For critical flight regimes, the FreeFlight Systems RA-4000 and RA-4500 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 and RA-4500 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 50 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. Our unique combination of deep experience with a modern digital implementation makes FreeFlight Systems altimeters the only affordable choice for serious users.

RADAR ALTIMETERS
THE ACCURATE, RELIABLE, AND AFFORDABLE SAFETY SOLUTION

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RAD-40 Radar Altimeter Display
The RAD-40 Radar Altimeter Display is compatible with the FreeFlight Systems RA-4000 and RA-4500 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 RA-4000 and RA-4500 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.
RA-4000 and RA-4500

SPECIFICATIONS

Altitude Range: -20 to 2500 ft.
Power Requirements: 20 - 36 VDC; 400 mA MAX @ 28 VDC
Environmental: -67°F to +158°F (-55°C to 70°C)
Alt: 50,000 ft. (15,200 m)
Size (HxWxL): 3.06 x 3.15 x 6.78 in.
(7.8 x 8.0 x 17.2 cm)
Weight: Unit: 1.9 lbs. (0.86 kg)
Ant. (2): 0.37 lbs. (0.17 kg)
Antenna(s): Dual; response angles up to ±20° pitch, ±30° roll
Transmitter Power: 100 mW minimum out of transmitter
Frequency: Frequency modulated continuous wave
4.3-GHz center frequency sweep, 4.25 to 4.35 GHz
Update Rate: 25 times/sec.
Altitude Accuracy: 0 to 100 ft. ±3 ft.
100 to 500 ft. ±3%
500 to 2500 ft. ±5%
Display Disable: Strut switch inputs
Self-test: Power-on self test and recurring built-in test

INTERFACE (INPUT/OUTPUT SUMMARY)

Inputs
Strut Switch
Outputs RA4500
RS-485/422 ARINC 429
Outputs RA4000
RS-485/422 RS-232C

CERTIFICATIONS

FAA Authorization: TSO-C87
EASA Authorization: ETSO-2C87
Environmental: DO-160E
Software: DO-178B, Level C

RAD-40

SPECIFICATIONS

Altitude Range: -20 to 3000 FT.
Power Requirements: 9 – 36 VDC; 450 mA @ 28 VDC
Environmental: -4°F to +131°F (-20°C to +55°C)
Alt: 50,000 ft. (15,200 m)
Size (HxWxL): 1.39 x 3.54 x 4.62 in.
(3.5 x 9.0 x 11.7 cm)
Weight: 0.38 lbs. (0.17 kg)
Type: LED, yellow seven segment
Update Rate: 2 times/sec.
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 1000 ft.

CERTIFICATIONS

FAA Authorization: TSO-C87
Environmental: DO-160F
Software: DO-178B, Level C.

* When used with the RA-4000 or RA-4500 altimeters, the display will show -20 to +2500 ft.