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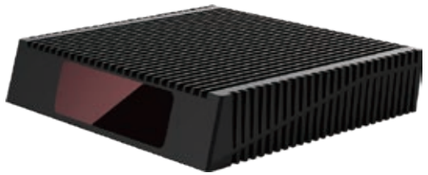
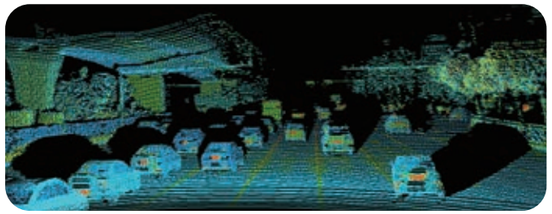
LS-S1 Series

Image-grade 1550nm Auto-grade LiDAR





LS-S1 series offers 3 channel alternatives: 128, 180, 320and 400. The ultra-thin design makes it easier to integrate into the vehicle roof, and customers can choose different size(height): 45mm and 49mm. The image-grade LiDAR will mainly serve the autonomous driving application, with high reliability design for mass production vehicles. The series owns world-leading comprehensive performance and it will become the preferred primary sensor for L3 and higher level driving automation.=

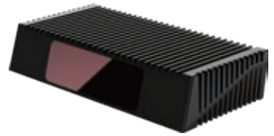
Model	LS128S1	LS180S1	LS320S1	LS400S1
Channels	128	180	320	400
Channels Scanned	1280/s	1800/s	3200/s	4000/s
Horizontal FOV	120°	120°	120°	120°
Vertical FOV	25°(±12.5°)	A: 22.5°, B / C: 25°(±12.5°)	25° (±12.5°)	25° (±12.5°)
Horizontal Angular Resolution	A/B: 0.1°	A / C: 0.129°, B: 0.13°	A: 0.0518°	A: 0.0648°
Vertical Angular Resolution	A: 0.2° B: 0.076° (@ROI) , 0.33°(Non ROI)	A: 0.11°, B: 0.1° (@ROI) C: 0.13°(Avg.), 0.034°(Min)	A: 0.09° (@ROI) , 0.2°(Non-global)	A: 0.05°(Non-global)
Data Point Generating Rate	1,480,000 pts/sec	1,650,000 pts/sec	1,850,000 pts/sec	1,850,000 pts/sec

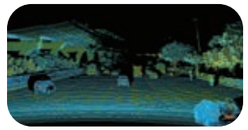
LS-S1

LASER	Wavelength	1550nm
	Laser Class	CLASS 1
SPEC	Detection Method	TOF
	Detection Range	1.5m~250m(@10%)
	Range Accuracy	±2cm
	FPS	10FPS
EXPORT	Communication Interface	Automotive Ethernet
ELECTRIC	Input Voltage	12~36V DC
	Power Consumption	≤30 W
ENVIRONMENT	IP Grade	IP6K9K
	Operating Temperature	-40℃~85℃
	Storage Temperature	-40℃ ~ +105℃
	Vibration Test	5Hz-2000Hz，3G rms
	Shock Test	500m/sec^2，lasting for 11ms
MACHINE	Weight	Basic：≤3.48 kg Thin：≤3 kg
	Dimensions (LxWxH)	Basic：229*228*49 mm Thin：220*225*45 mm

LS-S2 Series

Image-grade 1550nm Auto-grade LiDAR





LS series is image-grade LiDAR meeting automotive standards, which adopts the in-house 1550nm fiber-laser and high-power core optical devices. LS series can detect small objects within super long range. The series is also built with anti-interference functionality.

LS-S2 series offers 4 channel alternatives: 128, 180, 320 and 400. The series has 3 ROI patterns: Uniform ROI(A), fixed ROI(B) and non-uniform ROI(C). The ultra-thin design makes it easier to integrate into the vehicle roof, and customers can choose different size(height): 45mm and 49mm, it is smaller and thinner than the S1, S3 and S4. The image-grade LiDAR will mainly serve the autonomous driving application, with high reliability design for mass production vehicles. The series owns world-leading comprehensive performance and it will become the preferred primary sensor for L3 and higher level driving automation.

Model	LS128S2	LS180S2	LS320S2	LS400S2
Channels	128	180	320	400
Channels Scanned	1280/s	1800/s	3200/s	4000/s
Horizontal FOV	120°	120°	120°	120°
Vertical FOV	25°(±12.5°)	A: 22.5°, B / C: 25°(±12.5°)	25° (±12.5°)	25° (±12.5°)
Horizontal Angular Resolution	A/B: 0.103°	A / C: 0.129°, B: 0.13°	B: 0.0518°	A: 0.0648°
Vertical Angular Resolution	A: 0.2° B: 0.076° (@ROI) , 0.33°(Non ROI)	A: 0.11°, B: 0.1° (@ROI) C: 0.13°(Avg.), 0.034°(Min)	B: 0.09° (@ROI) , 0.2°(Non-global)	A: 0.05°(Non-global)
Data Point Generating Rate	1,480,000 pts/sec	1,650,000 pts/sec	1,850,000 pts/sec	1,850,000 pts/sec

LS-S2

LASER	Wavelength	1550nm
	Laser Class	CLASS 1
SPEC	Detection Method	TOF
	Detection Range	1.5m~250m(@10%)
	Range Accuracy	±2cm
	FPS	10FPS
EXPORT	Communication Interface	Automotive Ethernet
ELECTRIC	Input Voltage	12~36V DC
	Power Consumption	≤28 W
ENVIRONMENT	IP Grade	IP6K9K
	Operating Temperature	-40℃~85℃
	Storage Temperature	-40℃ ~ +105℃
	Vibration Test	5Hz-2000Hz，3G rms
	Shock Test	500m/sec^2，lasting for 11ms
MACHINE	Weight	Basic：≤1.8 kg Thin：≤1.5 kg
	Dimensions (LxWxH)	Basic：236*125*49 mm Thin：228*125*45 mm

Terminator 1 (LS-S3 Series)

Image-grade 1550nm Auto-grade LiDAR

LS series is image-grade LiDAR meeting automotive standards, which adopts the in-house 1550nm fiber-laser and high-power core optical devices. LS series can detect small objects within super long range. The series is also built with anti-interference functionality.

Terminator 1 offers 4 channel alternatives: 144, 180, 320 and 400. The series has 3 ROI patterns: Uniform ROI(A), fixed ROI(B) and non-uniform ROI(C). The series owns world-leading comprehensive performance and it will become the preferred primary sensor for L3 and higher level driving automation.

Model	LS144S3	LS180S3	LS320S3	LS400S3
Channels	144	180	320	400
Channels Scanned	1440/s	1800/s	3200/s	4000/s
Horizontal FOV	120°	120°	120°	120°
Vertical FOV	23°	A: 22.5°, B / C: 25°(±12.5°)	25° (±12.5°)	25° (±12.5°)
Horizontal Angular Resolution	A: 0.103°	A / C: 0.129°, B: 0.13°	B: 0.0518°	A: 0.0648°
Vertical Angular Resolution	A: 0.143°	A: 0.11°, B: 0.1° (@ROI) C: 0.13°(Avg.), 0.034°(Min)	A: 0.09° (@ROI) , 0.2°(Non-global)	A: 0.05°(Non-global)
Data Point Generating Rate	1,650,000 pts/sec	1,650,000 pts/sec	1,850,000 pts/sec	1,850,000 pts/sec

Terminator 1

LASER	Wavelength	1550nm
	Laser Class	CLASS 1
SPEC	Detection Method	TOF
	Detection Range	1.5m~250m(@10%)
	Range Accuracy	±2cm
	FPS	10Hz
EXPORT	Communication Interface	Automotive Ethernet
ELECTRIC	Input Voltage	9V~36V DC
	Power Consumption	≤25W
ENVIRONMENT	IP Grade	IP6K9K
	Operating Temperature	-40℃~85℃
	Storage Temperature	-40℃ ~ +105℃
	Vibration Test	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms
MACHINE	Weight	≤1.6kg
	Dimensions (LxWxH)	231*132*46mm

LS-S4 Series

Image-grade 1550nm Auto-grade LiDAR

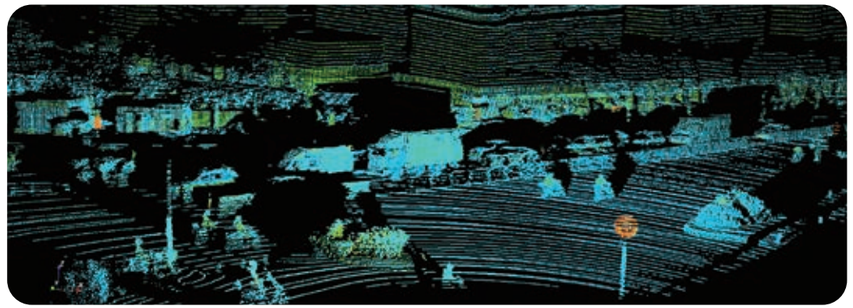
LS series is image-grade LiDAR meeting automotive standards, which adopts the in-house 1550nm fiber-laser and high-power core optical devices. LS series can detect small objects within super long range. The series can detect up to 500m, and 250m for 10% reflectivity objects. The other parameters are also impressive: ranging accuracy ±2cm, FOV 120°(H)x25°(V), min vertical resolution 0.015°. The series is also built with anti-interference functionality.

LS-S4 series offers 5 channel alternatives: 256, 300, 400, 512 and 800. The ultra-thin design makes it easier to integrate into the vehicle roof. The image-grade LiDAR will mainly serve the autonomous driving application, with high reliability design for mass production vehicles. The series owns world-leading comprehensive performance and it will become the preferred primary sensor for L3 and higher level driving automation.

		LS256S4	LS300S4
LASER	Wavelength	1550nm	1550nm
	Laser Class	CLASS 1	CLASS 1
SPEC	Channels	256	300
	Channels Scanned	2560	3000
	Detection Method	TOF	TOF
	Detection Range	1.5m~250m(@10%)	1.5m~250m(@10%)
	Range Accuracy	±2cm	±2cm
	Horizontal FOV	120°	120°
	Vertical FOV	25°（±12.5°）	25°（±12.5°）
	Horizontal Resolution	0.08°（@ROI）	0.09°（@ROI）
	Vertical Resolution	0.06°（@ROI）	0.06°（@ROI）
	FPS	10Hz	10Hz
EXPORT	Data Point Generating Rate	2,520,000 pts/sec	2,530,000 pts/sec
	Communication Interface	Automotive Ethernet	Automotive Ethernet
ELECTRIC	Input Voltage	12V~36V DC	12V~36V DC
	Power Consumption	≤40W	≤40W
ENVIRONMENT	IP Grade	IP6K9K	IP6K9K
	Storage Temperature	-40℃ ~ +105℃	-40℃ ~ +105℃
	Operating Temperature	-40℃~85℃	-40℃~85℃
	Vibration Test	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms
MACHINE	Weight	*	*
	Dimensions (LxWxH)	220x180x49 mm	220x180x49mm

LS-S4 Series

Image-grade 1550nm Auto-grade LiDAR



		LS400S4	LS512S4	LS800S4
LASER	Wavelength	1550nm	1550nm	1550nm
	Laser Class	CLASS 1	CLASS 1	CLASS 1
SPEC	Channels	400	512	800
	Channels Scanned	4000/S	5120/S	8000/S
	Detection Method	TOF	TOF	TOF
	Detection Range	1.5m~250m(@10%)	1.5m~250m(@10%)	1.5m~250m(@10%)
	Range Accuracy	±2cm	±2cm	±2cm
	Horizontal FOV	120°	120°	120°
	Vertical FOV	25°（±12.5°）	25°（±12.5°）	25°（±12.5°）
	Horizontal Resolution	0.1°（@ROI）	0.1°（@ROI）	0.05°（@ROI）
	Vertical Resolution	0.03°（@ROI）	0.02°（@ROI）	0.015°（@ROI）
	FPS	10Hz	10Hz	10Hz
EXPORT	Data Point Generating Rate	4,800,000 pts/sec	6,140,000 pts/sec	/
	Communication Interface	Automotive Ethernet	Automotive Ethernet	Automotive Ethernet
ELECTRIC	Input Voltage	12V~36V DC	12V~36V DC	12V~36V DC
	Power Consumption	≤40W	≤42W	≤42W
ENVIRONMENT	IP Grade	IP6K9K	IP6K9K	IP6K9K
	Storage Temperature	-40℃ ~ +105℃	-40℃ ~ +105℃	-40℃ ~ +105℃
	Operating Temperature	-40℃~85℃	-40℃~85℃	-40℃~85℃
	Vibration Test	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms
MACHINE	Weight	*	*	*
	Dimensions (LxWxH)	220x180x49mm	220x180x49mm	220x180x49mm

LS500W1

1550nm Wide Field of View (FOV) LiDAR

LS500W1 series hybrid solid-state LiDAR from LSLiDAR features an in-house 1550 nm fiber laser and over a dozen high-power core optical components. LS500W1 offers exceptional long-range detection performance for small objects and provides an extremely high-density point cloud. It has a detection range of 2 to 150 meters and a super-wide field of view of 120° (H) x 73° (V). With a measurement rate of 3.7 million points per second, it can accurately identify various targets such as humans, animals, vehicles, tires, and falling objects, providing distance and 3D contour information output.

		LS500W1
LASER	Wavelength	1550nm
	Laser Class	CLASS 1
SPEC	Channels Scanned	480 lines
	Detection Method	TOF
	Detection Range	2m~60m，Max 150m
	Range Accuracy	±2cm
	Horizontal FOV	120°
	Vertical FOV	73°（±36.5°）
	Horizontal Resolution	0.155°
	Vertical Resolution	0.146°
	FPS	10FPS
EXPORT	Data Point Generating Rate	3,700,000 pts/sec
	Communication Interface	Industrial Ethernet
ELECTRIC	Input Voltage	9V~36V DC
	Power Consumption	≤40W
ENVIRONMENT	IP Grade	IP6K9K
	Storage Temperature	-40℃ ~ 105℃
	Operating Temperature	-40℃~85℃
	Vibration Test	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms
MACHINE	Weight	≤3kg
	Dimensions (LxWxH)	270x160x80 mm

LS25 Series

Rail Transport 1550nm Hybrid Solid-state LiDAR

LS25D is suitable for fixed-point detection at the track end, with an ultra-wide field angle of 120°×25°. The resolution can be up to 0.0311°×0.05° for small objects of 20×20cm, at the detection distance of 200 meters, clear and accurate identification of foreign obstacles;
LS25E is suitable for train-mounted, detection range 1.5m~300m (250m@10%), detection accuracy ±2cm, frame rate 10~20FPS, low false alarm rate, give train driver or traffic background more safety redundancy time.

High resolution scanning and monitoring railway, accurate identification of foreign obstacle

		LS25D	LS25E
LASER	Wavelength	1550nm	1550nm
	Detection Range	1.5m~200m(@10%)	1.5m~300m(250m@10%,)
SPEC	Range Accuracy	±2cm	±2cm
	Horizontal FOV	120°	120°
	Vertical FOV	25° (±12.5°)	25° (±12.5°)
	Horizontal Resolution	0.0311°	0.09°(10Hz) | 0.18°(20Hz)
	Vertical Resolution	0.05°(1Hz) / 0.1°(2Hz) / 0.2°(4Hz)	0.2°(10Hz) | 0.2°(20Hz)
	FPS	1 ~4 fps	10 / 20 fps
EXPORT	Communication Interface	Automotive Ethernet	Automotive Ethernet
ELECTRIC	Input Voltage	12~36V DC	12~36V DC
	Power Consumption	≤30W	≤30W
ENVIRONMENT	IP Grade	IP6K9K	IP67
	Operating Temperature	-40℃~60℃	-40℃~60℃
MACHINE	Weight	≤2kg	≤2kg
	Dimensions (LxWxH)	247.5x230.03x79 mm	229x228x49 mm

MS03

Long-Range 1550nm LiDAR

MS03 is a LiDAR based on TOF principle, using Class I eye safety laser, the detection distance is up to 2000m, the measurement accuracy ±2cm, widely used in high-precision map, smart city, 3D urban modeling, land survey, fire emergency, power inspection, track inspection, mine inspection, tunnel inspection, forest inspection, bridge collision prevention and other field.

High Frequency Recombination

High Accuracy

Long Range

		MS03
LASER	Wavelength	1550nm
	Laser Class	Class I (IEC-60825)
SPEC	Channels	4
	Detection Method	TOF
	Detection Range	Max 2000m
	Range Accuracy	±2cm
	Horizontal FOV	120°
	Vertical FOV	0.03°
EXPORT	Echo Times	1~3
	Communication Interface	Industrial Ethernet
ELECTRIC	Input Voltage	14V~36V DC
ENVIRONMENT	IP Grade	IP67
	Operating Temperature	-20℃~60℃
	Storage Temperature	-40℃~85℃
MACHINE	Weight	3kg
	Dimensions (LxWxH)	230x120x106 mm

Detection Range	2000m	1000m	500m	300m	200m
Angular Resolution	0.096°: 10Hz 0.192°: 20Hz	0.048°: 10Hz 0.096°: 20Hz	0.024°: 10Hz 0.048°: 20Hz	0.014°: 10Hz 0.028°: 20Hz	0.01°: 10Hz 0.02°: 20Hz
Laser Frequenc	75kHz	150kHz	300kHz	500kHz	750kHz
Data Point Generating Rate(pts/sec)	50,000	100,000	200,000	333,000	500,000

MS05

Civil Helicopters 1550nm Anti-Collision LiDAR

MS05 is a high-end LiDAR based on TOF principle, with a maximum detection range of 2000 meters. It uses a 1550nm fiber laser source developed by LSLiDAR, and can achieve high-resolution, long-distance detection for applications such as high-precision mapping, smart cities, land surveying, and obstacle avoidance for drones and autonomous vehicles.

		MS05
LASER	Wavelength	1550nm
SPEC	Detection Method	TOF
	Detection Range	2000/1250/500/300/200/100m
	Range Accuracy	**
	Angle Accuracy	±3cm
	FPS	**
	Horizontal FOV	**
	Vertical FOV	**
	Vertical (Angular Resolution)	**
EXPORT	Communication Interface	**
	GNSS Port	**
ELECTRIC	Power Consumption	200W
	Input Voltage	14V~36V DC
ENVIRONMENT	IP Grade	IP67
	Operating Temperature	-45℃~70℃
MACHINE	Weight	≈16kg
	Dimensions (LxWxH)	*

Ps: Please contact sales for detailed parameters

MS06

Civil Helicopters 1550nm Anti-Collision LiDAR

MS06-A is a LiDAR based on the principle of TOF. It adopts the Class I eye safety laser. The detection range is up to 1200m.

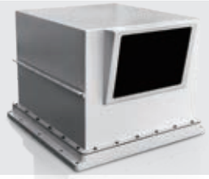
		MS06
LASER	Wavelength	1550nm
SPEC	Detection Method	TOF
	Detection Range	600/800/1000/1200m
	Range Accuracy	**
	Angle Accuracy	**
	FPS	**
	Horizontal FOV	**
	Vertical FOV	**
	Vertical (Angular Resolution)	**
EXPORT	Communication Interface	**
	GNSS Port	**
ELECTRIC	Power Consumption	**
	Input Voltage	**
ENVIRONMENT	IP Grade	**
	Storage Temperature	**
	Operating Temperature	**
MACHINE	Weight	**
	Dimensions (LxWxH)	243x220x96mm

Ps: Please contact sales for detailed parameters

LS30MVA

LONG RANGE BRIDGE COLLISION AVOIDANCE 1550nm LiDAR SYSTEM

LS30MVA long-range visually adjustable laser ranging system is composed of a long-distance fixed-point rangefinder independently developed by LSLiDAR, an angular displacement platform, and a camera. When the rangefinder is displaced in the pitch direction due to various reasons, the system will automatically sense it and adjust the emitted laser of the rangefinder to the horizontal angle. The optical axis of the camera is parallel to the laser direction. Therefore, when the rangefinder detects a target ahead, the target situation can be directly confirmed.



Self-regulation

Long Range Detection

Visualization

		LS30MVA
LASER	Wavelength	1550nm
	Max Range	2000m
SPEC	Min Range	10m
	Range Accuracy	±15cm
EXPORT	Data Point Generating Rate	500 pts/sec
	Accuracy of Laser Pitch Angle	0.01°
	Communication Interface	Industrial Ethernet
ELECTRIC	Input Voltage	AC/170~264V DC
	Power Consumption	50W(Max)
ENVIRONMENT	IP Grade	IP66(Customizable)
	Operating Temperature	-10℃~60℃
	Vibration Test	Able to withstand vibration shock with acceleration of 0.73 G
MACHINE	Weight	≤15kg
	Dimensions (LxWxH)	350x272.5x487 mm

CX Series

Auto-grade Hybrid Solid-state LiDAR

Thanks to the breakthrough have been made by LSLiDAR, CX series is built on the miniaturiation technology on automotive grade hybrid-solid state LiDARs. It not only meets the performance requirements of remote detection and perception in autonomous driving, but also has a mini size, suitable for embedding in the position of roof or front bumper, which is more in line with the aesthetic requirements of passenger car appearance design.

CX126S3

CX128S2

Mini Size

Perfectly Fit Car

Long Range

		CX126S3	CX128S2
LASER	Wavelength	905nm	905nm
	Laser Class	Class I (IEC-60825)	Class I (IEC-60825)
SPEC	Channels	126	128
	Detection Method	TOF	TOF
	Detection Range	150m@10%	200m@10%
	Range Accuracy	≤3cm	≤3cm
	Horizontal FOV	120°	120°
	Vertical FOV	25°(-12.5°~12.5°)	25°(-12.5°~12.5°)
	Horizontal Resolution	5Hz: 0.09°; 10Hz: 0.18°; 20Hz: 0.36°	0.05° / 0.1° / 0.2°
	Vertical Resolution	0.2°	0.125°ROI, 0.25° non ROI
	FPS	5Hz / 10 Hz / 20 Hz	5Hz / 10 Hz / 20 Hz
EXPORT	Data Point Generating Rate	840,000pts/sec	1,530,000pts/sec
	Communication Interface	Automotive Ethernet	Automotive Ethernet
ELECTRIC	Input Voltage	9V~16V DC	9V~16V DC
	Power Consumption	13.5W	15W
ENVIRONMENT	Anti-interference	Laser Code	Laser Code
	AUTOSAR	ASIL B	ASIL B
	IP Grade	IP6K9K	IP6K9K
	Operating Temperature	-40℃~85℃	-40℃~85℃
	Vibration Test	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms
	Shock Test	500m/sec^2，lasting for 11ms	500m/sec^2，lasting for 11ms
MACHINE	Weight	635g	915g
	Dimensions (LxWxH)	110x91.5x45 mm	137x99x47mm

CX Series

Auto-grade Hybrid Solid-state LiDAR

CX series is a modification of CX126S3 hybrid solid-state LiDAR, featuring two types of channels: single-line and six-line. It is designed to meet the requirements of industrial scenarios, offering precise distance and reflectivity information for 2D/3D mapping, detection, and obstacle avoidance. With a maximum scanning frequency of 150Hz and a detection range of 150 meters (@10%), it is suitable for large-scale operations. CX series LiDAR boasts fast scanning speed, high resolution, and high reliability as its key advantages.

		CX1S3	CX6S3
LASER	Wavelength	905nm	905nm
	Laser Class	Class I (IEC-60825)	Class I (IEC-60825)
SPEC	Channels	1	6
	Detection Method	TOF	TOF
	Detection Range	150m@10%	20m@10%
	Range Accuracy	±3cm	±3cm
	Horizontal FOV	120°	120°
	Vertical FOV	/	1°
	Horizontal Resolution	0.024° / 0.048° / 0.072° / 0.096° / 0.12°	0.075° / 0.15° / 0.3°
	Vertical Resolution	/	0.2°
	FPS	30 / 60 / 90 / 120 / 150 Hz	5 / 10 / 20 Hz
EXPORT	Data Point Generating Rate	150,000	48,000
	Communication Interface	Industrial Ethernet	Industrial Ethernet
ELECTRIC	Input Voltage	9V~32V DC	9V~32V DC
ENVIRONMENT	IP Grade	IP6K9K	IP6K9K
	Operating Temperature	-40℃~85℃	-40℃~85℃
	Storage Temperature	-40℃~105℃	-40℃~105℃
	Vibration Test	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms
MACHINE	Weight	635g	635g
	Dimensions (LxWxH)	110x101.4x45 mm	110x92.5x45mm

CB64 / CH64W

Wide field of view (FOV) LiDAR

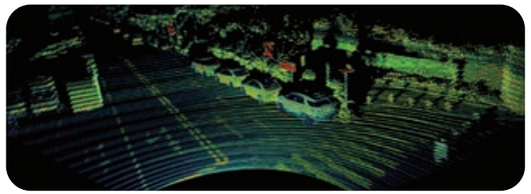
CB64S1/CH64W wide field of view (FOV) LiDAR is specially designed for cleaning up blind areas. It has an ultra-wide field FOV of 180°x40°, and the measurement accuracy is accurate to ±3cm. It can efficiently identify obstacles within a short range and bring accurate environmental perception to the driving blind areas of automobiles, robots and AGV.

		CB64 / CH64W
LASER	Wavelength	905nm
	Laser Class	Class I (IEC-60825)
SPEC	Channels	64
	Detection Method	TOF
	Detection Range	100m(45m@10%)
	Range Accuracy	±3cm
	Horizontal FOV	180°
	Vertical FOV	40°(-25°~15°)
	Horizontal Resolution	0.12°:10Hz / 0.16°:10Hz / 0.24°:10Hz / 0.36°:10Hz
	Vertical Resolution	0.63°
	FPS	10Hz、20Hz
EXPORT	Data Point Generating Rate	1,010,000 / 760,000 / 500,000 / 330,000 pts/sec
	Communication Interface	Automotive Ethernet / Industrial Ethernet
ELECTRIC	Input Voltage	9V~36V DC
	Power Consumption	12W
ENVIRONMENT	Anti-interference	Laser Code
	AUTOSAR	Support (A) / Not support (I)
	IP Grade	IP6K9K
	Operating Temperature	-40℃~85℃
	Storage Temperature	-40℃~105℃
	Vibration Test	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms
MACHINE	Weight	1kg
	Dimensions (LxWxH)	116x90x76 mm

CH128 Series

Hybrid Solid-state LiDAR

LSLiDAR keeps upgrading CH128 series LiDAR with the requirements of factory-installed self-driving systems set by automotive OEMs. The stable and reliable performance of the original CH series Hybrid Solid-state LiDAR is fully integrated with the size, power consumption, function, safety, cost and other requirements of automobile manufacturers, and has passed a series of rigorous tests. CH128 series has achieved an unprecedented technological breakthrough in Hybrid Solid-state LiDAR on a global scale.



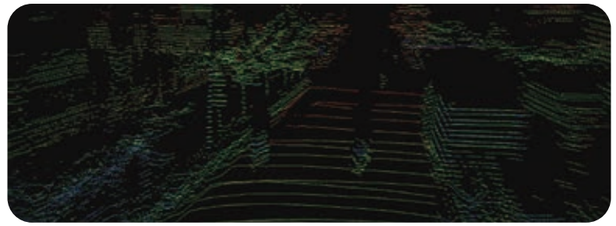
		CH128X1	CH128S1
LASER	Wavelength	905nm	905nm
	Laser Class	Class I (IEC-60825)	Class I (IEC-60825)
SPEC	Channels	128	128
	Detection Method	TOF	TOF
	Detection Range	200m (160m@10%)	200m (160m@10%)
	Range Accuracy	±3cm	±3cm
	Horizontal FOV	120°	120°
	Vertical FOV	25°(-18°~7°)	25°(-12.5°~12.5°)
	Horizontal Resolution	0.1° / 0.2° / 0.4°	0.1° / 0.2° / 0.4°
	Vertical Resolution	0.125°@ROI，0.25°@non ROI	0.125°@ROI，0.25°@non ROI
	FPS	5 Hz / 10 Hz / 20 Hz	5 Hz / 10 Hz / 20 Hz
EXPORT	Data Point Generating Rate	760,000 pts/sec	760,000 pts/sec
	Communication Interface	Automotive Ethernet、Industrial Ethernet	Automotive Ethernet、Industrial Ethernet
ELECTRIC	Input Voltage	9V~36V DC	9V~36V DC
	Power Consumption	12W	12W
ENVIRONMENT	Anti-interference	Laser Code	Laser Code
	AUTOSAR	ASIL B	ASIL B
	IP Grade	IP6K9K	IP6K9K
	Operating Temperature	-40℃~85℃	-40℃~85℃
	Vibration Test	5Hz~2000Hz，3G rms	5Hz~2000Hz，3G rms
	Shock Test	500m/sec²，lasting for 11ms	500m/sec²，lasting for 11ms
MACHINE	Weight	≈1kg	≈1kg
	Dimensions (LxWxH)	118x90x75 mm	118x90x75 mm

CH64/32

Hybrid Solid-state LiDAR

CH32/16 hybrid solid-state LiDAR is designed for autonomous vehicles and auto-grade. It uses a hybrid solid-state structure, with 150m detection, measurement accuracy ±3cm. and 120° horizontal field of view angle, which can bring more accurate environment perception for semi-autonomous and autonomous driving.

- Long detection
  High accuracy
  High angular resolution
- Standard design
  Stable structure
  Lower power consumption
- Easier mass production
  Cost-effective

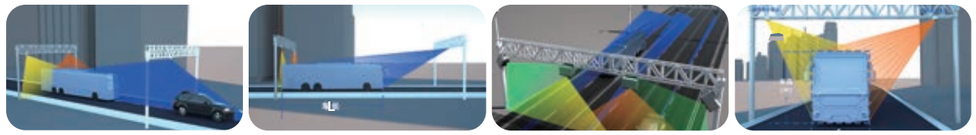


		CH64	CH32
LASER	Wavelength	905nm	905nm
	Laser Class	Class I (IEC-60825)	Class I (IEC-60825)
SPEC	Channels	64	32
	Detection Method	TOF	TOF
	Detection Range	100m / 150 / 200m	100m / 150 / 200m
	Range Accuracy	±3cm	±3cm
	Horizontal FOV	120°	120°
	Vertical FOV	21.33°(-13.33°~8°)	11.25°(-6.67~4.58°)
	Horizontal Resolution	5Hz:0.09°/ 10Hz:0.18°/ 20Hz:0.36°	5Hz:0.045°/ 10Hz:0.09°/ 20Hz:0.18°
	Vertical Resolution	0.33°(Nonlinear Distribution)	0.33°(Nonlinear Distribution)
	FPS	5Hz / 10Hz / 20Hz	5Hz / 10Hz / 20Hz
EXPORT	Data Point Generating Rate	Single Echo 426,000 pts/sec	Single Echo 426,000 pts/sec Dual Echo 852,000 pts/sec
	Communication Interface	Industrial Ethernet	Industrial Ethernet
ELECTRIC	Input Voltage	9V~36V DC	9V~36V DC
	Power Consumption	10W	*
ENVIRONMENT	IP Grade	IP67	IP67
	Operating Temperature	-20℃~65℃	-20℃~65℃
	Vibration Test	5Hz~2000Hz，3G rms	5Hz~2000Hz，3G rms
	Shock Test	500m/sec²，lasting for 11ms	500m/sec²，lasting for 11ms
MACHINE	Weight	≈1.5kg	≈1.5kg
	Dimensions (LxWxH)	155x107.5x90 mm	155x107.5x90 mm

HS Series

Fast Scanning LiDAR

HS series fast scanning LiDAR has excellent detection accuracy and anti-interference performance, with 100m detection range, measurement accuracy ±2cm, and up to 200Hz scanning frequency can be real-time sensing high-speed moving objects, accurately grasp vehicle contour information, It is widely used in vehicle and cargo contour detection, vehicle type detection, height limit detection, overshooting detection, high-speed ETC capture detection, entry and exit vehicle type classification, traffic flow statistics, ETC.

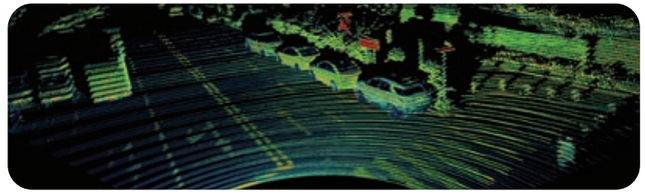


		HS1	HS4
LASER	Wavelength	905nm	905nm
	Laser Class	CLASS 1	CLASS 1
SPEC	Channels	1	4
	Detection Method	TOF	TOF
	Detection Range	30 / 50 / 70 / 100m @10%	100m
	Range Accuracy	±3cm	±3cm
	Horizontal FOV	120°	120°
	Horizontal Resolution	40Hz:0.09°/ 80Hz: 0.18°/ 100Hz:0.225°/ 120Hz:0.27°/ 160Hz: 0.36°	40Hz:0.09°/ 80Hz: 0.18°/ 120Hz:0.36°
	FPS	40Hz / 80Hz / 120Hz / 160Hz	40Hz / 80Hz / 120Hz
EXPORT	Data Point Generating Rate	53,000 pts/sec	53,300 pts/sec
	Communication Interface	Industrial Ethernet	Ethernet，PPS
ELECTRIC	Input Voltage	9V~36V DC	9V~36V DC
ENVIRONMENT	IP Grade	IP67	IP67
	Operating Temperature	-20℃~65℃	-40℃ ~ +85℃
	Vibration Test	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms
	Shock Test	500m/sec^2，lasting for 11ms	500m/sec^2，lasting for 11ms
MACHINE	Weight	≈1600g	1500g
	Dimensions (LxWxH)	155x107.5x90 mm	155*90*107.5 mm

CH16X1

Hybrid Solid-state LiDAR

CH16X1 has achieved a major technical breakthrough in the miniaturization technology of auto-grade multiple scanning channels hybrid solid-state LiDAR based on LSLiDAR. It not only meets the requirements of long-range detection and perception performance in autonomous driving, but also has a mini size, which is suitable for embedding in the roof or front bumper, and more suitable for the aesthetic needs of passenger car appearance design.



		CH16X1
LASER	Wavelength	905nm
	Laser Class	CLASS 1
SPEC	Channels	16
	Detection Method	TOF
	Detection Range	200 m (160 m @10%)
	Range Accuracy	±3cm
	Horizontal FOV	120°
	Vertical FOV	-2°~2°
	Horizontal Resolution	5 Hz: 0.06° / 10 Hz: 0.12° / 20 Hz: 0.24°
	Vertical Resolution	0.25°
	FPS	5Hz / 10Hz / 20Hz
EXPORT	Data Point Generating Rate	95,000 pts/sec
	Communication Interface	100M Automotive Ethernet / Industrial Ethernet
ELECTRIC	Input Voltage	9V~36V DC
	Power Consumption	12W
ENVIRONMENT	IP Grade	IP 6K9K
	Operating Temperature	-40℃ ~ +85℃
	Storage Temperature	-40℃ ~ +105℃
	Vibration Test	5Hz-2000Hz，3G rms
	Shock Test	500m/sec^2，lasting for 11ms
MACHINE	Weight	≈1kg
	Dimensions (LxWxH)	118*90*75 mm

CH1W

Auto-grade Hybrid Solid-state LiDAR

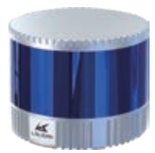
CH1W has auto-grade design and 180° ultra-wide field of view Angle, with measurement accuracy of ±3cm, it can efficiently identify obstacles in short range and provide accurate environmental perception for vehicles, robots and AGVs driving blind areas.

CH1W

LASER	Wavelength	905nm
	Laser Class	CLASS 1
SPEC	Channels	1
	Detection Method	TOF
	Detection Range	100m（80m@10%）
	Range Accuracy	±3cm
	Horizontal FOV	180°
	Angular Resolution	0.024° (40Hz)
	FPS	20Hz / 40Hz / 80Hz
EXPORT	Data Point Generating Rate	316,600 pts/sec
	Communication Interface	Automotive Ethernet
ELECTRIC	Input Voltage	9V~36VDC
	Power Consumption	12W
ENVIRONMENT	IP Grade	IP6K9K
	Operating Temperature	-40℃ ~ +85℃
	Storage Temperature	-40℃ ~ +105℃
	Vibration Test	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms
MACHINE	Weight	≈1kg
	Dimensions (LxWxH)	116*90*76 mm

C16E Series

Explosion-Proof / Flameproof LiDAR



Explosion-Proof LiDAR
(Ex ib I Mb)

Flameproof LiDAR
(Ex d IIC T6 Gb)

C16E series LiDAR is capable of three-dimensional scanning and detection of the surrounding environment. With a horizontal field of view of 360° and a vertical field of view of -15°~15°, there is no blind spot. Its detection range is up to 150 meters and maximum point generating rate is 640,000 points/second. C16E series also supports IP 67 which makes it dust and water resistant.

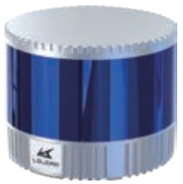
C16E Series

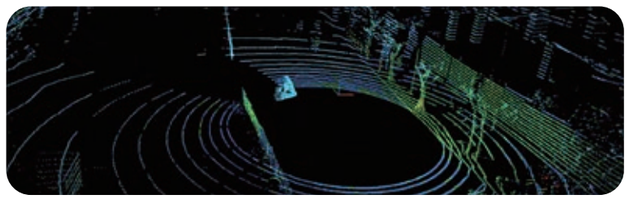
LASER	Wave Length	905nm
	Laser Class	Class I (IEC-60825)
SPEC	Channels	16
	Measurement Principle	TOF
	Detect Distance	100m(50@10%)
	Accuracy	±3cm
	Horizontal FOV	360°
	Vertical FOV	30°(-15°~15°)
	Horizontal Resolution	5Hz:0.09°/ 10Hz:0.18°/ 20Hz:0.36°
	Vertical Resolution	2°
	FPS	5Hz / 10Hz / 20Hz
EXPORT	Point Rate	Single echo 320,000、Double echo 640,000pts/sec
	Communication Interface	Industrial Ethernet
ELECTRIC	Input Voltage	9V~36V DC
ENVIRONMENT	IP Grade	IP67
	Working Temperature	-20℃~60℃
MACHINE	Ex-mark (Exib)	Ex ib I Mb
	Ex-mark (Exd)	Ex d IIC T6 Gb
	Weight	800g / 1500g
	Size (DxH)	Φ102x81mm / Φ176x100 mm

C32/16

Multi-line Mechanical LiDAR

C32/16 lines mechanical LiDAR realizes 360° three-dimensional fast scanning with dense 32/16 beam laser, the detection range is up to 160m, and the measurement accuracy is accurate to ±1cm. It is widely used in autonomous driving, automotive ADAS, intelligent transportation, service robot, logistics, mapping, security, port, industry and other fields.

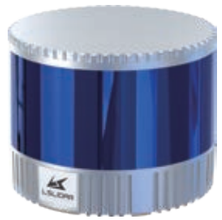




		C32	C16
LASER	Wavelength	905nm	905nm
	Laser Class	Class I (IEC-60825)	Class I (IEC-60825)
SPEC	Channels	32	16
	Detection Method	TOF	TOF
	Detection Range	100m@10% / 150m@70%	100m@10% / 150m@70%
	Precision	±3cm	±3cm
	Range Accuracy	±1cm	±1cm
	Horizonta FOV	360°	360°
	Vertical FOV	31°(-16°~15°)	30°(-16°~14°)
	Horizontal Resolution	5Hz:0.09°/ 10Hz:0.18°/ 20Hz:0.36°	5Hz:0.09°/ 10Hz:0.18°/ 20Hz:0.36°
	Vertical Resolution	Uniform 1°	Uniform 2°
	FPS	5Hz / 10Hz / 20Hz	5Hz / 10Hz / 20Hz
EXPORT	Single Echo	640,000 pts/sec	320,000 pts/sec
	Dual Echo	1,280,000 pts/sec	640,000 pts/sec
	Communication Interface	Ethernet / PPS	Industrial Ethernet
ELECTRIC	Input Voltage	12V~36V DC	12V~36V DC
	Power Consumption	12W (10Hz)	10W (10Hz)
ENVIRONMENT	IP Grade	IP67	IP67
	Working Temperature	-20℃~60℃	-20℃~60℃
	Vibration Test	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms
MACHINE	Weight	1040g	1040g
	Dimensions (DxH)	Φ102x77.9 mm	Φ102x77.9 mm

C1

2D Mechanical LiDAR

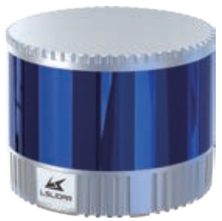


C1 2D mechanical LiDAR uses the time-of-flight measurement mechanism to achieve a high-speed 360° scan of the surrounding environment, with a detection distance of up to 150 m and an accuracy of ±3cm. It is mainly used in indoor service robots, AGVs and UAVs that require precise positioning and obstacle avoidance.

		C1
LASER	Wave Length	905nm
	Laser Class	Class I (IEC-60825)
SPEC	Channels	1
	Measurement Principle	TOF
	Detect Distance	150m@70% / 110m@10%
	Precision	±3cm
	Range Accuracy	±1cm
	Horizontal FOV	360°
	Vertical FOV	N/A
	Horizontal Resolution	5Hz:0.09°/ 10Hz:0.18°/ 20Hz:0.36°
	Vertical Resolution	N/A
	FPS	5Hz / 10Hz / 20Hz
EXPORT	Point Rate	Single echo 20,000、Double echo 40,000
	Communication Interface	Ethernet, PPS
ELECTRIC	Input Voltage	9V~32V DC
	Power Consumption	7W (10Hz)
ENVIRONMENT	IP Grade	IP67
	Working Temperature	-20℃~60℃
MACHINE	Vibration Test	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms
	Weight	1050g
	Size (DxH)	Φ102x77.9mm

C4/C8

Multi-line Mechanical LiDAR



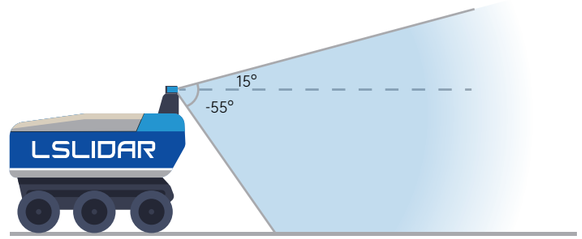
C4/C8 mechanical LiDAR realizes 360° three-dimensional high-speed scanningwith 4/8 laser beams. It reaches a detection distance of up to 120 m, anda measurement accuracy of ±3 cm. This lidar sensor is widely used in autonomous driving, automotive ADAS, intelligent transportation, service robot, logistics, surveying and mapping, security, industry, ports and other fields.

		C4	C8
LASER	Wavelength	905nm	905nm
	Laser Class	Class I (IEC-60825)	Class I (IEC-60825)
SPEC	Channels	4	8
	Detection Method	TOF	TOF
	Detection Range	150m@70%	110m@10% / 120m@70%
	Precision	±3cm	±3cm
	Range Accuracy	±1cm	±1cm
	Horizonta FOV	360°	360°
	Vertical FOV	-12°~12°	-12°~12°
	Horizontal Resolution	5Hz:0.09°/ 10Hz:0.18°/ 20Hz:0.36°	5Hz:0.09°/ 10Hz:0.18°/ 20Hz:0.36°
	Vertical Resolution	Min 4°	2° / 4°
	FPS	5Hz / 10Hz / 20Hz	5Hz / 10Hz / 20Hz
EXPORT	Single Echo	80,000 pts/sec	160,000 pts/sec
	Dual Echo	160,000 pts/sec	320,000 pts/sec
	Communication Interface	Ethernet, PPS	Ethernet, PPS
ELECTRIC	Input Voltage	9V~36V DC	9V~36V DC
	Power Consumption	≈12W	≈12W
ENVIRONMENT	IP Grade	IP67	IP67
	Working Temperature	-20℃~60℃	-20℃~60℃
MACHINE	Vibration Test	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms
	Weight	1050g	1050g
	Dimensions (DxH)	Φ102x77.9 mm	Φ102x77.9 mm

C32W

Wide FOV Mechanical LiDAR

C32W has a wide field of view of 360°x70°, but also centrally scans the space below the LiDAR, which can effectively identify low obstacles in the short range and greatly reduce the detection blind area space.



		C32W
LASER	Wavelength	905nm
	Laser Class	Class I (IEC-60825)
SPEC	Channels	32
	Detection Method	TOF
	Detection Range	130m@70% / 60m@10%
	Precision	±3cm
	Range Accuracy	±1cm
	Horizontal FOV	360°
	Vertical FOV	70°(-55°~15°)
	Horizontal Resolution	5Hz:0.09°/ 10Hz:0.18°/ 20Hz:0.36°
	Vertical Resolution	Min 1.5°
	FPS	5Hz / 10Hz / 20Hz
	Data Point Generating Rate	600,000 pts/sec
EXPORT	Communication Interface	Ethernet，PPS
ELECTRIC	Input Voltage	9V~36V DC
	Power Consumption	12W
ENVIRONMENT	IP Grade	IP67
	Operating Temperature	-20℃~60℃
	Vibration Test	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms
MACHINE	Weight	≈1115g
	Dimensions (DxH)	Φ102x102 mm

CH16R/CH32R

Ultra-Wide Angle Blind Spot LiDAR

CH16R/CH32R LiDAR can realize 360° three-dimensional high-speed scanning with a dense 32 scanning channels. The vertical field of view can reach 90°, the detection distance is 120m, the measurement accuracy is accurate to ±1cm, and the vertical Angle resolution is the minimum 2.81°. Widely used in driverless, automotive ADAS, intelligent transportation, service robots, logistics, surveying and mapping, security, port, industry and other fields.

		CH16R	CH32R
LASER	Wavelength	905nm	905nm
	Laser Class	Class I (IEC-60825)	Class I (IEC-60825)
SPEC	Channels	16	32
	Detection Method	TOF	TOF
	Detection Range	30m@10% / 120m@70%	30m@10% / 120m@70%
	Precision	±3cm	±3cm
	Range Accuracy	±1cm	±1cm
	Horizontal FOV	360°	360°
	Vertical FOV	2.487° ~52.798°	2.487° ~89.105°
	Horizontal Resolution	0.09°/ 0.18° / 0.36°	0.09° / 0.18° / 0.36°
	Vertical Resolution	Min 2.618°	Min 2.81°
	FPS	5Hz、10Hz、20Hz	5Hz、10Hz、20Hz
EXPORT	Single Echo	320,000 pts/sec	640,000 pts/sec
	Dual Echo	640,000 pts/sec	1,280,000 pts/sec
	Communication Interface	100m Ethernet 、PPS	100m Ethernet 、PPS、PTP
ELECTRIC	Input Voltage	12V~32V DC	12V~32V DC
	Power Consumption	10W (10Hz)	12W (10Hz)
ENVIRONMENT	IP Grade	IP67	IP67
	Operating Temperature	-20℃~60℃	-20℃~60℃
	Vibration Test	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms
	Shock Test	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms
MACHINE	Weight	1000g	1000g
	Dimensions (DxH)	Φ100x110mm	Φ100x110mm

M10 Series

Navigation & Obstacle Avoidance LiDAR

- Wide recognition range, long range, fast response
- Algorithm is optimized and upgraded, mapping faster and more accurate
- Strong anti-light interference ability, both indoor and outdoor
- Advanced optics and lower SNR and dynamic balance control, excellent detection for strong light, high reflectivity objects and low reflectivity objects
- Light and compact, more suitable for embedding machine

	M10	M10P	M10Plus
Wavelength	905nm	905nm	905nm
Laser Class	Class I	Class I	Class I
Output Data	Distance, Angle	Distance, Angle, High Reflective	Distance, Angle
Detection Distance	25m@70%	25m@70%	25m@70%
Accuracy	±3cm	±3cm	±3cm
Scan Angle	360°	360°	360°
Scanning Frequency	10Hz / 20Hz	12Hz	5~20Hz
Data Point Generating Rate	10,000 pts/sec	20,000 pts/sec	20,000 pts/sec
Angular Resolution	0.36° / 0.72°	0.22°	0.09°~0.36°
Input Voltage	4.75V~5.25V DC（Network port）	5V~15V（Serial Port）	5V~15V（Network port）
IP Grade	IP65	IP65	IP65
Operating Temperature	-20℃~ 50℃	-20℃~50℃	-20℃~50℃
Communication Interface	Standard asynchronous serial port(Baud rate 460,800 bps)	Standard asynchronous serial port(Baud rate 512,000 bps)	Standard asynchronous serial port (Baud rate 921,600 bps)
Vibration Test	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms
Shock Test	5Hz-2000Hz,3G rms	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms
Weight	200g	200g	200g
Dimensions (DxH)	Φ79.3x39 mm	Φ79.3*39mm	Φ79.3*39mm

N10 Series/N20

Navigation & Obstacle Avoidance LiDAR

- Algorithm is optimized and upgraded, making the drawing faster and more accurate
- Strong anti-light interference ability, suitable for robot mapping, navigation andobstacle avoidance
- Advanced optical and algorithmic systems
- Black and white objects, high reflectivity objects have excellent detection performance
- Thin and compact design, suitable for embedded in all kinds of service robot body

	N10	N10 PLUS	N20
Wavelength	905nm	905nm	905nm
Laser Class	Class I	Class I	Class I
Output Data	Distance, Angle, Intensity	Distance, Angle, Intensity	Distance, Angle, Intensity
Detection Distance	0.02~12m@70%	0.02m~15m@70%	0.1m~12m@70%
Accuracy	±3cm(0~6m);±4.5cm(≥6m)@70%	±3cm@70%	±1.5cm(0~8m);±3cm(8~12m)@70%
Scan Angle	360°	360°	360°
Scanning Frequency	6~12Hz	6~12Hz	6~12Hz
Data Point Generating Rate	4,500 pts/sec	5,400 pts/sec	*
		Dual Echo 10,800 pts/sec	
Angular Resolution	0.48°~0.96°	0.4°~0.8°	0.4°~0.8°
Input Voltage	5V DC (4.75V~5.25V DC)	5V DC（4.75V~5.25V DC)	5V DC（4.75V~5.25V DC)
Power Consumption	1W	1.5W	1.2W
Operating Temperature	-10℃~40℃	-10℃~40℃	-10℃~40℃
Communication Interface	Standard Asynchronous	Standard Asynchronous	Standard Asynchronous
	Serial Port(Baud rate 230,400 bps)	Serial Port(Baud rate 460,800 bps)	Serial Port(Baud rate 230,400 bps)
Anti-light	4K Lux	> 80K Lux	60K Lux
IP Grade	IPX-4	IPX-4	IPX-4
Weight	60g	≈60g	≈60g
Dimensions (DxH)	Φ52x36.1 mm	Φ52x36.1 mm	Φ52x36.1 mm

N301/N401 Series

Navigation & Obstacle Avoidance LiDAR

- Wide recognition range, long range, fast response
- Minimum angular resolution reaches 0.18° to ensure the accuracy and stability of the measurement data
- Mapping more rapid and accurate
- Ethernet interface to realize high-speed data transmission
- Through the accelerated impact of rigorous testing certification, anti-gravity acceleration up to 40g
- Advanced optical and algorithm system, excellent detection performances for strong light, black and white objects, high reflective objects

	N301-60	N301-P	N401-P
Wavelength	905nm	905nm	905nm
Laser Class	CLASS 1	CLASS 1	CLASS 1
Channels	1	1	1
Detection Method	TOF	TOF	TOF
Detection Range	60m@70%	10m/20m/30m/40m/50m	10m/20m/30m/40m/50m
Range Resolution	/	2 mm(1.6 Protocol)	2 mm(1.6 Protocol)
		4 mm(1.7 Protocol)	4 mm(1.7 Protocol)
Range Accuracy	±3cm	±3cm	±3cm
FOV	360°	360°	360°
Angular Resolution	0.09° / 0.18° / 0.36°	0.09° / 0.18° / 0.36°	0.09° / 0.18° / 0.36°
FPS	5Hz/10Hz/20Hz	5Hz/10Hz/20Hz	5Hz/10Hz/20Hz
Data Point Generating Rate	20,000 pts/sec	20,000 pts/sec	20,000 pts/sec
Communication Interface	100M Ethernet、PPS	100M Ethernet	100M Ethernet
Output Data	/	Distance, Angle	Distance, Angle, High Reflective
Input Voltage	9~36VDC	9~32VDC(Typical Input 12/24VDC)	9~32VDC(Typical Input 12/24VDC)
Drive Method	/	Brushless Motor	Brushless Motor
Power Consumption	/	4W	4W
Operating Temperature	-20℃~60℃	-20℃~60℃	-20℃~60℃
Anti-light	/	80K Lux	80K Lux
Vibration Test	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms	5Hz-2000Hz，3G rms
Shock Test	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms	500m/sec², lasting for 11ms
Weight	≈406g	≈406g	≈406g
Dimensions (DxH)	/	Φ80*79.1mm	Φ80*79.1mm

W Series

Navigation & Obstacle Avoidance LiDAR

- Principle of TOF detection
- Designed for collision avoidance and intelligent area detection applications
- Can output switch quantity and point cloud data simultaneously
- Can be set freely in the measurement range according to the environment
- Maximum of 15 detection areas can be switched by input.
- Detection areas can be divided into independent type and associated type
- Industry-leading impact and vibration resistance, high reliability and stability

Wavelength	905nm
Laser Class	Class I (IEC-60825)
Output Data	Switching Value、Data Value / Switching Value
Detection Range	5m/10m/20m/30m
Range Accuracy	±3cm
FOV	270°
Scanning Rate	10Hz
Data Point Generating Rate	20,000 pts/sec
Angular Resolution	0.18°
Input Voltage	9V~28V DC
Operating Temperature	-20℃~60℃
Communication Interface	NPN、PNP
Detection Area	Associated / Independent
IP Grade	IP67
Shock Test	500m/sec², lasting for 11ms
Vibration Test	5Hz-2000Hz,3G rms
Weight	397g
Dimensions (DxH)	Φ80x79.1 mm

LS80A

Laser Distance Sensor

LS80A is a high-precision long-range distance sensor, which helps customers to obtain accurate perception and detection performance with high-cost performance. LS80A has the longest distance measurement in outdoor strong light up to 200m@70% reflectivity, supports high refresh rate, and IP67 waterproof & dustproof, which is suitable for various complex industrial places.

Wavelength	905nm
Laser Class	Class I
Detection Method	TOF
Detection Range	0.3~200m@70%
Accuracy	±5cm
Anti-light	100K Lux
Communication Protocol	RS485/CANopen/modbus RTU
Operating Temperature	-10℃~60℃
Storage Temperature	-30℃~70℃
IP Grade	IP65
Power Consumption	≤15W
Power Supply	9~28V DC（Typical Value 24V）
Weight	94g
Dimensions (DxH)	ϕ52*36.1mm

LS90A

Laser Distance Sensor

Advanced optical and algorithm system has excellent detection performance for strong light, black and white objects, high-reflection objects, etc. LS90A is light and compact, suitable for embedding in various service robot bodies.

Wavelength	905nm
Laser Class	Class I (IEC-60825)
Output Data	Distance, Intensity
Detection Range	0~12m@70%
Accuracy	±3cm
FOV	0.5°
Distance Resolution	15mm
Input Voltage	24V DC (9V~26V)
Operating Temperature	-10℃~40℃
Communication Interface	CAN
Dimensions (LxWxH)	Φ52x36.1 mm
Anti-light	30K Lux

LS40/LS40A/LS40B

Phase Method
Laser Distance Sensor

LS40 is a ranging laser sensor with high accuracy and frequency. Adopting phase method for ranging, it is applicable to short-mid range measurement with high precision and temperature stability.

Wavelength	635 / 780 / 792nm
Laser Class	Class IIIA
Detection Range	10m / 16m / 20m@30%
Accuracy	±1cm(0.1~10 m) , ±2cm(10~20 m)
Data Point Generating Rate	4k / 10K / 15K pts/sec
Ranging Resolution	±2mm
Black And White Gap	±5mm
Temperature Drift	±5mm
Light Condition	Indoor operation,not strong sunlight
Operating Temperature	-20℃~50℃
Vibration Test	500m/sec², lasting for 11ms
Shock Test	5Hz-2000Hz，3G rms
IP Grade	IP67
Communication Interface	TTL、RS422
Input Voltage	6V~24V DC
Weight	≈200g
Dimensions (LxWxH)	65x64x22 mm

LS01 Series

2D Triangulation LiDAR

LS01 LiDAR is a two-dimensional detection and ranging product independently developed by LSLiDAR. Adopting the triangulation measurement method, it performs 360° two-dimensional scanning within the detection range to generate plane point cloud map information of the surroundings.

- Using the principle of triangulation, cost-effective
- Maximum acceptable ambient light intensity is 20000 lux
- Small size, low power consumption, long life, safe to use

	LS01B	LS01D
FPS	10Hz	3~11Hz
Detection Range	8m / 12m / 16m	8m
Accuracy	Within 1m < 18mm,	Within 1m < 18mm,
	Over 1m<Actual Distance 2.5%	Over 1m<Actual Distance 2.5%
Data Point Generating Rate	14400 pts/sec	3600 pts/sec
FOV	360°	360°
Angle Resolution	0.25°	1°/0.5°
Light Intensity	20000 lux	20000 lux
Input Voltage	4.75V~5.25V DC	4.75V~5.25V DC
Communication Interface	Serial Port	UART（USB、Bluetooth）
Weight	≈180g	≈197g
Dimensions (DxH)	Φ75.54x40.37 mm	Φ80x54.66 mm

LS02 Series

Solid-state Triangulation LiDAR

- Solid-state has high stability, long working life
- Light weight to 50g
- High precision, high cost performance
- Strong anti-interference ability

	LS02A/B	LS02C/D
FPS	10Hz	10Hz
Detection Range	0.1~4m(70% Reflectivity)	0.1~4m(70% Reflectivity)
Accuracy	≤Actual Distance 1.5%	≤Actual Distance 1.5%
Measuring Angle	86°	86°
Data Point Generating Rate	860 pts/sec | 1720 pts/sec	860 pts/sec | 1720 pts/sec
Angle Resolution	1° | 0.5°	1° | 0.5°
Light Intensity	2000lux	2000lux
Input Voltage	3.6V~6V DC	3.6V~6V DC
Communication Interface	Serial Port	Serial Port
Weight	≈50g	≈50g
Dimensions (LxWxH)	40x30x65 mm	40x37x45 mm

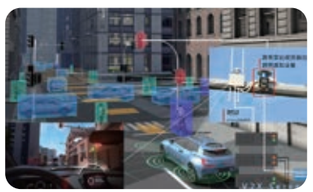
V2X ROADSIDE PERCEPTION SYSTEM

LIDAR INDUSTRY APPLICATION SOLUTIONS

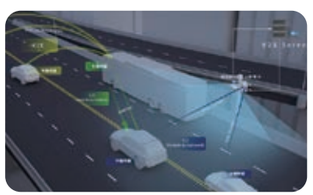
PROPOSAL

LSLiDAR V2X Roadside Perception System is based on the data fusion of LiDAR and Camera, via leading neural networks algorithms to realize the precise localization and identification of the vehicles, non-motor vehicles, as well as pedestrians on the road, then by live transmission to traffic control authority and the permitted vehicles, which can realize early warning of road conditions and dangers, improve the safety and redundancy of autonomous driving, and bring a safe, efficient, and environmentally friendly road traffic system.

C32/C16　　CH128X1　　CH120/64/32/16　　LS Series



V2X system architecture



Effect of visual identification and classification

Accurate detection

The functional complementation of LiDAR and camera effectively improves the accuracy and reliability of data acquisition.

Full road coverage

Applicable to all-round detection for complex road sections.

Accurate identification of target attributes

With advanced neural network algorithms and through deep learning, it can accurately identify the target attributes and output their categories like “motor vehicle”, “non-motor vehicle” or “pedestrian”, their position, distance, velocity, direction of motion, traffic flow and other information.

Event judgment

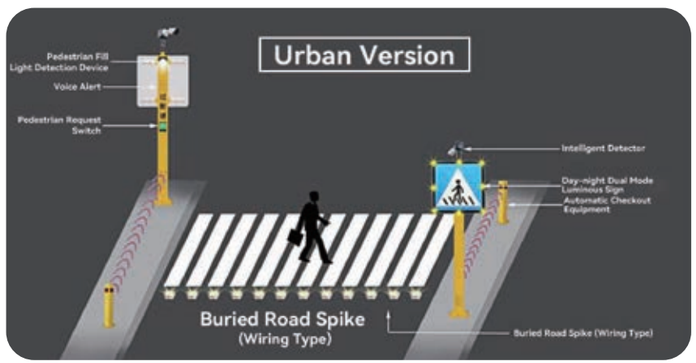
Directly judge and output events like “reverse driving”, “traffic congestion”, “roadspillage”, “slow-moving vehicles”, “abnormal lane change”, “emergency lane occupancy”, “trespass”, “queuing over limit”, “parking”, “over speed”, “V2P” and others.

CASE

The different landing projects were deployed in cities such as Beijing, Shanghai, Guangzhou, Shenzhen, Zhengzhou, Chongqing, Xian, Tianjin, Wuhan, Suzhou, Xuchang, Changzhou etc., which were covered on the traffic lights, accident blackspot, blind zones, the intersection of roads, the bridges and tunnels, the zones nearby the school etc.

INTELLIGENT PEDESTRIAN CROSSING

Based on the V2X system, the intelligent detection system is connected to the stud lights on the zebra crossing. Pedestrians passing by will trigger the stud lights to quickly flash and the safety voice broadcast. At night, the stud lights will change colors with the traffic lights. Red-light running will also trigger camera capture, stud lights flashing and voice alarming. The intelligent pedestrian crossing provides better protection for pedestrians crossing junctions and also alerts vehicles at junctions to avoid pedestrians.



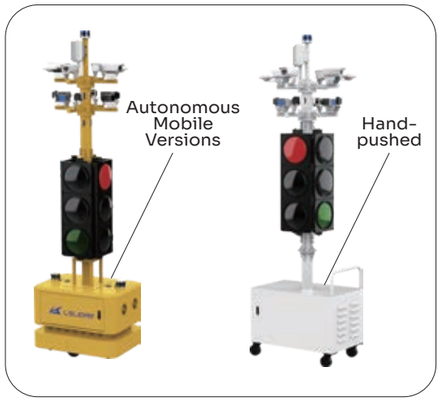
Intelligent pedestrian crossing

MULTI-FUNCTIONAL 5G INTELLIGENT TRAFFIC LIGHTS

Fixed intelligent traffic lights on roadsides

Based on the V2X system, connecting the intelligent detection system to the traffic lights enables self-adaptive smart control of the lights flashing time and passing direction in accordance with the traffic flow at the junctions, improving traffic efficiency.

Mobile intelligent traffic lights



LSLiDAR's multi-functional 5G intelligent traffic lights integrate LiDAR, camera, millimetre wave radar, intelligent traffic light, intelligent signal machine, intelligent roadside unit (5G RSU), combined inertial navigation equipment, mobile power, etc. Equipped with AI algorithms, it can detect the location coordinates, category, ID, speed, and size of the target, and further determine whether there are traffic events such as "reverse driving", "traffic congestion", "road spillage", "slow moving vehicles", "abnormal lane change", "red light running", etc. to achieve early warning of dangerous road conditions and improve the efficiency of urban traffic operation.

LSLiDAR's multi-functional 5G intelligent traffic lights are available in both hand-pushed and autonomous mobile versions. The autonomous mobile version saves manpower by moving independently to the destination as entered by the staff.

Outstanding Advantages

Self-adaptive intelligent control of the traffic lights
Compared with conventional traffic lights, the flashing time and direction of traffic at intelligent traffic lights are adaptively controlled in real time according to the traffic flow at the intersection, thus improving traffic efficiency.

Easy to deploy and quick to put into use
No on-site construction is required, which saves a lot of construction and manpower costs, and also greatly simplifies the communication costs with traffic control departments due to "road closures" when deploying a conventional vehicle-road coordination system.

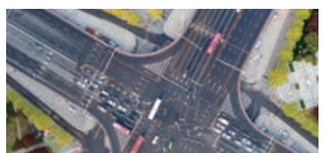
Mobile and flexible, supporting multiple scenarios
Compared with fixed vehicle-road cooperation systems, this intelligent traffic lights system is more mobile and more flexible, and can be applied to a variety of typical vehicle-road cooperation scenarios, such as red light warning, speed limit guidance, special vehicle priority passing guidance, intersection vehicle collision warning, construction warning, etc.

Integrated design, multiple data sources
The system adopts an integrated design of multiple sensors and intelligent signal equipment, with multiple data sources, enabling all-round real-time dynamic traffic information sensing. At the same time, the integrated design facilitates operation and maintenance.

Flexible and convenient power and network supply
It supports 5G/Ethernet/LTE-V and other communication methods, which enables flexible data interaction; it supports external power supply or solar panel (optional) continuous power supply, and is chargeable, able to work continuously for 8 hours after fully charged.

Application

- It can be installed at intersections of public roads to help build a safe, efficient and environmentally friendly road traffic system and improve the traffic operation efficiency of cities.
- It is suitable for use in intelligent network test zones, demonstration zones, higher education institutions and research institutes, etc., to create realistic IoV (Internet of Vehicles) application scenarios for talent training, meet research needs and enhance students' IoV theoretical and practical abilities.



Highway intersection

Intelligent network test zone

Colleges and universities or institutions

HIGH-WAY ETC ACTIVATION SYSTEM

LIDAR INDUSTRY APPLICATION SOLUTIONS

PROPOSAL

The non-contact fixed ETC trigger system independently developed by LSLiDAR adopts the most advanced laser scanning technology to accurately detect the arrival of vehicles. With excellent performance in detection accuracy, anti-interference and accuracy rate, as well as stable working ability under all-weather conditions, this safe and reliable system is suitable for ETC-triggered camera capture on highways.

LiDAR products required for high-speed ETC triggering

LSLiDAR CX series LiDAR fusion camera

LSLiDAR CH series LiDAR fusion camera

ADVANTAGE

1. The system uses state-of-the-art laser scanning technology to accurately identify the arrival of vehicles. The vehicle capture rate of the camera is as high as 99%, and the license plate recognition rate is over 98%. (When the camera is properly focused and the license plate is not defaced or blocked.)
2. With stable performance under all-weather conditions and high measurement accuracy, the system is able to output the distance, orientation, size and other information of the vehicle
3. The same vehicle can be captured multiple times (3-4 times recommended) to ensure the accuracy of the image information.
4. It can be used for the detection of complex road conditions, such as large traffic flow, multi-vehicle parallelism, and cross-track driving.

CASE

When a moving vehicle enters the set capture point, the LiDAR trigger system can send a trigger signal to instruct the corresponding camera to capture. According to the set number of snapshots, a corresponding number of snapshot images of the vehicle will be obtained. At the same time, one device in the system can detect multiple lanes, and the detection of each lane is independent and does not interfere with each other.

LIDAR 3D SLAM AGV SYSTEM

LIDAR INDUSTRY APPLICATION SOLUTIONS

PROPOSAL

LSLiDAR ’s LiDAR 3D SLAM AGV system solution is designed for automatic material handling operation scenarios such as airports, ports, factories, and logistics centers. It consists of a world-leading high-precision, high-flexibility, and high-stability AMR ontology system with an intelligent multi-machine scheduling system. Each AGV has a high-precision 360° three-dimensional environment perception capability, and its trackless navigation function can flexibly respond to complex indoor and outdoor environments. The flexibility and automation of the LiDAR 3D SLAM AGV system are far ahead of the second generation of reflector navigation technology solution.

C32/16

N301

CH128X1

CH64W

Automated Guide & Navigation

AI Pallet Idendification & Location

Sensors Integration & Motion Control

Automated Load & Unload

Intelligent Dispatching System

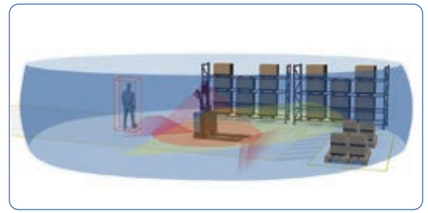
Multilayer Saftey Protection

Energy Indicate & Auto Charge

ADVANTAGE

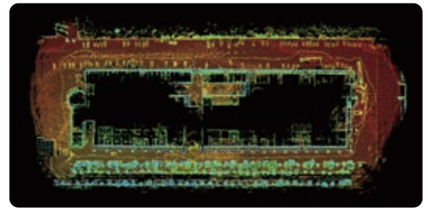
3D Protection

All-round three-dimensional sensing, to provide brilliant safety protection for AGV.



All-round 3D Environment Sensing

Equipped with multiple 3D multi-line mechanical LiDAR with superior performance, provides stable and ultra-dense 3D environment information for AGVs and realizes All-round sensing ability.



Strong Environment Adaptability

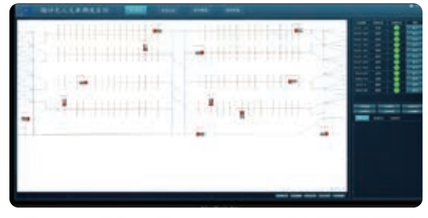
Suitable for indoor and outdoor applications, can accurately identify the pallet day and night, and realize all-weather, all-scene trouble-free operation.

Strong Comprehensive Cost Control

With high stability, high reliability, high maintainability, high security and world-leading comprehensive cost advantage.

Supporting Comprehensive Management System

Standard API interface is compatible with a variety of systems, and also supports WMS, WCS, FMS and intelligent monitoring systems to assist the management of automatic operations.



Easy to Deploy, High Efficient

No need to deploy auxiliary facilities in the environment and short period to use. Support 7*24h automated operation, support intelligent multi-machine scheduling, greatly improve work efficiency.

HIGH-END SECURITY SYSTEM

LIDAR INDUSTRY APPLICATION SOLUTIONS

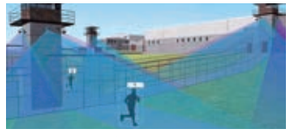
PROPOSAL

LSLiDAR High-end Security System (hereinafter referred to as System) uses multi-sensor fusion equipment such as LiDARs, HD cameras, thermal imaging cameras and microwave radars, and integrates with advanced neural network algorithm to achieve active detection of illegal intrusion in the perimeter. Once any illegal intrusion, the System will link the HD dome cameras to monitor the intruded area, collect HD videos and images, locate and track the target in the key surveillance area, record the movement trajectories of the target, trigger the surveillance center to send alarms to enable a pre-warning.

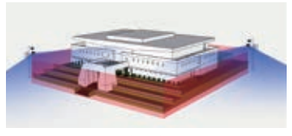
APPLICATION

Airports Perimeter Security

Nuclear Power Stations Security



Prisons and Detection Houses Security



Museums and Other Important Places Security

Port Terminals Security

Subway and Railway Platforms Security

LSLiDAR High-end Security Solution is applied in a wide range of fields such as airports, port terminals, mine areas, museums, high-speed railway stations, ship security, oil depots, hazardous goods storage areas, chemical plants, prisons and detention houses, coastline security, plant and animal protection, forest safety prevention zones, water protection zones, hydro-electric power, nuclear power stations, special camps, special warehouses, special parks and other places.

Outstanding Advantages

Compared with the passive defense of surveillance technology and sensor alarm technology and shortages of intelligent image analysis technology in environmental applications, the System based on the deployment of 3D LiDAR has outstanding advantages.

1 **Wild Detection Range**

The detection range reaches up to 2 kilometers, effectively making up for the limitation of human eyes' visual distance.

2 **Proactive Defense**

The 3D LiDAR links the camera to achieve detection, proactively locating the real-time 3D coordinates, GPS coordinates and movement trajectories of the intruders.

3 **All-Day Operation**

The System is not affected by sunlight or bad weathers and applicable to most outdoor scenarios. It works well even in bright light or at night, which enables a 24/7 stable operation.

4 **Intelligent Algorithm Identification**

The intelligent algorithm accurately identifies the target attributes based on the detected data, and reserves the detected data to provide the data basis for predicting the target's behaviors.

5 **Multi-Targets and Multi-Areas Track**

The System can set multiple independent detection areas at one time, and can also set non-detection areas, without personnel on tracking.

6 **Linkage Alarm Devices**

Once any intrusion target is detected, the System will trigger the surveillance center, send alarms and upload the videos. The System also supports setting alarms for intrusion in the detection range at different areas and different time periods.

7 **Solar Powered**

The System supports solar power, transmits signals through 5G/4G network, and able to work in remote areas where there are difficulties for power supply.

RAILWAY INTRUSION DETECTION SYSTEM

LIDAR INDUSTRY APPLICATION SOLUTIONS

PROPOSAL

LSLiDAR has been empowering industrial upgrading with high-end, stable and reliable LiDAR environment perception technology. In response to the intelligent and automated development needs of rail transit, LSLiDAR has independently developed a number of LiDAR rail transit application solutions.

LS-S1 Series

LS-S2 Series

LS25D/E

CH128X1

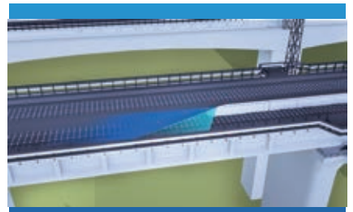
Stable And Reliable

Remote Detection

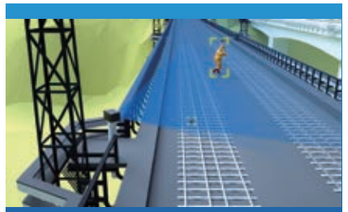
Remote Detection

INSTALLATION SCHEME

Intelligent Monitoring Solution for Foreign Body Intrusion to Medium and Low Speed Train Tracks



Intelligent Monitoring Solution for Foreign Body Intrusion to High Speed Train Tracks



Fixed-point Intelligent Monitoring Solution for Track Foreign Body Intrusion

Subway Screen Door Foreign Body Detection Solution (Door End)

Subway Screen Door Foreign Body Detection Solution (Car End)

Platform Anti-drop Monitoring Solution

Intelligent Monitoring Solution for Shelters in High-speed Railway Stations

Tunnel Contour Detection Solution

Railway Turnout Deformation Detection Solution

BRIDGE ANTI-COLLISION INTELLIGENT ALERT SYSTEM

LIDAR INDUSTRY APPLICATION SOLUTIONS

PROPOSAL

During the flood season, ship drivers can only roughly judge whether they can pass the bridge based on their experience, which leads to many accidents of ships hitting the bridge due to superelevation. This solution uses lasers to scan and monitor ultra-high targets in navigable waters. The ultra-high vessel that threatens the safety of the bridge can be found within 2 km at the farthest, the position and distance of the vessel can be known, and the alarm information can be issued in time to effectively avoid the collision between the ultra-high vessel and the bridge.

MS03

LS30MVA

Active monitoring

Ultra-far Detection

Multi-Level Pre-warning

Linkage Carmeras

Stable and Reliable

ADVANTAGE

1. Self-developed high-end long-distance LiDAR.

2. Scan and monitor all ships in navigable waters, and flexibly set navigable areas and non-navigable areas.

3. Real-time positioning of the ship's position, multi-level pre-warning of the ship's yaw.

4. Linkage cameras to conduct video forensics of yaw vessels.

INSTALLATION SCHEME

By installing the LiDAR at a specific position of the bridge (see Figures 1 and 2) or on the shore at a certain distance from the bridge (see Figure 3), the laser is used to identify whether the passing ship height exceeds a pre-set superelevation threshold. When the vessel is higher than the limit height of the bridge, the system outputs an alarm signal and releases the warning information in time - it can issue a warning to the ultra-high vessel through the tweeter and the large LED screen, and at the same time display the warning information in the monitoring hall. After receiving the warning, the maritime law enforcement department and bridge maintenance personnel will deal with the dangerous situation in a timely manner to effectively avoid the collision between the ultra-high ship and the bridge.

Figures 1

LiDAR installed at a specific location on the bridge

Figures 2

LiDAR installed at a specific location on the bridge

Figures 3

LiDAR installed on the shore at a certain distance from the bridge

FLYING CAR OBSTACLE AVOIDANCE

LIDAR INDUSTRY APPLICATION SOLUTIONS

PROPOSAL

As the core sensor of this solution, LiDAR can quickly, accurately and massively obtain the position point cloud data of obstacles that appear in a certain protective area around the flying car. The size/volume and location information of obstacles are known by pre-processing the point cloud data, and the potential danger will be reported to the driver or ADAS in time through a warning system for effective obstacle avoidance.

Application Solution to Flying Cars(Maximum Design Speed:120km/h~200km/h)

MS03
(Long-distance Obstacle Detection)

LS128S1
(Close-range Obstacle Avoidance & Blind Spot Detection)

LS70B
(Monitor Terrain Clearance)

Application Solution to Flying Cars(Maximum Design Speed:below 120km/h)

CH128X1
(Long-distance Obstacle Detection)

CB64S1
(Close-range Obstacle Avoidance & Blind Spot Detection)

LS70B
(Monitor Terrain Clearance)

Long-range forward obstacle detection

In the obstacle avoidance scheme of flying car with the design of highest speed 120km/h-200km/h, MS03 LiDAR is installed in the head of the car, and the detection range is between 1000m-2000m.

The obstacle avoidance side of flying cars with the design of highest speed below 120km/h is equipped with CH128X1 LiDAR, with a detection range of 200m.

It can effectively detect other flying cars or UAVs on the heading and other high-speed intrusion obstacles at a long distance, and provide accurate prediction information and sufficient reaction time for the calculation processing of the control platform and the control operation of flying cars.

High-precision peripheral sensing detection

LiDAR can obtain huge amounts of data under the cm-level accuracy, after overlapped collecting high-density on repeated Angle, then forming the dense point cloud. High-precision detection of the obstacles close to flying car and blind detection can be realized. High-resolution scan can possibly recognize the invasion of objects or obstacles to achieve flexible obstacle avoidance, such as detection of high voltage cable, small UAV and the small high-suspended solids from the other directions.

Accurate flight altitude detection

The bottom of the flying car is installed with LSLiDAR LS70B laser distance meter, the measurement accuracy reaches cm-level, the farthest distance ranging in the outdoor strong light can reach 150m, supporting high-refresh frequency and providing real-time and accurate off-ground detection data for the flying car with high protection IP67.

Non-contact, real-time, active

The scan of the two systems is measured by non-contact scanning, which is collected and processed in the real-time dynamic environment, and the scenario is scanned actively, so as to attain the situation of airspace ahead in advance and get enough time for obstacle avoidance.

High light resistance, environmental interference

Lidar launches pulsed laser with high light resistance intensity, which is not affected by natural light and high brightness light on the light emission of flying car, and the protection level reaches IP67.

System is easy to install

The five kinds of LSLiDAR LiDARs are small and easy to be embedded and fit the appearance of the flying car perfectly.

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LSLIDAR

World-leading provider of full-scene LiDAR and overall solutions