

TM AI Cobot S Series Specification



Specification													
Model		TM5S	TM6S	TM7S	TM12S	TM5S-M	TM6S-M	TM7S-M	TM12S-M	TM5S-X	TM6S-X	TM7S-X	TM12S-X
Weight		23.9kg	35.5kg	22.9kg	33.3kg	23.9kg	35.5kg	22.9kg	33.3kg	23.6kg	35.2kg	22.6kg	33kg
Maximum Payload		5kg	6kg	7kg	12kg	5kg	6kg	7kg	12kg	5kg	6kg	7kg	12kg
Reach		946mm	1800mm	758mm	1300mm	946mm	1800mm	758mm	1300mm	946mm	1800mm	758mm	1300mm
Joint Ranges	J1, J2, J4,J5, J6	+/- 360°											
	J3	+/- 158°	+/- 166°	+/- 152°	+/- 162°	+/- 158°	+/- 166°	+/- 152°	+/- 162°	+/- 158°	+/- 166°	+/- 152°	+/- 162°
Speed	J1	210°/s	130°/s	210°/s	130°/s	210°/s	130°/s	210°/s	130°/s	210°/s	130°/s	210°/s	130°/s
	J2	210°/s	130°/s	210°/s	130°/s	210°/s	130°/s	210°/s	130°/s	210°/s	130°/s	210°/s	130°/s
	J3	210°/s											
	J4	225°/s											
	J5	225°/s											
	J6	450°/s											
Maximum Speed		4.5m/s											
Repeatability		+/- 0.03mm	+/- 0.10mm	+/- 0.03mm	+/- 0.03mm	+/- 0.03mm	+/- 0.10mm	+/- 0.03mm	+/- 0.03mm	+/- 0.03mm	+/- 0.10mm	+/- 0.03mm	+/- 0.03mm
Degree Of Freedom		6 rotating joints											
Control Box Weight		13.5kg					8.9kg			13.5kg			
I/O	Control Box	Digital In: 16 / Digital Out: 16											
		Analog In: 2 / Analog Out: 2											
	Tool Conn.	Digital In: 3 / Digital Out: 3											
		DO_0 (DO-0/AI) / DO_1 (DO-1/RS485-) / DO_2 (DO-2/RS485+)											
I/O Power Supply		24V 2.0A for control box, 24V 1.5A for tool											
IP Classification		IP65 (Robot Arm) IP54 (Control Box)				IP65 (Robot Arm)				IP65 (Robot Arm) IP54 (Control Box)			
Typical Power Consumption		240 W	400 W	240 W	400 W	240 W	400 W	240 W	400 W	240 W	400 W	240 W	400 W
Temperature		0~50°C											
Cleanliness		ISO Class 3											
Power Supply		100~240 VAC, 50~60 Hz					24~60 VDC			100~240 VAC, 50~60 Hz			
I/O Interface		2×COM, 1×HDMI, 3×LAN, 2×USB2.0, 4×USB3.0											
Communication		RS-232/RS-422/RS-485, Ethernet, Modbus TCP/RTU (master & slave)											
		Optionally support specified network card of PROFINET, EtherNet/IP, EtherCAT, CC-Link ^{*(1)}											
Programming Environment		TMflow (flowchart based), TMsript (script based), TMcraft (developer based)											
Certification		TÜV certificated ISO 13849-1, ISO 10218-1, ISO/TS 15066											
		SGS certificated UL1740, CAN/CSA Z424-14 (R2019)											
		CE, NSF/ANSI 169 (optional), SEMI S2 (optional)											
Nano Control Box													
Control Box Weight		7.2 kg											
Control Box Dimension		156.5 x 359.0 x 322.1 mm											
IP Classification		N/A											
Power Supply		200~240 VAC, 50~60 Hz					42~60 VDC			200~240 VAC, 50~60 Hz			
Typical Power Consumption		240 W	400 W	240 W	400 W	240 W	400 W	240 W	400 W	240 W	400 W	240 W	400 W
AI & Robot Vision													
AI Function		Classification, Object Detection, Segmentation, Anomaly Detection, AI OCR								N/A			
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 100/200/300 mm): 0.10/ 0.20/ 0.33 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)}											
Force Sensing ^{*(4)} Optional													
Force x-y-z	Range	+/- 300 N											
	Precision	2 % F.S.											
	Accuracy	5.5 % F.S.											
Torque x-y-z	Range	+/- 30 Nm											
	Precision	0.3 % F.S.											
	Accuracy	5 % F.S.											
*(1)Please contact sales/agent for detailed specifications.													
*(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.													
*(4)Standard on TM25S & TM30S series; Optional on others and total weight will increase by 500g.													

Specification															
TM14S	TM20S	TM25S	TM30S	TM30SC	TM14S-M	TM20S-M	TM25S-M	TM30S-M	TM30SC-M	TM14S-X	TM20S-X	TM25S-X	TM30S-X	TM30SC-X	
33kg	33.3kg	82.1kg	81.1kg	79.7kg	33kg	33.3kg	82.1kg	81.1kg	79.7kg	32.7kg	33kg	81.8kg	80.8kg	79.4kg	
14kg	20kg	25kg	30kg	30kg	14kg	20kg	25kg	30kg	30kg	14kg	20kg	25kg	30kg	30kg	
1100mm	1300mm	1902mm	1702mm	1502mm	1100mm	1300mm	1902mm	1702mm	1502mm	1100mm	1300mm	1902mm	1702mm	1502mm	
+/- 360°															
+/- 159°	+/- 162°	+/- 166°	+/- 170°	+/- 168°	+/- 159°	+/- 162°	+/- 166°	+/- 170°	+/- 168°	+/- 159°	+/- 162°	+/- 166°	+/- 170°	+/- 168°	
130°/s	130°/s	100°/s	100°/s	100°/s	130°/s	130°/s	100°/s	100°/s	100°/s	130°/s	130°/s	100°/s	100°/s	100°/s	
130°/s	95°/s	100°/s	100°/s	100°/s	130°/s	95°/s	100°/s	100°/s	100°/s	130°/s	95°/s	100°/s	100°/s	100°/s	
210°/s	125°/s	130°/s	130°/s	130°/s	210°/s	125°/s	130°/s	130°/s	130°/s	210°/s	125°/s	130°/s	130°/s	130°/s	
225°/s	160°/s	195°/s	195°/s	195°/s	225°/s	160°/s	195°/s	195°/s	195°/s	225°/s	160°/s	195°/s	195°/s	195°/s	
225°/s	190°/s	210°/s	210°/s	210°/s	225°/s	190°/s	210°/s	210°/s	210°/s	225°/s	190°/s	210°/s	210°/s	210°/s	
450°/s	225°/s	225°/s	225°/s	225°/s	450°/s	225°/s	225°/s	225°/s	225°/s	450°/s	225°/s	225°/s	225°/s	225°/s	
4.5m/s	4.5m/s	5.2m/s	5.2m/s	5.0m/s	4.5m/s	4.5m/s	5.2m/s	5.2m/s	5.0m/s	4.5m/s	4.5m/s	5.2m/s	5.2m/s	5.0m/s	
+/- 0.03mm	+/- 0.05mm	+/- 0.05mm	+/- 0.05mm	+/- 0.05mm	+/- 0.03mm	+/- 0.05mm	+/- 0.05mm	+/- 0.05mm	+/- 0.05mm	+/- 0.03mm	+/- 0.05mm	+/- 0.05mm	+/- 0.05mm	+/- 0.05mm	
6 rotating joints															
13.5kg		16.3kg			8.9kg		11.7kg			13.5kg		16.3kg			
Digital In: 16 / Digital Out: 16															
Analog In: 2 / Analog Out: 2															
Digital In: 3 / Digital Out: 3															
DO_0 (DO-0/AI) / DO_1 (DO-1/RS485-) / DO_2 (DO-2/RS485+)															
24V 2.0A for control box, 24V 1.5A for tool															
IP65 (Robot Arm) IP54 (Control Box)					IP65 (Robot Arm)					IP65 (Robot Arm) IP54 (Control Box)					
400 W		580 W			400 W		580 W			400 W		580 W			
0~50°C															
ISO Class 3															
100~240 VAC, 50~60 Hz		200~240 VAC, 50~60 Hz			24~60 VDC			48~60 VDC			100~240 VAC, 50~60 Hz		200~240 VAC, 50~60 Hz		
2×COM, 1×HDMI, 3×LAN, 2×USB2.0, 4×USB3.0															
RS-232/RS-422/RS-485, Ethernet, Modbus TCP/RTU (master & slave)															
Optionally support specified network card of PROFINET, EtherNet/IP, EtherCAT, CC-Link ^{*(1)}															
TMflow (flowchart based), TMsript (script based), TMcrafter (developer based)															
TÜV certificated ISO 13849-1, ISO 10218-1, ISO/TS 15066															
SGS certificated UL1740, CAN/CSA Z424-14 (R2019)															
CE, NSF/ANSI 169 (optional), SEMI S2 (optional)		CE, SEMI S2 (optional)			CE, NSF/ANSI 169 (optional), SEMI S2 (optional)			CE, SEMI S2 (optional)			CE, NSF/ANSI 169 (optional), SEMI S2 (optional)		CE, SEMI S2 (optional)		
Nano Control Box															
7.2 kg		N/A			7.2 kg		N/A			7.2 kg		N/A			
156.5 x 359.0 x 322.1 mm					156.5 x 359.0 x 322.1 mm										
N/A					N/A										
200~240 VAC, 50~60 Hz					200~240 VAC, 50~60 Hz										
400 W					400 W										
AI & Robot Vision															
Classification, Object Detection, Segmentation, Anomaly Detection, AI OCR										N/A					
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 100/200/300 mm): 0.10/ 0.20/ 0.33 mm ^{*(2)}															
Auto-focused color camera with 5M resolution, Working distance 100 mm ~ ∞															
Support Maximum 2× GigE 2D cameras or 1× GigE 2D Camera + 1× 3D Camera ^{*(3)}															
Force Sensing ^{*(4)} Optional		Force Sensing Standard			Force Sensing ^{*(4)} Optional			Force Sensing Standard			Force Sensing ^{*(4)} Optional		Force Sensing Standard		
+/- 300 N															
2 % F.S.															
5.5 % F.S.															
+/- 30 Nm															
0.3 % F.S.															
5 % F.S.															
*(1)Please contact sales/agent for detailed specifications.															
*(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.															
*(4)Standard on TM25S & TM30S series; Optional on others and total weight will increase by 500g.															

TM AI Cobot Specification



Specification							
Model		TM5-700	TM5-900	TM5M-700	TM5M-900	TM5X-700	TM5X-900
Weight		22.1kg	22.6kg	22.1kg	22.6kg	21.8kg	22.3kg
Maximum Payload		6kg	4kg	6kg	4kg	6kg	4kg
Reach		746mm	946mm	746mm	946mm	746mm	946mm
Joint Ranges	J1,J6	+/- 270°	+/- 270°	+/- 270°	+/- 270°	+/- 360°	+/- 360°
	J2,J4,J5	+/- 180°	+/- 180°	+/- 180°	+/- 180°	+/- 360°	+/- 360°
	J3	+/- 155°					
Speed	J1,J2	180°/s					
	J3	180°/s					
	J4	225°/s					
	J5	225°/s					
	J6	225°/s					
Maximum Speed		4m/s					
Repeatability		+/- 0.05mm					
Degree Of Freedom		6 rotating 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, 24V 1.5A for tool					
IP Classification		IP54 (Robot Arm) IP32 (Control Box)					
Typical Power Consumption		220 W					
Temperature		0-50°C					
Cleanliness		ISO Class 3					
Power Supply		100-240 VAC, 50-60 Hz		22-60 VDC		100-240 VAC, 50-60 Hz	
I/O Interface		3×COM, 1×HDMI, 3×LAN, 4×USB2.0, 2×USB3.0					
Communication		RS-232, Ethernet, Modbus TCP/RTU (master & slave)					
		Optionally support specified network card of PROFINET, EtherNet/IP, EtherCAT, CC-Link ^{*(1)}					
Programming Environment		TMflow (flowchart/script based)					
Certification		ISO 13849-1, ISO 10218-1, ISO/TS 15066					
		CE, SEMI S2 (optional)					
AI & Robot Vision							
AI Function		Classification, Object Detection, Segmentation, Anomaly Detection, AI OCR				N/A	
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 100/200/300 mm): 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)Please contact sales/agent for detailed specifications.							
*(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.							

Specification											
TM12	TM14	TM16	TM20	TM12M	TM14M	TM16M	TM20M	TM12X	TM14X	TM16X	TM20X
32.8kg	32.5kg	32kg	32.8kg	32.8kg	32.5kg	32kg	32.8kg	32.5kg	32.2kg	31.7kg	32.5kg
12kg	14kg	16kg	20kg	12kg	14kg	16kg	20kg	12kg	14kg	16kg	20kg
1300mm	1100mm	917mm	1300mm	1300mm	1100mm	917mm	1300mm	1300mm	1100mm	917mm	1300mm
+/- 270°	+/- 270°	+/- 270°	+/- 270°	+/- 270°	+/- 270°	+/- 270°	+/- 270°	+/- 360°	+/- 360°	+/- 360°	+/- 360°
+/- 180°	+/- 180°	+/- 180°	+/- 180°	+/- 180°	+/- 180°	+/- 180°	+/- 180°	+/- 360°	+/- 360°	+/- 360°	+/- 360°
+/- 166°	+/- 163°	+/- 155°	+/- 166°	+/- 166°	+/- 163°	+/- 155°	+/- 166°	+/- 166°	+/- 163°	+/- 155°	+/- 166°
120°/s	120°/s	120°/s	90°/s	120°/s	120°/s	120°/s	90°/s	120°/s	120°/s	120°/s	90°/s
180°/s	180°/s	180°/s	120°/s	180°/s	180°/s	180°/s	120°/s	180°/s	180°/s	180°/s	120°/s
180°/s	150°/s	180°/s	150°/s	180°/s	150°/s	180°/s	150°/s	180°/s	150°/s	180°/s	150°/s
180°/s	150°/s	180°/s	180°/s	180°/s	150°/s	180°/s	180°/s	180°/s	150°/s	180°/s	180°/s
180°/s	180°/s	180°/s	225°/s	180°/s	180°/s	180°/s	225°/s	180°/s	180°/s	180°/s	225°/s
4m/s											
+/- 0.1mm											
6 rotating joints											
Digital In: 16 / Digital Out: 16											
Analog In: 2 / Analog Out: 1											
Digital In: 4 / Digital Out: 4											
Analog In: 1 / Analog Out: 0											
24V 2.0A for control box, 24V 1.5A for tool											
IP54 (Robot Arm) IP32 (Control Box)											
300 W											
0-50°C											
ISO Class 3											
100-240 VAC, 50-60 Hz				22-60 VDC			24-60 VDC	100-240 VAC, 50-60 Hz			
3×COM, 1×HDMI, 3×LAN, 4×USB2.0, 2×USB3.0											
RS-232, Ethernet, Modbus TCP/RTU (master & slave)											
Optionally support specified network card of PROFINET, EtherNet/IP, EtherCAT, CC-Link ^{*(1)}											
TMflow (flowchart/script based)											
ISO 13849-1, ISO 10218-1, ISO/TS 15066											
CE, SEMI S2 (optional)											
AI & Robot Vision											
Classification, Object Detection, Segmentation, Anomaly Detection, AI OCR								N/A			
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 100/200/300 mm): 0.24/0.53/1.00 mm ^{*(2)}											
Auto-focused color camera with 5M resolution, Working distance 100 mm ~ ∞											
Support Maximum 2× GigE 2D cameras or 1× GigE 2D Camera + 1× 3D Camera ^{*(3)}											
* (1) Please contact sales/agent for detailed specifications. * (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.											