



Mobile Autonomous Robotic Cart 3 Series Overview



Wi-Fi Free

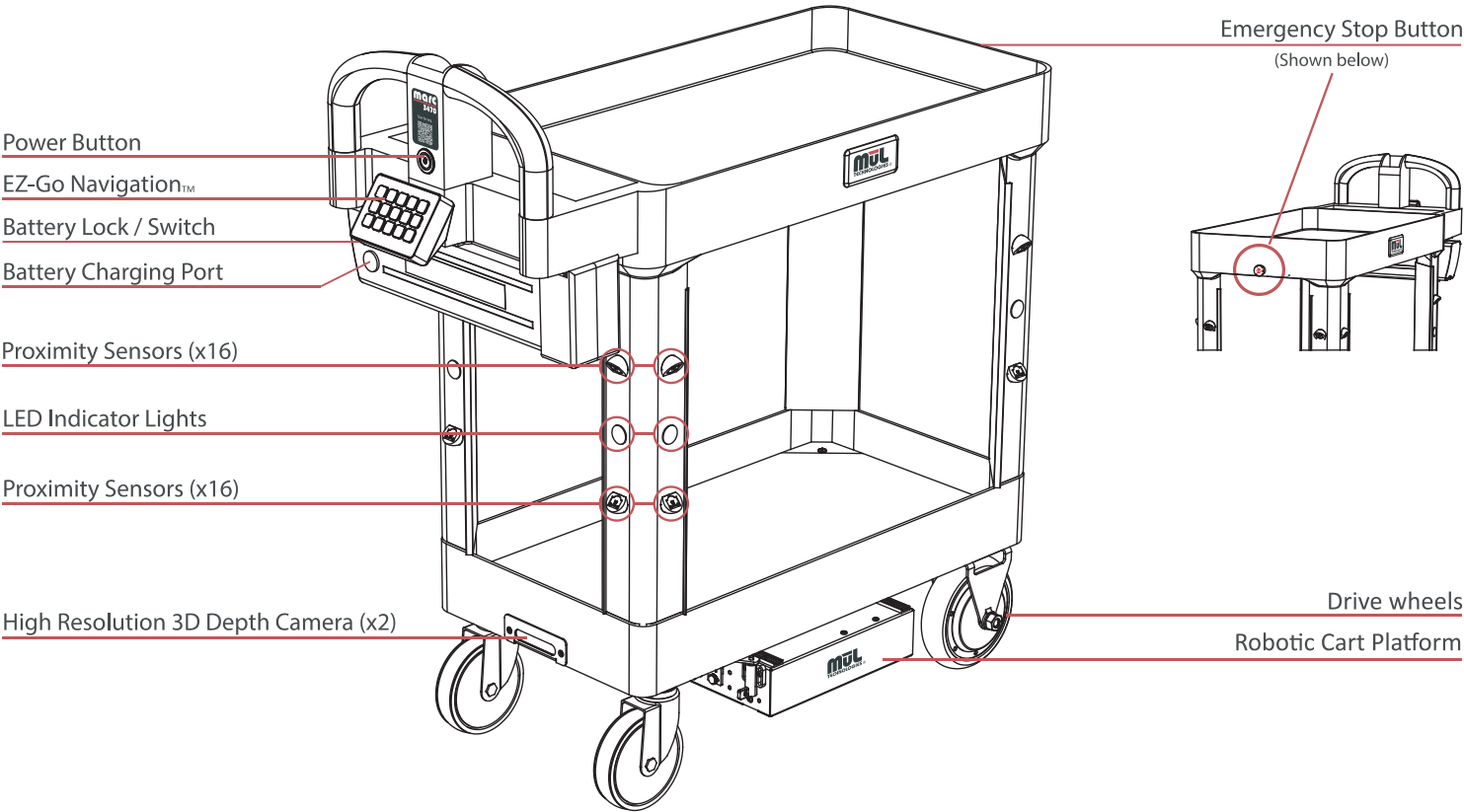
- Operate in any facility in under 10 minutes of receiving!
- Requires no infrastructure changes – no need for IT involvement.
- Truly self-guided autonomous operation.
- Avoids obstacles in real time with continuous route planning.

EZ-Go Navigation™ system

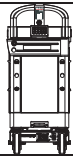
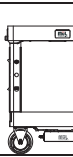
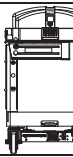

- No training needed for operation.
- Shared use model is simple.
- No complex map interfacing.
- Battery status shown on panel.
- Extremely simple programming – push cart anywhere and press a location button for 3 seconds and it instantly becomes a known destination.



SYSTEM OVERVIEW

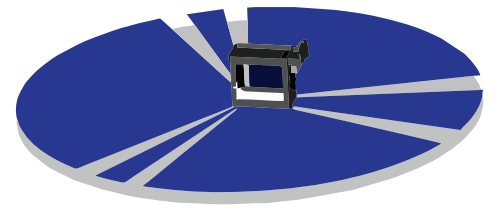
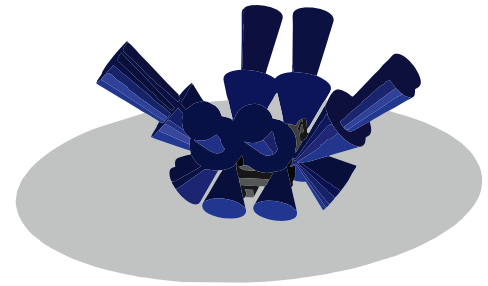
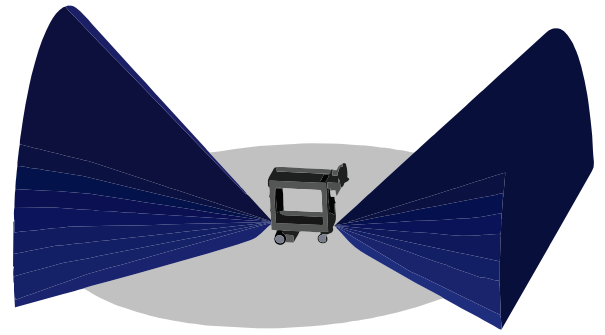


MODEL COMPARISON

	 		 	
	3470 (small cart) 43"L x 17.5"W x 41.5"H		3475 (large cart) 47.5"L x 25.5"W x 42"H	
	Premium	Value	Premium	Value
Set up and use in less than 10 minutes	✓	✓	✓	✓
Operates without Wi-Fi	✓	✓	✓	✓
Active or Fixed Map Mode	✓	✓	✓	✓
13 programmable EZ-Go Navigation destinations	✓		✓	
4 programmable EZ-Go Navigation destinations		✓		✓
Powered Manual Drive mode	✓		✓	
User adjustable system volume	✓		✓	
Optional warning tone while moving	✓		✓	
20Ah battery included	✓		✓	
10Ah battery included		✓		✓

SENSOR OVERVIEW

- High resolution 3D depth cameras allow MARC to see at extreme angles and operate safely.
- LIDAR scans the environment in realtime to build a completely independent map that is used to navigate through an ever-changing facility.
- 16 proximity sensors create an anti-collision system with 360° view of the area near the cart.
- Internal 3-axis digital gyroscope combined with a 3-axis accelerometer for measuring tilt, acceleration and shock.



SENSOR PARAMETERS:

- LIDAR scans 360° at 8000 samples per second measuring at a distance of 12m with 1° angular resolution and 2mm distance resolution.
- 16 proximity sensors with 2m range and 1mm distance resolution.
- 3D camera with up to 1280 × 720 active stereo depth resolution at up to 90 fps. Active IR stereo depth technology with a field of view of 87°±3° × 58°±1° × 95°±3°.

SIMPLE POINT-TO-POINT NAVIGATION

1 Manufacturing

As products are manufactured, MARC is loaded and operator presses 2 to send it autonomously to inventory area.

2 Inventory

Products are pulled from stock and loaded onto MARC and puller presses 3 to send to final inspection.

3 Final Inspection

Once products are ready for shipment, inspector presses 4 to send loaded MARC to shipping area.

4 Shipping

Shipment is loaded onto truck and once the cart is empty, loader presses button for the destinations where they would like to send MARC for next task.



SYSTEM DETAILS •

Key detailed specifications:

- Supported temperature range from 0° C to 60° C in non-condensing humidity.
- 2.8" (7.1 cm) of ground clearance.
- All metal components are heavy duty and coated for corrosion protection.
- Electrically isolated motors allow the cart to be pushed manually.
- Push-to-kill red emergency stop button for added safety.
- Illuminated ON/OFF button for clear visibility.
- 110kg / 250lb maximum payload in autonomous mode.
- 1m/s traveling speed.
- Reverse voltage, over voltage and short circuit protections.
- Less than 3 minutes from power-on to ready state.
- High resolution encoders attached to each motor.
- Brushless DC motors with independent motor controllers.
- Software includes environment mapping, planning, navigation, obstacle avoidance and control while running as part of a real time operating system.
- Dual speakers provide support for waveform sound output.
- RGB, high bright LEDs for visual indication of events, status and issues.
- 6-key (Value models) or 15-key (Premium models) keypad with integrated graphical color displays behind each key for clear identification.
- Automatic real time diagnostics and visual cues for proximity sensors, LEDs and battery level.
- Operates in forward and reverse direction.

Battery pack and charger information:

- 8-hour life under typical usage (20Ah battery).
- 24V lithium-ion battery pack with internal BMS (battery management system).
- Duty cycle of 800 charge / discharge cycles.
- 3 amp, 100-240VAC battery pack charger.
- Keyed switch for securing battery pack in place and providing power.
- Integrated battery level indicator panel.

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