AUSTRALIS ENGINEERING

Smart thinking
in motion

TM Robot
AI Collaborative robots

TM TECHMAN ROBOT INC.

Smart, Simple, Safe

Revolutionary User Interface

You can implement your automation task with Techman Robot's revolutionary, intuitive user interface - an all graphic flow-chart based HMI. Each Techman Robot is equipped with well designed, hand-guided functions with servo assist. You can lock selected axes to allow adjustment in defined planes and then fine tune the co-ordinates within the programming package.

Innovative Software - TMflow™

TMflow™ is flow based robot editing software that features intuitive click and drag programming. Even users without robot programming experience can successfully complete a visual pick & place programme in as little as 5 minutes.

Safety is our Priority

Cobots manufactured by Techman Robot comply with the ISO10218-1 and ISO/TS15066 human-robot co-operation safety requirements for collaborative robots; allowing the robot to be programmed with both speed and force limits. TM Robot can provide a pressure-free and safe environment for human operators to work in. Safety is inherent in the design of the whole robot, its hardware, software and operational design.

|| Set-up a Visual Pick & Place programme in as little as 5 minutes."

TMflow™

Additional software features:
- TMcraft
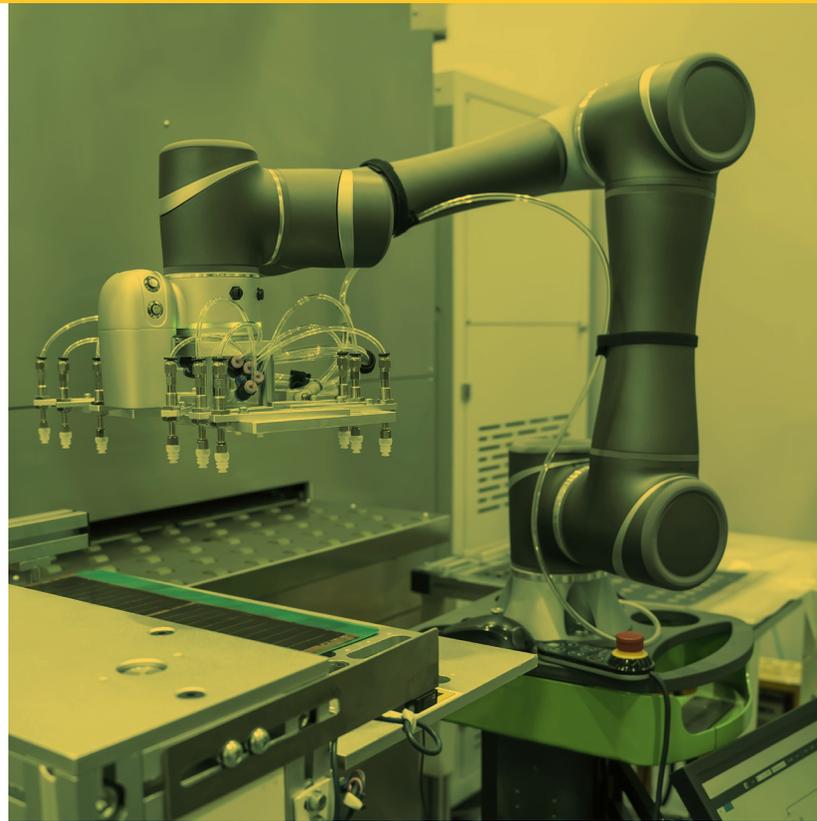- TMVision
- TM 3Dvision

TM AI+™ Training Server

TM Image Manager

TM AI+™ AOI Edge

TMstudio Pro

What is an AI Cobot?

Native AI engine + Robotic arm + Vision system

An AI Cobot is a collaborative robot that seamlessly blends three technological domains together - AI, Vision, and Cobot. This integration effectively combines the functions of a 'brain,' 'eyes,' and 'hands,' enabling the cobot to perform visual tasks, making judgments, and executing actions much like a human. Automating processes not only saves time and resources but also promotes effective human-robot collaboration, enhancing overall production quality, and adds a significant value to your factory.

Fifteen years ago, collaborative robots introduced the concept of humans and robots working together. Today, the new generation of AI collaborative robots has turned the dream of having intelligent and reliable partners into a reality.

TM AI Cobot offers exceptional performance and compatibility. Equipped with a built-in vision system, it enables the robot to perceive its surroundings.

Its AI brain also translates image data into precise commands for tasks such as positioning and detection, seamlessly integrating with the robot arm to execute tasks efficiently. operational design.

TM
R O B O T

Official TM Robot Distributor

Australis Engineering are official Australian distributors and integrators of TM Robots.
Australis are certified to offer Basic and Advanced TM Robot training.

TM AI Cobot S Series Specifications
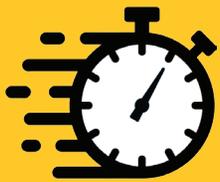

TM5S

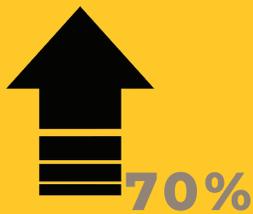## TM7S

TM12S

- Reach: 900mm
- Payload: 5 kg

- Reach: 700mm
- Payload: 7 kg

- Reach: 1300mm
- Payload: 12 kg

Enhanced speed! 25% Faster cycle time

- The joint speed of the 6th axis is increased from 225°/s to 450°/s
- Improved cycle time by 25% compared to prevision version, enhances efficiency

Repeatability increased by up to 70% to 0.03mm

- Repeatability of TM5S, TM7S, TM12S and TM14S is 0.03mm, a 70% improvement compared to the previous version

Control box is upgraded to IP54

- Control box has an IP54 rating and suitable for harsh environment applications
- Effective protection against dust and water

The most intelligent collaborative robot with built-in vision."

TM14S

TM25S

- Reach: 1100mm
- Payload: 14 kg

- Reach: 1902mm
- Payload: 25 kg

Brand new Robot Stick with enabling switch and Reset Button

- Robot Stick with 3-position Enabling Switch and Reset Button for even safer operation
- Combine with TM Screen for easy teaching, debugging and control via teach pendant and TM Pen

Up to 31 Safety functions certified by TÜV

- TÜV certified safety features in accordance with ISO13849-1 and international safety certification ISO10218-1
- Complies with SGS certified UL and CAS in North America and CE in Europe
- Enables easy safety assessments with flexible safety functions that lower the cost of safety control configuration

TMflow™ 2 Series: Safe, Easy and More Intelligent

- Innovative graphical IU with more exclusive software
- Includes dozens of user-friendly function nodes to close the gap between integration and robot application

TM5-700

TM5-900

TM12

- Reach: 700mm
- Payload: 6 kg

- Reach: 900mm
- Payload: 4 kg

- Reach: 1300mm
- Payload: 12 kg

Industries / Applications

3D Bin Picking

AGV

Pick & Place

Assembly

Packaging

Palletising

Conveyor Tracking

Machine Tending

Quality Inspection

PCB Handling

Polishing & Deburring

Glue Dispensing

Injection Moulding

Screw Driving

Welding

TM14

TM16

TM20

- Reach: 1100mm
- Payload: 14 kg

- Reach: 900mm
- Payload: 16 kg

- Reach: 1300mm
- Payload: 20 kg

TM5S / TM5-900

- 3D Bin Picking, AGV, Pick & Place, Assembly, Packaging, Labelling, Palletising, Conveyor Tracking, Machine Tending, Quality Inspection, PCB Handling, Polishing & Deburring, Glue Dispensing, Screwing, Welding

TM7S / TM5-700

- 3D Bin Picking, Pick & Place, Assembly, Labelling, Quality Inspection, PCB Handling, Polishing & Deburring, Screwing
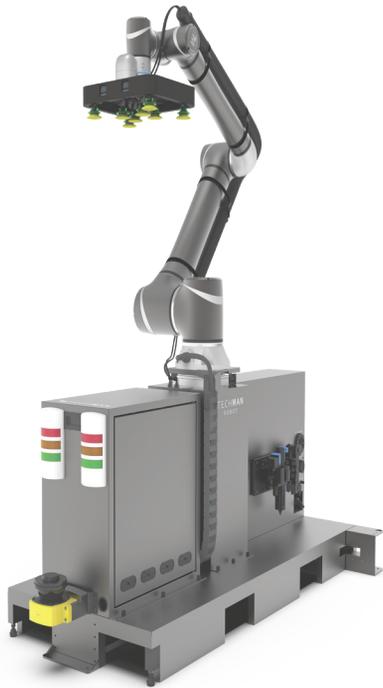
TM12S / TM14S / TM12 / TM14

- 3D Bin Picking, AGV, Pick & Place, Packaging, Palletising, Conveyor Tracking, Machine Tending, PCB Handling, Polishing & Deburring, Screwing, Welding

TM25S / TM16 / TM20

- 3D Bin Picking, AGV, Pick & Place, Packaging, Palletising, Conveyor Tracking, Machine Tending, Polishing & Deburring, Injection Moulding, Screwing, Welding

TM Palletizer

TM Palletizer

The TM Palletizer is a complete robot solution that is exclusively designed for palletising automation. It includes built in software to allow users to establish their palletising operation quickly.

- Up to 7 cartons per minute
- Adjustable pillar with a maximum reach of 1200mm and a corresponded maximum stack height of 2325mm. (3 pillar strokes with different max. stack height)
- 17 certified PL-d cell level safety functions
- TMstudio Palletizing Wizard – Simple palletising set up with simulation and collision detection
- Cobot models: TM12S, TM14S, TM12, TM14S, TM16, TM20. (TM25S to be confirmed)
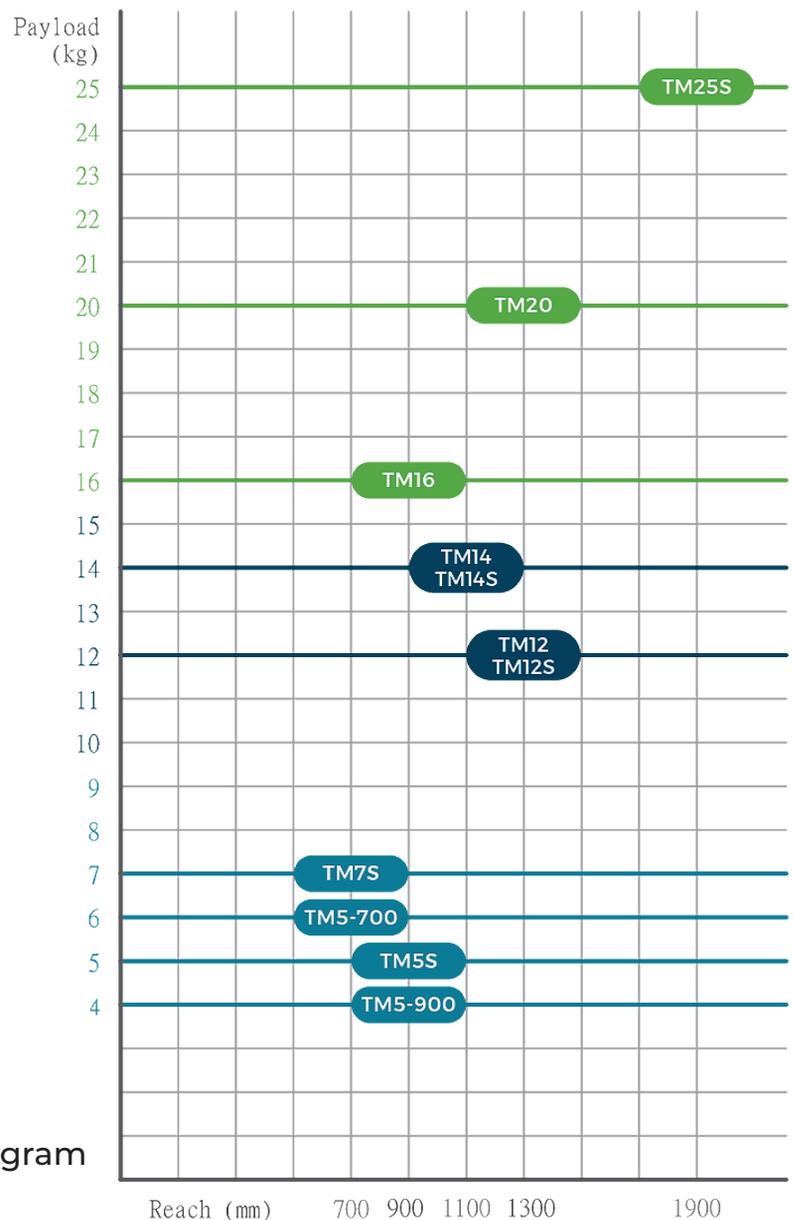
TM AI Cobot payload and reach diagram
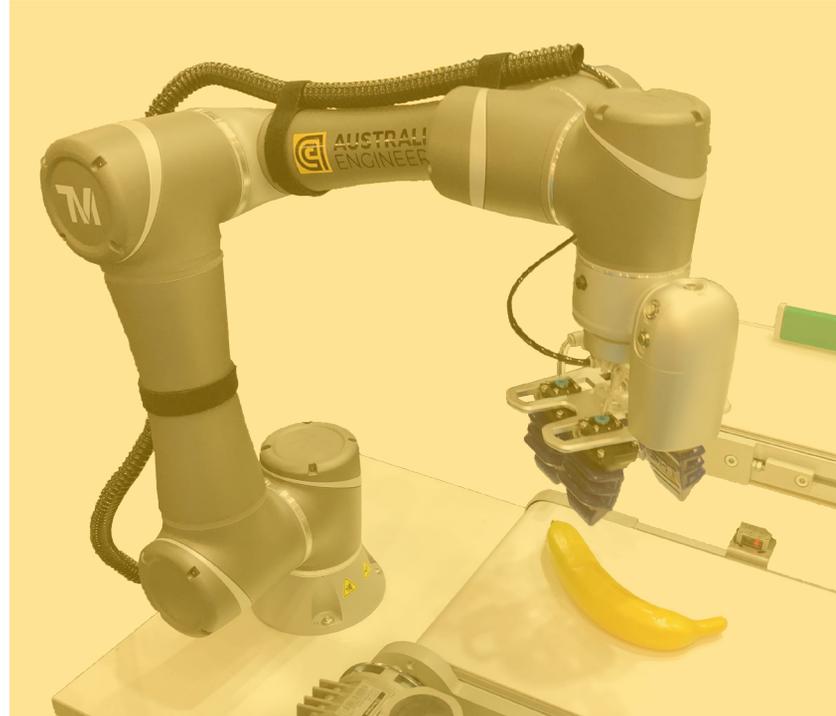
TMstudio Pro

TMstudio Pro is offline programming simulation software for TM AI Cobot, enabling users to create multi-robot simulation scenes without the need for a physical robot.

1. Create a Scene

- Import CAD file instead of setting up in the real world
- Generate a path for the robot from CAD
- Simulate multi-robot in the same virtual scene
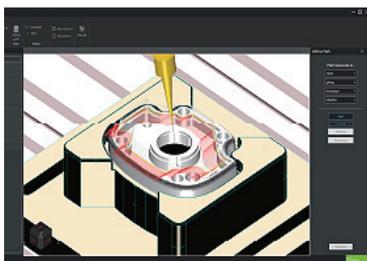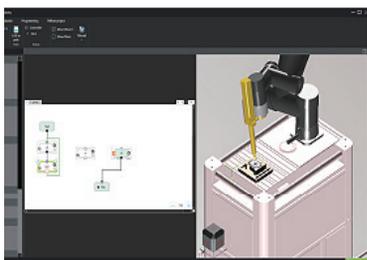
2. Program

- Program the same way as using TMflow[TM]
- Import or export between TMstudio Pro and robot
- Test your project and TMcraft Node in the virtual scene
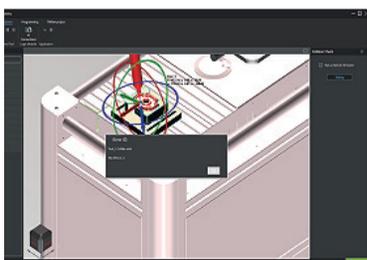
3. Simulate

- Visualise the robot's reach in a virtual scene
- Check for collision detection and correct your solution
- Estimate the robot's cycle time

TMstudio Pro Features

Validation

- Detects collisions, ensures the robot's reach, and validates the workspace during programming, thereby minimising errors during runtime

Time Saving

- Design your robot usage efficiently without setting up robot workstations in the real world

Reliable Planning

- Program your robot system with accurate cycle times

Increase Revenue

- Facilitate users in planning, simulating and presenting solutions to end-customers, enabling clearer demonstrations and discussions in details to enhance sales success

Capture & Identification

TM AI Cobot
TM AL+™ AOI Edge
- Built-in AI vision robot arm
- Easy to integrate robot arm
  & vision

Deploy the
AI model

Deploy the
AI model

Upload images

TM AI+™
Training Server &
Image Manager

Upload images

Upload images and
deploy the AI model
through factory intranet
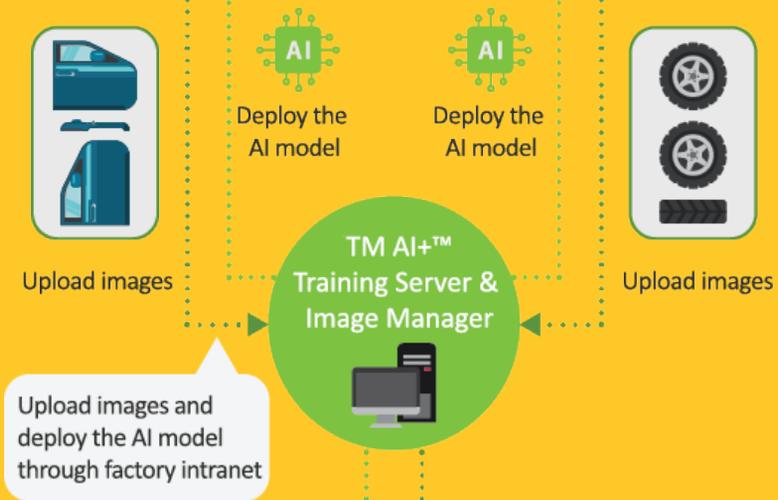
Neural network model training

TM AL+™ Training Server
- AI vmodel training software
- Easy to learn and simple to
  operate

Image Storage & Retrieval

TM Image Manager
- AOI image management
  software
- Backup all AOI inspection
  images & establish product
  tracebility

Execute AI training, review and image
retrieval through browser
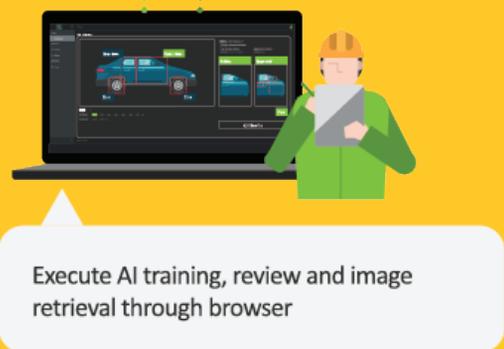
AI Cobot Application Scenario

The graphical interface of TM AI Cobot's integrated vision system eliminates the need for programming and enables a seamless process from image collection and annotation to training and deployment. It serves as an ideal solution for small and medium-sized enterprises (SMEs) lacking an AI or software division.

Throughout production, the AI Cobot accumulates valuable production history data, empowering companies to track, analyse and integrate this information to proactively prevent defects, enhance quality, and reduce costs.

Application examples

Assembly Inspection

- Check if product is wrapped in PE film

- Checking if all wires are connected correctly

Classification

- Sorting different materials

- Recognition of pizza flavour and crust

Defects Inspection
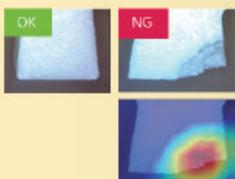
- Identify objects with damage on the edge

- Checking if there is metal scrap on the surface

Counting / Detection

- Counting the number of objects in a tray

- Object detection and 3D positioning

Scratches / Cuts Dent inspection

- Checking scratches on DRAM gold fingers

- Checking for dents/ marks on metal parts

AI OCR

TM AI Cobot
S Series Specifications

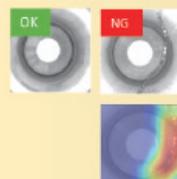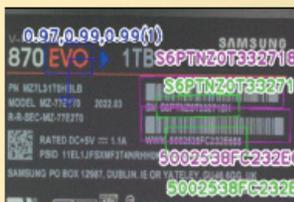| Model		TM5S	TM7S	TM5S-M	TM7S-M	TM5S-X	TM7S-X
Weight		23.9 kg	22.9 kg	23.9 kg	22.9 kg	23.6 kg	22.6 kg
Payload		5 kg	7 kg	5 kg	7 kg	5 kg	7 kg
Reach		900mm	700mm	900mm	700mm	900mm	700mm
Joint Ranges	J1. J2, J4, J5, J6	+/- 360º					
	J3	+/- 158º	+/- 152º	+/- 158º	+/- 152º	+/- 158º	+/- 152º
Speed	J1, J2, J3	210º /s					
	J4, J5	225º /s					
	J6	450º /s					
Repeatability		+/- 0.03mm					
Max. Speed		4 m/s					
Degrees of Freedom		6 Rotating Joints					
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 and 24V 1.5A for tool					
IP Classification		IP54 (Robot Arm) (IP54 Control Box)		IP54 (Robot Arm)		IP54 (Robot Arm) (IP54 Control Box)	
Power consumption		Typical 240 watts					
Temperature		0 - 50ºC					
Cleanliness		ISO Class 3					
Power supply		100-240 VAC, 50-60Hz		24-60 VDC		100-240 VAC, 50-60Hz	
I/O Interface		3x COM 1x HDMI 3x LAN 4x USB2.0 2x USB3.0					
Communication		RS-232 / RS-422 / RS-485, Ethernet, Modbus TCP/RTU (master & slave)					
		PROFINET (optional), EtherNet/IP (optional)					
Programming environment		TMflow (flowchart / script based)					
Certification		CE (regional model), SEMI S2 (option)					
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* [1]					
Eye in Hand (Built in)		Auto-focused color camera with 5M resolution, Working distance 100mm - ∞					
Eye to Hand (Option)		Support max. 2x GigE 2D cameras or 1x GigE 2D camera + 1x 3D Camera* [2]					

** (1) The data in these tables 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.

* (2) Refer to the official website of TM Plug&Play for camera models compatible to TM Robot.

Model	TM12S	TM14S	TM25S	TM12S-M	TM14S-M	TM25S-M	TM12S-X	TM14S-X	TM25S-X
Weight	33.3 kg	33 kg	80.6 kg	33.3 kg	33 kg	80.6 kg	33 kg	32.7 kg	80.3 kg
Payload	12 kg	14 kg	25 kg	12 kg	14 kg	25 kg	12 kg	14 kg	25 kg
Reach	1300mm	1100mm	1902mm	700mm	900mm	700mm	1300 mm	1100 mm	1902mm
Joint Ranges — J1, J2, J4, J5, J6	+/- 360°								
Joint Ranges — J3	+/- 162°	+/- 163°	+/- 166°	+/- 162°	+/- 163°	+/- 166°	+/- 162°	+/- 163°	+/- 166°
Speed — J1, J2	130° /s	130° /s	100° /s	130° /s	130° /s	100° /s	130° /s	130° /s	100° /s
Speed — J3	210° /s	210° /s	130° /s	210° /s	210° /s	130° /s	210° /s	210° /s	130° /s
Speed — J4	225° /s	225° /s	195° /s	225° /s	225° /s	195° /s	225° /s	225° /s	195° /s
Speed — J5	225° /s	225° /s	210° /s	225° /s	225° /s	210° /s	225° /s	225° /s	210° /s
Speed — J6	450° /s	450° /s	225° /s	450° /s	450° /s	225° /s	450° /s	450° /s	225° /s
Repeatability	+/- 0.03mm	+/- 0.03mm	+/- 0.05mm	+/- 0.03mm	+/- 0.03mm	+/- 0.05mm	+/- 0.03mm	+/- 0.03mm	+/- 0.05mm
Max. Speed	4 m/s	4 m/s	5 m/s	4 m/s	4 m/s	5 m/s	4 m/s	4 m/s	5 m/s
Degrees of Freedom	6 Rotating Joints								
I/O — Control Box	Digital In: 16 / Digital Out: 16								
I/O — Control Box	Analog In: 2 / Analog Out: 2								
I/O — Tool Conn.	Digital In: 3 / Digital Out: 3								
I/O — Tool Conn.	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 and 24V 1.5A for tool								
IP Classification	IP54 (Robot Arm) (IP54 Control Box)	IP54 (Robot Arm) (IP54 Control Box)	IP54 (Robot Arm) (IP54 Control Box)	IP54 (Robot Arm)	IP54 (Robot Arm)	IP54 (Robot Arm)	IP54 (Robot Arm) (IP54 Control Box)	IP54 (Robot Arm) (IP54 Control Box)	IP54 (Robot Arm) (IP54 Control Box)
Power consumption	400W	400W	500W	400W	400W	500W	400W	400W	500W
Temperature	0 - 50°C								
Cleanliness	ISO Class 3								
Power supply	100-200 VAC, 50-60Hz	100-200 VAC, 50-60Hz	220-240 VAC, 50-60 Hz	24-60 VDC	24-60 VDC	48-60 VDC	100-200 VAC, 50-60Hz	100-200 VAC, 50-60Hz	220-240 VAC, 50-60 Hz
I/O Interface	3x COM 1x HDMI 3x LAN 4x USB2.0 2x USB3.0								
Communication	RS-232 / RS-422 / RS-485, Ethernet, Modbus TCP/RTU (master & slave) PROFINET (optional), EtherNet/IP (optional)								
Programming environment	TMflow (flowchart / script based)								
Certification	CE (regional model), SEMI S2 (option)								

AI & Robot Vision

	TM12S / TM14S / TM25S / TM12S-M / TM14S-M / TM25S-M	TM12S-X / TM14S-X / TM25S-X
AI Function	Classification, Object Detection, Segmentation, Anomaly Detection, AI OCR	N/A
Application	Positioning, 1D/2D Barcode Reading, OCR, Defect Detection, Measurement, Assembly Check	N/A
Positioning Accuracy	2D Positioning: 0.1 mm* [1]	N/A
Eye in Hand (Built in)	Auto-focused color camera with 5M resolution, Working distance 100mm - ∞	N/A
Eye to Hand (Option)	Support max. 2x GigE 2D cameras or 1x GigE 2D camera + 1x 3D Camera* [2]	N/A

TM AI Cobot
Specifications

Model		TM5-700	TM5-900	TM5M-700	TM5M-900	TM5X-700	TM5X-900
Weight		22.1 kg	22.6 kg	22.1 kg	22.6 kg	21.8 kg	22.3 kg
Payload		6 kg	4 kg	6 kg	4 kg	6 kg	4 kg
Reach		700mm	900mm	700mm	900mm	700mm	900mm
Joint Ranges	J1. J6	+ / - 270º				+ / - 360º	
	J2, J4, J5	+ / - 180º				+ / - 360º	
	J3	+ / - 155º					
Speed	J1, J2	180º /s					
	J3	225º /s					
	J4	225º /s					
	J5	225º /s					
	J6	225º /s					
Repeatability		+ / - 0.05mm					
Max. Speed		4 m/s					
Degrees of Freedom		6 Rotating Joints					
I/O	Control Box	Digital In: 16 / Digital Out: 16					
		Analog In: 2 / Analog Out: 2					
	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); (IP54 Control Box)					
Power consumption		Typical 220 watts					
Temperature		0 - 50ºC					
Cleanliness		ISO Class 3					
Power supply		100-240 VAC, 50-60Hz		24-60 VDC		100-240 VAC, 50-60Hz	
I/O Interface		3x COM 1x HDMI 3x LAN 4x USB2.0 2x USB3.0					
Communication		RS-232 / RS-422 / RS-485, Ethernet, Modbus TCP/RTU (master & slave)					
		PROFINET (optional), EtherNet/IP (optional)					
Programming environment		TMflow (flowchart / script based)					
Certification		CE (regional model), SEMI S2 (option)					

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* [1]				
Eye in Hand (Built in)	Auto-focused color camera with 5M resolution, Working distance 100mm - ∞				
Eye to Hand (Option)	Support max. 2x GigE 2D cameras or 1x GigE 2D camera + 1x 3D Camera* [2]				

** (1) The data in these tables 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.

* (2) Refer to the official website of TM Plug&Play for camera models compatible to TM Robot.

TM12	TM14	TM16	TM20	TM12M	TM14M	TM16M	TM20M	TM12X	TM14X	TM20X
32.8 kg	32.5 kg	32 kg	32.8 kg	32.8 kg	32.5 kg	32 kg	32.8 kg	32.5 kg	32.2 kg	32.5 kg
12 kg	14 kg	16 kg	20 kg	12 kg	14 kg	16 kg	20 kg	12 kg	14 kg	20 kg
1100mm	1100mm	900mm	1300mm	1300mm	1100mm	900mm	1300mm	1300mm	1100mm	1300mm
+ / - 270°								+ / - 360°		
+ / - 270°								+ / - 360°		
166° /s	163° /s	155° /s	166° /s	166° /s	163° /s	155° /s	166° /s	166° /s	163° /s	166° /s
120 /s	120 /s	120 /s	90 /s	120 /s	120 /s	120 /s	90 /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	120° /s
180° /s	150 /s	180° /s	150 /s	180° /s	150 /s	180° /s	150 /s	180° /s	150 /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	225° /s	180° /s	180 /s	180° /s	225° /s	180° /s	180 /s	225° /s
+ / - 0.1mm										
4 m/s										
6 Rotating Joints										
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 and 24V 1.5A for tool										
IP54 (Robot Arm); (IP54 Control Box)										
Typical 300 watts										
0 - 50ºC										
ISO Class 3										
100-240 VAC, 50-60Hz				22-60 VDC				24-60 VDC	100-240 VAC, 50-60Hz	
3x COM 1x HDMI 3x LAN 4x USB2.0 2x USB3.0										
RS-232 / RS-422 / RS-485, Ethernet, Modbus TCP/RTU (master & slave)										
PROFINET (optional), EtherNet/IP (optional)										
TMflow (flowchart / script based)										
CE (regional model), SEMI S2 (option)										

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: 0.1mm* [1]	
Auto-focused color camera with 5M resolution, Working distance 100mm - ∞	
Support max. 2x GigE 2D cameras or 1x GigE 2D camera + 1x 3D Camera* [2]	

**AUSTRALIS
ENGINEERING**

The smart
choice

**Contact us today to
discuss your next cobot
project**

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