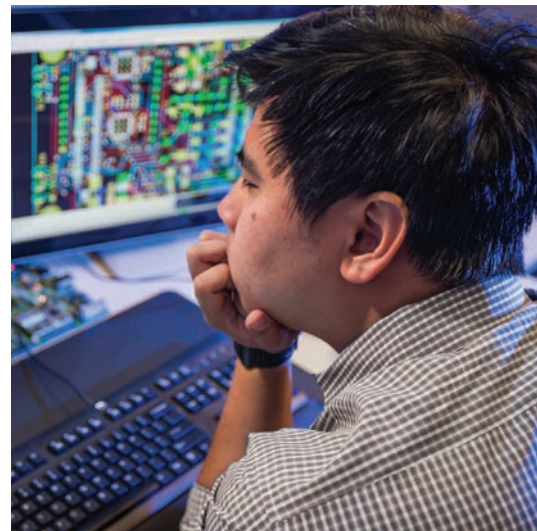


**THREE GENERATIONS OF EXPERIENCE  
BEHIND NEXTGEN AVIONICS —**

Building on systems engineering and integration know-how, FreeFlight Systems effectively implements comprehensive, high-integrity avionics solutions. We are focused on the practical application of NextGen technology to real-world operational needs — OEM, retro fit, platform or infrastructure.

FreeFlight Systems is a community of respected innovators in technologies of positioning, state-sensing, air traffic management datalinks — including rule-compliant ADS-B systems, data and flight management. An international brand, FreeFlight Systems is a trusted partner as well as a direct-source provider through an established network of relationships.



**NEXTGEN LEADER. INDUSTRY EXPERT. TRUSTED PARTNER.  
SHAPE THE SKIES.**

# ALTITUDE & TRUST

PROVEN RADAR ALTIMETER SYSTEMS

for critical operations

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ALT AGL DH



3700 Interstate 35 South  
Waco, Texas 76706-3756 USA  
US: 800.487.4662  
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SKIES**



FreeFlight engineers discuss our Radar Altimeter solutions.

## RADAR ALTIMETERS

Proven performance and rotorcraft experience, combined with a modern digital implementation and low weight design makes FreeFlight Systems altimeters and displays the best choice for serious users.

### RA-4000, RA-4500 and RA-5500 Radar Altimeter

For critical flight regimes, the FreeFlight Systems product line of Radar Altimeters (TSO and ETSO approved) provide today's flight crews with dependable, highly accurate and economical above-ground-level (AGL) information. This real-time system enhances operational safety during approaches, night time operations, and hazardous flight above rough terrain.

Designed for applications such as helicopter and seaplane operations where accuracy is needed down to zero feet, the RA-4000, RA-4500 and RA-5500 Radar Altimeters provide precise AGL information from 2,500 feet down to ground level. The RA-4500 Radar Altimeter with its ARINC 429 output can be easily coupled with electronic flight information systems (EFIS) and flight director systems. Proven and precise, both systems offer improved situational awareness for a broad range of fixed and rotary wing aircraft.

FreeFlight Systems has over 20 years experience in Radar Altimetry and our systems have hard won, proven performance in the most challenging and critical segments of flight such as low altitude hover in rotorcraft, flare/touchdown in fixed wing aircraft and slow transition over varying terrain.

### RAD-40 Radar Altimeter Display

The RAD-40 Radar Altimeter Display is compatible with the FreeFlight Systems RA-4000, RA-4500 and RA-5500 Radar Altimeters. This panel-mount display provides critical AGL information to the pilot which is especially important when there are no visual clues to the landscape surrounding the airport or the flight path.

The AGL information is displayed on a bright LED read-out as reported from the Radar Altimeter unit through a standard serial interface. By simply turning the rotary knob on the front panel, the pilot is able to set a decision height (DH). When the preset altitude is reached, a DH LED is illuminated and a DH discrete output is set. The pilot is also able to activate five trip-point discrete outputs (100-1000 ft.) to signal additional alerts to the navigation management system if the aircraft descends through these altitudes.

In addition to the standard version, an optional night vision goggle (NVG) compatible display is available.

For additional product information and specifications, please visit our website at [www.freeflightsystems.com](http://www.freeflightsystems.com)

## RA-4000, RA-4500 and FRA-5500 RADAR ALTIMETERS

SPECIFICATIONS	RA-4000	RA-4500	FRA-5500
Model	RA-4000	RA-4500	FRA-5500
Frequency	Modulated continuous wave 4.3 GHz center frequency sweep, 4.25 to 4.35 GHz		
Display Disable	Strut switch inputs		
Altitude Range	-20 to 2,500 ft.		
Altitude Accuracy	0 to 100 ft. ≤ 3% 100 to 500 ft. ≤ 3% 500 to 2,500 ft. ≤ 5%		
Update Rate	25 times per second		
Power-Test	Power-on self-test and recurring built-in test		
Antennas	Dual; response angles up to ±20° pitch, ±30°		
Service Ceiling	50,000 ft.		
CERTIFICATIONS	RA-4000	RA-4500	FRA-5500
System	TSO-C87, ETSO-2C87		
Environmental	DO-160E		
Software Assurance	DO-178B Level C		DO-178B Level B
PHYSICAL CHARACTERISTICS	RA-4000	RA-4500	FRA-5500
Size	3.0" W 6.8" D 3.1" H		
Weight Unit	1.9 lbs (0.86 kg)		
Antennas (2)	0.37 lbs (0.17 kg)		
Interface Inputs	Strut Switch		
Interface Outputs	RS-485 422 RS-232C	RS-485 422 ARINC 429	RS-485 422 ARINC 429
Power Requirements	20-36 VDC, 0.4 A max at 28 VDC		
Operating Temperature	-55°C to +70°C		
Cooling	Ambient Air		

## RAD-40 DISPLAY

### SPECIFICATIONS

Model	RAD-40
Type	LED, yellow seven segment
Altitude Range	-20 to 3,000 ft.
Update Rate	2 times per second
Decision Height Selection	10-ft. increments to 200 ft., 50-ft. increments from 200 to 950 ft.
Flags	Displays dashes ("----") when altimeter is unlocked
Self-test	Lights all "8's" for LEDs and activates the DH LED
DH Alert	Internal DH LED and external discrete output
Trip Point Outputs	Five fixed trip points: 100, 150, 200, 500, and 1,000 ft.
Service Ceiling	50,000 ft.

### CERTIFICATIONS

System	TSO-C87
Environmental	DO-160F
Software Assurance	DO-178B Level C

### PHYSICAL CHARACTERISTICS

Size	3.5" W 4.6" D 1.3" H
Weight	0.38 lbs. (0.17 kg)
Operating Temperature	-20°C to +55°C
Power Requirements:	9-36 VDC, 0.5 A at 28 VDC