e-survey

eMR10

GNSS INTELLIGENT ROAD ROLLER SYSTEM

The eSurvey eMR10 intelligent road roller compaction system adopts high-precision Beidou positioning, compaction sensor and temperature sensor technology.

The eMR10 digitally and graphically displays and records the construction process data in real time, collects and monitors the speed and trajectory of vehicle travel, compaction value, vibration status, milling temperature and other key parameters.

The data is transmitted back to the synchronized digital construction management platform in real time to generate customized reports, ensuring the construction quality of rolling.

The eMR10 is widely used for earth and stone layered filling, subgrade, and surface grinding on a variety of projects, including railroads, highways, dams, and harbors.

Machine Control

Adaptation Flexibility

Support the global coordinate library and provide multilingual versions;

Support Athena Engine RTK with L-Band China accuracy, intelligent receivers can achieve centimeter-level accuracy;

Support multi-project and multi-site management, and can be quickly switched between multiple sites;

Support network differential.

Support the integrated positioning board card program of the display and control terminal, easy installation;

Support the reception of RTCM1021-1027 conversion parameters.

Adaptable to single-steel wheel, double-steel wheel, rubber wheel, and impact mill models.

Real Effectiveness

Real-time display of the number of rolling passes, rolling speed, rolling temperature, compaction, and other index values as well as the vibration status of rolling;

Real-time recording of the actual data of layered filling and rolling, reducing rework and ensuring the rate of one-time passing inspection;

Support the digital construction management platform by enabling two-way transmission and facilitating the visualization management of remote quality and progress.

Site Safety

Stakeless construction and automation enhance the safety of the construction site;

Implement electronic fencing, creating danger avoidance zone, and reducing accidents.

Reduce labor costs while protecting the people from the harsh construction surroundings.

Operation Convenience

Sound prompts, such as operation and danger warning prompts, etc.

Real-time display of key parameters and completion status of the crushing process with graphics, numerical values, and other methods;

Set a horizontal guide line to avoid missing areas during compression;

Navigation function;

Support online version updates and speedy registration via networking;

Support the import and export of coordinate conversion parameters and calibration files to speed up the system calibration process.

Support WiFi connection to the rover station and automatic acquisition of coordinate points;

Enable fast display of receiver and sensor connection status and data; Discover abnormal situations and deal with them promptly.

Website & Social media

Product Specification

eMR10

GNSS INTELLIGENT ROAD ROLLER SYSTEM

MA-2 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	≤45 mA
Dimension	Φ150×53mm
Connector	TNC female
Differential Transmission Delay	≤5 ns
Temperature	Working temperature: -45 - +85℃ Storage temperature: -55 - +85℃
Waterproof	IP69K
Weight	≤600 g
Mounting	BSW5/8"-11 screw, depth10-11mm

MT-2 Temperature Sensor	
Basic Performance	
Protection Class	IP65 (NEMA-4)
Ambient Temperature	0 - 60 °C
Storage Temperature	-20 - 80 °C
Relative Humidity	10 - 95 % (non-condensing)
Material	Stainless Steel
Electrical Parameters	
Working Power Supply	9 - 32 VDC
Maximum Current	50 mA
Output Signal	485 Signal
Measurement parameters	
Spectral Range	8 - 14 μm
Temperature Range	0 - 300 °C
Optical Resolution	20:01:00
Response Time	150 ms (95%)
Temperature Measurement Accuracy	±1% of measured value or ±1.5°C, whichever is greater
RepeatabilityRepeatability	±0.5% of measured value or ±1°C, whichever is greater
Dimension	79mm x ϕ18mm (length*diameter)
Emissivity	0.95 Fixed

CS-3 Sensor	
Sensor	
Sensitivity (20±5° C)	100 mV/g
Measuring Range (peak)	t50 g
Maximum Lateral Sensitivity	<5 %
Frequency Response (±10 %) (±3dB)	■ 1-7000 Hz ■ 0.5-10000 Hz
Amplitude Linearity	≤1 %
Operating Temperature Range	-40 - +120°C
Shock Limit (Peak)	2000 g
Noise (rms)	<50 μV
Output Impedance	<100 Ω
Power Supply (constant current source)	12 VDC
Operating Current	2 - 10 mA
DC Bias Voltage	11+1.5 VDC
Base Isolation	≥108 Ω
Mounting	Magnetic Chassis
Sensitive Materials	Piezo Ceramic
Structural Design	Shear
Housing Material	304 stainless steel
Weight	73g

Analyzer	
Data Output Connector Definition	RS232 output
Output Metrics	VCV
Connectors	M12
Housing Material	Cast aluminum material
Dimension	130 mm x 100 mm x 50mm

Product Specification

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GNSS INTELLIGENT ROAD ROLLER SYSTEM

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

MDP-1 Display	
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)

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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