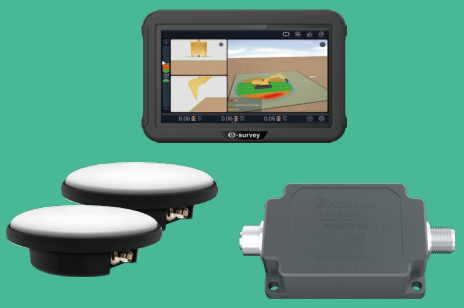
e-survey

eME10

3D GNSS EXCAVATOR GUIDANCE SYSTEM



The eSurvey eME10 is designed with high accuracy in mind and consumes less time by guiding excavator operations. It employs GNSS real-time dynamic positioning technology to obtain the bucket's real-time and accurate 3D position information by reading multiple tilt sensors installed on the excavator. The eME10 features intuitive, easy-to-learn software that runs on the Android operating system. The state-of-the-art hardware and software help operators of all skill levels work faster and more efficiently than before, particularly in complicated environments. To summarize, you can accomplish more in less time.

Machine Control

Improved Accuracy

Bucket teeth with 3cm accuracy.
Visualized the blind spots and real-time guidance during the working process,
Results are displayed graphically and digitally for easy understanding.
Reduces over- and under-excavation while improving the general flatness of the excavation surface.

Easy Installation

One man can install all. Work faster and more efficiently by guiding excavator operations, quick for the installation and easy for the operator. Installation could setup on boom or machine body.

Lower Cost

No assistant is required; One person can complete the work. Reduce the requirements for the operator. No measurement or stake out is required; Simply start the machine and work. Reduce fuel consumption and mechanical loss to reduce operating costs.

Rugged Hardware

The eME10 can be used for many years even under harsh environmental conditions (like dust, mud, rain, extreme heat, and cold) thanks to its rugged design of the display, GNSS receiver, positioning antenna, heading antenna, and tilt sensors.

Improved Efficiency

Simplified construction process, 50% higher efficiency.
Quick excavation, reduced rework, and guaranteed construction period.
24-hour construction without being affected by the environment
No fear of complex shapes;
One-time molding.

Fast Calibration

A new 3D modeling calibration method will provide customers with a brand-new way of measuring that does not require a total station. Easy and quick to learn and run; No need calculate the parameters on site.

Website & Social media

Product Specification

eME10

3D GNSS EXCAVATOR GUIDANCE SYSTEM

MA Rugged GNSS Antenna	
Signal Received	▪ GPS: L1/L2/L5 ▪ GLONASS: L1/L2/L3 ▪ BEIDOU: B1/B2/B3 ▪ Glileo: E1/E5a/E5b/E6 ▪ QZSS: L1/L2/L3/E6 ▪ IRNSS: L5 ▪ SBAS: L1/L5 ▪ L-band
Nominal Impedance	50Ω
Polarization	RHCP
Axial Ratio	≤3dB
LNA Gain	40±2dB
Operation Current	≤45mA
Dimension	Φ150×53mm
Connector	TNC female
Differential Transmission Delay	≤5ns
Temperature	Working temperature: -45~+85°C Storage temperature: -55~+85°C
Waterproof	IP69K
Weight	≤600g
Mounting	BSW5/8"-11 screw, depth10-11mm

MI-2 Dynamic Inclination Sensor	
Signal Output	CAN2.0
Water/dust Proof	IP68/IP69K
MTTF	260 Years @ 40 °C
Measuring Range	Pitch ± 85°, Roll ± 180°
Absolute Accuracy	±0.30°
Resolution	0.01°, ≤0.05°
Repeatability	≤0.05°
Dynamic Accuracy	≤0.05° ±0.5°
Hysteresis	≤0.05°
Mounting Direction	Vertical
Supply Voltage	9- 30 VDC
Power Consumption	≤ 65 mA @ 10 V DC, ≤ 60 mA @ 24 V DC
Operating Temperature	-40 °C (-40 °F) - +75 °C (+167 °F)
Storage Temperature	-40 °C (-40 °F) – +85 °C (+185 °F)
Shock Resistance	≤ 100 g (half sine 6 ms, EN 60068-2-27)
Vibration Resistance	1.5 mm (10 Hz – 58 Hz) & ≤ 20 g (58 Hz to 2000 Hz)
Housing Materials	Die-cast aluminum alloy
Potting Material	PUR (Polyurethane)
Weight	220g (0.49 lb)
Interface Protocol	J1939
Stabilization Time	50 ms
Transmission Rate	125 KBaud, 250 KBaud, 500 KBaud
Default Transmission Rate	250kBaud
Default Node ID	C0h
Default PGN	PGN 65280 (Pitch, Roll, Acceleration x, Acceleration y) +PGN 65281 (Acceleration z,Gyro x, Gyro y, Gyro z)
Reverse Polarity Protection	Yes
Short Circuit Protection	Yes
Certification Passed	CE + E1

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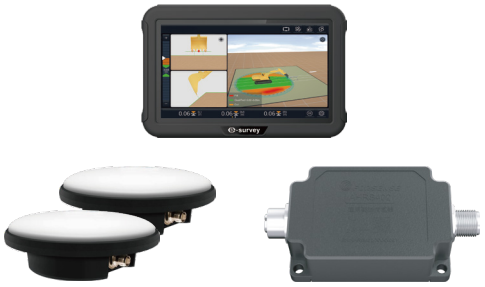

MDP-1 Display	
Product Parameters	
GPU	8 Cores, Supports OpenGLES 3.1
OS	Android 9.0
RAM	2 GB (Optional 4 GB)
ROM	16G ROM (Optional 64 GB), Support TF card (Expandable up to 256G)
Screen Size	10.1 inch TFT LCD
Resolution	1024 x 600
Brightness	750 cd/m^2
Touch panel	Capacitive(Supports five-finger touch)
Communications	2.4GHz/5.8GHz WiFi, IEEE 802.11 a/b/g/n/ac
	Supports WiFi hotspot sharing
	Supports Ethernet and 4G simultaneous online
	BT2.1+EDR/3.0/4.1LE/4.2BLE
	4G/LTE (Dual SIM optional)
	GNSS (GPS/BDS/GLONASS)
	Optional centimeter-level positioning board
	Optional inertial module
	Built-in microphone (optional)
	Built-in speaker
I/O Interface	RS-232*2
	RS-485*1
	Support 250K/500K CAN*1/2 (Support J1939,CANopen,ISO15765)
	DI*2, DO*2
	USB 2.0*1
	720p*4/1080p*2AHD camera inputs
	12V DC external power supply*2
	Ethernet*1

Product Parameters	
Power Management	9-36V DC input, support ignition detection
Water/dust Proof	IP65
Vibration Standards (at work)	MIL-STD-810
Shock Standards (at work)	IS016750
Humidity Resistance	95% Non-condensing
Operating Temperature	-20°C - +70°C
Storage Temperature	-40°C - +85°C
Dimension(W*H*D)	281 mm x 181 mm x 42 mm
Weight	1.5 kg
Function Buttons	Power on/off button*1, Customized function buttons*2
Connector	Standard industrial grade waterproof connector
	SMA female*2(GNSS & 4G)
	TNC female connector*2 (GNSS)

MDP-1 Display				
Performance Indicators				
Channels	1408 channels, based on NebulasIV			
Initialization	<5 seconds (Typical)			
Satellites Tracking	BDS:B1I, B2I, B3I, B1C, B2a, B26b			
	GPS:L1C/A, L1C, L2P (Y), L2C, L5			
	GLONASS:L1, L2			
	Galileo:E1, E5a, E5b, E6			
	QZSS:L1, L2, L5, L6			
Initialization Reliability	> 99.9%			
Differential Format	RTCM3.3/3.2/3.1/3.0			
Data Format	NMEA0183			
	Unicore			
Observation Data Update Rate	20 Hz			
Positioning Data Update Rate	20 Hz			
Orientation Precision (RMS)	0.2°/1m			
Timing Accuracy (RMS)	10 ns			
Velocity Accuracy (RMS)	0.03 m/s			
Positioning Accuracy (RMS)	RTK: H: 8 mm + 1 ppm; V: 15 mm + 1 ppm			
	Single: H: 1.5 m; V: 2.5 m			
Observation Accuracy(RMS)	BDS	GPS	GLONASS	GALILEO
B1I/B1C/L1C/L1 C/A/E1/G1 Code	10cm	10cm	10cm	10cm
B1I/B1C/L1C/L1 C/A/E1/G1 Carrier phase	1mm	1mm	1mm	1mm
B3I/L2P(Y)/L2C/G2 Code	10cm	10cm	10cm	10cm
B2/L2P(Y)/L2C/G2 Carrier Phase	1mm	1mm	1mm	1mm
Time to First Fix (TTFF)	Cold Start < 10s			
	Recapture < 1s			
Radio	Supported frequencies 410-470Mhz			
	Air baud rate 19200/9600			
	Protocol: TRIMTALK, TRIMMK3; TRANSEOT;SOUTH;SATEL			

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