SUPCON Group Co., Ltd. is a leading supplier of automation & information technology, products and solutions in China. SUPCON's business has spread over China, Vietnam, Pakistan, Sudan, North Korea, Myanmar, Thailand, India, Canada, etc.

Process automation is the core business of SUPCON. SUPCON aims to provide the excellent systems, insturments, optimized and advanced control software for our customers all over the world.

SUPCON has helped over 3,000 customers to optimize their business and production processes, which enables them to improve their efficiency, productivity, competitiveness and profitability. SUPCON's products and solutions have also played an important role in different process industries such as chemical, petrochemical, oil refining, power, metallurgical, paper & pulp, cement, glass, pharmaceutics, etc.

WebField is the common brand for SUPCON's control system products, including JX series, ECS series, and GCS series, which can meet the customized needs of different industry fields, different customers, and different processes. So far, SUPCON has provided more 4,000 sets of control system for our customers, SINOPEC (China Petroleum & Chemical Corporation), CNPC( China National Petroleum Corporation), Bao steel Group, Capital Steel Group, Qinshan nuclear power company and many other famous companies are all SUPCON's customers.

1. System Overview

WebField JX-300X system is the single type control system that has been widely applied in China. Till now more than 2,000 sets of WebField JX-300X systems have been successfully applied in many process industries, such as chemical, petrochemical, metallurgical, cement, glass, etc.

WebField JX-300XP is developed on the base of the matured technology and performance of SUPCON JX-300X system. It is a networking control system based on web technology.

JX-300XP not only inherits the characteristics of total integration and flexible configuration of JX-300X system, in the meanwhile, it also absorbs up to date achievements of network technology and micro-electronics technology, and adequately applies the latest signal processing technology, high speed network communication technology, reliable software platform and software design technology and fieldbus technology. High performance microprocessor and matured advanced control algorithms have been adopted to make a whole improvement of system performance. It can meet more extensive and more complicated application requirements.

As an open distributed control system with the characteristics of full digitalization, flexible structure, and perfect function, JX-300XP possesses excellent openness, and can easily realize the integration with many kinds of fieldbus equipments and isomerous systems.
2. Main Features

- Matured technology, stable performance
- High-speed, reliable, and open communication network SCnetII
- Distributed, independent, and powerful control station
- Totally intellectualized design
- Random redundancy configuration
- Surface mounting design for I/O modules, plug & play design for I/O terminals
- Easy and friendly configuration tools
- Abundant, practical and user-friendly real-time monitoring interface
- Event recording
- Multi-functional protocol converter
- Easy to realize the integration of isomerous systems
- Product diversification and networking
- Convenient installation and simple maintenance

3. System Structure

JX-300XP system is consisted of engineering station, operator station, control station, process control network, etc.

- Engineering station is specially designed for professional engineering technicians, with corresponding configuration software and system maintenance software installed.
- Operator station is a human-machine system which is composed of industrial PC, CRT, LCD, keyboard, mouse, printer, etc, and for the operator to conduct process monitoring.
- Control station is the I/O unit that directly connects with the field equipment to fulfill the real-time monitoring of the entire process.
- Process control network realizes the connection of engineering station, operator station and control station, and conducts the transmitting of information, control command, etc. The double redundancy design makes information transmitting safely and rapidly.
4. Network Structure

WebField JX-300XP adopts three layers network structure:

- The first layer is information management network Ethernet (Optional)
  Ethernet is adopted, and to transmit and manage plant-level information. It is the information channel for realizing the integrated management of the whole plant.

- The second layer is process control network SCnetII
  It directly connects with control station, operator station, engineering operation, communication interface unit, etc, and is the channel for transmitting process control real-time information.

- The third layer is the internal I/O control bus of control station, named SBUS
  It is the I/O control bus inside control station. The information exchanging among master controller module, data transmission module and I/O modules are realized through SBUS.
  SBUS has 2 layers as Double Bus SUBS-S2 and SBUS-S1 Network. Through them, the master controller module manages I/O module dispersing in each cage.

5. System Scale

- The maximal configuration of WebField JX-300XP is 15 redundancy control stations, 32 operator stations, engineering stations or multi-function stations, The configuration of one system can reach to,15,360 I/Os.

- Maximum 8 I/O cages can be hitched in one control station, and 20 modules can be installed in one cage, that is to say, except a pair of mutual redundancy master controller module and data transmission module, maximum 16 I/O modules can also be fixed in the cage.

- In each cage, I/O modules can be configured as redundancy or non-redundancy.
6. Master Controller Module

Master controller module is the core of control station. It is responsible for harmonizing relations of control station hardware and software, and control tasks, e.g. fulfilling such functions of the control station as I/O signal processing, control calculation, communication control between the upper layer and lower layer network, redundancy diagnosis, etc.

The master controller module of JX-300XP system adopts double CPU structure, including CPU (Master) and CPU (Slave), and supports redundancy and non-redundancy configuration. Its redundancy mode is 1:1 hot backup.

The control loop of master controller module can reach to 128. Maximum 128 I/O modules can be supported by the master controller module, and to realize local or remote I/O control through SBUS.

Built-in standby Li- battery is used to protect SRAM date (including system configuration, control parameter, running status, etc.) inside master controller module once power down, it enhances the safety and maintainability of the system. Under the circumstances of power down, it can keep the data of SRAM up to 3 years.

7. System Software

SUPCON self-developed AdvanTrol-Pro software package are adopted for JX-300XP system.

AdvanTrol-Pro has been widely applied in SUPCON WebField JX-300X, ECS-100 system, by inheriting the characteristics of rich function, friendly interface, and easy-to-use of the original edition software, in the meanwhile, some improvements and upgrades have also been made according to the feature of JX-300XP system, and to form the more powerful and practical AdvanTrol-Pro (For JX-300XP) software package.

The software package is consisted by the following components:

- AdvanTrol real-time monitoring software
- SCKey system configuration software
- SCLang C language programming software (SCX language for short)
- SCControl graphics configuration software
- SCDraw flow chart making software
- SCForm report making software
- SCConnect OPC server software
- SCViewer off-line viewer software
- SCDiagnose network diagnosis software
- SCSignal signal adjusting software
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