

# Leica iCON excavate

## The future of excavating



leica-geosystems.com



- when it has to be **right**

**Leica**  
Geosystems

# Excavator solutions



## Leica iCON iXE3

For those who need the ultimate precision guidance, the 3D machine control solution is available. Work from 2D and/or 3D digital models for supreme accuracy and the most complex designs.



## Leica iCON site excavator

The simple solution for compact excavators brings a higher level of efficiency to small to medium sized excavators in the fleet.





### Leica iCON iXE2

Our 2D solution gives the operator high-accuracy dual slope and level control for maximum utilisation of your machine from the start.

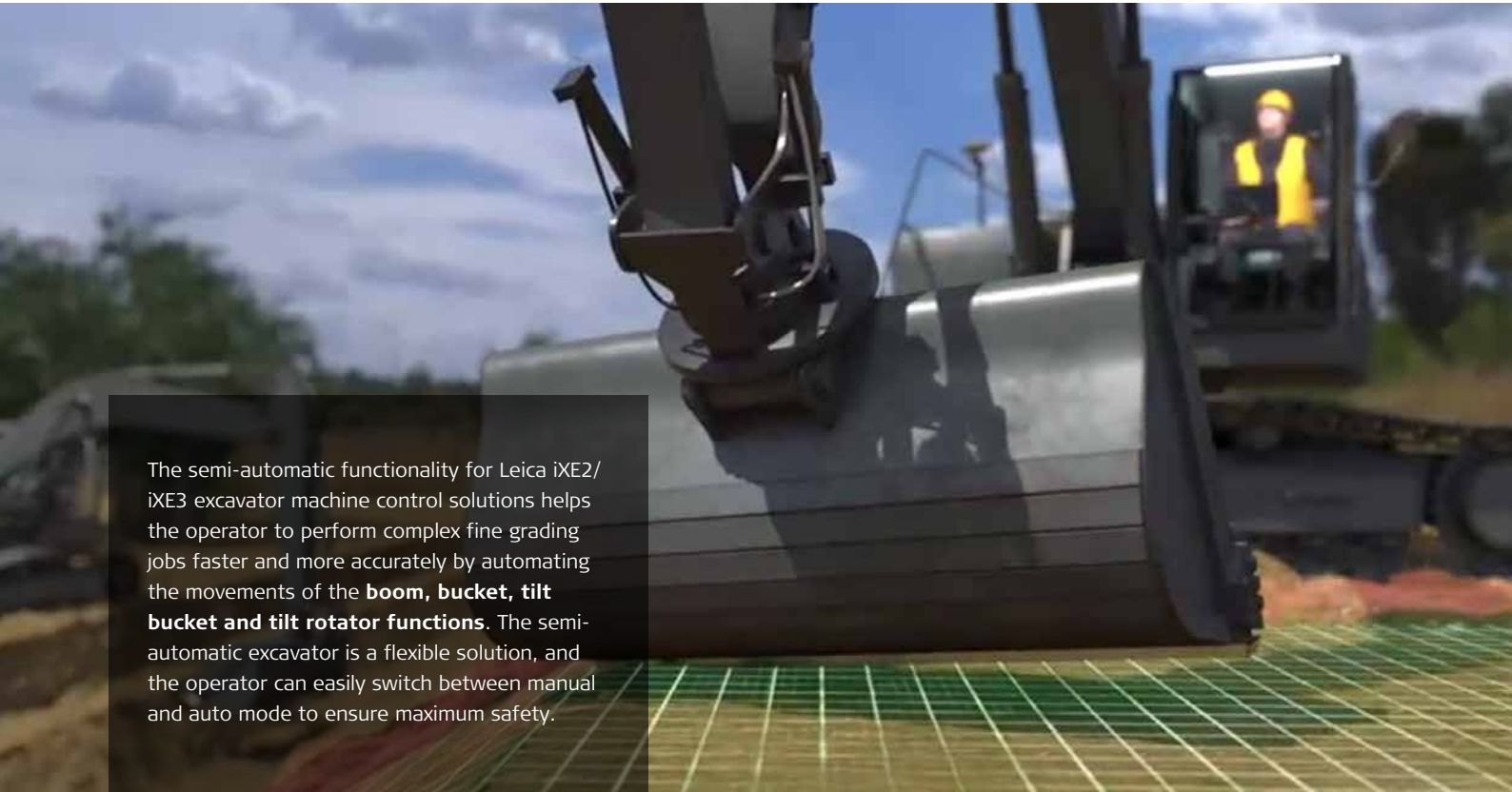


### Leica iCON iXE

A simple economic excavator control system that can tackle difficult tasks, such as blind cuts or under-water digging.



# Semi-automatic excavator – Increase your uptime



The semi-automatic functionality for Leica iXE2/iXE3 excavator machine control solutions helps the operator to perform complex fine grading jobs faster and more accurately by automating the movements of the **boom, bucket, tilt bucket and tilt rotator functions**. The semi-automatic excavator is a flexible solution, and the operator can easily switch between manual and auto mode to ensure maximum safety.



## FEATURES

- The design slopes are followed automatically only by operating the stick
- Intelligent slope detection with closest cross slope
- Surface protection (no tool point digs into you surface)
- Rotation control cross-cut
- Stick enabling (no push and hold on the button)
- Easy to switch between manual and the auto function with manual control when required

## BENEFITS

- Less operator fatigue
- The job can be done faster because costly and time-consuming rework can be avoided
- Consistent quality of finished surface
- The semi-automatic functionality from Leica Geosystems is safe to use
- Flexible configurations to suit any use case and machine configuration

# Automating excavator functionalities



## iXE CoPilot

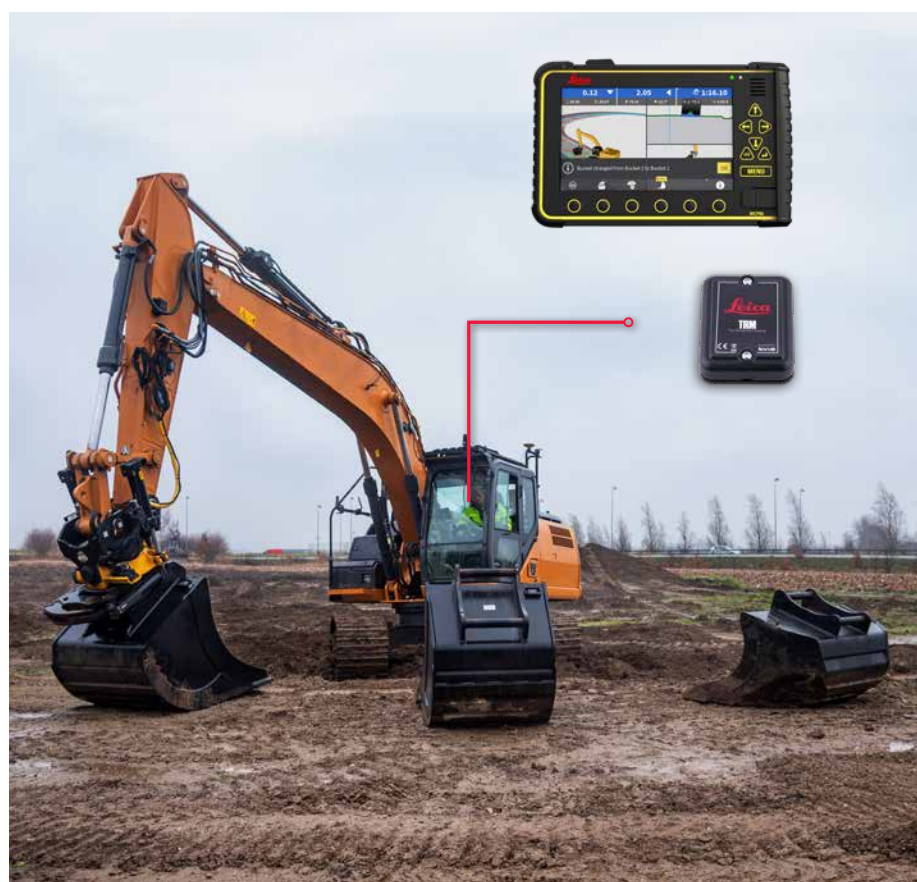
Using the Leica iXE CoPilot, the excavator operator only needs to concentrate on controlling the digging movement (boom, stick and bucket) while the tilt and rotation function of the tilt rotator is adjusted automatically based on the reference model surface under the bucket.

The operator maintains control of the bucket rotation allowing him to manage material in the bucket properly but eliminating the constant manual adjustment of the slope of the bucket. Enabling the CoPilot by simply pressing a button simplifies the use of tilt rotators regardless of training level reducing operator fatigue.

## Automatic Tool Recognition

Use tool recognition to automatically select the right tool for your excavator. Tool recognition modules are mounted on the excavator buckets and tilt rotators. The hub in the cabin registers and sends signals to the machine control solution when the bucket is taken off, a new bucket is selected and sends warnings if a bucket that is not calibrated is selected. The operator no longer needs to manually change settings when changing work tools.

This minimises the risk of using the wrong bucket and the subsequent over or under digging and costly rework. Besides supporting the attached tools, the tool recognition system also supports standard tilt buckets and detachable tilt rotators.



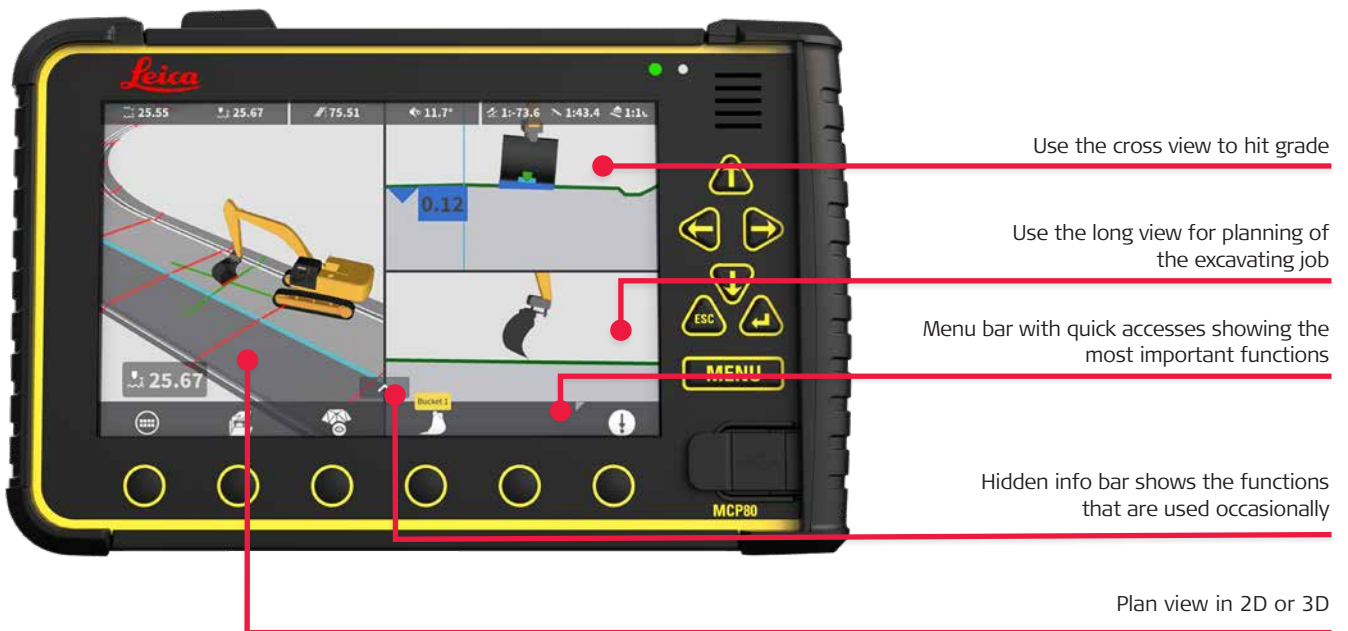
# Leica MC1 – Intelligent Software

The efficient menu structure is set up for easy management of the all project files. Increase your uptime due to a user interface that gives the operator quick access to select the functions that are needed for the workflow.



## Targeted attention

The interface keeps the operator in the run screen and targets the operator's attention to the job at hand. Select full screen or split screen to guide you to the most efficient view that assists you through the task at hand.



# Share data – Seamlessly

The iXE3 solutions allows you to share log points between machines for project progress monitoring and follow-up. Create model data are also easily shared as well as seamless file sharing with iCON 3D software and iCON site projects.



## Programmable avoidance zones

Use avoidance zones to select trigger distances and create virtual barriers around utility pipes, cables or other areas that you need to protect when excavating.

The screen turns red, the height indicators disappear and an audible signal will sound when the machine operator is approaching a restricted area.



# Leica iCON iXE3 – For ultimate accuracy

The iXE3 machine control solution guides the operator using reference models and GNSS in 3D. Design information and real-time cut/fill indications are displayed in the cab on your control panel, allowing you to rapidly excavate to the reference design. The solution ensures more uptime and operator satisfaction while increasing safety and productivity.

Work with a wide range of industry-standard data formats including LandXML, DXF, GEO, KOF, L3D, LMD, LIN, MBS and TRM formats, which offers the customer a variety of applications and workflows. The operator can use the function **Create Model** to make simple and complex models directly on the panel without leaving the cab and without the assistance of a surveying engineer.



## One for all

Digitalise your construction site with one software and one hardware platform. Switch from one machine to another and build complex designs with simpler workflows and less downtime.



## Easy to use

Simple, clean and intuitive user interface with interactive user design adapted to your needs. The assistive technology with wizards and help functions help you drive the excavator and get more work done with high quality and less rework.

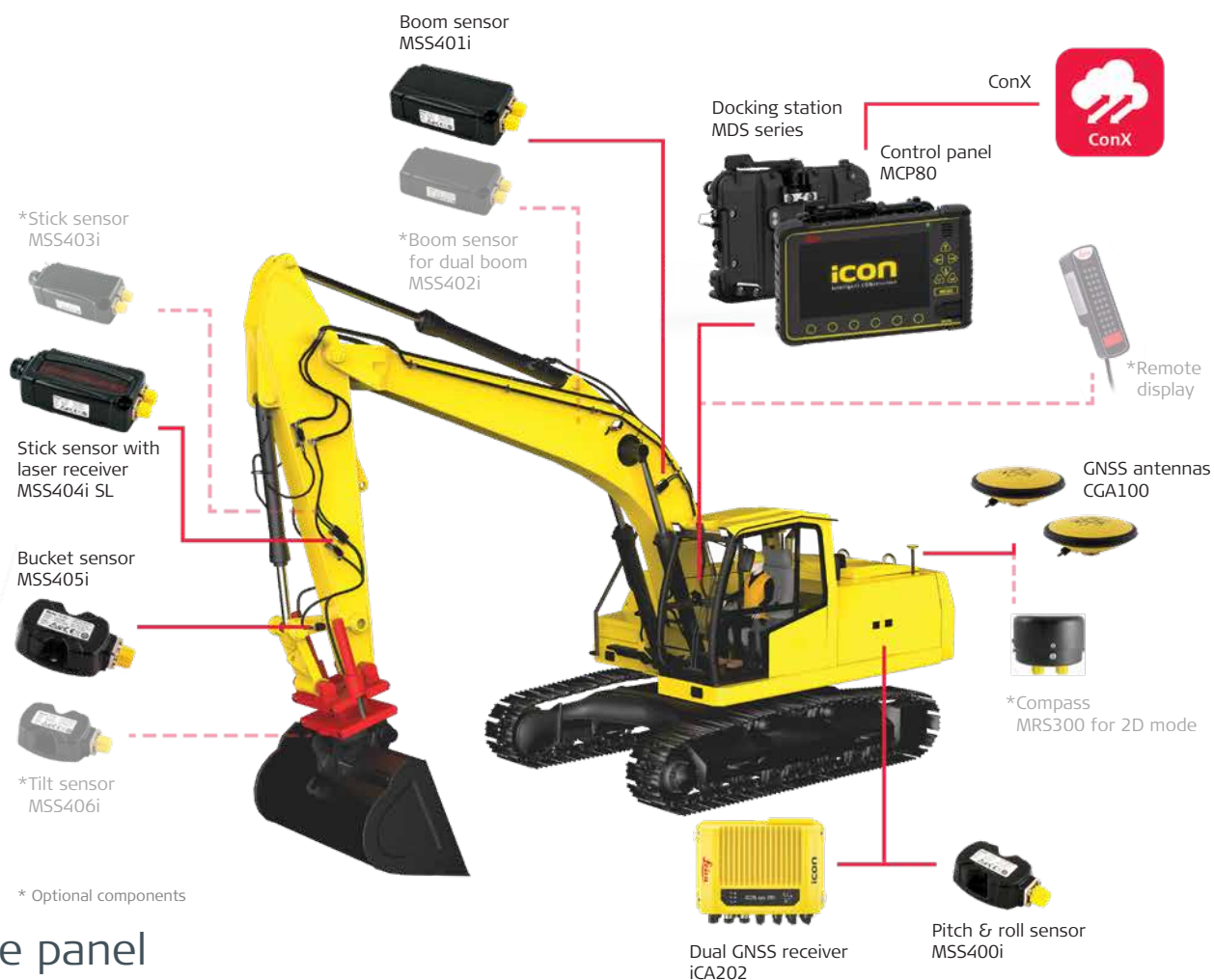


## Robust design

With robust design the Leica MCP80 panel and the Leica MDS series docking station are prepared for the harshest environment and are truly resilient for the heavy construction industry.



# Excavator 3D solution – Get full control of your excavator



\* Optional components

## One panel

The MCP80 panel can handle all 3D applications in the heavy construction industry. The easy-to-use industry-leading interface can be used across all 3D machine applications. The panel features a large touch-screen panel with backlit buttons - personalise it to your liking and take it with you from one machine to another. The MDS series docking station stores your latest calibration values and hydraulic parameters for easy swapping of the panel. The docking station makes the panel completely cable-free for easy removal.

## One user interface

One software platform for all machines with a simple and intuitive user interface. The operator just turns the key and gets on with the work. The interactions support the workflow of the task at hand, and the clean interface makes it easy to find the functions you need using icons for fast navigation. The assistive technology with wizards and help functions help you drive the machine and get more work done with higher quality and fewer errors.

Other available options:

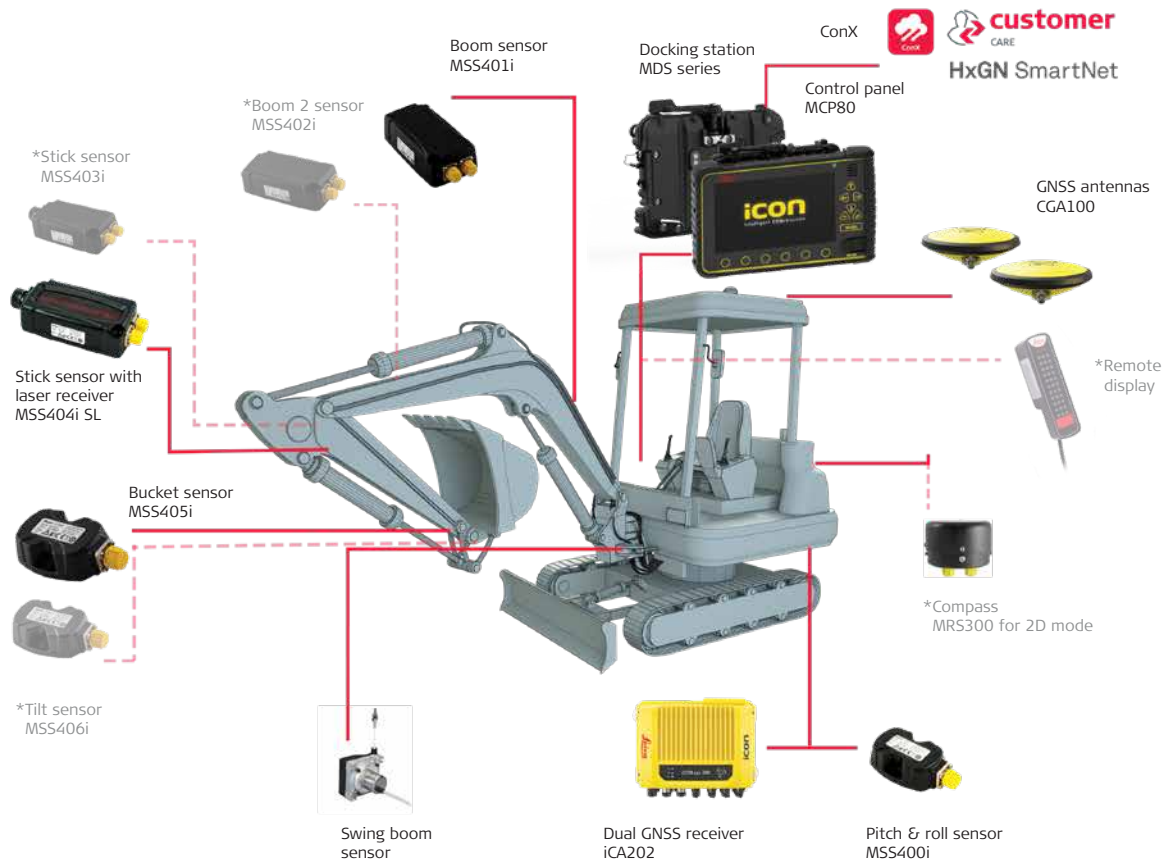


Prism & compass configuration




# Leica iCON iXE3 – for compact excavators with swing boom

Add machine control to mini excavators with swing boom, and benefit from all the advantages of machine control such as higher accuracy, digital workflows and as-built documentation.



Other available options:

- a) Prism & TPS configuration 
- b) Manually defined angles of swing boom (no swing boom sensor)

## MC1 FOR COMPACT EXCAVATORS

- Swing boom sensor or manual support of swing boom
- Same software and hardware platform as other MC applications
- Digital workflows available for mini excavators and backhoes
- ConX integration for data sharing, as-built documentation and remote communication.



# Machine control – for the mini excavators in your fleet

Expand the machine control offering to include your little expert of trenching and excavating jobs, and benefit from all the advantages of 3D machine control: Higher accuracy work, avoid over-digging, rework and fewer errors, one common software and hardware platform offers similar menus and workflow across application, key hardware components can be moved on different machine applications, possibility for digital logging and reporting as as-built documentation through the use of ConX.



## High accuracy machine control for compact excavators

Compact excavators and Huddig backhoes with swing boom are designed for trenching and excavating in areas where larger equipment can't operate. The machine's swing boom moves independently, so you can dig alongside obstacles with better visibility. Leica Geosystems offers a flexible solution with swing boom sensor or manual calculation of the position of the swing boom.



Select swing boom type



Select swing boom position



Run screen for excavator with swing boom

# Submersible configuration – Underwater excavating

As part of the MSS400 series, the MSS420 sensors for underwater dredging jobs are built on the well-established MSS400 Series Sensor technology. Ensuring speed, performance, precision and productivity (SP), the MSS400 Series Sensors incorporate SP Technology that allows faster digging without loss of precision at higher speeds, dramatically increasing machine utilisation and productivity



## Reinforced cabling, sensor housing and bracket

Designed to be used down to 40 m at 5 bar pressure, the MSS420 sensors are equipped with reinforced components such as pressure tight connectors, a robust sensor housing, rugged cabling and stainless-steel brackets making it the most reliable equipment for underwater applications. The Leica MSS420 dredging sensors can be programmed to boom 1, boom 2, stick, bucket and even tilt sensors.





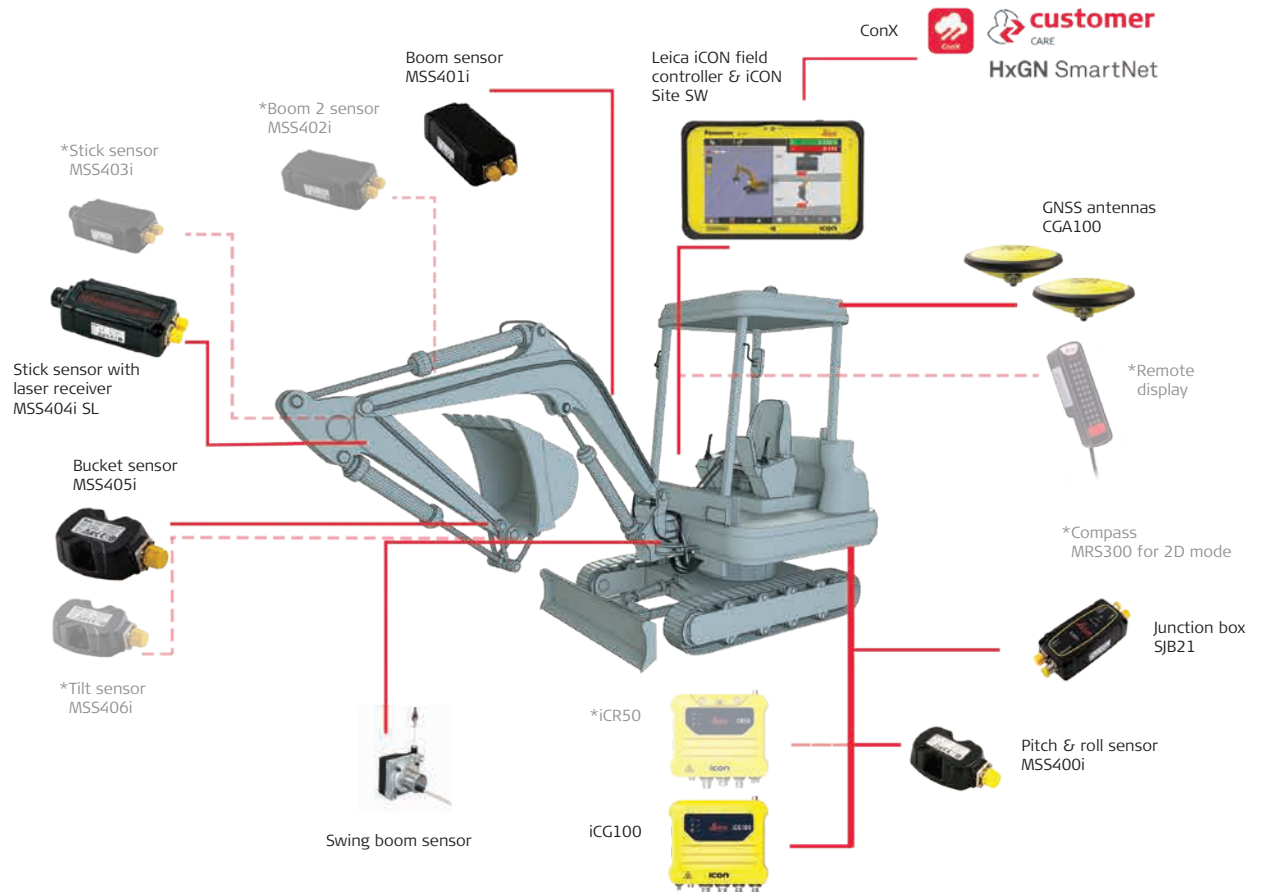
# Leica iCON site excavator – The best way to get started with machine control is here

The Leica iCON site excavator is a simple, easy-to-use machine control solution for optimising the earthmoving jobs of compact excavators. This new solution integrates easily with the existing iCON site applications, so you can benefit from new workflows. Measure an area, create a design, and then directly dig according to that design by simply using the same field controller in the excavator cab.



# Leica iCON site excavator – Design it. Dig it. Check it.

Daily on-site solution flexibility is something every construction professional values. This solution introduces a new workflow that offers more flexibility, efficiency and independence from surveyors and their schedules. If you are concerned about setting it up and using it, don't be: the system's simplicity will amaze you!

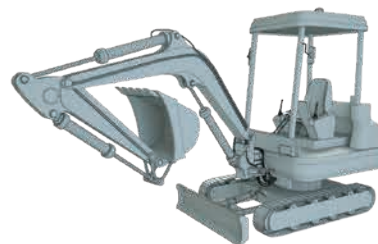


Other available options:

- Manually defined angles of swing boom (no swing boom sensor)

## DIRT SIMPLE SOLUTION FOR COMPACT EXCAVATORS

- Supports swing boom, tilt rotator and tilt bucket functionalities
- Map-driven selection and navigation
- Traffic-light indication of work results
- Split-screen functionality that allows different viewing perspectives
- Use the same digital designs as the big machines in the project ecosystem
- Integration with Leica ConX to ensure seamless communication of design updates



Radius 8.61m SWL 2.91t  
HGT SLEW DIG  
OFF OFF  
HGT SLEW DIG  
ESC OK

Leica MCP50  
BUCKET01  
-0.5°  
0.023  
OFFSET -0.02m  
REACH 0.001m  
X-SLOPE 0.2°  
V-SLOPE -0.0°  
Q-set X-dir

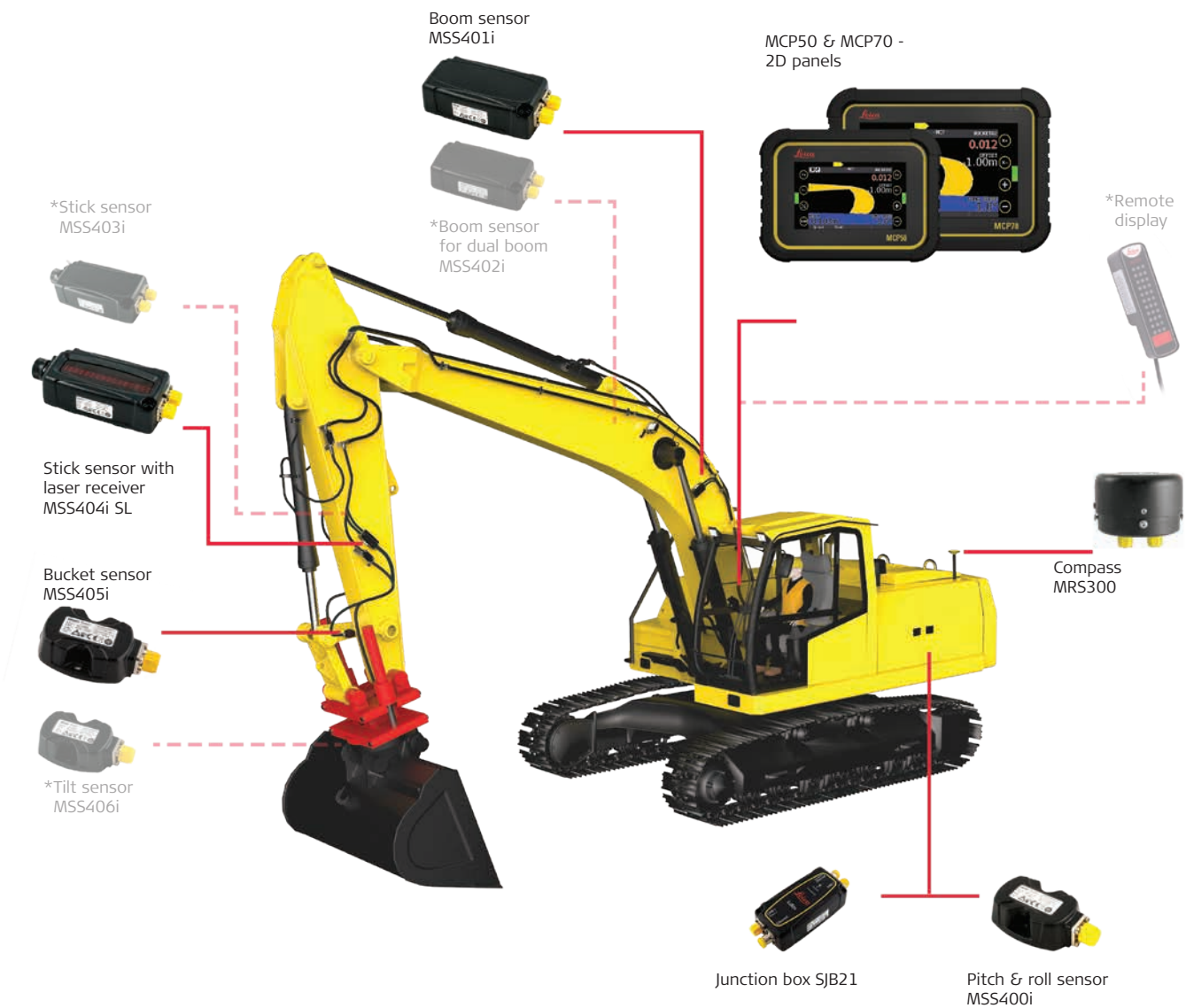
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234 L/min  
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# Leica iCON iXE2 – Single/dual slope and depth control

This multi-functional 2D machine control solution is designed to make excavating easier and more productive. It allows multiple elevations and slopes to be constructed, at any orientation, without resetting the machine or laser height reference.



## BENEFITS

- Upgrade to 3D by adding a GNSS receiver and 3D control panel
- Displays the bucket's actual position relative to design elevation and slope
- High-accuracy dual slope and level control via the rotation sensor
- Real-time cut/fill indication on the graphic display
- No grade checking needed
- No more over excavations

# Leica iCON excavate – Highest precision and productivity for excavating with tilt rotators

Boost your productivity by maximising the use of your tilt rotator attachments with Leica iCON excavate iXE2 & iXE3 systems. By interfacing to the tilt rotator attachment iCON excavate can visualise the actual position of the bucket in any position.



## BENEFITS OF TILT ROTATOR SUPPORT

- Increase your machine control application and productivity
- Manoeuvre in tight site areas without having to reposition the machine several times
- Clear and easy user guidance on the colour display
- Precise sculpting of edges, slopes and contours in any direction needed
- The unique PowerSnap system allows easy exchange of panels between machines, further increasing the flexibility of the system



# iXE CoPilot – Simplifying the use of tilt rotators



## Ease-of-use with tilt rotator

The excavator operator only needs to concentrate on controlling the digging movement (boom, arm, bucket and slew of the machine) while the tilt and rotation function of the tilt rotator is adjusted automatically based on the reference model surface under the bucket.

The operator maintains control of the bucket rotation as they dig, allowing them to manage material in the bucket properly but eliminating the need to constantly adjust the tilt of the bucket. This decreases operator fatigue, increases the accuracy of the iXE2/iXE3 excavator solutions and saves time and cost.

## BENEFITS OF TILT ROTATOR WITH iXE COPILOT

- Use the tilt rotator attachment in any position while the iXE CoPilot automatically positions the bucket to the desired grade, and get even more productivity out of your grade control system
- Reduce the complexity of operating multiple moving parts on an excavator
- Use your tilt rotator equipped excavator to accomplish all tasks on site, from bulk earthworks to finish work
- Use the tilt rotator attachments on excavators without the need for special training or long learning curves
- Increase focus on the area you are digging in, making it a safer working environment
- No steep learning curve





# Leica iCON excavate – Increasing opportunities with integrated **auger support**

The 2D excavator machine control solution offers users more opportunities and flexibility – you can control excavator drill attachments easily with visual guidance in the cab. Exploit the capabilities of your excavator and handle multiple tasks on site with high precision.



## FEATURES

- Full visual indication of the top and bottom position of the Auger
- The drill-bit tip is shown as a green filled circle if within target (0-5 cm) and the top of the drill-tower as an orange circle if +5 cm away of the target
- The tip becomes red if +5 cm away from target, and the top of the drill-tower turns into the colour blue if within the target
- Auger top and bottom shown in a correct position. Zero-set the position and start drilling. Move arm/turn upper part and read the values for your next desired X and Y working position

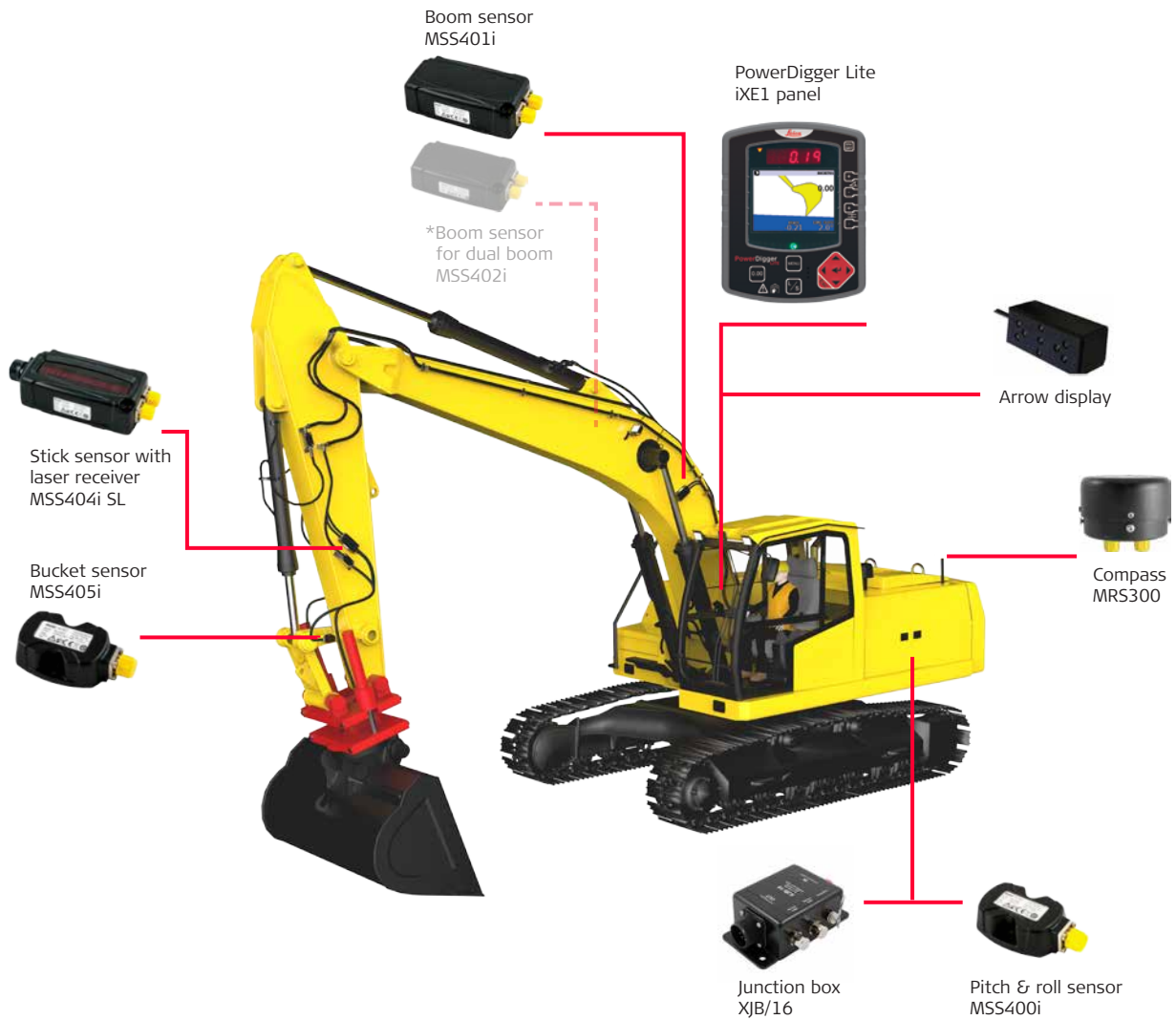
## BENEFITS

- Increased machine application and productivity through support for drilling
- Easy user guidance on colour display
- Quick system installation – wizard-based and semi-automatic calibration procedures
- System works on all excavators including mini excavators
- One system for many different application



# Leica iCON iXE1 – Simple single slope control solution

The Leica iXE1 is a simple, economic excavator control system. This single slope control panel can even tackle difficult tasks like blind cuts or digging underwater. The iXE1 has the flexibility to work from different references such as existing surface, string line, or a laser reference. Its easy-to-use single slope control panel is designed specifically for standard excavating applications.



## FEATURES

- 3.5" colour graphic display
- Simple menu structure - very easy-to-use
- Remote display supported
- 100 % waterproof (IP68) – no special sensors or cables needed for underwater use
- Offset your reference surface
- Visual and audio guidance according to reference height

## BENEFITS

- Easy single slope and depth
- Increase machine productivity
- Graphical cut/fill indication in the cab
- No more over excavations
- Get done in fewer passes
- No batteries to charge

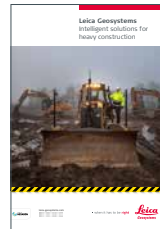
## Leica Geosystems – when it has to be right

Revolutionising the world of measurement and survey for nearly 200 years, Leica Geosystems is the industry leader in measurement and information technologies. We create complete solutions for professionals across the planet. Known for innovative product and solution development, professionals in a diverse mix of industries, such as surveying and engineering, building and heavy construction, safety and security, and power and plant trust Leica Geosystems for all their geospatial needs. With precise and accurate instruments, sophisticated software, and trusted services, Leica Geosystems delivers value every day to those shaping the future of our world.

Leica Geosystems is part of Hexagon (Nasdaq Stockholm: HEXA B; hexagon.com), a leading global provider of information technology solutions that drive productivity and quality across geospatial and industrial landscapes.



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Intelligent Solutions Brochure



Leica ConX flyer



Customer Care Packages flyer



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