

SMC-8200 3D

Intelligent Leveling System

System Overview

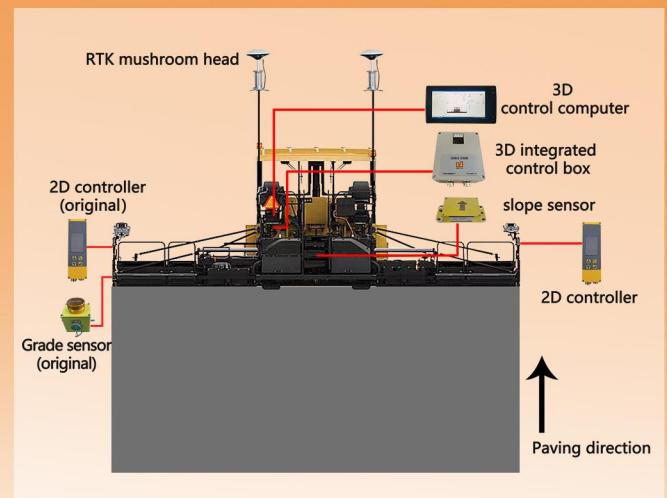
The SMC-8200 3D Intelligent Leveling System is a high-precision automatic slope control system independently developed by Jiangsu Siming Engineering Machinery Co., Ltd., specifically designed for intelligent paving operations. Tailored for the "dual-machine tandem paving" construction scenario, this system integrates high-precision sensing technology with intelligent control algorithms, featuring automatic slope adjustment, longitudinal tracking, and elevation compensation functions, significantly enhancing paving quality, construction efficiency, and automation levels.

This system is compatible with various types of paver equipment, operates independently, and is widely used in construction scenarios such as highways, urban expressways, and interchange ramps that require high accuracy in flatness and slope. It has broad prospects for promotion and application.

System Principle and Composition

The SMC-8200 system mainly consists of a GNSS dual antenna positioning unit (dual RTK mushroom head+RTK receiver), a slope sensor, a slope control mechanism (2D controller), a communication integrated control box (3D integrated control box), and a human-machine interaction terminal (3D control computer).

In practical operations, the adjustable ski sensor on the rear side slide along the new paved road surface of the front machine to obtain the physical relative elevation reference; At the same time, the GNSS dual antenna real-time collects the spatial attitude and construction position of the paver. The system intelligently determines the paving direction, compares the measured slope with the designed slope in real time, calculates the deviation through algorithms, and outputs control signals to drive the leveling hydraulic cylinder to dynamically adjust the paving thickness.



The entire control process does not require manual intervention, and the system can continuously correct errors in real time, ensuring precise connection between the cross slope of the rear machine and the construction height of the front machine, effectively ensuring the smoothness of the road surface and the consistency of the design slope.

System Functional Characteristics

- ▶ **Intelligent recognition of paving direction**
The system can automatically determine the paving direction based on spatial posture and sensor data, without the need for manual selection, greatly improving operational efficiency and intelligence.
- ▶ **Ski+satellite dual reference**
By using ski to physically track the elevation of the front machine paving layer, combined with GNSS high-precision positioning, the combination of cross slope control and longitudinal slope tracking is achieved to ensure continuous thickness and smooth slope of the paving layer.
- ▶ **Real time high-precision control**
The system adopts millimeter level high-resolution sensors and high-frequency control logic, which can monitor and correct the slope deviation of paving in real time, with high control accuracy and fast response speed.
- ▶ **Independent control system**
The SMC-8200 system adopts a modular architecture, which can be installed and debugged without affecting the original paving control system. It has good system compatibility and adaptability to construction sites.
- ▶ **Applied to dual machine parallel operation**
Specially suitable for the dual paver joint construction method of front total station elevation control and rear automatic tracking, avoiding human intervention, improving paving consistency and construction efficiency.
- ▶ **Human computer interaction friendly**
Equipped with a high brightness touch screen and Chinese graphical interface, it supports functions such as abnormal alarm, status prompt, and device connection detection. At the same time, it can be flexibly divided and managed according to construction sections, improving operational convenience and management efficiency.

Technical Parameters

Project Name	Technical parameters
Power supply range	DC 12V—36V
Display screen	10.1 inches, automatic photosensitive adjustment, capacitive touch
Working temperature range	-20 °C~ 70 °C
Storage temperature range	-30 °C~ 80 °C
Protection level	The protection level of the front cover plate is IP 65
System communication	CAN communication, 232 communication, USB communication
Accuracy of grade detection	±1 mm
Slope measurement resolution	0.001°

Applicable Conditions

The SMC-8200 system is suitable for various construction environments and has good operational adaptability. The recommended usage conditions are as follows:

- 1.Areas with good GNSS signals (unobstructed, under bridges or in tunnels) should be evaluated in advance;
2. Having 4G network coverage area and supporting CORS account access;
- 3.The paving equipment has a standard hydraulic control interface and supports external leveling control signal access;
- 4.Suitable for a temperature range of -25° C ~+75 ° C , supporting high-altitude operations and meeting most highway construction environments;
- 5.Dustproof, shockproof, waterproof design, suitable for complex working conditions and long-term continuous operation.

Application Cases



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