



SafeAlt™ 2026 Update

Portable Altimeter • Density Altitude • VSI

Part #s RI-2025-1-SA-B (Black)

RI-2025-1-SA (Orange)

Technical Specifications / Operation — Last updated July 28, 2026

SafeAlt is a self-contained portable altimeter, density altitude computer, and vertical speed indicator. Altitude is shown on a classic dual-needle analog dial and in a digital window; temperature, density altitude, and vertical speed each have their own digital window, and vertical speed also has a small analog gauge. A settable digital Kollsman window floats inside the dial, just like a panel altimeter.

The 2026 update uses the same extraordinarily accurate solid-state pressure sensor as previous SafeAlt models, with a fully reworked display, faster and smoother altitude response, and an improved Density Altitude computation. Density altitude is now calculated from the pressure sensor's own factory-calibrated internal temperature measurement, and the temperature being used is displayed on screen — so you can always see exactly what is driving the DA number.

What's New in the 2026 Update

- Density Altitude computed from the pressure sensor's factory-calibrated temperature, with the live temperature shown in its own display box. A one-time temperature trim in the Setup Menu lets you match a reference thermometer.
- New display layout: analog altimeter dial with dual needles, floating Kollsman, analog VSI gauge, and four digital windows (Temperature, Density Altitude — in red, Vertical Speed, Altitude).
- Altitude Adjust: a stored calibration offset (± 500 feet) in the Setup Menu. In chamber testing, SafeAlt's accuracy approached TSO altimeter tolerances when allowed a single offset correction — this setting lets you apply that correction against a known reference.
- Faster, smoother altitude and VSI response, validated in pressure-chamber testing.
- Full metric mode: hPa Kollsman, meters, meters-per-second VSI, and °C, selected with a single units setting.
- On-screen battery voltage readout with automatic low-battery dimming.
- Simplified controls. The altitude alarm and aural buzzer of GEN-2 have been removed.

Technical Specifications

- Sunlight-readable color LCD; two brightness levels (day / night).
- Battery voltage displayed continuously in the upper-left corner (e.g. 3.7v), updated once per second.
- Battery life 5+ hours; USB rechargeable from any USB port.
- Altimeter: classic dual-needle display with hundreds-of-feet and thousands-of-feet indications, supplemented by a digital value in feet or meters.
- Digital Kollsman window: inches of mercury (e.g. 29.92) or hectopascals (e.g. 1013.5), user selectable.
- Vertical speed: analog single-needle gauge plus digital value. Gauge scale selectable $\pm 2,000$ or $\pm 1,000$ feet per minute (± 10 or ± 5 m/s in metric); the digital value reads beyond the gauge limit, to $\pm 9,999$ fpm.
- Density Altitude: computed continuously from pressure altitude and measured temperature; displayed in red, rounded to the nearest 100 feet (50 meters in metric).
- Temperature: measured by the factory-calibrated pressure sensor, displayed in °F or °C, user-trimmable ± 20 °C in the Setup Menu.
- Altitude Adjust: ± 500 feet stored offset, in 10-foot steps, applied to all displayed altitudes and to the density altitude computation.
- Kollsman, units, VSI scale, Altitude Adjust, and Temperature Trim are retained in permanent memory. Brightness returns to day mode at power-on.

Operation

Charge for 4 hours before first use, then turn the unit on. When the display starts to dim or cut out, it is time to charge the battery or attach a USB power source. A red LED is visible through a small hole next to the USB port while charging.

In-Flight Controls

Tap LEFT button	Kollsman down (0.01 inHg / 0.5 hPa per tap)
Tap RIGHT button	Kollsman up (0.01 inHg / 0.5 hPa per tap)
Tap BOTH buttons	Reset Kollsman to standard (29.92 / 1013.5)
Hold LEFT (½ second)	Toggle brightness: day / night mode

Set the Kollsman to the local altimeter setting and the altitude display will match field elevation. Kollsman changes are saved automatically and restored at the next power-on.

Setup Menu

To enter the Setup Menu, hold the RIGHT button while turning the unit on. (A brand-new or freshly updated unit enters the Setup Menu automatically on first power-up.) On-screen instructions are shown; tap either button to change the selected row, hold either button to advance to the next row, and hold on the last row to save and exit. Power-cycle at any time to exit without saving.

- **UNT:** Units. FT = inches of mercury, feet, fpm, °F. MT = hPa, meters, m/s, °C.
- **VSI:** Analog VSI gauge scale: $\pm 2K$ (default) or $\pm 1K$ feet per minute (± 10 / ± 5 m/s in metric). The $\pm 1K$ scale doubles needle sensitivity for slow-climbing aircraft.
- **CAL:** Altitude Adjust. An absolute offset added to all displayed altitudes, ± 500 feet in 10-foot steps (approximately 2 m per tap in metric). Example: if a trusted reference shows your SafeAlt reading 70 feet high, set CAL to -70 . The offset also feeds the density altitude computation.
- **TMP:** Temperature trim. The row shows the live temperature reading; tap to nudge it (± 1 °F / ± 0.5 °C per tap, ± 20 °C range) until it matches a reference thermometer. Trimming the temperature improves density altitude accuracy.

Reading Density Altitude

The red DA window shows density altitude: the altitude the airplane “feels” for takeoff and climb performance, combining pressure altitude and temperature. It is most valuable during preflight and run-up — high field elevation plus a hot day can push DA thousands of feet above field elevation.

The temperature window (TE) shows the temperature being used for the computation. The sensor is inside the case: for the most accurate preflight DA, let the unit acclimate to outside air and keep it out of direct sunlight. After the aircraft has been closed up in the sun, allow a few minutes for the reading to settle toward outside air temperature.

Battery and Charging

- Charge from any USB power source. A red LED near the USB port indicates charging.
- Typical battery life is 5+ hours. The unit may be operated continuously on USB power.
- The battery voltage is shown in the upper-left corner of the display. A fully charged battery reads approximately 4.2v; a reading approaching 3.5v means it is time to charge.
- When the battery falls below 3.5 volts, the display automatically dims to conserve power — this is your cue to recharge or connect USB power. Normal brightness returns automatically once the voltage recovers (or when USB power is attached).

DISCLAIMERS

- Products from Radiant Technology are not designed to be used in applications where their failure would endanger safe flight or human life in any way.
- They are intended solely for use in VFR conditions. They are not certified to meet any Technical Standard Order, and are not produced under a Parts Manufacturing Authority (TSO / PMA). As a result, they are suitable only for use in experimental and ultralight aircraft, and in Light Sport Aircraft, if meeting the requirements of the respective manufacturer.

WARRANTY

- Your new Radiant Technology instrument carries a three-year warranty, from the invoice date. Please contact us at support@radiantinstruments.com should your product need warranty service. There is an additional charge for international warranty service.

RETURN / REFUND INFORMATION

- Must be returned in new, uninstalled, resalable condition within 14 days after receipt.