



TM12 / TM14 / TM16 / TM20

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°
	J2,J4,J5	+/- 180°	+/- 180°	+/- 180°	+/- 180°	+/- 180°	+/- 180°	+/- 180°
	J3	+/- 166°	+/- 163°	+/- 155°	+/- 166°	+/- 166°	+/- 163°	+/- 155°
Speed	J1,J2	120°/s	120°/s	120°/s	90°/s	120°/s	120°/s	90°/s
	J3	180°/s	180°/s	180°/s	120°/s	180°/s	180°/s	120°/s
	J4	180°/s	150°/s	180°/s	150°/s	180°/s	150°/s	180°/s
	J5	180°/s	150°/s	180°/s	180°/s	180°/s	150°/s	180°/s
	J6	180°/s	180°/s	180°/s	225°/s	180°/s	180°/s	225°/s
Typical 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							
I/O	Control box	Digital In: 16 Digital Out: 16 Analog In: 2 Analog Out: 1						
	Tool Conn.	Digital In: 4 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 Environment	TMflow, flowchart based							
Certification	CE, SEMI S2 (Option)							
AI & Vision*⁽¹⁾								
AI 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 ~ ∞							
Eye to Hand (Optional)	Support Maximum 2× GigE 2D cameras or 1× GigE 2D Camera + 1× 3D Camera* ⁽³⁾							

*⁽¹⁾ No built-in vision robot arms TM12X, TM14X, TM16X, TM20X 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.

*⁽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 CE

