Carlson Machine Control for Solar

Machine Control Designed Specifically for Solar Installation

From trenching to laying out and driving piles to live, site-wide monitoring and reporting, Carlson Machine Control's solutions for solar are industry-leading and field-proven. No one offers a more specialized, better supported, or more complete array of solutions for efficient, accurate solar installation.



Experts in Machine Control Applications since 1996

- Mining - Landfill - Piling - Dredging - Construction - Contract Drilling - Custom Applications -

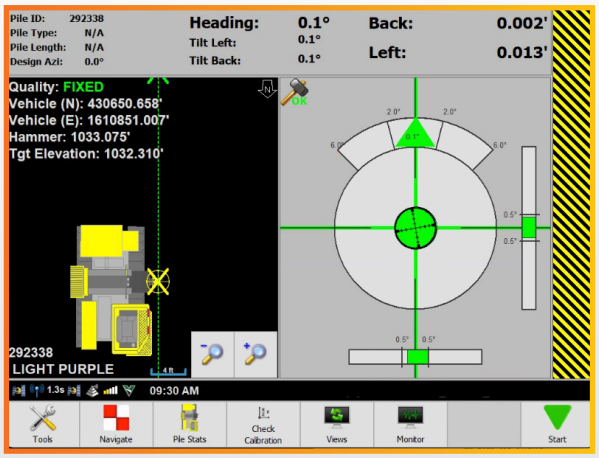
BREAK NEW GROUND

Carlson PDGrade™

Carlson Solar Advantages:

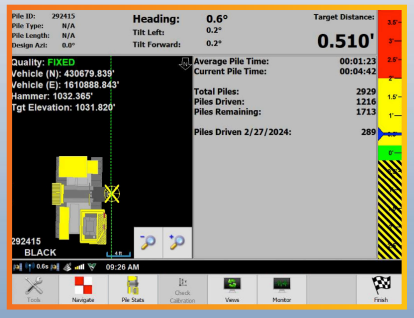
- Consistently and accurately drive piles within tolerance of specification
- Track project progression
- Reduce rehandling of piles
- Document position and height of all piles
- Understand your cycle times per operator for training





Carlson PDGrade™

PDGrade™ is an application-centric 3D positioning software for a variety of piling applications. The software is combined with a state-of-the-art, integrated GNSS all-in-one sensor, a rugged, Windows-based control box, and offers a laser distance option (for piling to an elevation, contour or pile depth) to complete the machine guidance system.



Features:

- 3D Machine Guidance Indicate/Control system for Pile Drivers for Solar farms and other applications
- Laser distance option for precise elevation control
- Able to handle large Pile Layout file
- NTRIP and VRS compatible
- Track machine utilization
- Provide operator with more information to maintain consistent alignment of piles
- Work as a standalone system or as part of a fleet environment with multiple machines
- Create Pile Report out of Grade to a .CSV or .PDF.



Carlson Pile Placement

Place piles at proper offsets with any equipment

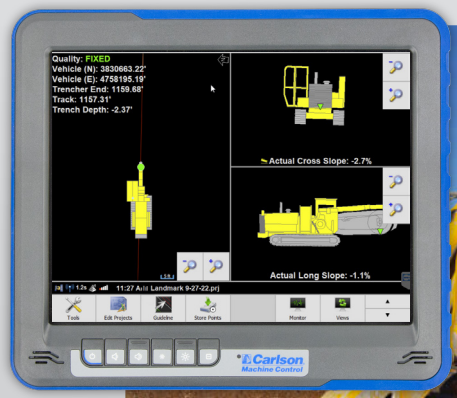


Carlson Machine Control's Pile Placement is a comprehensive solution that helps companies with the placement of piles on any solar project. The system allows for the color-coded piles to be placed at accurate offsets from their corresponding locations. It is flexible enough to be fitted to any machine being utilized to complete this task. Use as a stand-alone system or in conjunction with Carlson PDGrade to provide a more comprehensive offering to the solar industry.

- Comprehensive system that is easy-to-use and easy-to-learn
- Able to load up the whole project and break into smaller work areas
- System can be fitted to any type of machine being utilized for placing piles
- Real-time machine view and remote troubleshooting capability

Carlson Trencher

Carlson Machine Control's Trencher is a 3D machine control positioning solution for trenchers that adds efficiency and accuracy to solar installation trenching operations. Reducing or eliminating surveying and flagging operations, Trencher guides operators throughout the site to put the plans on the ground, at accurate depths, with as-builts captured live as work progresses.



BREAK NEW GROUND

Carlson Machine Control for Solar

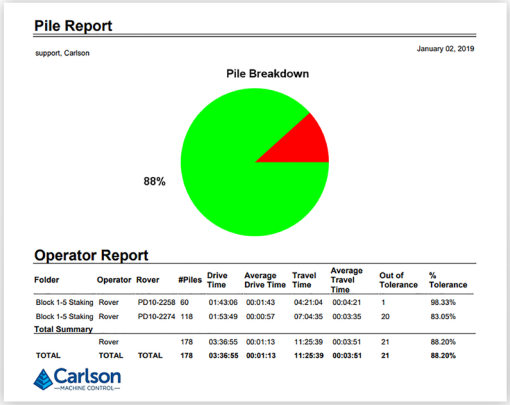
Carlson MACHINE CONTROL

Connect the Field and Office With

Carlson Command

Command is a comprehensive data storage and control software package that gives management a view of what is happening in real-time through live site maps, dashboards, and KPI screens. All information is stored for real time and port process reporting and analysis as well as playback of events.

- Productivity analysis
- Data management of single or multiple sites
- Direct machine to machine communication and data sharing with live and historical 3D machine playback
- In cab monitoring and training from office
- Create and customize tasks, delays and down codes
- Command Mobile brings key elements of Command to Android and iOS devices



Pile Report

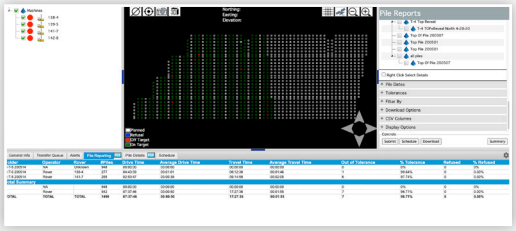
support, Carlson — January 02, 2019

Pile Breakdown

Operator Report

Folder	Operator	Rover	#Piles	Drive Time	Average Drive Time	Travel Time	Average Travel Time	Out of Tolerance	% Tolerance
Block 1-5 Staking	Rover	PD10-2258	60	01:43:06	00:01:43	04:21:04	00:04:21	1	98.33%
Block 1-5 Staking	Rover	PD10-2274	118	01:53:49	00:00:57	07:04:35	00:03:35	20	83.05%
Total Summary									
	Rover		178	03:36:55	00:01:13	11:25:39	00:03:51	21	88.20%
TOTAL	TOTAL	TOTAL	178	03:36:55	00:01:13	11:25:39	00:03:51	21	88.20%

Carlson MACHINE CONTROL



Carlson Grade Supervisor

Carlson Grade Supervisor is a premiere 3D/GPS site management and inspection tool for solar. Grade Supervisor works with the industry-leading Carlson Viking and supports most GNSS/GPS receivers.

From initial site measurements to daily progress to as-built checks, Grade Supervisor is the right tool for your job.



Carlson VASCO-B Base Station

The VASCO-B Base Station provides multi-frequency, multi-constellation GNSS and L-Band positioning and wireless communications, all within a rugged IP67 housing. With centimeter-level (RTK) and sub decimeter-level (PPP) position accuracy, an integrated cellular modem, Bluetooth and WiFi optional UHF radio, the VASCO-B delivers consistently accurate results now and into the future.



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