

WIRELESS TRIGGER BOX 3



FOR ALL MECHANICAL IMPACT SOURCES AND SEISMOGRAPHS

The Wireless Trigger Box 3 (WTB3) system is designed to operate with any seismograph and any mechanical impact source. There are two parts to the WTB3 system:

- One WTB 3, the "Source" WTB 3, senses the trigger pulse and transmits its GPS time
- The second WTB 3, the "Recorder" WTB 3, receives the GPS time of the trigger signal and starts the seismograph.

Each WTB 3 unit consists of:

- Radio Trigger Module (RTM) for synchronizing trigger units
- A VHF radio with three selectable frequencies
- A swappable battery unit with built-in GPS
- All in sturdy aluminum enclosures.

The Source WTB 3 sender unit is designed to operate with multiple Recorder WTB 3 units. When paired with SSC's DAQlink system, a Source WTB 3 can start any number of Recorder WTB 3 equipped seismographs. These seismographs can be deployed in either 2D or 3D configurations.



Features and Benefits:

Precision - Unlike standard trigger systems, the WTB3 uses GPS-based time codes to relay precise trigger times to the seismograph.

Robustness - Using digital timing codes removes the errors introduced by transmitting analog tones over the voice channel of an analog radio.

Flexibility - The VHF radio featured in the WTB 3 both removes the burden of moving the trigger line between shots, and increases the range and overall usability of the system.

Backup - The WTB 3 includes 8 Gbytes of internal memory to store every time break it transmits. This information can then be retrieved via Ethernet for use after acquisition.

Reliability - The WTB 3 unit is the newest member of the Seismic Source line of data acquisition equipment. It is based on the Boom Box 3 design, which is the most popular and most commonly use blaster system in the world.

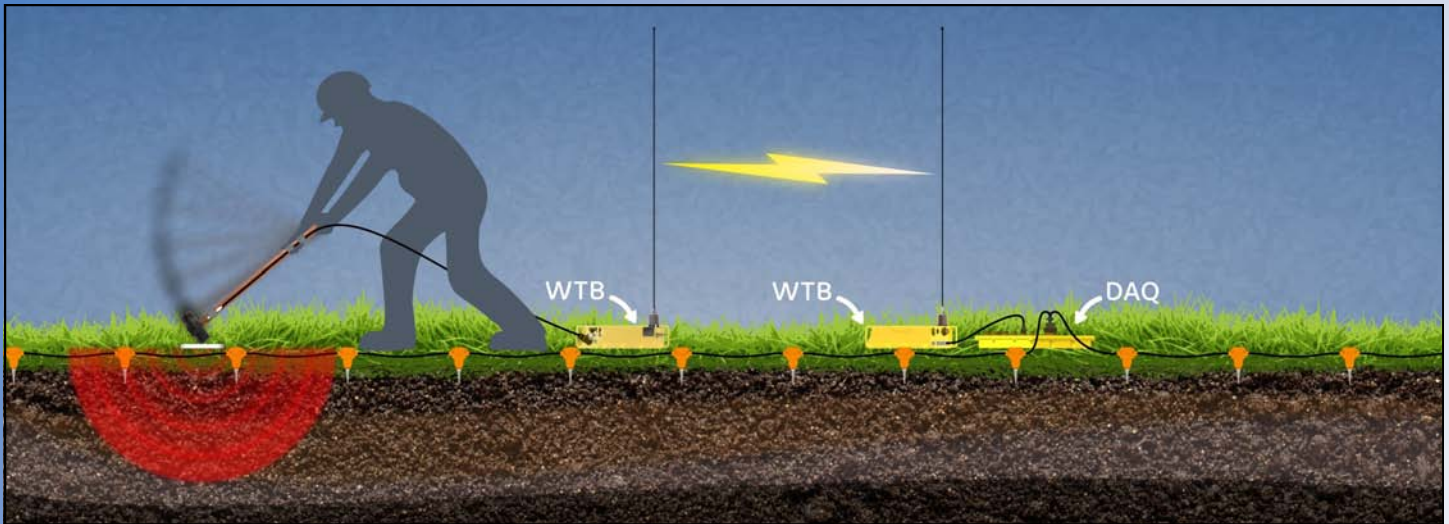
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Theory of Operation:

All Wireless Trigger Box 3 (or WTB 3) units, whether connected to a source or seismograph, must have a valid GPS lock. The Source WTB 3, connected to the source with a hammer switch or other device, senses the time break. The WTB 3 calculates the GPS time of the event, then transmits it to the Recorder WTB 3 units via VHF radio.

The Recorder WTB 3 units, the ones connected to the trigger port of each seismograph, receive the trigger time. They add one second to the received event time, and then trigger the seismograph accordingly. These seismographs, which must have a one second pre-trigger time programmed into them, start storing data once they receive the trigger signal from the attached WTB 3.



A standard WTB 3 System includes:

At the seismograph:

- One "Recorder" Wireless Trigger Box 3
- One WTB 3 to Recorder Trigger Cable
- One Microphone/Speaker Unit
- One 12 volt battery/GPS pack & power cable

At the source:

- One "Source" Wireless Trigger Box 3
- One WTB 3 to Trigger Cable
- One Microphone/Speaker Unit
- One 12 volt battery/GPS pack & power cable

In the office:

- WTB-PC Communications Cable
- WTB Configuration Software

Wireless Trigger Box 3 Specs:

Trigger Input:	Switch Closure Switch Open Positive Edge Negative Edge
Trigger Output:	Positive Edge Negative Edge
Accuracy:	$\pm 1 \mu\text{Second}$
Radio:	5 watt
Radio Range:	Depends on terrain
Battery:	1 or 2 99.9 watt-hour LION
Battery Life:	Depends on radio use
Weight:	5 lbs (2.3 kilograms) Not including batteries
Size:	8.0 x 8.0 x 4.0 inches - (20.3 x 20.3 x 10.2 cm) Not including antenna & connectors