SLAMTEC

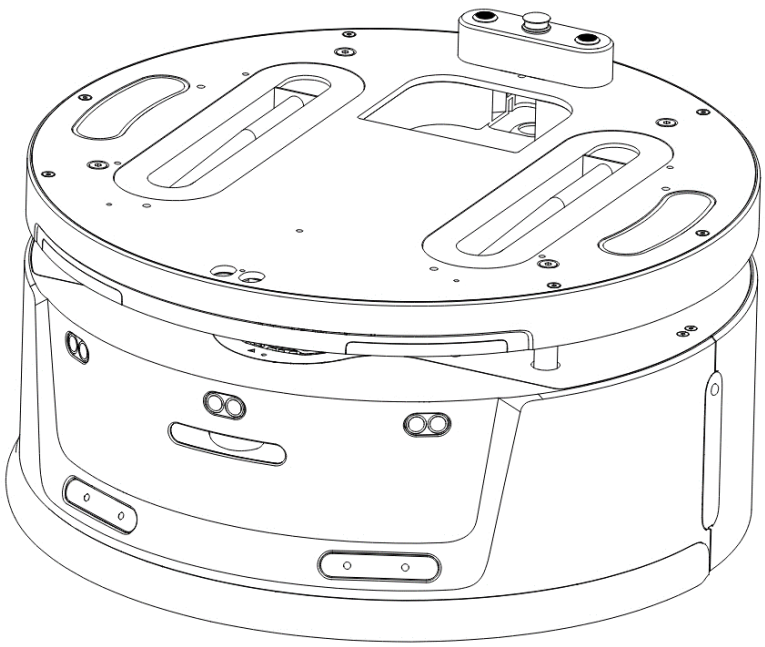
Apollo 2.0

General Robot Platform

Datasheet

Model: A5M31

Industrial Safety Rim
3cm High Obstacle Detection
360° Multi-sensor Fusion Protection



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Apollo 2.0 is a medium-sized, extension design supported robot platform developed by SLAMTEC to meet the requirement of medium-size robot application development like patrol robot, industry delivery robot, hotel delivery robot, food delivery robot, etc.

Autonomous Localization and Navigation

The built-in high-powered autonomous localization and navigation solution equips Apollo 2.0 with path-finding, localization and navigation functions. It solves the three typical problems for robots: “where am I?” “Where will I go?” and “How can I get there?”, therefore it can work with different applications in various business places.

Robot Collaboration

Apollo 2.0 supports multi-robot collaboration to meet the needs of multi-task operations in complex environments during peak hours. It supports local area network (LAN) and cloud platform collaborative operations. Users can adjust the speed and delivery path based on the specific cases to realize an efficient, safe and reliable multi-point delivery.

Multi-floor Delivery

Working with Smart Elevator Control 4.0 solution, Apollo 2.0 can detect the elevator status accurately, call the elevator to specific floor, which provides a reliable solution for multi-floor delivery.

Intelligent Obstacle Avoidance

Based on multi-sensor fusion technology, Apollo 2.0 can detect surrounding environment quickly and accurately to realize intelligent obstacle avoidance and reduce accident rate greatly.

360 Degree Protection

Apollo 2.0 adopts multi-sensor fusion technology based on double depth cameras, ultrasonic sensors, lidars to precisely detect dynamic and static obstacles and avoid them successfully. In addition, it also supports safety rim sensor, cliff sensors to guarantee a 360° protection while walking.

Autonomous Recharging

Sufficient power is ensured for Apollo 2.0 to complete assigned tasks smoothly. Apollo 2.0 automatically returns to the charging station when its battery charge falls below a configured threshold or when its tasks are completed.

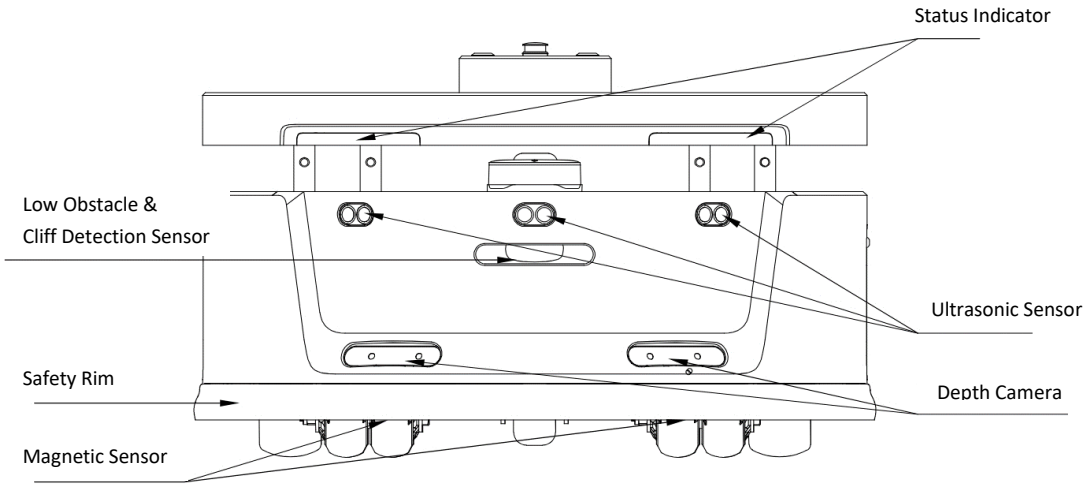
18A Fast Charging Supported

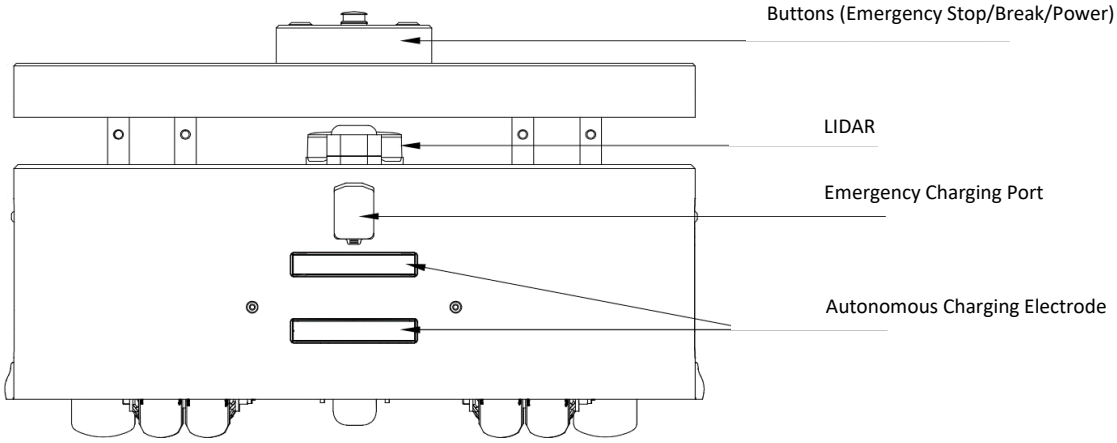
Apollo 2.0 supports to customize 1C fast charge lithium iron phosphate battery to realize 18A charging. With this solution, users can charge 30%~80% of the battery capacity within 1h, which gives robots a shorter charging time and more time for work.

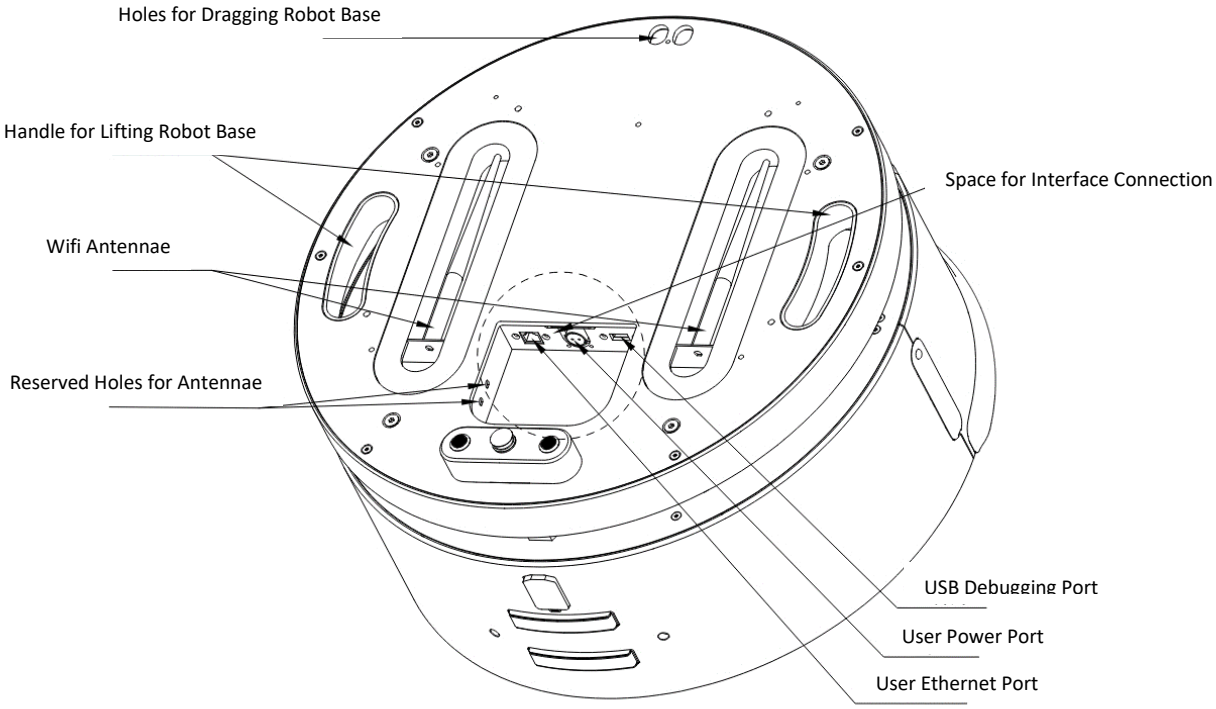
Up To 20A+ User Power Supported

In order to facilitate high -power device installing on the platform, Apollo 2.0 supports to customize 2C discharge lithium iron phosphate battery with a 20A current power supply to increase the user power current.

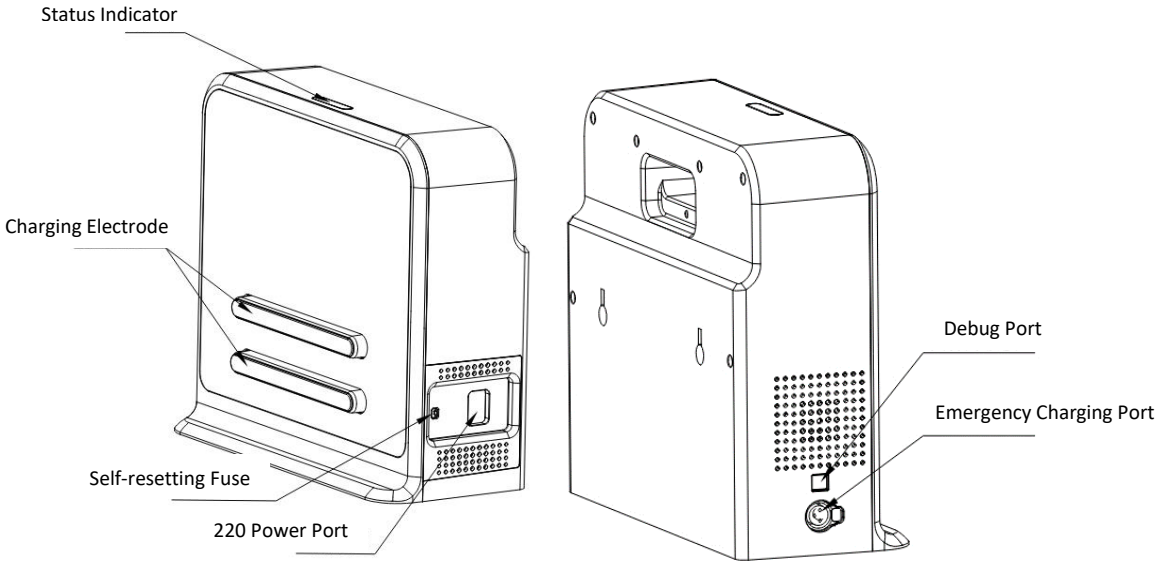
Apollo


Status Indicator
Low Obstacle &
Cliff Detection Sensor
Ultrasonic Sensor
Safety Rim
Depth Camera
Magnetic Sensor


Buttons (Emergency Stop/Break/Power)
LIDAR
Emergency Charging Port
Autonomous Charging Electrode


Holes for Dragging Robot Base
Handle for Lifting Robot Base
Space for Interface Connection
Wifi Antennae
Reserved Holes for Antennae
USB Debugging Port
User Power Port
User Ethernet Port

Charging Station



Product Name		Apollo General Robot Platform	
Core Feature		SLAM Localization and Navigation	
Features		Metric	Value
Dimension & Weight		Diameter	520mm
		Height	270mm
		Height (between the base and floor)	28mm
		Net Weight	40kg
		Rated Load	80kg
		Maximum Load	100KG (flat cement road)
Sensor performance	LIDAR	Quantity	1
		Distance Range	0.05m-30m 90% Reflectivity; 0.05m-10m 10% Reflectivity
	Depth Camera	Quantity	2
		Detection Range	0.186m~2m
		Field of View (FOV)	H:147.3±3°; V:71.3±3°
	Ultrasonic Sensor	Quantity	3
		Max detection range	300cm
	Low Obstacle & Cliff Detection Sensor	Quantity	1
		Minimum Detection Height for Low Obstacles	3cm
		Minimum Detection Depth for Cliffs	5cm
	Magnetic Sensor	Quantity	2
		Max detection range	3.5cm（Default Disabled，Enabled when Needed）
	Safety Rim	Quantity	1
		Detectable Minimum Force	10N
Mapping Performance		Map Resolution	5cm/1.5cm
		Max Mapping Area	500m x500m（5cm map resolution） 350m x 350m（1.5cm map resolution）
Mobility Performance		Maximum Moving speed	1.2m/s （Customizable to 1.5m/s）
		Default Moving Speed	0.7m/s
		Mapping Mode Maximum Moving Speed	0.6m/s
		Max Slope Angle	10°
		Travese Bump Height	2cm（Rated Load）
		Min Path Width (per wheel)	4cm（Rated Load） 6cm(with wheel customization)
		Min Path Width (robot base)	70cm
		Alignment Accuracy（AVG）	±2cm（1.5cm map resolution） ±4cm（5cm map resolution）
		Alignment Accuracy（MAX）	±4cm（1.5cm map resolution） ±8cm（5cm map resolution）
		Minimum Positioning Angle	±1.0°
		Multi-Robot Obstacle	Supports up to 3 robots in the same scene

		Avoidance	
Wheelset		Wheelset Parameters	7NM 6.5 Inch In-Wheel-Motor*2
			2.5 Inch Industrial Universal Wheel*4; 2.5 Inch Auxiliary Wheel*1 （Front）
User Interface	Hardware Interface	Power Connector	DC 24V 10A
		USB Debugging port	1
		Power Button	1
		E-STOP Button	1
		Brake Release Button	1
		Emergency Charging Port	1
	Network Interface	Ethernet	1*RJ45 Gigabit Ethernet por
		WIFI	2.4/5GHz
	Software Interface	SLAMWARE™	SLAMWARE™：SDK2.0 http protocol, API Interface, Windows/iOS/Android/Linux Platform Supported
Battery and Capacity		Capacity Specification	24V 29.4mAh （Lithium Iron Phosphate Battery）
		No-load Operating Time	>16h
		Full-load Operating Time	14h
		Charging Time	6 h （Fast charging station）
		Battery Life	Capacity decreases to 80% of the initial capacity after 2000 full charge and discharge cycles
Power Consumption		Standby Power Consumption	25W
		Full-load Rated Power Consumption （80kg）	45W
		Max Power Consumption with External Load	280W
Charging Station		Size	360mm*150mm*320mm
		Color	White
		Rated Input	100-240V 50/60Hz 3A MAX
		Rated Output	DC 25.5V 10A
		Manual Charging	Support
Noise		Operating Noise Level	≤60dB
Operating Environment		Operating Temperature	0℃ ~ 40℃
		Operating Humidity	20 ~ 90%rh
		Operating Altitude	≤2000m
		Transport and Storage Temperature	-25~+55℃