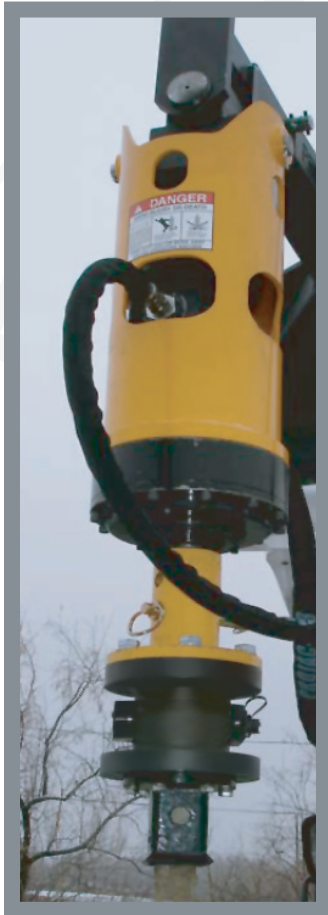




ECP UTILITY
a division of Earth Contact Products

ECP Smart Anchor Monitor

WIRELESS ANCHOR TORQUE MONITORING SYSTEM



- State Of The Art Wireless Technology
- Highly Accurate Torque Monitoring Capabilities
- Torque, RPM, Angle, Depth & Location Monitoring
- Easy To Use
- Extremely Rugged Design (IP67 Rated)
- No Need To Ever Calibrate a Drive Head Again
- Logged Data Can Be Exported To Third Party Software
- GPS Capable
- Connects To Current Tooling



ECP S.A.M. is revolutionizing the industry. No longer do engineers and linemen have to rely on highly inaccurate monitoring systems. If you are not utilizing the ECP S.A.M. technology then your competition is one step ahead of you.

S.A.M. – 10 10,000 ft-lb model fits 5-1/4" Bolt circle

S.A.M. – 25 25,000 ft-lb model fits 7-5/8" Bolt circle

ECP Smart Anchor Monitor (SAM) Wireless Helical Anchor Installation Monitoring System Specification

The following ECP SAM Wireless Installation Monitoring Specification text is intended for use by engineers for inclusion in helical pile and helical anchor installation specifications. ECP hereby grants exclusive permission to engineers to use any or all of this text for the intended purpose only. Use of this text for any other purpose is expressly denied without prior written approval of ECP.

1.0 Torque Monitoring System

A ECP SAM Wireless Torque Monitoring System shall be used to measure and record installation torque and inclination during installation of all helical piles and helical anchors. The torque monitoring system shall be capable of torque measurements with a sensitivity of 10 ft-lb or less with an accuracy variable of 3%.

2.0 Torque Monitoring System Calibration

The ECP SAM Wireless Installation Monitoring System shall have been calibrated within 1 year prior to starting helical pile or helical anchor installations. The Installation Contractor shall present a copy of the Calibration Certificate to the engineer of record, the engineer's designee or to the Owner. The Calibration Certificate shall include but not be limited to the following information:

- 1) Manufacturer(s), Serial Numbers and Descriptions of Calibration Equipment
- 2) ECP SAM Serial Number Being Calibrated
- 3) Calibration Data Including: RIG Input LB/FT, SAM FT/LB, ERROR LB's/FT, FSD ERROR %
- 4) Calibration Date
- 5) Printed or Typed Name and Signature of Certified Calibration Engineer

3.0 ECP SAM Wireless PDA for Monitoring Torque and Inclination

The Installation Contractor shall at all times during the installation process make available to the engineer of record, the engineer's designee or to the Owner, one or more ECP SAM Wireless torque monitoring device(s) for viewing real-time torque values and inclination during helical pile or helical anchor installation.

4.0 ECP SAM Installation Data Logs

The Installation Contractor shall upload the installation torque and inclination raw data for each helical pile or helical anchor from the ECP SAM Wireless device and provide the raw data to the engineer of record, the engineer's designee or the Owner. In addition, the following minimum information shall accompany the raw data:

- 1) Name of project
- 2) Name of Installation Contractor
- 3) Name of Installation Contractor's equipment operator and/or supervisor
- 4) Date and time of installation
- 5) Serial number of ECP SAM Wireless Torque Monitoring System
- 6) Location of helical pile or helical anchor by assigned identification number
- 7) Installation torque of helical pile or helical anchor at one-foot intervals for the final 10 feet
- 8) Inclination of helical pile or helical anchor
- 9) Total length of installed helical pile or helical anchor
- 10) Number of rotations
- 11) Installation RPM's