

LEADOR

Inventor of china Mobile measuring system, the world' s leading companies.

Pioneer of china real 3D geographic information industry.

A reliable partner of the people' s Liberation Army of China.

Choice of more than 200 cities' industry information departments in china.

Supplier of large data integration and operational service for smart city construction.

Strategic ally of more than 100 mainstream IT companies all around the world.

Supplier of the 3D map service on the internet.

Constructing the real 3D world

Service for wisdom life



LEADOR SPATIAL INFORMATION TECHNOLOGY CORPORATION
The World' s Leader of Mobile Mapping and Real-3D Technology



Official Wechat two-dimensional code



iMMS of Ledor

Indoor Mobile Mapping Scanner (iMMS) is a mobile scanner for 2D/3D indoor environment. Based on a unique technology with no GPS (GNSS) and no Inertial Navigation System (INS), it is able to conduct surveys in a station-free environment and acquires a high performance within centimeter accuracy.

Key features of iMMS

- Continuously scanning in a station-free environment
- High-speed performance- 10000 square meters/hour scanning speed
- Precise measurement within centimeter accuracy
- No INS, GNSS required
- Time-stamped, colorized 3D point cloud and image
- Panoramic camera for spherical image capture
- Simple to operate, move and scan

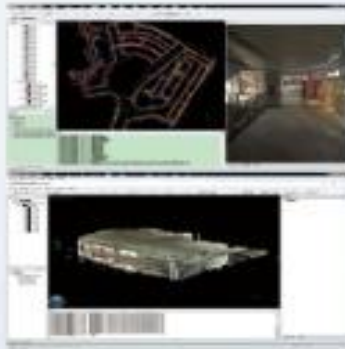
Applications of the solution iMMS of Ledor

iMMS can be used in every indoor environment, whatever the area:

- Interior environments model
- Asset Management
- Public buildings (Airport, Station, Administration...etc)
- Security related environments
- Governmental buildings where GPS forbidden
- Shopping malls
- Offices



IMMS of Leador COMPONENTS



Hardware Components

- Mobile unit
- Two LiDAR sensors (1 Horizontal, 1 Vertical)
- One spherical camera
- One operator and logging computer
- Batteries and charger

Software Components

- Real time monitoring and control GUI
- Precise positioning algorithm
- Post-processing suite

	Six lens
Image acquisition	Thirty million panoramic camera
	Industrial camera
Laser scanner	Measures distance: 30m
	Point Cloud Density: 36000points/s
Measuring accuracy	Relative accuracy ±0.05M
Speed	Highest Measurement speed 3m/s
continuity	Continuous working for 4 hours
Power consumption	Power consumption: input DC12V Build-in power supply - external power charging





MINI Portable Mobile Mapping System

MiniMMS portable mobile mapping system integrates all functions in one, designed for high speed measurement, specializing in linear infrastructure assets management. It has compact structure, can be installed on any mobile carrier, such as cars, trucks, motorcycles, trains, ships, etc. It can be controlled via wi-fi, and can be used in various rank highway road measurement, assets census and management, and roads real-3D application scenario building.





Basic features	Appearance: small (Single hand holding) , light, compact
	Size 100×100×160Weight < 2kg
	Power consumption: input DC12V <40W External power supply
	POS: Heading accuracy±0.08° Altitude accuracy±0.02° Position accuracy±0.1m
	Absolute accuracy±0.2m; Relative accuracy±0.05m
	Waterproof level: IP65
	MFT < 1000h



PMMS

Portable Mobile Mapping System

PMMS--portable 3D laser mobile mapping system includes panoramic camera, integrated navigation system (GPS+INS) and isochronous controller, etc. The system not only satisfies the single operations, and also can be placed on the mobile carriers to collect 3D-real scans data.





System performance index

System performance index	
Weight	12.5kg
Measurement accuracy	Fixed Point collection, relative accuracy ±0.3M (static) Dynamic collection, Absolute accuracy ±0.5M (static)
Fields of view coverage	72 million
The camera angle of view	3M*270°
Sampling frequency	1Hz
Laser Scanning distance	100m
Scan resolution frequency	80000 points per second
System status	Real

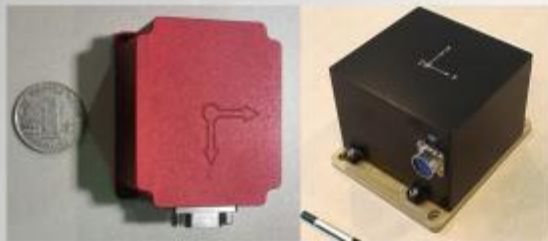
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Website: www.leader-si.com

Precision Positioning and Orientation Instruments(PPOI)

The high Precision Positioning and Orientation Instruments (PPOI) developed by LEADOR integrates a professional level GNSS module and a high precision inertial measurement unit. The system implements three-dimensional positioning, velocity and attitude information by using the self-developed navigation algorithm, these information also can be calculated through the professional post-processing software LIONET (Leador INS/GPS Orientation and Navigation Enhanced. Technology). At the same time, the system also has strong anti-interference ability.



IMU(Inertial Measurement Unit)



PCS(Processing Computer System)

Product Features

- With completely independent intellectual property, fills up the technique blanks.
- Supports for multiple satellite system, including Beidou, GPS...etc.
- RTK centimeter level position accuracy.
- Closely associates with MEMS, Optical fiber and Laser IMU.
- Orientation with double antennas is extendable.
- Split style or Integral style.
- High refresh rate, high-accuracy IMU data outputs.
- Provides solution of direct positioning and orientation for Dynamic application.

System performance index

model	horizontal accuracy (meter)		vertical accuracy (meter)		heading accuracy (degree)		altitude accuracy (degree)		Speed Accuracy (m/s)		self seeking (degree)
	SPS	PP	SPS	PP	SPS	PP	SPS	PP	SPS	PP	
PPOI-11	3-5	0.02	5-10	0.05	0.08	0.06	0.015	0.015	0.05	0.03	/
PPOI-31	3-5	0.02	5-10	0.05	0.05	0.02	0.01	0.008	0.03	0.008	/
PPOI-51	3-5	0.02	5-10	0.05	0.03	0.008	0.008	0.005	0.03	0.005	0.1
PPOI-61	3-5	0.02	5-10	0.05	0.02	0.005	0.005	0.002	0.03	0.005	0.05
Remark	SPS : Single Point Positioning, PP : Post Processing. Ground Vehicle can support the odometer, Marine : heaving 0.05 or 1%D										
RS422/RS232	Serial port settings : 115200/230400bps										
RTK	CMR protocol, RS232 input										
Event Trigger (I/O)	Trigger Signal Output (Settable)										
time synchronization (I/O)	1PPS output, External events input										
service temperature	-55°C~+75°C (according to the requirement)										
PPOI	PPOI-11		PPOI-31		PPOI-51		PPOI-61				
IMU physical index	IMU-01 (MEMS)		IMU-03 (optical fiber)		IMU-05 (optical fiber)		IMU-07/09				
Dimension (mm)	75×60×35 60×50×30		148×148×125 140×110×126 120×120×120		180×180×180 168×100×110		203×220×130 (optical fiber) 180×172×130 (laser) 161×145×145 (laser)				
weight (kg)	≤0.2		≤3.0		≤6		≤6				
PCS physical index	PCS D01 (boards)		Split Style : PCS C01 (ruggedized) Integral Style : According to customer demand								
Dimension (mm)	85×58×32				261×162×52						
Weight (kg)	≤0.2 ≤0.3 (contain storage)				≤1.8						





LEADOR AMMS

LEADOR SPATIAL tilting Aerial camera system

LEADOR AMMS developed by LEADOR SPATIAL is a tilting Aerial camera system, which is applicable to various UAV and man machine platforms. It integrates servo stabilized platform, high precise positioning and orientation system, photography pod and storage control module.





System performance index

- **Physical characteristics**

Size : $\leq \varphi 400\text{mm}$ (diameter) $\times 580\text{mm}$ (height)

Weight : 35kg

Pod Power : Independent power supply

- **Camera characteristics**

Pixels : > 180million

Tilt angel of side-glance camera lens : 45deg

Exposure time interval: 2 seconds

Camera lens focal length: 28mm (optional : 35mm,50mm,80mm and 100mm)

- **High precise positioning and orientation system characteristics**

Heading accuracy: 0.008deg

Attitude accuracy: 0.005deg

Position accuracy: 5cm

- **Servo stabilized platform characteristics**

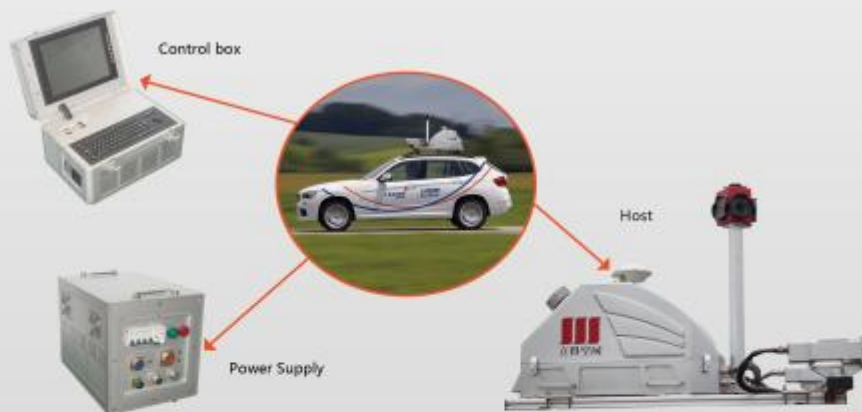
Swing range: heading:360deg (continues) ;roll: +45deg ~ -45deg



'MY FLASH'—Mobile Mapping System(MMS)

'My Flash' is composed of four core units, the high precision optical fiber or laser inertial navigation system(INS), a panoramic camera, an ultra-distance laser scanner with 920 meters measuring range and a High-grade protective cover.

The system can be easily installed with an elaborately designed adapter coupling in different kinds of mobile carriers, such as cars, trains, aircraft, etc. Thus, it is full qualified for conducting measurement tasks in any air, sea, and ground platforms. No outdoor calibration is needed for this system as well. As an advanced MMS, this system demonstrates a high performance in mobile mapping, city components census and establishing spatial database, creating a real or navigating map, 3D modeling with laser information of air and land, surveying andetc.





Specifications

Device model	LD2015-FA09/L920	LD2015-FA05/L920	LD2015-FA05/L500	LD2015-FA09/L100
Performance	"aeroamphibious" The highest configuration MMS	"aeroamphibious" The superior configuration MMS	"Ground Vehicle" The middle configuration MMS	"Ground Vehicle" The general configuration MMS
Maximum measuring range	920m		500m	200m
absolute accuracy	3cm-10cm	5cm-12cm		
relative accuracy	1cm-5cm			
absolute accuracy without GPS	10cm within 1 minute or 1km	30cm within 1 minute or 1km		
The maximum laser line frequency	200Hz		100Hz	20Hz*16
The maximum density of laser point cloud	600 thousand points per second		500 thousand points per second	300 thousand points per second
angular resolution	0.001 degree		0.002 degree	0.01 degree
resolution of image	30 million /72million pixels			

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'MY FLYER'—UAV laster scanning system



'MY FLYER' --The Portable laser oblique Aerial Photogrammetry System uses UAV (Unmanned Aerial Vehicle) as a platform, integrated laser scanner , high definition industrial cameras , GPS , MEMS and other sensors. The technology is based on the integration of a space-time synchronous Multi-Sensor and High-precision positioning and orientation ensures the synchronization of data acquisition, including Laser Point Cloud Data, positioning and orientation information and Sloping Image. Using supporting software constructs the elaborate three-dimensional model, which can assist urban planning and management.



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Specifications

Performance	Parameter
weight	2kg
Number of CCD	1
Effective pixels	5 mega-pixel
The minimum exposure interval	2 second
FOCAL LENGTH	35mm
laser scanner	Number : 1 ; Range : 100 meters ; Dot frequency : 30KHZ; Scanning angular scope : 360°
MEMS	absolute horizontal accuracy : $\leq 1m$; relative vertical accuracy : $\leq 1m$; heading accuracy : 0.2 degree.
Exposure mode	Auto or Manual
Power Supply Mode	independent power supply
charge	Unified charging
MTBF(mean time between failures)	≥ 200 hours
MTTR(mean time to repair)	≤ 0.5 hours
Operating Temperature	-10°C – 55°C



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