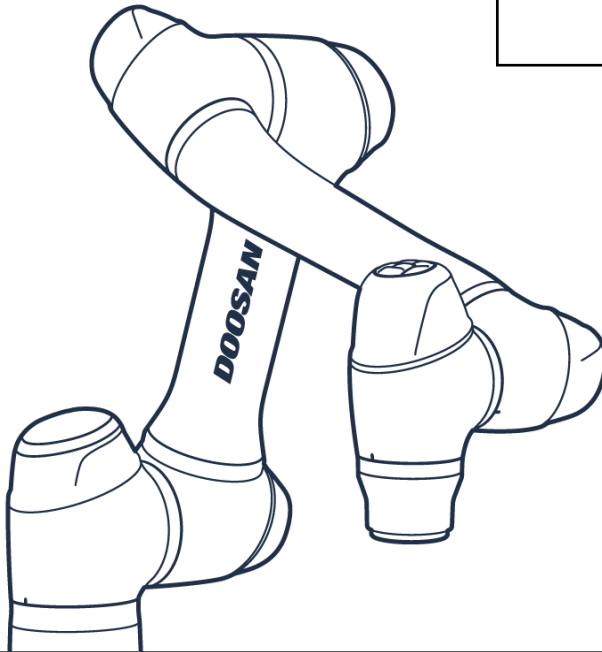


# Doosan Robot

A0509 | A0509s | A0912 | A0912s

## Quick Guide



### Robot Arm (A0509/A0509s\*)

Payload within Work Radius	5 kg
Max. Work Radius	900 mm
TCP Speed	Over 1 m/s
Position Repeatability (ISO 9283)	± 0.03 mm
Weight	21 kg
Protection Rating	IP 54
Digital I/O - Flange	2 In, 2 Out, RS485
Power supply - Flange	DC 24 V, 2A (Max. 3A)

\*Model with Force Torque Sensor

### Control Box

Size	450x210x265 mm + Stand100 mm
Weight	13 kg
Protection Rating	IP 40
Digital I/O	16 In, 16 Out
Analog I/O	2 In, 2 Out
I/O Power supply	DC 24 V
Rated voltage	100-240 (50~60Hz) VAC
Interface	Ethernet (TCP/IP), USB 3.0 (RS232/422/485*)

\*USB to RS232/422/485 converter required

## Quick Guide

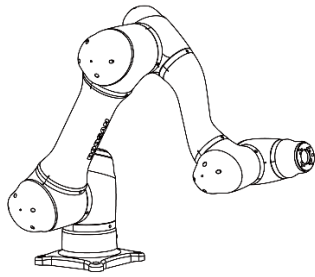
Thank you for choosing this Doosan Robotics product.

This manual contains minimal information for checking and installing components and downloading user manuals. Please be sure to refer to the detailed manual for product installation, use and precautions.

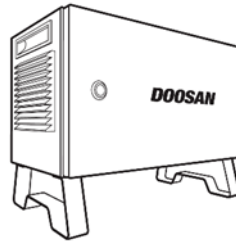
- Doosan Robotics does not assume responsibility for any damages or losses that occur during transportation.
- Configure the DIP switch according to components and additional components before connecting and starting up the product.
- If the robot is transported by packaging it with packaging materials, store the robot in a dry location. If the robot is stored in a location with high humidity, condensation may occur, resulting in robot defects.
- Removing or moving the robot from the packaging box, hold the top and bottom of the Link1 between J2 and J3. When transporting the robot using lifting equipment, make sure to observe all related national and regional regulations.
- Make sure that all the standard items and optional items (sold separately) are included, and if you have any problems, contact your place of purchase.



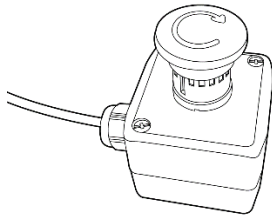
## Component Check



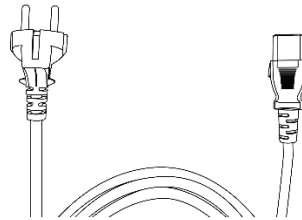
Robot (including connection cables)\*



Control Box\*



Emergency stop Button\*



Control Box Power Cable\*



Teach Pendant\*\*



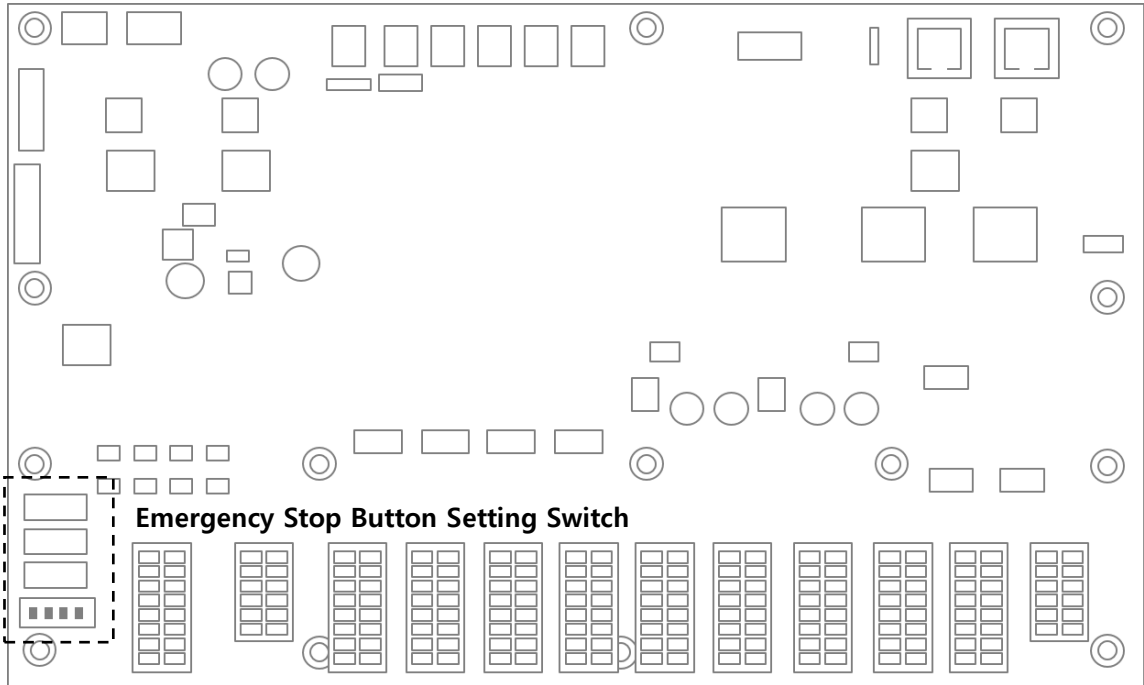
Smart Pendant\*\*

### Note

- Items are indicated as standard items (\*) and optional items (\*\*, sold separately).
- The laptop is not included in the package, and it is necessary when installing the DART-Platform.
- The DART-Platform is SW that runs on a Windows OS-based desktop or laptop. That can operate and program the same as the Teach Pendant.
- For details of optional items, refer to the website ([www.doosanrobotics.com](http://www.doosanrobotics.com)).

## Emergency Stop Button Setting Switch

Configure the emergency stop button setting switch on the Case according to components and additional components before connecting and starting up the product.



Case 1	1. Teach Pendant(O), Smart Pendant(O)	On	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Teach Pendant(O), Emergency Stop Button(O)	Off	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Case 2	1. Smart Pendant(O), Teach Pendant(X)	On	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Emergency Stop Button(O), Teach Pendant(X)	Off	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Case 3	Teach Pendant(O), Smart Pendant(X),	On	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Emergency Stop Button(X)	Off	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Note

- If the setting is not configured according to the guide, the robot will not operate properly.
- Upon first receiving, the setting is configured as Case 1.
- For the details, refer to the installation manual.



### Warning

**If the setting of the emergency stop button setting is different from the actual configuration, the emergency stop button does not work and the user may be injured in an emergency situation.**

## Transportation

### Cautions during Transportation

- ※ When relocating the robot, have two or more individuals hold the link area of the robot.
- ※ The control box is moved by grasping the side handle.

## Installation

### Cautions during Installation

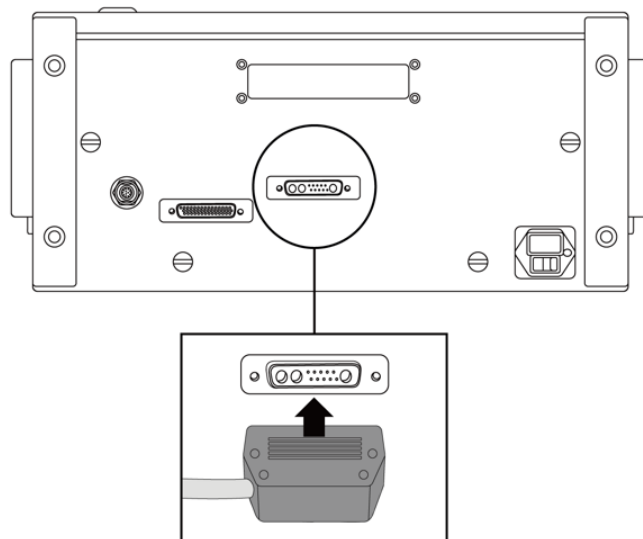
- ※ Before installing the robot, secure sufficient space and install the robot on a firm, even surface.
- ※ Check whether flammable and explosive materials are near the installation location.

### Securing the Robot

- ※ Use M8 bolts in the four 9.5 mm holes in the robot base to secure the robot.
- ※ Tighten the bolts all the way to prevent loosening during robot operation. And it is recommended to use a tightening torque of 20 Nm to tighten the bolts.
- ※ The robot will interpret robot base vibration as a collision and engage the emergency stop.

### Connecting the Robot and Control Box

- ※ Push the robot cable connected to the robot into the corresponding control box connector until a click is heard to prevent the cable from becoming loose.

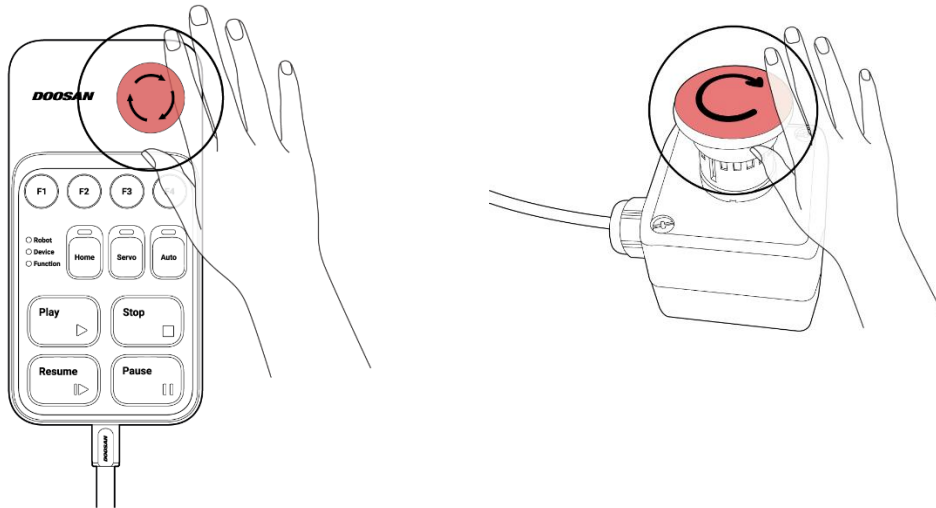


- ※ For the details of the installation, refer to the installation manual.

## Emergency Stop Function

In emergency situations, press the Emergency Stop button or the Emergency Stop located on the top right of the teach pendant or smart pendant to immediately stop the system.

- ※ SS1 stop mode is set as the default setting of the emergency stop button.
- ※ Turning the emergency stop button clockwise can release emergency stop function engagement.



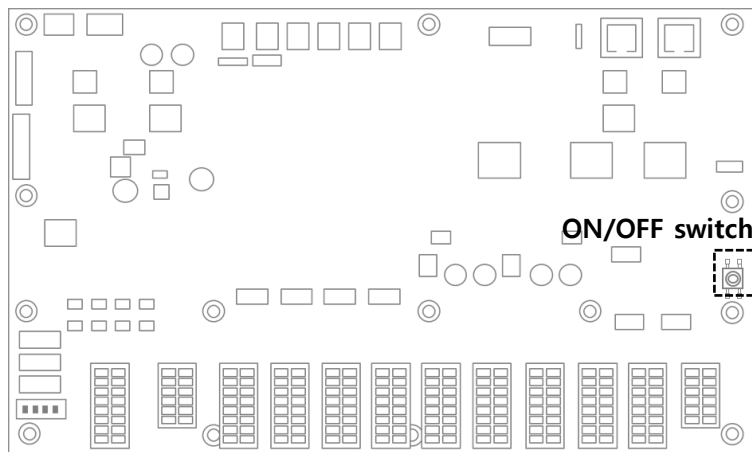
- ※ For details of Safety, refer to the installation manual.



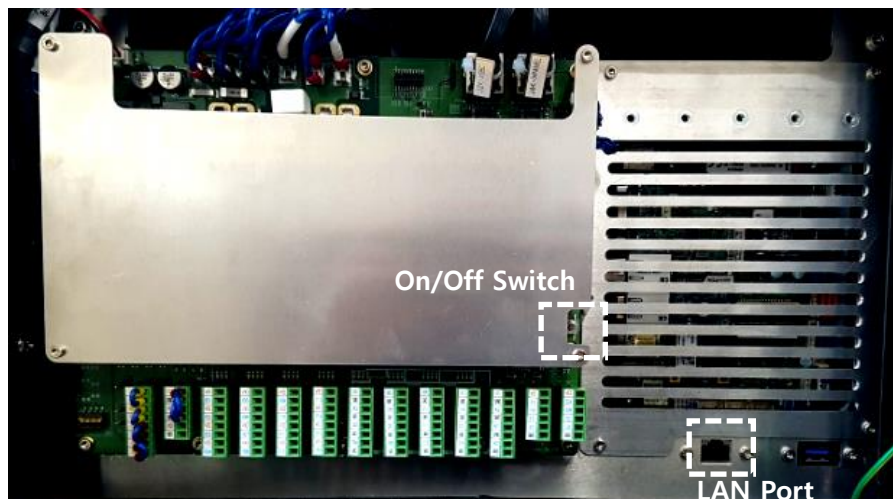
## Booting

If you use standard items, you should install DART-Platform SW for robot control. Please install DART-Platform in advance. The installer download can be found in Robot LAB > Resources > Software (<https://robotlab.doosanrobotics.com/en/MyRobot/Dashboard>). To download the installer, you need to log in the Robot LAB.

- ※ When the installation of DART-Platform is completed, proceed in the order shown below;
  1. Turn on the power switch at the bottom of the control box.
  2. Open the door of the control box and press and hold the power button located at the bottom right of the safety board.



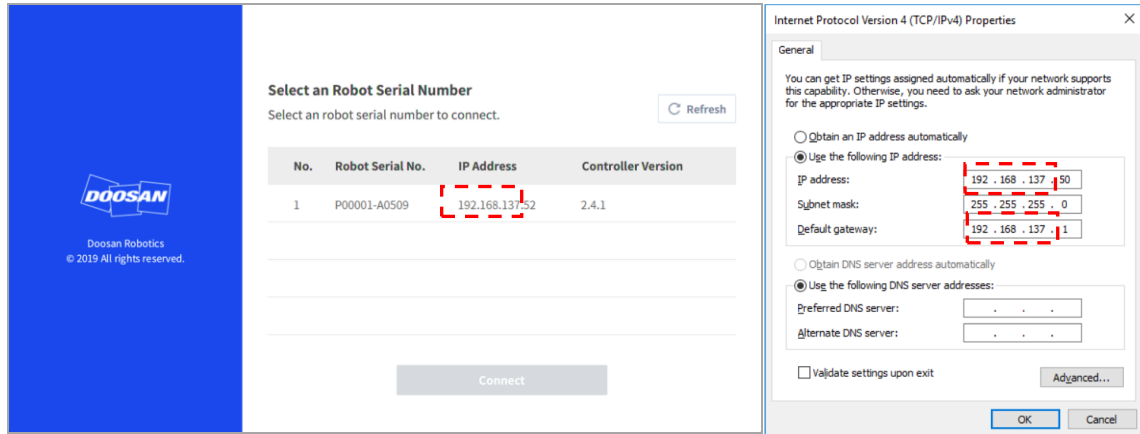
3. Connect your desktop or Laptop to the control box. (Refer to the image below)



4. After about 1 minute after booting starts, run the DART-Platform and check the serial number of the robot connected to the network.
5. Select and connect the robot you want to connect to

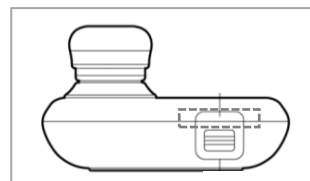
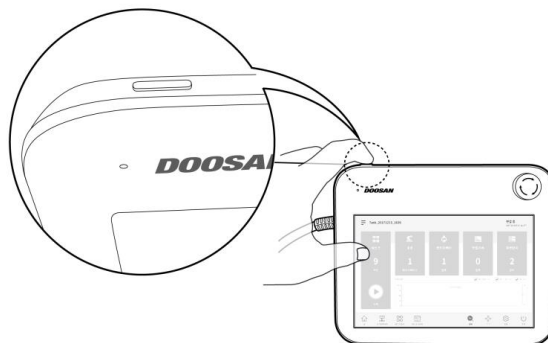
 **Note**

- The boot status is identified by the robot LED illuminated.
- If there is no connection between the control box and DART-Platform, change the C class band of IP address and default gateway of the desktop or laptop with DART-Platform installed to the C class band of the control box's IP address, and retry.



If you are a Teach Pendant or Smart Pendant user, process in the following order.

1. Switch on the power switch at the bottom of the control box.
2. Press and hold the power button on the top left of the Teach Pendant or Smart Pendant.





## Copyright

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While the information in this manual is reliable, Doosan Robotics is not responsible for any damage that occurs due to errors or typos. The contents of this manual may be modified according to product improvement without prior notification.

This is a detailed manual for a specific software version of the robot. For details of updated manuals, refer to the Robot LAB website (<https://robotlab.doosanrobotics.com/>).

The manuals provided are as follows:

- Installation Manual : This manual describes the overall installation of the robot.
- User Manual : This manual describes robot work management and menus in the UI.
- Reference Manual : This manual describes workcell item, skill commands, task templates and key applications.
- Programming Manual : This manual describes the grammar and commands you need to know about task programming.

## OSS

The software installed in this product was developed based on free/open source software.

Details about the free/open source software license can be found on the OSS use page on the Doosan Robotics website ([www.doosanrobotics.com/kr/oss/license](http://www.doosanrobotics.com/kr/oss/license)).

For related inquires, contact the Marketing Department of Doosan Robotics ([marketing.robotics@doosan.com](mailto:marketing.robotics@doosan.com)).

