

Falcon Kinetic LiDAR

Falcon Kinetic is an industry-leading automotive-grade LiDAR developed by Innovusion through positive development. It can detect object as far as 500 meters, and dark objects with 10% reflectivity up to 250 meters. Falcon can maximize point density in region of interest (ROI) which is adjustable to focus where it matters most to better track objects on the road ahead. High performance LiDAR like Falcon is key to L2+ safe autonomy.



Features

- 500m ultra-long detection range, image-grade ultra-high resolution
- Flexible and adjustable ROI
- 1550nm laser wavelength, eye-safe
- Mass production of automotive-grade robust products is ready

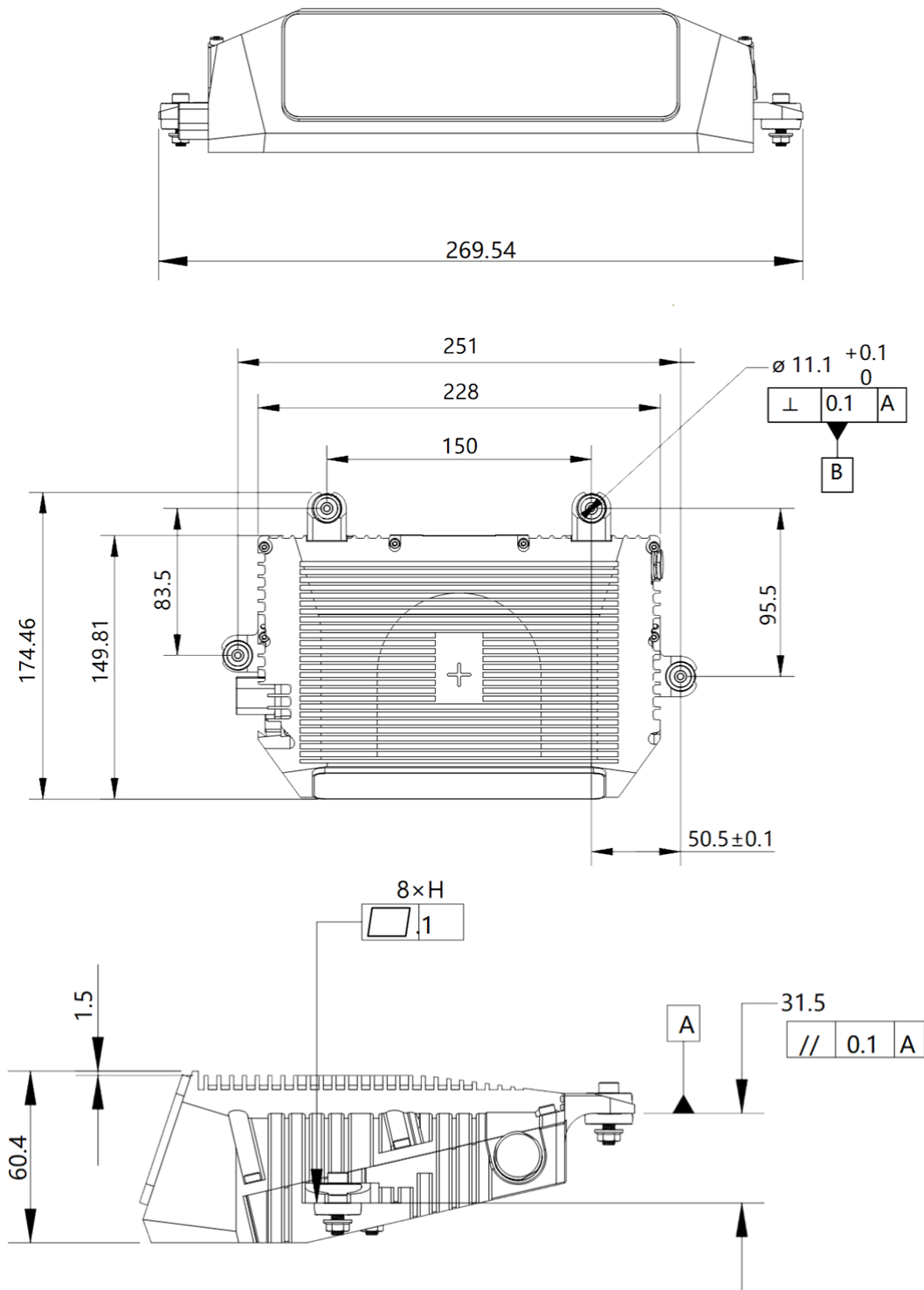
Specifications

OPTICAL PERFORMANCE	
Range (Maximum)	500 m
Range (Minimum)	1.5 m
Detection Range (10% Lambertian reflectivity @ 10 Hz)	250 m@100 klx sunlight, POD>90%
Detection Range Accuracy	± 5 cm for Lambertian targets ± 10 cm for retroreflectors
Detection Range Precision (10% Lambertian reflectivity, 1 standard deviation)	2 cm (50 m@1sigma)
Detection Range Resolution	0.5 cm
Vertical Scanning Lines	1500 to 2000 lines/sec
FOV in non-ROI	HFOV: 100° to 120° VFOV: 25°
FOV in ROI	HFOV ≥ 40° VFOV ≥ 4.8°
Angular Resolution in non-ROI	HRES ≤ 0.18° VRES ≤ 0.24°
Angular Resolution in ROI	HRES ≤ 0.09° VRES ≤ 0.08° Note: The angular resolution in ROI can reach 0.06°×0.06°. Some optical parameters will be changed as follows. Detection Range (10% Lambertian reflectivity @ 10 Hz): 200m @ 100 klx sunlight, POD>90% Vertical scanning lines: 1600 lines/sec

	Vertical FOV in non-ROI:22.5° Angular resolution in non-ROI (H×V): 0.12°×0.24°
Angular Accuracy	± 0.1°
Frame Rate	10 FPS (configurable: 5 to 20 FPS)
False Positive Rate	<1/10,000 @ 100 klx sunlight
# of Returns	single, 2 strongest, strongest & furthest
LASER	
Laser Safety Class	Class 1 (IEC 60825-1:2014)
Laser Wavelength	1550 nm
Beam Divergence	0.1°
LIDAR OUTPUT	
Communication	Gigabit Ethernet (UDP & TCP)
Points Per Second	900,000 Points/sec
Data Rate (Megabits Per Second)	7.385MB/S@1 return 10.965MB/S@2 return
Data Output	radius, azimuth, reflectivity, timestamp, frame ID, return mode, working mode, fault state, CRC verification, etc.
CONTROL INTERFACE	
Interface	TCP and HTTP APIs
Time Synchronization	<ul style="list-style-type: none"> • IEEE1588 (PTP). Accuracy: <1μs error • IEEE 802.1as(gPTP). Accuracy: <1μs error
MECHANICAL/ELECTRICAL	
Power Consumption	12V/30W, 24V/32.4W
Operating Voltage	9 to 34V DC, 9 to 36V DC
Connector	Proprietary pluggable connector (Power + Automotive Ethernet + CAN)
Dimensions (H×W×D)	60.4mm×228mm×149.8mm
Weight	1.7 kg
Mounting	4×M4×18 screws, located in bushings
OPERATIONAL	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +105 °C
Ingress Protection	IP67(body) IP69K(window)
Shock	IEC 60068-2-27 (Pulse shape: Half-sine. Peak acceleration: 500m/s ² . Duration of pulse: 6ms. Number of shocks per direction (±X, ±Y, ±Z): 10 shocks.)
Vibration	IEC 60068-2-64 r.m.s. acceleration value: 30.8 m/s ² , 3 axes 8 hr duration each IEC 60068-2-64 r.m.s. acceleration value: X: 21.3 m/s ² , Y: 11.8 m/s ² , Z: 13.1 m/s ² , 3 axes 32 hr duration each
Compliance	IEC60825-1:2014 Class 1 eye-safe RoHS(EU) CE (EN IEC 61000-3-2:2019+A1:2021, EN 61000-3) FDA(US) 21CFR 1003 &1004

ACCESSORIES	
Wire Harness	5m cable (power & Ethernet)
Optional Converter	Metadapter
Optional Mount	Metal bracket
SOFTWARE	
Available Drivers	ROS/ROS2/APOLLO

Dimensions (Unit: mm)



*Specifications are subject to change without notice and based on engineering targets. Specs are not guaranteed to have passed full validation at the time of publication.