

AMR (Autonomous Mobile Robot)

OL-series

Battery 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 battery.

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 battery 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

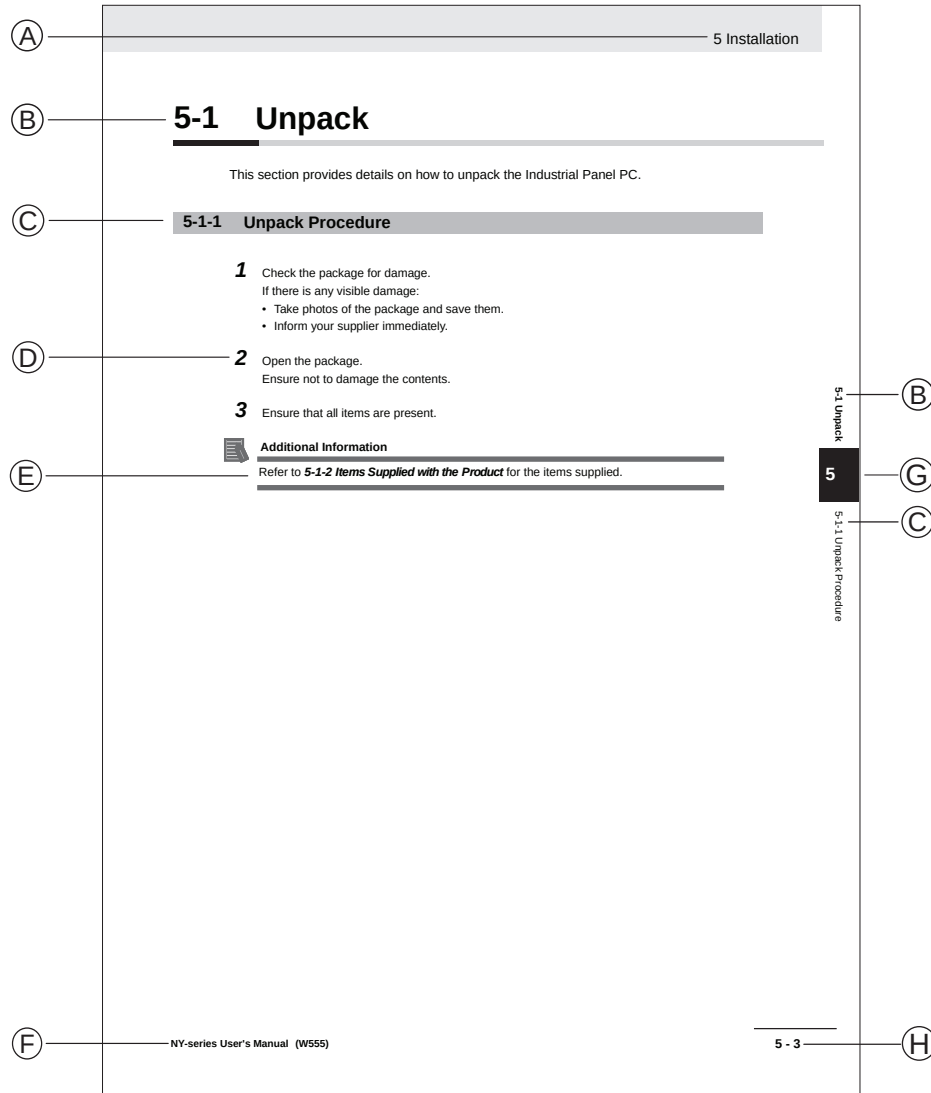
All units are metric unless otherwise noted.

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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Terms and Conditions Agreement

Warranty and Limitations of Liability

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NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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- Omron Companies shall not be responsible for the operation of the user accessible operating system (e.g. Windows, Linux), or any consequence thereof.

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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 AMR battery complies with the EU Battery Regulation 2023/1542/EU.

Standard

The AMR battery conforms to the UN 38.3 Standard for transportation of lithium batteries.

Regulatory Marking

The battery has the CE regulatory marking 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 Charging Station Safety, and Unpacking Guide (Cat. No. M111)	Describes safety and unpacking of the OL-series AMR Charging Station.

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. M112-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 battery.

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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

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.



Toxic, explosive gases can be released when using a CO2 fire extinguisher or water in combination with lithium.



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.



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



Battery

Do not damage the battery by subjecting it to impacts or shocks. Using a damaged battery can result in fire or other dangerous conditions.



Do not dispose of the battery in a waste stream that might result in incineration or crushing. Safely dispose of the battery through a designated facility according to all local and national environmental regulations regarding lithium battery disposal.



There are no serviceable parts in battery. Only licensed / certified personal can replace the battery and it can only be with an OMRON factory-supplied battery intended for use in the AMR.



(Battery) Risk of Fire - No User Serviceable Parts AVERTISSEMENT: Risque d'incendie
- Aucune des pièces ne peut être.



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

Never connect electric loads directly to the battery bypassing protective circuits.



1-2 Precautions for Safe Use

- 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 allow the battery to remain discharged for an extended period of time.
- Never remove the battery while the AMR is powered ON. Always turn the AMR OFF before attempting to remove a battery.
- 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.



廢電池請回收

1-3 Precautions for Correct Use

- IATA regulations (UN 3480, PI 965) require that air freight shipped lithium ion batteries not installed in the AMR must be transported at a state of charge not exceeding 30%. To avoid total discharge, fully charge the battery immediately upon receipt. The battery might arrive fully charged if it is not shipped by air freight.
- Always lift the battery using the two handles on top of the battery enclosure.
- The Charging Station shall only be used to charge an OL-series AMR battery.

2

Unpacking

This section provides unpacking information for the AMR battery.

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2-1 Unpacking Procedure

The AMR battery is shipped separately and packaged inside a sturdy cardboard box. Make the following consideration when unpacking the battery.



Precautions for Correct Use

IATA regulations (UN 3480, PI 965) require that air freight shipped lithium ion batteries not installed in the AMR must be transported at a state of charge not exceeding 30%. To avoid total discharge, fully charge the battery immediately upon receipt. The battery might arrive fully charged if it is not shipped by air freight.

OMRON recommends that you charge the battery immediately after unpacking and installing the battery in the AMR for the first time. The battery is shipped with 30% state of charge (SOC) and discharging may have occurred during transport. Refer to *AMR (Autonomous Mobile Robot) OL-series User's Manual (Cat. No. M109)* for more information.

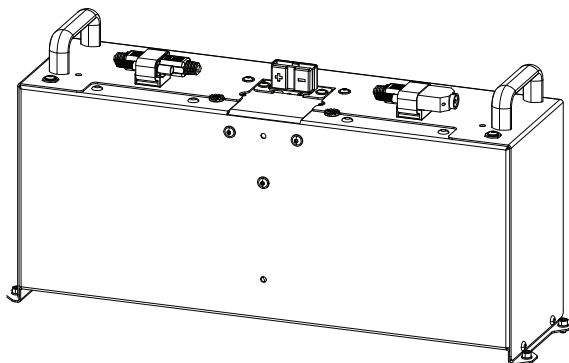
Follow the procedure below to unpack the battery.



Precautions for Correct Use

Always lift the battery using the two handles on top of the battery enclosure.

- 1** Open the cardboard box and carefully lift the battery out of the box using the two handles on top of it.
The battery weighs approximately 20 kg.
- 2** Place the battery on a flat surface and visually inspect the battery for any damage. Check the exterior of the battery 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.



- 3** Save the shipping box and packaging material for future use.
This completes the procedure.

THIS DOCUMENT CONTAINS IMPORTANT SAFETY INSTRUCTIONS. SAVE THIS DOCUMENT.

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