

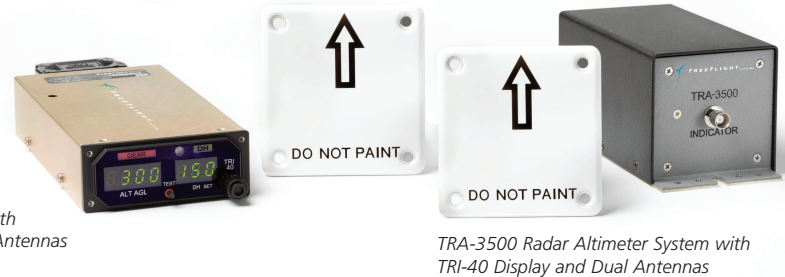


TRA-3000 AND TRA-3500 RADAR ALTIMETERS

Critical safety tools for precise, low altitude navigation



TRA-3000 Radar Altimeter System with TRI-40 Display and Integrated Tx/Rx Antennas



TRA-3500 Radar Altimeter System with TRI-40 Display and Dual Antennas

For critical flying operations, the FreeFlight TRA-3000™ and TRA-3500™ Radar Altimeters, combined with the TRI-40 Indicator, provide pilots with highly accurate above ground level (AGL) information. These real-time systems offer an extra measure of operational safety during landing, navigation, or hovering.

TRA-3000 Radar Altimeter

The TRA-3000 is especially effective in flying search and rescue missions, forestry operations, pipeline maintenance, offshore helicopter operations, aeromedical emergency services, border patrol, and electronic news gathering operations. Sending a continuous signal from a single antenna, the TRA-3000 Radar Altimeter provides precise AGL information from 2500 feet down to 40 feet. The transmitter/receiver and antenna fit in a single, lightweight, aerodynamic unit that can be easily installed on the fuselage or under the wing. Innovative design reduces the size and weight of the system and significantly increases transmitter efficiency.

TRA-3500 Radar Altimeter

Designed for applications such as helicopter and seaplane operations where accuracy is needed down to zero feet, the TRA-3500 Radar Altimeter provides precise AGL information from 2500 feet down to ground level. Its patented "anti-rotor modulation" capability prevents altitude wandering while hovering. The TRA-3500 consists of a remote unit and dual antennas for greater accuracy. ARINC analog outputs allow seamless

integration with other on-board equipment such as flight director systems.

TRI-40 Indicator

The TRA-3000 and TRA-3500 Radar Altimeters are used with the TRI-40 Indicator. This panel mounted indicator provides essential information when there are no visual clues to the landscape surrounding the airport or the pilot's flight path. The indicator displays the AGL altitude and the pilot's preselected decision height (DH) in a bright, LED readout, and provides an audible warning when descending below the DH. A test button sends a 40-foot altitude code to the indicator to test the display and warning alerts at any time. The TRI-40 Indicator also includes a visual and audible gear-up warning when the aircraft is below 100 feet. A trip-point output allows the pilot to activate additional alerts every 100 feet up to 800 feet. A TRI-40 Indicator mounted in a round faceplate adapter is available as an option to simplify certain installations.

For private and professional pilots, the attractively priced FreeFlight Systems TRA-3000 and TRA-3500 Radar Altimeters are essential for precise, near-ground navigation.

HIGHLIGHTS

- Increased pilot safety
- Lightweight
- Easy installation
- Highly visible panel display
- Two-year warranty

OPTIONS

- Night Vision Goggle (NVG) display
- Other trip point schemes available
- Round faceplate adapter for display

TRA-3000 AND TRA-3500 RADAR ALTIMETERS

TRA-3000/TRI-40

SPECIFICATIONS

Altitude Range:	40 to 2500 ft.
Power Requirements:	27.5 VDC; $\pm 20\%$, 600 mA
Environmental:	TRI: -4°F to +131°F (-20°C to +55°C) TRA: -40°F to +158°F (-40°C to +70°C) Alt: -45,000 ft. (13,716 m)
Size (HxWxL):	TRI: 1.375 x 3.5 x 7.5 in. TRA: 1 x 5 x 7.625 in.
Weight:	TRI: 0.75 lbs. TRA: 1.5 lbs.
Antenna(s):	Dual; $\pm 20^\circ$ pitch, $\pm 30^\circ$ roll
Display Type:	LED, yellow seven segment, auto dim
Transmitter Power:	20 mW typical, 10 mW minimum
Frequency:	100 MHz sweep, within 4.2 to 4.4 GHz
Display Update Rate:	2 times/sec.
Altitude Accuracy:	40 to 100 ft. ± 5 ft. 100 to 500 ft. $\pm 5\%$ 500 to 2500 ft. $\pm 7\%$
Decision Height Selection:	50-ft. increments to 600 ft. 100-ft. increments to 900 ft.
Flag(s):	Displays "U" when unlocked
Self-Test:	Indicates "8's," then DH and gear lights, then 40 ft. altitude
Visual DH Alert:	Internal DH light; External output
Aural DH Alert:	1-kHz tone output
Gear Warning:	Internal gear light, audible tone, and external indicator drive
ARINC Analog Outputs:	A: 2.5 mV/ft., 0 V=0 ft. B: 20 mV/ft., 400 mV=0 ft.
Trip Point Outputs:	Eight fixed trip points; 100 to 800 ft.
Display Disable:	Two strut switch inputs—ground or line
Anti-Hover Circuit:	None

CERTIFICATIONS

PMA

TRA-3500/TRI-40

SPECIFICATIONS

Altitude Range:	0 to 2500 ft.
Power Requirements:	27.5 VDC; $\pm 20\%$, 750 mA
Environmental:	TRI: -4°F to +131°F (-20°C to +55°C) TRA: -40°F to +158°F (-40°C to +70°C) Alt: -45,000 ft. (13,716 m)
Size (HxWxL):	TRI: 1.375 x 3.5 x 7.5 in. TRA Unit: 3 x 3 x 6.9 in.
Weight:	TRI: 0.75 lbs. TRA Unit/Ants.: 3.25 lbs.
Antenna(s):	Dual; $\pm 20^\circ$ pitch, $\pm 30^\circ$ roll
Display Type:	LED, yellow seven segment, auto dim
Transmitter Power:	20 mW minimum
Frequency:	4.3-GHz center frequency sweep, 4.25 to 4.35 GHz
Display Update Rate:	2 times/sec.
Altitude Accuracy:	0 to 100 ft. ± 5 ft. 100 to 500 ft. $\pm 5\%$ 500 to 2500 ft. $\pm 7\%$
Decision Height Selection:	50-ft. increments to 600 ft. 100-ft. increments to 900 ft.
Flag(s):	Displays "U" when unlocked
Self-Test:	Indicates "8's," then DH and gear lights, then 40 ft. altitude
Visual DH Alert:	Internal DH light; External output
Aural DH Alert:	1-kHz tone output
Gear Warning:	Internal gear light, audible tone, and external indicator drive
ARINC Analog Outputs:	A: 2.5 mV/ft., 0 V=0 ft. B: 20 mV/ft., 400 mV=0 ft.
Trip Point Outputs:	Eight fixed trip points; 100 to 800 ft.
Display Disable:	Two strut switch inputs—ground or line
Anti-Hover Circuit:	Prevents altitude wandering while helicopter is hovering

CERTIFICATIONS

PMA



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