AltAlert 6200 Pilot's Manual

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Read This First

AltAlert 6200 Quick Start Procedure or Three Steps to Flying with your AltAlert

When you first turn on your AltAlert 6200, you will see the display alternate between a dot pattern and the current revision of the software. This mode also performs a self test of the internal circuitry. You will also hear an initial beep through your headphones or speaker.

1. To start using your AltAlert 6200, simply push in the small switch and turn it (while holding it in) one clockwise (CW) click. This switch *(turned <u>while pushed in</u>)* is referred to as the **mode switch.** It is the key to the operation of the 6200. You will now see **BARO** flashing alternating with **2992**. Use the two switches to enter the current pressure. If you want, you can use only the small switch, but if the pressure is far from 2992, it will take quite a few clicks since it controls the hundredths of inches digit.

2. Now turn the mode switch one more CW click (don't forget to push it in). You will see **DEST** alternating with **0.0**. **DEST** stands for Destination elevation. Enter your destination's elevation using the small switch for 100's of feet and the large switch for 1000's of feet. Round up to the nearest 100 feet. For example, if your destination is at 2468 feet, enter **2.5** on the display.

3. Now turn the mode switch one more click CW. You will see **TARG** alternating with **0.0**. **TARG** stands for Target altitude. Simply enter your desired initial climb altitude just like you did for the destination elevation. It is in the same decimal point format.

GO FLYING! You are now ready to fly with your AltAlert 6200 . As you approach your Target altitude you will get a **LEVL** alert and a swept tone which will probably startle you the first time. If you deviate from this altitude, you will see **CLMB** or **DIVE** alerts. If you get a **CLMB** or **DIVE** alert as you start a descent or climb, set in a new target altitude as described next.

To set in a new Target altitude, just use the two switches to select the desired altitude. Each click of the big switch is 1000 feet, with CW increasing the Target altitude and CCW decreasing it. The small switch works the same way in 100 foot increments.

When you are given a new barometric pressure by the controller, turn the mode switch one click CW. **BARO** will appear. Set in the new pressure using only the small knob since incremental pressure changes tend to be small when flying cross country. AltAlert 6200 will automatically revert back to the Target mode after a few seconds and display your current Target altitude.

If you want to display your altitude MSL as derived by the AltAlert 6200 from your Mode C encoder, turn the mode switch CCW until **ALT** appears. The ALT light will illuminate and the display will show your altitude *exactly as ATC sees your aircraft on their scope.* This is your Mode C altitude corrected for local barometric pressure.

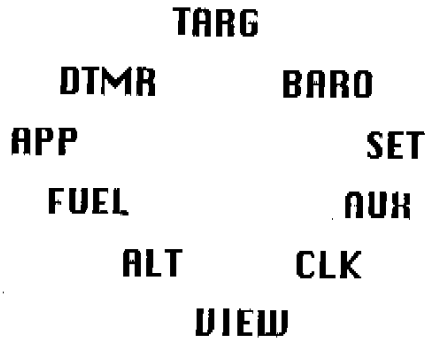
When landing and you no longer want AltAlert 6200 to generate altitude alerts, simply set in a Target altitude **above** your current altitude. Since you are descending, you will never reach that altitude! However as you descend to land, you will get a **GEAR** alert at 1000 feet above your destination's elevation. This is just a reminder to check your gear and will occur even if your gear is down and locked. Or you can use this alert as a checklist reminder.

The following sections will show you how to get even more use from your AltAlert 6200. But AltAlert's basic function is to help you manage your altitude during enroute flying. And everything you need to know to do that is in the above paragraphs.

REMEMBER THAT THE AltAlert IS DESIGNED TO ASSIST YOU IN MANAGING YOUR ALTITUDE. HOWEVER, YOUR PRESSURE ALTIMETER MUST BE YOUR ONLY SOURCE OF ALTITUDE INFORMATION FOR ALL PHASES OF FLIGHT.

Modes in a Circle

The various modes of the AltAlert 6200 should be thought of as being in a circle with TARG mode being at the top. The mode switch can be turned either CW or CCW to select the desired mode. Commonly used modes are near the TARG mode. As the mode switch is turned, you will see each mode on the display. You simply stop at the desired mode and take further action with the small and large switches. Many of the modes will automatically return to the TARG mode after a short time interval. See Section Two for more details on the AltAlert's modes.



AltAlert 6200 Alerts

1.0 Altitude related Alerts

The AltAlert 6200's primary purpose is to alert you just prior to reaching an assigned altitude and if you deviate from that altitude once established. In addition it will alert you just above Decision Altitude on an ILS approach as well as generate a GEAR alert prior to landing. For aircraft that fly in the flight levels, it will alert you to set the pressure altimeter when transitioning FL180.

1.1 Level-off Alert

The **LEVL** alert accompanied by a single swept tone will alert you that you are approaching the altitude you have set in as the current Target altitude. This alert can occur from 800 to 100 feet from the target altitude. For fast climbing piston aircraft, a setting of 200 feet gives plenty of warning to level off. If you have an altitude-hold autopilot, press the hold button after the **LEVL** alert when you have reached your desired altitude.

1.2 Climb and Dive Alerts

The **CLMB** alert will occur if you descend below the current target altitude by either 100 or 200 feet. It is accompanied by short beeps. You can set the number of beeps from one to ten in the AUX mode. Three beeps seems about right for most pilots.

The **DIVE** alert will occur if you climb above the current target altitude by either 100 or 200 feet. It is accompanied by short beeps. The number of beeps is the same as for the **CLMB** alert.

You may also get a **CLMB** or **DIVE** alert after you have received the LEVL alert, but *prior* to reaching your Target. This is just a reminder to continue your climb or descent toward the Target. If you inadvertently continue *past* the Target altitude, you will get a **CLMB** or **DIVE** alert until you get back to the Target altitude. These alerts will continue about every ten seconds until you have reached the target altitude.

1.3 Decision Altitude Alert

The AltAlert 6200 has an alert that occurs as you reach DA (Decision Altitude) on an ILS approach. The **DA** alert accompanied by three beeps will occur as you reach the altitude set in the **SET/DA** mode. The **DA** alert will occur *at* this altitude, *not an altitude above it* as in the **LEVL** alert *prior* to reaching your Target altitude. The DA can be entered well before commencing the approach.

To set the DA, select **SET** mode. Then select **DA** using the small switch. Set in the DA using the big switch for 1000's of feet and the small switch for 100's of feet. **Always round up the DA to the nearest 100 feet.**

Just prior to entering **APP** mode, you should enter the missed approach initial climb altitude as the Target. As you pass through the DA, the **TARG** Mode will be automatically selected using the previously entered missed approach altitude.

If you have not set in a DA when you first enter **APP** mode, you will be prompted to enter in the DA. After you enter it, the AltAlert 6200 will immediately go into **APP** mode as indicated by the DA light.

1.4 GEAR/GUMP Alert

The **GEAR** alert occurs as you descend to between 500 and 1000 feet above your **DEST**ination airport elevation and is accompanied by four loud swept tones. You can set the actual elevation above the destination airport (called the Gear altitude) in the AUX mode. See section called Special Parameters. To arm the **GEAR** alert, you must at sometime during the flight climb at least 100 feet above the altitude of the airport plus the Gear altitude. For example, if the destination elevation is 2400 feet and the GEAR altitude is 1000 feet, you must climb to at least 3500 feet during some portion of the flight. The **GEAR** alert message can be set to **GUMP** if you prefer. You can also configure the **GEAR** alert to be completely disabled. If you change your destination during flight, you must set in a new **DEST**ination elevation in the **SET/DEST** mode. **If you fly a very low pattern around the field, you will not get high enough to trigger the GEAR alert, so beware of this limitation.**

1.5 Barometric Setting Alert

The **BARO** alert occurs as you transition 17,800 feet. If you are climbing you should set your pressure altimeter to 29.92. The AltAlert 6200 will use 29.92 as its reference automatically.

If you are descending, you should set your pressure altimeter to the current barometric pressure. The AltAlert 6200 will automatically start using the barometric pressure last entered in the **BARO** Mode. You should enter the current barometric pressure when cleared to descend below FL180. ATC gives this pressure when this clearance is issued.

2.0 Time Related Alerts

The AltAlert 6200 has two internal timers in addition to its time of day clock. The downtimer is used to time approaches, holding patterns, or any other activity that is less than 10 minutes. The downtimer has one second resolution. The FUEL timer is used to time events that range up to 9 hours 59 minutes, such as switching fuel tanks.

2.1 Downtimer Alert

When using the downtimer, you must first set the desired time in the **SET/DTMR** mode. Select **SET** mode, then select **DTMR** using the small switch. Then use the big switch to set minutes and then the small switch to set seconds. The range is 9 minutes 59 seconds to one second.

Once a time has been set, you start the timer by selecting **DMTR** mode. This is one CCW click from the **TARG** mode. The time will display as it counts down toward 0:00. You can select **TARG** mode (or any other mode) after selecting **DTMR** mode. You can check on the progress of the timer by re-selecting **DTMR** mode. You will see **0:00** and two pairs of beeps when the time reaches zero. If you want to restart the downtimer using the same time interval, simply re-enter **DTMR** mode.

Note: If you select **DTMR** mode without first setting a time, you will be prompted to enter a time. Then you must **re-enter DTMR mode** at the appropriate time to start the timer going.

2.2 FUEL Timer Alert

The AltAlert 6200 has a timer to help remind you to switch tanks or any other event that can range from one minute to 9 hours 59 minutes. This mode can also be used as a flight timer.

To set the FUEL timer, select **SET** mode, then select **FUEL** using the small switch. Then use the big switch to set hours and the small switch to set minutes. The FUEL timer will start counting as soon as the **SET/FUEL** Mode is exited.

You can view the progress of the FUEL timer by simply selecting

FUEL mode at any time. When the time has expired, you will get a **FUEL** alert accompanied by three pairs of beeps. The elapsed time will *continue to accumulate*, unless you *restart* the FUEL timer by *entering a new time* in **SET/FUEL** mode, even if you want to time the same interval.

3.0 Aircraft System Alerts

The AltAlert 6200 has the ability to monitor a number of aircraft systems and report any abnormal condition with an audio alert and an appropriate message. The 6200 will monitor one or two voltage busses and trigger an alert when the voltage exceeds preset high/low limits. The standard unit will also monitor five external signals and report when any of these signals changes state. These signals usually also illuminate an annunciator lamp on the panel. A useful signal to monitor is the LORAN waypoint signal. This signifies that you are approaching a waypoint and perhaps a heading change is in order.

An optional feature of the AltAlert 6200 is the ability to monitor the output of one or two vacuum (or pressure) pumps that drive your pneumatic instruments. The sensors that monitor the pumps are internal to the AltAlert's electronics module and are connected to the existing vacuum gauge with tubing.

3.1 Battery Alert

If the voltage feeding AltAlert exceeds a preset high/low limit, you will see a **BAT1** alert. You now have the option to stop monitoring this voltage by turning either switch until you see **OFF**. Or you can continue to have AltAlert monitor this voltage by selecting **MORE**. The **MORE** selection will generate further alerts only if the voltage goes back into the "good" range for a full minute. If the second voltage bus is being monitored, you will get a **BAT2** alert and the same **MORE-OFF** option applies.

At any time you can view the actual bus voltage using the **VIEW** mode. Anytime there is a **BAT** alert, the **VIEW** mode should be used to measure

the actual voltage to aid in trouble shooting. See Chapter 2 section **2.8** on the **VIEW** Mode.

3.2 External Alerts

If you have connected any of the external inputs and activated them, you will get an alert when the corresponding external voltage changes state. You can specify the actual four character message for each external alert in the initialization mode. The **MORE-OFF** convention described above also applies to the external alerts. If you expect the condition to recover, such as a LORAN waypoint, select **MORE.** If you want to eliminate an intermittent alert, select **OFF**.

3.3 Vacuum Pump Alerts

The 6200 can be equipped with optional dual vacuum pump sensors that will detect the failure of either pump. These sensors can also be configured for aircraft that use pressure pumps instead of vacuum pumps.

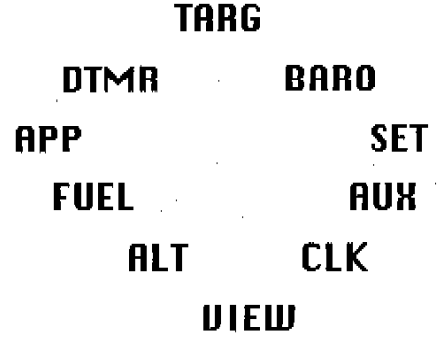
If the vacuum level drops below 3.5" Hg, you will see a **VAC1** alert. You now have the option to stop monitoring this pump by turning either switch until you see **OFF**. Or you can continue to have AltAlert monitor this pump by selecting **MORE**. The **MORE** selection will generate further alerts only if the vacuum goes back into the "good" range for a full minute. This would be the case if a tank runs dry and you re-start that engine. If the second pump is being monitored, you will get a **VAC2** and the same **MORE-OFF** option applies.

Section Two
AltAlert's Modes

1.0 Introduction

The previous section discussed AltAlert's various alerts and mentions some of AltAlert's modes. The **TARG** (Target) mode is the default mode and will display the current set target altitude. This is the altitude that you should be flying at. AltAlert has many other modes that are used in various phases of flight to activate other features or to simply set in a number such as the current barometric pressure. Some of the information in this section has already been covered in the previous section, but is repeated here for the sake of consistency and completeness.

The various modes of the AltAlert 6200 should be thought of as being in a circle with TARG mode being at the top. The mode switch can be turned either CW or CCW to select the desired mode. Commonly used modes are near the TARG mode. As the mode switch is turned, you will see each mode on the display. You simply stop at the desired mode and take further action with the small and large switches. Many of the modes will automatically return to the TARG mode after a short time interval.



1.1 BARO Mode

The BARO mode is the most selected mode since it is selected every time you are given a new barometric pressure from ATC. It is located one CW click from TARG mode. After selecting BARO mode, you may immediately enter the new pressure. You need only to use the small switch

to enter the new pressure. After a short time, TARG mode will automatically be selected.

1.2 SET Mode

Set Mode is two CW clicks from TARG mode and is used to set the downtimer, fuel timer, clock, decision altitude, and destination elevation. Once Set mode is selected, use the small switch to select which item you wish to set. Let's say you want to set the fuel timer. After selecting Set mode, turn the *small* switch until **Fuel** appears. After a short interval you will see **0:00** flashing or the previous fuel time that had been set. Use the large switch to set in the hours and the small switch to set in the minutes. TARG mode will then automatically be selected. All sub modes under **SET** will be referenced at **SET/Fuel**, etc.

Use the **SET/Dest** mode if you decide to go to an airport other than your intended destination. Be sure to set in the new elevation so the **GEAR** alert will function properly.

You can set the downtimer in **SET/Dtmr** mode for setting in the missed approach time or other time. Once you see **Dtmr** and **0:00** or the previous time, set in the minutes and seconds using the large and small switches. Then, when you are at the final approach fix inbound, you can *start* the downtimer which is one CCW click from **TARG** mode.

Use the **SET/Da** mode to set in the rounded up Decision Altitude for an ILS approach.

The internal clock can also be set in **SET/Clk** mode. The time format is in 24 hour military format. You can set in UCT (GMT or ZULU time) instead of local time if you wish.

1.3 **DTMR** (Downtimer) Mode

The **DTMR** Mode is used to start the downtimer. Simply turn the mode switch one CCW click. If you are performing an approach that requires timing, you set in the the published MAP (missed approach time) from the plate using the **SET/Dtmr** mode. When you wish to start the downtimer, simply select **DTMR** Mode. The time will display as it counts

down. Normally you would then select **TARG** mode to monitor your minimum descent altitude. The timer will continue to run and will display **0:00** when the time has expired.

If you select **DTMR** Mode without first setting in a time, you will be put in **SET/Dtmr** mode automatically where you can set the desired time. However you must then start the timer at the appropriate point.

If you are using the **DTMR** Mode to time a repetitive event such as a holding pattern, you can re-start the timer after it has expired to time the same activity using the previous interval.

1.4 **APP** (Approach) Mode

APP Mode (two CCW clicks from Targ mode) is used to generate an alert a Decision Altitude rounded **up** to the nearest 100 feet or more. Its purpose is to remind you that the DA is coming up soon. The alert occurs **at the altitude set in as DA**, not some higher altitude as when a **LEVL** alert is used prior to reaching a target altitude. Of course, you can set in any altitude above the published DA as your own DA alert.

The normal procedure is to set in the rounded-up DA in **SET/Da** Mode prior to starting the approach. Then when cleared for the approach, you should first set your target to the missed approach initial climb altitude from the plate. Then select **APP** mode. This will display the DA altitude and light the DA light indicating that the displayed altitude is the rounded-up DA. When you get the **DA** alert, you will be above actual DA and the AltAlert will then select normal **TARG** mode using the previously set missed approach altitude.
If you select **APP** mode without first setting the DA, you will be able to enter the DA and then APP Mode will be automatically selected. You can exit APP mode by selecting Targ mode at any time.
You must use your pressure altimeter exclusively for all altitude information in all phases of flight.

1.5 **FUEL** Mode

FUEL Mode is used to view the elapsed time of the fuel timer. The fuel

timer is started when it is set in **SET/Fuel** mode. The **FUEL** alert occurs when the elapsed time matches the time set in **SET/Fuel** mode. The FUEL timer will continue to count up until a new time is entered in **SET/Fuel** mode. **FUEL** Mode automatically returns to TARG mode after a few seconds.

1.6 **CLK** Mode

The CLK (Clock) Mode is used to view the current time. A single click of the mode switch will bring you back to TARG mode.

1.7 **ALT** Mode

ALT Mode is used to view your encoder altitude (referenced to 29.92) *corrected* for the entered barometric pressure. This altitude is the same as the altitude that the ATC radar system computes and displays for the controller for your aircraft. It is likely that this altitude will not correspond to your pressure altimeter due to normal encoder/altimeter discrepancies. If you are at the encoder transition point, you may see some flicker in your altitude. A single click of the mode switch will return you to **TARG** mode.

When **ALT** Mode is selected, the ALT light will be lit, indicating that the display is showing actual altitude, not a target. If you try to set a target while in **ALT** mode, nothing will happen. You must be in **TARG** mode to set a new target. However, any alert while in **ALT** mode will bring you back to **TARG** mode. If your pressure altimeter should fail, you may use the **ALT** mode as a coarse backup altimeter.

1.8 **VIEW** Mode

View Mode is used to check your power bus and to view the status of your vacuum sensor(s) and the external alarms. Once in **VIEW** mode, you select the desired item to view with the small switch. The **BAT1** selection shows the voltage supplying power to your AltAlert. **BAT2** shows a second voltage bus if available. **VAC1** and **VAC2** show the status of the vacuum sensors, if installed. The possibilities are **OK** and **INOP**. If the external alarms are enabled, their status can also be checked. View mode will automatically exit to Targ Mode or App Mode, whichever was last set,

after a few seconds.

1.9 **AUX** (Auxiliary) Mode

The **AUX** mode is used to set seldom changed parameters in your AltAlert's parameter memory. These parameters may be changed temporarily (this flight only) or permanently. The **AUX** Mode is normally used to change the brightness of AltAlert's display for night flying.

After selecting **AUX** Mode, you use the small switch to select the desired parameter. The default parameter is **Disp** for Display Brightness. Then use the large switch to select the desired value for the selected parameter. For example, after **Disp** shows, the large switch will select **Full, 1/2, or 1/4.** After selecting the desired value, you can simply wait for **TARG** mode to appear if you want to *temporarily* set the parameter. Or you can push in the small switch (mode switch) and turn it for the parameter to be *permanently* stored.

The other parameters that can be changed in AUX mode are:

Loud This controls the loudness of the audio. There are seven levels plus Off.

Wndw This controls the cruise deviation window. The choices are 100 or 200 feet. 200 feet is the recommended setting. If you pressure altimeter and encoder are matched exactly, the 200 foot setting will give you a climb or dive alert at 150 feet from your target altitude. The 100 foot setting will give the alert when you are only 50 feet off altitude. Since most encoders have an error with respect to the altimeter, this is not a recommended setting.

Oset This controls the offset between the desired target altitude and the level alert. It can be set from 100 to 800 feet from the target. Two hundred feet works fine for most aircraft.

Home This sets your home base elevation. The initial Destination altitude will default to this "home" value to save you having to enter it when you are returning home.

E/M (English/Metric) This sets whether you enter the barometric pressure in inches or hectopascals (formerly be millibars). **If you change this in flight, you must remove power to your AltAlert and then restore it for this parameter to take effect.**

Special Parameters

There are three parameters that can be set that control the Gear alert message (**GEAR - GUMP** - or none), the Gear Altitude (500 to 1000 feet in 100 foot steps), and the number of beeps (1 to 10) if you drift above or below the target altitude and get a **CLMB** or **DIVE** alert. These three parameters are set at **GEAR**, 1,000 feet and 3 beeps respectively at the factory prior to shipment.

Entering Special Parameter Mode

Select **AUX** Mode.
Use small switch to select **E/M** (English/Metric for BARO mode) Wait until **INIT** appears, then **GEAR** will appear.

The big switch will select **GEAR, GUMP,** or **OFF** for the gear alert. Turn the small switch one CW click and **Galt** will appear for Gear alert altitude. Use the large switch to select an altitude from 500 to 1000 feet above your destination airport. Turn the small switch again one CW click. **Cdbp** for Cruise Deviation Beeps will appear. Use the large switch to select between one and ten beeps that will accompany the **CLMB/DIVE** alerts. Three is a recommended setting.

Leaving Special Parameter Mode

When you have finished setting these special parameters, turn the small switch CCW until **EXIT** appears. Then push in the small switch and turn it either way while holding it in. This will store the parameters permanently and put you back in Target mode.