**RADIANT DIGITAL ALTIMETER**

**Specifications, Installation and Operation Instructions for Belite RADIANT Digital Altimeter**

**LAST UPDATED:** October 2016

The Belite RADIANT Digital Altimeter is designed to show simultaneous digital altitude, digital VSI, digital outside temperature and digital density altitude in a single glance, easy to read format.

All of this information is presented digitally on a single, vivid LCD screen. The instrument fits in a standard 2.25” enclosure.

Replacing four conventional instruments with one digitally accurate single instrument saves panel space and reduces aircraft weight.

Additionally, the altitude sensor used within this instrument is amazingly accurate, showing differential altitudes with precision of 1 foot.

**FEATURES**

- Brilliant daylight readable LCD display.
- Provides current altitude, temperature, VSI, and density altitude in digital format.
- Shows and allows changing of current barometric pressure.
- Temperature may be displayed in Fahrenheit or Celsius format.
- Display is “sunglass friendly” -- bright; readable with polarized glasses.
- Works between -20C and +60C.

**SPECIFICATIONS**

- Weighs 2.0 ounces (55 grams) including temperature probe.
- Requires 10 to 36 volts < 100ma @ full screen brightness. When screen is dim, power consumption of unit is approximately 35ma.
- Screen is non-polarized color LCD display TFT Active Matrix with resolution of 240 x 320 pixels across a 2.4” display. Some corner and side areas of the display are not visible due to enclosure requirements.
- Unit operating temperature between -20 and +60C, including LCD screen.
- Altimeter Range: 0 to 19999 feet.
- Density Altitude Range: 0 to 19900 feet.
- VSI Range: +/- 2000 FPM.

**DISCLAIMER:**

Products from Belite Electronics 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 manufacture.

**WARRANTY:**

Your new Belite Avionics instrument carries a one year warranty. Please contact us at info@beliteaircraft.com should your product need warranty service. International warranty service will be charged $50.00 US for repairs, which includes return shipping after repair. Payment must be received before service begins.

Ship to: Belite Aircraft
8610 East 34th St. North #1
Wichita, KS 67226

**RETURN/REFUND INFORMATION:**

Must be returned in new, resalable condition within 14 days
APPLICATIONS

- May be used to display altitude, VSI, outside temperature and density altitude information for any experimental or ultralight aircraft.
- NON-TSO'd; non-PMA'd.

INSTALLATION

- Fits any standard 2.25” mounting hole.
- Use only the screws provided. DO NOT DRILL OUT HOLES FOR LARGER SCREWS. Doing so will void warranty!
- Requires a voltage source between 10 and 36 volts.
- Power draw is <100 milliamps (backlight full on).
- Use with an external avionics power switch.
- Use with an external dimmer potentiometer (supplied) driven by 0 to 5 volts, regulated. DO NOT USE 0 to 12 volt dimmer potentiometers! They will damage or destroy your unit.
- The temperature probe may be mounted anywhere outside the airplane. Make sure it is soundly attached. Lengthen the wire harness by simply cutting and inserting additional length of wire. A good spot is under the wing, in shade.

INSTALLATION DETAILS

- The rear main external electrical connector has five wires: ground, none, none, power, and backlight input. A harness is supplied with the unit. The ground must be connected to avionics (system) ground. The power must be connected to a voltage source between 10 and 36 volts. The

SPECIFICATIONS CONT.

- Unit uses temperature compensated pressure transducer for altitude.
- Dimensions for screen cutout are shown below, see Figure 1.
- Unit dimensions are 2.35” square with a thickness of 0.75”, not including connector height.
- Screen display mode is transmissive, normally deep black. This means that in the absence of backlighting, you will not be able to read the screen.
- Screen contrast ratio is minimum of 640.
- Screen luminance is minimum of 450 cd/M2 at full brightness.
- Screen viewing angle is up to 80 degrees.
- Two tactile switch inputs are provided for programming density altitude alarm and setting current pressure.
- Information is updated twice per second.
- Guaranteed unit operating voltage range is 10 to 36 volts.
- Two connectors are provided for attaching power, temperature probe, and dimming input.
- FIVE PIN CONNECTOR:
  - GROUND, NC, NC, POWER INPUT, BACKLIGHT DIMMER input
- SEVEN PIN CONNECTOR:
  - GROUND, Temp Probe, NC, +5V REGULATED POWER OUTPUT, DNC x 3 (DO NOT CONNECT x 3)
  - WARNING: DO NOT ATTACH ANY EXTERNAL POWER INPUT TO THE +5V OUTPUT on the seven pin connector. DOING SO WILL DAMAGE OR DESTROY YOUR UNIT.

Figure 1: 2.25” Main Cutout. Four 0.170” mounting holes are on 2.625” diameter circle. Inner circle is 2.25”.
backlight input may be connected to a variable voltage source, providing between 0 and 5 volts. Typically, this is supplied from the wiper of a potentiometer (included.) If left unconnected, the display will be dim.

NOTE: DO NOT DRILL OUT THE CORNER HOLES. THIS WILL DAMAGE THE LCD MODULE AND VOID YOUR WARRANTY!

The main color LCD screen provides continuous graphic information to the pilot.

Two tactile switches allow switching barometric pressure up and down, or changing the density altitude alarm value.

This gauge provides real time VSI information, altitude information, outside air temperature (in Fahrenheit or Celsius), and density altitude information. All are presented continuously on a single screen.

Turn the unit on. A boot screen (Figure 2) will display containing your model number and serial number. The screen will also show our company name, 'Belite', along with the part number.

If the display is dim, turn up the brightness using the included potentiometer.

After a few seconds, the display will show the value for the Density Altitude alarm. This screen looks like this (Figure 3).

You may change this value by touching the up or down value. The minimum value is 0 feet; the maximum value for this alarm is 9900 feet. The value will increment or decrement by multiples of one hundred feet. Press both at the same time to set a value of 4000 feet.

After a few seconds of button inactivity, the unit will advance to the main screen. The various values shown on this screen take up to one minute to initialize; while this is occurring you will note a red LED is illuminated on the upper left side of the display advising caution and patience (Figure 4).

After the LED turns off, the display will look like this (Figure 5 next page):

Let’s describe the standard attributes of the main display screen.

The upper left quadrant shows Vertical Speed Information.

The upper right quadrant shows Altitude, as adjusted for local pressure.

The middle right quadrant shows the current setting for barometric pressure. It may be adjusted by touching the up or down button on the bottom of the unit.

The middle left quadrant shows the current temperature. The screen depicts Fahrenheit. It may be changed to Celsius by following this procedure: 1) Turn unit off. 2) Turn unit on. 3) Observe the standard
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OPERATION CONT.

boot screen. 4) While the boot screen is visible, depress the up / down buttons simultaneously. 5) After 10 seconds, the LED will turn red. 6) Stop depressing the buttons. 7) Let the unit boot.

This procedure changes the display from Celsius to Fahrenheit. The same procedure reverses the temperature depiction back to Fahrenheit.

Finally, the middle bottom of the screen shows the current density altitude. It will only change in multiples of 100 feet.

You will recall that you had an opportunity to view or change a density alarm value while the unit was booting.

The density alarm value is used as follows:

a) If the current density altitude is within 1000 feet of alarm value, the value will display in yellow.

b) If the current density altitude is equal to or greater than alarm value, the value will display in red.

**WARNING:** Set the alarm value consistent with the performance expectations of your aircraft. Evaluate and use accordingly. Do not rely on the alarm, or any indication from this instrument, for safe operation of your aircraft.

Here are screen shots with red (danger) and yellow (warning) for the density altitude value.

CALIBRATION

While on the main screen, press the up or down button to change the barometric pressure. Press both at the same time to return the unit to 29.92 setting.

If you wish to change temperature modes, press both buttons for 10 seconds while the initial boot screen appears. Then release the buttons.

If you wish to change the density altitude alarm value, press the up or down buttons while the alarm value is displayed. (This occurs after the boot screen.) Pressing both sets the value to 4000 feet.

TROUBLESHOOTING AND SPECIAL TIPS

Here are some things to ponder when things aren’t working right, from basic to advanced.

1. Is the display turning on? If not, check to make sure that you are providing power and ground.
2. My screen is too dim…. Turn up the brightness on the potentiometer. If the potentiometer is disconnected, your display will be very dim.
3. I’m flying in low light or dusk conditions, and my screen is too bright… Turn the brightness down on the potentiometer.