

THUNDER/BOLT® INTELICHARGE®
INSTRUCTION
MANUAL



RECHARGEABLE

Congratulations!

You now own the most up to date, finest personal, portable storm detector available today. The Thunderbolt U1 gives you advance weather warning technology you can use at home, indoors or out, and take wherever you go for any kind of outdoor sport or recreation.

The Thunderbolt U1 Storm Tracker uses the latest miniature electronic technology to detect the electromagnetic (EM) signature of the lightning strikes in thunderstorms to 130 miles (208km), then ranges and tracks the storm. Once the storm is within 75 miles (120km) of you, the Thunderbolt U1 provides a warning to you using four different methods:

1. Text Messages on the liquid crystal display (LCD),
2. Flashing LCD - the backlight on the LCD screen will flash
3. Power - Power-ON LED and lightning bolt backlight glow RED
4. Audible Tone

All of the tracking and alert functions of the Thunderbolt U1 are automatic when the unit is turned on, and several are configurable using easy menu selections.

CAUTION: The Thunderbolt U1 uses the latest electronic and computer technology to provide the most accurate information possible; however, thunder storms are rapidly changing weather phenomena that can develop quickly, even directly overhead. The Thunderbolt U1 detects ACTIVE thunder storms only. It cannot predict where a thunderstorm may form, or where the lightning strikes from any storm may occur. The Thunderbolt U1 should always be used in conjunction with information from your local weather professionals. Common sense and extreme caution should always be used when confronting lightning and thunderstorm activity.

NOTE: There are two types of lightning strikes produced by a thunderstorm: cloud-to-ground and cloud-to-cloud also called heat lightning. For any user on the ground, the cloud-to-ground strike is the most dangerous. The Thunderbolt U1 is designed to detect cloud-to-ground lightning strikes. There may be occasions where storms will produce cloud-to-cloud lightning strokes that are not detected by the Thunderbolt U1, but lightning caution should always be used when exposed to lightning storms.

SERVICE POLICY

This Service Policy is valid in the United States only. This applies to Thunderbolt U1 units returned to our facility in Tampa Florida, and is subject to change without notice.

Lightning Detection Solutions, LLC reserves the right to deem any product unserviceable when replacement parts are no longer reasonably available or impossible to obtain.

After the original warranty period, a standard service charge will be assessed for each repair (physical damage and missing parts are not included). Please call our customer Support Department to verify the service charge for your unit. The standard service charge includes UPS or Parcel Post freight only. If charges are not prepaid, the unit will be returned C.O.D. Repairs are warranted for ninety (90) days.

Please visit

www.lightningdetectionsolutions.com/pages/warranty
for return authorization

Note: The Thunderbolt U1 has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. The Thunderbolt U1 generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio reception. However, there is no guarantee that interference will not occur in a particular installation. If the Thunderbolt U1 does cause harmful interference to radio or television reception, which can be determined by turning the Thunderbolt U1 off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna or the radio or TV.
- Increase the separation between the Thunderbolt U1 and radio or TV.
- Consult the dealer, or an experienced radio/TV technician for help.

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Intelligence is a registered trademark of Nova Research and Engineering, Inc. Clearwater

SUPPORT

ONE-YEAR LIMITED WARRANTY

Lightning Detection Solutions, LLC Tampa, FL agrees to repair or replace this product for one year from the original date of purchase, absolutely free. This warranty does not include any physical damage to the unit or any of its accessory items and does not cover damage to the Thunderbolt U1 resulting from the use of accessories not manufactured or authorized for use by Lightning Detection Solutions, LLC.

Any modification or repairs by unauthorized service personnel will void this warranty. The online warranty form **MUST** be completed and submitted to Lightning Detection Solutions, LLC within 30 days of purchase to validate the warranty. If the warranty card has not been completed and submitted to Lightning Detection Solutions, LLC when a unit is presented for warranty service, a copy of the original sales receipt will be required. You are responsible for all shipping charges to Lightning Detection Solutions, LLC. Lightning Detection Solutions, LLC will pay for ground UPS back to the you.

NO OTHER EXPRESS WARRANTY HAS BEEN MADE OR WILL BE MADE WITH RESPECT TO THE UNIT, AND NO PERSON IS AUTHORIZED TO PROVIDE ANY OTHER WARRANTY CONNECTION WITH THE SALE OF OUR PRODUCTS BEYOND THE DESCRIPTION ON THE FACE HEREOF.

IMPLIED WARRANTIES, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO ONE YEAR FROM THE DATE OF ORIGINAL PURCHASE. LIGHTNING DETECTION SOLUTIONS, LLC RESERVES THE RIGHT TO MODIFY OR IMPROVE ITS PRODUCTS WITHOUT INCURRING ANY OBLIGATION TO INSTALL THE CHANGES ON UNITS PREVIOUSLY SOLD, DELIVERED OR SERVICED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

LIGHTNING DETECTION SOLUTIONS, LLC 'S LIABILITY SHALL BE LIMITED TO THE COST OF REPAIR OR REPLACEMENT OF THE UNIT AND SHALL IN NO EVENT BE LIABLE FOR DAMAGES, WHETHER INCIDENTAL OR CONSEQUENTIAL. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

OPERATION

The Thunderbolt U1 Storm Tracker alerts you to thunderstorms within 75 miles (120km) of your location using the EM signatures of the lightning strikes within a storm cell. The unit detects multiple cells near you and provides range and speed information on the closest cell, plus an indication that other active cells are in your area. The indicators will also alert you to squall lines or super-cell thunderstorms (super-cells comprise about 10% of all thunderstorms and are larger and much more violent than normal storms.)

When the Thunderbolt U1 is powered on, the first screens displayed on the LCD show the user the product name, model identification and other startup information. In a few seconds, the main configuration menu is displayed. If the **UP** and **DOWN** keys aren't touched, in a few more seconds the menu screen is replaced and the unit moves on to begin detecting lightning activity. When lightning activity is detected, information related to that activity is displayed in a set of two-line messages on the LCD. The messages repeat every few seconds, so any particular message is repeated within a short time period.

While the Thunderbolt U1 remains on, it continually accumulates lightning strike data from storm cell activity within its detection range. As more data is accumulated about any particular storm cell, more accurate position and speed information is displayed for the user.

Once the unit determines that a storm is within eight miles (13km) of your location, the Thunderbolt U1 warns you that the storm is **LOCAL**. The Thunderbolt U1 will maintain this warning until the storm has moved beyond the eight mile (13km) range. While the storm is local, the unit will calculate and display the estimated time for the storm cell to move beyond the eight mile (13km) range. As the lightning strikes from the storm continue to register, the time to clear will be updated.

The Thunderbolt U1 continually monitors the EM activity of detected storms and uses this data to provide additional warning information about super-cell storms and squall lines to the user when detected. Both of these storm types produce high winds and extreme rain, and may spawn tornadoes. You should take extra precautions and consult local weather information stations when warnings of these types of storms are displayed.

CAUTION: The Thunderbolt U1 can only display information based on the strikes it has already seen. If a storm is already close, or local, when the Thunderbolt U1 is turned on, the tracking and movement information still

THUNDERSTORM

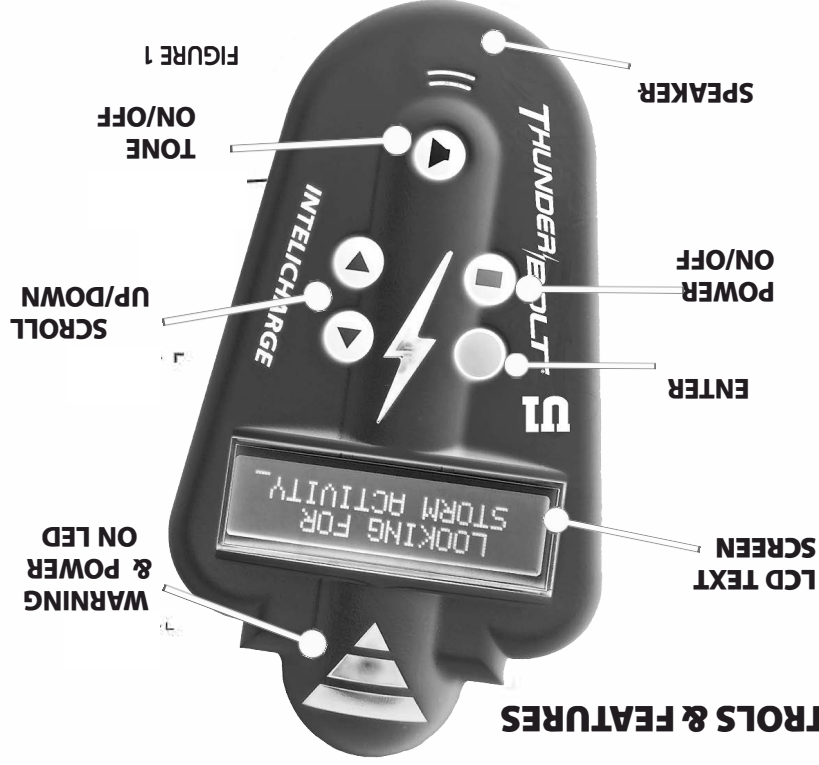


takes several minutes to gather. While the unit will begin to display information quickly about active storms after being turned on, the user should assume that a detected storm cell is local, and appropriate precautions should be taken, until at least 15 minutes of data has accumulated. Appropriate precautions are even more important when the unit displays approximate ranges of 20 miles or less.

NOTE: Thunderstorm approach speeds and estimated arrival times are estimates based on the detected EM activity of storm cells within the detection range. Lightning strikes occur throughout a storm cell, and thunderstorms often change intensity and activity on short notice, so the information displayed should be viewed as an approximation.

THUNDER/BOLT INTELICHARGE®

CONTROLS & FEATURES



The POWER ON/OFF Button

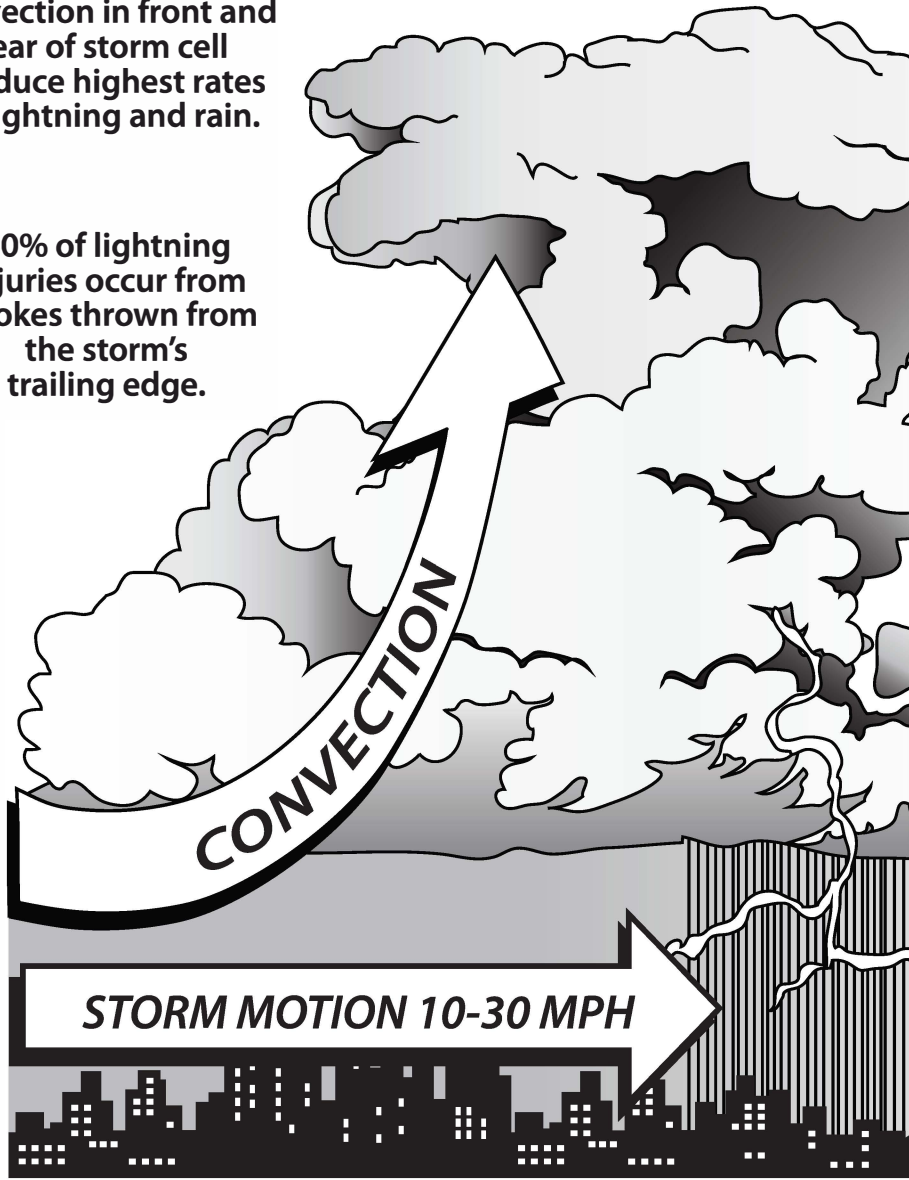
Pressing the **POWER ON/OFF** button (left side lower button) turns the Thunderbolt U1 on. When the Thunderbolt U1 is powered on, the power LED lights a solid green, the first screens displayed on the LCD show the user the product name, model identification, sensitivity setting, and

ANATOMY OF A

Areas of maximum convection in front and rear of storm cell produce highest rates of lightning and rain.

60% of lightning injuries occur from strokes thrown from the storm's trailing edge.

← Typical storm cell is 6-10 miles wide



A clear sky can be a dangerous sky!

FIGURE 2

audible alarm setting. In a few seconds, the first two lines of the main configuration menu are displayed and the power **LED** begins blinking. If the no keys are touched for a few more seconds, the menu screen is replaced with screens detailing processes and activities, and the unit moves on to begin detecting lightning activity and tracking storm cells.

To prevent the Thunderbolt U1 battery from draining if the unit is stored accidentally while turned on, the unit will turn itself off after five hours. The five-hour timer may be restarted if desired by pressing the **ENTER** key.

The Thunderbolt U1 detects the external power adapter and will run indefinitely while plugged in. If power fails, the unit automatically switches back to battery power and restarts the five-hour timer.

To turn the Thunderbolt U1 off, press and hold the **POWER ON/OFF** button until the unit emits an audible tone and the **LCD** goes blank. The short delay is intentional, and meant to keep the user from inadvertently turning the unit off.

The TONE Button

The Thunderbolt U1 has two alert ranges, one that gives only visual alerts, and a second that gives both audible and visual alerts. The **TONE** button (keypad center bottom) is used to turn the audible alert on or off, as desired. If the alert is **ON**, pressing the **TONE** button turns it **OFF**, and vice-versa. The setting of the audible alert is displayed for you when the unit is turned on.

The ARROW Buttons

The arrow keys are used to navigate up and down through the menu list. Pressing the up arrow key moves the cursor from the bottom line of the menu screen to the top line, or moves the screen to the next higher menu lines. When cursor reaches the top menu line, pressing the up arrow key has no further effect.

The down arrow key moves the selection cursor from the top line of the display to the bottom line, or moves the screen to the next lower menu lines. When the cursor reaches the bottom menu line, pressing the down arrow key has no further effect.

While the Thunderbolt U1 is in its **TRACK STORMS** mode of operation, pressing either arrow key brings the unit back to the main menu.

The ENTER Button

The **ENTER** button is used to choose the menu line at the cursor or to accept the data on the **LCD** for the menu selection. While the Thunderbolt U1 is in its **TRACK STORMS** mode of operation, pressing the **ENTER** key lights the **LCD** Backlight for ten seconds and resets the five-hour timer.

ORIENTATION

There are two types of lightning strokes produced by a thunderstorm, cloud-to-ground (vertical strike) and cloud-to-cloud (horizontal). The Thunderbolt U1 is designed to operate while vertical (the display is readable) or lying face-up on a table to detect vertical lightning strikes. The unit will not operate properly if standing on its side.

The Thunderbolt U1 detects EM activity and filters out most non-lightning sources to minimize false triggering. False triggering is defined as detecting strikes that are not real. Certain electronic products and other devices (CRT-based TVs, computer displays, motors, gasoline engines, radio transmitters, or other high power communication equipment) emit high levels of EM noise that can interfere with the normal detection of storm activity, and will cause the unit to false trigger. This is particularly true of some brands of older TVs and computer equipment. If these non-lightning sources exceed a critical threshold, they will degrade the performance of the Thunderbolt U1. If the unit detects this circumstance, it alerts the user with a message saying "WARNING: HIGH BACKGROUND NOISE".

To restore proper operation, move the Thunderbolt U1 to a new location and select "RUNNOISE TEST" from the main menu. The Noise Test routine takes three to 15 minutes to run, resets the boundary levels inside the Thunderbolt U1, and re-checks the local environment for spurious EM signals. If the environmental EM level is still too high, the "WARNING: HIGH BACKGROUND NOISE" message will repeat.

NOTE: If the message "WARNING: HIGH BACKGROUND NOISE" is

displayed, turn off the Thunderbolt U1 and move it to a different location. When restarting the unit in the new location, make sure there are no local storms active, and execute "RUN NOISE TEST" from the main menu again. Detection accuracy and unit sensitivity may be reduced until the noise test has been run.

The Thunderbolt U1 is powered by a rechargeable NiMH battery sealed inside. The battery may be recharged over 1000 times. The external power adapter supplied with the Thunderbolt U1 is a low-noise DC supply that plugs into the jack on the rear of the unit marked "9V DC". The adapter will not induce spurious EM noise in the Thunderbolt U1 that would reduce the accuracy and effectiveness of the unit. Additionally, the adapter will properly recharge the Thunderbolt U1 battery and may be left plugged into the Thunderbolt U1 indefinitely with no damage to the unit or the battery.

FACTS ABOUT LIGHTNING AND THUNDERSTORMS



Thunderstorms and lightning cause an average of 200 deaths & many times more injuries in the U.S. every year. Most of these deaths and injuries could be prevented by the warning provided by the Thunderbolt U1.

Once the leading edge of a thunderstorm approaches to within 10 miles, you are at immediate risk from lightning strikes originating in the storm's overhanging anvil cloud. This is the reason many lightning deaths and injuries occur with clear skies overhead.

Approximately 100,000 thunderstorms occur in the U.S. each year. Approximately 10% of all thunderstorms are severe enough to produce high winds, flash floods and tornadoes.

The average lightning stroke is 5-6 miles long. A lightning stroke is incredibly powerful; up to 30-million volts at 100,000 amps flow in less than 1/10 of a second.

On average, the thunder from a lightning stroke can only be heard over a distance of 3-4 miles, depending on the terrain, humidity and background noise around you. By the time you can hear the thunder, the storm has already approached to within 3-4 miles!

The sudden cold wind that many people use to gauge the approach of a thunderstorm is the result of down drafts and usually extends less than 3 miles from the storm's leading edge. By the time you feel the wind, the storm can be less than 3 miles away!

The average thunderstorm is 6-10 miles wide and moves at a rate of 25 miles per hour.

OPERATIONS

tion range, and as more data is accumulated about any particular storm cell, more accurate position and speed information is displayed for the user.

The storm has cleared, but the Thunderbolt U1 is still alerting me about it.

60% of lightning strike victims are hit after the storm has passed. The storm may have moved on, but thunder from the storm is only audible for 5 miles (8kM) or so and lightning from the storm is still occurring inside an eight mile (13kM) zone around you. Any activity inside this area resets the time to clear timer and continues the messages for another 15 minutes.

You can turn the unit off and back on to clear the storm data and begin re-acquiring the retreating storm. Treat the storm as local until the Thunderbolt U1 reports otherwise, or use other weather information sources to determine your course of action.

CARE

The Thunderbolt U1 is built in the USA using materials of the highest quality. It will provide years of use with very minimal maintenance.

The Thunderbolt U1 keypad and LCD are sealed. The unit is weather resistant, but it is NOT waterproof. The Thunderbolt U1 should never be submerged in water. Whether the unit is dropped in water, or exposed to strong, direct rain, immediately turn it off, and dry it with a soft cloth (TURN IT OFF, DRY IT OFF.) Don't turn the Thunderbolt U1 on again until all visible moisture has been removed.

NOTE: DO NOT place the unit in an oven to dry it (especially a microwave oven.) Placing the unit in the airstream from an air conditioner duct will blow dry air across it to help dry it further.

The Thunderbolt U1 battery will retain 70% of its charge after one year on the shelf. If you are going to store the Thunderbolt U1 for an extended period of time, charge the unit for a full 24 hours before putting it away. Do not store the Thunderbolt U1 in an area of high heat or high humidity.

MENU SELECTIONS

When the unit is started, and any time one of the arrow keys is pressed after the unit is operating, a menu of user options is presented. You can only view two lines of the menu at a time, so the **UP** and **DOWN** arrow keys are used to navigate the menu. Individual menu lines are selected by moving the blinking cursor to the desired menu line and pressing the **ENTER** key. The six menu selection items are: **TRACK STORMS, SET ALARM RANGE, SET ALARM MODE, SET SENSITIVITY, RUN NOISE TEST,** and **BACK LIGHT**. If no buttons are pressed for five seconds or so, the unit will execute the **TRACK STORMS** selection and begin normal operation.

TRACK STORMS

This is the normal operating mode of the Thunderbolt U1 and it enters this mode of operation after startup unless a key is pressed while the menu is displayed. When this mode is first entered (before storm activity is detected) two screens alternate, the first showing the sensitivity and **TONE** settings, the second informing the user that the unit is **"LOOKING FOR STORM ACTIVITY"**. Each screen is shown for a few seconds. Pressing either of the arrow keys returns the user to the main menu.

If storm activity is detected during this period, the screens change to display a warning that strikes have been detected and an estimate of the distance to the closest strike is displayed. As more strikes are detected, the Thunderbolt U1 continues to tally them until enough data has been gathered to display the range to the storm and to give an indication of the storm's motion. The time taken to gather this data depends on the amount of lightning activity in the storm and the user should exercise caution during this period. If the storm is not moving toward the user, **"NO APPROACH DETECTED"** is displayed on the LCD along with the current distance to the storm. If the storm appears to be moving towards you, the storm speed and estimated time of arrival (ETA) of the leading edge of the storm cell to your area will be displayed.

If any part of the storm activity is detected within eight miles (13kM) of your location, the display changes to **"STORM IS LOCAL"**. When this happens, lightning may strike at any time in your immediate vicinity, and you should be extremely cautious. When the Thunderbolt U1 determines that a storm is local, it immediately uses the storm's previous motion to determine a time to clear and displays it for you. The time to clear is the estimated time necessary for the local storm cell to move beyond eight miles (13kM) of your location and have no lightning activity in your area 7

MENU SELECTIONS

for 15 minutes. The time estimate is updated by the storm's continuing activity and motion and will be extended should the storm's motion slow or additional activity occur at the tail end of the cell, or should another cell move into your area.

As the data from lightning activity is accumulated by the Thunderbolt U1, it is analyzed to find the signatures for squall lines and super-cell thunderstorms. If these signatures are found, the Thunderbolt U1 will display appropriate warning messages to alert the user. When these alerts occur, you should exercise extreme caution until these conditions clear.

NOTE: The ETA displayed is the time for the leading edge of the storm being tracked will be within eight miles (13KM) of your location. No obvious signs of the storm cell may be present at that time since lightning activity may be invisible at that distance, and thunder will not be audible. Most storms detected at ranges beyond 15 miles (24KM) will appear to be approaching your location and an ETA will be given. After more data is gathered, the Thunderbolt U1 may determine that the storm is no longer approaching and the ETA messages will stop.

CAUTION: The average lightning strike is 6 miles long, and thunderstorms can move at speeds of 25mph (or more). You are in immediate danger any time there is detected lightning activity within 8-10 miles of your location. If the Thunderbolt U1 displays a range of less than 20 miles (30KM) or an ETA of 30 minutes or less for a storm, the threat should be considered imminent and appropriate action taken. When the **"STORM IS LOCAL"** messages are displayed, lightning may strike at any time in your immediate vicinity, and you should be extremely cautious. Whenever thunderstorms are present, take immediate shelter and obtain more information from your local or regional weather professionals.

SET ALERT RANGE

The user selects the storm range at which the Thunderbolt U1 will activate the red **LED** and audible alerts using this menu entry. When selected, the current range is shown, and the up and down arrows alternate among the options. Once chosen with the **ENTER** button, the unit displays a **"MEMORY UPDATING"** screen and then returns to the menu screen. The unit will power up with the chosen range selection.

NOTE: The audible alert is always enabled when the unit is turned on. To turn off the audible alert, use the bottom, center button on the keypad.

OPERATIONS

The Thunderbolt U1 displays messages to the user that are dependent on its analysis of storm data. In some cases this data may seem counter to the weather you see in your area. These are some typical questions that may arise.

The Thunderbolt U1 is telling me a storm is local, but I don't hear any thunder.

Low intensity discharges and cloud-to-cloud strikes may be local without producing the booming thunder we normally associate with thunderstorms. This does not mean that there is minimal danger; in fact, this is a very dangerous situation. 40% of lightning strike victims are hit by approaching storms. A high-intensity discharge may occur at any time, and the storm is already in your immediate vicinity.

Another possibility is that another EM noise source has switched on, or is close to the Thunderbolt U1. CRTs, certain factory lamps when first switched on, and some motor electrical noises are all examples of EM noise sources that can interfere with the Thunderbolt U1. Move the Thunderbolt U1 away from possible sources of the interference and rerun the **NOISE TEST** from the menu.

I see lightning flashes or hear thunder, but the Thunderbolt U1 is not telling me a storm is local.

Until the **NOISE TEST** has been run on the Thunderbolt U1 in its current location, the unit may range storm activity too far away. The **NOISE TEST** should be rerun any time the Thunderbolt U1 is relocated, but not during a storm event. Running the **NOISE TEST** during a storm will actually desensitize the Thunderbolt U1

Cloud-to-cloud strikes (also called heat lightning) are visible for tremendous distances at night, far beyond the normal visible horizon, but which never touch the ground. The thunder produced is generally a very low rumble, as opposed to the sharp crack of thunder from a local storm.

The Thunderbolt U1 was switched on after the storm was already close. The Thunderbolt U1 can only display information based on the strikes it has already seen. If a storm is already close, or local, when the Thunderbolt U1 is turned on, the tracking and movement information still takes several minutes to gather. While the Thunderbolt U1 remains on, it continually accumulates lightning strike data from storm cell activity within its detec-

LCD MESSAGES

and the user should take extra precautions and consult other sources of local weather data.

APPROACH SPEED XX MPH / XXX KPH

The Thunderbolt U1 has received enough data to determine that the storm is moving toward the user. The storm may still pass by the user without becoming a local storm, may change direction, or may dissipate.

STORM ETA XX MINUTES

The Thunderbolt U1 has received enough data to determine the storm location and speed, and that the storm is moving toward the user. Based on this data, the Thunderbolt U1 has determined that the storm will approach within eight miles (13kM) in the time indicated. The storm may still pass by the user without becoming a local storm, may change direction, or may dissipate.

WARNING! STORM IS LOCAL

The Thunderbolt U1 has determined that a storm is within eight miles (13kM) of your location. When this happens, lightning may strike at any time in your immediate vicinity, and you should be extremely cautious. No obvious signs of the storm cell may be present since lightning activity may be invisible at that distance, and thunder will not be audible. The Thunderbolt U1 will maintain this warning until the storm has moved beyond the eight mile (13kM) range.

TIME TO CLEAR XX MINUTES

When the Thunderbolt U1 determines that a storm is local, it immediately uses the storm's previous motion to determine a time to clear and display it for you. The time to clear is the estimated time necessary for the local storm cell to move beyond eight miles (13kM) of your location and have no lightning activity in your area for 15 minutes. The time estimate is updated by the storm's continuing activity and motion and will be extended should the storm's motion slow or additional activity occur at the tail end of the cell, or should another cell move into your area.

SET ALERT MODE

The Thunderbolt U1 has two levels of alert that may be set to two different storm ranges. The first, **RANGE ONE**, is a visual alert and is normally set to the maximum comfortable distance that allows you to prepare for a thunderstorm. When the range to the storm being tracked is closer than the **RANGE ONE** distance, the power LED changes color to red and the Thunderbolt U1 lightning bolt LED begins to flash.

When selected, the current range is shown, and the up and down arrows alternate among the options. Once chosen with the **ENTER** button, the unit displays a "**MEMORY UPDATING**" screen and then returns to the menu screen. The unit will power up with the chosen range selection.

SET SENSITIVITY

This menu entry lets the user choose the operating sensitivity of the Thunderbolt U1, either **HIGH** or **NORMAL**. In **HIGH** sensitivity mode the unit maximizes the distance that storms are detected and tracked, but has the downside that the displayed range to a storm may be closer than it actually is, and the speed may be too fast. The **HIGH** sensitivity mode should be used when inside a building that reduces the received signal strength or when maximum time for preparations is necessary.

The **NORMAL** setting is more accurate for storm tracking, but the storm ETA takes longer to determine.

When selected, the current sensitivity is shown, and the up and down arrows alternate between the options. Once chosen with the **ENTER** button, the unit displays a "**MEMORY UPDATING**" screen and then returns to the menu screen. The unit will power up with the chosen option.

RUN NOISE TEST

This menu selection examines the Thunderbolt U1's local EM environment for interfering electrical noises, and is normally run when the Thunderbolt U1 is moved to a new location or when a high background message is displayed during normal operation. The test takes three to fifteen minutes to run and assures that the Thunderbolt U1 can operate at maximum sensitivity where it is placed. Pressing any of the buttons during the noise test will stop the test prematurely and require re-running the test.

LCD MESSAGES

The Thunderbolt U1 displays messages to the user that are dependent on the storm data. The messages are repeated every few seconds. This assures that the screen size does not limit the user getting necessary information.

OFF TO NE IS:	ON TO NE IS:	NORM SENSITIVITY:	HIGH SENSITIVITY:
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During normal operation the Thunderbolt U1 displays the audible setting and sensitivity information until a storm is detected. Modified settings by the using the menus.

**LOOKING FOR
STORM ACTIVITY**

This message alternates with the audible setting and sensitivity setting screens until storm activity is detected.

**WARNING!
STRIKES DETECTED**

The Thunderbolt U1 has detected lightning activity.

**CLOSEST STRIKE
XX MILES / XXX KM**

**CLOSEST ACTIVITY
XX MILES / XXX KM**

The Thunderbolt U1 has detected lightning activity, the closest strikes have been ranged, and the distance is displayed.

**STORM ACTIVITY
XX MILES / XXX KM**

The Thunderbolt U1 has received enough data and the distance to the closest storm cell is displayed.

SEVERE STORM

The Thunderbolt U1 has detected severe storm activity. User should take extra precautions and consult sources of local weather data.

**SQUALL LINE OR
MULTIPLE STORMS**

The Thunderbolt U1 has detected squall line activity (multiple storm cells). The Thunderbolt U1 will provide data on the closest cell.

MENU SELECTIONS

The Thunderbolt U1 detects EM activity and filters out most non-lightning sources to minimize false triggering. However, if the EM noise level is too high for proper operation, the unit alerts the user with a message saying **"WARNING: HIGH BACKGROUND NOISE"**. To restore proper operation, move the Thunderbolt U1 to a new location and select **"RUN NOISE TEST"** from the menu again. Each time it is run, the routine resets the noise boundary levels inside the Thunderbolt U1, and re-checks the local environment for spurious EM signals. If the environmental EM level is still too high, the **"WARNING: HIGH BACKGROUND NOISE"** message will repeat.

NOTE: If the message **"WARNING: HIGH BACKGROUND NOISE"** is displayed, turn off the Thunderbolt U1 and move it to a different location. When restarting the unit in the new location, make sure there are no local storms active, and execute **"RUN NOISE TEST"** from the main menu again. Detection accuracy and unit sensitivity may be reduced until the noise test has been run.