

DRILLED SHAFTS • DRIVEN PILES • AUGER CAST PILES



For Low Strain Integrity Testing
of Piles and Deep Foundation
Length Determination

**SONIC ECHO/
IMPULSE RESPONSE
Testing**

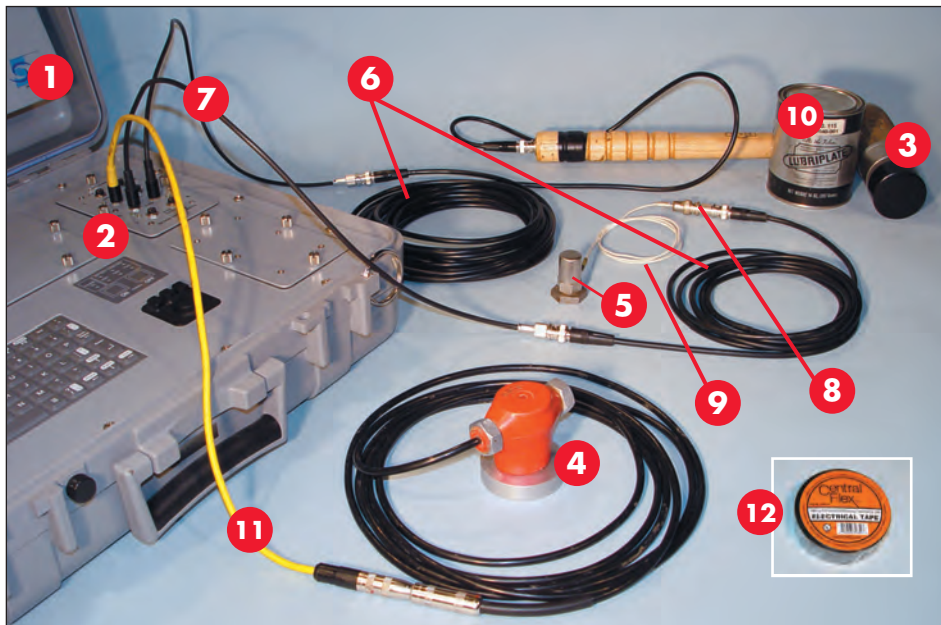




1.0 COMPONENTS

SONIC ECHO IMPULSE RESPONSE (SE/IR) EQUIPMENT LIST

- (1) - 1 Olson Freedom Data PC
- (2) - 1 Input Module Containing:
 - 1 Channel Wideband Hammer (Green Light Required)
 - 1 Channel Wideband Accelerometer (Green Light Required)
 - 1 Channel Wideband Input (Geophone)
- (3) - 1 Impulse Hammer
- (4) - 1 5.5 Hz Geophone
- (5) - 1 Accelerometer
- (6) - 2 BNC Cable
- (7) - 2 BNC to 4 Pin Adapter Cable
- (8) - 1 Female-Female BNC Adapter
- (9) - 1 Microdot to BNC Cable
- (10) - Coupling Grease
- (11) - 1 Phone Plug to 4 Pin Adapter Cable
- (12) - Electrical Tape



* Equipment/Software included for testing not shown in photo:

- Latest WinTFS Software
- Field Notebook & Pen

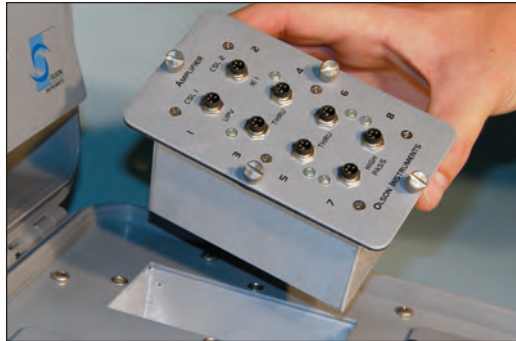


1.0 HARDWARE SETUP

STEP-BY-STEP GUIDE

SONIC ECHO/IMPULSE RESPONSE (SE/IR) HARDWARE SETUP

1. After opening the Freedom Data PC, insert the input module into the top module pocket if not already present. This pocket is reserved for the input modules. Make sure to align all of the screws with the holes in the Freedom Data PC while hand-tightening all of the screws securely.



2. Next, the appropriate tip must be connected to the end of the impulse hammer. The tips differ by their hardness. Each color represents a different hardness; refer to the SASW, US/PS, and UPV manuals for specific hardness color combinations. The tip is connected to the impulse hammer by aligning the screw on the tip with the hole in the load cell portion of the hammer. Please note that overtightening or excessive force used during the removal of the tip will permanently damage the load cell



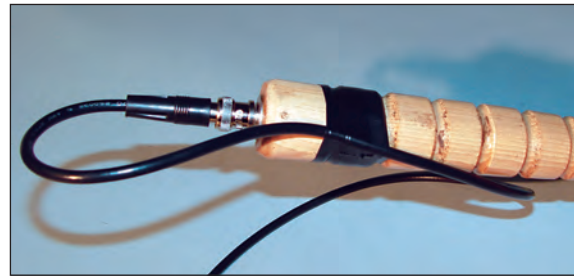


1.0 HARDWARE SETUP

3. Connect a BNC cable to the BNC connection on the bottom of the impulse hammer's handle. Align the BNC cable with the BNC connector and hand-tighten the connection. Note that there is a locking mechanism involved when connecting BNC cables. This will prevent you from overtightening the cable.



4. The BNC cable must then be taped to the handle of the impulse hammer. This is done to protect the cable and the connection from being damaged during the testing. Note that the cable should not be bent at a ninety degree angle at the base; leave some slack in the cable when taping.

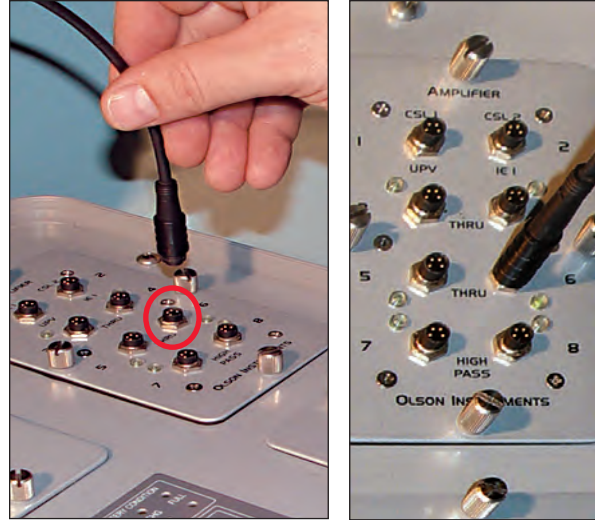


5. Next, the BNC cable that is connected to the impulse hammer must be connected to a 4 Pin Adapter Cable. This is done by connecting the other end of the BNC cable to the BNC end of the 4 Pin Adapter Cable. Align the connectors and hand-tighten them. Once again, the BNC connection has a locking mechanism which will prevent you from over tightening the connection.

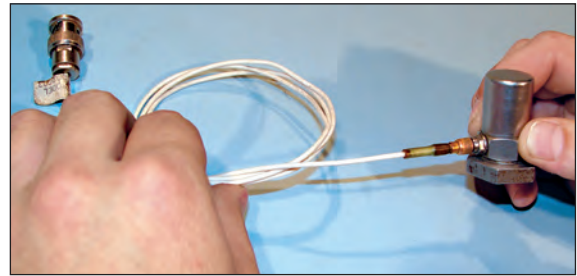
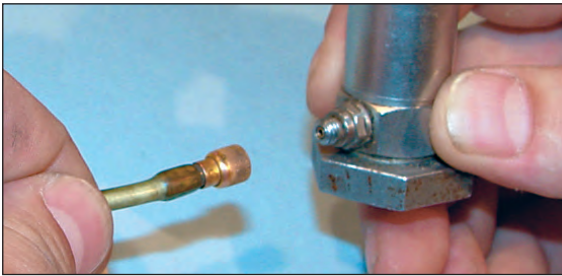


1.0 HARDWARE SETUP

- The 4 Pin Adapter Cable, which is connected to the BNC cable and impulse hammer, must be inserted into the appropriate slot in the input module. For SE/IR testing it is important to use a channel that is wide-band (has no filtering applied). It is also important that this channel has power supplied to it; this is indicated by a green light next to the channel. This can be done by pulling back on the small black sleeve at the end of the cable and carefully lining up the four holes on the cable with the four pins on the input module. The green light will illuminate when the impulse hammer is properly connected.



- Next, connect the microdot cable to the accelerometer by aligning the pin on the microdot cable with the corresponding hole in the accelerometer and then hand-tightening the connection.



- If needed, attach the female BNC adapter to the BNC end of the microdot cable by aligning the pin with the hole and gently connecting the two pieces. This connection will have a locking mechanism that will prevent you from over-tightening the connection.





1.0 HARDWARE SETUP

9. Next, attach the other end of the female BNC adapter to a BNC cable. Follow the same procedure as before when connecting these two cables.



10. Now attach the BNC cable to the 4 pin adapter cable using the same procedure as before when connecting these two cables.



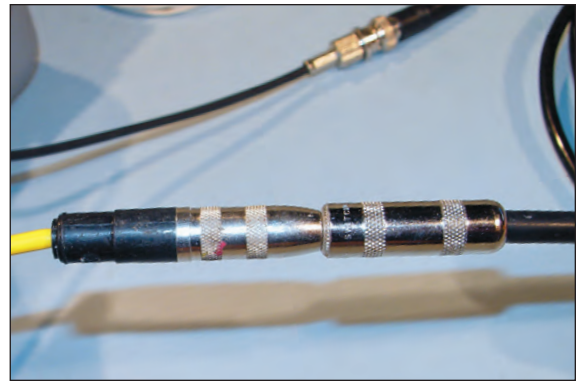
11. Insert the 4 pin adapter cable into a wideband channel in the input module. It is also important to note that this channel has power supplied to it; this is indicated by a green light next to the channel. This can be done by pulling back on the small black sleeve at the end of the cable and carefully lining up the four holes on the cable with the four pins on the input module. Note that the green light will illuminate when the accelerometer is properly connected.



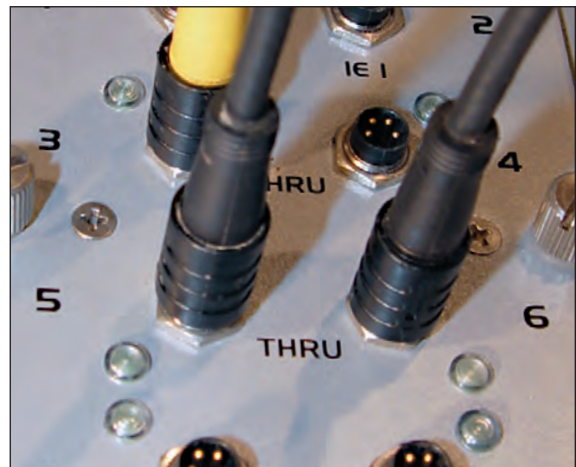


1.0 HARDWARE SETUP

- 12. Next the geophone must be connected to the Freedom Data PC. First connect the phone jack of the geophone cable to the 4-pin adapter cable.



- 13. Now insert the 4-pin adapter into a wideband channel in the input module. This channel does not need to have power supplied to it, but can be plugged into a channel with a green light if necessary. See step 6 for further details.



- 14. The hardware setup for the acquisition system is now complete. Note to make sure all connections are secure and that the green light on the desired channels is on.



1.0 HARDWARE SETUP



Complete SE/IR System with Accelerometer showing all components properly attached