Motionics, LLC. Austin TX 78757
http://www.motionics.com/pilesense info@motionics.com

CASE STUDY:
USING MOTIONICS' PILESENSE™ WIRELESS STATIC PILE LOAD TEST KIT TO CONDUCT COMPRESSION AND TENSION PILE LOAD TESTS

Year: 2020
Location: Lithuania
Hardware: PileSense™: Wireless Static Pile Load Test Kit - 15K PSI BluePSI Bluetooth Pressure Sensor & 2x 2" BlueDialLT Wireless Dial Indicators (BDLT-302)
Software: PileSense iPad App

APPLICATION:

The company in this case deals with the design and construction of foundations and underground structures in complex technological and geological conditions. In some situations, this involves conducting pile load tests, including static load tests, lateral static load tests, and static tension tests.

Fig. 1 Compression Load Test

Fig. 2 Tension Load Test

Their initial setup consisted of mechanical gauges, both for deflection and load measurements. The company was seeking to modernize their setup and increase safety and efficiency in their application. Their digital options involved either a wired solution or a wireless solution; they opted for a wireless solution with PileSense™ by Motionics.

Fig. 3&4 Work site where pile load tests are conducted

In switching their system to a wireless kit, they swapped out the mechanical dial indicators for wireless digital dial indicators, specifically BlueDial-LT-302, a digital dial indicator with a 2” range and an integrated Bluetooth transmitter on the back. The analog pressure sensor was swapped with a BluePSI15K unit, a pressure sensor with a measurement range of up to 15,000 PSI and a proof/burst pressure of 20,000 PSI.

By pairing an iPad with these measurement tools and running Motionics’ PileSense iPad app, the operators were able to view live deflection and load readings remotely, record those readings, and save them for later viewing and analysis. The app also automatically calculated average deflection and has an option to enter a jack calibration equation for automatic pressure-load conversion.

Fig. 5 Wireless Pile Load Test Kit and app screenshots

Fig. 6 App in use during pile compression test

The operating team for these pile load tests have reported an improvement in the quality of data collection, with discomfort and error minimized without the need to take manual readings in unfavorable or dark conditions. The new data collection method also saves time, allowing operators time for preparation, assembly, and disassembly of beams as the measurements are being taken automatically.