

TM5 **TM AI COBOT**

Native Al engine + Robotic arm + Vision system

Perfectly in one



| Model | | TM5-700 | TM5-900 | TM5M-700 | TM5M-900 | | | | |
|-------------------------|--------------|--|-----------------------------|-----------------------------|---------------|--|--|--|--|
| Weight | | 22.1kg | 22.1kg 22.6kg | | 22.6kg | | | | |
| Maximum Payload | | 6kg | 4kg | 6kg | 4kg | | | | |
| Reach | | 700mm | 900mm | nm 700mm | | | | | |
| Joint ranges | J1,J6 | +/- 270° | +/- 270° | +/- 270° | +/- 270° | | | | |
| | J2,J4,J5 | +/- 180° | +/- 180° | +/- 180° +/- 180° | | | | | |
| | J3 | +/- 155° | | | | | | | |
| Speed | J1,J2,J3 | 180°/s | | | | | | | |
| | J4,J5,J6 | 225°/s | | | | | | | |
| Туріса | al Speed | 1.1m/s | 1.4m/s | 1.1m/s | 1.4m/s | | | | |
| Max. Speed | | 4 m/s | | | | | | | |
| Repeatability | | +/- 0.05 mm | | | | | | | |
| Degree Of Freedom | | 6 rotating joints | | | | | | | |
| | | Digital In: 16 | | | | | | | |
| | Control box | Digital Out: 16 | | | | | | | |
| | Control box | Analog In: 2 | | | | | | | |
| 1/0 | | Analog Out: 1 | | | | | | | |
| 1/0 | | Digital In: 4 | | | | | | | |
| | Tool Conn. | Digital Out: 4 | | | | | | | |
| | i sor conn. | Analog In: 1 | | | | | | | |
| | | Analog Out: 0 | | | | | | | |
| I/O Power Supply | | 24V 2.0A for control box | | | | | | | |
| | | 24V 1.5A for tool | | | | | | | |
| IP Classification | | IP54 (Robot Arm); IP32 (Control Box) | | | | | | | |
| | nsumption | Typical 220 watts | | | | | | | |
| Temperature | | The robot can work in a temperature range of 0-50°C | | | | | | | |
| Cleanliness | | ISO Class 3 | | | | | | | |
| | Supply | 100-240 VA0 | | | 0 VDC | | | | |
| I/O Interface | | 3×COM, 1×HDMI, 3×LAN, 4×USB2.0, 2×USB3.0 | | | | | | | |
| Communication | | RS232, Ethernet, Modbus TCP/RTU (master & slave), PROFINET (optional) ,EtherNet/IP (optional) | | | | | | | |
| Programming Environment | | TMflow, flowchart based | | | | | | | |
| Certi | ication | | CE, SEMI S2 | 2 (optional) | | | | | |
| | | | AI & Vision* ⁽¹⁾ | | | | | | |
| Al Function | | Classification, Object Detection, Segmentation | | | | | | | |
| Application | | Positioning, 1D/2D Barcode Reading, OCR, Defect Detection, Measurement, Assembly Check | | | | | | | |
| Positioning Accuracy | | 2D Positioning: 0.1 mm* ⁽²⁾ | | | | | | | |
| | | TM Landmark 3D Positioning (Working Point away from Landmark 100/200/300mm): 0.24/0.53/1.00 mm* ⁽²⁾ | | | | | | | |
| Eye in Hand (Built in) | | Auto-focused color camera with 5M resolution, Working distance 100 mm $\sim \infty$ Support Maximum 2× GigE 2D cameras or 1× GigE 2D Camera + 1× 3D Camera ^{* (3)} | | | | | | | |
| Eye to Han | d (Optional) | Support Ma | aximum 2× GigE 2D cameras o | r 1× GigE 2D Camera + 1× 3E | D Camera* (3) | | | | |

* ⁽¹⁾ No built-in vision robot arms TM5X-700, TM5X-900 are also available. * ⁽²⁾ The data in this table are measured by TM laboratory and the working distance is 100mm. It should be noted that in practical applications, the relevant values may be different due to factors such as the on-site ambient light source, object characteristics, and vision programming methods that will affect the change in accuracy. $^{
m *}$ $^{
m (3)}$ Refer to the official website of TM Plug&Play for camera models compatible to TM Robot.

SEMI S2 ISO 10218-1:2011 ISO/TS 15066:2016

Ver.22J31EN

CE

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тм12 /тм14 /тм16 /тм20

TM AI COBOT with built-in vision

The best and smartest choice for smart factory

| Model | | TM12 | TM14 | TM16 | TM20 | TM12M | TM14M | TM16M | TM20M | | | |
|------------------------|---------------|--|-----------------|-----------------|----------------------|-------------------|----------------|---------------|----------|--|--|--|
| Weight | | 32.8kg | 32.5kg | 32kg | 32.8kg | 32.8kg | 32.5kg | 32kg | 32.8kg | | | |
| Maximum Payload | | 12kg | 14kg | 16kg | 20kg | 12kg | 14kg | 16kg | 20kg | | | |
| Reach | | 1300mm | 1100mm | 900mm | 1300mm | 1300mm | 1100mm | 900mm | 1300mm | | | |
| Joint ranges | J1,J6 | +/- 270° | +/- 270° | +/- 270° | +/- 270° | +/- 270° | +/- 270° | +/- 270° | +/- 270° | | | |
| | J2,J4,J5 | +/- 180° | +/- 180° | +/- 180° | +/- 180° | +/- 180° | +/- 180° | +/- 180° | +/- 180° | | | |
| | J3 | +/- 166° | +/- 163° | +/- 155° | +/- 166° | +/- 166° | +/- 163° | +/- 155° | +/- 166° | | | |
| Speed | J1,J2 | 120°/s | 120°/s | 120°/s | 90°/s | 120°/s | 120°/s | 120°/s | 90°/s | | | |
| | J3 | 180°/s | 180°/s | 180°/s | 120°/s | 180°/s | 180°/s | 180°/s | 120°/s | | | |
| | J4 | 180°/s | 150°/s | 180°/s | 150°/s | 180°/s | 150°/s | 180°/s | 150°/s | | | |
| | J5 | 180°/s | 150°/s | 180°/s | 180°/s | 180°/s | 150°/s | 180°/s | 180°/s | | | |
| | J6 | 180°/s | 180°/s | 180°/s | 225°/s | 180°/s | 180°/s | 180°/s | 225°/s | | | |
| Туріса | l Speed | 1.3m/s | 1.1m/s | 1.1m/s | 1.3m/s | 1.3m/s | 1.1m/s | 1.1m/s | 1.3m/s | | | |
| Max. Speed | | 4 m/s | | | | | | | | | | |
| Repeatability | | +/- 0.1 mm | | | | | | | | | | |
| Degree Of Freedom | | 6 rotation joints | | | | | | | | | | |
| | Control box | Digital In: 16 | | | | | | | | | | |
| | | Digital Out: 16 | | | | | | | | | | |
| | | Analog In: 2 | | | | | | | | | | |
| I/O | | Analog Out: 1 | | | | | | | | | | |
| | | Digital In: 4 | | | | | | | | | | |
| | Tool Conn. | Digital Out: 4 | | | | | | | | | | |
| | | Analog In: 1 | | | | | | | | | | |
| | | Analog Out: 0 | | | | | | | | | | |
| I/O Power Supply | | 24V 2.0A for control box and 24V 1.5A for tool | | | | | | | | | | |
| IP Classification | | IP54(Robot Arm); IP32(Control Box) | | | | | | | | | | |
| Power Consumption | | Typical 300 watts | | | | | | | | | | |
| Temperature | | The robot can work in a temperature range of 0-50°C | | | | | | | | | | |
| Cleanliness | | ISO Class 3 | | | | | | | | | | |
| Power Supply | | 100-240 VAC, 50-60 Hz 22-60 VDC | | | | | | | | | | |
| I/O Interface | | 3×COM, 1×HDMI, 3×LAN, 4×USB2.0, 2×USB3.0 | | | | | | | | | | |
| Communication | | RS232, Ethernet, Modbus TCP/RTU(master & slave), PROFINET(Optional), EtherNet/IP(Optional) | | | | | | | | | | |
| Programming | g Environment | TMflow, flowchart based | | | | | | | | | | |
| Certification | | CE, SEMI S2 (Option) | | | | | | | | | | |
| | | | | AI & Vi | sion* ⁽¹⁾ | | | | | | | |
| AI Function | | Classification, Object Detection, Segmentation | | | | | | | | | | |
| Application | | | Positioning, 1D |)/2D Barcode Re | ading, OCR, De | fect Detection, I | Measurement, A | ssembly Check | | | | |
| Positioning Accuracy | | Positioning, 1D/2D Barcode Reading, OCR, Defect Detection, Measurement, Assembly Check 2D Positioning: 0.1 mm* ⁽²⁾ | | | | | | | | | | |
| | | TM Landmark 3D Positioning (Working Point away from Landmark 100/200/300mm): 0.24/0.53/1.00 mm* ⁽²⁾ | | | | | | | | | | |
| Eye in Hand (Built in) | | Auto-focused color camera with 5M resolution, Working distance 100 mm $\sim \infty$ | | | | | | | | | | |
| Eye to Hand (Optional) | | Support Maximum 2× GigE 2D cameras or 1× GigE 2D Camera + 1× 3D Camera* ⁽³⁾ | | | | | | | | | | |

* ⁽²⁾ The data in this table are measured by TM laboratory and the working distance is 100mm. It should be noted that in practical applications, the relevant values may be different due to factors such as the on-site ambient light source, object characteristics, and vision programming methods that will affect the change in accuracy.
* ⁽³⁾ Refer to the official website of TM Plug&Play for camera models compatible to TM Robot.

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