

Set Up:

1. Place the two awls or screws on opposite sides of the trunk diameter just past the bark securely into the wood.
2. Secure the two accelerometers with set screws onto the awls or screws making sure the white arrows are pointing toward the trunk.
3. Connect the cables to accelerometers and the top of the control box.
4. Switch on the control box. When ready use the touch screen to “arm” the control box.

Testing:

1. With a single tap, use the hammer to strike the head of the awl or screw which holds the accelerometer connected to the “start” side of the control box. Do not strike the accelerometer as this will damage it.
2. The time in microseconds that it took the sound wave to pass through the tree from the start sensor to the opposite stop sensor will be displayed in the upper right screen. A representation of the wave-form will show on the screen.
3. Conduct and discard at least three tests until a consistent range of numbers is observed. If desired save a file to the memory card. Disconnect the accelerometers from the awls or screws before moving to a new test site.

Interpreting results:

1. Measure the distance between the accelerometers, divide the microsecond time by the distance to arrive at a microseconds per foot or per meter.
2. Compare that number to a reference number for defect free wood that was determined by:
 - A) a test done on another part of the tree being sampled with known sound wood, (most accurate comparison especially for irregular density trees like willow or eucalyptus);
 - (B) research study tables by species provided in the User’s Manual;
 - (C) an assumed average range for sound wood on hardwoods of 200-300 microseconds per foot (600 microseconds per meter) or 250-350 microseconds per foot for softwoods (800-900 microsecond per meter).
3. Test numbers 50% or more above the reference numbers indicate a probable significant cavity, decay or defect within the area tested requiring further investigation. The longer it took the wave to travel beyond the reference number the larger the area of decay or defect creating the obstacle in the area tested. If using the (C) reference option, further investigation is indicated with a hardwood reading of 450 microseconds per foot (37 microseconds per inch) and a softwood reading of 500 microseconds per foot (42 microseconds per inch). Use your own professional judgment, consideration of the individual circumstances and experience with the tool to set a reasonable acceptable threshold.