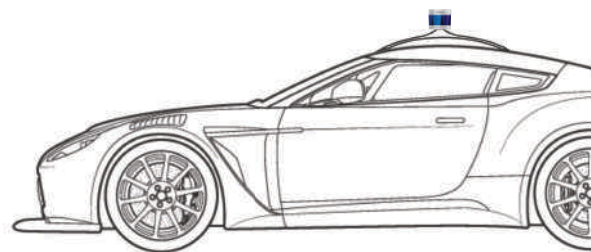




# Pandar40M

## 40-Channel Mid-Range Mechanical LiDAR

---

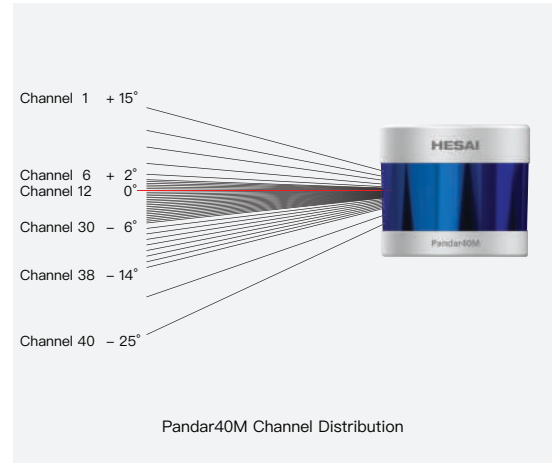


# Pandar40M

Pandar40M is a 40-channel mid-range mechanical LiDAR. With optimized ranging and resolution for medium- and low-speed applications, Pandar40M proves an excellent perception solution for shuttle buses, industrial, security, logistics, and V2X infrastructure.

Its features include:

1. Interference rejection: industry-leading performance, undisturbed in the proximity of other working LiDARs
2. Option of PTP time synchronization: simplifies vehicle cabling
3. Optimized channel distribution: 40 channels of data with 0.33° minimum vertical resolution
4. Reliability: stringent tests have been performed to ensure excellent and stable performance in harsh environments, including HALT (highly accelerated life test), thermal tests, shock and vibration.



## Advantages of Pandar40M



Interference  
Rejection



Optimized  
Resolution



Wide Field of View



High Reliability



Cost Saving

## Specifications

Sensor			
Operational Principle	Time of Flight	Rotation Rate	10 Hz, 20 Hz
Scanning Method	Mechanical Rotation	FOV (Vertical)	40° (-25° to +15°)
Channel	40	Angular Resolution (Vertical)	Finest at 0.33°
Measurement Range	0.3 m to 120 m (at 10% reflectivity)	FOV (Horizontal)	360°
Measurement Accuracy	±5 cm (0.3 m to 1 m) ±2 cm (1 m to 120 m)	Angular Resolution (Horizontal)	0.2° (10 Hz) , 0.4° (20 Hz)
Returns (Configurable)	Single/Dual Return (Strongest, Last)	Interference Rejection	Yes
Clock Source	GPS/PTP	PTP Clock Accuracy	≤1 μs
PTP Clock Drift	≤1 μs/s		

Output			
Data Output	UDP: distance, azimuth angle, intensity	Data Transmission	UDP/IP Ethernet (100 Mbps)
Data Points Generated	Single Return Mode: 720,000 points per second Dual Return Mode: 1,440,000 points per second		

## Mechanical/Electrical/Operational

Size	Height: 104.70 mm, Top Diameter: 118.00 mm, Bottom Diameter: 116.00 mm		
Weight	1.40 kg	Operating Voltage	9 V to 48 V
Power Consumption	15 W	Laser Class	Class 1 Eye Safe
Operating Temperature	-20°C to +65°C	Environmental Protection	IP6K7

## Application Scenarios



Shuttle Buses



Industrial



Security



Logistics



V2X



HD Mapping



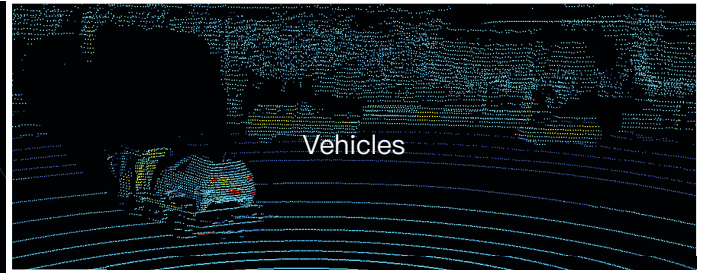
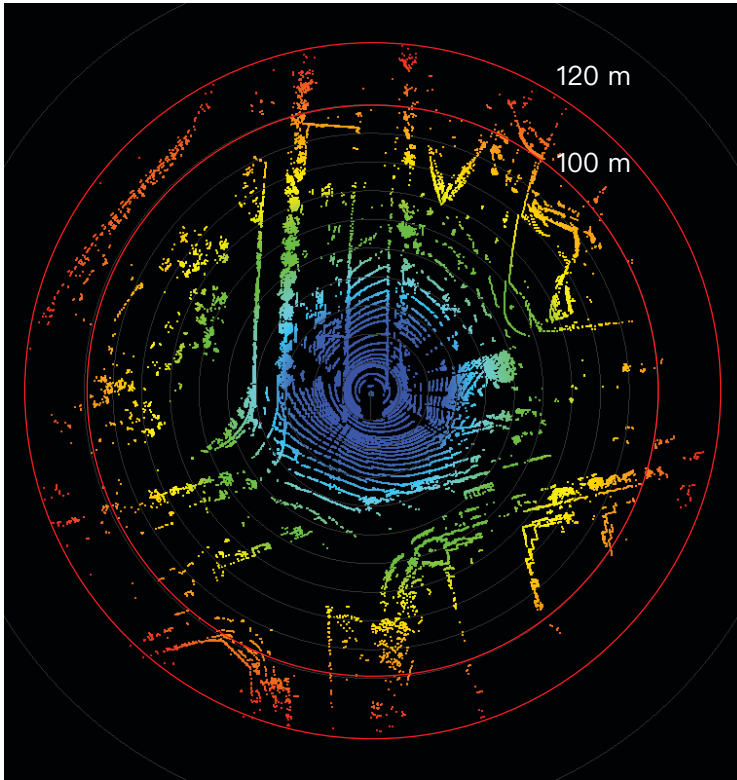
Autonomous Driving



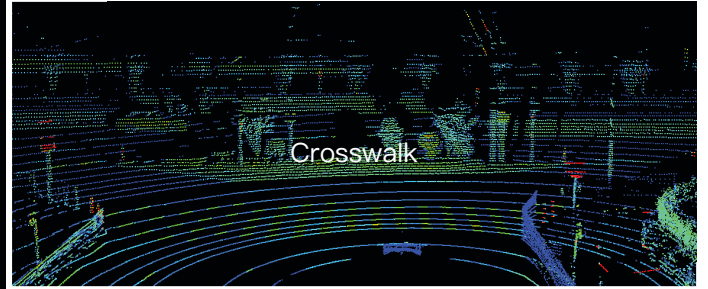
Robotics



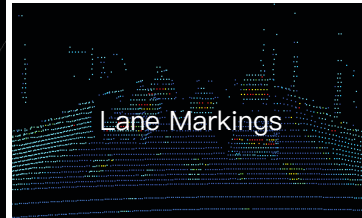
## Data Captured by Pandar40M



Vehicles



Crosswalk



Lane Markings



Pedestrians

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Website QR Code

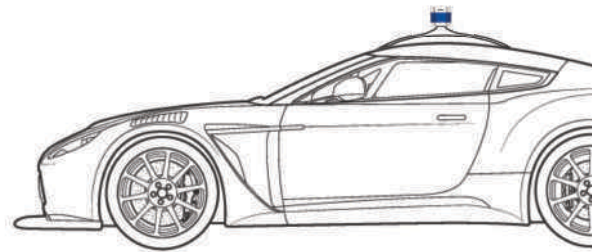




# Pandar40P

## 40-Channel Mechanical LiDAR

---

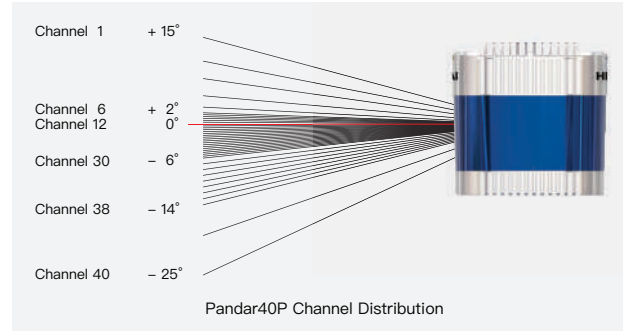


# Pandar40P

Pandar40P is a 40-channel mechanical LiDAR. It creates 360° 3D imaging by rotating 40 laser diodes inside the housing. The unique channel distribution makes it more suitable for autonomous driving applications.

Pandar40P is marked by three key features:

1. Interference rejection: undisturbed in the proximity of other working LiDARs
2. Extended range: seeing 10%–reflectivity objects from 200 meters away
3. PTP synchronization: option of PTP time sync simplifies vehicle cabling



Pandar40P has gone through stringent reliability tests, including HALT (highly accelerated life test), vibration strength test and mechanical resonance test, ensuring excellent and stable performance in harsh environments. Pandar40P serves a wide range of industries, including autonomous driving, HD mapping and logistics.

## Unique Advantage of Pandar Series



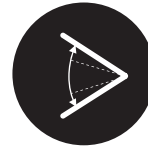
Extended  
Measurement Range



Optimized  
Angular Resolution



Compact  
and Lightweight



Wide Field of View



Interference  
Rejection

## Specifications

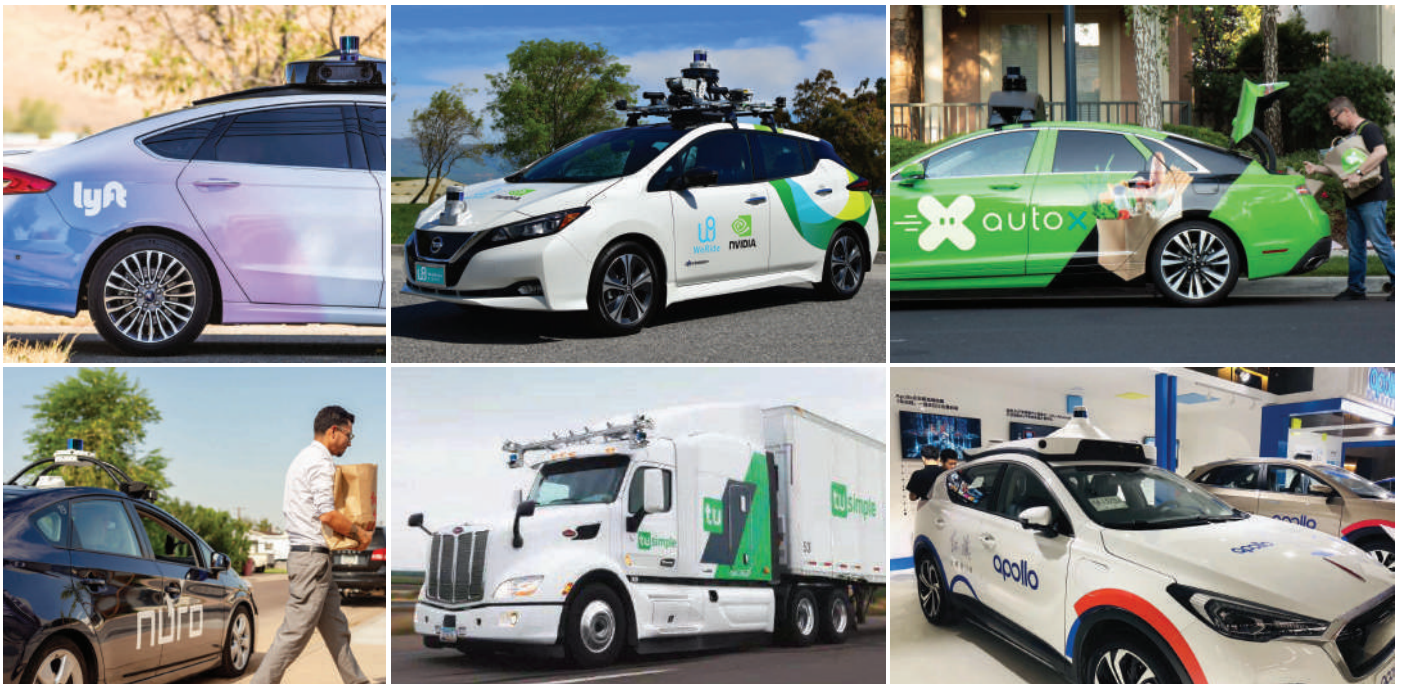
Sensor			
Operational Principle	Time of Flight	Rotation Rate	10 Hz, 20 Hz
Scanning Method	Mechanical Rotation	FOV (Vertical)	40° (–25° to +15°)
Channel	40	Angular Resolution (Vertical)	Finest at 0.33°
Measurement Range	0.3 m to 200 m (at 10% reflectivity)	FOV (Horizontal)	360°
Measurement Accuracy	±5 cm (0.3 m to 0.5 m), ±2 cm (0.5 m to 200 m)	Angular Resolution (Horizontal)	0.2° (10 Hz), 0.4° (20 Hz)
Returns (Configurable)	Single/Dual Return (Strongest, Last)	Interference Rejection	Yes
Clock Source	GPS/PTP	PTP Clock Accuracy	≤1 μs
PTP Clock Drift	≤1 μs/s		
Output			
Data Output	UDP: distance, azimuth angle, intensity	Data Transmission	UDP/IP Ethernet (100 Mbps)
Data Points Generated	Single Return Mode: 720,000 points per second Dual Return Mode: 1,440,000 points per second		

## Mechanical/Electrical/Operational

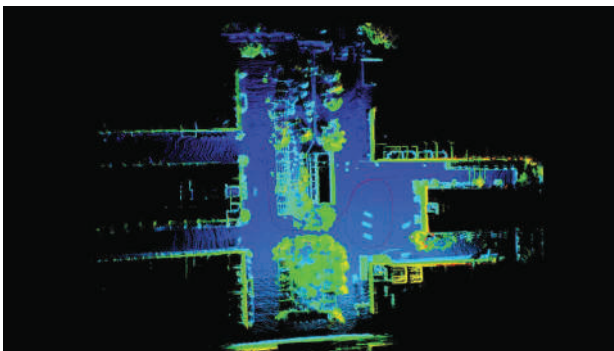
Size	Height: 116.70 mm, Top Diameter: 116.00 mm, Bottom Diameter: 115.00 mm		
Weight	1.52 kg	Operating Voltage	9 V to 48 V
Power Consumption	18 W	Laser Class	Class 1 Eye Safe
Operating Temperature	-20°C to +65°C	Environmental Protection	IP6K7

## Application Scenarios

### Autonomous Driving



### HD Mapping

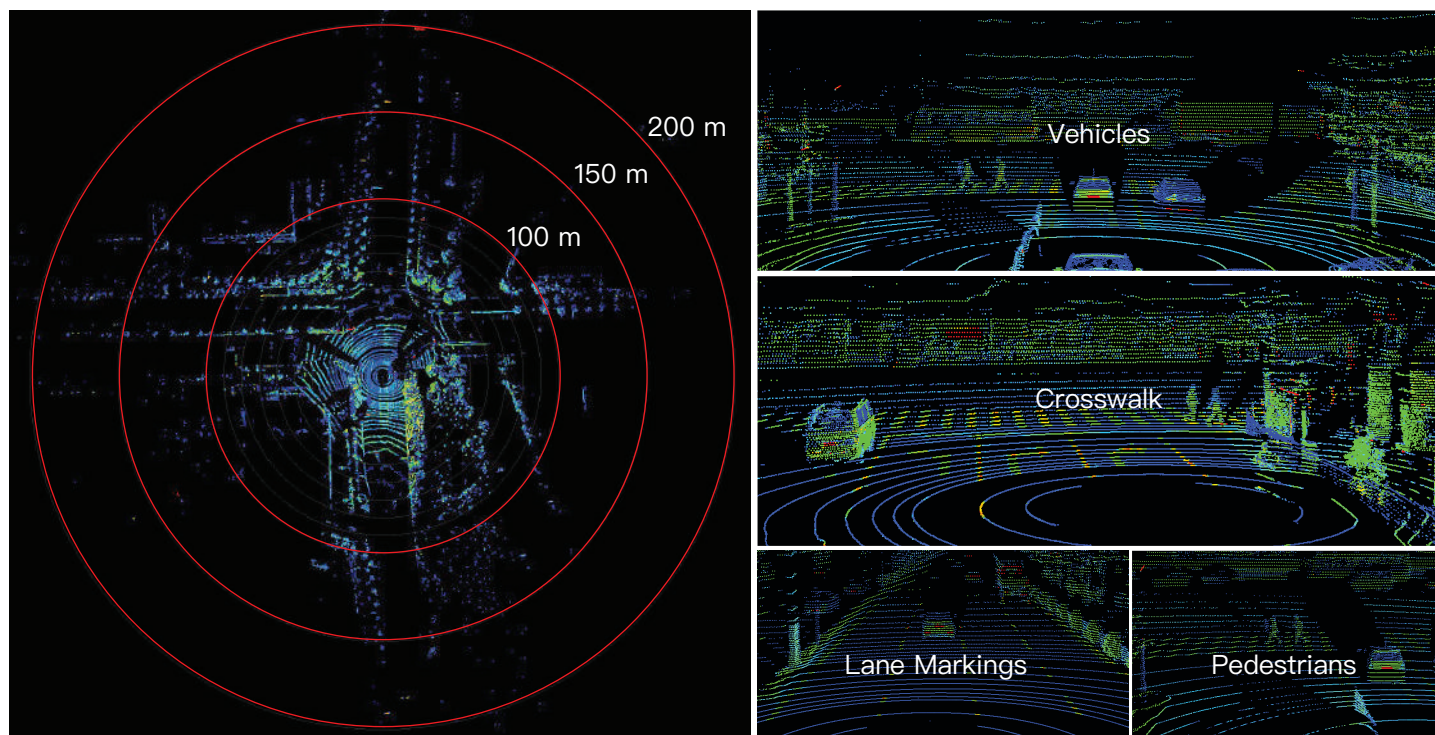


### Autonomous Logistics





## Data Captured by Pandar40P



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Website QR Code

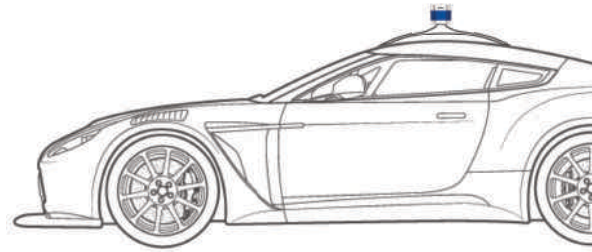




# Pandar64

## 64-Channel Mechanical LiDAR

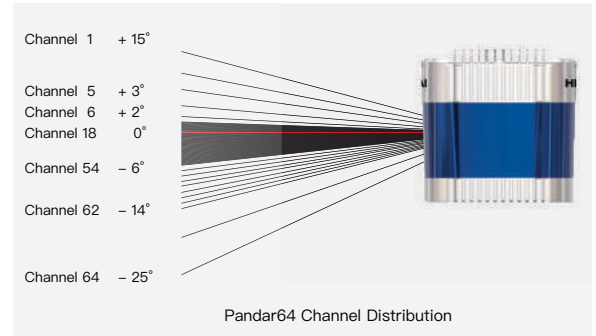
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# Pandar64

Pandar64 is a 64-channel mechanical LiDAR. It creates 360° 3D images by rotating 64 laser diodes inside the housing. Its features include:

1. Unique channel distribution tailored for autonomous driving applications: vertical resolution reaches 0.167° in critical fields of view, offering optimal perception results
2. Extended measurement range: seeing 10%–reflectivity objects from 200 meters away
3. Interference rejection: undisturbed in the proximity of other working LiDARs
4. Supporting angle-trigger signal output: achieving multi-sensor hard synchronization with high sync accuracy
5. Option of PTP time sync simplifies vehicle cabling.



Pandar64 has gone through stringent reliability tests, including HALT (highly accelerated life test), vibration strength test and mechanical resonance test, ensuring excellent and stable performance in harsh environments. Pandar64 serves a wide range of industries, including autonomous driving, HD mapping and logistics.

## Unique Advantages of Pandar Series



Interference Rejection



Auto-Grade  
Connector



Extended  
Measurement Range



Optimized  
Angular Resolution



Wide Field of View

## Specifications

Sensor			
Operational Principle	Time of Flight	Rotation Rate	10 Hz, 20 Hz
Scanning Method	Mechanical Rotation	FOV (Vertical)	40° (-25° to +15°)
Channel	64	Angular Resolution (Vertical)	Finest at 0.167°
Measurement Range	0.3 m to 200 m (at 10% reflectivity)	FOV (Horizontal)	360°
Measurement Accuracy	±5 cm (0.3 m to 0.5 m), ±2 cm (0.5 m to 200 m)	Angular Resolution (Horizontal)	0.2° (10 Hz), 0.4° (20 Hz)
Returns (Configurable)	Single/Dual Return (Strongest, Last)	Interference Rejection	Yes
Clock Source	GPS/PTP	PTP Clock Accuracy	≤1 μs
PTP Clock Drift	≤1 μs/s		
Output			
Data Output	UDP: distance, azimuth angle, intensity	Data Transmission	UDP/IP Ethernet (100 Mbps)
Data Points Generated	Single Return Mode: 1,152,000 points per second Dual Return Mode: 2,304,000 points per second		

## Mechanical/Electrical/Operational

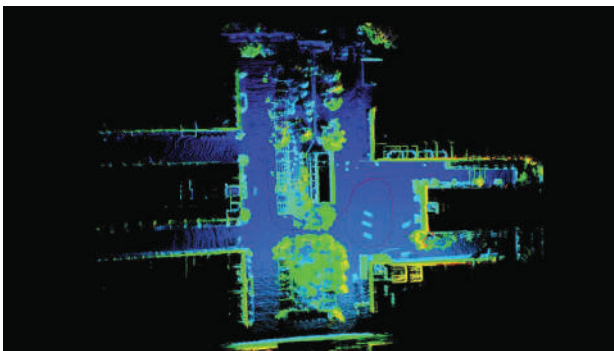
Size	Height: 116.70 mm, Top Diameter: 116.00 mm, Bottom Diameter: 115.00 mm		
Weight	1.52 kg	Operating Voltage	9 V to 48 V
Power Consumption	22 W	Laser Class	Class 1 Eye Safe
Operating Temperature	-20°C to +65°C	Environmental Protection	IP6K7

## Application Scenarios

### Autonomous Driving



### HD Mapping

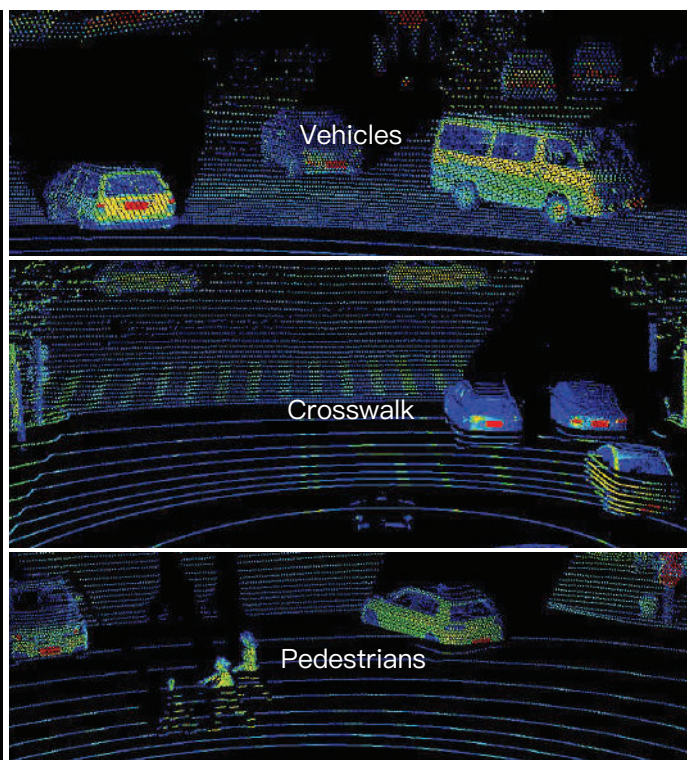
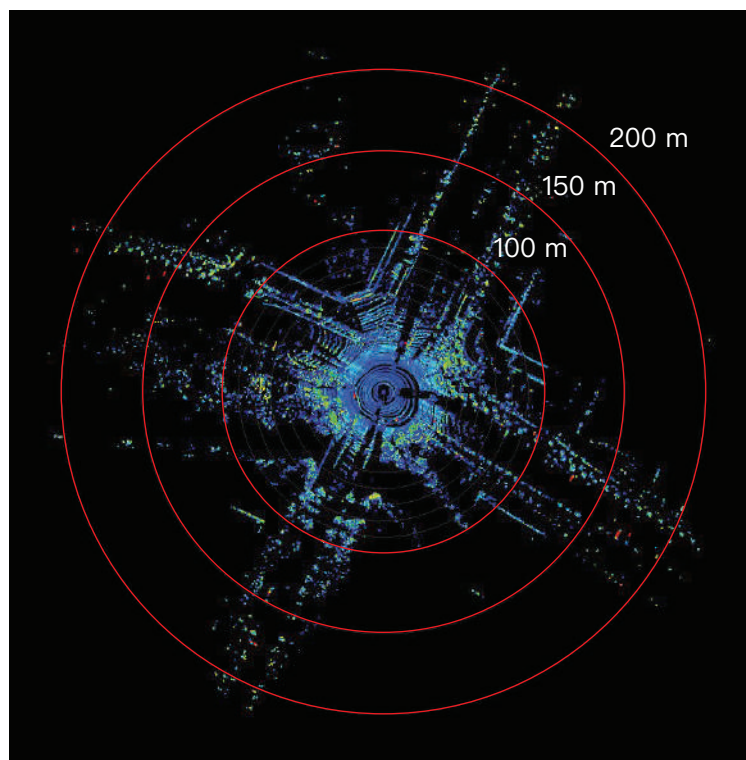


### Autonomous Logistics





## Data Captured by Pandar64



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Website QR Code



# Pandar128

128-Channel  
Image-Like Resolution  
High-Performance LiDAR



Website QR Code



WeChat QR Code

Hesai Technology Co., Ltd.

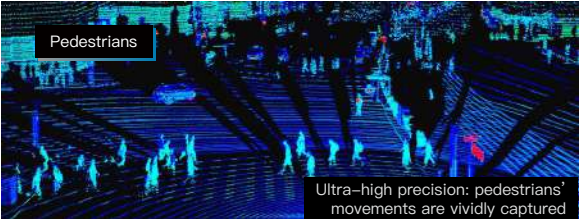
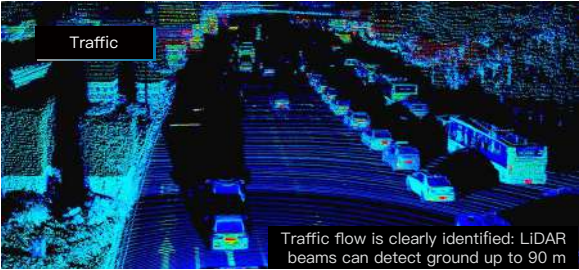
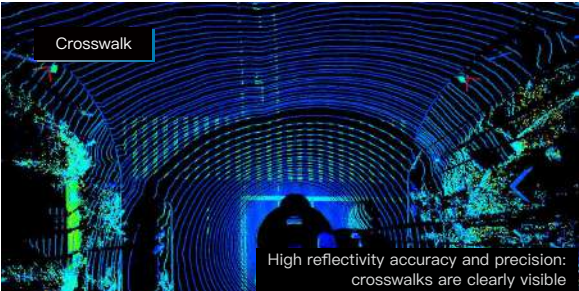
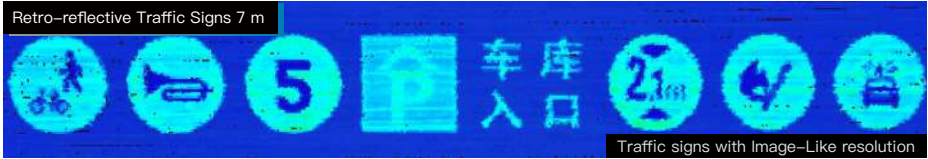
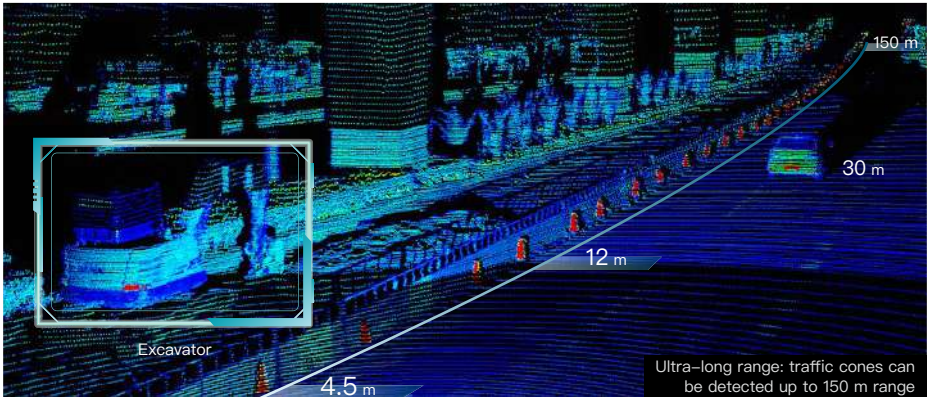
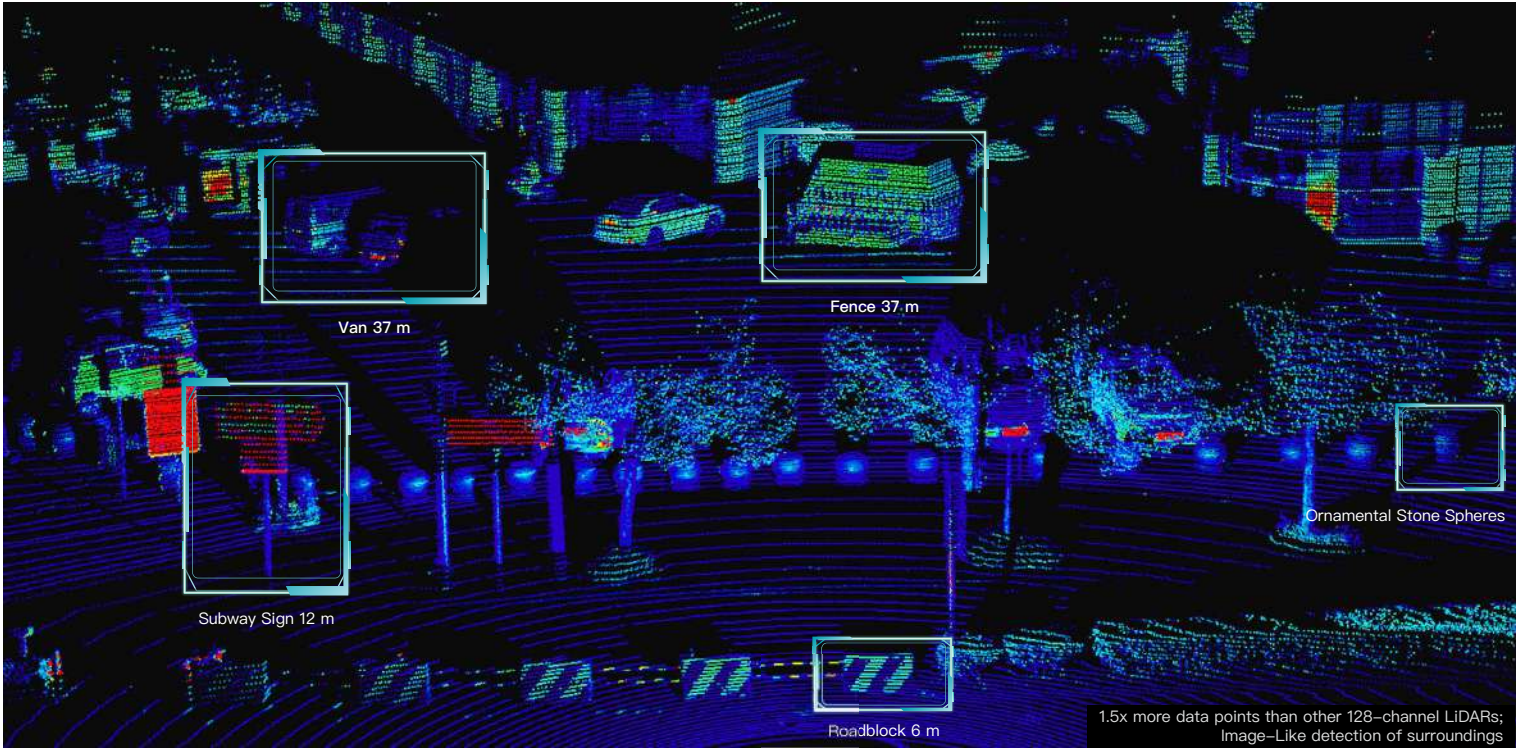
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## Pandar128 Point Cloud





# Pandar128

## Key Specifications

<div>0.3 m ~ 200 m</div> <div>(at 10% reflectivity)</div> <div>Measurement Range</div>	<div><div>±5 cm</div><div>(0.3 ~ 1 m)</div></div> <div><div>±2 cm</div><div>(1 ~ 200 m)</div></div> <div>Range Accuracy</div>
<div>0.1°</div> <div>(10 Hz)</div> <div>0.2°</div> <div>(20 Hz)</div> <div>Horizontal Resolution</div>	<div>40°</div> <div>(-25° ~ +15°)</div> <div>Vertical FOV</div>
<div>Minimum</div> <div>0.125°</div> <div>(-6° ~ +2°)</div> <div>Vertical Resolution</div>	<div>Single Return:</div> <div>3,456,000</div> <div>points/sec</div> <div>Dual Return:</div> <div>6,912,000</div> <div>points/sec</div> <div>Data Points Generated</div>
<div>DC 9 V ~ 48 V</div> <div>Operating Voltage</div>	<div>27 W</div> <div>(at 0.1° horizontal resolution)</div> <div>20 W</div> <div>(at 0.2° horizontal resolution)</div> <div>Power Consumption</div>
<div>-40°C ~ 85°C</div> <div>Operating Temperature</div>	<div>Hight:</div> <div>123.7 mm</div> <div>Diameter:</div> <div>118.0 mm</div> <div>(Top, Bottom)</div> <div>116.0 mm</div> <div>Weight:</div> <div>1.63 kg</div> <div>Dimensions and Weight</div>

# Pandar128

## Product Superiority

<div></div> <div>Pandar128</div> <div>Pandar128 is a high-performance multi-beam LiDAR product highly integrated with Hesai's new breakthrough technologies</div>	<div></div> <div>Ultra-long-range</div> <div>The measurement range for objects with 10% reflectivity under 100 klux ambient light exceeds 200 m, while keeping the noise rate below 10<sup>-5</sup></div>	<div></div> <div>High range accuracy and precision</div> <div>0.3 ~ 1 m: ±5 cm, 1 ~ 200 m: up to ±2 cm, RMSE &lt;2 cm</div>	<div></div> <div>Ultra-high resolution</div> <div>Up to 0.1° (H) * 0.125° (V) resolution at 10 Hz high-performance mode</div>
<div></div> <div>Interference Rejection</div> <div>Every pulse has its own 'fingerprint'</div>	<div></div> <div>Higher protection grade</div> <div>IP6K9K &amp; IP6K7</div>	<div></div> <div>Data transmission</div> <div>Automotive ethernet and ordinary ethernet both available</div>	<div></div> <div>Supports gPTP protocol</div> <div>Microsecond-level precision synchronization</div>

# Pandar128

## Applications

1 Smart City

2 Truck Logistics

3 Autonomous Shuttle

4 Robotaxi

5 HD Mapping

\* TuSimple Autonomous Truck

\* WeRide Robotaxi Fleet

\* Stitching 100 frames of point cloud from Pandar128

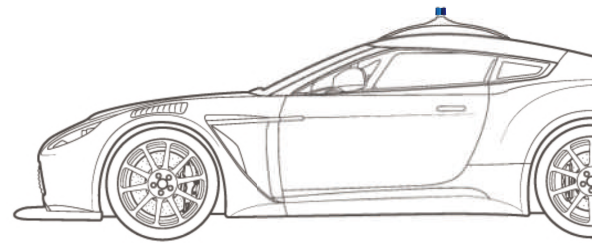




# PandarQT

64-Channel Short-Range  
Mechanical LiDAR

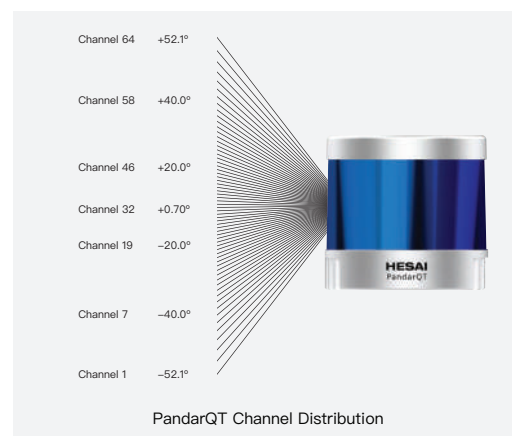
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# PandarQT

PandarQT, a 64-channel short-range mechanical LiDAR, is designed to solve several pain points in LiDAR applications:

1. Superior short-range performance: accurately detecting objects as near as 0.1 m, making an ideal blind spot solution
2. Ultra-wide FOV: 360° (H) x 104.2° (V) coverage
3. Versatility: 30-meter detection (of 20% reflectivity objects) proves useful for blind-spot obstacle avoidance in self-driving cars, as well as environment perception for low-speed logistics vehicles
4. Optimized resolution: down to 1.45° vertically and 0.6° horizontally
5. Full interference rejection: proprietary technology ensuring undisturbed performance near other working LiDARs
6. PTP (Precision Time Protocol) support: sub-μs time sync accuracy with simplified cabling



PandarQT has gone through stringent reliability tests, including HALT (highly accelerated life test), vibration strength test and mechanical resonance test, ensuring excellent and stable performance in harsh environments.

## Advantages of PandarQT



Blind Spot Coverage



Wide Field of View



Optimized Resolution



Interference Rejection



Cost Saving



Light and Compact

## Specifications

Sensor			
Operational Principle	Time of Flight	Frame Rate	10 Hz
Scanning Method	Mechanical Rotation	FOV (Vertical)	104.2° (−52.1° to +52.1°)
Channel	64	Resolution (Vertical)	Finest at 1.5° (with min. gap 0.15°)
Range	0.1 to 30 m (at 20% reflectivity)	FOV (Horizontal)	360°
Range Accuracy	±2 cm (typical)	Resolution (Horizontal)	0.6° (with 0.15° gap)
Returns	Single Return (First) Dual Return (First&Second)	Interference Rejection	Yes
		PTP Clock Drift	≤1 μs/s (typical)
Clock Source	PTP/GPS (GPS only available in 8-pin version)	PTP Clock Accuracy	≤1 μs
Output			
Data Outputs	Distance, Azimuth Angle, Background Illumination	Data Transmission	UDP/IP Ethernet (Automotive 100BASE-T1, Slave Mode)
Data Points Generated	Single Return Mode: 384,000 pts/s Dual Return Mode: 768,000 pts/s		

## Mechanical/Electrical/Operational

Dimensions	Height: 76.0 mm Diameter: 80.2 mm		
Weight	0.47 kg	Operating Voltage	9 to 55 VDC
Power Consumption	8 W	Laser Class	Class 1 Eye Safe
Operating Temperature	-20°C to 65°C	Environmental Protection	IP67 & IP69K

## Application Scenarios

### Blind Spot Detection for Autonomous Driving

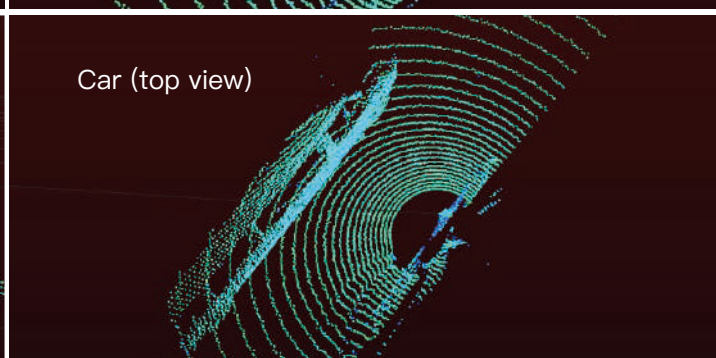
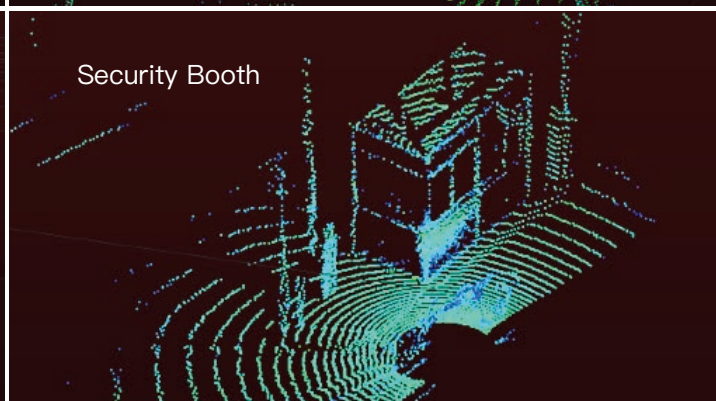
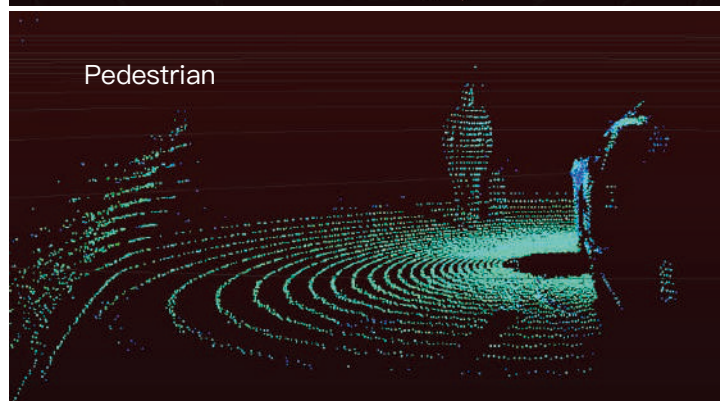
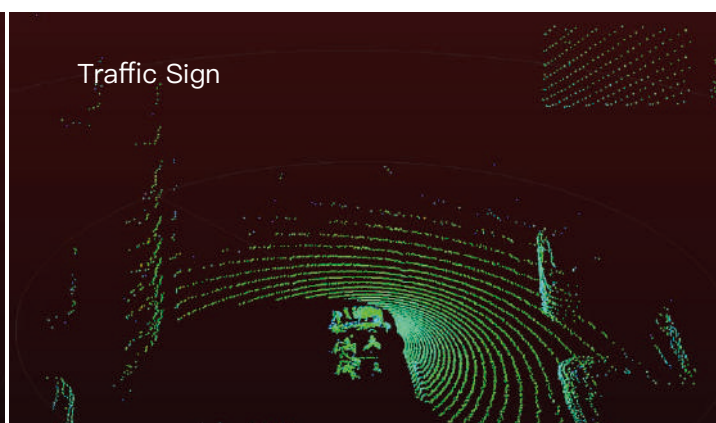
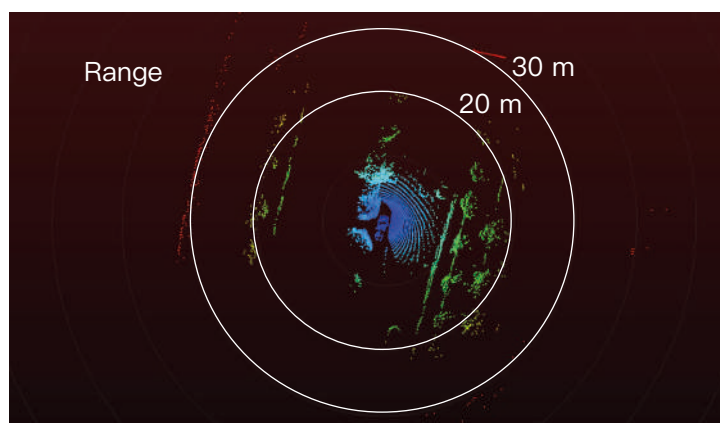


### Robotics/Logistics





## Data Captured by PandarQT



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Website QR Code

# PandarXT-16

## 16-Channel Mid-Range LiDAR

- Minimum range of zero
- High precision
- Proprietary LiDAR ASICs



## PandarXT Key Specifications

### Range

0 m to 120 m  
(0 m is calculated from the  
LiDAR enclosure)

### Range Capability

80 m@10% reflectivity  
(100 klux, POD>90%)

### Accuracy

±1 cm (typical)

### Precision

0.5 cm (1 $\sigma$ , typical)

### Vertical FOV

30° (-15° to 15°)

### Vertical Resolution

2°

### Frame Rate

5 Hz, 10 Hz, 20 Hz

### Horizontal Resolution

0.18° @10 Hz

### Ingress Protection

IP6K7

### Operating Temperature

-20°C to 65°C

### Weight

0.8 kg

### Dimensions

Height: 76.00 mm  
Diameter: 103.0 mm

### Power Consumption

9 W

### Operating Voltage

DC 9 to 36 V

### Clock Source

GPS / PTP

### Data Points Generated

Single Return: 320,000 points/sec  
Dual Return: 640,000 points/sec

## PandarXT Applications



Unmanned  
Logistics



Autonomous  
Shuttles



Factory AGVs



Mapping



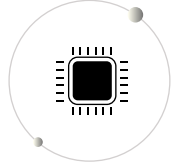
Security





# PandarXT

## Product Superiority



### Dedicated Chipsets

The lasers' transmitting and receiving systems are based on Hesai's self-developed ASICs, greatly improving LiDAR performance and reducing costs and production complexity.



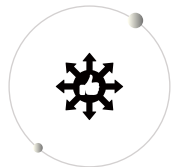
### Minimum Range of Zero

PandarXT continuously outputs valid point cloud even when objects directly touch the LiDAR's enclosure. This enables the self-detection of enclosure smear and occlusion



### Interference Rejection

Every pulse has its own 'fingerprint', rejecting noise when multiple LiDARs operate closely together



### Reliability

PandarXT has passed strict reliability tests including High temperature operation, Low temperature wakeup+operation, Thermal Shock/Air-to-Air, Vibration with Thermal Cycling, Mechanical Shock, Humid Heat Cyclic, Frost, Water and Dust Proof, and Shipping Vibration. Robust and reliable in any operational environment.



### Outstanding Precision

PandarXT precision ( $1\sigma$ ) is up to 0.5 cm; greater precision performance than comparable products on the market



### Strong Range Capability

Range detection up to 120 m, POD>90% when detecting 10% reflectivity targets at 80 m (middle 8 channels)

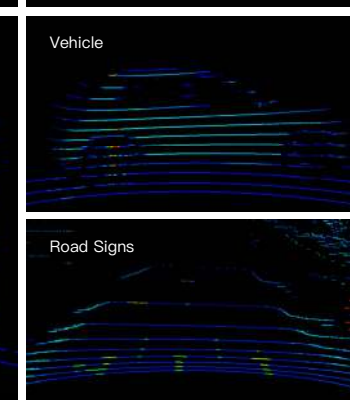
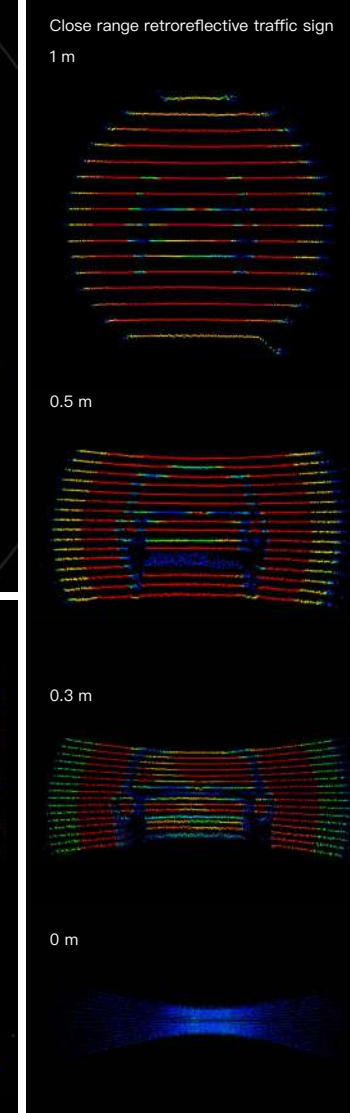
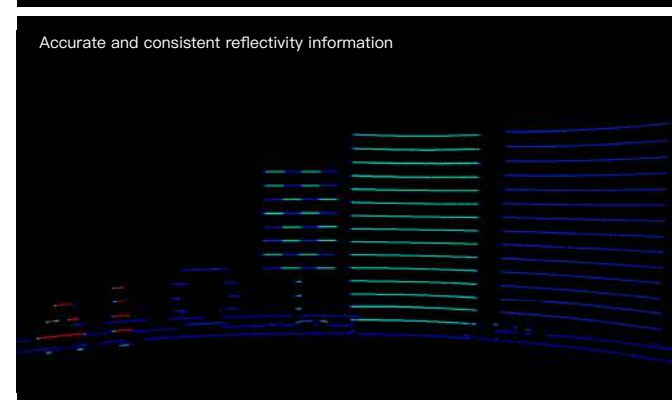
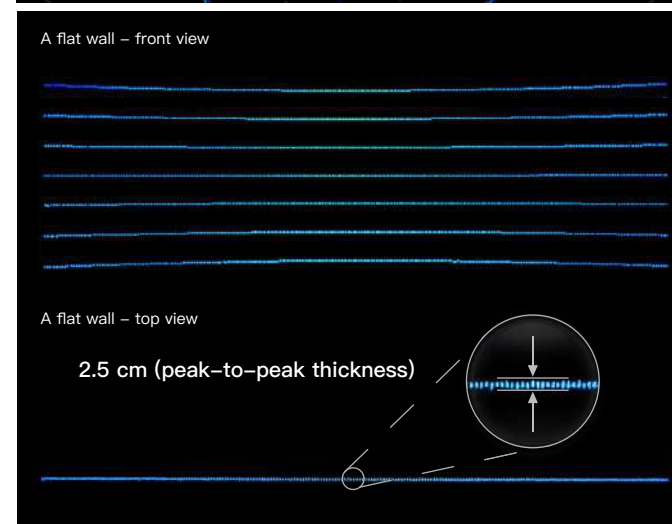
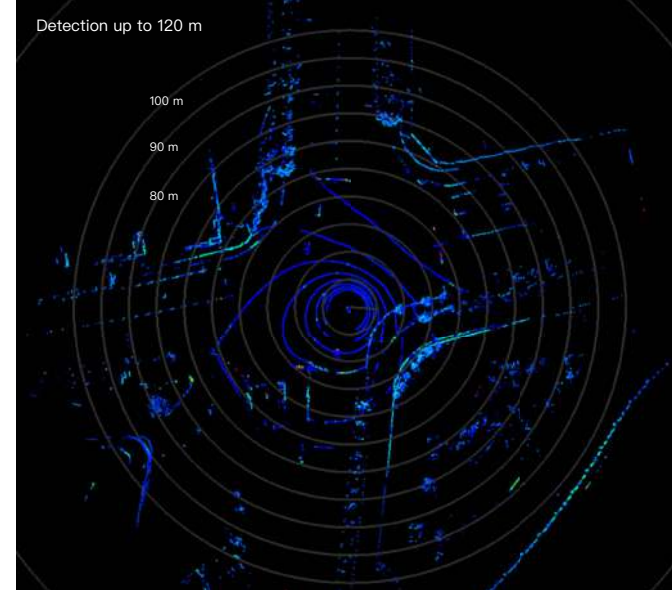


### High-Quality Reflectivity Information

High accuracy and consistency, greater dynamic range. PandarXT provides more accurate reflectivity information for algorithms

# PandarXT

## Point Cloud



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Website QR Code



WeChat QR Code



# PandarXT

## 32-Channel Mid-Range LiDAR

- Minimum range of zero
- High precision
- Proprietary LiDAR ASICs



## PandarXT Key Specifications

### Range

0 m ~ 120 m  
(0 m, calculated from LiDAR's enclosure)

### Range Capability

80 m@10% reflectivity  
(Under 100 klux, POD>90%)

### Accuracy

±1 cm (typical)

### Precision

0.5 cm (1 $\sigma$ , typical)

### Vertical FOV

31° (-16°~15°)

### Vertical Resolution

1°

### Frame Rate

5 Hz, 10 Hz, 20 Hz

### Horizontal Resolution

0.18° @10 Hz

### Ingress Protection

IP6K7

### Operating Temperature

-20°C ~ 65°C

### Weight

0.8 kg

### Dimensions

Hight: 76.00 mm  
Diameter: 103.0 mm

### Power Consumption

10 W

### Operating Voltage

DC 9 ~ 36 V

### Clock Source

GPS / PTP

### Data Points Generated

Single Return: 640,000 points/sec  
Dual Returns: 1,280,000 points/sec

## PandarXT Applications



Unmanned  
Logistics



Autonomous  
Shuttles



Factory AGV



Mapping



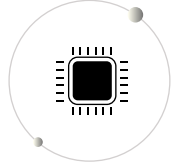
Security





# PandarXT

## Product Superiority



### Dedicated Chipsets

The lasers' transmitting and receiving systems are based on Hesai's self-developed ASICs, greatly improving LiDAR performance and reducing costs and production complexity.



### Minimum Range of Zero

PandarXT continuously outputs valid point cloud even when objects directly touch the LiDAR's enclosure. This enables the self-detection of enclosure smear and occlusion



### Strong Range Capability

Range detection up to 120 m, POD>90% when detecting 10% reflectivity targets at 80 m (middle 16 channels)



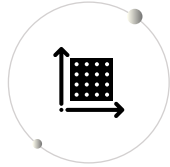
### High-Quality Reflectivity Information

High accuracy and consistency, greater dynamic range. PandarXT provides more accurate reflectivity information for algorithms



### Outstanding Precision

PandarXT precision ( $1\sigma$ ) is up to 0.5 cm; greater precision performance than comparable products on the market



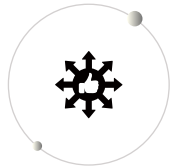
### Higher Resolution

Double the number of lasers and resolution compared with typical mid-range LiDARs (16 channels)



### Interference Rejection

Every pulse has its own 'fingerprint', rejecting noise when multiple LiDARs operate closely together

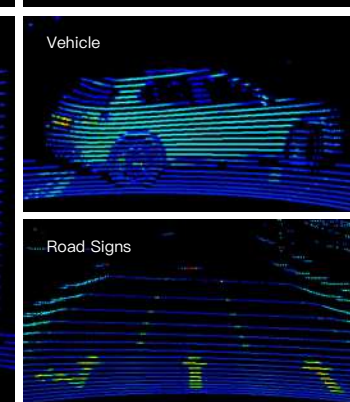
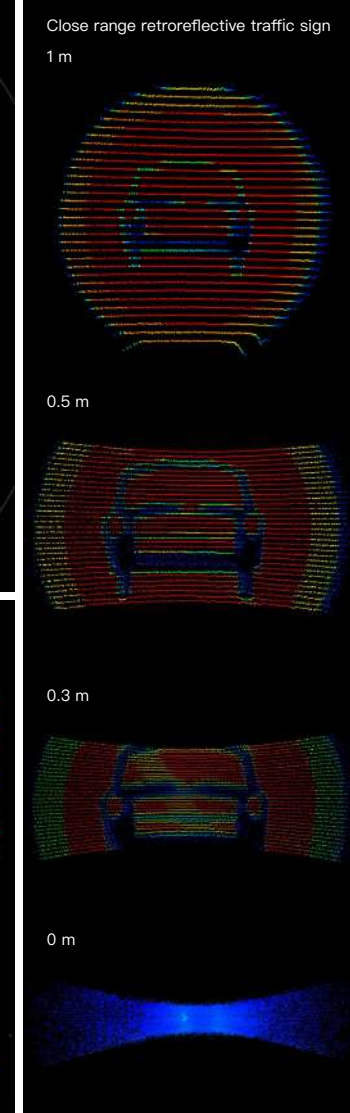
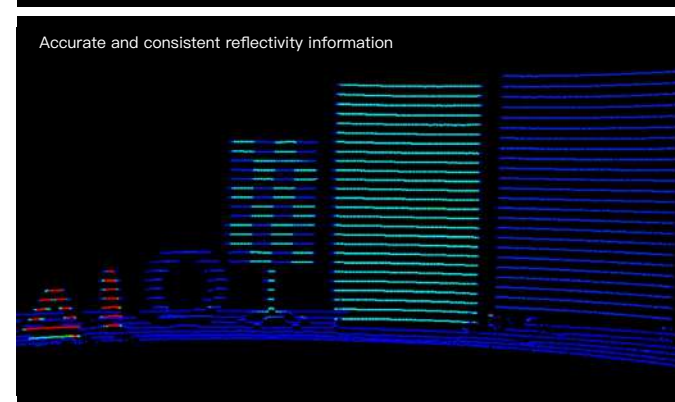
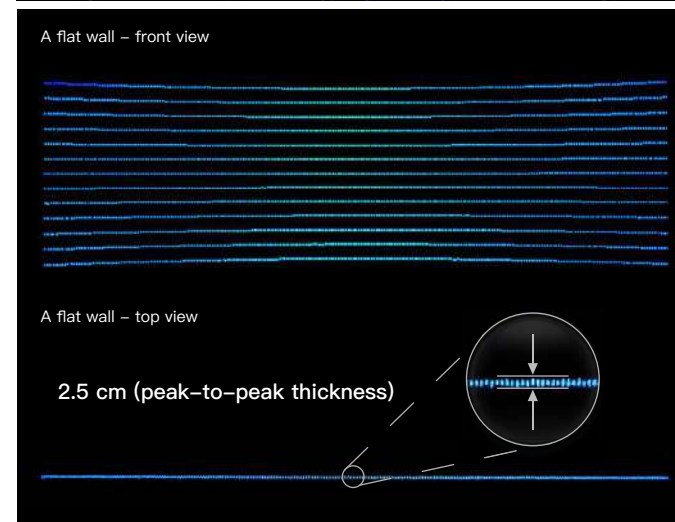
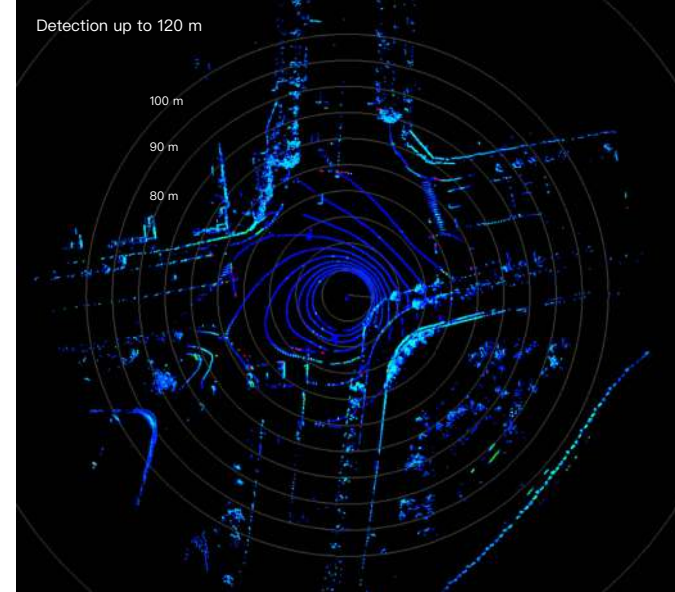


### Reliability

PandarXT has passed strict reliability tests including High temperature operation, Low temperature wakeup+operation, Thermal Shock/Air-to-Air, Vibration with Thermal Cycling, Mechanical Shock, Humid Heat Cyclic, Frost, Water and Dust Proof, and Shipping Vibration. Robust and reliable in any operational environment.

# PandarXT

## Point Cloud



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Website QR Code



WeChat QR Code