AGIL®

SMART METRO
CONTROL CENTRE

ST Engineering

AGIL® Smart Metro Control Centre

With increasing complexity of metro networks, modernising control centres is crucial to provide complete visibility and seamless management of the entire metro line operation.

Full Situational Awareness for Optimised Operational Control

AGIL Smart Metro Control Centre (SMCC) enables seamless integration of modern metro operations using a robust and resilient software to power all rail operations. Integrated with critical electrical and mechanical subsystems, it provides complete visibility and situational awareness of the entire metro line. It monitors, tracks and analyses data, and predicts potential power outages and track faults to enable safer and more efficient railway operations.

Key Features

- Operations Control Centre (OCC)

- Depot Control Centre (DCC)

- Station Management System (SMS)

- Plant Management System (PMS)

- Interface Systems

- Training & Development System (TDS)

- Cybersecurity

- Condition Monitoring & Data Analytics System

- Power SCADA System

- Web HMI

Operations Control Centre (OCC)

The OCC is the heart that powers modern integrated metro operations. It improves the overall line capacity and operational efficiency while reducing infrastructure costs for metro operators.

The OCC enables real-time monitoring and integrated control of various metro operations including Electrical & Mechanical (E&M) supervision, communications and remote management of the intricate metro power system network. It also provides a Decision Support System that helps the operator to make crucial and timely decisions during incidents or emergencies.

Depot Control Centre (DCC)

The DCC is the maintenance hub of the entire metro system. It controls the operations of the depot, provides stabling and maintenance facilities for the metro line and monitors train movements within the depot.

By using an integrated multi-functional terminal, the depot operator can monitor daily train wash and conduct wash operations easily. Through an integrated monitoring and control system, the operator can seamlessly manage depot operations with increased efficiency and ease.

Station Management System (SMS)

The SMS consists of various subsystems crucial for automatic and efficient day-to-day station operations such as

- Closed Circuit TV
- Passenger Information Displays Public Announcement
- Access Control
- Communications Management
- E&M Monitoring
- Fire Alarm Systems

By using the multi-functional terminal for monitoring and control, the station operator can multi-task and enhance his job efficiency.

Interface Systems

The Integrated Supervisory and Control System (ISCS) monitors and controls a multitude of equipment across the entire metro line. The interfaced subsystems include

- Traction Power Distribution
- High Voltage Power Distribution
- Low Voltage Power Distribution
- UPS and Standby Generator Systems
- Platform Screen Door
- Communications Systems
- Automatic Fare Collection
- Fire Detection and Protection
- Drainage Pumps
- Lifts and Escalators
- Automatic Train Supervision

Plant Management System (PMS)

The PMS is responsible for the monitoring and control of localised E&M equipment. It collects operational status, alarm and event updates from the interfacing systems, and receives control from the OCC.

The PMS consists of a pair of Remote Terminal Units (RTU) configured in redundant mode and remote Inputs/Outputs (I/Os) in separate sub racks.

Training & Development System (TDS)

To fulfil the diverse operational training, development and testing needs of metro operations, the TDS provides operator training, develops new database and schematics, and offers various aspects of software testing.

Operating in a dedicated and controlled environment, the TDS comprises the following modes

- Training mode - training of operators in typical real-life scenarios
- Development mode - development of software, schematics, database and RTU/PLC configuration
- Testing mode - testing and distribution of new software, schematics and configuration updates

Cybersecurity

Our solution provides non-invasive multiple-layer detection and defence against cyber attacks. It detects malicious cyber threats and alerts the operator for further investigation and remedial action.

- Resilient and trusted monitoring infrastructure to secure data collection
- Big data analytics to detect advanced cyber threats including Advanced Persistent Threat
- Detection and defence against malicious insiders to guard against internal threats
- Detection and defence against cyber attacks on field control devices
- Integrated Operational Technology (OT) Network Intrusion Detection System with C3 System

Condition Monitoring & Data Analytics System

By monitoring the performance of the power supply equipment and its remaining useful life cycle, and leveraging data analytics on data collected from the field end equipment and Big Data Platform, unforeseen power system failure can be prevented with predictive maintenance.

The Condition Monitoring & Data Analytics System provides

- Data analytics of energy consumption
- Dynamic real-time system condition display
- Condition monitoring data acquisition and generation of preventive warning
- Data trend display
- Equipment health and performance

Power SCADA System

The Power SCADA System provides the control and monitoring for the power supply equipment. It covers the end user's day-to-day needs for operations, trending, reporting and maintenance.

It offers the flexibility to interface with external systems such as Condition Monitoring System, Emergency Track Tripping System (ETTS) and Division of Power Point (DPP).

Web HMI*

The Web HMI framework provides a more flexible option for end user where the control and monitoring of the SCADA system is not limited to the workstation. The new interface feature is based on Open Platform Communications Unified Architecture for superior performance in data transmission and capacity/loading.

* Human Machine Interface

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