**OMRON Collaborative Robot**

# TM S Series

## S Series Collaborative Robot (Cobot)
## HW 5.03 for assembly, palletizing, inspection, logistics and other applications

- Designed to promote a safe and harmonious workplace between humans and machines.
- 33 safety functions, all ISO 13849-1, Cat.3, PLd, certified
- Full ISO 10218-1 compliance
- Easy-to-use graphical programming environment for quick startup and operation.
- Built-in, vision-based, robot control enables visual servoing, inspection, and measurement operations.
- Optional camera and Landmark allows for truly flexible, fast changeover.
- Capability to integrate with mobile robots enables fully-autonomous machine tending and logistics handling applications.
- TM-Series robot arms are finished with an ESD-compliant coating.

## Part Number Structure

**RT6 -** ☐ ☐ ☐ ☐☐ ☐ ☐
      1  2  3   4   5  6

| No. | Item | Specifications | | Model | Designation |
|---|---|---|---|---|---|
| 1 | Payload (kg max.) | 5 | | TM5S | 0 |
| | | 6 | | TM6S | 9 |
| | | 7 | | TM7S | 6 |
| | | 12 | | TM12S | 1 |
| | | 14 | | TM14S | 2 |
| | | 20 | | TM20S | 4 |
| | | 25 | | TM25S | 7 |
| | | 30 | | TM30S | 8 |
| 2 | Power Source | AC | | | 0 |
| | | DC*1 | | | 1 |
| 3 | Vision | With Integrated Camera | | | 0 |
| | | Without Integrated Camera | | | 1 |
| 4 | Reach/Arm Length (mm) *2 | 900 | | TM5S | 90 |
| | | 1800 | | TM6S | 18 |
| | | 700 | | TM7S | 70 |
| | | 1300 | | TM12S | 13 |
| | | 1100 | | TM14S | 11 |
| | | 1300 | | TM20S | 13 |
| | | 1902 | | TM25S | 19 |
| | | 1702 | | TM30S | 17 |
| 5 | Option | Standard | | | 0 |
| | | SEMI S2*3 | | | 1 |
| | | Fieldbus | | | 2 |
| | | SEMI S2*3, Fieldbus | | | 5 |
| 6 | Cable Length (m) | Standard Length (1.5 m for DC unit / 3.0 m for AC unit) | | | 4 |
| | | Extended Length (3.0 m for DC unit /12 m for AC unit) | | | 5 |

**Note:** Not all combinations are possible. Please refer to the Ordering Information tables for available combinations.
*1 DC-powered cobots are capable of mobile operation when paired with an Autonomous Mobile Robot.
*2 The payload and arm length are determined by model.
*3 Semiconductor Equipment and Materials International (SEMI), is the central, global network of micro and nanoelectronics manufacturers that issues safety guidelines. SEMI S2 is the most well-known SEMI standard for Environmental, Health, and Safety (EHS).

# OMRON TM Collaborative Robot, S Series

## Ordering Information

### TM5S Units

| Product Model | Maximum Payload (kg) | Reach (mm) | Integrated Camera | Extended Cable | DC Power Source | SEMI S2 Certified | Fieldbus | Ordering Code |
|---|---|---|---|---|---|---|---|---|
| TM5S | 5 | 900 | Yes | No | No | No | No | RT6-0009004 |
| TM5S, 12 m cable | | | Yes | Yes | No | No | No | RT6-0009005 |
| TM5S-X | | | No | No | No | No | No | RT6-0019004 |
| TM5S-X, 12 m cable | | | No | Yes | No | No | No | RT6-0019005 |
| TM5S-M | | | Yes | No | Yes | No | No | RT6-0109004 |
| TM5S-M, 3 m cable | | | Yes | Yes | Yes | No | No | RT6-0109005 |
| TM5S-M SEMI | | | Yes | Yes | Yes | Yes | No | RT6-0109014 |
| TM5S-MX | | | No | No | Yes | No | No | RT6-0119004 |
| TM5S-MX, 3 m cable | | | No | Yes | Yes | No | No | RT6-0119005 |
| TM5S, Fieldbus | | | Yes | No | No | No | Yes | RT6-0009024 |
| TM5S, 12 m cable, Fieldbus | | | Yes | Yes | No | No | Yes | RT6-0009025 |
| TM5S-X, Fieldbus | | | No | No | No | No | Yes | RT6-0019024 |
| TM5S-X, 12 m cable, Fieldbus | | | No | Yes | No | No | Yes | RT6-0019025 |
| TM5S-M, Fieldbus | | | Yes | No | Yes | No | Yes | RT6-0109024 |
| TM5S-M, 3 m cable, Fieldbus | | | Yes | Yes | Yes | No | Yes | RT6-0109025 |
| TM5S-M SEMI, Fieldbus | | | Yes | No | Yes | Yes | Yes | RT6-0109054 |
| TM5S-MX, Fieldbus | | | No | No | Yes | No | Yes | RT6-0119024 |
| TM5S-MX, 3 m cable, Fieldbus | | | No | Yes | Yes | No | Yes | RT6-0119025 |

### TM6S Units

| Product Model | Maximum Payload (kg) | Reach (mm) | Integrated Camera | Extended Cable | DC Power Source | SEMI S2 Certified | Fieldbus | Ordering Code |
|---|---|---|---|---|---|---|---|---|
| TM6S | 6 | 1800 | Yes | No | No | No | No | RT6-9001804 |
| TM6S, 12 m cable | | | Yes | Yes | No | No | No | RT6-9001805 |
| TM6S-X | | | No | No | No | No | No | RT6-9011804 |
| TM6S-X, 12 m cable | | | No | Yes | No | No | No | RT6-9011805 |
| TM6S-M | | | Yes | No | Yes | No | No | RT6-9101804 |
| TM6S-M, 3 m cable | | | Yes | Yes | Yes | No | No | RT6-9101805 |
| TM6S-MX | | | No | No | Yes | No | No | RT6-9111804 |
| TM6S-MX, 3 m cable | | | No | Yes | Yes | No | No | RT6-9111805 |
| TM6S, Fieldbus | | | Yes | No | No | No | Yes | RT6-9001824 |
| TM6S, 12 m cable, Fieldbus | | | Yes | Yes | No | No | Yes | RT6-9001825 |
| TM6S-X, Fieldbus | | | No | No | No | No | Yes | RT6-9011824 |
| TM6S-X, 12 m cable, Fieldbus | | | No | Yes | No | No | Yes | RT6-9011825 |
| TM6S-M, Fieldbus | | | Yes | No | Yes | No | Yes | RT6-9101824 |
| TM6S-M, 3 m cable, Fieldbus | | | Yes | Yes | Yes | No | Yes | RT6-9101825 |
| TM6S-MX, Fieldbus | | | No | No | Yes | No | Yes | RT6-9111824 |
| TM6S-MX, 3 m cable, Fieldbus | | | No | Yes | Yes | No | Yes | RT6-9111825 |

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## TM7S Units

| Product Model | Maximum Payload (kg) | Reach (mm) | Integrated Camera | Extended Cable | DC Power Source | SEMI S2 Certified | Fieldbus | Ordering Code |
|---|---|---|---|---|---|---|---|---|
| TM7S | 7 | 700 | Yes | No | No | No | No | RT6-6007004 |
| TM7S, 12 m cable | | | Yes | Yes | No | No | No | RT6-6007005 |
| TM7S-X | | | No | No | No | No | No | RT6-6017004 |
| TM7S-X, 12 m cable | | | No | Yes | No | No | No | RT6-6017005 |
| TM7S-M | | | Yes | No | Yes | No | No | RT6-6107004 |
| TM7S-M, 3 m cable | | | Yes | Yes | Yes | No | No | RT6-6107005 |
| TM7S-M SEMI | | | Yes | Yes | Yes | Yes | No | RT6-6107014 |
| TM7S-MX | | | No | No | Yes | No | No | RT6-6117004 |
| TM7S-MX, 3 m cable | | | No | Yes | Yes | No | No | RT6-6117005 |
| TM7S, Fieldbus | | | Yes | No | No | No | Yes | RT6-6007024 |
| TM7S, 12 m cable, Fieldbus | | | Yes | Yes | No | No | Yes | RT6-6007025 |
| TM7S-X, Fieldbus | | | No | No | No | No | Yes | RT6-6017024 |
| TM7S-X, 12 m cable, Fieldbus | | | No | Yes | No | No | Yes | RT6-6017025 |
| TM7S-M, Fieldbus | | | Yes | No | Yes | No | Yes | RT6-6107024 |
| TM7S-M, 3 m cable, Fieldbus | | | Yes | Yes | Yes | No | Yes | RT6-6107025 |
| TM7S-M SEMI, Fieldbus | | | Yes | No | Yes | Yes | Yes | RT6-6107054 |
| TM7S-MX, Fieldbus | | | No | No | Yes | No | Yes | RT6-6117024 |
| TM7S-MX, 3 m cable, Fieldbus | | | No | Yes | Yes | No | Yes | RT6-6117025 |

## TM12S Units

| Product Model | Maximum Payload (kg) | Reach (mm) | Integrated Camera | Extended Cable | DC Power Source | SEMI S2 Certified | Fieldbus | Ordering Code |
|---|---|---|---|---|---|---|---|---|
| TM12S | 12 | 1300 | Yes | No | No | No | No | RT6-1001304 |
| TM12S, 12 m cable | | | Yes | Yes | No | No | No | RT6-1001305 |
| TM12S-X | | | No | No | No | No | No | RT6-1011304 |
| TM12S-X, 12 m cable | | | No | Yes | No | No | No | RT6-1011305 |
| TM12S-M | | | Yes | No | Yes | No | No | RT6-1101304 |
| TM12S-M, 3 m cable | | | Yes | Yes | Yes | No | No | RT6-1101305 |
| TM12S-M SEMI | | | Yes | Yes | Yes | Yes | No | RT6-1101314 |
| TM12S-MX | | | No | No | Yes | No | No | RT6-1111304 |
| TM12S-MX, 3 m cable | | | No | Yes | Yes | No | No | RT6-1111305 |
| TM12S, Fieldbus | | | Yes | No | No | No | Yes | RT6-1001324 |
| TM12S, 12 m cable, Fieldbus | | | Yes | Yes | No | No | Yes | RT6-1001325 |
| TM12S-X, Fieldbus | | | No | No | No | No | Yes | RT6-1011324 |
| TM12S-X, 12 m cable, Fieldbus | | | No | Yes | No | No | Yes | RT6-1011325 |
| TM12S-M, Fieldbus | | | Yes | No | Yes | No | Yes | RT6-1101324 |
| TM12S-M, 3 m cable, Fieldbus | | | Yes | Yes | Yes | No | Yes | RT6-1101325 |
| TM12S-M SEMI, Fieldbus | | | Yes | No | Yes | Yes | Yes | RT6-1101354 |
| TM12S-MX, Fieldbus | | | No | No | Yes | No | Yes | RT6-1111324 |
| TM12S-MX, 3 m cable, Fieldbus | | | No | Yes | Yes | No | Yes | RT6-1111325 |

# OMRON TM Collaborative Robot, S Series

## TM14S Units

| Product Model | Maximum Payload (kg) | Reach (mm) | Integrated Camera | Extended Cable | DC Power Source | SEMI S2 Certified | Fieldbus | Ordering Code |
|---|---|---|---|---|---|---|---|---|
| TM14S | 14 | 1100 | Yes | No | No | No | No | RT6-2001104 |
| TM14S, 12 m cable | | | Yes | Yes | No | No | No | RT6-2001105 |
| TM14S-X | | | No | No | No | No | No | RT6-2011104 |
| TM14S-X, 12 m cable | | | No | Yes | No | No | No | RT6-2011105 |
| TM14S-M | | | Yes | No | Yes | No | No | RT6-2101104 |
| TM14S-M, 3 m cable | | | Yes | Yes | Yes | No | No | RT6-2101105 |
| TM14S-M SEMI | | | Yes | Yes | Yes | Yes | No | RT6-2101114 |
| TM14S-MX | | | No | No | Yes | No | No | RT6-2111104 |
| TM14S-MX, 3 m cable | | | No | Yes | Yes | No | No | RT6-2111105 |
| TM14S, Fieldbus | | | Yes | No | No | No | Yes | RT6-2001124 |
| TM14S, 12 m cable, Fieldbus | | | Yes | Yes | No | No | Yes | RT6-2001125 |
| TM14S-X, Fieldbus | | | No | No | No | No | Yes | RT6-2011124 |
| TM14S-X, 12 m cable, Fieldbus | | | No | Yes | No | No | Yes | RT6-2011125 |
| TM14S-M, Fieldbus | | | Yes | No | Yes | No | Yes | RT6-2101124 |
| TM14S-M, 3 m cable, Fieldbus | | | Yes | Yes | Yes | No | Yes | RT6-2101125 |
| TM14S-M SEMI, Fieldbus | | | Yes | No | Yes | Yes | Yes | RT6-2101154 |
| TM14S-MX, Fieldbus | | | No | No | Yes | No | Yes | RT6-2111124 |
| TM14S-MX, 3 m cable, Fieldbus | | | No | Yes | Yes | No | Yes | RT6-2111125 |

## TM20S Units

| Product Model | Maximum Payload (kg) | Reach (mm) | Integrated Camera | Extended Cable | DC Power Source | SEMI S2 Certified | Fieldbus | Ordering Code |
|---|---|---|---|---|---|---|---|---|
| TM20S | 20 | 1300 | Yes | No | No | No | No | RT6-4001304 |
| TM20S, 12 m cable | | | Yes | Yes | No | No | No | RT6-4001305 |
| TM20S-X | | | No | No | No | No | No | RT6-4011304 |
| TM20S-X, 12 m cable | | | No | Yes | No | No | No | RT6-4011305 |
| TM20S, Fieldbus | | | Yes | No | No | No | Yes | RT6-4001324 |
| TM20S, 12 m cable, Fieldbus | | | Yes | Yes | No | No | Yes | RT6-4001325 |
| TM20S-X, Fieldbus | | | No | No | No | No | Yes | RT6-4011324 |
| TM20S-X, 12 m cable, Fieldbus | | | No | Yes | No | No | Yes | RT6-4011325 |

## TM25S Units

| Product Model | Maximum Payload (kg) | Reach (mm) | Integrated Camera | Extended Cable | DC Power Source | SEMI S2 Certified | Fieldbus | Ordering Code |
|---|---|---|---|---|---|---|---|---|
| TM25S | 25 | 1902 | Yes | No | No | No | No | RT6-7001904 |
| TM25S, 12 m cable | | | Yes | Yes | No | No | No | RT6-7001905 |
| TM25S-X | | | No | No | No | No | No | RT6-7011904 |
| TM25S-X, 12 m cable | | | No | Yes | No | No | No | RT6-7011905 |
| TM25S-M | | | Yes | No | Yes | No | No | RT6-7101904 |
| TM25S-M, 3 m cable | | | Yes | Yes | Yes | No | No | RT6-7101905 |
| TM25S-M SEMI | | | Yes | Yes | Yes | Yes | No | RT6-7111904 |
| TM25S-MX | | | No | No | Yes | No | No | RT6-7111905 |
| TM25S-MX, 3 m cable | | | No | Yes | Yes | No | No | RT6-7001904 |
| TM25S, Fieldbus | | | Yes | No | No | No | Yes | RT6-7001924 |
| TM25S, 12 m cable, Fieldbus | | | Yes | Yes | No | No | Yes | RT6-7001925 |
| TM25S-X, Fieldbus | | | No | No | No | No | Yes | RT6-7011924 |
| TM25S-X, 12 m cable, Fieldbus | | | No | Yes | No | No | Yes | RT6-7011925 |
| TM25S-M, Fieldbus | | | Yes | No | Yes | No | Yes | RT6-7101924 |
| TM25S-M, 3 m cable, Fieldbus | | | Yes | Yes | Yes | No | Yes | RT6-7101925 |
| TM25S-M SEMI, Fieldbus | | | Yes | No | Yes | Yes | Yes | RT6-7111924 |
| TM25S-MX, Fieldbus | | | No | No | Yes | No | Yes | RT6-7111925 |
| TM25S-MX, 3 m cable, Fieldbus | | | No | Yes | Yes | No | Yes | RT6-7001924 |

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## TM30S Units

| Product Model | Maximum Payload (kg) | Reach (mm) | Integrated Camera | Extended Cable | DC Power Source | SEMI S2 Certified | Fieldbus | Ordering Code |
|---|---|---|---|---|---|---|---|---|
| TM30S | 30 | 1702 | Yes | No | No | No | No | RT6-8001704 |
| TM30S, 12 m cable | | | Yes | Yes | No | No | No | RT6-8001705 |
| TM30S-X | | | No | No | No | No | No | RT6-8011704 |
| TM30S-X, 12 m cable | | | No | Yes | No | No | No | RT6-8011705 |
| TM30S-M | | | Yes | No | Yes | No | No | RT6-8101704 |
| TM30S-M, 3 m cable | | | Yes | Yes | Yes | No | No | RT6-8101705 |
| TM30S-M SEMI | | | Yes | Yes | Yes | Yes | No | RT6-8111704 |
| TM30S-MX | | | No | No | Yes | No | No | RT6-8111705 |
| TM30S-MX, 3 m cable | | | No | Yes | Yes | No | No | RT6-8001704 |
| TM30S, Fieldbus | | | Yes | No | No | No | Yes | RT6-8001724 |
| TM30S, 12 m cable, Fieldbus | | | Yes | Yes | No | No | Yes | RT6-8001725 |
| TM30S-X, Fieldbus | | | No | No | No | No | Yes | RT6-8011724 |
| TM30S-X, 12 m cable, Fieldbus | | | No | Yes | No | No | Yes | RT6-8011725 |
| TM30S-M, Fieldbus | | | Yes | No | Yes | No | Yes | RT6-8101724 |
| TM30S-M, 3 m cable, Fieldbus | | | Yes | Yes | Yes | No | Yes | RT6-8101725 |
| TM30S-M SEMI, Fieldbus | | | Yes | No | Yes | Yes | Yes | RT6-8111724 |
| TM30S-MX, Fieldbus | | | No | No | Yes | No | Yes | RT6-8111725 |
| TM30S-MX, 3 m cable, Fieldbus | | | No | Yes | Yes | No | Yes | RT6-8001724 |

# Items Included with a System

| | |
|---|---|
| **Control Box Cable** | 1.5, 3, and 12 m options |
| **Robot Stick** | Hand control to manually position and teach cobot |
| **Control Box** | Robot Control Box |
| **Calibration Plate** | Plate for calibrating cobot integrated camera. Not included with S-X model cobots |
| **I/O Cable** | 1 m 8-pin digital I/O cable |
| **Landmark** | Two robot positioning tools. Not included with S-X model cobots |
| **Ground Wire** | Two 2 m wires |
| **Jumper Wire** | Two 3 cm wires |
| **Power Cord** | (TM5S, TM6S, TM7S, TM12S, TM14S, TM20S) Three 1.8 m Control Box power cords, types B, G, and F / (TM25S and TM30S) Control Box power cord. 1 cable, 5 m |
| **SEMI Switch** | Emergency OFF switch (SEMI cobots) |
| **SEMI ESTOP Cable** | 3 m Emergency OFF cable (SEMI cobots) |
| **External Brake Release Cable** | 3 m cable for external brake release (TM25S and TM30S only) |
| **Joint 6 Force/Torque Sensor** | Force/Torque sensor for force control applications and improved load manipulation (TM25S and TM30S only) |

# Accessories and Optional Items

| Appearance | Product Name | Description | Remarks | Ordering Code |
|---|---|---|---|---|
|  | Landmark 2.0 | Robot positioning tool as a reference to the environment. | Two included with purchase of a cobot. Not included with S-X model cobots. | RT6-A000028 |
|  | Mobile Workstation (MWS) | MWS is a convenient tool for users to mount the cobot arm on work surface, and safely store the control box. Users can easily move the MWS with the cobot to different work cells. | Compatible with OMRON TM5S, TM7S, TM5-700, and TM5-900. | RT6-A000010 |

# OMRON TM Collaborative Robot, S Series

| Appearance | Product Name | Description | Remarks | Ordering Code |
|---|---|---|---|---|
| | Robot stand | Similar to MWS, the robot stand can be easily moved with the cobot to different work stations. | Compatible with OMRON TM5S, TM7S, TM5-700, and TM5-900. | RT6-A000009 |
| | SSD with cable | 128 GB solid-state disk | SATA cable included. Recommended for external cameras image logging. | RT6-A000012 |
| | Kit, calibration set with additional pin | The toolkit for teaching a precise tool center point (TCP) that can be used for manual workspace calibration within TMvision. | Required for TCP and manual vision calibration. | RT6-A000002 |
| | Polarizer Light Module, S-Series | Improves the reflection caused by the cobot's own light source on the surface of highly-reflective objects. | For S-series cobots only. | RT6-A000025 |
| | Air Filter (ROHS) | Replacement air filter for the control box. | The filter must be changed regularly to maintain efficiency. The replacement procedure can be found in the Hardware Installation Manual. | 19937-214F |
| | TM Screen (Teaching Pendant) with Pen | The TM Screen devices can be combined with the Robot Stick design to become a teaching pendant, and operate the cobot from the touch screen environment. | The TM Screen is only compatible with S-Series units. No additional wiring is needed. | RT6-A000024 |
| | TM5S/TM7S Metal Joint Cover Sets | 6-piece-set of black metal joint covers without logo. Designed for harsh working environments, | Only available for TM5S and TM7S units. | RT6-A000027 |

## Software

| Product Name | Add-On Product Names | Remarks | Ordering Code |
|---|---|---|---|
| TMflow 2.X.X | N/A | Software required to control the cobot. Free download | N/A |
| Super Software Dongle | TM Identify & Measure | License, add-on to TMFlow. Includes: identification of pose variation, specific color area size, subtract reference image, line/circle burr, counting and gauge. | RT6-A000026 |
| | TM External Vision | License, add-on to TMFlow. Required when using eye-to-hand cameras. | |
| | TM OCR | License, add-on to TMFlow. Includes: Text OCR and Number OCR. | |
| | PalletBoost 5 License | License, add-on to TMFlow 2.22 or above. Additional 5 kg payload license for TM25S and TM30S. | |

## Specifications

| Product | | TM5S | TM6S | TM7S | TM12S | TM14S | TM20S | TM25S | TM30S |
|---|---|---|---|---|---|---|---|---|---|
| Robot Arm Weight, With Camera / Without Camera (kg) | | 23.9 / 23.6 | 35.5 / 35.2 | 22.9 / 22.6 | 33.3 / 33.0 | 33 / 32.7 | 33.3 / 33.0 | 81.6 / 81.3 | 80.6 / 80.3 |
| Control Box Weight, AC unit / DC unit (kg)[1] | | 13.5 / 8.9 | | | | | | 17.5 / 11.7 | |
| Maximum Payload (kg) | | 5 | 6 | 7 | 12 | 14 | 20 | 25 | 30 |
| Reach (mm) | | 900 | 1800 | 700 | 1300 | 1100 | 1300 | 1902 | 1702 |
| Mounting | | Wall, Table, Ceiling | | | | | | | |
| Joint Ranges | J1, J2, J4, J5, J6 | ± 360° | | | | | | | |
| | J3 | ± 158° | ± 166° | ± 152° | ± 162° | ± 159° | ± 162° | ± 166° | ± 170° |
| Joint Speed | J1 | 210°/s | 130°/s | 210°/s | 130°/s | | 130°/s | 100°/s | |
| | J2 | | | | | | 95°/s | | |
| | J3 | | 210°/s | | 210°/s | | 125°/s | 130°/s | |
| | J4 | 225°/s | | | | | 160°/s | 195°/s | |
| | J5 | | | | | | 190°/s | 210°/s | |
| | J6 | 450°/s | | | | | | 225°/s | |

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# OMRON TM Collaborative Robot, S Series

| Product | | TM5S | TM6S | TM7S | TM12S | TM14S | TM20S | TM25S | TM30S |
|---|---|---|---|---|---|---|---|---|---|
| Average Speed (m/s)[*2] | | 1.4 | 1.1 | | 1.3 | 1.1 | | 2.1 | |
| Repeatability (mm) | | ± 0.03 | ± 0.1 | ± 0.03 | | | ± 0.05 | | |
| Degrees of Freedom | | 6 rotating joints | | | | | | | |
| I/O Ports | Control Box | Digital In: 16 / Digital Out: 16 Analog In: 2 / Analog Out: 2 | | | | | | | |
| | Tool Conn. | Digital In: 3 / Digital Out: 3 | | | | | | | |
| I/O Power Supply | Control Box | 24 V 2.0 A | | | | | | | |
| | Tool Conn. | 24 V 1.5 A | | | | | | | |
| Ingress Protection | | IP65 for Robot Arm, IP54 for Control Box[*3], Robot Stick and TM Screen | | | | | | | |
| Cleanroom Class | | ISO Cleanroom Class 3 | | | | | | | |
| Operating Temperature and Humidity | | 0 to 50°C, 85% max. (with no condensation) | | | | | | | |
| Motor Power Supply | AC Units | 100 to 240 VAC, 50/60 HZ | | | | | 200 to 240 VAC, 50/60 Hz | | |
| | DC Units | 24 to 60 VDC | | | | | 48 to 60 VDC | | |
| 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), PROFINET (optional), EtherNet/IP (optional) | | | | | | | |
| Programming Environment | | TMFlow (flowchart-based), TMScript (script-based), TMCraft (developer-based) | | | | | | | |
| Certifications | | TÜV-certified ISO 13849-1, ISO 10218-1, ISO/TS 15066, UL1740, CAN/CSA Z424-14 (R2019), SEMI S2 (optional) | | | | | | | |
| Positioning Accuracy | | 2D Positioning: 0.1[*4] (camera models only) | | | | | | | |
| Robot Vision | Eye in Hand (Built in) | 1.2MP / 5MP, color camera (camera models only) | | | | | | | |
| | Eye to Hand (Optional) | Supports maximum of 2 GigE 2D cameras | | | | | | | |
| Force x-y-z (TM25S/ 30S) | Range | ± 300 N | | | | | | | |
| | Precision | 2% full scale | | | | | | | |
| | Accuracy | 5.5% full scale | | | | | | | |
| Torque x-y-z (TM25S/ 30S) | Range | ± 30 Nm | | | | | | | |
| | Precision | 0.3% full scale | | | | | | | |
| | Accuracy | 5% full scale | | | | | | | |

*1 The weight indicated applies to robots with no option. The weight for the fieldbus option will be 0.02 kg heavier than that of the standard unit. The weight of the DC SEMI S2 option for the TM5S/6S/7S/12S/14S units is 9.9 kg.

*2 Average speed is determined for each robot by performing a large linear motion at full project speed and default acceleration with no payload.

*3 The AC Control Box has an IP54 rating. The DC Control Box is not IP rated.

*4 The data in this table are measured by TM laboratory and the working distance is 100 mm. 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.

# Version Information

The details in this document apply to products operating with the following hardware and software versions.
• Robot Hardware Version: 5.03
• TMFlow Version: 2.22

# OMRON TM Collaborative Robot, S Series

## Dimensions

### TM5S/TM5S-X*/TM5S-M/TM5S-MX*
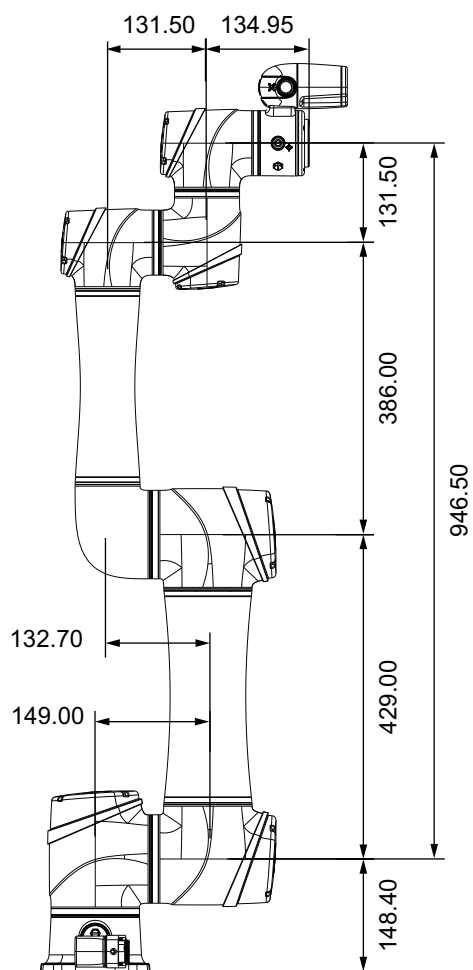


### TM6S/TM6S-X*/TM6S-M/TM6S-MX*
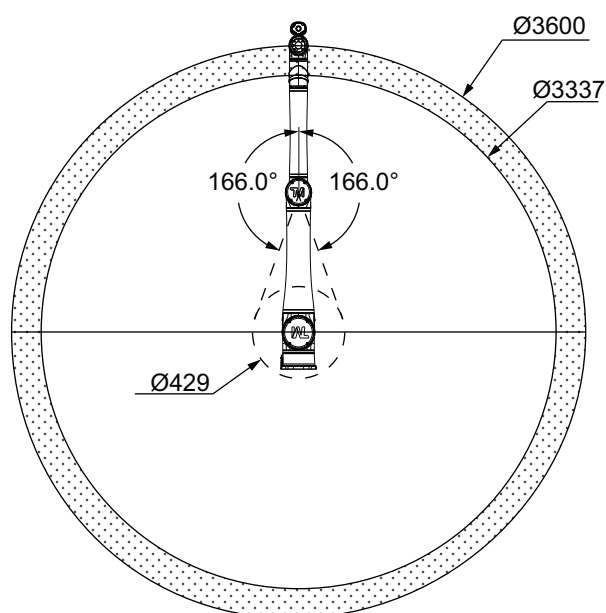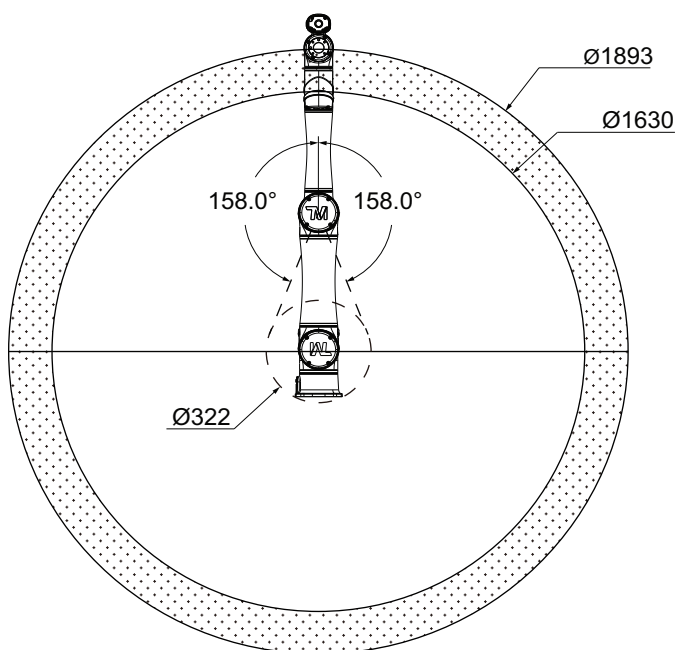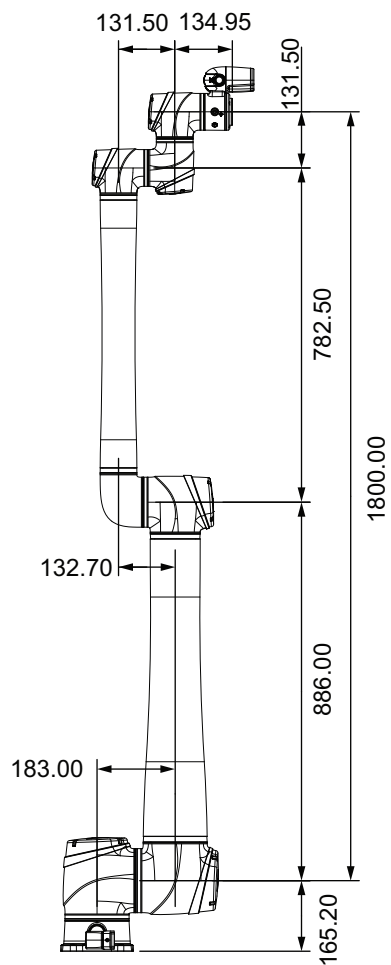


\* Dimensions do not include the camera. Refer to the Camera Dimensions on page 14 for more information.
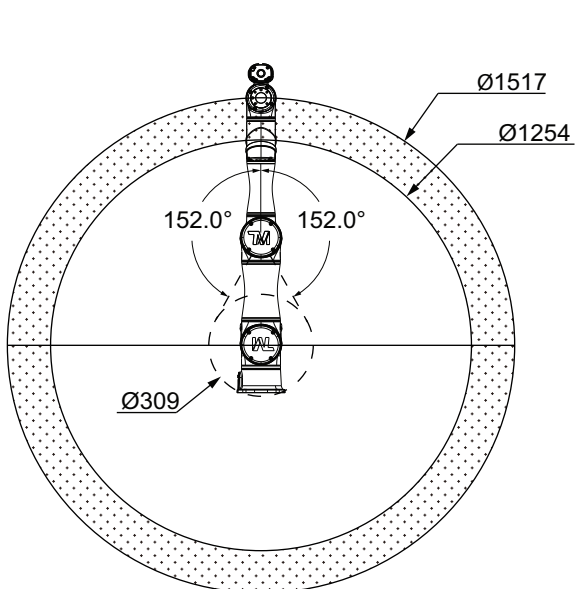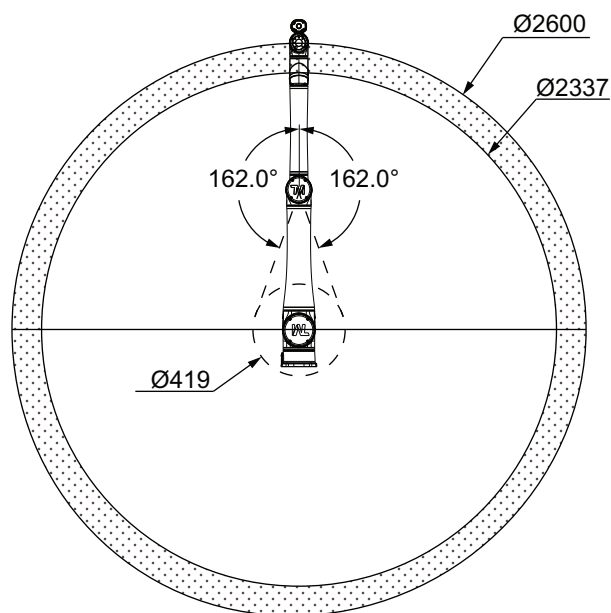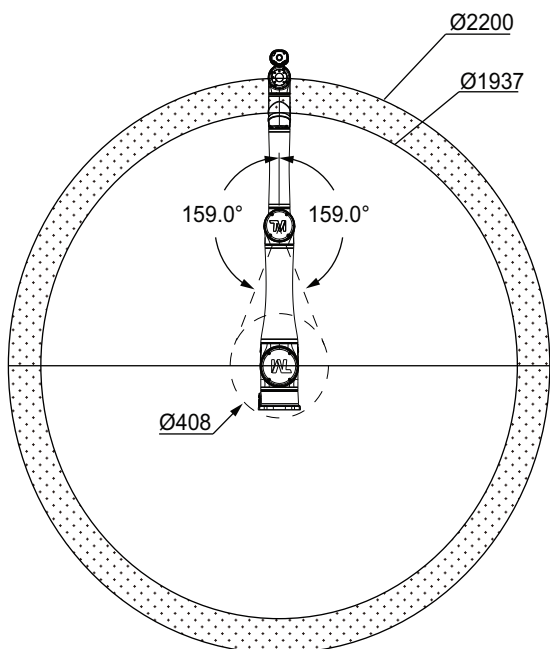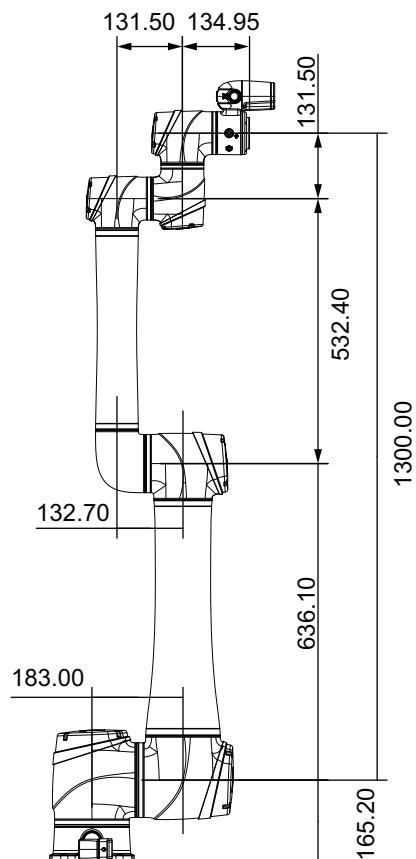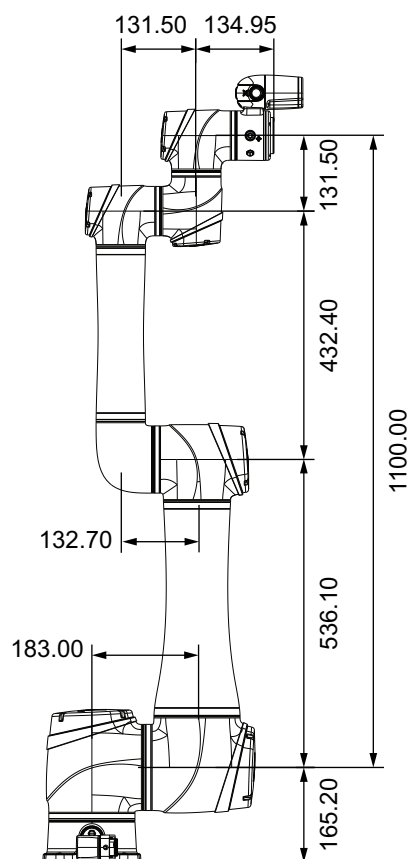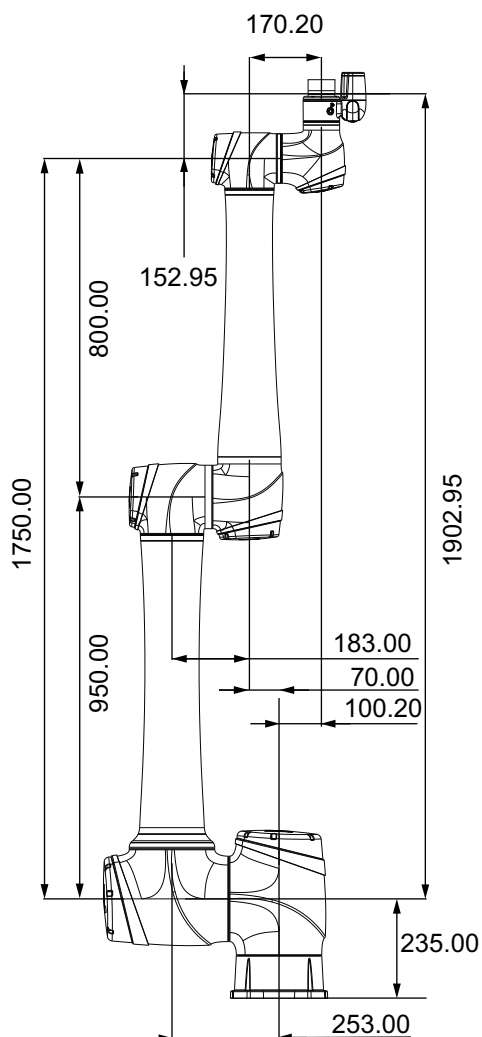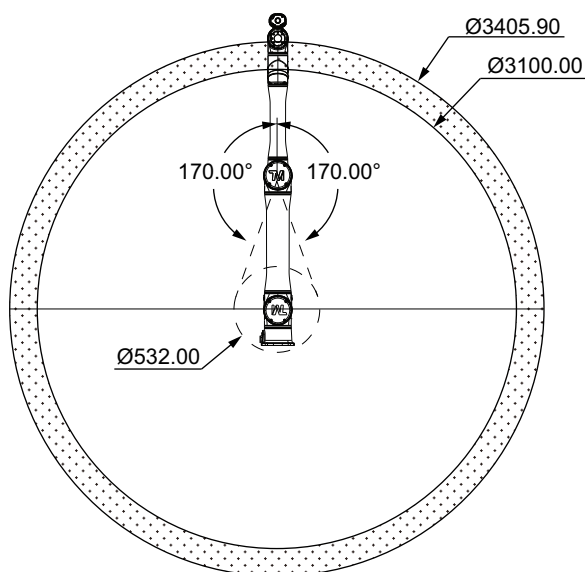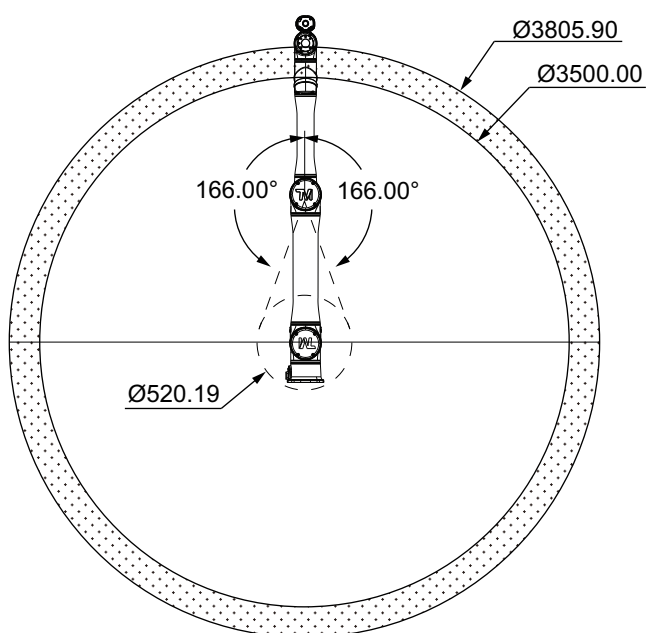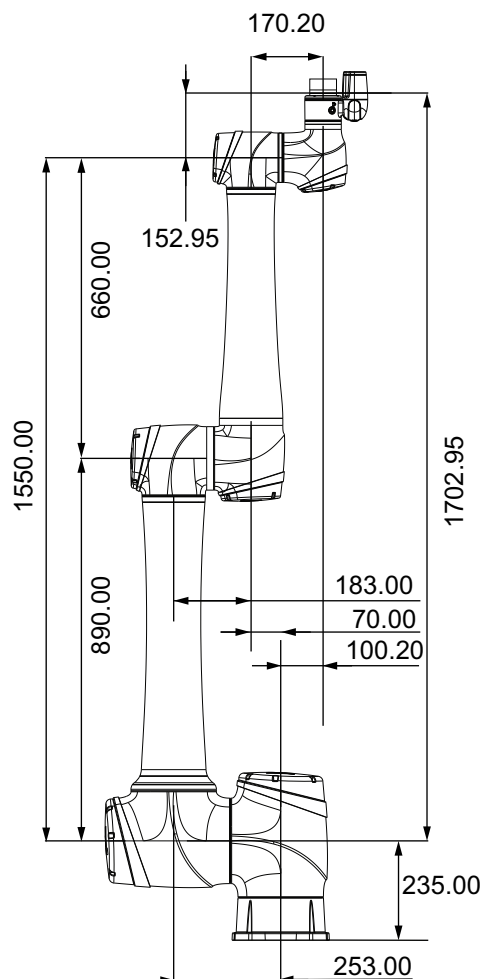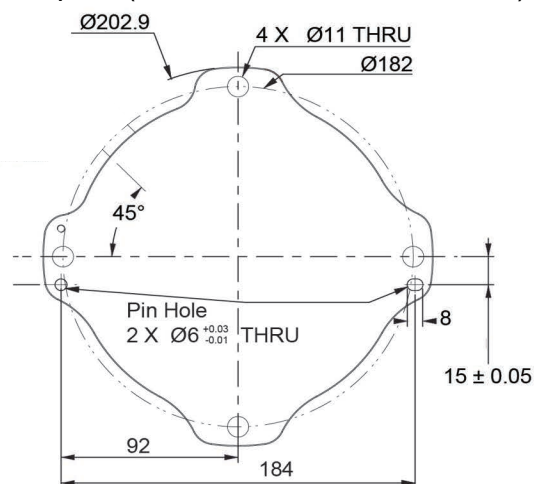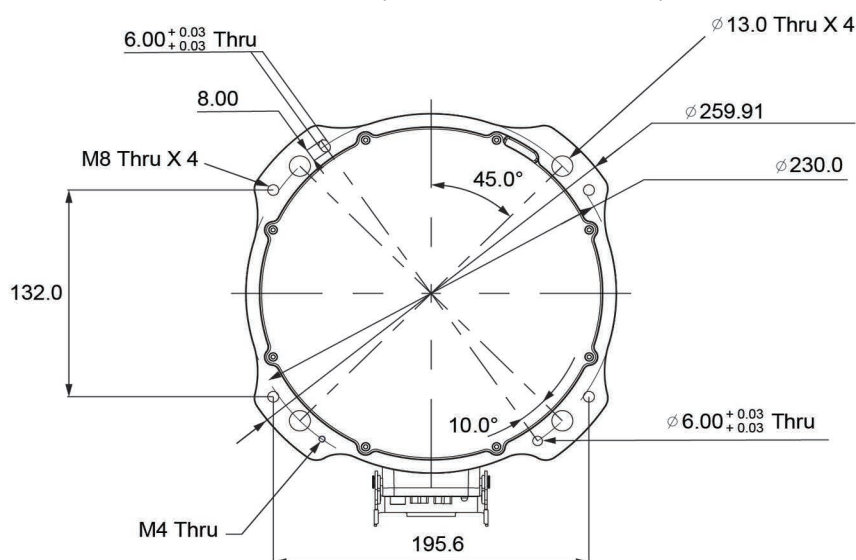
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## Dimensions

**TM7S/TM7S-X\*/TM7S-M/TM7S-MX\***

**TM12S/TM12S-X\*/TM12S-M/TM12S-MX\***
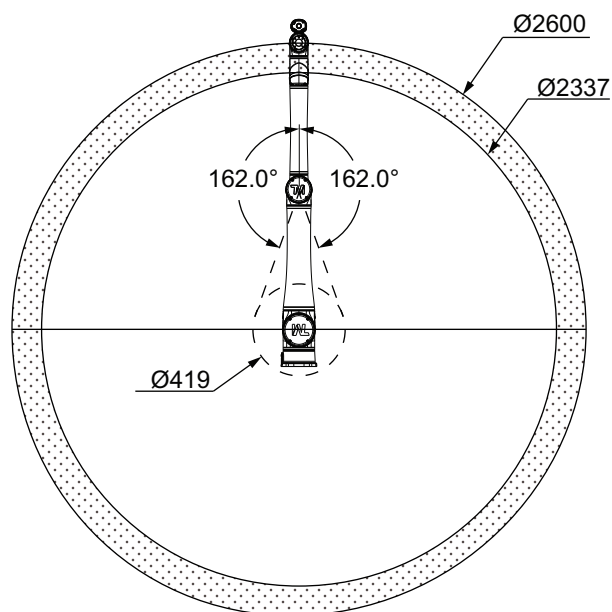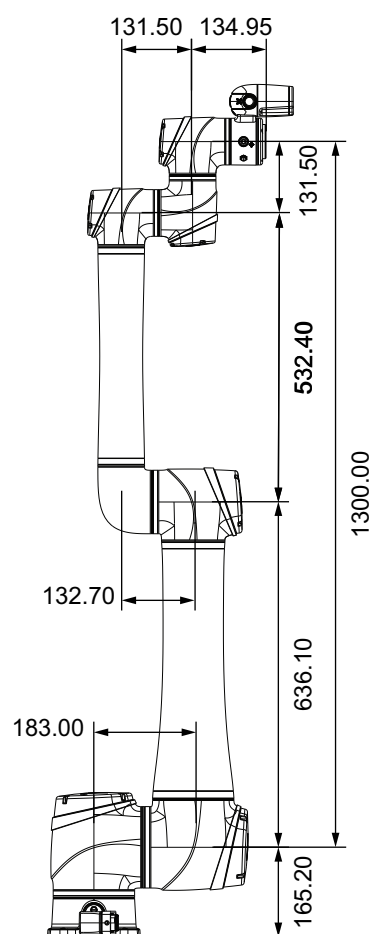


\* Dimensions do not include the camera. Refer to the Camera Dimensions on page 14 for more information.

# OMRON TM Collaborative Robot, S Series

## Dimensions

**TM14S/TM14S-X*/TM14S-M/TM14S-MX***

**TM20S/TM20S-X*/TM20S-M/TM20S-MX***



* Dimensions do not include the camera. Refer to the Camera Dimensions on page 14 for more information.

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## Dimensions

(Units: mm)

### TM25S/TM25S-X*/TM25S-M/TM25S-MX*   TM30S/TM30S-X*/TM30S-M/TM30S-MX*

**TM25S/TM25S-X*/TM25S-M/TM25S-MX***

170.20

152.95

800.00

1750.00

1902.95

950.00

183.00

70.00

100.20

235.00

253.00

**TM30S/TM30S-X*/TM30S-M/TM30S-MX***

170.20

152.95

660.00

1550.00

1702.95

890.00

183.00

70.00

100.20

235.00

253.00

Ø3805.90

Ø3500.00

166.00°   166.00°

Ø520.19

Ø3405.90

Ø3100.00

170.00°   170.00°

Ø532.00

* Dimensions do not include the camera. Refer to the Camera Dimensions on page 14 for more information.

Footprint (TM5S/7S Models)
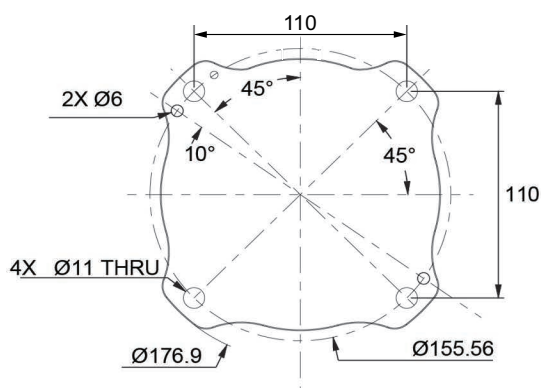
Footprint (TM6S/12S/14S/20S Models)

Footprint (TM25S/30S Models)

TM5S/6S/7S/12S/14S/20S Control Box (AC)
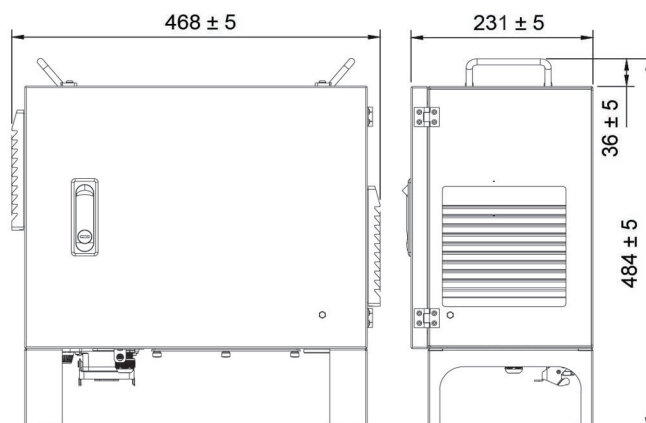
## Dimensions

### TM5S/6S/7S/12S/14S Control Box (DC)
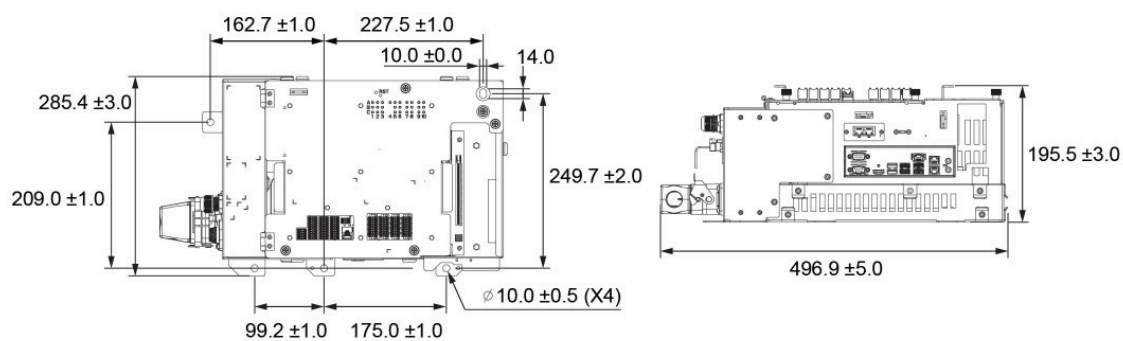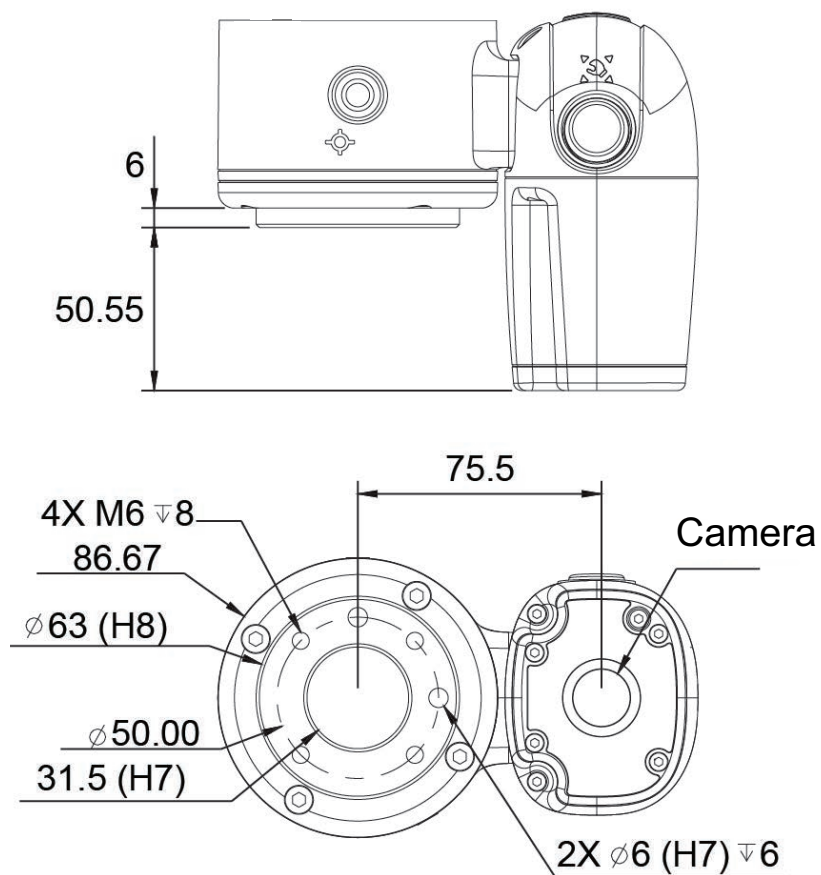


### TM5S/7S/12S/14S Control Box (DC SEMI)
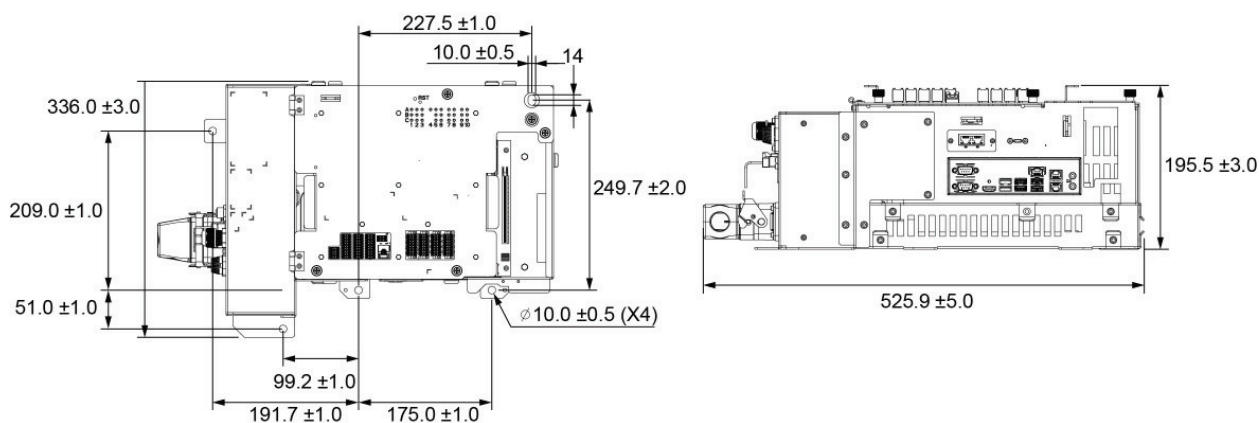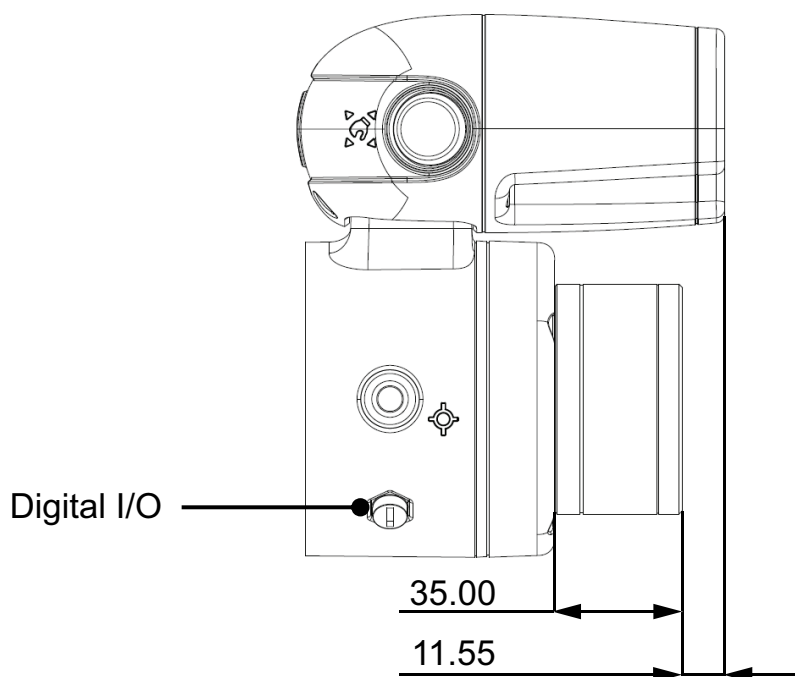


### TM25S/30S Control Box (AC)
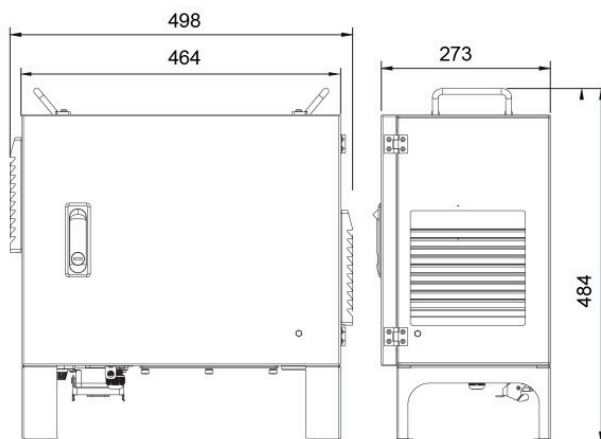


### TM25S/30S Control Box (DC)

Tool Flange

6

50.55

75.5

Camera

4X M6 ⤓8
86.67

⌀63 (H8)

⌀50.00
31.5 (H7)

2X ⌀6 (H7) ⤓6
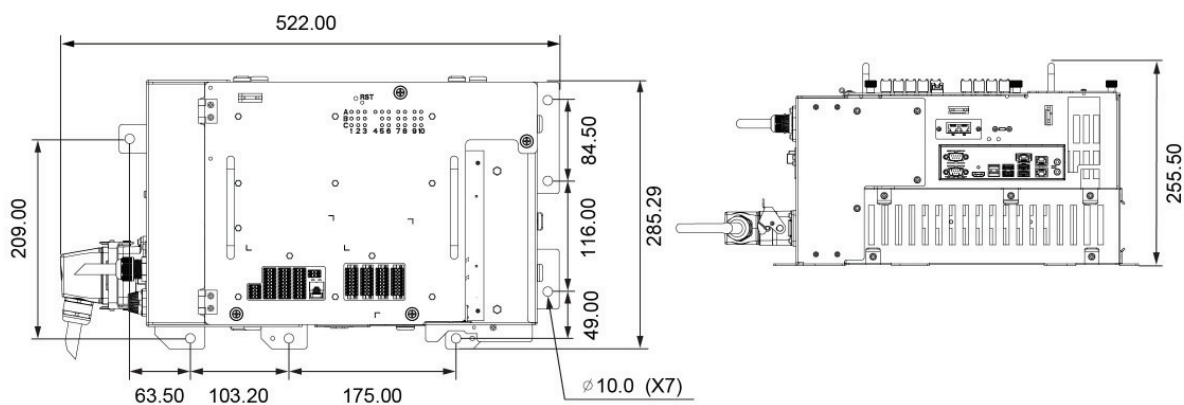
Tool Flange with Integrated Force/Torque Sensor
(TM25S/TM30S Models)

Digital I/O

35.00

11.55

## Related Manuals

| Catalog Number | Title |
|---|---|
| M135 | Omron TM Collaborative Robot S Series: TM5S/TM6S/TM7S/TM12S/TM14S/TM20S Hardware Installation Manual |
| M104 | Omron TM Collaborative Robot S Series: TM25S and TM30S Hardware Installation Manual |
| I688 | Omron TM Collaborative Robot S Series: Safety Manual |
| I689 | Omron TM Collaborative Robot: Software Manual TMFlow, Version 2 |
| I690 | Omron TM Collaborative Robot: TMVision Software Manual, Version 2 |
| I691 | Omron TM Collaborative Robot S Series: Touch Screen User's Manual |
| I628 | Omron TM Collaborative Robot: Mobile Work Station User's Manual |
| I629 | Omron TM Collaborative Robot: Robot Stand User's Manual |
| I664 | Omron TM Collaborative Robot: TMScript Language Manual |

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