i-7188 *Palm-size PAC* SERIES

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

Operating Temp.:
-25°C~+75°C

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 expanison 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	X607: 128K Bytes memory expansion board X608: 512K Bytes memory expansion board	X607: 128K Bytes memory expansion board X608: 512K Bytes memory expansion board	X607: 128K Bytes memory expansion board X608: 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 DI/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

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

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

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

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-7188XBD Expandable PAC SERIES

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

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

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

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.

i-752N
SERIES
Intelligent Communication Controller

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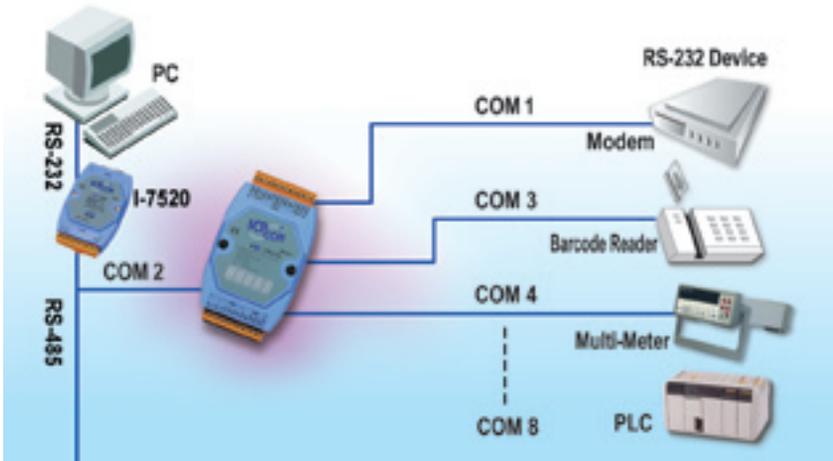
Introduction

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 it's easy maintenance, simple cabling, reliablity 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 downolad 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 SERIES
Intelligent Communication Controller

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

Note1: RS-232/RS-485
RS-485: D1+, D1-; Self-tuner inside
RS-232: TXD, RXD, RTS, CTS, GND
DB-9 male connector
Note2: RS-232/RS-485
RS-485: D1+, D1-; Self-tuner inside
RS-232: TXD, RXD, RTS, CTS, GND

Note3: RS-485 (D2+, D2-; Self-tuner inside); 3000V isolation
Note4: RS-485 (D2+, D2-; Self-tuner inside)
Note5: RS-232 (TXD, RXD, RTS, CTS, GND)
Note6: RS-232 (TXD, RXD, GND)
Note7: 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
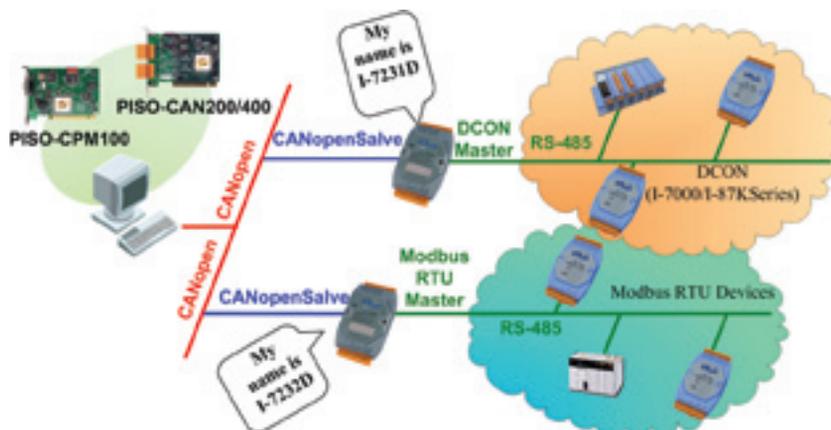
CANopen is a kind of network protocol based on CAN bus and has been used in various applications, such as vehicles, industrial machines, building automation, medical devices, maritime applications, restaurant appliances, laboratory equipment & research. It allows not only broadcasting but also peer to 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

NEW!!

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

NEW!!

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-7188 SERIES
DeviceNet Gateway
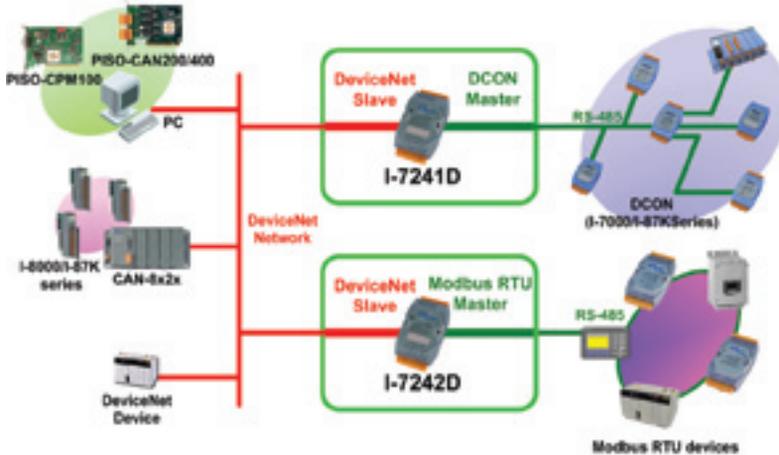
DeviceNet Gateway

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

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-segmemt 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

NEW!!

Ordering Information:
I-7241D: DeviceNet / DCON Gateway

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-segmemt 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

NEW!!

Ordering Information:
I-7242D: DeviceNet / Modbus RTU Gateway

i-7188EX SERIES

Palm-size Embedded Internet/ Ethernet Controller

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 SERIES

Palm-size Embedded Internet/Ethernet Controller

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 SERIES

Palm-size Embedded Internet/Ethernet Controller
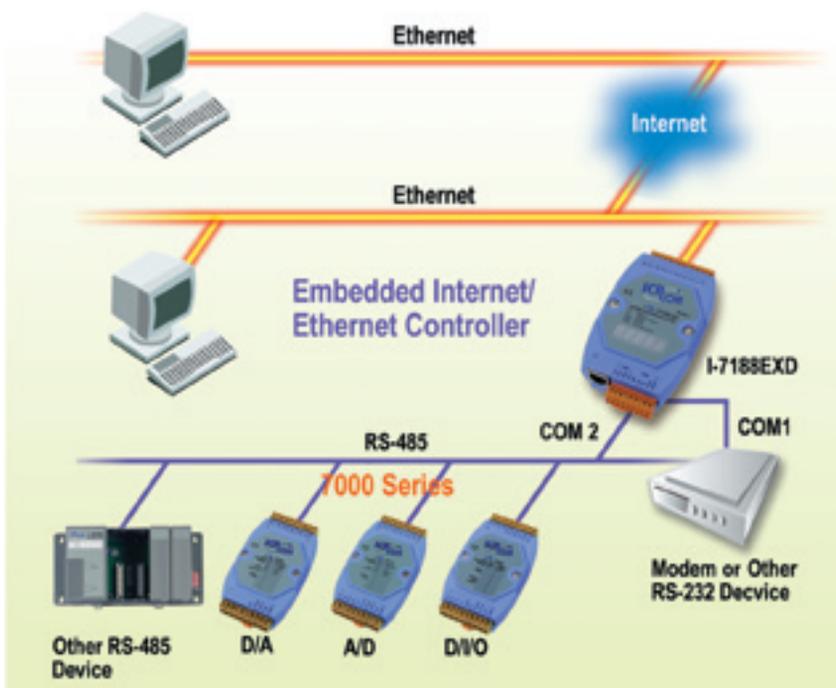
Ordering Information

■ **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
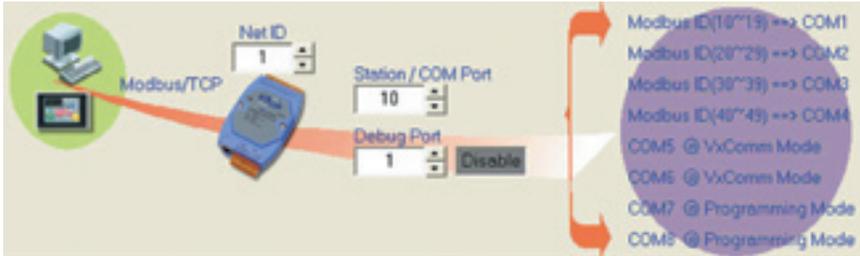
Default firmware features

- 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
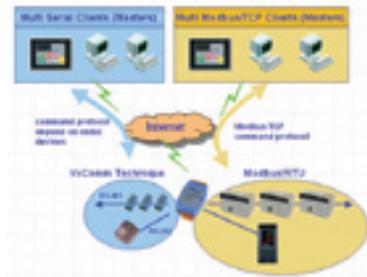
Modbus SDK (in C language)

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

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**

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

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

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 DI/O expansion board.

*i-*7188EG

Expandable ISaGRAF PAC

SERIES

Introduction

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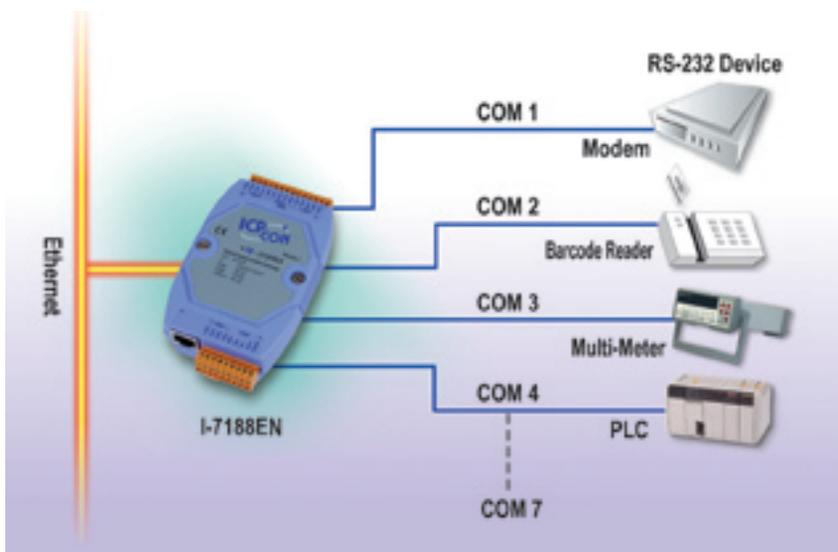
Features

- 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.

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.

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 SERIES
Internet Communication Controller

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 SERIES
Internet Communication Controller

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 serveral 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 SERIES
Internet Communication Controller

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
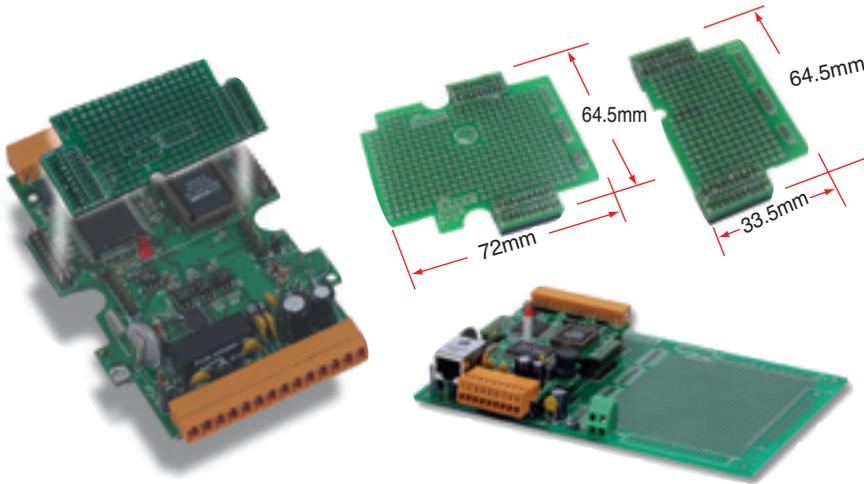- **I-7188E8D:** I-7188E8 with display

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 SERIES
I/O Expansion Boards

64.5mm

64.5mm

72mm

33.5mm

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

Signal	Pin		Pin	Signal
GND	1		2	GND
CLKOUTA	3		4	ARDY
INTO	5		6	INT 1
VCC	7		8	RESET
GND	9		10	RESET\
TO 0	11		12	TO 1
TI 0	13		14	TI 1
SCLK	15		16	DIO9
DIO4	17		18	DIO14
VCC	19		20	VCC

CON20A
JDIP20P

J2

Signal	Pin		Pin	Signal
MA0	1		2	AD0
MA1	3		4	AD1
MA2	5		6	AD2
MA3	7		8	AD3
MA4	9		10	AD4
MA5	11		12	AD5
MA6	13		14	AD6
MA7	15		16	AD7(or NC)
INT4(or NC)	17		18	WRITE\
CS\	19		20	READ\

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/XCXB/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 D/I, D/O, Timer/Counter, PWM

Model	Description	D/I	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 **Without Case**	–	6	–	XB/XG/EX/EG
X119	DI, DO	7 **Without Case**	7	–	–	XC/XA/XB/ EX/EG/XG
X400	Timer/Counter	–	–	–	3 channels 16-bit timer/ counter	XC

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

Model	Description	D/I	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 SERIES
I/O Expansion Boards

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 SERIES I/O Expansion Boards

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

Prototype Board
X002 (114mm x 170mm)
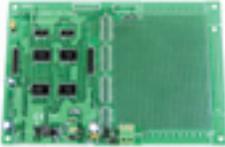
Self-test Board
X004 (64mm x 38mm)
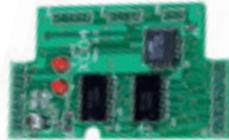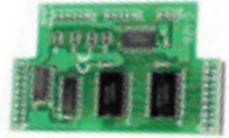
Prototype Board
X005 (38mm x 64mm)
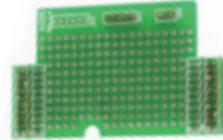
Prototype Board
X006 (72mm x 65mm)
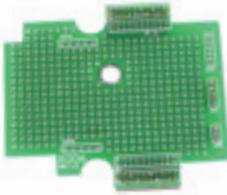
DI/O Board
X107 (64mm x 37mm)

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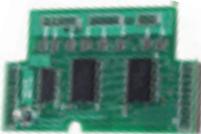- 6 channels DI (3.5V~30V)

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 : 25Ohm
- 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)
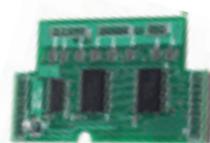
Specifications:
- Channel : 13
- Open-collector Output :70 mA / 30V max
- Isolated : none

DI/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

DI/O Board
X119 (72mm x 57mm)
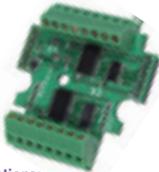
Specifications:
- 7 Channels : DO
- 7 Channels : DI   ****Without Case****

AD Board
X202 (64mmX37mm)

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

AD Board
X203 (64mmX37mm)
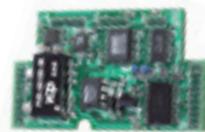
Specifications:
- Channel : 2
  Resolution : 12bit
  Input Range/Type : 0 ~ 20 mA
- 2 channels DI
- 6 channels DO

i-7188 *I/O Expansion Boards* SERIES

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;
  RI4, CTS4, RTS4, DSR4,
  DTR4, TXD4, RXD4, DCD4

RS-232 Board
X505 (64mm x 37mm)
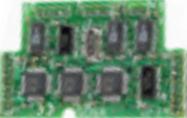
Specifications:
- COM3: RS-232 port;
  CTS3, RTS3, RXD3, TXD3
- COM4: RS-232 port;
  CTS4, RTS4, RXD4, TXD4
- COM5: RS-232 port;
  CTS5, RTS5, RXD5, TXD5

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
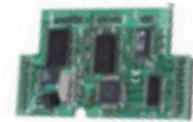- 4 channels DO

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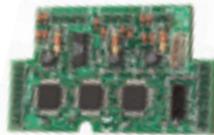
Specifications:
- COM3: RS-485 port; Data+, Data-
- COM4: RS-485 port; Data+, Data-
- COM5: RS-485 port; Data+, Data-

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

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

RS-232 Board   ****Without Case****
X561 (72mm x 65mm)
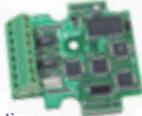
Specifications:
- COM3 : RS-232 port; RXD3,TXD3,GND
- COM4 : RS-232 port; RXD3,TXD3,GND
- COM5 : RS-232 port; RXD3,TXD3,GND
- 64M bytes NAND Flash:
  Endurance : 1,000,000
- Program/Erase Cycles
- Data Retention : 10 years

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)

NEW!!

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

Encoder Input Board
X703 (64mm x 41mm)

NEW!!

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

i-7188 **I/O Expansion Boards**
SERIES

Prototype Board
X000 (64mm x 32mm)

Prototype Board
X001 (64mm x 70mm)

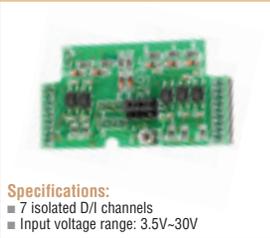**Self-test Board**
X003 (64mm x32mm)

DI/O Board
X100 (64mm x 32mm)

Specifications:
■ 8 D/I channels
■ Input voltage range: 3.5V~30V
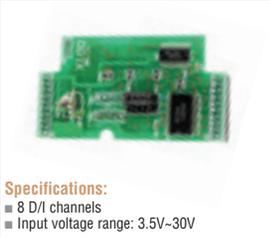
DI/O Board
X101 (64mm x 32mm)

Specifications:
■ 8 D/O channels
■ Type: TTL Level;
   Sink current: 64mA
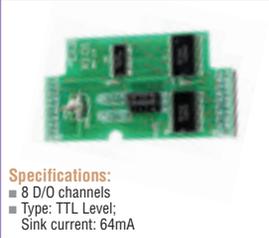
Relay Board
X102 (64mm x 32mm)

Specifications:
■ 2-channel relay output
■ Contact rating;
   0.5A/125VAC; 1A/30VDC

DI/O Board
X103 (64mm x 32mm)

Specifications:
■ 7 isolated D/I channels
■ Input voltage range: 3.5V~30V

DI/O Board
X104 (64mm x 32mm)

Specifications:
■ 8 D/I channels
■ Each channel can be
   programmed to D/I or D/O
■ Non-isolated, TTL level
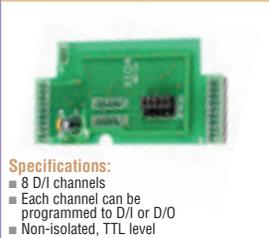
DI/O Board
X105 (64mm x 32mm)

Specifications:
■ 8 channel DI/O
■ 8 channel programmable
■ Non-isolated, TTL level

DI/O Board
X106 (64mm x 32mm)

Specifications:
■ 2 channels Open collector
   output; 30V/250mA or
   3 channels DI (3.5V~30V)

DI/O Board
X119 (72mm x 57mm)

Specifications:
■ 7 Channels : DO
■ 7 Channels : DI   **Without Case**

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

Specifications:
■ Channel : 1
■ Input Range: 0~2.5V, 12-bit

i-7188 I/O Expansion Boards
SERIES

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)

Without Case

Specifications:
- COM: RS-232 port; RI4, CTS4,
  RTS4, DSR4, TXD4, RXD4, DCD4, DTR4

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 SERIES
I/O Expansion Boards

Used with I-7188XA

Prototype Board
X000 (64mm x 32mm)

Prototype Board
X001 (64mm x 70mm)

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

DI/O Board   **Without Case**
X119(72mm x 57mm)

Specifications:
- 7 Channels : DO
- 7 Channels : DI

RS-232 Board   **Without Case**
X500(64mm x 32mm)

Specifications:
- COM: RS-232 port; RI4, CTS4, RTS4, DSR4, TXD4, RXD4, DCD4, DTR4

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
- X601: 8M bytes NAND; Flash
- 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 SERIES
Expansion Boards Ordering Information

i-7188 ☐☐ ☐ - X ☐☐☐

Embedded Controller Model No.

With LED Display

Expansion Board Model No.
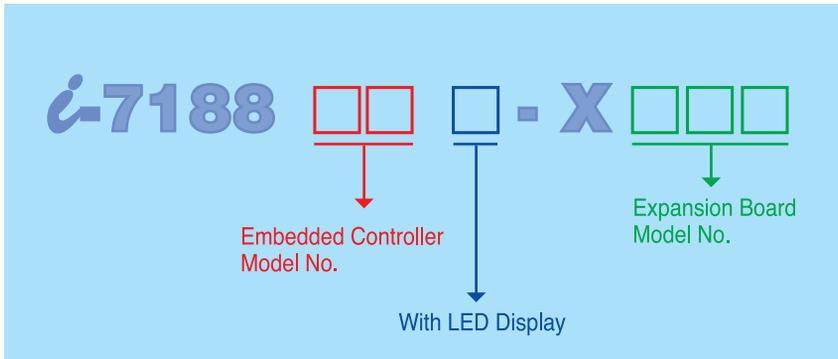
1. Expansion Boards + Embedded Controller ordering information.
   I-7188XA☐–X☐☐☐☐
   I-7188XB☐–X☐☐☐☐
   I-7188XC☐–X☐☐☐☐

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