

# RoHS

Our policy for  
the EU RoHS/WEEE Directives

ICP DAS produces a wide range of electronic sub-assemblies (embedded boards and sub-systems) and end-user electrical / electronic equipment. These products are integrated into end-user equipment for a variety of applications or installed with other equipment. It is the responsibility of the equipment producer, such as ICP DAS, to comply with the RoHS Directive. ICP DAS will support customers by providing RoHS compliant products for many existing products together with new products. However in some OEM cases outside the scope of the RoHS Directive, we will also maintain normal supplies of lead-based products for customers placing their electrical and electronic equipment onto the market without EU.

Although ICP DAS is not covered by the WEEE Directive, the ICP DAS products are assuring compliance to all local and international laws and regulations that apply. ICP DAS identifies lead-free RoHS compliant products using a unique part number and by adding a CR to the product name. CR (Compliant RoHS) means following the RoHS Directive ( Directive 2002/95/EC ) defined by EU and considers a product to be RoHS-compliant if the maximum concentration value is up to 100ppm by weight in homogeneous materials for lead, mercury, hexavalent chromium, brominated flame retardants ( PBBs and PBDEs ), and is up to 100ppm by weight in homogeneous materials for cadmium.

## RoHS Compliant Status

The status of each product is indicated on the individual Webpage / Datasheet / Box / Case used the symbols shown below.



Your Local Distributor



ICPCON

2008 Vol.6.5

## WinPAC-8000

- ✓ Windows CE.net 5.0
- ✓ PXA270 CPU (32 bit and 520 MHZ)
- ✓ 128MB SDRAM
- ✓ 14MB Flash Disk



I-8000 Series  
Compact PAC

RU-87Pn Series  
Remote I/O Unit

I-7188 Series  
uPAC

I-7000 Series  
Remote I/O Modules

SC-3000  
Signal  
Conditioner



EZ Data Logger  
small data acquisition software

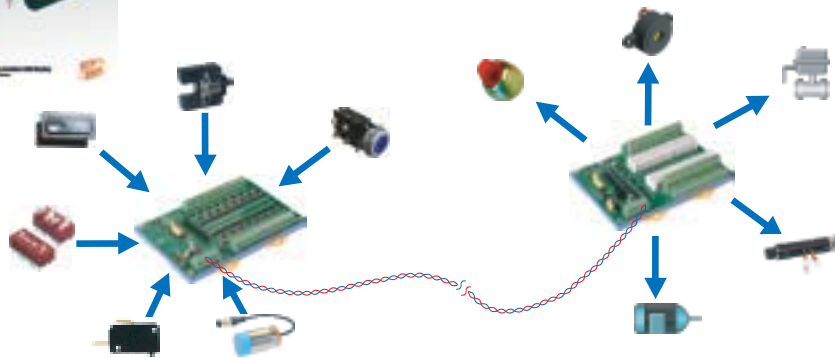
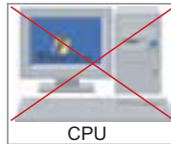


2008 Vol.6.5

Call our distributors for ICPDAS's High Quality, Industrial Data Acquisition and Control products for PCI and ISA Bus Vol.5.2 catalogue



**FRnet & FRnet Products**  
**Simple is beautiful**  
**Non-CPU I/O system**



**Industrial Communication Boards**



**PCI Bus Memory & Data Acquisition Boards**



**ISA Bus Data Acquisition Boards**



**Daughter Boards & Accessories**



**Motion Control & Watchdog Boards**



**OEM/ODM wanted**

[Http://www.agstech.net](http://www.agstech.net)

AGS-TECH Inc

Phone: +1-505-550-6501 and +1-505-565-5102

Fax: +1-505-814-5778

Email: [sales@agstech.net](mailto:sales@agstech.net)

Web: <http://www.agstech.net>



## Motion Control Modules For 8000 PAC Series

**NEW**



### I-8094F: 4-Axes motion control module.

- Independent & Synchronous 4-axes motion control
- Support for manual Pulser generator and jog function
- 2~3 axes linear & 2 axes circular interpolation function
- Continuous interpolation function
- Programmable T/S-curve acceleration and deceleration
- A maximum of 4M pps pulse output rate for each axis
- Pulse output types: CW/CCW or Pulse/Direction
- 32-bit encoder counter for each axis
- Encoder input types: A/B phase or Up/Down
- Programmable automatic homing for each axis
- Position comparison management and software limits
- FRnet distributed I/O: 128 DI & 128 DO.
- Many synchronous actions(event-triggered actions)
- Development software: Win CE ▶ eVC/VC.Net/VB.net  
MiniOS7 ▶ TC3.0/MSC/BC3.1



### I-8092F: 2-Axes motion control module.

- Independent 2-axes motion control
- Support for manual Pulse generator and jog function
- 2 axes linear & circular interpolation function
- Programmable T/S-curve acceleration and deceleration
- A maximum of 4M pps pulse output rate for each axis
- Pulse output types: CW/CCW or Pulse/Direction
- 32-bit encoder counter for each axis
- Encoder input types: A/B phase or Up/Down
- FRnet distributed I/O: 128 DI & 128 DO
- Development software: Win CE ▶ eVC/VC.Net/VB.net  
MiniOS7 ▶ TC3.0/MSC/BC3.1



### I-8094H: 4-Axes motion control module + On board CPU.

- Full function of I-8094F
- On board CPU: 80MHz
- On board SRAM: 512KB
- On board FRAM: 128KB
- On board EEPROM: 512KB
- Build-in Mini OS7( DOS like)
- Support Macro Function
- Support Macro program
- Development software: Win CE ▶ eVC/VC.Net/VB.net  
MiniOS7 ▶ TC3.0/MSC/BC3.0
- Expandable distributed I/O: 128 DI & 128 DO Via two-wired FRnet interface

AGS-TECH Inc

Phone: +1-505-550-6501 and +1-505-565-5102

Fax: +1-505-814-5778

Email: sales@agstech.net

Web: <http://www.agstech.net>



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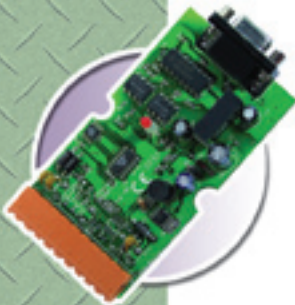


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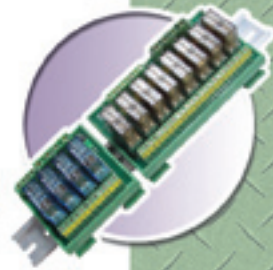
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51/M-7051D/M-7052/M-7052D/M-7053/M-7053D/M-7055/M-  
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### Ordering Information

### Motion Control Modules For 8000 PAC Series

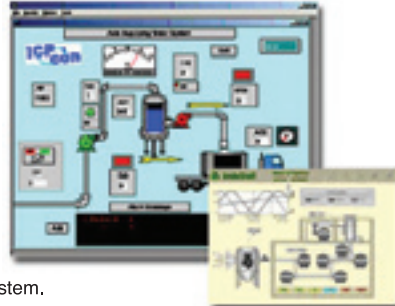


# Software *SCADA Solution*

## Introduction

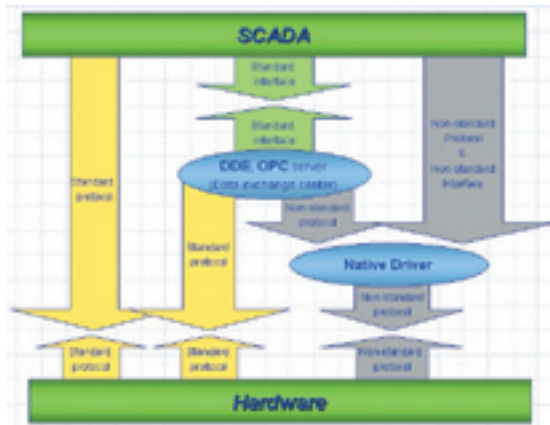
SCADA stands for Supervisor Control And Data Acquisition. It is a production automation and control system based on PCs. It is widely used in many fields: e.g. power generation, water system, oil industry, chemistry, automobile industry. Different fields need different functions, but they all have below features:

- \* Graphical interface
- \* Process simulation
- \* Real time and historic trend logging
- \* Alarm system
- \* Data acquisition and recording
- \* Data analysis
- \* Report generation



Using SCADA software, users can easily integrate many different hardware devices to build a huge system.

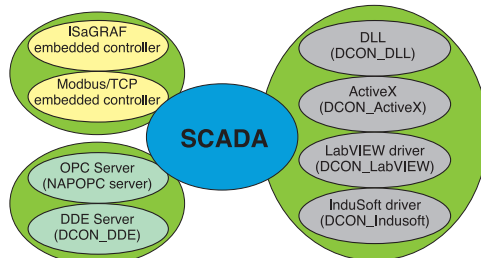
## SCADA software accesses hardware devices



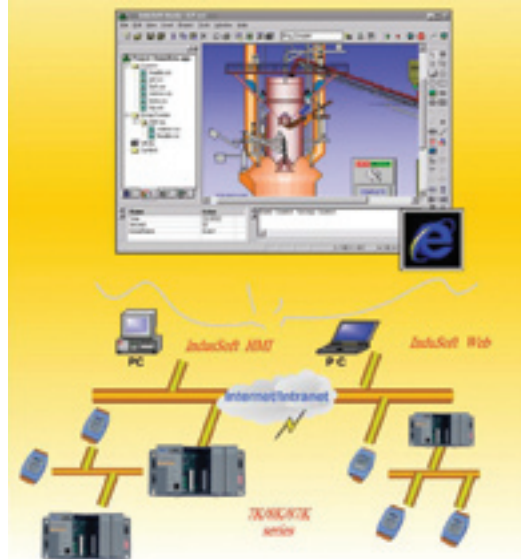
## Famous SCADA software

Citect, ICONICS, iFix, InduSoft, Intouch, Entity Studio, Entity Live, Entity VLC, Trace Mode, Wizcon, Wonderware, ... etc.

## Resources from ICPDAS



# Software *InduSoft Solution*



## InduSoft Web Studio

### Main Functions:

- Multi-Function HMI with Graphics, Alarms, Trending, Recipes and Reports.
- Allow to save the HMI in HTML format and export them to Internet Browsers.
- Include more than 150 different protocols for different devices.
- Support Microsoft.NET, OPC(Client & Server), DDE(Client & Server), ODBC, XML, SOAP and ActiveX.
- TCP/IP Client and TCP/IP Server modules to exchange tag values and configure redundancy systems.
- Automatic e-mail support (SMTP).
- Intuitive script language.

### Supported:

- I-7000 series.
- I-8000 series.
- I-87K series.

### Applications:

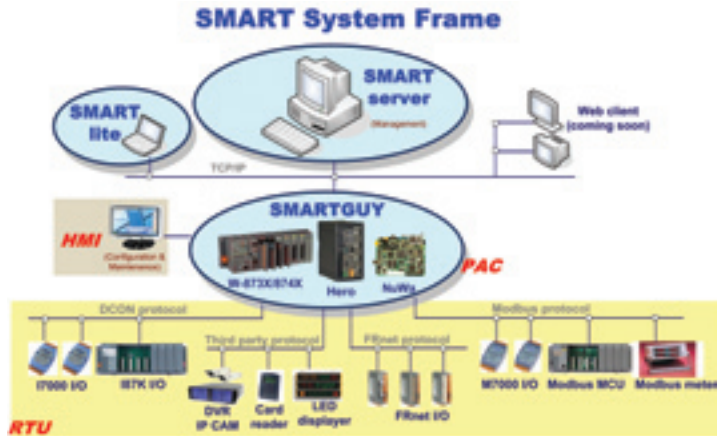
- Environment and facility monitoring.
- Industrial automation.
- Building automation.
- Remote Data Acquisition.

### OS supported:

- Windows NT/2000/XP for development.
- Windows NT/2000/XP or Windows CE(v2.12,v3.x, v4.0 and v5.0) and Windows CE.NET operating system for runtime.

Note: Visit "<http://www.indusoft.com/>" for more information.

# Software **SMART Solution**



## Introduction & Features

- SMART SYSTEM, the distributed control network system, is special designed to construct, integrate and manage SMARTGUY(s) and appliances.
- Include SMART-server, SMARTGUY(with SMART-lite) & SMART appliances.
- SMART-server is the back-end control center software, managing the distributed and independent SMARTGUY to form a distributed control network.
- Data central stored, distributed controlled, and shared to whole system.
- ODBC kernel database make easy to integrate with MIS/ERP.
- Provide authentication management ensure authority, privacy and security.
- Build-in Report Generation output variety reports for advanced analysis.
- Event pre-scheduled & interlock compose/assign events and schedules easily.
- SMARTGUY is the HMI software bass on WinCE embedded in PAC series of ICP DAS.
- Offer "Pre-Configured Templates", function easy set, and programming free!
- Variety of complex calculation capability - PID, Fuzzy, WWE...
- Plenty protocols: Modbus, DCON, FRnet, CAN, RS-485, third party devices etc.
- Support PACscript, a BASIC-like script for special demand.
- SMART-lite remote configure/access SMARTGUY(s) over TCP/IP.
- Build-in HMI interface offer rich fieldwork operation and maintenance.

## Support

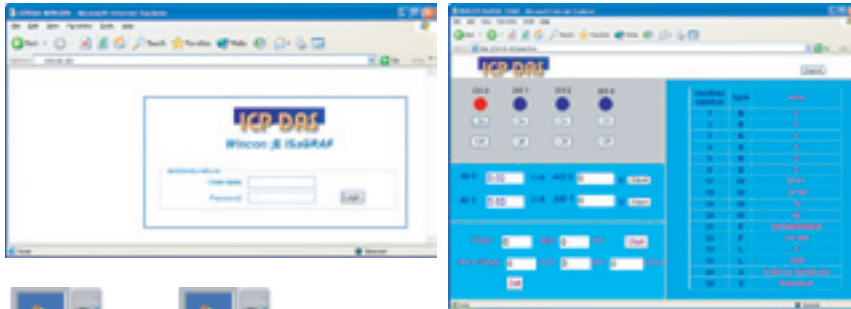
- ICP DAS I-7K / I-8K / I-87K series IO modules/units
- ICP DAS M-7K series IO modules, Modbus MCU, Modbus meter
- ICP DAS FRnet series IO modules
- ICP DAS CAN bus series IO units
- Third party devices: DVR, IP CAM, card reader, LED displayer...

## Applications

- Building & factory automation system
- Security & surveillance automation system
- Light, air-condition, elevator facility automation & energy auditing system
- Broadcast & emergency interlock control system
- Public information inquiry & subscription system

Note: visit "<http://www.icpdas.com/products/Software/SMART/SMART.htm>" for more information.

# Software **WinCon Web HMI** HMI running on Internet



Local or Internet



WinCon-8000



I-7000



I-7000



I-87K

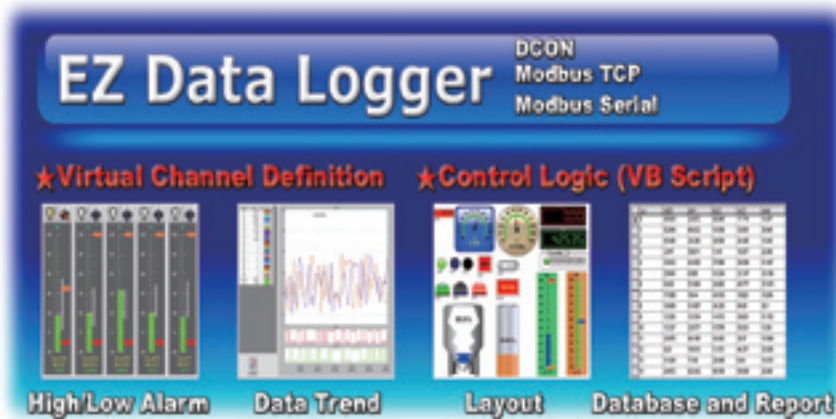
## Main Features

- **No extra HMI software need.** WinCon Web HMI is built by user's own HTML editor. For example, Notepad or FrontPage, or É
- Allow user to save his own web pages in the WinCon controller (HTML format) .
- Other PCs can use Internet Explorer to browse I/O & control data in the WinCon controller.
- Support three levels of User ID & Password security.
- The web pages of the WinCon Web HMI can exchange data with the ISaGRAF program (Hardware should be W-8037/8337/8737 or W-8036/8336/8736)
- The web pages of the WinCon Web HMI can exchange data with the Modbus Server (Hardware: Other WinCon controllers with Modbus Server enabled)

## Supported Controllers & Demo

- Wincon-8x31/8x41 (EVC++ program example available)
- W-8x37/8x47 & W-8x36/8x46 (ISaGRAF program example available)
- Live demo at <http://61.218.42.10> (Username - "level2", password - "level2")

# Software *EZ Data Logger (Free)*



EZ Data Logger is a small data logger software. It can be applied to small remote I/O system. With its user-friendly interface, users can quickly and easily build a data logger software without any programming skill.

## Main Features

- Multiple COM Ports and TCP/IP connections
- 256 virtual channel definitions
- Control Logic (can edit a VB Script to control I/O points)
- Flexible module configuration (Each module and I/O point can have different description, color and visual component)
- Real time data trend (with zoom in and zoom out)
- Layout viewer (can range I/O points with different style of visual components)
- Access database (can be exported to Excel file or pure text file)
- Reporter (can print data trend line or table)
- High/Low alarm with audio warning
- Value scaling (can set gain and offset of each I/O point)

## Supported

- I-7000, M-7000, I-8KE4, I-8KE4-MTCP, I-7188EX-MTCP, ET-6000, ET-7000, ISaGRAF controllers, RU-87Pn/USB-87Pn + High Profile I-87K module

## Applications

- Environment and facility monitoring
- Remote Data Acquisition

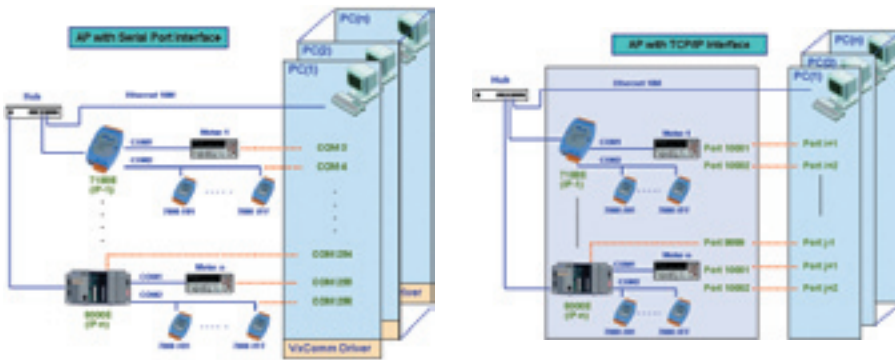
## OS Supported

- Windows 98/2000/XP

# Software *VxComm Technique & Xserver*

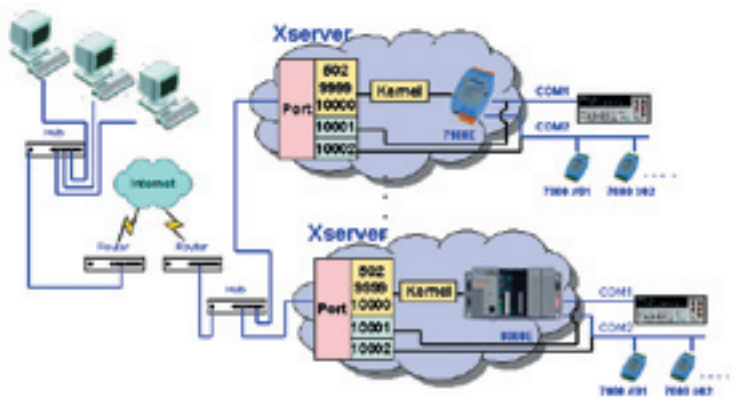
## What is VxComm technique?

VxComm is a technique that stands for "Virtual Communication Port". It provides two software interfaces to access remote COM ports of the 7188E/8000E via the Ethernet, one is serial port interface, and the other is the TCP/IP interface. For the serial port interface, we provide a VxComm driver for Windows OS. It is used to create virtual COM ports to map to the COM ports and I/O module of the 7188E/8000E. After creating virtual COM ports, you can easily upgrade serial devices to with Ethernet communication ability, and the original software only need to link to a virtual COM port. It doesn't need any source code modification.



## What is Xserver?

Xserver is a programmable TCP/IP server template (in C language) for the 7188E/8000E based on the VxComm technique. It has an open and flexible programming architecture. With the help of the Xserver, you can easily develop a powerful PAC system with the TCP/IP and serial communication ability.



# Software *DCON Protocol*



## What is DCON protocol?

DCON protocol is a request/reply communication protocol for the I-7000/8000/87K series. It defines a simple ASCII format protocol, like \$AAN, \$AASi6, #AAN, ... ,etc. The hardware interface to access the I-7000/8000/87K series can be divided to:

- \* RS-232: I-8000 MCU with 8K232.exe firmware
- \* RS-485: I-7000/87K and I-8000 MCU with 8K485.exe firmware
- \* Ethernet: I-8000 MCU with 8KE10.exe firmware

Even the I-7000/87K series is not equipped with any Ethernet interface, by using the I-7188E/8000E and the VxComm technique, you can still access the I-7000/87K series via the Ethernet.

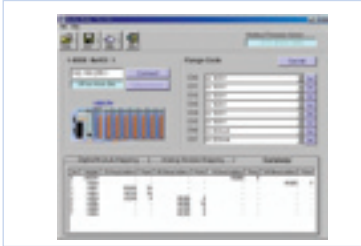
Note 1: The I-8000 and I-87K series I/O modules can be plugged in the I-8000 MCU together.

Note 2: When the I-87K series I/O module is plugged in the I-8000 MCU, it uses the same commands as the I-8000 series I/O does.

Note 3: The I-87K series I/O module uses different command when it is plugged in the I-8000 MCU and the 87K expansion unit.



## Software *Utility and Development Tool Kit*



### Modbus Utility

**Main Functions:**

- On-line configuration via Ethernet
- On-line help
- Automatically generate register mapping tables
- Configuration export/import

**Controllers supported:**

- I-8430 -MTCP, I-8431 -MTCP
- I-8830 -MTCP, I-8831 -MTCP
- I-7188E -MTCP

**OS supported:**

- Windows 98/NT/2000/XP



### DCON Utility

**Main functions:**

- Configuring modules
- Baudrate
- Address
- Checksum
- Power-on value
- Safe value
- ... etc.

Testing I/O action

**Module supported:**

- I-7000/8000/87K series (with DCON protocol)

**OS supported:**

- Windows 98/NT/2000/XP



### DCON Utility (DOS)

**Main functions:**

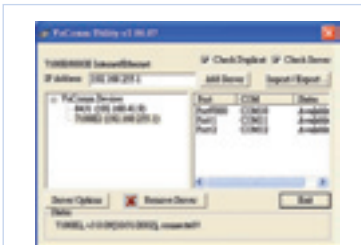
- Diagnostic (Source code included)
- Learning
- Performance test

**Module supported:**

- I-7000/8000/87K series (with DCON protocol)

**OS supported:**

- DOS



### VxComm Utility

**Main functions:**

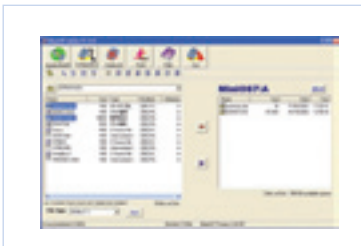
- Creating Virtual COM ports on PC

**Controllers supported:**

- 7188E/8000E with VxComm technique

**OS supported:**

- Windows 95/98/NT/2000/XP/2003



### MiniOS7 Utility

**Main functions:**

- Download files
- Update MiniOS7
- Configures COM port settings
- Configures network settings

**Controllers supported**

- Support all PAC with MimiOS7 (7188, 7188X, 7188E, 8000, i-View 100..., etc)

**OS supported**

- Windows 95/98/NT/2000/XP

# Software *Utility and Development Tool Kit*



## **DCON\_LabVIEW**

Bundled driver for LabVIEW

**Module supported:**  
I-7000/8000/87K series (with DCON protocol)  
**OS supported:**  
Windows 98/NT/2000/XP



## **DCON\_InduSoft**

Bundled driver for InduSoft

**Module supported:**  
I-7000/8000/87K series (with DCON protocol)  
**OS supported:**  
Windows 98/NT/2000/XP/CE



## **DCON\_DLL**

DLL library

**Module supported:**  
I-7000/8000/87K series (with DCON protocol)  
**Demo supported:**  
VB/VC/BCB/Delphi (Source code included)  
**OS supported:**  
Windows 98/NT/2000/XP



## **DCON\_ActiveX**

ActiveX (OCX) component

**Module supported:**  
I-7000/8000/87K series (with DCON protocol)  
**Demo supported:**  
VB/VC/BCB/Delphi (Source code included)  
**OS supported:**  
Windows 98/NT/2000/XP



## **DCON\_Linux**

Libraries for Linux platform

**Module supported:**  
I-7000/8000/87K series (with DCON protocol)  
**OS supported:**  
Linux



## **DCON\_DDE**

DDE server

**Module supported:**  
I-7000/8000/87K series (with DCON protocol)  
**OS supported:**  
Windows 98/NT/2000/XP



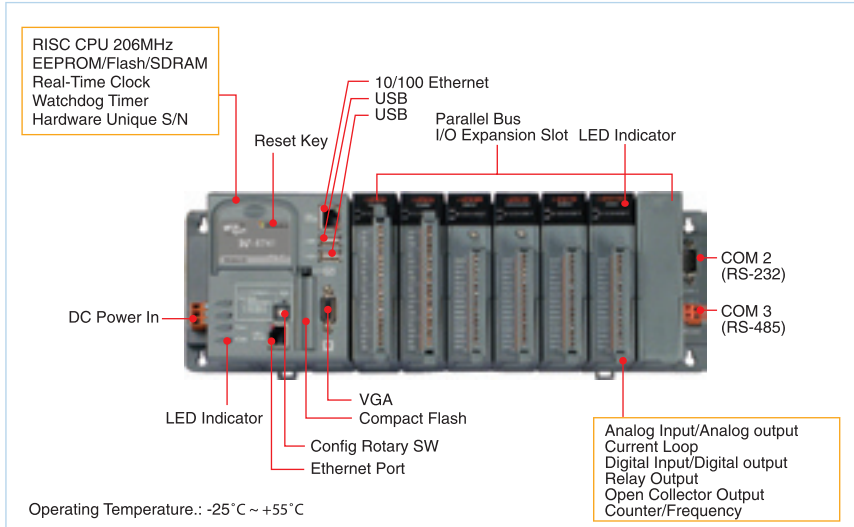
## **NAOPC Server**

OPC server

**Module/Controller supported:**  
I-7000/8000/87K series (with DCON protocol)  
Modbus PAC  
ISaGRAF PAC  
**OS supported:**  
Windows 98/NT/2000/XP

# WinCon-8000

## Programmable Automation Controller



### Introduction

The WinCon-8000 is a leading edge embedded platform with Intel Strong ARM CPU running the Windows CE .NET operating system. When compared to the standard Windows OS, Windows CE .NET has some advantages, including hard real-time capability, small core size, fast boot speed, interrupt handling at a deeper level, achievable deterministic control and low cost. Windows CE .NET provides WinCon-8000 with the ability to run advanced application programs written in Visual Basic .NET, Visual C# .NET, Embedded Visual C++ and PC-based control software such as SCADA software, Soft PLC ...etc.

The WinCon-8000 includes a VGA port, allowing the user to choose a regular LCD monitor without the need for an expensive HMI or Industrial PC. WinCon-8000 is a cost-effective choice as a replacement for a regular PC or PLC based control system.

The operating system is resident in the flash memory of the WinCon-8000 CPU module. User programs and data can be saved in external storage areas, such as Compact Flash Cards and USB mass storage or uploaded to RAM at run time through the LAN or USB. The iPush server provides real-time transmit function and lets WinCon-8000 has the ability of sending out data itself and can send acquisitive data such as monitoring data/alarm/device status to remote devices successively through TCP/IP constructions ( Wireless LAN / VPN / Internet / GPRS ). An SDK, used to control the I-8000 and I-7000 series I/O modules is provided for easy development of user applications using Visual Basic .NET, Visual C# or Embedded Visual C++. The included WinCon Utility is a convenient tool that enables system configuration, monitoring and software updates.

# WinCon-8000

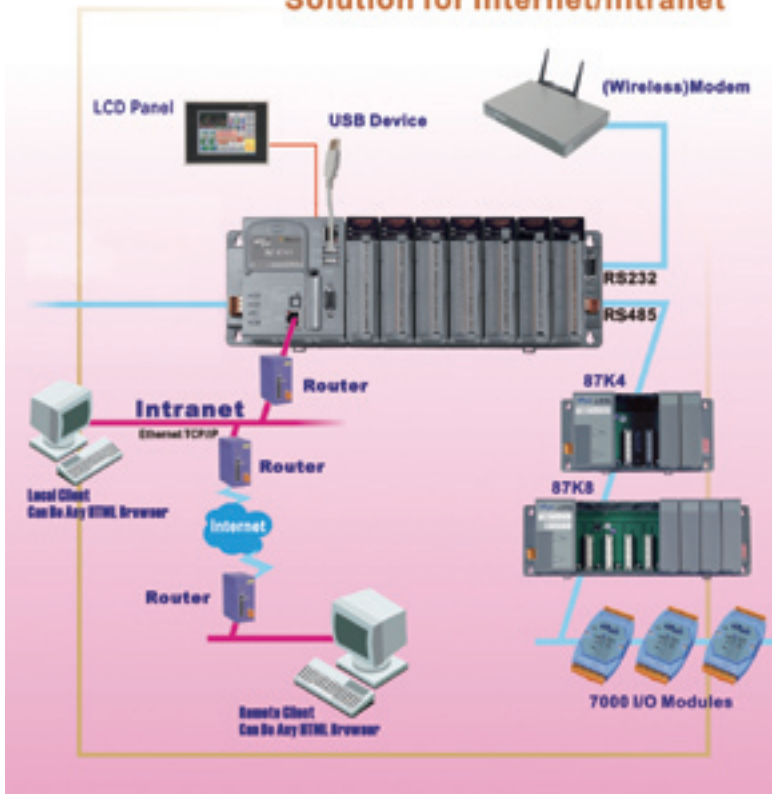
## Programmable Automation Controller

### Key Specifications & Features

- Intel Strong ARM CPU
- Windows CE .NET built-in
- Supports VGA , Ethernet, USB, Keyboard, Mouse, Compact Flash
- OPC server support
- Industrial Modbus/TCP, RTU Protocol Compliant
- Convenient utility for system configuration, monitoring and software upgrade
- Wide range of I/O modules: DI, DO, AI, AO, Counter/Frequency, Motion control...etc.
- Various access target such as Excel, mobile phone, PDA, terminals



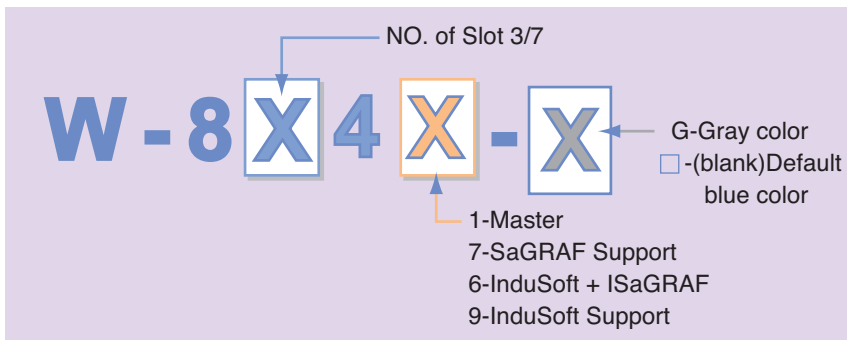
### Solution for Internet/Intranet



# WinCon-8000 **PAC**

## Main Control Unit (MCU)

The MCU is the powerhouse of the 8000. Each MCU comprises a Central Processor Module(CPM), a power supply, a three (3) or seven (7) slot backplane for either 3 or 7 Parallel or Serial I/O modules. ICP DAS invents the customized version of non-slot structure for networked integration and narrow industrial environment. The CPM is a powerful integrated processing engine comprising a CPU, RAM, ROM and Ethernet.



**WinCon-8000 Main Control Unit Selection Guide**

Model	Description	CPU Speed	Embedded OS	Slot	Flash	SDRAM	Peripherals
W-8341-G	PAC	206MHz	Windows CE.NET	3	32 Mbyte	64 Mbyte	Ethernet Portx2 VGA Portx1 CF Slotx1 USBx2 RS-232x1 RS-485x1
W-8741-G				7			
W-8347-G	ISaGRAF PAC	206MHz	Windows CE.NET	3	32 Mbyte	64 Mbyte	
W-8747-G				7			
W-8349-G	InduSoft PAC	206MHz	Windows CE.NET	3	32 Mbyte	64 Mbyte	
W-8749-G				7			
W-8346-G	InduSoft + ISaGRAF PAC	206MHz	Windows CE.NET	3	32 Mbyte	64 Mbyte	
W-8746-G				7			

# WinCon-8000 *InduSoft PAC*

WinCon-8000

## What is InduSoft ?

InduSoft Web Studio is a powerful, integrated collection of automation tools that includes all the building blocks required to develop modern Human Machine Interfaces (HMI), and Supervisory Control and Data Acquisition System (SCADA) applications that run natively on Windows XP, 2000, NT and CE .NET or in an Internet and Intranet environment. A simple drag and drop, point and click development environment mimics the most complex behavior of your live processes. InduSoft Web Studio is the most ideal E-Automation solution available in the industry.

InduSoft HMI/ SCADA software and automation technology can be used for:

- Monitoring: alarm monitoring, event monitoring, real time monitoring
- Control: Quality Control, Motion control, Statistical Process Control, Automation Control
- Measurement Software
- Automation: Building Automation, Process Automation, Plant Automation, Manufacturing Automation, Factory Automation Systems
- SCADA applications: SCADA Communication, SCADA Real Time System

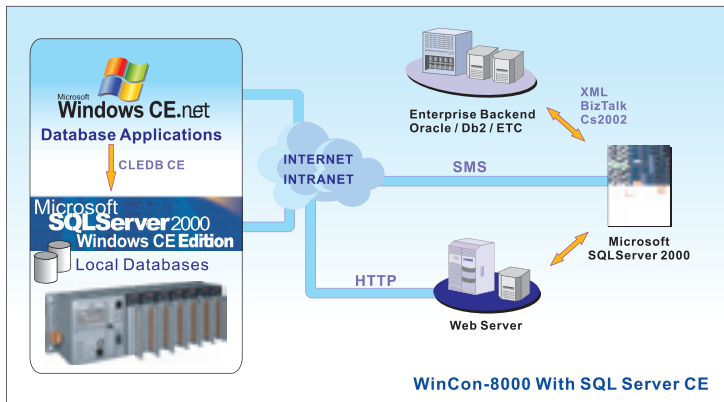
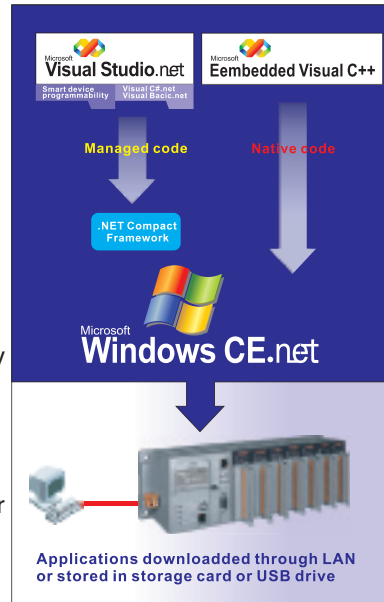


## The WinCon-8000 and InduSoft Integration Application

The WinCon-8000 InduSoft PAC provides a bundled driver to integrate the application performance and the easy to use of software and hardware. It can operate as an intelligent distributed data acquisition front end connected to a Host machine running a standard SCADA package. The user can develop SCADA applications on a PC then download and apply them to the WinCon-8000 InduSoft PAC. In addition, InduSoft Web Studio allows you to save your application screens in HTML format and export them from Wincon-8000 HTTP server for use with Internet Browsers (Internet Explorer).

## WinCon-8000 *Application Development Support*

- HATL, ActiveX Component and MFC for Windows CE
- Embedded Visual C++
- Visual Basic .NET and Visual C#
- WinCon-8000 SDK to control I-8000 I/O modules
- OPC server and Modbus/TCP Protocol
- RS-232/485 Device Connection
- HTTP server, FTP server and web-based automation/control application development
- SQL Server CE and connectivity to ERP
- WinCon-8000 system configuration utility
- Remote management utility
- Integrated SCADA/HMI S/W or User's AP via Modbus/TCP Driver, ActiveX Component or Modbus/TCP OPC Server
- Database application development
- ADOCE/OLEDBCE, ADO.NET
- Robust connectivity to ERP including HTTP, IIS, RDA, Replication



# WinCon-8X4X Dual-LAN PAC

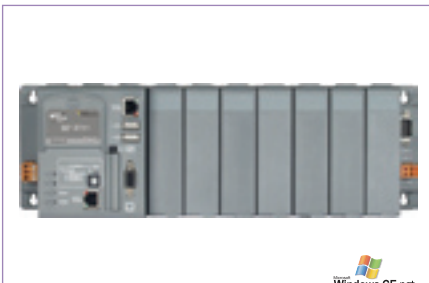


WinCon-8000

## Specifications & Features



**Ordering Information:**  
W-8341-G: Compact PAC



**Ordering Information:**  
W-8741-G: Compact PAC

- Intel Strong ARM CPU, 206MHz
- SDRAM: 64M bytes
- Flash : 32M bytes
- EEPROM: 16K bytes
- 64-bit hardware unique serial number
- Built-in Watchdog Timer
- Real-Time Clock
- 10/100 BaseT x 2
- VGA port:
  - 320x240x16 to 1024x768x16
  - Default is 640x480x16
- 1 x Compact Flash type II insert with ejector
- USB 1.1 x 2
- Reset button & rotate switch
- Power LEDs
- COM0: Internal use
- COM2: RS-232
- COM3: RS-485
- COM1: Serial Control for 87K Series
- I/O Expansion Slot:
  - W-8341: 3 slots, W-8741: 7 slots
- Power Supply:
  - 20W, Unregulated +10Vdc to +30Vdc
- Operating Temp.: -25°C to +55°C
- Storage Temp.: -30°C to +85°C
- Humidity: 5~95%
- Dimensions (LxHxD)(mm):
  - 229 x 110 x 90(W-8341)
  - 354 x 110 x 90(W-8741)

### Option

- DM-64T:6.4" LCD Module
- DM-121D-AL:12.1" LCD monitor
- NS-205: 5-Port Industrial 10/100 Base-TX Ethernet Switch
- NS-208: 8-Port Industrial 10/100 Base-TX Ethernet Switch

Note: Please use NS-205 or NS-208 Industrial Ethernet Switch with Wincon-8x4x series of controllers.



## WinCon-8X4X ISaGRAF/InduSoft PAC



### Specifications & Features



**Ordering Information:**  
**ISaGRAF Dual-LAN PAC**  
 W-8347-G: 3 slot I/O Expansion  
 W-8747-G: 7 slot I/O Expansion

- The same hardware specifications of WinCon-8341/8741
- The ISaGRAF Wincon target driver & target license are included
- Two Wincon-8x47/8x46 can be set up as Redundancy system. If one is damaged, the other one still works. More information at <http://www.icpdas.com/faq/isagraf.htm> "FAQ036"

#### Option

- DM-64T:6.4" LCD Module
- DM-121D-AL:12.1" LCD monitor
- NS-205: 5-Port Industrial 10/100 Base-TX Ethernet Switch
- NS-208: 8-Port Industrial 10/100 Base-TX Ethernet Switch

#### Note:

Please use NS-205 or NS-208 Industrial Ethernet Switch with Wincon-8x4x series of controllers.

### Specifications & Features



**Ordering Information:**  
**InduSoft Dual-LAN PAC**  
 W-8349-G: 3 slot I/O Expansion  
 W-8749-G: 7 slot I/O Expansion

- The same hardware specifications of WinCon-8x41 series
- The W-8x49 has 300 tags runtime license with one driver and one web thin client.
- The W-8x49-G 1500 has 1500 tags runtime with 3 drivers and one web thin client.

#### Option

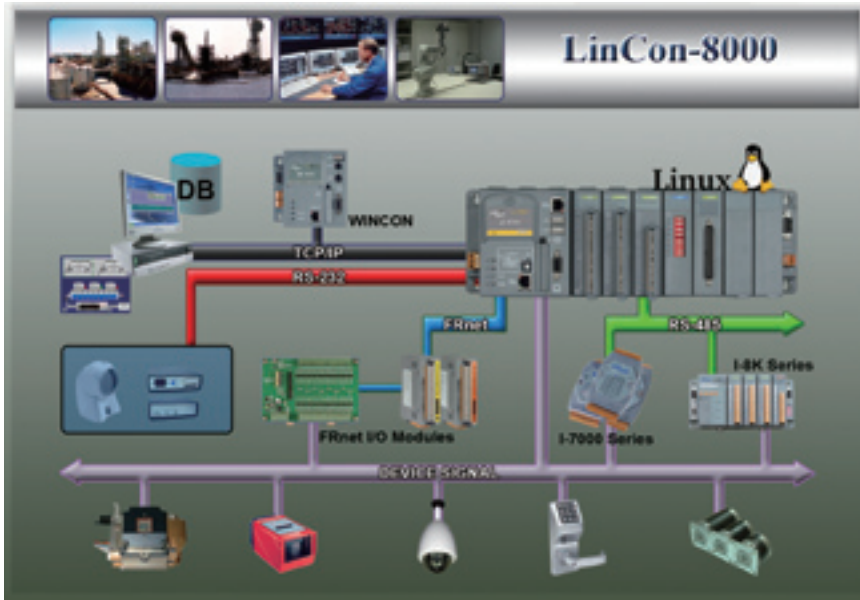
- InduSoft-NT1500D: Local Interface development version for Windows NT/2000/XP (1500Tag, 3 drivers)
- InduSoft-CE1500D: Local Interface development version for Windows CE(CE View) (1500 Tags, 3 drivers)
- InduSoft-NT300D: Launch version for Windows NT/2000/XP(300Tag,3 drivers)
- InduSoft-CE300D: Launch version for Windows CE (300 Tags, 3 drivers)
- NS-205: 5-Port Industrial 10/100 Base-TX Ethernet Switch
- NS-208: 8-Port Industrial 10/100 Base-TX Ethernet Switch

#### Note:

Please use NS-205 or NS-208 Industrial Ethernet Switch with Wincon-8x4x series of controllers.

# LinCon-8000 *Linux PAC*

LinCon-8000



## LinCon-8000 Series

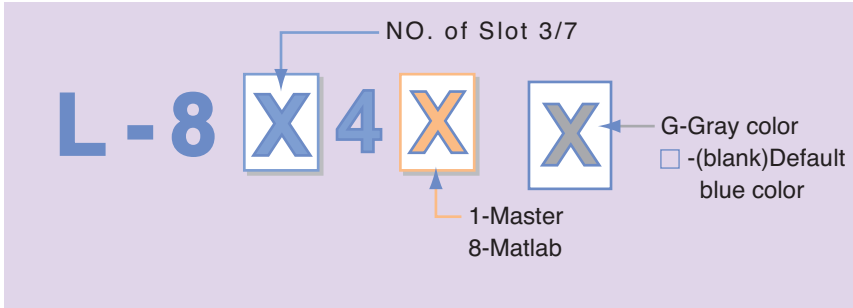
The LinCon-8000 is the flagship compact embedded controller manufactured by ICP DAS. Its leading technology gives you all of the best features of both traditional PLCs and Linux capable PCs. The LinCon-8000 system is powered by Linux and brings in the Linux programming style and skill into the world of PC-based PLC. Application developers can develop their own programs directly into C or Java language by using the LinCon-8000 SDK, and then download them into the LinCon-8000 for application and use.

The Linux OS demands less system resources from the embedded controller and is therefore the best fit for it because of the embedded controller has some limitations in system resources. It is for this reason that the LinCon-8000 embedded controller has been published to be a new generation product from ICP DAS and the Embedded-Linux OS has been adopted into the LinCon-8000. The LinCon-8000's main purpose is to allow the numerous enthusiastic linux users to control their own embedded systems easily within the Linux Environment.

## Applications

- Factory automation
- Industrial machine control
- Maritime electronic
- Building management system
- Aircraft engines

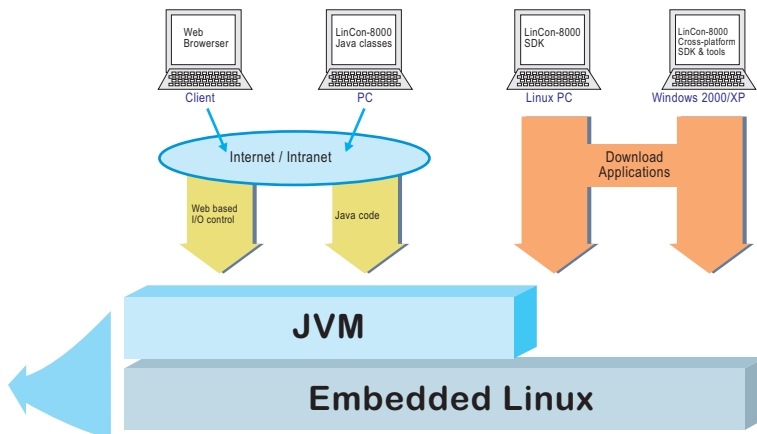
# LinCon-8000 Linux PAC



The LinCon-8000 model type is ruled as L-8X3X, as shown in the above figure. The Second number shows the slot numbers coming with the main controller unit. Currently, we provide three types of 3 and 7 slots. The last number demonstrates the application platform. 1 stands as the Master controller and it means that the user needs to design the application program by themselves. For more details on the product's specifications, please refer to the following product model table given below.

## Software Specifications

- OS: Embedded Linux
- SDK For Accessing ICP DAS I/O modules
- Cross Platform SDK For Microsoft desktop OS
- X-Windows based Graphical User Interface
- Java Supported
- Built-in HTTP, FTP, TELNET, SSH and SFTP Servers
- I/O Expansion slot: 3/7



# LinCon-8X4X Dual-LAN PAC

## Specifications & Features



L-8341-G

L-8741-G

Linux

### Ordering Information:

L-8341-G: 3 slot I/O Expansion

L-8741-G: 7 slot I/O Expansion

- The same hardware specifications of WinCon-8341/8741
- Embedded Linux

### Option

- DM-64T:6.4" LCD Module
- DM-121D-AL:12.1" LCD monitor
- NS-205: 5-Port Industrial 10/100 Base-TX Ethernet Switch
- NS-208: 8-Port Industrial 10/100 Base-TX Ethernet Switch

### Note:

Please use NS-205 or NS-208 Industrial Ethernet Switch with Wincon-8x4x series of controllers.

## Specifications & Features



L-8348-G

L-8748-G

Linux

### Ordering Information: Matlab PAC

L-8348-G: 3 slot I/O Expansion

L-8748-G: 7 slot I/O Expansion

- The same hardware specifications of WinCon-8341/8741
- Embedded Linux
- Built-in Matlab runtime

### Option

- DM-64T:6.4" LCD Module
- DM-121D-AL:12.1" LCD monitor
- NS-205: 5-Port Industrial 10/100 Base-TX Ethernet Switch
- NS-208: 8-Port Industrial 10/100 Base-TX Ethernet Switch

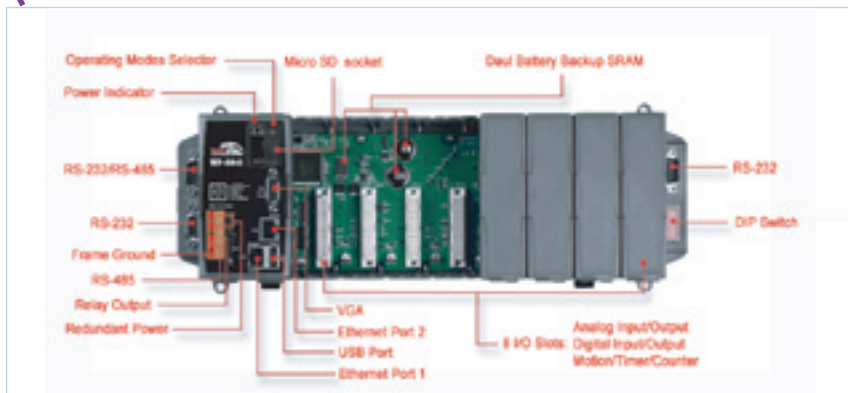
### Note:

Please use NS-205 or NS-208 Industrial Ethernet Switch with Wincon-8x4x series of controllers.

# WinPAC-8000 Programmable Automation Controller



**NEW!!**



## Introduction

WinPAC-8000 is the second generation PAC of ICP DAS. It equips a PXA270 CPU (520MHz) running a Windows CE .NET 5.0 operating system, variant connectivities (VGA, USB, Ethernet, RS-232/485) and 4/8 slots for high performance parallel I/O modules (high profile I-8K series) and serial-type I/O modules (high profile I-87K I/O modules).

Its operating system, Windows CE.NET, has many advantages, including hard real-time capability, small core size, fast boot speed, interrupt handling at a deeper level, achievable deterministic control and low cost. Using Windows CE .NET in the WinPAC-8000 gives it the ability to run PC-based Control software such as Visual Basic .NET, Visual C#, Embedded Visual C++, SCADA software, Soft PLC ...etc.

Comparing with the first generation WinCon-8000, it not only improves the CPU performance (from 206 MHz to 520 MHz) and upgrading OS (from CE 4.1 to CE 5.0), but also adds many reliability features, such as dual LAN, redundant power input, dual battery backup SRAM, etc. It gives you all of the best features of both traditional PLCs and Windows capable PCs.

# WinPAC-8000

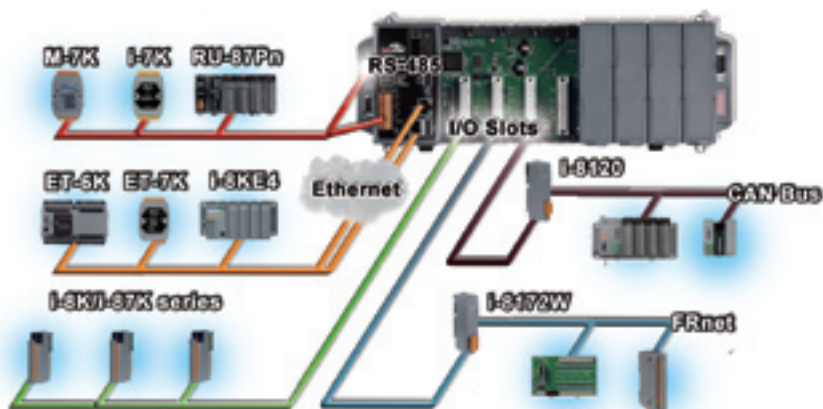
## Programmable Automation Controller



WinPAC-8000

### Key Specifications & Features

1. PXA270 CPU (520MHz) & 48MB Flash & 128MB SDRAM
2. Windows CE .Net 5.0
3. Built-in VGA Port
4. Remote Maintenance via FTP Server and VCEP Software
5. Built-In OPC Server (Quicker)
6. 64-bit Hardware Serial Number
7. Rich Software Solutions (VS.Net 2003, 2005 and eVC)
8. Upgrading applications from WinCon to WinPAC Just Copy and Play
9. I/O Module Hot Swap Ability
10. Rich I/O Expansion Ability (RS-232/485, Ethernet, FRnet, CAN)
11. Built-In Flash Disk (14MB)
12. Dual Watchdog Timer
13. Dual Battery-Backup SRAM (512KB)
14. Dual Ethernet Ports
15. Redundant Power Inputs
16. Ventilated Housing Design Allows Operation Between -25°C ~ +75°C



# WinPAC-8000 *Programmable Automation Controller*

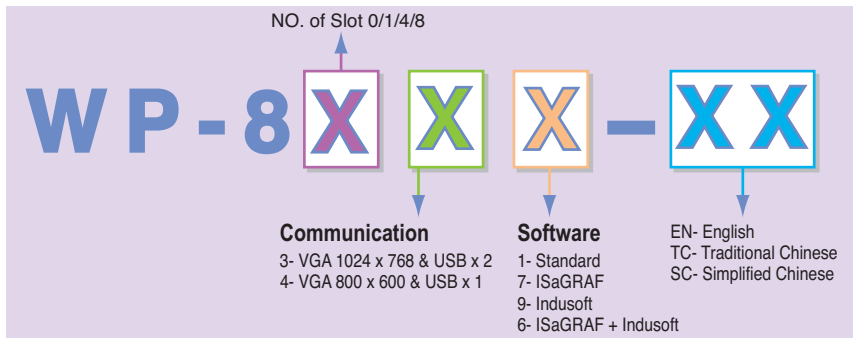
## Hardware Specifications

<b>CPU module</b>	
CPU	PXA270 or compatible (32-bit and 520MHz)
SDRAM	128MB
Dual Battery Backup SRAM	512K bytes (for 5 years data retain)
Flash	48MB (32MB for OS image, 14MB for built-in Flash disk, 2MB for registry)
EEPROM	2KB
Expansion Flash Memory	Micro SD socket with 1GB flash card
RTC (real time clock)	Year-2000 compliance; seconds, minutes, hours, date of the month; month, year, valid up from 1980 to 2079
64-bit Hardware Serial Number	Yes
Dual Watchdog Timer	Yes
Rotary Switch	Yes (0~9)
DIP Switch	Yes (8 bits); (for WP-844x and WP-884x only)
<b>Connectivity</b>	
VGA	1 (800x600 resolution)
	2
Ethernet Port	10/100Base-TX Ethernet Controller (Auto-negotiating, Auto_MDIX, LED indicator)
USB 1.1 (host)	1
COM ports	5; (COM3 and COM4 for WP-8441 and WP-8841 only) COM0=internal use for I-87K modules in slot, COM1=RS-232, COM2=RS-485, COM3=RS-232/485, COM4=RS-232
<b>Dimensions</b>	
WP-8041	64mm x 132mm x 98mm
WP-8141	95mm x 132mm x 98mm
WP-8441	230mm x 132mm x 98mm
WP-8841	354mm x 132mm x 98mm
<b>Operating Environment</b>	
Operating Temperature	-25°C to +75°C
Storage Temperature	-30°C to +85°C
Humidity	5 ~ 95%, non-condensing
<b>Power</b>	
Input Range	+10V ~ +30VDC
Isolation	1KV
Redundant Power Inputs	Yes

# WinPAC-8000 Programmable Automation Controller

WinPAC-8000

## WinPAC-8000 Naming



### Selection Guide

Model	Software Pre-Installed	OS	CPU	Flash	SDRAM	VGA Resolution	USB	I/O slot
*WP-8031	None	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	0
*WP-8131	None	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	1
*WP-8431	None	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	4
*WP-8831	None	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	8
*WP-8037	ISaGRAF	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	0
*WP-8137	ISaGRAF	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	1
*WP-8437	ISaGRAF	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	4
*WP-8837	ISaGRAF	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	8
*WP-8039	Indusoft	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	0
*WP-8139	Indusoft	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	1
*WP-8439	Indusoft	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	4
*WP-8839	Indusoft	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	8
WP-8041	None	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	0
WP-8141	None	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	1
WP-8441	None	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	4
WP-8841	None	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	8
WP-8047	ISaGRAF	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	0
WP-8147	ISaGRAF	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	1
WP-8447	ISaGRAF	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	4
WP-8847	ISaGRAF	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	8
WP-8049	Indusoft	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	0
WP-8149	Indusoft	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	1
WP-8449	Indusoft	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	4
WP-8849	Indusoft	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	8

\* : WP-8x3x will be available soon.



## WinPAC-8000 Programmable Automation Controller

### Selection Guide

Model	Software Pre-Installed	OS	CPU	Flash	SDRAM	VGA Resolution	USB	I/O slot
*WP-8036	ISaGRAF + Indusoft	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	0
*WP-8136	ISaGRAF + Indusoft	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	1
*WP-8436	ISaGRAF + Indusoft	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	4
*WP-8836	ISaGRAF + Indusoft	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	8
WP-8046	ISaGRAF + Indusoft	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	0
WP-8146	ISaGRAF + Indusoft	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	1
WP-8446	ISaGRAF + Indusoft	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	4
WP-8846	ISaGRAF + Indusoft	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	8

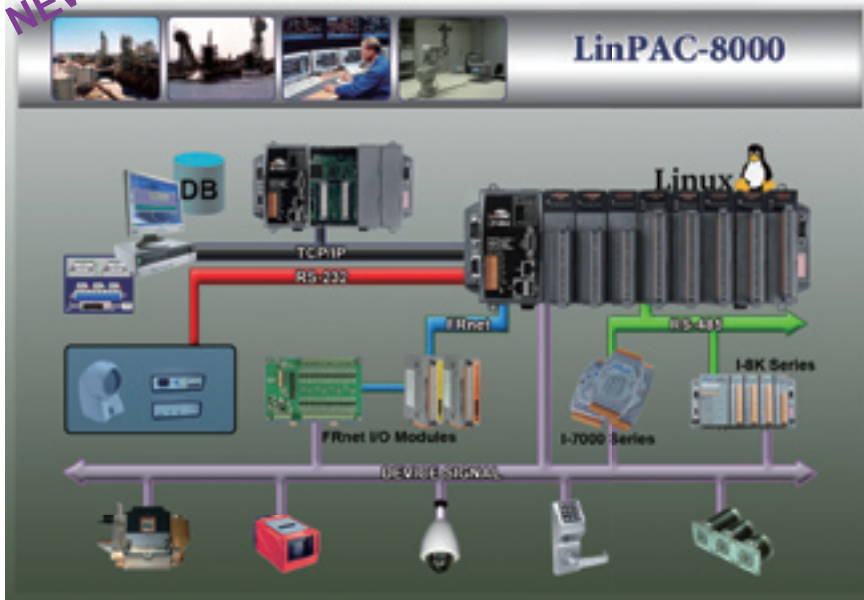
\* : WP-8x3x will be available soon.

### Software Selection Guide

Item	Description
ISaGRAF-256-E	ISaGRAF Workbench Software, Up to 256 I/O Tags + one ISaGRAF Book-E (English)
ISaGRAF-256-C	ISaGRAF Workbench Software, Up to 256 I/O Tags+ one ISaGRAF Book-C (Chinese)
ISaGRAF-256	ISaGRAF Workbench Software, Up to 256 I/O Tags
InduSoft-NT1500D	Local Interface development version for Windows NT/2000/XP (1500Tag, 3 drivers)
InduSoft-CE1500D	Local Interface development version for Windows CE(CE View) (1500 Tags, 3 drivers)
InduSoft-NT300D	Launch version for Windows NT/2000/XP(300Tag, 3 drivers)
InduSoft-CE300D	Launch version for Windows CE (300 Tags, 3 drivers)

# LinPAC-8000 *Linux PAC*

NEW!!



LinPAC-8000

## LinPAC-8000 Series

LinPAC-8000 series is the second generation Linux based PAC of ICP DAS. Its leading technology gives you all of the best features of both traditional PLCs and Linux capable PCs. The LinPAC-8000 system is powered by Linux and brings in the Linux programming style and skill into the world of PC-based PLC. Application developers can develop their own programs directly into C or Java language by using the LinPAC-8000 SDK, and then download them into the LinPAC-8000 for application and use.

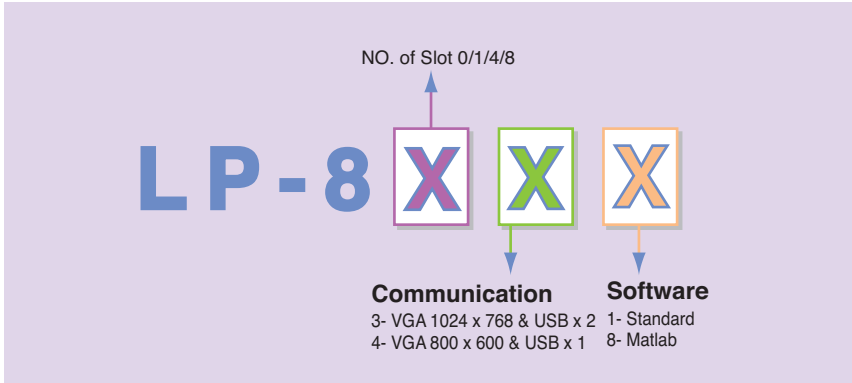
The Linux OS demands less system resources from the embedded controller and is therefore the best fit for it because of the embedded controller has some limitations in system resources. It is for this reason that the LinCon-8000 embedded controller has been published to be a new generation product from ICP DAS and the Embedded-Linux OS has been adopted into the LinPAC-8000. The LinPAC-8000's main purpose is to allow the numerous enthusiastic linux users to control their own embedded systems easily within the Linux Environment.

## Applications

- Factory automation
- Industrial machine control
- Maritime electronic
- Building management system
- Aircraft engines

## LinPAC-8000 *Programmable Automation Controller*

### LinPAC-8000 Naming



### Selection Guide

Model	Software Pre-Installed	OS	CPU	Flash	SDRAM	VGA Resolution	USB	I/O slot
*LP-8031	None	Linux	520 MHz	48MB	128 MB	1024 x 768	2	0
*LP-8131	None	Linux	520 MHz	48MB	128 MB	1024 x 768	2	1
*LP-8431	None	Linux	520 MHz	48MB	128 MB	1024 x 768	2	4
*LP-8831	None	Linux	520 MHz	48MB	128 MB	1024 x 768	2	8
*LP-8038	Matlab runtime	Linux	520 MHz	48MB	128 MB	1024 x 768	2	0
*LP-8138	Matlab runtime	Linux	520 MHz	48MB	128 MB	1024 x 768	2	1
*LP-8438	Matlab runtime	Linux	520 MHz	48MB	128 MB	1024 x 768	2	4
*LP-8838	Matlab runtime	Linux	520 MHz	48MB	128 MB	1024 x 768	2	8
LP-8041	None	Linux	520 MHz	48MB	128 MB	800 x 600	1	0
LP-8141	None	Linux	520 MHz	48MB	128 MB	800 x 600	1	1
LP-8441	None	Linux	520 MHz	48MB	128 MB	800 x 600	1	4
LP-8841	None	Linux	520 MHz	48MB	128 MB	800 x 600	1	8
LP-8048	Matlab runtime	Linux	520 MHz	48MB	128 MB	800 x 600	1	0
LP-8148	Matlab runtime	Linux	520 MHz	48MB	128 MB	800 x 600	1	1
LP-8448	Matlab runtime	Linux	520 MHz	48MB	128 MB	800 x 600	1	4
LP-8848	Matlab runtime	Linux	520 MHz	48MB	128 MB	800 x 600	1	8

\* : LP-8x3x will be available soon.

# KinPAC-8000 KW PAC

KinPAC-8000



## Introduction

The ICP DAS KinPAC-8000 (KP-8045/KP-8145/KP-8445/KP-8845) is a Windows CE.NET based SoftLogic PAC(Programmable Automation Controller) which bundles KW-Software solution inside. It features:

### ■ MultiProg-standard IEC-61131 programming system

The programming system is based on a modern 32 bit windows technology, providing comfortable handling including zoom, drag & drop and dockable windows. The system allows the handling of IEC configuration elements, including libraries and provides a powerful debug system. The programming system consists of a PLC independent kernel for programming in the various IEC programming languages. To do so, the textual languages ST and IL as well as the graphical languages LD, FDB and SFC are provided.

### ■ ProVisit-the machine visualization tool

Using it, visualizations are created intuitively within the graphical editor which provides a large number of standard objects and dynamizations for example Size, Position, Rotation, Color changes and different Actions.

### ■ Built-in Windows CE.net real-time multitasking system

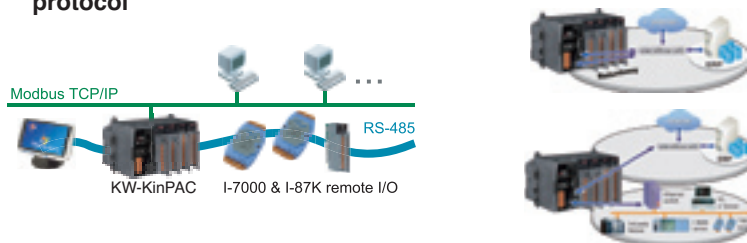
### ■ Supports retain variables & battery backup memory

### ■ Omline change function

### ■ Support Multi RS-485 ports

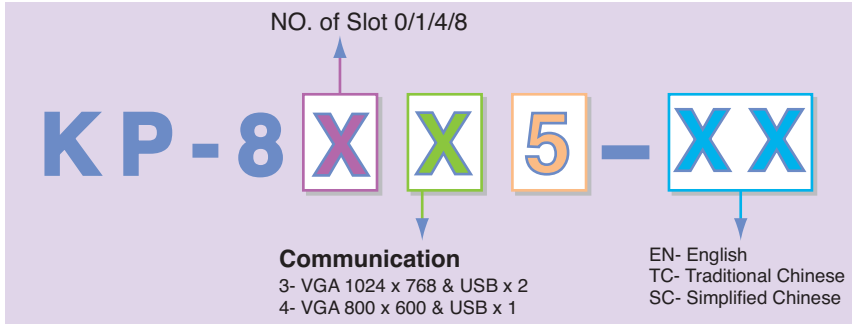
### ■ Supports Modbus TCP/IP Slave protocol

### ■ Dual Ethernet ports



## KinPAC-8000 KW PAC

### KinPAC-8000 Naming



### Selection Guide

Model	Software Pre-Installed	OS	CPU	Flash	SDRAM	VGA Resolution	USB	I/O slot
*KP-8035	KW runtime	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	0
*KP-8135	KW runtime	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	1
*KP-8435	KW runtime	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	4
*KP-8835	KW runtime	CE 5.0	520 MHz	48MB	128 MB	1024 x 768	2	8
KP-8045	KW runtime	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	0
KP-8145	KW runtime	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	1
KP-8445	KW runtime	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	4
KP-8845	KW runtime	CE 5.0	520 MHz	48MB	128 MB	800 x 600	1	8

\* : KP-8x3x will be available soon.

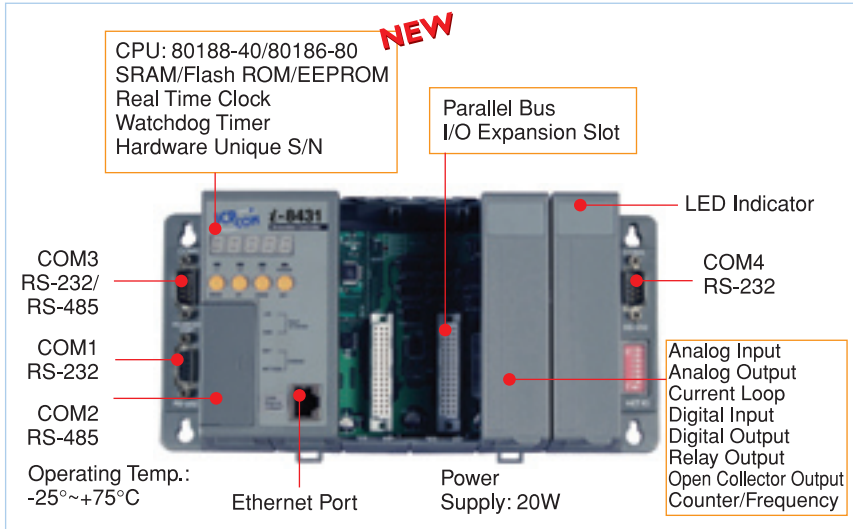
#### Option

- NS-205: 5-Port Industrial 10/100 Base-TX Ethernet Switch
- NS-208: 8-Port Industrial 10/100 Base-TX Ethernet Switch

Note: Please use NS-205 or NS-208 Industrial Ethernet Switch with KinPAC-8000 series of controller

### Software Selection Guide

Model	Description
MultiProg 4.0	KW-software MultiProg 4.0 IEC 61131 programming system for windows 2000/XP
OPC-Server 2.0	KW-software OPC-Server 2.0 software
ProVisit 2.3	KW-software ProVisit 2.3 machine visualization



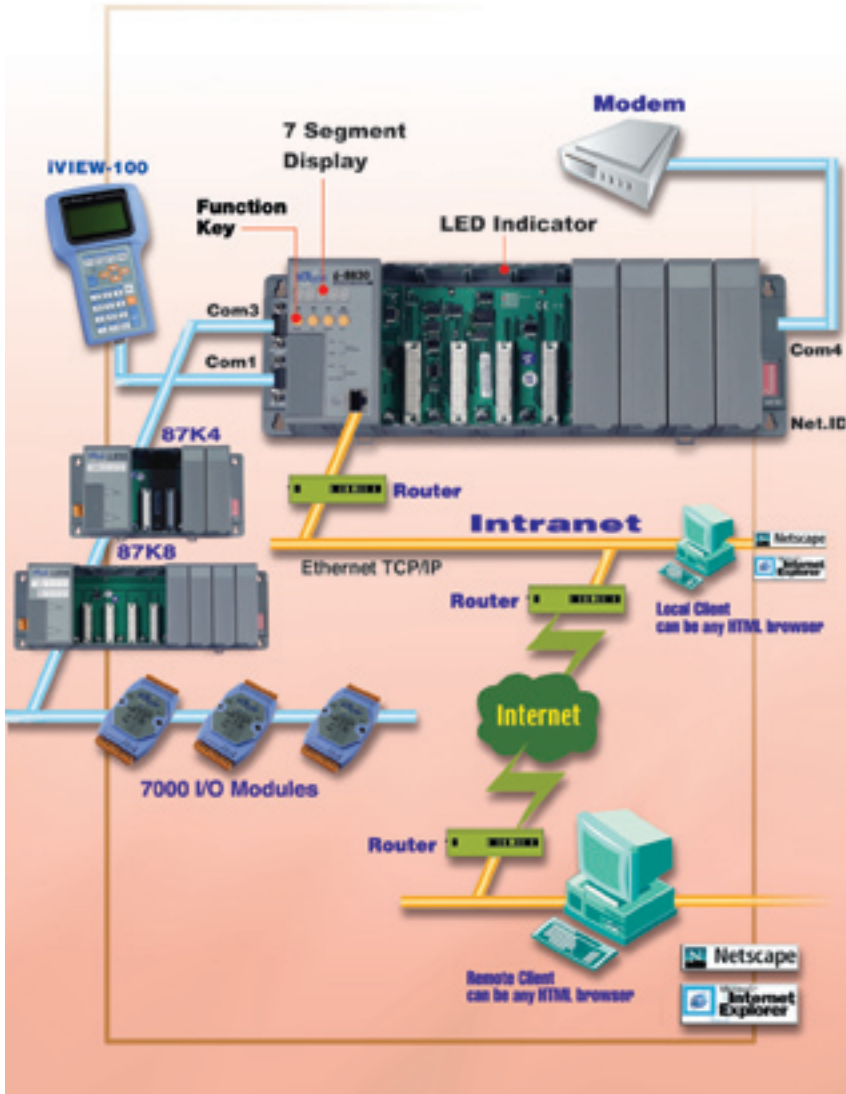
**Block Diagram of I-8000**

## Introduction

The I-8000 is a modular network based system with the capability of connecting I/O either through its own local bus or alternatively through an I/O expansion or network extension. The unit is comprised of a main control unit with a range of standard communication interfaces, and an I/O bus permitting I/O expansion. The bus is hybrid in nature providing the facility to connect either through serial or parallel I/O modules. The parallel bus is used for high-speed data transfer. The unit can communicate either using serial communications (RS232, RS485), Ethernet or CANbus. The Ethernet version of the product supports an integrated web server permitting Internet and Intranet applications. The I-8000 can be used as an intelligent distributed data acquisition front end connected to a host machine running a standard SCADA package, or alternatively it can be user programmed as an autonomous controller running an embedded software application. Significant non-volatile memory is available for data and program storage. The product is made up of four basic components: 1. Main Control Unit (MCU) 2. I/O Expansion Unit 3. I/O modules 4. Embedded OS.

All I-8000 embedded controllers equip MiniOS7 embedded OS. It is developed by ICP DAS Co., LTD and Like DOS. MiniOS7 has more features than regular DOS in embedded applications, such as shorter power-up time, built-in hardware diagnostic function, direct support for I-8000 and I-7000 modules, and direct support for internal memory devices.

# i-8000 Compact PAC SERIES

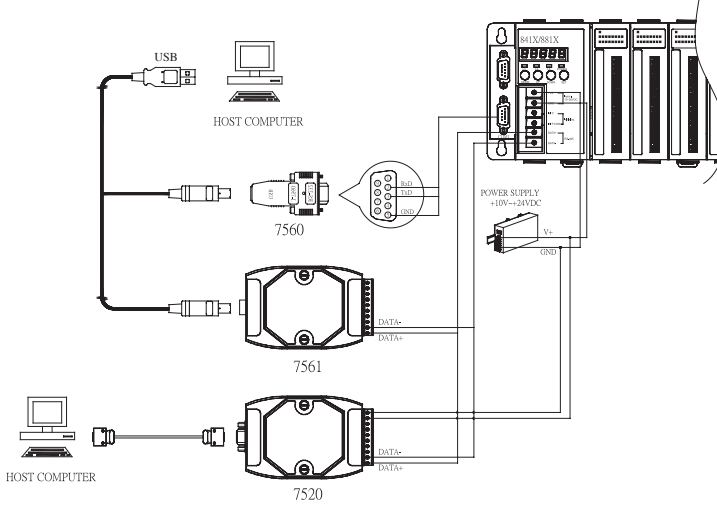


# i-8000 Compact PAC SERIES

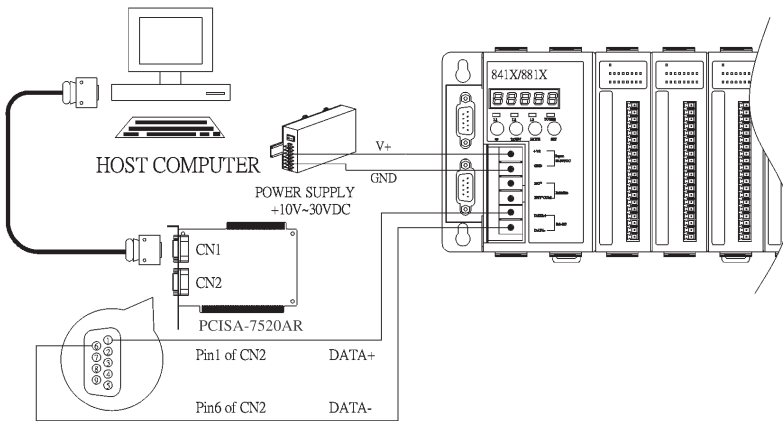
i-8000

## Connecting I-841X/881X to Host-PC

### Configuration A



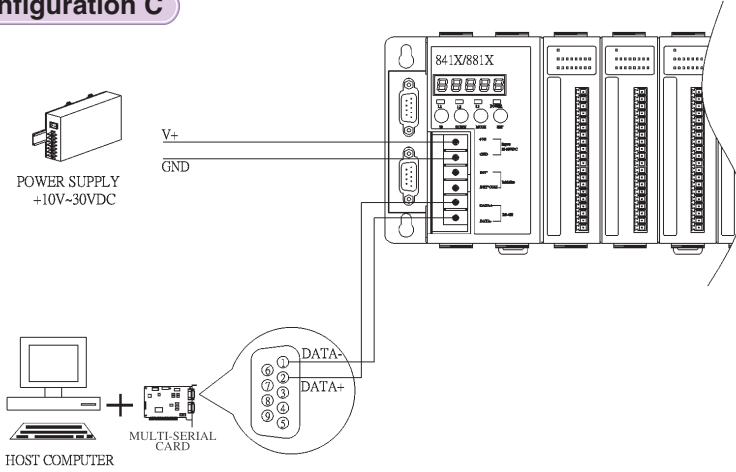
### Configuration B



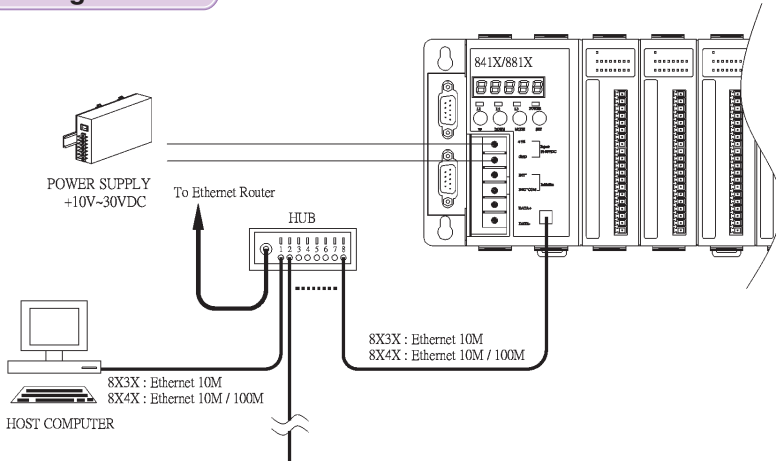


## i-8000 Compact PAC SERIES

### Configuration C



### Configuration D

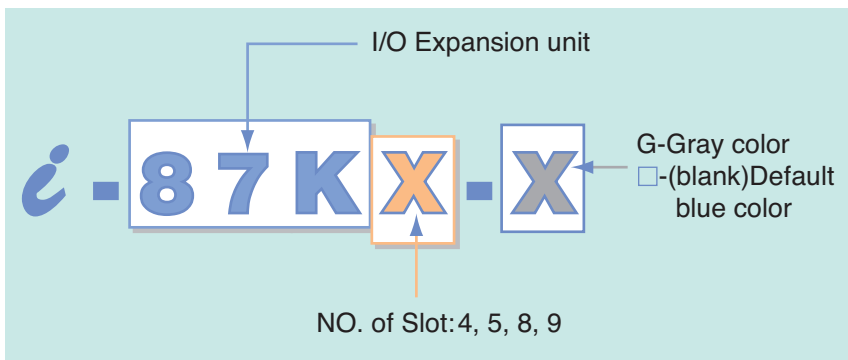
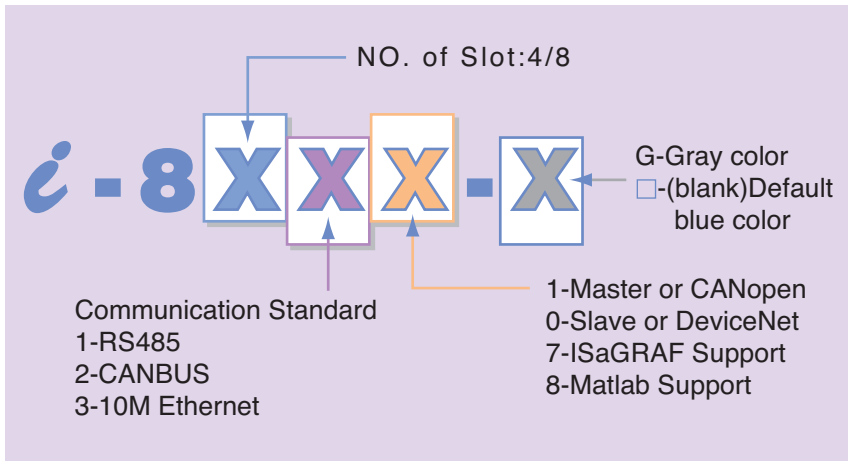


# i-8000 Main Control Unit (MCU) SERIES

i-8000

## 1. Main Control Unit (MCU):

The MCU is the powerhouse of the I-8000. Each MCU is comprised of a central processor module (CPM), a power supply, and a four (4) or eight (8) slot backplane for either 4 or 8 Parallel I/O modules. The CPM is a powerfully integrated processing engine consisting of a CPU, RAM, ROM, and an option of communication interfaces including RS-485, Ethernet and CANbus.



# i-8000 Main Control Unit (MCU) SERIES

**Main Control Unit Selection Guide**

Model	Description (Note1)	CPU 80188 40MHz	Flash	SRAM	Slot	COM1 Note2	COM2	COM3 Note4	COM4 Note5
I-8410 I-8810	PAC	Y Note 6	256KB	256KB	4 8	Y	RS-485 NOTE3	Y	-
I-8411 I-8811	PAC	Y Note 6	512KB	512KB	4 8	Y	RS-485 NOTE3	Y	Y
I-8417 I-8817	ISaGRAF PAC	Y Note 6	512KB	512KB	4 8	Y	RS-485 NOTE3	Y	Y
I-8418 I-8818	Matlab PAC	80186 80MHz	512KB	512KB	4 8	Y	RS-485 NOTE3	Y	Y
CAN-8423 CAN-8223 CAN-8123	PAC	80186 80MHz	512KB	512KB	4 2 1	Y - -	CAN CANopen	-	-
CAN-8424 CAN-8224 CAN-8124	PAC	80186 80MHz	512KB	512KB	4 2 1	Y - -	CAN DeviceNet	-	Y
I-8430 I-8830	PAC	Y Note 6	512KB	256KB	4 8	Y	10 Base T	Y	-
I-8431 I-8831	PAC	Y Note 6	512KB	512KB	4 8	Y	10 Base T	Y	Y
I-8437 I-8837	ISaGRAF PAC	Y Note 6	512KB	512KB	4 8	Y	10 Base T	Y	Y
I-8438 I-8838	Matlab PAC	80186 80MHz	512KB	512KB	4 8	Y	10 Base T	Y	Y

**Note1:** All of the above PAC are equipped with MiniOS7 and Self-tuner chip.  
**Note2:** RS-232 port; 115.2K bps; TXD, RXD signal; Program download port.  
**Note3:** Isolated RS-485 port; 115.2K bps; Data+, Data-  
**Note4:** RS-232/RS-485; 115.2K bps; RS-232/TXD, RXD, RTS, CTS, GND; RS-485/Data+, Data-  
**Note5:** RS-232 port; 115.2K bps; RS-232/TXD, RXD, RTS, CTS, DSR, DTR, DCD, RI, GND; Modem control  
**Note6:** CPU can be upgraded to 80186,80MHz.

**Optional:**

**The X-socket of Main control unit can be installed with an SRAM module. There are two options as follows:**

1. S256: 256K battery backup SRAM module for all I-8000 PAC
2. S512: 512K battery backup SRAM module for all I-8000 PAC

# i-8000 Compact PAC

## SERIES

i-8000



### Ordering Information:

**I-8410:** PAC  
**I-8410-G:** I-8410 with Gary color



### Ordering Information:

**I-8411:** PAC  
**I-8411-G:** I-8411 with Gary color



### Ordering Information:

**I-8810:** PAC  
**I-8810-G:** I-8810 with Gary color



### Ordering Information:

**I-8811:** PAC  
**I-8811-G:** I-8811 with Gary color

### Specifications & Features

- CPU 80188, 40MHz
- SRAM:  
256K bytes (for I-8410/8810)  
512K bytes (for I-8411/8811)
- Flash Memory:  
256K bytes (for I-8410/8810)  
512K bytes (for I-8411/8811)
- EEPROM: 2K bytes
- 64-bit hardware unique serial number (for I-8411/8811)
- Built-in Watchdog Timer
- Real Time Clock (for I-8411/8811)
- COM0: Internal use
- COM1: RS-232/Program download port
- COM2: RS-485
- COM3: RS-232/485
- COM4: RS-232 (I-8411/8811)
- S-MMI:  
Small Man Machine Interface
- I/O Expansion Slot  
4-slot for I-8410/8411  
8-slot for I-8810/8811
- Power Supply: 20W  
Unregulated +10Vdc to +30Vdc
- Power Consumption:  
I-8410/I-8411: 3.9W  
I-8810/I-8811: 5.1W
- Environment  
Operating Temp.:  
-25°C to +75°C  
Storage Temp.:  
-30°C to +85°C
- Humidity: 5 ~95%
- Dimensions:  
354 x 110 x 75.5 mm (8-slot)  
230 x 110 x 75.5 mm (4-slot)

# i-8000 Compact PAC

## SERIES



### Ordering Information:

**I-8430:** PAC  
**I-8430-G:** I-8430 with Gray color



### Ordering Information:

**I-8431:** PAC  
**I-8431-G:** I-8431 with Gray color



### Ordering Information:

**I-8830:** PAC  
**I-8830-G:** I-8830 with Gray color



### Ordering Information:

**I-8831:** PAC  
**I-8831-G:** I-8831 with Gray color

### Specifications & Features

- CPU 80188, 40MHz
- SRAM:
  - 256K bytes (for I-8430/8830)
  - 512K bytes (for I-8431/8831)
- Flash Memory: 512K bytes
- EEPROM: 2K bytes
- 64-bit hardware unique serial number (for I-8431/8831)
- Built-in Watchdog Timer
- Real Time Clock (for I-8431/8831)
- COM0: Internal use
- COM1: RS-232/Program download port
- 10 Base T: NE2000 compatible
- COM3: RS-232/485
- COM4: RS-232 (I-8431/8831)
- S-MMI:
  - Small Man Machine Interface
- I/O Expansion Slot
  - 4-slot for I-8430/8431
  - 8-slot for I-8830/8831
- Power Supply: 20W
  - Unregulated +10Vdc to +30Vdc
- Power Consumption:
  - I-8430/I-8431: 3.9W
  - I-8830/I-8831: 5.1W
- Environment
  - Operating Temp.: -25°C to +75°C
  - Storage Temp.: -30°C to +85°C
- Humidity: 5 ~95%
- Dimensions:
  - 354 x 110 x 75.5 mm (8-slot)
  - 230 x 110 x 75.5 mm (4-slot)
- **Support VxComm technique & Xserver**

## What is Modbus

### What is Modbus protocol ?

Modbus is a communication protocol developed by MODICON Inc. in 1979. It's a standard, truly opened and the most widely used network communication protocol in industrial automation field. SCADA and HMI software can easily integrate serial devices together via Modbus protocol.

### What is Modbus/TCP protocol ?

Modbus/TCP protocol is a variant of Modbus protocol. It was developed in 1999 to allow Internet community access Ethernet devices.

### What software supports Modbus and Modbus/TCP protocol?

Citect, ICONICS, iFIX, InduSoft, Intouch, Entivity Studio, Entivity Live, Entivity VLC, Wizcon, Trace Mode and Wonderware ... etc

### What are the benefits of using Modbus and Modbus/TCP protocol ?

1. Openness, no license fees.
2. Widely supported by SCADA and HMI software
3. Easy to use
4. Easily integrate different devices
5. Low development cost
6. Widely knowledge resource



# i-8000 Modbus/TCP PAC

## SERIES

### Default firmware features

- Supports Modbus/TCP communication protocol to access I/Os that plugged in slots.
- Supports VxComm technique for every COM port of controllers.
- Supports 8K and 87K DI/DO/AI/AO modules.  
Please refer detail list in Modbus Utility on-line help.
- Automatically scan I/O modules.  
You can plug I/O modules in any slot. Don't mind the slot order, it doesn't matter.
- Allowed a maximum of 8 host PCs access simultaneously.  
In fact, it can allow 16 host PCs access simultaneously.  
But for getting better stability, we recommend you don't use more than 8 host PCs to access a Modbus/TCP controller.
- Firmware updateable

### Modbus SDK ( in C language )

We provide Modbus SDK to users. You can use it to integrate several serial devices. Thus the controller can be a Modbus/TCP slave and Modbus/RTU master. The Modbus SDK has below features:

- Supports extra user-defined command protocol
- Register based programming method (easy to use)
- Can link Modbus/RTU slave devices
- Supports user-defined registers
- Can link to non-standard serial devices
- Xserver SDK compatible

### Hardware specifications

Same as I-8430, I-8431, I-8830, I-8831

### Ordering Information

- **I-8430 -MTCP:** Modbus/TCP PAC with 4 slots
- **I-8431 -MTCP:** Modbus/TCP PAC with 4 slots
- **I-8830 -MTCP:** Modbus/TCP PAC with 8 slots
- **I-8831 -MTCP:** Modbus/TCP PAC with 8 slots

# **i-8KE4 / i-8KE8 Ethernet Expansion Unit**

## **Features**

- Supports DCON communication protocol to access I/Os that plugged in slots.
- Supports VxComm technique for every COM port of controllers.
- Supports 8K and 87K DI/DO/AI/AO modules.
- Automatically scan I/O modules.  
You can plug I/O modules in any slot. Don't mind the slot order, it's doesn't mater
- Allowed a maximum of 8 host PCs access simultaneously.  
In fact, it can allow 16 host PCs access simultaneously.  
But for getting better stability, we recommend you don't use more than 8 host PCs to access a single controller.

## **Hardware specifications**

- CPU: 80186, 80M Hz
- SRAM: 512K (16 bits)
- FLASH: 512K
- EPROM: 2K
- Com 0: Internal use
- Com 1: RS-232
- 10BaseT: NE 2000 compatible
- I/O Expansion Slot  
4-slot for 8KE4  
8-slot for 8KE8
- Power Supply: 20W  
Unregulated +10Vdc to +30Vdc
- Environment
- Operation Temp.: -25°C to +75°C  
Storage Temp.: -30°C to +85°C  
Humidity: 5 ~ 95 %
- Dimensions:  
354 x 110 x 75.5 mm (8-slot)  
230 x 110 x 75.5 mm (4-slot)



### **Ordering Information:**

- I-8KE4:** 4 Expansion Slot Ethernet I/O
- I-8KE4-G:** I-8KE4 with Gray color



### **Ordering Information:**

- I-8KE8:** 8 Expansion Slot Ethernet I/O
- I-8KE8-G:** I-8KE8 with Gray color



# i-8000 **Intelligent CANopen Remote I/O Devices** SERIES

## Why CANopen ?

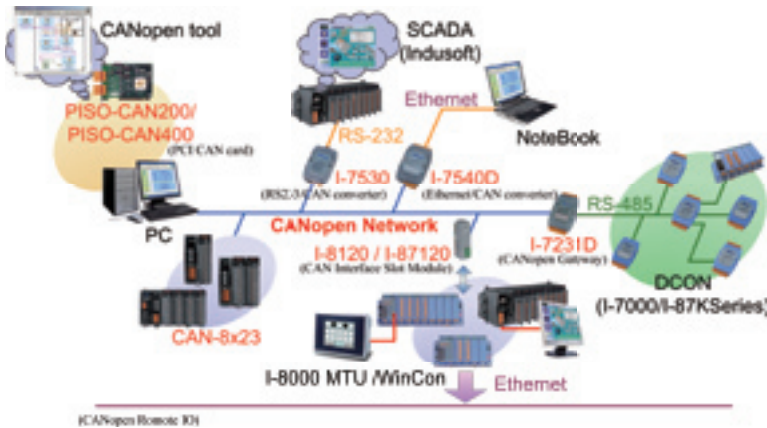
CANopen, a kind of network protocols, is based on the intelligent field bus (CAN bus). It is developed as a standardized network system with highly flexibility, and provides several standardized communication objects for real-time data, configuration data, network management data, and so forth. The



CANopen network management services simplify project design, system integration, and diagnostics. Up to now, CANopen is used in many various application fields, such as medical equipment, off-road vehicles, maritime electronics, public transportation, building automation and etc. Please refer to the web site <http://www.can-cia.org> for more information.

## CANopen Remote I/O modules

CAN-8123(I-8KCPS1), CAN-8223 (I-8KCPS2) and CAN-8423(I-8421) are specially designed for the slave devices of CANopen protocols. They can support up to 4 expansion slots to expand their I/O channels. Users can choose either the i-87K or the i-8000 series DI/DO/AI/AO slot modules to fit their customized practice applications. In addition, we also provide the CAN Slave Utility to create EDS files dynamically. This EDS file is helpful to apply these module in different CANopen master.





**Ordering Information:**  
**CAN-8123-G (I-8KCPS1-G):**  
 CANOpen remote I/O unit with 1 expansion I/O slot



**Ordering Information:**  
**CAN-8223-G (I-8KCPS2-G):**  
 CANOpen remote I/O unit with 2 expansion I/O slots



**Ordering Information:**  
**CAN-8423-G (I-8421-G):**  
 CANOpen remote I/O unit with 4 expansion I/O slots

### Hardware Features

- CPU:80186, 80MHz
- SRAM:512K bytes
- Flash Memory:512K bytes
- EEPROM:2k bytes
- NVRAM: 32 bytes
- Built-in Watchdog Timer
- Real Time Clock
- 16-bit Timer
- COM1:RS-232 (Utility communication port only for CAN-8423-G)
- CAN bus interface: ISO/IS 11898-2, 5-pin screw terminal with on-board optical isolators protection.
- Philip SJA1000 CAN controller
- Philip 82C250 CAN transceiver
- 2500 Vrms isolation on CAN side
- 120Ω terminal resister selected by jumper
- Baud rate up to 1Mbps
- Power LED, RUN LED, and ERR LED
- Suppot 1/2/4 expansion I/O slots
- Power Supply:20W, Unregulated +10VDC to +30VDC
- Operating Temperature:-25°C to +75°C
- Storage Temperature:-30°C to +85°C
- Humidity:5%~95%
- Dimensions:  
 64x110x117 mm(CAN-8123-G)  
 95x110x132 mm(CAN-8223-G)  
 188x110x132 mm(CAN-8423-G)

### Firmware Specifications

- NMT: Slave
- Error Control: Node Guarding
- Node ID: Setting by rotary switch
- No. of PDOs: 16 Rx, 16Tx
- PDO Modes: Event-triggered, remotely requested, cyclic and acyclic SYNC
- PDO Mapping: Variable
- No of SDOs: 1 server, 0 client
- Emergency Message: Yes
- Baud: Rotary switch
- Baud Rate support: 10K, 20K, 50K, 125K, 250K, 500K, 800K, and 1M bps
- CANOpen Version: DS-301 v4.01
- Device Profile: DSP-401 v2.0
- Support both CAN 2.0A / 2.0B

# i-8000 **Intelligent DeviceNet Remote I/O Devices** SERIES

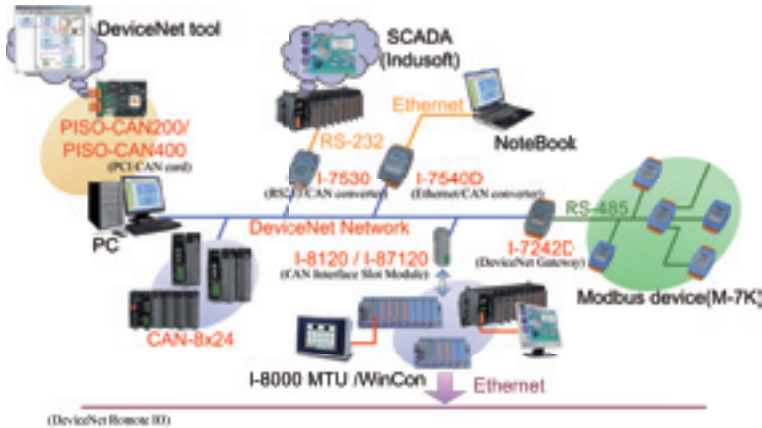
## Why DeviceNet?

DeviceNet is one kind of the network protocols based on the CAN bus and mainly used in industrial automation, such as injection molding machinery, textile machinery, printing or packaging machines, etc. It is a low level network that provides connections between simple industrial sensors/actuators and higher level devices. There are some DeviceNet features shown below.



- Multi-vendor interoperability
- Fast, easy installation - resulting in space and time savings
- Future-ready, for easy additions as your needs expand and change
- Improved uptime through intelligent insight into device operations
- Efficient bandwidth utilization through producer/consumer communications
- On-the-fly configuration/re-configuration and additions without powering down

## DeviceNet Remote I/O Modules



CAN-8124(I-8KDNS1), CAN-8224(I-8KDNS1) and CAN-8424(I-8420) are the small/middle size DeviceNet slave devices. These devices offer a flexible I/O selection and useful utility tool to build a variety DeviceNet application. They not only support most of ICP DAS I/O modules but also provide up to 4 expansion slots to expand the I/O channels. By using the other ICP DAS DeviceNet devices integrations, users can easily build their DeviceNet network for their different application.



**Ordering Information:**  
**CAN-8124-G (I-8KDNS1-G):**  
 DeviceNet PAC with 1 expansion I/O slot



**Ordering Information:**  
**CAN-8224-G (I-8KDNS2-G):**  
 DeviceNet PAC with 2 expansion I/O slots



**Ordering Information:**  
**CAN-8424-G (I-8420-G):**  
 DeviceNet PAC with 4 expansion I/O slots

### Hardware Features

- CPU:80186, 80MHz
- SRAM:512K bytes
- Flash Memory:512K bytes
- EEPROM:2k bytes
- NVRAM: 32 bytes
- Built-in Watchdog Timer
- Real Time Clock
- 16-bit Timer
- COM1:RS-232 (Utility communication port only for CAN-8424-G)
- CAN bus interface: ISO/IS 11898-2, 5-pin screw terminal with on-board optical isolators protection.
- Philip SJA1000 CAN controller
- Philip 82C250 CAN transceiver
- 2500 Vrms isolation on CAN side
- 120Ω terminal resistor selected by jumper
- Support 1/2/4 expansion I/O slots
- Power Supply:20W, Unregulated +10VDC to +30VDC
- Operating Temperature:-25°C to +75°C
- Storage Temperature:-30°C to +85°C
- Humidity:5%~95%
- Dimensions:  
 64x110x117 mm(CAN-8124-G)  
 95x110x132 mm(CAN-8224-G)  
 188x110x132 mm(CAN-8424-G)

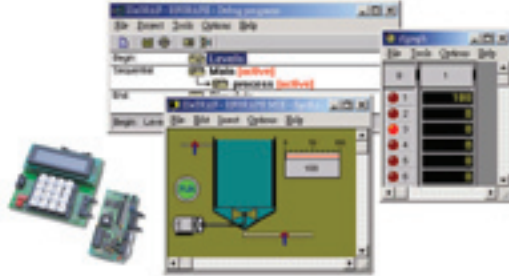
### Firmware Specifications

- DeviceNet Version: DeviceNet Specification Volume I & II, Release 2.0
- Number of Nodes: 64(Max)
- Baud Rate: 125K, 250K, and 500K bps
- Support Message Groups: Group 2 only Server
- UCMM: Not Support
- I/O Operating Modes: Poll, Bit-Strobe, Change of State/ Cyclic
- Device Heartbeat Message: Yes
- Device Shutdown Message: Yes
- Produce EDS file Dynamically: Ye
- No. of Fragment I/O: 128 Bytes (Max) (Input/ Output)
- MAC ID Setting: Rotary switch
- Baud Rate Setting: Rotary switch
- DeviceNet Status LED: NET, MOD, PWR

# i-8000 **ISaGRAF Embedded Controller** SERIES

## What is ISaGRAF ?

ISaGRAF is a PLC-like software running on Windows 95/ 98/ NT/ 2000/ XP. It supports all five IEC61131-3 languages, Ladder Diagram (LD), Structured Text (ST), Function Block Diagram (FBD), Sequential Function Chart (SFC), and Instruction List (IL).



## ISaGRAF PAC

ICP DAS provides many controller types supporting ISaGRAF. They are I-8417/8817/ 8437/8837, I-7188EG/XG and W-8x37/8x47 & W-8x36/x846. They can be easily integrated with many HMI softwares and devices such as Indusoft, iFix, Iconics, Wizcon, Intouch, Citect, Modbus OPC server, ICP DAS's MMICON, Touch 506T, 506L & 510T, etc.

Features:

1. All five IEC61131-3 languages, LD, ST, FBD, SFC and IL, plus Flow Chart.
2. Modbus RTU protocol (RS-232/485) to integrate to SCADA softwares and HMI.
3. Modbus TCP/IP to integrate to SCADA softwares and HMI. (i-8437/8837, I-7188EG & W-8x37/8x47 & W-8x36/8x46)
4. Controller to Controller Data Exchange via RS485.
5. Controller to Controller Data Exchange via Ethernet. (I-8437/8837, I-7188EG & W-8x37/8x47 & W-8x36/8x46)
6. Remotely download and monitor the program via a modem.
7. Modbus Master protocol to link to other devices which support Modbus RTU protocol.
8. All I-7000 & I-87K series I/O modules can be integrated as remote I/O modules.
9. W-8x37/8x47 & W-8x36/8x46 support Web HMI that allow other PCs to browse it via Internet Explorer.
10. Spotlight-A Simple HMI included in ISaGRAF to make application more friendly.
11. Auto-scan I/O: Automatically scan I/O boards & declare I/O variables.
12. Data log: data, date & time can be stored at S256/S512 for I-8xx7, while X607/X608 for I-7188EG/XG, and then PC can load these data via RS232/RS485, ethernet & Modem.
13. SMS: When integrating with a GSM Modem, Short Message Service is available.
14. Motion: Motion control is available when i-8091 boards integrated.
15. Wincon-8047/8347/8747 supports "Controller Redundancy" feature.
16. ISaGRAF version 3 supports "Variable Array". More at <http://www.icpdas.com/faq/isagraf.htm> "FAQ039"

## Ordering Information:

**ISaGRAF-256-E:** ISaGRAF Ver. 3 Software, 256 I/O Tags + one English book

**ISaGRAF-256-C:** ISaGRAF Ver. 3 Software, 256 I/O Tags + one Chinese book

# i-8000 ISaGRAF PAC SERIES

i-8000



### Ordering Information:

**I-8417:** ISaGRAF PAC  
**I-8417-G:** I-8417 with Gray color



### Ordering Information:

**I-8437:** ISaGRAF PAC  
**I-8437-G:** I-8437 with Gray color



### Ordering Information:

**I-8817:** ISaGRAF PAC  
**I-8817-G:** I-8817 with Gray color



### Ordering Information:

**I-8837:** ISaGRAF PAC  
**I-8837-G:** I-8837 with Gray color

### Specifications & Features

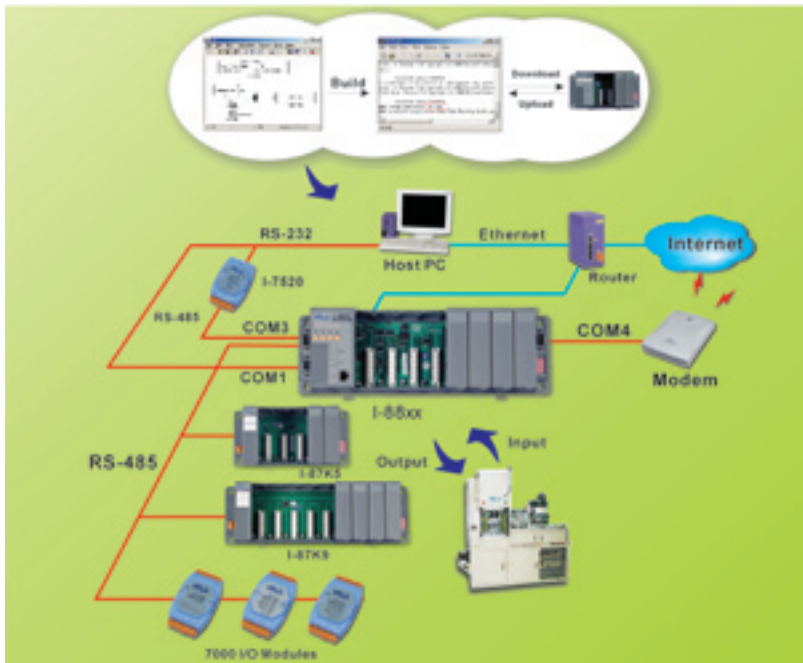
- The hardware of I-8417 is the same as I-8411. The I-8000 Target driver and ISaGRAF Target license are included
- The hardware of I-8437 is the same as I-8431. The I-8000 Target driver and ISaGRAF Target license are included
- The hardware of I-8817 is the same as I-8811. The I-8000 Target driver and ISaGRAF Target license are included
- The hardware of I-8837 is the same as I-8831. The I-8000 Target driver and ISaGRAF Target license are included

# i-8000 **Matlab PAC** SERIES

I-8438/8838 is the ICP DAS MATLAB PAC solution built in Ethernet and series interface with I/O expansion slots for Matlab development environment. For this application there are over 20 I/O bridges and system-level Simulink Blocksets have been developed. By using Simulink development environment and these Matlab Driver's blocksets, control algorithm can be easily constructed and verified without writing any code. Once the algorithm has been verified, by pressing a "build" button, users can convert a model to executable code, and download it to I-8438/8838 PAC for test or practical application by RS232 and Ethernet. Furthermore, engineers can put more focus on advanced control algorithm design and development.

## Software required :

1. Matlab v6.1 or v6.5
2. Simulink v4.1 or v5.0
3. Real-Time Workshop v4.1 or v5.0
4. Real-Time Workshop embedded coder v2.0 or v3.0
5. ICPDAS Matlab PAC Development Kits



# i-8000 **Matlab PAC** SERIES

i-8000



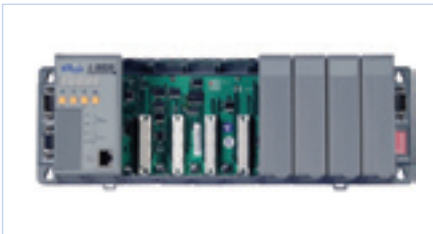
**Ordering Information:**  
**I-8438-G:** Matlab PAC

## COMMON Specifications

- CPU:80186,80MHz

## Specifications & Features

- Except CPU, the hardware of I-8438 is the same as I-8431. The IO bridge for I-8000 is included

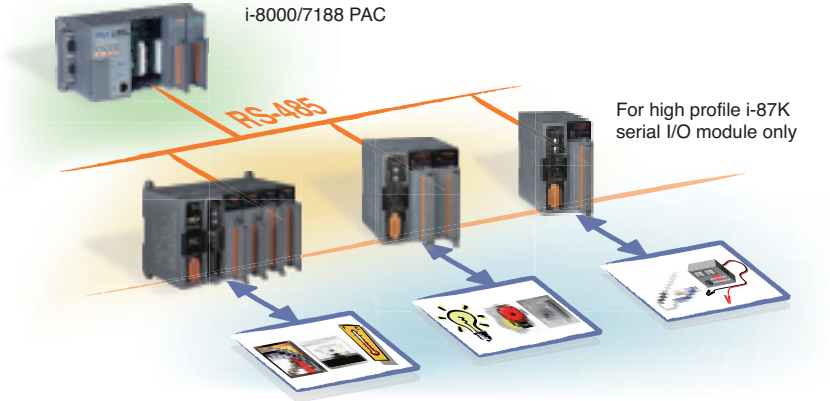


**Ordering Information:**  
**I-8838-G:** Matlab PAC

- Except CPU, the hardware of I-8838 is the same as I-8831. The IO bridge for I-8000 is included



# i-87K I/O Expansion Unit



RU-87Pn series is a remote intelligent I/O expansion unit that used to expand high profile i-87K series I/O modules over the RS-485 for industrial monitoring and controlling applications.

Parent		
Taiwan	096134568	pending
China	200710181138.6	pending
USA	11/979,474	pending
Germany	102007053078.3	pending

## Features

### ■ Hot Swap

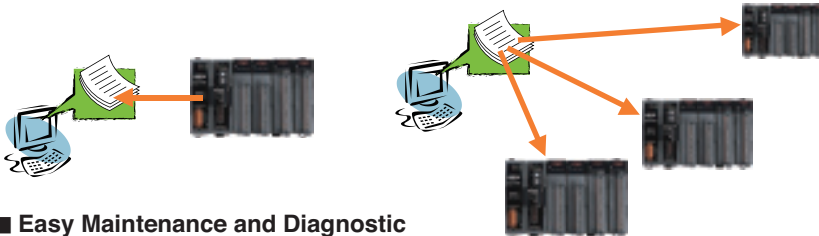
The RU-87Pn doesn't need to shut down its power to replace or plug i-87K I/O modules. Therefore, the whole system can keep operating without any interruption.

### ■ Auto Configuration

Configurations of high profile i-87K I/O modules can be pre configured and stored in the nonvolatile memory of the RU-87Pn. When the RU-87Pn is power on or a high profile i-87K I/O module is plug in, the RU-87Pn automatically check and restore these configurations to each high profile i-87K I/O modules on it.

### ■ Easy Duplicate System

Using the DCON Utility, you can easily make a backup of the high profile i-87K module configurations and write to another RU-87Pn.



### ■ Easy Maintenance and Diagnostic

### ■ DCON Protocol

# i-87K I/O Expansion Unit

## SERIES

i-80000

### Specifications

Interface Type (RS-485)	
Baud rate	115200 bps maximum
Distance	1.2 Km (4000 ft) maximum
Isolation	3000 VDC
ESD Protection	+/- 4K Contact Discharge and +/- 8K Air Discharge
EFT Protection	+/-1kv
I/O Expansion Slots	
Hot Swap	Yes
Auto Configuration	Yes
Support Module Type	High profile i-87K module only
Dimensions (W x H x D)	
RU-87P1	64mm x 117mm x 110mm
RU-87P2	95mm x 132mm x 111mm
RU-87P4	188mm x 132mm x 111mm
RU-87P8	312mm x 132mm x 111mm
Power	
Input Range	10~30 VDC (non-regulated)
Reverse Protection	Yes
ESD Protection	+/-4KV Contact Discharge and +/-8KV Air Discharge
EFT Protection	+/-4KV
Isolation	1000 VDC
Frame Ground	Yes
Environment	
Operating Temperature	-25 to +75 °C
Storage Temperature	-30 to +75 °C
Humidit	5 ~ 95%, Non-condensing

### Selection Guide



RU-87P1-G-CR



RU-87P2-G-CR



RU-87P4-G-CR



RU-87P8-G-CR

# i-8000 I/O Modules

## SERIES

### 3. I/O Modules

There are two types of I/O modules, Parallel and Serial. The parallel modules are high-speed modules and have to be installed in the Main Control Unit. The Serial I/O Modules can be installed in either the Parallel or Serial I/O expansion slots.



#### Parallel I/O Modules ( 8K series Modules)

##### Features:

- High speed A/D: 100K samples/second
- High speed D/A: 30K from -10V to +10V
- High speed D/I & D/O; All Digital I/O Modules provide visual indication of status via LED indicators.
- High speed stepping/Servo motion control module
- High speed encoder module
- High performance Counter / Frequency modules
- High speed multi-channel RS-232/RS-422/RS-485 modules
- Printer interface & X-Socket interface module

#### Serial I/O modules ( 87K series Modules)

##### Features:

- RTD Sensor Input Module
- Thermocouple Input Module
- Strain Gauge Input Module
- High Resolution Multi-channel Analog Input Module
- Isolated Multi-channel D/A Modules
- Digital Input and Digital Output Modules with Latch and Counter Function
- Counter / Frequency Modules

# i-8000 Parallel I/O Modules

## SERIES

i-8000

8K Digital I/O Module Selection Guide

Model	I-8037	I-8040	I-8041	I-8042	I-8048	I-8050	I-8051
Digital input Channels	–	32	–	16	8 with Interrupt	Can be up to 16	16
Digital Output Channels	16 open source isolation 3750V	–	32	16	–	Can be up to 16	–
LED Display	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Safe Value	Yes	–	Yes	Yes	–	–	–
Power-on Preset Value	Yes	–	Yes	Yes	–	–	–
Dual Watchdog	–	–	–	–	–	–	–
Availability	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Model	I-8052	I-8053	I-8054	I-8055	I-8056	I-8057	I-8058
Digital input Channels	8 isolation 5000V differential	16 isolation 3750V	8 isolation 3750V	8	–	–	8 isolation 3750V AC/DC Max.250V Input
Digital Output Channels	–	–	8 open collector isolation 3750V	8 open collector	16 open collector	16 open-collector isolation 3750V	–
LED Display	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Safe Value	–	–	Yes	Yes	Yes	Yes	–
Power-on Preset Value	–	–	Yes	Yes	Yes	Yes	–
Dual Watchdog	–	–	–	–	–	–	–
Availability	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# i-8000 Parallel I/O Modules

## SERIES

### 8K Digital Modules

I-8037



I-8037-G



#### I-8037 / I-8037-G (Gray color) 16-channel Isolated Open-source Output Module

- Digital output channels : 16
- Digital output : Open-source
- Digital output : Output 100mA / 30V(Max)
- Isolation: 3750 Vrms
- Power consumption: 0.5W

I-8040



I-8040-G



#### I-8040 / I-8040-G (Gray color) 32-channel Isolated Digital Input Module

- Digital input channels: 32
- 3750V isolation (External power)
- 3000V isolation (Internal power)
- Input Voltage: 3.5V~30V
- Power consumption: 0.3W

I-8041



I-8041-G



#### I-8041 / I-8041-G (Gray color) 32-channel Isolated Digital Output Module

- Digital output channels: 32
- 3750V isolation (External power)
- Open-collector Output: 125mA/channel
- Power consumption: 1.7W

I-8042



I-8042-G



#### I-8042 / I-8042-G (Gray color) 16-channel Isolated Digital Input & 16-channel Isolated Digital Output Module

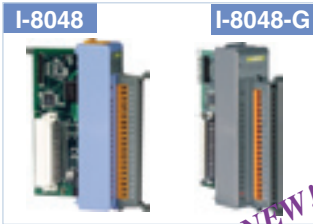
- Digital Input channels: 16
- Digital Output channels: 16
- Other spec. are similar to I-8040 and I-8041
- Power consumption: 1.5W

# i-8000 Parallel I/O Modules

## SERIES

i-8000

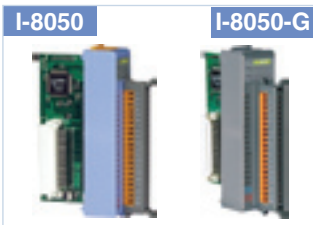
### 8K Digital Modules



#### I-8048 / I-8048-G (Gray color)

##### 8-channel Digital Input with Interrupt Module

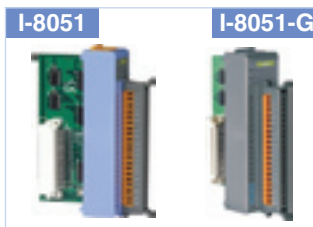
- Parallel I/O Module
- Digital Input Channels: 8
- Input Signal: isolated or non-isolated by Jumper
- Logic High level:  
Isolated: 4V ~30V  
Non-Isolated TTL: 2V ~ 5V
- Logic Low level:  
Isolated: 0 ~1V  
Non-Isolated TTL: 0V~ 0.8V
- Isolation Voltage:2000V
- Built-in isolated power supply:5V,200mA max.
- Rising/Falling edge interrupt programmable
- LED indicator for each channel of digital input
- Power Consumption: 0.8W



#### I-8050 / I-8050-G (Gray color)

##### 16-channel Universal Digital I/O Module

- Digital I/O channels: 16
- I/O Type: Selectable by programmed
- Digital Input: +2V(0); +4V~30V(1)
- Digital Output: Open-collector  
Output: 100mA/channel
- Power consumption: 1W



#### I-8051 / I-8051-G (Gray color)

##### 16-channel Digital Input Module

- Digital Input channels: 16
- Digital Input level:  
Logical level 0: +1V max.  
Logical level 1: +3.5V~30V
- Power consumption: 0.8W

# i-8000 Parallel I/O Modules

## SERIES

### 8K Digital Modules

I-8052



I-8052-G



#### I-8052 / I-8052-G (Gray color) 8-channel Isolated Digital Input Module

- Digital input channels: 8
- Differential input:
  - Logical level 0: +1V max.
  - Logical level 1: +3.5V~30V
- Isolation: 5000 Vrms.
- Power consumption: 0.8W

I-8053



I-8053-G



#### I-8053 / I-8053-G (Gray color) 16-channel Isolated Digital Input Module

- Digital input channels: 16
- Single-ended input:
  - Logical level 0: +1V max.
  - Logical level 1: +3.5V~30V
- Input resistance: 3K $\Omega$ , 1/4W
- Power consumption: 0.8W

I-8054



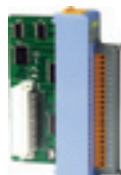
I-8054-G



#### I-8054 / I-8054-G (Gray color) 16-channel Isolated Digital I/O Module

- Digital input channels: 8
  - Logical level 0: +1V max.
  - Logical level 1: +3.5V~30V
- Digital output channels: 8
  - O.C. output: 375mA/channel, 30V
- Power consumption: 1W

I-8055



I-8055-G

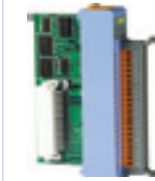


#### I-8055 / I-8055-G (Gray color) 16-channel Digital I/O Module

- Digital input channels: 8
  - Logical level 0: +1V max.
  - Logical level 1: +3.5V~30V
- Digital output channels: 8
  - O.C. output: 125mA/channel
- Power consumption: 0.5W

### 8K Digital Modules

I-8056



I-8056-G



#### I-8056 / I-8056-G (Gray color) 16-channel Non-isolated Open-collector Output Module

- Digital output channels: 16
- O.C. output: 125mA/channel, 30V
- Power consumption: 0.7W

I-8057



I-8057-G



#### I-8057 / I-8057-G (Gray color) 16-channel Isolated Open-collector Output Module

- Digital output channels: 16
- O.C. output: 125mA/channel, 30V
- Isolation: 3750 Vrms
- Power consumption: 0.5W

I-8058



I-8058-G



#### I-8058 / I-8058-G (Gray color) 8-channel Isolated Digital Input Module

- Digital input channels: 8
- Input type: differential
- Input Voltage: Logical High: AC/DC 80V mini  
Logical Low: AC/DC 30V max.
- Maximum Input voltage: AC/DC 250V
- Operating frequency: 1KHz(max.)
- Isolation: 3750 Vrms
- Power consumption: 0.8W



# i-8000 Parallel I/O Modules

## SERIES

**8K Relay Module Selection Guide**

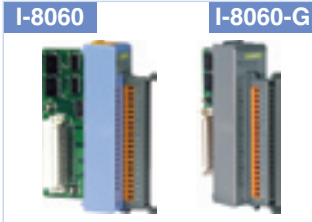
Model	I-8060	I-8063	I-8064	I-8065	I-8066	I-8068	I-8069
Digital input Channels	–	4 isolation 3750V	–	–	–	–	–
Digital Output Channels	6 Form C	4 Form C	8 Channel Relay Form A AC 250V/5A DC 30V/5A	8 Channel SSR AC-type Relay Form A 24 to 265 Vrms@ 1.0Arms	8 Channel SSR DC-type Relay Form A DC: 3-30Vdc @1.0A	8 Channel Relay Form A x4 Form c x4	8 Photo Mos Relay Form A x8
LED Display	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Safe Value	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power-on Preset Value	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dual Watchdog	–	–	–	–	–	–	–
Availability	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# i-8000 Parallel I/O Modules

## SERIES

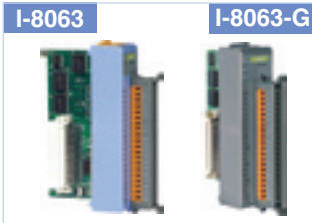
i-8000

### 8K Relay Modules



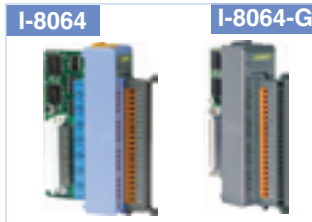
#### I-8060 / I-8060-G (Gray color) 6-channel Relay Output Module

- Digital output channels: 6
- Form C relay
- Contact Rating:  
AC: 125V @0.6A; 250V @0.3A  
DC: 30V @2A; 110V @0.6A
- Power consumption: 2.2W



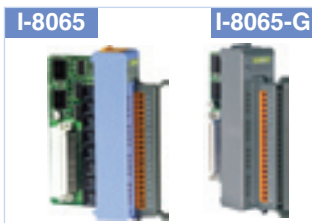
#### I-8063 / I-8063-G (Gray color) 8-channel Isolated Digital I/O Module

- Digital input channels: 4  
Differential Input
- Digital output channels: 4  
Form C relay  
AC: 125V @0.6A; 250V @0.3A
- Power consumption: 2W



#### I-8064 / I-8064-G (Gray color) 8-channel Power Relay Output Module

- Digital output channels: 8
- Form A relay
- Contact Rating: AC: 250V @5A  
DC: 30V @5A
- Power consumption: 2.2W



#### I-8065 / I-8065-G (Gray color) 8-channel SSR-AC Output Module

- Digital output channels: 8
- Form A SSR
- Contact Rating: AC: 24~265Vrms @1.0Arms  
Max. load current: 1.0Arms
- Power consumption: 0.8W

# i-8000 Parallel I/O Modules

## SERIES

### 8K Relay Modules

I-8066



I-8066-G



#### I-8066 / I-8066-G (Gray color) 8-channel SSR-DC Output Module

- Digital output channels: 8
- Form A SSR
- Contact Rating: DC: 3~30 Vdc @1.0A  
Max. load current: 1.0A
- Power consumption: 0.8W

I-8068



I-8068-G



#### I-8068 / I-8068-G (Gray color) 8-channel Relay Output Module

- Digital output channels: 8  
Form C x4; Form A x4
- Contact Rating: AC: 120V @0.5A  
DC: 30V @1A
- Power consumption: 2.4W

I-8069



I-8069-G



#### I-8069 / I-8069-G (Gray color) 8-channel Photo Mos Relay Output Module

- Digital output channels: 8
- Form A Photo Mos relay
- Photo Mos Relay
- Load voltage: 350V (Peak AC)
- Continuous load current: 0.13A
- Power consumption: 0.5W

# i-8000 Parallel I/O Modules

## SERIES

i-8000

### 8K Memory Modules

I-8072



I-8072-G



#### I-8072 / I-8072-G (Gray color)

##### Printer Port & Xsocket Card

- Support Printer port
- Support two Xsocket
- Power Consumption: 0.3W

I-8073



I-8073-G



#### I-8073 / I-8073-G (Gray color)

##### MultiMediaCard(MMC) module

- MultiMediaCard socket : 1
- Digital input Channels :4  
Logical level 0 : +1V max.  
Logical level 1 : +3.5V~30V
- Digital output channels : 4  
Open-collector output :100mA/30V max
- Analog Input Channel : 1  
Input Range : +/-5V and 0~5V
- Power Consumption: 1W

### 8K Digital Input/Output Simulator Modules

I-8077



I-8077-G



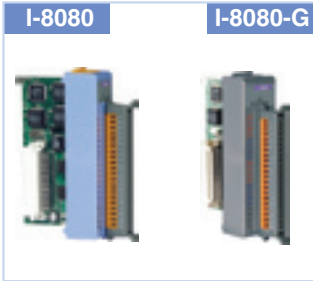
#### I-8077 / I-8077-G (Gray color)

##### 16-channel Digital I/O Simulator Module

- Digital Input Channels:8
- Input type : Toggle switch
- Output LED:8
- Power Consumption: 0.3W

## i-8000 Parallel I/O Modules

### 8K Counter/Frequency Modules



#### I-8080 / I-8080-G (Gray color)

#### 4/8 channel Counter & Frequency Module

- Counter channel: 4/8
- Frequency channel: 8
- Input frequency: 0~450KHz (Frequency mode)  
450KHz max (Counter mode)
- Power consumption: 1W

# i-8000 Parallel I/O Modules

## SERIES

i-8000

### 8K Motion Modules

I-8090



I-8090-G



#### I-8090 / I-8090-G (Gray color)

##### 3-axis Encoder Input Module

- Channels: 3
- Encoder type: single-ended or differential
- Logical level: TTL and COMS compatible
- Accept inputs from incremental or quadrature encoders
- Maximum quadrature input frequency: 1MHz
- Encoder input modes: Quadrature, Up/Down, Pulse/Direction
- Power Consumption: 3.4W

I-8091



I-8091-G



#### I-8091 / I-8091-G (Gray color)

##### 2-axis Stepper/Servo Module

- Stepper channels: 2
- Step rate: 1pps~250Kpps
- Max. step count: +/-2
- Acceleration/Deceleration: Automatic trapezoidal acceleration/deceleration
- Output pulse signal: Two pulse (CW/CCW) mode or one pulse (Pulse, Direction) mode
- Output polarity: Positive/Negative programmable
- Power Consumption: 3.9W

I-8093-G



#### I-8093-G (Gray color)

##### 3-axis Encoder Input Module

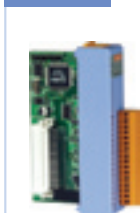
- Channels: 3-axis
- Encoder type: single-ended or differential
- Logical level: TTL and COMS compatible
- Accept inputs from incremental or quadrature encoders
- Maximum quadrature input frequency: 5MHz
- Encoder input modes: Quadrature, Up/Down, Pulse/Direction

# i-8000 Parallel I/O Modules

## SERIES

### 8K Analog Input/Output Modules

I-8017H



I-8017H-G



#### I-8017H / I-8017H-G (Gray color)

##### 8-channel Isolated Analog Input Module

- Analog Input Channels: 8
- Resolution: 14-bit
- Input Type: Differential
- Input Range :  $\pm 10V$ ,  $\pm 5V$ ,  $\pm 2.5V$ ,  $\pm 1.25V$ ,  $\pm 20mA$  (need  $125\Omega$  external resistor)
- Isolation Voltage: 3000Vdc
- Power Consumption: 2W
- Sampling rate:
  - Single Channel Polling Mode : 100Ksps
  - Single Channel Interrupt Mode : 50Ksps
  - 8 Channels Scan Mode : 16Ksps
- Input Bandwidth : 100KHz @-3dB
- Input impedance: 200K $\Omega$

I-8017HS-G



#### I-8017HS-G (Gray color)

##### 8/16 Channel Isolated Analog Input Module

- Analog Input Channels: 8/16
- Resolution: 14-bit
- Input Type: Differential/Single End
- Input Range:  $\pm 10V$ ,  $\pm 5V$ ,  $\pm 2.5V$ ,  $\pm 1.25V$ ,  $\pm 20mA$  (need  $125\Omega$  external resistor)
- Isolation Voltage: 3000Vdc
- Power Consumption: 2W
- Sampling Rate:
  - Single Channel Polling Mode: 100Ksps
  - Single Channel Interrupt Mode: 50Ksps
  - Multi Channel Scan Mode: 16Ksps
- Input Bandwidth: 100KHz @-3dB
- Input Impedance: 200K $\Omega$

I-8024



I-8024-G



#### I-8024 / I-8024-G (Gray color)

##### 4-channel Isolated Analog Output Module

- Analog output channels: 4
- Voltage output:  $\pm 10V$
- Current output: 0~20mA/4~20mA
- Isolation: 3000V
- Power Consumption: 2.2W

### 8K RS-232/RS-422/RS-485 Modules

**I-8112**



**I-8112-G**



**I-8112:**

**2-channel RS-232 Module**

- RS-232 channels: 2
- Modem control
- TXD, RXD, RTS, CTS, DSR, DTR, DCD, RI, GND
- Transmission speed: 115.2K bps
- Shared Interrupt

**I-8114**



**I-8114-G**



**I-8114:**

**4-channel RS-232 Module**

- RS-232 channels: 4
- Modem control
- TXD, RXD, RTS, CTS, DSR, DTR, DCD, RI, GND
- Transmission speed: 115.2K bps
- Shared Interrupt

**I-8142**



**I-8142-G**

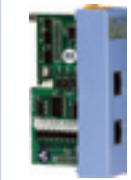


**I-8142:**

**2-channel RS-422/485 Module**

- RS-422/485 channels: 2
- Self-tuner chip inside
- TXD+, TXD-, RXD+, RXD-, RTS+, RTS-, CTS+, CTS-, GND
- Transmission speed: 115.2K bps
- Shared Interrupt

**I-8142i**



**I-8142i-G**



**I-8142i:**

**2-channel isolated RS-422/485 Module**

- RS-422/485 channels: 2
- Self-tuner chip inside
- TXD+, TXD-, RXD+, RXD-, RTS+, RTS-, CTS+, CTS-, GND
- Transmission speed: 115.2K bps
- Shared Interrupt
- Isolation: 3000V

**I-8144**



**I-8144-G**



**I-8144:**

**4-channel RS-422/485 Module**

- RS-422/485 channels: 4
- Self-tuner chip inside
- TXD+, TXD-, RXD+, RXD-, RTS+, RTS-, CTS+, CTS-, GND
- Transmission speed: 115.2K bps
- Shared Interrupt



# i-87K **Serial Modules**

## SERIES

**87K Digital I/O Modules Selection Guide**

Module		I-87040	I-87041	I-87051	I-87052	I-87053
Digital Input Channels		32 Isolation	–	16	8 differential Isolation (5000V)	16 Isolation (3750V)
Digital Output Channels		–	32 (open collector Isolation)	–	–	–
Counter	Channels	32	–	16	8	16
	Input Frequency	100Hz	–	100Hz	100Hz	100Hz
Safe Value		–	Yes	–	–	–
Power-on Preset Value		–	Yes	–	–	–
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes
Availability		Y	Y	Y	Y	Y

Module		I-87054	I-87055	I-87057	I-87058
Digital Input Channels		8 Isolation (3750V)	8	–	8 differential Isolation (5000V)
Digital Output Channels		8 (open collector) Isolation (3750V)	8 (open collector) Isolation (3750V)	16 (open collector) Isolation (3750V)	–
Counter	Channels	8	8	–	8
	Input Frequency	100Hz	100Hz	–	100Hz
Safe Value		Yes	Yes	Yes	–
Power-on Preset Value		Yes	Yes	Yes	–
Dual Watchdog Timer		Yes	Yes	Yes	Yes
Availability		Y	Y	Y	Y

# i-87K *Serial Modules*

## SERIES

i-80000

**87K Relay Modules Selection Guide**

Module		I-87063	I-87064	I-87065	I-87066	I-87068	I-87069
Digital Input Channels		4 Isolation (3750V)		–	–	–	–
Digital Output Channels		4 Channel Relay Form C x 4	8 Channel Relay Form A AC 250V/5A DC 30V/5A	8 Channel SSR AC-type Relay Form A 24 to 265 Vrms@1.0Arms	8 Channel SSR DC-type Relay Form A DC: 3-30VDC @1.0A	8 Channel Relay Form A x 4 Form C x 4	8 Channel PhotoMos Relay Form A x 8
Counter	Channels	4	–	–	–	–	–
	Input Frequency	100Hz	–	–	–	–	–
Safe Value		Yes	Yes	Yes	Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes	Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes	Yes
Availability		Y	Y	Y	Y	Y	Y

# i-87K Serial Modules

## SERIES

### 87K Digital Modules

I-87040



I-87040-G



#### I-87040 / I-87040-G (Gray color) 32-channel Digital Input Module

- Digital input channels: 32
- 3750V isolation ( External power)
- Digital input level:  
On state: +3.5V~30V  
Off state: +1V max.
- Power Consumption: 1W

I-87041



I-87041-G



#### I-87041 / I-87041-G (Gray color) 32-channel Digital Output Module

- Digital Output channels: 32
- Open-collector Output: 100 mA/ channel
- Load Voltage : 5VDC to 30VDC
- Isolation Voltage : 3750Vrms
- Power consumption: 1W

I-87051



I-87051-G



#### I-87051 / I-87051-G (Gray color) 16-channel Digital Input Module

- Digital input channels: 16
- Digital input level:  
On state: +1V max.  
Off state: +3.5V~30V
- Power Consumption: 0.4W

# i-87K *Serial Modules*

## SERIES

I-80000

### 87K Digital Modules

I-87052



I-87052-G



#### I-87052 / I-87052-G (Gray color)

##### 8-channel Isolated Digital Input Module

- Digital input channels: 8
- Differential input
  - On state: +3.5V~30V
  - Off state: +1V max.
- Isolation: 5000 Vrms
- Power Consumption: 0.3W

I-87053



I-87053-G



#### I-87053 / I-87053-G (Gray color)

##### 16-channel Isolated Digital Input Module

- Digital input channels: 16
- Single-ended input
  - On state: +3.5V~30V
  - Off state: +1V max.
- Isolation: 3750 Vrms
- Power Consumption: 0.3W

I-87054



I-87054-G



#### I-87054 / I-87054-G (Gray color)

##### 16-channel Isolated Digital I/O Module

- Digital input channels: 8
  - On state: +3.5V~30V
  - Off state: +1V max.
- Digital output channels: 8
  - O.C. output: 375mA/channel, 30V
- Power Consumption: 0.3W

# i-87K Serial Modules

## SERIES

### 87K Digital Modules

I-87055



I-87055-G



#### I-87055 / I-87055-G (Gray color) 16-channel Digital I/O Module

- Digital input channels: 8  
On state: +1V max.  
Off state: +3.5V~30V
- Digital output channels: 8  
O.C. output: 100mA/channel
- Power Consumption: 0.5W

I-87057



I-87057-G



#### I-87057 / I-87057-G (Gray color) 16-channel Isolated Open Collector Output Module

- Digital output channels: 16  
O.C. output: 100mA/channel, 30V
- Isolation: 3750 Vrms
- Power Consumption: 0.3W

I-87058



I-87058-G



#### I-87058 / I-87058-G (Gray color) 8-channel Isolated Digital Input Module

- Digital input channel : 8 differential
- Input Voltage  
Logical High : AC/DC 80V min.  
Logical Low : AC/DC 30V max.
- Maximum Input Voltage :AC/DC 250V
- AC frequency : 45Hz(min.)
- Isolation :5000Vrms
- Power Consumption: 0.3W

### 87K Relay Modules

I-87063



I-87063-G



#### I-87063 / I-87063-G (Gray color) 8-channel Isolated Digital I/O Module

- Digital input channels: 4  
Differential Input
- Digital output channels: 4  
Form C  
AC: 0.6A @125Vac, 2A @30Vdc
- Power Consumption: 0.3W

# i-87K **Serial Modules**

## SERIES

I-80000

### 87K Digital Modules

I-87064



I-87064-G



**I-87064 / I-87064-G (Gray color)**  
**8-channel Power Relay Output Module**

**I-87065 / I-87065-G (Gray color)**  
**8-channel SSR-AC Output Module**  
**I-87066 / I-87066-G (Gray color)**  
**8-channel SSR-DC Output Module**

- Digital Output channels: 8
- Form A (Normal open)
- Contact Rating:
  - I-87064 – AC:250V @5A DC:30V @5A  
 Power Consumption: 2.4W
  - I-87065 – AC: 24~265Vrms @1.0 Arms;  
 leakage current:1.5mArms max.  
 Power Consumption: 1W
  - I-87066 – DC: 3~30VDC @1.0A  
 leakage current:0.1mA max.  
 Power Consumption: 1W

I-87065



I-87065-G



I-87066



I-87066-G



**I-87068 / I-87068-G (Gray color)**  
**8-channel Relay Output Module**

- Digital output channels: 8
- Form C x 4; Form A x 4
- Contact Rating: AC: 120VAC @0.5A  
 DC: 30VDC @1A
- Power Consumption: 2.4W

I-87068



I-87068-G



I-87069



I-87069-G



**I-87069 / I-87069-G (Gray color)**  
**8-channel Relay Output Module**

- Digital output channels: 8
- Form A Photo Mos relay
- Photo Mos Relay
- Load voltage: 350V (Peak AC)
- Continuous load current: 0.13A
- Power Consumption: 0.5W

# i-87K *Serial Modules*

## SERIES

**87K Analog Input Module Selection Guide**

Module		I-87005W	I-87013	I-87015	I-87016W	I-87017	I-87017R
Analog Input	Resolution	16 bit	16 bit	16 bit	16 bit	16/12 bit	16/12 bit
	Input channel	8 diff.	4 diff.	7 diff.	2 diff.	8 diff.	8 diff.
	Sampling rate	8 Hz (total)	10 Hz (total)	7 Hz (total)	10 Hz	10/60 Hz (total)	10/60 Hz (total)
	Voltage input	–	–	–	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	+/-150mV +/-500mV +/-1V +/-5V +/-10V
	Current input	–	–	–	+/-20mA	+/-20mA	+/-20mA
	Sensor input	Thermistor (2-wire)	RTD Pt/Ni-RTD	RTD Pt/Ni/Cu-RTD	–	–	–
	Input Linear scaling	–	–	–	Yes	–	–
Digital Output Channels		8 (open collector)	–	–	–	–	–
Open Wire Detection		Yes	Yes	Yes	–	–	–
Isolation Voltage		3000V	3000V	3000V	3000V	3000V	3000V
Voltage Overload Protection		–	–	–	+/-35V	+/-35V	240Vrms
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes	Yes
Availability		Note 1	Yes	Yes	Note 1	Yes	Yes

Note 1: Will be available

# i-87K **Serial Modules**

## SERIES

i-80000

**87K Analog Input Module Selection Guide**

Module		I-87017RC	I-87017ML	I-87018	I-87018R	I-87019R
Analog Input	Resolution	16/12 bit	16/12 bit	16 bit	16 bit	16 bit
	Input channel	8 diff.	8 diff.	8 diff.	8 diff.	8 diff.
	Sampling rate	10/60 Hz (total)	10/60 Hz (total)	10 Hz (total)	10 Hz (total)	8 Hz (total)
	Voltage input	–	+/-150V +/-50V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-150mV +/-500mV +/-1V +/-2.5V +/-5V +/-10V
	Current input	+/-20mA 4-20mA 0-20mA	–	+/-20mA	+/-20mA	+/-20mA
	Sensor input	–	–	J.K.T.E.R.S.B. N.C.L.M.L2 thermocouple	J.K.T.E.R.S.B. N.C.L.M.L2 thermocouple	J.K.T.E.R.S.B. N.C.L.M.L2 thermocouple
	Input Linear scaling	–	–	–	–	–
Digital Output Channels		–	–	–	–	–
Open Wire Detection		–	–	–	Yes	Yes
Isolation Voltage		3000V	3000V	3000V	3000V	3000V
Voltage Overload Protection		–	+/-200V	+/-35V	240Vrms	+/-240Vrms
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes
Availability		Yes	Yes	Yes	Yes	Yes

**87K Analog Output Module Selection Guide**

Module		I-87022	I-87024	I-87026
Analog Output	Resolution	12 bit	14 bit	16 bit
	Output channels	2 (Note 1)	4	2 (Note 1)
	Voltage output	0-10V	+/-10V, 0-10V, +/-5V, 0-5V	0-10V
	Current output	0-20mA 4-20mA	0-20mA 4-20mA	0-20mA 4-20mA
Safe Value		Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes
Availability		Yes	Yes	Yes

Note 1: Channel to Channel isolation



# i-87K **Serial Modules**

## SERIES

### 87K Analog Input Modules

I-87005W-G



*Available soon*

#### I-87005W-G (Gray color)

##### 8-channel Thermistor Input and 8-channel Digital Output Module

- Analog Input Channels: 8
- Input Type: Precon ST-A3, Type u Fenwell, YSI, User-defined
- Accuracy: +/-0.1%
- Sampling Rate: 8 samples/second (Total)
- Common Mode Rejection: Typical 86dB
- Voltage Input Impedance: >1M Ohms
- Isolation Voltage: 3000VDC
- Individual Channel Configurable
- Wire Opening Detection
- Power Consumption: 1.2W
- Alarm Outputs: 8 (source)
- External Voltage: 10 ~ 40V
- Output Current: 650 mA per channel

I-87013



I-87013-G



#### I-87013 / I-87013-G (Gray color)

##### 4-channel RTD Input Module

- Analog Input Channels: 4
- Input Type: 2/3/4 wire RTD
- Accuracy: +/-0.1%
- Sampling Rate: 10Hz (total)
- C.M.R.: 150dB @50.60Hz
- N.M.R.: 100dB @50/60Hz
- Isolation: 3000Vrms
- Power Consumption: 0.8W

I-87015-G



*NEW!!*

#### I-87015-G (Gray color)

##### 7-channel RTD Input Module

- Analog Input Channels: 7
- Input Type: Pt100, Pt1000, Ni120, Cu100, Cu1000 supports 2/3 wire RTD
- Accuracy: +/-0.05%
- Sampling Rate: 10 samples/second (Total)
- Common Mode Rejection: Typical 86dB
- Voltage Input Impedance: >1M Ohms
- Isolation Voltage: 3000VDC
- Individual Channel Configurable
- Wire Opening Detection
- Power Consumption: 1.0W

# i-87K **Serial Modules**

## SERIES

I-80000

### 87K Analog Input Modules

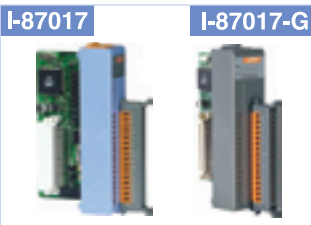
I-87016W-G



#### I-87016W-G (Gray color) 2-channel Isolated Strain Gauge Input Module

- Analog Input Channels: 2
- Isolation: 3000V
- Detail spec. call distributor

I-87017



I-87017-G

#### I-87017 / I-87017-G (Gray color) 8-channel Analog Input Module

- Analog Input Channels: 8 diff.
- Input Type: mV, V, mA (requires optional external 125  $\Omega$  resistor)
- Input Impedance: 20M
- Sampling Rate: 10Hz (total)
- Accuracy: +/-0.1%
- C.M.R.: 86dB
- Overvoltage Protection: -35~+35V
- Isolation: 3000Vrms
- Power Consumption: 1.1W

I-87017R-G



#### I-87017R-G (Gray color) 8-channel Analog Input Module with High Over Voltage Protection

- Analog Input Channels: 8 diff.
- Input Type: mV, V, mA (requires optional external 125 $\Omega$  resistor)
- Input Impedance: >1M Ohms
- Sampling Rate: 10Hz (Total)
- Accuracy: +/-0.1%
- C.M.R.: 86dB
- Overvoltage Protection: 240VRMS
- Isolation: 3000VDC
- Power Consumption: 1.2W

# i-87K Serial Modules

## SERIES

### 87K Analog Input Modules

I-87017RC-G



#### I-87017RC-G (Gray color)

##### 8-channel Current Input Module

- Analog Input Channels: 8 diff.
- Input Type: +/-20mA, 0-20mA, 4-20mA (built-in 125Ω resistor)
- Sampling Rate:  
Normal mode: 10Hz (total)  
Fast mode: 60Hz (total)
- Accuracy:  
Normal mode: +/-0.1%  
Fast mode: +/-0.5%
- C.M.R.: 86dB
- Common Voltage: 200VDC
- Isolation: 3000VDC
- Power Consumption: 1.2W

I-87017ML-G



#### I-87017ML-G (Gray color)

##### 8-channel High Voltage Input Module

- Analog Input Channels: 8 diff.
- Input Type: +/-50V, +/-150V
- Input Impedance: 290K Ohms
- Sampling Rate:  
Normal mode: 10Hz (total)  
Fast mode: 60Hz (total)
- Accuracy:  
Normal mode: +/-0.1%  
Fast mode: +/-0.5%
- C.M.R.: 86dB
- Overvoltage Protection: +/-200VDC
- Isolation: 3000VDC
- Power Consumption: 1.2W

I-87018

I-87018-G



#### I-87018 / I-87018-G (Gray color)

##### 8-channel Analog Input Module

- Analog Input Channels: 8 diff.
- Input Type: mV, V, mA (requires optional external 125 Ω resistor), Thermocouple (J/K/T/E/R/S/B/N/C/L/M/L2)
- Input Impedance: 20MΩ
- Sampling Rate: 10Hz (total)
- Accuracy: +/-0.1%
- C.M.R.: 150dB @50/60Hz  
N.M.R.: 100dB @50/60Hz
- Overvoltage Protection: -35~+35V
- Isolation: 3000Vrms
- Power Consumption: 1W

# i-87K **Serial Modules**

## SERIES

I-80000

### 87K Analog Input Modules

I-87018R-G



#### I-87018R-G (Gray color)

##### 8-channel Analog Input Module

- Analog Input Channels: 8 diff.
- Input Type: mV, V, mA (requires optional external 125Ω resistor), Thermocouple (J/K/T/E/R/S/B/N/C/L/M/L2)
- Input Impedance: >1M Ohms
- Sampling Rate: 10Hz (Total)
- Accuracy: +/-0.25%
- C.M.R.: 150dB @50/60Hz
- N.M.R.: 100dB @50/60Hz
- Overvoltage Protection: 240Vrms
- Isolation: 3000VDC
- Power Consumption: 1W

I-87019R-G



#### I-87019R-G (Gray color)

##### 8-channel Universal Analog Input Module

- Input Type: mV, V, mA, Thermocouple
- Sampling Rate: 8 samples/second (Total)
- -3dB BandWidth: 15.7Hz
- Accuracy: +/-0.1%
- Common Mode Rejection: Typical 86dB
- Voltage Input Impedance: 1M Ohms
- Overvoltage Protection: 240Vrms
- Isolation Voltage: 3000VDC
- Individual Channel Configurable
- Wire Opening Detection
- Power Consumption: 1.1W

# i-87K **Serial Modules**

## SERIES

### 87K Analog Output Modules

I-87022



I-87022-G



#### I-87022 / I-87022-G (Gray color)

#### 2-channel Isolated Analog Output Module

- Analog Output channels: 2
- Voltage Output: 0-10V
- Current Output: 0~20mA/4~20mA
- Resolution: 12 bits
- Power-on pre-set value
- Safe value
- Channel to channel isolation
- Power Consumption: 2.4W

I-87024



I-87024-G



#### I-87024 / I-87024-G (Gray color)

#### 4-channel Isolated Analog Output Module

- Analog Output Channels: 4
- Voltage Output: +/-10V, +/-5V, 0~10V, 0~5V
- Current Output: 0~20mA/4~20mA
- Accuracy: +/-0.1% of FSR
- Resolution: +/-0.02% of FSR
- Span Temperature Co.: +/-20ppm/°C
- Isolation: 3000V
- Power Consumption: 1.7W

I-87026



I-87026-G



#### I-87026 / I-87026-G (Gray color)

#### 2-channel Isolated Analog Output Module

- Analog Output channels: 2
- Voltage Output: 0-10V
- Current Output: 0~20mA/4~20mA
- Resolution: 16 bits
- Power-on pre-set value
- Safe Value
- Channel to Channel Isolation
- Power Consumption: 2.2W

### 87K Counter/Frequency Modules

I-87082



I-87082-G



#### I-87082 / I-87082-G (Gray color)

#### 2-channel Counter/Frequency Module

- Counter Channels: 2
- Input Frequency:  
100KHz (1Hz~100KHz)
- Power Consumption: 1W

# i-7188 Palm-size PAC SERIES

**I-7188/I-7188D, I-7188XA/I-7188XAD  
I-7188XB/I-7188XBD, I-7188XC/I-7188XCD**



## Introduction

The I-7188 series controllers are designed for palm-size embedded systems that require high reliability, PC-compatibility, and compactness at a reasonable price. The controllers can be integrated into an OEM product as a processor core component. By building your product around I-7188 series controller, you reduce the time from design to market introduction, cut development costs, minimize technical risks, and deliver a more reliable product. I-7188 is a first generation product while the I-7188XA, I-7188XB and I-7188XC are all second-generation products. The major differences are communication ports, digital I/O port, and user defined I/O pins. Except I-7188, all I-7188XA/XB/XC support an I/O expansion bus.

## I/O Expansion Bus and Expansion Board

The I-7188XA, I-7188XB and I-7188XC support an I/O expansion bus. The I/O expansion bus can be used to implement various I/O functions such as D/I, D/O, A/D, D/A, Timer/Counter, UART, flash memory, battery backup SRAM, AsicKey & other I/O functions. Nearly all kinds of I/O functions can be implemented by this bus. Our I/O expansion boards offer features in addition to those provided by the I-7188XA/XB/XC PAC. Expansion board can increase controller's I/Os and memory storage capabilities. The integrated modular design of the expansion board allows a fast, easy, and flexible way of upgrading our controller's capability. Each I/O expansion bus supports one expansion board.

# i-7188 Palm-size PAC SERIES

## Palm-size PAC Selection Guide

Model Number	I-7188 I-7188D	I-7188XA I-7188XAD	I-7188XB I-7188XBD	I-7188XC I-7188XCD
CPU (80188)	40M Hz	40M Hz	40M Hz/80MHz(NEW)	20.2752 MHz
SRAM	256KB	512KB	256KB*(can be up to 512KB for OEM version, see Note1)	128KB
Battery backup SRAM Board (128K Bytes or 512K Bytes)	No	<b>X607:</b> 128K Bytes memory expansion board <b>X608:</b> 512K Bytes memory expansion board	<b>X607:</b> 128K Bytes memory expansion board <b>X608:</b> 512K Bytes memory expansion board	<b>X607:</b> 128K Bytes memory expansion board <b>X608:</b> 512K Bytes memory expansion board
Flash	512KB	512KB	512KB	512KB
COM Ports	4	4	2 (Note3)	2
Program download	Yes, COM4 (Note 4)	Yes, COM4 (Note 4)	Yes, COM1 (Note 4)	Yes, COM1 (Note 4)
Modem Control	COM1	COM1	No	No
COM2	Non-isolated	3000V Isolation	Non-isolated (OEM version can be isolated, see Note1)	Non-isolated (OEM version can be isolated, see Note1)
Self-Tuner on RS-485	No	COM1 & COM2	COM1 & COM2	COM1 & COM2
Real Time Clock	Yes	Yes	Yes	No (OEM version can be available, Note1)
EEPROM	2K bytes	2K bytes (Can be up to 128K Bytes for OEM customers)	2K bytes (Can be up to 128K Bytes for OEM customers)	2K bytes (Can be up to 128K Bytes for OEM customers)
I/O expansion Bus	No	Yes	Yes	Yes
User Defined Pins	No	No	14	3
D/I (3.5V~30V)	No	2 channels	1 channel	2 channels
D/O (100mA, 30V)	No	2 channels	1 channel	3 channels
Support 64-bit hardware unique serial number	No	Yes	Yes	No
7-segment Display	7188D only	7188XAD only	7188XBD only	7188XCD only
Operating system	MiniOS7	MiniOS7	MiniOS7	MiniOS7
Programming Language	TC/MSC	TC/MSC	TC/MSC	TC/MSC
Power consumption	2.0W (7188) 3.0W (7188D)	2.0W (7188XA) 3.0W (7188XAD)	2.0W (7188XB) 3.0W (7188XBD)	2.0W (7188XC) 3.0W (7188XCD)

**Note1:** Call manufacturer or distributor for detail information  
**Note2:** Can choose appropriate I/O expansion board to add D/I/O.  
**Note3:** COM1 can be used as 5-wire RS-232 port or 2-wire RS-485 port  
**Note4:** The default console port can be set to any one of the com ports (MiniOS7 2.0 or later)

# i-7188 *Palm-size PAC*

## SERIES

i-7188



### Features

- 80188-40 embedded CPU
- Built-in RTC, NVRAM, EEPROM
- Built-in COM port: COM1, COM2, COM3, COM4
- Built-in watchdog timer
- Built-in power protection circuit
- Built-in RS-485 network protection circuit
- Built-in MiniOS7
- Program download port: COM4

### Applications

- Factory Automation
- Protocol Converter
- Building Automation

### Ordering Information

- **I-7188/512:**  
PAC with 512K flash
- **I-7188D/512:**  
I-7188/512 with Display

#### Options

- **PWR-24/110:**  
Wall-plug Power Adaptor/110VAC/  
60Hz/3.6W
- **PWR-24/220:**  
Wall-plug Power Adaptor/220VAC/  
50Hz/3.6W
- **PWR-24/230:**  
Wall-plug Power Adaptor/230VAC/  
50Hz/3.6W

### Specifications

- CPU: 80188-40 compatible
- SRAM: 256K bytes
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- COM1: RS-232 (9 pins) or RS-485
- COM2: RS-485
- COM3: RS-232 (3 pins)
- COM4: RS-232 (3 pins)
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -40°C to +80°C
- Power requirement: Unregulated  
10~30 VDC power
- Power Consumption:  
2.0W for I-7188/512; 3.0W for  
I-7188D/512
- Dimensions:  
123mm x 72mm x 33mm



# i-7188XA *Expandable PAC*

## SERIES



### Ordering Information

- **I-7188XA:** PAC
- **I-7188XAD:**  
I-7188XA with Display

### Options

- **PWR-24/110:**  
Wall-plug Power Adaptor/110VAC/  
60Hz/3.6W
- **PWR-24/220:**  
Wall-plug Power Adaptor/220VAC/  
50Hz/3.6W
- **PWR-24/230:**  
Wall-plug Power Adaptor/230VAC/  
50Hz/3.6W
- **X600:**  
4 mega bytes Flash memory board
- **X601:**  
8 mega bytes Flash memory board
- **X607:**  
128K bytes SRAM board
- **X608:**  
512K bytes SRAM board

### Features

- 80188-40 Compatible
- Built-in RTC, NVRAM, EEPROM
- Built-in COM port: COM1, COM2, COM3, COM4
- 3000V Isolation voltage on RS-485 port
- Support I/O expansion bus interface
- Two digital input channels
- Two Open-collector output Channels
- Built-in self-tuner ASIC chip for RS-485 port
- Built-in MiniOS7
- Program download port: COM4

### Specifications

- CPU: 80188-40
- SRAM: 512K bytes
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- COM1: RS-232 (9 pins) or RS-485 Jumper Select
- COM2: RS-485
- COM3: RS-232 (3 pins)
- COM4: RS-232 (3 pins)
- Digital Input channels: 2
- Digital Output channels: 2
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -40°C to +80°C
- Power requirement: Unregulated 10~30 VDC power
- Power Consumption: 2.0W for I-7188XA; 3.0W for I-7188XAD
- Dimensions: 119mm x 72mm x 33mm

# i-7188XB *Expandable PAC*

## SERIES

i-7188



### Ordering Information

- **I-7188XB:**  
PAC with 512K flash and 256K SRAM
- **I-7188XBD:**  
I-7188XB-256 with Display
- **OEM Version**
- **I-7188XB/512:**  
PAC with 512K flash and 512K SDRAM
- **I-7188XBD/512:**  
I-7188XB-512 with Display

### Options

- **PWR-24/110:**  
Wall-plug Power Adaptor/110VAC/  
60Hz/3.6W
- **PWR-24/220:**  
Wall-plug Power Adaptor/220VAC/  
50Hz/3.6W
- **PWR-24/230:**  
Wall-plug Power Adaptor/230VAC/  
50Hz/3.6W
- **X600:**  
4 mega bytes Flash memory board
- **X601:**  
8 mega bytes Flash memory board
- **X607:**  
128K bytes SRAM board
- **X608:**  
512K bytes SRAM board

### Features

- 64-bit hardware unique serial number inside
- User defined DI / DO
- COM driver support interrupt & 1K QUEUE input & output buffer
- COM port: COM1, COM2
- Built-in RTC, NVRAM, EEPROM
- One DI and one DO channel
- Built-in I/O expansion bus interface
- Can add on one expansion board
- Built-in self-tuner ASIC chip for RS-485 port
- Optional 7-segment LED display
- Built-in ICP DAS's MiniOS7
- Program download port: COM1

### Specifications

- CPU: 80188-40 Compatible
- SRAM: 256K bytes (for I-7188XB)  
512K bytes (for I-7188XB/512)
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- COM1: RS-232 (5 pins) / RS-485
- COM2: RS-485
- Digital Input channel: 1
- Digital Output channel: 1
- User defined I/O pins: 14
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -40°C to +80°C
- Power requirement: Unregulated  
10~30 VDC power
- Power Consumption:  
2.0W for I-7188XB;  
3.0W for I-7188XBD
- Dimensions:  
123mm x 72mm x 33mm

# i-7188XG Expandable ISaGRAF PAC

## SERIES



### Ordering Information

- **I-7188XG:**  
ISaGRAF PAC
- **I-7188XGD:**  
ISaGRAF PAC with Display
- **Options**
- **PWR-24/110:**  
Wall-plug Power Adaptor/110VAC/  
60Hz/3.6W
- **PWR-24/220:**  
Wall-plug Power Adaptor/220VAC/  
50Hz/3.6W
- **PWR-24/230:**  
Wall-plug Power Adaptor/230VAC/  
50Hz/3.6W
- **X607:**  
128K bytes SRAM board
- **X608:**  
512K bytes SRAM board
- **ISaGRAF-256:**  
ISaGRAF Workbench Software  
up to 256 I/O Tags.
- **ISaGRAF-256-E:**  
ISaGRAF Workbench Software up to  
256 I/O Tags + one English Manual.
- **ISaGRAF-256-C:**  
ISaGRAF Workbench Software up to  
256 I/O Tags + one Chinese Manual.

### Features

- Include features of I-7188XB
- Built-in ISaGRAF driver & License
- Programming Languages:  
IEC61131-3: LD, ST, FBD, SFC, IL  
Flow Chart.
- Modbus RTU (RS232/RS485)  
protocol to integrate to SCADA  
softwares and HMI.
- Modbus Master protocol (RS485) to  
link to other devices which support  
Modbus RTU protocol.
- All I-7000 & I-87K series I/O modules  
can be integrated as remote I/O modules.
- Controller to Controller Data Exchange  
via RS485.
- Support ICP DAS's MMICON - Man  
Machine Interface
- Data log: data, date & time can be  
stored at X607/X608, and then PC  
can load these data via RS232/RS485.
- SMS: When integrating with a GSM Modem,  
Short Message Service is available.

### Specifications

- CPU: 80188-40 Compatible
- SRAM: 512K bytes
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- COM1: RS-232 (5 pins) / RS-485
- COM2: RS-485
- Digital Input channel: 1
- Digital Output channel: 1
- User defined I/O pins: 14
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -40°C to +80°C
- Power requirement: Unregulated  
10~30 VDC power
- Power Consumption:  
2.0W for I-7188XG;  
3.0W for I-7188XGD
- Dimensions:  
123mm x 72mm x 33mm

# i-7188XC *Expandable PAC*

## SERIES

i-7188



### Features

- 80188-20 embedded CPU
- Cost-effective version of I-7188 series
- User defined DI / DO
- COM driver support interrupt & 1K QUEUE input & output buffer
- COM port: COM1, COM2
- Built-in EEPROM
- Built-in I/O expansion bus
- Can add on one expansion board
- Built-in self-tuner ASIC chip for RS-485 port
- Optional 7-segment LED display
- Built-in ICP DAS's MiniOS7
- Program download port: COM1

### Ordering Information

- **I-7188XC:** PAC
- **I-7188XCD:** I-7188XC with Display

#### Options

- **PWR-24/110:** Wall-plug Power Adaptor/110VAC/60Hz/3.6W
- **PWR-24/220:** Wall-plug Power Adaptor/220VAC/50Hz/3.6W
- **PWR-24/230:** Wall-plug Power Adaptor/230VAC/50Hz/3.6W
- **X600:** 4 mega bytes Flash memory board
- **X601:** 8 mega bytes Flash memory board
- **X607:** 128K bytes SRAM board
- **X608:** 512K bytes SRAM board

### Specifications

- CPU: 80188-20™ or compatible
- SRAM: 128K bytes
- Flash Memory: 512K bytes
- EEPROM: 2048 bytes
- COM1: RS-232 (5 pins) / RS-485
- COM2: RS-485
- Digital Input Channels: 2  
Logic low level: 0V~1V  
Logic high level: 3.5V~30V
- Digital Output Channels: 3  
Open collector to 30V Max.  
Output current: 100mA
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -40°C to +80°C
- Power requirement: Unregulated 10~30 VDC power
- Power Consumption: 2.0W for I-7188XC; 3.0W for I-7188XCD
- Dimensions: 119mm x 72mm x 33mm

# iVIEW-100 Handheld HMI Controller



## Ordering Information

- iVIEW-100-40 (40 MHz CPU)
- iVIEW-100-ISaGRAF (Available soon)
- iVIEW-100E (With Ethernet port)(available soon)
- iVIEW-100E-ISaGRAF (Available soon)

## Options

- PWR-24/110: Wall-plug Power Adaptor/110VAC/60Hz/3.6W
- PWR-24/220: Wall-plug Power Adaptor/220VAC/50Hz/3.6W
- PWR-24/230: Wall-plug Power Adaptor/230VAC/50Hz/3.6W
- S256: 256K bytes battery backup ram
- S512: 512K bytes battery backup ram
- ISaGRAF-256: ISaGRAF Workbench Software up to 256 I/O Tags.

## Handheld HMI Controller

### Features

- All-in-one pack controller, with keypad, display & inside buzzer.
- Keypad: Input parameters - Boolean, Number, Real, String, function key are available.
- LCD Display: Number, Real, Text, Boolean, Icon, BMP graphic.
- Black & White, 128\*64 pixel max, Bitmap graphic files can be show on the LCD.
- Allow C programming which can be downloaded from PC through COM1.
- Support to connect up to 64 numbers of remote I/O modules.
- Provide several solutions combined with I-7188 & I-8000 controllers to control more I/O even with different protocol.
- Supports user adding battery backup memory (S-256/S-512) to retain more data.
- Equipped with a 64-bit unique hardware serial number, each serial number is distinct and individual for illegal copies checking.
- Provides particular C programming Libraries so that user can easily call the functions to design their applications.
- iVIEW-100-ISaGRAF built-in ISaGRAF driver & License. (Available soon)

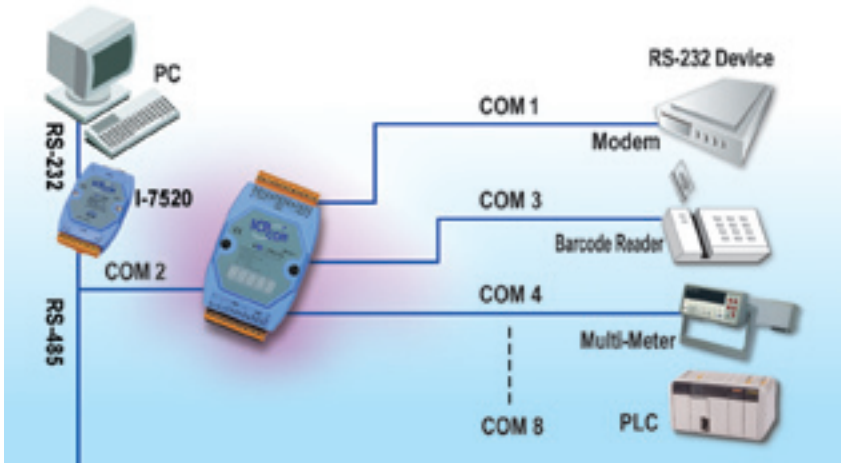
### Common Specifications

- CPU: 80188-40 Compatible (iVIEW-100: 80188-20)
- SRAM: 512K bytes
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- COM1: RS-232 (5 pins)
- COM2: RS-232 (5 pins) / RS-485
- Digital Input Channel: 4
- Digital Output Channel: 2 relay output. (Default) or 4 open collector output (Jumper Selected)
- Display: 128\*64 dots, 16\*8 char, 72\*40mm, T/G STN Yellow Green backlight LCD
- Full numeric membrane keypad
- One buzzer inside
- Operating Temp.: -25°C to +75°C
- Storage Temp.: -35°C to +85°C
- Power requirement: Unregulated 10~30 VDC power
- Power Consumption: 3.0W
- Dimensions: 181mm X 116mm X 42mm

# i-752N Intelligent Communication Controller SERIES

i-7188

I-7521/I-7521D/I-7522/I-7522D/I-7522A/I-7522AD/  
I-7523/I-7523D/I-7524/I-7524D/I-7527/I-7527D



## Introduction

There are many RS-232 devices in industry applications. Nowadays it becomes important to link all those RS-232 devices together for automation & information collection. Usually those RS-232 devices are far away from the host-PC & widely distributed in the factory. So it is not a good idea to use multi-serial cards to connect all these RS-232 devices together. Our I-752N series products can be used to link multiple RS-232 devices using a single RS-485 network. The RS-485 is famous for its easy maintenance, simple cabling, reliability and low cost. When the user wants to connect RS-232 devices to 10 BaseT, our I-7188EN series products can meet this demand.

### Can be used as an Addressable RS-485 to RS-232 Converter

Basically our I-752N products are Master-type converters. The I-752N uses our R.O.C. Patent 086674. Other competitor's converters are Slave-type and can't work independently without a host-PC. In real industrial application, the demand is different case by case and customers are not satisfied with Slave-type devices. The I-752N is very powerful and can analyse the local RS-232 device, D/I or D/O without a host-PC.

### Can be used as an PAC

#### Can be used as RS-485 to RS-232 Device Server

The Device Server is an appliance that network enables any device with a serial communication port. Our Intelligent Communication Controllers allow those devices to become connected to the RS-485 network.

# i-752N *Intelligent Communication Controller* SERIES

## Features

- COM1 of the I-7521, I-7522, I-7522A, I-7523, I-7524 and I-7527 can be used as RS-232 port or RS-485 port
- COM1 can be used to download programs.
- Built-in "Addressable RS-485 to RS-232 Converter" firmware
- Support Dual-Watchdog commands
- Support Power-up value & safe value for D/O
- I-7521 support one RS-232 device
- I-7522 support two RS-232 devices
- I-7522A support one RS-232 and one RS-422 device
- I-7523 support three RS-232 devices
- I-7524 support four RS-232 devices
- I-7527 support seven RS-232 devices
- Watchdog timer provides fault tolerance and recovery
- R.O.C. Invention Patent No. 086674, No. 103060, No. 132457

## Specifications

- CPU: 80188; 20MHz; for I-7521/7522/7523  
40MHz; for I-7522A/7524/7527
- SRAM: 128K bytes for I-7521/7522/7523  
256K bytes for I-7522A/7524/7527
- Flash ROM: 512K bytes for I-7522A/7524/7527/7521/7522/7523
- EEPROM: 2048 bytes
- Communication speed: 115.2K bps max.
- RS-232 interface connector: Male DB-9 or screw terminal block
- RS-485 interface connector for I-7521/7522/7523: 13-pin screw terminal block (accept 16~26 AWG wires); 3.81mm pitch
- D/I: 3.5V~30V
- D/O: 100mA/30V
- Operating temperature: -25°C to +75°C
- Storage temperature: -40°C to +80°C
- Dimensions:  
123mm x 72mm x 33mm for I-7522A/I-7524/I-7527  
119mm x 72mm x 33mm for I-7521/I-7522/I-7523
- Power requirement: Unregulated 10~30 VDC power
- Power consumption: 2W (without display)  
3W (with display)

## Applications

- Factory Automation
- Building Automation
- Home Automation

# i-752N Intelligent Communication Controller

## SERIES

I-7188

**I-752N Communication Controller Selection Guide**

Model Number	I-7521/ 7521D	I-7522/ 7522D	I-7522A/ 7522AD	I-7523/ 7523D	I-7524/ 7524D	I-7527/ 7527D
CPU (80188)	20M	20M	40M	20M	40M	40M
SRAM	128KB	128KB	256KB	128KB	256KB	256KB
Flash	512KB	512KB	512KB	512KB	512KB	512KB
COM1 Port Program Download	RS-232/ RS-485 (Note1)	RS-232/ RS-485 (Note1)	RS-232/ RS-485 (Note2)	RS-232/ RS-485 (Note1)	RS-232/ RS-485 (Note2)	RS-232/ RS-485 (Note2)
COM2 Port	RS-485 (Note3)	RS-485 (Note3)	RS-485 (Note4)	RS-485 (Note3)	RS-485 (Note4)	RS-485 (Note4)
COM3 Port	-	RS-232 (Note5)	RS-422 (Note7)	RS-232 (Note5)	RS-232 (Note5)	RS-232 (Note6)
COM4 Port	-	-	-	RS-232 (Note6)	RS-232 (Note5)	RS-232 (Note6)
COM5 Port	-	-	-	-	RS-232 (Note5)	RS-232 (Note6)
COM6 Port	-	-	-	-	-	RS-232 (Note6)
COM7 Port	-	-	-	-	-	RS-232 (Note6)
COM8 Port	-	-	-	-	-	RS-232 (Note6)
D/O	3	1	5	-	1	1
D/I	2	2	5	1	1	1
User Defined I/O	3	-	-	-	-	-
Real Time Clock	-	-	Y	-	Y	Y
Embedded O.S.	MiniOS7	MiniOS7	MiniOS7	MiniOS7	MiniOS7	MiniOS7
<b>Note1:</b> RS-232/RS-485 RS-485: D1+, D1-; Self-tuner inside RS-232: TXD, RXD, RTS, CTS, GND DB-9 male connector			<b>Note3:</b> RS-485 (D2+, D2-; Self-tuner inside); 3000V isolation			
<b>Note2:</b> RS-232/RS-485 RS-485: D1+, D1-; Self-tuner inside RS-232: TXD, RXD, RTS, CTS, GND			<b>Note4:</b> RS-485 (D2+, D2-; Self-tuner inside) <b>Note5:</b> RS-232 (TXD, RXD, RTS, CTS, GND) <b>Note6:</b> RS-232 (TXD, RXD, GND) <b>Note7:</b> RS-422 (RXD3+, RXD3-, TXD3+, TXD3-, GND)			

### Ordering Information

- **I-7521:** Intelligent Communication Controller
- **I-7521D:** I-7521 with display
- **I-7522:** Intelligent Communication Controller
- **I-7522D:** I-7522 with display
- **I-7522A:** Intelligent Communication Controller
- **I-7522AD:** I-7522 with display
- **I-7523:** Intelligent Communication Controller
- **I-7523D:** I-7523 with display
- **I-7524:** Intelligent Communication Controller
- **I-7524D:** I-7524 with display
- **I-7527:** Intelligent Communication Controller
- **I-7527D:** I-7527 with display

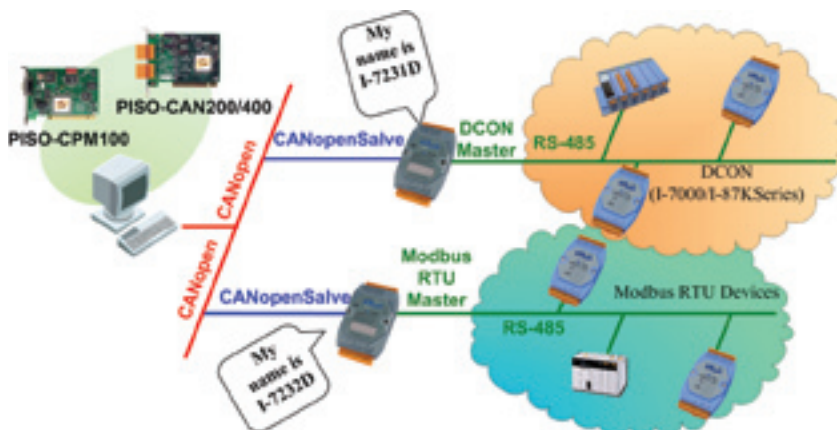
### Options

- **PWR-24/110:** Wall-plug Power Adaptor/110VAC, 60Hz, 3.6W
- **PWR-24/220:** Wall-plug Power Adaptor/220VAC, 50Hz, 3.6W
- **PWR-24/230:** Wall-plug Power Adaptor/230VAC, 50Hz, 3.6W



# i-7188 CANopen Gateway SERIES

## CANopen Introduction



CANopen is a kind of network protocol based on CAN bus and has been used in various applications, such as vehicles, industrial machines, building automation, medical devices, maritime applications, restaurant appliances, laboratory equipment & research. It allows not only broadcasting but also peer to peer data exchange between every CANopen node. This protocol has following features.

- Auto configuration of the network
- Easy access to all device parameters
- Device synchronization
- Cyclic and event-driven data transfer
- Synchronous reading or setting of inputs, outputs or parameters

### **CANopen Gateway:**

DCON protocol is a kind of application protocol based on the RS-485 network. It is special for ICPDAS DCON I/O modules, such as I-7000 series and I-87K series modules. By way of using I-7231D to convert the electric signals and messages, the DCON I/O modules can be upgraded to the CANopen protocol based on the CAN bus. The I-7232D provides a approach of different protocol transformation between CANopen and Modbus protocol. By using this module, users can connect the PLCs with CANopen network if these PLC support Modbus RTU protocol. Besides, these gateways provide the useful and easy-to-use utilitie tools for CANopen application. These utilities can help users to build CANopen EDS file dynamically, and obtain the CANopen object information of I-7231D and I-7232D.

# i-7188 CANopen Gateway

## SERIES

i-7188



**Ordering Information:**  
I-7231D: CANopen / DCON Gateway

### Specifications and Features

- CPU: 80188-40 Compatible
- SRAM: 512 K bytes
- Flash Memory: 512 K bytes
- Watchdog inside
- 2500 Vrms isolation on CAN side
- RUN, ERR and IO Led indicators
- NMT: Slave
- Error Control: Node Guarding
- Node ID: Setting by Utility
- No. of PDOs: 32 Rx, 32Tx
- PDO Modes: Event-triggered, remotely requested, cyclic and acyclic SYNC
- PDO Mapping: variable
- No of SDOs: 1 server, 0 client
- Emergency Message: Yes
- Support max 15 I-7000/I-87K I/O series modules
- Power Supply:3.0W
- Unregulated +10VDC to +30VDC
- Operating temperature: -25°C to +75°C
- Storage temperature: -40°C to +80°C
- Dimensions: 119x72x33 mm



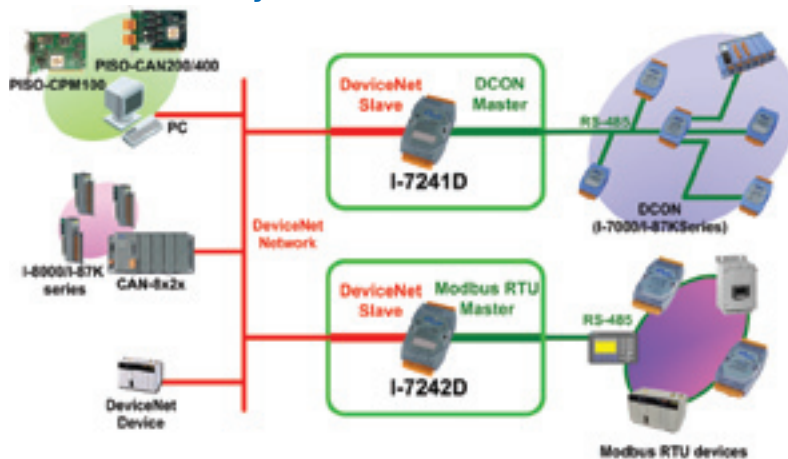
**Ordering Information:**  
I-7232D: CANopen / Modbus RTU Gateway

### Specifications and Features

- CPU: 80188-40 Compatible
- SRAM: 512 K bytes
- Flash Memory: 512 K bytes
- Watchdog inside
- 2500 Vrms isolation on CAN side
- RUN, ERR and IO Led indicators
- NMT: Slave
- Error Control: Node Guarding
- Node ID: Setting by Utility
- No. of PDOs: 32 Rx, 32Tx
- PDO Modes: Event-triggered, remotely requested, cyclic and acyclic SYNC
- PDO Mapping: variable
- No of SDOs: 1 server, 0 client
- Emergency Message: Yes
- Support 10 Modbus RTU Device modules
- Power Supply:3.0W
- Unregulated +10VDC to +30VDC
- Operating temperature: -25°C to +75°C
- Storage temperature: -40°C to +80°C
- Dimensions: 119x72x33 mm

# i-71888 DeviceNet Gateway SERIES

## DeviceNet Gateway



I-7241D and I-7242D are DeviceNet gateways, and offer the communication protocol transformations between DeviceNet and DCON/Modbus RTU protocol. Both DCON and Modbus RTU are RS485-based protocol, and DCON protocol is the communication protocol of I-7000 and I-87K series modules of ICP DAS. All of these gateways support "Predefined Master/slave Connection Set", and are Group 2 Only DeviceNet slave devices. In addition, we also provide the utility tools to configure these devices parameters and build the corresponding EDS file dynamically. Therefore, users can easily apply I-7000 series, I-87K series, and Modbus RTU I/O modules in DeviceNet applications with the I-7241D and I-7242D.

## Gateway Utility Tools:

These Utilities are helpful configuration tools. The features are shown below.

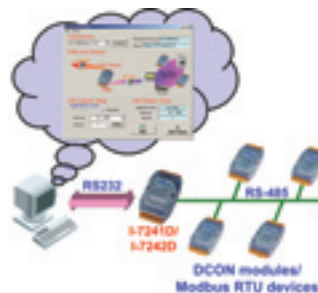
- Support DeviceNet node ID, baud rate setting
- Support IO connection path setting
- Support DeviceNet Polling, Bit-Strobe and COS/Cyclic I/O
- Show DeviceNet configuration info.
- Dynamic produce EDS file

### Only for I-7241D:

- Auto-scan I-7000/I-87K modules
- Show I-7k/I-87K modules configuration

### Only for I-7242D:

- Support Modbus RTU parameters setting
- Show Modbus RTU devices configuration



# i-7188 DeviceNet Gateway

## SERIES

i-7188



### Specifications and Features

- CPU: 80188-40 Compatible
- SRAM: 512 K bytes
- Flash Memory: 512 K bytes
- EEPROM: 2K bytes
- Support Predefined Master/slave Connection Set
- Support Offline Connection Set, Device heartbeat message and Device Shutdown message
- I/O operating modes: Polling, Bit-Strobe, Change of State/Cyclic
- Support max 15 I-7000/I-87K IO modules
- On-line change baud rate and MAC ID of CAN
- Provide friendly Utility to configure
- 7-segment LED to show operation mode, MAC ID, baud rate and error code
- Power Supply:3.0W
- Unregulated +10VDC to +30VDC
- Operating temperature: -25°C to +75°C
- Storage temperature: -40°C to +80°C
- Dimensions: 119x72x33 mm



### Specifications and Features

- CPU: 80188-40 Compatible
- SRAM: 512 Kbytes
- Flash Memory: 512 Kbytes
- EEPROM: 2K bytes
- Support Predefined Master/slave Connection Set
- Support Offline Connection Set, Device heartbeat message and Device Shutdown message
- Maximum number of subscribers: 10 Modbus RTU devices
- Configuration facilitated by the use of specific EDS files
- Dedicated Explicit message interface for full Modbus interface
- NS, MS and IO LED indicators
- 7-segment LED to show operation mode, MAC ID, baud rate and error code
- Power Supply:3.0W
- Unregulated +10VDC to +30VDC
- Operating temperature: -25°C to +75°C
- Storage temperature: -40°C to +80°C
- Dimensions: 119x72x33 mm

# i-7188EX *Palm-size Embedded Internet/ Ethernet Controller*

## SERIES

### I-7188EX/I-7188EXD



## Why! Ethernet Solutions

"Embedded Internet" and "Embedded Ethernet" are hot topics today. Nowadays Ethernet protocol has become the de-facto standard for local area networks. Via the Internet, connectivity is occurring everywhere, from home appliances to vending machines to testing equipment to UPS...etc. Many embedded designers now face the dilemma of adding Ethernet interfaces to their products, either for use with local networks or for connecting to the Internet. Solutions to this problem include both hardware and software. Connecting via Ethernet requires a software protocol called TCP/IP. The installed base of Ethernet networks is huge and growing. Most office building, factories, and new homes have installed Ethernet networks. With Ethernet, the network is always available. Using Ethernet for networks in industrial area is appealing because the required cabling is already installed.

## Introduction

The I-7188EX is powered by an 80188-40/80186-80(New) processor with 512K bytes of static RAM, and 512K bytes of Flash memory. One serial RS-232 port and one RS-485 port are provided. Ethernet support is provided by a NE-2000 compatible controller with 16K bytes of on-chip buffer memory and 10Base-T media interface. The I-7188EX also provides 14 user defined I/O lines. A cost-effective I/O expansion board with A/D, D/A, relays drivers and protected inputs are available. The I-7188EX also supports battery back-up SRAM board and Flash-ROM board, providing non-volatile mass storage from 128K bytes to 64 mega bytes. The 10BASE-T port is equipped with a RJ-45 connector. The 10BASE-T interface supports max. 100-meter Cable length between I-7188EX and the network hub.

# i-7188EX *Palm-size Embedded Internet/ Ethernet Controller*

## SERIES

i-7188

### TCP/IP Library

The software library supports TCP/IP protocols & web server. Support the following protocols,

- TCP, Transmission Control Protocol
- UDP, User Datagram Protocol
- IP, Internet Protocol
- ICMP, Internet Control Message Protocol
- ARP, Address Resolution Protocol

### Features

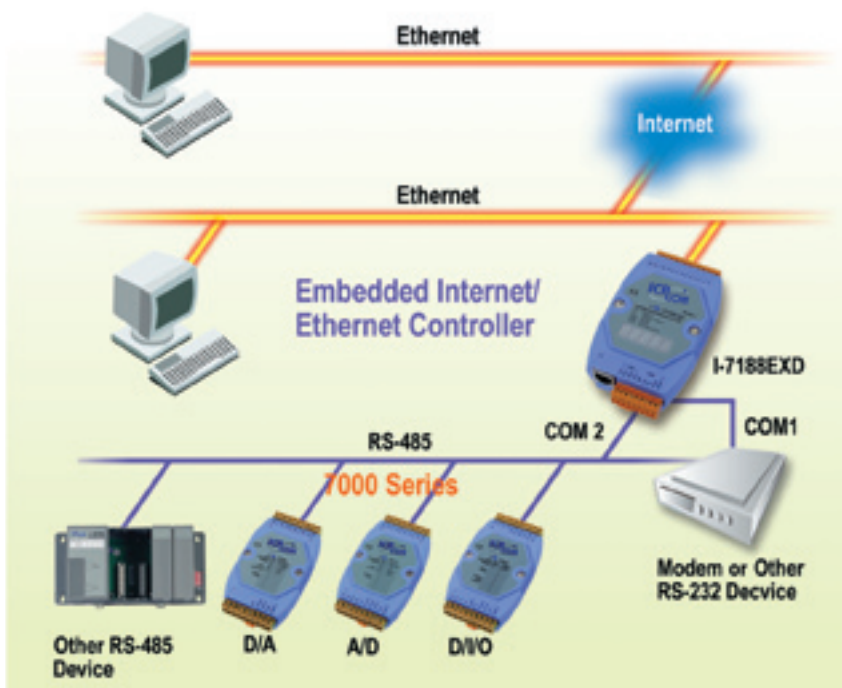
- 80188-40 embedded CPU
- Supports a variety of TCP/IP features, including TCP, UDP, IP, ICMP, ARP,
- 10 BaseT NE2000 compatible Ethernet Controller
- Remote Configuration, Diagnostics
- 64-bit hardware unique serial number inside
- COM driver support interrupt & 1K QUEUE input & output buffer
- COM port: COM1, COM2
- Built-in RTC, NVRAM, EEPROM
- User defined I/O lines: 14
- Built-in I/O expansion bus interface
- Built-in self-tuner ASIC chip for RS-485 port
- Built-in MiniOS7
- Program download port: COM1
- **Support VxComm technique & Xserver**

### Specifications

- 80188-40MHz
- SRAM: 512K bytes (7188EX); 256K bytes (7188EX/256)
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- Ethernet port: 10 BaseT
- COM1: RS-232–TXD, RXD, RTS, CTS, GND
- COM2: RS-485–D1+, D1-, self-tuner ASIC inside
- User defined I/O pins: 14
- Power requirement: 10 to 30VDC (non-regulated)
- Power consumption: 2.0W for I-7188EX; 3.0W for I-7188EXD
- Dimensions: 123mm x 72mm x 33mm

# i-7188EX *Palm-size Embedded Internet/ Ethernet Controller*

## SERIES



### Ordering Information

- **I-7188EX:** I-7188EXD without display
- **I-7188EXD:** Embedded Ethernet/Internet Controller with 7-segment display

### Power Supply Options:

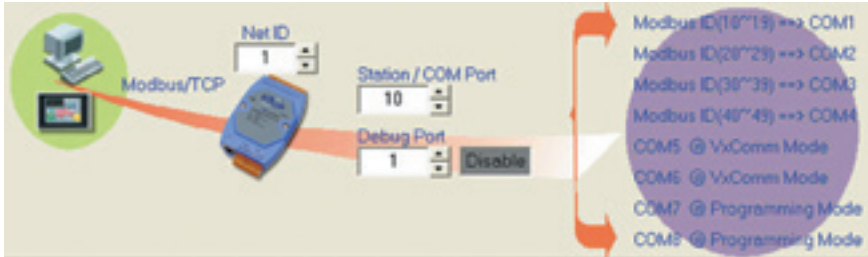
- **PWR-24/110:** Wall-plug Power Adapter/110VAC, 60Hz, 3.6W
- **PWR-24/220:** Wall-plug power Adapter/220VAC, 50Hz, 3.6W
- **PWR-24/230:** Wall-plug power Adapter/230VAC, 50Hz, 3.6W
- **DIN-KA52F:** 1.05 Amp. DIN-Rail Mounting Power supply

### Add-on Options:

- **X600:** 4-Mega Bytes NAND Flash memory expansion board
- **X601:** 8-Mega Bytes NAND Flash memory expansion board
- **X607:** 128K bytes SRAM expansion board
- **X608:** 512K bytes SRAM expansion board

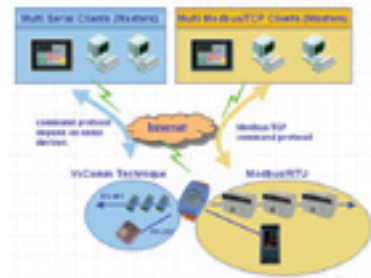
# i-7188 Modbus/TCP PAC SERIES

i-7188



## Default firmware features

- Converts single Modbus/TCP to multi Modbus/RTU
- Supports VxComm technique for every COM port of controllers
- Allowed multi-client (or master) access simultaneously
- Firmware modifiable



## Modbus SDK ( in C language )

If the default firmware doesn't totally suit your requirement. You can use the Modbus SDK to modify the default firmware to add extra functions. The Modbus SDK has below features:

- Supports extra user-defined command protocol (TCP/IP)
- Register based programming method (easy to use)
- Provides user-defined registers
- Can link to Modbus/RTU slave devices
- Can link to non-Modbus/RTU serial devices
- Supports X boards
- Xserver SDK compatible

## Hardware specifications

Same as I-7188EX, I-7188EXD

## Ordering Information

- **I-7188EX -MTCP:** Modbus/TCP PAC
- **I-7188EXD -MTCP:** Modbus/TCP PAC (with LED display)



# i-7188EA SERIES

## Palm-size Embedded Internet/ Ethernet Controller



### Ordering Information

- **I-7188EA:**  
Embedded Internet/Ethernet Controller
- **I-7188EAD:**  
I-7188EA with Display

### Options

- **PWR-24/110:**  
Wall-plug Power Adaptor/110VAC,  
60Hz, 3.6W
- **PWR-24/220:**  
Wall-plug Power Adaptor/220VAC,  
50Hz, 3.6W
- **PWR-24/230:**  
Wall-plug Power Adaptor/230VAC,  
50Hz, 3.6W

### Introduction

Compared to I-7188EX, the I-7188EA adds seven open-collector output channels and six digital Input channels. I/O Expansion bus has been occupied by D/I/O expansion board.

### Features

- 80188-40 embedded CPU
- 10BASE-T Ethernet Controller, NE2000 compatible
- 64-bit hardware unique serial number inside
- COM port: COM1, COM2
- Built-in RTC, NVRAM, EEPROM
- DI: 6 / DO: 7
- Built-in self-tuner ASIC chip
- Built-in MiniOS7
- TCP/IP
- Built-in RTC, NVRAM, EEPROM
- Program download port: COM1
- **Support VxComm technique & Xserver**

### Specifications

- CPU: 80188-40
- SRAM: 512K bytes
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Digital Input channels: 6  
Logic low level: 0V~1V  
Logic high level: 3.5V~30V
- Digital Output channels: 7  
Open collector to 30V Max.  
Output current: 100mA
- Real Time Clock
- COM1: RS-232
- COM2: RS-485
- Power requirement:  
10~30VDC (non-regulated)
- Power consumption:  
2.0W for I-7188EA;  
3.0W for I-7188EAD
- Dimensions: 123mm x 72mm x 33mm

# i-7188EG **Expandable ISaGRAF PAC**

## SERIES

i-7188



### Ordering Information

- **I-7188EG:**  
Expandable ISaGRAF PAC
- **I-7188EGD:**  
Expandable ISaGRAF PAC with Display

### Power Supply Options:

- **PWR-24/110:** Wall-plug Power Adapter/110VAC, 60Hz, 3.6W
- **PWR-24/220:** Wall-plug power Adapter/220VAC, 50Hz, 3.6W
- **PWR-24/230:** Wall-plug power Adapter/230VAC, 50Hz, 3.6W
- **DIN-KA52F:** 1.05 Amp. DIN-Rail Mounting Power supply

### Add-on Options:

- **X607:** 128K bytes SRAM expansion board
- **X608:** 512K bytes SRAM expansion board
- **ISaGRAF-256:**  
ISaGRAF Workbench Software up to 256 I/O Tags.
- **ISaGRAF-256-E:**  
ISaGRAF Workbench Software up to 256 I/O Tags + one English Manual.
- **ISaGRAF-256-C:**  
ISaGRAF Workbench Software up to 256 I/O Tags + one Chinese Manual.

### Introduction

Compared to I-7188EX, the I-7188EG has the ISaGRAF driver embedded inside.

### Features

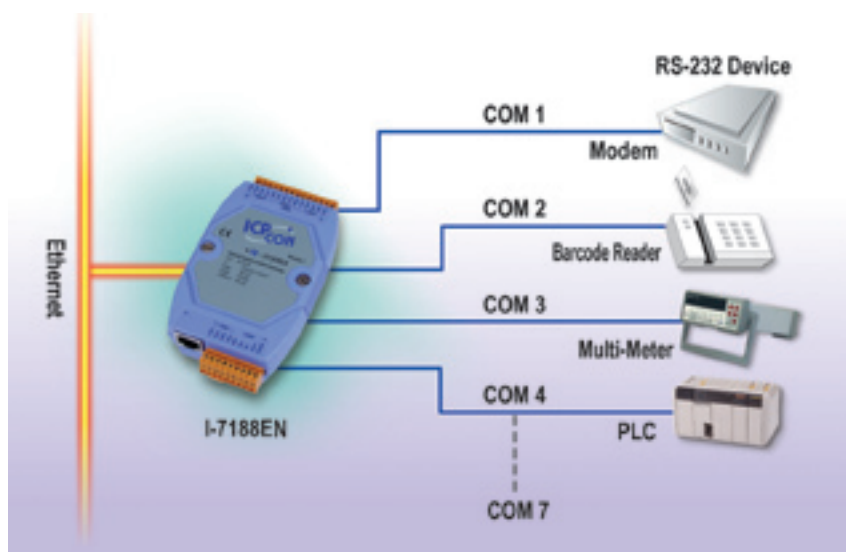
- Include features of I-7188EX
- Built-in ISaGRAF driver & License
- Programming Languages: IEC61131-3: LD, ST, FBD, SFC, IL Flow Chart.
- Modbus RTU (RS232) and Modbus TCP/IP (Ethernet) protocol to integrate to SCADA softwares and HMI.
- Modbus Master protocol (RS485) to link to other devices which support Modbus RTU protocol.
- All I-7000 & I-87K series I/O modules can be integrated as remote I/O modules.
- Controller to Controller Data Exchange via Ethernet & RS485.
- Support ICP DAS's MMICON - Man Machine Interface
- Data log: data, date & time can be stored at X607/X608, and then PC can load these data via RS232 & Ethernet.
- SMS: When integrating with a GSM Modem, Short Message Service is available.

### Specifications

- CPU: 80188 40MHz
- SRAM: 512K bytes
- Flash Memory: 512K bytes
- NVSRAM: 31 bytes
- EEPROM: 2048 bytes
- Real Time Clock
- Ethernet port: 10Base-T
- COM1: RS-232-TXD, RXD, RTS, CTS, GND
- COM2: RS-485-D1+, D1-, self-tuner ASIC inside
- User defined I/O pins: 14
- Power requirement: 10 to 30VDC (non-regulated)
- Power consumption: 2.0W for I-7188EG; 3.0W for I-7188EGD
- Dimensions: 123mm x 72mm x 33mm

# i-7188EN *Internet Communication Controller*

## SERIES



### Introduction

The I-7188EX, Embedded Internet/Ethernet Controller, focuses on embedded control applications while the I-7188EN, Internet Communication Controller, focuses on communication applications. According to different embedded firmware program, the Internet Communication Controller can be used as Device Server or Addressable Ethernet to RS-232/485/422 Converter or Embedded Internet/Ethernet Controller. The user should refer to comparison table to choose the optimal product. Now we offer a wide range of Internet Communication Controllers, such as I-7188E1/E2/E3/E4/E5/E8. Except for the RTC circuitry, the basic hardware of the I-7188EN is similar to the I-7188EX. Since there are too many configurations for the I-7188EN series product, an OEM or ODM version is welcomed.

### Features

- 80188-40 embedded CPU / 80186-80(New)
- Supports a variety of TCP/IP features, including TCP, UDP, IP, ICMP, ARP
- 10 BaseT NE2000 compatible Ethernet Controller
- Remote Configuration; Diagnostics
- COM driver support interrupt & 1K QUEUE input & output buffer
- Support serial port
- Built-in EEPROM

# i-7188EN Internet Communication Controller

## SERIES

i-7188

### Features

- Built-in self-tuner ASIC chip for RS-485 port
- I-7188E1 support one RS-232 port
- I-7188E2 support one RS-232 port and one RS-485 port
- I-7188E3 support one RS-232 port, one RS-485 port one RS-422/485 port and several DI/O lines
- I-7188E3-232 support two RS-232 ports, one RS-485 port and several DI/O lines
- I-7188E4 support three RS-232 ports and one RS-485 port
- I-7188E5 support four RS-232 ports and one RS-485 port
- I-7188E5-485 support one RS-232 port and four RS-485 ports
- I-7188E8 support seven RS-232 ports and one RS-485 port
- 7-segment LED display for I-7188END
- Built-in MiniOS7
- Program download port: COM1
- **Support VxComm technique & Xserver**

### Specifications

- CPU: 80188 40MHz
- SRAM: 384K bytes
- Flash Memory: 512K bytes
- EEPROM: 2048 bytes.
- Ethernet port: 10Base-T
- U.S patent NO.6,401,159 B1
- R.O.C. Invention Patent No. 086674, No. 103060, No. 132457
- D/I: 3.5V~30V
- D/O: 100mA/30V
- Operating temperature: -25°C to +75°C
- Storage temperature: -40°C to +80°C
- Dimensions: 123mm x 72mm x 33mm
- Power requirement: Unregulated 10~30 VDC power
- Power consumption: 2W (without display); 3W (with display)

### Applications

- Factory Automation
- Building Automation
- Home Automation

# i-7188EN Internet Communication Controller

## SERIES

### Internet Communication Controller Selection Guide

Model Number	I-7188E1	I-7188E2	I-7188E3	I-7188E3-232	I-7188E4	I-7188E5	I-7188E5-485	I-7188E8
CPU (80188)	40M	40M	40M	40M	40M	40M	40M	40M
SRAM	384KB	384KB	384KB	384KB	384KB	384KB	384KB	384KB
Flash	512KB	512KB	512KB	512KB	512KB	512KB	512KB	512KB
Ethernet Port	10 BaseT	10 BaseT	10 BaseT	10 BaseT	10 BaseT	10 BaseT	10 BaseT	10 BaseT
COM1 Port	RS-232/ (Note1)	RS-232/ (Note1)	RS-232/ (Note1)	RS-232/ (Note1)	RS-232/ (Note1)	RS-232/ (Note1)	RS-232/ (Note1)	RS-232/ (Note1)
COM2 Port	–	RS-485 (Note3)	RS-485 (Note3)	RS-485 (Note3)	RS-485 (Note3)	RS-485 (Note3)	RS-485 (Note3)	RS-485 (Note3)
COM3 Port	–	–	RS-422 (Note5)	RS-232 (Note1)	RS-232 (Note1)	RS-232 (Note1)	RS-485 (Note3)	RS-232 (Note2)
COM4 Port	–	–	–	–	RS-232 (Note4)	RS-232 (Note1)	RS-485 (Note3)	RS-232 (Note2)
COM5 Port	–	–	–	–	–	RS-232 (Note1)	RS-485 (Note3)	RS-232 (Note2)
COM6 Port	–	–	–	–	–	–	–	RS-232 (Note2)
COM7 Port	–	–	–	–	–	–	–	RS-232 (Note2)
COM8 Port	–	–	–	–	–	–	–	RS-232 (Note2)
DI	–	–	4	4	–	–	–	–
DO	–	–	4	4	–	–	–	–
RTC	N	N	N	N	N	N	N	N
Embedded O.S.	MiniOS7	MiniOS7	MiniOS7	MiniOS7	MiniOS7	MiniOS7	MiniOS7	MiniOS7

**Note1:** RS-232, TXD, RXD, RTS, CTS, GND

**Note2:** RS-232, TXD, RXD, GND

**Note3:** RS-485, D2+, D2-; Self-tuner inside

**Note4:** RS-232, TXD, RXD, RTS, CTS, GND, DCD, DTR, DSR, RI

**Note5:** RS-422, TXD+, TXD-, RXD+, RXD-

### Ordering Information

- **I-7188E1:** Internet Communication Controller
- **I-7188E1D:** I-7188E1 with seven-segment display
- **I-7188E2:** Internet Communication Controller
- **I-7188E2D:** I-7188E2 with seven-segment display
- **I-7188E3:** Internet Communication Controller
- **I-7188E3D:** I-7188E3 with seven-segment display
- **I-7188E3-232:** Internet Communication Controller
- **I-7188E3D-232:** I-7188E3-232 with display
- **I-7188E4:** Internet Communication Controller
- **I-7188E4D:** I-7188E4 with seven-segment display
- **I-7188E5:** Internet Communication Controller
- **I-7188E5D:** I-7188E5 with display
- **I-7188E5-485:** Internet Communication Controller
- **I-7188E5D-485:** I-7188E5-485 with display
- **I-7188E8:** Internet Communication Controller
- **I-7188E8D:** I-7188E8 with display

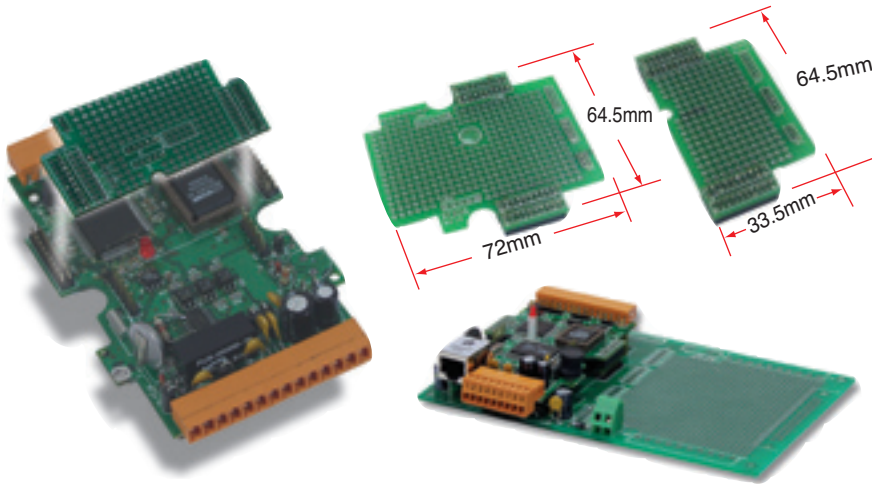
### Options

- **PWR-24/110:**  
Wall-plug Power Adaptor/  
110VAC, 60Hz, 3.6W
- **PWR-24/220:**  
Wall-plug Power Adaptor/  
220VAC, 50Hz, 3.6W
- **PWR-24/230:**  
Wall-plug Power Adaptor/  
230VAC, 50Hz, 3.6W

# i-7188 I/O Expansion Boards

## SERIES

i-7188



## Introduction

### I/O Expansion Bus and Expansion Boards

I-7188XA, I-7188XB, I-7188XC, and I-7188EX support an I/O expansion bus. The I/O expansion bus can be used to implement various I/O functions such as D/I, D/O, A/D, D/A, Timer/Counter, UART, flash memory, battery backup SRAM, AsicKey & other I/O functions. Nearly all kinds of I/O functions can be implemented by this bus. The user can choose our I/O expansion boards or design their own I/O expansion boards. If the user chooses a small size I/O expansion board, then they can mount this I/O expansion board directly onto the I-7188XC controller. Customized I/O Expansion Boards can be ordered through ODM project.

### Pin-Assignment of I/O Expansion Bus

J1				J2							
GND	1	□	□	2	GND	MA0	1	□	□	2	AD0
CLKOUTA	3	□	□	4	ARDY	MA1	3	□	□	4	AD1
INT0	5	□	□	6	INT 1	MA2	5	□	□	6	AD2
VCC	7	□	□	8	RESET	MA3	7	□	□	8	AD3
GND	9	□	□	10	RESET\	MA4	9	□	□	10	AD4
TO 0	11	□	□	12	TO 1	MA5	11	□	□	12	AD5
TI 0	13	□	□	14	TI 1	MA6	13	□	□	14	AD6
SCLK	15	□	□	16	DIO9	MA7	15	□	□	16	AD7(or NC)
DIO4	17	□	□	18	DIO14	INT4(or NC)	17	□	□	18	WRITE\
VCC	19	□	□	20	VCC	CS\	19	□	□	20	READ\

CON20A JDIP20P

CON20A JDIP20P

# i-7188 I/O Expansion Boards

## SERIES

### I/O Expansion Board Selection Guide

#### I/O Expansion Board for Prototype, Testing

Model	Description	Size	Used with I-7188XA/XB/XC/EX
X000	Prototype ( Small size )	64mm x 32mm	XA/XC
X001	Prototype ( Large size )	64mm x 70mm	XA/XC
X002	Prototype	114mm x 170mm	XA/XC/XB/EX/XG/EG
X003	Self-test	64mm x 32mm	XA/XC
X004	Self-test	64mm x 37mm	XB/EX/XG/EG
X005	Prototype ( Small size )	64mm x 37mm	XB/EX/XG/EG
X006	Prototype ( Large size )	72mm x 65mm	XB/EX/XG/EG

#### I/O Expansion Board for DI, D/O, Timer/Counter, PWM

Model	Description	DI	D/O	Relay Output	Counter/Timer	Used with I-7188XA/XB/XC/EX
X100	DI	8	—	—	—	XC
X101	DO	—	8	—	—	XC
X102	Relay Output	—	—	2	—	XC
X103	DI	7	—	—	—	XC
X104	DI, DO	8 (each channel can be programmed to DI/DO)		—	—	XC
X105	DI, DO	8 (each channel can be programmed to DI/DO)		—	—	XC
X106	DI, DO	Can be used as 2 channels DO or 3 channels DI		—	—	XC
X107	DI, DO	6	7	—	—	XB/EX/XG/EG
X109	Photo MOS	—	—	7	—	XB/EX/XG/EG
X110	DI	14	—	—	—	XB/EX/XG/EG
X111	DO	—	13	—	—	XB/EX/XG/EG
X116	Relay Output	4	—	6	—	XB/XG/EX/EG
		**Without Case**				
X119	DI, DO	7	7	—	—	XC/XA/XB/EX/EG/XG
		**Without Case**				
X400	Timer/Counter	—	—	—	3 channels 16-bit timer/counter	XC

#### I/O Expansion Board for A/D, D/A, DI, DO

Model	Description	DI	D/O	A/D Channels	Input Range	D/A Channels	Output Range	Used with I-7188XA/XB/XC/EX
X200	A/D	—	—	1	0~2.5V	—	—	XC
X202	A/D	—	—	7	0~20mA	—	—	XB/EX/XG/EG
X203	A/D, DI, DO	2	6	2	0~20mA	—	—	XB/EX/XG/EG
X300	D/A	—	—	—	—	2	0~4.095V	XC
X301	A/D, D/A	—	—	1	0~2.5V	1	0~4.095V	XC
X302	A/D, D/A	—	—	1	+/-5V	1	+/-5V	XC
X303	A/D, D/A, DI, DO	4	6	1	+/-5V	1	+/-5V	XB/EX/XG/EG
X304	A/D, D/A, DI, DO	4	4	3	+/-5V	1	+/-5V	XB/EX/XG/EG
X305	A/D, D/A, DI, DO	2	2	7	+/-5V	1	+/-5V	XB/EX/XG/EG
X308	A/D, DO	—	6	4	0~10V	—	—	XB/EX/XG/EG
X309	A/D, D/A, DI, DO	3	3	1	0~10V	1	0~10V	XB/EX/XG/EG
X310	A/D, D/A, DI, DO	3	3	2	0~20mA / 0~10V	2	0~10V	XB/EX/XG/EG

# i-7188 I/O Expansion Boards

## SERIES

i-7188

### I/O Expansion Board Selection Guide

#### I/O Expansion Board for RS-232/422/485, DI, DO

Model	Description	DI	DO	Channels	Communication Speed	Used with I-7188XA/XB/XC/EX
X500	RS-232	-	-	One channel (9-wire) ** Without Case **	115.2kbps	XA/XC
X501	RS-232	-	-	One channel (5-wire)	115.2kbps	XC
X502	RS-232	-	-	One channel (3-wire), and one channel (5-wire)	115.2kbps	XC
X503	RS-232	-	-	One channel (5-wire)	115.2kbps	XB/EX/XG/EG
X504	RS-232	-	-	One channel (5-wire), and one channel (9-wire)	115.2kbps	XB/EX/XG/EG
X505	RS-232	-	-	Three channels (5-wire)	115.2kbps	XB/EX/XG/EG
X506	RS-232	-	-	Six channels (3-wire)	115.2kbps	XB/EX/XG/EG
X507	RS-422	4	4	One channel (TxD+, TxD-, RxD+, RxD-)	115.2kbps	XB/EX/XG/EG
X508	RS-232	4	4	One channel (5-wire)	115.2kbps	XB/EX/XG/EG
X509	RS-232	4	4	Two channels (3-wire)	115.2kbps	XB/EX/XG/EG
X510	RS-232	5	5	One channel (3-wire), and EEPROM: 128K*2 bytes	115.2kbps	XB/EX/XG/EG
X510-128	RS-232	5	5	One channel (3-wire), and EEPROM: 128K bytes	115.2kbps	XB/EX/XG/EG
X511	RS-485	-	-	Three channels (Data+, Data-)	115.2kbps	XB/EX/XG/EG
X518	RS-232	-	8	One channel (5-wire)	115.2kbps	XB/EX/XG/EG
X561	RS-232	-	-	Three channels (3-wire), and 64M bytes NAND Flash ** Without Case **	115.2kbps	XA/XB/EX /XG/EG

#### Memory Expansion Boards

Model	Description	Flash Disk	Battery Backup SRAM Disk	Used with I-7188XA/XB/XC/EX
X600	Flash ROM Expansion Board	4M bytes NAND Flash	-	XA/XC/XB/EX
X601	Flash ROM Expansion Board	8M bytes NAND Flash	-	XA/XC/XB/EX
X607	Battery backup SRAM Board	-	128K Bytes	XA/XC/XB/EX/XG/EG
X608	Battery backup SRAM Board	-	512K Bytes	XA/XC/XB/EX/XG/EG

#### Motion Control Boards

Model	Description	Motor_axis	Encoder_axis	Encoder_bits	Used with I-7188XA/XB/XC/XG/EX/EG
X702	Encoder	-	2	24	XB/XG/EX/EG
X703	Encoder	-	3	24	XB/XG/EX/EG



# i-7188 I/O Expansion Boards

## SERIES

Used with I-7188XB/EX/XG/EG

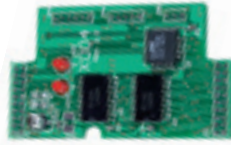
### Prototype Board

X002 (114mm x 170mm)



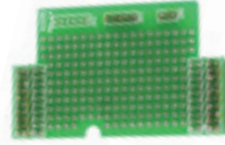
### Self-test Board

X004 (64mm x 38mm)



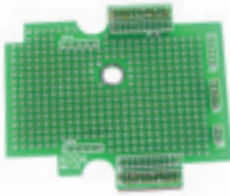
### Prototype Board

X005 (38mm x 64mm)



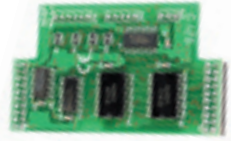
### Prototype Board

X006 (72mm x 65mm)



### D/I/O Board

X107 (64mm x 37mm)



#### Specifications:

- 7 channels Open collector output: 30V/100mA
- 6 channels DI (3.5V~30V)

### PhotoMos Board

X109 (64mm x 37mm)

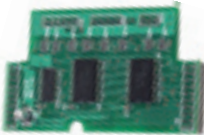


#### Specifications:

- Channels: 7 (Form A)
- Continuous load current: 120mA (peak AC)
- Peak load current: 0.3A
- Output Power dissipation : 0.3W
- Output Off state leakage current: 1uA
- Output On resistance : 250Ωm
- Load voltage : 350V(peak AC)
- Input / Output Isolation : 1,500V AC

### DI Board

X110 (64mm x 37mm)



#### Specifications:

- Channel : 14
- Input Range/Type : Logic high level (3.5V~30V), Logic low level (0V~1V)

### DO Board

X111 (64mmX37mm)



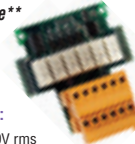
#### Specifications:

- Channel : 13
- Open-collector Output : 70 mA / 30V max
- Isolated : none

### D/I/O Board

X116 (64mm X 57mm)

**\*\*Without Case\*\***



#### Specifications:

- DI channel : 4
- Isolation : 3750V rms
- Input Voltage : 3.5V ~ 30 V
- Response time : 10 KHz Max.
- DO channel : 6 (Form "A", Normal Open)
- Max. Switching capacity : 60W, 60VA
- Max. Switching voltage : 220Vdc, 250Vac
- Max. Switching current : 5A
- Max. Continuous current : 2A

### D/I/O Board

X119 (72mm x 57mm)



#### Specifications:

- 7 Channels : DO
- 7 Channels : DI

**\*\*Without Case\*\***

### AD Board

X202 (64mmX37mm)

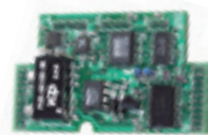


#### Specifications:

- Channel : 7
- Resolution : 12bit
- Input Range/Type : 0 ~ 20 mA

### AD Board

X203 (64mmX37mm)



#### Specifications:

- Channel : 2
- Resolution : 12bit
- Input Range/Type : 0 ~ 20 mA
- 2 channels DI
- 6 channels DO

# i-7188 I/O Expansion Boards

## SERIES

i-7188

Used with I-7188XB/EX/XG/EG

### AD, DA Board

**X303** (64mm x 37mm)



**Specifications:**

- One channel A/D, 12-bit  
Input Range: +/- 5 V
- One channel D/A, 12-bit  
Output Range: +/- 5 V
- 4 channels DI
- 6 channels DO

### AD Board

**X304** (64mmX37mm)



**Specifications:**

- 3 channels AD  
Resolution : 12bit  
Input Range/Type : +/- 5 V
- 1 channel DA  
Resolution : 12bit  
Output Range/Type : +/- 5 V
- 4 channels DI
- 4 channels DO

### AD Board

**X305** (64mmX37mm)



**Specifications:**

- 7 channels AD  
Resolution : 12bit  
Input Range/Type : +/- 5 V
- 1 channel DA  
Resolution : 12bit  
Output Range/Type : +/- 5 V
- 2 channels DI
- 2 channels DO

### AD Board

**X308** (64mm x 37mm)



**Specifications:**

- 4 channels AD
- Resolution : 12bit  
Input Range/Type : 0~10V
- 6 channels DO

### AD Board

**X310** (64mmX37mm)



**Specifications:**

- 2 channels AD  
Resolution : 12bit  
Input Range/Type :  
Ch0:0~20 mA; Ch1:0~10 V
- 2 channels DA  
Resolution : 12bit  
Output Range/Type:0~10 V
- 3 channels DI
- 3 channels DO

### RS-232 Board

**X503** (64mm x 37mm)



**Specifications:**

- COM3: RS-232 port;  
CTS3, RTS3, RXD3, TXD3

### RS-232 Board

**X504** (64mm x 37mm)



**Specifications:**

- COM3: RS-232 port;  
CTS3, RTS3, RXD3, TXD3
- COM4: RS-232 port;  
RTS4, RTS4, DSR4,  
DTR4, TXD4, RXD4, DCD4

### RS-232 Board

**X505** (64mm x 37mm)



**Specifications:**

- COM3: RS-232 port;  
CTS3, RTS3, RXD3, TXD3
- COM4: RS-232 port;  
CTS4, RTS4, RXD4, TXD4
- COM5: RS-232 port;  
CTS5, RTS5, RXD5, TXD5

### RS-232 Board

**X506** (64mm x 37mm)



**Specifications:**

- COM3: RS-232 port; RXD3, TXD3, GND
- COM4: RS-232 port; RXD4, TXD4, GND
- COM5: RS-232 port; RXD5, TXD5, GND
- COM6: RS-232 port; RXD6, TXD6, GND
- COM7: RS-232 port; RXD7, TXD7, GND
- COM8: RS-232 port; RXD8, TXD8, GND

### RS-422 Board

**X507** (64mm x 37mm)



**Specifications:**

- COM3: RS-422 port;  
RXD3+, RXD3-, TXD3+, TXD3-
- 4 channels DI
- 4 channels DO

# i-7188 I/O Expansion Boards

## SERIES

Used with I-7188XB/EX/XG/EG

**RS-232 Board X508** (64mm x 37mm)



**Specifications:**

- COM3: RS-232 port  
TXD, RXD, RTS, CTS, GND
- 4 channels DI
- 4 channels DO

**RS-232 Board X509** (64mm x 37mm)



**Specifications:**

- COM3: RS-232 port  
TXD, RXD, GND
- COM4: RS-232 port  
TXD, RXD, GND
- 4 channels DI
- 4 channels DO

**RS-232 Board X510** (64mm x 37mm)



**Specifications:**

- COM3: RS-232 port  
TXD, RXD, GND
- 5 channels DI
- 5 channels DO
- EEPROM: 128K x 2 bytes


**RS-232 Board X510-128** (64mm x 37mm)



**Specifications:**

- COM3: RS-232 port  
TXD, RXD, GND
- 5 channels DI
- 5 channels DO
- EEPROM: 128K bytes

**RS-485 Board X511** (64mm x 37mm)



**Specifications:**

- COM3: RS-485 port; Data+, Data-
- COM4: RS-485 port; Data+, Data-
- COM5: RS-485 port; Data+, Data-

**RS-232 Board X518** (64mm x 37mm)



**Specifications:**

- COM3: RS-232 port  
TXD, RXD, RTS, CTS, GND
- 8 channels DO

**RS-232 Board X561** (72mm x 65mm) \*\*Without Case\*\*



**Specifications:**

- COM3 : RS-232 port; RXD3, TXD3, GND
- COM4 : RS-232 port; RXD3, TXD3, GND
- COM5 : RS-232 port; RXD3, TXD3, GND
- 64M bytes NAND Flash:  
Endurance : 1,000,000  
Program/Erase Cycles  
Data Retention : 10 years

**Flash Memory Board X600/X601** (64mm x 32mm)



**Specifications:**

- X600: 4M bytes NAND; Flash; 0.3W
- X601: 8M bytes NAND; Flash; 0.4W
- Endurance: 1,000,000 Program/Erase Cycles
- Data Retention: 10 years

**Battery Backup SRAM Board X607** (64mm x 32mm)



**Specifications:**

- SRAM: 128K Bytes

**Battery Backup SRAM Board X608** (64mm x 32mm)



**Specifications:**

- SRAM: 512K Bytes

**Encoder Input Board X702** (64mm x 37mm)



**Specifications:**

- 2-axis encoder
- 24-bit encoder counter
- Encoder counting mode:  
Quadrant, CW/CCW  
Pulse / Direction
- Max counting rate : 1 MHz
- Isolated power output: 5V

NEW!!

**Encoder Input Board X703** (64mm x 41mm)



**Specifications:**

- 3-axis encoder
- 24-bit encoder counter
- Encoder counting mode:  
Quadrant, CW/CCW  
Pulse / Direction
- Max counting rate : 1 MHz
- Isolated power output: 5V

NEW!!

# i-7188 I/O Expansion Boards

## SERIES

i-7188

Used with I-7188XC

**Prototype Board**  
X000 (64mm x 32mm)



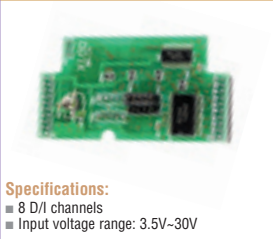
**Prototype Board**  
X001 (64mm x 70mm)



**Self-test Board**  
X003 (64mm x 32mm)



**D/I/O Board**  
X100 (64mm x 32mm)



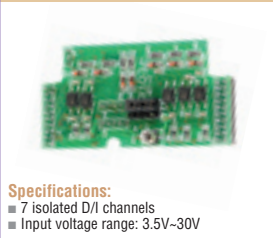
**D/I/O Board**  
X101 (64mm x 32mm)



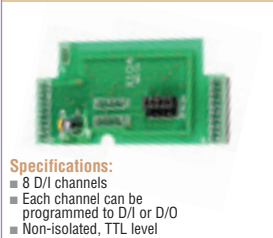
**Relay Board**  
X102 (64mm x 32mm)



**D/I/O Board**  
X103 (64mm x 32mm)



**D/I/O Board**  
X104 (64mm x 32mm)



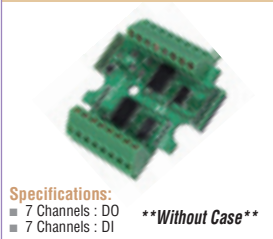
**D/I/O Board**  
X105 (64mm x 32mm)



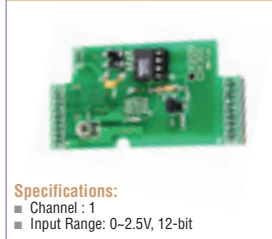
**D/I/O Board**  
X106 (64mm x 32mm)



**D/I/O Board**  
X119 (72mm x 57mm)



**A/D Board**  
X200 (64mm x 32mm)



# i-7188 I/O Expansion Boards

## SERIES

Used with I-7188XC


**DA Board**  
**X300** (64mm x 32mm)



**Specifications:**

- Channel : 2
- Output Range: 0~4.095V, 12-bit


**AD, DA Board**  
**X301** (64mm x 32mm)



**Specifications:**

- One channel AD, 12-bit  
Input Range: 0~2.5V
- One channel DA, 12-bit  
Output Range: 0~4.095V


**AD, DA Board**  
**X302** (64mm x 32mm)



**Specifications:**

- One channel AD, 12-bit  
Input Range: +/- 5 V
- One channel DA, 12-bit  
Output Range: +/- 5 V

**Timer/Counter Board**  
**X400** (64mm x 32mm)



**Specifications:**

- 3channels 16-bit timer/counter

**RS-232 Board**  
**X500** (64mm x 38mm)



**Specifications:**

- COM: RS-232 port, RI4, CTS4, RTS4, DSR4, TXD4, RXD4, DC04, DTR4

**\*\*Without Case\*\***

**RS-232 Board**  
**X501** (64mm x 32mm)



**Specifications:**

- COM3: RS-232 port; CTS3, RTS3, RXD3, TXD3

**RS-232 Board**  
**X502** (64mm x 32mm)



**Specifications:**

- COM3: RS-232 port; CTS3, RTS3, RXD3, TXD3
- COM4: RS-232 port; RXD4, TXD4

**Flash Memory Board**  
**X600/X601** (64mm x 32mm)



**Specifications:**

- X600: 4M bytes NAND; Flash; 0.3W
- X601: 8M bytes NAND; Flash; 0.4W
- Endurance: 1,000,000 Program/Erase Cycles
- Data Retention: 10 years

**Battery Backup SRAM Board**  
**X607** (64mm x 32mm)



**Specifications:**

- SRAM: 128K Bytes

**Battery Backup SRAM Board**  
**X608** (64mm x 32mm)



**Specifications:**




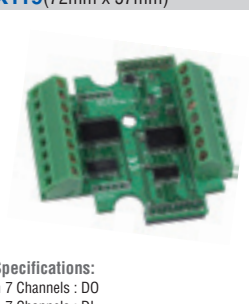

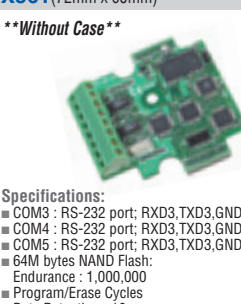
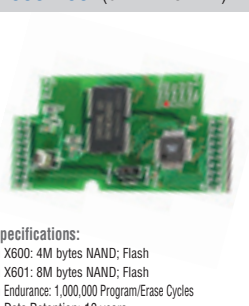


- SRAM: 512K Bytes

# i-7188 I/O Expansion Boards

## SERIES

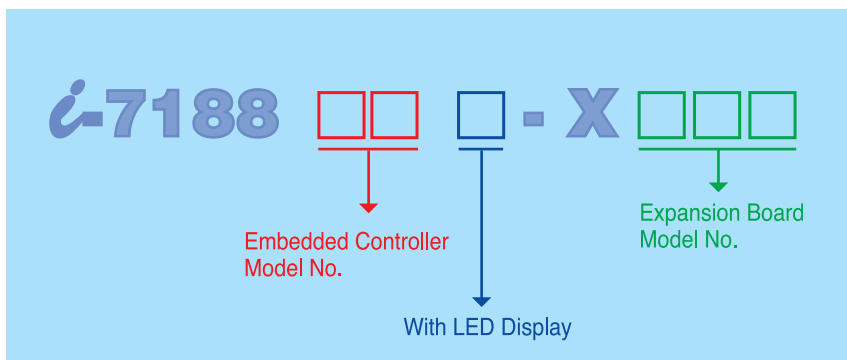
i-7188

Used with I-7188XA

<p><b>Prototype Board X000</b> (64mm x 32mm)</p> 	<p><b>Prototype Board X001</b> (64mm x 70mm)</p> 	<p><b>Self-test Board X003</b> (64mm x 32mm)</p> 
<p><b>D/I/O Board X119</b> (72mm x 57mm) <b>**Without Case**</b></p>  <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>■ 7 Channels : DO</li> <li>■ 7 Channels : DI</li> </ul>	<p><b>RS-232 Board X500</b> (64mm x 32mm) <b>**Without Case**</b></p>  <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>■ COM: RS-232 port; R14, CTS4, RTS4, DSR4, TXD4, RXD4, DCD4, DTR4</li> </ul>	<p><b>RS-232 Board X561</b> (72mm x 65mm) <b>**Without Case**</b></p>  <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>■ COM3 : RS-232 port; RXD3, TXD3, GND</li> <li>■ COM4 : RS-232 port; RXD3, TXD3, GND</li> <li>■ COM5 : RS-232 port; RXD3, TXD3, GND</li> <li>■ 64M bytes NAND Flash; Endurance : 1,000,000 Program/Erase Cycles</li> <li>■ Data Retention : 10 years</li> </ul>
<p><b>Flash Memory Board X600/X601</b> (64mm x 32mm)</p>  <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>■ X600: 4M bytes NAND; Flash</li> <li>■ X601: 8M bytes NAND; Flash</li> <li>■ Endurance: 1,000,000 Program/Erase Cycles</li> <li>■ Data Retention: 10 years</li> </ul>	<p><b>Battery Backup SRAM Board X607</b> (64mm x 32mm)</p>  <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>■ SRAM: 128K Bytes</li> </ul>	<p><b>Battery Backup SRAM Board X608</b> (64mm x 32mm)</p>  <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>■ SRAM: 512K Bytes</li> </ul>

# i-7188 Expansion Boards Ordering Information

## SERIES



1. Expansion Boards + Embedded Controller ordering information.  
 I-7188XA□-X□□□  
 I-7188XB□-X□□□  
 I-7188XC□-X□□□
2. Expansion Boards + ISaGRAF Embedded Controller ordering information.  
 I-7188XG□-X□□□  
 With Ethernet I / O  
 I-7188EG□-X□□□
3. Ethernet I/O ordering information.  
 I-7188EX□-X□□□

### Example.

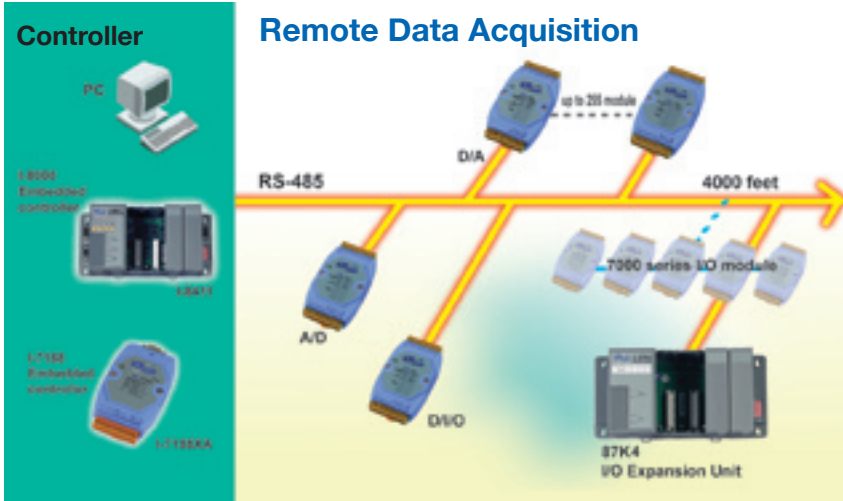
#### I-7188EGD—X304

- Ethernet ISaGRAF Embedded Controller with LED Display
- With X304 Expansion I/O Board
- 3 Channel A/D/1 Channel D/A / 4 Channel DIO

# i-7000 Remote I/O Modules

## SERIES

i-7000



### Introduction

The I-7000 series provides cost-effective protection and conditioning for a wide range of valuable industrial control signals and systems. Our product line includes sensor-to-computer, computer-to-sensor, digital I/O, timer/counter, USB to RS-232 converter, USB to RS-485/422 converter, RS-232 to RS-485/422 converter, RS-485/422 repeater, RS-485 Hub, man machine interface, data display and application software. The I-7000 modules are good for small I/O channels, while I-87K I/O expansion units are good for middle-size I/O channels.



Piggy Back

### Features

- More than 100 modules are provided and more new modules are coming
- Industrial Quality
- Self-Tuner Design
- Dual Watchdog Design
- High Speed Isolated Repeater
- "Smart" Device Design
- I/O Range Programmable
- Wide Range Power Input
- Easy Mounting and Connection
- Complete Software Environment



DIN-Rail Mounting

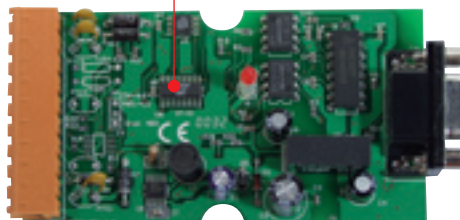


# i-7000 "Self Tuner" Innovative Design SERIES

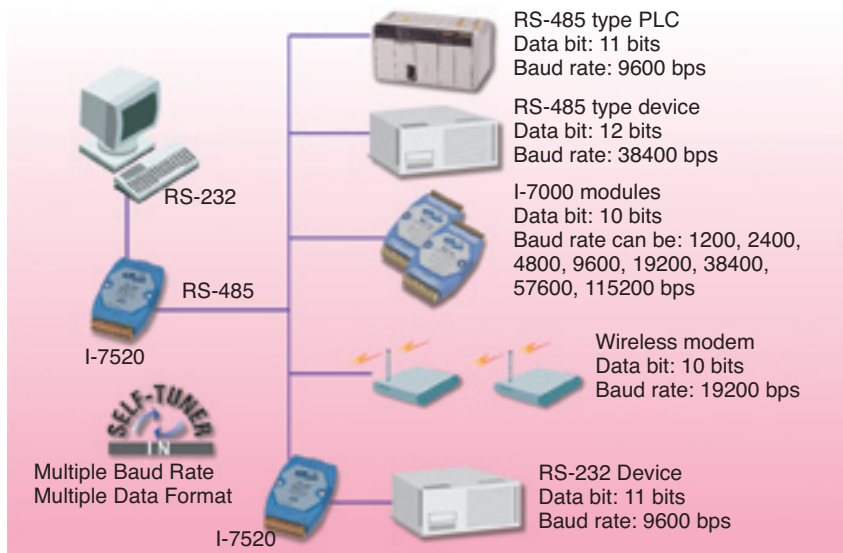
## "Self Tuner" A New Technology You Should Know !

U.S. Patent, US 6,401,159 B1  
P.R.O.C.PAT NO.  
PAT No. 086674  
PAT No. 132457

Self Tuner Chip



A conventional RS-232 to RS-485 converter uses the DIP switch to select the baud rate and data format for the whole RS-485 network. All modules, devices and equipment in the network should be configured to the same baud rate and data format. Unfortunately most real world applications can't be implemented in such a simple way. The "Self Tuner" is an innovative chip designed to solve this problem. Every converter contains a "Self Tuner" chip. This chip can auto-tune the baud rate and data format to the whole network. Therefore the I-7520 can connect to different baud rates and different data formats with devices in the same network.



# i-7000 **RS-485 Repeater / Hub**

## SERIES

i-7000

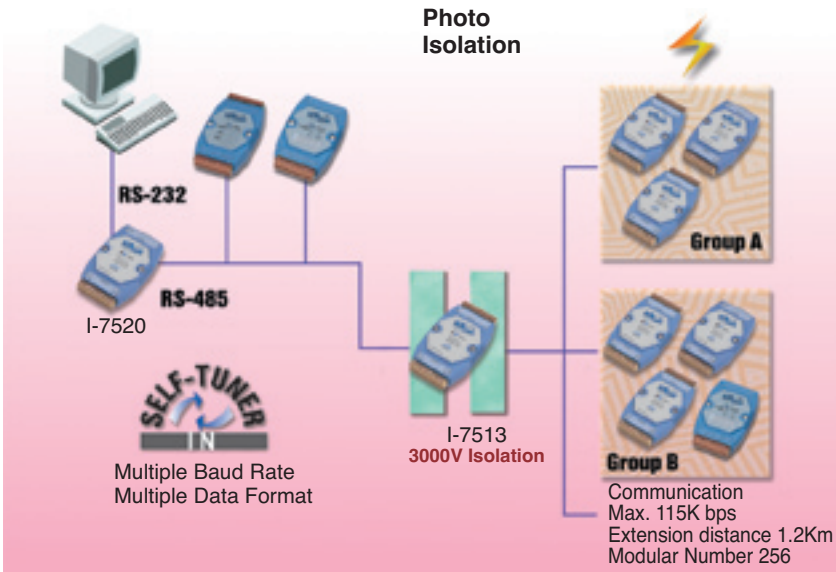
**High Speed &  
High Quality  
Isolated RS-485  
Repeater / Hub**

**Drop the Low-end Repeater / Hub  
Save Your RS-485 Network**



A conventional RS-485 repeater / hub uses the DIP switch to select the baud rate and data format for the whole RS-485 network. Our repeater / hub contains an innovative "Self Tuner" chip. This chip auto-tunes the baud rate and the data format to the whole network and makes the network very stable. Due to the superior design, every repeater can extend the communication to another 1.2 Km at 9600bps speed. If the speed is lower than 9600bps, the extended distance can be up to 2.1 Km or 3.4Km. Some low-end repeaters can't repeat signals well and cause the whole network to become unstable. Those low-end repeaters don't have isolation. The whole network could be destroyed by lightning or transient high voltage. If your RS-485 is unstable, please change the converter and repeater / hub.

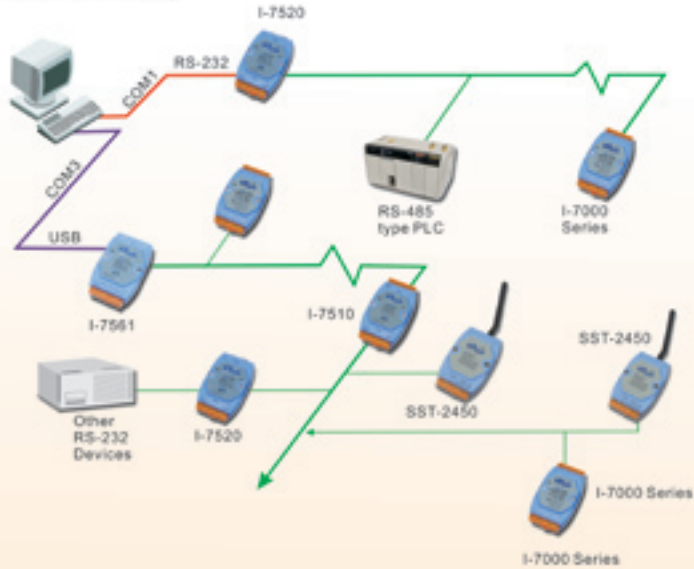
Do you have any RS-485 wiring problems? Our new module I-7513 is one to three ports RS-485 hub. Each channel has its own RS-485 driver IC on it, so it can support wiring in star topology. Refer to section 5-14 for more repeater / hub modules.



# i-7000 *The Most Flexible RS-485 Network* SERIES

## I-7000 Series RS-485 Network Configuration

### Bus Topology



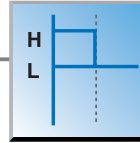
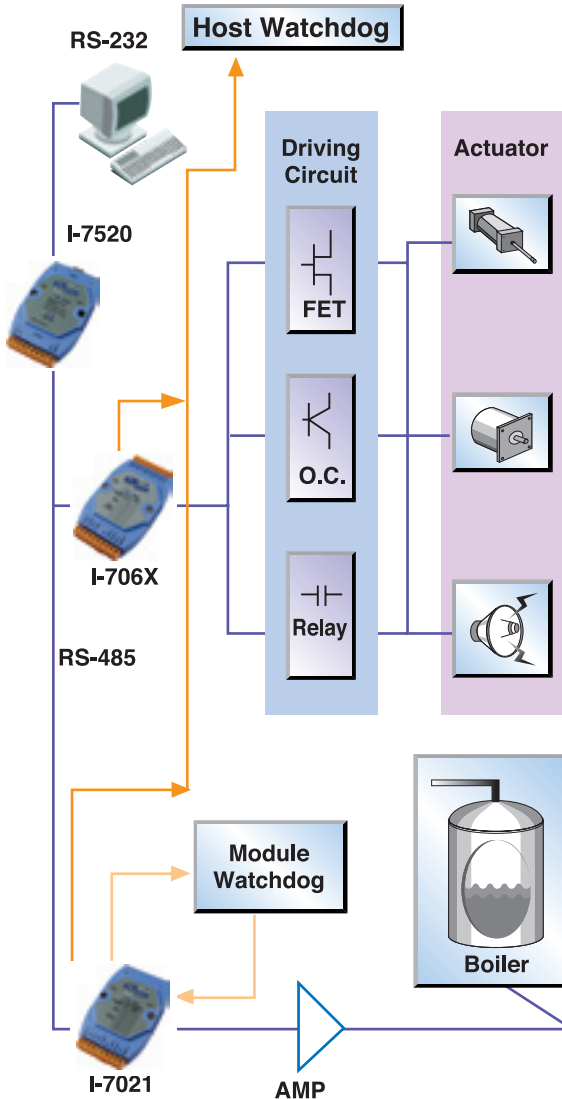
### Star Topology



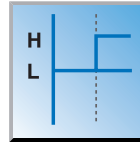
# i-7000 "Dual Watchdog" SERIES

i-7000

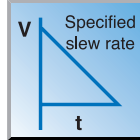
## Network Control Made Reliable



**Active host watchdog**  
Output state goes to safe state: L



**Active host watchdog**  
Output state goes to safe state: H



**Active host watchdog**  
D/A output goes to safe state

### Why "Dual Watchdog"

Some company's remote I/O modules don't have the "Dual Watchdog", it may cause unrecoverable damage to the whole control system.

### What is "Dual Watchdog"

I-7000 provides Module and Host Watchdogs. The module watchdog is a hardware watchdog. The host watchdog is a software watchdog. The module watchdog is designed to automatically reset the  $\mu P$  when the module fails. The host watchdog monitors the host controller (PC or PLC). The output of module can go to a safe state, if the host fails.

### Example 1

When the host watchdog is active, the output of Digital I/O will go to a safe state, logical high or low. The user can specify the logical state.

### Example 2

When the host watchdog is active, the output of D/A is stepped down until the final (safe) value is reached and a gradual controlled output slew rate is followed. The user can specify the slew rate of the output voltage.

# i-7000 Analog Input Modules Selection Guide

## SERIES

Analog Input Modules Selection Guide

Module		I-7005	I-7011/ I-7011D/	I-7011P/ I-7011PD	I-7012/ I-7012D	I-7012F/ I-7012FD	I-7013/ I-7013D	I-7014D	I-7015	I-7033 I-7033D
Analog Input	Resolution	16 bit	16 bit	16 bit	16 bit	16/12 bit	16 bit	16 bit	16 bit	16 bit
	Input channel	8 diff.	1 diff.	1 diff.	1 diff.	1 diff.	1 diff.	1 diff.	6 diff.	3 diff.
	Sampling rate	8Hz	10Hz	10Hz	10Hz	10/100Hz	10Hz	10Hz	12Hz	10Hz
	Voltage input	-	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	-	+/-150mV +/-500mV +/-1V +/-5V +/-10V	-	-
	Current input	-	+/-20mA	+/-20mA	+/-20mA	+/-20mA	-	+/-20mA	-	-
	Sensor input	Thermistor (2 wire)	J.K.T.E.R. S.B.N.C Thermocouple	J.K.T.E.R. S.B.N.C L.M Thermocouple	-	-	Pt Ni-RTD (2/3/4 wire)	-	Pt/Ni/Cu RTD (2/3 wire)	Pt Ni-RTD (2/3/4 wire)
	4 1/2 digit LED Display	-	Yes for I-7011D	Yes for I-7011PD	Yes for I-7012D	Yes for I-7012FD	Yes for I-7013D	Yes for I-7014D	-	Yes for I-7033D
	Isolated loop power	-	-	-	-	-	-	Yes +15V	-	-
	Input Linear scaling	-	-	-	-	-	-	Yes	-	-
	Isolation Voltage	3000V	3000V	3000V	3000V	3000V	3000V	3000V	3000V	3000V
Digital Input & Digital Output	Digital input channels	-	1	1	1	1	-	1	-	-
	Digital output channels	6	2	2	2	2	-	2	-	-
	Event counter	-	Yes	Yes	Yes	Yes	-	Yes	-	-
	High/Low Alarm	Yes	Yes	Yes	Yes	Yes	-	Yes	-	-
Individual Channel Configurable	Yes	-	-	-	-	-	-	Yes	-	
Dual Watchdog Timer	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Frame Ground	Yes	-	-	-	-	-	-	Yes	-	
Availability	Call	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

# i-7000 Analog Input Modules Selection Guide

## SERIES

i-7000

Analog Input Modules Selection Guide

Module		I-7016/ I-7016D	I-7016P/ I-7016PD	I-7017	I-7017F	I-7017C	I-7017FC	I-7017R	I-7017RC
Analog Input	Resolution	16 bit	16 bit	16 bit	16/12 bit	16 bit	16/12 bit	16/12 bit	16/12 bit
	Input channel	2 diff.	1 diff.	8 diff.	8 diff.	8 diff.	8 diff.	8 diff.	8 diff.
	Sampling rate	2/10Hz	10Hz	10Hz (total)	10/60Hz (total)	10Hz (total)	10/60Hz (total)	10/60Hz (total)	10/60Hz (total)
	Fast Mode (12bit)	-	-	-	Yes	-	Yes	Yes	Yes
	Voltage input	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	-	-	+/-150mV +/-500mV +/-1V +/-5V +/-10V	-
	Current input	+/-20mA	+/-20mA	+/-20mA	+/-20mA	+/-20mA	+/-20mA	+/-20mA	+/-20mA
	Sensor input	4-wire Strain gauge Input	6-wire Strain gauge Input	-	-	-	-	-	-
	4 1/2 digit LED Display	Yes for I-7016D	Yes for I-7016PD	-	-	-	-	-	-
	Input Linear scaling	Yes	Yes	-	-	-	-	-	-
	Isolation Voltage	3000V	3000V	3000V	3000V	3000V	3000V	3000V	3000V
Digital Input & Digital Output	Digital input channels	1	1	-	-	-	-	-	-
	Digital output channels	4	4	-	-	-	-	-	-
	Event counter	Yes	Yes	-	-	-	-	-	-
	High/Low Alarm	Yes	Yes	-	-	-	-	-	-
Dual Watchdog Timer	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Over voltage protection	-	-	+/-35V	+/-35V	+/-35V	+/-35V	240 Vrms	240 Vrms	
Frame Ground	-	-	-	-	Yes	Yes	Yes	Yes	
Availability	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

# i-7000 Analog Input Modules Selection Guide

## SERIES

**Analog Input Modules Selection Guide**

Module		I-7018	I-7018P	I-7018R	I-7018BL	I-7019R
Analog Input	Resolution	16 bit	16 bit	16 bit	16 bit	16 bit
	Input channel	8 diff.	8 diff.	8 diff.	8 diff.	8 diff.
	Sampling rate	10Hz (total)	10Hz (total)	10Hz (total)	10Hz (total)	8Hz (total)
	Voltage input	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/- 15mV +/- 50mV +/- 100mV +/- 150mV +/- 500mV +/- 1V +/- 2.5V +/- 5V +/- 10V
	Current input	+/-20mA	+/-20mA	+/-20mA	+/- 20mA	+/-20mA
	Sensor input	J. K.T.E.R.S.B N.C. thermocouple	J.K.T.E.R.S.B N.C.L.M. thermocouple	J.K.T.E.R.S.B N.C.L.M. thermocouple	J.K.T.E.R.S.B. N.C.L.M. thermocouple	J.K.T.E.R.S.B. N.C.L.M.L2 (DIN43710) thermocouple
	4 1/2 digit LED Display	-	-	-	-	-
	Isolation Voltage	3000V	3000V	3000V	3000V	3000V
	Break Line Detection			Yes	Yes	Yes
Individual Channel Configurable	-	-	-	-	Yes	
Dual Watchdog Timer	Yes	Yes	Yes	Yes	Yes	
Over voltage protection	+/- 35V	+/- 35V	240 Vrms	+/- 35V	240 Vrms	
Frame Ground	-	-	Yes	-	Yes	
Availability	Yes	Yes	Yes	Yes	Yes	

# i-7000 Analog Input Modules Selection Guide

## SERIES

i-7000

I-7017 Series Selection Guide

Module	I-7017	I-7017F <sup>*1</sup>	I-7017C <sup>*2</sup>	I-7017FC	I-7017R <sup>*3</sup>	I-7017RC
Input Channels	8	8	8	8	8	8
Resolutions	16 bits	16/12 bits	16 bits	16/12 bits	16/12 bits	16/12 bits
Input Type	mV, V mA <sup>*4</sup>	mV, V mA <sup>*4</sup>	mA	mA	mV, V mA <sup>*4</sup>	mA
Sampling Rate	10 Samples/sec	10 Samples/sec (Normal) 60 Samples/sec (Fast)	10 Samples/sec	10 Samples/sec (Normal) 60 Samples/sec (Fast)	10 Samples/sec (Normal) 60 Samples/sec (Fast)	10 Samples/sec (Normal) 60 Samples/sec (Fast)
Fast Mode (12bits)		Yes		Yes	Yes	Yes
Voltage Input	+/-150mV +/-500mV +/-1V +/-5V +/-10V	+/-150mV +/-500mV +/-1V +/-5V +/-10V			+/-150mV +/-500mV +/-1V +/-5V +/-10V	
Current Input	+/-20mA <sup>*1</sup>	+/-20mA <sup>*1</sup>	+/-20mA	+/-20mA	+/-20mA <sup>*1</sup>	+/-20mA
Accuracy	±0.1%	±0.1% (Normal) ±0.5%(Fast)	±0.1%	±0.1% (Normal) ±0.5%(Fast)	±0.1% (Normal) ±0.5%(Fast)	±0.1% (Normal) ±0.5%(Fast)
Input Impedance	20MΩ	20MΩ	125Ω	125Ω	1MΩ	125Ω
Voltage Overload Protection	±35V	±35V	±35V	±35V	±240V	±240V
Isolation	3000 VDC	3000 VDC	3000 VDC	3000 VDC	3000 VDC	3000 VDC
Dual Watchdog Timer	Yes	Yes	Yes	Yes	Yes	Yes
Frame Ground			Yes	Yes	Yes	Yes

1. 'F' means "Fast". It supports 60samples/second fast mode. The resolution is 12 bits and the accuracy is 0.5% in fast mode.
2. 'C' means the module is for +/-20mA "Current" inputs. No external resistor required.
3. 'R' means "Robust". It has 240V high voltage overload protection. It also supports the fast mode as 'F' model.
4. Requires optional external 125Ω resistor.



# i-7000 Analog Input Modules Selection Guide

## SERIES

### I-7018 Series Selection Guide

Module	I-7018	I-7018P <sup>*1</sup>	I-7018R <sup>*2</sup>
Resolutions	16 bits	16 bits	16 bits
Channels	8 diff.	8 diff.	8 diff.
Sampling Rate	10Hz	10Hz	10Hz
Voltage Input	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V
Current Input	+/-20mA <sup>*3</sup>	+/-20mA <sup>*3</sup>	+/-20mA <sup>*3</sup>
Thermocouple Input	J, K, T, E, R, S, B, N, C	J, K, T, E, R, S, B, N, C L, M	J, K, T, E, R, S, B, N, C
Accuracy	±0.1%	±0.1%	±0.2%
Open Thermocouple Detection	-	-	Yes
Input Impedance	20MΩ	20MΩ	1MΩ
Isolation	3000 VDC	3000 VDC	3000 VDC
Voltage Overload Protection	±35V	±35V	±240V
Dual Watchdog Timer	Yes	Yes	Yes
Frame Ground	-	-	Yes

- 'P' means supporting two more thermocouple types L and M
- 'R' means "Robust". It has 240V high voltage over load protection. It also supports open thermocouple detection.
- Requires optional external 125Ω resistor.

# i-7000 **Digital I/O Modules Selection Guide**

## SERIES

i-7000

**Digital I/O, Relay and Counter Selection Guide**

Module		I-7041/ I-7041D	I-7042/ I-7042D	I-7043/ I-7043D	I-7044/ I-7044D	I-7045 I-7045D
Digital input and Digital output	Digital input channels	14 Isolation (3750V)	–	–	4 Isolation (3750V)	–
	Digital output channels (open collector)	–	13 Isolation (3750V)	16	8 Isolation (3750V)	16 Isolation (3750)
	Alarm Setting	–	–	–	–	–
Counter	Channels	14	–	–	4	–
	Input frequency	100Hz	–	–	100Hz	–
LED Display		Yes for I-7041D	Yes for I-7042D	Yes for I-7043D	Yes for I-7044D	Yes for I-7045D
Safe Value (When Host Fail or communication fail)		–	Yes	Yes	Yes	Yes
Power-on Preset Value		–	Yes	Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes
Availability		Yes	Yes	Yes	Yes	Yes

**Digital I/O, Relay and Counter Selection Guide**

Module		I-7050/ I-7050D	I-7051/ I-7051D	I-7052/ I-7052D	I-7053/ I-7053D	I-7055/ I-7055D	I-7058/ I-7058D
Digital input and Digital output	Digital input channels	7	16 Isolation (3750V)	8 Isolation (5000V)	16	8 Isolation (3750V)	8 Isolation (5000V)
	Digital output channels (open collector)	8	–	–	–	8 Isolation (3750V)	–
	Alarm Setting	–	–	–	–	–	–
Counter	Channels	7	16	8	16	8	8
	Input frequency	100Hz	100Hz	100Hz	100Hz	100Hz	100Hz
LED Display		Yes for I-7050D	Yes for I-7051D	Yes for I-7052D	Yes for I-7053D	Yes for I-7055D	Yes for I-7058D
Safe Value (When Host Fail or communication fail)		Yes	–	–	–	Yes	–
Power-on Preset Value		Yes	–	–	–	Yes	–
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes	Yes
Availability		Yes	Yes	Yes	Yes	Yes	Yes

# i-7000 **Digital I/O Modules Selection Guide**

## SERIES

**Digital I/O, Relay and Counter Selection Guide**

Module		I-7060/ I-7060D	I-7063/63D/63A/63AD/ I-7063B/63BD	I-7065/65D/65A/65AD/ I-7065B/65BD
Digital input and Digital output	Digital input channels	4 Isolation (3750V)	8 Isolation (3750V)	4 Isolation (3750V)
	Digital output channels	4 Channel Relay Form A x 2 Form C x 2	3 Channel Relay I-7063: Form A; AC 250V5A; DC 30V/5A I-7063A: AC type SSR I-7063B: DC type SSR	5 Channel Relay I-7065: Form A; AC 250V5A; DC 30V/5A I-7065A: AC type SSR I-7065B: DC type SSR
	Alarm Setting	—	—	—
Counter	Channels	4	8	4
	Input frequency	100Hz	100Hz	100Hz
LED Display		Yes for I-7060D	Yes for 7063D/7063AD/7063BD	Yes for 7065D/7065AD/7065BD
Safe Value (When Host Fail or communication fail)		Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes
Availability		Yes	Yes	Yes

**Digital I/O, Relay and Counter Selection Guide**

Module		I-7066/ I-7066D	I-7067/ I-7067D	I-7080/ I-7080D
Digital input and Digital output	Digital input channels	—	—	—
	Digital output channels	7 Channel Photo Mos Relay	7 Channel Relay Form A	2 Channel
	Alarm Setting	—	—	—
Counter	Channels	—	—	2
	Input frequency	—	—	100 KHz
LED Display		Yes for I-7066D	Yes for I-7067D	Yes for I-7080D
Safe Value (When Host Fail or communication fail)		Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes
Availability		Yes	Yes	Yes

# i-7000 **Analog Output Modules Selection Guide**

## SERIES

i-7000

### Analog Output Module Selection Guide

Module		I-7021	I-7021P	I-7022	I-7024
Analog Output	Resolution	12 bit	16 bit	12 bit	14 bit
	Output Channels	1	1	2 (*1)	4
	Voltage Output	0-10V	0-10V	0-10V	+/-10V, 0-10V, +/-5V, 0-5V
	Current Output	0-20mA 4-20mA	0-20mA 4-20mA	0-20mA 4-20mA	0-20mA 4-20mA
Safe Value (When Host Fail or communication fail)		Yes	Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes	Yes
Availability		Yes	Yes	Yes	Yes
*1: channel to channel isolation					

### Touch Panel Selection Guide

Module	Touch 506L	Touch 506T	Touch 510T
Display	5.7" STN LCD	5.7" TFT LCD	10.4" TFT LCD
Max colors	4-Gray	256 color	256 color
Resolution	320 x 240	320 x 234	640 x 480
Touch Type	Resistive	Resistive	Resistive
Back light	CCFL x 1	CCFL x 1	CCFL x 2
Interface Port	RS-232/RS-485	RS-232/RS-485	RS-232/RS-485
Power Consumption	0.5A max. @ 24VDC	0.5A max. @ 24VDC	430 mA @ 24VDC
Dimension	204x150x48mm	204x150x48mm	315x238x62mm
Weight	Approx. 0.8Kg	Approx. 0.8Kg	Approx. 2.0Kg

# i-7000 **USB Converter & Hub**

## SERIES

### What is USB?

USB, or Universal Serial Bus is a connectivity specification developed by computer and telecommunication industry members for attaching peripherals to computers.

USB is designed to free all the troubles when installing external peripherals. It eliminates the hassle to open computer case for installing cards needed for certain devices.

It is designed to meet Microsoft Plug and Play (PnP) specification, meaning users can install, and hot-swap devices without long installation procedures and reboots.

I-7560

**I-7560:**

#### USB to RS-232 Converter

- Compatibility: USB 1.1 standard
- Input port : USB
- Output port: 9-wire RS-232
- RS-232 Signals: TxD, RxD, RTS, CTS, DSR, DTR, DCD, RI and GND
- Driver Supported:  
Windows 98/ME/2000/XP/Linux

I-7561



U.S. Patent,  
US 6,401,159 B1

**I-7561:**

#### USB to RS-232/422/485 Converter

- Compatibility : USB 1.1 standard
- Input Port : USB
- Output : RS-232/422/485
- "Self Tuner" inside
- 3000V DC-to-DC Power Isolation.
- Driver Supported:  
Windows 98/ME/2000/XP/Linux

I-7563



U.S. Patent,  
US 6,401,159 B1

**I-7563:**

#### USB to one channel RS-485 converter with a three way RS-485 Hub

- Compatibility: USB 1.1 standard
- Input port: USB.
- Output port: Three RS-485.
- "Self Tuner" inside.
- 3000V DC-to-DC Power Isolation.
- Driver supported:  
Windows 98/ME/2000/XP/Linux

### PCISA-7520R



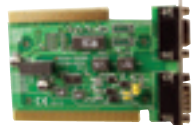
U.S. Patent, US 6,401,159 B1

### PCISA-7520R:

#### PCI / ISA Bus RS-232 to RS-485 Card

- PCI/ISA Bus interface
- Input: RS-232
- Output: RS-485
- "Self Tuner" inside
- Speed: 300 ~115,200 bps
- 3000 V isolation
- Multiple Baud Rate; Multiple Data Format

### PCISA-7520AR



U.S. Patent, US 6,401,159 B1

### PCISA-7520AR:

#### PCI / ISA Bus RS-232 to RS-422/485 card

- PCI/ISA Bus interface
- Input: RS-232
- Output: RS-422/485
- Other spec. same as PCISA-7520R

### I-7551



### I-7551:

#### Isolated RS-232 to RS-232 Converter

- Jumpers JP1 and JP2 select the RS-232 input source type.
- Input: TxD, RxD, CTS, RTS, GND or TxD, RxD, DSR, DTR, GND
- Output: TxD, RxD, CTS, RTS, GND or TxD, RxD, DSR, DTR, GND
- 3000V DC-to-DC Power Isolation.
- 3570Vrms Channel-to-Channel isolation

### I-7520



U.S. Patent, US 6,401,159 B1

### I-7520R



### I-7520:

#### RS-232 to RS-485 Converter

### I-7520R:

#### I-7520 with 3000V DC isolation at RS-485 side

- Input: RS-232 protocol
- Output: RS-485 protocol
- "Self Tuner" inside
- Speed: 300 ~115,200 bps
- 3000 V isolation
- Multiple Baud Rate; Multiple Data Format

### I-7520A



U.S. Patent, US 6,401,159 B1

### I-7520AR



### I-7520A:

#### RS-232 to RS-422/RS-485 Converter

- Input: RS-232 protocol
- Output: RS-422/485 protocol
- Other spec. is the same as I-7520

### I-7520AR:

#### RS-232 to RS-422/RS-485 Converter

- Same as I-7520A, except the power side is different

# i-7000 **Isolated RS-422/485 Repeaters & Hubs**

## SERIES

I-7510



U.S. Patent, US 6,401,159 B1

I-7510A

**I-7510:****RS-485 Repeater**

- "Self-Tuner" inside
- Multiple Baud Rate: 300,...9600,...115200 bps
- Multiple Data Format
- Automatically adjust Baud Rate and Data Format

**I-7510A:****RS-422/RS-485 Repeater**

- Same as I-7510
- Plus RS-422 repeater

I-7510AR



U.S. Patent, US 6,401,159 B1

**I-7510AR:****Three-way isolated RS-422/485 Repeater**

- Same as I-7510A
- 3000V DC-to-DC Power Isolation.

I-7513



U.S. Patent, US 6,401,159 B1

**I-7513:****Three-way isolated RS-485 to 3 Channels RS-485 Hub**

- Input port: One RS-485.
- Output port: Three channels RS-485.
- "Self Tuner" inside.
- Speed: 300 ~ 115200 bps.
- 3000V DC-to-DC Power Isolation.

I-2541

**I-2541:****RS-232 /422/485 to Fiber Optic Converter**

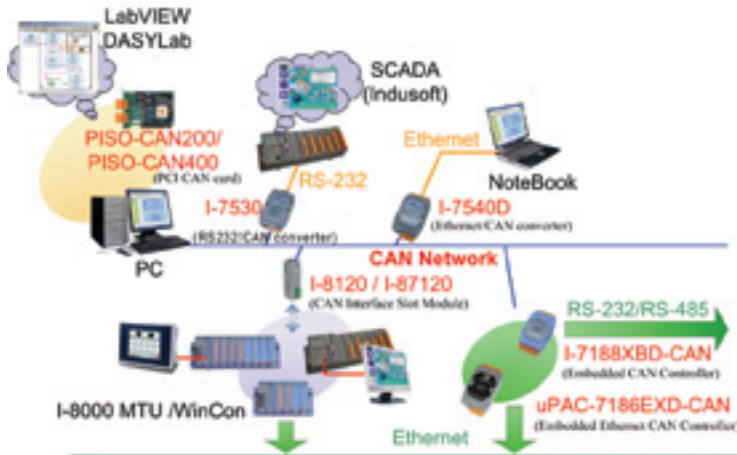
- Fiber Port: ST (Multi-mode)
- Wave Length: 850 nm
- Fiber Cable: 62.5/125  $\mu$ m
- Speed: "Self Tuner", auto switching baud rate, 300~115200 bps
- Extend transmission distance up to 2 Km.
- Isolation voltage: 3000V dc
- Optical isolation: 3570Vrms
- Power requirement: Unregulated +10V dc ~ +30V dc.
- Power consumption: 2.0W max.

# i-7000 CAN Converter SERIES

i-7000

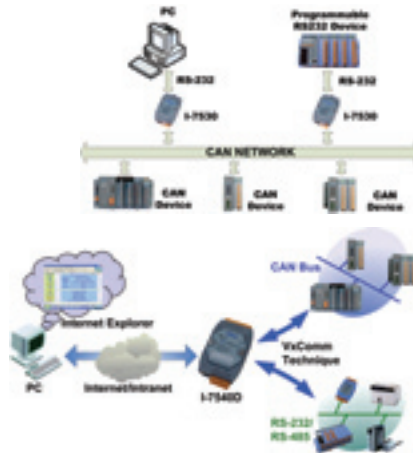
## CAN bus Introduction

The Controller Area Network (CAN) is a serial communication way, which efficiently supports distributed real-time control with a very high level of security. It provides the error process mechanisms and message priority concepts. These features can improve the network reliability and transmission efficiency. Furthermore, CAN supplies the multi-master capabilities, and is especially suited for networking "intelligent" devices as well as sensors and actuators within a system or sub-system.



## I-7530 CAN/RS-232 Converter and I-7540D CAN/Ethernet Converter

I-7530 and I-7540D are the CAN/RS-232 and CAN/Ethernet converters. These two converters give solutions to overcome the data exchange between two different field buses. By using them, users can combine the programmable RS-232/Ethernet device into the CAN network if users want to integrate the different field bus. Besides, Users also can obtain the CAN message on PC or notebook easily by applying the utilities of these converters. These utilities would be useful tools for CAN bus diagnostician in variety application.





# i-7000 CAN Converter

## SERIES



**NEW!!**

### Ordering Information:

**I-7530-G:** Intelligent RS-232 to CAN converter

### Specifications & Features

- Microprocessor inside with 20MHz
- CAN interface connector: D-Sub 9-pin
- RS-232 interface connector: D-Sub 9-pin
- Software configurable CAN and RS-232 communication parameters
- Support both CAN 2.0A and CAN 2.0B
- 3000Vrms on the CAN side
- Power, data flow and error indicator for CAN and RS-232
- Build-in jumper to select 120 ohm terminal resistor
- Max. CAN baud: 1M bps
- Max. RS-232 baud: 115.2K bps
- Watchdog inside
- Power consumption: 1W
- Unregulated +10VDC to +30VDC
- Operating temperature: -25°C to +75°C
- Storage temperature: -40°C to +80°C
- Dimensions: 119x72x33mm



**NEW!!**

### Ordering Information:

**I-7540D-G:** Intelligent Ethernet to CAN converter

### Specifications & Features

- RDC 80186-80M Embedded CPU, or compatible
- SRAM: 512Kbytes
- Flash Memory: 512 Kbytes
- Supports a variety of TCP/IP features, including TCP, IP, ICMP, ARP
- 10/100 BASE-T DM9000AE compatible Ethernet Controller
- Support one RS-232 port, one RS-485 port and one CAN port
- 2500Vrms photo-isolation protection on CAN side.
- Software configurable CAN and RS-232 communication parameters
- Support both CAN specification 2.0A and 2.0B.
- 7-segment LED display.
- Watchdog inside
- Support Vxcomm technique
- Power Supply: 3.0W
- Unregulated +10VDC to +30VDC
- Operating temperature: -25°C to +75°C
- Storage temperature: -40°C to +80°C
- Dimensions: 119x72x33mm

# i-7000 Analog I/O Modules

## SERIES

i-7000

I-7005



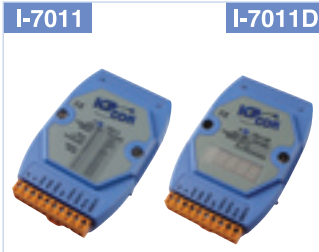
**I-7005:**

### Digital Output Module

- Analog Input Channels: 8
- Input Type: Precon ST-A3, Type u Fenwell, YSI, User-defined
- Accuracy: +/-0.1%
- Sampling Rate: 8 samples/second (Total)
- Common Mode Rejection: Typical 86dB
- Voltage Input Impedance: >1M Ohms
- Alarm Output: 6 Open Collector to 30V, 100mA, load (perchannel)
- Isolation Voltage: 3000VDC
- Individual Channel Configurable
- Wire Opening Detection
- Power Consumption: 1.1W

I-7011

I-7011D



**I-7011:**

### Thermocouple Input Module

#### I-7011D: I-7011 with LED Display

- Analog input types: thermocouple, mV, V or mA (requires optional external 125  $\Omega$  resistor)
- Input Ranges: +/-15mV, +/-50mV, +/-100mV, +/-500mV, +/-1V, +/-2.5V, +/-20mA
- Thermocouple types: J, K, T, E, R, S, B, N, C
- Sampling rate: 10 samples/sec
- Programmable Hi/Low alarm

I-7011P

I-7011PD



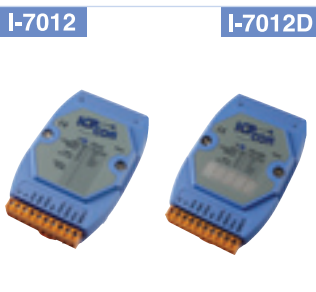
**I-7011P**

#### I-7011PD: I-7011P with LED Display

- Enhanced version of I-7011
- Thermocouple types: J, K, T, E, R, S, B, N, C, L, M

# i-7000 Analog I/O Modules

## SERIES

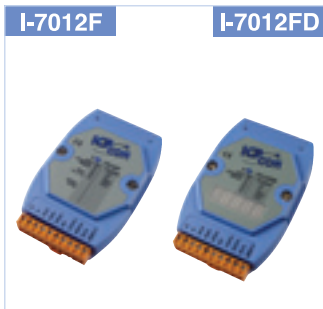


### I-7012: Analog Input Module

#### I-7012D:

#### I-7012 with LED Display

- Analog input types: mV, V, mA  
(requires optional external 125  $\Omega$  resistor)
- Input Ranges: +/-150mV, +/-500mV, +/-1V, +/-5V, +/-10V, +/-20mA
- Sampling rate: 10 samples/sec.



### I-7012F

#### I-7012FD: I-7012F with LED Display

- High speed version of I-7012
- Can be configured as 12-bit resolution and 100Hz sampling rate
- Other spec. is the same as I-7012



### I-7013:

#### RTD Input Module

#### I-7013D: I-7013 with LED Display

- Analog input types: Pt or Ni RTD
- Sampling rate: 10 samples/sec.
- Input connection: 2, 3, or 4 wires
- Pt 100 input range:  
+/-100°C, 0-100°C, 0-200°C, 0-600°C
- Ni input range: -80-100°C, 0-100°C

# i-7000 Analog I/O Modules

## SERIES

i-7000

I-7014D



### I-7014D:

#### Analog/Transmitter Input with LED Display

- Analog input types: V, mV, mA
- Input Ranges: +/-150mV, +/-500mV, +/-1V, +/-5V, +/-10V, +/-20mA
- Sampling rate: 10 samples/sec.
- Isolated loop power: +15Vdc
- Input Linear Scaling
- LED indicator: 4 1/2 digit readout

I-7015



NEW!!

### I-7015:

#### 6-channel 3 wire RTD Input Module

- Analog input types: Pt, Ni or Cu RTD
- Sampling rate: 12 samples/sec
- Accuracy: 0.05%
- Input Connection: 2 or 3 wires
- Individual channel configurable
- Wire Opening Detection

I-7016

I-7016D



### I-7016/7016D:

#### Strain Gauge Input Module

- Resolution: 16 bit
- Channels: 2 channel
- Input type: mV, V and mA
- Input range: +/-15mV, +/-50mV, +/-100mV, +/-500mV, +/-1V, +/-2.5V, +/-20mA
- Isolation: 3000V
- Sampling rate: 10Hz

I-7016P

I-7016PD



### I-7016P/7016PD:

#### Strain Gauge Input Module For Longer Cable Length

- Channel: 1 channel
- Other Spec. is the same as I-7016
- Requires two more cables for remote sensing

# i-7000 Analog I/O Modules

## SERIES

I-7017

**I-7017:****8-channel Analog Input Module**

- Input types: mV, V, mA (requires optional external 125 Ω resistor)
- Input Ranges: +/-150mV, +/-500mV, +/-1V, +/-5V, +/-10V, +/-20mA,
- Channels: 6 differential, 2 single-ended or 8 differential (jumper selectable)
- Sampling rate: 10 samples/sec total

I-7017C

**I-7017C:****8-channel Current Input Module**

- Input Range : **Only Current Input (+/- 20mA)**
- Channels : 8 differential (no external resistor required)
- Sampling rate : 10 samples/sec total

I-7017F

**I-7017F:****8-channel Analog Input Module**

- High speed version of I-7017
- Can be configured as 12-bit resolution and 60Hz sampling rate
- Other spec. is the same as I-7017

I-7017R

**I-7017R:****8-channel Analog Input Module**

- Input Channels : 8 differential
- Input Types : mV, V, mA (requires optional external 125 Ω resistor)
- Sampling Rate : 10/60 samples/second total
- -3dB BandWidth : 15.7Hz
- Accuracy : +/-0.1%
- Common Mode Rejection : Typical 86dB
- Voltage Input Impedance : >2M Ohms
- Overvoltage Protection : 240 VRMS
- Isolation Voltage : 3000Vrms

I-7017RC

**I-7017RC:****8-channel Current Input Module**

- Input Type : **Only Current Input (+/- 20mA)**
- Other Spec. is the same as I-7017R (no external resistor required)

# i-7000 Analog I/O Modules

## SERIES

i-7000

I-7018



### I-7018:

#### 8-channel Thermocouple Input Module

- Input type: same as I-7011
- Input Range: same as I-7011
- Channels:
  - 6 differential, 2 single-ended or
  - 8 differential (jumper selectable)
- Sampling rate: 10 samples/sec total

I-7018BL



### I-7018BL:

#### 8-channel Thermocouple Input Module

- Break Line Detection
- Other Spec. is the same as I-7018

I-7018P



### I-7018P:

#### 8-channel Thermocouple Input Module

- same as 7018
- Add two thermocouple input type: L, M

I-7018R



### I-7018R:

#### 8-channel Thermocouple Input Module

- Input Type: mV, V, mA (requires optional external 125  $\Omega$  resistor), Thermocouple
- Thermocouple Type: J, K, T, E, R, S, B, N, C, L, M
- Sampling Rate: 10 samples/Second total
- -3d B BandWidth: 15.7Hz
- Accuracy: +/- 0.25%
- Common Mode Rejection: Typical 86dB
- Voltage Input Impedance: >2M Ohms
- Overvoltage Protection: 240 VRMS
- Isolation Voltage: 3000 VDC
- Break Line Detection

# i-7000 Analog I/O Modules

## SERIES

I-7019R

**I-7019R:****8-channel Universal Analog Input Module**

- Input Type: mV, V, mA, Thermocouple,
- Voltage Range: +/-15mV, +/-50mV, +/-100mV, +/-150mV, +/-500mV, +/-1V, +/-2.5V, +/-5V, +/-10V
- Current Range: +/-20mA(jumper selectable)
- Thermocouple Type: J,K,T,E,R,S,B,N,C,L,M,L2
- Sampling Rate: 8 samples/second total
- -3dB BandWidth: 5.24Hz
- Accuracy: +/- 0.1%
- Individual Channel Configurable
- Common Mode Rejection: Typical 86dB
- Voltage Input Impedance: >1M Ohms
- Overvoltage Protection: 240 Vrms
- Isolation Voltage: 3000 VDC

I-7033

I-7033D

**I-7033:****3-channel RTD Input Module****I-7033D:****I-7033 with LED Display**

- Input Channel: 3 diff.
- Sampling rate: 15Hz (Total)
- Other Spec. is the same as I-7013

# i-7000 Analog I/O Modules

## SERIES

i-7000

I-7021



### I-7021:

#### Analog Output Module

- Resolution: 12 bit
- Analog output type: mA, V
- Output Range: 0-20mA, 4-20mA, 0-10V
- Accuracy:  $\pm 0.1\%$
- Programmable output slew rate: 0.0625 to 512V/sec. 0.125 to 1024mA/sec.

I-7021P



### I-7021P:

#### Analog Output Module

- Resolution: 16 bit
- High precision version of I-7021
- Current output 0-20mA, 4-20mA
- Voltage output 0-10V

I-7022



### I-7022:

#### 2-channel Analog Output Module

- Resolution: 12 bit
- Analog output channel: 2
- Current output: 0-20mA, 4-20mA
- Voltage output: 0-10V
- Channel to channel isolated

I-7024



### I-7024:

#### 4-channel Analog Output Module

- Resolution: 14 bit
- Current output 0-20mA, 4-20mA
- Voltage output:  $\pm 10V$ , 0-10V,  $\pm 5V$ , 0-5V
- Programmable output slew rate 0.0625 to 1024V/sec 0.125 to 2048 mA/sec



# i-7000 Digital I/O Modules

## SERIES



**I-7041:**  
**Isolated Digital Input Module**

**I-7041D:**  
**I-7041 with LED Display**

- Input: 14 single-ended
- ON Voltage Level: 4V to 30V.
- OFF Voltage Level: 0 to 1V.
- Isolation voltage: 3750Vrms
- Input resistance: 3K Ohms, 1/4W



**I-7042:**  
**Isolated O.C. Output Module**

**I-7042D:**

**I-7042 with LED**

- Digital Output channels: 13
- Open collector to 30V, 100mA max load
- Isolation voltage: 3750Vrms
- Direct drive power relay module



**I-7043:**  
**Non-isolated O.C. Output Module**

**I-7043D:**

**I-7043 with LED**

- Digital Output channels: 16
- Open collector to 30V, 100mA max load
- Direct drive power relay module



**I-7044: Isolated Digital Input & Output Module**

**I-7044D: I-7044 with LED Display**

- Input: 4 single-ended
- ON Voltage Level: 4V to 30V.
- OFF Voltage Level: 0 to 1V.
- Input isolation voltage: 3750Vrms
- Digital Output channels: 8
- Open collector to 30V.
- 375mA max per channel



**I-7045: 16 channel Isolated Digital Output Module**

**I-7045D: I-7045 with LED Display**

- Channels : 16
- External Voltage : 10 to 40V max.
- Output current : 650mA per channel
- Isolation Voltage : 3750Vrms
- Direct drive power relay module
- Power consumption: 0.5W
- Short circuit protection

# i-7000 Digital I/O Modules

## SERIES

i-7000

I-7050

I-7050D



**I-7050: Non-isolated Digital I/O Module**  
**I-7050D: I-7050 with LED Display**

- Digital input channels: 7  
ON Voltage Level: +1V max.  
OFF Voltage Level: +3.5 ~ +30V
- Digital output channels: 8  
Open collector to 30V, 30mA max. load  
Power dissipation: 300mW

I-7050A

I-7050AD



**I-7050A: Digital I/O Module (Current Source)**  
**I-7050AD: I-7050A LED Display**

- Digital Input Channels:7  
ON Voltage Level: +3.5V~+30V  
OFF Voltage Level: +1V max
- Digital Output Channels:8  
Open Collector to 30V, 50mA(max). load

I-7051

I-7051D



**I-7051: Isolated Digital Input Module**  
**I-7051D: I-7051 LED Display**

- Digital Input Channels: 16
- Isolation voltage: 3750 Vrms
- Digital input status:  
Dry contact:  
ON Voltage Level: close to GND  
OFF Voltage Level: open  
Wet contact:  
ON Voltage Level: +10V to +50V  
OFF Voltage Level: +3V max  
Effective distance for dry contact:  
500m max

I-7052

I-7052D



**I-7052: Isolated Digital Input Module**  
**I-7052D: I-7052 with LED Display**

- Input: 6 differential and 2 single-ended  
ON Voltage Level: 3.5V to 30V.  
OFF Voltage Level: 0 to 1V.
- Isolation voltage: 5000V rms
- Input resistance: 3K Ohms, 1/4W

I-7053\_FG

I-7053D\_FG



**I-7053\_FG:**  
**Non-isolated Digital Input Module**

- I-7053D\_FG:**  
**I-7053 with Display**
- Input: 16 single-ended  
ON Voltage Level: 4V to 30V.  
OFF Voltage Level: 0 to 2V.

# i-7000 Digital I/O Modules

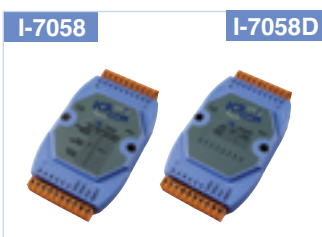
## SERIES



### I-7055: Isolated Digital Input Module

#### I-7055D: I-7055 LED Display

- Digital Input Channels: 8
- Digital Input status
- Dry contact: ON Voltage Level: close to GND  
OFF Voltage Level: open
- Wet contact: ON Voltage Level: +10V to +50V  
OFF Voltage Level: +3V max
- Effective distance for dry contact: 500m max



- Digital Output channels: 8
- Open collector to 40V, 650mA max. load  
( Short Circuit Protection )
- Optical Isolation: 3750Vrms

### I-7058: 8-channel Isolated Digital Input Module

#### I-7058D: I-7058 with Display

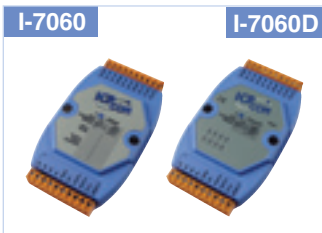
- Digital input channel : 8 differential
- Operating Voltage: 80~250 VAC peak
- Input Voltage
- ON Voltage Level: AC 80V min.  
OFF Voltage Level: AC 30V max.
- Maximum Input Voltage :AC 250V
- AC frequency : 45Hz(min.)
- Isolation :5000Vrms



### I-7059: 8-channel AC Input Module

#### I-7059D: I-7059 with Display

- Input Channel: 8 differential
- Operating Voltage: 10 ~ 80VAC Peak
- ON Voltage Level: 10VAC min.
- OFF Voltage Level: 3.0VAC max.
- AC Frequency: 47~400Hz (>45Hz min.)
- Input Impedance: 10K Ohms
- Isolation Voltage: 5000Vrms
- Power Input: +10V to +30V
- Power Consumption: 0.3W max.

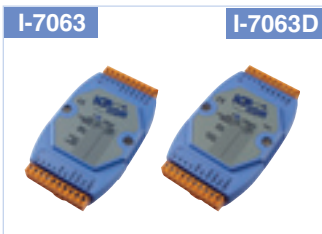


### I-7060:

#### Relay Output & Isolated Digital Input Module

#### I-7060D: I-7060 with LED Display

- Input: 4 single-ended
- ON Voltage Level: 4V to 30V.  
OFF Voltage Level: 0 to 1V.
- Isolation voltage: 3750Vrms
- Input resistance: 3K Ohms, 1/4W
- Output: 4-channel relay



### I-7063: Power Relay & Isolated Digital Input Module

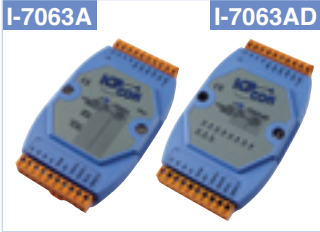
#### I-7063D : I-7063 with LED Display

- Input : 8 single-ended
- ON Voltage Level: 4V to 30V.  
OFF Voltage Level: 0 to 1V.
- Input resistance: 3K ohms
- Isolation voltage: 3750Vrms
- Output: 3 Form A power relay
- Contact rating: 5A@250VAC / 5A@30VDC

# i-7000 Digital I/O Modules

## SERIES

i-7000



**I-7063A: AC-SSR & Isolated Digital Input Module**  
**I-7063AD: I-7063A with LED Display**

- Digital input spec. is the same as I-7063
- Output: 3 AC-SSR , Normal open
- Contact rating: Load voltage: AC 24 to 265Vrms  
 Leakage current: 1.5mArms  
 Max load current: 1.0Arms



**I-7063B: DC-SSR & Isolated Digital Input Module**  
**I-7063BD: I-7063B with LED Display**

- Digital input spec. is the same as I-7063
- Output: 3 DC-SSR , Normal open
- Contact rating: Load voltage: DC 3 to 30V  
 Leakage current: 0.1mA  
 Max load current: 1.0A



**I-7065: Power Relay & Isolated Digital Input Module**  
**I-7065D: I-7065 with LED Display**

- Input : 4 single-ended  
 ON Voltage Level: 4V to 30V.  
 OFF Voltage Level: 0 to 1V.  
 Input resistance: 3K Ohms
- Output: 5 Form A power relay  
 Contact rating: 5A@250VAC  
 5A@30VDC



**I-7065A: AC-SSR & Isolated Digital Input Module**  
**I-7065AD: I-7065A with LED Display**

- Digital input spec. is the same as I-7065
- Output: 5 AC-SSR , Normal open
- Contact rating:  
 Load voltage: AC 24 to 265Vrms  
 Leakage current: 1.5mArms  
 Max load current: 1.0Arms
- Isolation voltage:3750Vrms

# i-7000 Digital I/O Modules



**I-7065B: DC-SSR & Isolated Digital Input Module**

**I-7065BD: I-7065B with LED Display**

- Digital input spec. is the same as I-7065
- Output: 5 DC-SSR , Normal open
- Contact rating:
  - Load voltage: DC 3 to 30V
  - Leakage current: 0.1mA
  - Max load current: 1.0A
- Isolation voltage: 3750Vrms



**I-7066: Photo Mos Relay Output Module**

**I-7066D: I-7066 with Display**

- 7 form A Photo Mos Relays
- Load voltage : 350V
- Continuous load current: 0.13A
- 5,000V Optional Isolation



**I-7067: Relay Output Module**

**I-7067D: I-7067 with Display**

- Relay output: 7 Form A
- Contact rating: AC: 125V @0.5A  
DC: 24V @2A

## Counter Modules



**I-7080: Counter/Frequency Input Module**

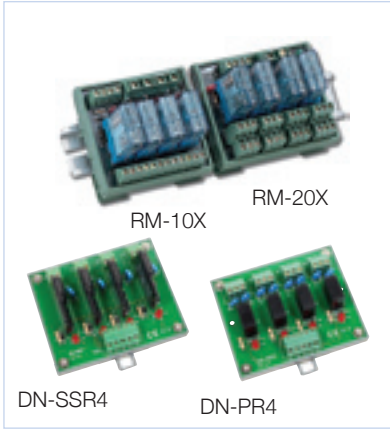
**I-7080D: I-7080 with LED Display**

- Counter input: 2 independent 32 bit counter
- Frequency input: 100K Hz max
- Input: 3750V isolated or non-isolated
- Non-isolated programmable threshold value
- Programmable digital noise filter
- LED indicator: 5 digit readout (1-7080D)

# i-7000 **Relay Module**

## SERIES

i-7000



## Relay Modules

### RM-10X Series Relay Module

- 16A, 1 form C Relay
- RM-104/RM-108/RM-116

### RM-20X Series Relay Module

- 5A, 2 form C Relay
- RM-204/RM-208/RM-216

### DN-PR4:

- Channels: 4
- Relay Type: Form A
- Load Voltage: 50~250VAC/5A

### DN-SSR4:

- Channels: 4
- Relay Type: Form A
- Load Voltage: 50~250VAC/4A

## Power Supply

### ACE-540A/DIN-540A:

- Inputs: 85~264VAC@47~63Hz
- Output: +24VDC/1.7A
- Over Load protection
- DIN-Rail Mounted(DIN-540A)

### KA-52F/DIN-KA52F

- Inputs: 100~250VAC
- Outputs: +24VDC/1A
- DIN-Rail Mounted(DIN-KA52F)

### PWR-24/110

- Inputs: 110VAC/60Hz
- Outputs: +24VDC/200mA

### PWR-24/220F

- Inputs: 220AC/60Hz
- Outputs: +24VDC/100mA

### PWR-24/230R

- Inputs: 230VAC(Round type plugged)
- Outputs: +24VDC/200mA

### DP-640/DP-660/DP-665

- Inputs: 85~264VAC@47~63Hz
- Outputs: +24V/1.7A (DP-640); +24VDC/2.5A; +5VDC/0.5A (DP-660/DP-665)

### DP-1200

- Inputs: 85~ 264VAC@47~63Hz
- Outputs: +24V/5A
- DIN-Rail Mounted



# i-7000 Industrial LCD Display

## SERIES

### MMICON



## Man Machine Interface

### MMICON

- Man-Machine interface Control Board
- 240x64 dots Graphics LCD interface
- LCD display area: 107.97x77mm
- 4x4 keyboard interface
- RS-232/RS-485 interface

### Touch series



Touch 506L/506T



Touch 510T

### Touch 506T

- 5.7" Color TFT Touch Panel Display
- RS-232 / RS-485 Interface
- Connect to I-7188, I-8000, W-8000 or other PAC

### Touch 506L

- 5.7" 4-Gray STN Touch Panel Display
- RS-232 / RS-485 Interface
- Connect to I-7188, I-8000, W-8000 or other PAC

### Touch 510T

- 10.4" Color TFT Touch Panel Display
- RS-232 / RS-485 Interface
- Connect to I-7188, I-8000, W-8000 or other PAC

# i-7000 **Radio Modems and Antennas**

## SERIES

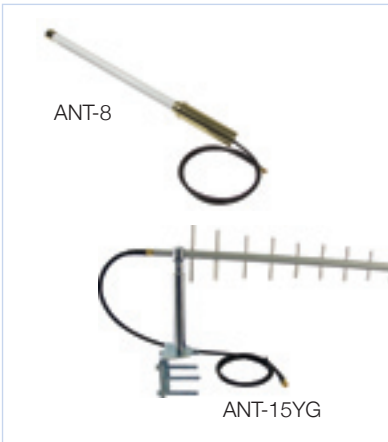
i-7000



SST-2450

### **SST-2450:**

- Based on DSSS and RF technology
- Operating in 2410~2472MHz, ISM band
- Number of channels: 16
- Transmit Power: 0.05W
- Communication distance: 100~300M (obstacle free environment)
- CE Report No:02AH055E1
- FCC ID:Q6MIT450000



ANT-8

ANT-15YG

### **ANT-8**

**1 Km external antenne for SST-2450 (Omnidirectional)**

### **ANT-15YG**

**9 Km external antenne for SST-2450 (Directional)**



## **Accessories**

### **I-950-ENC Industrial Enclosure**

- IP66 Industrial enclosure
- Built-in DIN-Rail for easy mounting
- Seal design provides anti-leak protection
- Dimensions: 254x180x90mm

### **I-3625-ENC**

- Dimension: 360 x 254 x 165mm



# Accessories



## Terminal Block cover

### CA-5810

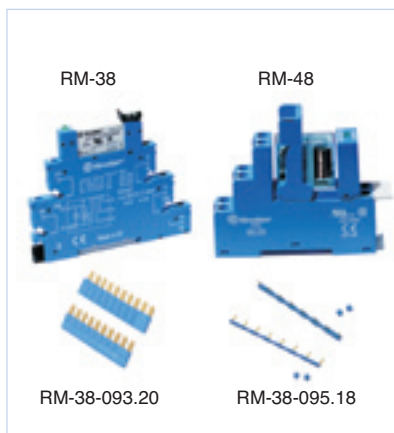
- For 10 pin 5.08mm pitch

### CA-3813

- For 13 pin 3.81mm pitch  
And 14 pin 3.5 mm pitch

### CA-0945

- For 9 pin 3.81 mm pitch with RJ-45 connector



## Relay Modules

### RM-38 Series Relay Module

- 6.2 mm wide
- Contact configuration : 1 co (SPDT)
- Load Voltage : 12~240VAC/6A

### RM-48.61/RM-48.62 Series Relay Module

#### RM-48.61

- 15.5 mm wide,
- Contact configuration : 1 co (SPDT)
- Load voltage : 12~240VAC/16A

#### RM-48.62

- 15.5 mm wide
- Contact configuration : 2 co (DPDT)
- Load voltage : 12~240VAC/10A

### Installation



### Ordering Information

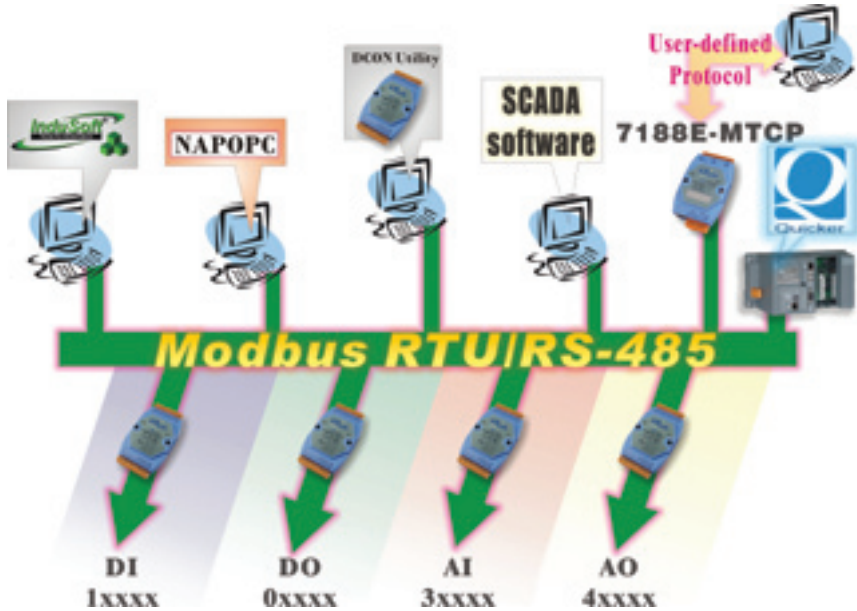
- RM-38 SPDT (5 piece in one box)
- Option: 20-way jumper link for RM-38
- RM-48.61 RM-48 SPDT (4 pieces in one box)
- RM-48.62 RM-48 DPDT (4 pieces in one box)
- Option: 18-way jumper link for RM-48 series

# M-7000

## Modbus & DCON Protocols Supported

### SERIES

M-7000



### Introduction

The M-7000 series is a family of network data acquisition and control modules that support Modbus RTU and DCON protocols. With the Modbus RTU protocol, it can easily communicate with most popular SCADA/ HMI software and PLC. It has the same form factor as the I-7000 series.

### Features

- 3000 VDC isolation (inter-module)
- High voltage overload protection: M-7017R, M-7018R, M-7019R, M-7055
- High digital input voltage, 50 Vdc: M-7055
- Short circuit protection for digital output: M-7055
- Open thermocouple detection: M-7018R, M-7019R
- Open RTD detection: M-7015, M-7033
- Individual channel configurable: M-7015, M-7019R

# M-7000 *Analog Input Modules Selection Guide*

## SERIES

Analog Input Modules Selection Guide

Module		M-7005	M-7015	M-7033 M-7033D
Analog Input	Resolution	16 bit	16 bit	16 bit
	Input channel	8 diff.	6 diff.	3 diff.
	Sampling rate	8Hz	12Hz	10Hz
	Voltage input	-	-	-
	Current input	-	-	-
	Sensor input	Thermistor (2 wire)	Pt/Ni/Cu RTD (2/3 wire)	Pt Ni-RTD (2/3/4 wire)
	4 1/2 digit LED Display	-	-	Yes for M-7033D
	Isolated loop power	-	-	-
	Input Linear scaling	-	-	-
	Isolation Voltage	3000V	3000V	3000V
Digital Input & Digital Output	Digital input channels	-	-	-
	Digital output channels	6	-	-
	Event counter	-	-	-
	High/Low Alarm	Yes	-	-
Individual Channel Configurable	Yes	Yes	-	
Dual Watchdog Timer	Yes	Yes	Yes	
Frame Ground	Yes	Yes	-	
Availability	Call	Yes	Yes	

Analog Input Modules Selection Guide

Module		M-7016/ M-7016D	M-7017	M-7017R
Analog Input	Resolution	16 bit	16 bit	16/12 bit
	Input channel	2 diff.	8 diff.	8 diff.
	Sampling rate	2/10Hz	10Hz (total)	10/60Hz (total)
	Fast Mode (12bit)	–	–	Yes
	Voltage input	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	+/-150mV +/-500mV +/-1V +/-5V +/-10V
	Current input	+/-20mA	+/-20mA	+/-20mA
	Sensor input	4-wire Strain gauge Input	–	–
	4 1/2 digit LED Display	Yes for M-7016D	–	–
	Input Linear scaling	Yes	–	–
	Isolation Voltage	3000V	3000V	3000V
Digital Input & Digital Output	Digital input channels	1	–	–
	Digital output channels	4	–	–
	Event counter	Yes	–	–
	High/Low Alarm	Yes	–	–
Dual Watchdog Timer	Yes	Yes	Yes	
Over voltage protection	–	+/-35V	240Vrms	
Frame Ground	–	Yes	Yes	
Availability	Yes	Yes	Yes	

# M-7000 *Analog Input Modules* SELECTION GUIDE

Analog Input Modules Selection Guide

Module		M-7018	M-7018R	M-7019R
Analog Input	Resolution	16 bit	16 bit	16 bit
	Input channel	8 diff.	8 diff.	8 diff.
	Sampling rate	10Hz (total)	10Hz (total)	8Hz (total)
	Voltage input	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-150mV +/-500mV +/-1V +/-2.5V +/-5V +/-10V
	Current input	+/-20mA	+/-20mA	+/-20mA
	Sensor input	J.K.T.E.R.S.B N.C. thermocouple	J.K.T.E.R.S.B N.C.L.M. thermocouple	J.K.T.E.R.S.B N.C.L.M.L2 (DIN43710) thermocouple
	4 1/2 digit LED Display	-	-	-
	Isolation Voltage	3000V	3000V	3000V
Break Line Detection	-	Yes	Yes	
Individual Channel Configurable	-	-	Yes	
Dual Watchdog Timer	Yes	Yes	Yes	
Over voltage protection	+/-35V	240Vrms	240Vrms	
Frame Ground	Yes	Yes	Yes	
Availability	Yes	Yes	Yes	

Analog Output Module Selection Guide

Module		M-7022	M-7024
Analog Output	Resolution	12 bit	14 bit
	Output Channels	2(*1)	4
	Voltage Output	0-10V	+/-10V, 0-10V +/-5V, 0-5V
	Current Output	0-20mA 4-20mA	0-20mA 4-20mA
Safe Value (When Host Fail or communication fail)		Yes	Yes
Power-on Preset Value		Yes	Yes
Dual Watchdog Timer		Yes	Yes
Availability		Yes	Yes

\* 1: channel to channel isolation

# M-7000 *Digital I/O Modules Selection Guide*

## SERIES

**Digital I/O, Relay and Counter Selection Guide**

Module		M-7041/ M-7041D	M-7045/ M-7045D	M-7050/ M-7050D	M-7051/ M-7051D
Digital input and Digital output	Digital input channels	14 Isolation (3750V)	–	7	16 Isolation (3750V)
	Digital output channels (open collector)	–	16 Isolation (3750V)	8	–
	Alarm Setting	–	–	–	–
Counter	Channels	14	–	7	16
	Input frequency	100Hz	–	100Hz	100Hz
LED Display		Yes for M-7041D	Yes for M-7045D	Yes for M-7050D	Yes for M-7051D
Safe Value (When Host Fail or communication fail)		–	Yes	Yes	–
Power-on Preset Value		–	Yes	Yes	–
Dual Watchdog Timer		Yes	Yes	Yes	Yes
Availability		Yes	Yes	Yes	Yes

**Digital I/O, Relay and Counter Selection Guide**

Module		M-7052/ M-7052D	M-7053/ M-7053D	M-7055/ M-7055D
Digital input and Digital output	Digital input channels	8 Isolation (5000V)	16	8 Isolation (3750V)
	Digital output channels (open collector)	–	–	8 Isolation (3750V)
	Alarm Setting	–	–	–
Counter	Channels	8	16	8
	Input frequency	100Hz	100Hz	100Hz
LED Display		Yes for M-7052D	Yes for M-7053D	Yes for M-7055D
Safe Value (When Host Fail or communication fail)		–	–	Yes
Power-on Preset Value		–	–	Yes
Dual Watchdog Timer		Yes	Yes	Yes
Availability		Yes	Yes	Yes

# M-7000

## Digital I/O Modules Selection Guide

### SERIES

M-7000

#### Digital I/O, Relay and Counter Selection Guide

Module		M-7060/ M-7060D	M-7067/ M-7067D	M-7080/ M-7080D
Digital input and Digital output	Digital input channels	4 Isolation (3750V)	–	–
	Digital output channels	4 Channel Relay Form A x 2 Form C x 2	7 Channel Relay Form A	2 Channel
	Alarm Setting	–	–	–
Counter	Channels	4	–	2
	Input frequency	100Hz	–	100 KHz
LED Display		Yes for M-7060D	Yes for M-7067D	Yes for M-7080D
Safe Value (When Host Fail or communication fail)		Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes
Availability		Yes	Yes	Yes



# M-7000 Analog I/O Modules

## SERIES

M-7005



*Available soon*

### M-7005:

#### 8-channel Thermistor Input and 6-channel Digital Output Module

- Analog Input channels: 8
- Input Type: Precon ST-A3, Type u Fenwell, YSI, User-defined
- Accuracy: +/-0.1%
- Sampling Rate: 8 samples/second (Total)
- Common Mode Rejection: Typical 86dB
- Voltage Input Impedance: >1M Ohms
- Alarm Output: 6 Open Collector to 30V, 100mA, load (per channel)
- Isolation Voltage: 3000VDC
- Individual Channel Configurable
- Wire Opening Detection
- Power consumption: 1.1W

M-7015



### M-7015:

#### 6-channel 3 wire RTD Input Module

- Analog input types: Pt, Ni or Cu RTD
- Sampling rate: 12 samples/sec
- Accuracy: 0.05%
- Input Connection: 2 or 3 wires
- Individual channel configurable
- Wire Opening Detection

M-7016



M-7016D

*NEW!*

### M-7016/7016D:

#### Strain Gauge Input Module

- Resolution: 16 bit
- Channels: 2 channel
- Input type: mV, V and mA
- Input range: +/-15mV, +/-50mV, +/-100mV, +/-500mV, +/-1V, +/-2.5V, +/-20mA
- Isolation: 3000V
- Sampling rate: 10Hz for 1 channel mode  
2Hz for 2 channel mode

M-7017



### M-7017:

#### 8-channel Analog Input Module

- Input Channels: 6 differential and 2 single-ended or 8 differential (jumper selectable)
- Input Types: mV, V, mA (requires optional external 125 ohms resistor)
- Input Ranges: +/-150mV, +/-500mV, +/-1V, +/-5V, +/-10V, +/-20mA
- Sampling Rate: 10 samples/sec total

# M-7000 Analog I/O Modules

## SERIES

M-7017R



**M-7017R:**

**8-channel Analog Input Module**

- Input Channels: 8 differential
- Over Voltage Protection: +/-240VRMS
- Sampling Rate: 10/60 samples/sec total
- Other Spec. is the same as M-7017

M-7018



**M-7018:**

**8-channel Thermocouple Input Module**

- Input Channels: 6 differential and 2 single-ended or 8 differential (jumper selectable)
- Input Types: mV, V, mA (requires optional external 125 ohms resistor), Thermocouple
- Input Ranges: +/-15mV, +/-50mV, +/-100mV, +/-500mV, +/-1V, +/-2.5V, +/-20mA
- Thermocouple Types: J, K, T, E, R, S, B, N, C
- Sampling Rate: 10 samples/sec total

M-7018R



**M-7018R:**

**8-channel Thermocouple Input Module**

- Input Channels: 8 differential
- Over Voltage Protection: +/-240VRMS
- Other Spec. is the same as M-7018

M-7019R



**M-7019R:**

**8-channel Universal Analog Input Module**

- Input Channels: 8 differential
- Input Types: mV, V, mA (jumper selectable), Thermocouple
- Input Ranges: +/-15mV, +/-50mV, +/-100mV, +/-150mV, +/-500mV, +/-1V, +/-2.5V, +/-5V, +/-10V, +/-20mA
- Thermocouple Types: J, K, T, E, R, S, B, N, C, L, M, L2
- Sampling Rate: 8 samples/sec total
- Accuracy: +/-0.1%
- Over Voltage Protection: +/-240VRMS
- Isolation Voltage: 3000 VDC

# M-7000 Analog I/O Modules

## SERIES

M-7022

**M-7022:****2-channel Analog Output Module**

- Resolution: 12 bit
- Analog output channel: 2
- Current output: 0-20mA, 4-20mA
- Voltage output: 0-10V
- Channel to channel isolated
- Programmable output slew rate  
0.0625 to 512 V/sec  
0.125 to 1024 mA/sec

M-7024

**M-7024:****4-channel Analog Output Module**

- Resolution: 14 bit
- Current output 0-20mA, 4-20mA
- Voltage output: +/-10V, 0-10V, +/-5V, 0-5V
- Programmable output slew rate  
0.0625 to 1024V/sec  
0.125 to 2048 mA/sec

M-7033

M-7033D

**M-7033:****3-channel RTD Input Module****M-7033D:****M-7033 with LED Display**

- Sampling rate: 15Hz (Total)
- Analog input type: Pt, Ni RTD
- Input Channel: 3 diff
- Input Connection: 2,3 or 4 wire
- Pt 100 input range:  
+/-100°C, 0~100°C, 0~200°C, 0~600°C
- Ni 120 input range:  
-80~100°C, 0~100°C

# M-7000 Digital I/O Modules

## SERIES

M-7041 M-7041D



**M-7041: Isolated Digital Input Module**  
**M-7041D: M-7041 with LED Display**

- Input: 14 single-ended  
 ON Voltage Level: 4V to 30V.  
 OFF Voltage Level: 0 to 1V.
- Isolation voltage: 3750V rms
- Input resistance: 3K Ohms, 1/4W

M-7045 M-7045D



**M-7045: 16 channel Isolated Digital Output Module**  
**M-7045D: M-7045 with LED Display**

- Channels : 16
- External Voltage : 10 to 40V max.
- Output current : 650mA per channel
- Isolation Voltage : 3750Vrms
- Direct drive power relay module
- Power consumption: 0.5W
- Short circuit protection

M-7050 M-7050D



**M-7050: Non-isolated Digital I/O Module**  
**M-7050D: M-7050 with LED Display**

- Digital input channels: 7  
 Level:  
 ON Voltage Level: +3.5 ~ +30V  
 OFF Voltage Level: +1V max.
- Digital output channels: 8  
 Open collector to 30V, 30mA max. load  
 Power dissipation: 300mW

M-7051 M-7051D



**M-7051: Isolated Digital Input Module**  
**M-7051D: M-7051 with LED Display**

- Digital Input Channels: 16
- Isolation voltage: 3750 Vrms
- Digital input status:  
 Dry contact:  
 ON Voltage Level: close to GND  
 OFF Voltage Level: open  
 Wet contact:  
 ON Voltage Level: +10V to +50V  
 OFF Voltage Level: +3V max  
 Effective distance for dry contact:  
 500m max

M-7052 M-7052D



**M-7052: Isolated Digital Input Module**  
**M-7052D: M-7052 with LED Display**

- Input: 6 differential and 2 single-ended  
 ON Voltage Level: 3.5V to 30V.  
 OFF Voltage Level: 0 to 1V.
- Isolation voltage: 5000V rms
- Input resistance: 3K Ohms, 1/4W

# M-7000 *Digital I/O Modules*

## SERIES

M-7053



M-7053D



**M-7053: Non-isolated Digital Input Module**  
**M-7053D: M-7053 with Display**

- Input: 16 single-ended  
 ON Voltage Level: 4V to 30V.  
 OFF Voltage Level: 0 to 2V.

M-7055



M-7055D



**M-7055: Isolated Digital Input Module**  
**M-7055D: M-7055 LED Display**

- Digital Input Channels: 8
- Digital Input status  
 Dry contact: ON Voltage Level: close to GND  
 OFF Voltage Level: open  
 Wet contact: ON Voltage Level: +10V to +50V  
 OFF Voltage Level: +3V max  
 Effective distance for dry contact: 500m max
- Digital Output channels: 8
- Open collector to 40V, 650mA max. load  
 ( Short Circuit Protection )
- Optical Isolation: 3750VDC

M-7060



M-7060D



**M-7060: Relay Output & Isolated Digital Input Module**  
**M-7060D: M-7060 with LED Display**

- Input: 4 single-ended  
 ON Voltage Level: 4V to 30V.  
 OFF Voltage Level: 0 to 1V.
- Isolation voltage: 3750V rms
- Input resistance: 3K Ohms, 1/4W
- Output: 4-channel relay

M-7067



M-7067D



**M-7067: Relay Output Module**  
**M-7067D: M-7067 with Display**

- Relay output: 7 Form A  
 Contact rating: AC: 125V @0.5A  
 DC: 24V @2A

## Counter Modules

M-7080



M-7080D



**M-7080: Counter/Frequency Input Module**  
**M-7080D: M-7080 with LED Display**

- Counter input: 2 independent 32 bit counter
- Frequency input: 100K Hz max
- Input: 3750V isolated or non-isolated
- Non-isolated programmable threshold value  
 Programmable digital noise filter
- LED indicator: 5 digit readout (1-7080D)

# SG-3000 *Signal Conditioner Modules*

## SERIES

SG-3000

SG-3011



### SG-3011

#### Isolated Thermocouple Input Module

- Input type: J, K, T, E, R, S, B, N, C, L, M, L2 (DIN 43710)
- Voltage Output: 0~10V
- Current: 0~20mA
- Current load resistor: 0~450Ω (Source)
- Three way isolation: 3000 Vdc
- accuracy:  $\pm 0.2\%$  of full range
- Stability (temperature drift) :  $\pm 2^\circ\text{C}$
- Supply Voltage : 10~30 Vdc  $\pm 10\%$
- Weight: 94 gram

SG-3013



### SG-3013

#### Isolated RTD Input Module

- Input Type : Pt, Ni
- Pt 100 (-200°C ~ +600°C)
- Pt 1000 (-200°C ~ +600°C)
- Ni 120 (-80°C ~ +300°C)
- Input Connections : 2/3/4 wires
- Voltage Output: 0~5V, 0~10V
- Output impedance: <50Ω
- Current Output : 0~20mA, 4~20mA
- Accuracy :  $\pm 0.1\%$  of full range
- Supply Voltage: 0~30Vdc  $\pm 10\%$
- Weight: 94 gram

SG-3016



### SG-3016

#### Isolated Strain Gauge Input Module

- Voltage Specifications :
  - Electrical input :  $\pm 10\text{mV}$ ,  $\pm 20\text{mV}$ ,  $\pm 30\text{mV}$ ,  $\pm 50\text{mV}$ ,  $\pm 100\text{mV}$
  - Excitation voltage : 1 ~10Vdc (20mA max.)
- Voltage output :  $\pm 5\text{V}$ ,  $\pm 10\text{V}$  or 0~5V, 0~10V
- Output impedance : <50Ω
- Current output : 0~20mA
- Current load resistor: 0~500Ω (Source)
- Three-way isolation : 3000Vdc
- Accuracy :  $\pm 0.1\%$  of full range
- Bandwidth: 600Hz
- Supply Voltage: 10~30Vdc  $\pm 10\%$
- Consumption: 1.44W (Voltage Output)
- 1.74W (Current Output)
- Weight : 103 gram

# SG-3000 *Signal Conditioner Modules & Power Modules*

## SERIES

SG-3071



### SG-3071

#### Isolated DC Voltage Input/Output Module

- Voltage input :  $\pm 5V$ ,  $\pm 10V$  or  $0\sim 5V$ ,  $0\sim 10V$
- Input impedance :  $1.6M\Omega$
- Input bandwidth :  $1KHz$
- Voltage output :  $\pm 5V$ ,  $\pm 10V$  (10mA max)
- Output impedance :  $<50\Omega$
- Current Output :  $0\sim 20mA$ ,  $4\sim 20mA$
- Isolation (three way):  $3000Vdc$
- Accuracy :  $\pm 0.1\%$  of full range
- Supply Voltage:  $10\sim 30Vdc \pm 10\%$
- Weight : 94 gram

SG-3081



### SG-3081

#### Isolated DC Current Input/Output Module

- Current input :
- Unipolar :  $0\sim 20mA$ ,  $4\sim 20mA$
- Input impedance :  $250\Omega$
- Input bandwidth :  $1KHz$
- Voltage output :
- Unipolar :  $0\sim 5V$ ,  $0\sim 10V$  (10mA max)
- Output impedance :  $<50\Omega$
- Current Output :  $0\sim 20mA$ ,  $4\sim 20mA$
- Isolation (three way) :  $3000Vdc$
- Accuracy :  $\pm 0.1\%$  of full range
- Supply Voltage :  $10\sim 30Vdc \pm 10\%$
- Weight : 96 gram

PW-3090



### PW-3090 Series

#### Isolated Power Module

- Input Range :  $18\sim 36Vdc$
- Temperature Coefficient :  $\pm 0.03\%/^{\circ}C$
- Ripple & Noise :  $100mVp-p$  max.
- Line Regulation :  $\pm 0.2\%$  max.
- Load Regulation :  $\pm 0.2\%$  max.
- Short Circuit Protection
- Efficiency : 83% Typical
- Isolation Voltage :  $1000Vdc$
- Isolation Resistance :  $10^9$  ohms min
- Switch Frequency :  $200KHz$
- Operating Temperature :  $-25^{\circ}C$  to  $+70^{\circ}C$
- Ordering information :

	3090-24S	3090-12S	3090-5S	3090-15D	3090-5D
Output Voltage	24V $\pm 2\%$	12V $\pm 2\%$	5V $\pm 2\%$	$\pm 15V$ $\pm 2\%$	$\pm 5V$ $\pm 2\%$
Current	400mA max.	800mA max.	2000mA max.	300mA max.	1000mA max.

# Wireless LAN



## Introduction

The applications of 802.11b wireless LAN are getting more and more popular by the more and more mature technology. It's not only faster than the industrial traditional transmission i.e. RS-232, RS-485, RS-422 etc, but also able to decrease the troublesomely wiring works. It's also more mobility than Ethernet network.

Our T-316 is an Ethernet LAN to wireless LAN converter. In addition to the above advantages, it doesn't need to install any software or drivers when you use it. The setting process is very simple. Users don't need to modify the current hardware system or current running program then be able to enjoy the benefits of wireless transmission.



## Wireless LAN



T-316

### T-316

- High 11Mbps Transmission Speed and Quality
- Converts Wired Ethernet Data to Wireless Format Effortlessly
- Minimizes Wireless Security Concerns in Public Areas

# Accessories



**ANT-15**

## ANT-15

- Gain: 15dBi
- VSWR : 1.3:1 Max
- Polarization: Vertical
- Power handling: 10W
- Impedance: 50 Ohms
- Connector: SMA
- Cable: RG-58, 100cm



**ANT-18**

## ANT-18

- Gain: 18dBi
- VSWR : 1.3:1 Max
- Polarization: Vertical
- Power handling: 10W
- Impedance: 50 Ohms
- Connector: SMA
- Cable: RG-58, 100cm
- Dimension: 263 L x 263 W x 30H (mm)



**ANT-21**

## ANT-21

- Gain: 21dBi
- VSWR : 1.3:1 Max
- Polarization: Vertical
- Power handling: 10W
- Impedance: 50 Ohms
- Connector: SMA
- Cable: RG-58, 100cm
- Dimension:  $\phi$ 610 x150 (mm)

# GSM/GPRS Modules

## SERIES



**Supreme**

**Supreme: 850/900/1800/1900**

- 850MHz / 900 MHz:
- E-GSM compliant.
  - Output power: class 4 (2W).
  - Fully compliant with ETSI GSM phase 2 + small MS.
  - EGPRS: Output power: 0.5W
- 1800 MHz / 1900MHz:
- Output power: class 1 (1W).
  - Fully compliant with ETSI GSM phase 2 + small
  - EGPRS: Output power: 0.4W
- GPRS:
- Class 10.
  - PBCCH support.
  - Coding schemes: CS1 to CS4.
  - Compliant with SMG31bis.
  - Embedded TCP/IP stack.
- Power:
- DC +5.5 V to +32 V at 2.2A.
  - Maximum current: 480 mA Average at 5.5V. 2.1 A Peak at 5.5 V. (TBC)
  - Protected against voltage over +32 V.
- Ranges of temperature:
- Operating / Class A : -20 °C to +55°C
  - Operating / Class B: -30 °C to +85°C
  - Storage: -40 °C to +85°C
- Mechanical Characteristics:
- Dimensions: 73 x 54.5 x 25.5 mm (excluding connectors)
  - Overall Dimension: 88 x 54.5 x 25.5 mm
  - Weight: ≈ 80 grams (Supreme only)  
 < 120 grams (Supreme + bridles + power supply cable)
  - Volume: 101.5 cm3
  - Housing: Aluminum profiled

# GPS Receiver

## SERIES



**UT-41R-RS232**



**UT-41R-USB**

**UT-41R-RS232/UT-41R-USB: GPS Receiver**

- General: L1 (1575.42MHz), C/A code, 12-channel, Carrier-Aided with HWTrack.
- Update Rate: 1Hz
- Operation Temperature : -40°C to + 85°C
- Storage Temperature : -55°C to + 90°C
- Operating Humidity : 5% to 95%
- Primary Power : 3.8V~8V DC
- Protocol : NMEA-0183 v3.01 @ 4800 baud, 8-None-1
- Dimension : UT-41R-RS232: 45mmx30mmx13mm w/o housing (W x L x H)  
 UT-41R-USB: 42 mm x 42 mm x 15.9mm (W x L x H)

# Applications

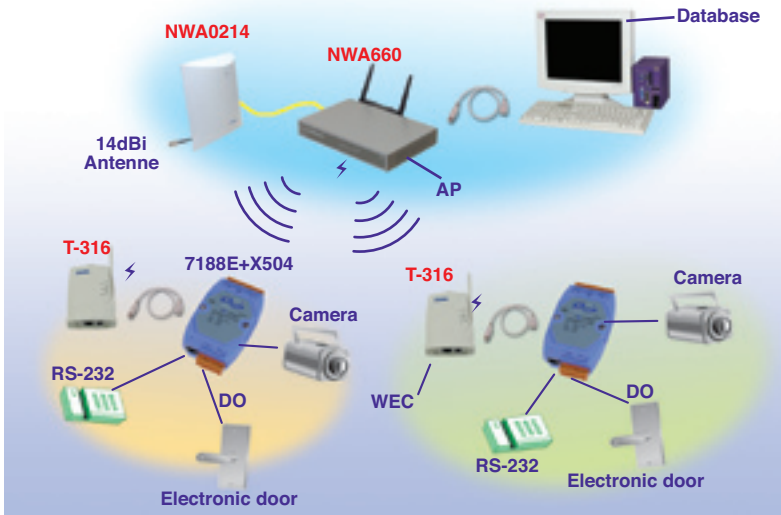


Diagram illustrating a GPS application. The system includes a 7188E+X504 device connected to a T-316 gateway via RS-232. The gateway is connected to a mobile phone, which is connected to a GPS receiver. The diagram includes a list of five features and a small inset image of a hand using a keypad.

1. Easy obtain GPS info. -- Receive complete NMEA Messages via a simple function.
2. Receive part NMEA Messages via a simple function.
3. Obtain more accuracy system time.
4. Simple HMI -- Use the T-7188XA to obtain GPS info such latitude, longitude etc with no need for an extra display.
5. Supports fixed or mobile Applications.

1. Send GPS info. (UTC time, Latitude etc.) to remote Host automatically via SMS.
2. Remote Host can dial in for getting the GPS info (UTC Time, Latitude etc.).
3. Easy Wiring -- only using 3 wire (TX, RX, GND) to connect I-7188.
4. Easy programming -- provide C Library.
5. Support fixed or mobile Application.

## Real-time Redundant Ring Switch

### RS-405/ RS-408 & RSM-405/ RSM-408 Series

Real-time Redundant Ring Switches

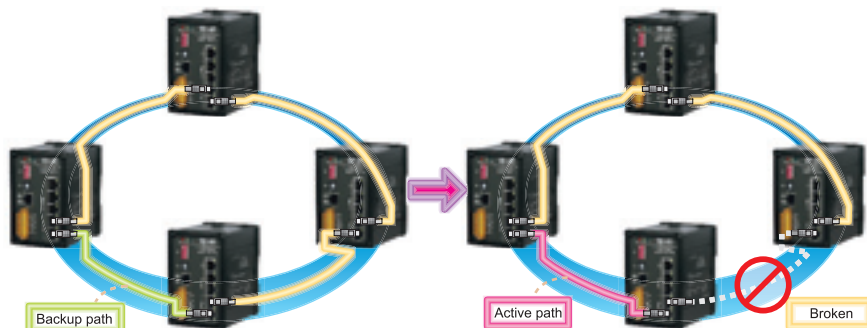


#### Features

- Plug and Play
- Provide redundant path to Ethernet LAN
- Real-time network recovery
- Multiple rings coupling
- Support Modbus/RTU and Modbus/TCP protocol of status monitoring
- Redundant dual DC power inputs
- LED Indicators for Power, Faults, 10/100M
- DIN-Rail, Wall Mounting
- IP30 protection for metal case

#### Introduction

The Real-time Redundant Ring Switch offers fault-tolerant industrial Ethernet with ring network topology. The built-in ICP DAS proprietary Cyber-Ring technology detects and recovers from a fiber or copper link failure within approximately 300ms – for the majority of applications a seamless process. Modbus/TCP, Modbus/RTU and OPC supported, SCADA application can monitor status of Ethernet and fiber port with Modbus or OPC protocol. And, the relay output facility can deliver warning signal while dual power or network link failure.



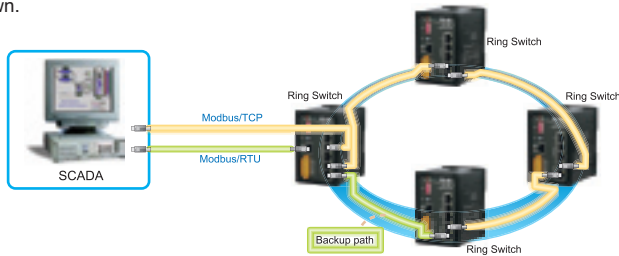
# Real-time Redundant Ring Switch

## Cyber-Ring Ethernet Self-healing Technology

ICP DAS's proprietary Cyber-Ring self-healing Ethernet technology can establish industrial Ethernet with high reliability and fault-tolerant capability. It can employ a ring topology network of either copper or fiber optic cable. While standard STP typically requires 20s to 30s to reconfigure network structure following a link failure, Cyber-Ring technology reduces this downtime to within half a second. Average experience indicates a typical fault recovery time is 300ms for Cyber-Ring fault-tolerant network.

## Getting Port Status by Modbus Protocol

The Real-time Redundant Ring Switch supports Modbus/TCP & Modbus/RTU protocol, provides a solution to read port status. Through it, the port statuses, switch status, relay output status...etc can easily be known.



For most HMI/SCADA software tools, the availability of Modbus/TCP protocol from Ring Switch help them to monitor the status of the Ethernet LAN.

### Selection Guide

Model	Speed	Port	Operation temperature	Isolation Voltage	Redundant Power	Casing
RS-405	10/100M	5	-30 ~ 75°C	1KV	DC+ 10~30V	Plastic
RS-408	10/100M	8	-30 ~ 75°C	1KV	DC+ 10~30V	Plastic
RSM-405	10/100M	5	-30 ~ 75°C	1KV	DC+ 10~30V	Metal
RSM-408	10/100M	8	-30 ~ 75°C	1KV	DC+ 10~30V	Metal

### Fiber Switch Selection Guide

Model	Fiber Optics			Ethernet		Redundant Power	Casing	
	Mode	Connector	Speed	Port	Speed			Port
RS-405FT	Multi-mode	ST	100M	2	10/100M	3	DC+ 10~30V	Plastic
RS-405FC	Multi-mode	SC	100M	2	10/100M	3	DC+ 10~30V	Plastic
RS-405FCS	Single-mode	SC	100M	2	10/100M	3	DC+ 10~30V	Plastic
RSM-405FT	Multi-mode	ST	100M	2	10/100M	3	DC+ 10~30V	Metal
RSM-405FC	Multi-mode	SC	100M	2	10/100M	3	DC+ 10~30V	Metal
RSM-405FCS	Single-mode	SC	100M	2	10/100M	3	DC+ 10~30V	Metal

## Industrial Ethernet Switch

Available soon

### NS-305/NS-308 & NSM-305/NSM-308 Series

Industrial 8- or 5-Port Unmanaged Ethernet Switches



#### Features

- Redundant dual DC power inputs
- Relay output warning for power failure and port break alarm
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- DIP Switch for Power failure and Port break alarm mask
- LED Indicators for Power, Faults, 10/100M
- DIN-Rail, Wall Mounting
- IP30 protection for metal case

#### Introduction

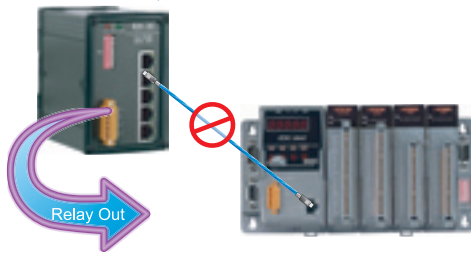
The NS-305/308 series Ethernet switches offers a variety of 8- or 5-port to choose from, and provides a low-cost solution for your industrial Ethernet connection. With the built-in relay warning feature, it will alert you whenever there is a power failure or port break occurring, therefore provides easy maintenance and enhances real-time management. These switches are specially designed for harsh industrial environments, support wide operating temperature range from -30 to 75°C.

#### Redundant Power Inputs

NS-305/308 provides reliable redundant power inputs for your critical applications. It includes dual power inputs that can be connected to DC power sources at the same time. If one power input fails, the other backup power input will seamlessly take over to prevent the loss of power.

#### Relay Output Alarm for Port Breaks, Power Failure

NS-308/305 protects your critical applications from damage and downtime via relay contact outputs. When the power fails or a port link breaks, it will automatically warn the maintenance technicians to take immediately actions, therefore is able to deal with the emergency situation rapidly and efficiently.



#### Selection Guide

Model	Speed	Port	Operation temperature	Isolation Voltage	Power Input	Casing
NS-305	10/100M	5	-30 ~ 75°C	1KV	DC+ 10~30V	Plastic
NS-308	10/100M	8	-30 ~ 75°C	1KV	DC+ 10~30V	Plastic
NSM-305	10/100M	5	-30 ~ 75°C	1KV	DC+ 10~30V	Metal
NSM-308	10/100M	8	-30 ~ 75°C	1KV	DC+ 10~30V	Metal

# Industrial Ethernet Switch

## NS-205/NS-208/NS-208G & NSM-108/NSM-208G Series

Industrial 8- or 5-Port Unmanaged Ethernet Switches

### Features

- Automatic MDI / MDI-X crossover for plug-and-play
- Each port supports both 10/100 and 1000 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 16 Gbps high performance memory bandwidth.
- 8K MAC Address Table Size
- Frame buffer memory :1 Mbit
- Provides LEDs for network and power monitoring
- Power Inputs +10 ~ +30V DC
- DIN rail mount for industrial usage



### Introduction

The NS-205/NS-208/NSM-108 series of industrial Ethernet switches are entry-level industrial 8/5-port Ethernet switches that support IEEE802.3/802.3u/802.3x with 10/100M, full/half-duplex, MDI/MDIX auto-sensing RJ45 ports.

NS-208G/NSM-208G series are 8-port unmanaged gigabit switches. That is an ideal solution for bandwidth-hungry applications (such as high resolution digital image transmission, video/audio file streaming/downloading, and server farm connectivity).

NS-205-IP67 Ethernet Switches are designed for use in industrial waterproof/harsh environments. The rugged packaging and IP67 connectors guarantee a total protection that can withstand a variety of extreme conditions such as high temperatures, extreme shocks & vibrations, dust particles or even liquid immersion. They can be directly mounted to any machine or convenient flat surface. Even with all its rugged features, the switch still provides a high level of functionality, including the ability to support full-duplex communication and 10Mbps/100Mbps transmission speeds. With 1.4Gbps of total bandwidth, the switch can simultaneously handle full wire speed communication on each port. A dedicated uplink port enables a connection to other switches without use of a crossover cable. No programming is necessary, as the switch auto-learns network addresses. 10 to 30VDC isolated power input keeps spikes and surges on the power line from damaging the power supply. They are completely plug and play and ready to go right out of the box.



### Selection Guide

Model	Speed	Port	Operation temperature	PoE	Casing
NS-205G	10/100/1000M	5	-30 ~ 70°C	No	Plastic
NS-205PSE	10/100M	5	-30 ~ 75°C	Yes	Plastic
NS-205	10/100M	5	-30 ~ 75°C	No	Plastic
NS-208	10/100M	8	-30 ~ 75°C	No	Metal
NS-208G	10/100/1000M	8	-30 ~ 70°C	No	Plastic
NSM-108	10/100M	8	-30 ~ 75°C	No	Metal
NSM-208G	10/100/1000M	8	-30 ~ 70°C	No	Metal
NS-205-IP67	10/100M	5	-10 ~ 60°C	No	Plastic with IP67



## Industrial Media Converters



### Features

- Automatic MDI / MDI-X crossover for plug-and-play
- Store-and-forward architecture
- 1.4Gbps high performance memory bandwidth
- Supports operating temperatures from 0 ~ +70°C
- DIN rail mount for industrial usage

### Specifications

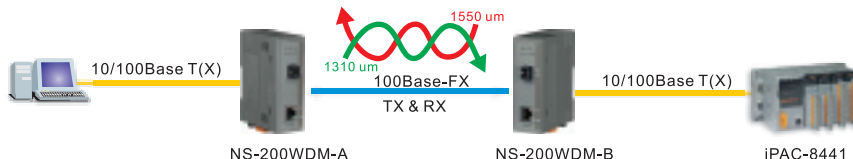
Compatibility	IEEE 802.3, IEEE802.3u, IEEE802.3x
Single mode fiber cables	8.3/125, 8.7/125, 9/125 or 10/125 $\mu\text{m}$
Distance	15km, 1300 or 1310nm (9/125 $\mu\text{m}$ ) for full duplex.
Min. TX Output	-15 dBm
Max. TX Output	-8 dBm
Sensitivity	-36 to -31 dBm

### Introduction

The NS-200Fx is a Ethernet(10/100Base-TX) to Fiber Optics(100Base-FX) converter. The Ethernet supports 10/100M auto-negotiation feature and auto MDI/MDIX function. The NS-200WDM Series of Single-Strand Fiber Converters supports Wavelength Division Multiplexing (WDM) technology that allows two independent data communication channels to transmit and receive over one standard, single mode, and fiber optic line. This not only doubles your existing bandwidth, but also effectively reduces the cost of creating a new fiber optic infrastructure.

### Single-Strand Fiber Converter Solution

Wavelength Division Multiplexing (WDM) supports bi-directional data transmission and receiving using dual wavelengths (1310/1550 nm) over a single strand, of single-mode optical fiber.



### 50% Cost Saving for Fiber Optic Infrastructures

With a pair of NS-200WDM series products (NS-200WDM-A and NS-200WDM-B), you can double the utilization of your

### Selection Guide

Model	Fiber Optics				Ethernet		Power Input	Casing
	Mode	Connector	Speed	Port	Speed	Port		
NS-200FT	Multi-mode	ST	100M	1	10/100M	1	DC+ 10~30V	Plastic
NS-200FC	Multi-mode	SC	100M	1	10/100M	1	DC+ 10~30V	Plastic
NS-200FCS	Single-mode	SC	100M	1	10/100M	1	DC+ 10~30V	Plastic
NS-200WDM-A	Single-mode	SC	100M	1	10/100M	1	DC+ 10~30V	Plastic
NS-200WDM-B	Single-mode	SC	100M	1	10/100M	1	DC+ 10~30V	Plastic

**Important Note :** You must purchase both NS-200WDM-A and NS-200WDM-B since these products work as a pair.

# Industrial Ethernet with Fiber Switch

## Industrial 10/100 Base-T(X) with 100 Base-FX Switches



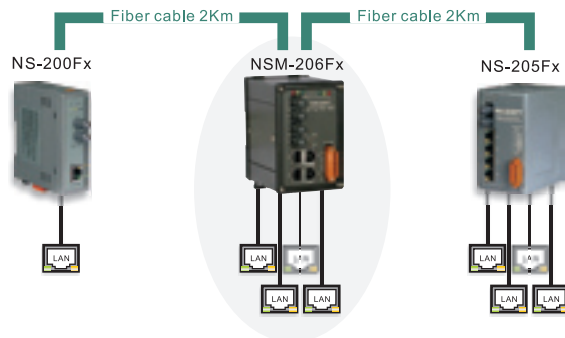
### Features

- Automatic MDI / MDI-X crossover for plug-and-play
- Store-and-forward architecture
- 3.2Gbps high performance memory bandwidth
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- Frame buffer memory: 256 Kbit
- Integrated look-up engine with dedicated 1 K unicast MAC addresses.
- Supports operating temperatures from 0 ~ +70°C
- DIN-Rail

### Introduction

NS-205Fx/NS-206Fx are Industrial 10/100 Base-T(X) with 100 Base-FX Switch that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference. It is used Ethernet for transmitting a signal up to 2 Km (6,600 ft), and is the perfect solution for applications where transmission must be protected from electrical exposure, surges, lightning or chemical corrosion.

The NS-206F series can extend your LAN in a daisy chain configuration.



### Selection Guide

Model	Fiber Optics				Ethernet		Power Input	Casing
	Mode	Connector	Speed	Port	Speed	Port		
NS-205FT	Multi-mode	ST	100M	1	10/100M	4	DC+ 10~30V	Plastic
NS-205FC	Multi-mode	SC	100M	1	10/100M	4	DC+ 10~30V	Plastic
NS-205FCS	Single-mode	SC	100M	1	10/100M	4	DC+ 10~30V	Plastic
NS-206ET	Multi-mode	ST	100M	2	10/100M	4	DC+ 10~30V	Plastic
NS-206FC	Multi-mode	SC	100M	2	10/100M	4	DC+ 10~30V	Plastic
NS-206FCS	Single-mode	SC	100M	2	10/100M	4	DC+ 10~30V	Plastic
NSM-205FT	Multi-mode	ST	100M	1	10/100M	4	DC+ 10~30V	Metal
NSM-205FC	Multi-mode	SC	100M	1	10/100M	4	DC+ 10~30V	Metal
NSM-205FCS	Single-mode	SC	100M	1	10/100M	4	DC+ 10~30V	Metal
NSM-206FT	Multi-mode	ST	100M	2	10/100M	4	DC+ 10~30V	Metal
NSM-206FC	Multi-mode	SC	100M	2	10/100M	4	DC+ 10~30V	Metal
NSM-206FCS	Single-mode	SC	100M	2	10/100M	4	DC+ 10~30V	Metal

# Ordering INFORMATION

<b>A</b>		I-7015	P5-21
ACE-540A	P5-31	I-7016/I-7016D/I-7016P/I-7016PD	P5-21
ANT-15	P8-3	I-7017/I-7017C/I-7017F/I-7017R/ I-7017RC	P5-22
ANT-15YG	P5-33	I-7018/I-7018BL/I-7018P/I-7018R	P5-23
ANT-18	P8-3	I-7019R	P5-24
ANT-8	P5-33	I-7021/I-7021P	P5-25
ANT-21	P8-3	I-7022	P5-25
<b>C</b>		I-7024	P5-25
CA-0945	P5-34	I-7033/I-7033D	P5-24
CA-3813	P5-34	I-7041/I-7041D	P5-26
CA-5810	P5-34	I-7042/I-7042D	P5-26
CAN-8123	P3-13	I-7043/I-7043D	P5-26
CAN-8223	P3-13	I-7044/I-7044D	P5-26
CAN-8423	P3-13	I-7045/I-7045D	P5-26
CAN-8124	P3-15	I-7050/I-7050D	P5-27
CAN-8224	P3-15	I-7050A/I-7050AD	P5-27
CAN-8424	P3-15	I-7051/I-7051D	P5-27
<b>D</b>		I-7052/I-7052D	P5-27
DIN-540A	P5-31	I-7053_FG/I-7053D_FG	P5-27
DIN-KA52F	P5-31	I-7055/I-7055D	P5-28
DN-PR4	P5-31	I-7058/I-7058D	P5-28
DN-SSR4	P5-31	I-7059/I-7059D	P5-28
DP-640/DP-660/DP-665/DP-1200	P5-31	I-7060/I-7060D	P5-28
<b>I</b>		I-7063/I-7063D	P5-28
I-2541	P5-16	I-7063A/I-7063AD/I-7063B/ I-7063BD	P5-29
I-3625-ENC	P5-33	I-7065/I-7065D/I-7065A/I-7065AD	P5-29
I-7005	P5-19	I-7065B/I-7065BD	P5-30
I-7011/I-7011D/I-7011P/I-7011PD	P5-19	I-7066/I-7066D	P5-30
I-7012/I-7012D/I-7012F/I-7012FD	P5-20	I-7067/I-7067D	P5-30
I-7013/I-7013D	P5-20	I-7080/I-7080D	P5-30
I-7014D	P5-21		

# Ordering INFORMATION

## Ordering Information

I-7188/512;I-7188D/512	P4-3	I-7540D-G	P5-18
I-7188E1/I-7188E1D	P4-24	I-7551	P5-15
I-7188E2/I-7188E2D	P4-24	I-7560/I-7561/I-7563	P5-14
I-7188E3/I-7188E3D	P4-24	I-8017F-G/I-8017HS-G	P3-34
I-7188E3-232/I-7188E3D-232	P4-24	I-8024-G	P3-34
I-7188E4/I-7188E4D	P4-24	I-8037-G/I-8040-G/I-8041-G/ I-8042-G	P3-24
I-7188E5/I-7188E5D	P4-24	I-8048-G/I-8050-G/I-8051-G	P3-25
I-7188E5-485/I-7188E5D-485	P4-24	I-8052-G/I-8053-G/I-8054-G/ I-8055-G	P3-26
I-7188E8/I-7188E8D	P4-24	I-8056-G/I-8057-G/I-8058-G	P3-27
I-7188EA/I-7188EAD	P4-20	I-8060-G/I-8063-G/I-8064-G/ I-8065-G	P3-29
I-7188EG/I-7188EGD	P4-21	I-8066-G/I-8068-G/I-8069-G	P3-30
I-7188EX/I-7188EXD	P4-18	I-8072-G/I-8073-G/I-8077-G	P3-31
I-7188EX-MTCP/I-7188EXD-MTCP	P4-19	I-8080-G	P3-32
I-7188XA/I-7188XAD	P4-4	I-8090-G/I-8091-G/I-8093-G	P3-33
I-7188XB/I-7188XBD	P4-5	I-8112-G/I-8114-G	P3-35
I-7188XC/I-7188XCD	P4-7	I-8142-G/I-8142i-G	P3-35
I-7188XG/I-7188XGD	P4-6	I-8144-G	P3-35
I-7231D/I-7232D	P4-13	I-8410/I-8410-G	P3-7
I-7241D/I-7242D	P4-15	I-8411/I-8411-G	P3-7
I-7510/I-7510A/I-7510AR	P5-16	I-8417-G	P3-17
I-7531	P5-16	I-8420-G	P3-15
I-7520/I-7520AR	P5-15	I-8421-G	P3-13
I-7520A/I-7520AR	P5-15	I-8430/I-8430-G	P3-8
I-7521/I-7521D	P4-11	I-8430-MTCP-G	P3-10
I-7522/I-7522D	P4-11	I-8431/I-8431-G	P3-8
I-7522A/I-7522AD	P4-11	I-8431-MTCP-G	P3-10
I-7523/I-7523D	P4-11	I-8437-G	P3-17
I-7524/I-7524D	P4-11	I-8438-G	P3-19
I-7527/I-7527D	P4-11		
I-7530-G	P5-18		

# Ordering INFORMATION

I-87005W-G/I-87013-G/ I-87015-G	P3-44	<b>L</b>	
I-87016W-G/I-87017-G/ I-87017R-G	P3-45	L-8341	P2-10
I-87017RC-G/I-87017ML-G/ I-87018-G	P3-46	L-8741	P2-10
I-87018R-G/I-87019R-G	P3-47	L-8348	P2-10
I-87022-G/I-87024-G/I-87026-G/ I-87082-G	P3-48	L-8748	P2-10
I-87040-G/I-87041-G/I-87051-G	P3-38	LP-8041	P2-16
I-87052-G/I-87053-G/I-87054-G	P3-39	LP-8141	P2-16
I-87055-G/I-87057-G/I-87058-G/ I-87063-G	P3-40	LP-8441	P2-16
I-87064-G/I-87065-G/I-87066-G	P3-41	LP-8841	P2-16
I-87068-G/I-87069-G	P3-41	LP-8048	P2-16
I-8810/I-8810-G	P3-7	LP-8148	P2-16
I-8811/I-8811-G	P3-7	LP-8448	P2-16
I-8817-G	P3-17	LP-8848	P2-16
I-8830/I-8830-G	P3-8	<b>M</b>	
I-8830-MTCP-G	P3-10	M-7005	P6-8
I-8837-G	P3-8	M-7015	P6-8
I-8838-G	P3-10	M-7016/M-7016D	P6-8
I-8KE4-G/I-8KE8-G	P3-17	M-7017	P6-8
I-950ENC	P3-19	M-7017R/M-7018/M-7018R	P6-9
ISaGRAF-256-E/ISaGRAF-256-C	P3-16	M-7019R	P6-9
iVIEW-100 Handheld HMI Controller	P4-8	M-7022	P6-10
<b>K</b>		M-7024	P6-10
KP-8051	P2-19	M-7033/M-7033D	P6-10
KP-8151	P2-19	M-7041/M-7041D	P6-11
KP-8451	P2-19	M-7045/M-7045D	P6-11
KP-8851	P2-19	M-7050/M-7050D	P6-11
KA-52F	P5-31	M-7051/M-7051D	P6-11
		M-7052/M-7052D	P6-11
		M-7053/M-7053D	P6-12
		M-7055/M-7055D	P6-12

# Ordering INFORMATION

## Ordering Information

M-7060/M-7060D	P6-12	<b>S</b>	
M-7067/M-7067D	P6-12	SG-3011/SG-3013/SG-3016	P7-1
M-7080/M-7080D	P6-12	SG-3071/SG-3081	P7-2
MMICON	P5-32	SST-2450	P5-33
<b>N</b>		Supreme	P8-4
NSM-108	P9-4	<b>T</b>	
NS-200FC/NS-200FCS/NS-200FT/NS-200WDM-A/NS-200WDM-B	P9-5	T-316	P8-2
NS-205/NS-205G/NS-205PSE/NS-205-IP67	P9-4	Touch 506T/Touch 506L/Touch 510T	P5-32
NS-205FC/NS-205FCS/NS-205FT/NSM-205FC/NSM-205FCS/NSM-205FT	P9-6	<b>U</b>	
NS-206FC/NS-206FCS/NS-206FT/NSM-206FC/NSM-206FCS/NSM-206FT	P9-6	UF-41R-RS232/UT-41R-USB	P8-4
NS-208/NS-208G/NSM-208G	P9-4	<b>W</b>	
<b>P</b>		WP-8041	P2-14
PCISA-7520AR	P5-15	WP-8141	P2-14
PCISA-7520R	P5-15	WP-8441	P2-14
PW-3090	P7-2	WP-8841	P2-14
PWR-24-110	P5-31	WP-8047	P2-14
PWR-24/220F	P5-31	WP-8147	P2-14
PWR-24/230R	P5-31	WP-8447	P2-14
<b>R</b>		WP-8847	P2-14
RM-10X/RM-20X	P5-31	WP-8046	P2-14
RM-38/RM-48.61/RM-48.62	P5-34	WP-8146	P2-14
RU-87P1	P3-21	WP-8446	P2-14
RU-87P2	P3-21	WP-8846	P2-14
RU-87P4	P3-21	WP-8049	P2-14
RU-87P8	P3-21	WP-8149	P2-14
		WP-8449	P2-14
		WP-8849	P2-14
		<b>X</b>	
		X000	P4-31

## Ordering INFORMATION

X001	P4-31	X500	P4-32
X002	P4-28	X501	P4-32
X003	P4-31	X502	P4-32
X004	P4-28	X503	P4-29
X005	P4-28	X504	P4-29
X006	P4-28	X505	P4-29
X100	P4-31	X506	P4-29
X101	P4-31	X507	P4-29
X102	P4-31	X508	P4-30
X103	P4-31	X509	P4-30
X104	P4-31	X510	P4-30
X105	P4-31	X510-128	P4-30
X106	P4-31	X511	P4-30
X107	P4-28	X518	P4-30
X109	P4-28	X561	P4-30
X110	P4-28	X600	P4-30
X111	P4-28	X601	P4-30
X116	P4-28	X607	P4-30
X119	P4-28	X608	P4-30
X200	P4-31	X702	P4-30
X202	P4-28	X703	P4-30
X203	P4-28		
X300	P4-32		
X301	P4-32		
X302	P4-32		
X303	P4-29		
X304	P4-29		
X305	P4-29		
X308	P4-29		
X309	P4-29		
X310	P4-29		
X400	P4-32		

Hot

# NEW Products—



i-87117W

## i-87117W

**Dual-Bus High Speed, High Resolution A/D Module**

Applications: Power System Quality Monitoring,  
Signal Pattern Match monitoring

- Input Channels: 8 Differential
- Input types: +/-2.5V, +/-5VDC, +/-10VDC
- Resolution: 16-Bit
- Sampling Rate: 250K Samples/sec



i-87118W

## i-87118W

**Dual-Bus High Speed Waveform Analysis Module**

Applications: Power System Quality Monitoring,  
Signal Pattern Match monitoring

- Input Channels: 6 Differential
- Input types: +/-10V, +/-5V, +/-2.5, 0~10V
- Resolution: 12-Bit
- Sampling Rate: 1M Samples/sec
- Waveform Analysis: Frequency, amplitude, High/Low Duty Comparison



i-87088W

## i-87088W

**8-Channel PWM Output Module with High Speed Counter**

Applications: Stepping Motor Control,  
Duty Cycle Control, High Speed Counter

- PWM Channels: 8
- Frequency: 0.1 Hz ~ 500K Hz
- Duty Cycle: 0.1 % ~ 99.9 %
- PWM Mode: Burst mode, Continuous mode
- Burst mode counter: 1 ~ 65535 counts
- Trigger Start: Hardware or Software
- Counter Channels ; 8
- Counter Max. Frequency ; 500K Hz



Additional data sheet of  
2008 volume 6.5

1

AGS-TECH Inc

Phone: +1-505-550-6501 and +1-505-565-5102

Fax: +1-505-814-5778

Email: sales@agstech.net

Web: <http://www.agstech.net>



# NEW Products—



## i-8017UH

### High Speed A/D Module With MagicScan

- Input Channels: 16 single-ended or 8 differential
- Input range: bipolar:  $\pm 10V, \pm 5V, \pm 2.5V, \pm 1.25V$
- Resolution: **16 bits**
- Sample rate: **250K**
- FIFO: 8K bytes
- Over voltage: continuous single channel to 70Vp-p.
- Support auto scan, MagicScan controller inside



## i-8088W

### 8-Channel PWM Output Module

Applications: Stepping Motor Control,  
Duty Cycle Control

- PWM Channels: 8
- Frequency: 0.1 Hz ~ 500K Hz
- Duty Cycle: 0.1 % ~ 99.9 %
- PWM Mode: Burst mode, Continuous mode
- Burst mode counter: 1 ~ 65535 counts
- Trigger Start: Hardware or Software
- Digital Input Channels: 8



## i-8184

### Programmable D/O triggered by D/I module

- D/I Channels: 8
- D/O Channels: 8
- D/I Trigger: Rising Edge or Faling Edge
- D/I Digital Filter: 10  $\mu$ S ~ 2550  $\mu$ S Programmable
- D/O Delay Time: 1  $\mu$ S ~ 65535  $\mu$ S
- D/O Pulse Width: 1  $\mu$ S ~ 65535  $\mu$ S



# NEW Products—



## i-7015P-G

6-channel RTD Input with 3-wire RTD Lead Resistance Elimination

Features : For Long Distance RTD Measurement

- Analog input types: Pt, Ni or Cu RTD
- Sampling rate: 12 samples/sec
- Accuracy: 0.05%
- Input connection: 2 or 3 wires
- Individual channel configurable
- Open wire detection
- 3-wire RTD lead resistance elimination



## i-7017Z-G

10/20-channel Analog Input Module with High Voltage Protection

Features: More Input type , More Sampling Rates, More Protection, More Flexibility

- Input channels: 10 differential or 20 single-ended
- Input types: mV, V, mA (jumper selectable)
- Sampling rates: 10/60 samples/second total
- Over voltage protection: 240Vrms for differential input and 150 Vrms for single-ended input
- Individual channel configurable
- Isolation voltage: 3000VDC
- ESD Protection: 4KV Contact for each terminal, and 8KV Air for random point
- EFT Protection: 4KV to Power, and 1KV to RS-485



Additional data sheet of 2008 volume 6.5

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AGS-TECH Inc

Phone: +1-505-550-6501 and +1-505-565-5102

Fax: +1-505-814-5778

Email: [sales@agstech.net](mailto:sales@agstech.net)

Web: <http://www.agstech.net>

# NEW Products—



## i-7018Z-G/S

10-channel Thermocouple Input Module with Daughter Board

Features: More Channels , Very Accurate

- Input channels: 10 differential
- Input types: mV, V, mA (requires optional external 125 ohm resistor), thermocouple
- Sampling rates: 10 samples/second total
- Over voltage protection: 240Vrms
- Individual channel configurable
- Open thermocouple detection
- Isolation voltage: 3000VDC



## i-7088-G/i-7088D-G

8-Channel PWM Output Module with High Speed Counter

Applications: Stepping Motor Control, Duty Cycle Control, High Speed Counter

- PWM Channels: 8
- Frequency: 0.1 Hz ~ 500K Hz
- Duty Cycle: 0.1 % ~ 99.9 %
- PWM Mode: Burst mode, Continuous mode
- Burst mode counter: 1 ~ 65535 counts
- Trigger Start: Hardware or Software
- Counter Channels ; 8
- Counter Max. Frequency ; 500K Hz

