

A yellow excavator is shown working on a dirt mound. A 3D grid of blue lines is overlaid on the ground, representing a digital construction plan. In the background, a satellite is visible in space, connected to the excavator by a thin line, symbolizing the integration of satellite technology in construction. The scene is set against a dark, starry background.

REFINED CONSTRUCTION FIRST!

3D Excavator Guidance System

High Precision | Task Visualization | Safety Guarantee

3D Excavator Guidance System

GNSS antenna and multi-type sensor modules lead to high-precision construction, enabling operators of all skill levels to be more productive than ever before! Safety guarantee, cost reduction and efficiency improvement in construction engineering.



3D Excavator Guidance System

Features



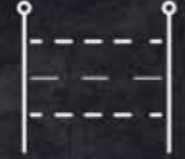
Accuracy $\pm 3\text{cm}$



3D Visual Guidance



HMI Platform



E-fence Warning



Resume From
Breakpoint



Remote Control/
Unmanned Mode



Adaptive Learning
Algorithm



Online Support
& OTA

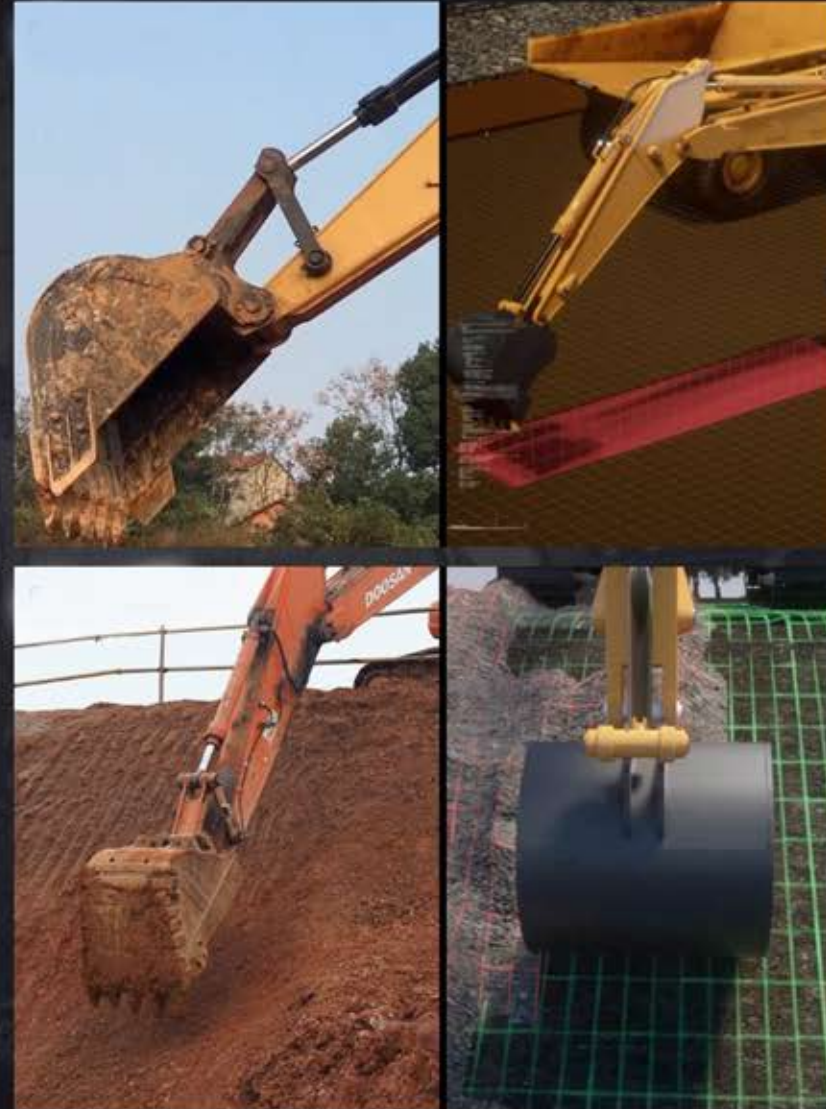
High Precision Construction

- Accurate positioning based on GNSS and RTK
- Real-time access to the coordinates of arm and bucket, helping us to know exact bucket teeth positions
- Under assisted mode, the bucket and boom operate automatically while operators just need to control arm
- Operation accuracy $\pm 3\text{cm}$ based on multi-type sensor modules



Construction Scenes:

- Fixed Slope Operation
- Land Leveling
- Deep Excavation in Fixed Depth
- Wading Operation



Scene Demonstration

Task visualization

- Android-based HMI platform
- Virtual datum lines combining with real environments enable operators to have a clearer view of construction status
- Slope and depth settings, importing construction drawings or custom-designs to ensure efficiency and quality
- Adaptive learning capabilities* lead to greater support for night and wading operation, which gives operators of all skill levels the ability to be more productive than ever before

* Adaptive learning currently in development.

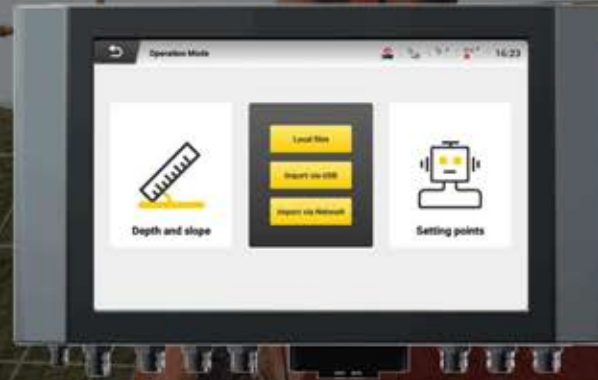
3D Excavator Guidance System

Guidance Master - Smart Control System



Slope and Depth Setting

Set slope and depth as required, navigation will be provided by system.



CAD Import

The construction drawings could be imported into control system directly to assist construction.



Custom Design

Without design drawings, operators could set datum points on the control terminal. 3D visual files could be synthesized for a smooth start.

Safety guarantee

- High-precision construction even in low visibility conditions, with ease and efficiency
- Continuous running for more than 20mins when RTK disconnected
- Virtual E-fence could be activated when working in narrow or restricted space to limit the rotation angle and boom height of the excavator, with automatic alerts as limit exceeded
- Remote control mode* enables operators to control the excavator from a distance, making construction safer in dangerous working conditions
- Advanced planning of working routes for unmanned operation*, with LiDAR scanning of construction terrain information for real-time access to digging and filling volumes, etc.

* These functions only available to selected customers.



Product Configuration and Functions

Unmanned Version*	Camera Image-transmission Module	Real-time image transmission of work status
	LiDAR x2	Scan dynamics excavation information, including completed amount and real-time changes in terrain
	Remote Control	Long-distance Wi-Fi communication Display and control 2 in 1 module for remote control
3D Guidance Version	4G Antenna	Cellular data communications
	Sensor Modules	Get real-time information of the bucket, boom, arm and machine body
	Dual-satellite Antenna	Receive GNSS position information of the excavator
	Control Terminal	3D guidance system with multiple interfaces for further functional upgrades (Android-based)

* Upgrade to unmanned mode by purchasing the upgrade package.

3D Excavator Guidance System

3D Guidance Version

①-④ Sensor Modules



⑤ Control Terminal



⑥ 4G Antenna



⑦ GNSS Antenna



3D Excavator Guidance System Unmanned Version

①-④ Sensor Modules



⑧ Image-transmission Module



⑨ Camera



⑩ LiDAR



⑪ Image-transmission Antenna



⑫ Remote Control



⑤ Control Terminal



⑥ 4G Antenna



⑦ GNSS Antenna



3D Excavator Guidance System

Specs - System

Items	Specs
Static Accuracy	± 3.0 cm
Assisted Operation Accuracy	± 5.0 cm
Working Temperature	-30 °C - +70 °C
Waterproof Rate	IP65
Power Supply	12-24V



3D Excavator Guidance System

Specs



Control Terminal



Attitude Sensor

Items	Specs
Size	300 x 190 x 43 mm
Screen	10.1 LED Touchscreen
Signals	Radio, Positioning Satellite, 4G
Working Temperature	-30°C - +70°C
Waterproof Rate	IP65
Power Supply	10-30 V

Items	Specs
Range	Pitch $\pm 70^\circ$, Roll $\pm 180^\circ$
Max Angular Velocity	$\leq 400^\circ/s$
Working Temperature	-40°C - +85°C
Waterproof Rate	IP67
Power Supply	4.9 - 32V

3D Excavator Guidance System

Specs

Items	Specs
Frequency Range	GPS L1/L2, GLONASS L1/L2, BDS B1/B2/B3
Working Voltage	3.3 - 12 V
Working Temperature	-40°C - +85°C

Items	Specs
Weight	2 kg
WIFI Coverage	100 m
Running Time	10 h
Waterproof Rate	IP54
Battery Capacity	7.4 V, 10.4 Ah



GNSS Antenna



**Remote Control
(Optional)**

More Possibilities to Discover Construction Upgrade Solutions



Road Roller



Grader



Bulldozer

3D Excavator Guidance System



Scenarios:

- Transport Infrastructure
- Construction
- Mining
- Landfill
- Dam and Reservoir Construction

The background is a dark, monochromatic image of a complex, geometric lattice structure, possibly a dome or a large-scale architectural framework. The lines are dark and create a sense of depth and perspective. On the right side, there is a bright yellow square frame that is partially open at the top and bottom, framing the text.

**THANKS
FOR
WATCHING**