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CSGC-3000E/OCS
Energy Management System

BEIJING SIFANG AUTOMATION CO., LTD.

01 Product Overview

The CSGC-3000E/OCS Energy Management System (hereinafter referred to as "the system")is developed by Beijing Sifang Automation Co., Ltd. for the modern power system. Built on the CSGC-3000E general software platform, it integrates SCADA, EMS, PAS, AGC, AVC, DTS, DMS, and OMS into a next-generation operation, scheduling, control, and management system for power systems.The system provides strong support for the automation, digitalization, and intelligent development of power systems. It meets the operational, analytical, and management demands of the power system while incorporating insights and lessons from domestic and international power automation and management system development. Furthermore, it adheres to the latest domestic and global industry standards and trends in modern power systems. Leveraging cutting-edge technologies in computer network communication, cyber security, and power applications, the system sets a new benchmark for power system development.The system offers comprehensive integrated solutions for SCADA, EMS, PAS, AGC, AVC, DTS, DMS, and OMS, catering to the needs of power supply enterprises both domestically and internationally., aiming to promote the automation, digitalization, and intelligence development of power system operations, improve power supply reliability, enhance operational economy, facilitate the consumption and utilization of renewable energy, and thus provide comprehensive technical support for the digital transformation of the power system.

02 Main Functions

Panoramic View

| KPI Comprehensive Dashboard | Central Control Console | Fault Display | Thematic Scene Analysis | Web Display Service | Large Screen Visualization Service

Monitoring Center

| Transmission Grid Operation Monitoring | Distribution Network Operation Monitoring | Electricity Consumption Monitoring | Renewable Energy Power Generation Monitoring | Equipment Status Monitoring | Intelligent Alarm | Data Anomaly Monitoring

Control Center

| Control Adjustment and Anti-error | Sequence Control | Setting Value Management | Feeder Automation | Automatic Voltage Control (AVC) | Automatic Generation Control (AGC) | Precise Load Control | Operation Tickets | Work Tickets | Dispatch Log Management | Operation Duty Management | New Energy Intelligent Control

Power Grid Analysis

| Real-time Topology Analysis | Single-phase Ground Fault Handling | Load Transfer | Loop Analysis | Network Restructuring | Load Estimation | Network Topology Analysis | Online State Estimation | Dispatcher Flow | Short-circuit Current Calculation | Static Security Analysis | Sensitivity Analysis | Power Grid Fault Simulation | Load Forecasting | Generation Forecasting | Network Loss Calculation | Dispatcher Training Simulation（DTS）

Data Center

| Front-end Data Collection | Inter-system Data Exchange | Horizontal Cross-region Synchronization | SCADA Data Processing | Model Verification | Model Splicing | Model Management | Statistical Analysis | Operation Monitoring | Manual Operation | Automatic Mapping | Line Loss Statistics | Power Supply Reliability Indicators | Fault Repair Process Management | Power Outage Management | Defect Management

Support Platform

| Multi-modes Multi-applications | System Management | Process Management | Resource Management | Log Service | Backup/Recovery | User Permission Management | Time Series Database Service | Relational Database Service | Real-time Database Service | Message Bus Service | Files Service | Alarm Service | Graphic Browsing | Integrated Graphical Tool | System Maintenance Tool | Report Module | Web Browsing Module | Incident Reversal | Security Center

03 Features

The system aims to assist the automation, digitalization, and intelligence development of the power system, with the following main features:

Comprehensive Data Monitoring

The system can collect and monitor substations of different voltage levels, different types of terminals and electricity consumers.

It horizontally covers the power system structure of transmission networks, distribution networks, and renewable energy; vertically supports hardware virtualization, data service, and modular software three-layer design architecture for application functions.

Macroscopically, it integrates SCADA, EMS, AGC, DTS, DMS, and OMS; microscopically, it can monitor real-time power data at the millisecond level.

Modular Advanced Application

The system offers multiple advanced application services, such as PAS, AGC, AVC, DTS, forecasting, etc., which are loosely coupled with the support platform, allowing for on-demand use, plug-and-play, and strong scalability, making it flexible and convenient.

Intelligent New Energy Monitoring

The system is friendly to centralized and distributed renewable energy access, achieving intelligent aggregation and analysis of adjustable generation, and has coordinated control functions of “Generation-Grid-Load- Storage”.

Automated Model Management

The system digitizes and automates model files, greatly reducing the workload of model maintenance.

In the transmission network, based on the grid CIM model and the GIS coordinates of substations, it supports the automatic generation of power flow diagrams and substation single line diagrams;

In the distribution network, it supports the automatic generation of feeder single-line diagrams, system connection diagrams, low-voltage distribution transformers diagrams, etc.

System Integration Standardization

The system can be standardized to connect with various intelligent terminals and automation systems.

It adopts standard protocols such as IEC 60870-5-101, 104, ICCP, DNP3.0 to connect with various intelligent terminals; based on IEC 61970/61968 CIM standards, it interfaces with various information systems of power supply enterprises.

Comprehensive Cyber Security

The system adopts multi-dimensional cyber security strategies to build a comprehensive cyber security system.

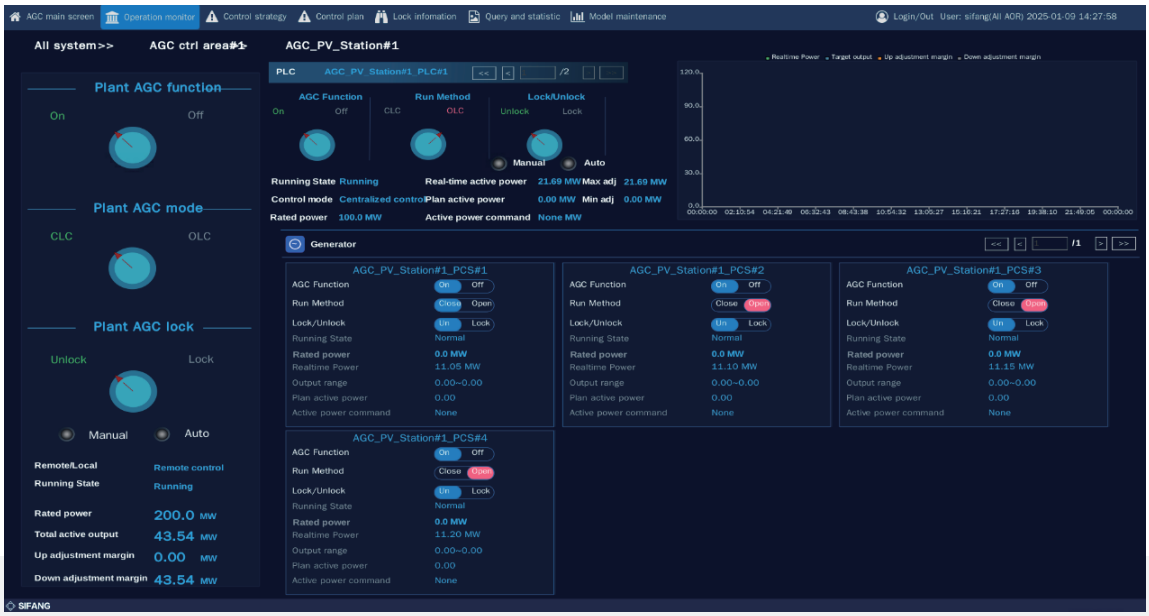
The power control zone and DMZ is separated with firewalls or security gateways to isolate external systems;

Protocol-level encryption achieves secure communication in accordance with IEC-62351 cyber security standards;

Backup/redundancy mechanisms at the database and application software levels;

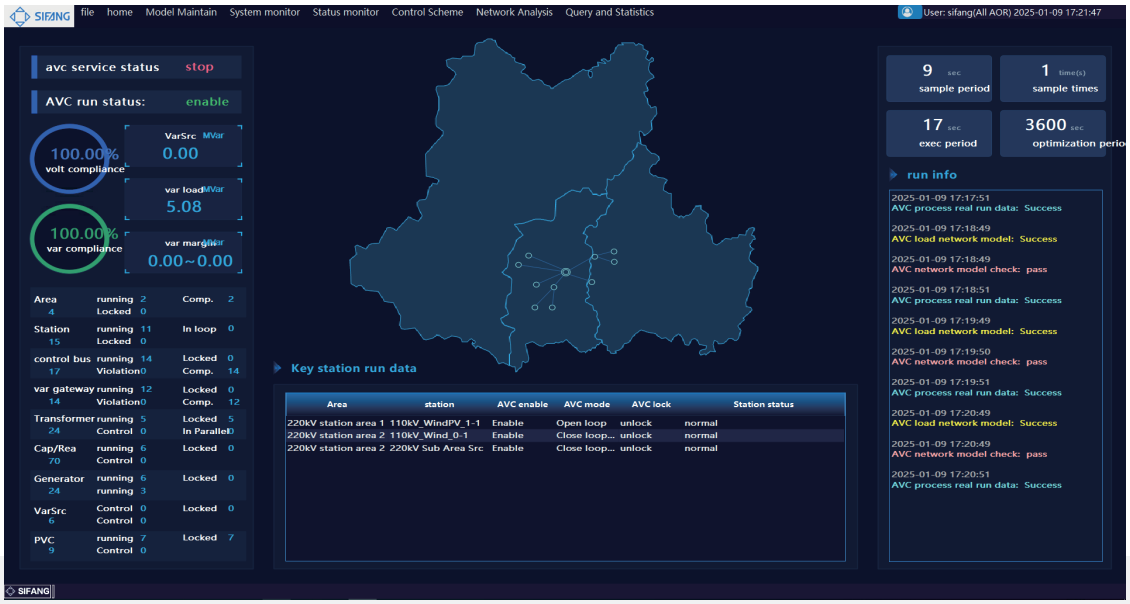
Cyber security subsystems at the operating system level, access control, identity recognition, etc.

04 Typical Interfaces



AGC HMI

DTS HMI



AVC HMI

Power Flow HMI

Stock Code
601126

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