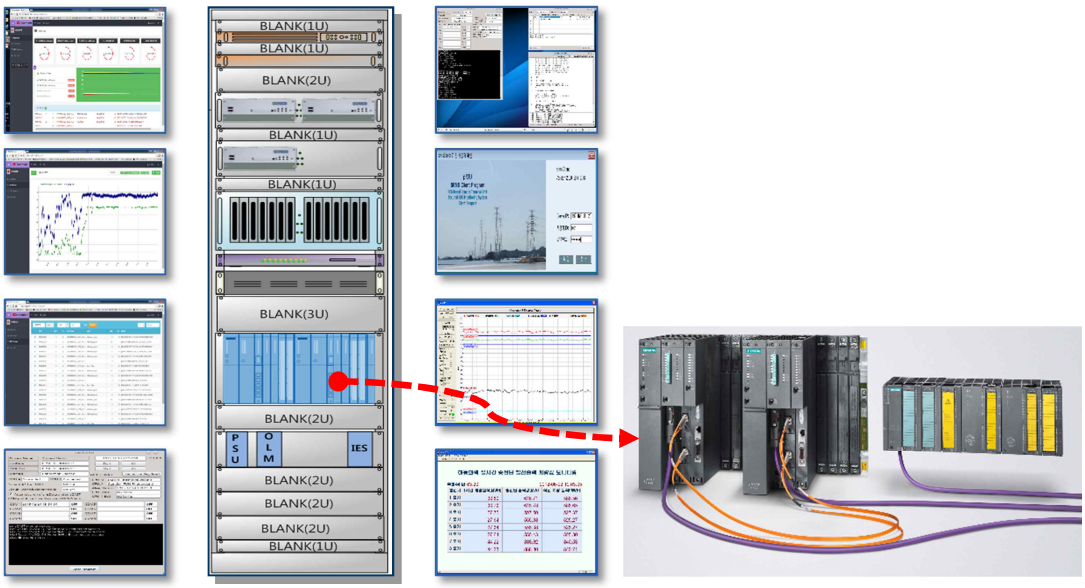
Standard EMS-RTU

Overview

As a remote Automatic Generation Control and Monitoring System, 3IC EMS-RTU (Remote Terminal Unit) is installed in Electric Power Plants across the nation and communicates with NDC (National Dispatching Center: KPX in Korea). The system enables remote monitoring, control and management of electric power system operation facilities, based on distributed installation with high performance, high reliability, and open interface.

EMS-RTU is consisted of Main Processing Device (MPD), Field Processing Device (FPD). EMS-RTU shall also incorporate System Management System (SMS) and SRMS Server (Secured RTU Monitoring System- Graphic/Security Server) to the RTU for management and security purpose.
Communication between MPD and FPD is in dual redundant Optical Ring Topology (100Base-FX, Profibus), providing distributed FPD installations and operation management.



MPD: Main Processing Device

Consisted of main and back-up/stand-by MPD Sub Racks with fault-tolerant architecture, MPD performs core & critical functions of the RTU. MPD performs data communications with EMS in NDC, control and management of entire system including FPDs, and interconnection to RTU SMS. It shall be in full compliance with the functional requirements stipulated in the Electric Power Market Operation & Grid Code.

FPD: Field Processing Device

FPD can be installed either in MPD panel or in remote field site. It is operated in distributed operation mode, providing real-time acquisition and control of field data and information by connecting directly to the MPD via Industrial Standard TCP/IP or Profibus

3IC EMS-RTU is easy-to-use and scalable system equipped with efficient engineering, high reliability, top quality and performance

Functions

High Performance & High Reliability

- Hot Swappable Module Protection Function, Redundancy and Fault-Tolerant Function
- Modular Expansion
- Enhanced High Availability with PCS (Process Control System) based Configuration

Distributed Installation

- Redundant Optical Ring (Industrial Ethernet, Profibus)
- Distributed Installation and Operation
- Connecting to Control Facilities in the field

Remote Management

- Remote integrated management supported
- Human Machine Interface (HMI) supported

Open Interface

- DNP3.0 Protocol (in Korea)
- International standard protocol of IEC61850 and IEC60870
- Operation environment with time synchronization, system security and various interfaces

Features

- PCS (Process Control System) based Logic Programs applied
- 18.75nsec CPU Processing Speed
- Event & Clock Synchronization, 1 msec Accuracy
- Accommodate max. 124 FPDs
- Fault-Tolerant
  - Main & Back-up/Stand-by MPU/MPD Rack Configuration
  - H/W & S/W Redundancy
- Reliability secured with Dual Count Rotate Ring

- Protocol: DNP 3.0, IEC60870
- Communication Interface with other system: Modbus TCP or IEC61850 / DCS
- Secure Tx/Rx Data Integrity via industrial standard Profibus communication (12Mbps)
- GPS/NTP Time Synchronization
- Remote Monitoring Function (Digital Input)
  - CB Open/Close Status
  - Relay Operation Status
  - SOE (Sequence of Event)
- Remote Data Acquisition
  - Input Current (Ampere)
  - Active Power (Watt), Inactive Power (Var), Voltage (Volt)
  - Frequency
  - Other Analog Data
- Remote Control
  - Binary Status Control (Digital Output)
  - Set Point Control (Analog Output)
- TCP/IP based SMS (System Management System)
  - Database Creation, Change, Store, Management
  - Database Download & Upload
  - History Management (Control/Communication/Event/System)
  - System simulation (Simulator)
  - Security Management
- Modules, Redundant Power Modules & Shelf Expansion
- License Free Server Software
  - O/S: Linux CentOS
  - DB: MariaDB

Configuration