

AMR (Autonomous Mobile Robot)

OL-series

Charging Station Safety and Unpacking Guide

OL-450S2

OL-450S3

NOTE

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Introduction

Thank you for purchasing the OL-series Autonomous Mobile Robot (referred to as AMR in this document).

This guide is OMRON's original instructions describing the unpacking and safety considerations of the AMR's Charging Station components.

This document describes AMR functionality supported with FLOW v5.3.

This guide does not provide all AMR details, specifications, installation, operation, troubleshooting, or maintenance information. This guide is not a substitute for the *AMR (Autonomous Mobile Robot) OL-series User's Manual (Cat. No. M109)*. All personnel that work with the AMR must read and understand the *AMR (Autonomous Mobile Robot) OL-series User's Manual (Cat. No. M109)*.

This guide contains IMPORTANT SAFETY INSTRUCTIONS. Please read this guide and make sure you understand the unpacking and safety considerations of the Charging Station components before attempting to unpack or use it.

SAVE THESE INSTRUCTIONS. Keep this guide in a safe place where it will be available for reference for repacking purposes.

To download a digital copy of this manual, use the following QR code or visit the website listed below.



<https://robotics.omron.com/resources/?id=8ED6DE86-4386-4326-A2FA26F21C5B5E92>

Intended Audience

This manual is intended for the following personnel, who must also have knowledge of factory automation (FA) systems and robotic control methods.

- Personnel in charge of introducing FA systems.
- Personnel in charge of designing FA systems.
- Personnel in charge of installing and maintaining FA systems.
- Personnel in charge of managing FA systems and facilities.

It is the end-user's responsibility to ensure that all personnel who will work with or around AMRs have attended an appropriate training and have a working knowledge of the system. The user must provide the necessary additional training for all personnel who will be working with the system.

As described in this document, you should allow only skilled persons or instructed persons to do certain procedures. Skilled persons have technical knowledge or sufficient experience to enable them to avoid either electrical or mechanical dangers. Instructed persons are adequately advised or supervised by skilled persons to enable them to avoid either electrical or mechanical dangers.

All personnel must observe industry-prescribed safety practices during the installation, operation, and testing of all electrically-powered equipment.

Before working with the AMR, every person must confirm that they:

- Have the necessary qualifications and training for normal, abnormal, and emergency situations.
- Have access to this document and other safety documentation.
- Have read and understand the related documentation.
- Have agreed work in the manner specified by the documentation.

Units

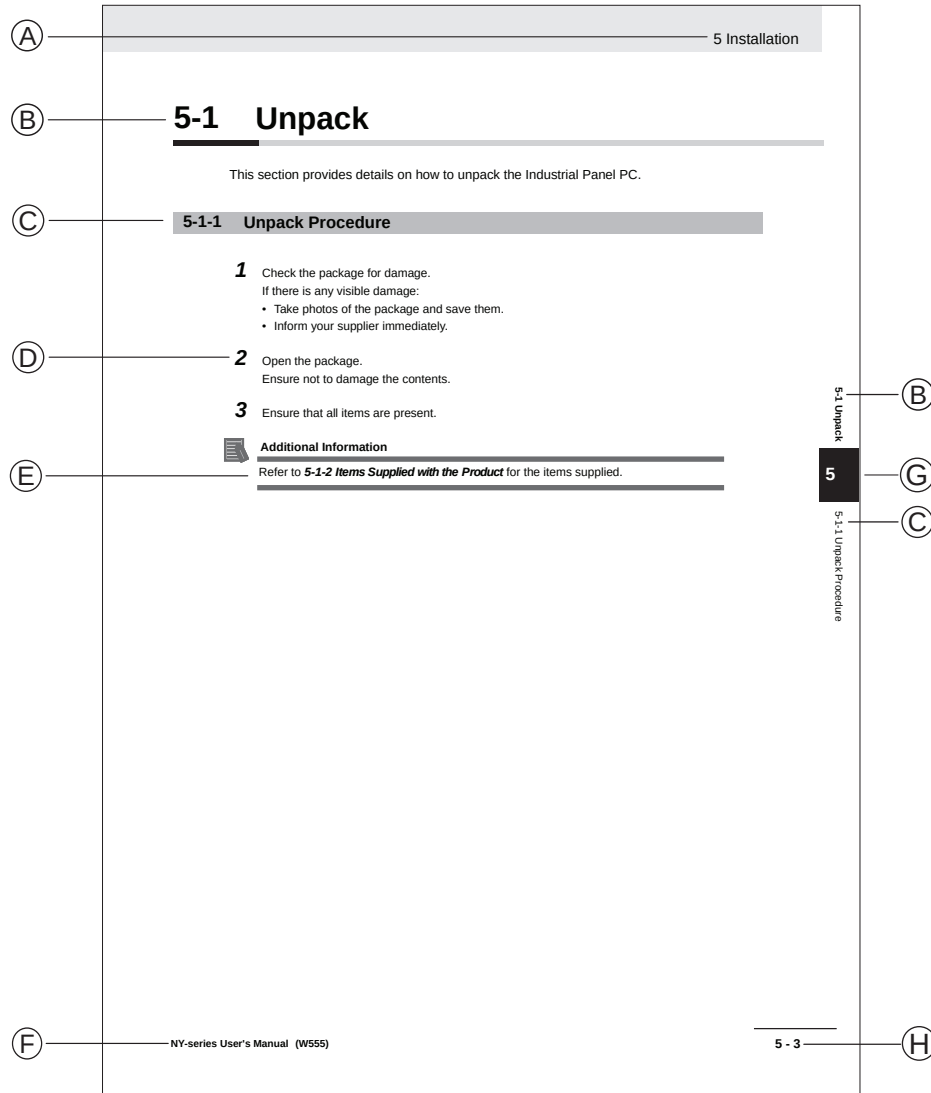
All units are metric unless otherwise noted.

Distances are provided in mm unless otherwise noted.

Manual Information

Page Structure

The following page structure is used in this manual.



Note: This illustration is provided as a sample. It will not literally appear in this manual.

Item	Explanation	Item	Explanation
A	Level 1 heading	E	Special Information
B	Level 2 heading	F	Manual name
C	Level 3 heading	G	Page tab with the number of the main section
D	Step in a procedure	H	Page number

Special Information

Special information in this manual is classified as follows:



Precautions for Safe Use

Precautions on what to do and what not to do to ensure safe usage of the product.



Precautions for Correct Use

Precautions on what to do and what not to do to ensure proper operation and performance.



Additional Information

Additional information to read as required.

This information is provided to increase understanding or make operation easier.



Version Information

Information on differences in specifications and functionality between different versions.

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Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

Regulations and Standards

Directive

The Charging Station complies with the 2006/42/EC Machinery Directive.

Standards

The Charging Station conforms to the following Standards.

- EN 60335-2-29:2018
Household and similar electrical appliances - Safety - Part 2-29: Particular requirements for battery chargers.
- EN 62311:2008
Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz).
- UL 1564:2017
Standard for Industrial Battery Chargers.
- EN 55011
Industrial, scientific, and medical equipment standard - Assessment of radio frequency disturbance characteristics, limits and methods of measurement.
- EN 61000-6-2
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments.

Regulatory Markings

The Charging Station components, Stationary Electronics and Stationary Coil have the CE and cMETus regulatory markings on the product label.

Conformance to KC Certification

When you use this product in South Korea, observe the following precautions.

사 용 자 안 내 문
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

This product meets the electromagnetic compatibility requirements for business use.

Related Manuals

Use the following related manuals for reference.

Manual Title	Description
Advanced Robotics Command Language Enterprise Manager Integration Guide (Cat. No. I618)	Describes how to use the Advanced Robotics Command Language (ARCL) a text-based, command line operating language Use ARCL to integrate a fleet of AMRs with an external automation system.
Enterprise Manager 2100 User's Guide (Cat. No. I631)	Describes the installation of an EM2100 appliance, which runs the Fleet Operations Workspace software to manage a fleet of AMRs.
Fleet Operations Workspace Core User's Manual (Cat. No. I635)	Describes Fleet management, MobilePlanner software, the SetNetGo OS, and most of the configuration procedures for an AMR.
MobilePlanner Integrated Help	A repository of Help topics available in the MobilePlanner application. Help topics describe MobilePlanner software, the SetNetGo OS, and most of the configuration procedures for an AMR.
Fleet Operation Workspace Core Integration Toolkit User's Manual (Cat. No. I637)	Contains information that is necessary to use the Integration Toolkit facilitating integration between the AMR, the Fleet Manager and the end user's client application.
Fleet Operations Workspace Core Integration Toolkit MQTT API User's Manual (Cat. No. M107)	Contains information that is necessary to use the Integration Toolkit MQTT API facilitating integration between the AMR, the Fleet Manager and the end user's client application.
Fleet Operations Workspace iQ User's Manual (Cat. No. I665)	Describes functionality and operation of the Fleet Operations Workspace iQ application.
AMR (Autonomous Mobile Robot) OL-series User's Manual (Cat. No. M109)	Describes the functionality, operation, and maintenance of the OL-series AMR.
AMR (Autonomous Mobile Robot) OL-series Safety, Unpacking, and Assembly Guide (Cat. No. M110)	Describes safety, unpacking, and assembly of the OL-series AMR.
AMR (Autonomous Mobile Robot) OL-series Battery Safety and Unpacking Guide (Cat. No. M112)	Describes safety and unpacking of the OL-series AMR battery.

Revision History

A manual revision code appears as a suffix to the catalog number on the front and back covers of the manual.

Cat. No. M111-E-03

Revision code

Revision code	Date	Revised content
03	February 2026	Updates and improvements
02	December 2025	Updates and improvements
01	March 2025	Original production

Safety

This section provides safety information for the OL-series AMR Charging Station.

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1-1 Safety Precautions

1-1-1 Definition of Precautionary Information

The following notation is used in this manual to provide precautions required to ensure safe usage of the AMR. The safety precautions that are provided are extremely important to safety.

Always read and heed the information provided in all safety precautions.

The following notation is used.

 DANGER	Identifies an imminently hazardous situation which, if not avoided, is likely to result in serious injury, and might result in fatality or severe property damage.
 WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. Additionally, there may be severe property damage.
 CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

1-1-2 Symbols

	The circle and slash symbol indicates operations that you must not do. The specific operation is shown in the circle and explained in text. This example indicates prohibiting disassembly.
	The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a precaution for electric shock.
	The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a general precaution.
	The filled circle symbol indicates operations that you must do. The specific operation is shown in the circle and explained in text. This example shows a general precaution for something that you must do.
	The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a precaution for high temperatures.
	The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a precaution for laser radiation.

1-1-3 Dangers

DANGER

Operators must read this manual and the AMR User's Manual and operate the AMR and Charging Station within the defined specifications.



Do not charge a battery that has not been approved for the OL-series AMR. There is a risk of explosion when charging an incorrect battery. Failure to comply with the above mentioned instruction could result in damage to the Charging Station, battery, and AMR.



1-1-4 Warnings

WARNING

General

Follow all unpacking safety instructions and use appropriate tools and equipment. Failure to do so could result in personal injury or property damage.



Use only the specified tools, equipment, cleaners, and OMRON-supplied spare parts to service and maintain the AMR and Charging Station according to the specified service interval. Failure to do so could result in an unsafe operating state than might result in injury to person or damage to property.



Battery and Charging Station

The following actions are strictly prohibited and could result in injury or damage to the equipment.

- Persons with cardiac pacemakers in the AMR charging zone.
- Persons with metal implants in the AMR charging zone.
- Holding, placing, or allowing objects between the charging coils.



If the Charging Station power cords are installed on the floor, you must make sure that they are highly visible to prevent tripping hazards and are protected from physical damage with barriers or covers.



The Charging Station transfers high electric power, and contains hazardous voltage. The user must take necessary precautions when working near the Charging Station, and follow appropriate Lock-Out, Tag-Out (LOTO) instructions prior to any maintenance work done on the Charging Station.



Do not allow liquids of any kind to come in contact with the Stationary or Mobile Coil.



Due to hazardous electrical voltage / residual voltage, wait for at least two minutes before carrying out any maintenance on the AMR or Charging Station.



If any safety or warning label is damaged or illegible, replace it with a new label.



Cybersecurity

To maintain the security and reliability of the system, a robust cybersecurity defense program should be implemented, which may include some or all of the following:

Anti-virus protection

- Install the latest commercial-quality anti-virus software on the computer connected to the control system and keep the software and virus definitions up-to-date.
- Scan USB drives or other external storage devices before connecting them to control systems and equipment.

Security measures to prevent unauthorized network access

- Install physical controls so that only authorized personnel can access control systems and equipment.
- Reduce connections to control systems and equipment via networks to prevent access from untrusted devices.
- Install firewalls to block unused communications ports and limit communication between systems. Limit access between control systems and systems from the IT network.
- Control remote access and adopt multifactor authentication to devices with remote access to control systems and equipment.
- Set strong password policies and monitor for compliance frequently.

Data input and output protection

- Backup data and keep the data up-to-date periodically to prepare for data loss.
- Validate backups and retention policies to cope with unintentional modification of input/output data to control systems and equipment.
- Validate the scope of data protection regularly to accommodate changes.
- Check validity of backups by scheduling test restores to ensure successful recovery from incidents.
- Safety design, such as emergency shutdown and fail-soft operations in case of data tampering and incidents.

Additional recommendations

- When using an external network environment to connect to an unauthorized terminal such as a SCADA, HMI or to an unauthorized server may result in network security issues such as spoofing and tampering.
- You must take sufficient measures such as restricting access to the terminal, using a terminal equipped with a secure function, and locking the installation area by yourself.
- When constructing network infrastructure, communication failure may occur due to cable disconnection or the influence of unauthorized network equipment.
- Take adequate measures, such as restricting physical access to network devices, by means such as locking the installation area.
- When using devices equipped with an SD Memory Card, there is a security risk that a third party may acquire, alter, or replace the files and data in the removable media by removing or unmounting the media.
- Please take sufficient measures, such as restricting physical access to the Controller or taking appropriate management measures for removable media, by means of locking and controlling access to the installation area.
- Educate employees to help them identify phishing scams received via email on systems that will connect to the control network.



1-1-5 Cautions

CAUTION

Do not allow any foreign metal objects to be near the AMR or the charging coils.



1-2 Precautions for Safe Use

- The Stationary Coil must be properly installed and secured to the Charging Ramp prior to the operation of the Charging Station.
- The Charging Ramp must be placed flush with the floor.
- The AMR must be powered ON in order to charge the battery while at the Charging Station.
- In case of fire, use a type ABC or type BC dry chemical fire extinguisher.
- Do not touch the AMR charging coils. Coils get very hot during and after charging.
- You must have floor markings at Charging Stations and pickup / dropoff locations with adequate clearance to prevent people from entering these hazard zones.
- You can contribute to resource conservation and protecting the environment by the proper disposal of Waste Electronics and Electrical Equipment (WEEE). All electrical and electronic products should be disposed of separately from the municipal waste system according to local ordinances using designated collection facilities.



- Always follow proper electrical safety practices and review electrical equipment information labels.

1-3 Precautions for Correct Use

- The Charging Station shall only be used to charge an OL-series AMR battery.
- For the Charging Station components replacement, use only the supplied Wiferion replacement parts and follow replacement instructions.

2

Unpacking

This section provides unpacking information for the AMR Charging Station.

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2-1 Unpacking Introduction

The AMR Charging Station components are packaged individually in cardboard boxes and placed in the wooden shipping box along with the AMR. The Charging Station components may occasionally ship in a separate box.

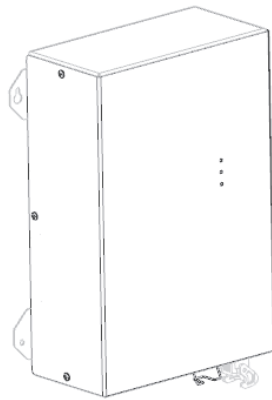
WARNING

Follow all unpacking safety instructions and use appropriate tools and equipment. Failure to do so could result in personal injury or property damage.

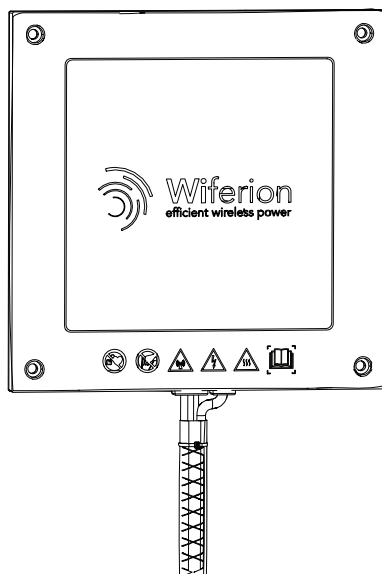


The Charging Station consists of the following components:

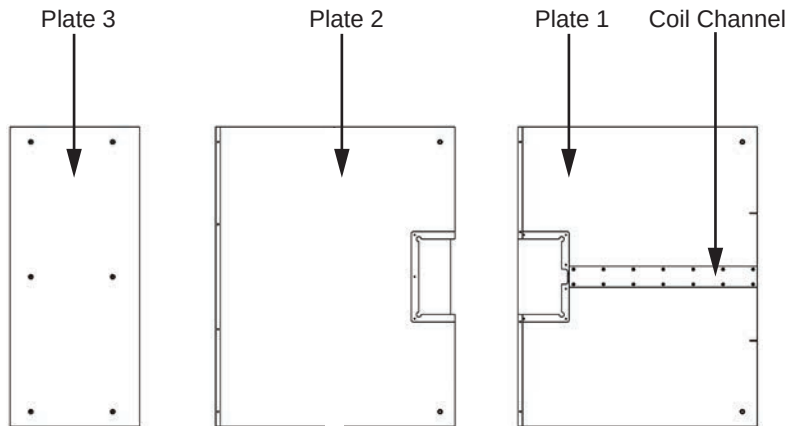
- Stationary Electronics - the power supply box.



- Stationary Coil - the fixed charging coil. The AMR docks itself over the Stationary Coil to align the Mobile Coil with the Stationary Coil.



- Charging Ramp (optional) - the charging platform on which the Stationary Coil is mounted. The Charging Ramp is collapsible and is packaged as three different plates.



2-1-1 Unpacking Procedure

Follow the procedure below to unpack the Charging Station components.

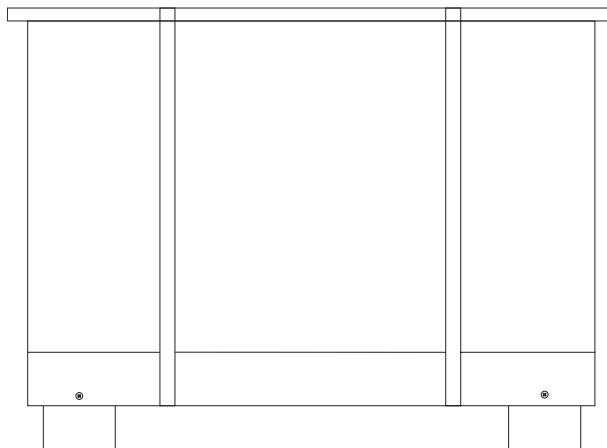
The following items are required for this procedure.

- Personal Protective Equipment (eye protection, toe protection, gloves).
- Scissors or box cutter for cutting the strapping tapes.
- Star key T25 for removing the wooden shipping box screws.

If your Charging Station components arrived separately (without the AMR), proceed to Step 7.

1 Remove the plastic shrink wrap around the wooden shipping box.

2 Cut the strapping tapes around the wooden box.



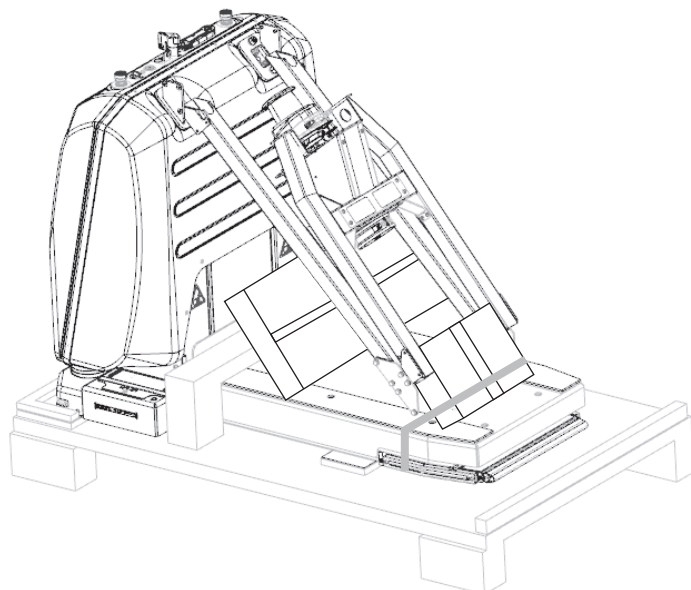
3 Remove the Charging Ramp package from the top of the wooden box and set it aside.



- 4** Unscrew the four screws (two on each side) that attach the top lid frame to the bottom deck.



- 5** Lift up and remove the top lid frame from the bottom deck.



The Stationary Coil and the Stationary Electronics are packaged in separate boxes and placed on the Lifting Plate of the AMR.

- 6** Cut the tape around the Lifting Plate of the AMR and remove the Stationary Coil and the Stationary Electronics boxes.
- 7** Move the boxes to a workspace area for unpacking and inspecting all equipment.
- 8** Unpack the Stationary Electronics from the box carefully and set aside for installation.
- 9** Unpack the Stationary Coil and cables from the box carefully and set aside for installation.
- 10** Remove the Charging Ramp plates from the packaging carefully and set aside for installation.
- 11** Visually inspect the Charging Station components for any transport damage.
Check the exterior of the Stationary Electronics, the Stationary Coil, the cables, and the Charging Ramp plates for damage that may have occurred during transport. Inspect for scratches, loose or displaced items, impacts, or other signs of damage. If any signs of damage are present, stop this procedure and contact the shipping company immediately to report the damage.
- 12** Save the shipping boxes and packaging material for future use to complete this procedure.
Refer to *AMR (Autonomous Mobile Robot) OL-series User's Manual (Cat. No. M109)* for more information about installing the Charging Station.
Refer to *AMR (Autonomous Mobile Robot) OL-series Safety, Unpacking, and Assembly Guide (Cat. No. M110)* for more information about unpacking and assembling the AMR.

THIS DOCUMENT CONTAINS IMPORTANT SAFETY INSTRUCTIONS. SAVE THIS DOCUMENT.

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