

Domestic cross-platform configuration software for marine applications

► Overview

The domestically developed cross-platform configuration software for marine applications supports multiple platforms and systems, being compatible with Intel, AMD, Phytium, Loongson and other CPU series. It operates stably across various domestic and international operating systems. Through configuration, the database type and connection parameters can be flexibly set. Data acquisition and communication utilise configuration communication driver technology, with driver component interfaces designed accordingly. Open component API interfaces facilitate seamless expansion and integration with external software. It supports functional scripts for global settings, windows, shortcut keys, and triggers, enabling flexible development based on requirements. Utilising principles and algorithms for rendering optimisation, animation optimisation, memory management, event handling, and data structure optimisation, it achieves rapid interface rendering speeds, responsive performance, and efficient resource utilisation. Communication processing speed is enhanced through multi-threading, with redundant communication paths and data verification during transmission to ensure real-time data delivery and reliability.

► Product features

■ Configuration Communication Driver:

Data acquisition and communication employ industrial communication protocols to facilitate data transmission and interconnection with equipment. To enhance the system's real-time performance and reliability, the software utilises multithreading technology to elevate processing priorities. Additionally, techniques such as redundant communication paths and data verification are implemented to ensure the timeliness and dependability of data.

■ Real-time data processing:

This system employs real-time data processing technology to address low upper limits on data volume and high throughput challenges by optimising data processing algorithms and enhancing processing rates. Utilising both polling and event-driven data update methods, it supports formula-based calculations to ensure the software can promptly respond to and process various events during production, thereby improving data processing efficiency. The polling mechanism periodically queries data sources to retrieve the latest information, suitable for scenarios where data changes infrequently. This enables continuous monitoring and data refresh functionality. The event-driven mechanism triggers immediate updates upon data source alterations, ideal for high-real-time-demand scenarios. This achieves real-time data processing with rapid response speeds.

■ Performance optimisation:

By employing rendering optimisation, animation optimisation, memory management, event handling, and data structure algorithm optimisation principles and techniques, we enhance interface rendering speed, responsiveness, and resource utilisation efficiency. This ensures an efficient, stable, and user-friendly operational experience across diverse complex industrial and software application scenarios.

■ Graphical User Interface Development:

Configuration software constitutes a software platform and development environment at the supervisory control level of automated control systems. It provides an excellent user development interface and straightforward operation through flexible and diverse configuration methods. Its pre-configured software modules readily implement and fulfil various supervisory control functions while simultaneously supporting computers and I/O devices from multiple hardware manufacturers. When integrated with highly reliable industrial control computers and network systems, it delivers comprehensive software and hardware interfaces to both the control and management levels.

■ Real-time alarm handling:

Data points support single-point alarms and composite alarms, enabling timely identification and handling of anomalies to generate alarm events. Single-point alarms employ threshold detection methods, triggering alerts when a data point exceeds preset thresholds to rapidly identify conspicuous anomalies. Composite analysis across multiple data points enhances accuracy in detecting complex anomalies. Delayed alarms are supported, triggering alerts after a lag following anomaly detection to minimise false positives. Alarms may be linked to deck stations for synchronised alerts, enabling immediate awareness of alarm locations and circumstances.

Product function

Configuration Design:

- Global settings, global parameter configuration, global scripts, global variables, user management, etc.
- Window management, window editing, script configuration, template configuration, etc.
- Window interface design, component editing, component scripts, component animations, etc.

Communication-driven:

- Drive management, drive parameter configuration, drive framework configuration
- Device management, device connection parameters, measurement point binding

Test Point Management:

- General attributes: measurement point name, measurement point calculation, measurement point classification, data type
- Alarm attributes: alarm type, alarm delay, alarm threshold, alarm classification

Marking Management:

- Marker creation, marker editing, marker deletion, marker query

Technical index

Industrial Control Computer

- Operating System: Windows, Kylin OS
- CPU: Quad-core
- Memory: ≥8GB
- Storage: ≥500GB

software interface

System architecture

