

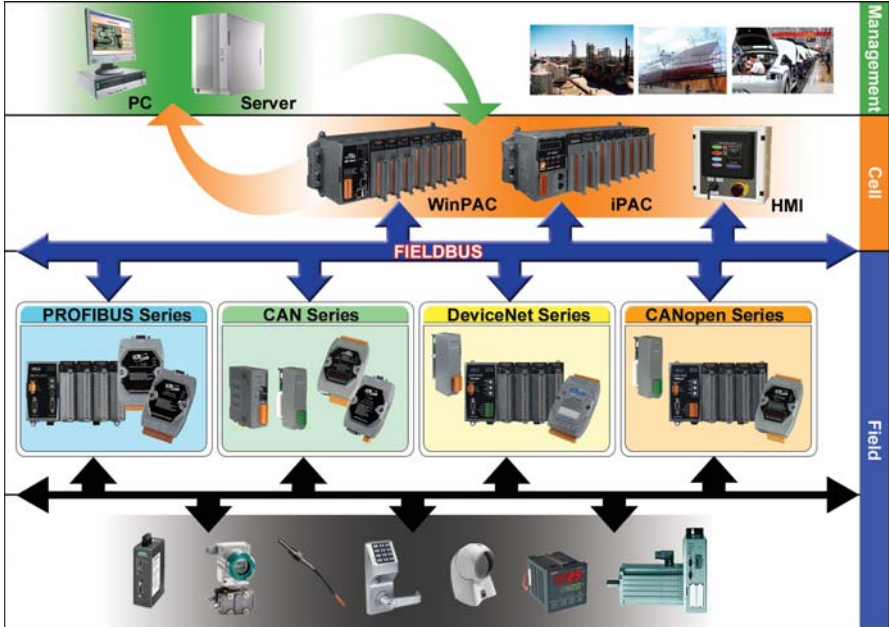
Fieldbus Solutions

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6.1. Overview

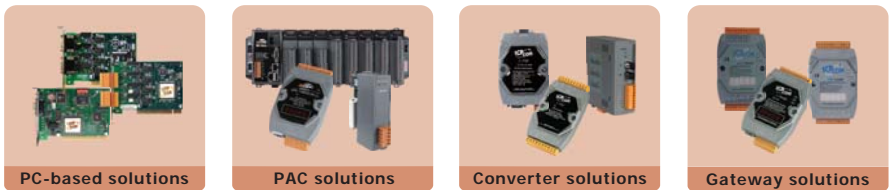
Fieldbus is an industrial network system for real-time distributed control. It is a way to connect instruments in a manufacturing plant. Fieldbus works on a network structure which typically allows daisy-chain, star, ring, branch, and tree network topologies. Fieldbus reduces both the length and the number of cables required. Fieldbus has many major advantages to all applications of automation. The technology of fieldbus is mature and well accepted in various fields in markets. ICP DAS has focused on these fieldbus products for several years and offers various fieldbus solutions in different industrial applications, covering the entire scope of process and manufacturing automation: CAN bus, CANopen, DeviceNet and PROFIBUS applications.



ICP DAS's Fieldbus Development Services group has been involved in the design and development of CAN and PROFIBUS products for our customers for several years. We have the expertise to bring these bring these fieldbus products to your system. As the members of the CiA, ODVA and PI, we have the latest CAN and PROFIBUS development tools and understand the details of all the steps required to bring the products to your need.

Solutions for Fieldbus

In order to solve various communication problems in different Fieldbus applications, ICP DAS provides converters, gateways, PC based, and PAC based solutions of Fieldbus for users. Users can choose corresponding solutions depending on various field applications.



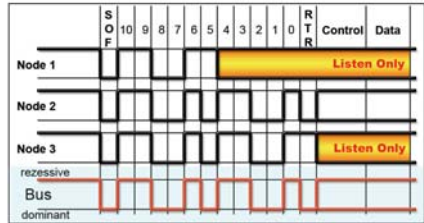
6.2. CAN bus Introduction & Products

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

Speed & Distance

Baud (bit/sec)	Ideal Bus Length(m)
1M	25
800k	50
500k	100
250k	250
125k	500
50k	1000
20k	2500
10k	5000

Arbitration



• Selection Guide

Model Name	Description	Page
CAN bus Converters		
I-2532	CAN bus to Fiber Converter	6-2-2
I-7530	1-port CAN bus to RS-232 Converter	
I-7530A	1-port CAN bus to RS-232/RS-485/RS-422 Converter	
I-7531	CAN bus Isolated Repeater	
I-7532	2-port CAN bus Bridge	
I-7540D	Ethernet to CAN/RS-232/RS-485 Ports Converter	6-2-3
I-7565	USB to 1-port CAN bus Converter	
I-7565-H1	High Speed USB to 1-port CAN bus Converter	
I-7565-H2	High Speed USB to 2-port CAN bus Converter	
Intelligent CAN bus Modules (For iP-8000, WP-8000, LP-8000...)		
I-8120W	Intelligent 1-port CAN bus communication module with parallel bus for WinPAC/LinPAC	6-2-3
I-87120	Intelligent 1-port CAN bus communication module with serial bus for WinPAC/LinPAC/IPAC	
CAN bus Communication Boards		
PISO-CM100U-D	Intelligent 1-port CAN bus Universal PCI Interface Board	6-2-4
PISO-CM100U-T		
PCM-CAN200	2-port CAN bus PCI-104 Board	
PCM-CAN200P	2-port CAN bus PC-104+ Board	
PEX-CAN200i-D	2-port CAN bus PCI Express x 1 Interface Board	
PEX-CAN200i-T		
PISO-CAN200U-D	2-port CAN bus Universal PCI Interface Board	
PISO-CAN200U-T		
PISO-CAN400U-D	4-port CAN bus Universal PCI Interface Board	
PISO-CAN400U-T		

CAN bus Converters

ICP DAS provides all kinds of communication interfaces for CAN bus. There are RS-232, RS-485, RS-422, Ethernet, USB and fiber interfaces for various CAN applications. Also, the CAN series bridge and repeater are ICP DAS's CAN series products to enhance the CAN applications flexibility.

CAN to Fiber Converter

I-2532 is a CAN to fiber optic converter that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference, which is designed to extend high CAN bus signals onto fiber optic cables.

I-2532 CR


- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo couple isolation on the CAN side
- DIP switch for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- 3 kV galvanic isolation
- Fiber Port: ST (Multi-mode)
- Wave Length: 850 nm
- Fiber Cable: 50/125, 62.5/125, 100/140 μm
- One CAN and one fiber channel
- Configure CAN Baud by rotary switch

Intelligent RS-232 to CAN Converter

I-7530 is designed to unleash the power of CAN bus via RS-232 communication method. It converts messages between CAN and RS-232 networks.

I-7530 CR


- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- OEM for ISO 11898-3 standard (Low Speed Fault Tolerance)
- 3 kV galvanic isolation
- One CAN and RS-232 channels
- Configure CAN and RS-232 parameters by utility
- Support transparent communication mode
- Mount easily on DIN-Rail

Intelligent RS-232/485/422 to CAN Converter

I-7530A is designed to unleash the power of CAN bus via RS-232/485/422 communication method. It correctly converts messages between CAN and RS-232/485/422 networks.

I-7530A CR


- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- OEM for ISO 11898-3 standard (Low Speed Fault Tolerance)
- 3 kV galvanic isolation
- One CAN, RS-232, RS-422, and RS-485 channels
- Configure CAN and serial COM parameters by utility
- Support transparent communication mode
- Mount easily on DIN-Rail

CAN bus isolated Repeater

I-7531 is a CAN repeater used to establish a physical coupling of two or more segments of a CAN bus system. Users can implement tree or star topologies as well as for long drop lines with I-7531. Connecting via I-7531.

I-7531 CR


- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- 3 kV galvanic isolation among the power supply and two CAN channels
- Two CAN channels
- Auto-baud detection
- up to 100 nodes on each CAN port
- Removable terminal block
- Mount easily on DIN-Rail

2-port CAN bus bridge

I-7532 is a CAN bridge to coupling different segments which can be different baud rates. It also can isolate the electronic distance between both sides. That can protect the nodes of another side from the other.

I-7532 CR


- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- 3 kV galvanic isolation between two CAN channels
- Two CAN channels
- Configure CAN Baud of each channel by rotary switch
- Up to 100 nodes on each CAN port
- Removable terminal block
- Mount easily on DIN-Rail

Ethernet to CAN/RS-232/RS-485 Converter

I-7540D is a solution that enables CAN networks to be coupled together over the Internet/Ethernet, whereby remote monitoring and control is possible. The I-7540D controls networked communication and makes a transparent CAN-based application interface available to the user.

I-7540D CR


- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- 10/100 Base-T Ethernet port
- 1 kV galvanic isolation
- One CAN, RS-232, RS-485 and Ethernet channels
- Configure CAN, RS-232 and RS-485 parameters by web page
- Provide max. 25 Ethernet clients connection
- Support for Virtual COM technology

USB to 1-port CAN Converter

I-7565 is a cost-effective device for connecting the CAN bus to PC via the standard USB interface.

I-7565 CR



- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- Fully compliant with USB 1.1/2.0 (Full Speed)
- 3 kV galvanic isolation
- Powered by USB port
- One CAN and USB channels
- Support Windows 98/ME/2000/XP and Linux drivers
- Mount easily on DIN-Rail

High Speed USB to 1-port CAN bus Converter

I-7565-H1 is a cost-efficient device for coupling one CAN channel to USB interface. With its powerful 32-bit microcontroller, transmission and reception processes can be controlled loss-free.

OS Support: Window 98/2K/XP/Vista, Linux

NEW

I-7565-H1 CR



- Fully compatible with the ISO 11898-2 standard
- Compatible with CAN specification 2.0 parts A and B
- No external power supply (powered by USB)
- Integrated with one CAN bus interface
- Programmable CAN bus baud rate from 5 kbps to 1 Mbps
- Built-in jumper for 120 Ω terminal resistor of CAN bus
- 2500 V_{rms} photo-coupler isolation on the CAN side
- 3 kV galvanic isolation among the power supply
- Support CAN bus acceptance filter configuration
- Provide configuration utility to transmit/receive CAN messages
- Max. data flow for a single channel: 3000 fps (standard frame)
- Removable terminal block, Mount easily on DIN-Rail

High Speed USB to 2-port CAN bus Converter

I-7565-H2 is a cost-efficient device for coupling two CAN channel to USB interface. With its powerful 32-bit microcontroller, transmission and reception processes can be controlled loss-free.

OS Support: Window 98/2K/XP/Vista, Linux

NEW

I-7565-H2 CR



- Fully compatible with the ISO 11898-2 standard
- Compatible with CAN specification 2.0 parts A and B
- No external power supply (powered by USB)
- Integrated with two CAN bus interface
- Programmable CAN bus baud rate from 5 kbps to 1 Mbps
- Built-in jumper for 120 Ω terminal resistor of CAN bus
- 2500 V_{rms} photo-coupler isolation on the CAN side
- 3 kV galvanic isolation among the power supply
- Support CAN bus acceptance filter configuration
- Provide configuration utility to transmit/receive CAN messages
- Max. data flow for a single channel: 3000 fps (standard frame)
- Removable terminal block, Mount easily on DIN-Rail

 Intelligent CAN bus Modules

Standalone CAN Interface Expansion Module

I-8120W has one CAN communication port with 5-Pin screw terminal connector, and is useful for a wide range of CAN applications. Users can design the various applications between different communication protocols. It supports WinPAC-8000, LinPAC-8000, XPAC-8000 and iPAC-8000 series.

NEW

I-8120W CR



- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo couple isolation on the CAN side
- DIP switch for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- 3 kV galvanic isolation
- One CAN channel expansion for WinCon-8000/LinCon-8000 series main control unit
- Provide C/C++ function libraries and demos
- 80 MHz 186 CPU inside
- 8 K DPRAM inside
- Parallel bus communication with main unit

Standalone CAN Interface Expansion Module

I-87120 is developed to expand the CAN functions of ICP DAS products. However, the user-defined firmware supported by I-87120 can help users to set up the specific application easily. It supports WinPAC-8000, LinPAC-8000, XPAC-8000 and iPAC-8000 series.

I-87120 CR



- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo couple isolation on the CAN side
- DIP switch for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- 3 kV galvanic isolation
- One CAN channel expansion for LinCon-8000/LinCon-8000/I-8000 series main control unit
- Provide C/C++ function libraries and demos
- 80 MHz 186 CPU inside
- Serial bus communication with main unit
- Allow user-designed firmware

CAN bus Communication Boards

Intelligent CAN Communication Board

PISO-CM100U built-in 80186, 80 MHz, CPU represents a very powerful CAN board to process the real-time CAN messages providing the open structure for users to program in it to satisfy the high performance system.
OS Support: Windows 2K/XP/Vista

PISO-CM100U-D CR
PISO-CM100U-T CR



- Universal PCI card, supports both 5 V and 3.3 V PCI bus
- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- Comply with 33 MHz 32-bit 5 V (or universal) PCI bus
- 3 kV galvanic isolation
- 2/4 independent CAN ports
- Direct memory mapping to the CAN controller
- Provide VB, VC++, Delphi, Borland C++ builder demos
- Support LabVIEW and DASYLab driver

PCI-104 CAN Communication Board

PCM-CAN200 has 2 independent CAN ports with 9-Pin D-Sub connector compatible PCI-104 specification.

OS Support: Windows 2K/XP/Vista/CE

NEW
PCM-CAN200 CR



- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- PCI-104 compliant
- 3 kV galvanic isolation
- 2/4 independent CAN ports
- Direct memory mapping to the CAN controller
- Provide VB, VC++, Delphi, Borland C++ builder demos
- Support LabVIEW and DASYLab driver

PC-104+ CAN Communication Board

PCM-CAN200 has 2 independent CAN ports with 9-Pin D-Sub connector compatible PC-104+ specification.

OS Support: Windows 2K/XP/Vista/CE

NEW
PCM-CAN200P CR



- PC-104+ compliant
- 9-Pin D-Sub connector
- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with ISO 11898-2 standard
- Support CAN bard rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo-couple isolation on the CAN bus
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- 3 kV galvanic isolation
- 2 independent CAN ports
- Direct memory mapping to the CAN controller
- Provide VB, VC++, Delphi, BC++ demos
- Driver support Windows 2K/XP/WinCE and Vista

PCI Express CAN Communication Board

PEX-CAN200i has 2 independent CAN ports with 5-Pin screw terminal connector or 9-Pin D-Sub connector with PCI Express x 1 bus. Every CAN channel has isolation protection circuit.

OS Support: Windows 2K/XP/Vista

NEW
PEX-CAN200I-D CR
PEX-CAN200I-T CR



- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- X1 link PCI Express
- 3 kV galvanic isolation
- 2 independent CAN channels
- Direct memory mapping to the CAN controller
- Provide VB, VC++, Delphi, Borland C++ builder demos
- Support LabVIEW and DASYLab driver

Universal PCI CAN Communication Board

PISO-CAN200U with universal PCI interface has two independent CAN bus communication ports with 5-Pin screw terminal connector or 9-Pin D-Sub connector.

OS Support: Windows 2K/XP/Vista

PISO-CAN200U-D CR
PISO-CAN200U-T CR



- Universal PCI card, supports both 5 V and 3.3 V PCI bus.
- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- Comply with 33 MHz 32-bit 5 V universal PCI bus
- 3 kV galvanic isolation
- 2 independent CAN channels
- Direct memory mapping to the CAN controller
- Provide VB, VC++, Delphi, Borland C++ builder demos
- Support LabVIEW and DASYLab driver

Universal PCI CAN Communication Board

PISO-CAN400U with universal PCI interface has four independent CAN bus communication ports with 5-Pin screw terminal connector or 9-Pin D-Sub connector.

OS Support: Windows 2K/XP/Vista

PISO-CAN400U-D CR
PISO-CAN400U-T CR



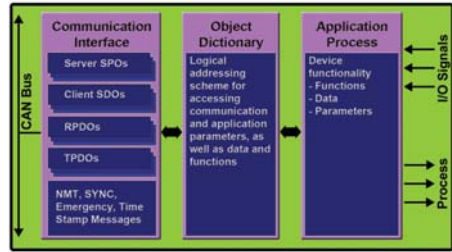
- Universal PCI card, supports both 5 V and 3.3 V PCI bus.
- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- Comply with 33 MHz 32-bit 5 V universal PCI bus
- 3 kV galvanic isolation
- 4 independent CAN channels
- Direct memory mapping to the CAN controller
- Provide VB, VC++, Delphi, Borland C++ builder demos
- Support LabVIEW and DASYLab driver

6.3. CANopen Introduction & Products

CANopen is a CAN-based application layer protocol. Originally, CANopen was designed for motion-oriented machine control networks, such as handling systems, then was developed as a standardized embedded network with highly flexible configuration capabilities. By now it is used in many various fields, such as medical equipment, off-road vehicles, maritime electronics, public transportation, building automation, etc.

CANopen Features

- ◆ Allow multi-master architecture on one bus
- ◆ 10 k, 20 k, 125 k, 250 k, 500 k, 800 k, 1 Mbps baud rate
- ◆ The bus length is from 25 m (10 kbps) to 5 km (1 Mbps)
- ◆ Easy access to all device parameters
- ◆ Device synchronization
- ◆ Cyclic and event-driven data transfer
- ◆ Up to 128 nodes can be participated in the same CANopen network
- ◆ Support Guarding and Heartbeat protection mechanism



● Selection Guide

Model Name	Description	Page	
CANopen Converter and Gateways			
I-7565-CPM	USB to 1-port CANopen Master Converter	6-3-2	
I-7231D	CANopen Slave/DCON Master Gateway		
I-7232D	CANopen Slave/Modbus RTU Master Gateway		
GW-7433D	CANopen Master to Modbus Server Gateway		
Intelligent CANopen Communication Modules (For iP-8000, WP-8000, LP-8000...)			
I-87123	Intelligent 1-port CANopen Master Communication Module with serial bus	6-3-2	
Intelligent CANopen Communication Boards			
PISO-CPM100U-D	Intelligent 1-port CANopen Master Universal PCI interface Board	6-3-3	
PISO-CPM100U-T			
PISO-CPS100U-D	Intelligent 1-port CANopen Slave Universal PCI interface Board		
PISO-CPS100U-T			
PISO-CAN200U-D			2-port CAN bus Universal PCI Interface Board with CANopen master Library
PISO-CAN200U-T			
PISO-CAN400U-D	4-port CAN bus Universal PCI Interface Board with CANopen master Library		
PISO-CAN400U-T			

6 CANopen Converter and Gateways

USB/CANopen Master Converter

I-7565-CPM is a USB to CANopen master converter. It can use on USB slot of PC or notebook easily and does not need any extra power. I-7565-CPM can represent an economic solution of CANopen application and be a CANopen master device on the CANopen network.

NEW
I-7565-CPM CR



- Fully compliant with USB 1.1/2.0 (Full Speed)
- No external power supply is required
- CANopen Specification: DS301, version 4.02
- Baud Rate: 10 k, 20 k, 50 k, 125 k, 250 k, 500 k, 800 k, 1 Mbps
- NMT error control support Node Guarding protocol
- SYNC producer 1 ms ~ 65535 ms
- Support dynamic PDO/SDO segment protocol/EDS file
- Slave Node: 127 nodes max.
- Support Auto-scan slave device function
- Support on-line adding and removing devices
- Support save and load command
- Status LED: RUN, MS, NS
- Free utility to configure I-7565-CPM and update firmware
- Windows 2000/XP drivers supported

CANopen Slave/DCON Master Gateway

By using I-7231D to convert the electric signals and messages from DCON to CANopen protocol, the DCON I/O modules can be upgraded to CANopen system to secure high reliability and stability.

I-7231D CR



- CANopen Version: DS-301 v4.01
- Device Profile: DSP-401 v2.0
- Error Control: Node Guarding protocol
- Emergency Message: Yes
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- NMT: Slave
- PDO: Event-triggered, RTR, cyclic, acyclic SYNC and dynamic PDO Mapping
- No of SDOs: 1 server, 0 client
- Product EDS file dynamically by utility
- Support max. 15 I-7000/I-87K I/O series modules
- 1 kV galvanic isolation

CANopen Slave/Modbus RTU Master Gateway

I-7232D is one of ICP DAS CAN bus products. The device allows a CANopen master to access the Modbus slave devices on some Modbus RTU network.

I-7232D CR



- CANopen Version: DS-301 v4.01
- Device Profile: DSP-401 v2.0
- Error Control: Node Guarding protocol
- Emergency Message: Yes
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- NMT: Slave
- PDO: Event-triggered, RTR, cyclic, acyclic SYNC and dynamic PDO Mapping
- No of SDOs: 1 server, 0 client
- Product EDS file dynamically by utility
- Support max. 10 Modbus RTU series modules
- 1 kV galvanic isolation

CANopen Master/Modbus Server Gateway

GW-7433D is a CANopen master device. It supports PDO and SDO functions to communicate with slave devices. From the view of Modbus TCP & RTU network, GW-7433D plays a Modbus TCP server or Modbus RTU slave role to receive/response the commands from Modbus TCP client or Modbus RTU master protocols.

NEW
GW-7433D CR



- CANopen Version: DS-301 v4.01
- Device Profile: DSP-401 v2.0
- Error Control: Node Guarding protocol
- Emergency Message: Yes
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- NMT: Master
- PDO: Event-triggered, RTR
- Support max. 50 TxPDOs, 50 RxPDOs, 15 SDOs to SDO server
- Allow 5 Modbus TCP masters to access GW-7433 simultaneously
- Configuration by utility via Ethernet
- 1 kV galvanic isolation

Intelligent CANopen Communication Modules

Standalone CANopen Master Expansion Module

I-87123 main control unit is specially designed for the master device of CANopen protocol. It supplies many features for users, such as dynamic PDO, EMCY object, error output value, SYNC object, ... and etc. It supports WinPAC-8000, LinPAC-8000, XPAC-8000 and iPAC-8000 series.

I-87123 CR



- CANopen Version: DS-301 v4.01
- Device Profile: DSP-401 v2.0
- Error Control: Node Guarding protocol
- Emergency Message: Yes
- 2500 V_{rms} photo couple isolation on the CAN side
- DIP switch for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- NMT: Master
- PDO: Event-triggered, RTR, cyclic, acyclic SYNC and dynamic PDO Mapping
- One CANopen master interface expansion for LinCon-8000/LinCon-8000/I-8000 series main control unit
- Provide C/C++ function libraries and demos
- Serial bus communication
- 3 kV galvanic isolation

 Intelligent CANopen Communication Boards

Intelligent 1-port CANopen Master Board

PISO-CPM100U gives a very powerful and economic CANopen master solution of PC-based application. With the built-in 80186, 80 MHz CPU, this card can be applied in high transmission CANopen applications.

PISO-CPM100U-D CR
PISO-CPM100U-T CR



- Universal PCI card, supports both 5 V and 3.3 V PCI bus
- CANopen Version: DS-301 v4.01
- Device Profile: DSP-401 v2.0
- Error Control: Node Guarding protocol
- Emergency Message: Yes
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- Built-in watchdog
- NMT: Master
- PDO: Event-triggered, RTR, cyclic, acyclic SYNC and dynamic PDO Mapping
- Support multi-master architecture
- 80186, 80 MHz CPU inside
- 3 kV galvanic isolation

Intelligent 1-port CANopen Slave Board

PISO-CPS100U is an especially programmable CANopen Slave board. It provides a universal PCI interface and one CAN communication port. It follows the CANopen specification DS-301 and DSP-401. With the built-in 80186, 80 MHz CPU, this card can be applied in high transmission applications.

NEW
PISO-CPS100U-D CR
PISO-CPS100U-T CR



- Universal PCI card, supports both 5 V and 3.3 V PCI bus
- CPU: 80186, 80 MHz
- Built-in Dual-watchdog protection
- CANopen specification: DS301, version 4.02
- CANopen profile: DSP401, version 2.0
- Baud Rate (bps): 10 k, 20 k, 50 k, 125 k, 250 k, 500 k, 800 k, 1 Mbps
- NMT error control support Node Guarding protocol
- SYNC consumer
- Support dynamic PDO.
- Support SDO segment protocol
- Programmable 512 bytes input data and 512 bytes output data
- Support Save and Load command
- Status LED: RUN, ERR
- Free utility to configure PISO-CPS100U and update firmware
- Produce EDS file dynamically
- Windows 2000/XP drivers supported

Universal PCI CAN Communication Board

PISO-CAN200U with universal PCI interface has two independent CAN bus communication ports with 5-Pin screw terminal connector or 9-Pin D-Sub connector. It provides CANopen master lib for users to develop CANopen applications easily.

PISO-CAN200U-D CR
PISO-CAN200U-T CR



OS Support: Windows 2K/XP/Vista

- Universal PCI card, supports both 5 V and 3.3 V PCI bus.
- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- Comply with 33 MHz 32-bit 5 V universal PCI bus
- 3 kV galvanic isolation
- 2 independent CAN channels
- Direct memory mapping to the CAN controller
- Provide VB, VC++, Delphi, Borland C++ builder demos
- Support LabVIEW and DASyLab driver

Universal PCI CAN Communication Board

PISO-CAN400U with universal PCI interface has four independent CAN bus communication ports with 5-Pin screw terminal connector or 9-Pin D-Sub connector. It provides CANopen master lib for users to develop CANopen applications easily.

PISO-CAN400U-D CR
PISO-CAN400U-T CR



OS Support: Windows 2K/XP/Vista

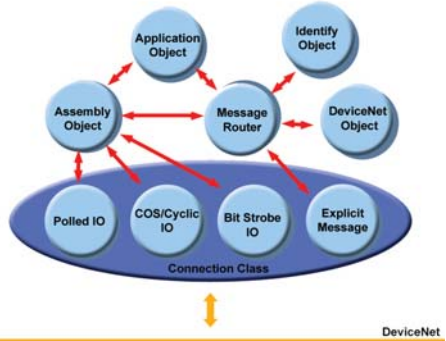
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- 3 kV galvanic isolation
- 4 independent CAN channels
- Direct memory mapping to the CAN controller
- Provide VB, VC++, Delphi, Borland C++ builder demos
- Support LabVIEW and DASyLab driver

6.4. DeviceNet Introduction & Products

The DeviceNet network based on CAN bus is a flexible open and low-cost option which you can use to connect industrial devices to a network and to eliminate costly and time-consuming hardwiring. Direct connectivity improves communication and provides device-level diagnosis or easy accessibility through hardwired I/O interfaces.

DeviceNet Features

- ◆ Trunk line, drop line configuration
- ◆ Node removal without breaking trunk line
- ◆ Up to 64 addressable nodes
- ◆ Signal and 24Vdc power in the same cable
- ◆ Selectable data rates (125 k, 250 k, 500 kbps)
- ◆ 120 Ω terminal at each trunk line end



● Selection Guide

Model Name	Description	Page
DeviceNet Converter and Gateways		
I-7565-DNM	USB to 1-port DeviceNet Master Converter	6-4-2
I-7241D	DeviceNet Slave/DCON Master Gateway	
I-7242D	DeviceNet Slave/Modbus RTU Master Gateway	
I-7243D	DeviceNet Master/Modbus TCP Server Gateway	
Intelligent DeviceNet Modules (For iP-8000, WP-8000, LP-8000...)		
I-87124	Intelligent 1-port DeviceNet Master Communication Module with Serial bus	6-4-2
Intelligent DeviceNet Communication Boards		
PISO-DNM100U-D	Intelligent 1-port DeviceNet Master Universal PCI interface Board	6-4-3
PISO-DNM100U-T		
PISO-DNS100U-D	Intelligent 1-port DeviceNet Slave Universal PCI interface Board	
PISO-DNS100U-T		
PISO-CAN200U-D	2-port CAN bus Universal PCI Interface Card with DeviceNet Master Library	
PISO-CAN200U-T		
PISO-CAN400U-D		
PISO-CAN400U-T		

✓ DeviceNet Converter and Gateways

USB/DeviceNet Master Converter

I-7565-DNM is a DeviceNet master solution for USB interface built-in 80186, 80 MHz CPU. It can easily control/configure DeviceNet slave nodes via PC.



- **NEW**
- I-7565-DNM CR
- Comply with DeviceNet specification volume I, release 2.0 & volume II, release 2.0
- Support Predefined Master/Slave Connection Set (Group2 Only Server)
- I/O Operating Modes: Polling, Bit-Strobe, Change of State/Cyclic
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- Built-in watchdog
- Support UCMM function
- Provide on-line adding device into and removing device from network
- Support auto-scan slave device function
- Auto-reconnect when the connection is broken
- Provide C/C++ function libraries and demos
- 3 kV galvanic isolation

DeviceNet Slave/Modbus RTU Master Gateway

I-7242D allows a master located on a DeviceNet network to enter into a dialogue with the slaves on a Modbus RTU network in DeviceNet network. It's a Group 2 Only Slave device, and supports "Predefined Master/Slave Connection Set".

I-7242D CR



- Comply with DeviceNet specification volume I, release 2.0 & volume II, release 2.0
- Support Predefined Master/Slave Connection Set (Group2 Only Server)
- I/O operating modes: Polling, Bit-Strobe, Change of State/Cyclic
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- Support Offline Connection Set, Device Heartbeat message and Device Shutdown message
- Allow to configure Explicit Message by using Modbus RTU protocol
- Product EDS file dynamically by utility
- Support max 10 Modbus RTU series modules
- 1 kV galvanic isolation

DeviceNet Slave/DCON Master Gateway

I-7241D is one of CAN bus products in ICP DAS. The device offers the communication gateway between DeviceNet and DCON protocol.

I-7241D CR



- Comply with DeviceNet specification volume I, release 2.0 & volume II, release 2.0
- Support Predefined Master/Slave Connection Set (Group2 Only Server)
- I/O operating modes: Polling, Bit-Strobe, Change of State/Cyclic
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- Provide dynamic Assembly Objects mapping
- Support Offline Connection Set, Device Heartbeat message and Device Shutdown message
- Product EDS file dynamically by utility
- Support max. 15 I-7000/I-87K I/O series modules
- MAC ID & Baud: Configuration by utility or DeviceNet messages
- 1 kV galvanic isolation

DeviceNet Master/Modbus TCP Server Gateway

I-7243D from ICP DAS is a solution that provides a communication protocol transfer the DeviceNet and Modbus/TCP protocol, and solves a mission-critical problem: connecting an existing DeviceNet network to Ethernet-base PLCs.

I-7243D CR



- Comply with DeviceNet specification volume I, release 2.0 & volume II, release 2.0
- Support Predefined Master/Slave Connection Set (Group2 Only Server)
- I/O operating modes: Polling, Bit-Strobe, Change of State/Cyclic
- 2500 V_{rms} photo couple isolation on the CAN side
- Jumper for 120 Ω terminator resistor of CAN bus
- Watchdog inside
- The max. input/output fragment number is up to 64
- Support on-line adding device into and removing device from network
- Support single Modbus TCP to multi Modbus RTU function
- Support VxComm technique for every COM ports of controllers
- Allow multi-client (or master) access simultaneously
- 1 kV galvanic isolation

✓ Intelligent DeviceNet Communication Modules

Standalone DeviceNet Master Expansion Module

I-87124 can represent an economic solution of DeviceNet application and a DeviceNet master device on the DeviceNet network. I-87124 supports Group 2 and UCMM functions to communication with slave devices. It supports WinPAC-8000, LinPAC-8000, XPAC-8000 and iPAC-8000 series.

I-87124 CR



- DeviceNet Version: Volume I & II, Release 2.0
- Programmable Master MAC ID and Baud Rate
- Baud Rate: 125 K, 250 K, 500 K
- Support Group 2 and UCMM connection
- I/O Operating Modes: Poll, Bit-Strobe, Change of State/Cyclic
- I/O Length: 512 bytes max. (Input/Output) per slave
- Slave Node: 63 nodes max.
- Support Auto-Search slave device function
- Support on-line adding and removing devices
- Support Auto-detect Group 2 and UCMM device
- Auto-Reconnect when the connection is broken
- Status LED: RUN, MS, NS

Intelligent DeviceNet Communication Boards

Intelligent 1-port DeviceNet Master Board

PISO-DNS100U has completed DeviceNet master function according to DeviceNet Group 2 only server. With the built-in 80186, 80 MHz CPU, this card can be applied in high transmission DeviceNet applications. OS Support: Windows 2K/XP/Vista

NEW
PISO-DNM100U-D CR
PISO-DNM100U-T CR



- Universal PCI card, supports both 5 V and 3.3 V PCI bus
- Comply with DeviceNet specification volume I, release 2.0 & volume II, release 2.0
- Support Predefined Master/Slave Connection Set (Group 2 only server)
- I/O Operating Modes: Polling, Bit-Strobe, Change of State/Cyclic
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- Built-in watchdog
- Support UCMM function
- Provide on-line adding device into and removing device from network
- Support auto-scan slave device function
- Auto-reconnect when the connection is broken
- 3 kV galvanic isolation 80186, 80 MHz CPU inside

Intelligent 1-port DeviceNet Slave Board

PISO-DNS100U has completed DeviceNet slave function according to DeviceNet Group 2 only server. With the built-in 80186, 80 MHz CPU, this card can be applied in high transmission applications. The amazing function is that 10 slave nodes are implemented inside the PISO-DNS100U. OS Support: Windows 2K/XP/Vista

NEW
PISO-DNS100U-D CR
PISO-DNS100U-T CR



- Universal PCI card, supports both 5 V and 3.3 V PCI bus
- DeviceNet Version: Volume I & II, Release 2.0
- Programmable Slave MAC ID and baud rate
- Baud Rate: 125 k, 250 k, 500 kbps
- Support Group 2 only Server
- I/O Modes: Poll, Bit-Strobe, Change of State/Cyclic
- I/O Length: 512 bytes max. (Input/Output) per slave
- Slave Node: Max. 10 nodes inside the board
- Not Support UCMM
- LED: Status, ERR

Universal PCI CAN Communication Board

PISO-CAN200U with universal PCI interface has two independent CAN bus communication ports with 5-Pin screw terminal connector or 9-Pin D-Sub connector. OS Support: Windows 2K/XP/Vista

PISO-CAN200U-D CR
PISO-CAN200U-T CR



- Universal PCI card, supports both 5 V and 3.3 V PCI bus.
- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 Ω terminator resistor of CAN bus
- Comply with 33 MHz 32-bit 5 V universal PCI bus
- 3 kV galvanic isolation
- 2 independent CAN channels
- Direct memory mapping to the CAN controller
- Provide VB, VC++, Delphi, Borland C++ builder demos
- Support LabVIEW and DASyLab driver

Universal PCI CAN Communication Board

PISO-CAN400U with universal PCI interface has four independent CAN bus communication ports with 5-Pin screw terminal connector or 9-Pin D-Sub connector. OS Support: Windows 2K/XP/Vista

PISO-CAN400U-D CR
PISO-CAN400U-T CR

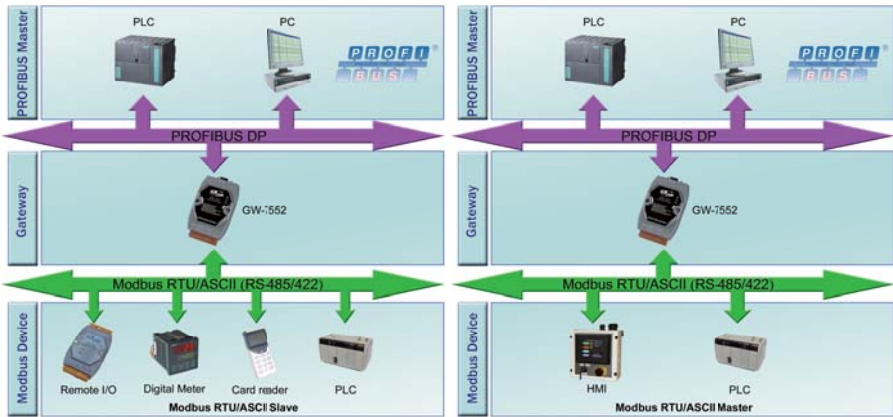


- Universal PCI card, supports both 5 V and 3.3 V PCI bus.
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6.5. PROFIBUS Introduction & Products

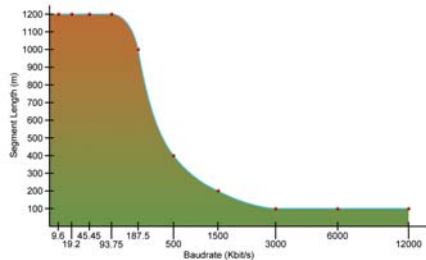
PROFIBUS (PROCESS FIELD BUS) which is anchored in the international standards IEC 61158 and IEC 61784, is an open, digital communication system with a wide range of applications, particularly in the fields of factory and process automation. It is suitable for both fast, time-critical applications and complex communication tasks. ICP DAS provides a lot PROFIBUS DP products and help the user develop PROFIBUS application system easily. We have been developing and studying PROFIBUS DP for years. ICP DAS will always secure user's industrial safety and stable automation system as our mission. These fieldbus solutions also support multi-drop networking of devices on a single twisted-pair cable providing substantial cost savings in:

- Reduced wiring
- Commissioning and installation
- Plant operations and improved quality
- Maintenance



PROFIBUS Features

- ◆ Baud rate up to 12 Mbit/s
- ◆ Maximum 244 bytes input and 244 bytes output per slave
- ◆ Slave configuration and parameters are set from the master side by GSD file
- ◆ Allow multi-master system
- ◆ Fast cyclic data communication between master and slave
- ◆ 124 slaves can be put in data exchange
- ◆ 32 stations on one segment



Selection Guide

Model Name	Description	Page
PROFIBUS Converters		
I-7550	PROFIBUS/RS-232, RS-485, RS-422 Converter	6-5-2
PROFIBUS Gateways		
GW-7552	PROFIBUS/Modbus RTU Gateway	6-5-2
GW-7553	PROFIBUS/Modbus TCP Gateway	



PROFIBUS Converters

PROFIBUS to RS-232/422/485 Converter

I-7550 converter is specially designed for the slave device of PROFIBUS DP protocol. It offers RS-232, RS-422 and RS-485 three kinds of communication way. With the Hybrid COM 1 design, users can readily choose one type of com port to use.

I-7550 CR



- Protocol & Hierarchy: DP-V0 Slave
- Detect transmission rate (9.6 to 12000 kbps) automatically
- 128 bytes max. input data length
- 128 bytes max. output data length
- Address 0 ~ 126 set by DIP switch
- Support several kinds of baud for COM1 from 1.2 to 115.2 kbps
- Network Isolation Protection: High Speed iCoupler
- 3000 V_{DC} isolation protection on PROFIBUS side



PROFIBUS Gateways

PROFIBUS/Modbus RTU Gateway

GW-7552 Gateway is specially designed for the slave device of PROFIBUS DP protocol. It allows the PROFIBUS master to access the Modbus devices.

GW-7552 CR



- Protocol & Hierarchy: DP-V0 Slave
- Detect transmission rate (9.6 to 12000 kbps) automatically
- 128 bytes max. input data length
- 130 bytes max. output data length
- Support Modbus Master and Modbus Slave both mode
- Support RTU and ASCII Modbus format
- Address 0 ~ 126 set by DIP switch
- Support several kinds of baud for COM1 from 2.4 to 115.2 kbps
- Network Isolation Protection: High Speed iCoupler

PROFIBUS/Modbus TCP Gateway

GW-7553 Gateway is specially designed for the slave device of PROFIBUS DP protocol allows the PROFIBUS master to access the Modbus TCP devices.

NEW
GW-7553 CR



- Protocol & Hierarchy: DP-V0 Slave
- Detect transmission rate (9.6 to 12000 kbps) on PROFIBUS automatically
- Support one 10/100 Base-TX Ethernet port
- Support one RS-232 port (3-wire or 5-wire)
- 128 bytes max. input data length
- 131 bytes max. output data length
- Support Modbus TCP/RTU/ASCII master/slave protocol
- PROFIBUS address 0 ~ 126 set by DIP switch
- Network Isolation Protection: 2500 V_{DC} High Speed iCoupler
- 3000 V_{DC} isolation protection on PROFIBUS side