

"We are dedicated to innovate the best robot solution for your smart factory.  
Contact us today to learn more."



# TM5

## The world's first collaborative robot with built-in vision

Industrial 4.0 enabled

Highly flexible deployment and quick job change

Low automation and maintenance costs



Techman Robot



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## Techman's TM5 Robot

The TM5 collaborative robot features simple programming, innovative integrated vision capabilities together with the latest safety functionality, all leading to rapid deployment in a huge variety of applications. Having vision identification functionality completely integrated within the collaborative robot platform, provides an easy and intuitive way to achieve robot calibration to work piece or tooling, product selection, 1D or 2D barcodes and a host of other vision applications, delivering a true Industry 4.0 solution.



## Smart

### Built-in vision system

TM Robot is equipped with a built-in vision system, which integrates into both the hardware and software perfectly, whereas traditional add-on vision solutions to robotics are complicated, time consuming and costly to implement.

### Masters in robot vision

Many standard robot vision functions are already built into our system: pattern matching, object localisation, image enhancement, bar code reading, colour recognition, etc. All these functions have been integrated into our remarkably easy-to-use user interface.

### 5 Minutes to achieve a visual pick & place task

Combining our smart vision system and our hand-guiding functions, everyone, even those without robotic programming experience, can achieve a visual pick & place task within 5 minutes.

## Simple

### Revolutionary user interface

No more coding! You can implement your automation task with our revolutionary simple-to-use user interface, an all-graphic flow chart based HMI. Users, even those without coding experience with industrial robots, can learn to use TM robot easily and quickly. You can program every built-in vision function on the GUI. Furthermore, the traditional heavy umbilical wired pendant is gone. Our user interface can be operated on PCs, notebooks or tablets.

### Use your hand

Another reason TM Robot is more simple to program than the other modern robots is our well designed hand-guiding functions with servo assist. You can lock selected axes to allow adjustment in defined planes and then fine tune the co-ordinates with easy editing of those co-ordinates within the programming package.

### Easy to deploy

Because TM robot is so simple to program, it is very easily deployed into different applications, reducing your time-to-production and saving your total cost in automation.

## Safe

### Force limiting

TM Robot complies with the ISO 10218-1 & ISO/TS 15066 human-robot co-operation safety requirements for collaborative robots, allowing the robot to be programmed with both speed and force limits.

### Safety is our priority

TM Robot is serious about safety in every aspect of the design of the whole robot system, through hardware, software and operational design.

### Ergonomic design

TM Robots are physically designed to be safe to their surroundings, soft end caps and no sharp edges are all part of the collaborative experience.





# TM5 Collaborative Robot vs. Traditional Robot

The TM5 Collaborative Robot allows human-machine cooperation in the production line, greatly improving production efficiency and reducing implementation costs. The TM5's high flexibility allows fast line and product changes, greatly reducing the overall cost of industrial automation. When adding Ethernet and EtherCAT connectivity the TM5 is the best collaborative robot for Industry 4.0 intelligent factory automation delivery.

Comparison 1

**TM5 Collaborative Robot**

Human-machine cooperation  
The TM5 robot can work together with people safely and collaboratively to carry out production tasks.

**Traditional Robot**

Human-machine separation  
Operation is dangerous, and robots need to be separated from operators in the same work area during production.

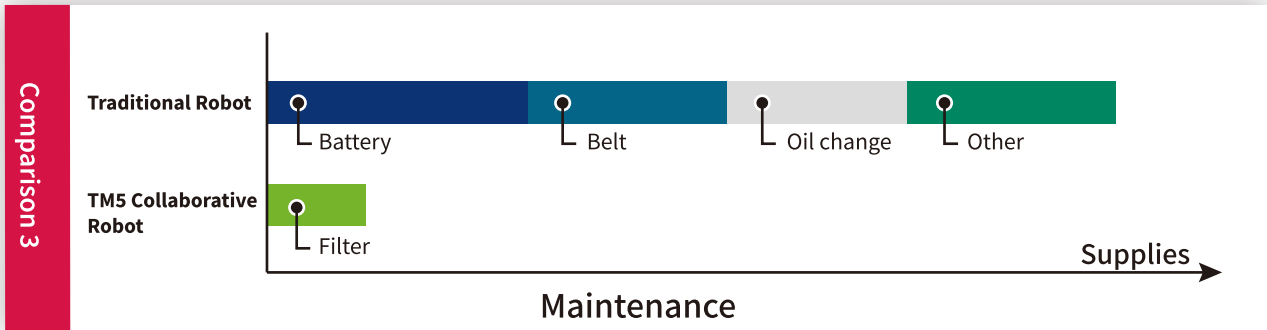
Comparison 2

**TM5 Collaborative Robot**

Smart and flexible  
The TM5 collaborative robot, with built-in vision, can be easily relocated, set up, coordinate auto-calibrated and applied on different tasks.

**Traditional Robot**

Single-function  
After traditional robots are set up and given orders, they can only do a single function/operation and are not flexible to move to other work. If there is a need for other robotics applications, it is necessary to buy new robots to deploy.



For reference only

## TM5 Robot Applications

Because of the TM5 Collaborative Robot's simple, easy and safe capabilities, it can be used in a huge variety of industries such as electronics, metal processing, machinery, textiles, food, automobile, logistics etc. Built-in vision can be used intuitively in item identification for pick and place, position identification for assembly tasks, and even extended to coordinate set-up, flaw inspection, barcode scanning, product function testing and more. TM5 significantly enhances your automation and improves your productivity.

Testing

Assembling

Screwing

Packaging

Machine Tending

Quality Inspection

Gluing

Loading & Unloading

Soldering

Conveyor Tracking

Injection Moulding

Unlimited Potential

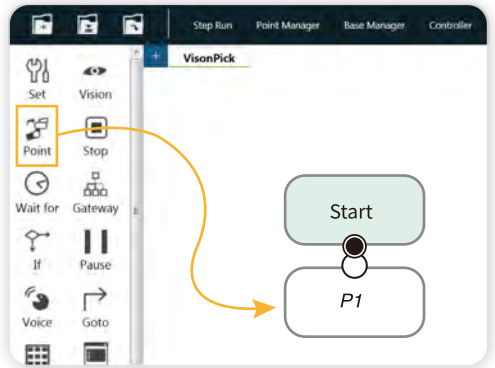


# TMflow®

TMflow® is an all-graphical, flowchart-based robot programming user interface. Users even those without coding experience with industrial robots, can learn to use TM Robot quickly and easily.



All graphic user friendly interface.



Intuitive user experience design:  
Drag-and-drop the icon to generate a new node.

## TM5 Vision System

### Find

Shape-based Pattern Matching

Image-based Pattern Matching

Fiducial-mark Matching

Blob Finder

### Enhance

Contrast Enhancement

Smoothing

Thresholding

Morphology

Color Plane Extraction

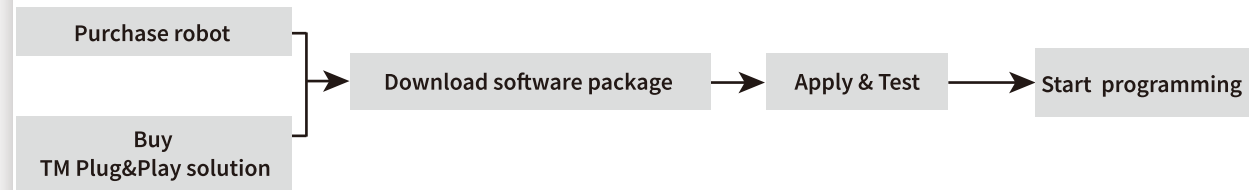
Identify - Barcode / QR code support 1-Dbarcode \ QR code & 2-D DataMatrix's decode

Barcode / QR code

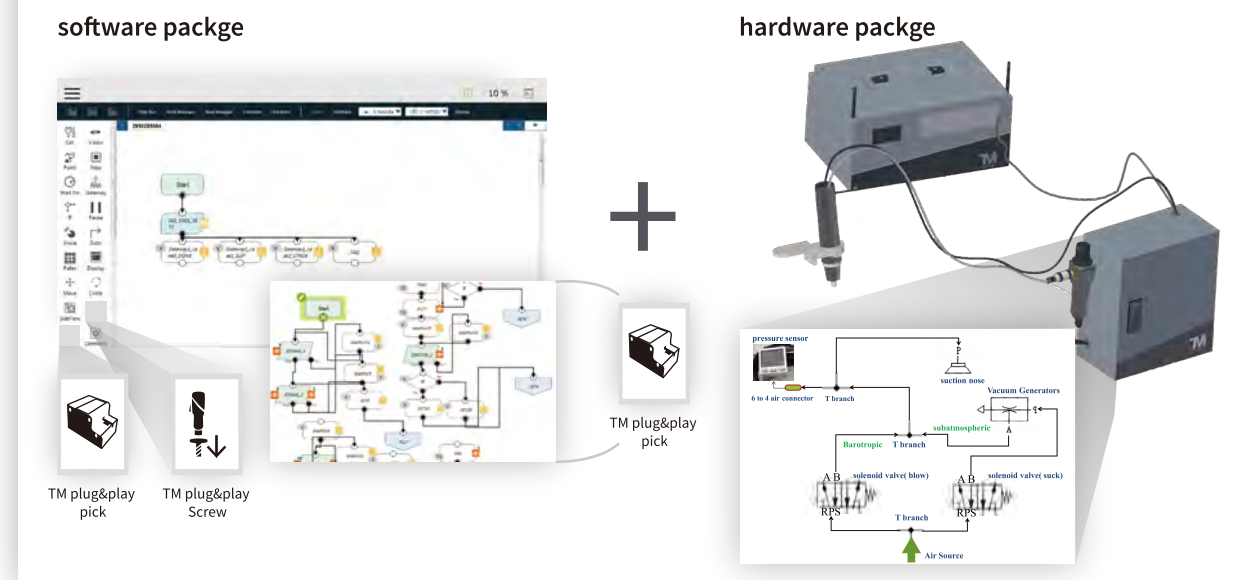
Colour Detection

TM Plug and Play Solution greatly reduces the money, time and manpower cost of hardware fabrication and software programming.

## 5 mins to start application programming



## Simple, Efficient, Fast for production line phase-in



## Screw Plug&Play Example

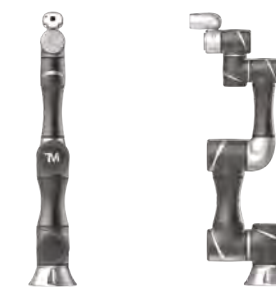


Please check the website for details.

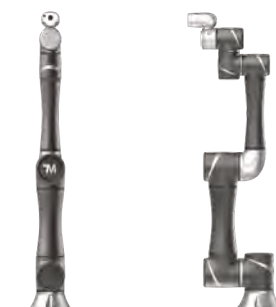
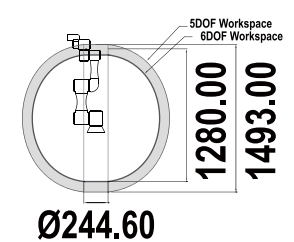
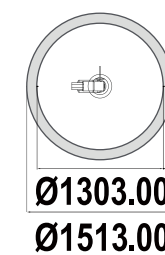
## Specification

Model		TM5-700	TM5-900	
Weight		22kg	22.2kg	
Payload		6kg	4kg	
Reach		700mm	900mm	
Joint Ranges	J1	+/- 270°		
	J2,J4,J5	+/- 180°		
	J3	+/- 155°		
	J6	+/- 270°		
Speed	J1~J3	180°/s.		
	J4~J6	225°/s.		
Repeatability		+/- 0.05mm		
Degrees of Freedom		6 Rotating Joints		
I/O Ports		Digital in Digital out Analog in Analog out	Control Box 16 16 2 1	Tool Conn. 3 3 1 0
I/O Power Supply		24V 1.5A for control box and 24V 1.5A for tool		
IP Classification		IP54		
Power Consumption:		Max. 1300 watts		
Temperature		The robot can work in a temperature range of 0-50°C		
Power Supply		100-240 VAC, 50-60 Hz		
I/O Interface of Control Box		3×COM, 1×HDMI, 1×EtherCAT, 2×GigE, 1×LAN,4×USB2.0, 2×USB3.0, 1×VGA		
Robot Vision				
Eye in Hand (Built-in)		1.2M/5M pixels, color camera		
Eye to Hand (option)		Support Maximum 2 GigE cameras		

## Operating Area



TM5-700



TM5-900

