

Mobile Robots LD Series

Autonomous Mobile Robots (AMRs), self-mapping, self-navigating.

- Natural-feature navigation:
Automatically plans routes to prevent collisions
- Fleet management:
Supervises and coordinates the entire fleet of up to 100 vehicles
- Easy deployment:
Short installation time, no facility modifications



Ordering Information

Mobile Robots-LD Platform

| Appearance | Product Type | Product Name | Maximum Load | Maximum Speed | Configuration & Attachment | Part Number | |
|------------|--------------|--------------|--------------|---------------|----------------------------|---|-------------|
| | OEM | LD-60 | 60 kg | 1.8 m/s | Standard | - | 37032-00000 |
| | | | | | Docking station kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L | 37032-00002 |
| | | | | | Starter kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L Joystick : 13558-000 Top plate : 12944-000 | 37032-10004 |
| | | LD-90 | 90 kg | 1.35 m/s | Standard | - | 37042-00000 |
| | | | | | Docking station kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L | 37042-00002 |
| | | | | | Starter kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L Joystick : 13558-000 Top plate : 12944-000 | 37042-10004 |
| | | LD-250 | 250 kg | 1.2 m/s | Standard | - | 37222-00000 |
| | | | | | Docking station kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L | 37222-00002 |
| | | | | | Starter kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L Joystick : 13558-000 Top plate : 20458-002 | 37222-10004 |
| | ESD OEM | LD-60 | 60 kg | 1.8 m/s | Standard | - | 37032-20000 |
| | | | | | Docking station kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L | 37032-20002 |
| | | | | | Starter kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L Joystick : 13558-000 Top plate : 12944-000 | 37032-20004 |
| | | LD-90 | 90 kg | 1.35 m/s | Standard | - | 37042-20000 |
| | | | | | Docking station kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L | 37042-20002 |
| | | | | | Starter kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L Joystick : 13558-000 Top plate : 12944-000 | 37042-20004 |
| | | LD-250 | 250 kg | 1.2 m/s | Standard | - | 37222-20000 |
| | | | | | Docking station kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L | 37222-20002 |
| | | | | | Starter kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L Joystick : 13558-000 Top plate : 20458-002 | 37222-20004 |

LD Series

| Appearance | Product Type | Product Name | Maximum Load | Maximum Speed | Configuration & Attachment | Part Number | |
|---|------------------|--------------|--------------|---------------|----------------------------|---|-------------|
|  | Cart Transporter | LD-105CT | 105 kg | 1.35 m/s | Standard | Touchscreen :13605-000 Side laser :13456-000 | 37142-00010 |
| | | | | | Docking station kit | Touchscreen :13605-000 Side laser :13456-000 Docking station :12477-050 Battery power cable (0.45 m) :12676-000L | 37142-00012 |
| | | | | | Starter kit | Touchscreen :13605-000 Side laser :13456-000 Docking station :12477-050 Battery power cable (0.45 m) :12676-000L Acuity localization :13700-000 Joystick :13558-000 Cart :75020-000 | 37142-01014 |
|  | Cart Transporter | LD-130CT | 130 kg | 0.9 m/s | Standard | Touchscreen :13605-000 Side laser :13456-000 | 37162-00010 |
| | | | | | Docking station kit | Touchscreen :13605-000 Side laser :13456-000 Docking station :12477-050 Battery power cable (0.45 m) :12676-000L | 37162-00012 |
| | | | | | Starter kit | Touchscreen :13605-000 Side laser :13456-000 Docking station :12477-050 Battery power cable (0.45 m) :12676-000L Acuity localization :13700-000 Joystick :13558-000 Cart :75020-000 | 37162-01014 |

Note: For existing customer of mobile robots, please contact an OMRON representative prior to ordering additional mobile robots to ensure proper fleet management.
Refer to page 18 for previous generation models.

Fleet Operations Workspace Solutions

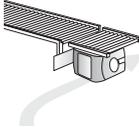
| Appearance | Product Name | Configuration & Attachment | Part Number |
|---|--|--|-------------|
|  | Primary Fleet Operations Workspace (FLOW) Core License, 1 Year | Entitlement for a 1 year renewable Primary FLOW Core license | 20271-800 |
| | Primary Fleet Operations Workspace (FLOW) Core License, 5 Year | Entitlement for a 5 year renewable Primary FLOW Core license | 20271-806 |
| | Secondary Fleet Operations Workspace (FLOW) Core License, 1 Year | Entitlement for a 1 year renewable Secondary FLOW Core License | 20271-802 |
| | Secondary Fleet Operations Workspace (FLOW) Core License, 5 Year | Entitlement for a 5 year renewable Secondary FLOW Core License | 20271-807 |
|  | Primary Fleet Manager | EM2100 Appliance with Temporary 120 Day Fleet Operations Workspace License | 20271-900 |
| | Secondary Fleet Manager | EM2100 Appliance with Temporary 120 Day Fleet Operations Workspace License | 20271-901 |
|  | Bundle. Fleet Simulator | Package includes: Entitlement for perpetual Fleet Simulator License and EM2100 appliance | 20271-903 |
| | License, Fleet Simulator | Entitlement for perpetual Fleet Simulator license for existing EM2100 devices | 20271-804 |

* To obtain the latest version of the Fleet Operations Workspace (FLOW) Core software, contact your local OMRON representative. Please note that an active subscription is required for access to software upgrades.

* Expiration of a 1 year subscription license without renewal will result in cessation of the fleet management functions of the OMRON AMR solution until the license is renewed.

* After four consecutive 1 year renewals (for a total of 5 years) or after purchase of a 5 year license, all fleet management functions will continue to operate without requiring subsequent subscription renewals. Please note that an active subscription will still be required to have access to subsequent software releases, including bug fixes, feature upgrades and performance improvements.

Options

| Appearance | Product Name | Specification | Configuration & Attachment | Part Number |
|---|---|------------------|--|-------------|
|  | High Accuracy Positioning System (HAPS) - LD-60/LD-90 | Single sensor | Sensor × 1, mounting bracket × 1, power connector × 1, RS-232 connector × 1, 25 mm wide magnetic tape (south top side, 50 m roll) | 13660-100 |
| | | Double sensor | Sensor × 2, mounting bracket × 2, power connector × 2, RS-232 connector × 2, 25 mm wide magnetic tape (south top side, 50 m roll) | 13660-000 |
| | High Accuracy Positioning System (HAPS) - LD-250 | Single sensor | Sensor × 1, mounting bracket × 1, power connector × 1, RS-232 connector × 1, 25 mm wide magnetic tape (south top side, 50 m roll) | 21374-100 |
| | | Double sensor | Sensor × 2, mounting bracket × 2, power connector × 2, RS-232 connector × 2, 25 mm wide magnetic tape (south top side, 50 m roll) | 21374-000 |
| | | Magnetic tape | 25 mm wide magnetic tape (south top side, 50 m roll) | 14925-000 |
|  | Cell Alignment Positioning System (CAPS) | Software license | Software license activated on each AMR individually. Upload to the AMR via SetNetGo | 20271-805 |
|  | Acuity Localization | - | Camera, mounting kit, cables, leveling kit | 13700-000 |
|  | Touchscreen | - | Touchscreen with bracket, power supply with bracket, power cable from core to power supply (33 cm), power cable from power supply to touchscreen (183 cm), Ethernet cable between touchscreen and core (153 cm), gasket between touchscreen and AIV mounting surface, software package including touchscreen support | 13605-000 |
|  | Side Laser | Bundle | Laser × 2, cable × 1 | 13456-000 |
| | | Kit | Laser × 2, Cable × 1, mounting kit × 2, metal cover × 2 | 13456-100 |
|  | Call/Door Box | WiFi | Call/door box, cable | 13029-802 |

Accessories

| Appearance | Product Name | Specification | Configuration & Attachment | Part Number |
|---|-----------------|--------------------------|---|-------------|
|  | Battery | 355 x 158 x 217 mm | For all LD models | 20452-000 |
|  | Docking Station | - | Docking station, AC power cable | 12477-000 |
| | | Extended Wall mount | Docking station, AC power cable, extended wall mount (for Cart Transporter) | 12477-050 |
|  | Joystick | Cable length: 0.6 to 3 m | - | 13558-000 |
|  | Breakout Cable | - | DB44HD breakout cable (D-SUB44 pin cable for digital I/O interface) | 14165-000 |

LD Series

| Appearance | Product Name | Specification | Configuration & Attachment | Part Number |
|---|--------------------------|-------------------------|----------------------------|-------------|
|  | Top Plate - LD-60, LD-90 | Top cover for OEM type | - | 12944-000 |
|  | Top Plate - LD-250 | Top cover for OEM type | - | 20458-002 |
|  | Cart* | - | - | 75020-000 |
|  | Battery Power Cable | Cable length: 0.45 m | - | 12676-000L |

* The cart only applies to LD-CT models.

Specifications

Mobile Robots-LD Platform LD-60, LD-90, ESD OEM, and Cart Transporter

| Item | LD-60, LD-90, ESD OEM | | Cart Transporter | | Note | |
|-----------------------|---------------------------------|---|--|-------------------------|--------------------------------|--|
| | 37032-□□□□□□ | 37042-□□□□□□ | 37142-□□□□□□ | 37162-□□□□□□ | | |
| Materials | Polycarbonate | | | | | |
| Dimension (L × W × H) | 699 × 500 × 383 mm | | 894 × 1074 × 1394 mm* | | * Height includes WiFi antenna | |
| Weight (with Battery) | 62 kg | | 81 kg (Vehicle)/23 kg (Cart) | | | |
| Environment | Ambient temperature | 5 to 40 °C | | | | |
| | Ambient humidity | 5 to 95 % (non-condensing) | | | | |
| | Operating Environment | Indoor usage only, no excessive dust, no corrosive gas | | | | Direct sunlight may cause safety laser false positive |
| | IP rating | IP20 | | | | |
| | Cleanroom rating | Fed Class 100, ISO Class 5 | | None | | |
| Floor Conditions | Floor Requirements | Linoleum, epoxy, or concrete (no water, no oil, no dirt) | | | | |
| | Minimum floor flatness | F _F 25 (ACI 117 standard)* | | | | * ACI 117 is the American Concrete Institute standard for concrete floors. F _F is flatness, F _L is the level. Higher F _F numbers represent flatter floors. F _F 25 is a fairly lenient specification. |
| | Traversable step | 15 mm max.* ¹ | 10 mm max.* ¹ | 5 mm max.* ² | 5 mm max.* ² | *1 A speed of 250-300 mm/s and 250 mm/s, for the LD-60 and LD-90, is required for these steps. Faster or frequent driving over such steps or gaps will shorten the lifespan of the drivetrain components. Lower speeds may not traverse the step. Steps should have smooth, rounded profiles. *2 The Cart Transporter with a cart is capable of driving over a gap or step of 5 mm at a speed of 250 mm/s, but this should not be regarded as normal use. Regular driving over such gaps or steps will shorten the lifespan of the drivetrain components. |
| | Traversable gap | 15 mm max. | 15 mm max. | 5 mm max.* ² | 5 mm max.* ² | |
| | Climb grade | Below 1: 12 (60 kg max.) Flat floor only (over 60 kg) | | Flat floor only | | |
| Navigation | Routing | Autonomous routing by localizing with safety scanning laser based on environment mapping | | | | |
| | Environmental map making method | Scan by walking the mobile robot through the environment, and upload the scan data in the MobilePlanner | | | | |
| Payload | Maximum Weight | 60 kg | 90 kg | 105 kg* | 130 kg* | * Excluding cart weight |
| | Maximum Speed | 1800 mm/s | 1350 mm/s | 1350 mm/s | 900 mm/s | |
| Mobility | Maximum Rotation Speed | 180°/s | 180°/s | 100°/s | | |
| | Stop Position Repeatability | Basic: ±100 mm position Standard Target: ±25 mm position, ± 2° rotation | | | | *±10 mm position, ±0.5° rotation with option. (High Accuracy Positioning System) ±8 mm position, ±1° rotation with option. (Cell Alignment Positioning System) |
| | Drive wheel | Materials | Non-marking nylon foam-filled rubber, non-conductive | | | |
| Passive caster | Size | 200 dia. × 50 mm nominal, 2 wheels | | | | |
| | Materials | Conductive thermoplastic rubber on polyolefin | | | | |
| | Size | 75 dia. × 41 mm nominal, 4 casters | | | | |
| | Battery | 22-30 VDC | | | | |
| Power | Capacity | 72 Ah Battery cell nominal capacity | | | | |
| | Run Time | 15 hours (continuous) approx. | | | | With no payload condition |
| | Recharge Time | 4 hours (5:1 ratio) approx. | | | | |
| | Battery Life Cycles | 2,000 recharge cycles (battery cell nominal) | | | | |
| | Charging Method | Automatic / manual | | | | |
| | Auxiliary Power | 5 VDC±5%, 1 A switched Aux power 12 VDC±5%, 1 A switched Aux power 20 VDC±5%, 1 A switched Aux power 22-30 VDC, 4 A switched × 2 22-30 VDC, 10 A switched* 22-30 VDC, 10 A safe, switched* | | | | 5, 12, 20, and 22-30 VDC power can be provided to external devices * 10 A switched and 10 A safe, switched share the 10 A of current |
| Standard | Harmonized Standard | EN ISO 12100 / EN ISO 13849-1 / EN 60204-1 | | | | |
| | Relevant Standard | EN 1525 / ANSI B56.5 | | | | |
| | Wireless | 802.11 a/b/g/n/ac | | | | |

LD Series

| Item | LD-60, LD-90, ESD OEM | | Cart Transporter | | Note |
|--------------------|-----------------------|--|------------------|---|---|
| | 37032-□□□□□ | 37042-□□□□□ | 37142-□□□□□ | 37162-□□□□□ | |
| Safety Features | Safety Scanning Laser | 1 at front Class 1 PLd safety per ISO13849-1 15 m maximum range 240° field of view | | | |
| | Emergency Stop | 1 at operator panel | | 1 at HMI post touchscreen, 1 at operator panel | |
| | Rear Sonar | 2 at rear, 2 m range | | | Each pair includes one emitter and one receiver working together |
| | Front Bumper | 1 at front of platform, 2 pairs of sensors | | | |
| | Low Front Laser | 1 at front of platform Class 1 4 m maximum range 126° field of view | | | |
| | Side Laser | Option* | | 2 on horizontal tubes of HMI post Class 1 4 m maximum range 270° field of view | * 2 on sides of payload structure, user-mounted |
| | Indicators | Light disc in each side | | Light disc in each side, beacon on HMI post | |
| | Speaker | 3.5 in., 80 W max. | | | |
| Operator Interface | Screen / Touch Panel | 3.5 in. TFT 320 × 240 pixels, color screen | | 7.0 in. TFT LCD touch panel, 18/24 bit RGB | |
| | Button | On button: green Off button: red Brake-release button: orange Keyswitch (disabled off button) * | | On button: green Off button: red Brake-release button: orange Keyswitch (disabled off button) *, Latch button, unlatch button | * Key switch can be used to disable the off button to avoid accidental shutdown or tampering. |
| User Interface | Wireless | 802.11 a/b/g/n/ac | | | |
| | Ethernet Port | 1 x user LAN, 1 x maintenance LAN, Auto-MDIX | | | |
| | Serial | RS-232 × 2 | | | |
| | Digital I/O | 16 inputs, 16 outputs | | | |
| | Analog I/O | 8 inputs (0 to 30 V), 4 outputs (0-20 V) | | | |
| Cart Latching | Audio | Digital audio out, audio in / audio out | | | |
| | Latching Method | Not available | | Automatic | |

Mobile Robots-LD Platform
LD-250, ESD OEM

| Item | | LD-250, ESD OEM | | Note |
|-----------------------|---------------------------------|---|--|--|
| | | 37222-□000□ | | |
| Materials | | Aluminum | | |
| Dimension (L × W × H) | | 963 × 718 × 383 mm | | * Height to top plate. |
| Weight | | 148kg (with battery), 129kg (without battery) | | |
| Environment | Ambient temperature | 5 to 40 °C | | |
| | Ambient humidity | 5 to 95 % (non-condensing) | | |
| | Operating Environment | Indoor usage only, no excessive dust, no corrosive gas | | Direct sunlight may cause safety laser false positive |
| | IP rating | IP20 | | |
| | Cleanroom rating | Fed Class 100, ISO Class 5 | | |
| Floor Conditions | Floor Requirements | Linoleum, epoxy, or concrete (no water, no oil, no dirt) | | |
| | Minimum floor flatness | F _F 25 (ACI 117 standard)* | | * ACI 117 is the American Concrete Institute standard for concrete floors. F _F is flatness, F _L is the level. Higher F _F numbers represent flatter floors. F _F 25 is a fairly lenient specification. |
| | Traversable step | 10 mm max.* | | * For LD-250, the robot should traverse the 10mm step at 600 mm/s or slower for best performance of the laser and battery. |
| | Traversable gap | 15 mm max. | | |
| | Climb grade | Flat floor only (full payload) | | |
| Navigation | Routing | Autonomous routing by localizing with safety scanning laser based on environment mapping | | |
| | Environmental map making method | Scan by walking the mobile robot through the environment, and upload the scan data in the MobilePlanner | | |
| Payload | Maximum Weight | 250 kg | | |
| | Maximum Speed | 1200 mm/s | | |
| Mobility | Maximum Rotation Speed | 120°/s | | |
| | Stop Position Repeatability | Basic: ±100 mm position Standard Target: ±25 mm position, ± 2° rotation | | *±10 mm position, ±0.5° rotation with option, (High Accuracy Positioning System) ±8 mm position, ±1° rotation with option, (Cell Alignment Positioning System) |
| | | | | |
| Drive wheel | Materials | Aluminum with polyurethane tread | | |
| | Size | 200 dia. × 50 mm nominal, 2 wheels | | |
| Passive caster | Materials | Static dissipative | | |
| | Size | 127 dia. × 51 mm nominal, 4 casters | | |
| Power | Battery | 22-30 VDC | | |
| | Capacity | 72 Ah Battery cell nominal capacity | | |
| | Run Time | 13 hours (continuous) approx. | | With no payload condition |
| | Recharge Time | 4 hours (4:1 ratio) approx. | | |
| | Battery Life Cycles | 2,000 recharge cycles (battery cell nominal) | | |
| | Charging Method | Automatic / manual | | |
| | Auxiliary Power | 5 VDC±5%, 1 A switched Aux power 12 VDC±5%, 1 A switched Aux power 20 VDC±5%, 1 A switched Aux power 22-30 VDC, 4 A switched × 2 22-30 VDC, 10 A switched* 22-30 VDC, 10 A safe, switched* | | 5, 12, 20, and 22-30 VDC power can be provided to external devices * 10 A switched and 10 A safe, switched share the 10 A of current |
| Standard | Harmonized Standard | EN ISO 12100 / EN ISO 13849-1 / EN 60204-1 | | |
| | Relevant Standard | EN 1525 / ANSI B56.5 | | |
| | Wireless | 802.11 a/b/g/n/ac | | |

LD Series

| Item | LD-250, ESD OEM | | Note |
|--------------------|-----------------------|---|---|
| | 37222-□000□ | | |
| Safety Features | Safety Scanning Laser | 1 at front Class 1 PLd safety per ISO13849-1 3 m maximum radius from laser for safety zones 40 m radius for general sensing 240° field of view | |
| | Emergency Stop | 1 at operator panel, 1 on each side (3 total) | |
| | Rear Sensing | Time of flight (TOF) sensors | |
| | Low Front Laser | 1 at front of platform Class 1 4 m maximum range 126° field of view | |
| | Side Laser | Option* | * 2 on sides of payload structure, user-mounted |
| | Indicators | Light disc in each side | |
| | Speaker | 3.5 in., 80 W max. | |
| Operator Interface | Screen / Touch Panel | 3.5 in. TFT 320 × 240 pixels, color screen | |
| | Button | On button: green Off button: red Brake-release button: orange Keyswitch (disabled off button)* | * Key switch can be used to disable the off button to avoid accidental shutdown or tampering. |
| User Interface | Wireless | 802.11 a/b/g/n/ac | |
| | Ethernet Port | 1 x user LAN, 1 x maintenance LAN, Auto-MDIX | |
| | Serial | RS-232 × 2 | |
| | Digital I/O | 16 inputs, 16 outputs | |
| | Analog I/O | 8 inputs (0 to 30 V), 4 outputs (0-20 V) | |
| Cart Latching | Audio | Digital audio out, audio in / audio out | |
| | Latching Method | Not available | |

MobilePlanner Software

| | |
|----------------------------|--|
| Operating System | Windows 10 (32-bit/64-bit version) |
| CPU | 1.5 GHz dual-core CPU recommended |
| Main Memory | 1.5 GB min. (4 GB min. recommended) |
| Hard Disk | At least 200 MB of available space |
| Video Memory | 256 MB min. |
| Display | XGA 1024 × 768, 16 million colors |
| Supported Languages | English, Japanese, German, French, Italian, Korean, Spanish, Simplified Chinese, Traditional Chinese |

EM2100 Appliance

| | |
|---------------------------------|---|
| Part Numbers | 20271-900 (Primary Fleet Manager) 20271-901 (Secondary Fleet Manager) 20271-903 (Bundle, Fleet Simulator) |
| Dimensions- W × D × H | 430 × 495.3 × 43.7 mm |
| Weight | 9.1 kg |
| Mounting method | 1U rack mount in a standard 19-inch equipment rack |
| Power Supply | 100-240 VAC (typical 100 W) |
| Power Consumption | 200W max. |
| Operating Temperature | 10 to 35 °C |
| Storage Temperature | -25 to 60 °C |
| Operating Humidity | 8 to 90%, non-condensing |
| Storage Humidity | 5 to 95%, non-condensing |
| Chassis protection class | IP20 |
| CPU | Intel® Xeon® CPU |
| Main Memory | 32 GB DDR3 |
| Storage | 60 GB SSD |
| Archive Storage | 4 TB HDD |
| Communication port | 10/100/1000 Ethernet × 4, USB × 4, VGA |
| Status Display | Multi-segment LCD |

High Accuracy Positioning System

| | | |
|--------------------------------|--|--|
| Part Number | 13660-□□00 (LD-60/90/105CT/130CT) 21374-□□00 (LD-250) | |
| Sensor | Depth | 30 mm |
| | Width | 160 mm |
| | Rating | IP64 |
| | Environment | -40 to 85 °C |
| | LEDs | Power, tape present, left marker, right marker |
| Magnetic Tape | Width | 25 mm |
| | Orientation | South up |
| Markers (Magnetic Tape) | Width | 25 mm |
| | Length | 300 mm min. for 500 mm/s drive speed |
| | Orientation | North up |
| | Separation From Tape | 15 - 30 mm |
| Connections | Front Sensor | RS232-1 (/dev/ttyUSB9) on the core |
| | Rear Sensor | RS232-2 (/dev/ttyUSB10) on the core |
| | Power, Both Sensors | Aux power using the included splitter cable |

Acuity Localization

| | |
|--------------------------|--|
| Part Number | 13700-□□00 |
| Field of View | 140° |
| Power Input | 12 VDC (±10%) supplied from platform through power connector |
| Power Consumption | 3.3 W maximum |

Cell Alignment Positioning System (CAPS)

| | |
|-------------------------------|------------------------------|
| Part Number | 20271-805 |
| Type | Software license |
| Stop Position Accuracy | ±8 mm position, ±1° rotation |

Touchscreen

| | |
|--------------------------|--|
| Part Number | 13605-000 |
| Touch Panel | PCAP touch sensor, black-bordered cover lens |
| TFT Display | TFT LCD panel, 18/24 bit RGB parallel interface, 7.0 in. WVGA - wide viewing angles, 5-touch |
| Backlight | Constant current LED supply |
| Power Input | 5 VDC supplied through power connector |
| Power Consumption | 6.5 W maximum |

Call/Door Box

| | |
|------------------------------|---|
| Part Number | 13029-802 |
| Dimensions- W × D × H | 141.4 × 74.7 × 30 mm |
| Weight | 190 g |
| Mounting method | Mount to the provided wall frame with four screws |
| Power Supply | 12 VDC |
| Power Consumption | 0.5 A, 6 W typical |
| WiFi | IEEE 802.11 a/b/g/n |
| Communication Port | Ethernet |
| I/O | Input × 2, output × 2 (30 VDC, 2 A max.) |

Battery

| | |
|------------------------------|--|
| Part Number | 20452-000 |
| Run Time (No Payload) | 15 hours (continuous) approx. (LD-60/90) 13 hours (continuous) approx. (LD-250) |
| Weight | 19 kg |
| Voltage | 22-30 VDC |
| Capacity | 72 Ah (battery cell nominal) |
| Recharge Time | 4 hours approx. |
| Life Expectancy | 2,000 times 80% DOD (battery cell nominal), 7 years, approx., 16 hrs/day, 5 days/wk 4 years, approx., 19/7 (full-time) |

Docking Station

| | |
|-------------------------------|---|
| Part Number | 12477-0□□0 |
| Current | 8 A*1 |
| Contacts | 2 |
| Power | 100 to 240 VAC, 50 to 60 Hz |
| Power Consumption | 800 W |
| Humidity | 5 to 95 %, non-condensing |
| Temperature | 5 to 40° C |
| Dimensions (W × D × H) | 349 × 369 × 315 mm 495 × 495.5 × 317 mm (with floor plate) |
| Weight | 8.2 kg |
| Mounting | Wall bracket, directly to floor, or on floor with floor plate |
| Indicators | Power on: blue Charging: yellow |
| Connector | For out-of-platform battery charging |

*1 Thermal fuse in AC power switch (10 A time-lag fuse at switch for legacy dock)

Joystick

| | |
|--------------------|-----------|
| Part Number | 13558-000 |
| Weight | 0.55 kg |
| IP Rating | IP56 |

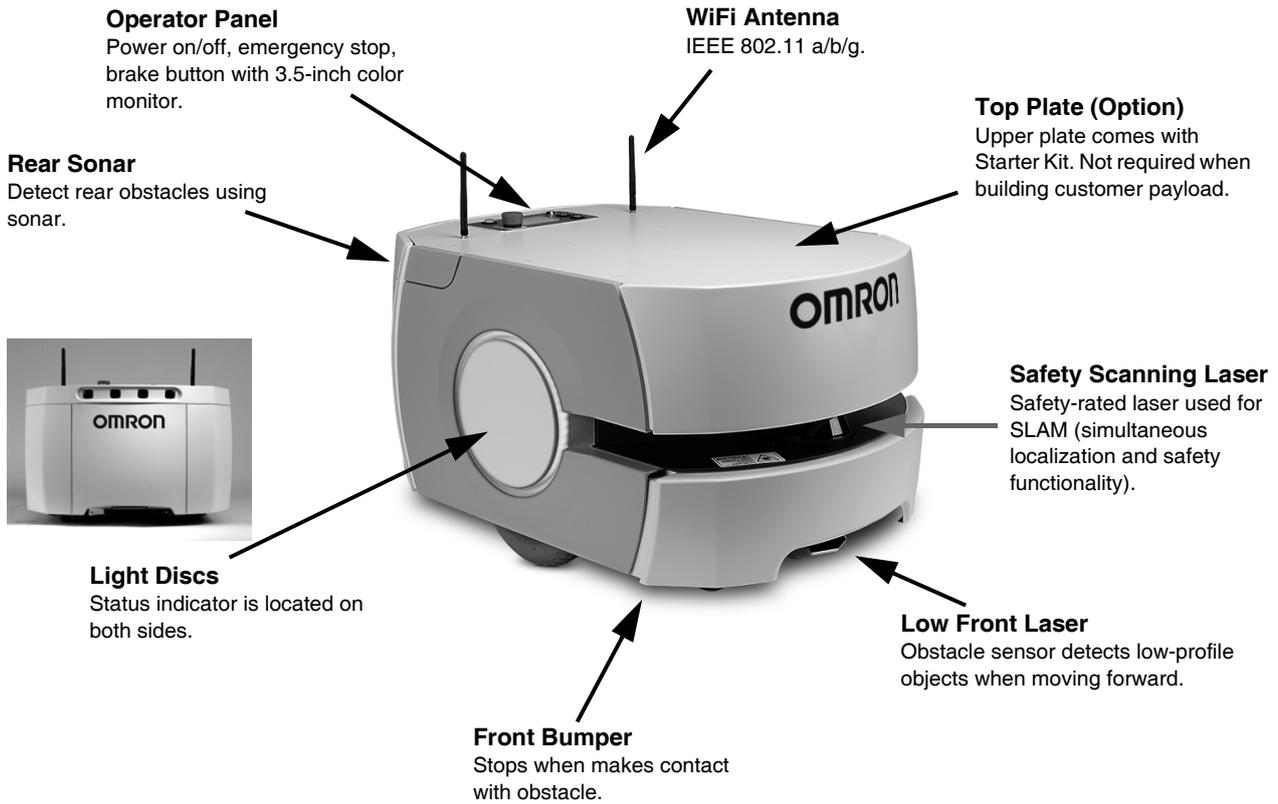
Cart

| | |
|-------------------------------|--------------------------------|
| Part Number | 75020-000 |
| Dimensions (L × W × H) | 592 × 846 × 480 mm |
| Weight | 23 kg |
| Rating | ESP-rated |
| Passive Casters | 2 front, 2 rear, spring-loaded |
| Caster Diameter | 100 mm nominal |
| Caster Brakes | At 2 rear casters |

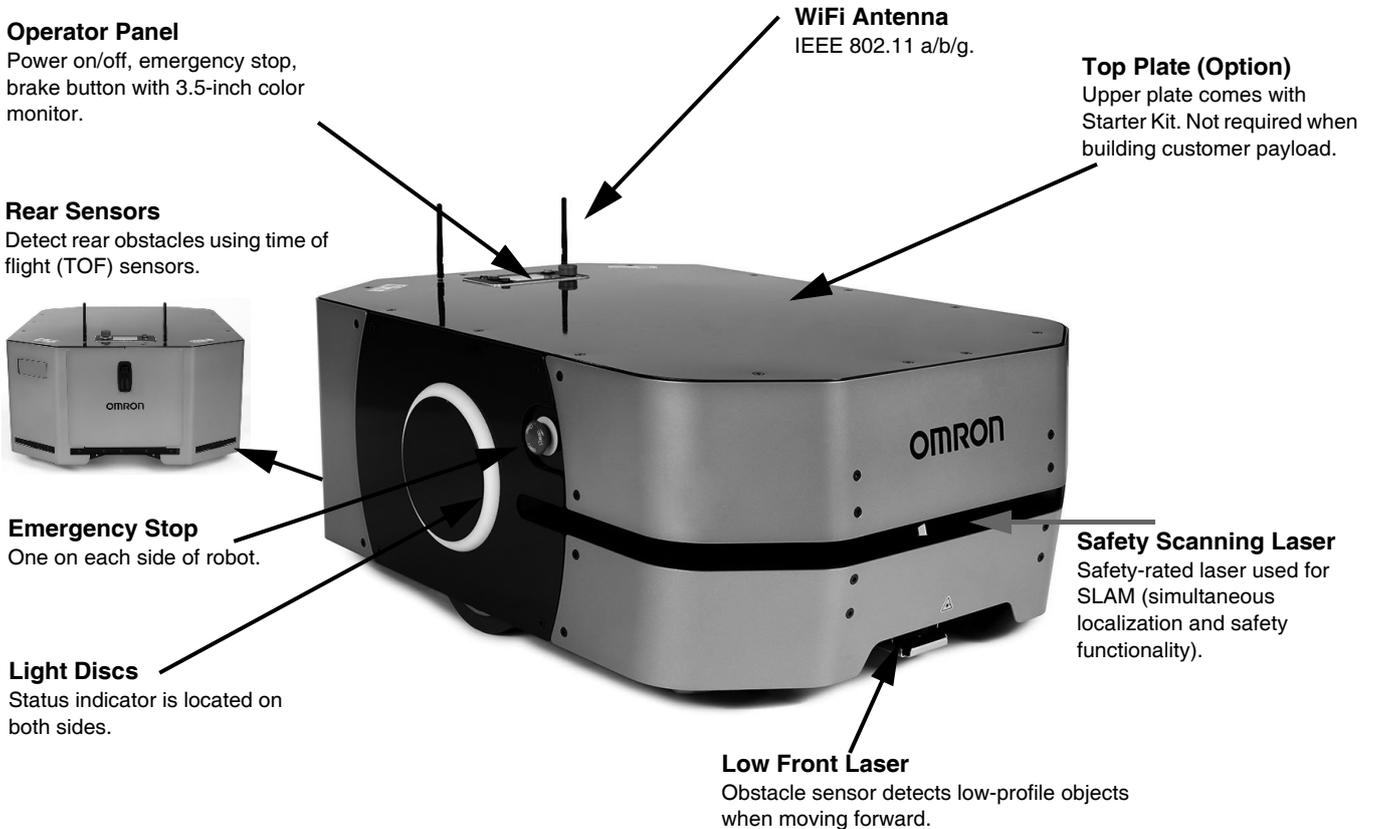
LD Series

Components and Functions

LD-60, LD-90, ESD OEM



LD-250, ESD OEM

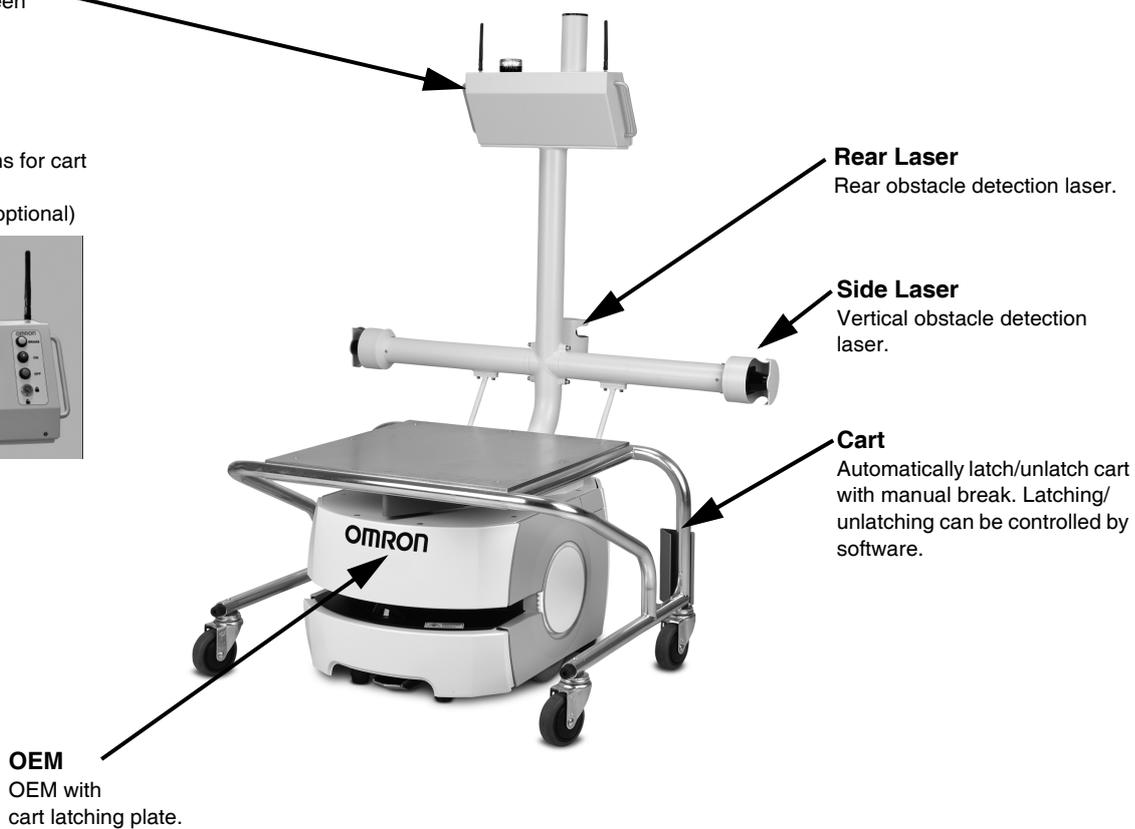


Components and Functions

Cart Transporter

Operator Panel

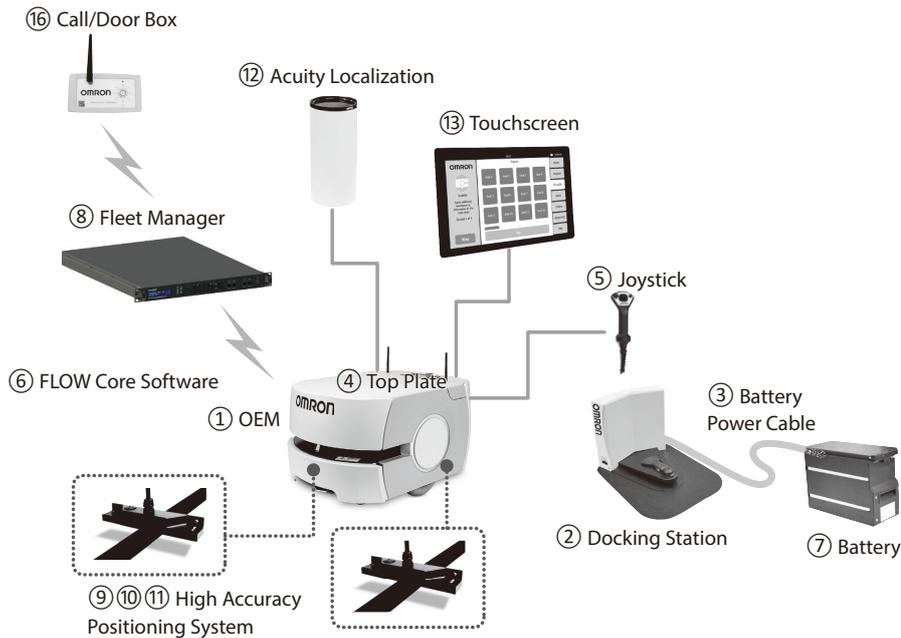
- 7 in. color touchscreen (status, goal input)
- WiFi antenna × 2
- Emergency stop
- Power on/off
- Brake button
- Latch/unlatch buttons for cart
- Beacon
- Acuity localization (optional)



LD Series

System Configuration

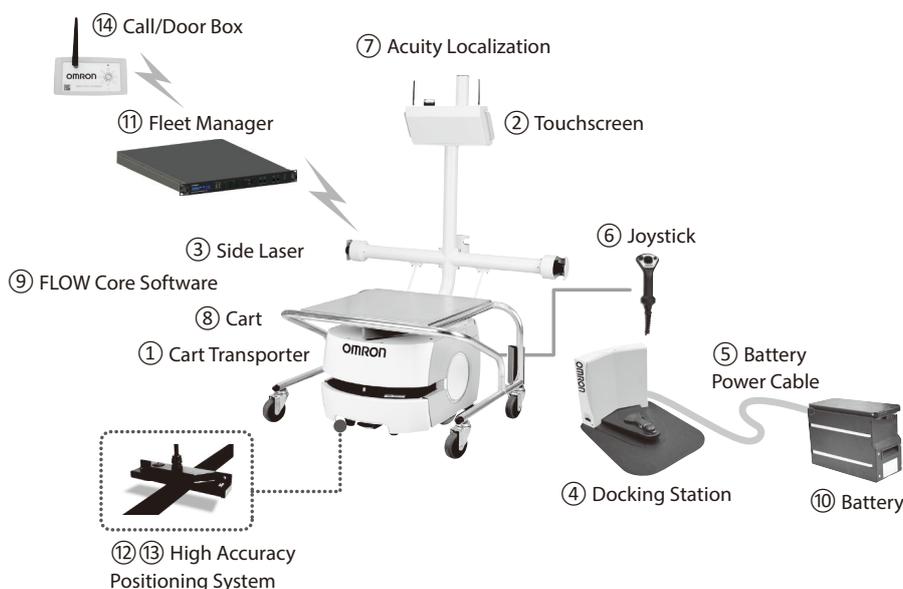
OEM



| | Product Name | Part Number | Description | Notes |
|---|--|------------------------|--|---|
| ① | OEM | 37□□2-00000 | A mobile robot OEM running OMRON's FLOW Core Software. | |
| ② | Docking Station | 12477-000 | A docking station to charge the battery installed in the mobile robot. | Included in docking station kit and starter kit |
| ③ | Battery Power Cable | 12676-000L | A cable to connect a battery and docking station to charge the battery outside of the mobile robot. | |
| ④ | Top Plate | 12944-000 20458-002 | A upper plate of the mobile robot OEM. It is not necessary for building customer payload. | |
| ⑤ | Joystick | 13558-000 | Used for manually controlling the mobile robot. | Included in starter kit |
| ⑥ | FLOW Core Software | Embedded | OMRON'S mobile solution operating software supporting navigation, safety, fleet management and advanced features. | - |
| ⑦ | Battery | 20452-000 | A battery that is installed in the mobile robot. | - |
| ⑧ | Fleet Manager | 20271-900 | EM2100 appliance with FLOW Core software configured for mobile robot fleet management. | - |
| ⑨ | High Accuracy Positioning System (Single sensor) | 13660-100 21374-100 | A combination of sensor and magnetic tape to achieve accurate alignment during forward driving motion, when the sensor is attached to mobile robot and magnetic tape is on the floor. | - |
| ⑩ | High Accuracy Positioning System (Double sensor) | 13660-000 21374-000 | A combination of two sensors and magnetic tape to achieve accurate alignment during forward and backward driving motions, when the sensors are attached to mobile robot and magnetic tape is on the floor. | - |
| ⑪ | Magnetic Tape | 14925-000 | Magnetic tape for the High Accuracy Positioning System. The tape is applied to signal the mobile robot where to stop. | - |
| ⑫ | Acuity Localization | 13700-000 | Used where process layout or obstacle location changes often. Installed on a payload structure attached to the mobile robot. | - |
| ⑬ | Touchscreen | 13605-000 | Allows operators to check the status of the mobile robot, enter goals, and pause the mobile robot. Installed on a payload structure attached to the mobile robot. | - |
| ⑭ | Side Laser Bundle | 13456-000 | Used to detect obstacles that are at heights the safety scanning laser of the mobile robot cannot detect. Installed on a payload structure attached to the mobile robot. | - |
| ⑮ | Side Laser Kit | 13456-100 | Includes the above mentioned side laser, mounting kit, and metal enclosures. | - |
| ⑯ | Call/Door Box | 13029-802 | Used to issue a request for a mobile robot to go to the goal or to open a closed door, usually installed at location of use. | - |
| ⑰ | Breakout Cable | 14165-000 | A D-SUB44 pin cable for digital I/O interface of the mobile robot. | - |

System Configuration

Cart Transporter



| | Product Name | Part Number | Description | Notes |
|---|--|-------------|--|---|
| ① | Cart Transporter | 371□2-00000 | A mobile robot cart transporter running OMRON's FLOW Core Software. The battery is not included. | |
| ② | Touchscreen | 13605-000 | Allows operators to check the status of the mobile robot, enter goals, and pause the mobile robot. Installed on a payload structure attached to the mobile robot. | |
| ③ | Side Laser | 13456-000 | Used to detect obstacles that are at heights the safety scanning laser of the mobile robot cannot detect. Installed on a payload structure attached to the mobile robot. | Included in docking station kit and starter kit |
| ④ | Docking Station | 12477-000 | A docking station to charge the battery installed in the mobile robot. | |
| ⑤ | Battery Power Cable | 12676-000L | A cable to connect a battery and docking station to charge the battery outside of the mobile robot. | |
| ⑥ | Joystick | 13558-000 | Used for manually controlling the mobile robot. | |
| ⑦ | Acuity Localization | 13700-000 | Used where process layout or obstacle location changes often. Installed on a payload structure attached to the mobile robot. | Included in starter kit |
| ⑧ | Cart | 75020-000 | A cart designed to work seamlessly with the mobile robot cart transporter. | |
| ⑨ | FLOW Core Software | Embedded | OMRON's mobile solution operating software supporting navigation, safety, fleet management and advanced features. | - |
| ⑩ | Battery | 18578-000 | A battery that is installed in the mobile robot. | - |
| ⑪ | Fleet Manager | 20271-900 | EM2100 appliance with FLOW Core software configured for mobile robot fleet management. | - |
| ⑫ | High Accuracy Positioning System (Single Sensor) | 13660-100 | A sensor and magnetic tape to achieve accurate alignment when the mobile robot follows driving forward. The sensors are attached to the mobile robot. | - |
| ⑬ | Magnetic Tape | 14925-000 | Magnetic tape for the High Accuracy Positioning System. The tape is applied to signal the mobile robot where to stop. | - |
| ⑭ | Call/Door Box | 13029-802 | Used to issue a request for a mobile robot to go to the goal or to open a closed door. Installed at the goal or door. | - |
| ⑮ | Breakout Cable | 14165-000 | A D-SUB44 pin cable for digital I/O interface of the mobile robot. | - |

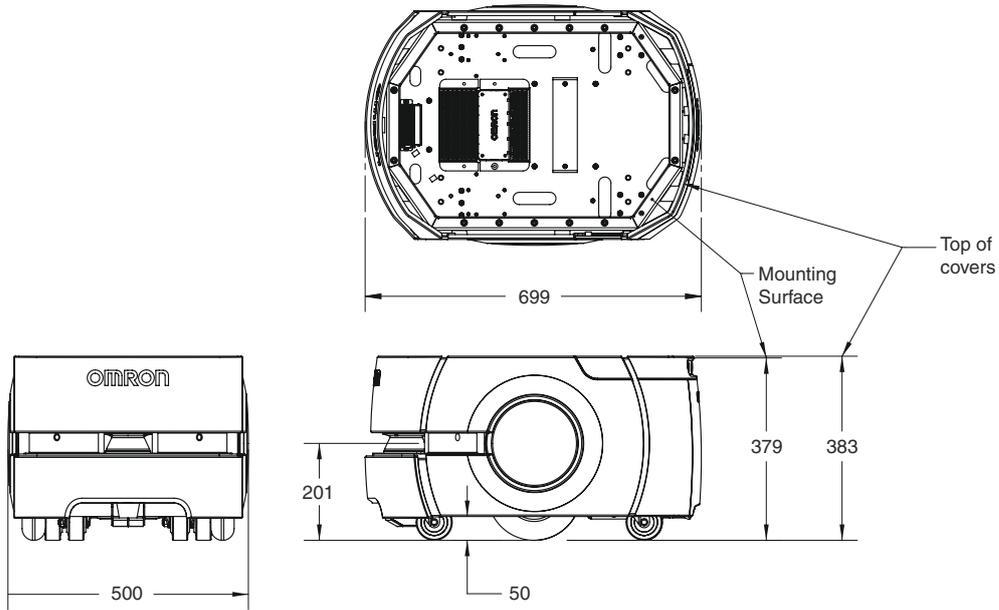
LD Series

Dimensions

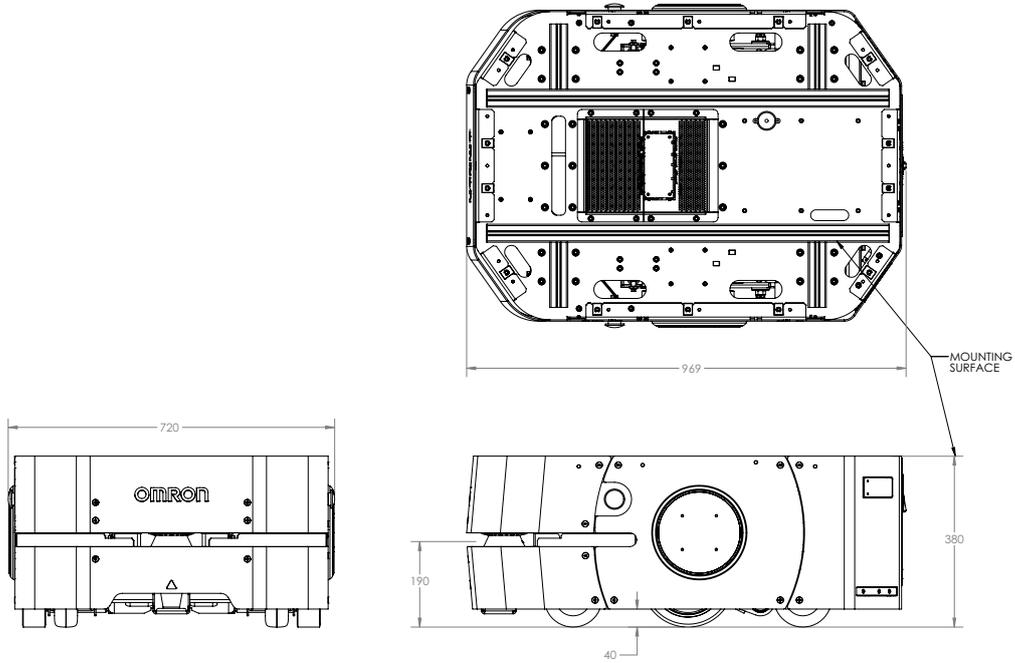
CAD data can be downloaded from Omron Adept Technologies Inc. website.
<http://www.adept.com/Robots-CAD-File>

(Unit: mm)

Mobile Robots-LD Platform LD-60, LD-90, ESD OEM

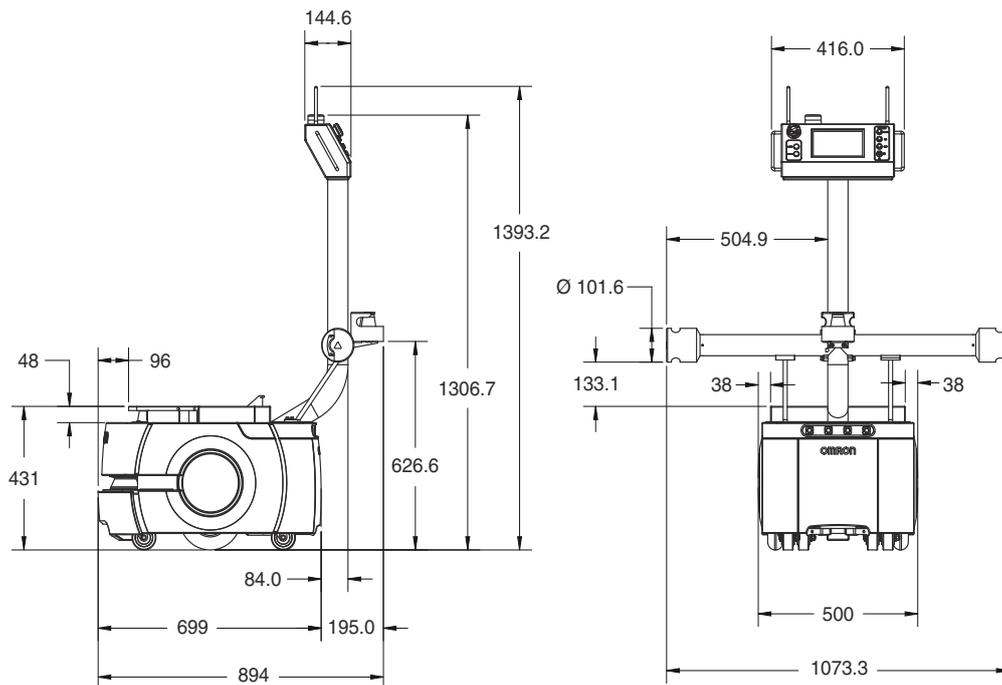


LD-250, ESD OEM

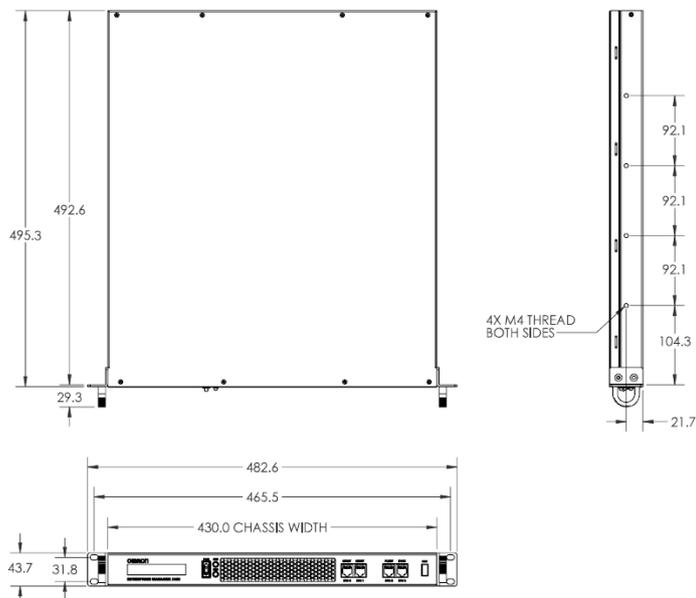
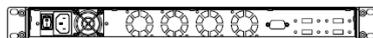


Dimensions

Cart Transporter



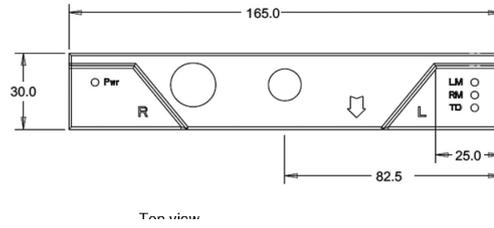
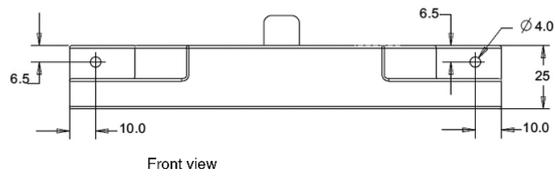
Fleet Manager EM2100 Appliance



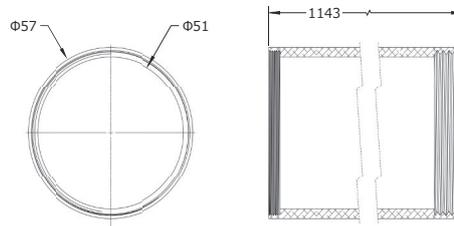
LD Series Dimensions

(Unit: mm)

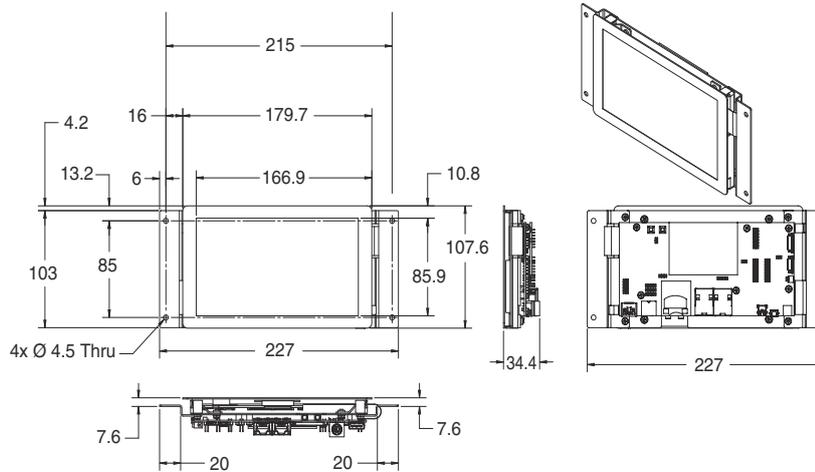
High Accuracy Positioning System



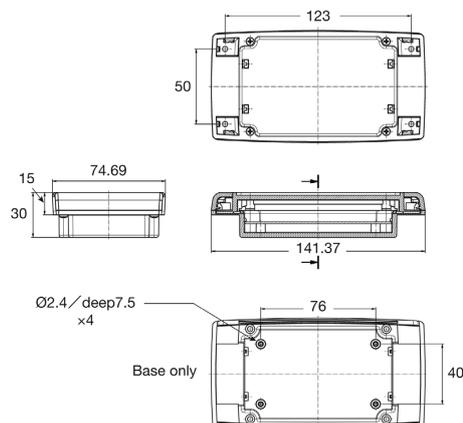
Acuity Localization



Touchscreen

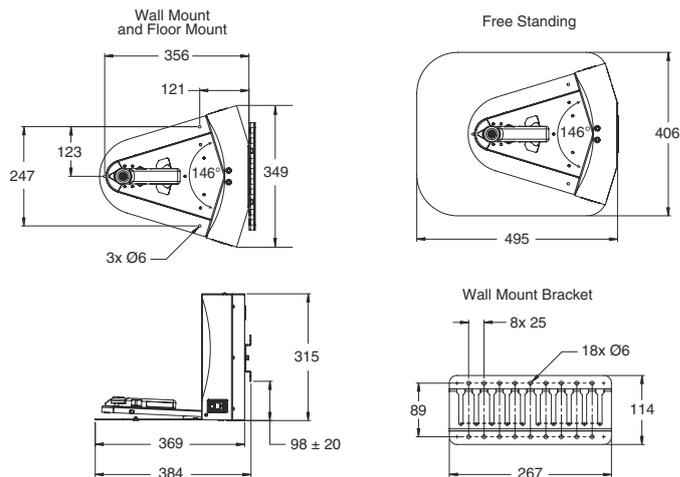


Call/Door Box

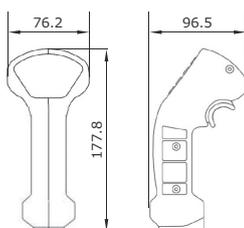


Dimensions

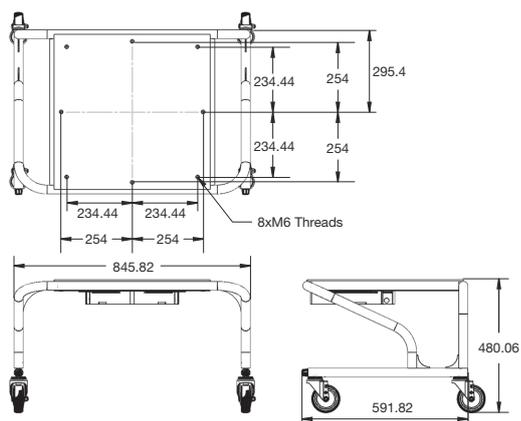
Docking Station



Joystick



Cart



LD Series

Related Manuals

| Manual No. | English Title |
|------------|---|
| I611 | Mobile Robots LD Platform User Guide |
| I612 | Mobile Robots LD Cart Transporter User Guide |
| I613 | Mobile Robots LD Platform Peripherals Guide |
| I614 | Mobile Robots Software Suite User Guide |
| I615 | Enterprise Manager User Guide |
| I616 | Mobile Robot LD Safety Guide |
| I617 | Advanced Robotics Command Language Reference Guide |
| I618 | Advanced Robotics Command Language Enterprise Manager Integration Guide |
| I634 | EM2100 Installation Guide |
| I635 | Fleet Operations Workspace Core User Guide |
| I636 | Fleet Operations Workspace Core Migration Guide |
| I637 | Fleet Operation Workspace Core Integration Toolkit User Guide |
| I641 | Fleet Simulator User's Guide |
| I642 | LD-250 Platform User Guide |

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Ordering Information for Previous Generation Models (Planned Obsolescence in Future)

Mobile Robots-LD Platform

| Appearance | Product Type | Product Name | Maximum Load | Maximum Speed | Configuration & Attachment | | Part Number |
|--|------------------|--------------|--------------|---------------|----------------------------|---|-------------|
|  | OEM* | LD-60 | 60 kg | 1.8 m/s | Standard | - | 37031-00000 |
| | | | | | Docking station kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L | 37031-00002 |
| | | | | | Starter kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L Joystick : 13558-000 Top plate : 12944-000 | 37031-10004 |
| | | LD-90 | 90 kg | 1.35 m/s | Standard | - | 37041-00000 |
| | | | | | Docking station kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L | 37041-00002 |
| | | | | | Starter kit | Docking station : 12477-000 Battery power cable (0.45 m) : 12676-000L Joystick : 13558-000 Top plate : 12944-000 | 37041-10004 |
|  | Cart Transporter | LD-105CT | 105 kg | 1.35 m/s | Standard | Touchscreen :13605-000 Side laser :13456-000 | 37141-00010 |
| | | | | | Docking station kit | Touchscreen :13605-000 Side laser :13456-000 Docking station :12477-050 Battery power cable (0.45 m) :12676-000L | 37141-00012 |
| | | | | | Starter kit | Touchscreen :13605-000 Side laser :13456-000 Docking station :12477-050 Battery power cable (0.45 m) :12676-000L Acuity localization :13700-000 Joystick :13558-000 Cart :75020-000 | 37141-01014 |
| | | LD-130CT | 130 kg | 0.9 m/s | Standard | Touchscreen :13605-000 Side laser :13456-000 | 37161-00010 |
| | | | | | Docking station kit | Touchscreen :13605-000 Side laser :13456-000 Docking station :12477-050 Battery power cable (0.45 m) :12676-000L | 37161-00012 |
| | | | | | Starter kit | Touchscreen :13605-000 Side laser :13456-000 Docking station :12477-050 Battery power cable (0.45 m) :12676-000L Acuity localization :13700-000 Joystick :13558-000 Cart :75020-000 | 37161-01014 |

* Also available in ESD versions (built in accordance with the IEC 61340-5-1 standard).

Legacy Fleet Management Solutions

| Appearance | Product Name | Configuration & Attachment | Part Number |
|---|---------------|--|-------------|
|  | MobilePlanner | Installer (USB)* License Dongle MSS 4.X compatible | 13495-200 |

* The latest version of MobilePlanner can be downloaded from the OMRON Robotics and Safety Technologies Inc. website.

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CSM_7_1

Cat. No. I828-E-09

0221(0117)

Mobile Robots HD Series

Autonomous Mobile Robots (AMRs) that self-navigate to transport heavy payloads

- Natural feature navigation:
Automatically plans efficient routes and prevents collisions
- Fleet management:
Operates in coordination with a fleet of up to 100 mobile robots
- Easy deployment:
Installs quickly, without facility modifications



Ordering Information

Mobile Robots-HD Platform

| Appearance | Product Name | Maximum Load | Maximum Speed | Configuration and Attachment | Part Number | |
|------------|--------------|--------------|---------------|---|---|-------------|
| | HD-1500 | 1500 kg | 1800 mm/s | Mobile Robot, HD-1500, No Battery | 37480-00000 | |
| | | | | Mobile Robot, HD-1500, No Battery Single HAPS (Factory installed) | :37480-00000 :68925-010 | 37480-00100 |
| | | | | Mobile Robot, HD-1500, No Battery Double HAPS (Factory installed) | :37480-00000 :68925-020 | 37480-00200 |
| | | | | Mobile Robot, HD-1500, No Battery Side Lasers (Factory installed) | :37480-00000 :68945-010 | 37480-00010 |
| | | | | Mobile Robot, HD-1500, No Battery Single HAPS (Factory installed) Side Lasers (Factory installed) | :37480-00000 :68925-010 :68945-000 | 37480-00110 |
| | | | | Mobile Robot, HD-1500, No Battery Double HAPS (Factory installed) Side Lasers (Factory installed) | :37480-00000 :68925-020 :68945-000 | 37480-00210 |
| | | | | Starter Kit, Mobile Robot, HD-1500, No Battery Docking Station Pendant Top Plate (Factory installed) | :37480-00000 :68910-010 :68940-000L :68950-000 | 37480-10004 |
| | | | | Starter Kit, Mobile Robot, HD-1500, No Battery Docking Station Single HAPS (Factory installed) Pendant Top Plate (Factory installed) | :37480-00000 :68910-010 :68925-010 :68940-000L :68950-000 | 37480-10104 |
| | | | | Starter Kit, Mobile Robot, HD-1500, No Battery Docking Station Double HAPS (Factory installed) Pendant Top Plate (Factory installed) | :37480-00000 :68910-010 :68925-020 :68940-000L :68950-000 | 37480-10204 |
| | | | | Starter Kit, Mobile Robot, HD-1500, No Battery Docking Station Single HAPS (Factory installed) Pendant Top Plate (Factory installed) Side Lasers (Factory installed) | :37480-00000 :68910-010 :68925-010 :68940-000L :68950-000 :68945-000 | 37480-10114 |
| | | | | Starter Kit, Mobile Robot, HD-1500, No Battery Docking Station Double HAPS (Factory installed) Pendant Top Plate (Factory installed) Side Lasers (Factory installed) | :37480-00000 :68910-010 :68925-020 :68940-000L :68950-000 :68945-000 | 37480-10214 |
| | | | | Bundle, Mobile Robot, HD-1500, No Battery Docking Station | :37480-00000 :68910-010 | 37480-00002 |
| | | | | Battery for HD-1500 | | 68330-000 |

Note: To ensure proper fleet management, please contact an OMRON representative before ordering mobile robots to add to an existing fleet.

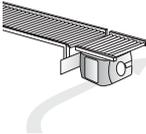
HD Series

Fleet Operations Workspace Solutions

| Appearance | Product Name | Configuration & Attachment | Part Number |
|---|--|--|-------------|
|  | Primary Fleet Operations Workspace (FLOW) Core License, 1 Year | Entitlement for a 1 year renewable Primary FLOW Core license per AMR | 20271-800 |
| | Primary Fleet Operations Workspace (FLOW) Core License, 5 Year | Entitlement for a 5 year renewable Primary FLOW Core license per AMR | 20271-806 |
| | Secondary Fleet Operations Workspace (FLOW) Core License, 1 Year | Entitlement for a 1 year renewable Secondary FLOW Core License per fleet | 20271-802 |
| | Secondary Fleet Operations Workspace (FLOW) Core License, 5 Year | Entitlement for a 5 year renewable Secondary FLOW Core License per fleet | 20271-807 |
|  | Primary Fleet Manager | EM2100 Appliance with Temporary 120 Day Fleet Operations Workspace License | 20271-900 |
| | Secondary Fleet Manager | EM2100 Appliance with Temporary 120 Day Fleet Operations Workspace License | 20271-901 |
|  | Bundle. Fleet Simulator | Package includes: Entitlement for perpetual Fleet Simulator License and EM2100 appliance | 20271-903 |
| | License, Fleet Simulator | Entitlement for perpetual Fleet Simulator license for existing EM2100 devices | 20271-804 |

- * To obtain the latest version of the Fleet Operations Workspace (FLOW) Core software, contact your local OMRON representative. Please note that an active subscription is required for access to software upgrades.
- * Expiration of a 1 year subscription license without renewal will result in cessation of the fleet management functions of the OMRON AMR solution until the license is renewed.
- * After four consecutive 1 year renewals (for a total of 5 years) or after purchase of a 5 year license, all fleet management functions will continue to operate without requiring subsequent subscription renewals. Please note that an active subscription will still be required to have access to subsequent software releases, including bug fixes, feature upgrades and performance improvements.

Options

| Appearance | Product Name | Specification | Configuration & Attachment | Part Number |
|---|--|--------------------------|---|-------------|
|  | High Accuracy Positioning System (HAPS) | Kit, Single sensor | Sensor × 1, mounting bracket × 1, power connector × 1, RS-232 connector × 1, 25 mm wide magnetic tape (south top side, 50 m roll) | 68925-010 |
| | | Kit, Double sensor | Sensor × 2, mounting bracket × 2, power connector × 1, RS-232 connector × 2, 25 mm wide magnetic tape (south top side, 50 m roll) | 68925-020 |
| | | Heavy Duty Magnetic tape | 25 mm wide magnetic tape (south top side, 50 m roll) | 14925-000 |
|  | Cell Alignment Positioning System (CAPS) | Software license | Software license activated on each AMR individually. | 20271-805 |

Accessories

| Appearance | Product Name | Specification | Configuration & Attachment | Part Number |
|---|---|--|---|-------------|
|  | Battery | For HD-1500 models | HD-1500 battery | 68330-000 |
|  | Docking Station (Part number: 68910-010) | Both wall or floor mount | Power Supply | 68310-000 |
|  | | | Charging Target | 68910-000 |
|  | Pendant | Cable length: 0.6 to 3 m | Includes a 3-position enabling switch | 68940-000L |
|  | Top Plate | Top cover for HD-1500 | Kit includes mounting hardware and a cover for the User Access Panel | 68950-000 |
|  | Side Lasers | 270 degree field of view, 8 m detection range. | Side lasers may be mounted in the standard location on the AMR, or moved to a custom location. The kit comes with brackets that may be used if the lasers are not mounted in the standard location. | 68945-010 |

HD Series

Specifications

Mobile Robots-HD Platform

| Item | HD-1500 | Note | |
|-----------------------|--|--|---|
| Materials | Structural components are made from low carbon steel and cast aluminum, nonstructural parts are aluminum | | |
| Dimension (L x W x H) | 1696 x 1195 x 370 mm | | |
| Weight (with Battery) | 585 kg | | |
| Environment | Ambient temperature | 5 to 40 °C | |
| | Ambient humidity | 5 to 95% (non-condensing) | |
| | Operating Environment | Indoor usage only, no excessive dust, no corrosive gas | Direct sunlight may cause safety laser false positive |
| | IP rating | IP20 | |
| Floor Conditions | Floor Requirements | concrete, epoxy floor (no water, no oil, no dirt) | |
| | Minimum floor flatness | F _F 25 (ACI 117 standard)* | * ACI 117 is the American Concrete Institute standard for concrete floors. |
| | Traversable step | 10 mm max. | Maximum speed of 500 mm/sec forward and 400 mm/sec backwards |
| | Traversable gap | 15 mm max. | |
| | Climb grade | level floor only. | max. 3% incline |
| Navigation | Routing | Autonomous routing by localizing with safety scanning laser based on environment mapping | |
| | Environmental map making method | Scan by walking the mobile robot through the environment, and upload the scan data in the MobilePlanner | |
| Payload | Maximum Weight | 1500 kg | |
| Mobility | Maximum Speed | 1800 mm/s | |
| | Maximum Rotation Speed | 60°/s | |
| | Stop Position Repeatability | ± 50 mm position* | *±10 mm position, ±0.5° rotation with option, (High Accuracy Positioning System) ±8 mm position, ±1° rotation with option, (Cell Alignment Positioning System) |
| Drive wheels | Materials | Non-marking, static dissipative Polyurethane on steel rim. | |
| | Size | 250 mm diameter x 80mm 2 wheels | |
| Passive casters | Materials | Non-marking Polyurethane on cast iron 200 mm diameter x 50mm, 4 casters, 2 wheels each (8 wheels total) | |
| Power | Voltage | 42VDC - 57VDC (52.8 V Nominal) | |
| | Capacity | 70 Ah Battery cell nominal capacity | |
| | Run Time | 12.5 hours (unloaded), 9 hours (full load) | |
| | Recharge Time | 23.33 minutes (20 - 80%) or 39 minutes (0 - 100%) | |
| | Battery Life Cycles | 9000 recharge cycles (battery cell nominal) | |
| | Charging Method | Automatic / manual | |
| Standard | Harmonized Standard | EN ISO 12100, EN ISO 13849-1, EN 60204-1 | |
| | Relevant Standard | EN 60204-1, ISO 10218, UL1564, UL2271, UL1740 | |
| | Wireless | IEEE 802.11 a/b/g/n/ac | |
| Safety Features | Safety Scanning Lasers | (2) one at front right corner and one at back left corner for 360 degree of safety zones. Each laser has a 270 deg. field of view. | 175 mm above floor 360°, 30 m range, Class 1, eye-safe PLd Safety per ISO 13849-1 |
| | Emergency Stops | one at Operator Panel screen, four others on the side panels (2 on each side) | |
| | Low Lasers | (2) one at front -right and one at back-left. 180 degree field of view | |
| | Side Lasers | Optional | * 2 on sides of payload structure, factory mounted, user-adjustable |
| | Indicators | Light disks on each side, light strips on the front and back. | |
| | Speakers | (2) 3.5 in. speakers, (2) piezo buzzers | |
| Operator Panel | Display | 7 in. diagonal LCD | |
| | Controls | Key switch*, pendant connector, and maintenance port, on, off, and brake-release buttons. | * Key switch can be used to disable the off button to avoid accidental shutdown or tampering |
| User Interface | Wireless | IEEE 802.11 a/b/g/n/ac | |
| | Ethernet Port | 1 x maintenance LAN, 1 x user LAN, 2 x internal LAN | |
| | Digital I/O | 8 inputs and outputs | |
| | Analog I/O | 4 inputs and outputs | |
| | Audio | Digital audio out | |

Components and Functions

MobilePlanner Software

| | |
|---------------------|--|
| Operating System | Windows 10 (32-bit/64-bit version) |
| CPU | 1.5 GHz dual-core CPU recommended |
| Main Memory | 1.5 GB min. (4 GB min. recommended) |
| Hard Disk | At least 200 MB of available space |
| Video Memory | 256 MB min. |
| Display | XGA 1024 × 768, 16 million colors minimum |
| Supported Languages | English, German, Japanese, French, Italian, Korean, Spanish, Simplified Chinese and Traditional Chinese. |

EM2100 Appliance

| | |
|--------------------------|---|
| Part Numbers | 20271-900 (Primary Fleet Manager) 20271-901 (Secondary Fleet Manager) 20271-903 (Bundle, Fleet Simulator) |
| Dimensions- W × D × H | 430 × 495.3 × 43.7 mm |
| Weight | 9.1 kg |
| Mounting method | 1U rack mount in a standard 19-inch equipment rack |
| Power Supply | 100-240 VAC (typical 100 W) |
| Power Consumption | 200W max. |
| Operating Temperature | 10 to 35 °C |
| Storage Temperature | -25 to 60 °C |
| Operating Humidity | 8 to 90%, non-condensing |
| Storage Humidity | 5 to 95%, non-condensing |
| Chassis protection class | IP20 |
| Main Memory | 32 GB DDR3 |
| Storage | 60 GB SSD |
| Archive Storage | 4 TB HDD |
| Communication port | 10/100/1000 Ethernet × 4, USB × 4, VGA |
| Status Display | Multi-segment LCD |

High Accuracy Positioning System

| | | |
|-------------------------|-------------------------|--|
| Part Number | 62925-010 and 62925-020 | |
| Sensor | Depth | 30 mm |
| | Width | 165 mm |
| | Rating | IP64 |
| | Environment | -40 to 85 °C |
| | LEDs | Power, tape present, left marker, right marker |
| Magnetic Tape | Width | 25 mm |
| | Orientation | South up |
| Markers (Magnetic Tape) | Width | 25 mm |
| | Length | 300 mm min. for 500 mm/s drive speed |
| | Orientation | North up |
| | Separation From Tape | 15 - 30 mm |
| Connections | Front Sensor | RS232-1 |
| | Rear Sensor | RS232-2 |
| | Power, Both Sensors | Aux power using the included splitter cable |

Cell Alignment Positioning System (CAPS)

| | |
|------------------------|------------------------------|
| Part Number | 20271-805 |
| Stop Position Accuracy | ±8 mm position, ±1° rotation |
| Type | Software license |

Battery

| | |
|-----------------------|---|
| Part Number | 68330-000 |
| Run Time (No Payload) | 12.5 hours |
| Weight | 68kg |
| Voltage | 44 - 57VDC (52.8V Nominal) |
| Capacity | 70Ah |
| Recharge Time | 23.33 minutes (20 - 80%) or 39 minutes (0 - 100%) |
| Life Expectancy | 9000 charge cycle 80% BOL capacity |

Docking Station

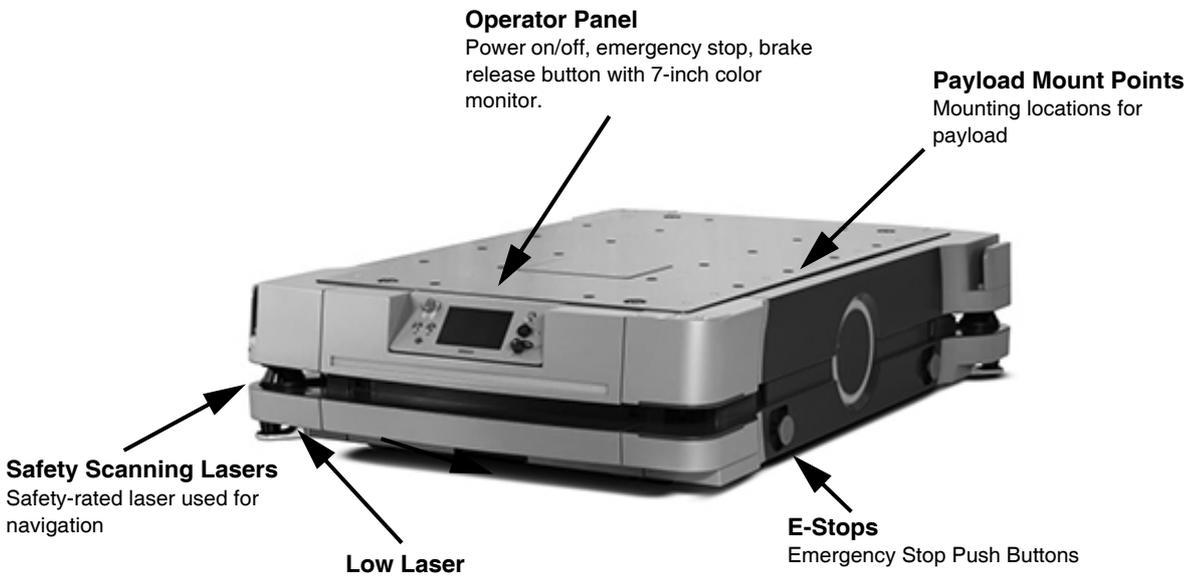
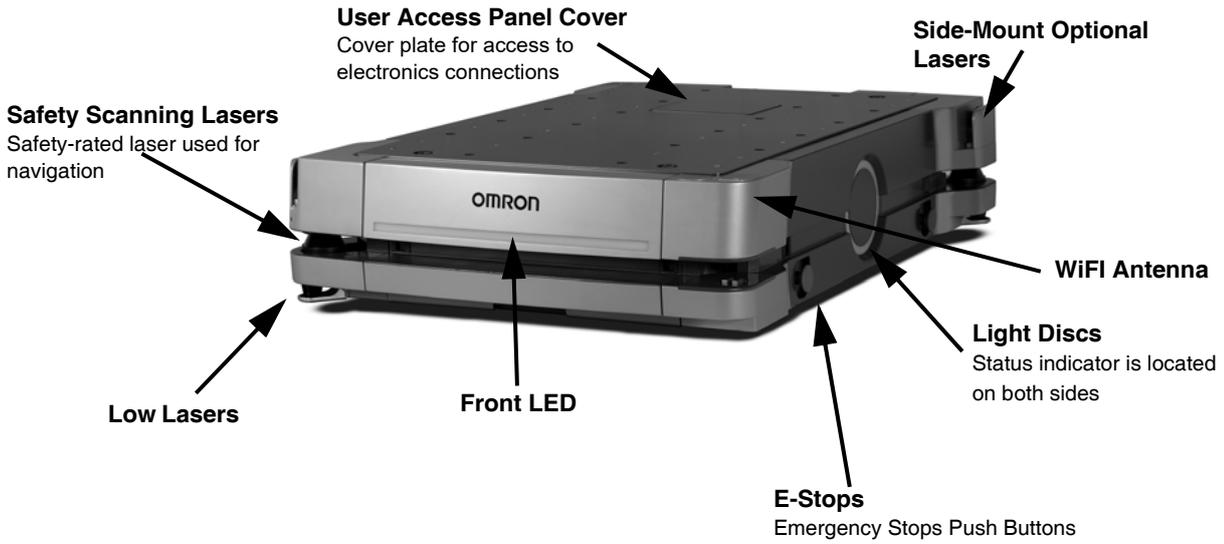
| | |
|------------------------|---|
| Part Number | 68310-000 (power supply); 68910-000 (target) |
| Current | Input current: 23 A Output current: 120 A |
| Contacts | 2 |
| Power | 200 - 240 VAC (Delta/Wye) 380 - 415 VAC (Wye only) |
| Power Consumption | 7.3 kW |
| Humidity | 5 to 95 %, non-condensing |
| Temperature | 5 to 40° C |
| Dimensions (W × L × H) | Power supply: 610 x 333 x 1112 mm Charging target: 1256 x 503 x 297 mm |
| Weight | Power supply: 105 kg Charging target: 39 kg |
| Mounting | directly to floor and wall |
| Indicators | Power on: Blue Charging: Yellow Error: Red Operating: Green |

Pendant

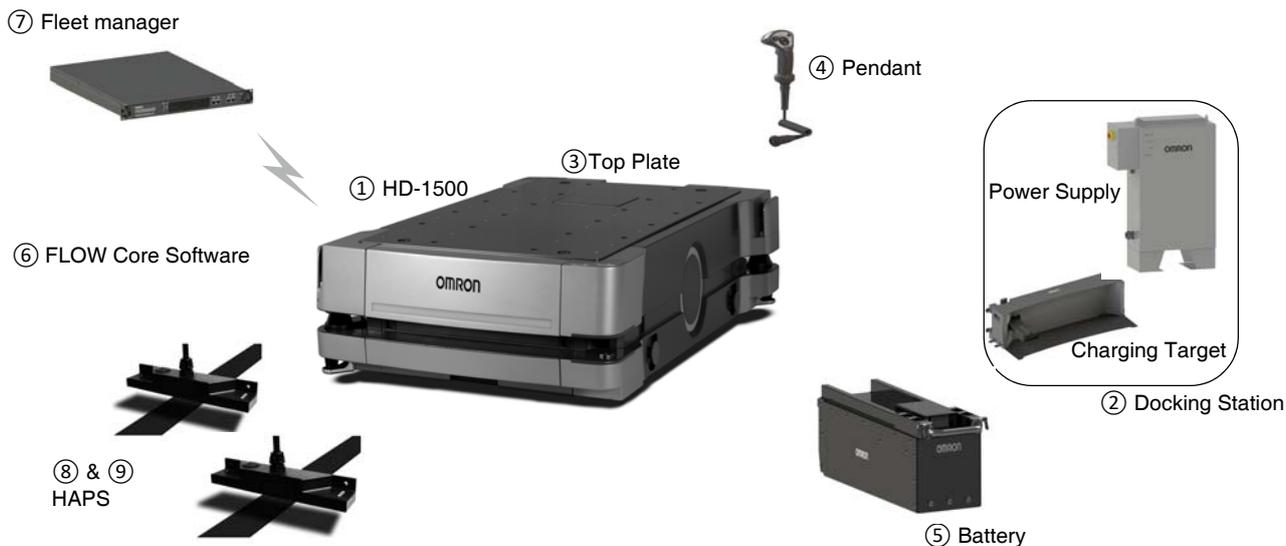
| | |
|-------------|------------|
| Part Number | 68940-000L |
| Weight | 0.55 kg |
| IP Rating | IP56 |

HD Series

HD-1500



Accessories



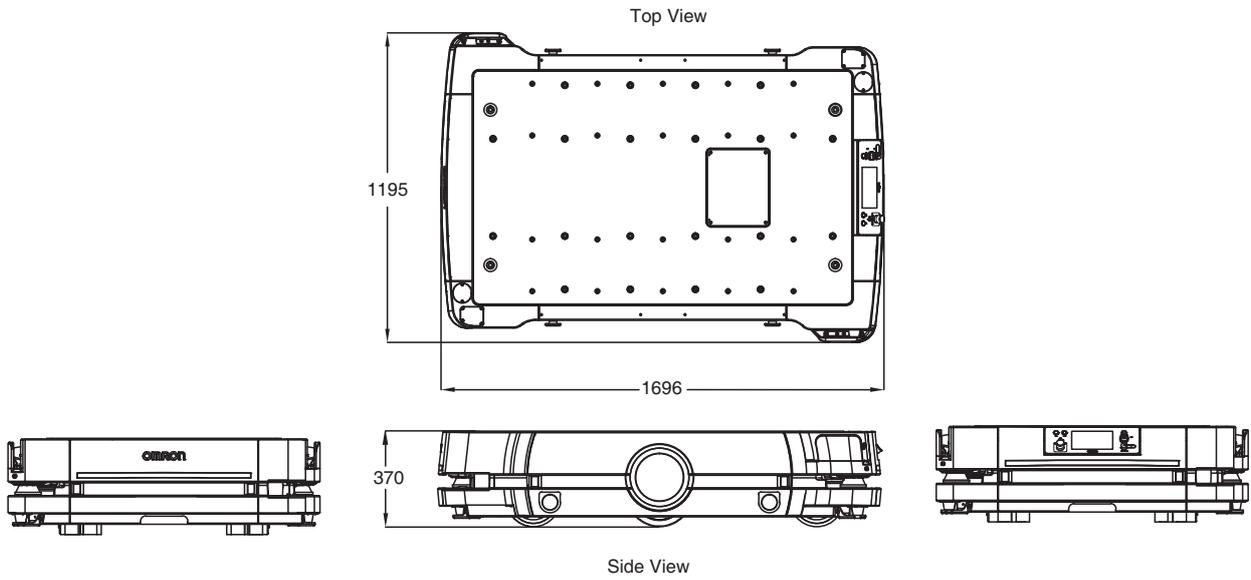
| | Product Name | Part Number | Description | Notes |
|---|--|-------------|--|---|
| ① | HD-1500 | 37480-00000 | A mobile robot OEM running OMRON's FLOW Core Software. The battery is not included. | |
| ② | Docking Station | 68910-010 | A docking station to charge the battery: Power supply: 68310-000 Charging target: 68910-000 | Included in starter kit |
| ③ | Top Plate, HD-1500 | 68950-000 | A upper plate of the mobile robot. It is not necessary for building customer payload. | |
| ④ | Pendant, HD-1500 | 68940-000L | Used for manually controlling the mobile robot. | |
| ⑤ | Battery, HD-1500 | 68330-000 | A battery that is installed in the mobile robot. | - |
| ⑥ | FLOW Core Software | Embedded | OMRON'S mobile solution operating software supporting navigation, safety, fleet management and advanced features. | - |
| ⑦ | Fleet Manager | 20271-900 | EM2100 appliance with FLOW Core software configured for mobile robot fleet management. | - |
| ⑧ | High Accuracy Positioning System (Single sensor) | 68925-010 | A combination of sensor and magnetic tape to achieve accurate alignment during forward driving motion, when the sensor is attached to mobile robot and magnetic tape is on the floor. | Factory Installed (Not field installed) |
| ⑨ | High Accuracy Positioning System (Double sensor) | 68925-020 | A combination of two sensors and magnetic tape to achieve accurate alignment during forward and backward driving motions, when the sensors are attached to mobile robot and magnetic tape is on the floor. | Factory Installed (Not field installed) |
| ⑩ | Magnetic Tape | 14925-000 | Heavy duty magnetic tape for the High Accuracy Positioning System. The tape is applied to signal the mobile robot where to stop. | - |
| ⑪ | Side Laser Kit | 68945-010 | Includes side laser, mounting kit, and metal enclosures. | - |

HD Series

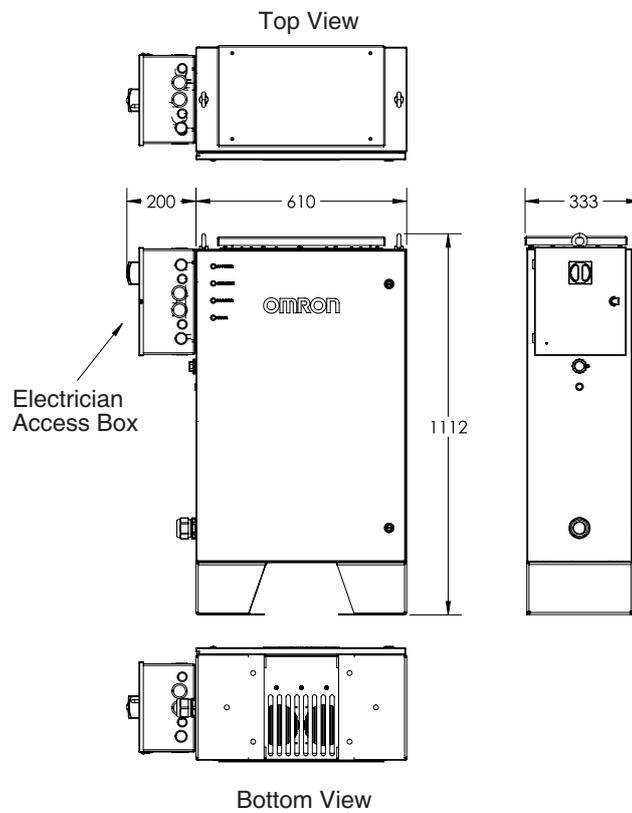
Dimensions

(Unit: mm)

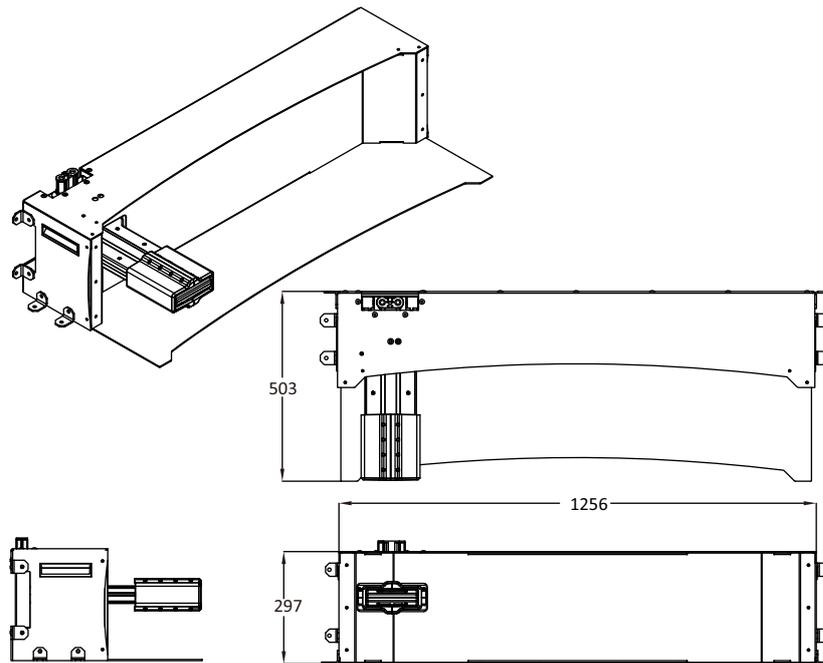
HD-1500 Mobile Robot



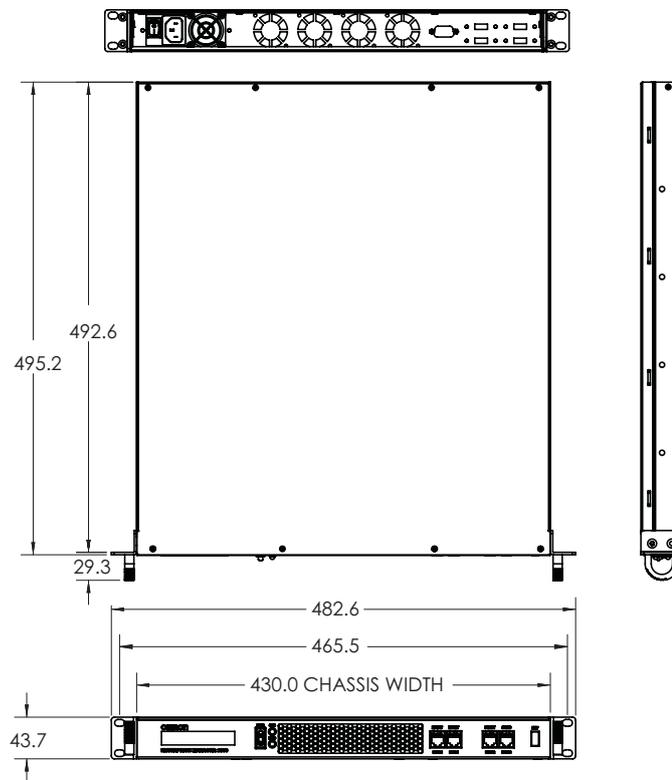
Power Supply Box



Docking Target

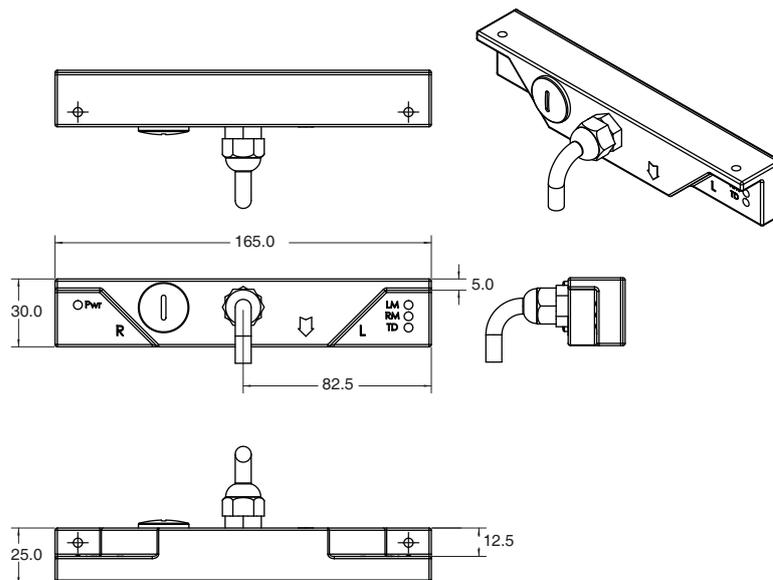


Fleet Manager EM2100 Appliance

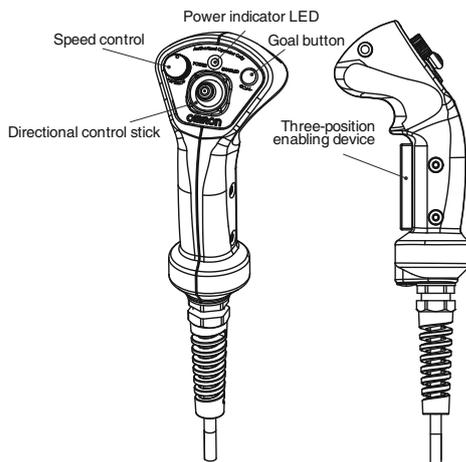


HD Series

High Accuracy Positioning System



Pendant



Related Manuals

| Manual No. | English Title |
|------------|--|
| I614 | Mobile Robots Software Suite User Manual |
| I615 | Enterprise Manager User Manual |
| I617 | Advanced Robotics Command Language Reference Manual |
| I618 | Advanced Robotics Command Language Enterprise Manager Integration Manual |
| I634 | EM2100 Installation Manual |
| I635 | Fleet Operations Workspace Core User Manual |
| I636 | Fleet Operations Workspace Core Migration Manual |
| I637 | Fleet Operation Workspace Core Integration Toolkit User Manual |
| I641 | Fleet Simulator User's Manual |
| I645-E | HD-1500 User's Manual |

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