

TokaOS

Introduction

TokaOS is an operations platform for experimental fusion facilities. It brings distributed measurement, data acquisition, control, and actuation units into a unified workspace, supporting device management, real-time monitoring, experiment control, and post-experiment review.

Before an experiment, TokaOS helps check devices, parameters, and protection conditions. During an experiment, it coordinates preparation, linked operations, triggering, and exception response according to defined procedures. After an experiment, it stores parameters, measurement results, and operation logs linked by experiment ID and timeline, enabling process traceability and comparison of results.

Using device models, real-time data, and experiment records, AI helps operators understand facility status, analyze anomalies, and plan tasks. It also assists with execution within permission and safety constraints, capturing operational experience for reuse.



Features

TokaOS integrates AI into device models, real-time data, experiment workflows, and access controls, enabling it to use operational context to help personnel understand the facility, analyze its status, and complete tasks.

AI Native

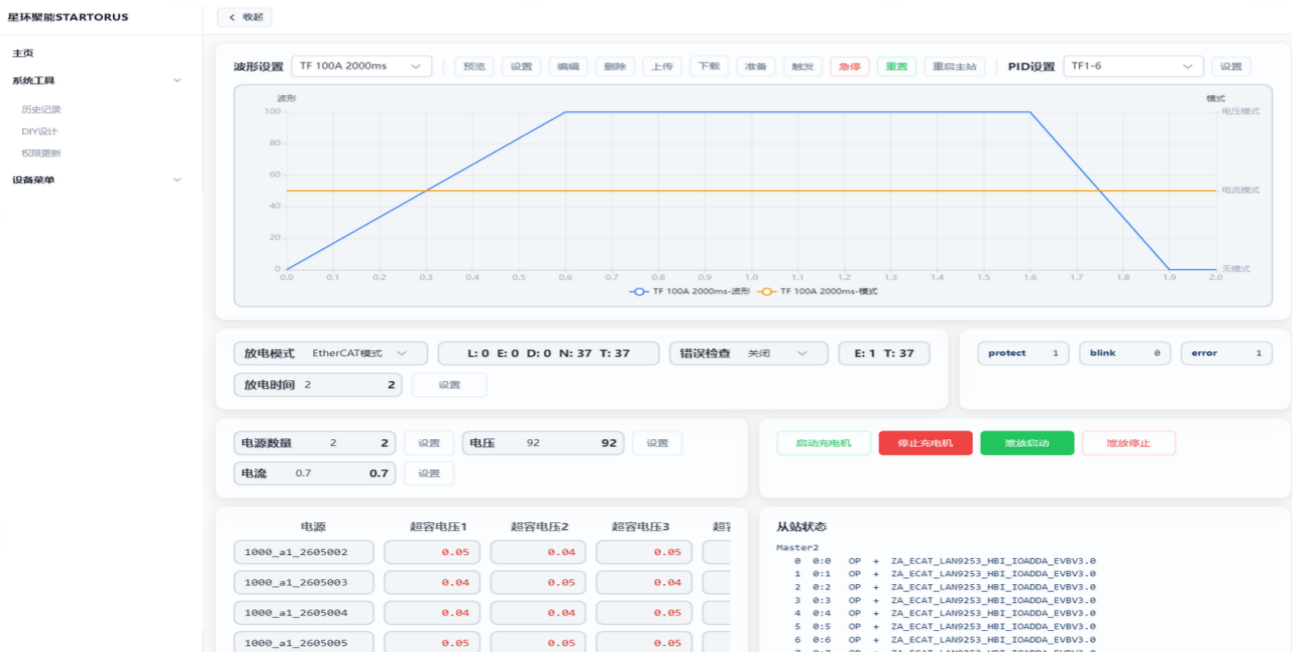
Feature	Description
Facility Awareness	Uses device identities, locations, connections, standard capabilities, and current states to answer device-related questions and explain measurement sources, alarm impacts, and experiment progress.
Situational Analysis	Combines real-time status, historical data, equipment documentation, experiment records, and maintenance experience to help identify anomalies, assess their impact, compare past experiments, and summarize results. Analysis is supported by evidence linked to devices, timestamps, and records.
Task Planning	Generates checklists and execution sequences based on goals for experiment preparation, equipment inspection, or anomaly analysis. Reads status, invokes standard capabilities, waits for feedback, and verifies results step by step to help complete tasks within authorized limits.
Controlled Execution	Follows platform permissions and safety rules. Routine queries can be completed directly; actions involving energy, discharge, protection, or equipment safety require confirmation from authorized personnel. Explains the reasons and expected impact before execution and verifies results afterward, leaving key decisions with the responsible person.
Knowledge Retention	Links operator confirmations, corrections, and rejections of AI recommendations to devices, experiments, and results. Accumulates preparation methods, causes of anomalies, and response procedures so teams can continue to reuse operational experience.

Facility Operations

Feature	Description
Facility Modeling	Provides a unified description of device identities, locations, nodes, connections, functions, states, and parent systems. Covers equipment categories including data acquisition and measurement, control and actuation, energy and power, imaging and spectroscopy, environment and safety, and network and edge infrastructure. Measurement results, alarms, and operation logs can be linked to specific devices, affected workflows, and responsible personnel.
Capability Management	Defines standard capabilities for queries, status, parameters, actions, alarms, and feedback, with explicit data units, for consistent invocation by higher-level workflows. New devices or workflows can be incorporated into the unified operations system by specifying their identities, capabilities, data, and rules, supporting equipment replacement and the addition of new device models.
Real-Time Monitoring	Continuously aggregates device connectivity status, measurements, operating states, alarms, and key events while preserving their temporal relationships. Helps operators assess device availability, understand state changes, and determine whether anomalies affect experiment progress.
Experiment Data	Stores experiment parameters, process events, device states, measurement results, and operation logs linked by experiment ID and timeline. Supports tracing results back to the process and comparing past experiments, building a growing collection of reusable experimental data.
Workflow Protection	Organizes experiment preparation, coordinated control, and anomaly response around preconditions, execution sequences, feedback, and protection rules. Checks status, waits for feedback, and verifies results during execution, pausing the workflow when conditions are not met.
Access Control and Audit	Assigns permissions by project, system, device, and operation type, with distinct authorization levels for queries, recommendations, simulations, and actual execution. Records the operator, timestamp, target, parameters, confirmation, and result of critical operations to support tiered authorization, process traceability, and result verification.

Applications

Applications	How TokaOS Helps
Daily Facility Operations	Provides a global view of device states, connections, alarms, and operating trends, reducing the need to switch repeatedly between systems.
Experiment Preparation and Execution	Checks devices, parameters, and safety conditions against experiment goals, then follows workflows for preparation, coordinated operation, triggering, stopping, and resetting.
Data Acquisition and Diagnostics	Centrally manages measurement, data acquisition, and diagnostic tasks, displays results in real time, and automatically links them to the experimental process.
Safety and Anomaly Response	Identifies risks based on real-time status and protection rules, indicates the scope of impact, and helps personnel perform checks, respond to anomalies, and restore operations.
Historical Analysis and Review	Traces data by experiment, time, and device, compares results, identifies patterns, and enables the reuse of effective practices.
AI Operations Assistant	Uses natural language to answer questions about facility status, explain alarms, generate preparation checklists, assist with analysis, and produce experiment summaries.



Experiment Control

星环聚能STARTORUS

系统工具

历史记录

历史数据

权限更新

设备管理

自定义面板

< 收起

系统工具

历史记录

JSON 查询

查询条件

POST /api/emits/motor.acd200.0.get

设备名

motor.acd200.0

查询时间

1小时 6小时 24小时 3天 7天 30天

开始时间

2026/09/03 09:31:35

结束时间

2026/09/04 09:31:35

start: 1788399095 / end: 1788485495

数据 Schema

等待查询

趋势图

输入 Schema 中的 key, 您当前查询结果控制轴

run_freq

绘制

下载

查询完成后输入 key, 点击生成生成折线图

Historical Data Query