



ICP DAS DCS I/O Solution iDCS-8000



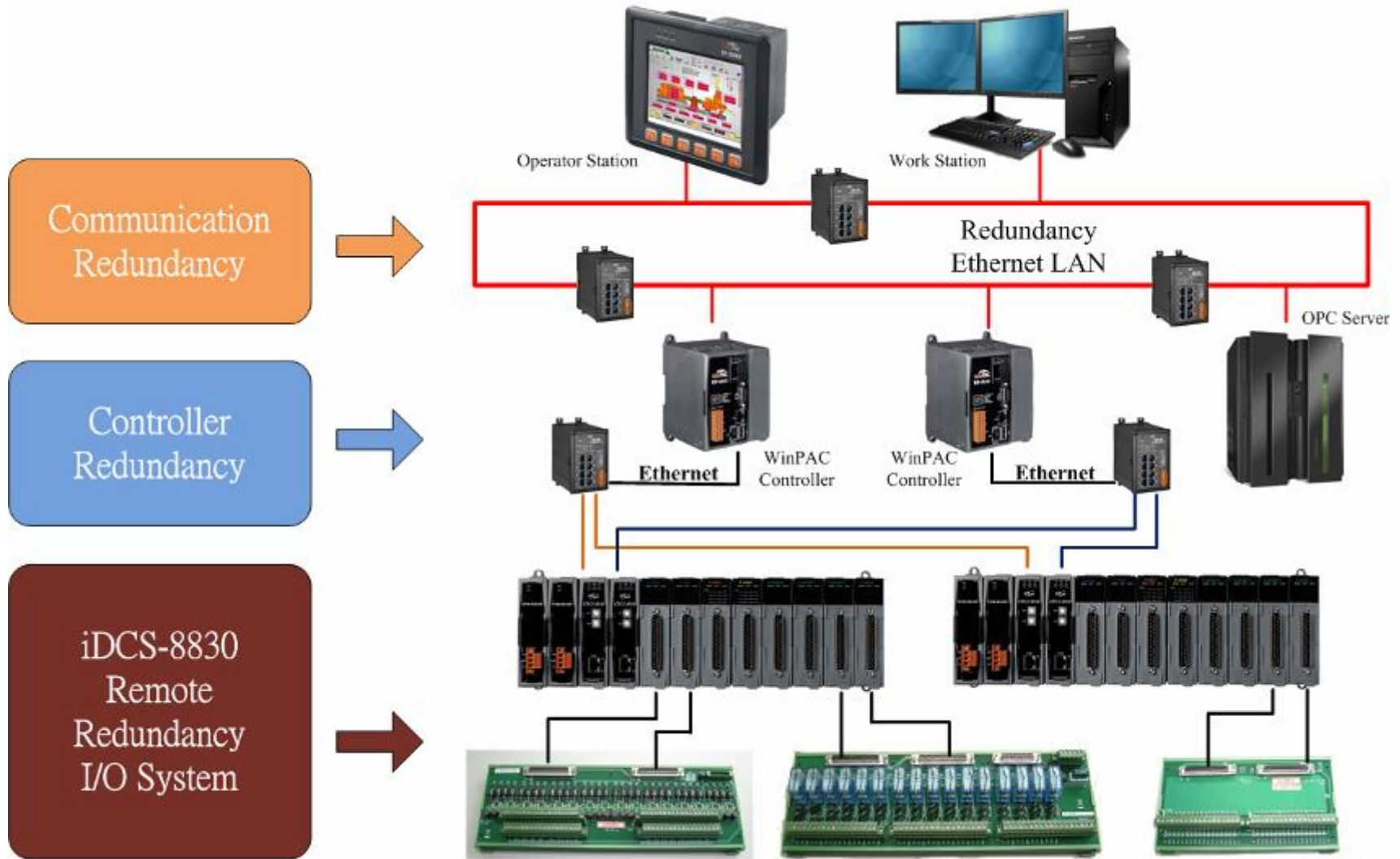
Outline

- Distributed Redundant System
- ICP DAS DCS Solution
- iDCS-8000 Introduction
- iDCS-8000 Application Structure
- The Plan of DCS Product





Distributed Redundant System (1/3)





Distributed Redundant System (2/3)

- Widely applied in petrochemical industry
- Integrated many technique in computing, communication, control, monitor, etc.
- Reducing the risk of automation and improving equipment reliability
- Various signal, Digital, Analog, HART, Pulse, Temperature, etc., in fields
- Fast switching time of redundant
- Fast I/O data updating
- Self-Diagnostic
- Suitable for Harsh Environments





Distributed Redundant System (3/3)





ICP DAS DCS Solution (1/2)

- **Host Software :**

Smart / EZ Data Logger,
eLogger / InduSoft,
NAPOPC Server ...



- **DCS Controller :**

WinPAC / ViewPAC / XPAC /
LinPAC / iDCS-PAC / iPAC



- **I/O Module :**

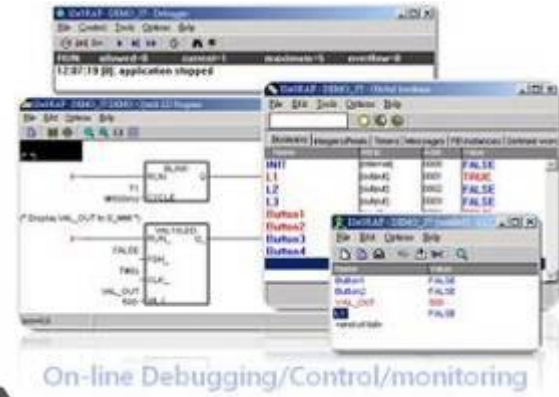
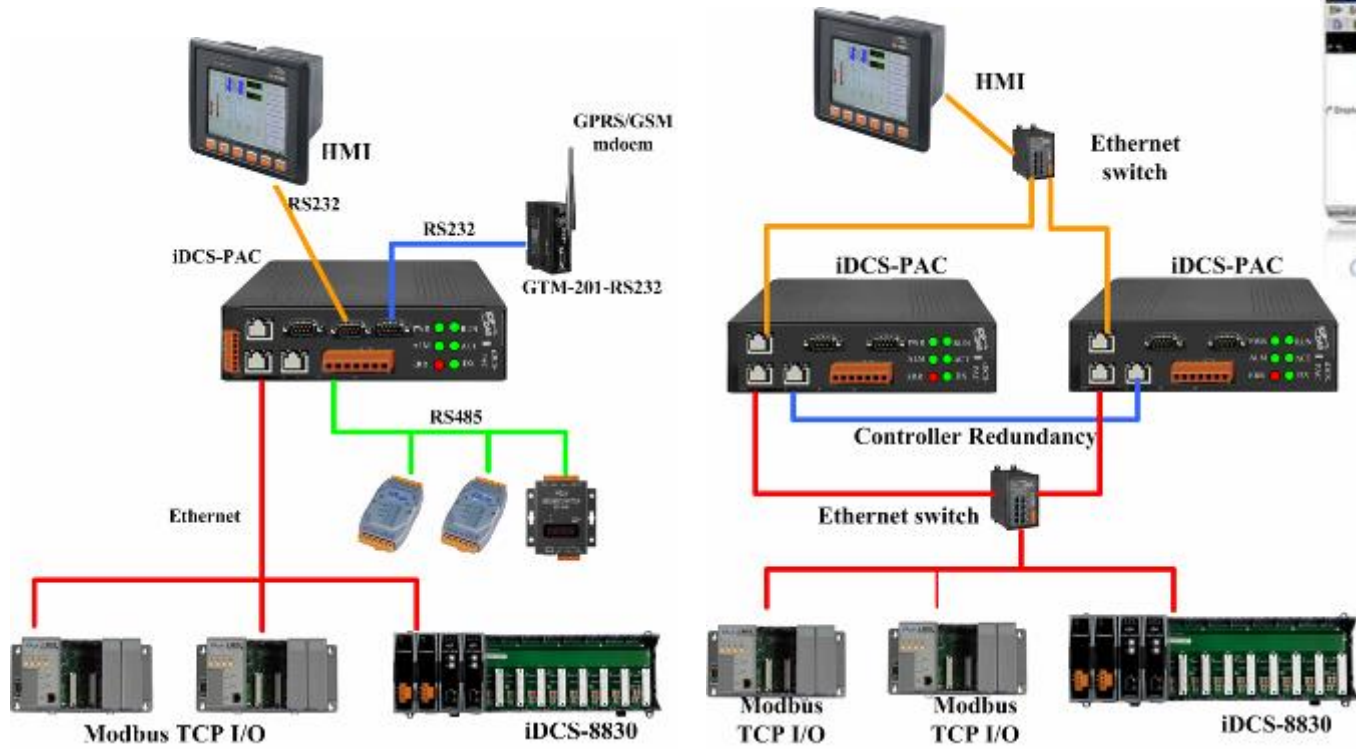
I-7K / I-8K / I-87K / ET-7K /
USB-87K / PROFI-8K /
CAN-2K / iDCS-8000 ...





ICP DAS DCS Solution (2/2)

- Single / Redundant controller
- Development Tools – SoftPLC, C language, etc.



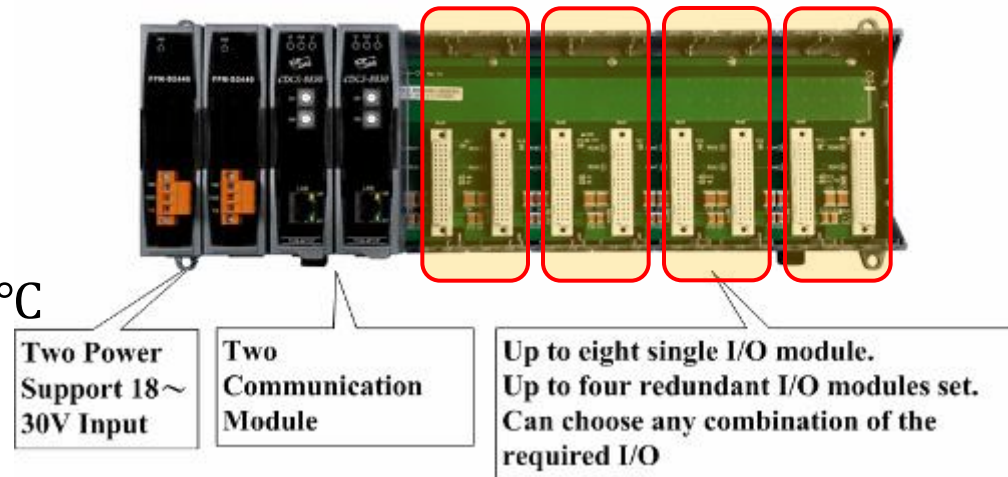
- Windows CE
- MiniOS 7 (DOS)
- Embedded Linux
- Android 、BSD etc..



iDCS-8000 Introduction

- Remote I/O Redundant System
- Support Modbus TCP protocol
- Equip Redundant Power Modules
- Equip Redundant Communication Modules
- Equip 8 I/O module slots
 - Max. 256 Digital I/O Channels
 - Max. 64 Analog Output Channels
 - Max. 128 Analog Input Channels
 - Max. 64 Pulse I/O Channels
- Four sets of I/O Redundant
- Hardware Features :
 - Operating Temp. : -25 ~ +75 °C
 - ESD : 8KV
 - G3 Standard (ISA S71.04)

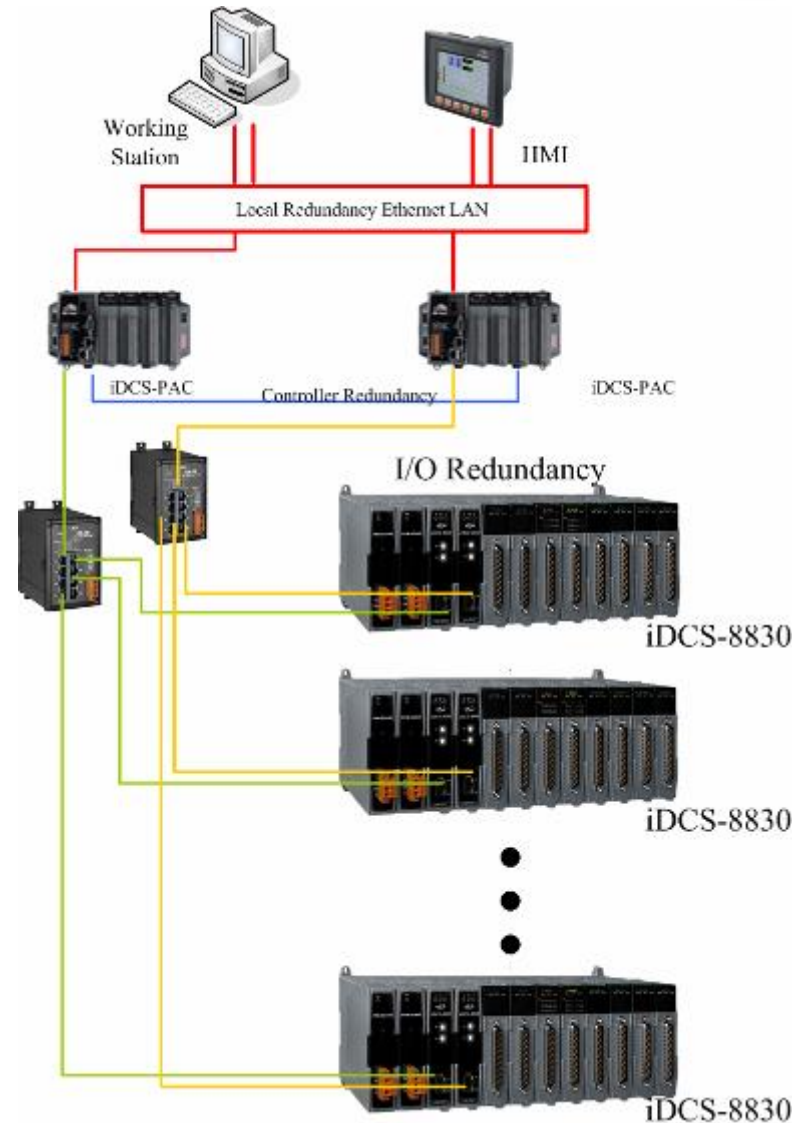
High-reliability Remote System





iDCS-8000 Feature (System)

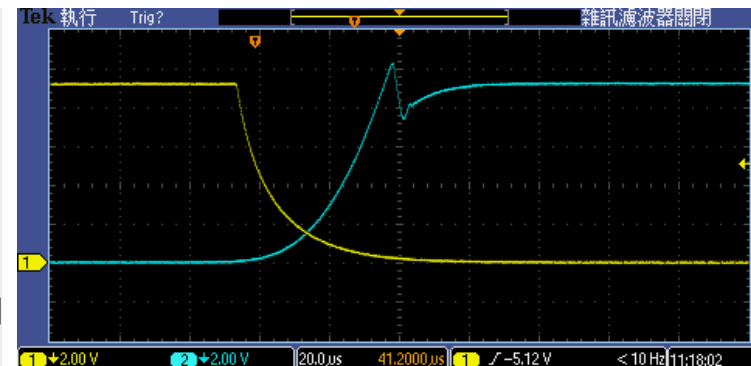
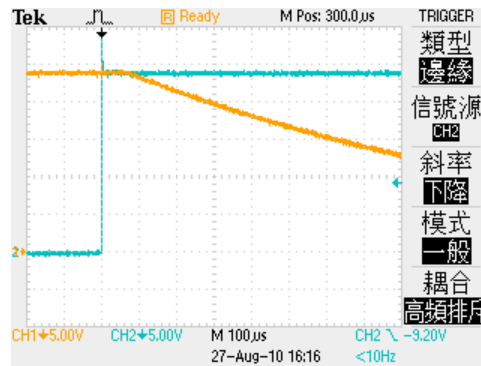
- An Ethernet Remote I/O Unit
- Two redundant power and communication modules to ensure system reliability
- I/O modules update data actively to communication modules to reduce process time
 - ✓ 256 DI – 3ms
 - ✓ 128 AI – 20ms
 - ✓ 64 PI – 10ms





iDCS-8000 Feature (I/O)

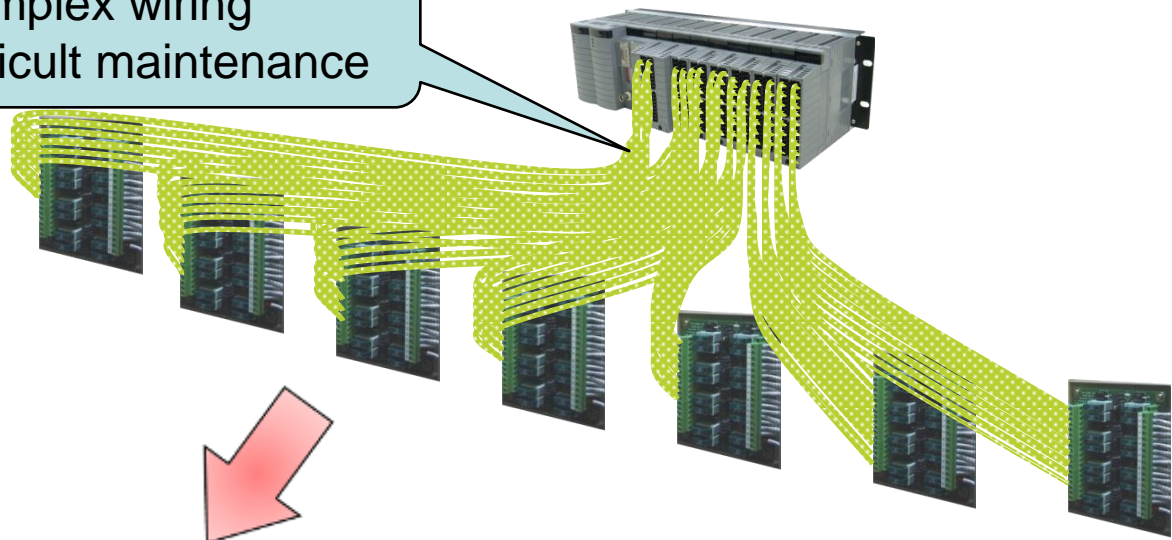
- **Tiny redundant switching time**
 - DO module < 50us
 - AO module < 1ms
 - PI module – Maximum error less than 1 pulse under 10KHz
- **High Accuracy**
 - Maximum error less than +/- 0.05% FSR for analog I/O modules
- **Self-Diagnostic**
 - Termination board break up detection
 - I/O wire broken
 - ...



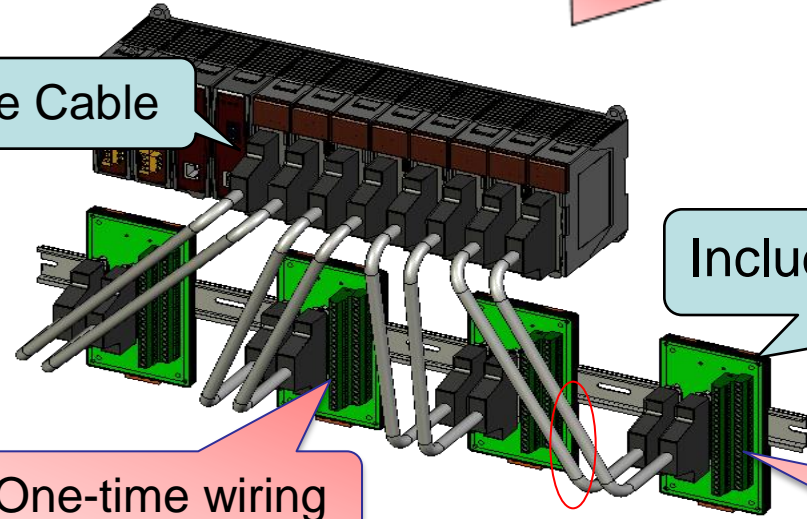


iDCS-8000 Feature (Termination)

- 1. Complex wiring
- 2. Difficult maintenance



Exclusive Cable



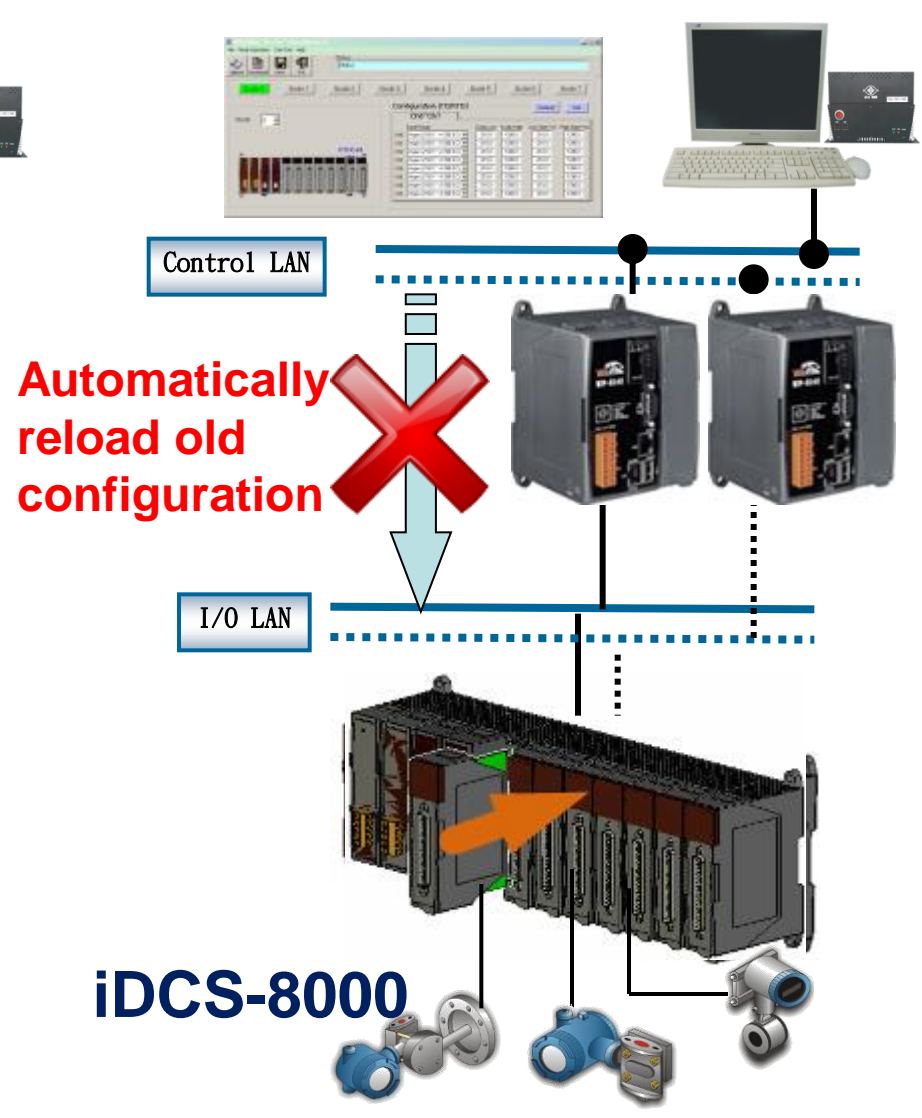
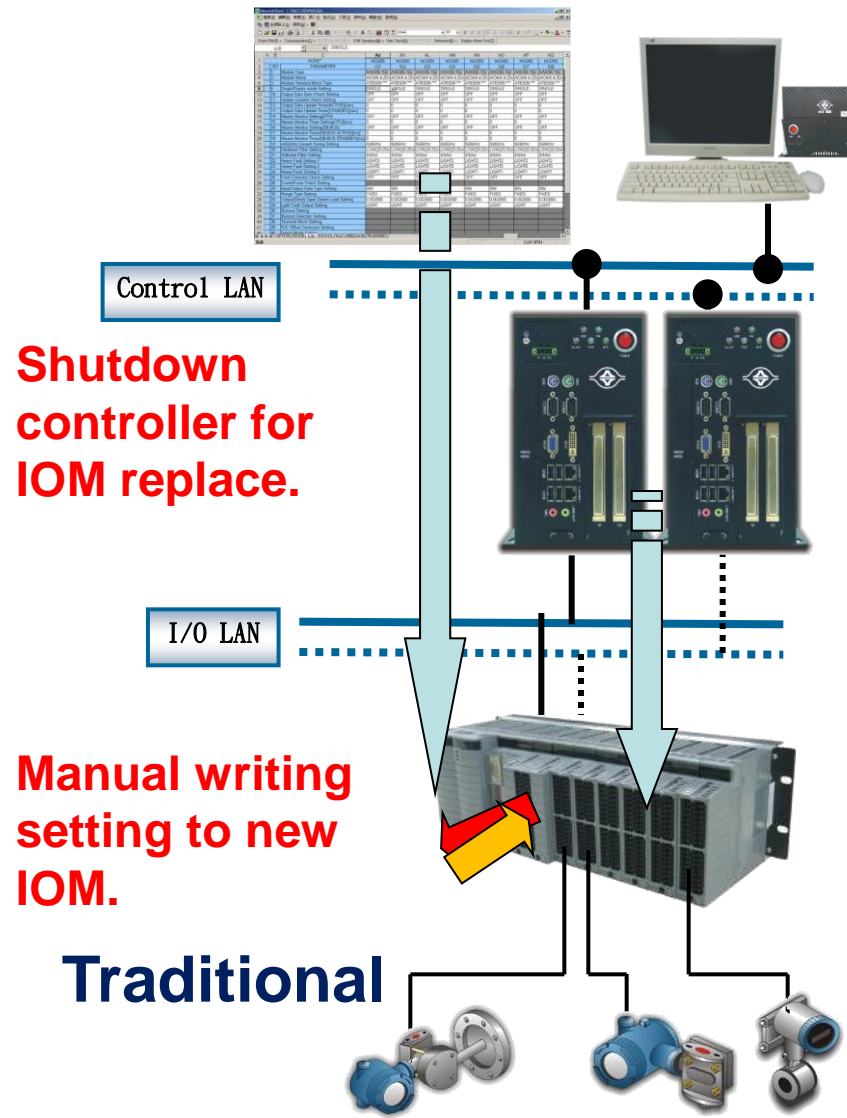
Including EMS protection circuit

One-time wiring

Easy maintenance



iDCS-8000 Feature (Hot Swap)





iDCS-8000 Feature (Utility)

The screenshot displays the iDCS-8000 Utility software interface. The window title is "iDCS-8000 Utility ver 1.0.1 (Online Mode)". The interface includes a menu bar (File, Online, Setting, Help) and a toolbar with icons for Connect, Disconnect, Upload, Download, Monitor, Load, Save, and Exit. A status bar at the top right indicates "Status: Upload data from DCS-8000 finished." The main area is divided into several sections:

- Device Information:** Shows "iDCS-8830" with IP address "132.168.0.2" and Modbus ID "1". Below this is a rack of modules, with the first module labeled "F-8041".
- Configuration (DO):** A section for configuring Digital Output (DO) channels. It includes a "Fault Value" table with checkboxes for channels 0-31, a "PowerOn Value" table with checkboxes for channels 0-31, and a "Fault Mode" section with radio buttons for OFF, Preset, and Hold.
- I/O Mapping:** A section with tabs for "DI Mapping", "DO Mapping", "AI Mapping", "AO Mapping", "PI Mapping", "PO Mapping", and "Summary". The "DO Mapping" tab is active, showing a table of Digital Output channels.

Address	Module	Slot	Channel	Value	Comment
0.0 (0.0)	F-8041	0	0		100 Digital Module
0.1 (0.1)	F-8041	0	1		100 Digital Module
0.2 (0.2)	F-8041	0	2		100 Digital Module
0.3 (0.3)	F-8041	0	3		100 Digital Module
0.4 (0.4)	F-8041	0	4		100 Digital Module
0.5 (0.5)	F-8041	0	5		100 Digital Module
0.6 (0.6)	F-8041	0	6		100 Digital Module
0.7 (0.7)	F-8041	0	7		100 Digital Module
0.8 (0.8)	F-8041	0	8		100 Digital Module
0.9 (0.9)	F-8041	0	9		100 Digital Module

Configuration

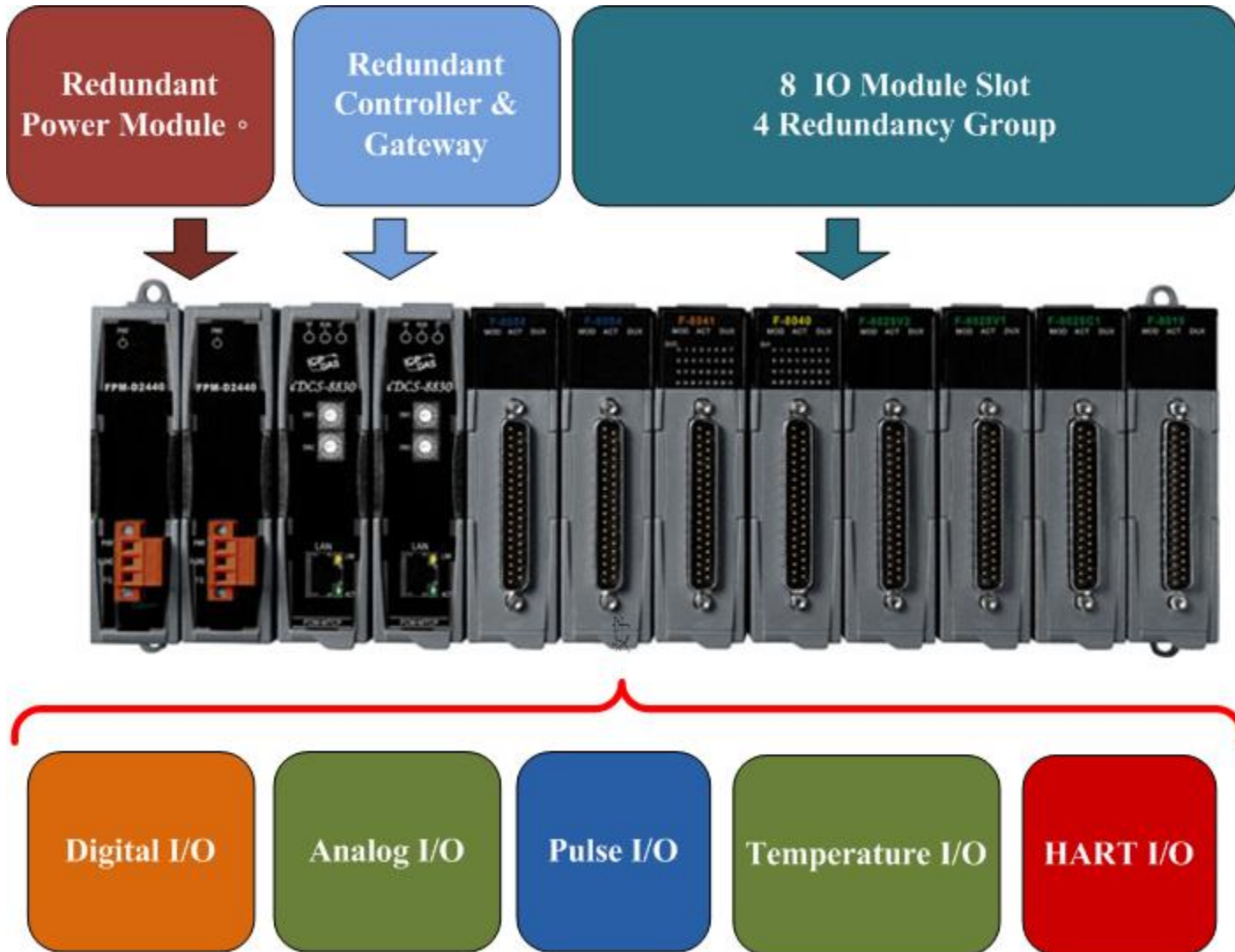
Module Status

I/O List

I/O Channel Overview



iDCS-8000 I/O Modules

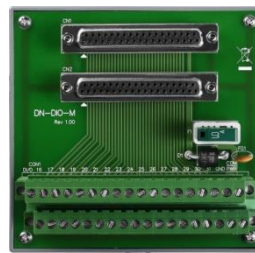
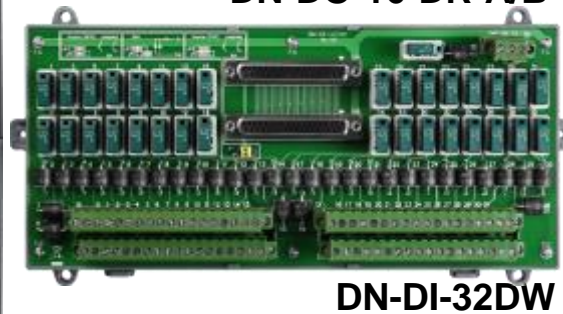




iDCS-8000 I/O Module List

Type		Model	Channel	Features
Digital	DI	F-8040	32	32 channel digital input, 5~30V, sink/source
	DO	F-8041	32	32 channel digital output, sink
Analog	All	F-8017C1	8	4~20mA Input
		F-8017C2	16	4~20mA Input
	RTD	F-8015	8	Pt100, Pt1000, Jpt100
	TC & AIV	F-8019	8	J, K, T, E, R, S, N, B, C, mV, V
	AOI/V	F-8028CV	8	Current, Voltage Analog Output
	HART AI	F-8017CH	8	4~20mA Current Input with HART
	HART AO	F-8028CH	8	4~20mA Current Output with HART
Pulse	PI	F-8084	8	Frequency, Counter. Over-current protection
And the termination boards				

Digital Module



[I/O Feature]

1. Single / Redundant
2. 32 I/O Channel LED

[Termination Board]

1. Removable Relay(6A,250V_{AC})
2. Supports Dry / Wet contact
3. Removable fuse
4. EMS protection
5. I/O Channel LED Indicator



Analog Module



[I/O Feature]

1. Single / Redundant
2. High accuracy
3. HART

[Termination Board]

1. Cost Effective
2. EMS protection
3. Provide Isolated Passive Loop Power



DN-AIO-M



DN-AIH-08



Temperature & Pulse Module



DN-RTD-M



DN-TC-M



DN-PI-M

[I/O Feature]

1. Single / Redundant
2. 3-wire RTD
3. Support TC, mV and V
4. Pulse redundant switching error less than 1 pulse

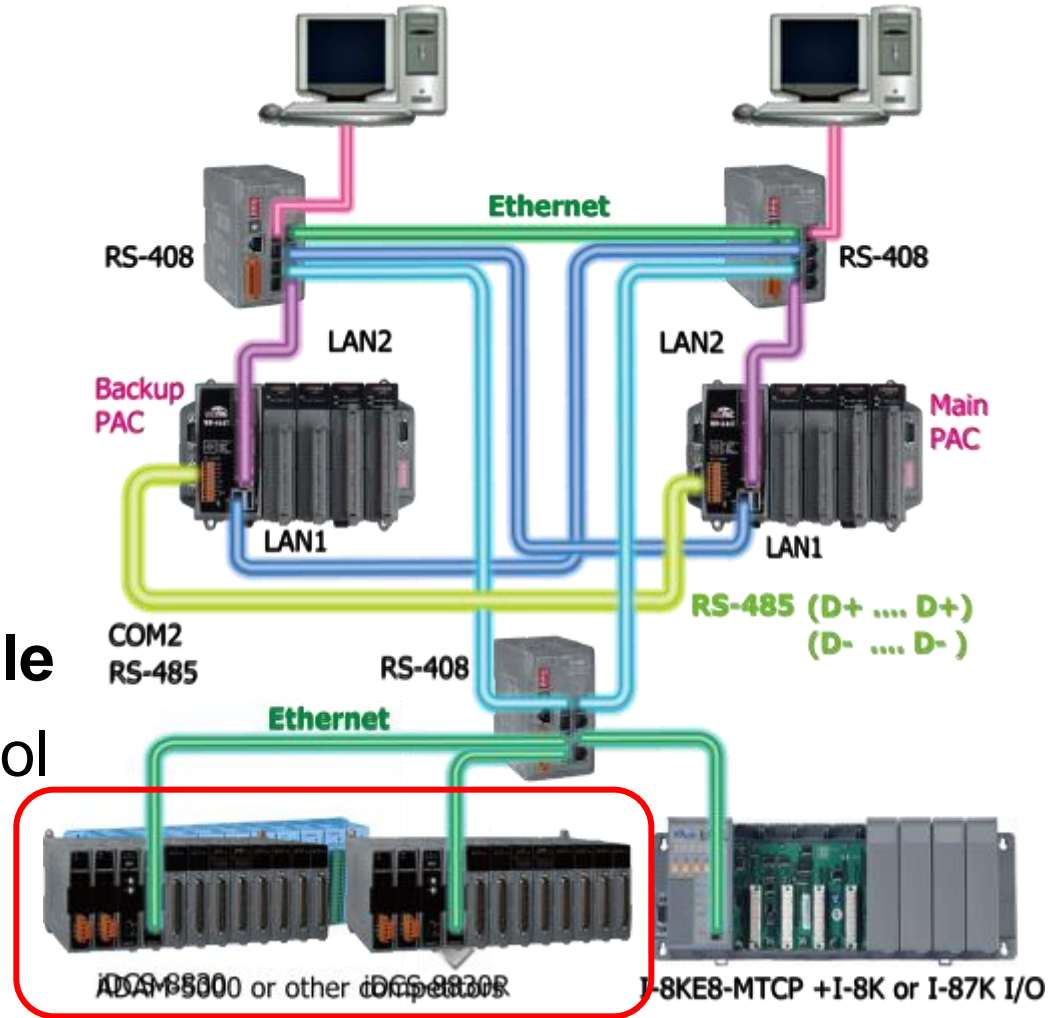
[Daughter Board]

1. CJC compensation
2. EMS protection



Advantage of iDCS-8000

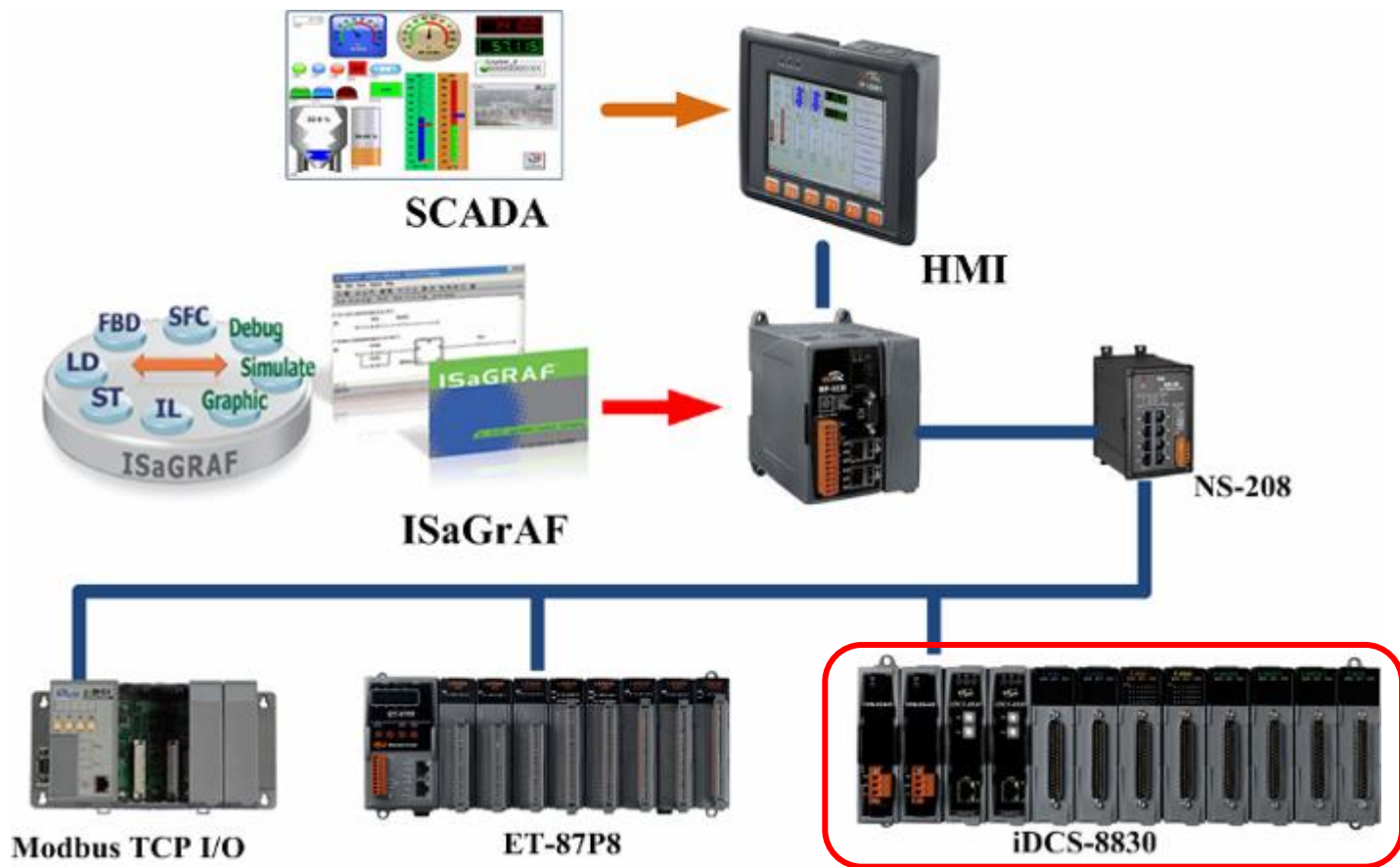
- **Hardware**
 - ✓ Better EMS
 - ✓ High accuracy
- **I/O module**
 - ✓ Redundancy
 - ✓ Self-Diagnostic
- **Communication Module**
 - ✓ Modbus TCP Protocol





Application Structure (1/3)

I/O Redundancy

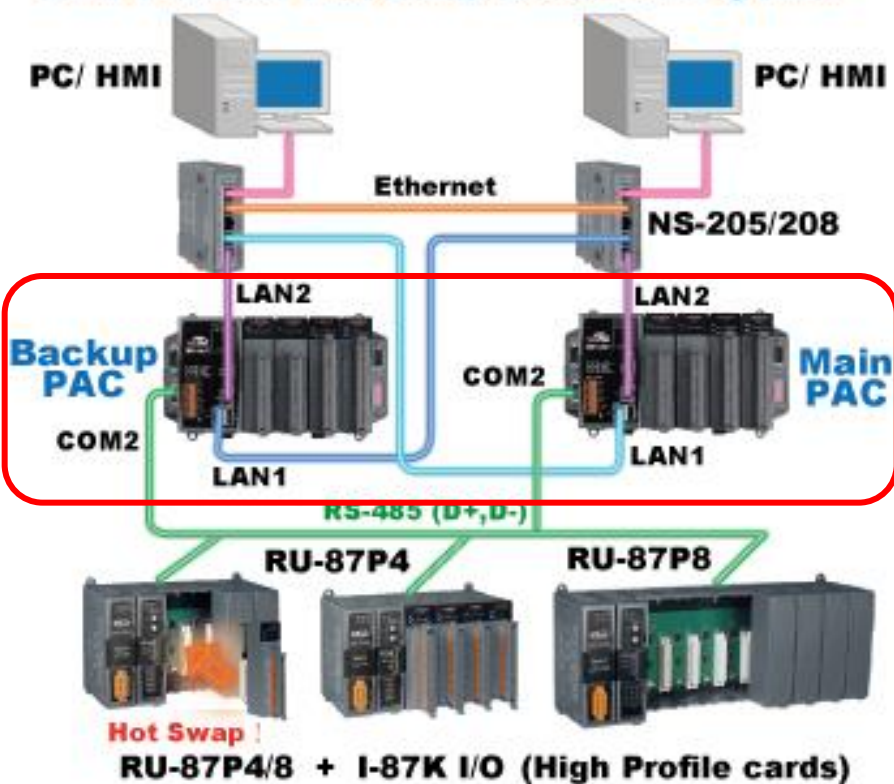




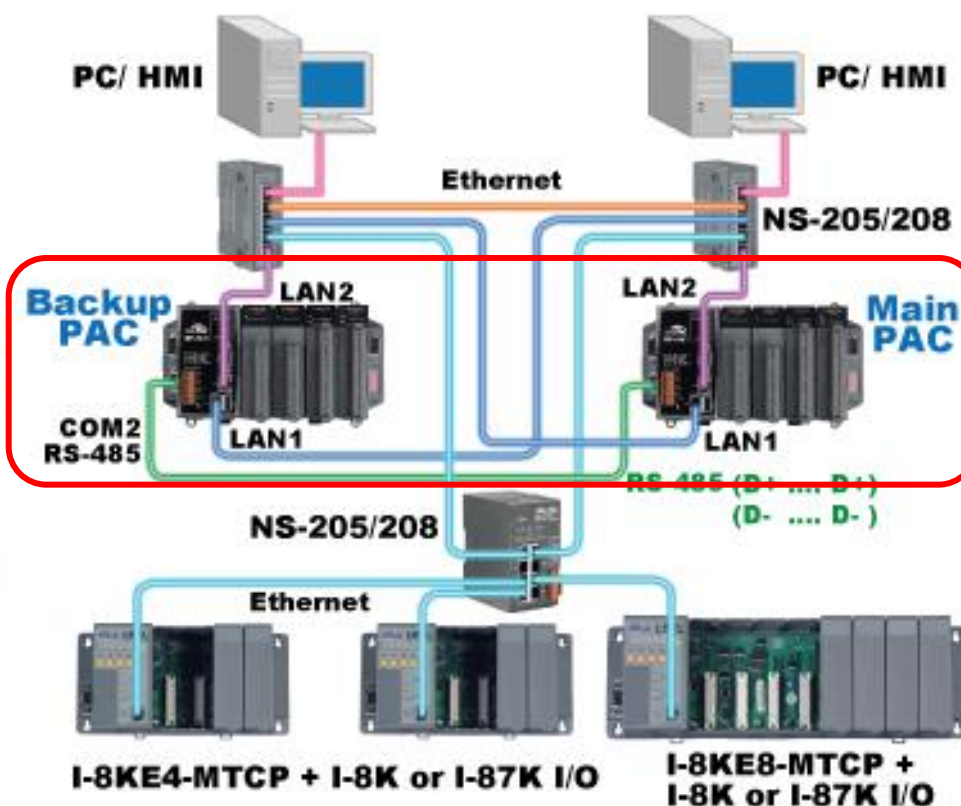
Application Structure (2/3)

Controller Redundancy

New WP-8x47 Hot-Swap Redundant System



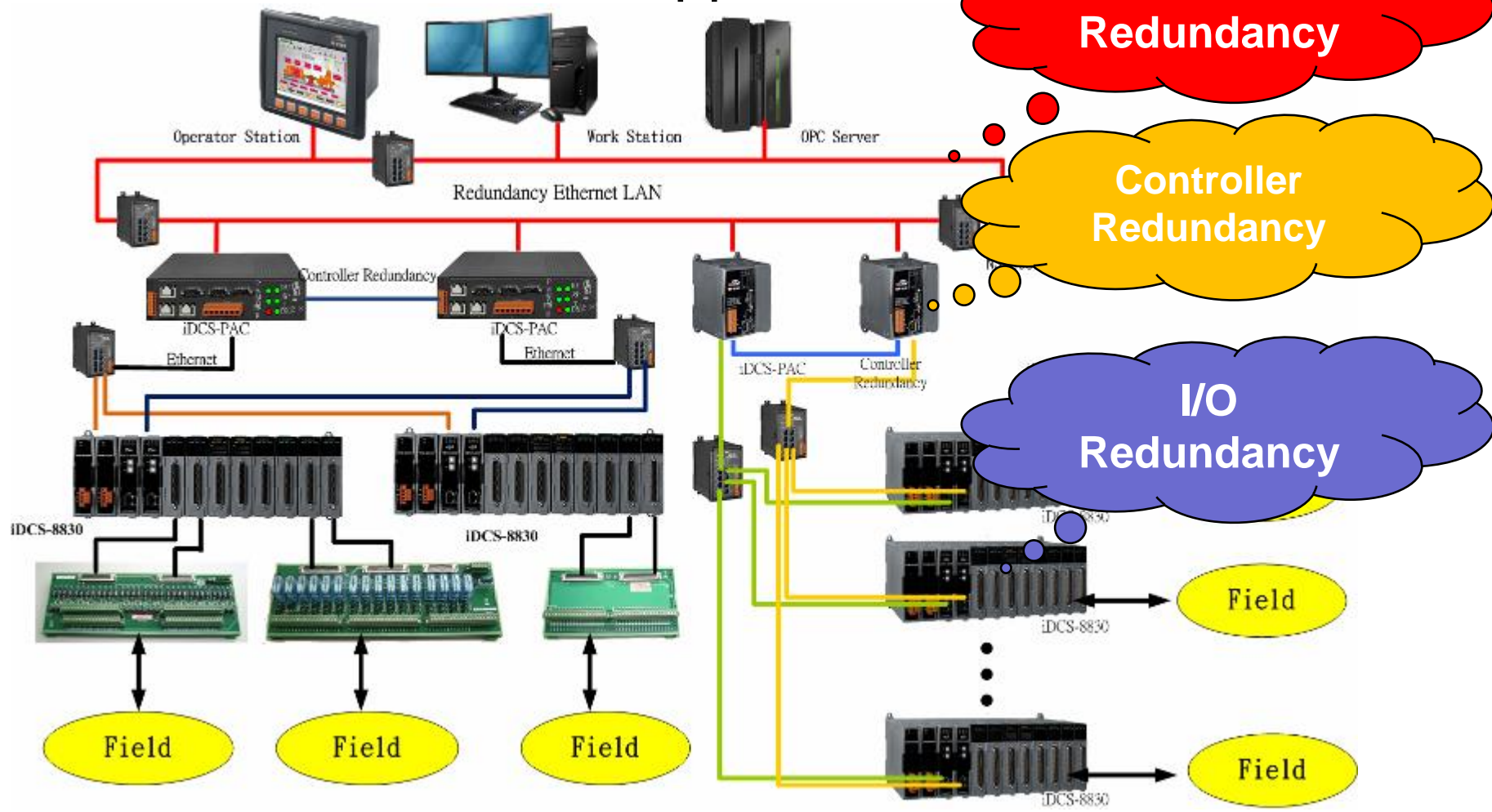
New WP-8x47 Redundant System with Ethernet I/O





Application Structure (3/3)

Distributed Redundant Application





Installation of iDCS-8000





Q & A



Thanks

For more information please visit

<http://www.icpdas-usa.com/>