

**Xsite PRO 3D
MACHINE GUIDANCE
FOR EXCAVATORS**



WELCOME TO THE WORLD OF INTELLIGENT MACHINE CONTROL

Xsite® PRO 3D

WHAT IS MACHINE CONTROL?

PRECISION AND PRODUCTIVITY

The excavator's machine control system guides the machine's operator to reach the target level quickly and easily. When the job is carried out properly the first time, you save time, materials and fuel. The increased productivity gained will show in improved profitability which, in turn, enables cost savings and increased competitiveness.

For any earthwork contractor, it is important to perform work with quality, precision and on schedule. Utilising machine control enables optimising the different phases of the earthwork process, from planning all the way to the upkeep phase.

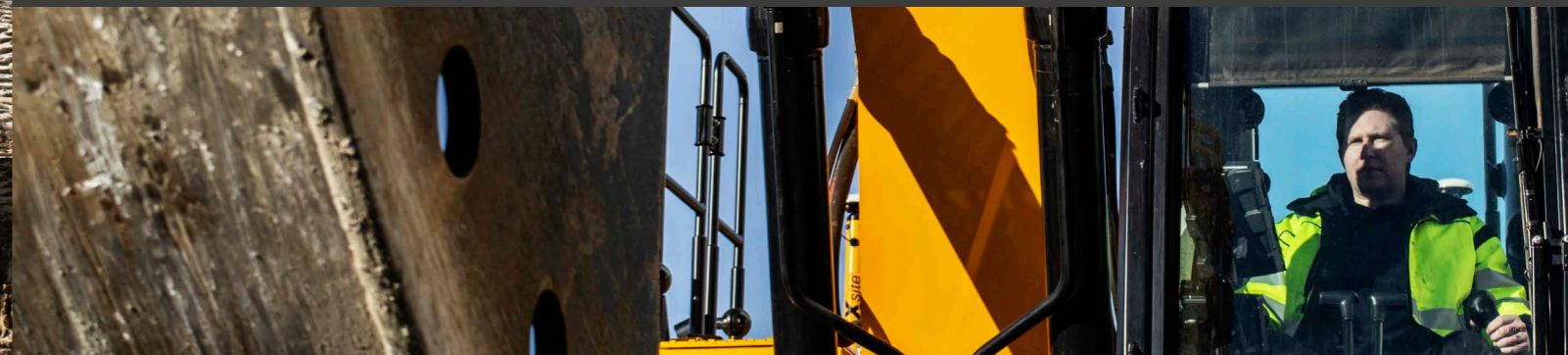
When using 3D machine control, the site elevation information is always present in the bucket tip and there is no need to set up lasers or stakes. The three-dimensional design models are always visible on the system display. This helps the operator handle even the most challenging sites effortlessly.

With 3D machine control, the machine itself becomes a highly accurate measurement device.

THE BENEFITS OF 3D MACHINE CONTROL

- + **The work gets done more efficiently** and quickly as the operator can concentrate more on doing productive work. Less time spent on the contract means cost savings in terms of employees, fuel and machinery.
- + **No need to stake out** as the height information is always visible in the machine control system.
- + **No excess cutting or filling.** Material and transportation costs decrease as using and transporting extra materials is no longer necessary.
- + **A higher level of accuracy** results in more uniform quality of work throughout the contract. Machine control turns a good machine operator into a great operator!
- + **Improved job site security** as surveying close to work machinery or during excavations is reduced.
- + **The system guides the operator** in all weather conditions, thereby making the work easier, especially in poor conditions such as in the rain or in darkness.
- + As-built data can be saved by using a bucket as the surveying tool. **The completed work gets documented** and the documentation is sent to the office for further processing.
- + **Working becomes independent and smooth** as you don't need to rely on surveyors or stakes.

The Xsite® PRO 3D is being used on the E75 European route renovation project



XSITE® PRO 3D INTELLIGENT MACHINE CONTROL

01

THE BEST USABILITY

We have designed the functions in Xsite® PRO to be as simple as possible to use, so that you can focus on productive work. All the main functions, such as selecting and switching models and saving measured data, can be accessed via a single touch. The system has been designed in collaboration with construction companies and surveyors, so you can be sure that the Xsite® PRO 3D will keep you on the cutting edge!

02

RELIABLE AND POWERFUL

Xsite® PRO is designed to work in even the most challenging conditions. You can rest assured that your system will work as promised, regardless of the environment. The powerful controller unit allows the system to work with even the largest 3D models without performance issues

03

COMPATIBLE

A compatible system allows for the use of network correction signals and access points from several different vendors without issues. With Xsite® PRO, you don't need to commit to single-vendor solutions. We offer you a genuine competitive advantage in a market that is becoming increasingly competitive.

04

A SYSTEM FOR YOUR NEEDS

There are different jobs that require machine control systems. For this reason, we have based Xsite® PRO software on modules. This means you can choose the features you need for your system. This way, you won't end up paying for features you don't need. Simple, isn't it?

"One of the key features of the Xsite PRO is that you can mix and match 2D and 3D workflows. This means you can use imported and self-created models simultaneously on the same project"
-Teemu Virtanen, Product Manager - Xsite®



Selecting an object or a model is made easy in Xsite PRO. A long hold on the desired area, and the system lists you all the workable objects and sorts them to different categories.

THE BEST USABILITY FOR EVERY PROJECT

1. QUICK SELECTION BUTTONS

Change quickly between different models. Don't waste time browsing through complicated selection menus.

2. PROFILE VIEW

The profile view shows you the shape of the selected model in a single glance. The profile view can be easily changed by swiping.

3. MEASUREMENT VALUES

The Xsite[®] PRO system's dashboard shows you the numerical values of your measurement. e.g. how far the bucket is from the desired level. This view can also be easily customized by the user.

4. PROJECT INFORMATION

The status bar shows you the project name, selected bucket and other important information about your current project and the system.



5. MAP VIEW

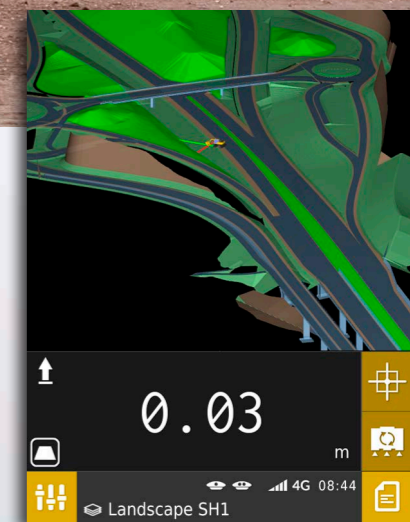
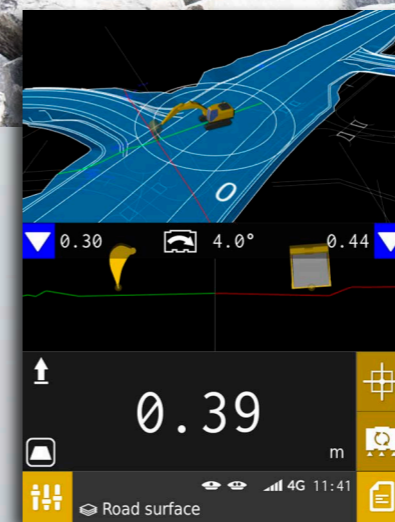
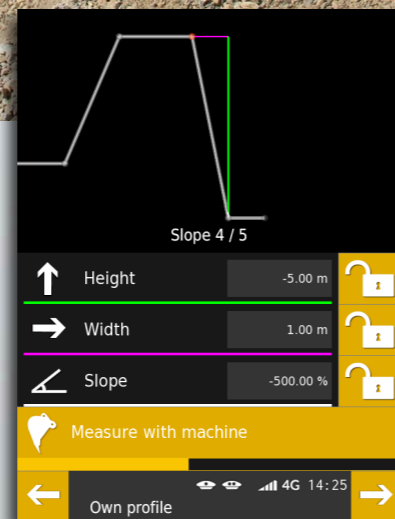
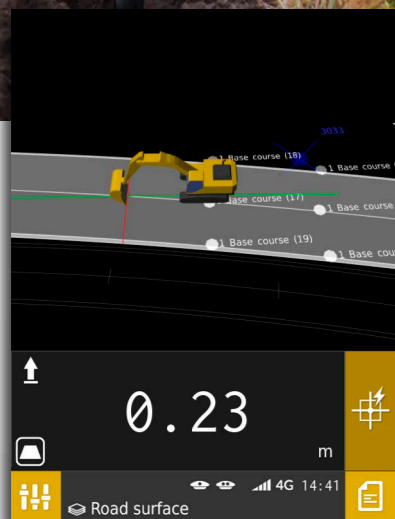
The customizable map view shows you your project and the location of your machine. You can change and adjust the view by just one touch on the screen.

6. BUCKET CORNER VALUES

Bucket corner indicators give you constant information about the height difference between the bucket and the model. A bucket tilt indicator guides you in tilting your bucket to the correct angle of your model.

7. QUICK BUTTONS

You can set different functions to quick buttons (e.g. saving an as-built point or changing the bucket measuring point) to be used quickly without accessing the menu.



COLLECT MEASUREMENT DATA

Xsite® PRO 3D allows for quick and easy collection of machine measurement data. Only a single touch is required. The machine control system saves the measurement data and automatically binds it to the selected structural layer. **You no longer need to define a code for a point, as the system will do this for you!**

CREATE YOUR OWN 3D PLANS

Our system's built-in modelling tool includes an assistant feature that allows you to create your own 3D models from the machine cabin. For example, you can **create lines between the existing points** or points you entered yourself in order to simplify the digging of cable or pipe trenches.

USE 3D MODELS WITH EASE

Xsite® PRO 3D allows you to **display all surface models, lines, points and background maps simultaneously**. You can also measure several targets simultaneously. For example, during road construction, you can measure against the surface model and the survey line.

BENEFIT FROM INFRA BIM

Xsite® PRO 3D's advanced data processing features allows **full utilisation of infra BIM models pursuant to the open BIM standard**. When working with infra BIM models on the Xsite® PRO 3D, you have access to all the information that the designer included.

SYSTEM COMPONENTS



Xsite® - OPEN AND COMPATIBLE

The Xsite® PRO 3D machine control system allows for the use of network correction signals, base stations and satellite positioning devices from several different suppliers without issues. This avoids having to commit to single-vendor solutions and allows you to work on different projects without worrying about machine control system incompatibility. This gives you a genuine competitive advantage in a market that is becoming increasingly competitive.

” Xsite® PRO 3D is compatible with third-party software, such as BIM Cloud Services. Different open BIM data formats can also be used without additional format conversions or compatibility issues. ”

DISPLAY

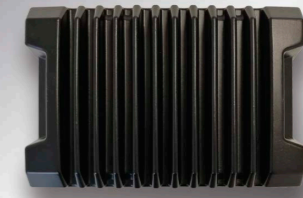
- » Bright and clear color display
- » Large 8,4" touchscreen
- » Easy-to-read graphics
- » 2 x USB port



01

CONTROLLER MCC

- » Powerful machine control computer
- » Robust design for rough environments
- » Comprehensive connectivity



02

SENSOR G2

- » Fast and accurate 3D orientation sensor
- » Internal heating unit for ultimate accuracy
- » Next generation sensor fusion technology
- » Extremely durable and reliable



03

GNSS RECEIVER

- » GPS, Glonass, Beidou and Galileo support
- » 336 Channels for multi-constellation GNSS support
- » Compact and rugged IP67 Enclosure



04

GNSS ANTENNA

- » Rugged design
- » Reliable and accurate
- » Multi-constellation support



05

LED-DISPLAY XD2 (optional)

- » RGB LED extra display
- » Arrow indicators for excavation levels
- » Correct height at a glance



06

XSITE® PRO - SYSTEM FEATURES



Training Videos in Youtube:
Xsite Training Academy



ALWAYS KNOW THE **BUCKET POSITION**

Forget constant manual grade checking! The Xsite PRO's clear readings give you exact information about your bucket's height and distance compared to your target level.



WIRELESS **DATA TRANSFER**

Wireless connection enables easy data transfer between the job site and office. Models can be sent wirelessly to the system and, in the same way, collected data can be sent to the office for further handling.



WORK **UNDERWATER - DIGGING/DREDGING**

Xsite PRO uses next generation G2 sensors that are fully waterproof. G2 sensors also have an internal heating element, ensuring accurate measurements.



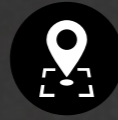
SEE **ALL MODELS AT ONCE**

Surface models, lines, points and background maps can be displayed on the system screen simultaneously, if desired. With the Xsite® PRO you can also measure multiple objects at the same time.



CREATE **MODELS YOURSELF**

Utilize the easy-to-use built in model tool to make simple 3D-models, such as small roads, foundations or barriers and use them as a reference when working.



SAVE **AS BUILT DATA**

You can document your work, such as pipeline installations and constructed surfaces, right from your own machine. As-built data can be used for quality control or tracking job site progress, for example.



INCREASE **SAFETY** WITH WARNING LEVELS

Be safe when working under power lines or bridges, for example. With the Xsite PRO you can set a warning if your boom or bucket is rising too high or going too far.



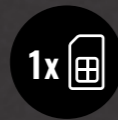
EASY TO **LEARN AND OPERATE**

We have designed the Xsite® PRO to be as simple as possible to use so that you can focus on productive work. The system also features step-by-step guides, so you won't have any trouble utilizing different functions.



GET **GUIDANCE VIA REMOTE SUPPORT**

With remote support, your local reseller can provide you with guidance without having to visit the site. Remote support connects your system to the service centre and can be used to offer training, advice or troubleshooting.



ONLY **ONE SIM CARD** NEEDED

Xsite® PRO system handles everything with only one SIM card: Data transfer, system updates, remote connection, RTK correction and so on.

CONNECTABILITY



SUPPORT FOR **TILTROTATORS**

Connect your tiltrotator to the Xsite® system and make precise measurements, regardless of the buckets angle or position.



JOYSTICK **INTEGRATION**

Save time and use different system functions straight from your machine's joystick buttons.



CLOUD **SERVICES**

You can connect your Xsite® system to 3rd party cloud services for file transfer and fleet management.



Increase your working efficiency and use different system functions straight from your machine's joystick buttons*

XSITE® OFFICE CLOUD SERVICE FOR DATA AND FILE TRANSFER



"XSITE® OFFICE IS A WEB-BASED, FREE OF CHARGE CLOUD SERVICE FOR DATA AND FILE HANDLING."

AUTOMATIC **FILE SYNCHRONIZATION**

Automatic file synchronization ensures that all the machines use the same up-to-date models.



VISIT:
www.xsiteoffice.com

WEB-BASED **SERVICE**

You can use the Xsite® OFFICE with your favourite devices. No need to install any applications.

QUALITY **ASSURANCE**

Xsite OFFICE's data export supports all open standard (open BIM) data formats. You can easily export as-built data from certain layers, machines and from selected time frames.

SUITABLE FOR **LARGE PROJECTS**

Xsite® OFFICE also supports sub folders, so it's suitable for even the largest projects. No limitations on file size or number of machines!



In addition to 3D machine control systems, the Xsite® OFFICE is also compatible with the Xsite® PAD.

CUSTOMER CASE: DESTIA OY EXPANSION OF HELSINKI-VANTAA AIRPORT

PROJECT DESCRIPTION:

- » **Timetable (2014–2022)**
- » **Cost estimate: EUR 1 billion**, Destia accounting for 100 million
- » **Contractors: Destia, YIT, SRV, Kreate**

Helsinki-Vantaa Airport, Finland's largest airport, is currently undergoing a major expansion. This will result, for example, in a 45% increase in the terminal floor area, new parking areas, taxiways equivalent to 90 football fields (450,000 m²), as well as a new travel centre. In terms of new infrastructure, the project includes infrastructure for the terminal, construction of aircraft parking spaces and hundreds of kilometres of plumbing.

Once the project is completed, the airport will be capable of serving 30 million travellers a year, compared to 17 million in 2017.

How has BIM and machine control been utilized?

Information modelling has been used comprehensively from the start of the project. The project owner requires all parties to use BIM. In infrastructure construction, designers, contractors and contractors must use software and tools that enable the use of data modelling without interruption in all project stages. This means that a party without a machine control system will not be able to work on the project at all. Of all machine control systems available, Xsite® PRO 3D machine control has been used the most in this project.

CUSTOMER COMMENT:

"Xsite® PRO 3D has been used on 75% of the excavators on this project because it's the most versatile system and is the easiest to use."

-Tero Majjala, Land Surveying Specialist, Destia Oy



CUSTOMER CASE: PROJECT TRAMWAY TAMPERE TAMPERE LIGHT RAIL PROJECT (FINLAND)

PROJECT DESCRIPTION:

- » **Timetable (2017–2021)**
- » **Cost estimate: EUR 243 million**
- » **Contractors: YIT & NRC Group Finland**

In the first stage of the tramway project that started in 2017, a total of 15 km of light rail will be built through the centre of Tampere, a city comprising 230,000 inhabitants, in order to make daily travel smoother and support the city's growth and development. Work is focused on the city's busiest streets and involves constructing new bridges, upgrading existing bridges, as well as constructing retaining walls.

How has BIM and machine control been utilized?

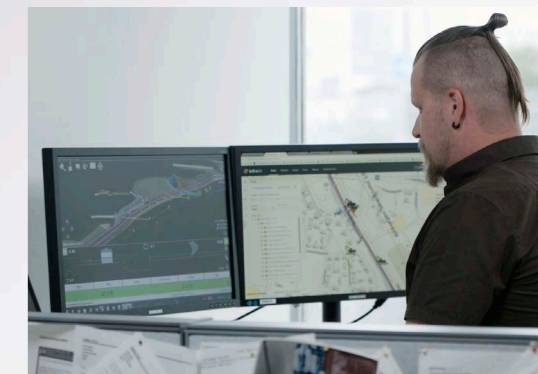
The tramway has been mainly built using information modelling and machine control. BIM models have been used in preliminary visualisation images and now, during the construction stage, plans are being implemented based on a BIM model. The project's implementation models, which were created by the designer, have been transferred to a project bank, from which the surveyors will download them for inspection. After the inspection, the models are uploaded to a cloud service, from which they are automatically synchronised with the machine control systems on the project.

CUSTOMER COMMENT

"The best machine control system that implements BIM is Xsite® PRO 3D because it doesn't require any format or model editing. The system can directly use the design material, all the way to the handover to the customer."

The system is also easy to use: you have one screen on which you process the data and you can see a lot of information in a single glance, as well as do many things simultaneously. The entire chain remains intact."

-Teppo Viinikka, Head of Surveying, Tampere Tramway Project, NRC Group Finland



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