ICP CON

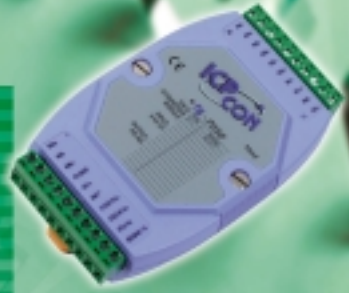
Vol.5.1

Internet Embedded Controller
Intelligent Communication Controller
Remote I/O Modules

I-8000 Series

- Compact Embedded Controller
- Internet Solution
- Data Acquisition
- Motion Control

VxComm Technology



I-7000 Series

- Distributed Data Acaquisition
- High Reliability & Quality for Data Acquisition

I-7188 Series

- Embedded Internet/ Ethernet Controller
- Internet Solution
- Intelligent Communication Controller

Strong Software Environment

- ISaGRAF Solution
- Matlab Solution

Dear Customers

Because the reliability and quality of I-7000 can meet the demand of industry applications, the sales volume of I-7000 module is growing all the time. Over hundred thousand pieces of I-7000 moule has been sold since 1998; Now we are going to launch I-8000 Compact Embedded Controller, I-7188EX Embedded Internet Ethernet Controller and expansion I/O modules.

We are proud to introduce

- Ethernet I/O solution
- VxComm technology for I-8000, I-7188EN, I-752N
- ISaGRAF Solution
- Matlab Solution
- Strong software environment

OEM & ODM program Welcomed
Call Distributor or Dealer

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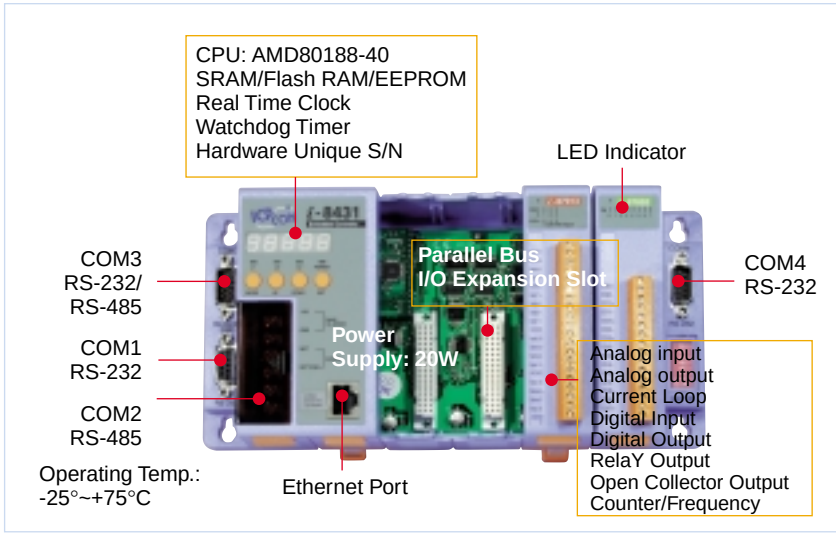


Block Diagram of I-8000

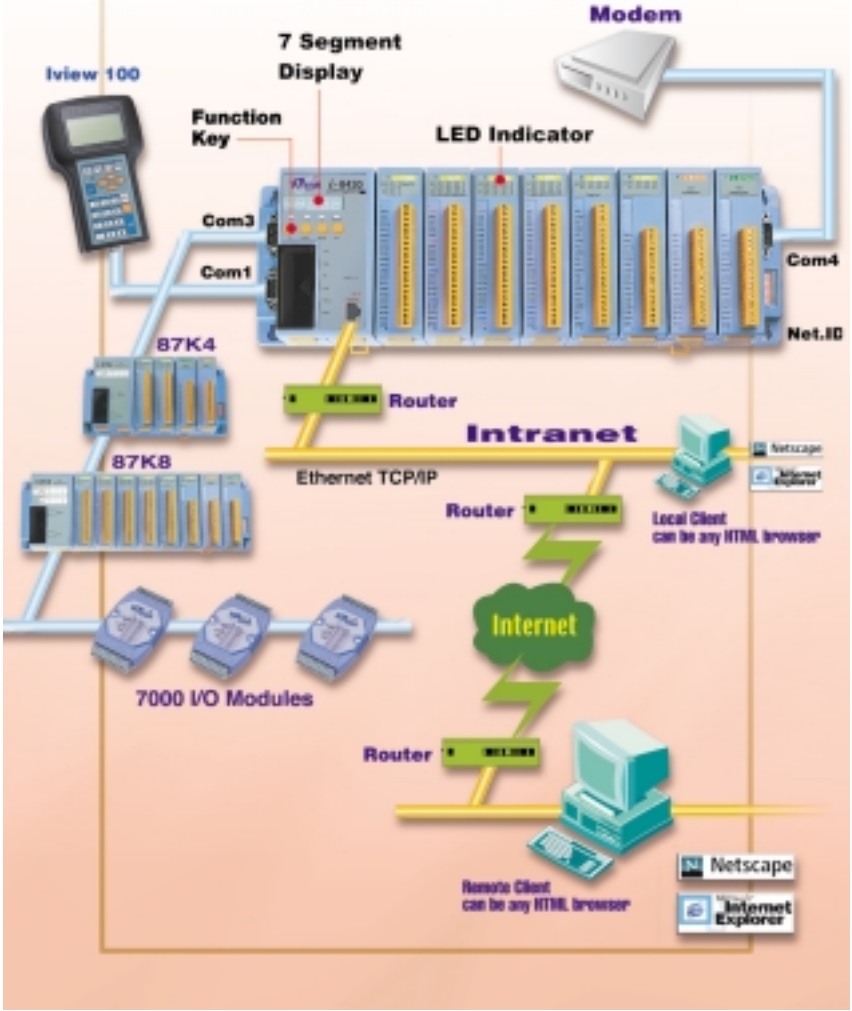
Introduction

The 8000 is a modular network based system with the capability of connecting I/O either through it's own local bus or alternatively through I/O expansion or network extension. The unit comprises 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 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 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.

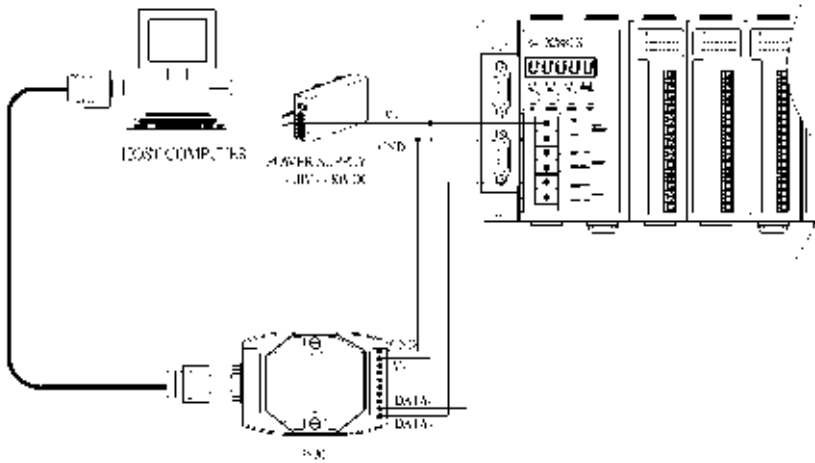
All I-8000 embedded controller equip MiniOS7 embedded OS. It is developed by ICP DAS Co., LTD and compatible to DOS. MiniOS7 has more features than regular DOS in embedded applications, such as shorter power-up time, built-in hardware diagnostic function, directly support I-8000 and I-7000 modules without library, directly support internal or movable memory devices.

Solution for Internet/Intranet

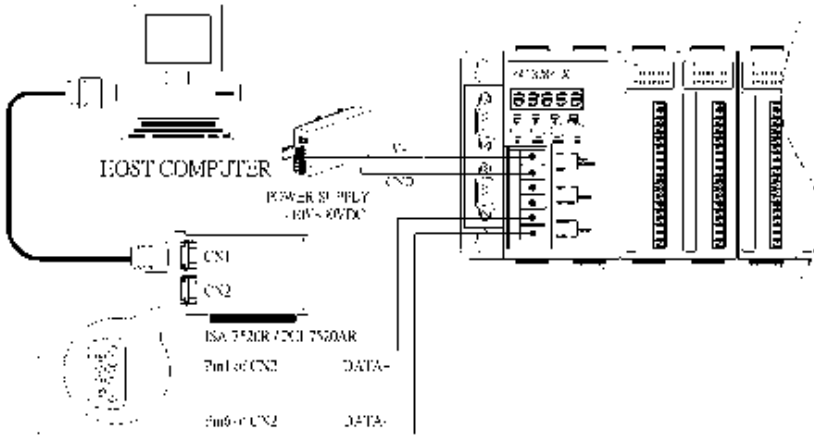


Connect I-841X/881X to Host-PC

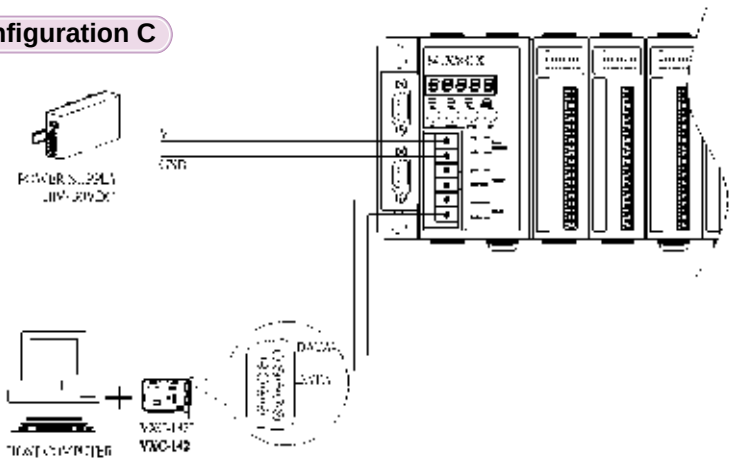
Configuration A



Configuration B



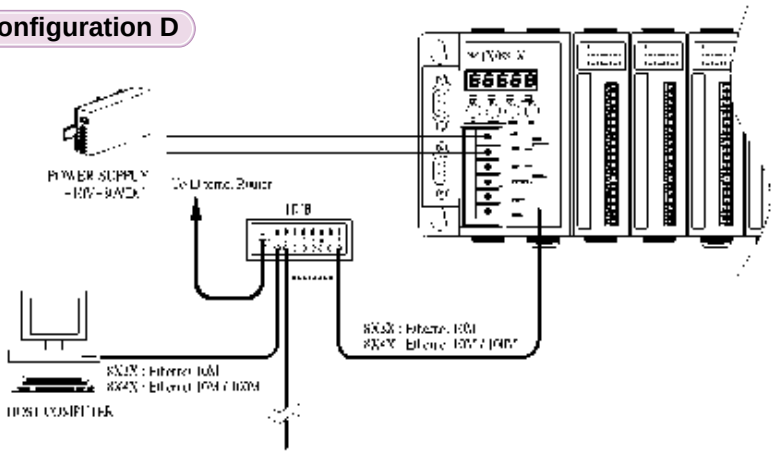
Configuration C



VXC-182I: 2-port serial card

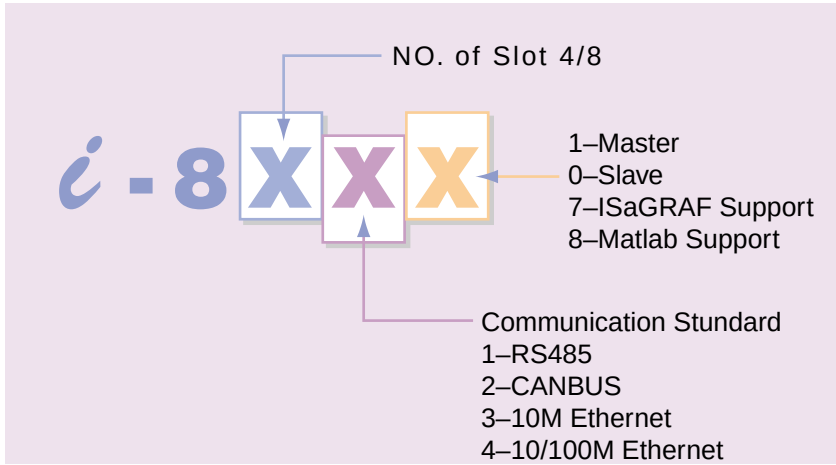
- COM3: RS-422/RS-485 Support RS-422/485, 921.6K, 3000V isolated, Self-tuner chip inside
- COM4: RS-232 921.6K, non-isolated
- Plug & play driver support COM3 & COM4

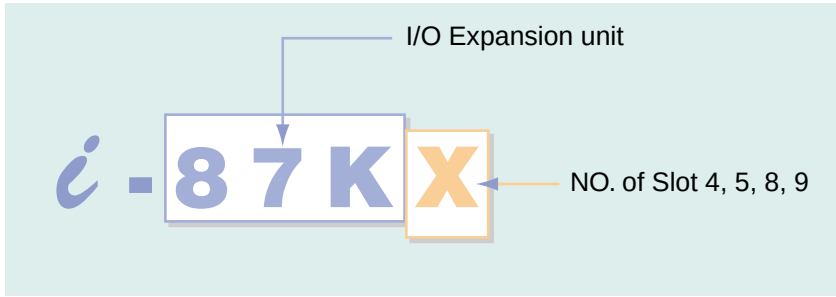
Configuration D



1. Main Control Unit (MCU):

The MCU is the powerhouse of the 8000. Each MCU comprises 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 powerful integrated processing engine comprising a CPU, RAM and ROM, and an option of communication interfaces including RS-485, Ethernet and CANbus.





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	256KB	128KB	4 8	Y	RS-485 NOTE3	Y	-
I-8411 I-8811	Embedded Controller	Y	512KB	512KB	4 8	Y	RS-485 NOTE3	Y	Y
I-8417 I-8817	ISaGRAF Embedded Controller	Y	512KB	512KB	4 8	Y	RS-485 NOTE3	Y	Y
I-8418 I-8818	Matlab Embedded Controller	Y	512KB	512KB	4 8	Y	RS-485 NOTE3	Y	Y
I-8420 I-8820	Embedded Controller	Y	256KB	128KB	4 8	Y	CAN	Y	-
I-8421 I-8821	Embedded Controller	Y	512KB	512KB	4 8	Y	CAN	Y	Y
I-8430 I-8830	Embedded Controller	Y	256KB	256KB	4 8	Y	10 Base T	Y	-
I-8431 I-8831	Embedded Controller	Y	512KB	512KB	4 8	Y	10 Base T	Y	Y
I-8437 I-8837	ISaGRAF Embedded Controller	Y	512KB	512KB	4 8	Y	10 Base T	Y	Y
I-8438 I-8838	IMatlab Embedded Controller	Y	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; 921.6K 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

Optional:

The X-socket of Main control unit can add a SRAM or Flash module, such as the following modules

1. S128: 128K battery backup SRAM module for all I-8000 Embedded Controller
2. S256: 256K battery backup SRAM module for all I-8000 Embedded Controller
3. S512: 512K battery backup SRAM module for all I-8000 Embedded Controller
4. F002: 2 MB Flash disk module for all I-8000 Embedded Controller
5. F004: 4 MB Flash disk module for all I-8000 Embedded Controller
6. F008: 8 MB Flash disk module for all I-8000 Embedded Controller
4. F016: 16 MB Flash disk module for all I-8000 Embedded Controller
5. F032: 32 MB Flash disk 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

- AMD 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
- Environment
  Operating Temp.:
  -25°C to + 75°C
  Storage Temp.:
  -30°C to + 85°C
- Humidity: 5 ~95%
- Dimensions:
  418 x 110 x 75.5 mm (8 slot)
  230 x 110 x 75.5 mm (4-slot)

Ordering Information:
I-8430: Embedded Controller

Ordering Information:
I-8431: Embedded Controller

Ordering Information:
I-8830: Embedded Controller

Ordering Information:
I-8831: Embedded Controller

Specifications & Features

- AMD 80188, 40MHz
- SRAM:
  256K bytes (for I-8430/8830)
  512K bytes (for I-8431/8831)
- Flash Memory:
  256K bytes (for I-8430/8830)
  512K bytes (for I-8431/8831)
- EEPROM: 2K bytes
- 64-bit hardware unique serial number
- Built-in Watchdog Timer
- Real Time Clock
- 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
- Environment
  Operating Temp.:
  -25°C to + 75°C
  Storage Temp.:
  -30°C to + 85°C
- Humidity: 5 ~95%
- Dimensions:
  418 x 110 x 75.5 mm (8 slot)
  230 x 110 x 75.5 mm (4-slot)

Will be available

Ordering Information:
I-8420: Embedded Controller

Ordering Information:
I-8421: Embedded Controller

Ordering Information:
I-8820: Embedded Controller

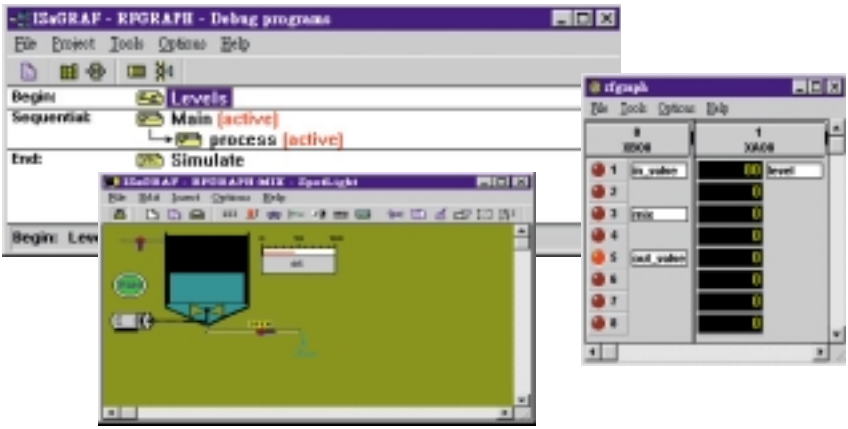
Ordering Information:
I-8821: Embedded Controller

Specifications & Features

- AMD 80188, 40MHz
- SRAM:
  128K bytes (for I-8420/8820)
  512K bytes (for I-8421/8821)
- Flash Memory:
  256K bytes (for I-8420/8820)
  512K bytes (for I-8421/8821)
- EEPROM: 2K bytes
- 64-bit hardware unique serial number
- Built-in Watchdog Timer
- Real Time Clock
- COM1: RS-232/Program download port
- CAN:
  CANOpen & DeviceNet
- COM3: RS-232/485
- COM4: RS-232 (I-8421/8821)
- S-MMI:
  Small Man Machine Interface
- 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:
  418 x 110 x 75.5 mm (8 slot)
  230 x 110 x 75.5 mm (4-slot)

What is ISaGRAF ?

ISaGRAF was the first Windows-based development environment to fully support all five of the PLC languages : Ladder Diagram (LD), Function Block Diagram (FBD), Sequential Function Chart (SFC), Structured Text (ST), and Instruction List (IL). Additionally, for the ultimate in power and flexibility, ISaGRAF supports functions and function blocks written in C and/or IEC61131-3 languages. Applications for ISaGRAF range from simple machine control to complex processes to high speed, high performance and high reliability tasks.



ISaGRAF and I-8XX7 series

The ISaGRAF application can be easily applied on 84X7/88X7 series. There are 3 advantages by adding ISaGRAF programming. The first is the PLC language is easy to design. Instead of the C language, ISaGRAF supports all five IEC61131-3 languages plus Flow Chart language (FC).

The second is the powerful communication ability. There are 4 communication ports on the 84X7/88X7 controllers. The third advantage is the integration to SCADA software and HMI become easy and powerful by choosing the Modbus protocol. SCADA is such as Intouch, FIX, Wizcon, Citect ... HMI is something like Touch 200 touch panel or any hardware or software that support Modbus protocol.

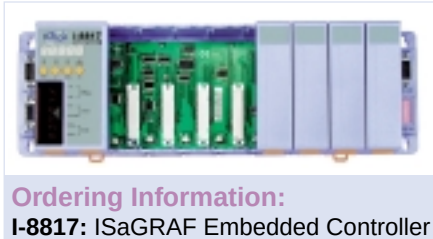
Ordering Information:
I-8417: ISaGRAF Embedded Controller

Specifications & Features

- The hardware of I-8417 is the same as I-8411.
  The I-8000 Target driver and ISaGRAF Target license is included

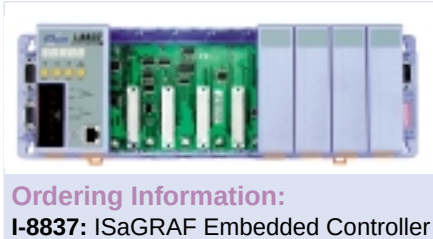
Ordering Information:
I-8437: ISaGRAF Embedded Controller

- The hardware of I-8437 is the same as I-8431.
  The I-8000 Target driver and ISaGRAF Target license is included



Ordering Information:
I-8817: ISaGRAF Embedded Controller

- The hardware of I-8817 is the same as I-8811.
  The I-8000 Target driver and ISaGRAF Target license is included



Ordering Information:
I-8837: ISaGRAF Embedded Controller

- The hardware of I-8837 is the same as I-8831.
  The I-8000 Target driver and ISaGRAF Target license is included

From now on, get rid of hand coding.
The fastest and easiest solution to implement your real-time embedded designs and control system development.

Introduction

The Matlab Embedded Controller are designed to work with MATLAB (6.0) / Simulink / Real Time Workshop Embedded Coder and Stateflow / Stateflow Coder (optional) for industry applications. It equipped with various I/O (DI/DO, AD/DA, RS232/485 and Ethernet Interface) and can be used in harshness environment. Over 30 IO Bridge and system-level Simulink blocksets have been developed. These blocksets has been integrated to work with Stateflow, RTW and Coders. By using Simulink developing environment and Matlab Embedded Controller's blocksets, application algorithm such as: Arbitrary Waveform Generator, Data Acquisition, Timer, Addressable RS232/Ethernet Protocol Converter and PLC applications can be easily constructed and verified. Once the algorithm been verified, user can convert model to executionable code and downloading to controller by just one click. Hand coding is no longer needed when using RP Controller. Engineer can more focus on algorithm design and system validations.
Benefits1. Magically compress your design cycle 2. Small but smart 3. Easy to use, easy to design 4. Robust itself 5. Strong technical support 6. Cost-effective solution.
Software Requirement: MATLAB, Simulink, Stateflow, Real-Time Workshop, Real-Time Workshop Embedded Coder

Ordering Information:
I-8418: Matlab Embedded Controller

Specifications & Features

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

Ordering Information:
I-8438: Matlab Embedded Controller

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

Ordering Information:
I-8818: Matlab Embedded Controller

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

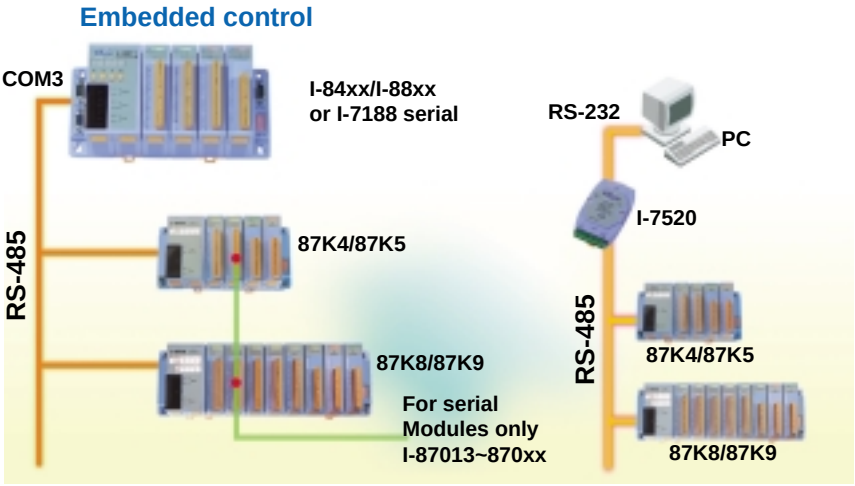
Ordering Information:
I-8838: Matlab Embedded Controller

- 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 comprises a Power supply and a Back Plane with 4, or 5 or 8 or 9 Serial I/O Expansion Slot. The I/O expansion units, 87K4, 87K5, 87K8, 87K9 are equipped with a 115.2K BPS RS-485 bus which links to expansion unit to the main control unit;

Block Diagram of 87K Expansion unit



I/O Expansion Unit Selection Guide

Model	Description	CPU	Slot	Power Supply	COM2	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; 921.6K bps; Data+, Data-

Ordering Information:
I-87K4: I/O Expansion unit with 4 I/O slots

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

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

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

Specifications & Features

COM2

- RS-485, 921.6K bps max.
- Data+, Data-
- 16550 compatible, 16 bytes FIFO
- Directly drive 256 of 7000 modules
- max. distance: 4000 feet (1.2Km)
- Isolation voltage: 2500Vdc

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 temp.: -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-)	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	–	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
Safe Value	–	–	–	–	–	–	–	–	–	–
Power-on Preset Value	–	–	–	–	–	–	–	–	–	–
Dual Watchdog	–	–	–	–	–	–	–	–	–	–
Availability	call	call	call	call	Y	Y	Y	Y	Y	Y

Model (I-)	8057	8058	8060	8063	8064	8065	8066	8068	8069
Digital input Channels	–	4 isolation 3750V 5V-240V AC/DC 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	–	–	–	–	–	–	–	–	–
Power-on Preset Value	–	–	–	–	–	–	–	–	–
Dual Watchdog	–	–	–	–	–	–	–	–	–
Availability	Yes	call	Y	Y	call	call	call	Y	call

8K Digital Modules

I-8040

I-8040:
32-channel Isolated Digital Input Module
- Digital input channels: 32
- 3750V isolation (External power)
- 3000V isolation (Internal power)
- Input Voltage: 3.5V~30V
- Response time: 1 KHz Max.

I-8041

I-8041:
32-channel Isolated Digital Output Module
- Digital output channels: 32
- 3750V isolation (External power)
- Open-collector Output: 125mA/channel
- Response time: 10 KHz Max.

I-8042

I-8042:
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

I-8050

I-8050:
16-channel Universal Digital I/O Module
- Digital I/O channels: 16
- I/O Type: Selectable by jumper
- Digital Input: +2V(0); +4V~30V(1)
- Digital Output: Open-collector Output: 125mA/channel

I-8051

I-8051:
16-channel Digital Input Module
- Digital Input channels: 16
- Digital Input level:
  Logical level0: +1V max.
  Logical level 1: +3.5V~30V
- Power: 0.5W

8K Digital Modules

I-8052

I-8052:
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 Vdc

I-8053

I-8053:
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: 3KΩ, 1/4W

I-8054

I-8054:
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

I-8055

I-8055:
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

I-8056

I-8056:
16-channel Non-isolated Open-collector Output Module

- Digital output channels: 16
  D.C. output: 125mA/channel, 30V
- Power Consumption: 0.5W

8K Digital Modules

I-8057

I-8057:
16-channel Isolated Open Collector Output Module

- Digital output channels: 16
  O.C. output: 125mA/channel, 30V
- Isolation: 3750 Vdc
- Power Consumption: 0.8W

I-8058

Will be Available

I-8058:
4-channel Isolated Digital Input Module

- Digital input channels: 4
- 5V~240V AC/DC voltage input
- Operating frequency: 4KHz max.
- Isolation: 2500 Vrms

I-8060

I-8060:
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

I-8063

I-8063:
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

I-8064

I-8064:
8-channel Power Relay Output Module

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

8K Digital Modules

I-8065

I-8065:
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

I-8066

I-8066:
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

I-8068

I-8068:
8-channel Relay Output Module

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

I-8069

I-8069:
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

8K Analog Input/Output Modules

I-8017H

I-8017H:

8-channel Isolated Analog Input Module

- Analog input channels: 8
  Resolution: 14-bit
- Input Type: differential
  Voltage input: +/-150mV, +/-500mV, +/-1V, +/-5V, +/-10V
- Current input: +/-20mA with External Resistor
- Sampling rate: 100K samples/sec
- Isolation: 3000V

I-8024

I-8024:

4-channel Isolated Analog Output Module

- Analog output channels: 4
- Voltage output: +/-10V
- Current output: 0~20mA/4~20mA
- Isolation: 3000V

8K Counter/Frequency Modules

I-8080

I-8080:

4-channel Counter & Frequency Module

- Counter channels: 4
- Input frequency:
  TTL input; up to 5MHz
- Isolated input: 0.1Hz~5KHz

I-8081

I-8081:

4-channel Frequency Module

- Counter channels: 4
- Input frequency:
  TTL input; up to 5MHz
- Isolated input: 0.1Hz~100KHz

I-8083

I-8083:

4-channel Counter Module

- Counter channels: 4
- Input frequency:
  TTL input; up to 5MHz
- Isolated input: 0.1Hz~100KHz

8K Motion Control & Others

I-8090

I-8090:
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

I-8091

I-8091:
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

I-8072

I-8072:
Printer Port & Xsocket Card
- Support Printer port
- Support two Xsocket

I-8073

I-8073:
System Monitor Control Card
Will be avaliable

8K RS-232/RS-422/RS-485 Module Selection Guide

Module	I-8112	I-8114	I-8142	I-8142i	I-8144
Interface	RS-232	RS-232	RS-422/ RS485	RS-422/ RS485	RS-422/ RS485
Channels	2	4	2	2	4
Max. Channels	16	32	16	16	32
Max. Speed (K bps)	921.6	921.6	921.6	921.6	921.6
I/O Controller	16C550	16C550	16C550	16C550	16C550
Isolation	–	–	–	3000V	–
Surge Protection	Yes	Yes	Yes	Yes	Yes
Self-tuner Inside	–	–	Yes	Yes	Yes
Connectors	RJ45 x 2	RJ45 x 4	RJ45 x 2	RJ45 x 2	RJ45 x 4
Vxcomm Driver Support	Yes	Yes	Yes	Yes	Yes
Power Consumption	1.2W	2.2W	1.2W	1.2W	2.2W

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

I-8112

I-8112:

2-channel RS-232 Module

- RS-232 channels: 2
- Modem control
- TXD, RXD, RTS, CTS, DSR, DTR, DCD, RI, GND
- Transmission speed: 921.6K bps
- Shared Interrupt

I-8114

I-8114:

4-channel RS-232 Module

- RS-232 channels: 4
- Modem control
- TXD, RXD, RTS, CTS, DSR, DTR, DCD, RI, GND
- Transmission speed: 921.6K bps
- Shared Interrupt

I-8142

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: 921.6K bps
- Shared Interrupt

I-8142I

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: 921.6K bps
- Shared Interrupt
- Isolation: 3000V

I-8144

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: 921.6K bps
- Shared Interrupt

Ethernet Module

I-8210

I-8210:

10 Base T Ethernet Module

- IEEE802.3 10Base-T
- Shielded RJ-45 jack
- Diagnostic LEDs

Multi-serial Cards

VXC-182I

VXC-182I:

- PCI Bus
- COM3: RS-422/RS-485 Support RS-422/RS-485, 921.6K communication speed, 3000V Isolation, Self-tuner inside
- COM4: RS-232, 921.6K communication speed, non-isolation
- Plug & play driver, support COM3 & COM4

VXC-142

VXC-142:

- PCI Bus
- COM3/COM4: RS-422/RS-485 Support RS-422/RS-485, 921.6K communication speed, non-isolated, Self-tuner inside
- Plug & play driver, support COM3 & COM4

87K Digital I/O, Relay and Counter Modules Selection Guide

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

Module		I-87063	I-87064	I-87065	I-87066	I-87068
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
Counter	Channels	4	–	–	–	–
	input frequency	100Hz	–	–	–	–
Safe Value		Yes	Yes	Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes
Availability		Y	Y	Y	Y	Y

87K Digital Modules

I-87051

I-87051:
16-channel Digital Input Module
- Digital input channels: 16
- Digital input level:
  Logical level 0: +1V max.
  Logical level 1: +3.5V~30V

I-87052

I-87052:
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 Vdc

I-87053

I-87053:
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: 3KΩ, 1/4W

I-87054

I-87054:
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

I-87055

I-87055:
16-channel Digital I/O Module
- Digital output channels: 8
  Logical level 0: +1V max.
  Logical level 1: +3.5V~30V
- Digital output channels: 8
  O.C. output: 125mA/channel

87K Digital Modules

I-87057

I-87057:
16-channel Isolated Open Collector Output Module

- Digital output channels: 16
  O.C. output: 125mA/channel, 30V
- Isolation: 3750 Vdc

I-87063

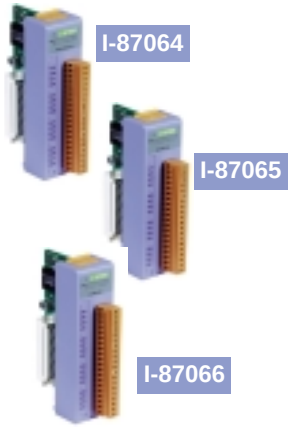
I-87063:
8-channel Isolated Digital I/O Module

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

I-87064

I-87065

I-87066



I-87064:
8-channel Power Relay Output Module
I-87065:
8-channel SSR-AC Output Module
I-87066:
8-channel SSR-DC Output Module

- Digital Output channels: 8
- Form A
- Contact Rating:
  I-87064 – AC:250V @5A DC:30V @5A
  I-87065 – AC: 24~265Vrms @1.0 Arms;
  Max. load current: 1.0Arms
  I-87066 – DC: 3~30VDC @1.0A
  Max. load current: 1.0A

I-87068

I-87068:
8-channel Relay Output Module

- Digital output channels: 8
- Form C x 4; Form A x 4
- Contact Rating: AC: 120V @0.5A
  DC: 30V @1A

87K Analog Input/Output Module Selection Guide

Module		I-87013	I-87016	I-87017	I-87018
Analog Input	Resolution	16 bit	16 bit	16 bit	16 bit
	Input channel	4 diff.	4 diff.	8 diff.	8 diff.
	Sampling rate	10 Hz (total)	10 Hz	10 Hz (total)	10 Hz (total)
	Voltage input	–	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V
	Current input	–	+/-20mA	+/-20mA*	+/-20mA*
	Sensor input	RTD Pt/Ni-RTD	–	–	J.K.T.E.R.S.B.N.C thermocouple
	Input Linear scaling	–	Note 1	–	–
	Isolation Voltage	3000V	3000V	3000V	3000V
Digital Input & Digital Output	Digital input channels	–	*	–	–
	Digital output channels	–	Note 1	–	–
	Event counter	–	Note 1	–	–
	High/Low Alarm	–	Note 1	–	–
Dual Watchdog Timer		Yes	Yes	Yes	Yes
Availability		Y	Note 2	Y	Note 2

Note 1: Call manufactureer; Note 2: Will be available

Main Control Unit 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		Note 2	Yes	Note 2

Note 1: Channel to Channel isolation; Note 2: Will be available

87K Analog Input Modules

I-87013

I-87013:
4-channel RTD Input Module

- Analog Input channels: 4 diff.
- 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

I-87016

I-87016:
4-channel Isolated Strain Gauge Input Module

- Analog Input channels: 4
- Isolation: 3000V
- Detail spec. call distributor

I-87017

I-87017:
8-channel Analog Input Module

- Analog Input channels: 8 diff.
- Input Type: mV, V, mA (with external resistor)
- Input Impedance: 20MΩ
- Sampling rate: 10Hz (total)
- C.M.R.: 86dB
- Overvoltage Protection: -35~+35V
- Isolation: 3000Vrms

I-87018

I-87018:
8-channel Analog Input Module

- Analog Input channels: 8 diff.
- Input Type: mV, V, mA, Thermocouple (J/K/T/E/R/S/B/N/C/L/M/L2)
- Input Impedance: 20MΩ
- Sampling rate: 10Hz (total)
- C.M.R.: 150dB @50/60Hz
  N.M.R.: 100dB @50/60Hz
- Overvoltage Protection: -35~+35V
- Isolation: 3000Vrms

87K Analog Output Modules

I-87022

I-87022:

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

I-87024

I-87024:

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

I-87026

I-87026:

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

87K Counter/Frequency Modules

I-87082

I-87082:

2-channel Counter/Frequency Module

- Counter channels: 2
- Input frequency:
  100KHz (1Hz~100KHz)