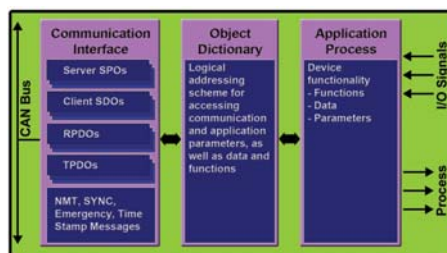


6.3. CANopen Introduction & Products

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		
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

3

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

- 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