

AiNSTEiN

LR-D1 Data Sheet



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Overview:

Have you tried to land your plane in stormy weather? Do you fly over lakes or oceans often? Have you ever flown into an airport in the mountains? Do you have a permit to fly in cloudy conditions, but want added safety assurance?

Ainstein's UAV Long Range Radar Altimeter LR-D1 provides accurate altitude measurement in these diverse operating environments, giving you the confidence you need to fly by knowing exactly how much space you have to maneuver — especially during landing.

The Ainstein UAV Long Range Radar Altimeter LR-D1 provides advanced cross-validation technology that continuously monitors incoming data, assuring the measured altitude is accurate, even in low-visibility conditions.

LR-D1 also measures vertical speed of your plane, giving you added data points for safe take-off and landing.

It's perfect for experimental helicopters and pilots under training for use in safe takeoff and landing; it's also a must-have for advanced UAVs in automatic takeoff and landing.

Snapshot:

- UP TO 1,640 FT RANGE MEASUREMENT
- BUILT SOLID FOR TOUGH ENVIRONMENTS
 - Ruggedized design meeting IP67 requirements
 - Smooth, consistent readout regardless the rough terrain, tree canopy or choppy water.
- HIGHLY ACCURATE: Advanced cross-validation technology continuously monitors multiple data sets for higher accuracy

Technical Data:

Table 1: Specification

Starting Frequency	24 GHz
Bandwidth	250 MHz
Power Consumption	<11.00 W
Operating Voltage	10 - 30 V
Altitude Range	1.4m~500m ⁽¹⁾
Altitude Precision	±0.7m ⁽²⁾
Update Rate	40Hz
Detection Angle Range	Azimuth 43° , Elevation 30° ⁽³⁾
Maximum Velocity	up to 60m/s in elevation
Detection Velocity Range	<±45m/s
Temp. Range	-40°C~60°C
Dimensions	<112mm*102.5mm*29mm (mounting bracket is NOT included)
Weight	300g (exclude external connector cable)
IP Rating	Built to the requirements of IP67 (Test pending) ⁽⁴⁾
Vibration Rating	GB/T 2423.10-2008 sine vibration 5g XYZ three axis
Shock Rating	GB/T 2423.5-1995 half sine shock 20g XYZ three axis
ESD Rating	GB/T 17626.2 8K/15K contact/air B class

Note:

1. Radar data may vary over different terrains when radar is out of its detection range. Please see Appendix 1 for more details.
2. Range detection might be limited by terrains, pitch and roll of aircraft, etc.. The range accuracy above only indicates the step size of data from radar itself.
3. Based on mm-wave radar specs, large angle of pitch and roll would bring error for detection. Under the same measurement circumstance, larger angle by aircraft bring more error.
4. IP rate here only focus on radar itself. This rating does not cover any cabling interface.

Mechanical Drawing

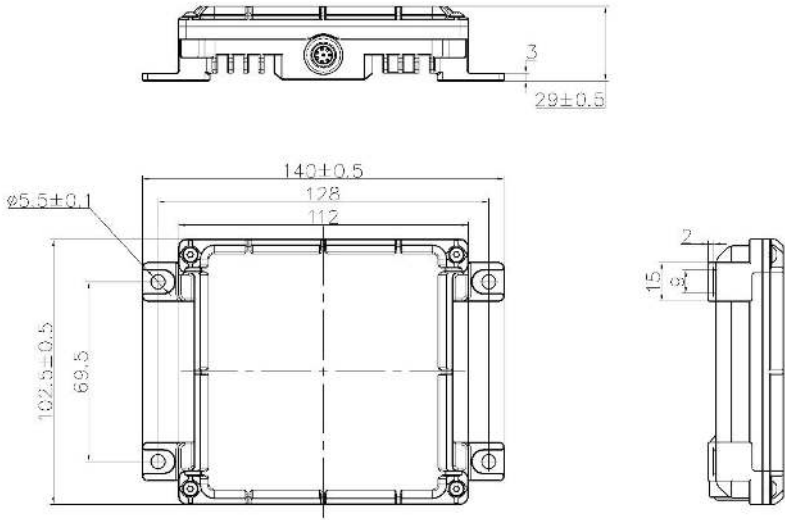


Figure 1: Dimensions of LR-D1 (Units: mm)

About Einstein

Our mission is to enable safer driving, flying, working and living through radar-based technology. We are in the business of improving safety and protecting valuable assets through innovations in radar technology.

Ainstein makes radar systems smarter, more affordable and easier to deploy. We offer complete solutions for autonomous drones, advanced driver-assistance systems (ADAS), autonomous vehicles and industrial sensing – incorporating a combination of millimeter wave (mmWave) radar, sensor fusion and artificial intelligence (AI).

For years, cost, weight and performance constraints have hindered the wider adoption of radar. Ainstein makes radar systems accessible to everyone by overcoming these constraints. One recent innovation: we've developed the world's first UAV collision avoidance radar with 4D detection.

Radar systems and sensor data processing intelligence are keys to our autonomous future. We offer deep scientific, mathematical and engineering expertise along with a full spectrum portfolio (24GHz, 60GHz, 76-81GHz) of hardware and software to support our customers in developing highly customized solutions with unmatched precision in unpredictable environments.

Our core team has more than a combined 100 years of experience in radar research and development with deep knowledge gained through projects funded by NASA, the U.S. National Science Foundation (NSF), the European Space Agency and others.

Other radar companies are at least two to three years behind Ainstein. Startups have been slow to market and are unable to produce at scale, while established companies are slow to adopt the newest technological innovations.

Ainstein products can be fully customized to specific application requirements, have unmatched precision in ALL weather conditions and surface types, and are a fraction of the price of competitive products.

Visit our website (www.ainstein.ai) for more information, or get in touch with Andrew Boushie, Vice President for Strategy and Partnerships, at andrew.boushie@ainstein.ai to arrange a phone call.