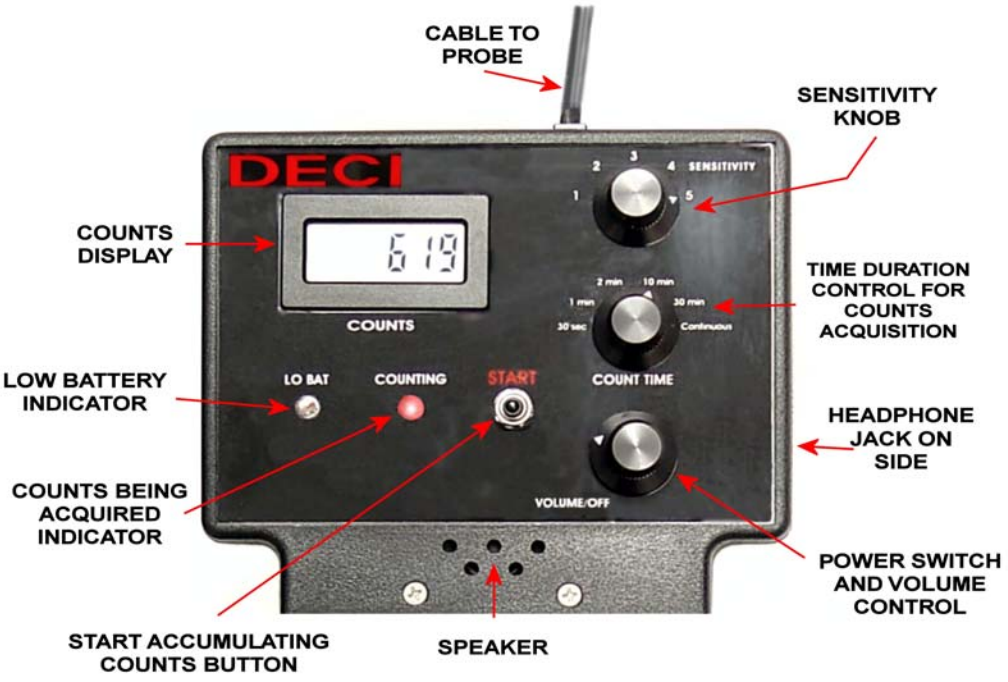
TERMITE TRACKER SYSTEM

US Patent 6,883,375 B2

TERMITE TRACKER
CONTROL IDENTIFICATION



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PORTABLE TERMITE TRACKER

INSTRUMENT

FEATURES

- Simple operation-No gain or threshold adjustments necessary.
- Instrument detects AE signals from feeding and movement of termites.
- Unique waveguide design provides a method of tracking the termites to the gallery containing the Queen (drywoods).
- Waveguide also provides the capability of inspecting trees and logs as well as behind drywall, paneling, and floors in structures made of wood.
- 40 hours of continuous operation before recharging of the batteries is necessary.
- Audible as well as digital readout of AE events.
- Transducer sensitivity of 1 volt/nano-meter displacement, traceable to NIST. Additional amplification in the Tracker instrument results in sensitivity at the probe tip of 1 volt/pico-meter of displacement.
- Multiple channel multiplexing configuration available for testing of large structures during treatment for termites. This system is provided with innovative modal ratio filter circuits for eliminating signals due to extraneous noise sources.

Termite Tracker Operation

Step 1:
Using a standard 0.125-inch diameter drill, drill a hole in wood to be tested approximately 0.500 deep. Screw the wave guide into the hole, using a slight amount of pressure until it seats firmly. Set sensitivity knob to level 5 for the most sensitive setting for detecting the presence of termites.

Step 2:
Plug the curly cable into the Box and the probe. Either end of the cable goes in either connector (ends are swappable).

Step 3:
Turn the Power/Volume control on clockwise to the stop, and the "Counting" lamp will light. Set the sensitivity knob to 5 and rub the wood near the probe with the finger or fingernail. "Popping and scratching" sounds will be heard from the speaker, and the "Counts Display" will begin incrementing.

Step 4:
Set the "count time" knob to 1 minute. The "Counting" lamp will go out after the time period has elapsed that is dialed into the "count time" knob; in this case, after 1 minute has passed. When the lamp goes out, audio will continue to be heard from the probe, but no more counts will be accumulated in the "Counts Display".

Step 5:
Push the "Start" button, and the "Counts Display" will be reset to ZERO and begin accumulating counts again while the "Counting" lamp is lit for the Duration of the "Count time" dial. Count durations have an absolute accuracy of + or - 1.5%, with a repeatability + or- .2%.

Step 6:
"Sensitivity" knob can be adjusted at any time without affecting anything else. Knob positions 2 thru 5 increase sensitivity by an additional 5 decibels per position (total span of 20 db). For a vast majority of cases the sensitivity should be maintained in position 5 for maximum sensitivity.

Step 7:
The “Lo Batt” indicator lights when approximately 1 hour of operation is left in the Batteries. Plug the charger into the recharging jack on the bottom of the unit for approximately 16 hours. The unit uses Nicad batteries. The unit can also be operated with the battery charger plugged in. Typical battery life between charging’ is 2 days @ 24 hours/day, or 1 week at 8 hours/day of usage. Left unattended, the Nicad batteries will self-discharge in about 3-4 months.

Step 8:
If problems develop with the instrument, return it to the factory for repair. Opening the box for any reason will be cause for cancellation of the 1-year warranty.

TESTING PROCEDURES

DRYWOOD TERMITES

It has been observed that dry wood termites tend to group together in colonies near the Queen. In most instances it has been found that the area showing the major visual damage is not necessarily where the main colony will be found. They tend to move on to new wood after living in and consuming a local area. The tracker can be used to locate where the main colony including the Queen is residing. The procedure for accomplishing this follows:

Step 1:
Drill a hole for the probe at the site of visual damage.

Step 2:
Drill two holes spaced approximately 1 foot to either side of the visual damage in the same board. Record the counts per minute from each of the three holes.

Step 3:
Proceed to drill holes in the direction where the number of counts per minute is increasing.

Step 4:
If a hole is drilled that yields 500 to 1000 counts per minute or greater you are in the vicinity of the Queen and the soldier termites become very agitated and attack the probe producing a large number of counts.

Step 5:
Test adjacent boards until this large number of counts is produced.

Caution: Drilling of test holes can produce disturbance that will cause the termite activity to decrease unless you are near the Queen. Therefore, one option is to drill several holes, wait a few minutes and then proceed to test them with the probe.
Caution: After seating the probe, ignore counts that occur for approximately 5 seconds. The weight of the probe can cause additional movement of the probe for a short period of time after seating.
Caution: Minimize movement of the curly cord, the jingling of keys in your pocket and rubbing the board near the probe since each of these actions can produce counts. Be on the lookout for other airborne noise that might produce counts.

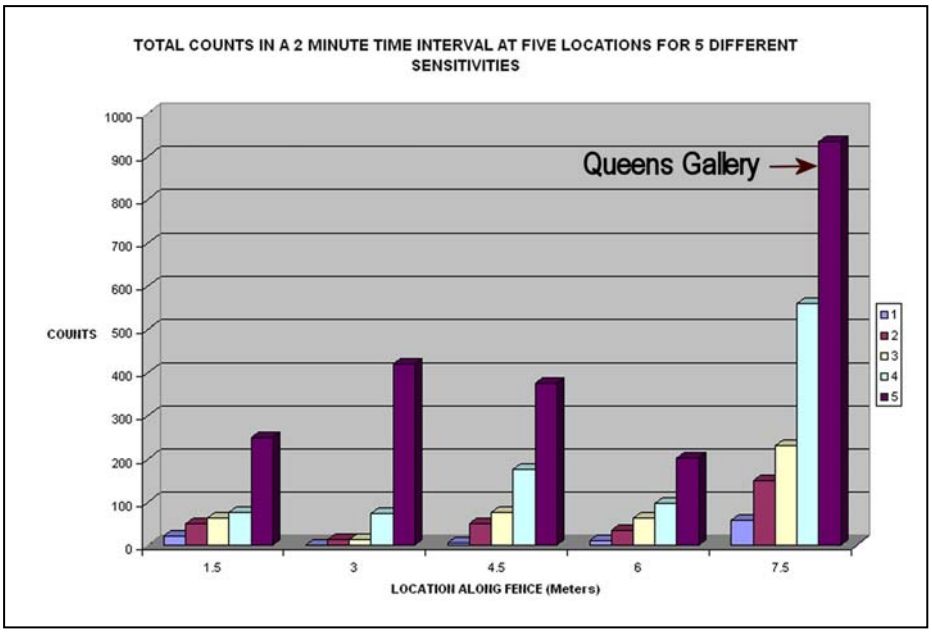
SUBTERRANEAN TERMITES

The Termite Tracker can be used to determine the presence of subterranean termites using the same procedures as for dry wood termites. The primary difference is the absence of the Queen that produces such high activity in the dry wood termite case.

IMPORTANT

The Termite Tracker can be used to locate the main colony of dry wood termites including the

Queen by progressively moving in the direction of increasing counts per minute. This is illustrated by the graphic below.



This graphic illustrates the ability to locate the Queen's gallery. Visual evidence of termites was observed at the 1.5 meter location on the fence. Activity at this location was recorded at 5 different sensitivities and at 5 different locations on the board at 1.5 meter spacing. Note that very high activity was recorded at the 7.5 meter location on the fence. There was no visual evidence at this location that termites were present in the board. Note that the Queens gallery was a distance of 6 meters from the location where visual evidence was present. We believe that this very high activity is due to the soldier termites attacking the probe tip in defense of the Queen.

.It is important a few days after treatment to retest the local area using the Termite Tracker to determine if a complete kill was made. It has been our experience especially with subs that treatment sometimes causes termites to leave the area being treated and go into an old gallery in an adjacent board where no activity was recorded prior to treatment and therefore they survive the treatment.

FEEDBACK

The termite tracker instrument is the first "acoustic" based instrument to our knowledge that is sensitive enough to detect the signals produced by movement of termites as well as the higher amplitude feeding signals.

We would appreciate any feedback you can give us on your testing results using the Termite Tracker so that we might pass it on to others. Please send your feedback to:
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