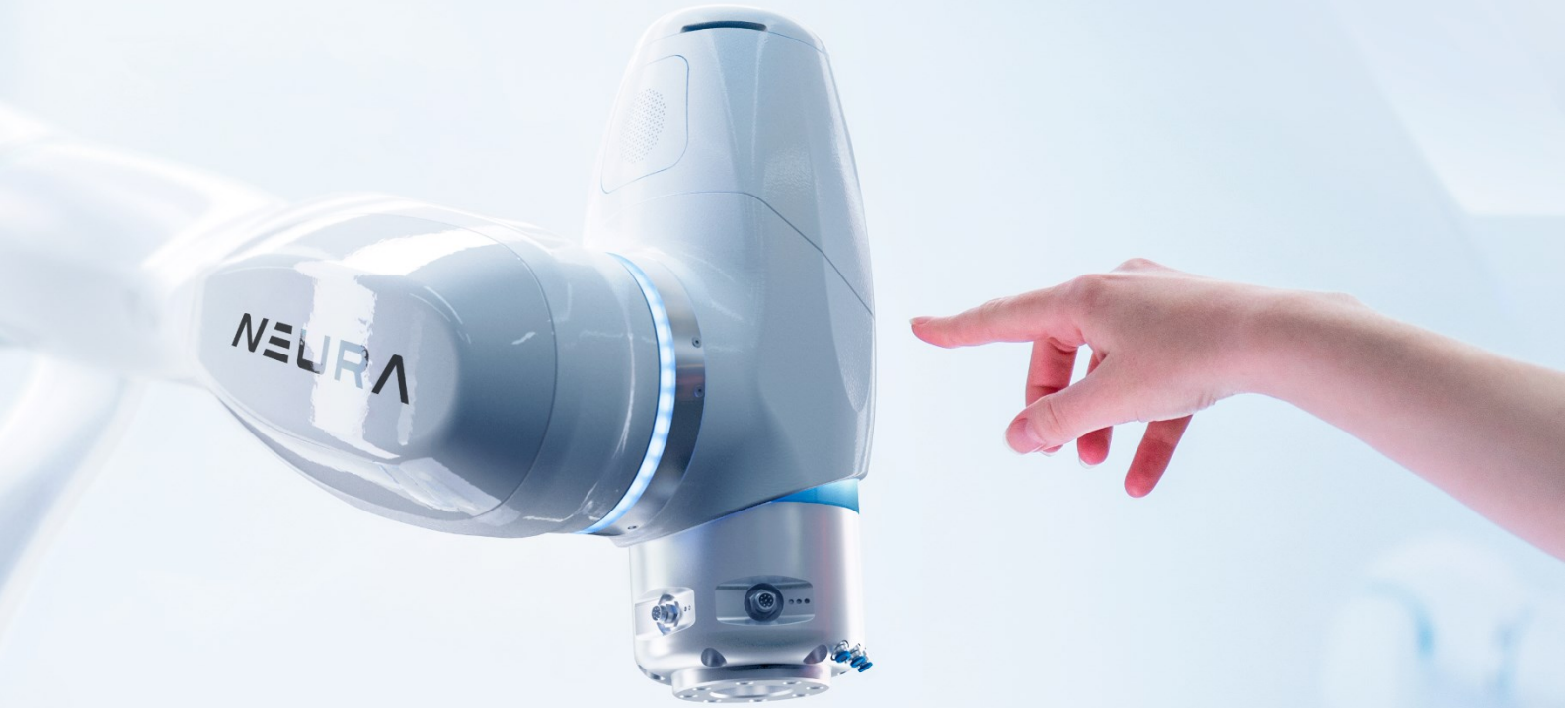
NEURA ROBOTICS

# MAiRA®

**Multi-Sensing Intelligent Robotic Assistant**




# Quick Start Guide

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Language: English

**Table of Contents**

# 1 ABOUT THIS DOCUMENT

## 1.1 How to use the Quick Start Guide

This guide contains information that is necessary to use the robot. Read this manual and make sure that you understand the safety, assembly, maintenance and operation of the MAiRA robot series before attempting to use it.

Read and understand the instructions. The user manual provides instructions for MAiRA operators for Mechanical Installation. The operator must follow the instructions when installing the robot.

## 1.2 Related Documents

The MAiRA robot system can be used both as stand-alone and as part of machine.

Also follow the related manuals and the instructions for the other system components. This includes:

- User Manual
- GUI & Software Manual

## 1.3 Robot Models

This manual provides information for the following MAiRA models:

- MAiRA Basic
- MAiRA Pro

In case information varies between different robot models, details are provided. If information is common to all robot models, an illustration of a single robot model is typically shown.

## 1.4 Technical Support

NEURA Robotics GmbH will provide you with long-term technical services. If you have any technical difficulties or other questions during use, visit our company website: **www.neura-robotics.com**, or directly contact us.

## 1.5 Contact Information

Company address: NEURA Robotics GmbH, Gutenbergstraße 44, 72555 Metzingen, Germany

Phone: +49 (0) 7123 87970 0 | e-mail: info@neura-robotics.com | www.neura.robotics.com

### 1.6 General Instructions

- Do not use the robot if it is damaged. Contact the technical support personnel of NEURA Robotics GmbH or authorized partners immediately.
- Observe the regulations for accident prevention and environmental protection for the country and the workplace where the device is used.
- NEURA Robotics GmbH shall not be liable for any damage or personal injury caused to the robot due to errors in this script or improper operation of the robot.
- Take care of potential hazards leading to injuries and equipment damage when working with the robot system. Potential hazards are, for example:
    - Fingers are caught between the robot foot and the base.
    - Sharp edges and sharp points on the tool or on obstacles near the robot trajectory puncture the skin.
    - Injuries caused by a robot collision.
    - Consequences due to insecure bolts to fix the robot arm or tool.

# 2 INSTALLATION

**IMPORTANT NOTE**

**Liability**

NEURA Robotics GmbH is not liable for failure, indirect and accidental consequential damages, loss of profit, production or commercial loss in any way connected with the MAiRA safety standards.

**Required tools**

- Knife/Scissor
- Allen key (size 8 and 12)
- Screwdriver (Torx 20)
- Torque wrench (setting range from 30 Nm to 100 Nm)

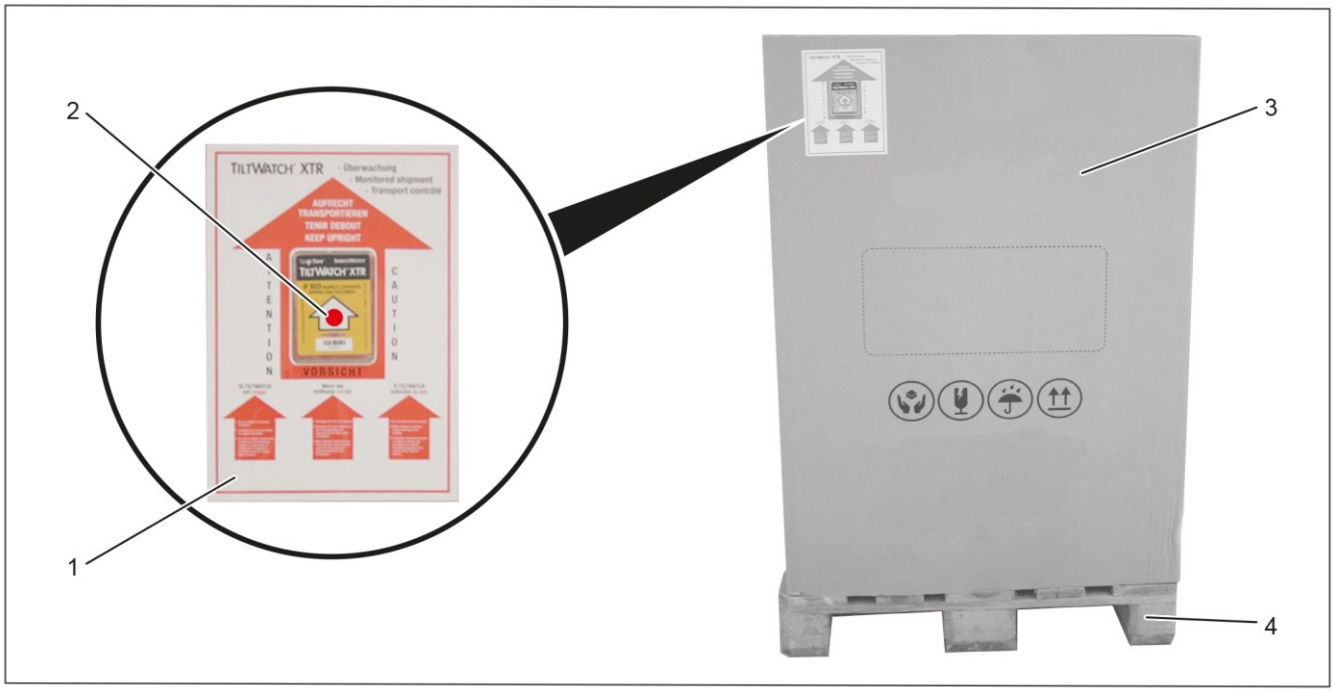
## 2.1 Unpacking

**WARNING**

**The robot system is heavy in packed and unpacked state.**

**Improper handling may lead to injuries or damage to the robot or other equipment.**

- Do not lift the robot unassisted, packed or unpacked.
- Only carry the robot with two people.
- Holding the robot firmly at the base and stabilizing it at the elbow.
- Obey all safety precautions while lifting the robot.
- Use proper lifting equipment and ensure that the lifting equipment can withstand the weight of the robot.
- Wear appropriate personal protective equipment (PPE) when handling or unpacking the robot.



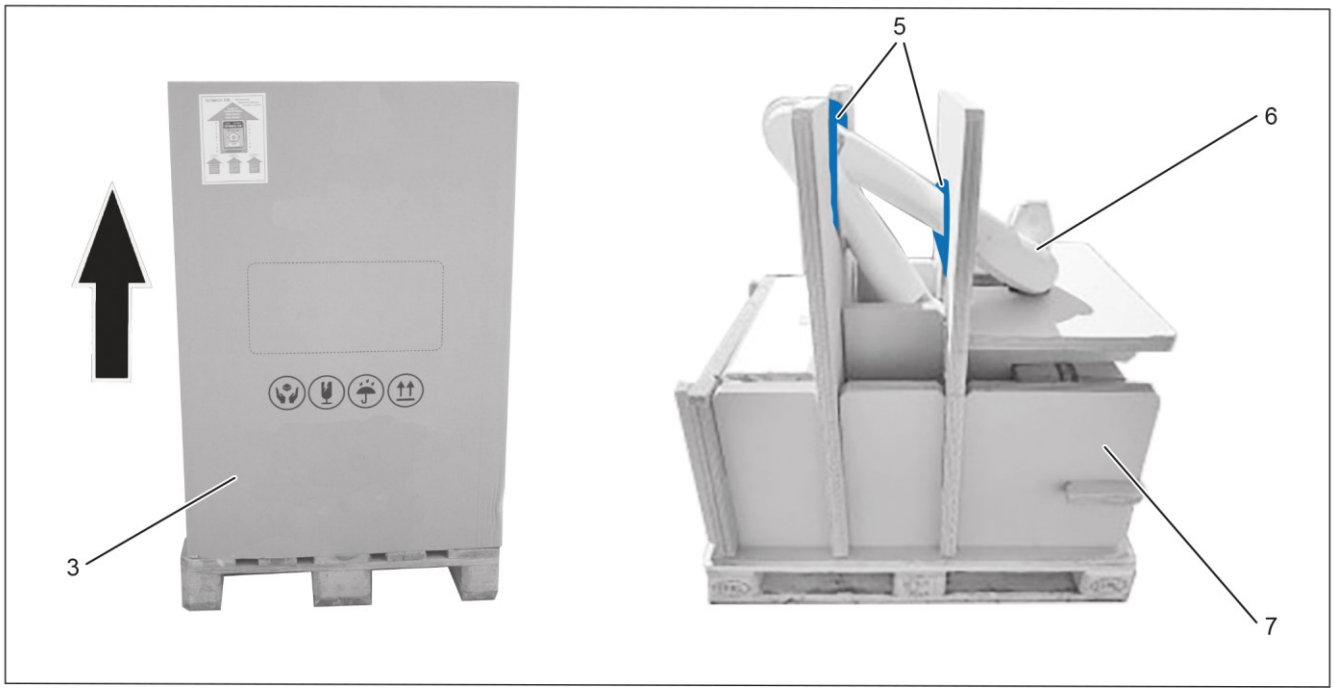

(1) Tilt Watch information
(2) Tilt Watch indicator
(3) Carton lid
(4) Pallet

If the Tilt Watch indicator is red:

- Do not refuse delivery/receipt.
- Make notation on delivery receipt and inspect for damage.

If damage is discovered, leave in origin container and packaging and request immediate inspection from the carrier within 3 days of delivery.

For unpacking the robot, two people are required.

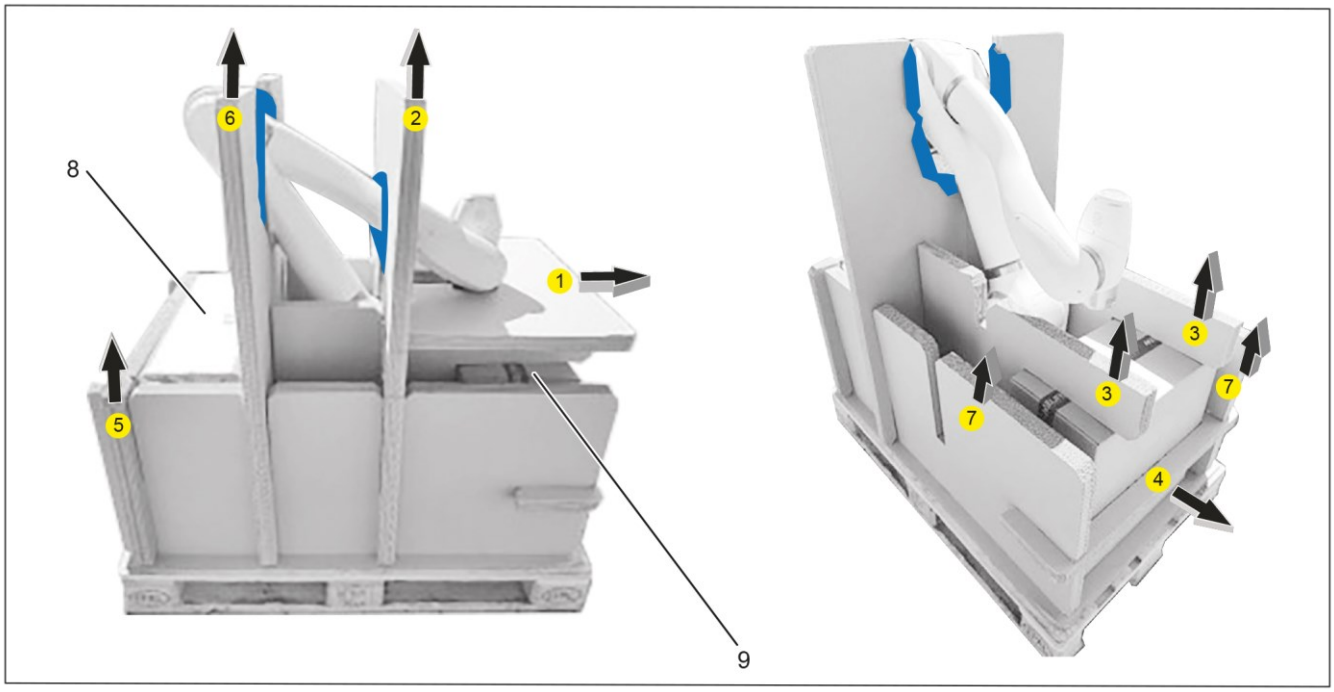



(3) Carton lid
(5) Protective material
(6) Robot
(7) Packaging element

► Place the pallet on a clean and stable surface on ground level.

► Remove the carton lid upwards. Store it for later use.

➔ The packaging elements can be removed in the next step.




(8) Control box

(9) Package with Teach Pendant and accessories like cables and screw set

► Remove the packaging elements in the order in which they are numbered. (1,2,3...)

► Store the elements and protective material for later use.

► Remove the Control Box and package with Teach Pendant and accessories like cables and screw set.

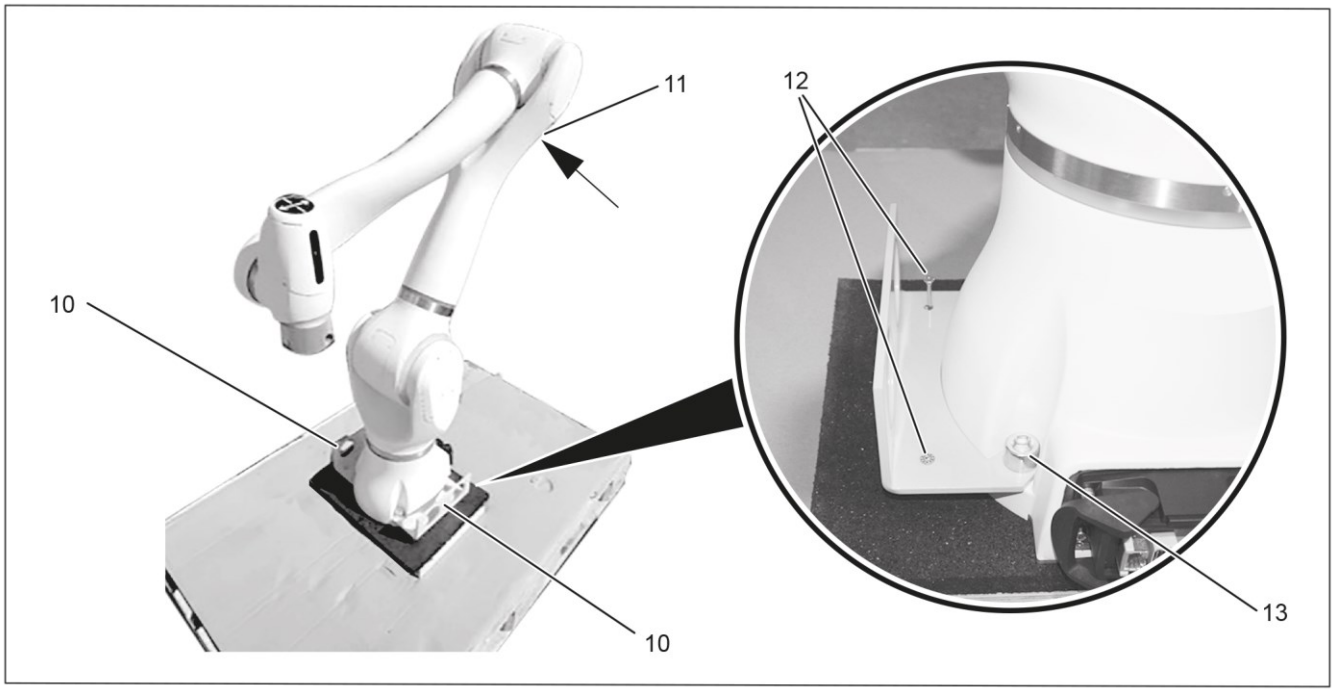
➔ The packaging elements are removed and the robot can be dismounted.

**Warning**

**The robot system is heavy in packed and unpacked state.**

**Improper handling may lead to injuries or damage to the robot or other equipment.**

- Do not lift the robot unassisted, packed or unpacked.
- Only carry the robot with two people.
- Holding the robot firmly at the base and stabilizing it at the elbow.
- Obey all safety precautions while lifting the robot.
- Use proper lifting equipment and ensure that the lifting equipment can withstand the weight of the robot.
- Wear appropriate personal protective equipment (PPE) when handling or unpacking the robot.




(10) Yellow lifting aids
(11) Elbow
(12) Screws (Torx size 20)
(13) Allen screw

To lift the robot from the pallet to its designated spot, two people are required.

- ► Mount carrying straps at the holes of the yellow lifting aids.
- ► Unscrew the yellow lifting aids from the pallet using the screws (12) at each lifting aid. Ensure that the robot is supported by another person at position (11), so the robot does not tip over.
- ► Lift the robot holding the carrying straps with one hand and supporting it at the point (11) with the other hand.
- ► Carry robot to its designated spot.
- ► Unscrew all Allen screws (13) at the yellow lifting aids. Use Allen key size 12.
- ► Take off the yellow lifting aids. A second person must hold the robot at point (11), so it does not tip over.

## 2.2 Mechanical Installation

**ATTENTION**

**Improper sequencing or torquing of the screws may result in damage.**

- Ensure that the screws are correctly tightened in a crosswise pattern with equal torque steps (50% and 100%).

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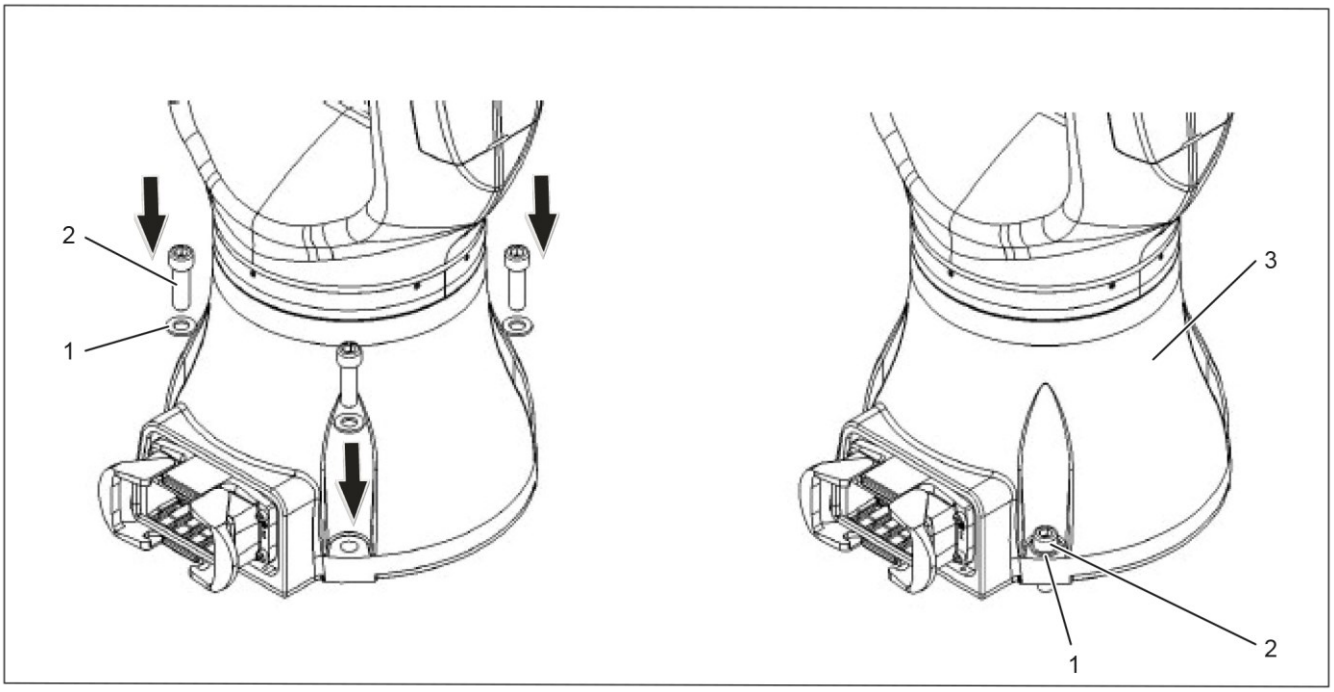
**Robot Arm**

No insulating layer material is allowed between the robot fixing plate and the robot. The installation platform should be at least 20 mm thick. It is recommended that the steel plate should be used to suppress the vibration. It is recommended that the surface roughness of the installation platform should not exceed Rz 25 µm.

Once the robot is at its mounting spot, keep supporting it so it does not fall over. Remove the yellow handling aids and use 4x washers and 4x M10 screws to fasten MAiRA onto the mounting plate. Tighten the screws crosswise in two steps of 30 Nm and 63.2 Nm.

Once the robot is securely fastened, the supporting person can stop supporting the robot.




(1) Washer
(2) Allen Screw (M10)
(3) Robot

► Insert the four washers and the Allen Screws at the robot.

► Tighten the Allen Screws with an Allen Key by hand.

► Tighten the Allen Screws crosswise with 30 Nm (first step). Use a Torque wrench.

► Tighten the Allen Screws crosswise with 63.2 Nm (second step). Use a Torque wrench.

➔ The robot is mounted at its mounting spot.

**Control Box**

Place the Control Box next to the robot arm. Be aware of the environmental conditions written in the User Manual. Make sure to place it on a flat and clean surface and the door and air vents are not covered.

## 2.3 Electrical Installation

**DANGER**

**Installation and handling.**

**Improper installation and handling of the device can lead to serious injuries and death.**

- Do not disassemble the electrical control box, otherwise it may cause electric shock.
- Ensure that the robot is properly grounded.
- Hot plugging of cabels and connectors is not allowed.
- Ensure that all connections are properly established before turning ON the power.
- Work inside the control box may only be carried out by qualified and authorised personnel.

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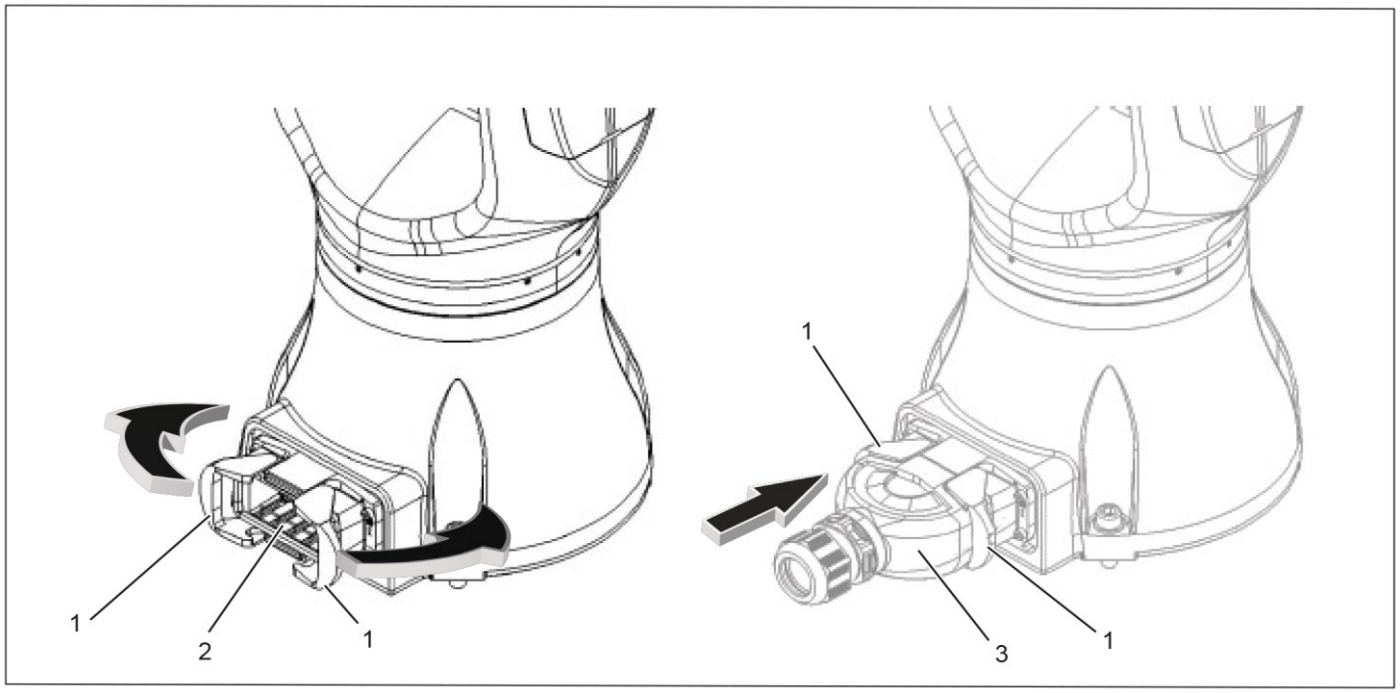
**Connection cable**



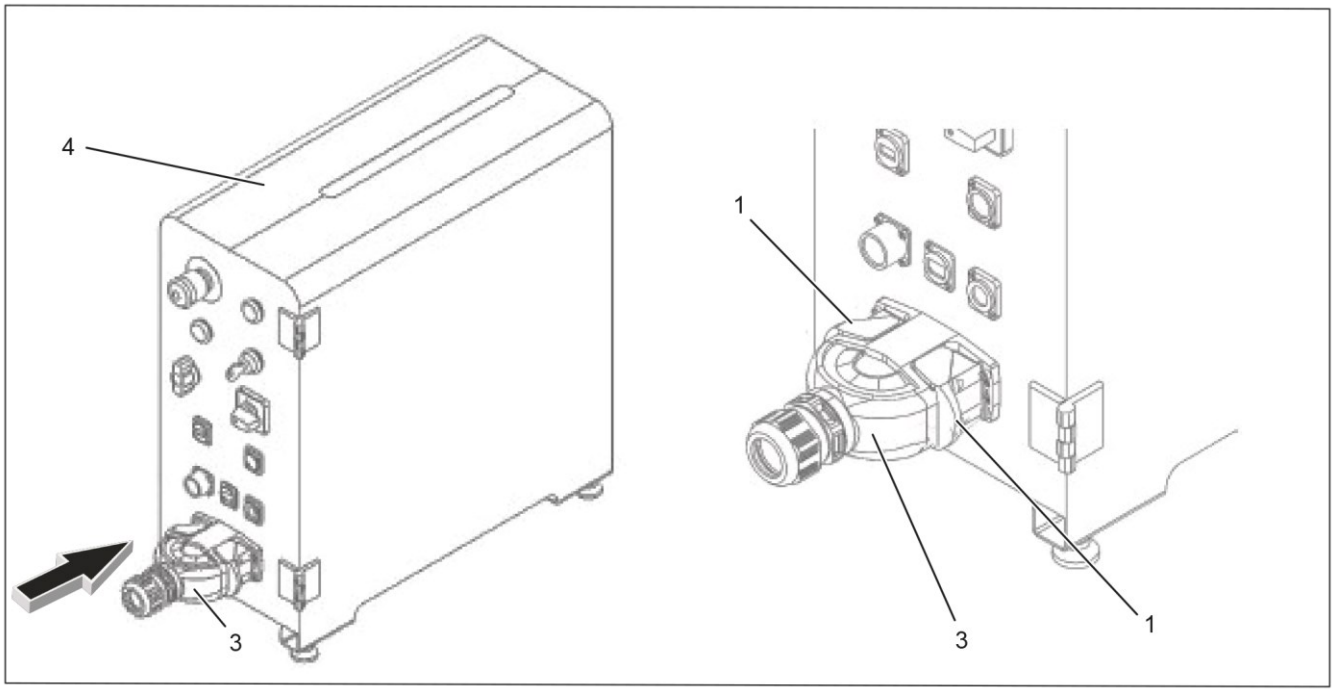

(1) Fixing flaps
(2) Socket
(3) Connection cable

► Open the socket on the robot base by pulling back the fixing flaps.

► Plug in the connection cable into the socket.

► Close the fixing flaps.

► Make sure the individual connectors of socket and plug align.




(1) Fixing flaps
(3) Connection cable
(4) Control Box

► Open the socket on the control box by pulling back the fixing flaps.

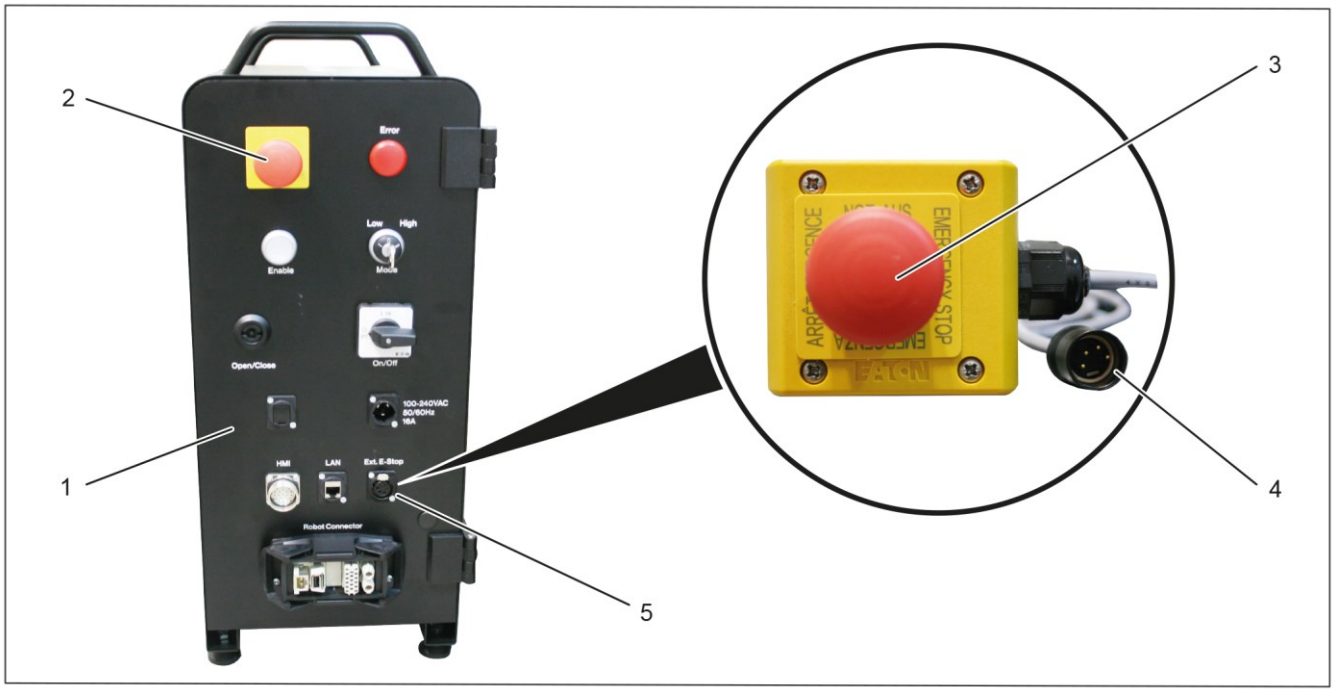
► Plug in the connection cable into the socket.

► Close the fixing flaps.

➔ The robot and the Control Box are connected.

### External Emergency Stop connection

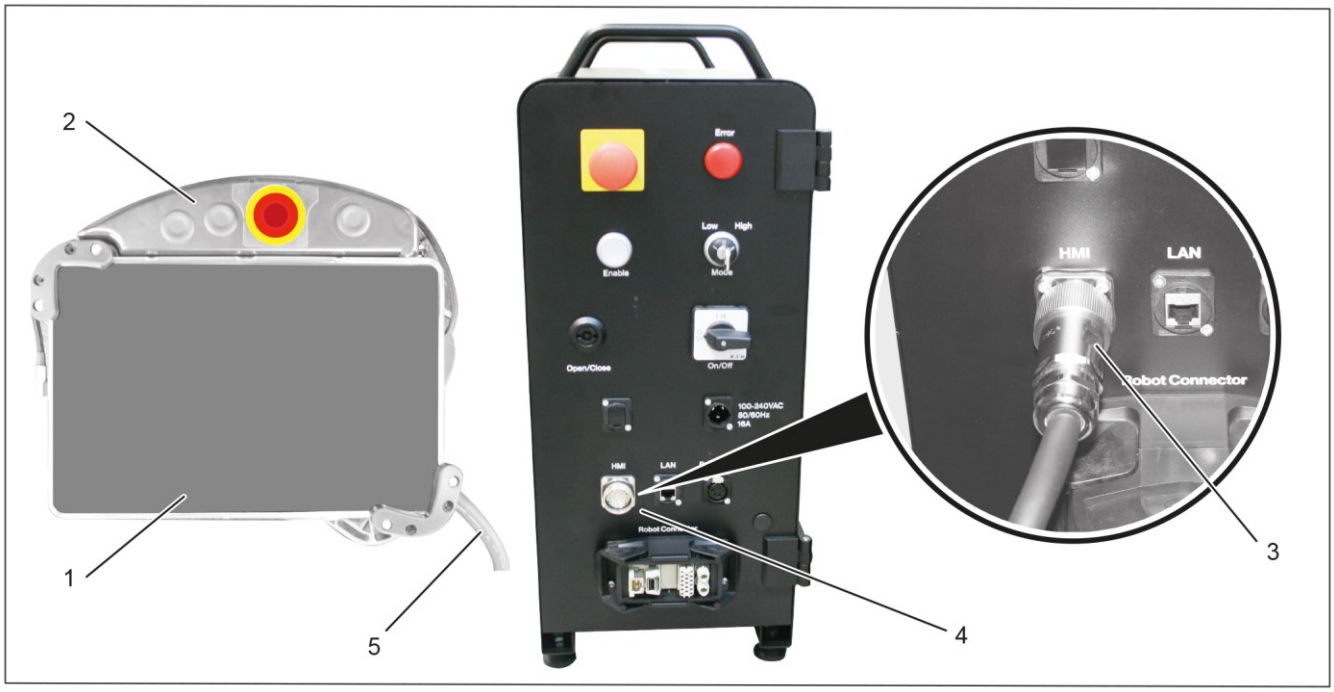
The robot will only run if the external emergency button is connected.




(1) Control Box
(2) Emergency Stop Button
(3) External Emergency Stop Button
(4) Connector
(5) Socket

- ► Check alignment of connector and socket.
- ► Plug in connector (4) into socket (5).
- ► Ensure the connector (4) is locked.
- ► The External Emergency Stop is connected.

## Teach Pendant Connection




(1) Tablet
(2) Teach Pendant
(3) Connector
(4) Socket with sealing
(5) Cable to Control Box

► Take the end of the teach pendant cable (5) with silver connector (3).

► Make sure the connector (3) aligns with the socket (4) on the Control Box.

► Plug in connector (3) into socket (4) at Control Box.

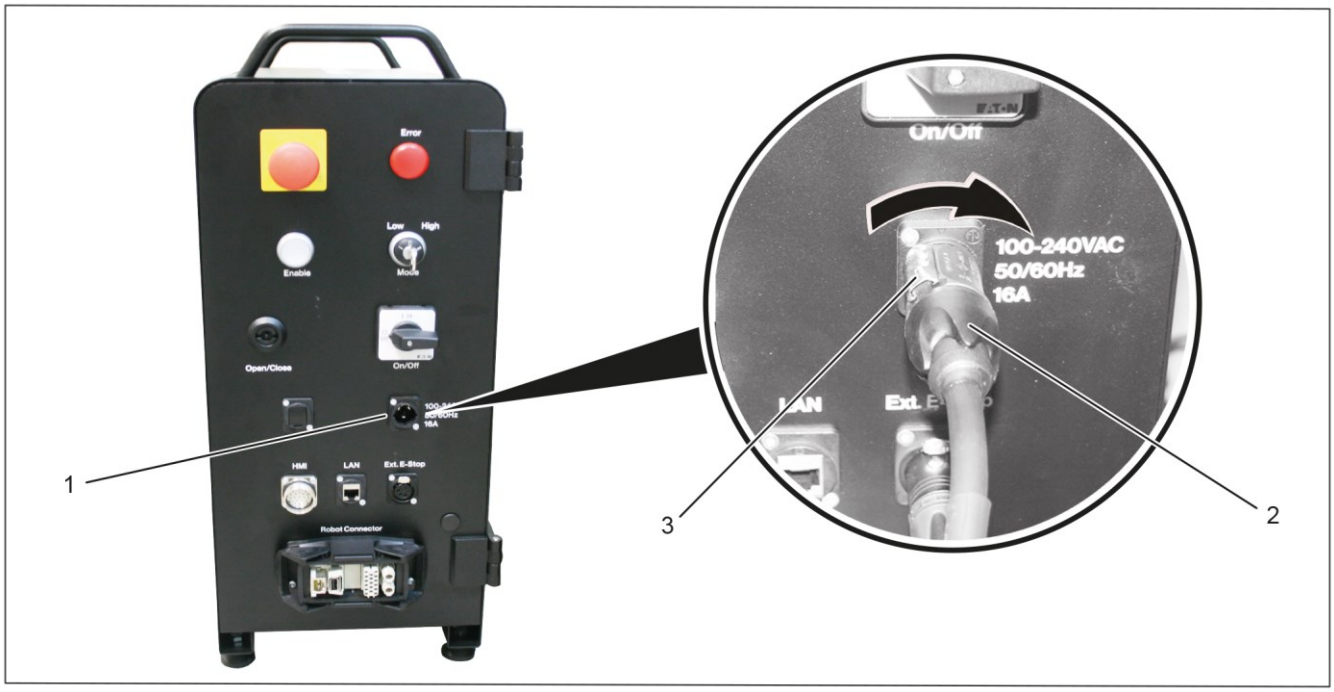
► Screw the silver ring on.

► While tightening the screw, wiggle the cable carefully to ensure that the cable is securely fastened.

► Ensure that the sealing at socket (4) is not visible.

➔ The Teach Pendant and the Control Box are connected.

## Power Supply Cable




(1) Socket
(2) Connector, Power Supply Cable
(3) Locking

► Pay attention to the orientation of the nose on the connector. It must be at the top.

► Plug in connector (2) into socket (1) at Control Box.

► Turn connector clockwise until the connector locks into place.

► Ensure that the connector is secured by the locking (3).

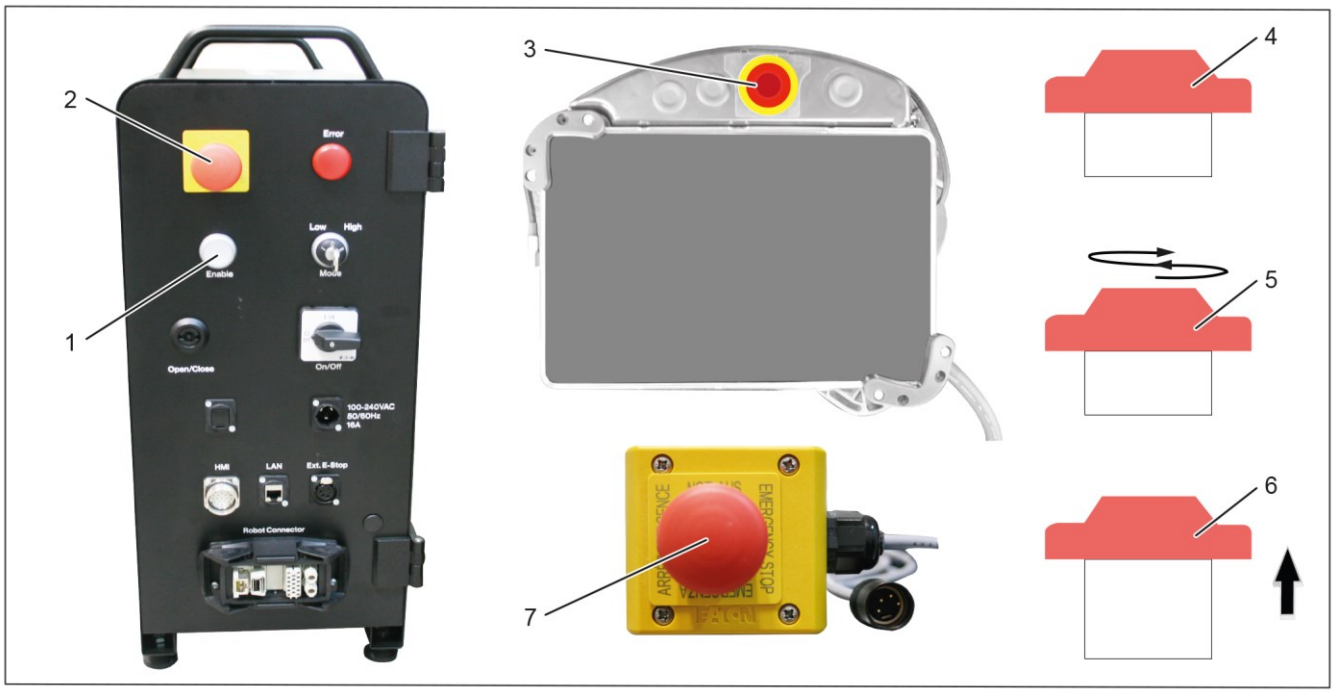
➔ The power supply cable is connected to the Control Box.

### Emergency Stop functionality

**IMPORTANT NOTE**

Pressing either Emergency Stop (external emergency stop, Control Box or Teach Pendant) will result in an immediate stop of the robot.

To resume the operation after an Emergency Stop, the Emergency Stop Button must be unlocked.




(1) Reset button
(2) Stop Button Control Box
(3) Stop Button Teach Pendant
(4) Stop Button, pressed & locked
(5) Stop Button, release
(6) Stop Button, unlocked
(7) Stop Button, external device

► Twist or pull the pressed & locked Emergency Stop button.

➔ The Emergency Stop button is unlocked.

► Press the reset button (1) on the Control Box.

➔ The reset button lights up white.

# 3 SETTING UP/START UP

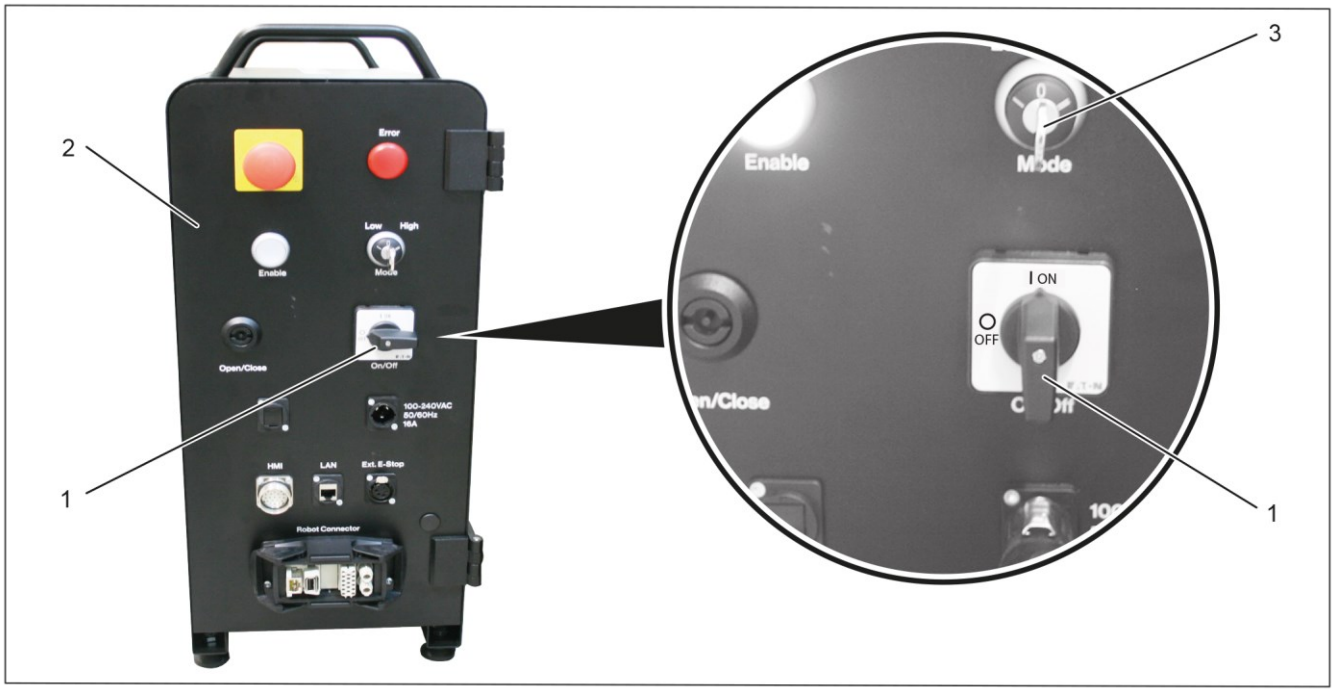
**Power on Robot System**

**WARNING**

**Unexpected movements of the robot can lead to injuries or material damage.**

- Make sure that the robot is powered off and the Main Power Switch at control box is turned off.
- Check and finish all mechanical/electrical installations before starting the system.
- Ensure the working area is marked and secure/barricaded.
- Always keep the Emergency Stop ready at hand.

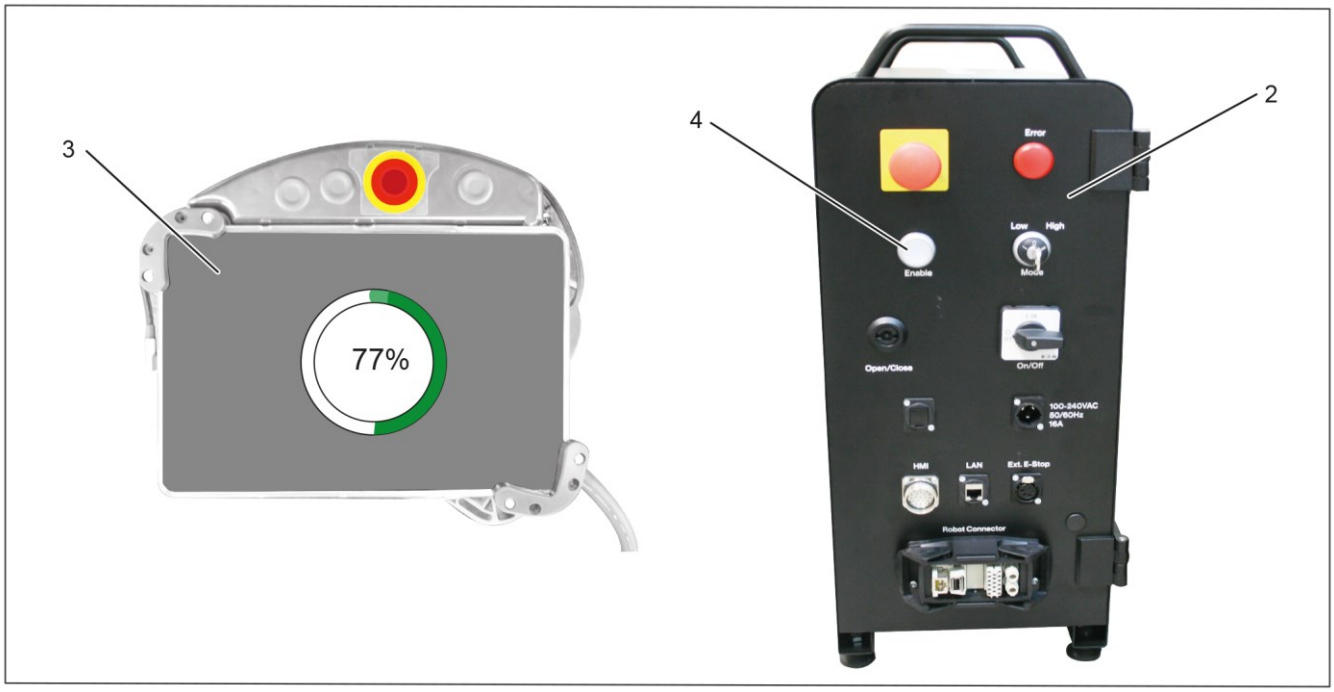
► Plug in the power cable from Control Box into 110/230 VAC connection.




(1) Main power switch (2) Control Box

► Turn the main power switch clockwise to “ON”.

► Turn the key switch (3) to “Low”. Also see User Manual.



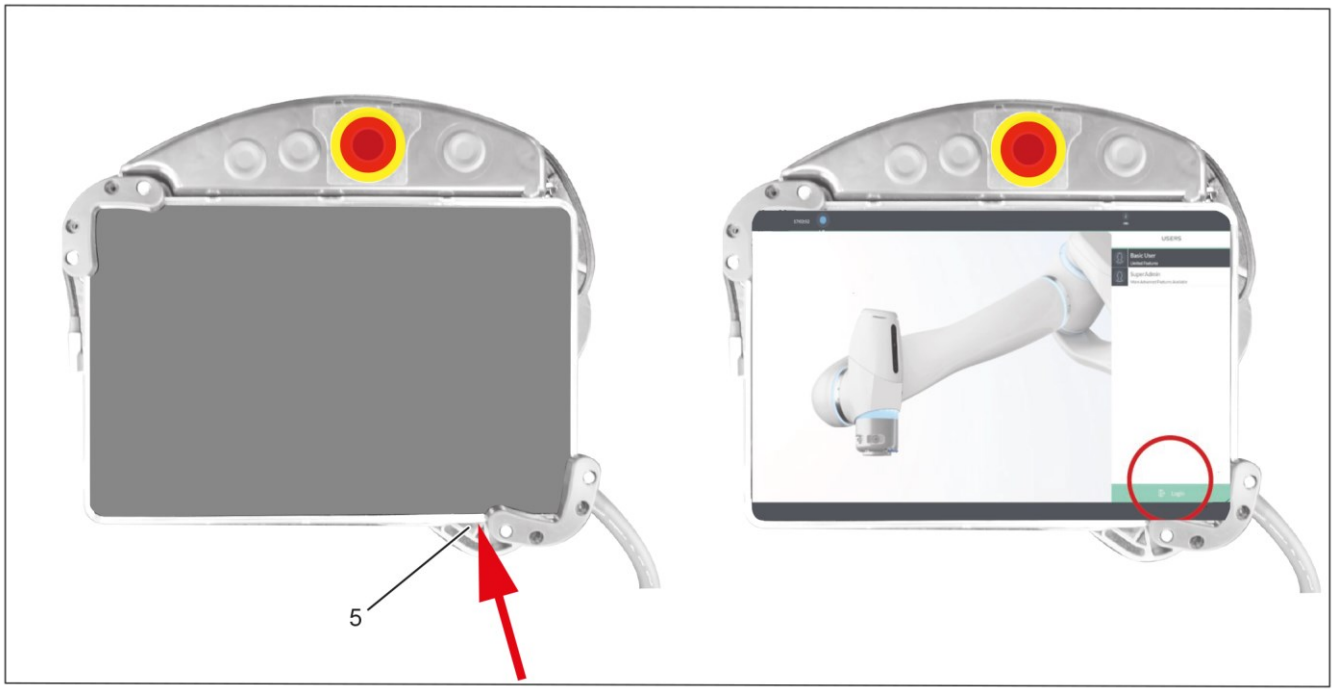

(2) Control Box
(3) Teach Pendant
(4) Reset button

► Ensure the Teach Pendant is charging.

► Press the white reset button on the Control Box.

➔ The reset button lights up white.

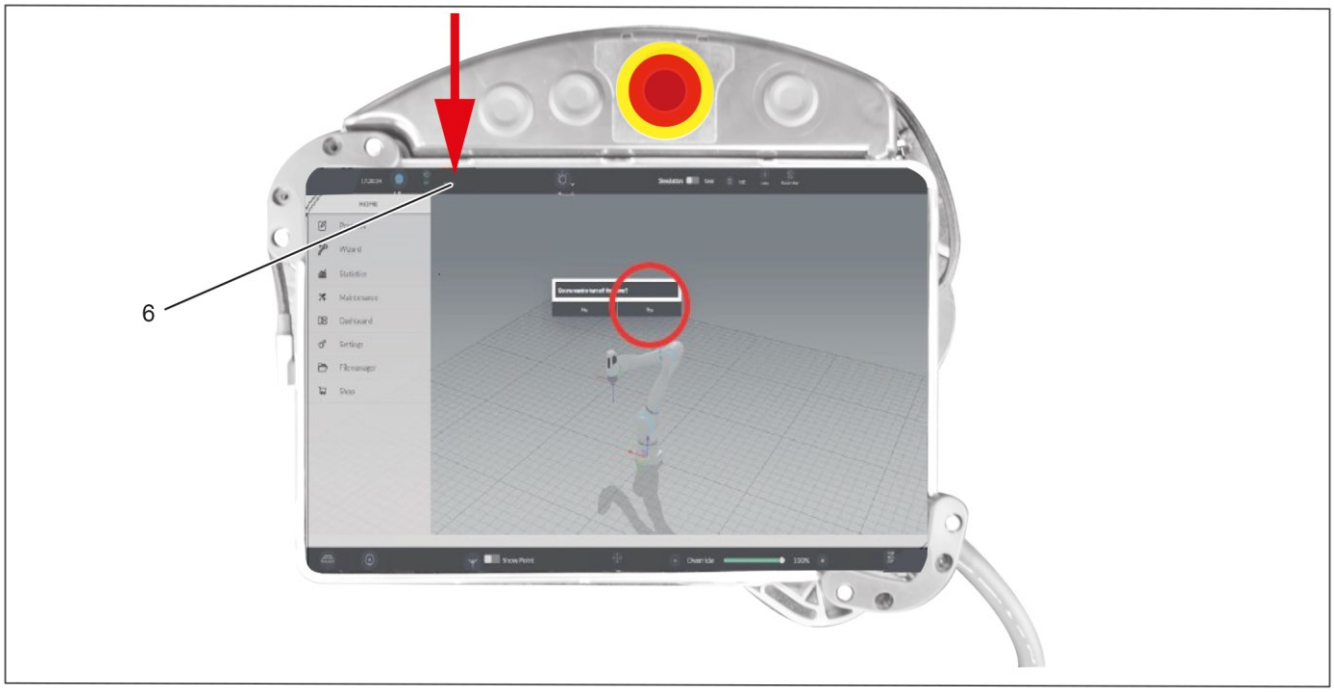
If charging symbol does not appear, wait for approx. 5 minutes to initially charge.




(5) Power button (dark grey)

► Press power button on Teach Pendant.

► Login as Basic User.



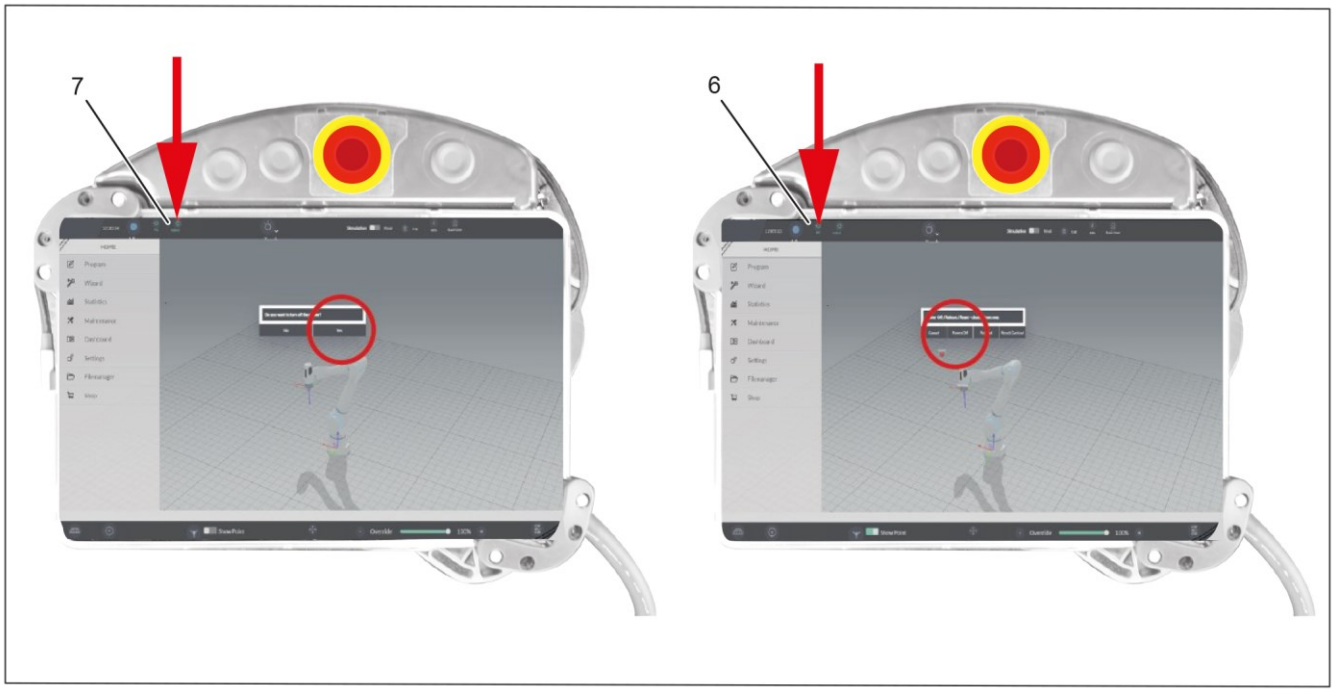

(6) Control lamp

► Power on the robot in the GIU via “Robot” > “Power On” > “Yes”.

➔ The control lamp (6) is on.

For further documentation like Software Manual, User Manual and more scan this QR code:

**Shut down Robot System**




(6) Control lamp robot

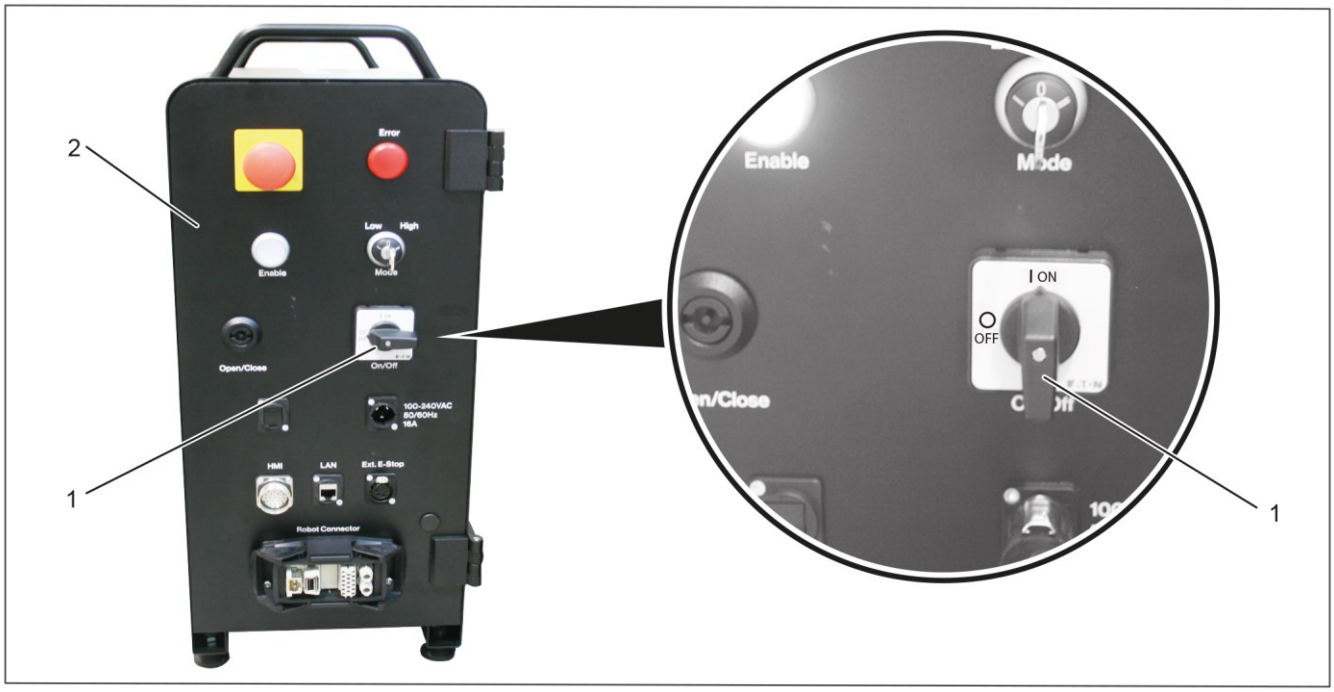
(7) Control lamp PC

► Power off the robot in the GIU via “Robot” > “Power Off” > “Yes”.

➔ Control lamp (6) is out.

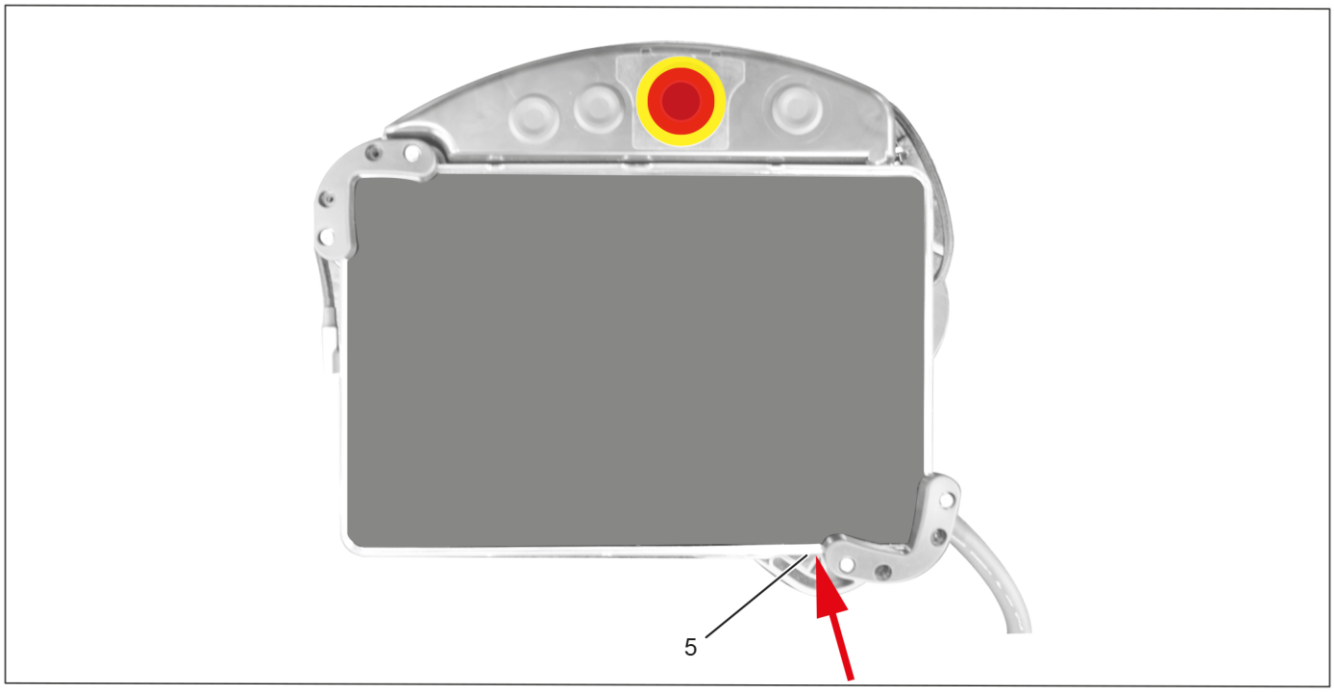
► Power off the PC in the GUI via “PC” > ”Power Off”.

➔ The control lamp (7) is out.




(1) Main power switch (2) Control Box

► Turn the main power switch anticlockwise to “OFF”.




(5) Power button (dark grey)

► Long press the power button on the tablet, then acknowledge to power off.

► Unplug the power cable.

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