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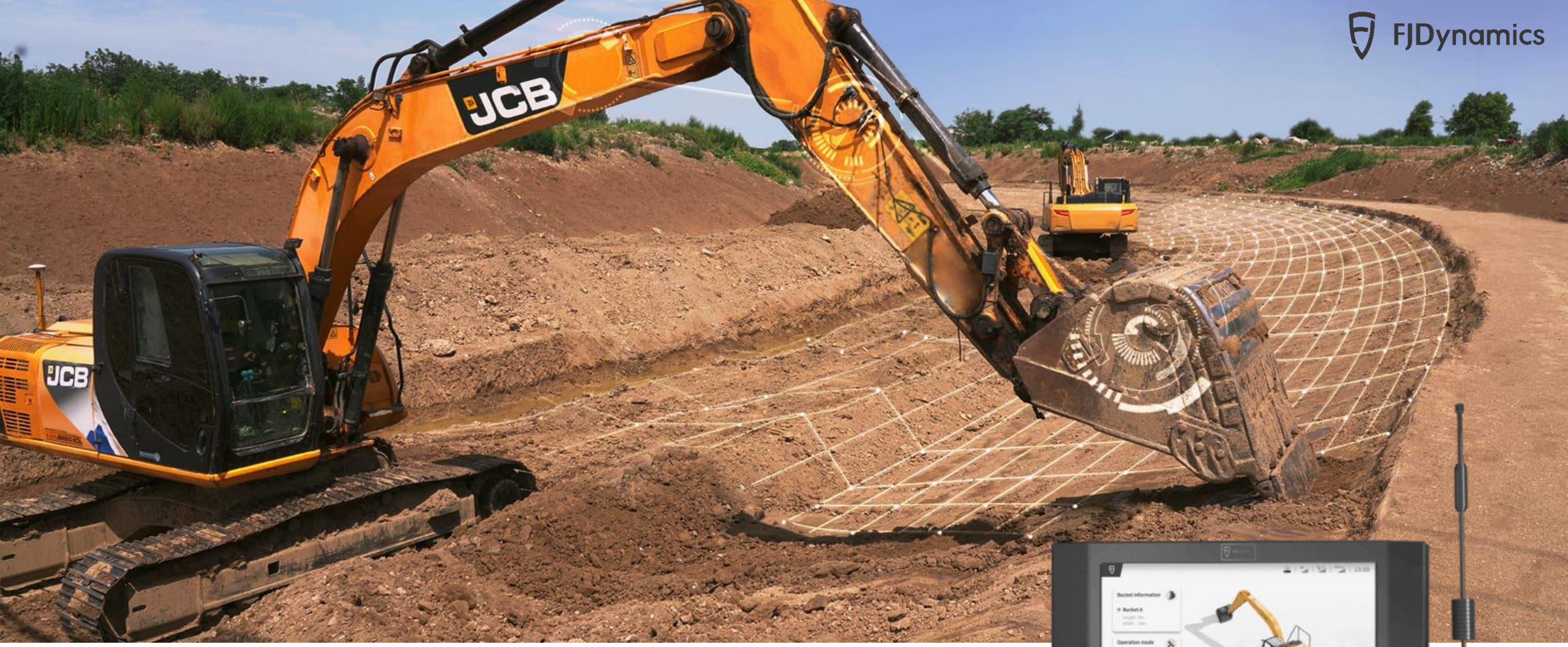
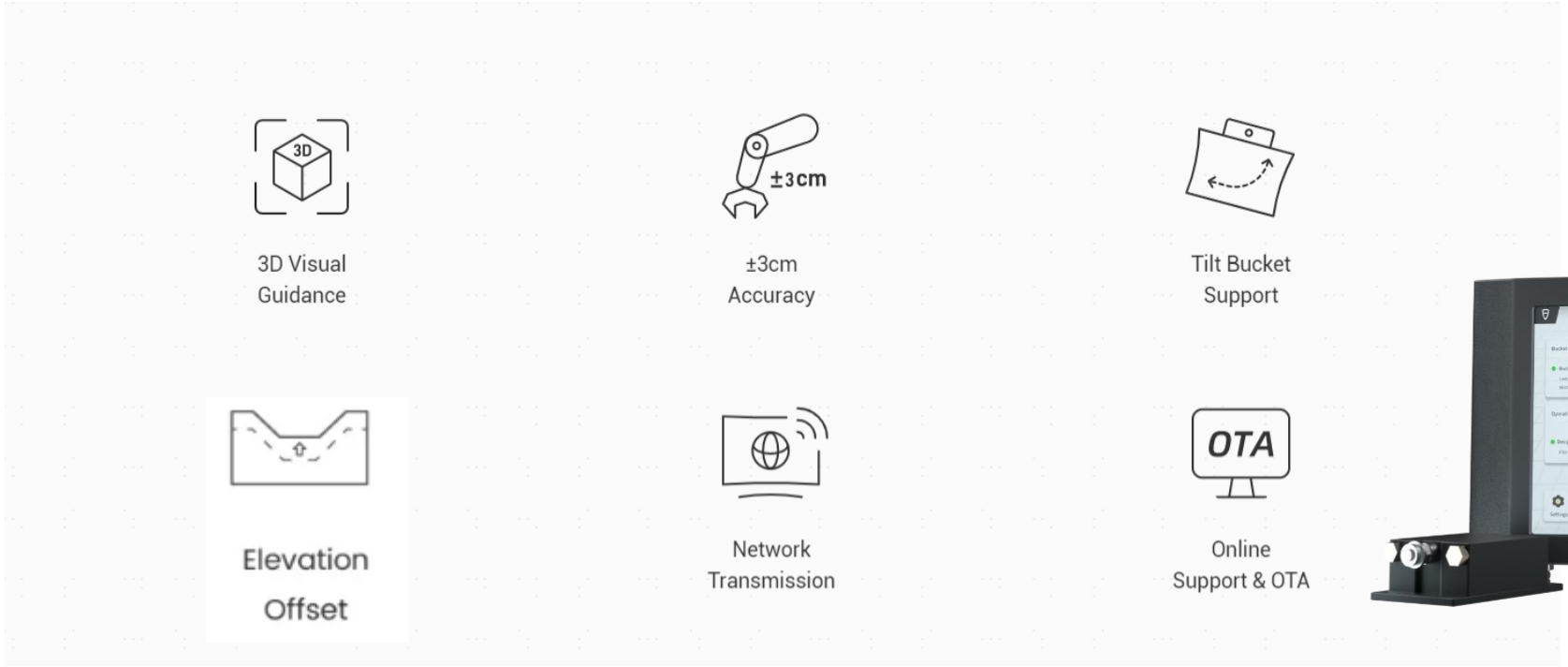


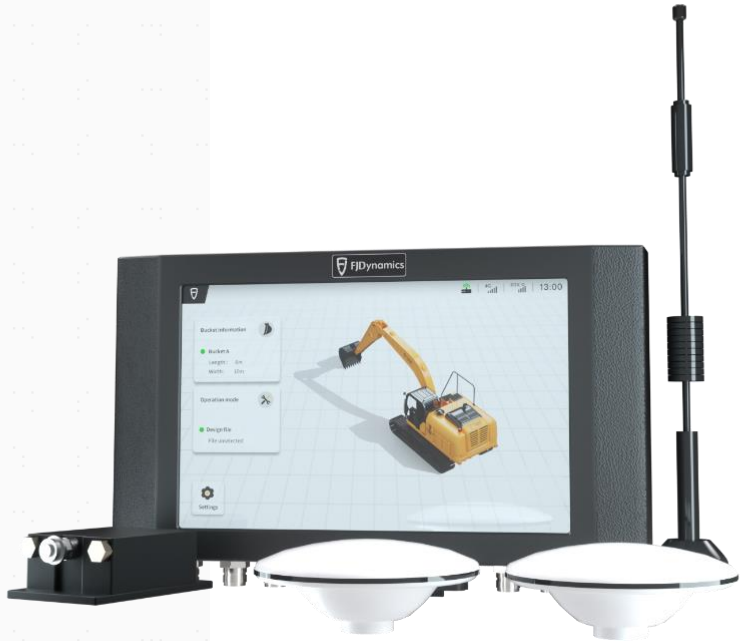
FJDynamics G31 3D Excavator Guidance System

Improve Efficiency With Less Cost

HIGHER EFFICIENCY WITH REDUCED COST

The GNSS and RTK-based grade control system features a 3D reference model, updates cut & fill workloads, and displays the real-time position of the excavator and bucket position. With the help of this system, operators of all skill levels can easily achieve an accuracy of 3cm.





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APPLICATION SCENARIOS

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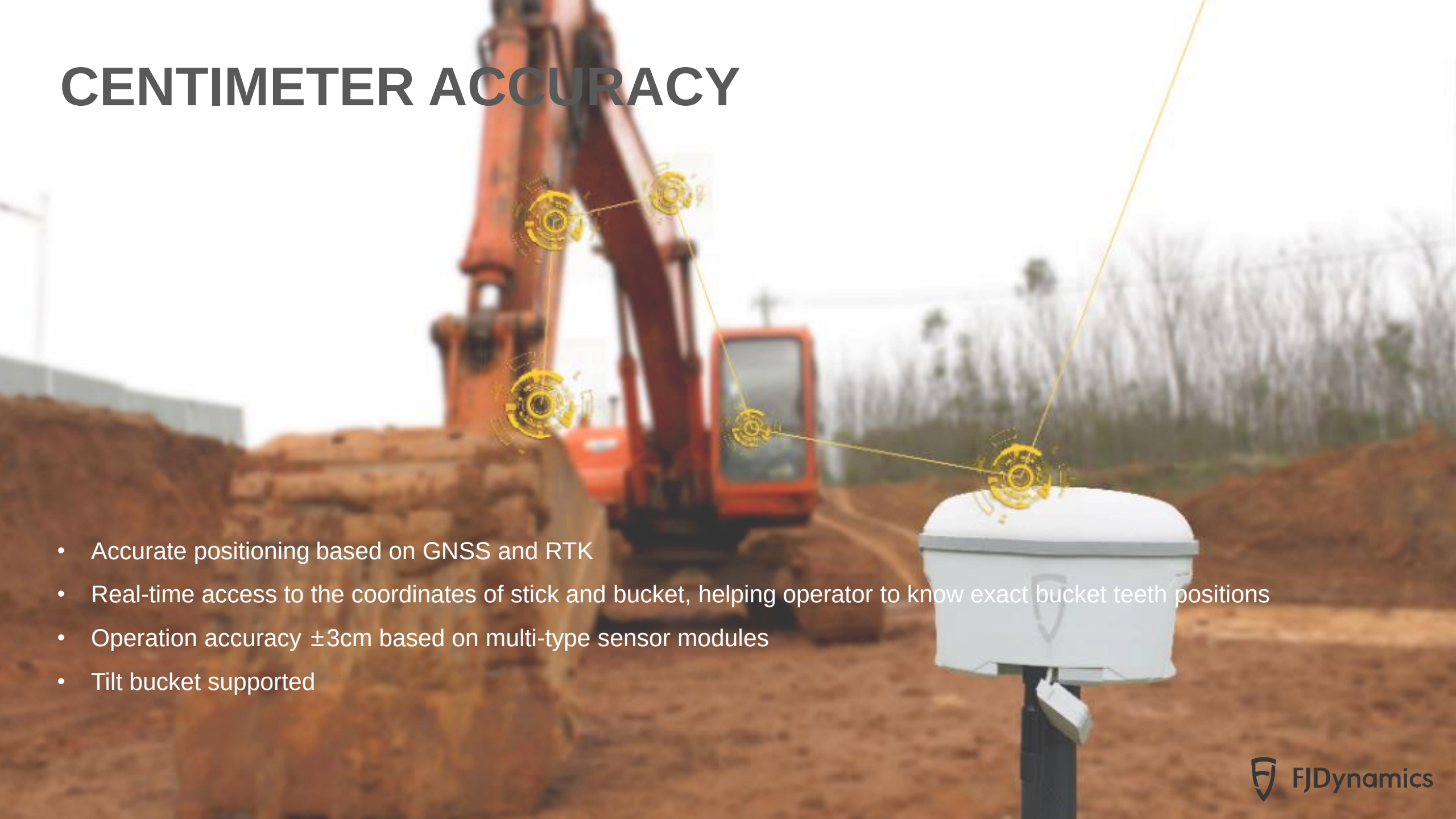
CENTIMETER ACCURACY



- Accurate positioning based on GNSS and RTK
- Real-time access to the coordinates of stick and bucket, helping operator to know exact bucket teeth positions
- Operation accuracy ±3cm based on multi-type sensor modules
- Tilt bucket supported

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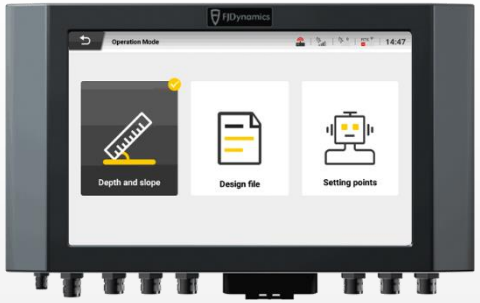
TASK GENERATION MODES



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.

Site Design

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

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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

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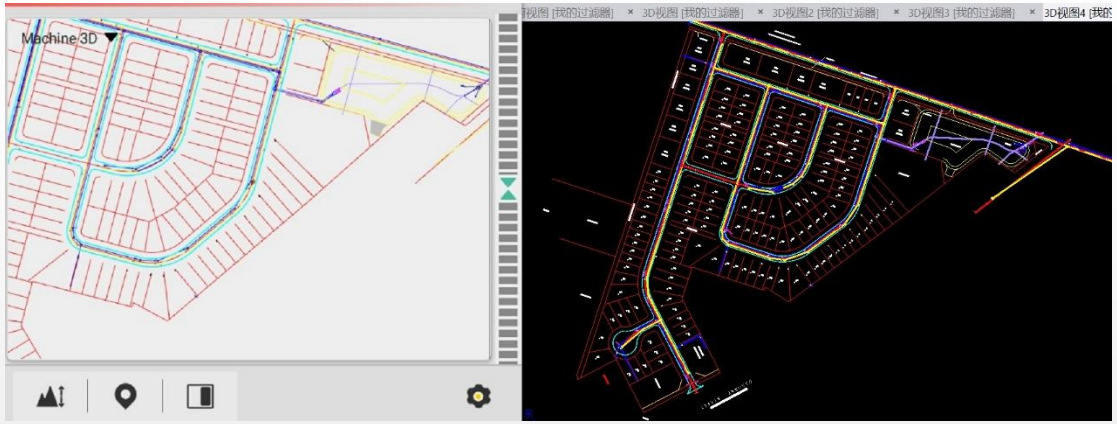
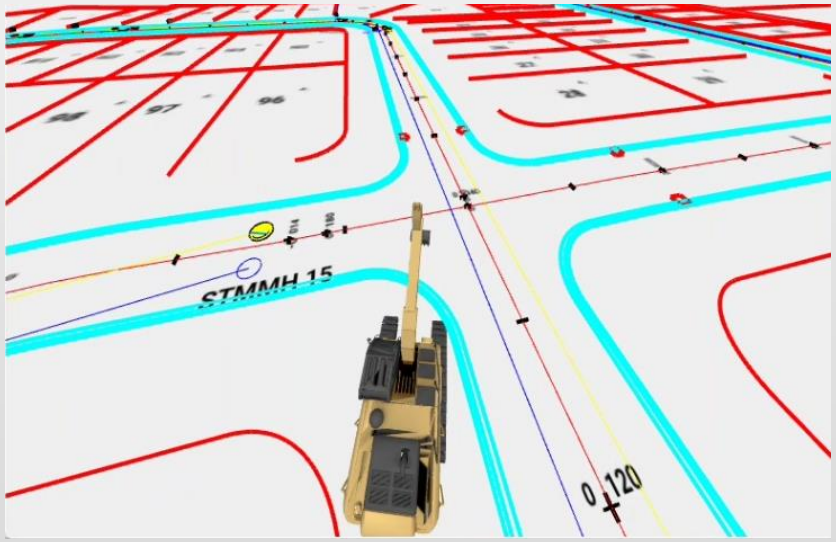
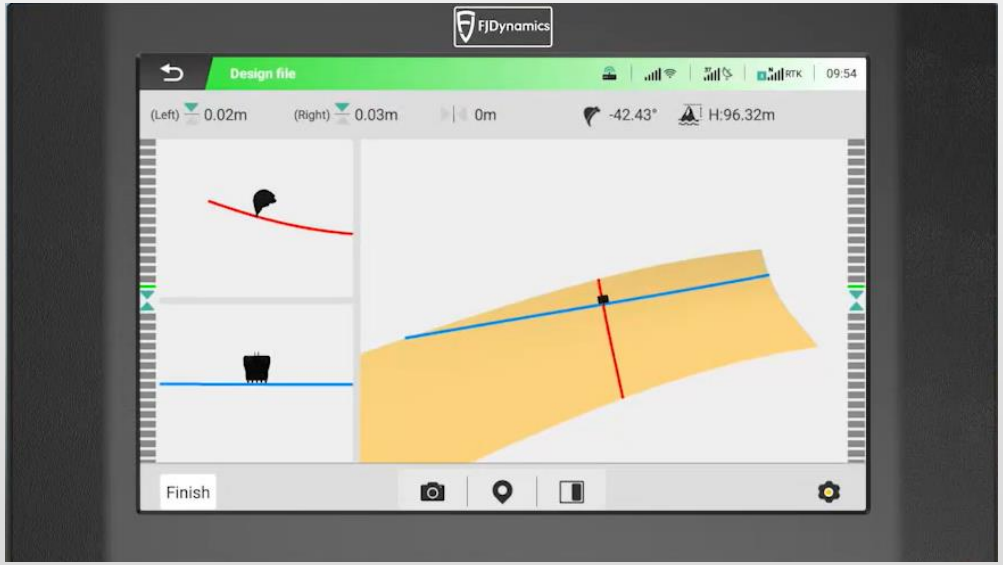
FUNCTIONS – DESIGN FILE IMPORT

Operators can import design files (in Land XML, DXF formats) into the system via network and USB key.







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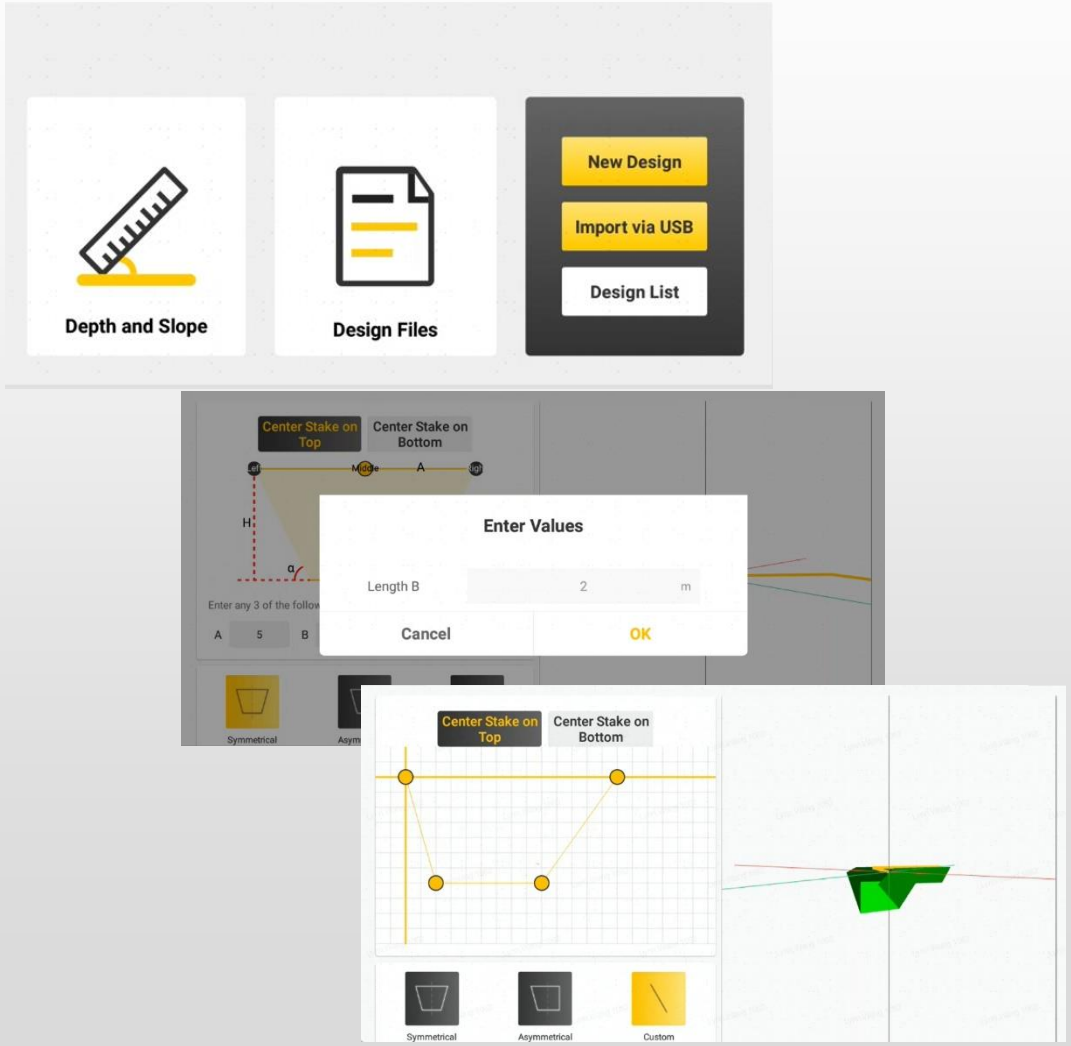
FUNCTIONS - SITE DESIGN



With design drawings, you can set datum points on the spot. With the built-in transection templates, 3D visual files could be synthesized for a smooth start.

3 ways for path design:

- Marking points;
- Import coordinates;
- Enter coordinates manually.

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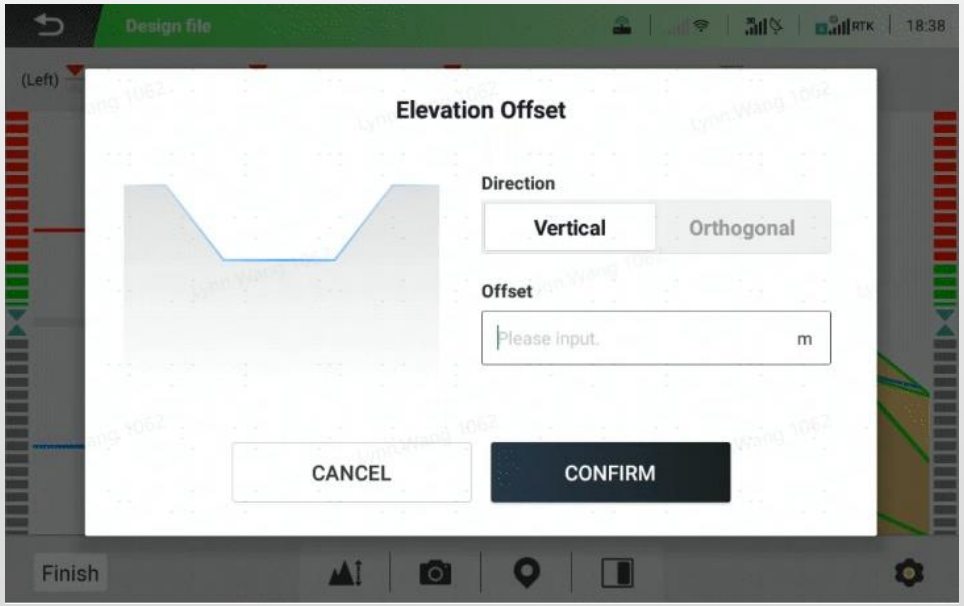
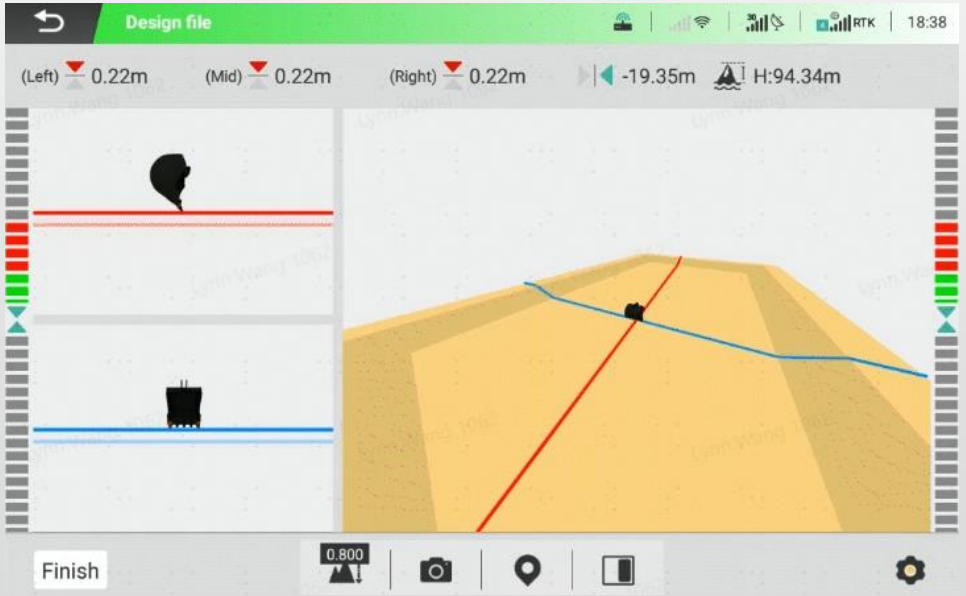
FUNCTIONS - ELEVATION OFFSET

In case your bucket cannot reach the target surface in a single pass, elevation offset breaks down the process with achievable surfaces, so the target can be reached step by step, leading to a refined result finally.





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FUNCTIONS - TILT BUCKET SUPPORT

- The actual tilt position will be shown on the screen in real-time
- The system can be upgraded to professional version through adding a tilt bucket sensor
- Compatible with mainstream tilt buckets in market

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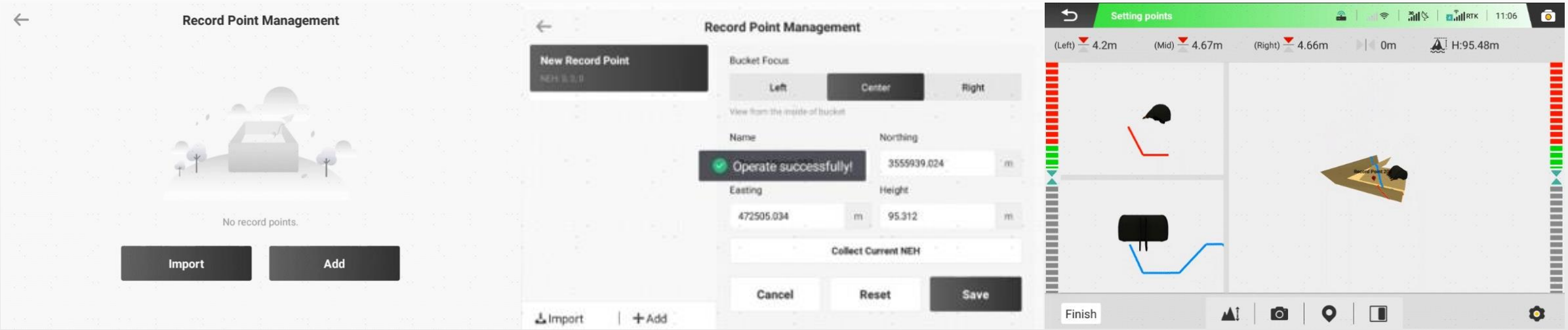
FUNCTIONS - RECORD POINTS



Record the current position of the selected bucket tip, and start the next operation from where it ended last time. This function is suitable for underwater digging and other working scenarios.

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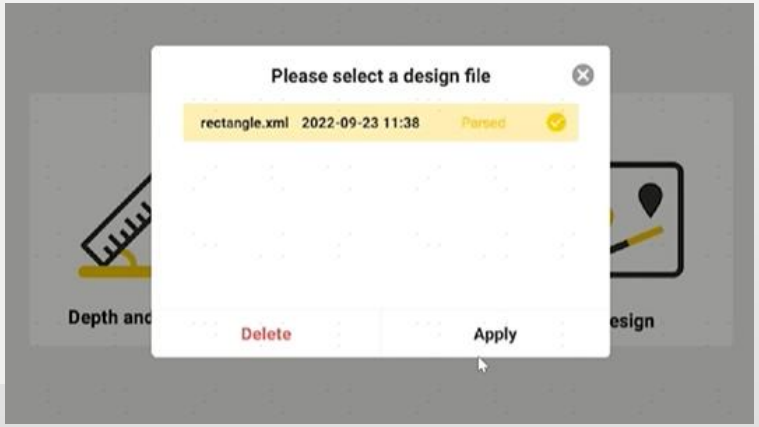
FUNCTIONS - NETWORK TRANSMISSION

The operator can import json files easier.

Transfer files anywhere, anytime without a USB key



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COMPONENTS

3D Guidance Version

①-④ Sensor Module

⑤ Control Terminal

⑥ 4G/Radio Antenna

⑦ GNSS Antenna

The system can be updated to the professional version through adding **tilt bucket sensors**.

FJDynamics

SPECS

CONTROL TERMINAL

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

ATTITUDE SENSOR

Range	Pitch ±70°, Roll ±180°
Max Angular Velocity	≤ 400°/s
Working Temperature	-40℃ - +85℃
Waterproof Rate	IP67
Power Supply	4.9 - 32V

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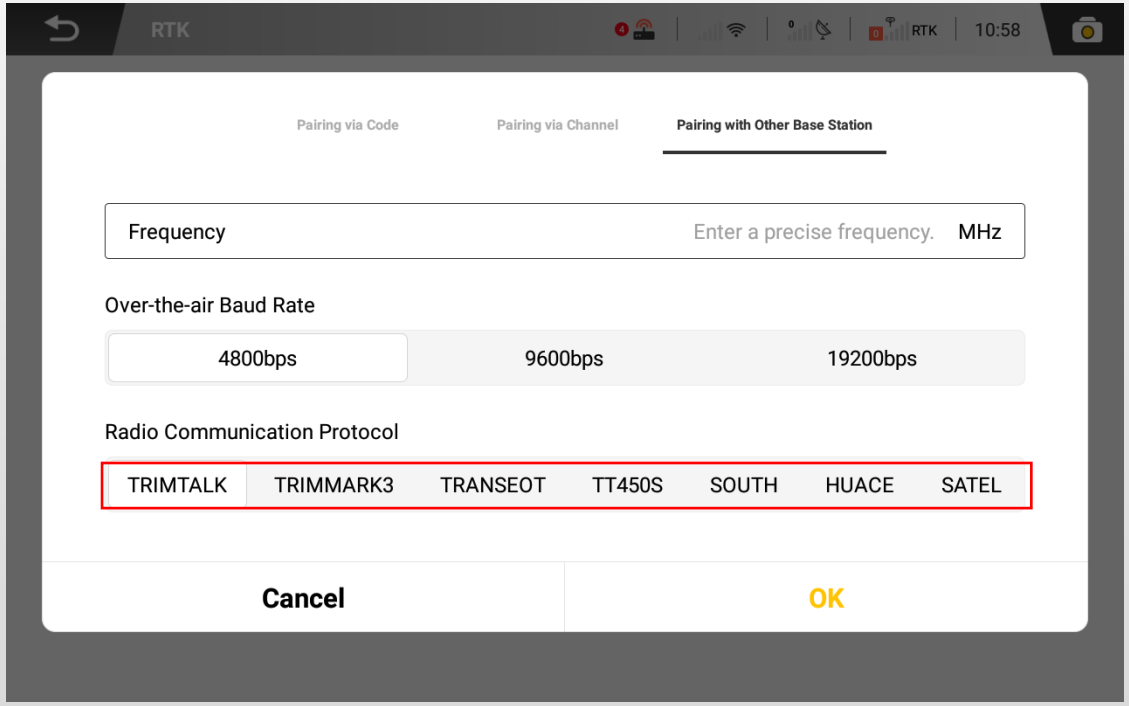
ACCESSORY

FJD Trion V1 Series GNSS Receiver

- As a base station in excavation process
- providing stable differential data.
- As a mobile station for coordinate acquisition and coordinate calibration for excavators.

Main Stream base station support

- Support mainstream radio protocol



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MORE POSSIBILITIES TO DISCOVER CONSTRUCTION UPGRADE SOLUTIONS

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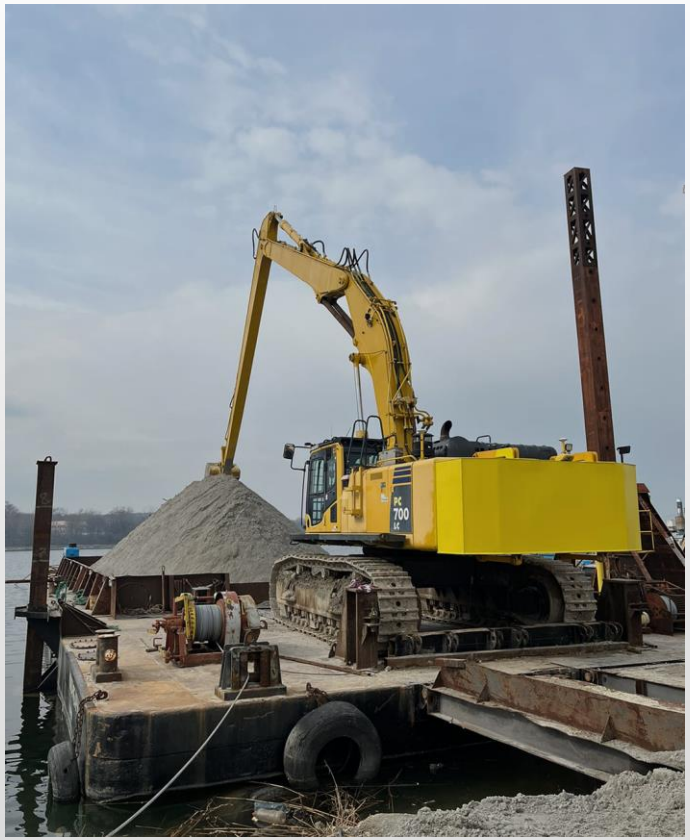
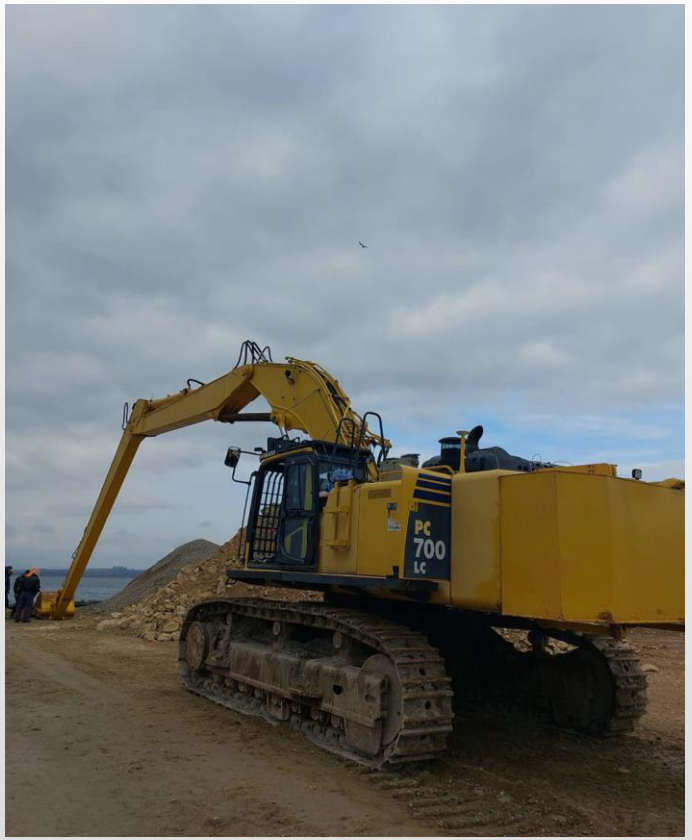
USER FEEDBACK

Underwater operation, Bulgaria

- Long reach excavator Komatsu 700LC
- High precision & real-time information on slope, location and elevation.





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USER FEEDBACK

A successful case in Hungary

- Hyundai R35Z-9
- Tilt bucket support
- Accuracy of 3cm with affordable price

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USER FEEDBACK

CAT M318, Slovakia

The 3D visual guidance gives the possibility to apply FJD G31 in different construction scenarios. Plus entry-level friendly functions, FJD G31 has attracted the increasing attention of excavator brands from various countries.

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USER FEEDBACK

Agricultural scenario, trenching

This scenario is common in the east-central region of the USA, assisting farms with the digging of new ditches and the repair of old ones, mostly for water diversion and drainage works on farms, to ensure the supply of water to the crops during the growing season and to keep them drained during the rainy season.

- **The traditional way**

Farmers have used the laser elevation solution, but the laser kit is expensive and susceptible to sand and dust, and the laser emitter has to be moved every 600 feet or so, making it inefficient.

- **FJD’s Solution**

The base station only needs to be set up once a day, accuracy is stable and the product is cost-effective!

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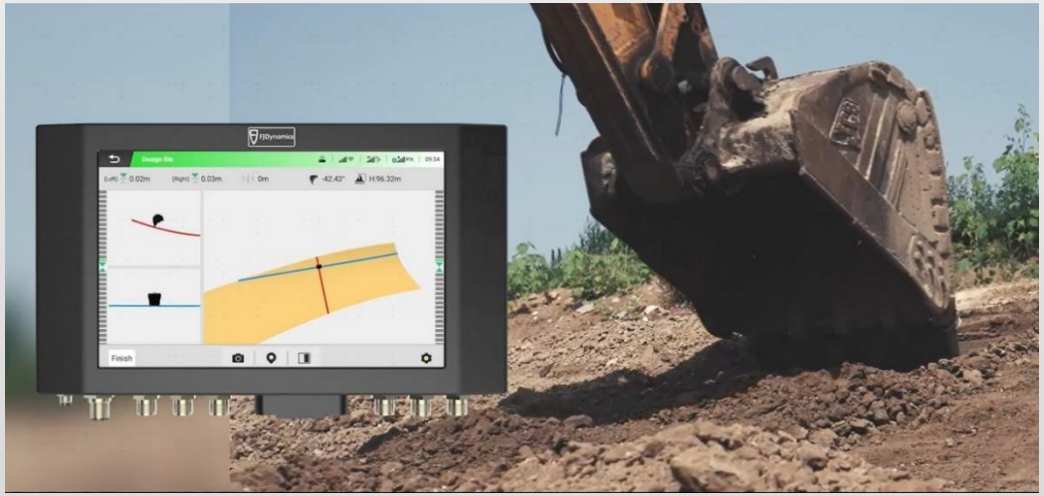
USER FEEDBACK

FJD G31 Excavator Guidance System Saves 45% of Project Time for The Largest Proving Ground in Asia

- With FJD 3D G31, operators can carry the high-precision excavation alone without repetitive measuring. According to the project, the target can grade at least 90㎡ per day, saving time by up to 45%.

- "During the project, the operators are well informed of the distance between the bucket and the targeted surfaces in real-time. The grading accuracy is satisfying and there is less repetitive work. We look forward to applying FJD G31 to more projects," remarked by a representative of the project.



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USER FEEDBACK

South Africa

- Demo days on 16-17 Nov, 2022
- Excavator MCM 65DS

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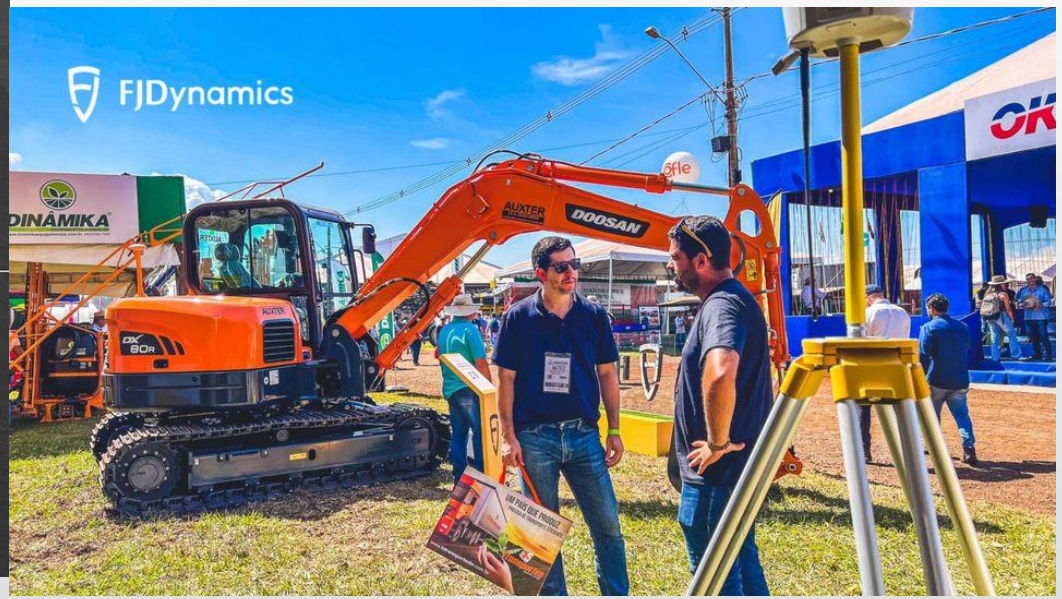
GLOBAL EXHIBITION



AgriShow, Brazil, April, 2022

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GLOBAL EXHIBITION

Bulgaria, Nov, 2022

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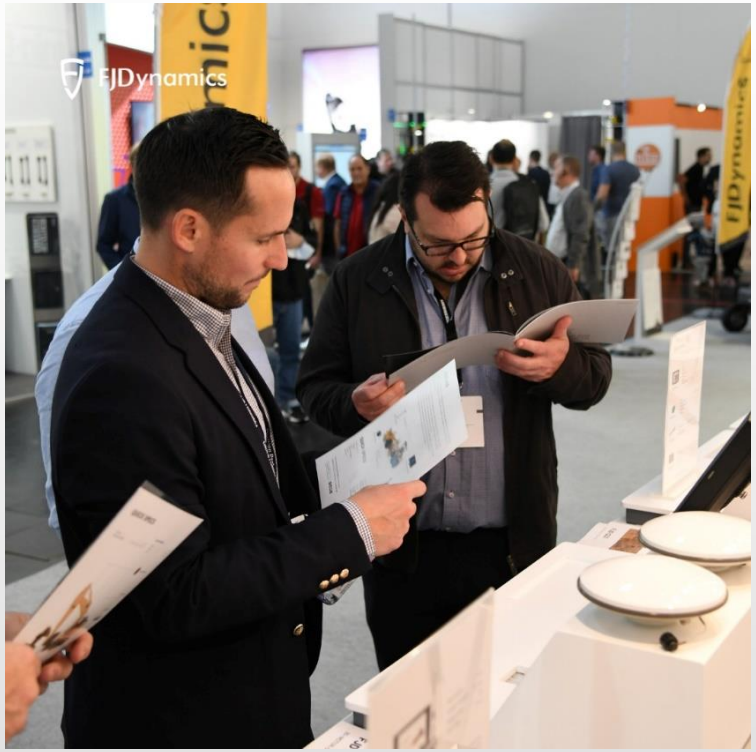
GLOBAL EXHIBITION



Munich, Germany, BAUMA, Oct, 2022

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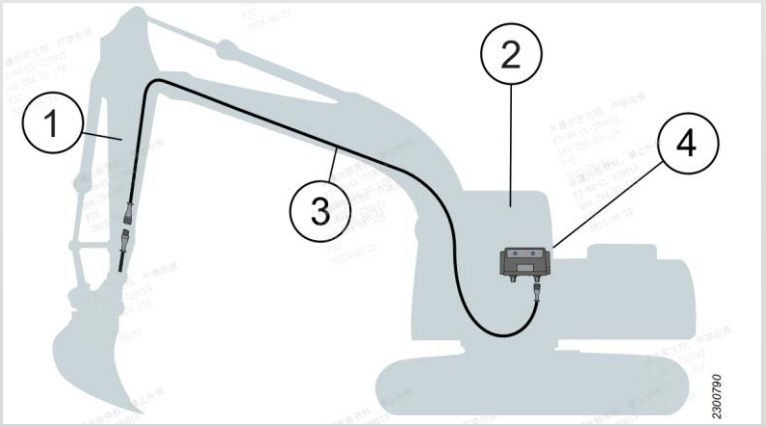
TILTROTATOR BUCKET SUPPORT--SOLUTION

FJD machine control system

ECS:Engcon Control System

Need to confirm with engcon which ECS can be fitted to your specific tiltrotator type



ROTATED BUCKET SUPPORT--STEP

Task	FJD	Partner
ECS Hardware installation	Communicate with fjd the available ecs system before buying	Engcon sell and provide installation service
FJD Hardware installation	Provide “cables for engcon controller connection” (”tilt sensor” if needed)	Installation under FJD remote tech support
FJD Software installation	Remote support	Local upgrade under FJD remote tech support and upgrade tools
Optional: Tilt sensor calibration (some engcon type can provide both tilt and rotate data, if that is, ignore this step)	Remote support	Tilt sensor calibration
Communication Debug	Remote support Log analysis if needed	Finish communication protocol debug with engcon, collect log if needed
Accuracy test	Remote support Log analysis if needed	Accuracy test, collect log if needed

Tool preparation:

1. Can box for debug
2. Local upgrade tool for ECU/RTK
3. Tool box for sensor/cable installation