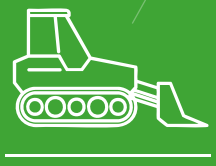
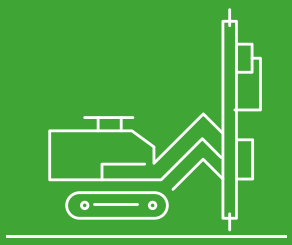
SUITE STX-MC





STONEX

MACHINE CONTROL CATALOG 2025

stonex.it

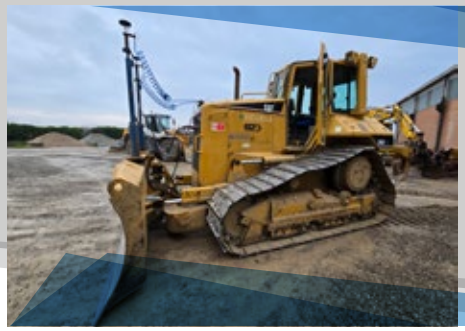
MACHINE CONTROL

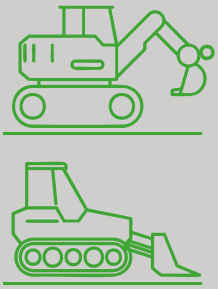
EARTHMOVING SOLUTIONS

In today's construction and earthmoving industries, **machine control solutions** are revolutionizing the way operators work by improving efficiency, precision, and cost savings. Our solutions are designed specifically for **excavators, dozers, and wheel loaders.** These advanced systems integrate cutting-edge technology to optimize grading, digging, and material handling tasks.

TECHNOLOGY BEHIND MACHINE CONTROL

Machine control solutions utilize **GNSS, laser, sensors and dedicated software** to provide accurate positioning and grade control. Our systems can be **1D, 2D or 3D,** with real-time data displayed in the cab to assist operators in making precise movements. Excavators benefit from depth and angle guidance, dozers achieve automatic blade control, and wheel loaders optimize load placement and material movement.





KEY FEATURES

- **Compatibility:** Stonex solutions are adaptable to a wide range of machinery, ensuring seamless integration regardless of the equipment brand or model.
- **User-Friendly Software:** The systems utilize Android-based software developed by Stonex, providing an intuitive interface that simplifies the management of excavation and machine movements.
- **Scalability:** Depending on project requirements, the system can be configured in 1D, 2D, or 3D, offering flexibility to upgrade as needed.
- **Easy Installation**: Stonex machine control systems are designed for quick and straightforward installation, minimizing downtime and allowing for rapid deployment on job sites.

BENEFITS:

- **Increased Efficiency:** By providing precise control and real-time data, operators can perform tasks more accurately, reducing rework and material waste.
- **Cost-Effectiveness:** Enhanced productivity leads to faster project completion times and lower operational costs, offering a quick return on investment.
- **Durability:** Stonex equipment is built to withstand harsh working conditions, ensuring long- term reliability and reduced downtime.
- **Safety:** by implementing machine control technology companies can boost efficiency while creating a safer work environment, ultimately reducing accidents and improving overall job site management.

The machine control workflow is divided into **on-machine work** (operations performed directly by the equipment) and **off-machine work** (planning, design, and data management). By integrating 1D, 2D and 3D solutions contractors can optimize efficiency and accuracy across all phases of a project.

OFF-MACHINE WORK: PRECISION EXECUTION

Once designs are loaded into the machine control system, operators use **1D, 2D or 3D guidance** to complete tasks with **increased accuracy and minimal rework**. The system provides real-time feedback on screen, displaying grade, depth, and alignment to assist in excavation, grading, and material placement.

- **1D Machine Control** – The simplest solution, suitable for those who only need to manage vertical excavation and want a system that is easy to use and install.
- **2D Machine Control** – Uses laser, slope sensors, or reference points to guide operators. Best for simpler jobs like trenching or leveling with a fixed reference point.
- **3D Machine Control** – Utilizes **GNSS, total stations, or digital terrain models (DTMs)** for precise positioning. Ideal for complex grading, large-scale earthmoving, and projects requiring multiple elevation changes.

OFF-MACHINE WORK: PLANNING & DATA MANAGEMENT

Before machines start work, field data collection and office planning play a crucial role in designing, preparing, and analyzing project data. Engineers and surveyors use these tools to create accurate terrain models, define grades, and set up job parameters.

Cube-a, Stonex field software, allows surveyors to collect and manage GNSS data efficiently, ensuring precise site measurements and seamless integration with machine control systems. In the office, STX-CLOUD provides project planning tools, allowing users to optimize processes before implementing them on machines in the field.

By **combining Cube-a for fieldwork and STX-Cloud for planning**, construction teams achieve a streamlined workflow, improved accuracy, and better coordination between office and field operations.

GNSS RECEIVERS FOR MC

SMC-ONE

SMC-ONE is a dual antenna GNSS receiver specifically designed for machine control applications. It is equipped with all the functionality you need for a machine control application in one small device. Stream all your sensor and GNSS data over a single Serial, CAN BUS or ethernet connection to your controller.

MULTI CONSTELLATION
All GNSS signals (GPS, GLONASS, BEIDOU, GALILEO, and QZSS) are included at no additional cost.

PITCH AND ROLL
The sensors track the movements of the machine's body, both pitch and roll.

HEADING
Dual antenna for heading.

SMC-TWO

SMC-TWO is a Dual Antenna GNSS receiver specifically designed for OEM Markets. It is equipped with all the functionality you need for a machine positioning application in one small device. Stream all your sensor and GNSS data over a single Serial, CAN BUS or ethernet connection to your controller. SMC-TWO delivers accurate, seamless NMEA and CAN data throughout the system.

MULTI CONSTELLATION
All GNSS signals (GPS, GLONASS, BEIDOU, GALILEO, and QZSS) are included at no additional cost.

GALILEO HAS
SMC-TWO supports Galileo HAS service. Get improved user positioning performance in real-time.

PITCH AND ROLL
The sensors track the movements of the machine's body for slope information.

HEADING
Dual antenna for heading.

SUITE STX-MC

S850+
BLACK EDITION

Equipped with an advanced 1408-channel GNSS board and capable of supporting various satellite constellations, including GPS, GLONASS, BEIDOU, GALILEO and QZSS. The Stonex S850+ GNSS receiver is the ideal solution for any surveying work in the field. The receiver's advanced design gives the S850+ excellent signal tracking and interference resistance capabilities. The advantages of portability and speed of operation make the S850+ GNSS receiver particularly suitable for field work in areas with complex terrain. Stonex S850+ also integrates the IMU system that enables inclined measurement (TILT) up to 60°: quick initialization, fast and accurate surveying.

S980+
BLACK EDITION

The color touch display and the ability to connect an external antenna make the S980+ an extremely effective receiver, capable of detecting GPS, GLONASS, BEIDOU, GALILEO QZSS and IRNSS constellations, making it suitable for any job. With a 4G GSM modem, a fast Internet connection is guaranteed, while Bluetooth and Wi-Fi modules always enable reliable data flow to the controller. These features, combined with the built-in 2-5W radio, make the S980+ the perfect receiver as a base station. The S980+ also features optional IMU technology with quick initialization and tilt up to 60° and dual antenna support for heading. S980+ can also be mounted on excavator and used as GNSS in the STX-DIG solution.

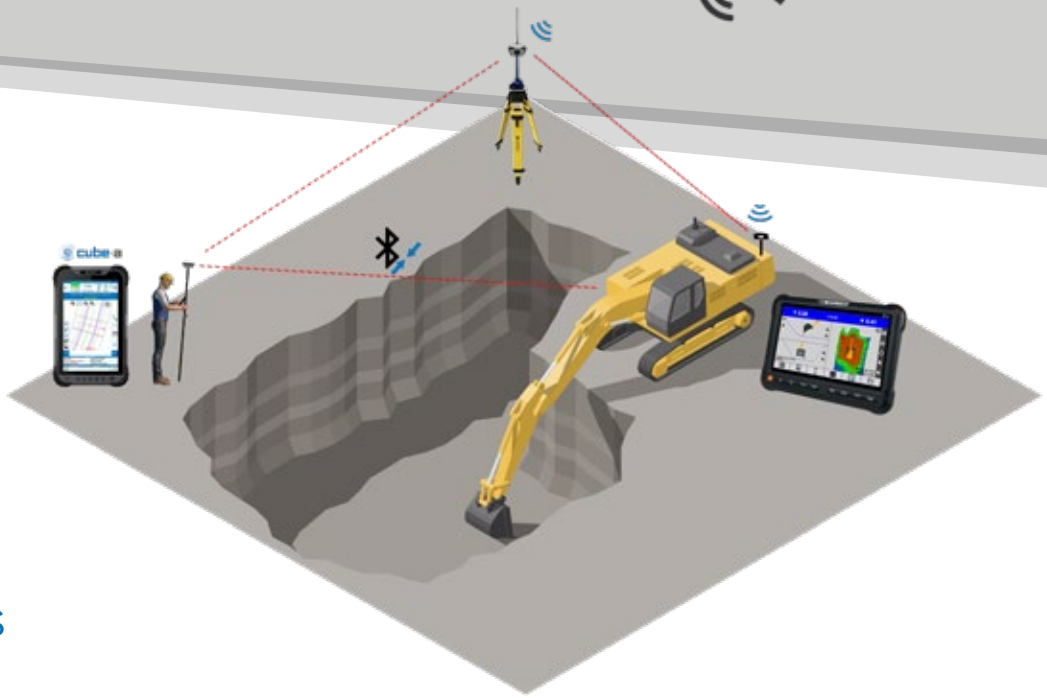
MACHINE CONTROL

EXCAVATION

STX-DIG

Stonex machine control solutions can be installed in most excavators machines quickly and easily. The simple design of the solution allows you to be up and running in no time.

Thanks to the Android software developed by Stonex, all the components can easily communicate with each other. The software allows you to manage all phases of excavation and machine movement. The system is scalable as needed. It is possible to install a 1D solution and then easily transform it into 2D or 3D.



CONFIGURATIONS

1D

The 1D system is the easiest to install and use. It allows you to manage the digging and vertical leveling phases quickly and precisely. It is a perfect starting point for the user approaching the world of machine control for the first time. Suitable for excavators and mini excavators. You can always check the bucket position from the screen in real time. Complex tasks such as underwater digging and blind digging are simplified because you can always keep an eye on the bucket on the screen. You can work with different height references such as an existing surface or a rotating laser.

SUITE STX-MC

2D

The 2D system allows operations to be managed even on the horizontal plane, thanks to the use of a GNSS antenna installed on the machine (heading). It is the simplest solution if you have to work with double slopes. You can create slopes and excavations in any orientation. Just enter the depth of the excavation, the slopes and you can start working. The system uses GNSS antennas like a compass. The system can work with the Touch and Go function or with the laser to transport the working height of the construction site.

3D PRO

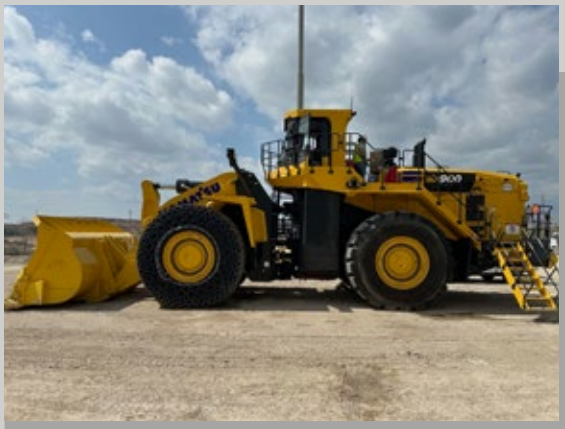
3D Pro allows you to manage complex projects thanks to the ability to import geo-referenced projects. The perfect integration of the data collected with field GNSS receivers and the excavation system makes the process very simple and fast. The management of large and complex excavations can be managed with 3D Pro and Cube-a.

	1D	2D	3D pro
Depth	✓	✓	✓
Slope	Single	Dual	Dual
Pipelaying	✓	✓	✓
Grading work	✓	✓	✓
Heigh Allarm	✓	✓	✓
Laser reference	Optional	Optional	Not need
Tilt bucket	✗	Optional	Optional
Pitch&Roll	✗	✓	✓
Compass GPS	✗	✓	✓
GPS positioning RTK	✗	✗	✓
Creation of projects in the field	✗	✗	✓
Project import	✗	✗	✓

MACHINE CONTROL

GRADING

STX-GRADE is a state-of-the-art **3D machine control system** designed to enhance the performance of dozers and wheel loaders in grading, earthmoving, and material handling applications. By integrating GNSS positioning, advanced sensors, and digital terrain models (DTMs), **STX-GRADE ensures precise machine guidance,** automation, and real-time data exchange, leading to improved efficiency, reduced rework, and lower operational costs.



PROFESSIONAL SOLUTION

Efficient workflow with ON and OFF Machine solutions for complete data management.

ACCURATE POSITIONING

High precision positioning thanks to GNSS Antennas and high quality sensors.

EASY TO USE

Our system is plug & play. Quick to install and easy to use thanks to an intuitive user interface.

HIGH PRECISION SENSORS

The system is equipped with precision sensors that provide accurate data. Our sensors also have a high frequency rate.

SEAMLESS COMPATIBILITY WITH INDUSTRY STANDARDS

STX-GRADE is fully compatible with industry-standard design files and correction formats.

BASE STATION RTK CORRECTIONS:

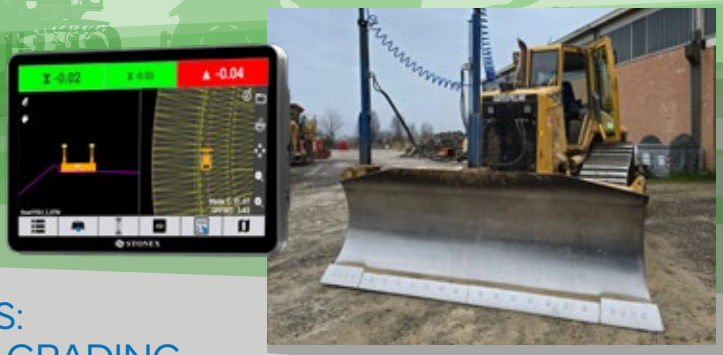
- UHF – Supports RTCMv3.2, the universal correction format used by all major hardware vendors.
- NTRIP – Fully compatible with any NTRIP (internet-based) correction stream.

FILE FORMAT COMPATIBILITY:

Accepts DXF design/linework files and LandXML files, which can be exported from all standard survey and design software

DOZER

SUITE STX-MC



STX-GRADE FOR DOZERS: AUTOMATED PRECISION GRADING

STX-GRADE transforms **dozers** into fully automated grading machines by utilizing **GNSS, inertial sensors, and hydraulic control systems** to precisely adjust the blade position in real time.

KEY FEATURES:

- **Full 3D Automation** – The dozer blade automatically adjusts to match the digital terrain model (DTM), eliminating the need for manual corrections.
- **GNSS Dual-Antenna Technology** – Provides high-precision positioning, ensuring centimeter-level accuracy in grading and earthmoving operations.
- **Slope and Elevation Control** – Ensures that the blade follows design specifications perfectly, reducing material waste and improving surface quality.
- **Real-Time Display & Operator Guidance** – A user-friendly in-cab display provides a visual representation of cut/fill values, helping operators work efficiently with minimal guesswork.
- **Seamless Data Updates** – Design modifications can be transferred to the machine easily, keeping projects on track with the latest specifications.

WHEEL LOADER

STX-GRADE enhances **wheel loader operations** by providing real-time **bucket positioning, grading assistance, and optimized material distribution.**

KEY FEATURES:

- **Accurate Material Placement** – The system guides the operator to achieve the correct material distribution, preventing underloading or overloading.
- **3D Terrain Mapping** – The loader operates based on digital terrain models, ensuring precise elevation control and consistent surface grading.
- **Load Optimization** – The system tracks bucket load weights and positions, allowing operators to **maximize efficiency while minimizing cycle times.**
- **Automatic Blade and Bucket Control** – Ensures smoother grading and material movement by adjusting lift and tilt functions based on real-time feedback.

MACHINE CONTROL

DRILLING & MINING

Stonex has developed simple solutions for the correct positioning of machines on the construction site. Thanks to our systems it is possible to follow the project coordinates without errors.

In addition to the components installed directly on the machines, our software also handles the traditional staking part if needed. To facilitate the exchange of information between operators, the solutions consist of a part dedicated to the office and a part dedicated to field work. Office and field can communicate thanks to the use of a Cloud platform where they can easily share data, projects and information.

PROJECT AND DESIGN

The Project can be generated, importing the local coordinates from different formats (DXF, TXT). A TARGET POINT file will be produced for the GPS navigation purpose. The Project coordinates include the depth and the tilt information.

MONITORING ACTIVITY

Thanks to a remote connection it is possible to monitor the progress of the work and update the projects in real-time.

VISUALIZATION AND STORAGE

Thanks to our solutions it is possible to assess and store the position of the drilling point.

ANDROID SOFTWARE

Software solutions that work with the Android system.

ROI

Adopting Stonex solutions means reducing production costs. Less operators with high productivity.

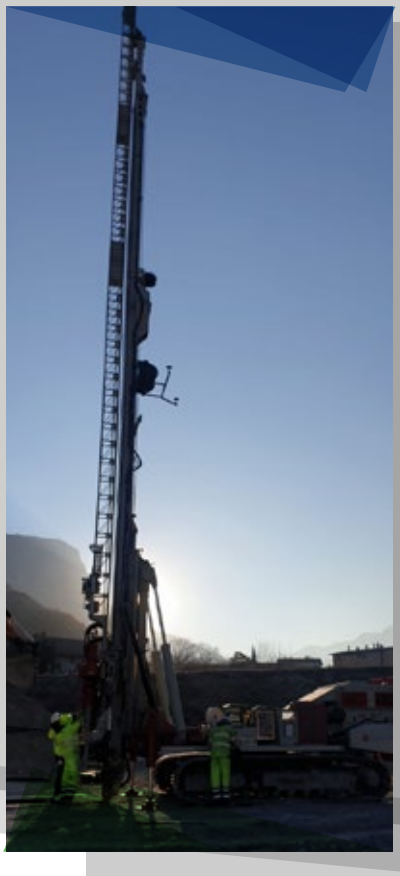
SUITE STX-MC

SATELLITE TECHNOLOGY FOR HIGH PRECISION MINING OPERATIONS

Stonex machine control division has designed three solutions for the mining world:

A GPS guidance system for jet grouting capable of determining the correct planimetric position of the columns, the verticality of the drilling tower and the deviations from the designed coordinates.

A system for guiding and positioning digwheel machines for the construction of quarries or tunnels.



MACHINE CONTROL

PILING

Stonex positioning technology provides excellent performance in piling operations, supplying a solid solution to operators.

The main solution (GPS + tablet + software) is able to process large surveys and create projects quickly; the quality of the work is ensured by the correct interaction between the sensors and the software. Our solutions offer a different degree of automation for the pile driving process, to meet the customers needs and reducing working time.

PROJECT AND DESIGN

The Project can be generated, importing the local coordinates from different formats (DXF, TXT). A TARGET POINT file will be produced for the GPS navigation purpose.

SURVEY STAKE-OUT

Quick and smart stakeout GPS solution made for any kind of operator. A clear guidance layout aids the operator to find the post position with centimeters accuracy.

MACHINE GUIDANCE

Our solutions fit on any kind of piling machines and drive the operator on the target point (post coordinates) in manual, semi-automatic and automatic mode.

AUTO LEVELLING

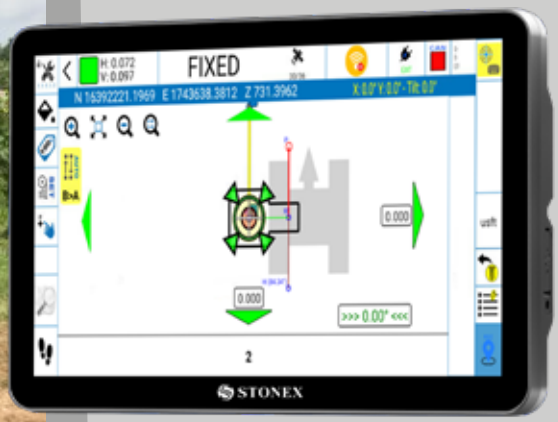
A slope sensor with an hydraulic interface can be installed on any machine in order to assure always the best levelling accuracy of the mast along two axis.

ROI

Adopting Stonex solutions means reducing production costs. Less operators with high productivity.

ANDROID SOFTWARE

Software solutions that work with Android systems.



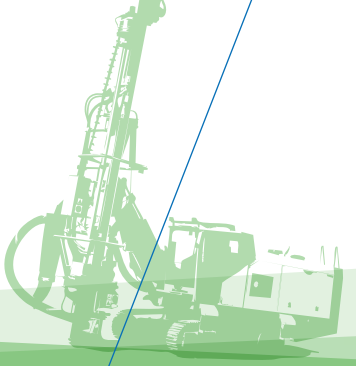
GPS SATELLITE TECHNOLOGY FOR PILE DRIVERS

Stonex machine control division has designed different solutions for pile driver machines.

SOLAR FIELDS - ROADS - AGRICULTURE

Our solutions can be used to create photovoltaic fields, to set up the rows of a vineyard or to facilitate the construction of guard rails. Thanks to GNSS technology and precision sensors, every operation is easy and fast. We also provide a solution for testing the strength of the posts with a push and pull validation test.

AGRICULTURE PRECISION FARMING



Stonex offers numerous solutions to meet the needs of the agricultural world. Our solutions for smart farming provide the ability to easily plan, schedule and manage jobs. Our receivers reach high levels of precision, becoming largely usable for jobs related to precision agriculture.

The solutions consist of hardware and software; moreover, they adapt to different types of machines becoming easily adaptable to the client's needs. The goal is to improve the quality of work and reduce the stress of workers, supporting them in all those activities that require great precision.

PROJECT AND DESIGN IN THE FIELD

Design the plant layout directly in the field thanks to the powerful software.

MACHINE GUIDANCE

Easy driving of the tractor on designated routes and points by following the indications on the display.

SURVEY STAKE-OUT

Adapt the plant layout to the elevation profile of the field. Smart stake-out with auto-lock.

HIGH ACCURACY

High-precision positioning of machines, poles and plant shoots using GNSS technology.

ANDROID SOFTWARE

Software solutions that work with Android systems.

ROI

Adopting Stonex solutions means reducing production costs. Less operators with high productivity.

GUIDANCE SOLUTION

Stonex STX-AG200 and STX-AG300 solutions allow you to use the precision positioning provided by GNSS antennas to efficiently guide agricultural machinery in the field. You can set straight, curved, concentric lines and much more.

STX-AG200 IS A FACILITATED VISUAL GUIDANCE SYSTEM FOR AGRICULTURAL MACHINES

Thanks to the dedicated software it is possible to set and monitor the vehicle's route efficiently and precisely. The software allows you to choose one of the predefined routes, and various work modes are available. The GNSS antenna connected to the system allows precision positioning and therefore reduces the risk of route errors. The operator only needs to follow the path defined by the software.

STX-AG300 | AUTO STEERING

The STX-AG300 is an automatic driving system that allows you to avoid making mistakes when driving machines in the field. Thanks to the electric sensor installed on the steering wheel, the operator will no longer have to manoeuvre the vehicle independently, but will be assisted entirely by the system. Route planning can be carried out directly in the software, the system will therefore be able to act autonomously, guaranteeing centimeter precision thanks to the GNSS antennas connected to the system.

- Autopilot accuracy: ±2.5cm
- Straight handover line: ±2.5cm
- Line-in distance: <10 meters
- Operating speed range: 0.1km/h to 18km/ h
- Communication protocol: NMEA 2000, ISO 11783, J1939
- Differential data format: RTCM3.2 (downward compatible), CMR, ROX (custom)
- Protection level: main electrical components are IP65 and above.

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