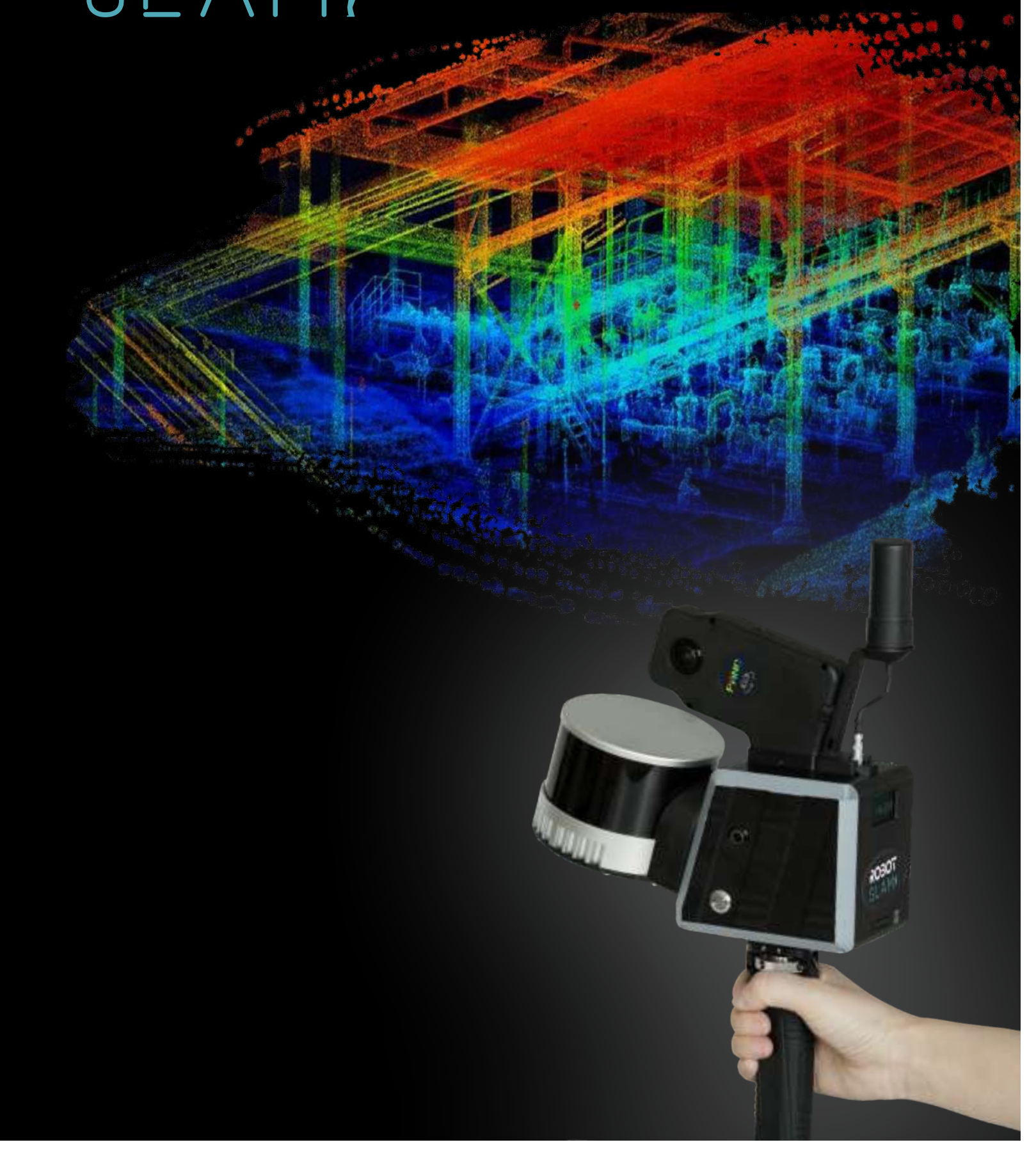
RUIDE

ROBOT SLAM



Illustration

GCP record button
helps to record control point directly when not connected to APP

pano camera (option)
2-lens fisheye and 18MP, captures left&right for less occlusion

main control button
to start/stop scans and initialize, status identified by LED colors

LED screen
device status and commands to display, interactive and practical

fill-in light (option)
supplements lighting when working in the dark or recording pano

SD card slot
128GB default, extendable to 512GB max., ready for direct copy

GNSS antenna
collaborates with onboard GNSS to provide centimeter level positioning

laser sensor
range 120m and point rate 640,000 points/sec max.

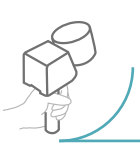
SIM card slot
Nano SIM card to fit, supports CORS network access

smartphone holder
enables one hand free when another is occupied in peration

target base plate
helps to record GCPs and ready for fitting fill-in light kit

handheld grip
left and right to fit smartphone holder for checking at ease

Platforms

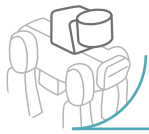


Handheld

ready to work in indoor, outdoor and underground environments

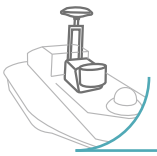
Backpack

easy to carry and well fits long-time working indoors and outdoors



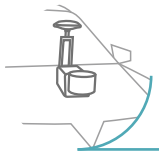
AI Robot Dog

wireless remote scanning of potentially hazardous zones



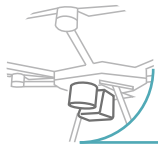
USV-based

to scan shoreside and integrate with underwater topography



SUV-based

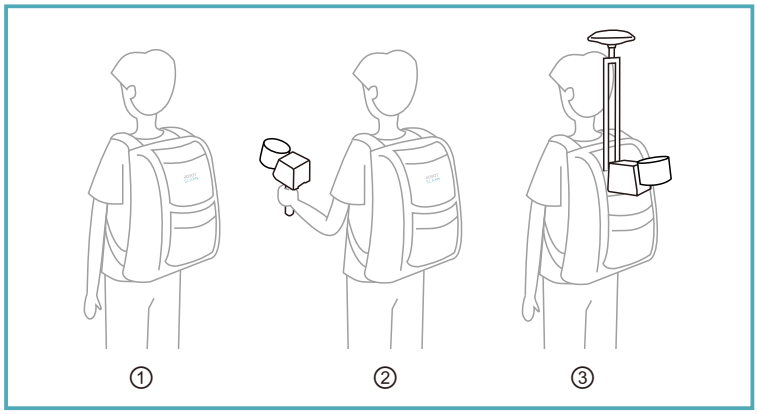
mounted onto a car for entry-level automobile mapping

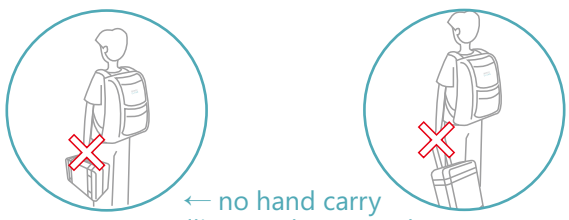


UAV-based

aerial perspective to scan building top which handheld mode cannot

Backpack 3-in-1





← no hand carry
no pulling on the ground →

when 3 becomes 1

① storage packing
② handheld mode
③ backpack mode

APP&Software

Smartphone APP-RobotSLAM Palm

- CORS settings
- status display
- fieldwork control
- task timer
- storage info
- device registration

Post Processing Software-RobotSLAM Engine

- coordinate system transformation
- auto/manual optimization
- instant loading of mass data
- H.&V. accuracy verification
- loop closure review
- enable RTK for adjustment
- point cloud classification
- processing replay
- point rendering
- 3D measurement
- pano overlay display
- global registration
- auto denoising
- sectional view
- X-ray rendering

Computer Configuration

Requirement	Minimum	Recommended
Graphics Card	Windows10/Windows11 64-bit	
CPU	GTX-3060/RX6600M or above (NVIDIA series recommended)	
Internal Memory	Intel i7-11800H/AMD R7-5800H or above	Intel i7-12700H/AMD R7-6800H or above
RAM	16GB or above	32GB or above
SSD	1TB or above	2TB or above

Note: for faster data loading, it's recommended to process the data directly with SSD instead of HDD.

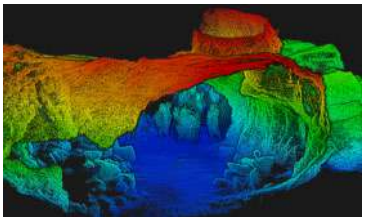
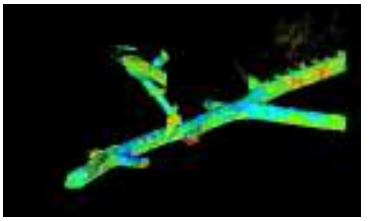
Unboxing

A handheld (handle, base plate)	1	B GNSS antenna & cable	1
C smartphone holder	1	D shoulder strap	1
E main cable	1	F battery compartment	1
G rechargeable battery	2	H battery charger & cable	1
I Ethernet cable	1	J USB flash drive	1
K micro SD card	1	L SD card reader	1
M cleaning cloth	1	N hand-carry case	1
O pano camera (option)	1	P fill-in light & charging cable	1

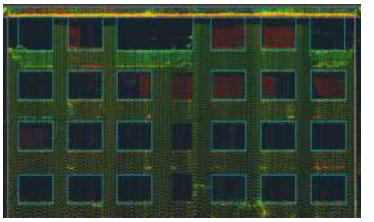
Note: the above is applicable for RobotSLAM standard only. Please refer to the configuration list for more details of different models.

Applications

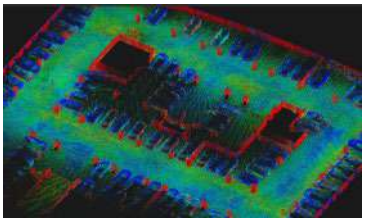
Underground Mining

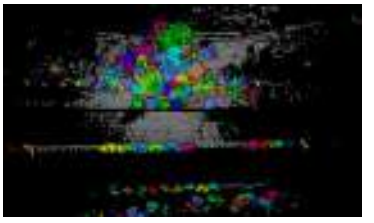
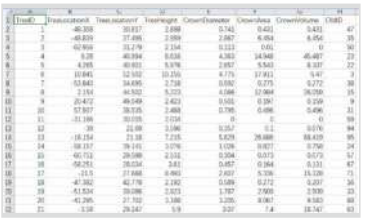
Building Elevational Surveying



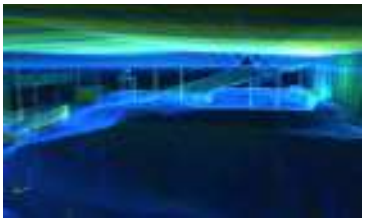
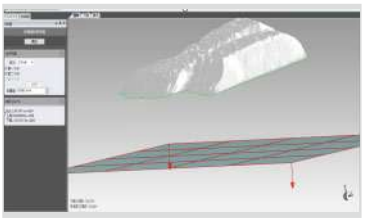
Basement Parking Digitization



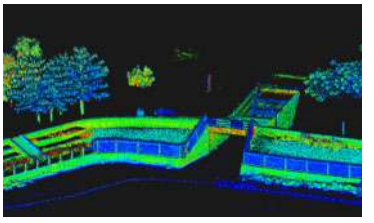
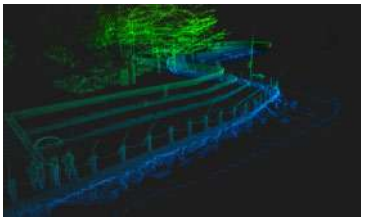
Forestry Investigation

Stockpile Volume Calculation

Shoreside Survey + USV Bathymetry

Outputs

Specification

Series	Robot SLAM
Model	RobotSLAM basic, RobotSLAM standard, RobotSLAM professional
Laser Scanner	16-channel①
Measurement Rate	Max. 320,000 points/sec①
Laser Safety Class	Class 1(IEC 60825-1:2014) eye-safe
Laser Wavelength	905 nm
Echo Mode	8-bit, dual return
Measuring Range	0.05-120 m
Scanning Rate	10 Hz
Scanning FOV	360°x 285°
Horizontal Angle Resolution	0.18° (10 Hz)
Vertical Angle Resolution	2°
Relative Accuracy	best up to 1 cm
GNSS Differential②	GPS+Glonass+Beidou+Galileo multi-constellation tracking
Signal Tracking②	555 channels
RTK Positioning Accuracy②	RMS 1 cm+1 ppm
CORS Access②	nano SIM card slot built in
Positioning Data Refresh Rate②	max. 100 Hz
Absolute Accuracy②	best up to 3-5 cm
Scanning Principle	laser sensor 360°mechanical rotation
Accumulated Mileage Error	0.1%-0.2% (under the condition without loop closure)
Housing Material	aviation-grade aluminum, with high protection level and anti-inference capability
Weight	1.9 kg (handheld only)
Dimension	262x230x146 mm
System Consumption	20 w
Power Supply	dual external Li-ion battery, hot swappable
Battery Unit	DC 14.4V，6875mAh，99Wh
Endurance	single battery ≥2 hours, dual batteries ≥4 hours
IP Protection	IP 54
Temperature	-20~65℃ (operating), -40~85℃ (storage)
Device Connection	Wi-Fi or Ethernet cable
Data Storage	built-in SSD, 512GB (extendable upon request); SD card (removable), 128GB
Data Download	via Ethernet cable, WiFi or SD card
Panoramic Camera	2-lens, fisheye, 360°, image pixels 18 MP, video pixels 5.7k
Software Package	RobotSLAM Palm (smartphone APP), RobotSLAM Engine (PC)
Processing Method	post-processing on PC
Process Time	approx. 1-2 times of data acquisition

Note:

① to expect higher point rate like 640,000 points/sec max., 32-channel laser sensor is also available upon request, and that's RobotSLAM Plus series.

② GNSS differential performance is only applicable to the standard and professional versions. In outdoor scenes with moderate satellite signals coverage, it is recommended to activate GNSS RTK for positioning, which may help much to eliminate control points record and measurement.

Options

Model	RobotSLAM basic	RobotSLAM standard	RobotSLAM professional
Handheld Components	√	√	√
Control Point Record Button	√	√	√
Built-in GNSS Module	–	√	√
GNSS Antenna	–	√	√
LED Screen	√	√	√
Smartphone Holder	√	√	√
Smartphone APP	√	√	√
Pano Camera	option	option	option
Fill-in Light①	option	option	option
Backpack Kit	–	–	√②
AI Robot Dog Mount Kit③	–	option	option
USV-based Mount Kit③	–	option	option
SUV-based Mount Kit③	–	option	option
UAV-based Mount Kit③	–	option	option

Notes:

① fill-in light and 360°pano camera are bundled as a visual module.

② the backpack kit includes a white plate antenna and a longer GNSS antenna cable; the backpack 3-in-1 magic tactically provides two working modes in one package: handheld and backpack, plus the storage function. No carrying case or trolley suitcase needed.

③ AI Robot Dog Mount kit, USV-based Mount kit, SUV-based Mount kit and UAV-based Mount kit are all optional accessories, available upon request.

RUIDE