Matching with rotary welding platform, it can achieve full angle welding.



Solution -- Hardware Structure

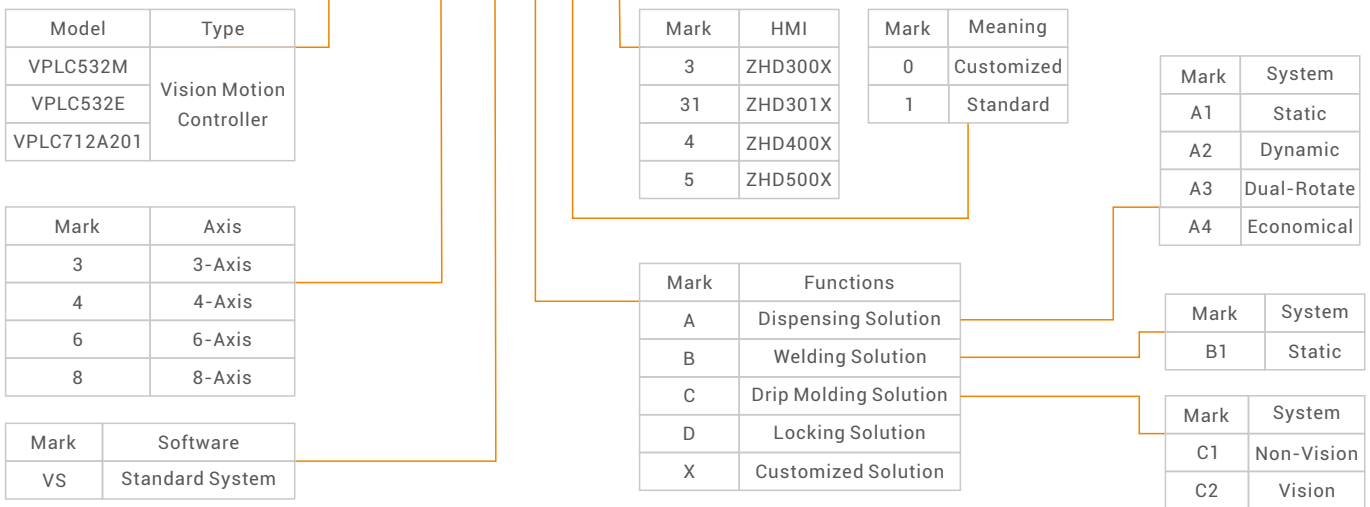


Solution Functions

- up to 6-axis (linkage of XYZ & R + 2nd processing Y, welding sending axis), motors can be pulse type and bus type.
- support vision positioning correction.
- there are point-welding and drag-welding technologies.
- support temperature controller communication.
- there are 4 parts of parameters settings, preset, segment 1, 2, and 3.
- support local, global view calibration; support light source IO control, communication control.
- support multiple teaching methods, point teaching, manual drag, graphic editing, CAD importing.
- multi-file can be recognized automatically to process.
- support glue-gun auto-clearing; clear before processing.
- be compatible with loading and unloading control in assembly line.
- it can output and save processed and detected graphics, import and export parameters.

Model Selection

VPLC532E - 4 - VS A1 1 - 3



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正运动技术



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