

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	5□	6□	7□	12□	5□	6□	7□	12□	5□	6□	7□	12□	
Reach	946□	1800□	758□	1300□	946□	1800□	758□	1300□	946□	1800□	758□	1300□	
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											
Max. Speed	4.5□												
Repeatability	+/- 0.03□	+/- 0.10□	+/- 0.03□	+/- 0.03□	+/- 0.03□	+/- 0.10□	+/- 0.03□	+/- 0.03□	+/- 0.03□	+/- 0.10□	+/- 0.03□	+/- 0.03□	
Degree Of Freedom	6 rotating joints												
Control Box Weight	13.5kg	13.5kg	13.5kg	13.5kg	8.9kg	8.9kg	8.9kg	8.9kg	13.5kg	13.5kg	13.5kg	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)					
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												
Programming Environment	TMflow (flowchart based), TMscript (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)												
AI & Robot Vision													
AI Function	Classification, Object Detection, Segmentation, Anomaly Detection, AI OCR												
Application	Positioning, 1D/2D Barcode Reading, OCR, Defect Detection, Measurement, Assembly Check												
Positioning Accuracy	2D Positioning: 0.1 mm ⁽²⁾											N/A	
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												
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.

Specification												
TM14S	TM20S	TM25S	TM30S	TM14S-M	TM20S-M	TM25S-M	TM30S-M	TM14S-X	TM20S-X	TM25S-X	TM30S-X	
33kg	33.3 kg	82.1kg	81.1kg	33kg	33.3 kg	82.1kg	81.1kg	32.7kg	33 kg	81.8kg	80.8kg	
14□	20□	25kg	30kg	14□	20□	25□	30□	14□	20□	25□	30□	
1100□	1300□	1902mm	1702mm	1100□	1300□	1902mm	1702mm	1100□	1300□	1902mm	1702mm	
+/- 360°												
+/- 159°	+/- 162°	+/- 166°	+/- 170°	+/- 159°	+/- 162°	+/- 166°	+/- 170°	+/- 159°	+/- 162°	+/- 166°	+/- 170°	
130°/s	130°/s	100°/s	130°/s	130°/s	130°/s	100°/s	130°/s	130°/s	130°/s	100°/s	130°/s	
130°/s	95°/s	100°/s	130°/s	95°/s	100°/s	130°/s	95°/s	100°/s	130°/s	95°/s	100°/s	
210°/s	125°/s	130°/s	210°/s	125°/s	130°/s	210°/s	125°/s	130°/s	210°/s	125°/s	130°/s	
225°/s	160°/s	195°/s	225°/s	160°/s	195°/s	225°/s	160°/s	195°/s	225°/s	160°/s	195°/s	
225°/s	190°/s	210°/s	225°/s	190°/s	210°/s	225°/s	190°/s	210°/s	225°/s	190°/s	210°/s	
450°/s	225°/s	225°/s	450°/s	225°/s	225°/s	450°/s	225°/s	225°/s	450°/s	225°/s	225°/s	
4.5□	4.5□	5.2□	4.5□	4.5□	5.2□	4.5□	4.5□	5.2□	4.5□	4.5□	5.2□	
+/- 0.03□	+/- 0.05□	+/- 0.05□	+/- 0.03□	+/- 0.05□	+/- 0.05□	+/- 0.03□	+/- 0.05□	+/- 0.03□	+/- 0.05□	+/- 0.05□	+/- 0.05□	
6 rotating joints												
13.5kg	16.3kg	8.9kg	11.7kg	13.5kg	16.3kg	8.9kg	11.7kg	13.5kg	16.3kg	8.9kg	11.7kg	
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)			IP65 (Robot Arm)				IP65 (Robot Arm) IP54 (Control)			IP65 (Robot Arm) IP54 (Control)		
400 W	580 W	400 W	580 W	400 W	580 W	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	24~60 VDC	48~60 VDC	100~240 VAC, 50~60 Hz	200~240 VAC, 50~60 Hz	24~60 VDC	48~60 VDC	
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												
TMflow (flowchart based), TMscript (script based), TMcraft (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),	CE, SEMI S2 (optional)	CE, NSF/ANSI 169 (optional),	CE, SEMI S2 (optional)	CE, NSF/ANSI 169 (optional),	CE, SEMI S2 (optional)	CE, NSF/ANSI 169 (optional),	CE, SEMI S2 (optional)	CE, NSF/ANSI 169 (optional),	CE, SEMI S2 (optional)	CE, NSF/ANSI 169 (optional),	CE, SEMI S2 (optional)	
AI & Robot Vision												
Classification, Object Detection, Segmentation, Anomaly Detection, AI OCR												
Positioning, 1D/2D Barcode Reading, OCR, Defect Detection, Measurement, Assembly Check												
2D Positioning: 0.1 mm ⁽²⁾											N/A	
TM Landmark 3D Positioning (Working Point away from Landmark 100/200/300 mm): 0.10/ 0.20/ 0.33 mm												
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												
Force Sensing ⁽⁴⁾ Optional	Force Sensing Standard	Force Sensing ⁽⁴⁾ Optional	Force Sensing Standard	Force Sensing ⁽⁴⁾ Optional	Force Sensing Standard	Force Sensing ⁽⁴⁾ Optional	Force Sensing Standard	Force Sensing ⁽⁴⁾ Optional	Force Sensing Standard	Force Sensing ⁽⁴⁾ Optional	Force Sensing Standard	
+/- 300 N	+/- 300 N	+/- 300 N	+/- 300 N	+/- 300 N	+/- 300 N	+/- 300 N	+/- 300 N	+/- 300 N	+/- 300 N	+/- 300 N	+/- 300 N	
2 % F.S.	2 % F.S.	2 % F.S.	2 % F.S.	2 % F.S.	2 % F.S.	2 % F.S.	2 % F.S.	2 % F.S.	2 % F.S.	2 % F.S.	2 % F.S.	
5.5 % F.S.	5.5 % F.S.	5.5 % F.S.	5.5 % F.S.	5.5 % F.S.	5.5 % F.S.	5.5 % F.S.	5.5 % F.S.	5.5 % F.S.	5.5 % F.S.	5.5 % F.S.	5.5 % F.S.	
+/- 30 Nm	+/- 30 Nm	+/- 30 Nm	+/- 30 Nm	+/- 30 Nm	+/- 30 Nm	+/- 30 Nm	+/- 30 Nm	+/- 30 Nm	+/- 30 Nm	+/- 30 Nm	+/- 30 Nm	
0.3 % F.S.	0.3 % F.S.	0.3 % F.S.	0.3 % F.S.	0.3 % F.S.	0.3 % F.S.	0.3 % F.S.	0.3 % F.S.	0.3 % F.S.	0.3 % F.S.	0.3 % F.S.	0.3 % F.S.	
5 % F.S.	5 % F.S.	5 % F.S.	5 % F.S.	5 % F.S.	5 % F.S.	5 % F.S.	5 % F.S.	5 % F.S.	5 % F.S.	5 % F.S.	5 % F.S.	

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