

Wireless Pile Load Test System User Guide

Description

This user guide describes Motionics wireless system for pile load test. The system consists of three major parts:

- BlueDial(s): Bluetooth Dial Indicator(s) 2x
- Bluetooth Pressure Sensor 1x
- iPad Pile Load Test App

Two BlueDials are attached to the test pile to measure movements during load application and removal. The Bluetooth pressure sensor is mounted on the hydraulic pump to monitor load change. The App runs on Apple iPad and pairs with the BlueDials and the Bluetooth pressure sensor. Readings from all 3 wireless gages will be synced in the App and updated every 5 seconds.

Motionics wireless Pile Load Test Kit



Fig 1 Wireless load pile measurement system

Important Notes

- Do NOT open the device. Opening causes permanent damage and avoids the warranty
- BlueDial transmitter & digital indicator should be both on before pairing
- Avoid rotating BlueDial indicator face

Sensor Specs

1) Bluetooth Dial Indicator BlueDial

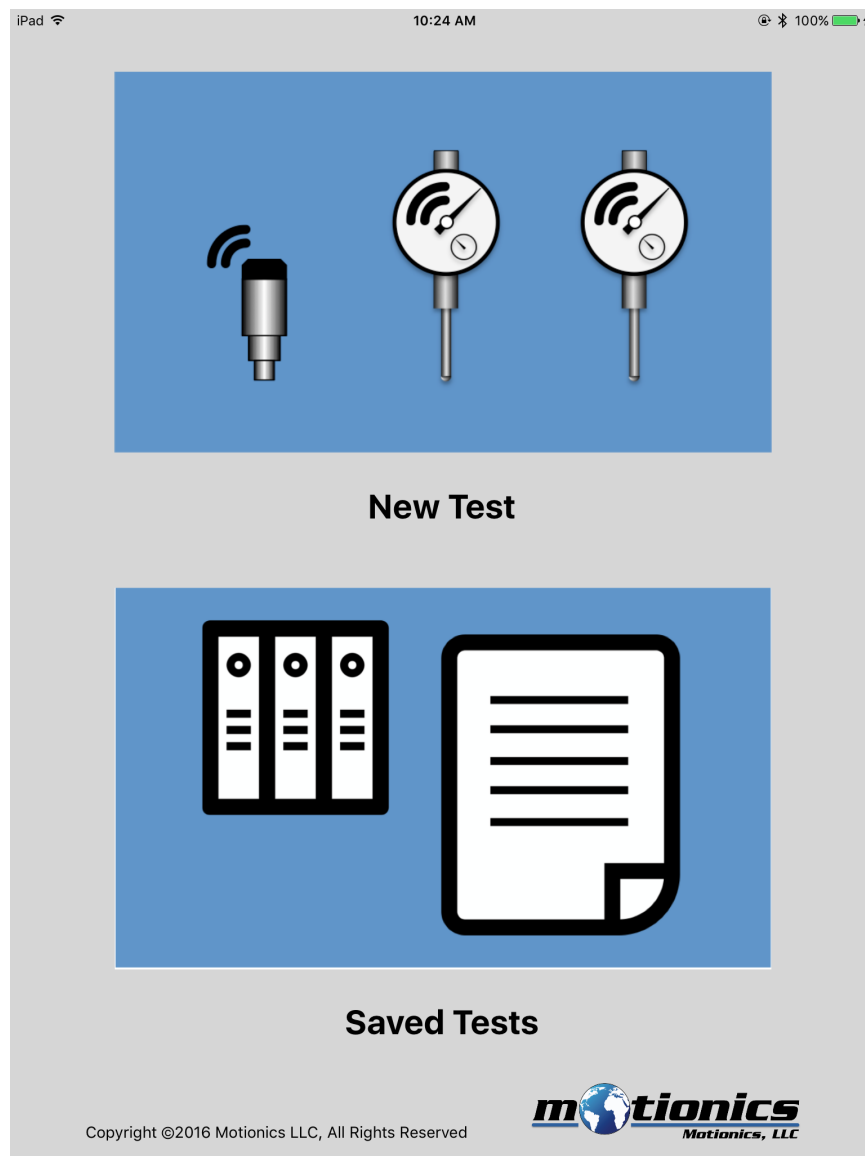
- Measurement Range: 2 in/50 mm
- Resolution: 0.0005 in/0.01 mm
- Bluetooth 4.0 Wireless Connection
- Wireless Data Transmission Interval: 0.1 s
- Wireless Data Transmission Range: up to 10 m
- Working Temperature: 0 – 50 °C
- Indicator Battery: CR2032
- Bluetooth Transmitter Battery: 400 mAh rechargeable

2) Bluetooth Pressure Sensor BluePSI

- Measurement Range: 0-5000 psi
- Accuracy: $\pm 0.25\%$ FS
- Bluetooth 4.0 Wireless Connection
- Wireless Data Transmission Interval: 5 s
- Wireless Data Transmission Range: up to 20 m
- Working Temperature: -20 – 85 °C
- Battery: CR2050
- Pressure Port: $\frac{1}{4}$ -18 NPT

Pile Load Test App

Purchase through App Store or contact info@motionics.com



Quick Start

1) Sensor Connection and Data Collection

- Turn on both dial indicator and Bluetooth transmitter of BlueDials
- Launch **Pile Load Test** App and tap **New Test** from main page
- On **New Test** page, tap **Pair** button on top right corner
- Select two BlueDials and one pressure sensor, tap **Connect** button to connect 3 sensors. Pressure sensor name will be "BluePSI" plus the last 4 letters of the MAC address on sensor.
- On **New Test** page, enter test information on top section
- Tap **Record** button to start data collection, tap again to stop and save test results to database
- Tap **Zero** button to remotely zero readings of BlueDials
- Tap **Clear** button to clear recorded values

iPad 10:21 AM 100%

Back New Test Sensor

Test Name: Test 3

Test Location: Loc 1 Test Type: Tension Lateral

Pile Size: A Project Name: Test

Depth Driven: Project Number: 001

GPS Coordinates: Test Date: 10-07-16

BluePSI 010A BlueDial260 BlueDial261

908 lbs 0.0005 inch 0.0005 inch

Time elapsed: 00:00:20 Zero

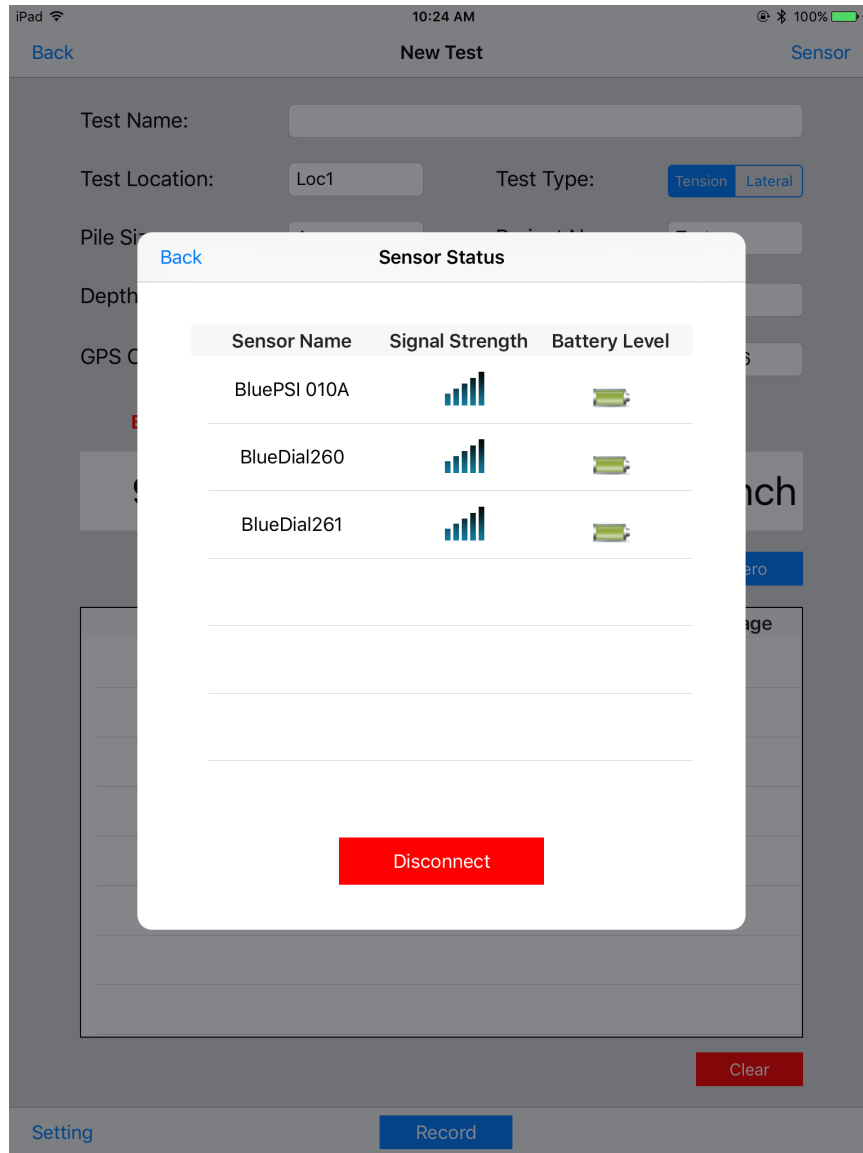
	Time(s)	Load	Deflection 1	Deflection 2	Average
1	0	908	0.0005	0.0005	0.0005
2	5	908	0.0005	0.0005	0.0005
3	10	908	0.0005	0.0005	0.0005
4	15	908	0.0005	0.0005	0.0005
5	20	908	0.0005	0.0005	0.0005

Clear

Setting Stop

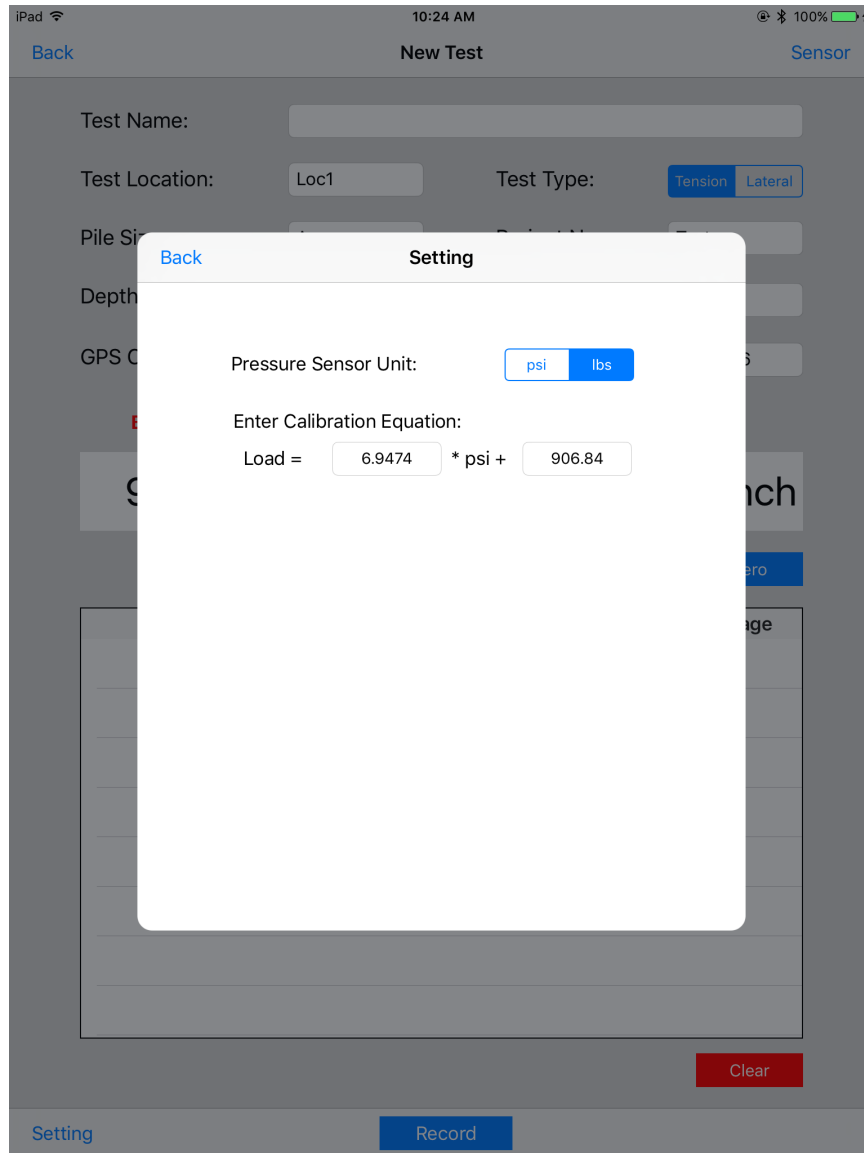
2) Sensor Status

- When sensors are connected, on **New Test** page, tap **Sensor** button on top right corner
- **Sensor Status** page shows connected sensor name, signal strength and battery level
- Connected sensors are also disconnected on this page



3) Jack Calibration

- On **New Test** page, tap Setting button
- On **Setting** page, select to display pressure (psi) or load (lbs)
- If load (lbs) is selected, two text boxes will appear for entering the two jack calibration parameters
- Calibration values will be saved on device automatically



The screenshot shows the Motionics app interface on an iPad. The background is the "New Test" screen with fields for Test Name, Test Location (Loc1), Test Type (Tension/Lateral), Pile Size, Depth, and GPS. A "Setting" modal is open in the foreground. The "Setting" modal has a "Back" button and a "Pressure Sensor Unit:" section with "psi" and "lbs" buttons. The "lbs" button is selected. Below this is the "Enter Calibration Equation:" section with the formula "Load = 6.9474 * psi + 906.84". At the bottom of the modal is a "Clear" button. The bottom of the app shows a "Setting" button and a "Record" button.

Setting

Pressure Sensor Unit:

Enter Calibration Equation:

Load = * psi +

Clear

4) View and Export Previous Tests

- Tap **Saved Tests** from main page to view previous tests
- Saved tests are displayed in chronological order in the record table
- Tap one record to view detailed test results
- To export test results, tap **Email CSV** button
- To delete one record, slide the corresponding row in the record table

Back

Saved Tests

Tests

10-07-16 10:21 - Loc 1 - Test 3

10-07-16 10:19 - PT-2 - Test 2

10-07-16 10:16 - PT-2 - Test 1

10-06-16 20:4 - PT-2 -

Test Information

Test Location: Loc 1

Test Date: 10-07-16

Test Coordinates:

Test Type: Tension

Project Name: Test

Project Number: 001

Pile Size: A

Depth Driven:

Pressure Unit: lbs

Displacement Unit: inch

	Time(s)	Load	Deflection 1	Deflection 2	Average
1	0	908	0.0005	0.0005	0.0005
2	5	908	0.0005	0.0005	0.0005
3	10	908	0.0005	0.0005	0.0005
4	15	908	0.0005	0.0005	0.0005
5	20	908	0.0005	0.0005	0.0005
6	25	908	0.0005	0.0005	0.0005
7	30	908	0.0005	0.0005	0.0005
8	35	908	0.0005	0.0005	0.0005

Email CSV