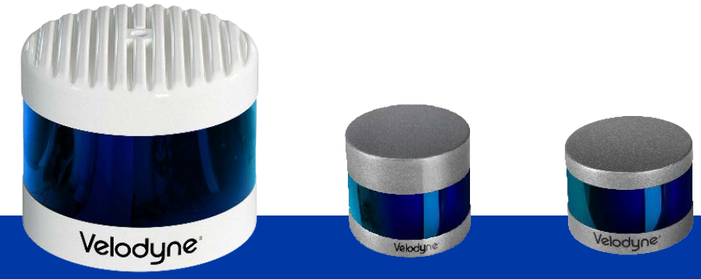
Velodyne Lidar®



SMART, POWERFUL LIDAR SOLUTIONS FOR ADAS AND AUTONOMY

Surround Sensor
Product Guide

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Surround Sensors[6]

(mid to long range)

Sensor	HDL-64E	HDL-32	Puck	Puck LITE	Puck Hi-Res	Puck 32MR	Ultra Puck	Alpha Prime
								
Range	Up to 120m	Up to 100m	100m	100m	100m	120m	200m	Up to 245m[5]
Range Accuracy	Up to ±2 cm (Typical)[4]	Up to ±2 cm (Typical)[1]	Up to ±3 cm (Typical)[1]	Up to ±3 cm (Typical)[1]	Up to ±3 cm (Typical)[1]	Up to ±3 cm (Typical)[1]	Up to ±3 cm (Typical)[1]	Up to ±3 cm (Typical)[1]
# of Lines	64	32	16	16	16	32	32	128
Horizontal FoV	360°	360°	360°	360°	360°	360°	360°	360°
Vertical FoV	26.9°	41.33°	30°	30°	20°	40°	40°	40°
Horizontal Resolution	0.08° – 0.35°	0.08° - 0.33°	0.1° – 0.4°	0.1° – 0.4°	0.1° – 0.4°	0.1° – 0.4°	0.1° – 0.4°	0.1° – 0.4°
Vertical Resolution	0.4°	1.33°	2.0°	2.0°	1.33°	0.33° (min)	0.33° (min)	0.11° (min)
Points Per Second (Single Return Mode)	~ 1,300,000	~ 695,000	~ 300,000	~ 300,000	~ 300,000	~ 600,000	~ 600,000	~ 2,400,000
Points Per Second (Dual Return mode)	~ 2,200,000[5]	~ 1,390,000	~ 600,000	~ 600,000	~ 600,000	~ 1,200,000	~ 1,200,000	~ 4,800,000
Refresh Rate	5-20 Hz	5-20 Hz	5-20 Hz	5-20 Hz	5-20 Hz	5-20 Hz	5-20 Hz	5-20 Hz
Operating Voltage	12V - 32V	9 V – 18 V	9 V – 18 V	9 V – 18 V	9 V – 18 V	10.5 V – 18 V	10.5 V – 18 V	9 V – 28 V
Power Consumption	60 W (Typical)[2]	12 W (Typical)[2]	8 W (Typical)[2]	8 W (Typical)[2]	8 W (Typical)[2]	10 W (Typical)[2]	10 W (Typical)[2]	22 W (Typical)[2]
Weight (without cabling)	~ 28 lbs. (12.7 Kg)	~1.0 kg	~830 g	~590 g	~830 g	~925 g	~925 g	~3.5 kg
Operating Temp	-10°C to +60°C[3]	-10°C to +60°C[3]	-10°C to +60°C[3]	-10°C to +60°C[3]	-10°C to +60°C[3]	-20°C to +60°C[3]	-20°C to +60°C[3]	-20°C to +60°C[3]
Storage Temp	-40°C to +85°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C	-40°C to +85°C	-40°C to +85°C	-40°C to +105°C
Output	UDP packets over Ethernet	UDP packets over Ethernet	UDP packets over Ethernet	UDP packets over Ethernet	UDP packets over Ethernet	UDP packets over Ethernet	UDP packets over Ethernet	UDP packets over Ethernet
Ethernet Connection	100 Mbps	100 Mbps	100 Mbps	100 Mbps	100 Mbps	100 Mbps	100 Mbps	1000 Mbps
GPS Timesync	$GPRMC	$GPRMC + $GPGGA	$GPRMC + $GPGGA	$GPRMC + $GPGGA	$GPRMC + $GPGGA	$GPRMC + $GPGGA	$GPRMC + $GPGGA	$GPRMC + $GPGGA
Laser	903nm Class 1 eye safe	903nm Class 1 eye safe	903nm Class 1 eye safe	903nm Class 1 eye safe	903nm Class 1 eye safe	903nm Class 1 eye safe	903nm Class 1 eye safe	903nm Class 1 eye safe
Water Resistance	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67

63-9645 Rev E

1.Typical accuracy refers to ambient wall test performance across most channels and may vary based on factors including but not limited to range, temperature and target reflectivity. 2. Operating power may be affected by factors including but not limited to range, reflectivity and environmental conditions. 3. Operating temperature may be affected by factors including but not limited to air flow and sun load. 4. Greater than or equal to 80% of channels at ambient wall test; remaining channels better than or equal to 5 cm. 5. Configuration dependent. 6. These are projected specifications for final production parts. The specifications for any sample, prototype, or other non-final or pre-production products may be different from the specifications in this document. For more information, please contact Velodyne Sales.