

# 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
	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

## LD Series

Appearance	Product Type	Product Name	Maximum Load	Maximum Speed	Configuration & Attachment	Part Number	
	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


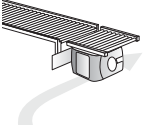
**Note:** For existing customer of mobile robots, please contact an OMRON representative prior to ordering additional mobile robots to ensure proper fleet management  
Refer to page #17 for previous generation models.





### 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 × 1, 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 × 1, 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

Appearance	Product Name	Specification	Configuration & Attachment	Part Number
	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
	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.

# LD Series

## 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 <sub>F</sub> 25 (ACI 117 standard)*				* ACI 117 is the American Concrete Institute standard for concrete floors. F <sub>F</sub> is flatness, F <sub>L</sub> is the level. Higher F <sub>F</sub> numbers represent flatter floors. F <sub>F</sub> 25 is a fairly lenient specification.
	Traversable step	15 mm max.* <sup>1</sup>	10 mm max.* <sup>1</sup>	5 mm max.* <sup>2</sup>	5 mm max.* <sup>2</sup>	* <sup>1</sup> 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. * <sup>2</sup> 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.* <sup>2</sup>	5 mm max.* <sup>2</sup>	
	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
Mobility	Maximum Speed	1800 mm/s	1350 mm/s	1350 mm/s	900 mm/s	
	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				
	Size	200 dia. × 50 mm nominal, 2 wheels				
Passive caster	Materials	Conductive thermoplastic rubber on polyolefin				
	Size	75 dia. × 41 mm nominal, 4 casters				
Power	Battery	22-30 VDC				
	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	IEEE 802.11 a/b/g				

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	IEEE 802.11 a/b/g		
	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)		
	Audio	Digital audio out, audio in / audio out		
Cart Latching	Latching Method	Not available	Automatic	

### Mobile Robots-LD Platform LD-250 OEM

Item	LD-250 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	
	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 <sub>F</sub> 25 (ACI 117 standard)*	
	Traversable step	10 mm max.*	
	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	

# LD Series

Payload	Maximum Weight	250 kg	
Mobility	Maximum Speed	1200 mm/s	
	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	IEEE 802.11 a/b/g	
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	
Operator Interface	Speaker	3.5 in., 80 W max.	
	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	IEEE 802.11 a/b/g	
	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**

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

**EM2100 Appliance**

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

**High Accuracy Positioning System**

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

**Acuity Localization**

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

**Cell Alignment Positioning System (CAPS)**

<b>Part Number</b>	20271-805
<b>Type</b>	Software license
<b>Stop Position Accuracy</b>	±8 mm position, ±1° rotation

**Touchscreen**

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

**Call/Door Box**

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

**Battery**

<b>Part Number</b>	18578-000 (LD-60/90/105CT/130CT) 20452-000 (LD-250)
<b>Run Time (No Payload)</b>	15 hours (continuous) approx. (LD-60/90) 13 hours (continuous) approx. (LD-250)
<b>Weight</b>	19 kg
<b>Voltage</b>	22-30 VDC
<b>Capacity</b>	72 Ah (battery cell nominal)
<b>Recharge Time</b>	4 hours approx.
<b>Life Expectancy</b>	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**

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

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

**Joystick**

<b>Part Number</b>	13558-000
<b>Weight</b>	0.55 kg
<b>IP Rating</b>	IP56

**Cart**

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



# LD Series

## Components and Functions

### LD-60, LD-90, ESD OEM

#### Operator Panel

Power on/off, emergency stop, brake button with 3.5-inch color monitor.

#### WiFi Antenna

IEEE 802.11 a/b/g.

#### Top Plate (Option)

Upper plate comes with Starter Kit. Not required when building customer payload.

#### Rear Sonar

Detect rear obstacles using sonar.



#### Light Discs

Status indicator is located on both sides.

#### Front Bumper

Stops when makes contact with obstacle.

#### Low Front Laser

Obstacle sensor detects low-profile objects when moving forward.

#### Safety Scanning Laser

Safety-rated laser used for SLAM (simultaneous localization and safety functionality).

### LD-250 OEM

#### Operator Panel

Power on/off, emergency stop, brake button with 3.5-inch color monitor.

#### WiFi Antenna

IEEE 802.11 a/b/g.

#### Top Plate (Option)

Upper plate comes with Starter Kit. Not required when building customer payload.

#### Rear Sensors

Detect rear obstacles using time of flight (TOF) sensors.



#### Emergency Stop

One on each side of robot.

#### Light Discs

Status indicator is located on both sides.

#### Low Front Laser

Obstacle sensor detects low-profile objects when moving forward.

#### Safety Scanning Laser

Safety-rated laser used for SLAM (simultaneous localization and safety functionality).

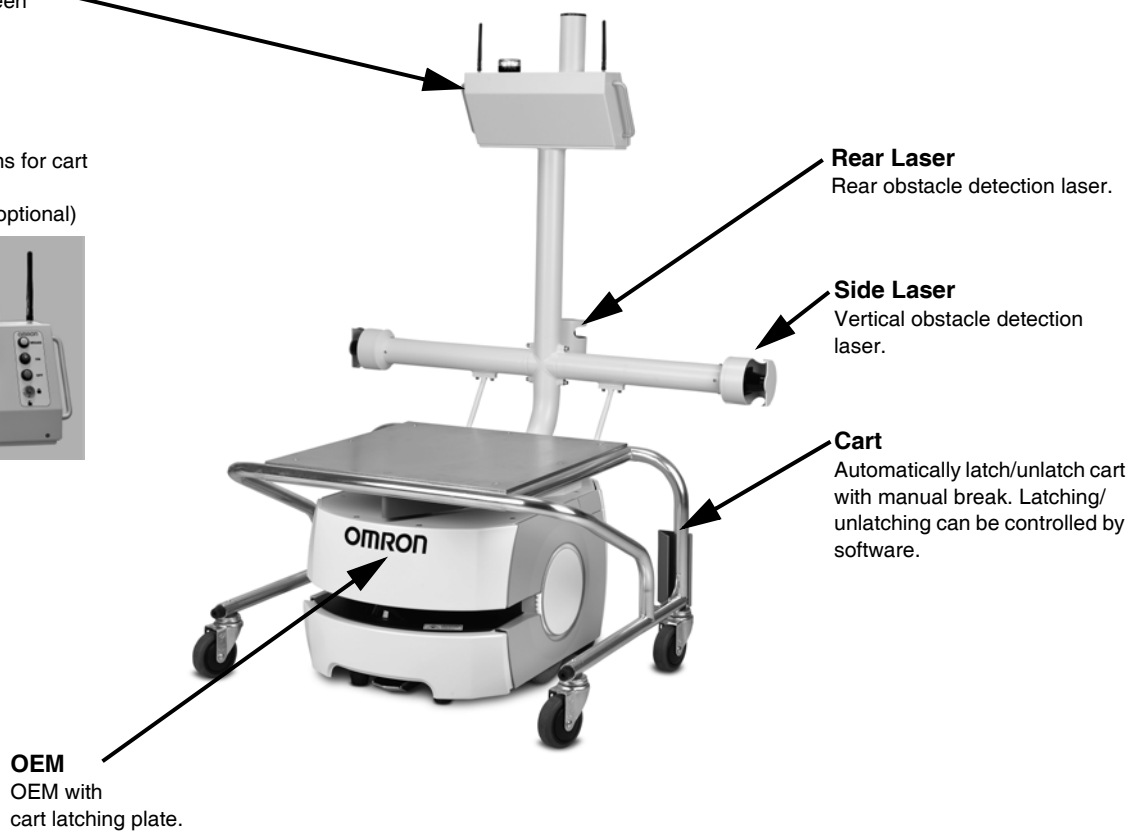


## Components and Functions

### Cart Transporter

#### Operator Panel

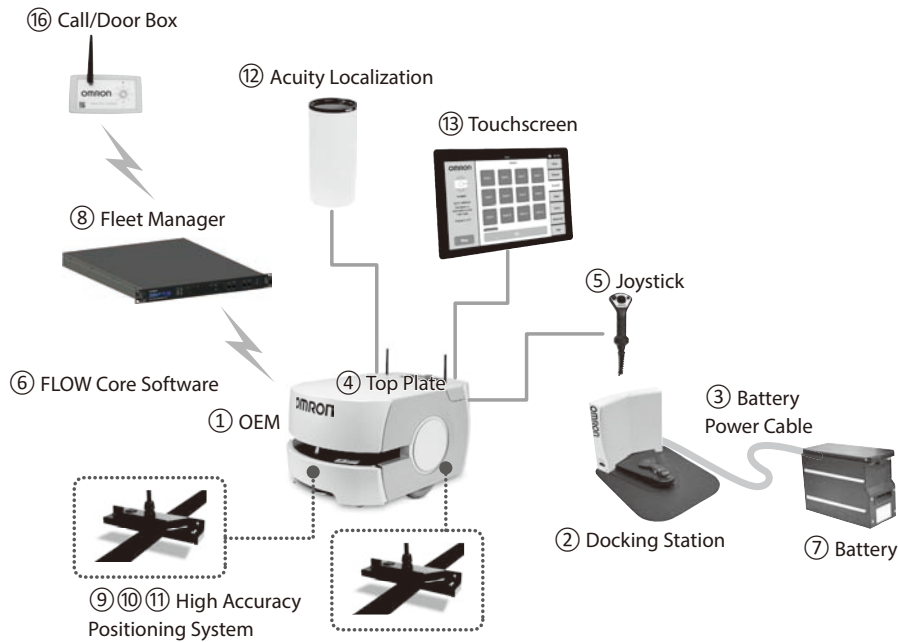
- 7 in. color touchscreen (status, goal input)
- WiFi antenna × 2
- Emergency stop
- Power on/off
- Brake button
- Latch/unlatch buttons for cart
- Beacon
- Acuity localization (optional)



# LD Series

## System Configuration

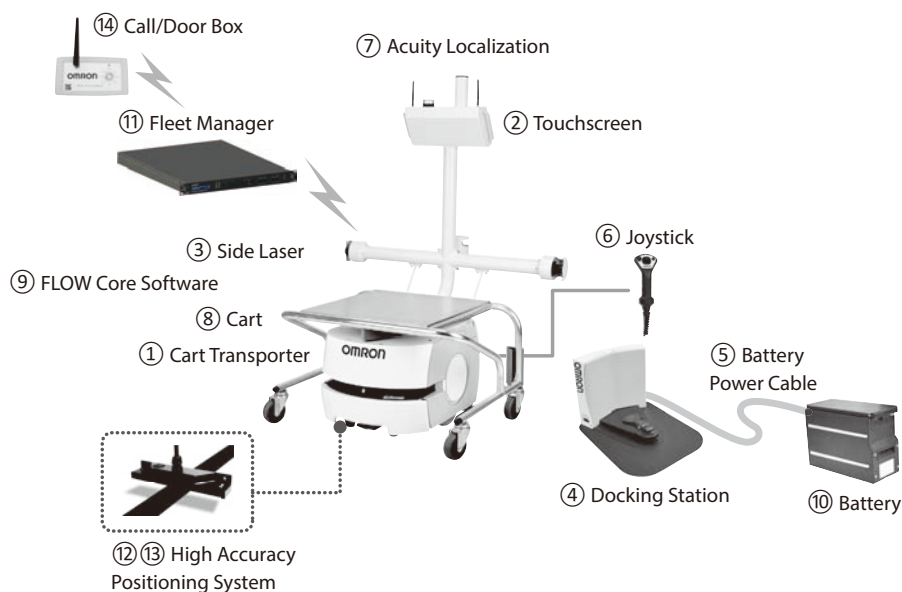
### OEM



	Product Name	Part Number	Description	Notes
①	OEM	37□□2-00000	A mobile robot OEM running OMRON's FLOW Core Software. The battery is not included.	
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	18578-000 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.	-

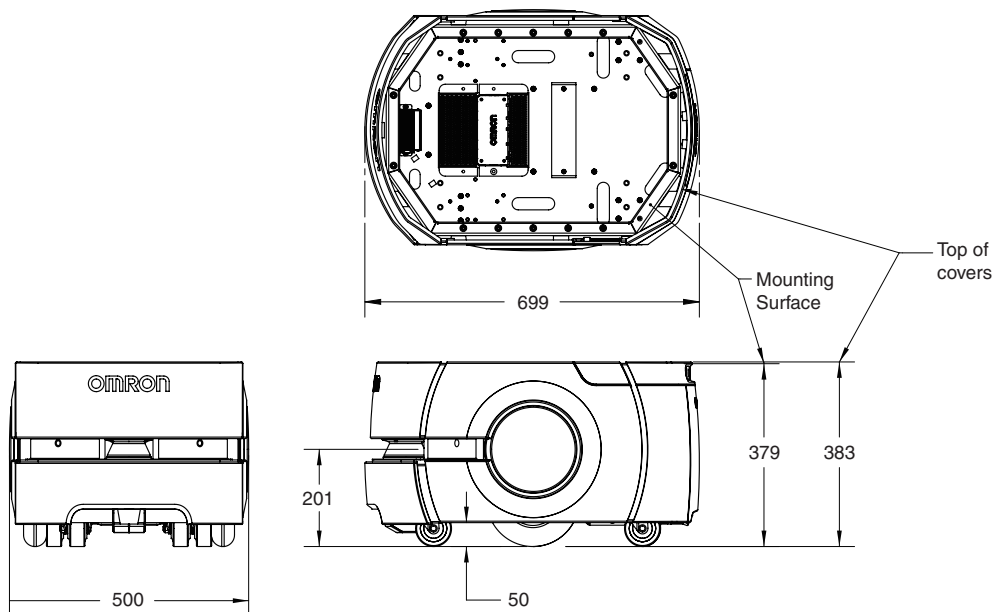
# LD Series

## Dimensions

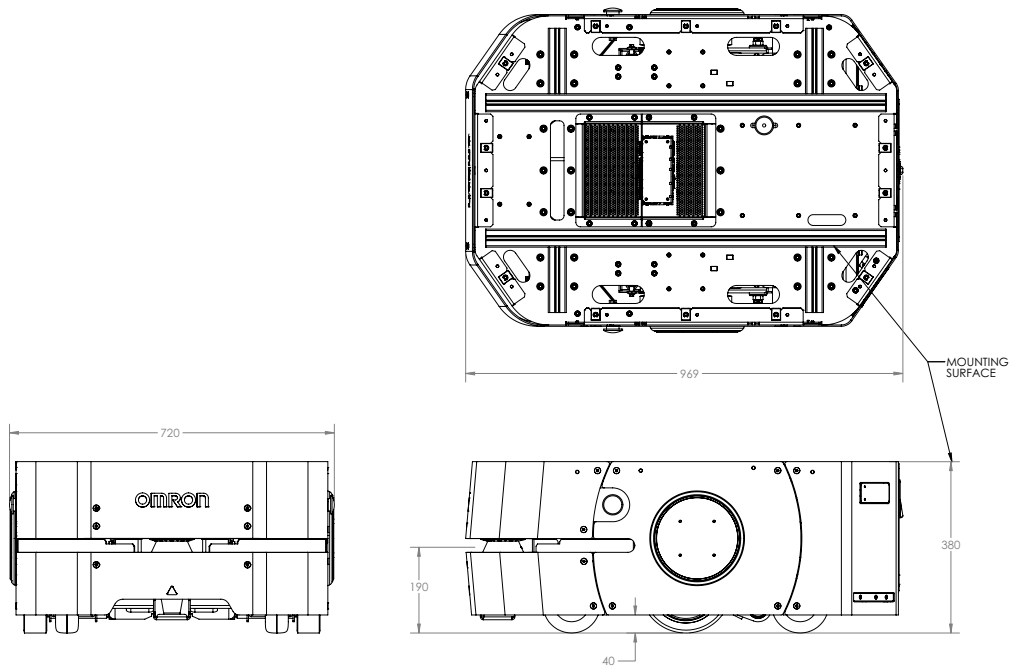
CAD data can be downloaded from Omron Adept Technologies Inc. website.  
<http://www.adept.com/Robots-CAD-File>

(Unit: mm)

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

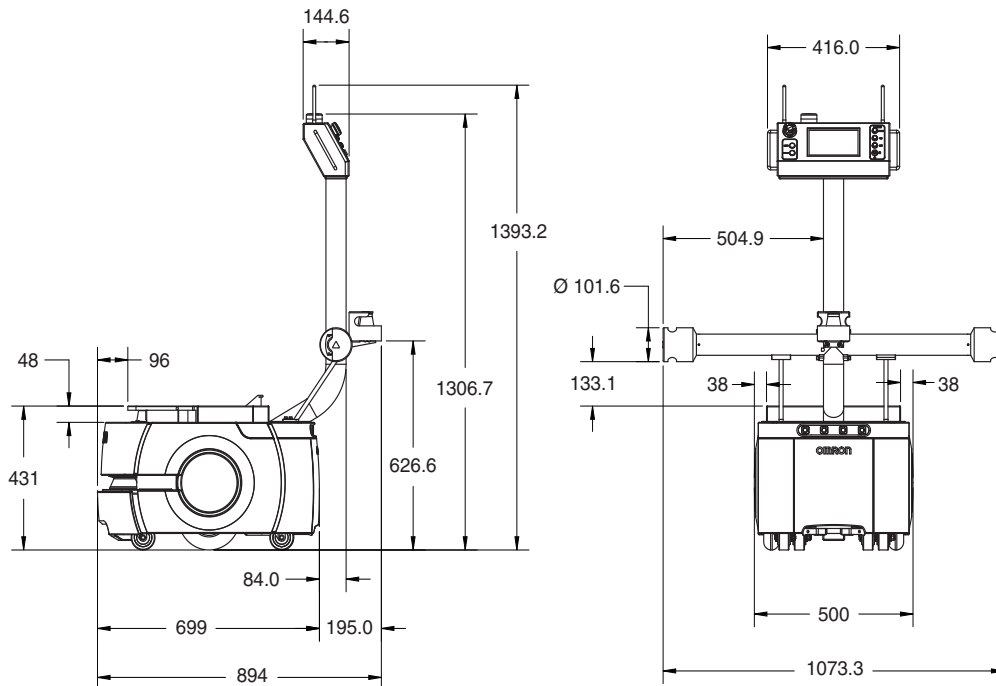


### LD-250 OEM

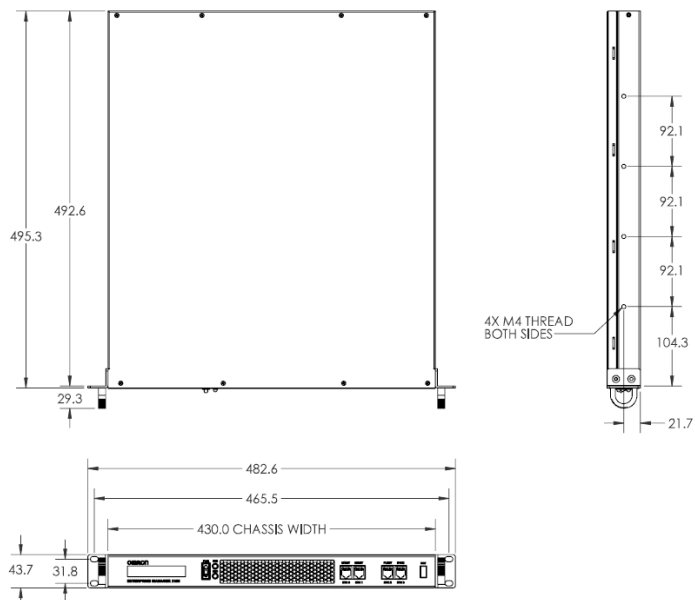
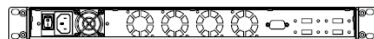


# Dimensions

## Cart Transporter



## Fleet Manager EM2100 Appliance

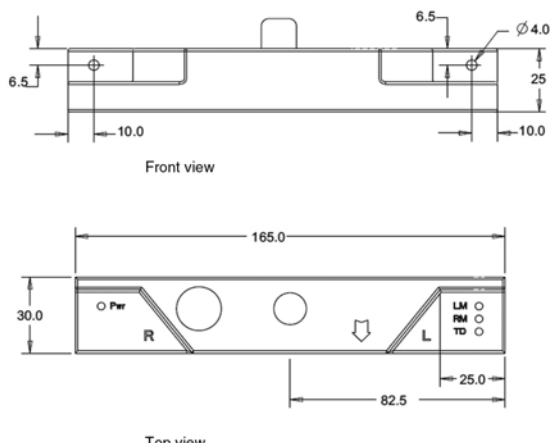


# LD Series

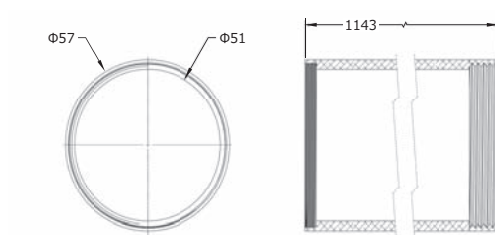
## Dimensions

(Unit: mm)

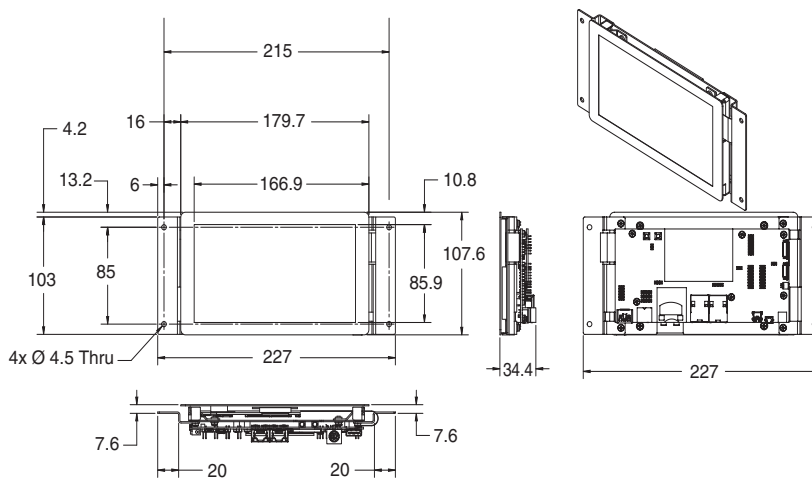
### High Accuracy Positioning System



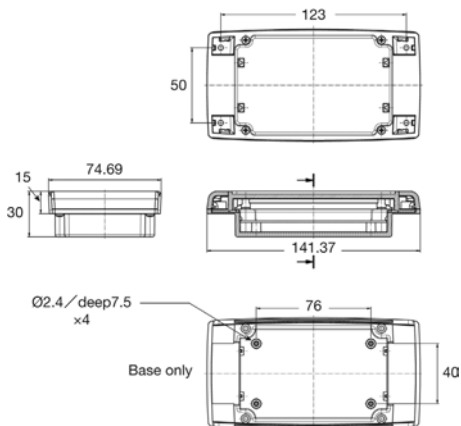
### Acuity Localization



### Touchscreen

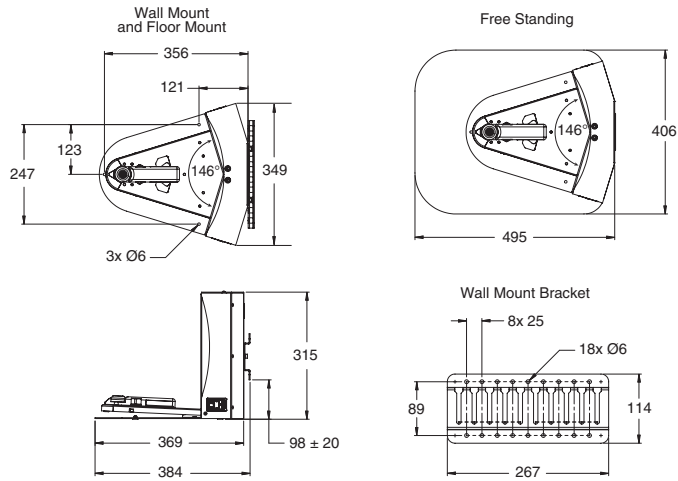


### Call/Door Box

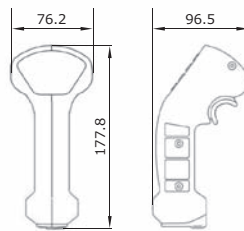


# Dimensions

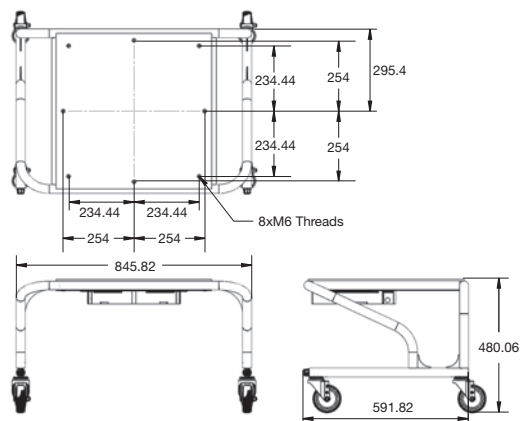
## Docking Station



## 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 Operatiom Workspace Core Integration Toolkit User Guide
I641	Fleet Simulator User's Guide
I642	LD-250 Platform User Guide

- Intel, Xeon and Intel Xeon are trademarks of Intel Corporation in the U.S. and/or other countries.
- Other company names and product names in this document are the trademarks or registered trademarks of their respective companies.
- The product photographs and figures that are used in this catalog may vary somewhat from the actual products.
- Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.


## 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.

# Terms and Conditions Agreement

## **Read and understand this catalog.**

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

## **Warranties.**

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

## **Limitation on Liability; Etc.**

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

## **Suitability of Use.**

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES 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.

## **Programmable Products.**

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

## **Performance Data.**

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

## **Change in Specifications.**

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.

**Note: Do not use this document to operate the Unit.**

**OMRON Corporation Industrial Automation Company**  
Kyoto, JAPAN

**Contact: [www.ia.omron.com](http://www.ia.omron.com)**

**Regional Headquarters**

**OMRON EUROPE B.V.**

Wegalaan 67-69, 2132 JD Hoofddorp  
The Netherlands  
Tel: (31)2356-81-300/Fax: (31)2356-81-388

**OMRON ASIA PACIFIC PTE. LTD.**

No. 438A Alexandra Road # 05-05/08 (Lobby 2),  
Alexandra Technopark,  
Singapore 119967  
Tel: (65) 6835-3011/Fax: (65) 6835-2711

**OMRON ELECTRONICS LLC**

2895 Greenspoint Parkway, Suite 200 Hoffman Estates,  
IL 60169 U.S.A.  
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

**OMRON ROBOTICS AND SAFETY TECHNOLOGIES, INC.**

4225 Hacienda Drive, Pleasanton, CA 94588 U.S.A.  
Tel: (1) 925-245-3400/Fax: (1) 925-960-0590

**OMRON (CHINA) CO., L.HD.**

Room 2211, Bank of China Tower, 200 Yin Cheng Zhong Road,  
PuDong New Area, Shanghai, 200120, China  
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

**Authorized Distributor:**

© OMRON Corporation 2017-2020 All Rights Reserved.  
In the interest of product improvement,  
specifications are subject to change without notice.

**CSM\_6\_5**  
**Cat. No. I828-E-07**

0720(0117)