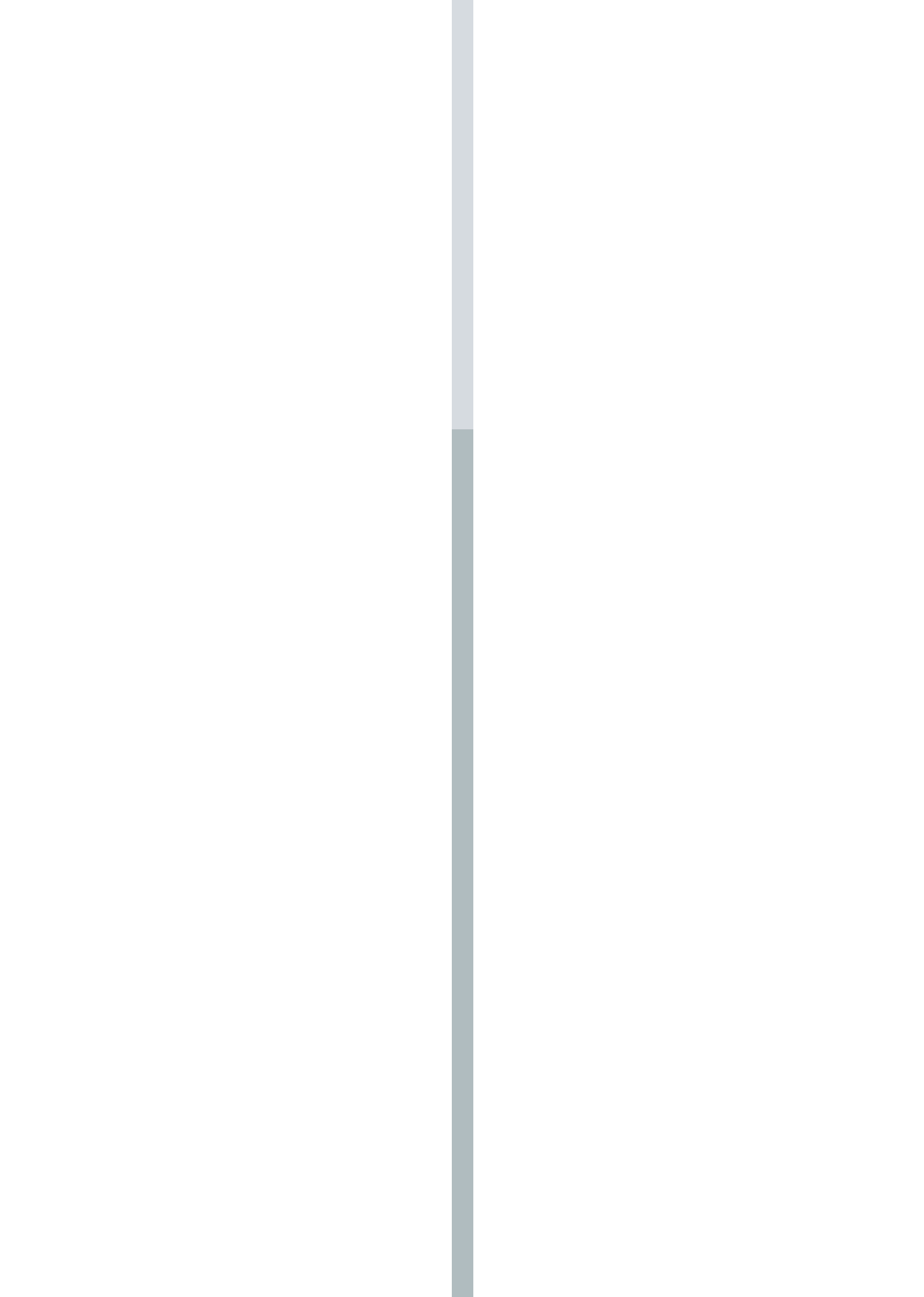




**UNIVERSAL ROBOTS**

# User Manual

## Base-Mounted Range Extender, 40m





740-949-00



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# 1. Liability and Intended Use

## 1.1. Limitation of Liability

**Description** Any information provided in this manual must not be construed as a warranty, by UR, that the industrial robot will not cause injury or damage, even if the industrial robot complies with all safety instructions and information for use.

## 1.2. Intended Use

**Description**



**READ MANUAL**

Failure to use the robot in accordance with the intended use can result in hazardous situations.

- Read and follow the recommendations for intended use and the specifications provided in the User Manual.

This product is intended only for use with the UR OEM Controller, for which there are no certifications. See the applicable robot model user manual for the Declaration of Incorporation (DOI).



**WARNING**

Do not use this product with UR standard controllers as this will void all certifications.

Universal Robots robots are intended for industrial use, to handle tools/end effectors and fixtures, or to process or transfer components or products. See product specifications for details about the conditions under which the robot should operate.

All UR robots are equipped with safety functions, which are purposely designed to enable collaborative applications, where the robot application operates together with a human. The safety function settings must be set to the appropriate values as determined by the robot application risk assessment.

Because this product is intended for use with the UR OEM Controller, there are no certifications. To make use of UR safety functions, EMC compliance is required of the application. EMC compliance is foundational to the effectiveness of UR's safety functions.

Collaborative applications are only intended for non-hazardous applications, where the complete application, including tool/end effector, work piece, obstacles and other machines, is low risk determined by the risk assessment of the specific application.

**WARNING**

Using UR robots or UR products outside of the intended uses can result in injuries, death and/or property damage. Do not use the UR robot or products for any of the below unintended uses and applications:

- Medical use, i.e. uses relating to disease, injury or disability in humans including the following purposes:
  - Rehabilitation
  - Assessment
  - Compensation or alleviation
  - Diagnostic
  - Treatment
  - Surgical
  - Healthcare
  - Prosthetics and other aids for the physically impaired
  - Any use in proximity to patient/s
- Handling, lifting, or transporting people
- Any application requiring compliance with specific hygienic and/or sanitation standards, such as proximity or direct contact with food, beverage, pharmaceutical, and /or cosmetic products.
  - UR joint grease can be released into the air (vapor), or drip.
- Any use, or any application, deviating from the intended use, specifications, and certifications of UR robots or UR products.
- Misuse is prohibited as the result could be death, personal injury, and /or property damage

UNIVERSAL ROBOTS EXPRESSLY DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR ANY PARTICULAR USE.

**WARNING**

Do not modify the robot. Do not modify or alter e-Series end caps. A modification can create unforeseen hazards. All authorized disassembling and reassembling shall be done at a UR service center, or can be done according to the newest version of all relevant service manuals by skilled persons.

**WARNING**

Failure to consider the added risks due to the reach, payloads, operating torques and speeds associated with robot application, can result in injury or death.

- Your application risk assessment shall include the risks associated with the application's reach, motion, payload and speed of the robot, end effector and workpiece.

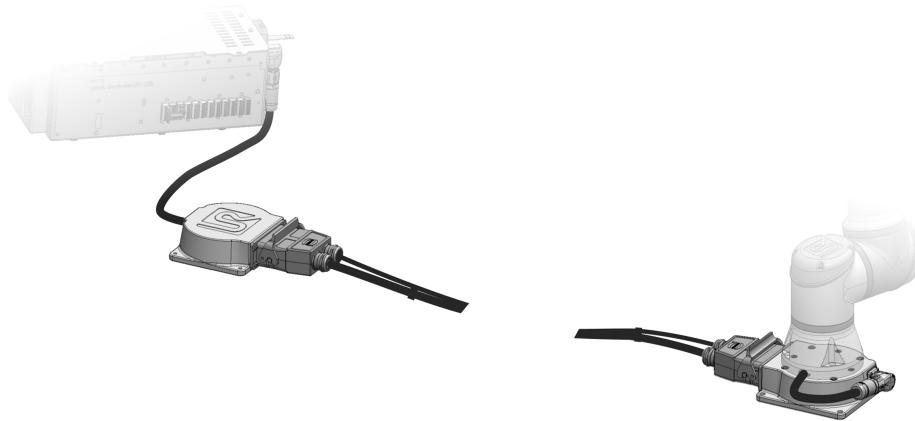
## 2. Your Product

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### Product

The Base-mounted Range Extender, 40m is an accessory used to extend the cable length between robot and controller. It includes a 40-meter cable (power and communication) and active signal repeaters - one at the robot end and the other at the controller end - for reliable performance over long distances. It is designed for OEM controllers in Welding applications where longer separation between robot and controller is required.

The Base-mounted Range Extender, 40m is compatible with UR3e, UR5e, and UR7e.



The Base-Mounted Range Extender consists of the following components:

1. Range Extender Cable, 40 meter.
2. Range Extender Box, Robot Base (with mounting holes and connector for robot arm).
3. Range Extender Box, CB (without mounting holes, and with flange cable to connect with Control box).
4. Set of screws for mounting UR3e. See Assembly for specifications and torque.
5. Set of screws for mounting UR5e and UR7e. See Assembly for specifications and torque.
6. User Manual

This manual describes all of the components. This manual should also be used, if you have purchased any one part as a single component.

---

## 3. Technical Specifications

---

|                                     |   |
|-------------------------------------|---|
| 40 meter cable weight               | 14.7 kg.                                    |
| Power consumption (average)         | Please refer to specific robot User Manual. |
| Max average power consumption       | Please refer to specific robot User Manual. |
| Short-Circuit Current Rating (SCCR) | Please refer to specific robot User Manual. |
| Materials                           | Aluminium                                   |
| Ambient temperature range           | 0-50 °C                                     |

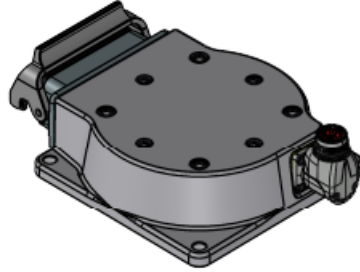
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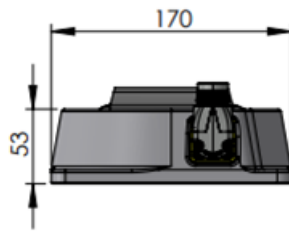
# 4. Dimensions of Range Extender Boxes

## Dimensions of Range Extender Box, Robot Base

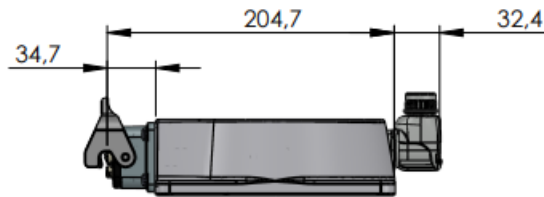
All measurements are in mm.



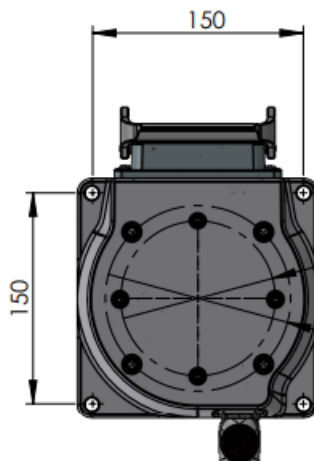
View 1:



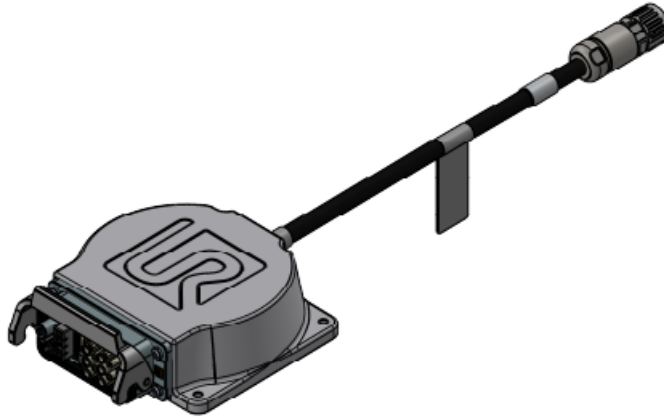
View 2:



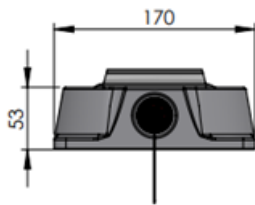
Top down:



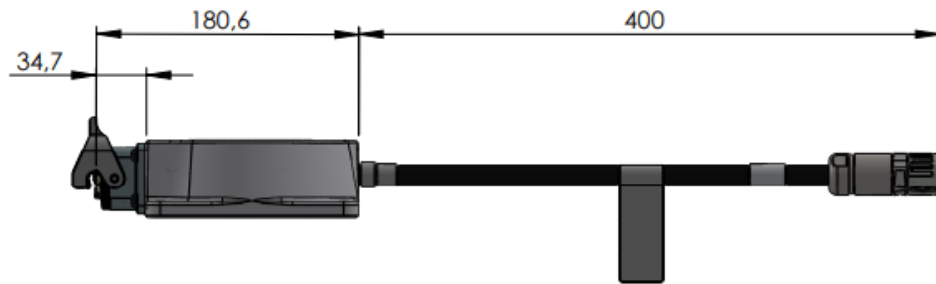
**Dimensions of Range Extender Box, CB** All measurements are in mm.



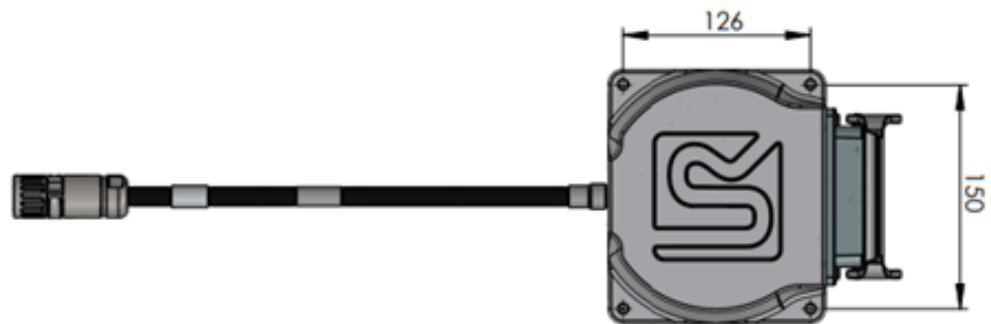
View 1:



View 2:



Top Down:



# 5. Safety

## Warnings



**NOTICE**

The Base-Mounted Range Extender, 40m can only be used with UR3e, UR5e, and UR7e robot arms.



**NOTICE**

The Base-Mounted Range Extender, 40m can only be used with OEM Control box.



**NOTICE**

The system is only compatible with OEM CB 5.5 or later.



**WARNING**

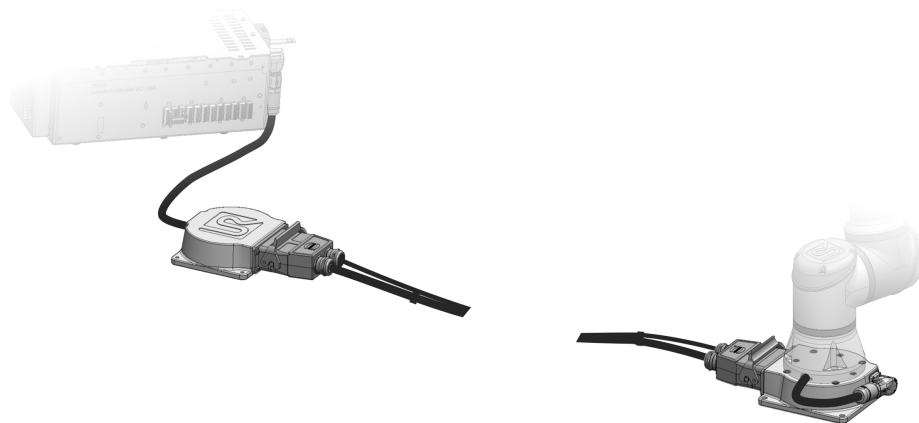
Do not extend the 40 meter cable with other cable options.



**WARNING**

You must power off the robot arm before disconnecting the cable.

## Complete setup



# 6. Safety Message Types

## Description

Safety messages are used to emphasize important information. Read all the messages to help ensure safety and to prevent injury to personnel and product damage. The safety message types are defined below.



### WARNING

Indicates a hazardous situation that, if not avoided, can result in death or serious injury.



### WARNING: ELECTRICITY

Indicates a hazardous electrical situation that, if not avoided, can result in death or serious injury.



### WARNING: HOT SURFACE

Indicates a hazardous hot surface where injury can result from contact and non-contact proximity.



### CAUTION

Indicates a hazardous situation that, if not avoided, can result in injury.



### GROUND

Indicates grounding.



### PROTECTIVE GROUND

Indicates protective grounding.



### NOTICE

Indicates the risk of damage to equipment and/or information to be noted.



### READ MANUAL

Indicates more detailed information that should be consulted in the manual.

# 7. General Warnings and Cautions

**Description** The following warnings messages can be repeated, explained or detailed in subsequent sections.



## WARNING

Failure to adhere to the general safety practices, listed below, can result in injury or death.

- Verify the robot arm and tool/end effector are properly and securely bolted in place.
- Verify the robot application has ample space to operate freely.
- Verify the personnel are protected during the lifetime of the robot application including transport, installation, commissioning, programming/ teaching, operation and use, dismantling and disposing.
- Verify robot safety configuration parameters are set to protect personnel, including those who can be within reach of the robot application.
- Avoid using the robot if it is damaged.
- Avoid wearing loose clothing or jewelry when working with the robot. Tie back long hair.
- Avoid placing any fingers behind the internal cover of the Control Box.
- Inform users of any hazardous situations and the protection that is provided, explain any limitations of the protection and the residual risks.
- Inform users of the location of the emergency stop button(s) and how to activate the emergency stop in case of an emergency or an abnormal situation.
- Warn people to keep outside the reach of the robot, including when the robot application is about to start-up.
- Be aware of robot orientation to understand the direction of movement when using the Teach Pendant.
- Adhere to the requirements in ISO 10218-2.
- Ensure compliance with EMC requirements as required in the ISO 13849 series.



## WARNING

Handling tools/end effectors with sharp edges and/or pinch points can result in injury.

- Make sure tools/end effectors have no sharp edges or pinch points.
- Protective gloves and/or protective eyeglasses could be required.

**WARNING: HOT SURFACE**

Prolonged contact with the heat generated by the robot arm and the Control Box, during operation, can lead to discomfort resulting in injury.

- Do not handle or touch the robot while in operation or immediately after operation.
- Check the temperature on the log screen before handling or touching the robot.
- Allow the robot to cool down by powering it off and waiting one hour.

**CAUTION**

Failure to perform a risk assessment prior to integration and operation can increase risk of injury.

- Perform a risk assessment and reduce risks prior to operation.
- If determined by the risk assessment, do not enter the range of the robot movement or touch the robot application during operation. Install safeguarding.
- Read the risk assessment information.

**CAUTION**

Using the robot with untested external machinery, or in an untested application, can increase the risk of injury to personnel.

- Test all functions and the robot program separately.
- Read the commissioning information.

**NOTICE**

Very strong magnetic fields can damage the robot.

- Do not expose the robot to permanent magnetic fields.

**READ MANUAL**

Verify all mechanical and electrical equipment is installed according to relevant specifications and warnings.

# 8. Integration and Responsibility

---

## Description

The information in this manual does not cover designing, installing, integrating and operating a robot application, nor does it cover all peripheral equipment that can influence the safety of the robot application. The robot application must be designed and installed in accordance with the safety requirements set forth in the relevant standards and regulations of the country where the robot is installed.

The person/s integrating the UR robot are responsible for ensuring that the applicable regulations in the country concerned are observed and that any risks in the robot application are adequately reduced. This includes, but is not limited to:

- Ensuring EMC compliance
  - Performing a risk assessment for the complete robot system
  - Interfacing other machines and additional safeguarding if required by the risk assessment
  - Setting the correct safety settings in the software
  - Ensuring safety measures are not modified
  - Validating the robot application is designed, and installed and integrated
  - Specifying instructions for use
  - Marking the robot installation with relevant signs and contact information of the integrator
  - Retaining all documentation; including the application risk assessment, this manual and additional relevant documentation
-

# 9. Assembly

## Description

Please see the following for assembling the Base-Mounted Range Extender, 40m, the OEM Control Box, and the robot arm.



### WARNING

DO NOT USE the 40 meter cable with UR standard controllers as the use voids certifications.



### WARNING

Do not extend the 40 meter cable with other cable options.



### NOTICE

Unroll the cable before assembling.  
There is a label on one end of the cable. This end goes to the Range Extender Box, CB side.



### WARNING

If you are creating a welding solution, the bottom of the Robot Base part of the Range Extender must be isolated from the welding currents.

## Securing the arm

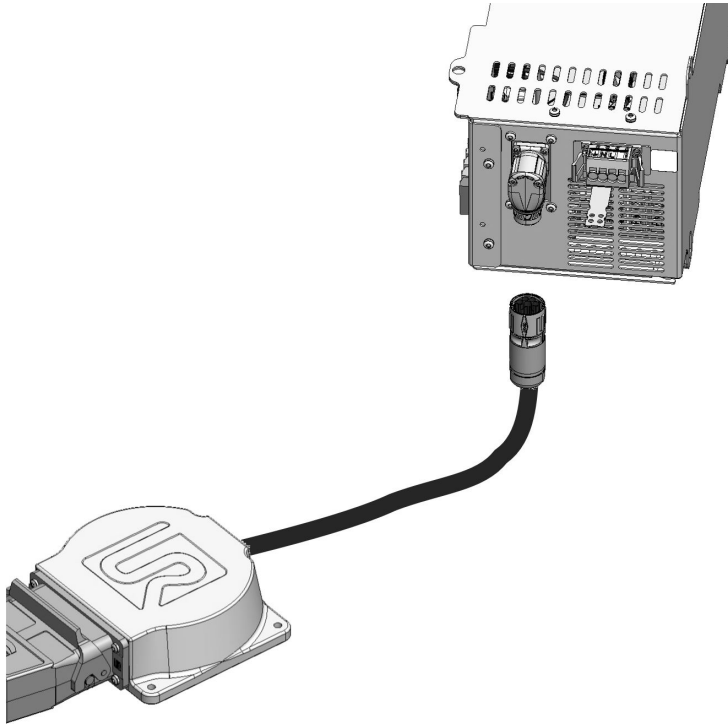
Please see the specific robot User Manual for the correct torque values for securing the robot arm to the Range Extender Box, Robot Base.

Use the available screws for mounting the robot:

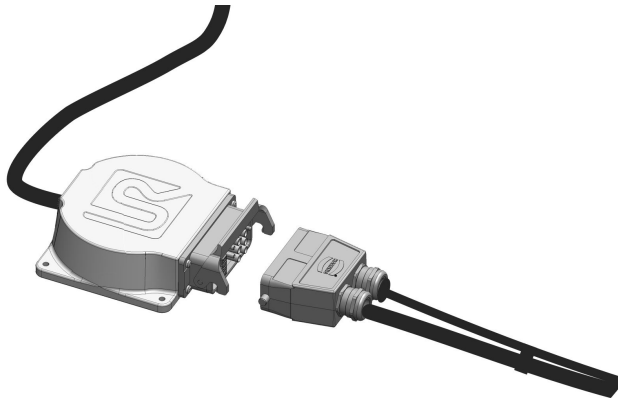
- UR3e: four 8.8 strength, M6 x 30 mm bolts. Tighten the M6 bolts to a torque of 9 Nm.
- UR5e: four 8.8 strength, M8 x 30 mm bolts. Tighten the M8 bolts to a torque of 20 Nm.
- UR7e: four 8.8 strength, M8 x 30 mm bolts. Tighten the M8 bolts to a torque of 20 Nm.
- Use the torque wrench that can meet the above specified values to ensure correct tightening.

**Mating the  
40m. cable  
with OEM  
control box**

1. Connect the Range Extender Box, CB directly with the OEM Control Box.
  - a. Make sure to turn and lock the cable flange on the Range Extender Box, CB with the connector on the OEM Control Box.

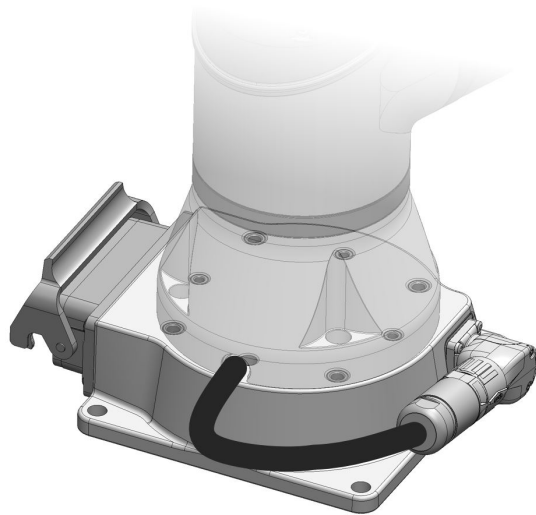


2. Connect the cable with the Range Extender Box, CB.
  - a. There is a label on one end of the cable. This end goes to the Range Extender Box, CB for the OEM Control Box.

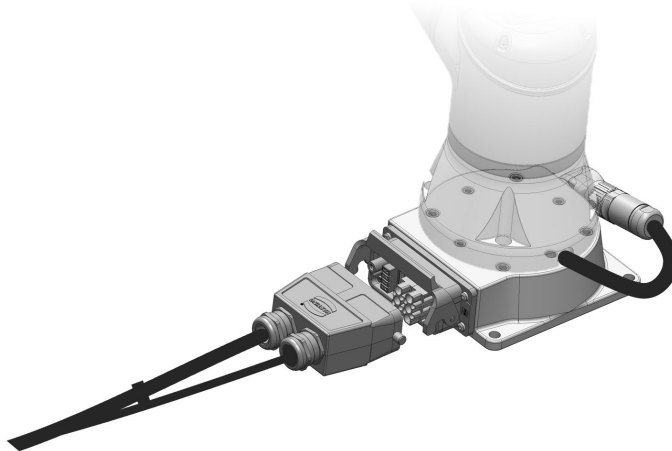


**Mating the  
40m. cable  
with robot  
arm**

1. Secure the robot arm on the Range Extender Box, Robot Base.
  - a. Use the screws from the box to attach the robot arm to the Range Extender Box, Robot Base.
    - UR3e: four 8.8 strength, M6 x 30 mm bolts. Tighten the M6 bolts to a torque of 9 Nm.
    - UR5e: four 8.8 strength, M8 x 30 mm bolts. Tighten the M8 bolts to a torque of 20 Nm.
    - UR7e: four 8.8 strength, M8 x 30 mm bolts. Tighten the M8 bolts to a torque of 20 Nm.
2. Attach the robot flange cable to the Range Extender Box, Robot Base.



3. Connect the 40 m. cable to the Range Extender Box, Robot Base.





**Actions After Assembly** When you have completed the assembly, there are a few additional action to perform, before you can operate your robot assembly.

Please review the following sections in the robot User Manual:

- First Boot
  - First Time Use
  - Emergency Events
  - Transportation
-

# 10. Troubleshooting

---

**Description** There are a number of different possibilities for troubleshooting when adding the 40 m cable to the robot installation.

Please see robot User Manual for further troubleshooting.

---

**C347A5  
No Far End  
Extender** If you encounter this error, the robot cannot detect the full installation via the cable or the extender boxes.  
This error is likely triggered by an error on the power or the communication cable between the two extender boxes.  
Check the cable for damages or loose connectors.

---

**C262A17  
Joint  
Communication  
Failed** The error is triggered when there is no communication to the nodes in the arm.  
The error is triggered, if the robot cable is not attached.  
Check the different places, where there is a cable connection. Verify that all connectors are correctly attached and locked.  
Conduct a complete rebooting sequence.  
If the reboot did not resolve the issue, please contact your local Universal Robots service provider for assistance.

---

**C746A0 ->  
C746A3  
Temperature  
Monitoring** There are four different errors related to temperature monitoring.  
Check that the range extender boxes are not too cold or too warm.  
Move the extender boxes, so that they are within ambient temperature limits.

---

**C746A7  
Cable Not  
Recognized** Cable is not recognized.  
Check your connections between the extender boxes.  
If the error persists, please contact your local Universal Robots service provider for assistance.

---

# 11. Risk Assessment

---

## Description

The risk assessment is a requirement that shall be performed for the application. The application risk assessment is the responsibility of the integrator. The user can also be the integrator.

The robot is partly completed machinery, as such the safety of the robot application depends on the tool/end effector, obstacles and other machines. The party performing the integration must use ISO 12100 and ISO 10218-2 to conduct the risk assessment.

Technical Specification ISO/TS 15066 can provide additional guidance for collaborative applications. The risk assessment shall consider all tasks throughout the lifetime of the robot application, including but not limited to:

- Teaching the robot during set-up and development of the robot application
- Troubleshooting and maintenance
- Normal operation of the robot application

A risk assessment must be conducted **before** the robot application is powered on for the first time. The risk assessment is an iterative process. After physically installing the robot, verify the connections, then complete the integration. A part of the risk assessment is to determine the safety configuration settings, as well as the need for additional emergency stops and/or other protective measures required for the specific robot application.

---

### Safety configuration settings

Identifying the correct safety configuration settings is a particularly important part of developing robot applications. Unauthorized access to the safety configuration must be prevented by enabling and setting password protection.



#### WARNING

Failure to set password protection can result in injury or death due to purposeful or inadvertent changes to configuration settings.

- Always set password protection.
- Set up a program for managing passwords, so that access is only by persons who understand the effect of changes.

Some safety functions are purposely designed for collaborative robot applications. These are configurable through the safety configuration settings. They are used to address risks identified in the application risk assessment.

The following limit the robot and as such can affect the energy transfer to a person by the robot arm, end effector and workpiece.

- **Force and power limiting:** Used to reduce clamping forces and pressures exerted by the robot in the direction of movement in case of collisions between the robot and the operator.
- **Momentum limiting:** Used to reduce high transient energy and impact forces in case of collisions between robot and operator by reducing the speed of the robot.
- **Speed limitation:** Used to ensure the speed is less than the configured limit.

The following orientation settings are used to avoid movements and reduce exposure of sharp edges and protrusions to a person.

- **Joint, elbow and tool/end effector position limiting:** Used to reduce risks associated with certain body parts: Avoid movement towards head and neck.
- **Tool/end effector orientation limiting:** Used to reduce risks associated with certain areas and features of the tool/end effector and work-piece: Avoid sharp edges being pointed towards the operator, by turning the sharp edges inward towards the robot.

### Stopping performance risks

Some safety functions are purposely designed for any robot application. These features are configurable through the safety configuration settings. They are used to address risks associated with the stopping performance of the robot application.

The following limit the robot stopping time and stopping distance to ensure stopping will occur before reaching the configured limits. Both settings automatically affect the speed of the robot to ensure the limit is not exceeded.

- **Stopping Time Limit:** Used to limit the stopping time of the robot.
- **Stopping Distance Limit:** Used to limit the stopping distance of the robot.

If either of the above is used, there is no need for manually performed periodic stopping performance testing. The robot safety control does continuous monitoring.

If the robot is installed in a robot application where hazards cannot be reasonably eliminated or risks cannot be sufficiently reduced by use of the built-in safety-related functions (e.g. when using a hazardous tool/end effector, or hazardous process), then safeguarding is required.



**WARNING**

Failure to conduct a application risk assessment can increase risks.

- Always conduct an application risk assessment for foreseeable risks and reasonably foreseeable misuse.

For collaborative applications, the risk assessment includes the foreseeable risks due to collisions and to reasonably foreseeable misuse.

The risk assessment shall address:

- Severity of harm
- Likelihood of occurrence
- Possibility to avoid the hazardous situation

**Potential hazards**

Universal Robots identifies the potential significant hazards listed below for consideration by the integrator. Other significant hazards can be associated with a specific robot application.

- Penetration of skin by sharp edges and sharp points on tool/end effector or tool/end effector connector.
- Penetration of skin by sharp edges and sharp points on nearby obstacles.
- Bruising due to contact.
- Sprain or bone fracture due to impact.
- Consequences due to loose bolts that hold the robot arm or tool/end effector.
- Items falling out of, or flying from the tool/end effector, e.g. due to a poor grip or power interruption.
- Mistaken understanding of what is controlled by multiple emergency stop buttons.
- Incorrect setting of the safety configuration parameters.
- Incorrect settings due to unauthorized changes to the safety configuration parameters.

# 12. Maintenance and Repair

---

**Description**

Any maintenance work, inspection and calibration shall be conducted in compliance with all safety instructions in this manual, the UR Service Manual, and according to local requirements.

Repair work shall be done by Universal Robots. Client designated, trained individuals can do repair work, provided they follow the Service Manual.

**Safety for Maintenance**

The purpose of maintenance and repair is to ensure the system is kept functioning as expected.

When working on the robot arm or control box, you must observe the procedures and warnings below.

**WARNING**

Failure to adhere to any of the safety practices, listed below, can result in injury.

- Unplug the main power cable from the bottom of the Control Box to ensure that it is completely unpowered. Power off any other source of energy connected to the robot arm or Control Box. Take necessary precautions to prevent other persons from powering on the system during the repair period.
- Check the earth connection before re-powering the system.
- Observe ESD regulations when parts of the robot arm or Control Box are disassembled.
- Prevent water and dust from entering the robot arm or Control Box.

**WARNING: ELECTRICITY**

Failure to leave space to accommodate the Control Box with the door fully open can lead to injury due to electrical hazards.

- Provide at least 915 mm of space to enable the Control Box door to open fully, providing access for servicing.

**WARNING: ELECTRICITY**

Disassembling the Control Box power supply too quickly after switching off, can result in injury due to electrical hazards.

- Avoid disassembling the power supply inside the Control Box, as high voltages (up to 600 V) can be present inside these power supplies for several hours after the Control Box has been switched off.

After troubleshooting, maintenance, and repair work, ensure that safety requirements are fulfilled. Adhere to national or regional work safety regulations. The correct functioning of all safety function settings shall also be tested and validated.

# 13. Disposal and Environment

---

## Description

Universal Robots robots must be disposed of in accordance with the applicable national laws, regulations and standards. this responsibility rests with the owner of the robot.

UR robots are produced in compliance with restricted use of hazardous substances to protect the environment; as defined by the European RoHS directive 2011/65/EU. If robots (robot arm, Control Box, Teach Pendant) are returned to Universal Robots Denmark, then the disposal is arranged by Universal Robots A/S.

The disposal fee for UR robots sold on the Danish market is prepaid to DPA-system by Universal Robots A/S. Importers in countries covered by the European WEEE Directive 2012/19/EU must make their own registration to the national WEEE register of their country. The fee is typically less than 1€/robot.

You can find a list of national registers here: <https://www.ewrn.org/national-registers>.  
Search for Global Compliance here: <https://www.universal-robots.com/download>.

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# 14. Declarations and Certificates (original EN)

| EU Declaration of Incorporation (DOI) (in accordance with 2006/42/EC Annex II B) original: EN   |  |
|---|--|
| Manufacturer:   | Universal Robots A/S<br>Energivej 51,<br>DK-5260 Odense S Denmark  |
| Person in the Community Authorized to Compile the Technical File:   | David Brandt, Technology Officer, R&D<br>Universal Robots A/S,<br>Energivej 51, DK-5260 Odense S   |
| Description and Identification of the Partly-Completed Machine(s):  |  |
| Product and Function:   | Industrial robot multi-purpose, multi-axis manipulator with an OEM control box & with or without teach pendant (with or without 3PE). Function is determined by the completed machine (robot application or cell with end-effector, intended use and application program).<br>Below cited documents and this declaration include:<br>Effective October 2020: Teach Pendants with 3-Position Enabling (3PE TP) & standard Teach Pendants.<br>Effective May 2021: UR10e specification improvement to 12.5kg maximum payload. |
| Model and Serial Number   | e-Series robots with either AC or DC OEM controllers:<br>UR3e OEM AC, UR5e OEM AC, UR7e OEM AC, UR10e OEM AC, UR12e OEM AC, UR16e OEM AC<br>UR3e OEM DC, UR5e OEM DC, UR7e OEM DC, UR10e OEM DC, UR12e OEM DC, UR16e OEM DC<br>Starting XY2021500000 and higher<br>Factory Variantyear e-Series 3=UR3e, 5=UR5e, 7=UR7e, 0=UR10e, 1=UR12e, 2=UR10e (12kg payload), 6 = UR16e Sequential numbering, restarting at 0 each year  |
| Incorporation:  | Universal Robots e-Series OEM robots (UR3e, UR5e, UR10e and UR16e) shall only be put into service upon being integrated into a final complete machine (robot application or robot cell), which conforms with the provisions of the Machinery Directive and other applicable Directives.  |
| It is declared that the above products fulfil, for what is supplied, the following directives as detailed below: When this partly completed machine is integrated and becomes a complete machine, the integrator is responsible for the completed machine fulfilling all applicable Directives, applying the CE mark and providing the Declaration of Conformity (DOC). |  |
| I. Machinery Directive<br>II. Low-voltage Directive<br>2014/35/EU   | The following essential requirements have been fulfilled: 1.1.2, 1.1.3, 1.1.5, 1.2.4.3, 1.2.5, 1.2.6, 1.3.2, 1.3.4, 1.3.8.1, 1.3.9, 1.5.1, 1.5.5, 1.5.10, 1.7.2, 1.7.4, 4.1.2.3, 4.1.3, Annex VI. It is declared that the relevant technical documentation has been compiled in accordance with Part B of Annex VII of the Machinery Directive.<br>Reference the LVD and the harmonized standards used below.  |
| Reference to the harmonized standards used, as referred to in Article 7(2) of the MD & LV Directives and Article 6 of the EMC Directive:  |  |
| (I) EN ISO 13732-1:2008 as applicable, (I)(II) EN 60204-1:2018 as applicable, (II) EN 60664-1:2007, (II) EN 61140:2002/A1:2006  |  |
| Reference to other technical standards and technical specifications used:   |  |
| (I) ISO 9409-1:2004, (II) EN 60320-1:2021, IEC 61784-3:2010 [SIL2]  |  |
| The manufacturer, or his authorised representative, shall transmit relevant information about the partly completed machinery in response to a reasoned request by the national authorities. Approval of full quality assurance system by the notified body Bureau Veritas: ISO 9001 certificate #DK015892 and ISO 45001 certificate #DK015891.                          |  |

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# 15. Declarations and Certificates

| EU Declaration of Incorporation (DOI) (in accordance with 2006/42/EC Annex II B) original: EN   |  |
|---|--|
| Manufacturer:   | Universal Robots A/S<br>Energivej 51,<br>DK-5260 Odense S Denmark  |
| Person in the Community Authorized to Compile the Technical File:   | David Brandt, Technology Officer, R&D<br>Universal Robots A/S,<br>Energivej 51, DK-5260 Odense S   |
| <b>Description and Identification of the Partly-Completed Machine(s):</b>   |  |
| Product and Function:   | Industrial robot multi-purpose, multi-axis manipulator with an OEM control box & with or without teach pendant (with or without 3PE). Function is determined by the completed machine (robot application or cell with end-effector, intended use and application program).<br>Below cited documents and this declaration include:<br>Effective October 2020: Teach Pendants with 3-Position Enabling (3PE TP) & standard Teach Pendants.<br>Effective May 2021: UR10e specification improvement to 12.5kg maximum payload. |
| Model and Serial Number   | e-Series robots with either AC or DC OEM controllers:<br>UR3e OEM AC, UR5e OEM AC, UR7e OEM AC, UR10e OEM AC, UR12e OEM AC, UR16e OEM AC<br>UR3e OEM DC, UR5e OEM DC, UR7e OEM DC, UR10e OEM DC, UR12e OEM DC, UR16e OEM DC<br>Starting XY20215000000 and higher<br>Factory Variantyear e-Series 3=UR3e, 5=UR5e, 7=UR7e, 0=UR10e, 1=UR12e, 2=UR10e (12kg payload), 6 = UR16e Sequential numbering, restarting at 0 each year   |
| Incorporation:  | Universal Robots e-Series OEM robots (UR3e, UR5e, UR10e and UR16e) shall only be put into service upon being integrated into a final complete machine (robot application or robot cell), which conforms with the provisions of the Machinery Directive and other applicable Directives.  |
| It is declared that the above products fulfil, for what is supplied, the following directives as detailed below: When this partly completed machine is integrated and becomes a complete machine, the integrator is responsible for the completed machine fulfilling all applicable Directives, applying the CE mark and providing the Declaration of Conformity (DOC). |  |
| I. Machinery Directive<br>II. Low-voltage Directive<br>2014/35/EU   | The following essential requirements have been fulfilled: 1.1.2, 1.1.3, 1.1.5, 1.2.4.3, 1.2.5, 1.2.6, 1.3.2, 1.3.4, 1.3.8.1, 1.3.9, 1.5.1, 1.5.5, 1.5.10, 1.7.2, 1.7.4, 4.1.2.3, 4.1.3, Annex VI. It is declared that the relevant technical documentation has been compiled in accordance with Part B of Annex VII of the Machinery Directive.<br>Reference the LVD and the harmonized standards used below.  |
| Reference to the harmonized standards used, as referred to in Article 7(2) of the MD & LV Directives and Article 6 of the EMC Directive:  |  |
| (I) EN ISO 13732-1:2008 as applicable, (I)(II) EN 60204-1:2018 as applicable, (II) EN 60664-1:2007, (II) EN 61140:2002/A1:2006  |  |
| Reference to other technical standards and technical specifications used:   |  |
| (I) ISO 9409-1:2004, (II) EN 60320-1:2021, IEC 61784-3:2010 [SIL2]  |  |
| The manufacturer, or his authorised representative, shall transmit relevant information about the partly completed machinery in response to a reasoned request by the national authorities. Approval of full quality assurance system by the notified body Bureau Veritas: ISO 9001 certificate #DK015892 and ISO 45001 certificate #DK015891.                          |  |

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# 16. Certifications

### Description


Third party certification is voluntary. However, to provide the best service to robot integrators, Universal Robots chooses to certify its robots at the recognized test institutes listed below.

You can find copies of all certificates in the chapter: Certificates.


### Certification

|   |               |   |
|---|---------------|---|
|  | CHINA<br>RoHS | Universal Robots e-Series robots conform to CHINA RoHS management methods for controlling pollution by electronic information products. |
|---|---------------|---|

### Supplier Third Party Certification

|   |             |   |
|---|-------------|---|
|  | Environment | As provided by our suppliers, Universal Robots e-Series robots shipping pallets comply with the ISMPM-15 Danish requirements for producing wood packaging material and are marked in accordance with this scheme. |
|---|-------------|---|

### Manufacturer Test Certification

|   |                     |  |
|---|---------------------|--|
|  | Universal<br>Robots | Universal Robots e-Series robots undergo continuous internal testing and end of line test procedures.<br>UR testing processes undergo continuous review and improvement. |
|---|---------------------|--|

### Declarations according to EU directives

Although EU directives are relevant for Europe, some countries outside Europe recognize and/or require EU declarations. European directives are available on the official homepage: <http://eur-lex.europa.eu>.

According to the Machinery Directive, Universal Robots' robots are partly completed machines, as such a CE mark is not to be affixed.

You can find the Declaration of Incorporation (DOI) according to the Machinery Directive in the chapter: Declarations and Certificates.

# 17. Certificates

China  
RoHS

**Management Methods for Controlling Pollution  
by Electronic Information Products  
Product Declaration Table For Toxic or Hazardous Substances  
表1 有毒有害物质或元素名称及含量标识格式**



| Product/Part Name<br>产品/部件名称   | Toxic and Hazardous Substances and Elements<br>有毒有害物质或元素 |                   |                   |                                  |  |  |
|--|--|-------------------|-------------------|----------------------------------|--|--|
|  | 铅<br>Lead (Pb)   | 汞<br>Mercury (Hg) | 镉<br>Cadmium (Cd) | 六价<br>Hexavalent Chromium (Cr+6) | 多溴联苯<br>Polybrominated biphenyls (PBB) | 多溴二苯醚<br>Polybrominated diphenyl ethers (PBDE) |
| UR Robots<br>机器人：基本系统<br>UR3 / UR5 / UR10 /<br>UR3e / UR5e /<br>UR10e UR16e /<br>UR20 / UR30 | X  | O                 | X                 | O                                | X                                      | X  |

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.  
O: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006规定的限量要求以下。  
X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.  
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006规定的限量要求。  
(企业可在此处·根据实际情况对上表中打“X”的技术原因进行进一步说明。)

Items below are wear-out items and therefore can have useful lives less than environmental use period:  
下列项目是损耗品,因而它们的有用环境寿命可能短于基本系统和可选项目的使用时间:  
Drives, Gaskets, Probes, Filters, Pins, Cables, Stiffener, Interfaces  
电子驱动器, 垫圈, 探针, 过滤器, 别针, 缆绳, 加强筋, 接口  
Refer to product manual for detailed conditions of use.  
详细使用情况请阅读产品手册。

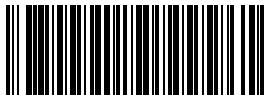
Universal Robots encourages that all Electronic Information Products be recycled but does not assume responsibility or liability.  
Universal Robots 鼓励回收再利用所有的电子信息产品,但 Universal Robots 不负任何责任或义务

To the maximum extent permitted by law, Customer shall be solely responsible for complying with, and shall otherwise assume all liabilities that may be imposed in connection with, any legal requirements adopted by any governmental authority related to the Management Methods for Controlling Pollution by Electronic Information Products (Ministry of Information Industry Order #39) of the Peoples Republic of China otherwise encouraging the recycle and use of electronic information products. Customer shall defend, indemnify and hold Universal Robots harmless from any damage, claim or liability relating thereto. At the time Customer desires to dispose of the Products, Customer shall refer to and comply with the specific waste management instructions and options set forth at [www.universal-robots.com/about-universal-robots/social-responsibility](http://www.universal-robots.com/about-universal-robots/social-responsibility) and [www.teradyne.com/company/corporate-social-responsibility](http://www.teradyne.com/company/corporate-social-responsibility), as the same may be amended by Teradyne or Universal Robots.

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Software Name: PolyScope 5  
Software Version: 3.14  
Document Version: 10.12.12



740-949-00



# 18. Glossary

## A

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### Automatic Screwdriver/Nut Runner

A tool mounted to the robot's tool output flange used for tightening screws or nuts automatically.

## C

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### Coordinated Motion

Coordinated Motion is part of the MotionPlus software add-on package that synchronizes time, position, and speed between the robot's six motorized axes and one or more external axes. This synchronization allows for the motion of the TCP relative to a moving frame attached to an external axis, streamlining complex tasks across various applications.

### CSI

Custom Systems Integrator

## E

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### e-Series

## M

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### MyTerm

## T

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### TCP

The robot's tool center point



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