Chitic 中自

A CHINT COMPANY

About CHITIC

•Industrial Automation

CHITIC – Jasmine Dai

•2018.08

About CHINT

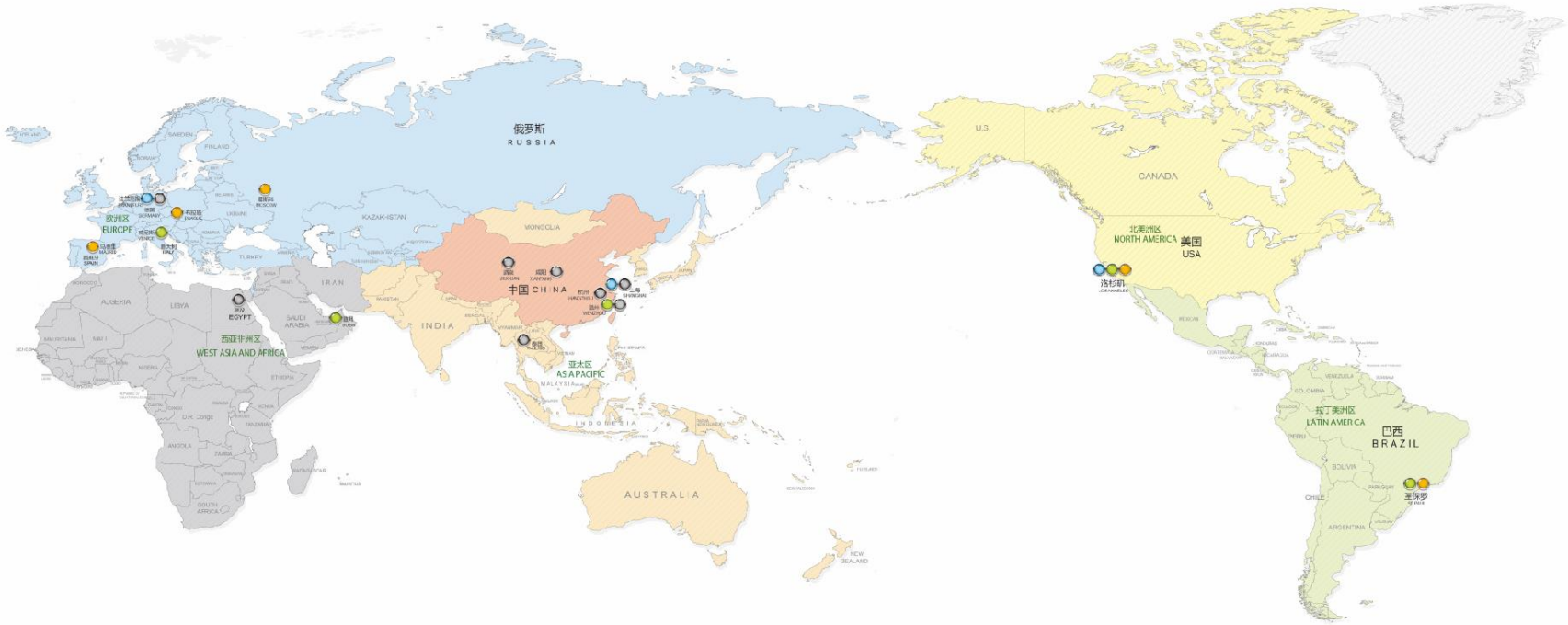
◎ Assets: total assets of 63 billion RMB

◎ Sales revenue: almost 60 billion RMB

◎ Enterprise scale: 30000 employees, foreign employees more than 1400

—updated to Dec, 2017

About CHINT



3 Global Research Center

- Europe, North America, Asia Pacific

6 International Marketing & Sales Area

- Asia Pacific, Middle East and Africa, Europe, Latin America, North America, China

9 Manufacturing Bases

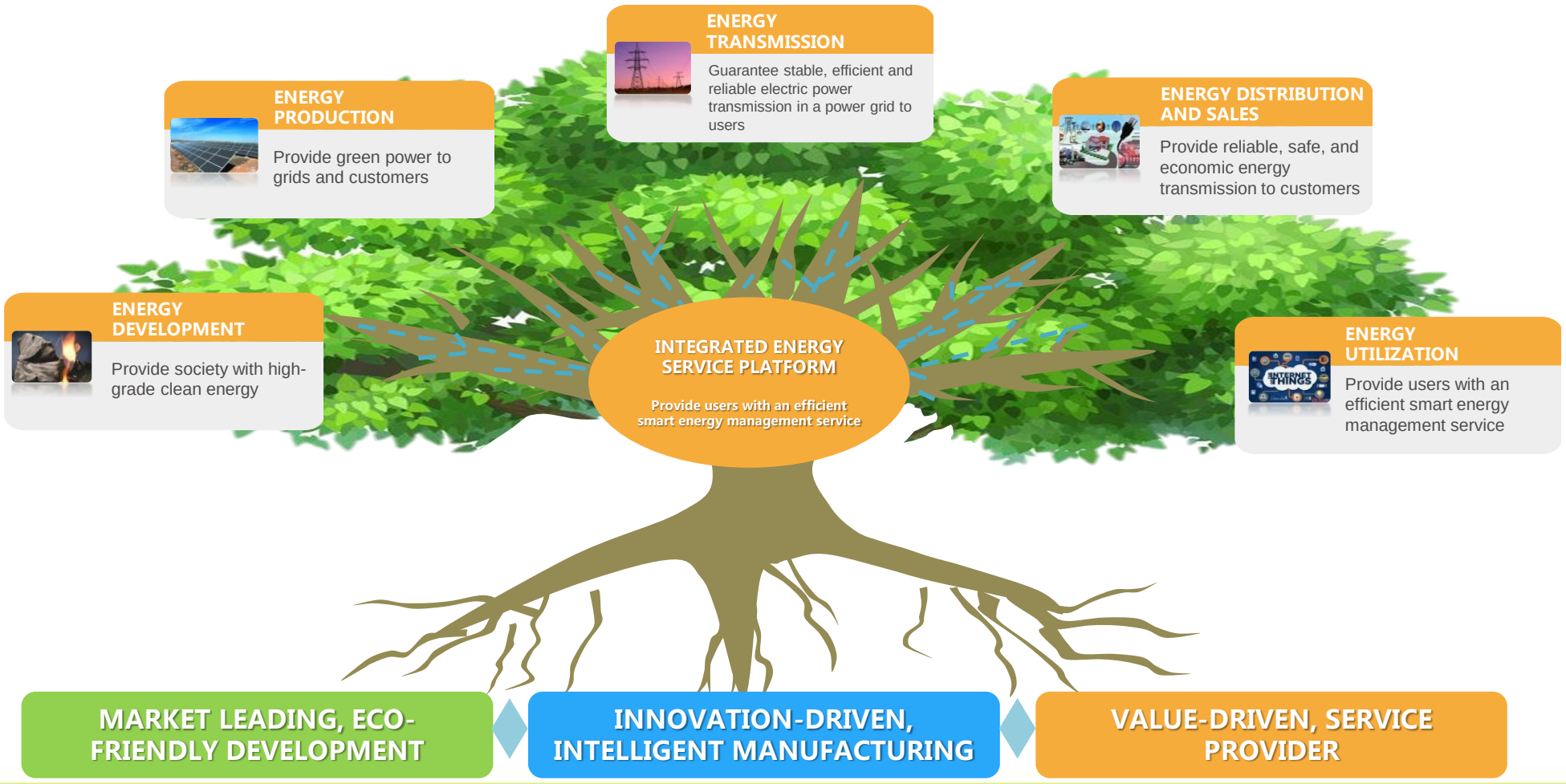
- China (Wenzhou, Shanghai, Hangzhou, Jiaxing, Xianyang, Jiuquan), Thailand, Egypt, Germany

14 International Subsidiaries

14 Marketing Offices in China

22 Logistics Centers **2300 Sales Companies**

VISION: TO BE THE AUTHORITY FOR SMART ENERGY SOLUTIONS



CHINT AUTOMATION

Total Solution Provider for Smart Control & Automation Information

Easy Connection by Iot,
Smart Tech for the Future

President:

About CHITIC

Startup	M&A by Chint	High-speed Expansion	Reform & Development
2001-2003	2004-2005	2005-2015	2016-now

About CHITIC

Comprehensive Intelligent Automation Production line

Production+Solution+Service

Process Automation

DCS: PCS 1800, TDCS9200, CTS700 PLC: PCS1200, PCS1500, ChiticEKS system configuration monitoring software, ChiticRTC real-time control software, Chitic industry control software V8.0

Equipment Automation

GTex high-speed rapier loom control system, GTex switched reluctance motor drive system

Smart Water

Chitic smart water management platform, Chitic water plant/ wastewater treatment plant automation control system, Chitic raw water and sewage pump station automation control system, Chitic intelligent secondary water supply solution, Chitic remote meter reading management system for municipal water, Chitic camera-in water meter & remote meter reading system

Smart Thermal Power

ChiticSCADA heat-supply network monitoring & dispatching system, ChiticSCADA data base software, ChiticHEMS, ChiticGIS, ChiticM-BUS software, ChiticHCU1200, SmartMDC

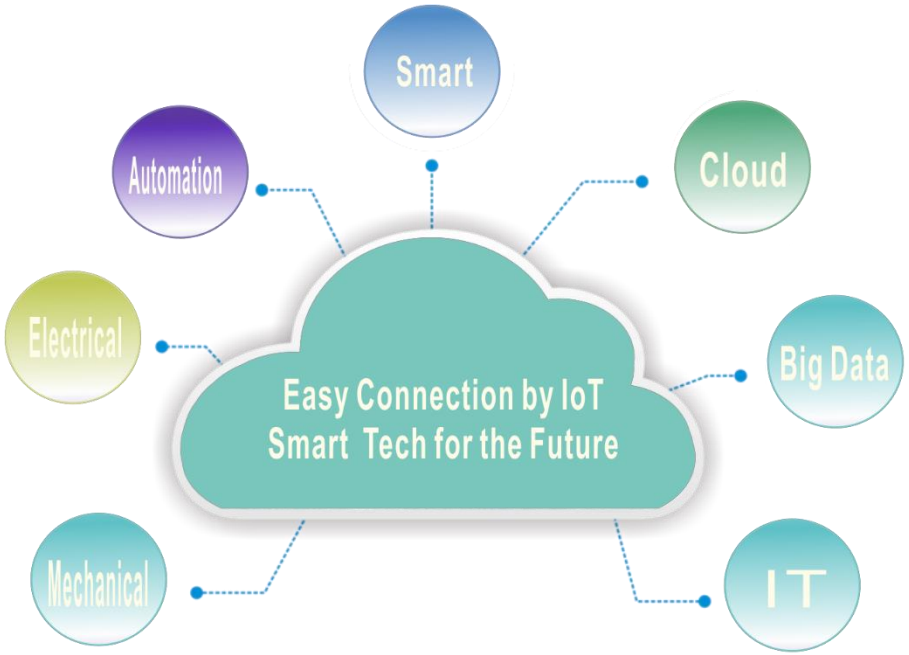
Smart Energy

ChiticSolar, ChiticPlant, ChiticBank, WebBox, Chitic PV power station system integration, Chitic biomass power generation system integration, Chitic intelligent power distribution supervisory system

Intelligent Production Management

Production manufacturing MES, SCADA

◎ Process Automation



Petrochemical

Chemical

Environment Protection

Thermal Power

Building Material

Biopharmaceutical

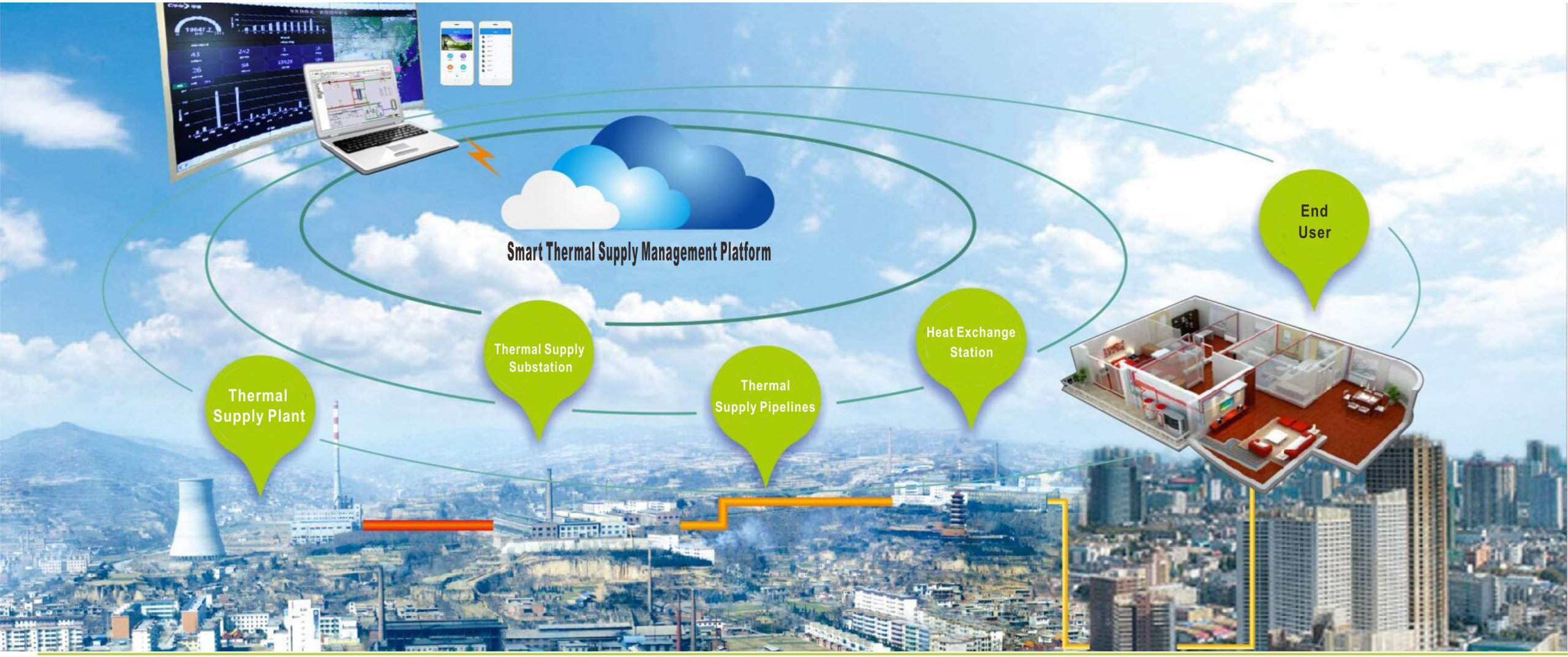
◎ Equipment Automation

- High speed rapier loom control system
- Switched reluctance motor drive system

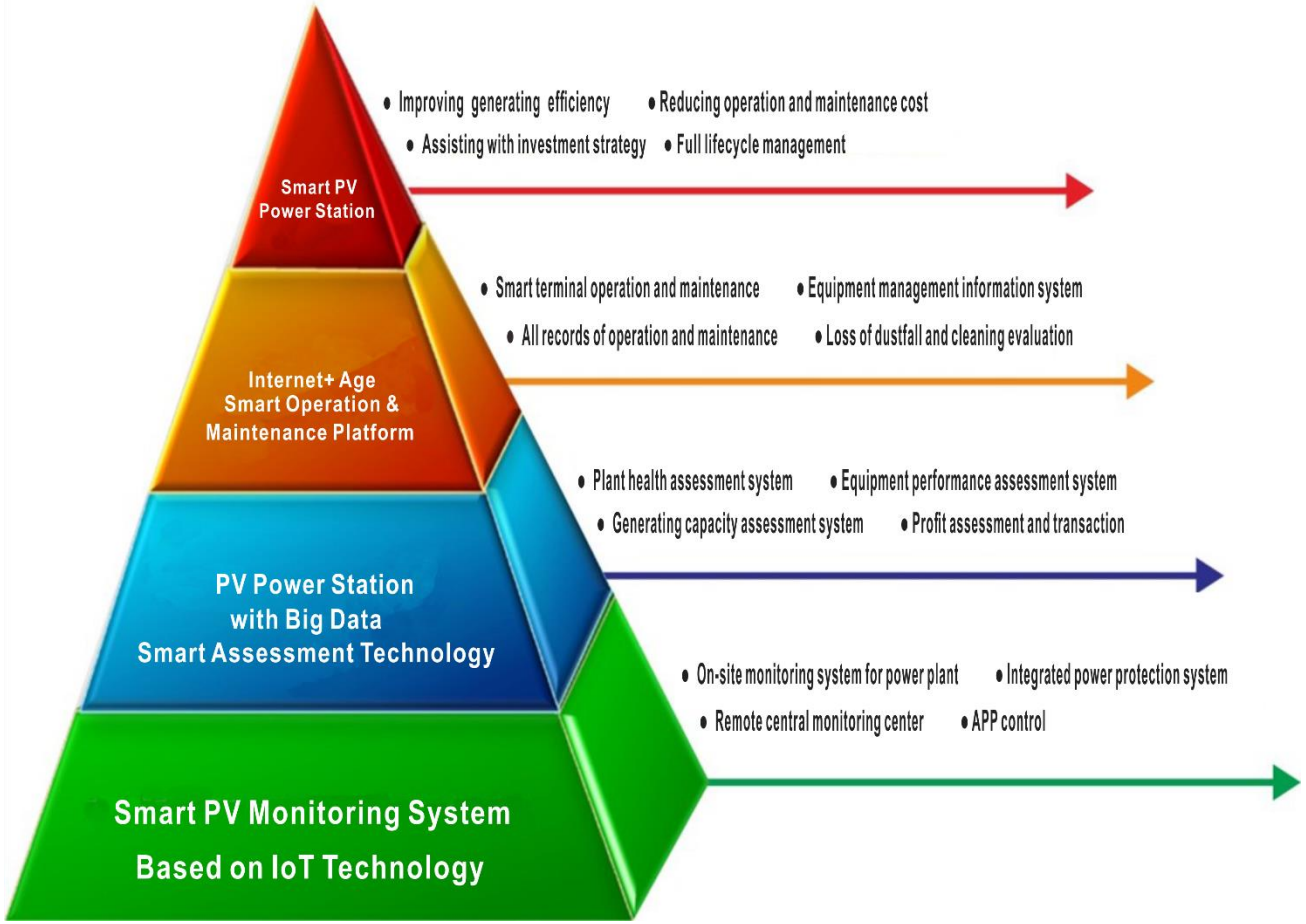
◎ Smart Water

Raw Water Pump Station
Water Plant
Secondary Water Supply
Smart Water Management Platform
Municipal Water
Sewage Pump Station
Sewage Treatment
Water Plant
Secondary Water Supply
Municipal Water
Pump Station
Smart Water
Sewage Pump Station
Raw Water
Reuse of Recycled Water
Sewage Treatment
River
Drainage

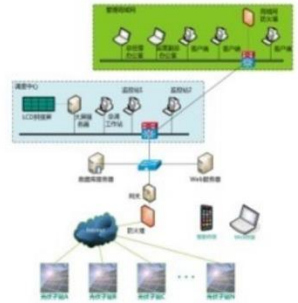
◎ Smart Thermal Supply



◎ Smart Energy

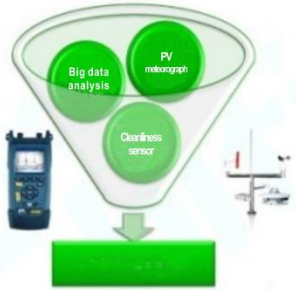


Intelligent Monitoring



- Substation Monitoring System
- Remote Data Transmission
- Monitoring Center
- WEB Platform
- Large-screen Display

Intelligent Assessment



Plant Health Assessment System	Generating Capacity Assessment System	Loss of Dustfall Assessment System
Plant health assessment Inverter health assessment AC/DC loss assessment	Photovoltaic meteorograph research and development Illumination data collection and statistics Theoretical generating capacity assessment Plant efficiency and profit assessment	Cleanliness instrument research and development Research in cleanliness affecting efficiency Optimal cleaning filter

Intelligent O & M

Online and Offline Interactive system	Asset Information Management System	Auto Cleaning System
Online low carbon ranking Online efficiency assessment Online operation and maintenance guidance Offline maintenance feedback Offline communication platform	Equipment asset information management Equipment maintenance information management After sales & maintenance service	Automation cleaning device Visual management Continuous attention to new technology

◎ Smart Production Management

Chitic 中自

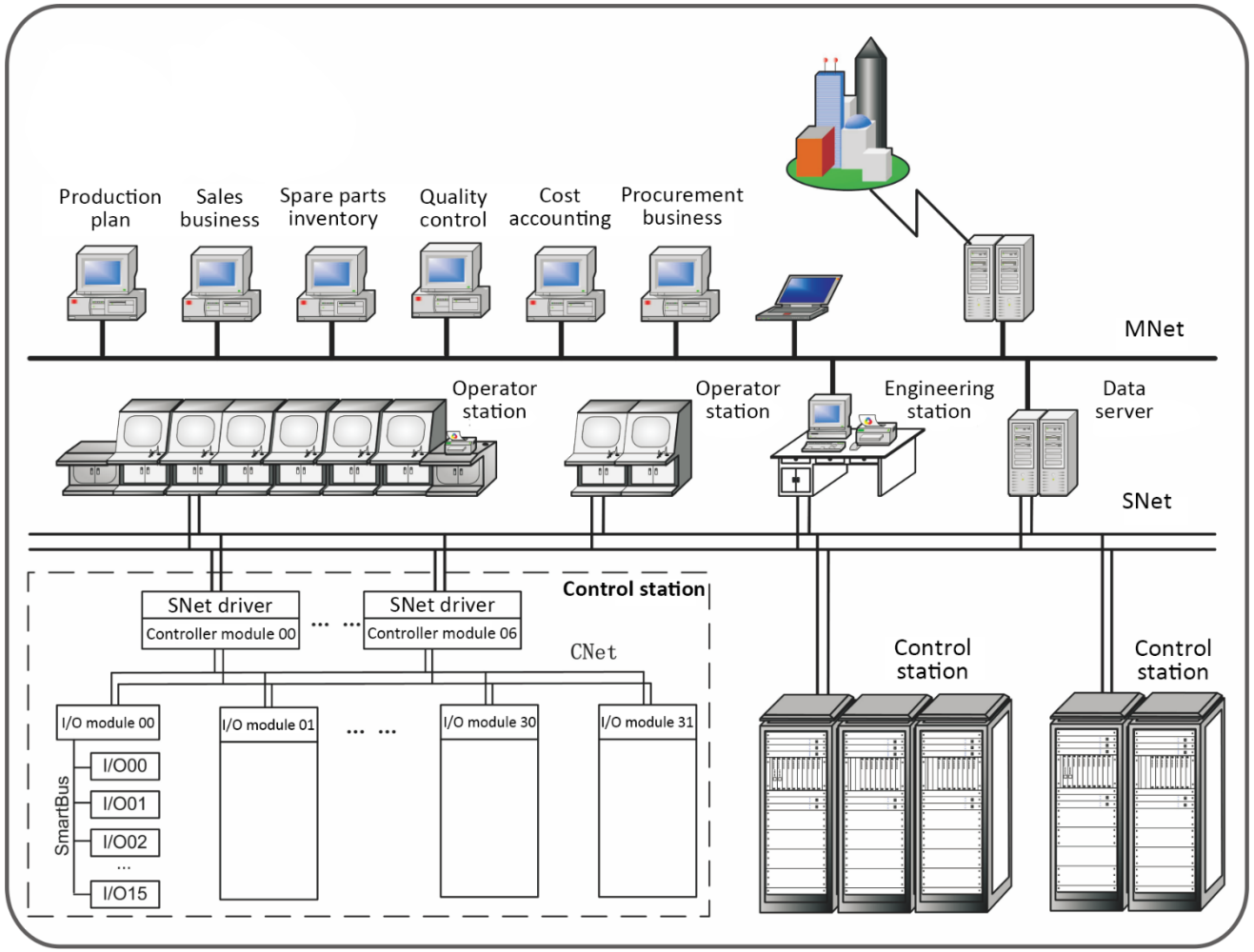
A CHINT COMPANY

TDCS9200

Distributed Control System

浙江正泰中自控制工程有限公司 ZHEJIANG CHITIC CONTROL ENGINEERING CO., LTD.

Overview



Features:

- Scalability/ Modularity
- Easy integration
- Openness
- Availability/ Reliability
- Compatibility
- Flexibility
- Energy efficiency

Overview

System Scale

- Each control station supports 2 controller modules, 32 I/O modules, 512 AI/ AO, or 1024 DI/ DO.
- **The system capacity:**
- AI: 16384, or AO: 16384, or DIO: 32768.

Real-time database	65536
Control station: AIO	512/station
Control station: DIO	1024/station
Real-time graph QTY	512
SNet nodes	96
Cnet nodes	32

Certificate

CERTIFICATE OF CONFORMITY

CERTIFICATE
of Conformity
Reference No.: LCS1603080569E

Applicant : Zhejiang Chitic Control Engineering Co., Ltd.

Address : No.260, 6th Street, Hangzhou Economic &Technological Development Zone

Product : TDCS9200 distributed control system

Model(s) : TDCS9200

Trade Mark : Chitic 中自

The submitted products have been tested by us with the listed standards and found in compliance with the following European Directives:

The EMC Directive 2014/30/EU

EN 60730-1:2000/A16:2007/A20:2010

The tests were performed in normal operation mode. The test results apply only to the particular sample tested and to the specific tests carried out. This certificate applies specifically to the sample investigated in our test reference number only.

The CE markings as shown below can be affixed on the product after preparation of necessary technical documentation.

Other relevant Directives have to be observed.

CE

Manager
March 15, 2016

Shenzhen LCS Compliance Testing Laboratory Ltd.
1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District,
Shenzhen, Guangdong, China
Tel: (86)755-82591330 Fax: (86)755-82591332
Http://www.LCS-cert.com Email: webmaster@LCS-cert.com

CERTIFICATE OF CONFORMITY

CERTIFICATE
of Conformity
Reference No.: LCS1603080568S

Applicant : Zhejiang Chitic Control Engineering Co., Ltd.

Address : No.260, 6th Street, Hangzhou Economic &Technological Development Zone

Trade Mark : Chitic 中自

Product : TDCS9200 distributed control system

Model(s) : TDCS9200

Parameters : Input: 220-240V~, 50Hz, 2.6A, 500W

The submitted products have been tested by us with the listed standards and found in compliance with the following European Directives:

The LVD Directive 2014/35/EU

EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013

The tests were performed in normal operation mode. The test results apply only to the particular sample tested and to the specific tests carried out. This certificate applies specifically to the sample investigated in our test reference number only.
The CE markings as shown below can be affixed on the product after preparation of necessary technical documentation.
Other relevant Directives have to be observed.

CE

Manager
March 16, 2016

Shenzhen LCS Compliance Testing Laboratory Ltd.
1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District,
Shenzhen, Guangdong, China
Tel: (86)755-82591330 Fax: (86)755-82591332
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Application

Water Treatment

Oil & Petrochemical

Coal Chemical

Fine Chemical

Thermal Power

Machinery

Biopharmaceutical

Public Utility

Controller module

The controller module is the core part of control station, undertaking data processing, data exchanging and executing control algorithm. It supports third-party device connection to control station and supports communication between control station and host computer.

Specification

- Embedded industrial microprocessor
- Real-time multi-tasking operating system RTOS
- Real-time database
- EEPROM mass storage
- 1:1 redundancy

- **16-32 channels universal regulation module**

  Mixed signal input and output, including AI, AO, DI, DO, PI, etc, automatic identification, conventional installation

- **16-32 channels universal regulation module**

  Mixed signal input and output, including AI, AO, DI, DO, PI, etc, automatic identification, conventional installation

Functional module

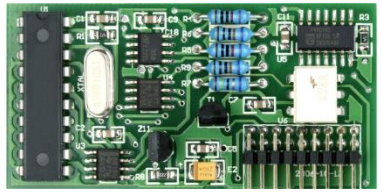
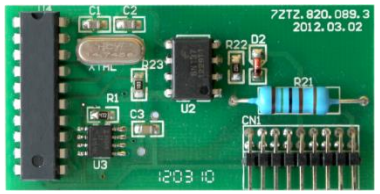
- **32-CH integrated DIO module**

  Digital signals input and output

- **32-CH SOE module**

  Collecting and storing digital signals' status and event time to realize fault data analysis

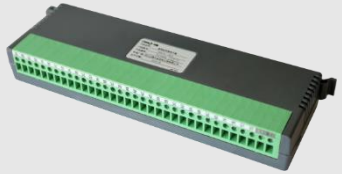
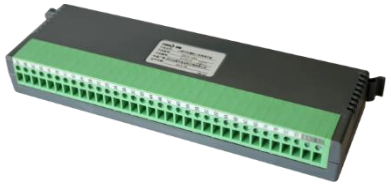
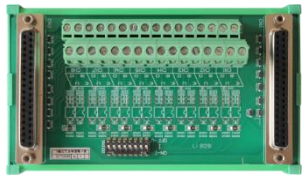
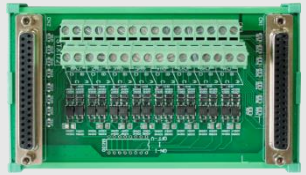
I/O module

Figure	Model	Description	Notes
	ST9315	Single channel full-isolated universal AI card	Supporting 1channel for AI, 14 normal industrial measuring signals
	ST9321	Single channel full-isolated AO (current) card	Supporting 1 channel for AO, 3 current signals
	ST9351	Dual channels optical-isolated DIO card	Supporting 2 channels for DI or DO through software setting
	ST9361	Single channel optical-isolated PI card	Supporting 1 channel for PI

Terminal box (board)

Figure	Model	Description
	ST9173A	16-CH active DI terminal board (220VAC)
	ST9173B	16-CH passive DI terminal board (220VAC)
	ST9173C	16-CH active DI terminal board (24VDC)
	ST9173D	16-CH passive DI terminal board (24VDC)

Terminal box (board)

Figure	Model	Description
	ST9172	8-CH AIO/16-CH DIO terminal box
	ST9173	16-CH DI terminal box
	ST9174C	16-CH DO terminal board (with 16pcs 10A relay)
	ST9175	8-CH AI redundancy terminal board
	ST9176	8-CH AO redundancy terminal board

Common parts

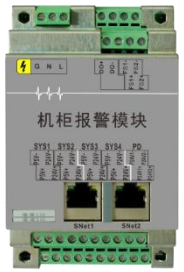
System power unit

System radiator unit

Dual power switching components

DCS cabinet/panel

6U industrial rack cage/ 6U bus-oriented backplane



Cabinet alarm module

24VDC power unit

Operator/ Engineer Station

Operator Station

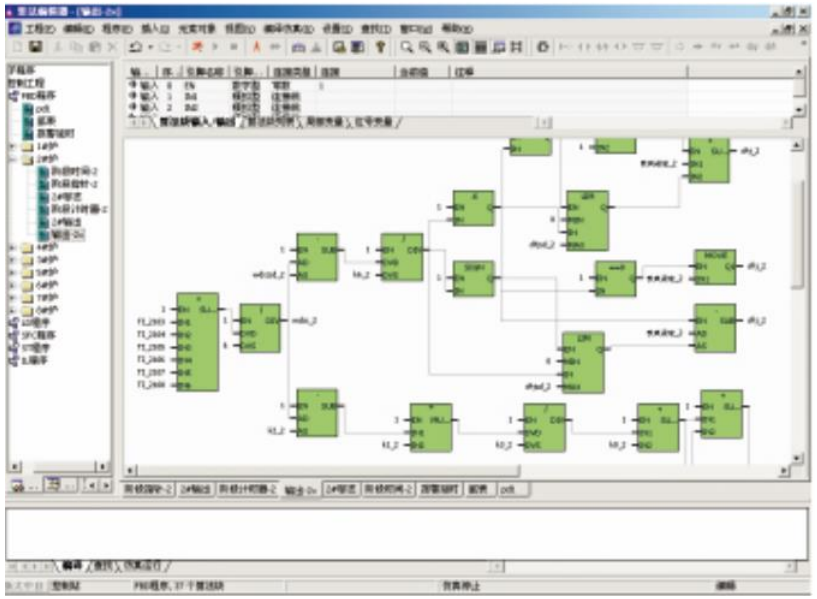
- Data display
- Operating log
- Data alarm
- Alarm acknowledge
- Data report
- History data recording

Engineer Station

- Device configuration
- System diagnosis
- Control strategy programming
- Monitoring graphics building

ChiticMaker

ChiticMaker is a tool making monitoring graphs. The programming languages conform to IEC61131-3 standard.

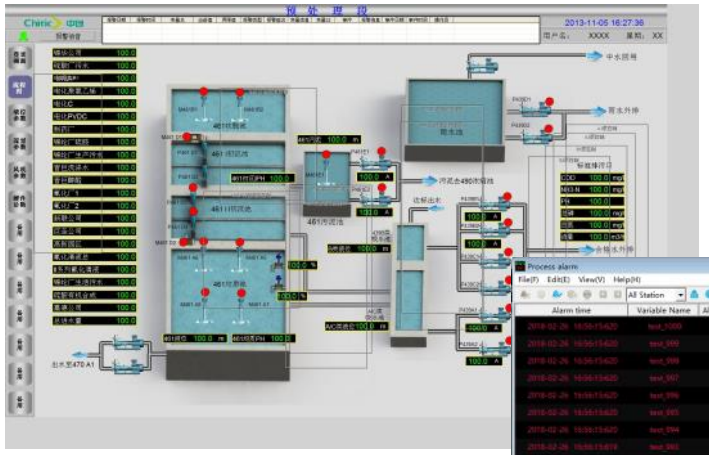


Program Editor

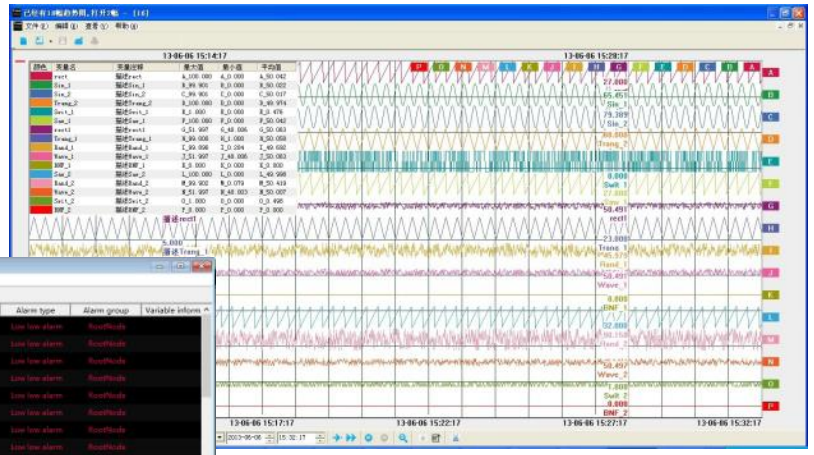
Graphics Editor

ChiticView

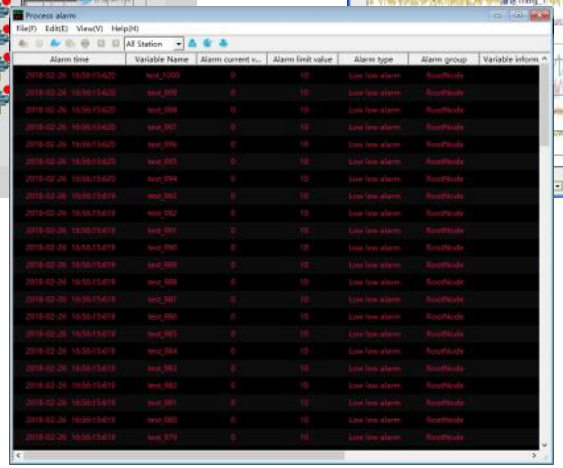
ChiticView is a tool for various graph display, like process display, trend analysis, alarm display, etc.



Process Display



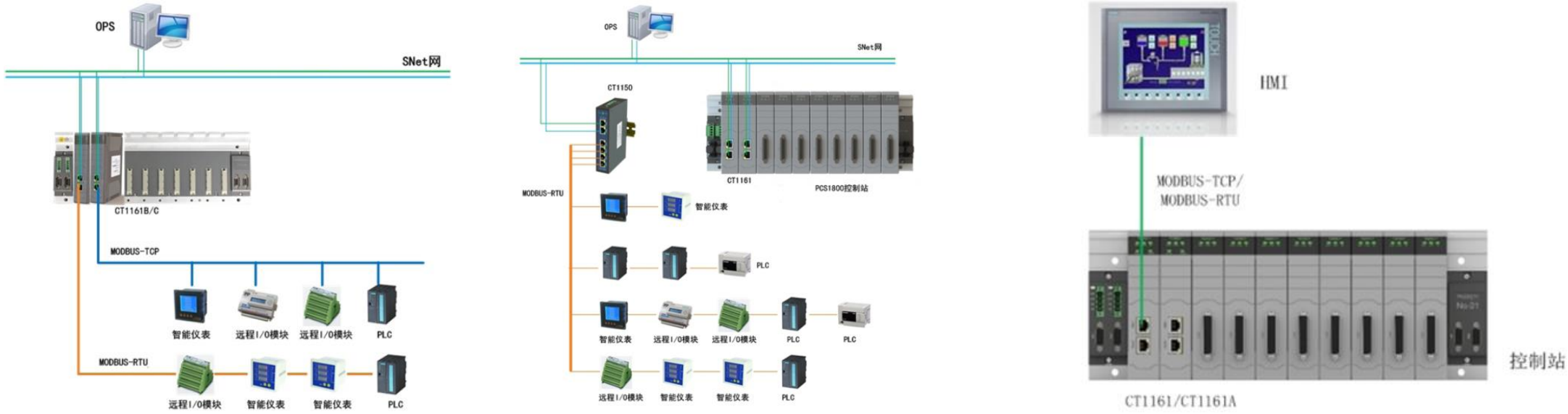
Trend Analysis



Alarm Display

Open Interface

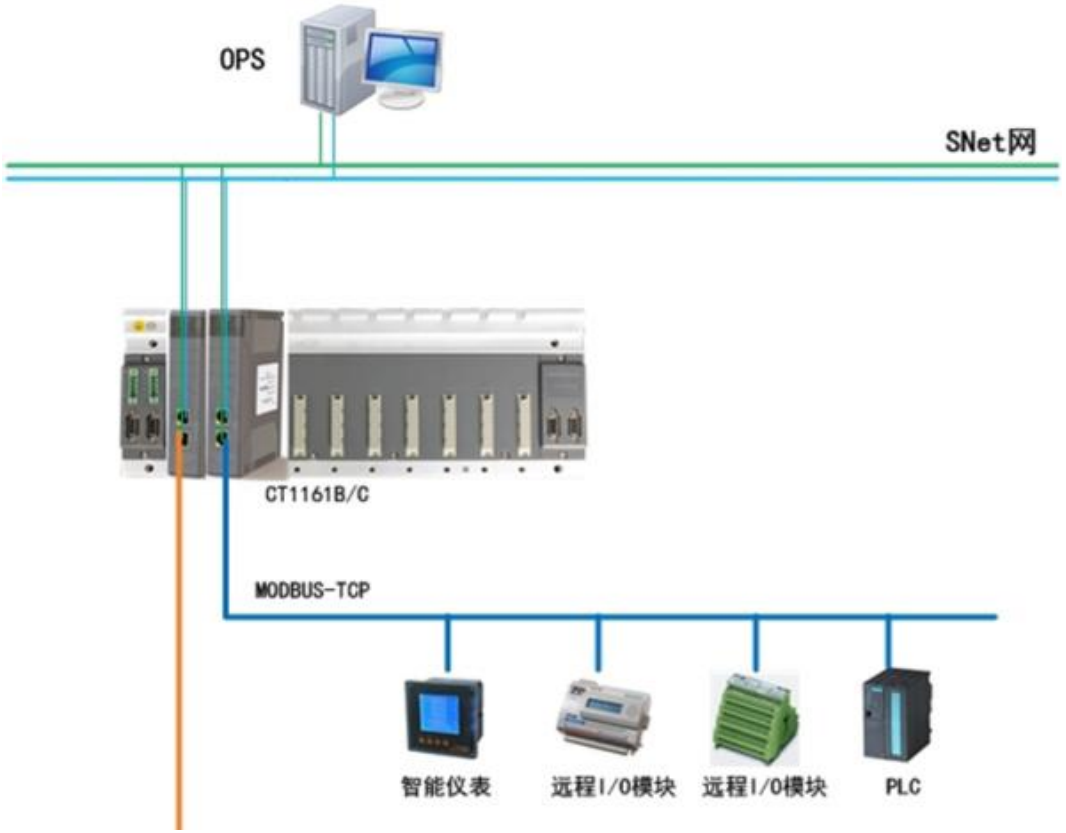
TDCS9200 is an open system supporting the mainstream communication protocols in industry automation applications.



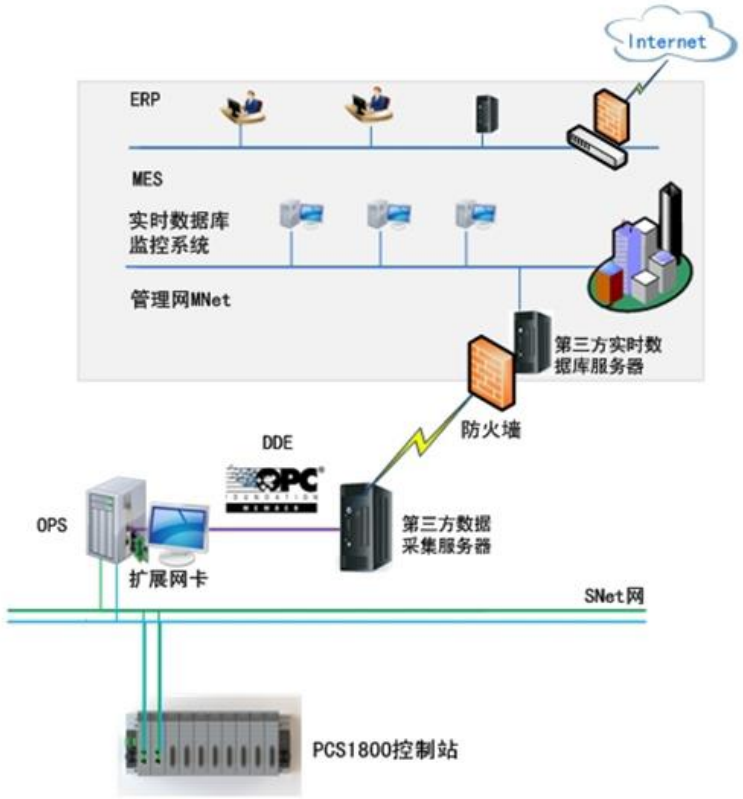
Modbus-TCP/ Modbus-RTU (master)

Modbus-TCP/ Modbus-RTU (slave)

Open Interface



Profitbus-DP



OPC, DDE

System Specification

Item	Parameter	Index
Accuracy	AI Error	±0.1%F.S.
	AO Error	±0.15%F.S.
	SOE	1ms
Real-time performance	Scan cycle	50ms for digital signal 100ms for analog signal
	Loop control cycle	100ms
	Logic control cycle	50ms
	Response time of monitoring graph	≤0.5s
Network performance	SmartBus communication rate	19.2kbps
	CNet communication rate	1Mbps
	SNet communication rate	100Mbps
	MNet communication rate	100M/ 1000Mbps

Item	Parameter	Index
Input & output performance	AI input impedance	10MΩ for voltage input; 250Ω for current input
	AO load	750Ω @ 4-20mA 1000Ω @ 0-10mA
	DI input impedance	>6.8kΩ
	MAX DO load capacity	100mA @ 24VDC 5A @ 250VAC (relay, connecting by terminal module)
	PI frequency	0~30kHz Resolution ratio: ±1Hz
	Over-voltage and over-current protection	Yes

System Specification

Item	Parameter	Index
System load (recommended)	Operator station	<30%
	SNet	<30%
	Control station	<30%
	CNet	<50%
Reliability	Redundant power supply	Optional
	Redundant network	Standard
	Redundant controller module	Optional
	Redundant I/O module	Optional
	Hot swap supporting	Yes
	AO retain	Yes (system not powered off)
	MTBF	≥100000h
	MTTR	≤5min
	Availability	≥99.95%
Anti-interference	Anti-interference	AI (CMRR): ≥120dB AI (NMRR): ≥60dB EMC: industry level III
	Pressure resistance	I/O isolation: 500VDC Power isolation: 3000VAC

Item	Parameter	Index
Power supply	AC power supply	165V-265VAC, 47Hz-53Hz
	DC output	<0.8% under max load
	Ripple factor	<5%
	Over-current protection	Activated when load>110%~150% of rated current
	Over-voltage protection	Activated when voltage>rated 125%~145% of rated voltage
Working environment	Working temperature	0~55℃
	Storage temperature	-20-70℃
	Working humidity	10-85% relative humidity, non-condensing
	Storage & tranportation humidity	≤93%RH (40℃)
	Atmospheric pressure	86-106kPa

Selection Guide

No.	Model	Description
	Operator Station/ Engineering Station	
1	ST9433	Chitic TDCS9200 industry control software V8.0 (no limit development running version)
2	ST9436	Chitic TDCS9200 industry control software V8.0 (no limit running version)
3	ST9614	Operator station/ Engineering station
4	ST9643A	SNet switch (16 electrical port)
	Control Station	
1	ST9006	DCS cabinet/panel (800*600*2200)mm
2	ST9004	Communication cable
3	ST9005	Accessories in the cabinet
4	ST9111	6U industrial rack cage
5	ST9121	6U bus-oriented backplane
6	ST9132	System power unit
7	ST9133	System radiator unit
8	ST9134B	24VDC power unit (10A)
9	ST9162	Controller module
10	ST9262	32-CH integrated DIO module

No.	Model	Description
	Control Station	
11	ST9271	16-32 channels universal regulation module
12	ST9233	32-CH SOE module
13	ST9315	Single channel full-isolated universal AI card
14	ST9321	Single channel full-isolated AO (current) card
15	ST9361	Single channel optical-isolated PI card
16	ST9172	8-CH AIO/16-CH DIO terminal box
17	ST9173	16-CH DI terminal box
18	ST9174C	16-CH DO terminal board (with 16pcs 10A relay)
19	ST9175	8-CH AI redundancy terminal board
20	ST9176	8-CH AO redundancy terminal board
21	ST9135	Dual power switching components (10A)
22	ST9137	Dual power switching components (80A)
23	ST9191	Cabinet alarm module
24	ST9150	4-serial-port communication module supporting Modbus RTU
25	ST9151	4-serial-port communication module supporting Profitbus DP

THANK YOU

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Email: daiw@chitic.com;
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