i-8000 Compact Embedded Controller
SERIES

MiniOS7
Dos Compatible

CPU: 80188-40/80186-80
SRAM/Flash RAM/EEPROM
Real Time Clock
Watchdog Timer
Hardware Unique S/N

NEW

Parallel Bus
I/O Expansion Slot

LED Indicator

COM3
RS-232/
RS-485

COM4
RS-232

COM1
RS-232

COM2
RS-485

Analog input
Analog output
Current Loop
Digital Input
Digital Output
RelaY Output
Open Collector Output
Counter/Frequency

Operating Temp.:
-25¡~+75¡C

Ethernet Port

Power
Supply: 20W

Block Diagram of I-8000

Introduction

The I-8000 is a modular network based system with the capability of connecting I/O either through it's 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 compatible with 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 without a library, and direct support for internal or movable memory devices.

Solution for Internet/Intranet
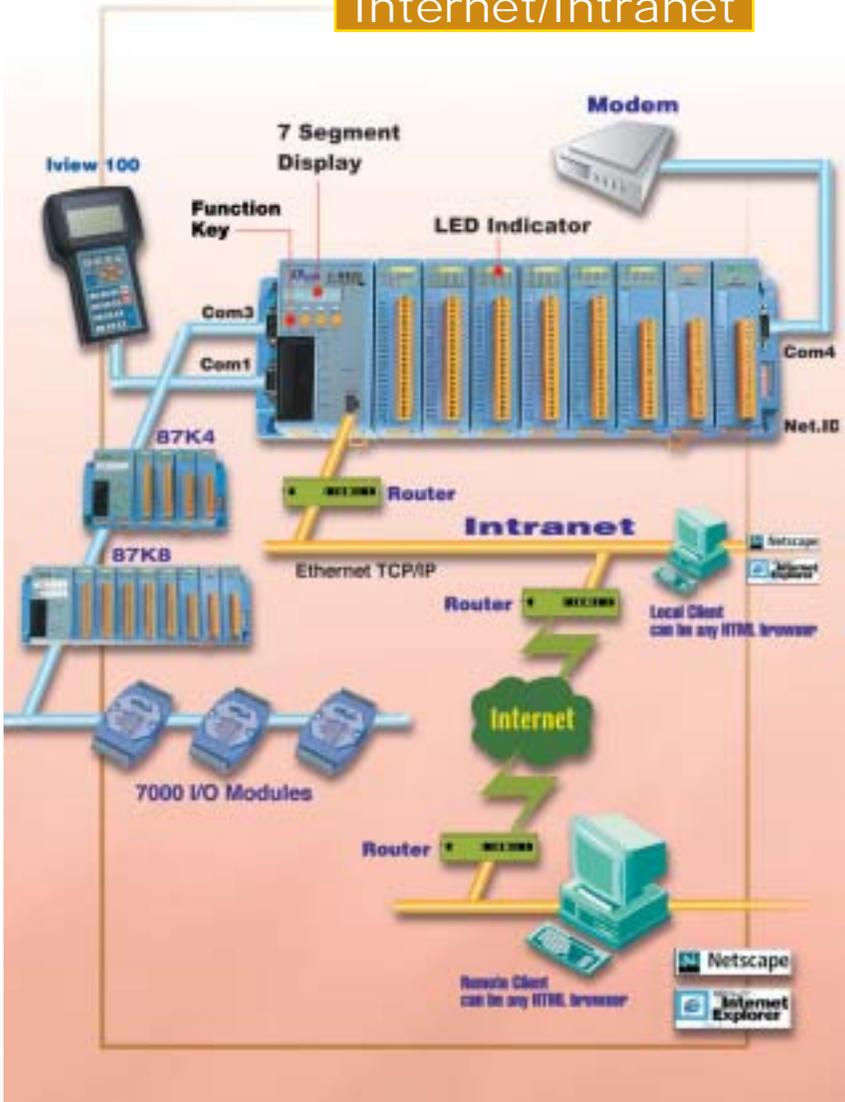
Connecting I-841X/881X to Host-PC

Configuration A

Configuration B

Configuration C

POWER SUPPLY
+15V~30VDC

GND

+V

VN+N

DATA+

MULTI-I-8115
I-8155

TEST COMPUTER

Configuration D

POWER SUPPLY
+15V~30VDC

Isolation Router

COM

8X2X : Ethernet ROM
8X4X : Ethernet ROM / RAM

8X2X : ethernet ROM
8X4X : ethernet ROM / RAM

HOST COMPUTER

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, 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.

NO. of Slot 4/8

i - 8 X X X - X

G—Gray color
□—(blank)Default blue color

Communication Standard
1—RS485
2—CANBUS
3—10M Ethernet

1—Master,CANOpen
0—Slave,Devicenet
7—ISaGRAF Support
8—Matlab Support

I/O Expansion unit

i - 8 7 K X - X

G—Gray color
□—(blank)Default blue color

NO. of Slot 4, 5, 8, 9
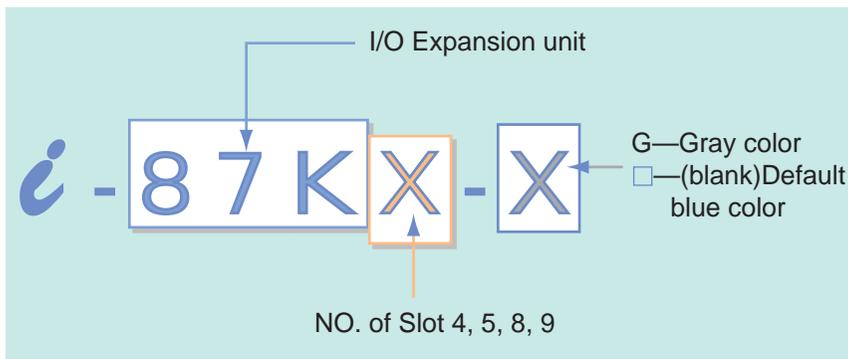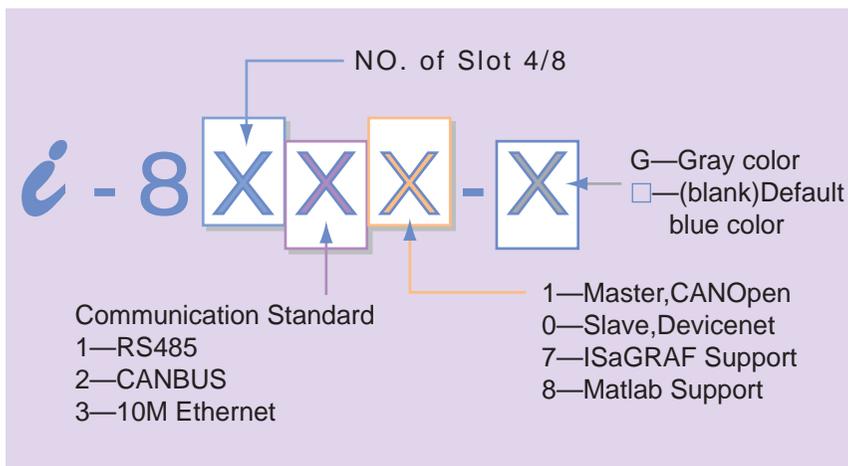
i-8000 Main Control Unit (MCU)
SERIES

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	Embedded Controller	Y Note 6	256KB	128KB	4 8	Y	RS-485 NOTE3	Y	-
I-8411 I-8811	Embedded Controller	Y Note 6	512KB	512KB	4 8	Y	RS-485 NOTE3	Y	Y
I-8417 I-8817	ISaGRAF Embedded Controller	Y Note 6	512KB	512KB	4 8	Y	RS-485 NOTE3	Y	Y
I-8418 I-8818	Matlab Embedded Controller	80186 80MHz	512KB	512KB	4 8	Y	RS-485 NOTE3	Y	Y
I-8420 I-8820	Embedded Controller	80186 80MHz	512KB	512KB	4 8	Y	CAN CANOpen	Y	-
I-8421 I-8821	Embedded Controller	80186 80MHz	512KB	512KB	4 8	Y	CAN Devicenet	Y	Y
I-8430 I-8830	Embedded Controller	Y Note 6	512KB	256KB	4 8	Y	10 Base T	Y	-
I-8431 I-8831	Embedded Controller	Y Note 6	512KB	512KB	4 8	Y	10 Base T	Y	Y
I-8437 I-8837	ISaGRAF Embedded Controller	Y Note 6	512KB	512KB	4 8	Y	10 Base T	Y	Y
I-8438 I-8838	Matlab Embedded Controller	80186 80MHz	512KB	512KB	4 8	Y	10 Base T	Y	Y

Note1: All above embedded controller equip 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 add a SRAM module, such as the following modules

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

Ordering Information:
I-8410: Embedded Controller

Ordering Information:
I-8411: Embedded Controller

Ordering Information:
I-8810: Embedded Controller

Ordering Information:
I-8811: Embedded Controller

Specifications & Features

- CPU 80188, 40MHz
- SRAM:
  128K 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:
  348 x 110 x 75.5 mm (8-slot)
  230 x 110 x 75.5 mm (4-slot)

i-8000 SERIES
Compact Embedded Controller

Ordering Information:
I-8430: Embedded Controller
I-8430-G: I-8430 with Gray color
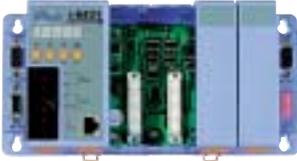
Ordering Information:
I-8431: Embedded Controller
I-8431-G: I-8431 with Gray color

Ordering Information:
I-8830: Embedded Controller
I-8830-G: I-8830 with Gray color
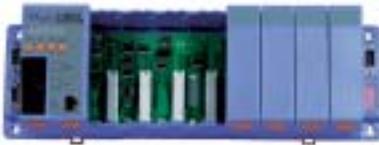
Ordering Information:
I-8831: Embedded Controller
I-8831-G: I-8831 with Gray color

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:
  348 x 110 x 75.5 mm (8-slot)
  230 x 110 x 75.5 mm (4-slot)
- **Support Vxcomm technique &
  Xserver**

i-8000 SERIES

Modbus/TCP Embedded Controller

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

3-9
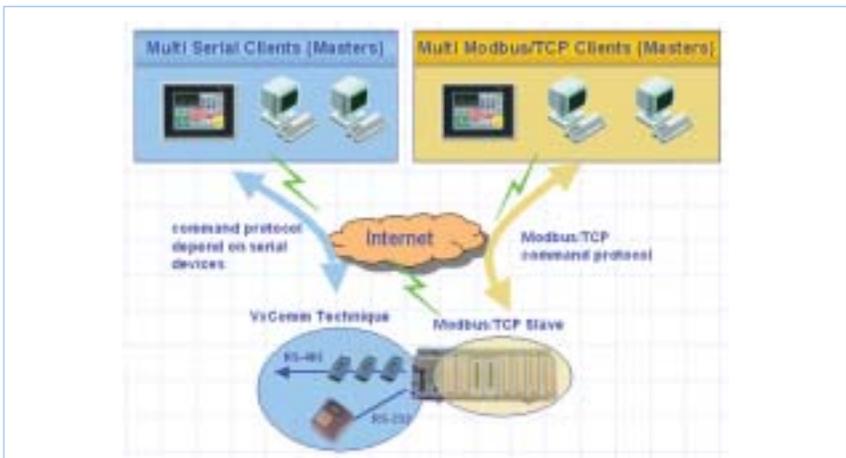
Default firmware features

- 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'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 Modbus/TCP controller.
- Firmware modifiable

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 Embedded Controller with 4 slots
- **I-8431 -MTCP:** Modbus/TCP Embedded Controller with 4 slots
- **I-8830 -MTCP:** Modbus/TCP Embedded Controller with 8 slots
- **I-8831 -MTCP:** Modbus/TCP Embedded Controller 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 ßC to +75 ßC
  Storage Temp.: -30 ßC to +85 ßC
  Humidity: 5 ~ 95 %
■ Dimensions:
  348 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

Ordering Information:
I-8KE8: 8 Expansion Slot Ethernet I/O

i-8000 SERIES *CAN Bus Embedded Controller*

What is CAN?

The Controller Area Network (CAN) is a serial communications protocol which efficiently supports distributed real-time control with a very high level of security. CAN can be used with multi-master capabilities, and especially suited for networking "intelligent" devices as well as sensors and actuators within a system or sub-system. In CAN networks there is no addressing of subscribers or stations in the conventional sense, but instead, prioritized messages are transmitted.
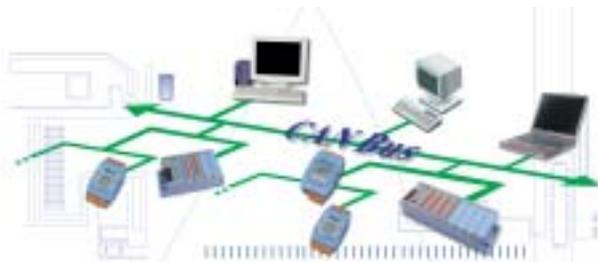
DeviceNet based on the CAN bus is one of the world's leading device-level networks for industrial automation. In fact, more than 40% of end users surveyed by independent industry analysis report choosing DeviceNet over other networks. It offers robust, efficient data handling because it is based on Producer/Consumer technology. This modern communications model offers key capabilities that allow the user to effectively determine what information is needed and when. The features of DeviceNet are showed as 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

CANopen is a networking system based on the CAN bus. It unleashes the full power of CAN by allowing direct peer to peer data exchange between nodes in an organized and, if necessary, deterministic manner. The network management functions specified in CANopen simplify project design, implementation and diagnosis by providing standard mechanisms for network start-up and error management. The features of CANopen are showed as bellow:
￥ 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

i-8000 SERIES
## *CAN Bus Embedded Controller*

Will be available

DeviceNet

Ordering Information:
I-8420: Embedded Controller
I-8420-G: I-8420 with Gray color

CANopen

Ordering Information:
I-8421: Embedded Controller
I-8421-G: I-8421 with Gray color

DeviceNet

Ordering Information:
I-8820: Embedded Controller
I-8820-G: I-8820 with Gray color

CANopen

Ordering Information:
I-8821: Embedded Controller
I-8821-G: I-8821 with Gray color

Specifications & Features

- CPU 80186, 80M Hz
- SRAM:
  512K bytes
- Flash Memory:
  512K bytes
- EEPROM: 2K bytes (Can upto 128K bytes or change to 2K/8K FRAM)
- 64-bit hardware unique serial number
- Built-in Watchdog Timer
- Real Time Clock
- COM1: RS-232 (Program download port)
- CAN Port:5-pin screw terminal connector
- CAN controller: Phillip SJA1000T.
- CAN transceiver: Phillip 82C250/251.
- Support both CAN 2.0A and CAN 2.0B
- Isolated : 2500Vrms on CAN side
- 120 ohm terminal resister selected by jumper
- Programmable transfer rate up to 1 Mbps.
- I/O Expansion Slot
  4-slot for I-8420/8421
  8-slot for I-8820/8821
- Power Supply: 20W
  Unregulated +10Vdc to +30Vdc
- Environment
  Operating Temp.:
  -25¡C to + 75¡C
  Storage Temp.:
  -30¡C to + 85¡C
- Humidity: 5 ~95%
- Dimensions:
  348 x 110 x 75.5 mm (8-slot)
  230 x 110 x 75.5 mm (4-slot)
- I-8420 and I-8820 are for DeviceNet Products
- I-8421 and I-8821 are for CANopen Products

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). Additionally, for the ultimate in power and flexibility, ISaGRAF supports off-line simulation, on-line debugging, monitoring and control. More information at http://www.icpdas.com/products/8000/isagraf.htm
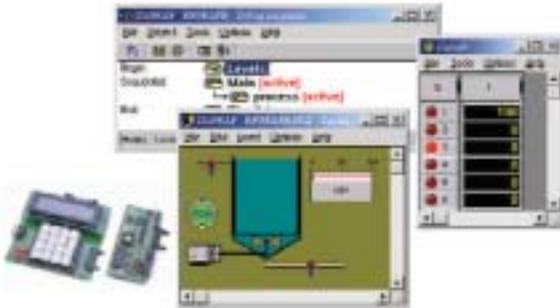
ISaGRAF Embedded Controllers

ICP DAS provides many controller types supporting ISaGRAF. They are I-8417/ 8817/ 8437/ 8837,I-7188EG/ XG and Iview 100-ISaGRAF. They can be easily integrated with many HMI softwares and devices such as ICP DAS's MMICON, iFix, Iconics, Wizcon, Intouch, Citect, Indusoft, Kepware's Modbus OPC server, Touch 506, 510, etc.

When the ISaGRAF controller integrate with a GSM Modem, Short Message Service is supported. It can deliver message to a cell phone to report information, or receive message from a cell phone to control something.

Features:

1. All five IEC61131-3 languages, LD, ST, FBD, SFC and IL.
2. Modbus RTU protocol to integrate to SCADA softwares and HMI.
3. Modbus TCP/IP to integrate to SCADA softwares and HMI. (8437, 8837, 7188EG)
4. Controller to Controller Data Exchange via RS485.
5. Controller to Controller Data Exchange via Ethernet. (8437, 8837, 7188EG)
6. Remotely download and monitor the program via a modem. (8417, 8817, 8437, 8837)
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. Sending emails from the controller via a modem. (8417, 8817, 8437, 8837)
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.

Ordering Information:

ISaGRAF-256: ISaGRAF Workbench Software, Up to 256 I/O Tags.

i-8000 ISaGRAF Embedded Controller SERIES

Ordering Information:
I-8417: ISaGRAF Embedded Controller
I-8417-G: I-8417 with Gray color

Ordering Information:
I-8437: ISaGRAF Embedded Controller
I-8437-G: I-8437 with Gray color

Ordering Information:
I-8817: ISaGRAF Embedded Controller
I-8817-G: I-8817 with Gray color

Ordering Information:
I-8837: ISaGRAF Embedded Controller
**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

MatLab real-time workshop provides the fastest and easiest way to implement your real-time embedded design and control development system . ICP DAS Matlab Embedded Controller solution is equipped with various I/O modules, which include DI,DO,AD,DA, encoder. Over 20 I/O bridge and system-level Simulink Blocksets have been developed. By using Simulink development environment and Matlab Embedded Controller s blocksets, application algorithm can be easily constructed and verified. Once the algorithm has been verified, by pressing a build botton, users can convert model to executable code, and download it to controller for test or practical application via RS232, RS485, Ethernet Interface and even Modem (available soon). Therefore, engineers can put more focus on algorithm design and development.

Software required :
- Matlab 6.0 or above
- Simulink
- Real-Time Workshop
- Real-Time Embedded Coder
- ICP_DAS Matlab Embedded Controller Development Kits

Ordering Information:
I-8418: Matlab Embedded Controller
I-8418-G: I-8418 with Gray color

Ordering Information:
I-8438: Matlab Embedded Controller
I-8438-G: I-8438 with Gray color

Ordering Information:
I-8818: Matlab Embedded Controller
I-8818-G: I-8818 with Gray color

Ordering Information:
I-8838: Matlab Embedded Controller
I-8838-G: I-8838 with Gray color

COMMON Specifications

■ CPU:80186,80MHz

Specifications & Features

■ Except CPU, the hardware of I-8418 is the same as I-8411. The IO bridge for I-8000 is included

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

■ Except CPU, the hardware of I-8818 is the same as I-8811. The IO bridge for I-8000 is included

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

2. I/O Expansion Unit:

The I/O expansion units are used to extend the number of I/O modules. Each expansion unit consists of a Power supply and a Back Plane with 4, or 5 or 8 or 9 Serial I/O Expansion Slots. The I/O expansion units, 87K4, 87K5, 87K8, 87K9 are equipped with a 115.2K bps RS-485 bus which links the expansion unit to the main control unit.

Block Diagram of 87K Expansion unit

Embedded control
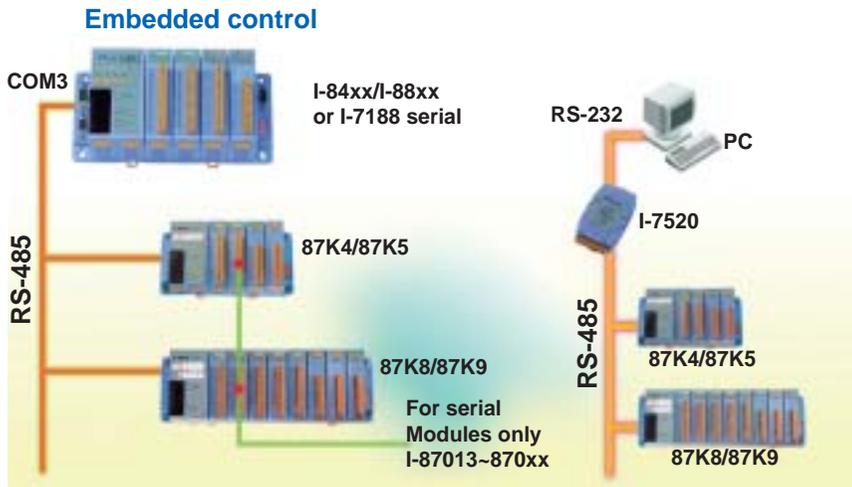
I/O Expansion Unit Selection Guide						
Model	Description	CPU	Slot	Power Supply	COM Port	Support I/O Module
87K4 I/O Expansion Unit	4 Slot I/O Expansion Unit	None	4	20W	(Note1)	Serial I/O Module only
87K5 I/O Expansion Unit	5 Slot I/O Expansion Unit	None	5	20W	(Note1)	Serial I/O Module only
87K8 I/O Expansion Unit	8 Slot I/O Expansion Unit	None	8	20W	(Note1)	Serial I/O Module only
87K9 I/O Expansion Unit	9 Slot I/O Expansion Unit	None	9	20W	(Note1)	Serial I/O Module only
Note1: Isolated RS-485 port; 115.2K bps; Data+, Data-						

Ordering Information:
I-87K4: I/O Expansion unit with 4 I/O slots
I-87K4-G: I-87K2 with Gray color

Ordering Information:
I-87K5: I/O Expansion unit with 5 I/O slots
I-87K5-G: I-87K5 with Gray color

Ordering Information:
I-87K8: I/O Expansion unit with 8 I/O slots
I-87K8-G: I-87K8 with Gray color

Ordering Information:
I-87K9: I/O Expansion unit with 9 I/O slots
I-87K9-G: I-87K9 with Gray color

Specifications & Features

COM Port
- RS-485, 115.2K bps max.
- Data+, Data-
- Max. distance:
  4000 feet (1.2Km)
- Isolation voltage: 3000Vdc

I/O Expansion Slot
- Support serial I/O
- 4 slots for I-87K4, 5 slots for I-87K5, 8 slots for I-87K8, 9 slots for I-87K9

Power Supply
- Unregulated +10Vdc to +30Vdc
- 20W

Environment
- Operating Temperature: -25¡C to + 75¡C
- Storage Temperature: -30¡C to + 85¡C
- Humidity: 5 ~ 95%, non-condensing

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

8K Digital I/O, Relay and Counter Modules Selection Guide

Model (I-)	8037	8040	8041	8042	8050	8051	8052	8053	8054	8055	8056
Digital input Channels	–	32	–	16	Can be up to 16	16	8 isolation 5000V differential	16 isolation 3750V	8 isolation 3750V	8	–
Digital Output Channels	16 open source isolation 3750V	–	32	16	Can be up to 16	–	–	–	8 open colletor isolation 3750V	8 open collector	16 open collector
LED Display	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Safe Value	Yes	–	Yes	Yes	–	–	–	–	Yes	Yes	Yes
Power-on Preset Value	Yes	–	Yes	Yes	–	–	–	–	Yes	Yes	Yes
Dual Watchdog	–	–	–	–	–	–	–	–	–	–	–
Availability	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Model (I-)	8057	8058	8060	8063	8064	8065	8066	8068	8069
Digital input Channels	–	8 isolation 3750V AC/DC Max.250V Input	–	4 isolation 3750V	–	–	–	–	–
Digital Output Channels	16 open-collector isolation 3750V	–	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	Yes	Yes
Safe Value	Yes	–	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power-on Preset Value	Yes	–	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dual Watchdog	–	–	–	–	–	–	–	–	–
Availability	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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: 1W

| 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-8050 | I-8050-G |

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: 125mA/channel
- Power consumption: 1W

NEW!!

8K Digital Modules

I-8051 **I-8051-G**
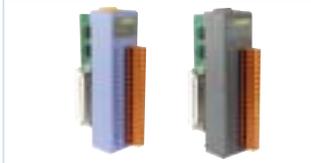
I-8051 / I-8051-G (Gray color)
16-channel Digital Input Module
- Digital Input channels: 16
- Digital Input level:
  Logical level 0: +1V max.
  Logical level 1: +3.5V~30V
- Power consumption: 0.8W

I-8052 **I-8052-G**
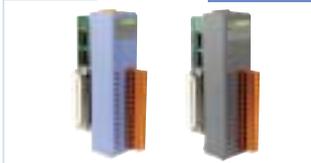
I-8052 / I-8052-G (Gray color)
8-channel Isolated Digital Input Module
- Digital input channels: 8
- Differential input:
  Logical level 0: +1V max.
  Logical level 1: +3.5V~30V
- Isolation: 5000 Vrms.
- Power consumption: 0.8W

I-8053 **I-8053-G**
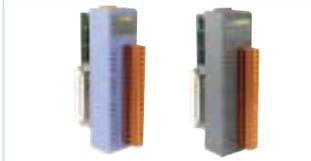
I-8053 / I-8053-G (Gray color)
16-channel Isolated Digital Input Module
- Digital input channels: 16
- Single-ended input:
  Logical level 0: +1V max.
  Logical level 1: +3.5V~30V
  Input resistance: 3K‰, 1/4W
- Power consumption: 0.8W

I-8054 **I-8054-G**
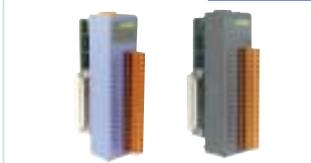
I-8054 / I-8054-G (Gray color)
16-channel Isolated Digital I/O Module
- Digital input channels: 8
  Logical level 0: +1V max.
  Logical level 1: +3.5V~30V
- Digital output channels: 8
  O.C. output: 375mA/channel, 30V
- Power consumption: 1W

I-8055 **I-8055-G**
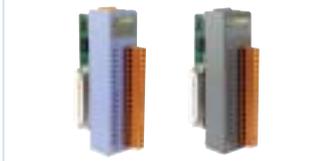
I-8055 / I-8055-G (Gray color)
16-channel Digital I/O Module
- Digital input channels: 8
  Logical level 0: +1V max.
  Logical level 1: +3.5V~30V
- Digital output channels: 8
  O.C. output: 125mA/channel
- Power consumption: 0.5W

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 (Gray color)
16-channel Isolated Open-collector Output Module

I-8057	I-8057-G

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

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.

I-8058	I-8058-G

■ Maximum Input voltage:AC/DC 250V
■ Operating frequency: 1KHz(max.)
■ Isolation: 3750 Vrms
■ Power consumption: 0.8W

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

I-8060	I-8060-G

■ 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

I-8063	I-8063-G

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

8K Digital Modules

I-8064 **I-8064-G**

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**
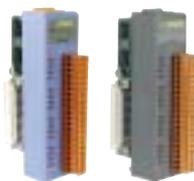
I-8065 / I-8065-G (Gray color)
8-channel SSR-AC Output Module
- Digital output channels: 8
- Form A SSR
- Contact Rating: AC: 24~265Vrms @1.0Arms
                        Max. load current: 1.0Arms
- Power consumption: 0.8W

I-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**
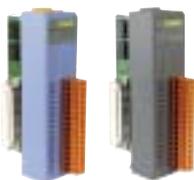
I-8069 / I-8069-G (Gray color)
8-channel Photo Mos Relay Output Module
- Digital output channels: 8
- Form A Photo Mos relay
- Photo Mos Relay
- Load voltage: 350V (Peak AC)
- Continuous load current: 0.13A
- Power consumption: 0.5W

i-8000 SERIES

Parallel I/O Modules

8K Analog Input/Output Modules

I-8017H **I-8017H-G**

I-8017MP **I-8017MP-G**

I-8017LP **I-8017LP-G**

I-8024 **I-8024-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 : –10V, –5V, –2.5V, –1.25V, –20mA
  (need 125‰ 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: 10M‰

I-8017MP / I-8017MP-G (Gray color)
8-channel Isolated Analog Input Module
- Same as I-8017H
- Sampling rate:
  Single Channel Polling Mode : 100Ksps
  Single Channel Interrupt Mode : 50Ksps
  8 Channels Scan Mode : 8Ksps
- Input protection:240 Vrms
- Input Bandwidth : 40KHz @-3dB
- Input impedance: 2M

I-8017LP / I-8017LP-G (Gray color)
8-channel Isolated Analog Input Module
- Same as I-8017H
- Sampling rate:
  Single Channel Polling Mode : 100Ksps
  Single Channel Interrupt Mode : 50Ksps
  8 Channels Scan Mode : 0.8Ksps
- Input protection:240 Vrms
- Input Bandwidth : 200Hz @-3dB
- Input impedance: 2M

I-8024 / I-8024-G (Gray color)
4-channel Isolated Analog Output Module
- Analog output channels: 4
- Voltage output: +/-10V
- Current output: 0~20mA/4~20mA
- Isolation: 3000V
- Power Consumption: 2.2W

8K Counter/Frequency Modules

I-8080 **I-8080-G**
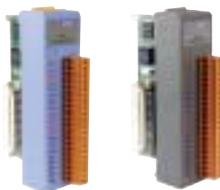
I-8080 / I-8080-G (Gray color)
4/8 channel Counter & Frequency Module
- Counter channel:4/8
- Frequency channel:8
- Input frequency:0~450KHz (Frequency mode)
              450KHz max (Counter mode)
- Power consumption:1W

8K Motion Control & Others

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

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

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

I-8074   **I-8074-G**

Available soon

I-8074 / I-8074-G (Gray color)
Memory module
- SRAM size : 128 ~ 1M Bytes
- Battery backup : Yes
- Battery monitor.
- Status LED:4 (Low Battery and Bad Battery)
- Power consumption: 1 W

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

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

I-8112	I-8112G

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-8114G

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-8142G

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
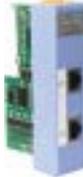
I-8142I	I-8142IG

I-8142I:
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
- Isolation: 3000V

I-8144	I-8144G

NEW!!

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, Relay and Counter Modules Selection Guide

Module		I-87040	I-87041	I-87051	I-87052	I-87053	I-87054	I-87055	I-87057
Digital input Channels		32 Isolation	—	16	8 differential Isolation (5000V)	16 Isolation (3750V)	8 Isolation (3750V)	8	—
Digital Output Channels		—	32 (open collector Isolation)			—	8 (open collector) Isolation (3750V)	8 (open collector Isolation) (3750V)	16 (open collector) Isolation (3750V)
Counter	Channels	32	—	16	8	16	8	8	—
	input frequency	100Hz	—	100Hz	100Hz	100Hz	100Hz	100Hz	—
Safe Value		—	Yes	—	—	—	Yes	Yes	Yes
Power-on Preset Value		—	Yes	—	—	—	Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Availability		Y	Y	Y	Y	Y	Y	Y	Y

Module		I-87058	I-87063	I-87064	I-87065	I-87066	I-87068	I-87069
Digital input Channels		8 differential Isolation (5000V)	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 Rleay Form A x 8
Counter	Channels	8	4	—	—	—	—	—
	input frequency	100Hz	100Hz	—	—	—	—	—
Safe Value		—	Yes	Yes	Yes	Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Availability		Y	Y	Y	Y	Y	Y	Y

i-87K *Serial Modules* **SERIES**

87K Digital Modules

I-87040 | **I-87040-G**

NEW!!

I-87040 / I-87040-G (Gray color)
32-channel Digital Input Module
- Digital input channels: 32
- 3750V isolation (External power)
- 3000V isolation (Internal power)
- Input Voltage: 3.5V ~ 30 V
- Response time: 1 KHz Max.
- Power Consumption: 1W

I-87041 | **I-87041-G**

NEW!!

I-87041 / I-87041-G (Gray color)
32-channel Digital Output Module
- Digital Output channels: 32
- 3750V isolation
- Open-collector Output: 125 mA/ channel
- Response time: 1 KHz Max.
- Load Voltage : 5VDC to 30VDC
- Load Current : 100mA (maxinum)
- 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: 0.3W

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: +1V max.
  Off state: +3.5V~30V
- 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: +1V max.
  Off state: +3.5V~30V
- Isolation: 3750 Vrms
- Power Consumption: 0.3W

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87K Digital Modules

I-87054

I-87054-G

I-87055

I-87055-G

I-87057

I-87057-G

I-87058

I-87058-G

I-87063

I-87063-G

I-87054 / I-87054-G (Gray color)
16-channel Isolated Digital I/O Module
- ■ Digital input channels: 8
  On state: +1V max.
  Off state: +3.5V~30V
- ■ Digital output channels: 8
  O.C. output: 375mA/channel, 30V
- ■ Power Consumption: 0.3W

I-87055 / I-87055-G (Gray color)
16-channel Digital I/O Module
- ■ Digital output 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 (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 (Gray color)
8-channel Isolated Digital Input Module
- ■ Digital input channel : 8 diffemetial
- ■ Input Voltage
  Logical High : AC/DC 80V mini
  Logical Low : AC/DC 30V max.
- ■ Maxiumum Input Voltage :AC/DC 250V
- ■ AC frequency : 45Hz(min.)
- ■ Isolation :5000Vrms
- ■ Power Consumption: 0.3W

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

87K Digital Modules

I-87064	I-87064-G

I-87065	I-87065-G

I-87066	I-87066-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-87068	I-87068-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: 125VAC @0.5A
                 DC: 30VDC @1A
■ Power Consumption: 2.4W

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

87K Analog Input Module Selection Guide

Module		I-87013	I-87015	I-87015T	I-87016	I-87017	I-87018	I-87019
Analog Input	Resolution	16 bit	16 bit	16 bit	16 bit	16 bit	16 bit	16 bit
	Input channel	4 diff.	7 diff.	8 diff.	2 diff.	8 diff.	8 diff.	8 diff.
	Sampling rate	10 Hz (total)	10 Hz (total)	8 Hz (total)	10 Hz	10 Hz (total)	10 Hz (total)	8 Hz (total)
	Voltage input	—	—	—	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-150mV +/-500mV +/-1V +/-2.5V +/-5V +/-10V
	Current input	—	—	—	+/-20mA	+/-20mA	+/-20mA	+/-20mA
	Sensor input	RTD Pt/Ni-RTD	RTD Pt/Ni/ Cu-RTD	Thermistor (2-wire)	—	—	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	—	—	—	Yes	—	—	—
Isolation Voltage		3000V	3000V	3000V	3000V	3000V	3000V	3000V
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Availability		Yes	Note 1	Yes	Note 1	Yes	Yes	Note 1

Note 1: Will be available

87K Analog Output Module Selection Guide

Module		I-87022	I-87024	I-87026
Analog Input	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-87013 **I-87013-G**

I-87016 **I-87016-G**
Available soon

I-87017 **I-87017-G**

I-87018 **I-87018-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-87016 / I-87016-G (Gray color)
4-channel Isolated Strain Gauge Input Module
- Analog Input Channels: 2
- Isolation: 3000V
- Detail spec. call distributor

I-87017 / I-87017-G (Gray color)
8-channel Analog Input Module
- Analog Input Channels: 8 diff.
- Input Type: mV, V, mA (with external resistor)
- Input Impedance: 20M
- Sampling Rate: 10Hz (total)
- C.M.R.: 86dB
- Overvoltage Protection: -35~+35V
- Isolation: 3000Vrms
- Power Consumption: 1.5W

I-87018 / I-87018-G (Gray color)
8-channel Analog Input Module
- Analog Input Channels: 8 diff.
- Input Type: mV, V, mA(with external resistor), Thermocouple (J/K/T/E/R/S/B/N/C/L/M/L2)
- Input Impedance: 20M‰
- Sampling Rate: 10Hz (total)
- C.M.R.: 150dB @50/60Hz
  N.M.R.: 100dB @50/60Hz
- Overvoltage Protection: -35~+35V
- Isolation: 3000Vrms
- Power Consumption: 1W

87K Analog Output Modules

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 (Gray color)
4-channel Isolated Analog Output Module
- Analog Output Channels: 4
- Voltage Output: +/-10V
- 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
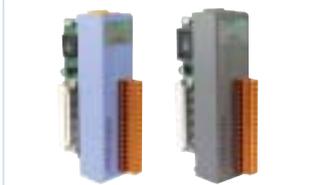
I-87026 / I-87026-G (Gray color)
2-channel Isolated Analog Output Module
- Analog Output channels: 2
- Voltage Output: 0-10V
- Current Output: 0~20mA/4~20mA
- Resolution: 16 bits
- Power-on pre-set value
- Safe Value
- Channel to Channel Isolation
- Power Consumption: 2.2W

87K Counter/Frequency Modules

I-87082 / I-87082-G (Gray color)
2-channel Counter/Frequency Module
- Counter Channels: 2
- Input Frequency:
  100KHz (1Hz~100KHz)
- Power Consumption: 1W