Industrial Communication Products

2010 Product Catalog Vol.ICP1006

Multi-port Serial Cards

Programmable Device Servers

Converters, Repeaters and Hubs

Wireless Solutions

Fieldbus Solutions

Ethernet Switches

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Introduction

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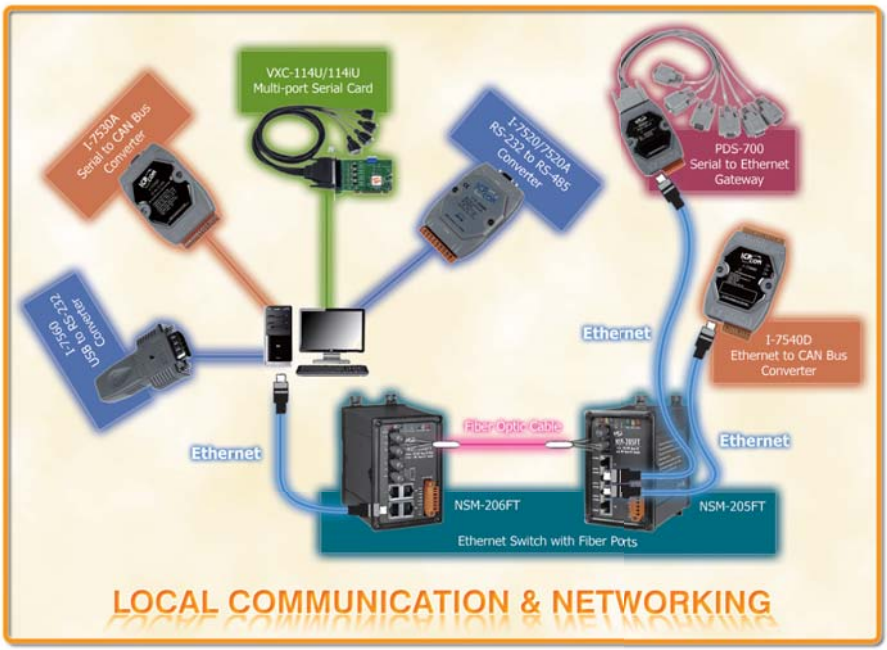
1.1. Local Communication and Networking Solutions



● Multi-port RS-232/422/485 Communication Cards

Chapter 2

The VXC series card features Universal PCI (3.3 V and 5 V) or PCI Express interface, provides multiple RS-232 or RS-422/485 communication ports and offers 128-byte hardware FIFO for each port. The VXC series card enables user to install additional communication ports on PCs.

Users can select a specified COM port number manually by setting COM-Selector (DIP switch), or let the driver to choose an available number automatically. The driver provides a maximum of 128 KB software buffer for each COM port under Windows. It's practical for large file transmission.

It's the best choice for time-critical and reliable communications and controls in industrial environments, like communication with PLC, FAB machine, meter, console management of devices, laboratory instruments and Modem link, etc.

RS-485 Bus Repeater, Converter and Hub

Chapter 4

RS-485 is an electrical specification of a two-wire, half-duplex, multipoint serial communications channel. Since it uses a differential balanced line over twisted pair (like RS-422), it can span relatively long distances (up to 4,000 feet (1,200 m)).

RS-485 is widely used in the computer automation systems, such as building automation, machine automation and factory automations etc. Used for low cost low-speed data communications, it requires minimal wiring, and shares the wiring among several nodes.

ICP DAS provides total solutions on RS-485 bus, such as addressable RS-485 to RS-232/422 converter, RS-485 repeater, RS-232 to RS-485 converter, USB to RS-485 converter, RS-232/422/485 to fiber optic converter and RS-485 Hub... etc.

USB to RS-232/422/485/CAN bus Converters

Chapter 4

Universal Serial Bus (USB) is designed to allow many peripherals to be connected by using a single standard interface socket, and to improve the plug-and-play capabilities by hot swapping. In brief, devices can be connected and/or disconnected without rebooting the computer or turning off the device.

Currently USB ports are becoming standard interface to external devices on many computers. By using ICP DAS USB converters, users can access industrial RS-232/422/485 serial devices and CAN bus devices through the existing USB ports easily.

Ethernet Switch

Chapter 8

Ethernet is an ideal medium to transport large volumes of data, at fast speed, across great distances. Previously, multiple networks carrying specific protocols were installed side by side to carry out unique tasks. This inevitably led to project costs increasing as additional fiber optic or copper cables were installed to deal with the increasing volume of data. Using Ethernet, a single fiber optic cable can carry multiple protocols. Furthermore, manufacturers are exporting their legacy protocols onto Ethernet, designing new IP based communication protocols and providing embedded Web-Pages within devices that offer real-time information by simple tools like Internet Explorer and Netscape Navigator.

A switch, like a hub, has to forward and receive packets from one network or device to another. The switch forwards all packets, but if this is the case it shall have similar behavior to a hub. It becomes more intelligent if the switch only forwards packets which needs to travel from one network or device to another.

Programmable Serial to Ethernet Device Server

Chapter 3

Programmable Device Server (PDS) is a series of Serial-Device to Ethernet gateways. It connects every of your RS-232/422/485 serial devices, such as PLC, bar code reader, RFID reader, meters and motion controllers... etc., to Ethernet that usually is the existing network in office and factory.

VxComm Driver creates virtual COM ports on Windows NT 4.0, 2000/XP/2003 and Vista32 (32-bit) and maps them to physical serial ports on PDS remotely. The user's serial client programs need only to change to the virtual COM port to get the access of serial devices that are allocated in the Internet or Ethernet network via the PDS.

CAN bus in Industrial Automation

Chapter 6

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 the error process mechanisms and message priority concepts. These features can improve the network reliability and transmission efficiency. Furthermore, CAN 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.

To seek an industrial environment with higher performance and stability, ICP DAS provides you a new communication way (CAN bus). We have a team with strong technical background and experiences, and have been developing and studying CAN bus for years. ICP DAS will always secure your industrial safety and stable automation system as our mission.

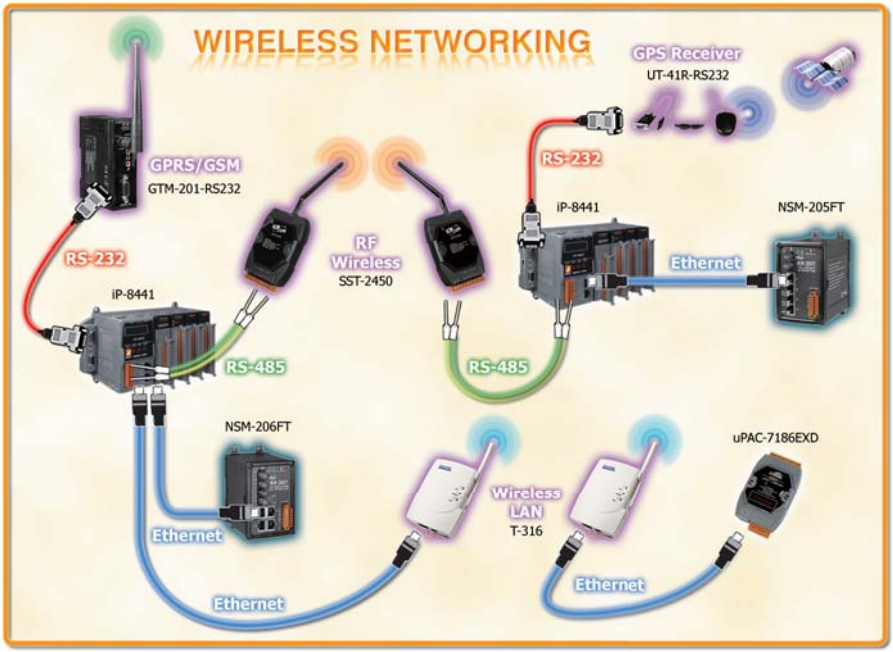
PROFIBUS in Industrial Automation

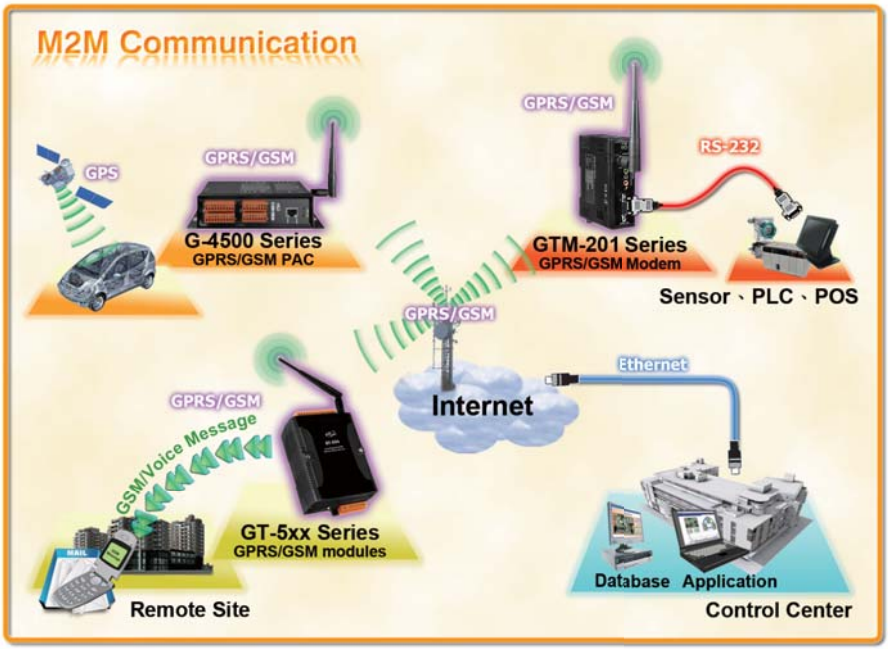
Chapter 6

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.

To let user can use this powerful communication system more easily, ICP DAS provides kinds of PROFIBUS DP products. 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

2.2. Wireless Networking Solutions





Wireless LAN Converter

The applications of 802.11b wireless LAN are getting more and more popular by more and more mature technology. It's not only faster than the industrial traditional transmission i.e. RS-232, RS-485, RS-422 etc, but also able to reduce the troublesomely wiring works. It also has higher mobility than Ethernet network.

Our T-316 is an Ethernet LAN to wireless LAN converter. In addition to the above advantages, it doesn't need to install any software or drivers when you use it. The setting process is very simple. Users don't need to modify the current hardware system or current running program to enjoy the benefits of wireless transmission.

Wireless Modem

SST-2450 is a spread spectrum radio modem with an RS-232/RS-485 interface port. It is designed for data acquisition and control applications between a host and remote sensors. It is also useful for those applications where the installation of cable wire is inconvenient. The SST-2450 can be used not only in peer-to-peer mode, but also in a multi-point structure.

The SST-2450 is based on a direct sequence spread spectrum and RF technology, operating In the ISM bands with a Frequency Range of 2410.496 MHz ~ 2471.936 MHz. The Channel Spacing is 4.096 MHz.

SST-900 is a radio frequency modem with an RS-232/RS-485 interface port. It supports both peer-to-peer and multi-point structure modes. The SST-900 operates in the ISM bands with a Frequency Range of 902 MHz ~ 928 MHz. The Channel Spacing is 1.5 MHz.

Industrial GSM/GPRS Modems

Chapter 5

The GTM-201 series is industrial Quad-band GSM/GPRS modems with RS-232 and USB interfaces that work on frequencies of GSM 850 MHz, EGSM 900 MHz, DCS 1800 MHz and PCS 1900 MHz. The modems utilizes the GSM/GPRS network for convenient and inexpensive data transfer from remote instruments, meters, computers or control systems in either live data or packet data. GTM-201 series has the integrated TCP/IP stack so that even simple controllers with serial communications ports can connect to the modem without the need for special driver implementation.

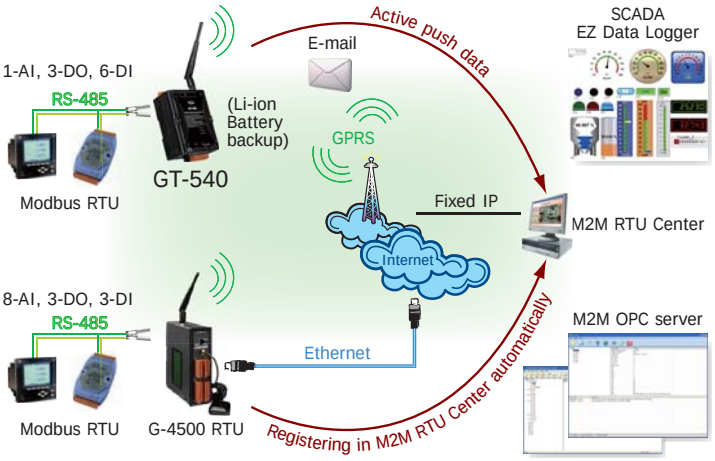
Intelligent GPRS/GSM Modules

Chapter 5

The GT-500 series GSM Module is GSM remote control and alarm system allows users to use their mobile phone to monitor and control the business from any location. Its alarm facilities provide a flexible way to distribute critical alarm information to any number of mobile phone users.

GT-53x are intelligent SMS and GSM modules for industry applications with the external Li-Batteray backup power. They feature SMS tunnel, SMS contorl, and voice alarm function for users to apply in remote SMS/GSM control system.

The GT-54x are an intelligent Active GPRS Remote Terminal Units. Within the high performance 32 bit CPU, the GT-54x series is suit for the hard industrial environment. It features GPRS/GSM module, 6 digital inputs, 2 digital outputs, 1 analog input, 2 RS-232, 1 RS-485, SD interface and GPS.



Multi-function GPRS/GSM PACs

Chapter 5

The G-4500 series provided by ICP DAS is M2M (machine to machine) mini programmable controller with a cellular transceiver. It can monitor industrial equipment that sends live data to the monitoring system, and provides real-time status of equipments. With optional GPS model, the G-4500 turns into a GPS tracking system. Also, it works well management system or maritime system.

ZigBee Converter and Repeater

Chapter 5

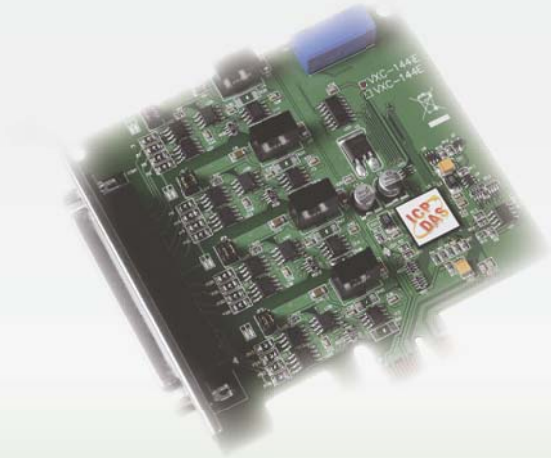
ZigBee is a specification based on the IEEE 802.15.4 standard for wireless personal area networks (WPANs). ZigBee operates in the ISM radio bands and its focus is to define a general-purpose, inexpensive, self-organizing, mesh network that can be used for industrial control, embedded sensing, medical data collection, smoke and intruder warning, building automation, home automation, and domotics, etc.

ZigBee uses a basic master-slave configuration that is suited to the static star networks of many infrequently used devices that talk via small data packets. Up to 254 nodes are allowed.

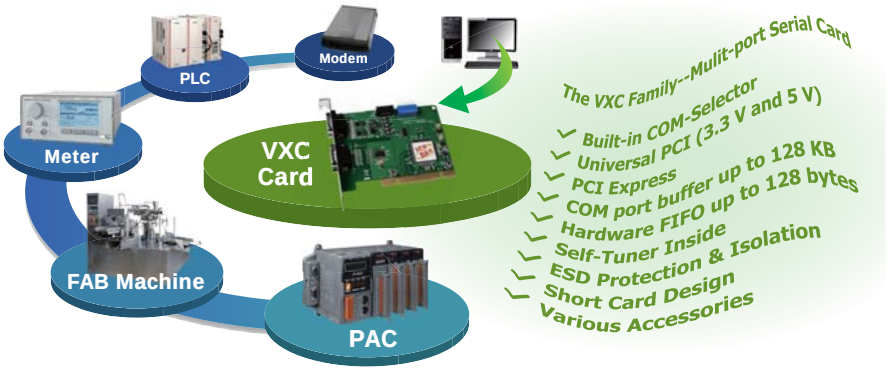
ICP DAS provides many ZigBee solutions such as Ethernet/RS-232/485 to ZigBee Converters, ZigBee Repeater and ZigBee Wireless I/O modules.

Multi-port Serial Cards

2



2.1. Overview



Overview

The VXC multi-port serial card enables user to increase additional communication ports on PCs. It's the on-top-of-the-list choice while you are managing to connect lots of outer devices through your PC; every VXC card ensures you smooth communication in both time-critical applications and industrial fields. With simply a VXC card, it has never been that easy to integrate a PC with lots of devices, such as PLCs, FAB machines, meters, controller devices, laboratory instruments, modems, card readers, serial printers, RFID readers, bar code readers, sensors, etc.

Features

COM-Selector

Each VXC card is equipped with a COM-Selector (DIP Switch) for the COM port number selection (automatically or manually). It's an important and innovative feature for the VXC family.

Easy COM Port Selection by DIP switch

The COM-Selector provides the following advantages:

◆ Simplifies the COM port number selection; no configuration utility programs needed.

◆ Users can specify the COM port number of the VXC card as exactly what they want, no matter which PCI slot it is located at.

◆ Automatically selecting an available COM port number is supported by setting the COM-Selector (DIP switch) to 0 (default).

◆ No need to install configuration utility and to study its operation for different OS.

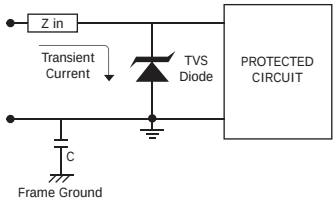
◆ Prevents confusion. Other PnP COM port devices easily confuse users because of adopting the dynamic COM port number setting.

◆ Easy replacement of an existing card by setting the DIP switch to be the same COM port number.

◆ Great for mass system installation; since setting the DIP switch to be the same COM port number is very easy.

ESD Protection

The VXC cards offer TVS diode ESD protection technology, protecting your system from being damaged by the high potential voltages.



Under normal operating conditions, the TVS diode presents high impedance (appears as an open circuit) to the protected component. When the voltage is beyond the limits, the TVS diode avalanches providing a low impedance path for the transient current. As a result, the transient current is diverted away from the protected components and shunted through the TVS diode. The device returns to a high impedance state after the transient threat passed.

Self-Tuner

The VXC card is equipped with a “Self-Tuner” chip to control the sending/receiving direction of RS-485 ports automatically.

Without the help of Self-Tuner, users need to enable RS-485 transmitter before sending, and disable the transmitter after finishing sending. The timing to enable and disable transmitter (direction control) is the major issue on many communication problems, and it is very difficult to debug.

The built-in Self-Tuner on VXC cards effectively gets rid of this direction control issue and also simplifies software programming for communication applications.

Isolation

Some VXC cards offer photo isolation to protect your computer and equipment against damages in harsh environment.

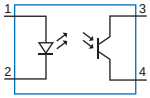


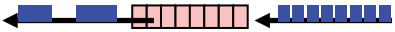
Photo Coupler Operation

Photo coupler is a device that uses a short optical transmission path to transfer a signal between elements of a circuit, typically a transmitter and a receiver. This keeping them electrically isolated — since the signal goes from an electrical signal to an optical signal, the electrical contact along the path is broken.

It can help cutting down on ground loops, common mode voltages and block voltage spikes, provide electrical isolation, and offer significant protection from serious over-voltage conditions in one circuit affecting the other.

Hardware FIFO up to 128 bytes

FIFO stands for "First In, First Out", an abstraction in ways of organizing and manipulating data relative to time and prioritization. FIFO is used for buffering and flow control while data come from hardware to software. When using hardware FIFO (buffer), a little delay on software or operating system will not lost data at all.


Software gets data in dynamic timing.

Hardware puts data in fixed speed.

VXC Cards are equipped with 16- or 128-byte hardware FIFO for each port. Large hardware FIFO is useful to prevent data lost when your system works on heavy loading, and even helpful while you are running on a multi-task operating system, such as Windows, Linux... etc.

COM port buffer up to 128 KB

The VXC card driver for Windows features an up to 128 KB buffer for each port (default is 4 KB). It’s practical for large file transmission.

Short Card Design

The “Short Card” design is suitable for compact-sized computer, especially for IPC (Industrial Personal Computer) and servers.

Universal PCI (3.3 V and 5 V)

The Universal PCI card works with both new 3.3 V PCI bus that has been widely-used in servers, and traditional 5 V PCI bus. The universal PCI interface will be the standard for every card from ICP DAS in the near future.

PCI Express

PCI Express (PCIe) is a computer expansion card standard. A key difference between PCIe and earlier PC buses is a topology based on point-to-point serial links, rather than a shared parallel bus architecture. Conceptually, the PCIe bus can be thought of as a 'high-speed serial replacement' of the older PCI/PCI-X bus.

Various Accessories

There are a lot of optional accessories for the VXC cards, such as RS-232 cables and daughter boards. These tools make wiring much easily than ever.


DB-9 Cable


DB-9 Daughter Board


DB-9 Cable

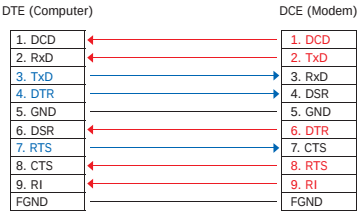

DB-37 to 4-port DB-9 Cable


DB-37 Connector

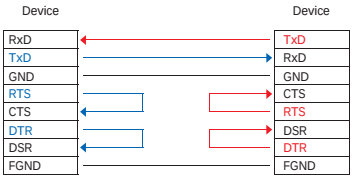

DB-9 Connector

Wiring Note for RS-232 and RS-422/485 Devices

RS-232 Wiring



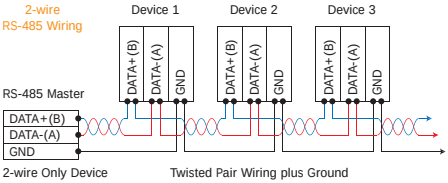
9-wire RS-232 Connection (DB-9)



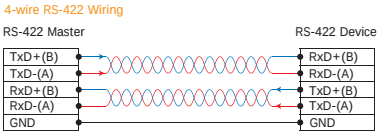
3-wire RS-232 Connection
(Shorts unused signals RTS/CTS, DTR/DSR)

Note:
1. For 3-wire RS-232 connections, it is recommended to short unused signals such as RTS/CTS and DTR/DSR, since some system may still check the CTS and DSR status.
2. FGND is the frame ground that soldered to DB-9 metal shield.

RS-485 Wiring



RS-422 Wiring



Note:
For RS-422/485 ports, you should connect all signal grounds of RS-422/485 devices together. This reduces common-mode voltage between devices.

Selection Guide

Model Name	Bus	COM-Selector	RS-232		RS-422/485		Self-Tuner	ESD Protection	Max. Speed (bps)	FIFO Size (bytes)	Connector	Page
			Ports	Isolation	Ports	Isolation						
VXC-112AU	Universal PCI	Yes	2	-	-	-	-	-	115.2 K	128	Male DB-9	2-2-1
VXC-112iAU	Universal PCI	Yes	2	2.5 kV	-	-	-	+/-4 kV	115.2 K	128	Male DB-9	2-2-1
VXC-142AU	Universal PCI	Yes	-	-	2	-	Yes	-	115.2 K	128	Male DB-9	2-2-5
VXC-142iAU	Universal PCI	Yes	-	-	2	2.5 kV	Yes	+/-4 kV	115.2 K	128	Male DB-9	2-2-5
VXC-182iU	Universal PCI	Yes	1	-	1	2.5 kV	Yes	+/-4 kV	115.2 K	128	Male DB-9	2-2-9
VXC-114U	Universal PCI	Yes	4	-	-	-	-	-	115.2 K	128	Female DB-37	2-2-3
VXC-114iAU	Universal PCI	Yes	4	2.5 kV	-	-	-	+/-4 kV	115.2 K	128	Female DB-37	2-2-3
VXC-144U	Universal PCI	Yes	-	-	4	-	Yes	-	115.2 K	128	Female DB-37	2-2-7
VXC-144iU	Universal PCI	Yes	-	-	4	2.5 kV	Yes	+/-4 kV	115.2 K	128	Female DB-37	2-2-7
VEX-114	PCI Express	Yes	4	-	-	-	-	-	115.2 K	128	Female DB-37	2-2-3
VEX-114i	PCI Express	Yes	4	2.5 kV	-	-	-	+/-4 kV	115.2 K	128	Female DB-37	2-2-3
VEX-144	PCI Express	Yes	-	-	4	-	Yes	-	115.2 K	128	Female DB-37	2-2-7
VEX-144i	PCI Express	Yes	-	-	4	2.5 kV	Yes	+/-4 kV	115.2 K	128	Female DB-37	2-2-7

2.2. VXC Series Communication Boards

VXC-112AU/VXC-112iAU

Serial Communication Board with 2 RS-232 ports

Features

- Built-in COM-Selector
- Short Card Design
- Provides 2 RS-232 ports
- +/-4 kV ESD Protection for VXC-112iAU
- Supports 3.3 V/5 V PCI bus
- 128-byte Hardware FIFO for Each Port
- 128 KB Software Buffer (max.) for Each Port Under Windows
- 2500 V_{rms} Isolation for VXC-112iAU

Introduction

The VXC-112 series communication card provides 2 RS-232 serial ports. Each port equips a 128-byte hardware FIFO, offers speed up to 115200 bps and can work for half-duplex or full-duplex communication.

Users can select a specified COM port number manually by setting COM-Selector (DIP switch), or let the driver choose an available number automatically. The driver provides a maximum of 128 KB software buffer for each COM port under Windows. It's practical for large file transmission.

In harsh industrial environments, the on board ESD protection component diverts the potentially damaging charge away from sensitive circuit and protects the computer and equipment from being damaged by high potential voltage.

The serial communication card are designed for use with intelligent devices like bar code reader, serial printers, intelligent sensors, instrumentation equipment, computers and almost any device with an RS-232 port.

Applications

- Industrial Machinery
- Building Automation
- Restaurant Appliances
- Laboratory Equipment & Research
- Industrial Communication

Software

- DOS Lib
- Driver for 32-bit and 64-bit Windows XP/2003/Vista/7
- Driver for Linux

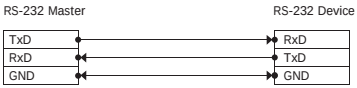
Hardware Specifications

Models	VXC-112AU	VXC-112iAU
Communication Port		
COM1, COM2	RS-232 (TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND)	
UART	16C950 compatible	
Baud Rate	50 ~ 115200 bps	
Data Bit	5, 6, 7, 8	
Stop Bit	1, 1.5, 2	
Parity	None, Even, Odd, Mark, Space	
FIFO	Internal 128 bytes	
Isolated	-	2500 V_{rms}
General		
Bus Type	Universal PCI, 3.3 V/5 V, 33 MHz, 32-bit, Plug and Play mechanism	
COM-Selector	Yes (8-bit DIP switch)	
Connector	2 x DB-9 (Male)	
Power Consumption	100 mA @ 5 V	
Operating Temperature	0 °C ~ +50 °C	
Storage Temperature	-20 °C ~ +70 °C	
Humidity	0 ~ 90% RH, non-condensing	
Dimensions (L x W x D)	134 mm x 90 mm x 22 mm	

Wiring

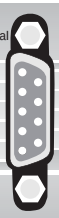
DTE Device (Computer) DB-9		DTE to DCE Connections	DCE Device (Modem) DB-9	
Pin# DB-9	RS-232 Signal Names	Signal Direction	Pin# DB-9	RS-232 Signal Names
#1 Carrier Detector	DCD	←	#1 Carrier Detector	DCD
#2 Receive Data	RxD	←	#2 Transmit Data	TxD
#3 Transmit Data	TxD	→	#3 Receive Data	RxD
#4 Data Terminal Ready	DTR	→	#4 Data Set Ready	DSR
#5 Signal Ground/Common (SG)	GND	↔	#5 Signal Ground/Common (SG)	GND
#6 Data Set Ready	DSR	←	#6 Data Terminal Ready	DTR
#7 Request to Send	RTS	→	#7 Clear to Send	CTS
#8 Clear to Send	CTS	←	#8 Request to Send	RTS
#9 Ring Indicator	RI	←	#9 Ring Indicator	RI
Soldered to DB-9 Metal Shield	FGND	↔	Soldered to DB-9 Metal Shield	FGND

3-wire RS-232 Wiring



Pin Assignments

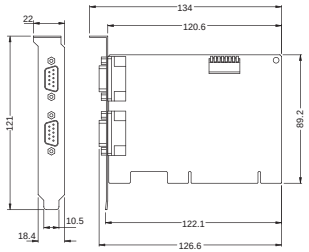
Pin Assignment	Terminal No.		Pin Assignment
GND	05	09	RI
DTR	04	08	CTS
TxD	03	07	RTS
RxD	02	06	DSR
DCD	01		



Male DB-9 Connector

Dimensions (Unit: mm)

VXC-112AU/VXC-112iAU



Ordering Information

VXC-112AU CR	Universal PCI Bus, Serial Communication Board with 2 RS-232 ports (RoHS)
VXC-112iAU CR	Universal PCI Bus, Serial Communication Board with 2 Isolated RS-232 ports (RoHS)

Accessories

CA-0910F	9-Pin Female-Female D-Sub Cable 1 m
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m
CA-PC09F	9-Pin Female D-Sub Connector with Plastic Cover
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1 m)

NEW **VXC-114U/VXC-114iAU**

Available soon **VEX-114/VEX-114i**

Serial Communication Board with 4 RS-232 ports

Features

- Built-in COM-Selector
- Short Card Design
- Provides 4 RS-232 ports
- +/-4 kV ESD Protection for i versions
- 128-byte Hardware FIFO for Each Port
- 128 KB Software Buffer (max.) for Each COM Port Under Windows
- Supports 3.3 V/5 V PCI bus for u versions
- Supports PCI Express x 1 for VEX series
- 2500 V_{rms} Isolation for i version

Introduction

The VXC-114/VEX-114 series card provides 4 RS-232 serial ports. It equips a 128-byte hardware FIFO for each port, offers speed up to 115200 bps and supports full-duplex communication.

Users can select a specified COM port number manually by setting DIP switch, or let the driver choose an available number automatically. The driver provides a maximum of 128 KB software FIFO for each COM port under Windows. It's practical for large file transmission.

In harsh industrial environments, the on board ESD protection component diverts the potentially damaging charge away from sensitive circuit and protects the computer and equipment from being damaged by high potential voltage.

The serial communication card are designed for use with intelligent devices like bar code reader, serial printers, intelligent sensors, instrumentation equipment, computers and almost any device with an RS-232 port.

Applications

- Industrial Machinery
- Building Automation
- Restaurant Appliances
- Laboratory Equipment & Research
- Industrial Communication

Software

- DOS Lib
- Driver for 32-bit and 64-bit Windows XP/2003/Vista/7
- Driver for Linux

Hardware Specifications

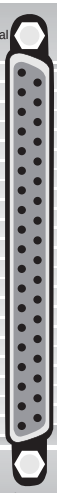
Models	VXC-114U	VXC-114iAU	VEX-114	VEX-114i
Communication Port				
COM1 ~ COM4	RS-232 (TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND)			
UART	16C950 compatible			
Baud Rate	50 ~ 115200 bps			
Data Bit	5, 6, 7, 8			
Stop Bit	1, 1.5, 2			
Parity	None, Even, Odd, Mark, Space			
FIFO	Internal 128 bytes			
Isolated	-	2500 V_{rms}	-	2500 V_{rms}
General				
Bus Type	Universal PCI, 3.3 V and 5 V, 33 MHz, 32-bit, Plug and Play mechanism		PCI Express x1, Plug and Play	
COM-Selector	Yes (8-bit DIP switch)			
Connector	DB-37 (Female)			
Power Consumption	120 mA @ 5 V			
Operating Temperature	0 °C ~ +50 °C			
Storage Temperature	-20 °C ~ +70 °C			
Humidity	0 ~ 90% RH, non-condensing			
Dimensions (L x W x D)	142 mm x 84 mm x 22 mm	133 mm x 93 mm x 22 mm	110 mm x 110 mm x 22 mm	

Wiring

DTE Device (Computer) DB-9		DTE to DCE Connections	DCE Device (Modem) DB-9	
Pin# DB-9	RS-232 Signal Names	Signal Direction	Pin# DB-9	RS-232 Signal Names
#1 Carrier Detector	DCD	←	#1 Carrier Detector	DCD
#2 Receive Data	RxD	←	#2 Transmit Data	TxD
#3 Transmit Data	TxD	→	#3 Receive Data	RxD
#4 Data Terminal Ready	DTR	→	#4 Data Set Ready	DSR
#5 Signal Ground/Common (SG)	GND	↔	#5 Signal Ground/Common (SG)	GND
#6 Data Set Ready	DSR	←	#6 Data Terminal Ready	DTR
#7 Request to Send	RTS	→	#7 Clear to Send	CTS
#8 Clear to Send	CTS	←	#8 Request to Send	RTS
#9 Ring Indicator	RI	←	#9 Ring Indicator	RI
Soldered to DB-9 Metal Shield	FGND	↔	Soldered to DB-9 Metal Shield	FGND

Pin Assignments

Pin Assignment	Terminal No.		Pin Assignment
N.C.	01	20	RI3
DCD3	02	21	DTR3
GND	03	22	DSR3
CTS3	04	23	RTS3
RxD3	05	24	TxD3
RI4	06	25	DCD4
DTR4	07	26	GND
DSR4	08	27	CTS4
RTS4	09	28	RxD4
TxD4	10	29	RI2
DCD2	11	30	DTR2
GND	12	31	DSR2
CTS2	13	32	RTS2
RxD2	14	33	TxD2
RI1	15	34	DCD1
DTR1	16	35	GND
DSR1	17	36	CTS1
RTS1	18	37	RxD1
TxD1	19		



RS-232 Female DB-37 Connector

Pin Assignment	Terminal No.		Pin Assignment
GND	05	09	RI
DTR	04	08	CTS
TxD	03	07	RTS
RxD	02	06	DSR
DCD	01		

RS-232 Female DB-37 to Male DB-9 Connector

Ordering Information

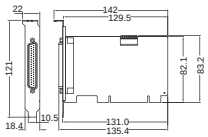
VXC-114U CR	Universal PCI, Serial Communication Board with 4 RS-232 ports (RoHS). Includes One CA-4002 Connector
VXC-114U/D2 CR	Universal PCI, Serial Communication Board with 4 RS-232 ports (RoHS). Includes One CA-9-3715D Cable
VEX-114 CR	PCI Express, Serial Communication Board with 4 RS-232 ports (RoHS). Includes One CA-4002 Connector
VEX-114/D2 CR	PCI Express, Serial Communication Board with 4 RS-232 ports (RoHS). Includes One CA-9-3715D Cable
VXC-114iAU CR	Universal PCI, Serial Communication Board with 4 Isolated RS-232 ports (RoHS). Includes One CA-4002 Connector
VXC-114iAU/D2 CR	Universal PCI, Serial Communication Board with 4 Isolated RS-232 ports (RoHS). Includes One CA-9-3715D Cable
VEX-114i CR	PCI Express, Serial Communication Board with 4 Isolated RS-232 ports (RoHS). Includes One CA-4002 Connector
VEX-114i/D2 CR	PCI Express, Serial Communication Board with 4 Isolated RS-232 ports (RoHS). Includes One CA-9-3715D Cable

Accessories

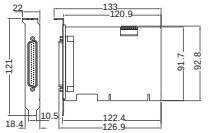
CA-4002	37-Pin Male D-Sub Connector with Plastic Cover
CA-9-3715D	Male DB-37 to 4 Male DB-9 Cable, 1.5 m For VXC Series (180°)

Dimensions (Unit: mm)

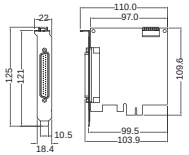
VXC-114U



VXC-114iAU



VEX-114/VEX-114i



VXC-142AU/VXC-142iAU

Serial Communication Board with 2 RS-422/485 ports

Features

- Built-in COM-Selector
- Short Card Design
- Provides 2 RS-422/485 ports
- +/-4 kV ESD Protection for i version
- 128-byte Hardware FIFO for Each Port
- Supports 3.3 V/5 V PCI bus, Plug and Play
- 2500 V_{rms} isolation for i version

Introduction

The VXC-142 series card provides two RS-422/RS-485 serial ports and supports 3.3 V/5 V PCI bus. The VXC-142iAU card also supports isolation voltage up to 2.5 kV. Each port can be configured as either RS-485 for half-duplex or RS-422 for full-duplex communication. It equips a 128-byte hardware FIFO for each port, offers speed up to 115200 bps and supports full-duplex communication.

Users can select a specified COM port number manually by setting dip switch, or let the driver choose an available number automatically. The driver provides a maximum of 128 KB software FIFO for each COM port under Windows. It's practical for large file transmission.

In harsh industrial environments, the on board ESD protection component diverts the potentially damaging charge away from sensitive circuit and protects the computer and equipment from being damaged by high potential voltage.

The serial communication card are designed for use with intelligent devices like bar code reader, serial printers, intelligent sensors, instrumentation equipment, computers and almost any device with an RS-232 port.

Applications

- Industrial Machinery
- Building Automation
- Restaurant Appliances
- Laboratory Equipment & Research
- Industrial Communication

Software

- DOS Lib
- Driver for 32-bit and 64-bit Windows XP/2003/Vista/7
- Driver for Linux

Hardware Specifications

Models		VXC-142AU	VXC-142iAU
Communication Port			
COM1, COM2	RS-422/485	The RS-422 and RS-485 cannot be used simultaneously	
	RS-422	TxD+, TxD-, RxD+, RxD-, RTS+, RTS-, CTS+, CTS-, GND	
	RS-485	Data+, Data-, GND	
UART		16C950 compatible	
Baud Rate		50 ~ 115200 bps	
Data Bit		5, 6, 7, 8	
Stop Bit		1, 1.5, 2	
Parity		None, Even, Odd, Mark, Space	
FIFO		Internal 128 bytes	
Isolated		-	2500 V_{rms}
General			
Bus Type		Universal PCI, 3.3 V and 5 V, 33 MHz, 32-bit, Plug and Play	
COM-Selector		Yes (8-bit DIP switch)	
Connector		2 x Male DB-9	
Power Consumption		100 mA @ 5 V	480 mA @ 5 V
Operating Temperature		0 °C ~ +50 °C	
Storage Temperature		-20 °C ~ +70 °C	
Humidity		0 ~ 90% RH, non-condensing	
Dimensions (L x W x D)		134 mm x 90 mm x 22 mm	

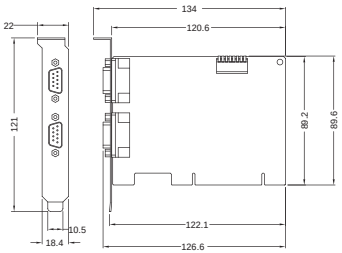
Pin Assignments

Pin Assignment	Terminal No.		Pin Assignment
GND/VEE	05	09	CTS-(A)
RxD-(A)	04	08	CTS+(B)
RxD+(B)	03	07	RTS+(B)
TxD+(B)/Data+(B)	02	06	RTS-(A)
TxD-(A)/Data-(A)	01		

RS-422/485 Male DB-9 Connector

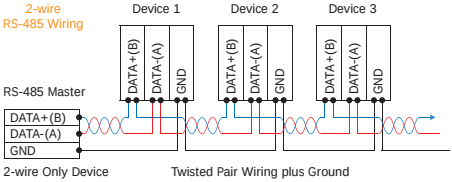
Dimensions (Unit: mm)

VXC-142AU/VXC-142iAU

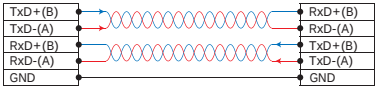


Wiring

2-wire RS-485 Wiring



4-wire RS-422 Wiring



Ordering Information

VXC-142AU CR	Universal PCI Bus, Serial Communication Board with 2 RS-422/485 ports (RoHS)
VXC-142iAU CR	Universal PCI Bus, Serial Communication Board with 2 Isolated RS-422/485 ports (RoHS)

Accessories

CA-0910F	9-Pin Female-Female D-Sub Cable 1 m
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m
CA-PC09F	9-Pin Female D-Sub Connector with Plastic Cover
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1 m)

NEW **VXC-144U/VXC-144iU**

Available soon **VEX-144/VEX-144i**

Serial Communication Board with 4 RS-422/485 ports

Features

- Provides 4 RS-422/485 ports
- 128-byte Hardware FIFO for Each Port
- Built-in COM-Selector
- +/-4 kV ESD Protection for i versions
- Short Card Design
- Up to 128 KB Software FIFO for Each COM Port Under Windows

  VXC-144U/VXC-144iU Only
- Supports 3.3 V/5 V PCI Bus, Plug and Play

  VEX-144/VEX-144i Only
- Supports PCI Express x 1, Plug and Play

  VXC-144i/VEX-144i Only
- 2500 V_{rms} Isolation

Introduction

The VXC-144U/VEX-144 card provides 4 non-isolated RS-422/RS-485 serial ports and the VXC-144iU/VEX-144i card provides 4 isolated RS-422/RS-485 serial ports which withstand isolation voltage up to 3 kV. Each port can be configured as either RS-485 for half-duplex or RS-422 for full-duplex communication. It equips a 128-byte hardware FIFO for each port, offers speed up to 115200 bps and long distance communication link.

Users can select a specified COM port number manually by setting DIP switch, or let the driver choose an available number automatically. The driver provides a maximum of 128 KB software FIFO for each COM port under Windows. It's practical for large file transmission.

In harsh industrial environments, the on board ESD protection component diverts the potentially damaging charge away from sensitive circuit and protects the computer and equipment from being damaged by high potential voltage.

The serial communication card are designed for use with intelligent devices like bar code reader, serial printers, intelligent sensors, instrumentation equipment, computers and almost any device with an RS-232 port.

Applications

- Industrial Machinery
- Building Automation
- Restaurant Appliances
- Laboratory Equipment & Research
- Industrial Communication

Software

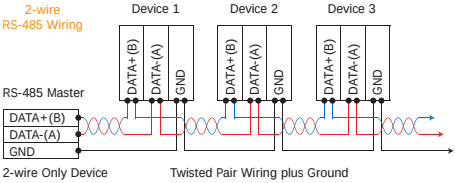
- Driver for 32-bit and 64-bit Windows XP/2003/Vista/7
- Driver for Linux

Hardware Specifications

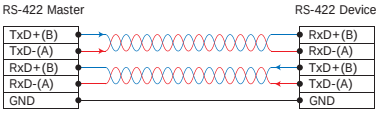
Models		VXC-144U	VXC-144iU	VEX-144	VEX-144i
Communication Port					
COM1 ~ COM4	RS-422/485	The RS-422 and RS-485 cannot be used simultaneously			
	RS-422	TxD+, TxD-, RxD+, RxD-, RTS+, RTS-, CTS+, CTS-, GND			
	RS-485	Data+, Data-, GND			
UART		16C950 compatible			
Baud Rate		50 ~ 115200 bps			
Data Bit		5, 6, 7, 8			
Stop Bit		1, 1.5, 2			
Parity		None, Even, Odd, Mark, Space			
FIFO		Internal 128 bytes			
Isolated		-	2500 V_{rms}	-	2500 V_{rms}
General					
Bus Type		Universal PCI, 3.3 V and 5 V, 33 MHz, 32-bit, Plug and Play mechanism		PCI Express x1, Plug and Play	
COM-Selector		Yes (8-bit DIP switch)			
Connector		Female DB-37			
Power Consumption		120 mA @ 5 V	880 mA @ 5 V	120 mA @ 5 V	880 mA @ 5 V
Operating Temperature		0 °C ~ +50 °C			
Storage Temperature		-20 °C ~ +70 °C			
Humidity		0 ~ 90% RH, non-condensing			
Dimensions (L x W x D)		142 mm x 84 mm x 22 mm	142 mm x 95 mm x 22 mm	114 mm x 101 mm x 22 mm	

Wiring

2-wire RS-485 Wiring

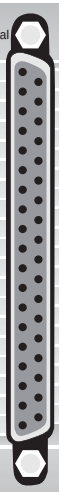


4-wire RS-422 Wiring



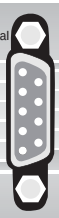
Pin Assignments

Pin Assignment	Terminal No.	Pin Assignment
N.C.	01	20 CTS3-(A)
TxD3-(A)/Data3-(A)	02	21 RxD3-(A)
GND/VEE3	03	22 RTS3-(A)
CTS3+(B)	04	23 RTS3+(B)
TxD3+(B)/Data3+(B)	05	24 RxD3+(B)
CTS4-(A)	06	25 TxD4-(A)/Data4-(A)
RxD4-(A)	07	26 GND/VEE4
RTS4-(A)	08	27 CTS4+(B)
RTS4+(B)	09	28 TxD4+(B)/Data+(B)
RxD4+(B)	10	29 CTS2-(A)
TxD2-(A)/Data2-(A)	11	30 RxD2-(A)
GND/VEE2	12	31 RTS2-(A)
CTS2+(B)	13	32 RTS2+(B)
TxD2+(B)/Data2+(B)	14	33 RxD2+(B)
CTS1-(A)	15	34 TxD1-(A)/Data1-(A)
RxD1-(A)	16	35 GND/VEE1
RTS1-(A)	17	36 CTS1+(B)
RTS1+(B)	18	37 TxD1+(B)/Data1+(B)
RxD1+(B)	19	



RS-422/485 Female DB-37 Connector

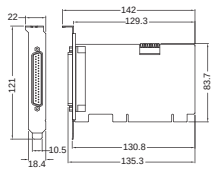
Pin Assignment	Terminal No.	Pin Assignment
GND/VEE	05	09 CTS-(A)
RxD-(A)	04	08 CTS+(B)
RxD+(B)	03	07 RTS+(B)
TxD+(B)/Data+(B)	02	06 RTS-(A)
TxD-(A)/Data-(A)	01	



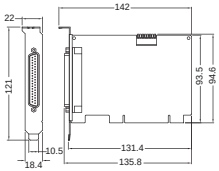
RS-422/485 Female DB-37 to Male DB-9 Connector

Dimensions (Unit: mm)

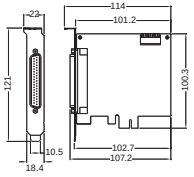
VXC-144U



VXC-144iU



VEX-144/VEX-144i



Ordering Information

VXC-144U CR	Universal PCI, Serial Communication Board with 4 RS-422/485 ports (RoHS). Includes One CA-4002 Connector
VXC-144iU CR	Universal PCI, Serial Communication Board with 4 Isolated RS-422/485 ports (RoHS) Includes One CA-4002 Connector
VEX-144 CR	PCI Express, Serial Communication Board with 4 RS-422/485 ports (RoHS). Includes One CA-4002 Connector
VEX-144i CR	PCI Express, Serial Communication Board with 4 Isolated RS-422/485 ports (RoHS) Includes One CA-4002 Connector

Accessories

CA-4002	37-Pin Male D-Sub Connector with Plastic Cover
CA-9-3715D	Male DB-37 to 4 Male DB-9 Cable, 1.5 m For VXC Series (180°)

NEW

VXC-182iU

Serial Communication Board with
1 Isolated RS-422/485 port and 1 RS-232 port

Features

- Built-in COM-Selector
- Short Card Design
- Provides 1 isolated RS-422/485 port and 1 RS-232 Port
- +/-4 kV ESD Protection
- Self-Tuner Inside
- 2500 V_{rms} Isolated RS-422/485 Port
- Up to 128 KB Software FIFO for Each COM Port Under Windows
- Supports 3.3 V/5 V PCI bus, Plug and Play
- 128-byte Hardware FIFO for Each Port

Introduction

The VXC-182iU serial card provides two communication ports, one is RS-422/485 and the other is RS-232 port. RS-422/RS-485 serial ports can withstand isolation voltage up to 2.5 kV. It can be configured as either RS-485 for half-duplex or RS-422 for full-duplex communication, offers speed up to 115200 bps and long distance communication link.

Users can select a specified COM port number manually by setting DIP switch, or let the driver choose an available number automatically. The driver provides a maximum of 128 KB software FIFO for each COM port under Windows. It's practical for large file transmission.

In harsh industrial environments, the on board ESD protection component diverts the potentially damaging charge away from sensitive circuit and protects the computer and equipment from being damaged by high potential voltage.

The serial communication card are designed for use with intelligent devices like bar code reader, serial printers, intelligent sensors, instrumentation equipment, computers and almost any device with an RS-232 port.

Applications

- Industrial Machinery
- Building Automation
- Restaurant Appliances
- Laboratory Equipment & Research
- Industrial Communication

Software

- DOS Lib
- Driver for 32-bit and 64-bit Windows XP/2003/Vista/7
- Driver for Linux

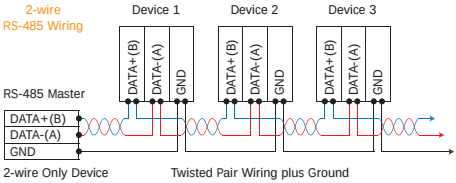
Hardware Specifications

Communication Port		
COM1	RS-422/485	The RS-422 and RS-485 cannot be used simultaneously
	RS-422	TxD+, TxD-, RxD+, RxD-, RTS+, RTS-, CTS+, CTS-, GND (with 2.5 kV Isolation)
	RS-485	Data+, Data-, GND (with 2.5 kV Isolation)
COM2		RS-232 (TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND)
UART		16C950 compatible
Baud Rate		50 ~ 115200 bps
Data Bit		5, 6, 7, 8
Stop Bit		1, 1.5, 2
Parity		None, Even, Odd, Mark, Space
FIFO		Internal 128 bytes
General		
Bus Type		Universal PCI, 3.3 V and 5 V, 33 MHz, 32-bit, Plug and Play mechanism
COM-Selector		Yes (8-bit DIP switch)
Connector		2 x DB-9 (Male)
Power Consumption		200 mA @ 5 V
Operating Temperature		0 °C ~ +50 °C
Storage Temperature		-20 °C ~ +70 °C
Humidity		0 ~ 90% RH, non-condensing
Dimensions (L x W x D)		134 mm x 90 mm x 22 mm

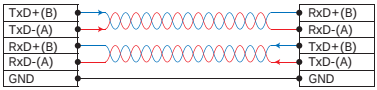
Wiring

DTE Device (Computer) DB-9		DTE to DCE Connections	DCE Device (Modem) DB-9	
Pin# DB-9	RS-232 Signal Names	Signal Direction	Pin# DB-9	RS-232 Signal Names
#1 Carrier Detector	DCD	←	#1 Carrier Detector	DCD
#2 Receive Data	RxD	←	#2 Transmit Data	TxD
#3 Transmit Data	TxD	→	#3 Receive Data	RxD
#4 Data Terminal Ready	DTR	→	#4 Data Set Ready	DSR
#5 Signal Ground/Common (SG)	GND	↔	#5 Signal Ground/Common (SG)	GND
#6 Data Set Ready	DSR	←	#6 Data Terminal Ready	DTR
#7 Request to Send	RTS	→	#7 Clear to Send	CTS
#8 Clear to Send	CTS	←	#8 Request to Send	RTS
#9 Ring Indicator	RI	←	#9 Ring Indicator	RI
Soldered to DB-9 Metal Shield	FGND	↔	Soldered to DB-9 Metal Shield	FGND

2-wire RS-485 Wiring



4-wire RS-422 Wiring



Pin Assignments

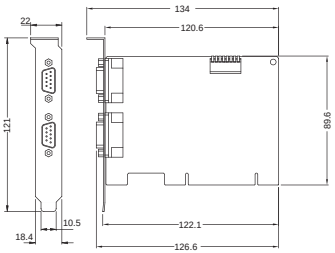
Pin Assignment	Terminal No.		Pin Assignment
GND/VEE	05	09	CTS-(A)
RxD-(A)	04	08	CTS+(B)
RxD+(B)	03	07	RTS+(B)
TxD+(B)/Data+(B)	02	06	RTS-(A)
TxD-(A)/Data-(A)	01		

COM1: RS-422/485 Male DB-9 Connector

Pin Assignment	Terminal No.		Pin Assignment
GND	05	09	RI
DTR	04	08	CTS
TxD	03	07	RTS
RxD	02	06	DSR
DCD	01		

COM2: RS-232 Male DB-9 Connector

Dimensions (Unit: mm)



Ordering Information

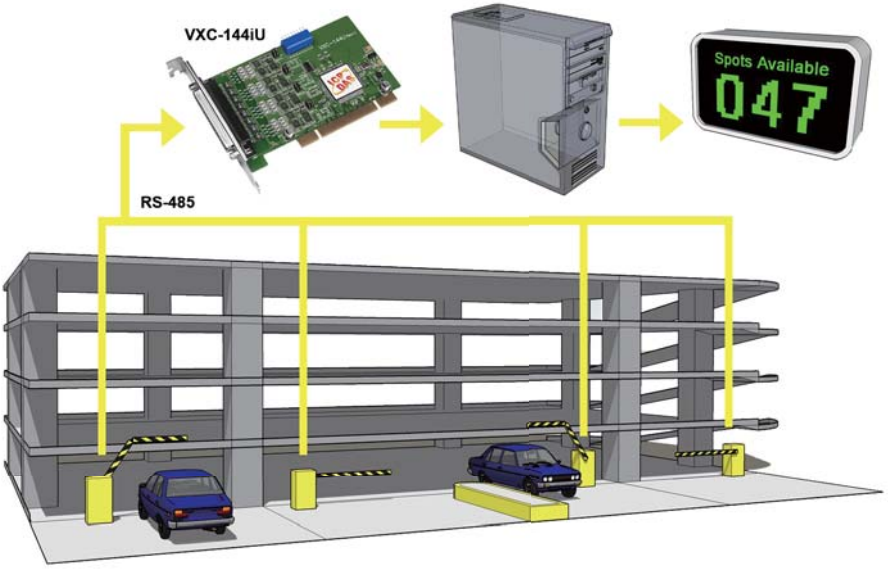
VXC-182iU CR	Universal PCI Bus, Serial Communication Board with 1 Isolated RS-422/485 port and 1 RS-232 port (RoHS)

Accessories

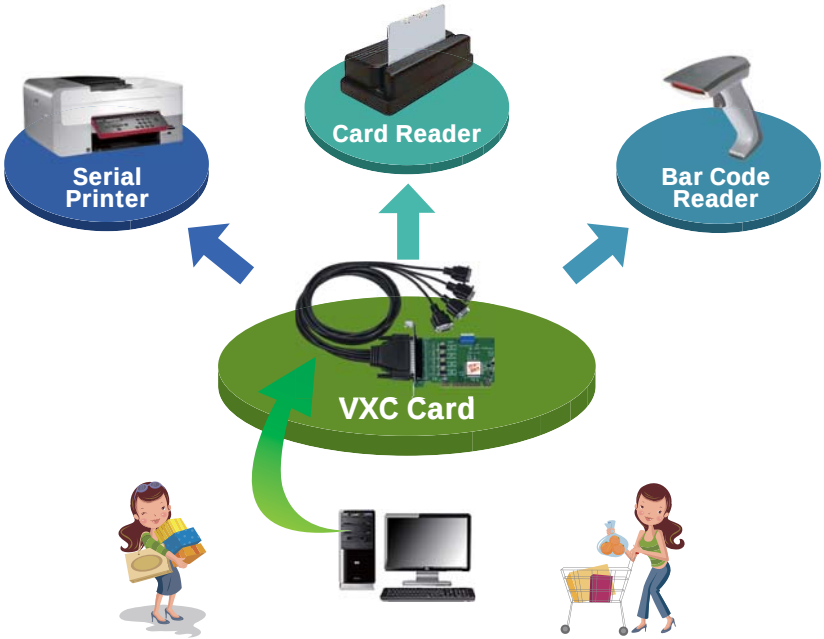
CA-0910F	9-Pin Female-Female D-Sub Cable 1 m
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m
CA-090910	9-Pin Female D-Sub Cable for RS-422 Connector, 1 m
CA-PC09F	9-Pin Female D-Sub Connector with Plastic Cover
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1 m)

2.3. Applications

The Administration System of Parking Structure



The POS (Point of Sale) System

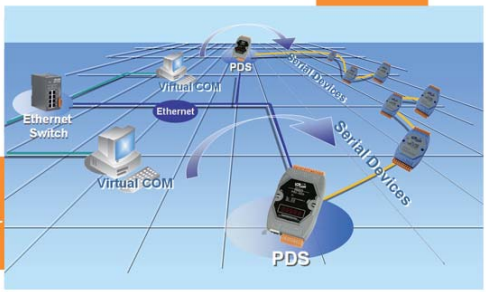


Programmable Device Server

3

3.1. Overview

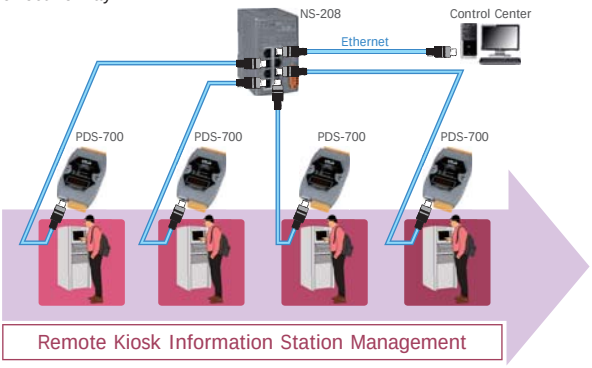
Serial Devices to Ethernet Gateway



Take your serial devices to the modern world.
Programmable Device Server

The ICP DAS Programmable Device Server is designed to bring network connectivity to your serial devices. The programmable features allow developers to quickly build custom applications that turn “dull” serial devices into “intelligent” devices right away without modifying their hardware or software configuration.

With extensive experience accumulated over many years, a great number of serial devices such as PLCs, bar code readers, RFID readers, meters and motion controllers, etc., have been widely used in various applications. As the advances in communication technologies in recent years, continue to drive optimization of data accessibility and remote operation ability, a wide variety of industries have begun to feel the urge to upgrade their latency serial communications to Ethernet network connections. The ICP DAS PDS series of products are your best choice for implementing this scenario in a robust, reliable and cost-effective way.



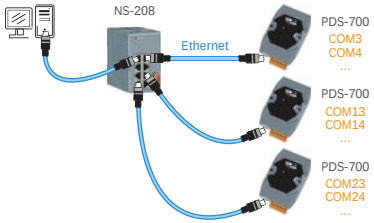
Remote Kiosk Information Station Management

VxComm driver & utility
Where remote serial devices become part of your PC

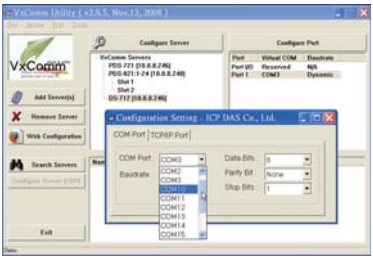
The VxComm Driver creates virtual COM port(s) on Windows NT 4.0/2000/XP/2003/Vista32 systems and maps them to the remote serial port(s) of the PDS/DS series. The user's serial client programs need to only be changed to the virtual COM port access the serial devices that are allocated on the Internet or Ethernet network via the PDS/DS series.

Easy Serial Device Networking with “transparency”

The most intuitive and easiest way to remotely control serial devices is to access those devices transparently via a network with no software modification required. The ICP DAS PDS product line offers two transparent applications:



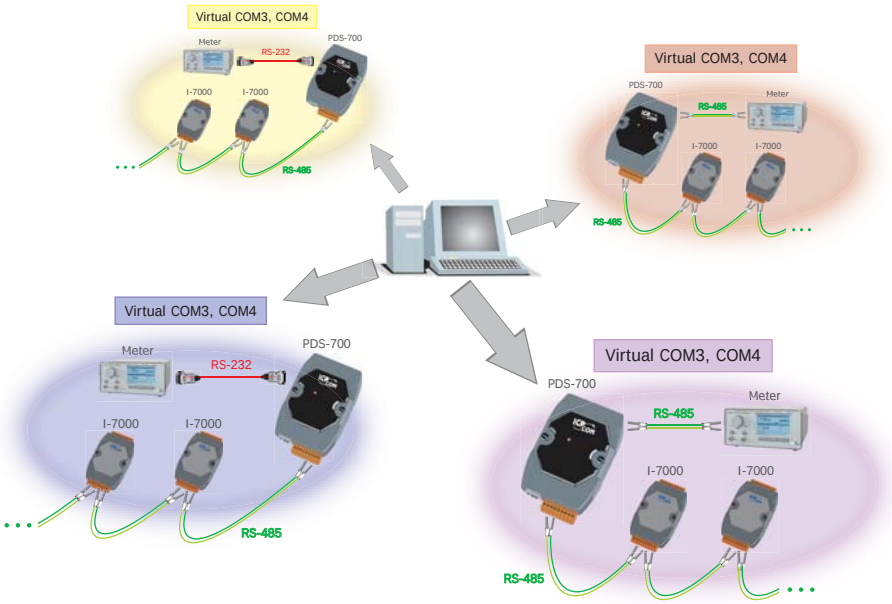
◆ Socket Connections:
Using a TCP/IP socket connection, client programs can exchange information with specific PDS/DS serial ports and talk to serial devices directly. For example, simply create a socket connection to the TCP/IP port 10001 (default) of the PDS/DS device and you can then access Port1 of the PDS/DS remotely. This is an OS-independent method and works well on most OS (operating systems) that provide socket functions.



◆ Virtual COM Ports:
ICP DAS developed a specific function called "Virtual COM" that simulates PDS serial ports as fixed PC COM ports. Virtual COM ports appear to the system and applications as real ports. Once established, users can immediately enjoy the convenience that networking provides.

DynaCOM Technology

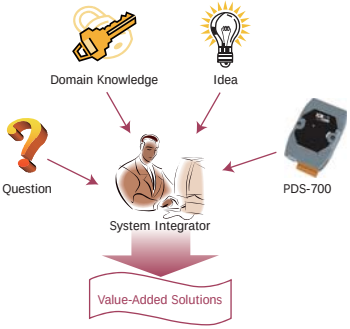
ICP DAS Virtual COM also supports an exclusive function - Dynamic Virtual COM Mapping (DynaCOM); if the system can only access limited or fixed numbers of COM Ports, specific PDS serial ports can be dynamically assigned to the corresponding COM port numbers.



DynaCOM use same virtual COM ports mapping to several PDS dynamically

Programmable Enhanced “Device Servers”

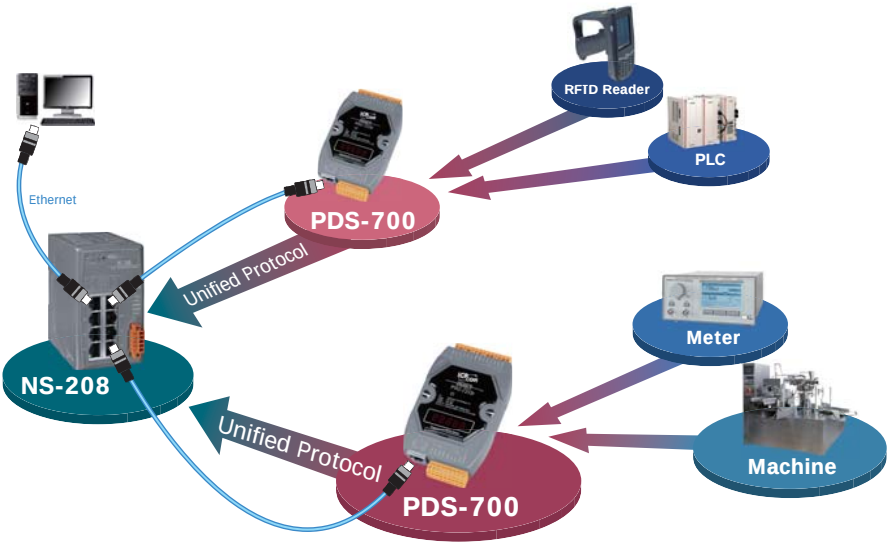
The programmable features of the PDS series of products makes it possible to effectively implement exclusive protocols and exclusive communication mechanisms for complex PDS-based applications. This provides the following advantages:



◆ Effective network transmission:
Place your customized software on the PDS to directly perform processes locally. The effective data and information can be periodically sent back to the PC based on a schedule that can be planned in advance and the devices will work independently on-site, even when not connected to a network. Therefore, the design of system can be much more flexible. This also reduces the need to rely on the network, which is an inevitable factor for conventional DS (Device Server) as it has to keep on “talking” to the PC via the network to ensure the status maintains transparency.

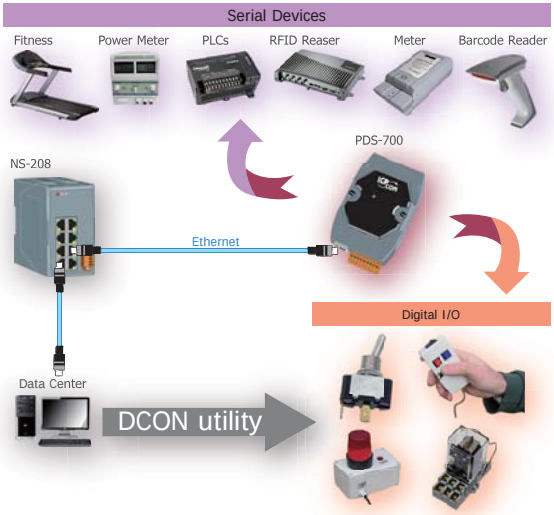
◆ Previous development efforts can be duplicated:
Along with serial devices, you can place your customized or value-added software on the PDS to implement an intelligent Ethernet controller. This controller can then be used in applications for future projects, dramatically reducing programming requirements. In addition, your value-added software is embedded in the PDS, so if a computer system undergoes hardware replacement or upgrade, incompatibility issues don’t need to be considered, which therefore reduces system maintenance work.

Programmable Protocol Converter



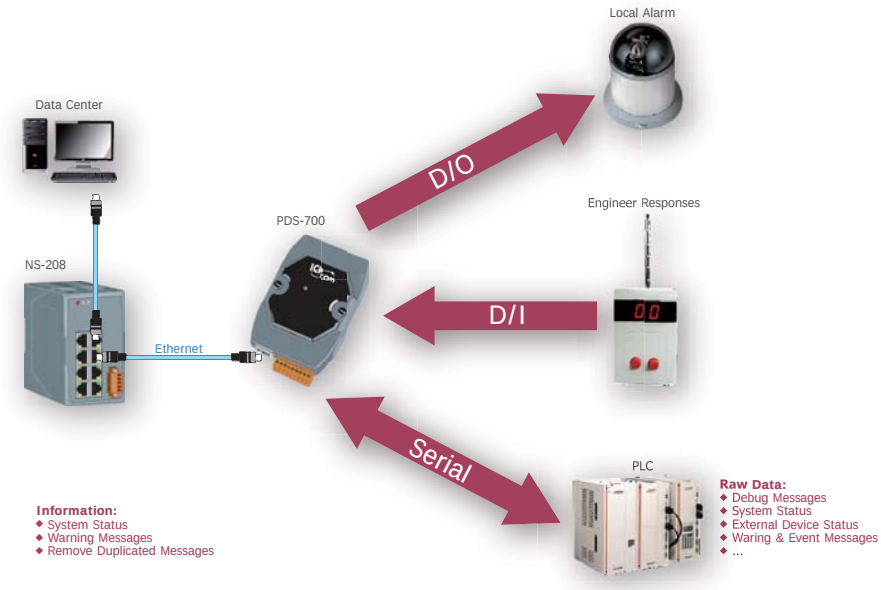
Virtual I/O Highly Integrates On-Site Messages

I/O acquisition is very important when performing on-site integration, so, along with DCON utility provided by ICP DAS, the RS-485 of PDS is able to be connected to I-7000 series products to offer abundant I/O modules for various purposes. For easier on-site integration operations, some PDS models also provide Digital I/O, which is also supported by the DCON utility, the EZ Data Logger or other DCON client programs.



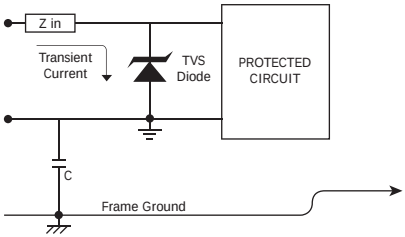
"Virtual I/O" is an extension of "Virtual COM" technology that simulates the PDS's digital I/Os control as a virtual COM port (Port I/O) application on the PC. You are now able to access the PDS's digital I/Os using the DCON protocol through the virtual COM port.
In addition, the DCON utility and EZ Data Logger also support control of the PDS's digital I/Os through the use of "Virtual I/O" technology, so you can monitor PDS's digital I/Os and complete the I/Os application in a convenient way.

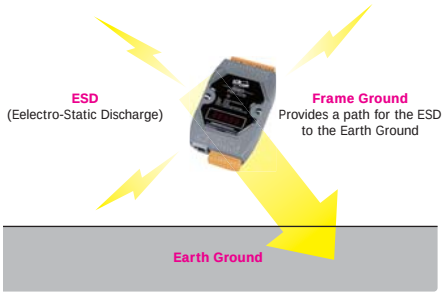
Programmable Data Monitor, Filter and I/O Controls



ESD Protection and Frame Ground

The PDS series offers TVS diode ESD protection technology with a frame ground design that protects your system from being damaged by high potential voltages.





Under normal operating conditions, the TVS diode presents high impedance (appears as an open circuit) to the protected component. If the voltage exceeds the limitation, the TVS diode avalanches, providing a low impedance path for the transient current. As a result, the transient current is diverted away from the protected components and shunted through the TVS diode. The device returns to a high impedance state after the transient threat has passed.

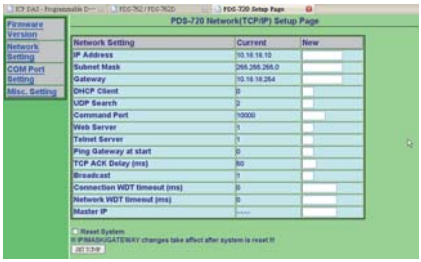
Self-Tuner Inside

The PDS series is equipped with a “Self-Tuner” chip that automatically controls the sending/receiving direction of the RS-485 ports.

Without the presence of Self-Tuner, users need to enable the RS-485 transmitter before transmitting, and disable the transmitter after the transmission is complete. The time required to enable and disable the transmitter (direction control) is the major source of many communication issues, and it is very difficult to debug. The built-in Self-Tuner in the PDS effectively removes this direction control issue and also simplifies the software/firmware programming required for communication applications.

Easy Web Configuration

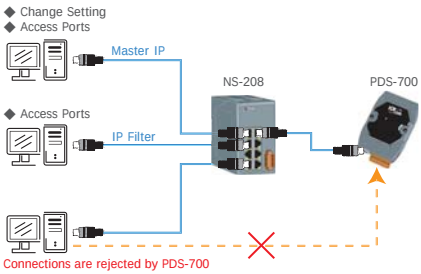
The PDS also contains a built-in web server that enables users to conveniently configure the PDS. A web browser, like IE or Firefox, can be used to connect to the PDS to modify the configuration, such as: IP address, subnet mask, gateway, DHCP client, UDP search, Web Server, Telnet Server, TCP ACK delay, Watchdog timeout, Master IP, Filter IP, COM port baud rate, data format and transfer mode, etc.



Master IP and Filter IP

The PDS can use a master IP setting that allows a client to configure the PDS and COM ports. This prevents the configuration of the PDS and COM ports from being changed by other clients.

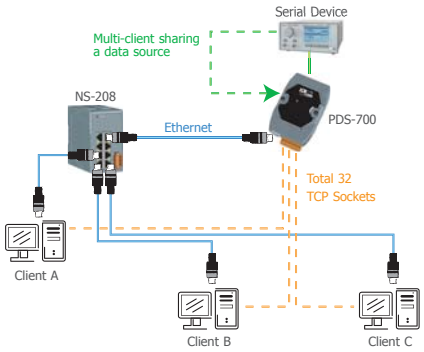
The IP filter setting limits which client PCs are able to access the PDS module via specific IP addresses. Connections from other clients will be rejected by the PDS.



Data Sharing with Multiple Clients

M0: Transparent Mode (Multi-echo)
In transparent mode, the PDS sends data from a serial device to each client that is connected to the same serial port of the PDS. Thus, each connected client has a copy of the same data from the serial device.

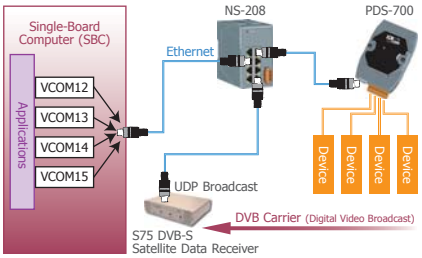
M1: Slave Mode (Single-echo)
In slave mode, the PDS only sends data from a serial device to the client that requires the service. If there are no requirements from the client, then data will not be sent to the client. The PDS services each client individually when sharing data from the serial device, but the clients do not have a copy of the same data.



UDP Flood Attack Protection

A UDP flood attack is a denial-of-service (DoS) attack that sends a large number of UDP packets to a remote host. As a result, the affected system will be forced into replying to many packets, eventually causing the host to be unreachable by other clients.

The UDP function can be disabled on the PDS if the network suffers a flood attack or receives a large numbers of UDP packets from the network devices. This protects the PDS from UDP flood attacks.



Industrial PoE Solution

Power over Ethernet (PoE) allows power and data to be carried over a single Ethernet cable, so a device can operate solely from the power it receives through the data cable. This innovation allows greater flexibility in office design, higher efficiency in systems design, and faster turnaround time in set-up and implementation.

When using PoE devices such as the PPDS-700-MTCP, PPDS-700-IP67 and PET-7000 (Ethernet I/O module with PoE), you can select the ICP DAS "PoE" switch — "NS-205PSE"- as the power source. The NS-205PSE automatically detects whether the connected devices are PoE devices or not. This mechanism ensures that the NS-205PSE will work with both PoE and non-PoE devices simultaneously.

As a power source for PoE devices, the NS-205PSE requires a power input ranging from +46 V_{DC} ~ +55 V_{DC}.

Modbus/TCP to Modbus/RTU Gateway

Modbus has become a de facto standard communications protocol in the industry, and is now the most commonly available means of connecting industrial electronic devices.

Modbus allows for communication between many devices connected to the same network, for example a system that measures temperature and humidity and communicates the results to a computer. Modbus is often used to connect a supervisory computer with a remote terminal unit (RTU) in supervisory control and data acquisition (SCADA) systems.

The default firmware of the µPAC-7186EX(D)-MTCP and PPDS-700-MTCP devices allows them to become a single Modbus/TCP to multiple Modbus/RTU converter. You can simply use the Modbus Utility to configure the device and then set a connection between the SCADA/HMI software and the µPAC-7186EX(D)-MTCP and PPDS-700-MTCP.

Selection Guide

PDS-700 Series Comparison Table

Series	Ethernet	Virtual COM	Virtual I/O	Programmable	Modbus	Casing
 PDS-700	10/100 M	Yes	Yes	Yes	-	Fire Retardant Plastic
 PPDS-700-MTCP	10/100 M, PoE	Yes	Yes	Yes	Yes	Fire Retardant Plastic
 PDSM-700	10/100 M	Yes	Yes	Yes	-	Metal
 PPDSM-700-MTCP	10/100 M, PoE	Yes	Yes	Yes	Yes	Metal
 DS-700	10/100 M	Yes	-	-	-	Fire Retardant Plastic
 PPDS-700-IP67	10/100 M, PoE	Yes	-	Yes	-	IP67 Waterproof Plastic

PDS-700 Selection Guide

Model Name	Ethernet	DI/DO	COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8	Page
PDS-720 PDS-720D	10/100 M	-	5-wire RS-232	2-wire RS-485	-	-	-	-	-	-	3-2-1
PDS-721 PDS-721D	10/100 M	6/7	5-wire RS-232	2-wire RS-485	-	-	-	-	-	-	3-2-3
PDS-732 PDS-732D	10/100 M	4/4	5-wire RS-232	2-wire RS-485	5-wire RS-232	-	-	-	-	-	3-2-5
PDS-734 PDS-734D	10/100 M	4/4	5-wire RS-232	2-wire RS-485	RS-422/ RS-485	-	-	-	-	-	3-2-7
PDS-742 PDS-742D	10/100 M	-	5-wire RS-232	2-wire RS-485	5-wire RS-232	9-wire RS-232	-	-	-	-	3-2-9
PDS-743 PDS-743D	10/100 M	4/4	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	-	-	-	-	3-2-11
PDS-752 PDS-752D	10/100 M	-	5-wire RS-232	2-wire RS-485	5-wire RS-232	5-wire RS-232	5-wire RS-232	-	-	-	3-2-13
PDS-755 PDS-755D	10/100 M	-	5-wire RS-232	2-wire RS-485	2-wire RS-485	2-wire RS-485	2-wire RS-485	-	-	-	3-2-15
PDS-762 PDS-762D	10/100 M	1/2	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	-	-	3-2-17
PDS-782 PDS-782D	10/100 M	-	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-2-19
PDS-782-25 PDS-782D-25	10/100 M	-	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-2-21

PPDS-700-MTCP Selection Guide

Model Name	Ethernet	DI/DO	COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8	Modbus	Page
PPDS-712-MTCP	10/100 M, PoE	-	5-wire RS-232	-	-	-	-	-	-	-	Yes	3-3-1
PPDS-715-MTCP	10/100 M, PoE	-	RS-422 RS-485	-	-	-	-	-	-	-	Yes	3-3-3
PPDS-720-MTCP PPDS-720D-MTCP	10/100 M, PoE	-	5-wire RS-232	2-wire RS-485	-	-	-	-	-	-	Yes	3-2-1
PPDS-721-MTCP PPDS-721D-MTCP	10/100 M, PoE	6/7	5-wire RS-232	2-wire RS-485	-	-	-	-	-	-	Yes	3-2-3
PPDS-732-MTCP PPDS-732D-MTCP	10/100 M, PoE	4/4	5-wire RS-232	2-wire RS-485	5-wire RS-232	-	-	-	-	-	Yes	3-2-5
PPDS-734-MTCP PPDS-734D-MTCP	10/100 M, PoE	4/4	5-wire RS-232	2-wire RS-485	RS-422/ RS-485	-	-	-	-	-	Yes	3-2-7
PPDS-742-MTCP PPDS-742D-MTCP	10/100 M, PoE	-	5-wire RS-232	2-wire RS-485	5-wire RS-232	9-wire RS-232	-	-	-	-	Yes	3-2-9
PPDS-743-MTCP PPDS-743D-MTCP	10/100 M, PoE	4/4	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	-	-	-	-	Yes	3-2-11
PPDS-752-MTCP PPDS-752D-MTCP	10/100 M, PoE	-	5-wire RS-232	2-wire RS-485	5-wire RS-232	5-wire RS-232	5-wire RS-232	-	-	-	Yes	3-2-13
PPDS-755-MTCP PPDS-755D-MTCP	10/100 M, PoE	-	5-wire RS-232	2-wire RS-485	2-wire RS-485	2-wire RS-485	2-wire RS-485	-	-	-	Yes	3-2-15
PPDS-762-MTCP PPDS-762D-MTCP	10/100 M, PoE	1/2	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	-	-	Yes	3-2-17
PPDS-782-MTCP PPDS-782D-MTCP	10/100 M, PoE	-	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	Yes	3-2-19

Note: COM1 of PPDS-715-MTCP is 4-wire RS-422 or 2-wire RS-485 with 2000 V_{rms} Isolation.

DS-700 Selection Guide

Series	Ethernet	Isolation	COM1	COM2 ~ COM8	DI/DO	Programmable	Page
DS-712	10/100 M	-	5-wire RS-232	-	-	-	3-3-1
DS-715	10/100 M	2000 V_{rms}	4-wire RS-422 or 2-wire RS-485	-	-	-	3-3-3

PPDS-700-IP67 Selection Guide

Series	Ethernet	COM1	COM2	COM3	COM4	IP67	Page
PPDS-741-IP67	10/100 M, PoE	5-wire RS-232	2-wire RS-485	2-wire RS-485	2-wire RS-485	Yes	3-4-1
PPDS-742-IP67	10/100 M, PoE	5-wire RS-232	2-wire RS-485	5-wire RS-232	2-wire RS-485	Yes	3-4-1
PPDS-743-IP67	10/100 M, PoE	5-wire RS-232	2-wire RS-485	5-wire RS-232	5-wire RS-232	Yes	3-4-1

3.2. PDS-700 & PPDS-700-MTCP Programmable Device Servers

PDS-720(D)
NEW PPDS-720(D)-MTCP

Programmable Device Server with 1 RS-232 port and 1 RS-485 port

RS-232/RS-485

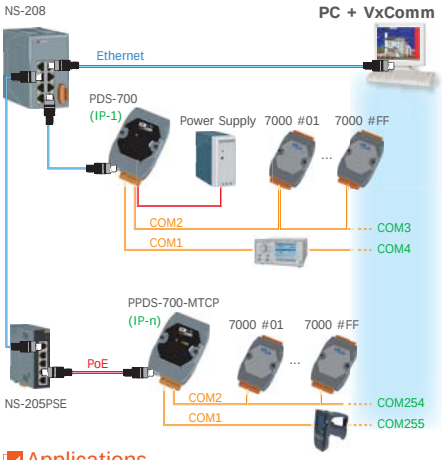
Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-720(D)-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-720(D)-MTCP supports PoE (IEEE 802.3af, Class 1)
- Low power consumption
- Palm-Sized with multiple Serial Ports
- Made from fire retardant materials (UL94-V0 Level)

CE FC RoHS PoE

Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.
The PDS-700 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PDS-700 up in just one second and gives you fastest responses.
The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.
The PDS-720(D) and PPDS-720(D)-MTCP is equipped with 1 RS-232 port and 1 RS-485 port. The removable on-board terminal block connector is designed for easy and robust wiring in industrial situations.



Applications

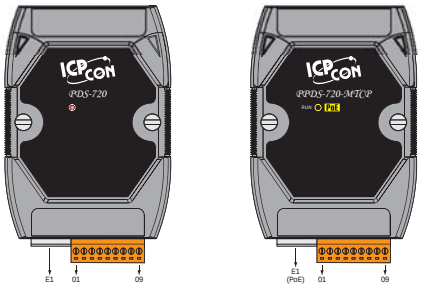
Factory, Building and Home Automation

System Specifications

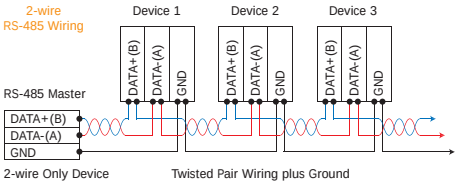
Models		PDS-720	PDS-720D	PPDS-720-MTCP	PPDS-720D-MTCP
CPU					
CPU		80186, 80 MHz or compatible			
SRAM		512 KB			
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Built-in Watchdog Timer		Yes			
Communication Interface					
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM2	RS-485 (D2+, D2-, GND)			
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)			
PoE		-		IEEE 802.3af	
COM Port Formats					
Data Bit		7, 8: for COM1 and COM2			
Parity		None, Even, Odd, Mark, Space			
Stop Bit		1: for COM1 and COM2			
Baud Rate		115200 bps max.			
LED Indicators					
5-digit 7 Segment		-	Yes	-	Yes
System		Red			
PoE		-		Green	
Power					
Protection		Power Reverse Polarity Protection			
Required Supply Voltage		+10 Vdc ~ +30 Vdc (non-regulated)		PoE or +12 Vdc ~ +48 Vdc (non-regulated)	
Power Consumption		2.0 W	2.7 W	2.2 W	2.9 W
Mechanical					
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions		72 mm x 112 mm x 35 mm (W x H x D)			
Installation		DIN-Rail or Wall mounting			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

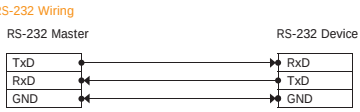
Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act 10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

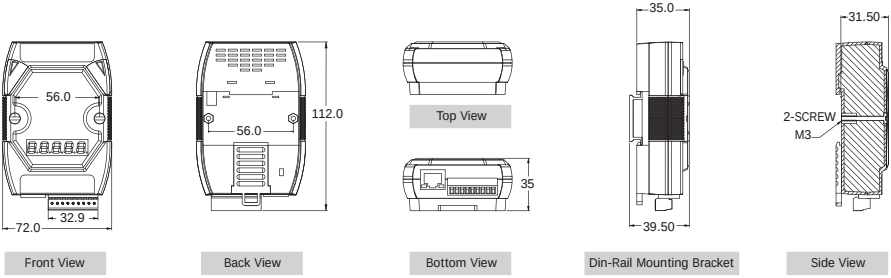


Wiring





Dimensions (Unit: mm)



Ordering Information

PDS-720 CR	Programmable Device Server with 1 RS-232 port and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PDS-720D CR	Programmable Device Server with 1 RS-232 port, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable
PPDS-720-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 1 RS-232 port and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PPDS-720D-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 1 RS-232 port, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)

PDS-721(D)
NEW PPDS-721(D)-MTCP

Programmable Device Server with 1 RS-232 port and 1 RS-485 port

RS-232/RS-485 Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-721(D)-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-721(D)-MTCP supports PoE (IEEE 802.3af, Class 1)
- Supports D/I, Latched D/I and Counter Functions
- Low power consumption
- Palm-Sized with multiple Serial Ports

CE FC RoHS PoE

Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.

The PDS-700 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PDS-700 up in just one second and gives you fastest responses.

The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.

The PDS-721(D) and PPDS-721(D)-MTCP is equipped with 1 RS-232 port, 1 RS-485 port and DI/DO. The removable on-board terminal block connector is designed for easy and robust wiring in industrial situations.

Applications

Factory, Building and Home Automation

I/O Specifications

Models: PDS-721/PDS-721D/PPDS-721-MTCP/PPDS-721D-MTCP	
Digital Output	
Output Channel	7
Output Type	Open Collector (Sink/NPN)
Load Voltage	30 Vdc, max.
Load Current	100 mA, max.
Isolated Voltage	Non-isolated
Digital Input	
Input Channel	6
Input Type	Source (Dry Type), Common Ground
Off Voltage Level	+1 V max.
On Voltage Level	+3.5 ~ +30 V
Isolated Voltage	Non-isolated
Counters	Channels: 6
	Max. Count: 16-bit (65535)
	Max. Input Frequency: 100 Hz
	Min. Pulse Width: 5 ms

System Specifications

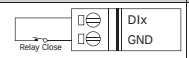
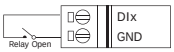
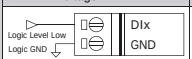
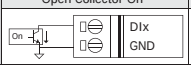
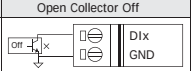
Models		PDS-721	PDS-721D	PPDS-721-MTCP	PPDS-721D-MTCP
CPU					
CPU		80186, 80 MHz or compatible			
SRAM		512 KB			
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Built-in Watchdog Timer		Yes			
Communication Interface					
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM2	RS-485 (D2+, D2-, GND)			
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)			
PoE		-		IEEE 802.3af	
COM Port Formats					
Data Bit		7, 8: for COM1 and COM2			
Parity		None, Even, Odd, Mark, Space			
Stop Bit		1: for COM1 and COM2			
Baud Rate		115200 bps max.			
LED Indicators					
5-digit 7 Segment		-	Yes	-	Yes
System		Red			
PoE		-		Green	
Power					
Protection		Power Reverse Polarity Protection			
Required Supply Voltage		+10 Vdc ~ +30 Vdc (non-regulated)		PoE or +12 Vdc ~ +48 Vdc (non-regulated)	
Power Consumption		2.0 W	2.7 W	2.2 W	2.9 W
Mechanical					
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions		72 mm x 123 mm x 35 mm (W x H x D)			
Installation		DIN-Rail or Wall mounting			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

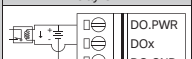
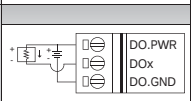
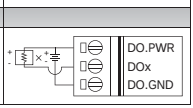
Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act 10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

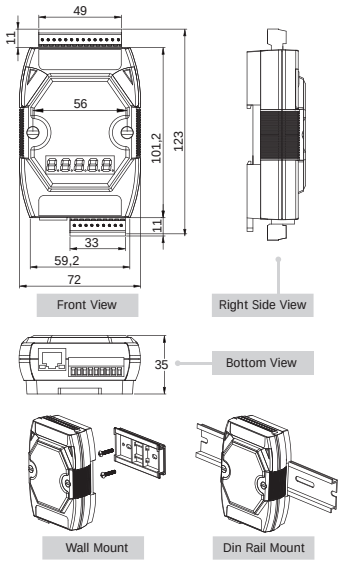
Terminal No.		Pin Assignment
DI	23	DI0
	22	DI1
	21	DI2
	20	DI3
	19	DI4
	18	DI5
DO	17	DO.PWR
	16	DO0
	15	DO1
	14	DO2
	13	DO3
	12	DO4
	11	DO5
	10	DO6

Wiring

Input Type	DI Value as 0	DI Value as 1
Relay Contact	Relay ON	Relay Off
		
TTL/CMOS Logic	Voltage < 1V	Voltage > 3.5V
		
Open Collector	Open Collector On	Open Collector Off
		

Output Type	DO Command as 1	DO Command as 0
Drive Relay	Relay ON	Relay Off
		
Resistance Load		
		

Dimensions (Unit: mm)



Ordering Information

PDS-721 CR	Programmable Device Server with 1 RS-232 port and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PDS-721D CR	Programmable Device Server with 1 RS-232 port , 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable
PPDS-721-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 1 RS-232 port and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PPDS-721D-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 1 RS-232 port, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)

PDS-732(D)

NEW PPDS-732(D)-MTCP

Programmable Device Server with 2 RS-232 ports and 1 RS-485 port

RS-232/RS-485

Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-732(D)-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-732(D)-MTCP supports PoE (IEEE 802.3af, Class 1)
- Supports D/I, Latched D/I and Counter Functions
- Low power consumption
- Palm-Sized with multiple Serial Ports

CE FC RoHS PoE

Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.

The PDS-700 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PDS-700 up in just one second and gives you fastest responses.

The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.

The PDS-732(D) and PPDS-732(D)-MTCP is equipped with 2 RS-232 ports, 1 RS-485 port and DI/DO. The removable on-board terminal block connector is designed for easy and robust wiring in industrial situations.

Applications

Factory, Building and Home Automation

I/O Specifications

Models: PDS-732/PDS-732D/PPDS-732-MTCP/PPDS-732D-MTCP	
Digital Output	
Output Channel	4
Output Type	Open Collector (Sink/NPN)
Load Voltage	30 VDC, max.
Load Current	100 mA, max.
Isolated Voltage	Non-isolated
Digital Input	
Input Channel	4
Input Type	Source (Dry Type), Common Ground
Off Voltage Level	+1 V max.
On Voltage Level	+3.5 ~ +30 V
Isolated Voltage	Non-isolated
Counters	Channels: 4
	Max. Count: 16-bit (65535)
	Max. Input Frequency: 100 Hz
	Min. Pulse Width: 5 ms

System Specifications

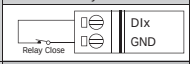
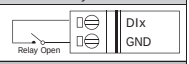
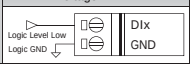
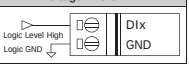
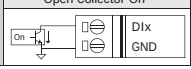
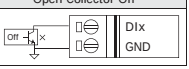
Models		PDS-732	PDS-732D	PPDS-732-MTCP	PPDS-732D-MTCP
CPU					
CPU		80186, 80 MHz or compatible			
SRAM		512 KB			
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Built-in Watchdog Timer		Yes			
Communication Interface					
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM2	RS-485 (D2+, D2-, GND)			
	COM3	RS-232 (TxD, RxD, RTS, CTS, GND)			
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)			
PoE		-		IEEE 802.3af	
COM Port Formats					
Data Bit		7, 8: for COM1 and COM2 5, 6, 7, 8: for COM3			
Parity		None, Even, Odd, Mark, Space			
Stop Bit		1: for COM1 and COM2 1, 2: for COM3			
Baud Rate		115200 bps max.			
LED Indicators					
5-digit 7 Segment		-	Yes	-	Yes
System		Red			
PoE		-		Green	
Power					
Protection		Power Reverse Polarity Protection			
Required Supply Voltage		+10 VDC ~ +30 VDC (non-regulated)		PoE or +12 VDC ~ +48 VDC (non-regulated)	
Power Consumption		2.0 W	2.7 W	2.2 W	2.9 W
Mechanical					
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions		72 mm x 123 mm x 35 mm (W x H x D)			
Installation		DIN-Rail or Wall mounting			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

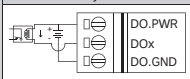
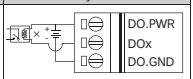
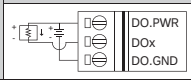
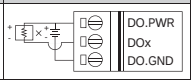
Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act 10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

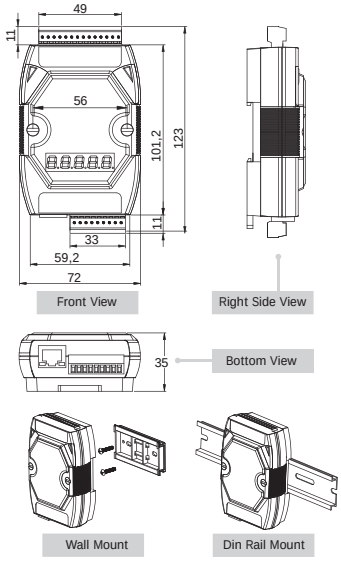
Terminal No.		Pin Assignment
DO	23	DO3
	22	DO2
	21	DO1
	20	DO0
	19	DO.PWR
	18	GND
DI	17	DI3
	16	DI2
	15	DI1
	14	DI0
COM3	13	RxD3
	12	TxD3
	11	RTS3
	10	CTS3

Wiring

Input Type	DI Value as 0	DI Value as 1
Relay Contact	Relay ON	Relay Off
		
TTL/CMOS Logic	Voltage < 1V	Voltage > 3.5V
		
Open Collector	Open Collector On	Open Collector Off
		

Output Type	DO Command as 1	DO Command as 0
Drive Relay	Relay ON	Relay Off
		
Resistance Load		
		

Dimensions (Unit: mm)



Ordering Information

PDS-732 CR	Programmable Device Server with 2 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PDS-732D CR	Programmable Device Server with 2 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable
PPDS-732-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 2 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PPDS-732D-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 2 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)
DN-09-2	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0915 x 2 (9-Pin Male-Female D-Sub Cable 1.5 m)
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1.0 m)

PDS-734(D)
NEW PPDS-734(D)-MTCP

Programmable Device Server with
1 RS-232 port, 1 RS-485 port and 1 RS-422/485 port

RS-232/RS-422/RS-485

Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port
  (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-734(D)-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-734(D)-MTCP supports PoE (IEEE 802.3af, Class 1)
- Supports D/I, Latched D/I and Counter Functions
- Low power consumption
- Palm-Sized with multiple Serial Ports

CE FC RoHS PoE

Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.

The PDS-700 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PDS-700 up in just one second and gives you fastest responses.

The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.

The PDS-734(D) and PPDS-734(D)-MTCP is equipped with 1 RS-232 port, 1 RS-485 port, 1 RS-422/485 port and DI/DO. The removable on-board terminal block connector is designed for easy and robust wiring in industrial situations.

Applications

Factory, Building and Home Automation

I/O Specifications

Models: PDS-734/PDS-734D/PPDS-734-MTCP/PPDS-734D-MTCP	
Digital Output	
Output Channel	4
Output Type	Open Collector (Sink/NPN)
Load Voltage	30 VDC, max.
Load Current	100 mA, max.
Isolated Voltage	Non-isolated
Digital Input	
Input Channel	4
Input Type	Source (Dry Type), Common Ground
Off Voltage Level	+1 V max.
On Voltage Level	+3.5 ~ +30 V
Isolate Voltage	Non-isolated
Counters	Channels: 4
	Max. Count: 16-bit (65535)
	Max. Input Frequency: 100 Hz
	Min. Pulse Width: 5 ms

System Specifications

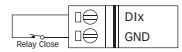
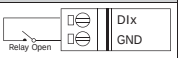
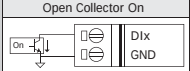
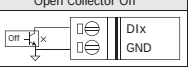
Models		PDS-734	PDS-734D	PPDS-734-MTCP	PPDS-734D-MTCP
CPU					
CPU		80186, 80 MHz or compatible			
SRAM		512 KB			
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Built-in Watchdog Timer		Yes			
Communication Interface					
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM2	RS-485 (D2+, D2-, GND)			
	COM3	RS-422 (TxD+, TxD-, RxD+, RxD-, GND) or RS-485 (D3+, D3-, GND)			
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)			
PoE		-		IEEE 802.3af	
COM Port Formats					
Data Bit		7, 8: for COM1 and COM2 5, 6, 7, 8: for COM3			
Parity		None, Even, Odd, Mark, Space			
Stop Bit		1: for COM1 and COM2 1, 2: for COM3			
Baud Rate		115200 bps max.			
LED Indicators					
5-digit 7 Segment		-	Yes	-	Yes
System		Red			
PoE		-		Green	
Power					
Protection		Power Reverse Polarity Protection			
Required Supply Voltage		+10 VDC ~ +30 VDC (non-regulated)		PoE or +12 VDC ~ +48 VDC (non-regulated)	
Power Consumption		2.0 W	2.7 W	2.2 W	2.9 W
Mechanical					
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions		72 mm x 123 mm x 35 mm (W x H x D)			
Installation		DIN-Rail or Wall mounting			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act  10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

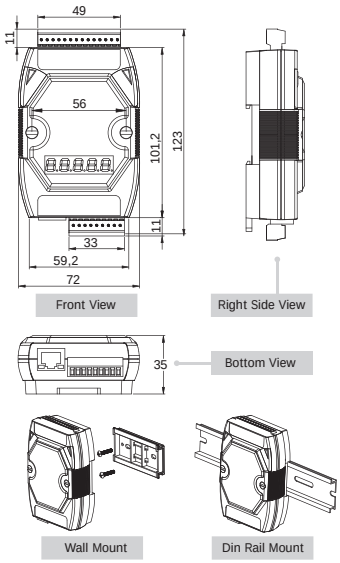
Terminal No.		Pin Assignment
DO	23	DO3
	22	DO2
	21	DO1
	20	DO0
	19	DO.PWR
	18	GND
DI	17	DI3
	16	DI2
	15	DI1
	14	DI0
COM3	13	RxD3-
	12	RxD3+
	11	TxD3-/D3-
	10	TxD3+/D3+

Wiring

Input Type	DI Value as 0	DI Value as 1
Relay Contact	Relay ON	Relay Off
		
TTL/CMOS Logic	Voltage < 1V	Voltage > 3.5V
		
Open Collector	Open Collector On	Open Collector Off
		

Output Type	DO Command as 1	DO Command as 0
Drive Relay	Relay ON	Relay Off
		
Resistance Load		
		

Dimensions (Unit: mm)



Ordering Information

PDS-734 CR	Programmable Device Server with 1 RS-232 port, 1 RS-485 port and 1 RS-422/485 port (RoHS) Includes One CA-0910 Cable
PDS-734D CR	Programmable Device Server with 1 RS-232 port, 1 RS-485 port, 1 RS-422/485 port and an LED Display (RoHS) Includes One CA-0910 Cable
PPDS-734-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 1 RS-232 port, 1 RS-485 port and 1 RS-422/485 port (RoHS) Includes One CA-0910 Cable
PPDS-734D-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 1 RS-232 port, 1 RS-485 port, 1 RS-422/485 port and an LED Display (RoHS) Display (RoHS). Includes One CA-0910 Cable

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)

PDS-742(D)

NEW PPDS-742(D)-MTCP

Programmable Device Server with 3 RS-232 ports and 1 RS-485 port

RS-232/RS-485

Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-742(D)-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-742(D)-MTCP supports PoE (IEEE 802.3af, Class 1)
- Low power consumption
- Palm-Sized with multiple Serial Ports
- Made from fire retardant materials (UL94-V0 Level)

CE FC RoHS PoE

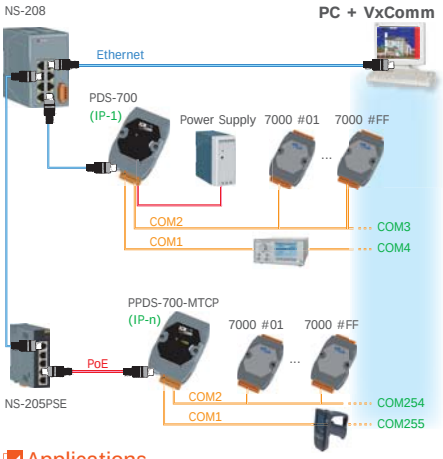
Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.

The PDS-700 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PDS-700 up in just one second and gives you fastest responses.

The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.

The PDS-742(D) and PPDS-742(D)-MTCP is equipped with 3 RS-232 ports and 1 RS-485 port. The removable on-board terminal block connector is designed for easy and robust wiring in industrial situations.



Applications

Factory, Building and Home Automation

System Specifications

Models		PDS-742	PDS-742D	PPDS-742-MTCP	PPDS-742D-MTCP
CPU					
CPU		80186, 80 MHz or compatible			
SRAM		512 KB			
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Built-in Watchdog Timer		Yes			
Communication Interface					
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM2	RS-485 (D2+, D2-, GND)			
	COM3	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM4	RS-232 (TxD, RxD, RTS, CTS, GND, DSR, DTR, DCD, RI)			
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)			
PoE		-		IEEE 802.3af	
COM Port Formats					
Data Bit		7, 8: for COM1 and COM2 5, 6, 7, 8: for COM3 and COM4			
Parity		None, Even, Odd, Mark, Space			
Stop Bit		1: for COM1 and COM2 1, 2: for COM3 and COM4			
Baud Rate		115200 bps max.			
LED Indicators					
5-digit 7 Segment		-	Yes	-	Yes
System		Red			
PoE		-		Green	
Power					
Protection		Power Reverse Polarity Protection			
Required Supply Voltage		+10 V_{DC} ~ +30 V_{DC} (non-regulated)		PoE or +12 V_{DC} ~ +48 V_{DC} (non-regulated)	
Power Consumption		2.0 W	2.7 W	2.2 W	2.9 W
Mechanical					
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions		72 mm x 123 mm x 35 mm (W x H x D)			
Installation		DIN-Rail or Wall mounting			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

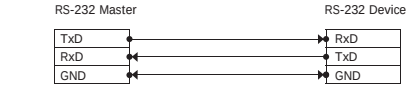
Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act 10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

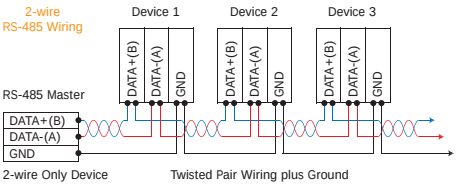
Terminal No.		Pin Assignment
COM4	23	DI4
	22	DCD4
	21	DTR4
	20	DSR4
	19	CTS4
	18	RTS4
	17	TxD4
	16	RxD4
	15	GND4
COM3	14	GND3
	13	RxD3
	12	TxD3
	11	RTS3
	10	CTS3

Wiring

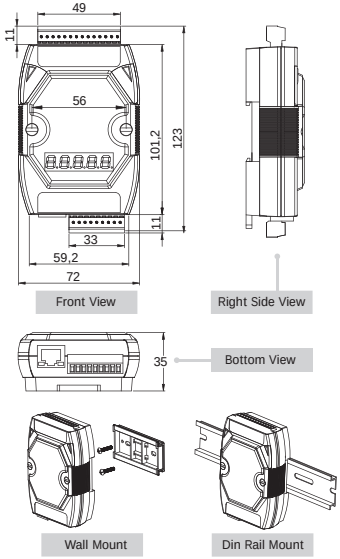
3-wire RS-232 Wiring



2-wire RS-485 Wiring



Dimensions (Unit: mm)



Ordering Information

PDS-742 CR	Programmable Device Server with 3 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PDS-742D CR	Programmable Device Server with 3 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable
PPDS-742-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 3 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PPDS-742D-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 3 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)
DN-09-2	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0915 x 2 (9-Pin Male-Female D-Sub Cable 1.5 m)
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1.0 m)

PDS-743(D)
NEW PPDS-743(D)-MTCP

Programmable Device Server with 3 RS-232 ports and 1 RS-485 port

RS-232/RS-485 Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-743(D)-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-743(D)-MTCP supports PoE (IEEE 802.3af, Class 1)
- Supports D/I, Latched D/I and Counter Functions
- Low power consumption
- Palm-Sized with multiple Serial Ports

CE FC RoHS PoE

Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.

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The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.

The PDS-743(D) and PPDS-743(D)-MTCP is equipped with 3 RS-232 ports, 1 RS-485 port and DI/DO. The removable on-board terminal block connector is designed for easy and robust wiring in industrial situations.

Applications

Factory, Building and Home Automation

I/O Specifications

Models: PDS-743/PDS-743D/PPDS-743-MTCP/PPDS-743D-MTCP	
Digital Output	
Output Channel	4
Output Type	Open Collector (Sink/NPN)
Load Voltage	30 VDC, max.
Load Current	100 mA, max.
Isolated Voltage	Non-isolated
Digital Input	
Input Channel	4
Input Type	Source (Dry Type), Common Ground
Off Voltage Level	+1 V max.
On Voltage Level	+3.5 ~ +30 V
Isolated Voltage	Non-isolated
Counters	Channels: 4
	Max. Count: 16-bit (65535)
	Max. Input Frequency: 100 Hz
	Min. Pulse Width: 5 ms

System Specifications

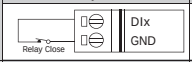
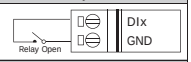
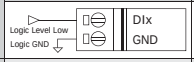
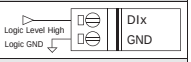
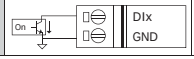
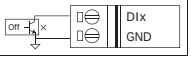
Models		PDS-743	PDS-743D	PPDS-743-MTCP	PPDS-743D-MTCP
CPU					
CPU		80186, 80 MHz or compatible			
SRAM		512 KB			
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Built-in Watchdog Timer		Yes			
Communication Interface					
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM2	RS-485 (D2+, D2-, GND)			
	COM3	RS-232 (TxD, RxD, GND)			
	COM4	RS-232 (TxD, RxD, GND)			
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)			
PoE		-		IEEE 802.3af	
COM Port Formats					
Data Bit		7, 8: for COM1 and COM2 5, 6, 7, 8: for COM3 and COM4			
Parity		None, Even, Odd, Mark, Space			
Stop Bit		1: for COM1 and COM2 1, 2: for COM3 and COM4			
Baud Rate		115200 bps max.			
LED Indicators					
5-digit 7 Segment		-	Yes	-	Yes
System		Red			
PoE		-		Green	
Power					
Protection		Power Reverse Polarity Protection			
Required Supply Voltage		+10 VDC ~ +30 VDC (non-regulated)		PoE or +12 VDC ~ +48 VDC (non-regulated)	
Power Consumption		2.0 W	2.7 W	2.2 W	2.9 W
Mechanical					
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions		72 mm x 123 mm x 35 mm (W x H x D)			
Installation		DIN-Rail or Wall mounting			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act 10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

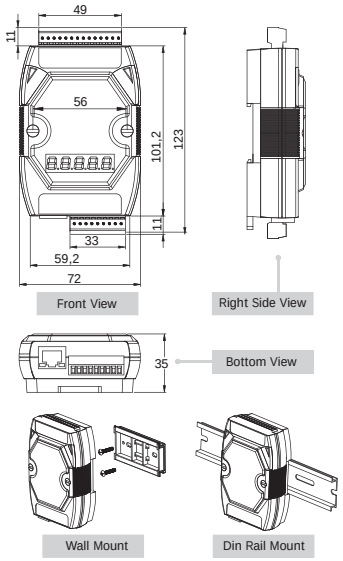
Terminal No.		Pin Assignment
DO	23	DO3
	22	DO2
	21	DO1
	20	DO0
	19	DO.PWR
	18	GND
DI	17	DI3
	16	DI2
	15	DI1
	14	DI0
COM3	13	TxD3
	12	RxD3
COM4	11	TxD4
	10	RxD4

Wiring

Input Type	DI Value as 0	DI Value as 1
Relay Contact	Relay ON	Relay Off
		
TTL/CMOS Logic	Voltage < 1V	Voltage > 3.5V
		
Open Collector	Open Collector On	Open Collector Off
		

Output Type	DO Command as 1	DO Command as 0
Drive Relay	Relay ON	Relay Off
		
Resistance Load		
		

Dimensions (Unit: mm)



Ordering Information

PDS-743 CR	Programmable Device Server with 3 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PDS-743D CR	Programmable Device Server with 3 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable
PPDS-743-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 3 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PPDS-743D-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 3 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)
DN-09-2	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0915 x 2 (9-pin Male-Female D-Sub Cable 1.5 m)
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0910F x 2 (9-pin Female-Female D-Sub Cable 1.0 m)

PDS-752(D)

NEW **PPDS-752(D)-MTCP**

Programmable Device Server with 4 RS-232 ports and 1 RS-485 port

RS-232/RS-485

Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-752(D)-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-752(D)-MTCP supports PoE (IEEE 802.3af, Class 1)
- Low power consumption
- Palm-Sized with multiple Serial Ports
- Made from fire retardant materials (UL94-V0 Level)

CE FC RoHS PoE

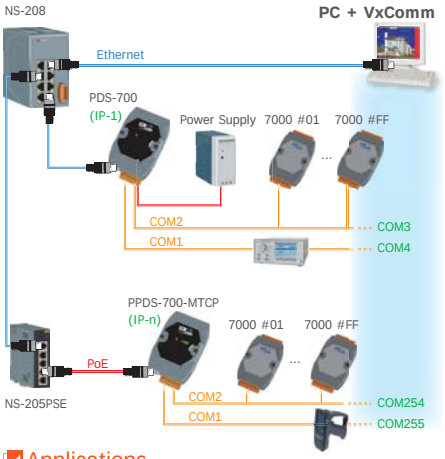
Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.

The PDS-700 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PDS-700 up in just one second and gives you fastest responses.

The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.

The PDS-752(D) and PPDS-752(D)-MTCP is equipped with 4 RS-232 ports and 1 RS-485 port. The removable on-board terminal block connector is designed for easy and robust wiring in industrial situations.



Applications

Factory, Building and Home Automation

System Specifications

Models		PDS-752	PDS-752D	PPDS-752-MTCP	PPDS-752D-MTCP
CPU					
CPU		80186, 80 MHz or compatible			
SRAM		512 KB			
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Built-in Watchdog Timer		Yes			
Communication Interface					
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM2	RS-485 (D2+, D2-, GND)			
	COM3	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM4	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM5	RS-232 (TxD, RxD, RTS, CTS, GND)			
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)			
PoE		-		IEEE 802.3af	
COM Port Formats					
Data Bit		7, 8: for COM1 and COM2 5, 6, 7, 8: for COM3 ~ COM5			
Parity		None, Even, Odd, Mark, Space			
Stop Bit		1: for COM1 and COM2 1, 2: for COM3 ~ COM5			
Baud Rate		115200 bps max.			
LED Indicators					
5-digit 7 Segment		-	Yes	-	Yes
System		Red			
PoE		-		Green	
Power					
Protection		Power Reverse Polarity Protection			
Required Supply Voltage		+10 V_{DC} ~ +30 V_{DC} (non-regulated)		PoE or +12 V_{DC} ~ +48 V_{DC} (non-regulated)	
Power Consumption		2.0 W	2.7 W	2.2 W	2.9 W
Mechanical					
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions		72 mm x 123 mm x 35 mm (W x H x D)			
Installation		DIN-Rail or Wall mounting			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

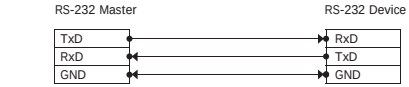
Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act 10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

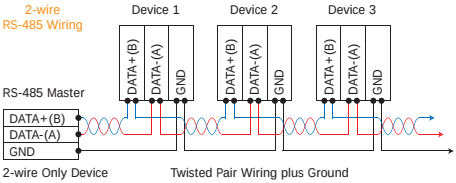
Terminal No.		Pin Assignment
COM5	23	RxD5
	22	TxD5
	21	RTS5
	20	CTS5
	19	GND
COM4	18	RxD4
	17	TxD4
	16	RTS4
	15	CTS4
	14	GND
COM3	13	RxD3
	12	TxD3
	11	RTS3
	10	CTS3

Wiring

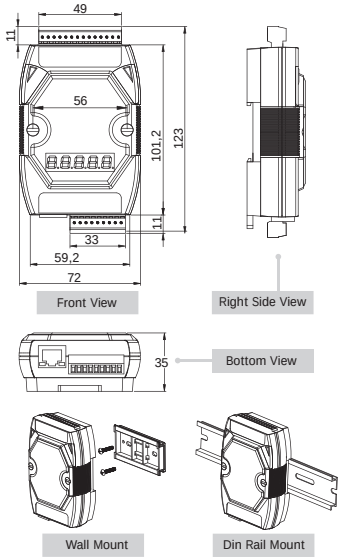
3-wire RS-232 Wiring



2-wire RS-485 Wiring



Dimensions (Unit: mm)



Ordering Information

PDS-752 CR	Programmable Device Server with 4 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PDS-752D CR	Programmable Device Server with 4 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable
PPDS-752-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 4 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PPDS-752D-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 4 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)
DN-09-2	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0915 x 2 (9-Pin Male-Female D-Sub Cable 1.5 m)
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1.0 m)

PDS-755(D)

NEW PPDS-755(D)-MTCP

Programmable Device Server with 1 RS-232 port and 4 RS-485 ports

RS-232/RS-485

Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-755(D)-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-755(D)-MTCP supports PoE (IEEE 802.3af, Class 1)
- Low power consumption
- Palm-Sized with multiple Serial Ports
- Made from fire retardant materials (UL94-V0 Level)

CE FC RoHS PoE

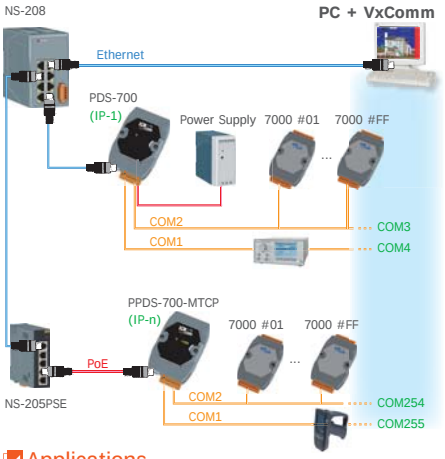
Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.

The PDS-700 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PDS-700 up in just one second and gives you fastest responses.

The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.

The PDS-755(D) and PPDS-755(D)-MTCP is equipped with 1 RS-232 port and 4 RS-485 ports. The removable on-board terminal block connector is designed for easy and robust wiring in industrial situations.



Applications

Factory, Building and Home Automation

System Specifications

Models		PDS-755	PDS-755D	PPDS-755-MTCP	PPDS-755D-MTCP
CPU					
CPU		80186, 80 MHz or compatible			
SRAM		512 KB			
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Built-in Watchdog Timer		Yes			
Communication Interface					
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM2	RS-485 (D2+, D2-, GND)			
	COM3	RS-485 (DATA+, DATA-, GND)			
	COM4	RS-485 (DATA+, DATA-, GND)			
	COM5	RS-485 (DATA+, DATA-, GND)			
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)			
PoE		-		IEEE 802.3af	
COM Port Formats					
Data Bit		7, 8: for COM1 and COM2 5, 6, 7, 8: for COM3 ~ COM5			
Parity		None, Even, Odd, Mark, Space			
Stop Bit		1: for COM1 and COM2 1, 2: for COM3 ~ COM5			
Baud Rate		115200 bps max.			
LED Indicators					
5-digit 7 Segment		-	Yes	-	Yes
System		Red			
PoE		-		Green	
Power					
Protection		Power Reverse Polarity Protection			
Required Supply Voltage		+10 V_{DC} ~ +30 V_{DC} (non-regulated)		PoE or +12 V_{DC} ~ +48 V_{DC} (non-regulated)	
Power Consumption		2.0 W	2.7 W	2.2 W	2.9 W
Mechanical					
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions		72 mm x 123 mm x 35 mm (W x H x D)			
Installation		DIN-Rail or Wall mounting			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

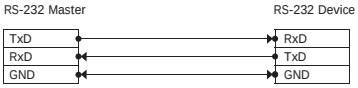
Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act 10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

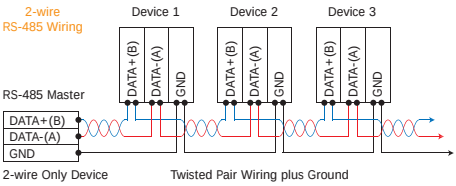
Terminal No.		Pin Assignment
COM5	23	DATA+
	22	DATA-
	21	--
	20	--
	19	--
	18	--
COM4	17	DATA+
	16	DATA-
	15	--
	14	--
	13	--
	12	--
COM3	11	DATA+
	10	DATA-

Wiring

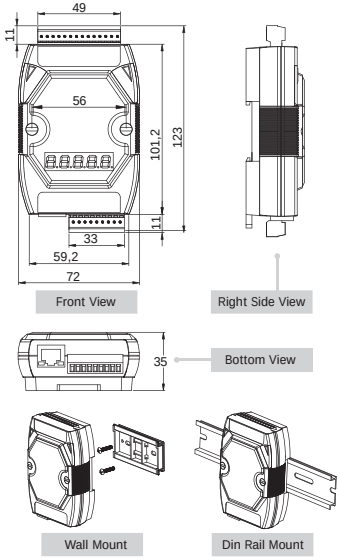
3-wire RS-232 Wiring



2-wire RS-485 Wiring



Dimensions (Unit: mm)



Ordering Information

PDS-755 CR	Programmable Device Server with 1 RS-232 port and 4 RS-485 ports (RoHS) Includes One CA-0910 Cable
PDS-755D CR	Programmable Device Server with 1 RS-232 port, 4 RS-485 ports and an LED Display (RoHS) Includes One CA-0910 Cable
PPDS-755-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 1 RS-232 port and 4 RS-485 ports (RoHS) Includes One CA-0910 Cable
PPDS-755D-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 1 RS-232 port, 4 RS-485 ports and an LED Display (RoHS) Includes One CA-0910 Cable

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)

PDS-762(D)
NEW PPDS-762(D)-MTCP

Programmable Device Server with 5 RS-232 ports and 1 RS-485 port

RS-232/RS-485 Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-762(D)-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-762(D)-MTCP supports PoE (IEEE 802.3af, Class 1)
- Supports D/I, Latched D/I and Counter Functions
- Low power consumption
- Palm-Sized with multiple Serial Ports

Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.

The PDS-700 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PDS-700 up in just one second and gives you fastest responses.

The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.

The PDS-762(D) and PPDS-762(D)-MTCP is equipped with 5 RS-232 ports, 1 RS-485 port and DI/DO. The removable on-board terminal block connector is designed for easy and robust wiring in industrial situations.

Applications

Factory, Building and Home Automation

I/O Specifications

Models: PDS-762/PDS-762D/PPDS-762-MTCP/PPDS-762D-MTCP	
Digital Output	
Output Channel	2
Output Type	Open Collector (Sink/NPN)
Load Voltage	30 VDC, max.
Load Current	100 mA, max.
Isolated Voltage	Non-isolated
Digital Input	
Input Channel	1
Input Type	Source (Dry Type), Common Ground
Off Voltage Level	+1 V max.
On Voltage Level	+3.5 ~ +30 V
Isolated Voltage	Non-isolated
Counters	Channels: 1
	Max. Count: 16-bit (65535)
	Max. Input Frequency: 100 Hz
	Min. Pulse Width: 5 ms

System Specifications

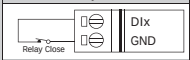
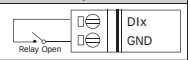
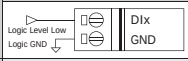
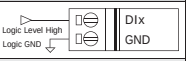
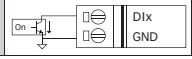
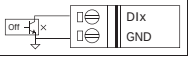
Models		PDS-762	PDS-762D	PPDS-762-MTCP	PPDS-762D-MTCP
CPU					
CPU		80186, 80 MHz or compatible			
SRAM		512 KB			
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Built-in Watchdog Timer		Yes			
Communication Interface					
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM2	RS-485 (D2+, D2-, GND)			
	COM3	RS-232 (TxD, RxD, GND)			
	COM4	RS-232 (TxD, RxD, GND)			
	COM5	RS-232 (TxD, RxD, GND)			
	COM6	RS-232 (TxD, RxD, GND)			
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)			
PoE		-		IEEE 802.3af	
COM Port Formats					
Data Bit		7, 8: for COM1 and COM2 5, 6, 7, 8: for COM3 ~ COM6			
Parity		None, Even, Odd, Mark, Space			
Stop Bit		1: for COM1 and COM2 1, 2: for COM3 ~ COM6			
Baud Rate		115200 bps max.			
LED Indicators					
5-digit 7 Segment		-	Yes	-	Yes
System		Red			
PoE		-		Green	
Power					
Protection		Power Reverse Polarity Protection			
Required Supply Voltage		+10 VDC ~ +30 VDC (non-regulated)		PoE or +12 VDC ~ +48 VDC (non-regulated)	
Power Consumption		2.0 W	2.7 W	2.2 W	2.9 W
Mechanical					
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions		72 mm x 123 mm x 35 mm (W x H x D)			
Installation		DIN-Rail or Wall mounting			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

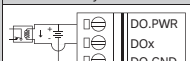
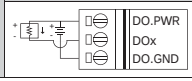
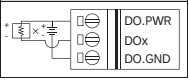
Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act 10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

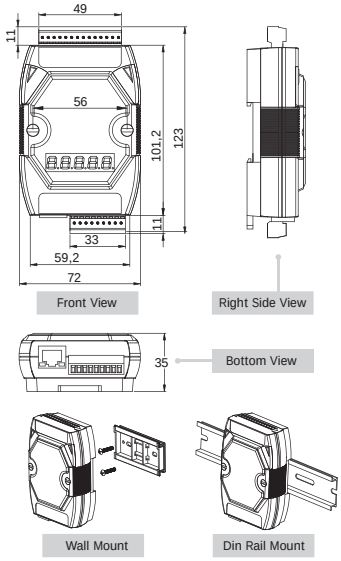
Terminal No.		Pin Assignment
DO	23	DO1
	22	DO0
	21	DO.PWR
DI	20	DI0
	19	GND
COM6	18	TxD6
	17	RxD6
COM5	16	TxD5
	15	RxD5
	14	GND
COM4	13	TxD4
	12	RxD4
COM3	11	TxD3
	10	RxD3

Wiring

Input Type	DI Value as 0	DI Value as 1
Relay Contact	Relay ON	Relay Off
		
TTL/CMOS Logic	Voltage < 1V	Voltage > 3.5V
		
Open Collector	Open Collector On	Open Collector Off
		

Output Type	DO Command as 1	DO Command as 0
Drive Relay	Relay ON	Relay Off
		
Resistance Load		
		

Dimensions (Unit: mm)



Ordering Information

PDS-762 CR	Programmable Device Server with 5 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PDS-762D CR	Programmable Device Server with 5 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable
PPDS-762-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 5 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PPDS-762D-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 5 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)
DN-09-2	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0915 x 2 (9-Pin Male-Female D-Sub Cable 1.5 m)
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1.0 m)

PDS-782(D)

NEW **PPDS-782(D)-MTCP**

Programmable Device Server with 7 RS-232 ports and 1 RS-485 port

RS-232/RS-485

Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-782(D)-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-782(D)-MTCP supports PoE (IEEE 802.3af, Class 1)
- Low power consumption
- Palm-Sized with multiple Serial Ports
- Made from fire retardant materials (UL94-V0 Level)

CE FC RoHS PoE

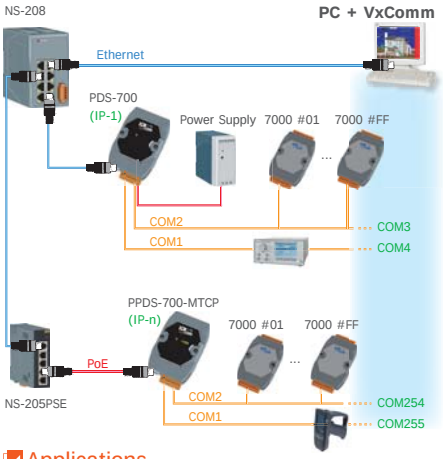
Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.

The PDS-700 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PDS-700 up in just one second and gives you fastest responses.

The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.

The PDS-782(D) and PPDS-782(D)-MTCP is equipped with 7 RS-232 ports and 1 RS-485 port. The removable on-board terminal block connector is designed for easy and robust wiring in industrial situations.



Applications

Factory, Building and Home Automation

System Specifications

Models		PDS-782	PDS-782D	PPDS-782-MTCP	PPDS-782D-MTCP
CPU					
CPU		80186, 80 MHz or compatible			
SRAM		512 KB			
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Built-in Watchdog Timer		Yes			
Communication Interface					
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)			
	COM2	RS-485 (D2+, D2-, GND)			
	COM3	RS-232 (TxD, RxD, GND)			
	COM4	RS-232 (TxD, RxD, GND)			
	COM5	RS-232 (TxD, RxD, GND)			
	COM6	RS-232 (TxD, RxD, GND)			
	COM7	RS-232 (TxD, RxD, GND)			
	COM8	RS-232 (TxD, RxD, GND)			
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)			
PoE		-		IEEE 802.3af	
COM Port Formats					
Data Bit		7, 8: for COM1 and COM2			
Parity		None, Even, Odd, Mark, Space			
Stop Bit		1: for COM1 and COM2			
Baud Rate		115200 bps max.			
LED Indicators					
5-digit 7 Segment		-	Yes	-	Yes
System		Red			
PoE		-		Green	
Power					
Protection		Power Reverse Polarity Protection			
Required Supply Voltage		+10 V_{DC} ~ +30 V_{DC} (non-regulated)		PoE or +12 V_{DC} ~ +48 V_{DC} (non-regulated)	
Power Consumption		2.0 W	2.7 W	2.2 W	2.9 W
Mechanical					
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions		72 mm x 123 mm x 35 mm (W x H x D)			
Installation		DIN-Rail or Wall mounting			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

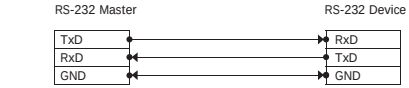
Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act 10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

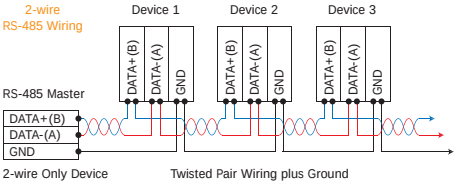
Terminal No.		Pin Assignment
COM8	23	TxD8
	22	RxD8
COM7	21	TxD7
	20	RxD7
	19	GND
COM6	18	TxD6
	17	RxD6
COM5	16	TxD5
	15	RxD5
	14	GND
COM4	13	TxD4
	12	RxD4
COM3	11	TxD3
	10	RxD3

Wiring

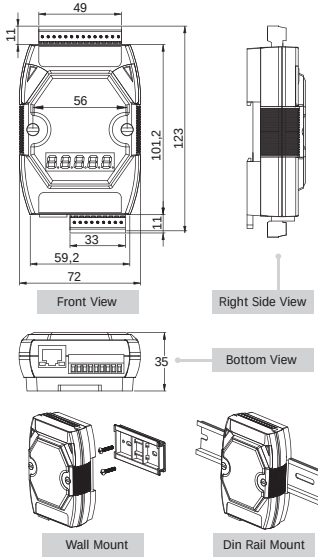
3-wire RS-232 Wiring



2-wire RS-485 Wiring



Dimensions (Unit: mm)



Ordering Information

PDS-782 CR	Programmable Device Server with 7 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PDS-782D CR	Programmable Device Server with 7 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable
PPDS-782-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 7 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable
PPDS-782D-MTCP CR	Programmable Device Server with PoE, Modbus/TCP, 7 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)
DN-09-2	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0915 x 2 (9-Pin Male-Female D-Sub Cable 1.5 m)
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header. Includes CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1.0 m)

PDS-782-25/D6
PDS-782D-25/D6

PProgrammable Device Server with 7 RS-232 ports and 1 RS-485 port

RS-232/RS-485 Features

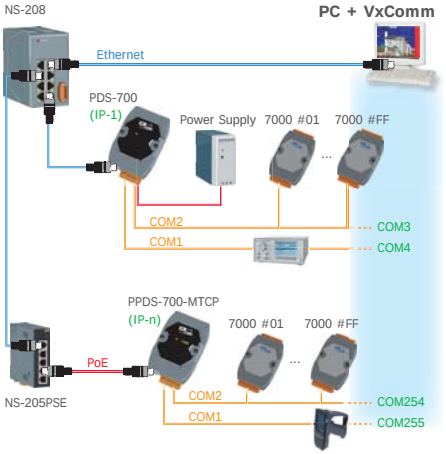
- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- ODM Service Is Available
- Low power consumption
- Palm-Sized with multiple Serial Ports
- Made from fire retardant materials (UL94-V0 Level)
- Male DB-9 Connector

Introduction

The PDS-700 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-700 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700 series is able to meet the demands of every network-enabled application.

The PDS-700 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PDS-700 up in just one second and gives you fastest responses.

PDS-782(D)-25/D6 is equipped with 7 RS-232 ports and 1 RS-485 port. The CA-9-2505D cable converts the DB-25 connector of PDS-782(D)-25/D6 to 6 Male DB-9 connectors for easy wiring with serial devices that have female DB-9 connectors.



Applications

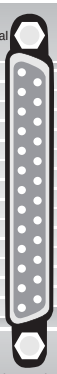
Factory, Building and Home Automation

System Specifications

Models		PDS-782-25/D6	PDS-782D-25/D6
CPU			
CPU		80186, 80 MHz or compatible	
SRAM		512 KB	
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles	
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles	
Built-in Watchdog Timer		Yes	
Communication Interface			
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)	
	COM2	RS-485 (D2+, D2-, GND)	
	COM3	RS-232 (TxD, RxD, GND)	
	COM4	RS-232 (TxD, RxD, GND)	
	COM5	RS-232 (TxD, RxD, GND)	
	COM6	RS-232 (TxD, RxD, GND)	
	COM7	RS-232 (TxD, RxD, GND)	
	COM8	RS-232 (TxD, RxD, GND)	
Ethernet		10/100 Base-TX, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)	
COM Port Formats			
Data Bit		7, 8: for COM1 and COM2 5, 6, 7, 8: for COM3 ~ COM8	
Parity		None, Even, Odd, Mark, Space	
Stop Bit		1: for COM1, COM2 1, 2: for COM3 ~ COM8	
Baud Rate		115200 bps max.	
LED Indicators			
5-digit 7 Segment		-	Yes
System		Red	
Power			
Protection		Power Reverse Polarity Protection	
Required Supply Voltage		+12 Vdc ~ +48 Vdc (non-regulated)	
Power Consumption		2.0 W	2.7 W
Mechanical			
Flammability		Fire Retardant Materials (UL94-V0 Level)	
Dimensions (W x H x D)		72 mm x 116 mm x 35 mm	
Installation		DIN-Rail or Wall mounting	
Environment			
Operating Temperature		-25 °C ~ +75 °C	
Storage Temperature		-40 °C ~ +80 °C	
Humidity		5 ~ 90% RH, non-condensing	

Pin Assignments

Pin Assignment	Terminal No.		Pin Assignment
N/A	01	14	COM8_RxD
N/A	02	15	COM8_TxD
COM8_GND	03	16	COM7_RxD
N/A	04	17	COM7_TxD
COM7_GND	05	18	COM6_RxD
N/A	06	19	COM6_TxD
COM6_GND	07	20	COM5_RxD
N/A	08	21	COM5_TxD
COM5_GND	09	22	COM4_RxD
N/A	10	23	COM4_TxD
COM4_GND	11	24	COM3_RxD
N/A	12	25	COM3_TxD
COM3_GND	13	Shield	F.G.

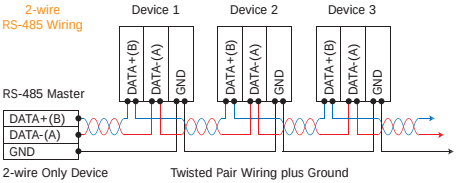


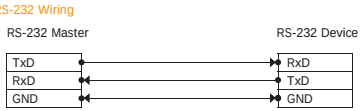
25-Pin Male D-Sub Connector

Pin Assignment	Terminal No.		Pin Assignment
GND	05	09	--
--	04	08	--
TxD	03	07	--
RxD	02	06	--
--	01		

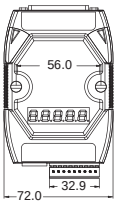
RS-232 Female DB-25 to Male DB-9 Connector

Wiring

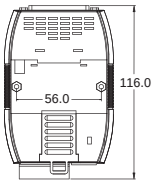




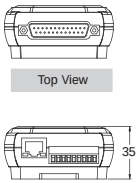
Dimensions (Unit: mm)



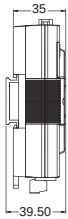
Front View



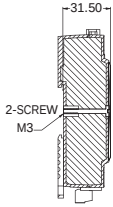
Back View



Bottom View



Din-Rail Mounting Bracket



Side View

Ordering Information

PDS-782-25/D6 CR	Programmable Device Server with 7 RS-232 ports and 1 RS-485 port (RoHS) Includes One CA-0910 Cable and One CA-9-2505D Cable
PDS-782D-25/D6 CR	Programmable Device Server with 7 RS-232 ports, 1 RS-485 port and an LED Display (RoHS) Includes One CA-0910 Cable and One CA-9-2505D Cable

Accessories

GPSU06U-6	24 V_{DC}/0.25 A, 6 W Power Supply
MDR-20-24	24 V_{DC}/1 A, 24 W Power Supply with DIN-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
CA-9-2505D	DB-25 Male (D-Sub) to 6-port DB-9 Male (D-Sub) Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
DN-09-2	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header Includes CA-0915 x 2 (9-Pin Male-Female D-Sub Cable 1.5 m)
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header Includes CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1.0 m)

3.3. DS-700 Serial-to Ethernet Device Servers

NEW **DS-712**

Available soon **PPDS-712-MTCP**

Serial-to-Ethernet Device Server with 1 RS-232 port

RS-232

Features

- Incorporate Serial Devices in an Ethernet network
- "Virtual COM" extends PC COM ports
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- High Performance Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-712-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-712-MTCP supports PoE (IEEE 802.3af, Class 1)
- Low power consumption
- Palm-Size with DIN-Rail Mounting
- Made from fire retardant materials (UL94-V0 Level))
- Male DB-9 Connector

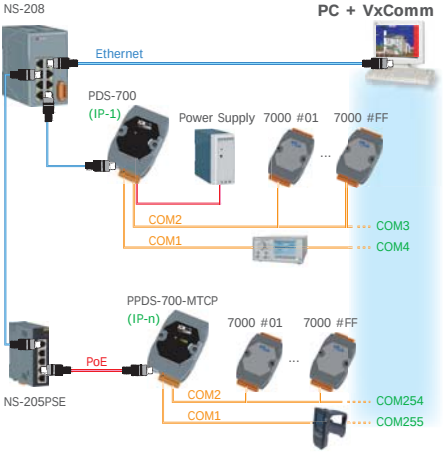
CE FC RoHS PoE

Introduction

The DS-700 is a series of Serial-to-Ethernet Device Servers that are designed for linking RS-232/422/485 devices to an Ethernet network. By using the VxComm Driver/Utility, the built-in COM port of the DS-700 series can be virtualized to a standard PC COM port in Windows. By virtue of its protocol independence, a small size and flexibility, the DS-700 series meets the demands of virtually any network-enabled application.

The DS-712 is equipped with a male DB-9 connector and supports a 5-wire RS-232 port, while the DS-715 is equipped with a removable terminal block connector and supports a 4-wire RS-422 port or a 2-wire RS-485 port with 2000 V_{rms} isolation.

The DS-700 is a non-programmable device server, while the PPDS-700-MTCP is a programmable product. The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.



Applications

Factory, Building and Home Automation

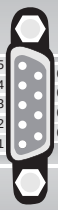
System Specifications

Models		DS-712	PPDS-712-MTCP
CPU			
CPU		80186, 80 MHz or compatible	
SRAM		512 KB	
Flash Memory		Flash ROM: 512 KB	
EEPROM		16 KB; Data retention: 40 years	
Built-in Watchdog Timer		Yes	
Communication Interface			
Non-isolated	COM1	RS-232 (TxD, RxD, RTS, CTS, GND)	
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)	
PoE		-	IEEE 802.3af
COM Port Formats			
Data Bit		7, 8: for COM1	
Parity		None, Even, Odd, Mark, Space	
Stop Bit		1: for COM1	
Baud Rate		115200 bps max.	
LED Indicators			
L1		Run (Red)	
L2		Link/Act (Red)	
L3		10/100M (Orange)	
PoE		-	Green
Power			
Protection		Power Reverse Polarity Protection	
Required Supply Voltage		+12 V_{DC} ~ +48 V_{DC} (non-regulated)	PoE or +12 V_{DC} ~ +48 V_{DC} (non-regulated)
Power Consumption		2.0 W	2.2 W
Mechanical			
Flammability		Fire Retardant Materials (UL94-V0 Level)	
Dimensions		72 mm x 118 mm x 35 mm (W x H x D)	
Installation		DIN-Rail or Wall mounting	
Environment			
Operating Temperature		-25 °C ~ +75 °C	
Storage Temperature		-40 °C ~ +80 °C	
Humidity		5 ~ 90% RH, non-condensing	

Pin Assignments

Terminal No.	Pin Assignment
E1	
01	N/A
02	N/A
03	N/A
04	N/A
05	INIT*
06	N/A
07	N/A
08	(R)+Vs
09	(B)GND

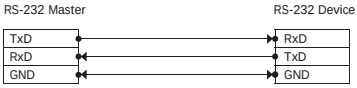
Pin Assign-ment	Terminal No.	Pin Assign-ment
GND	05	09 --
--	04	08 CTS
TxD	03	07 RTS
RxD	02	06 --
--	01	



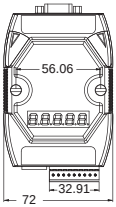
COM1: Male DB-9 Connector

Wiring

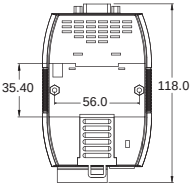
3-wire RS-232 Wiring



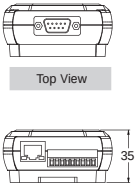
Dimensions (Unit: mm)



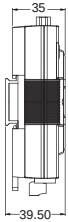
Front View



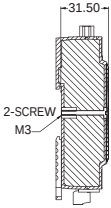
Back View



Bottom View



Din-Rail Mounting Bracket



Side View

Ordering Information

DS-712 CR	Device Server with 1 RS-232 port (RoHS)
PPDS-712-MTCP CR	Programmable Device Server with PoE, Modbus/TCP and 1 RS-232 port (RoHS)

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header Includes CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1.0 m)

NEW **DS-715**

Available soon **PPDS-715-MTCP**

Serial-to-Ethernet Device Server with 1 RS-422/RS-485 port

RS-422/485

Features

- Incorporate Serial Devices in an Ethernet network
- "Virtual COM" extends PC COM ports
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- High Performance Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- PPDS-715-MTCP supports Modbus/TCP and Modbus/RTU
- PPDS-715-MTCP supports PoE (IEEE 802.3af, Class 1)
- Low power consumption
- Palm-Size with DIN-Rail Mounting
- Made from fire retardant materials (UL94-V0 Level)

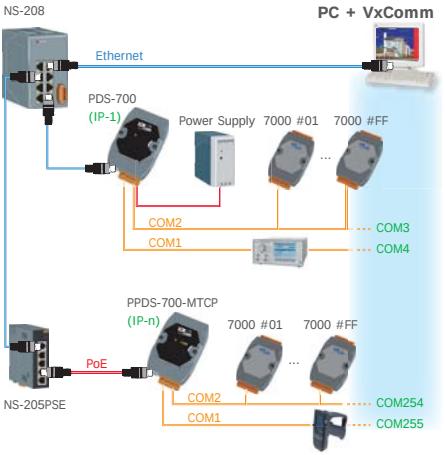
CE FC RoHS PoE

Introduction

The DS-700 is a series of Serial-to-Ethernet Device Servers that are designed for linking RS-232/422/485 devices to an Ethernet network. By using the VxComm Driver/Utility, the built-in COM port of the DS-700 series can be virtualized to a standard PC COM port in Windows. By virtue of its protocol independence, a small size and flexibility, the DS-700 series meets the demands of virtually any network-enabled application.

The DS-712 is equipped with a male DB-9 connector and supports a 5-wire RS-232 port, while the DS-715 is equipped with a removable terminal block connector and supports a 4-wire RS-422 port or a 2-wire RS-485 port with 2000 V_{rms} isolation.

The DS-700 is a non-programmable device server, while the PPDS-700-MTCP is a programmable product. The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to Modbus/RTU gateway that supports most SCADA/HMI communications based on the Modbus/TCP protocol.



Applications

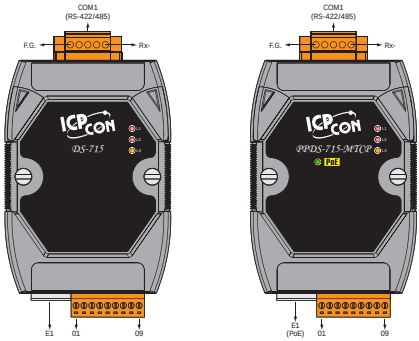
Factory, Building and Home Automation

System Specifications

Models	DS-715	PPDS-715-MTCP
CPU		
CPU	80186, 80 MHz or compatible	
SRAM	512 KB	
Flash Memory	Flash ROM: 512 KB	
EEPROM	16 KB; Data retention: 40 years	
Built-in Watchdog Timer	Yes	
Communication Interface		
Isolated (2000 V_{rms}) COM1	RS-422 (TxD+, TxD-, RxD+, RxD-) RS-485 (D2+,D2-)	
Ethernet	10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)	
PoE	-	IEEE 802.3af
COM Port Formats		
Data Bit	7, 8: for COM1	
Parity	None, Even, Odd, Mark, Space	
Stop Bit	1: for COM1	
Baud Rate	115200 bps max.	
LED Indicators		
L1	Run (Red)	
L2	Link/Act (Red)	
L3	10/100M (Orange)	
PoE	-	Green
Power		
Protection	Power Reverse Polarity Protection	
Required Supply Voltage	+12 V_{DC} ~ +48 V_{DC} (non-regulated)	PoE or +12 V_{DC} ~ +48 V_{DC} (non-regulated)
Power Consumption	2.0 W	2.2 W
Mechanical		
Flammability	Fire Retardant Materials (UL94-V0 Level)	
Dimensions	72 mm x 124 mm x 35 mm (W x H x D)	
Installation	DIN-Rail or Wall mounting	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +80 °C	
Humidity	5 ~ 90% RH, non-condensing	

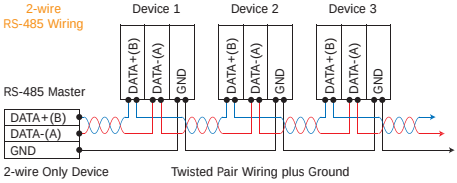
Pin Assignments

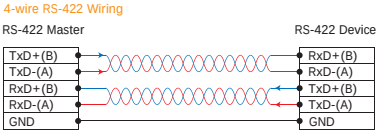
Terminal No.	Pin Assignment
E1	
01	N/A
02	N/A
03	N/A
04	N/A
05	INIT*
06	N/A
07	N/A
08	(R)+Vs
09	(B)GND



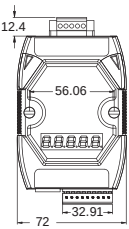
COM1 (RS-422/485)
F.G.
Tx+/D+
Tx-/D-
Rx+
Rx-

Wiring

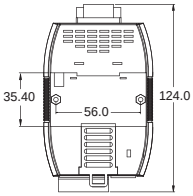




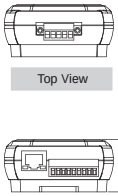
Dimensions (Unit: mm)



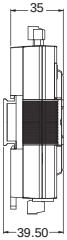
Front View



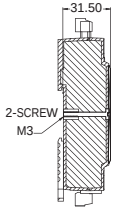
Back View



Top View
Bottom View



Din-Rail Mounting Bracket



Side View

Ordering Information

DS-715 CR	Device Server with 1 Isolated RS-422/RS-485 port (RoHS)
PPDS-715-MTCP CR	Programmable Device Server with PoE, Modbus/TCP and 1 Isolated RS-422/485 port (RoHS)

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 Vdc/0.52 A, 25 W Power Supply with Din-Rail Mounting
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)

3.4. PPDS-700-IP67 Programmable Device Servers

RS-232/RS-485

Features

- Incorporate Serial Devices in an Ethernet network
- "Virtual COM" extends PC COM ports
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Powerful Programmable Device Server
- Watchdog Timer suitable for use in harsh environments
- Power Reverse Polarity Protection
- Serial Port +/-4 kV ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- Low power consumption
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- Plastic Casing with IP67 Waterproof
- Supports PoE (IEEE 802.3af, Class 1)
- ODM Service is available

CE FC RoHS PoE IP67

Introduction

The PPDS-700-IP67 series is a family of Programmable Device Servers, also known as "Serial-to-Ethernet gateway", that are designed for linking RS-232/422/485 devices to an Ethernet network. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PPDS-700-IP67 series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PPDS-700-IP67 series is able to meet the demands of every network-enabled application.

The PPDS-700-IP67 series includes a powerful and reliable Xserver programming structure that allows you to design your robust Ethernet applications in one day. The built-in, high-performance MiniOS7 boots the PPDS-700-IP67 up in just one second and gives you fastest responses.

The PPDS-700-IP67 is a special design for the toughest applications. It can be directly mounted to any machine or convenient flat surface. The rugged packaging and IP67 connectors are rated to protect against water, oil, dust, vibration, and much more.

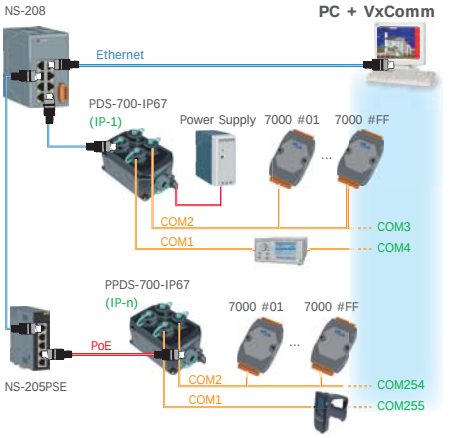
The PPDS-700-IP67 supports PoE (Power over Ethernet) function that allows power and data to be carried over a single Ethernet cable, so a device can operate solely from the power it receives through the data cable. This innovation allows greater flexibility in office design, higher efficiency in systems design, and faster turnaround time in set-up and implementation. When there is no PoE switch on site, the PPDS-700-IP67 accepts power input from a +12 V_{DC} ~ +48 V_{DC} adapter.

When using PoE devices such as the PPDS-700-MTCP, PPDS-700-IP67 and PET-7000 (Ethernet I/O module with PoE), you can select the ICP DAS "PoE" switch — "NS-205PSE" — as the power source. The NS-205PSE automatically detects whether the connected devices are PoE devices or not. This mechanism ensures that the NS-205PSE will work with both PoE and non-PoE devices simultaneously.

As a power source for PoE devices, the NS-205PSE requires a power input ranging from +46 V_{DC} ~ +55 V_{DC}.

Applications

Factory, Building and Home Automation



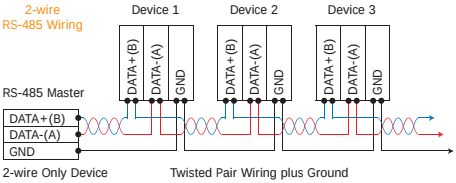
Specifications

Models	PPDS-741-IP67(/DIN)	PPDS-742-IP67(/DIN)	PPDS-743-IP67(/DIN)
CPU			
CPU	80186, 80MHz or compatible		
SRAM	512 KB		
Flash Memory	Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles		
EEPROM	16 KB; Data retention: 40 years; 1,000,000 erase/write cycles		
Watchdog Timer	Yes		
Communication Interface			
COM1	5-wire RS-232		
COM2	Isolated 2-wire RS-485		
COM3	Isolated 2-wire RS-485	5-wire RS-232	5-wire RS-232
COM4	Isolated 2-wire RS-485	Isolated 2-wire RS-485	5-wire RS-232
Ethernet	10/100 Base-TX, RJ-45 port (Auto-negotiating, Auto MDI/MDI-X, LED indicators), PoE (IEEE 802.3af, Class 1)		
COM Port Formats			
Data Bit	5, 6, 7, 8		
Parity	None, Even, Odd, Mark, Space		
Stop Bit	1, 2		
Baud Rate	115200 bps max.		
LED Indicators			
System	Red: Sys		
Ethernet	Green: Link/Act (E1)		
	Orange: 10/100M (E1)		
OM1 ~ COM4	Green: RxD		
	Orange: TxD		
Power			
Protection	Power input reverse polarity protection		
Required Supply Voltage	+12 Vdc ~ +48 Vdc (non-regulated) or PoE (IEEE 802.3af, Class 1)		
Power Consumption	2.2 W		
Mechanical			
Flammability	Fire Retardant Materials (UL94-V0 Level)		
Dimensions (W x H x D)	85 mm x 76 mm x 137 mm (89 mm x 90 mm x 138 mm for /DIN versions)		
Installation	Wall mounting (DIN-Rail mounting for /DIN versions)		
Environment			
Operating Temperature	-10 °C ~ +60 °C		
Storage Temperature	-10 °C ~ +60 °C		
Humidity	100% RH for operating temperature -10 °C ~ +60 °C		

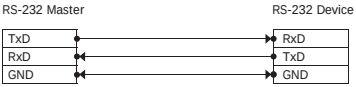
Note:
5-wire RS-232: TxD, RxD, CTS, RTS, GND
Isolated 2-wire RS-485: DATA+, DATA-, GND; Self-tuner Inside; 2500 V_{rms} Isolation

Wiring

2-wire RS-485 Wiring

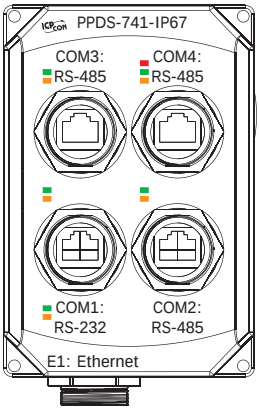


3-wire RS-232 Wiring

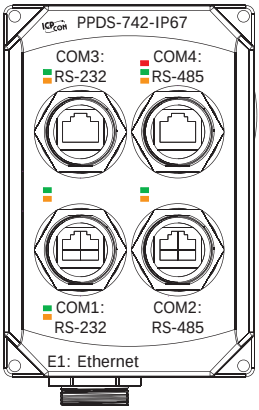


Pin Assignments

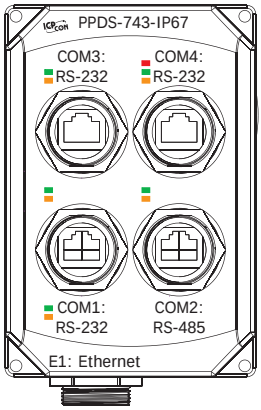
PDS-741-IP67



PDS-742-IP67



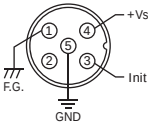
PDS-743-IP67



COM1 ~ COM4

Pin	5-wire RS-232	2-wire RS-485
1	--	--
2	RTS	--
3	GND	GND
4	TxD	--
5	RxD	DATA+
6	--	DATA-
7	CTS	--
8	--	--

DC +12 ~ +48 V_{DC}

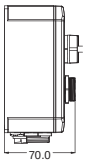


Pin	Name
1	F.G.
2	--
3	Init
4	+Vs
5	GND

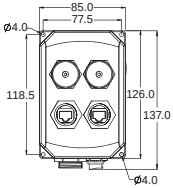
LED Indicators		
System	Red	Sys.
Ethernet	Green	Link/Act (E1)
	Orange	10/100M (E1)
COM1 ~ COM4	Green	RxD
	Orange	TxD

Dimensions (Unit: mm)

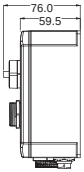
PPDS-741-IP67/PPDS-742-IP67/PPDS-743-IP67



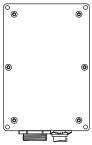
Left Side View



Front View

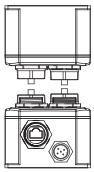


Right Side View



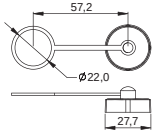
Back View

Top View



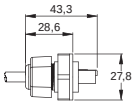
Bottom View

IP67 Ethernet Cap with Tether



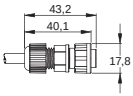
IP67 Ethernet Plug

Cable Dia:
Max. 7.0 mm
Min. 5.5 mm



IP67 PWR Plug

Cable Dia:
Max. 6.5 mm
Min. 5.0 mm



Ordering Information

PPDS-741-IP67 CR	Programmable Device Server with 1 RS-232 port, 3 RS-485 ports, PoE and IP67 Casing (RoHS)
PPDS-741-IP67/DIN CR	Programmable Device Server with 1 RS-232 port, 3 RS-485 ports, PoE, IP67 Casing and DIN-Rail Mounting (RoHS)
PPDS-742-IP67 CR	Programmable Device Server with 2 RS-232 ports, 2 RS-485 ports, PoE and IP67 Casing (RoHS)
PPDS-742-IP67/DIN CR	Programmable Device Server with 2 RS-232 ports, 2 RS-485 ports, PoE, IP67 Casing and DIN-Rail Mounting (RoHS)
PPDS-743-IP67 CR	Programmable Device Server with 3 RS-232 ports, 1 RS-485 port, PoE and IP67 Casing (RoHS)
PPDS-743-IP67/DIN CR	Programmable Device Server with 3 RS-232 ports, 1 RS-485 port, PoE, IP67 Casing and DIN-Rail Mounting (RoHS)

Accessories

GPSU06U-6	24 V_{DC}/0.25 A, 6 W Power Supply
MDR-20-24	24 V_{DC}/1 A, 24 W Power Supply with DIN-Rail Mounting
DIN-KA52F-48	48 V_{DC}/0.52 A, 25 W Power Supply with Din-Rail Mounting
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)

3.5. PDSM-700 & PPDSM-700-MTCP Programmable Device Servers

PDSM-700D

NEW PPDSM-700D-MTCP

Selection Guide

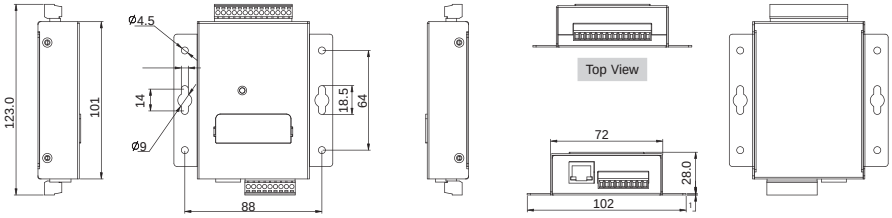
PDSM-700 Selection Guide

Model Name	Ethernet	DI/DO	COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8	Modbus	Page
PDSM-721 PDSM-721D	10/100 M	6/7	5-wire RS-232	2-wire RS-485	-	-	-	-	-	-	-	3-5-1
PDSM-732 PDSM-732D	10/100 M	4/4	5-wire RS-232	2-wire RS-485	5-wire RS-232	-	-	-	-	-	-	3-5-1
PDSM-734 PDSM-734D	10/100 M	4/4	5-wire RS-232	2-wire RS-485	RS-422/ RS-485	-	-	-	-	-	-	3-5-1
PDSM-742 PDSM-742D	10/100 M	-	5-wire RS-232	2-wire RS-485	5-wire RS-232	9-wire RS-232	-	-	-	-	-	3-5-1
PDSM-743 PDSM-743D	10/100 M	4/4	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	-	-	-	-	-	3-5-1
PDSM-752 PDSM-752D	10/100 M	-	5-wire RS-232	2-wire RS-485	5-wire RS-232	5-wire RS-232	5-wire RS-232	-	-	-	-	3-5-1
PDSM-755 PDSM-755D	10/100 M	-	5-wire RS-232	2-wire RS-485	2-wire RS-485	2-wire RS-485	2-wire RS-485	-	-	-	-	3-5-1
PDSM-762 PDSM-762D	10/100 M	1/2	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	-	-	-	3-5-1
PDSM-782 PDSM-782D	10/100 M	-	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	-	3-5-1

PPDSM-700-MTCP Selection Guide

Model Name	Ethernet	DI/DO	COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8	Modbus	Page
PPDSM-721-MTCP PPDSM-721D-MTCP	10/100 M, PoE	6/7	5-wire RS-232	2-wire RS-485	-	-	-	-	-	-	Yes	3-5-1
PPDSM-732-MTCP PPDSM-732D-MTCP	10/100 M, PoE	4/4	5-wire RS-232	2-wire RS-485	5-wire RS-232	-	-	-	-	-	Yes	3-5-1
PPDSM-734-MTCP PPDSM-734D-MTCP	10/100 M, PoE	4/4	5-wire RS-232	2-wire RS-485	RS-422/ RS-485	-	-	-	-	-	Yes	3-5-1
PPDSM-742-MTCP PPDSM-742D-MTCP	10/100 M, PoE	-	5-wire RS-232	2-wire RS-485	5-wire RS-232	9-wire RS-232	-	-	-	-	Yes	3-5-1
PPDSM-743-MTCP PPDSM-743D-MTCP	10/100 M, PoE	4/4	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	-	-	-	-	Yes	3-5-1
PPDSM-752-MTCP PPDSM-752D-MTCP	10/100 M, PoE	-	5-wire RS-232	2-wire RS-485	5-wire RS-232	5-wire RS-232	5-wire RS-232	-	-	-	Yes	3-5-1
PPDSM-755-MTCP PPDSM-755D-MTCP	10/100 M, PoE	-	5-wire RS-232	2-wire RS-485	2-wire RS-485	2-wire RS-485	2-wire RS-485	-	-	-	Yes	3-5-1
PPDSM-762-MTCP PPDSM-762D-MTCP	10/100 M, PoE	1/2	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	-	-	Yes	3-5-1
PPDSM-782-MTCP PPDSM-782D-MTCP	10/100 M, PoE	-	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	3-wire RS-232	Yes	3-5-1

Dimensions (Unit: mm)



Left Side View | Front View | Right Side View | Back View | Bottom View

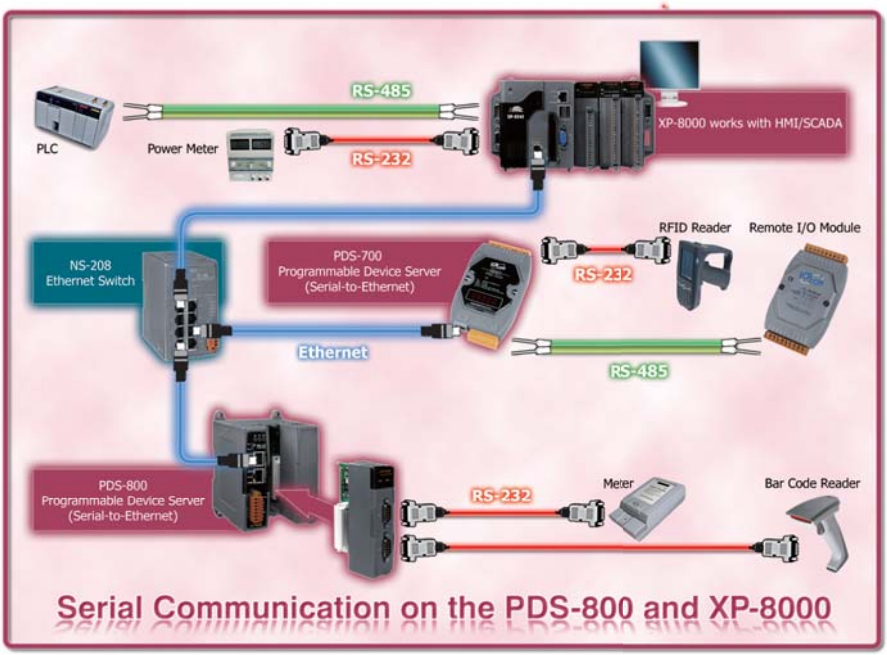
Ordering Information

PDSM-721 CR	PDS-721 with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-721D CR	PDS-721D with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-732 CR	PDS-732 with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-732D CR	PDS-732D with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-734 CR	PDS-734 with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-734D CR	PDS-734D with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-742 CR	PDS-742 with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-742D CR	PDS-742D with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-743 CR	PDS-743 with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-743D CR	PDS-743D with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-752 CR	PDS-752 with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-752D CR	PDS-752D with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-755 CR	PDS-755 with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-755D CR	PDS-755D with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-762 CR	PDS-762 with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-762D CR	PDS-762D with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-782 CR	PDS-782 with Metal Case (RoHS). Includes One CA-0910 Cable
PDSM-782D CR	PDS-782D with Metal Case (RoHS). Includes One CA-0910 Cable

PPDSM-721-MTCP CR	PPDS-721-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-721D-MTCP CR	PPDS-721D-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-732-MTCP CR	PPDS-732-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-732D-MTCP CR	PPDS-732D-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-734-MTCP CR	PPDS-734-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-734D-MTCP CR	PPDS-734D-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-742-MTCP CR	PPDS-742-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-742D-MTCP CR	PPDS-742D-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-743-MTCP CR	PPDS-743-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-743D-MTCP CR	PPDS-743D-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-752-MTCP CR	PPDS-752-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-752D-MTCP CR	PPDS-752D-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-755-MTCP CR	PPDS-755-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-755D-MTCP CR	PPDS-755D-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-762-MTCP CR	PPDS-762-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-762D-MTCP CR	PPDS-762D-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-782-MTCP CR	PPDS-782-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable
PPDSM-782D-MTCP CR	PPDS-782D-MTCP with Metal Case (RoHS). Includes One CA-0910 Cable

3.6. XPAC-8000 & PDS-800 Programmable Device Servers

XP-8000 Programmable Automation Controller



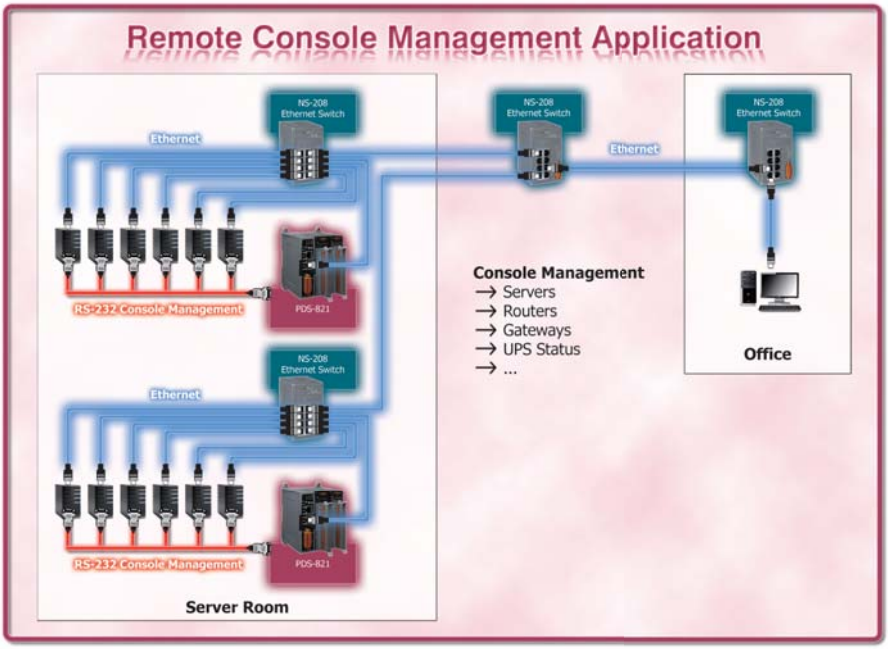
The XP-8000 series is new-generation of PACs from ICP DAS. The XP-8000 is equipped with an AMD LX 800 CPU (500 MHz), uses Windows Embedded Standard 2009 and provides 0, 3 or 7 slots for various high-profile I-8K and I-87K I/O modules. Windows Embedded Standard 2009 is compatible with Windows XP Professional, and therefore, most Win32 desktop programs can directly run on the XP-8000 without software modification.

Users can operate HMI/SCADA software on the XP-8000 using an LCD display, keyboard and a mouse in the same way they usually do on a regular PC. The number of communication ports on the XP-8000/PDS-800 can be expanded by connecting additional serial modules. Users can also install the VxComm Driver on the XP-8000 to create a hugh amount of virtual COM ports that can be remotely mapped to the serial ports on the PDS-700/PDS-800.

Selection Guide

Model Name	OS	CPU	Flash	RAM	VGA Resolution	Ethernet	USB	CF Card	RS-232/ RS-485	Slots	Page
XP-8041	Windows Embedded Standard 2009	AMD LX 800	4 GB	1 GB	640 x 480 ~ 1600 x 1200	RJ-45 x 2, 10/100 Base-TX	2	8 GB (supports up to 32 GB)	5	0	3-6-3
XP-8341									4	3	
XP-8741									4	7	

Programmable Device Server with I/O Expansion Slot(s)



Selection Guide

Model Name	Slots	CPU	RAM/ Flash Disk	Ethernet	Operating System	Console Port	(Optional) Max. Serial Ports	Page
PDS-811	1	80186, 80 MHz	512 KB/ 512 KB	2-port Ethernet Switch	MiniOS7	3-wire RS-232	4	3-6-5
PDS-821	2	80186, 80 MHz	512 KB/ 512 KB	2-port Ethernet Switch	MiniOS7	3-wire RS-232	8	3-6-5
PDS-842	4	PXA270, 520 MHz	64 MB/ 64 MB	Dual 10/100 M Ethernet	Linux	DB-9 RS-232	16	3-6-7
PDS-882	8	PXA270, 520 MHz	64 MB/ 64 MB	Dual 10/100 M Ethernet	Linux	DB-9 RS-232	32	3-6-7

Optional Serial Modules

Model Name	Interface	Ports	FIFO	Isolation	Self-Tuner	Connector	Page
I-8112iW	9-wire RS-232	2	128 Bytes	2500 V_{rms}	-	DB-9	3-6-9
I-8114W	9-wire RS-232	4	128 Bytes	-	-	DB-37	3-6-11
I-8114iW	5-wire RS-232	4	128 Bytes	2500 V_{rms}	-	DB-37	3-6-11
I-8142iW	4-wire RS-422 2-wire RS-485	2	128 Bytes	2500 V_{rms}	Yes	Terminal Block	3-6-13
I-8144iW	4-wire RS-422 2-wire RS-485	4	128 Bytes	2500 V_{rms}	Yes	Terminal Block	3-6-13

NEW

XP-8041/8341/8741

XP-8041: Standard XP-8000 with 0 I/O Slot
XP-8341: Standard XP-8000 with 3 I/O Slots
XP-8741: Standard XP-8000 with 7 I/O Slots

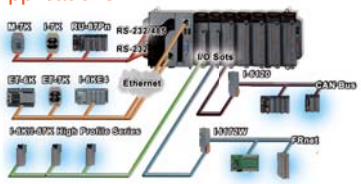
Features

- Windows Embedded Standard 2009
- IIS, ASP.NET, .NET Framework 3.5
- SQL Server 2005 Express Edition
- VS6.0, VS.NET 2003/2005/2008 Supported
- AMD LX 800 CPU (32-bit and 500 MHz)
- 1 GB RAM, 4 GB Built-in Flash, 8 GB CF Card
- One VGA Port, Dual USB Ports
- Dual Ethernet Ports (10/100M)
- 4/5 Serial Ports (RS-232/RS-485)
- Dual Watchdog Timers
- Operating Temperature: -25 °C ~ +75 °C

Introduction

The XP-8x41 Series (XP-8041, XP-8341, XP-8741) is the new generation of PACs from ICP DAS. It is equipped with an AMD LX 800 CPU (500 MHz) running a Windows Embedded Standard 2009 operating system, and provides connectivity for VGA, USB, Ethernet, RS-232/RS-485, and 0, 3 or 7 slots for high performance parallel I/O modules (high profile I-8K series) and serial-type I/O modules (high profile I-87K I/O modules).
The Windows Embedded Standard 2009 operating system has many advantages. Most of all, Windows Embedded Standard 2009 has the same Win32 API as Windows XP Professional, that is, almost every desktop program can be easily ported to Windows Embedded Standard 2009. This effectively reduces the effort required by developers and shortens the time to market.

Applications

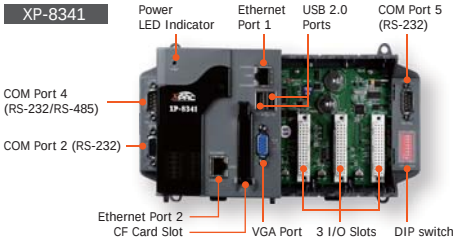


System Specifications

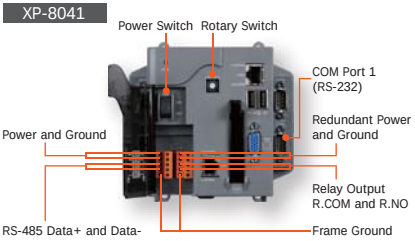
Models	XP-8041	XP-8341	XP-8741
System Software			
OS	Microsoft Windows Embedded Standard 2009 (including SQL Server 2005 Express; Internet Information Service 5.1)		
CPU Module			
CPU	AMD LX 800 processor		
System Memory	1 GB DDR SDRAM		
Dual Battery Backup SRAM	512 KB (for 5 years data retention)		
Flash	4 GB as IDE Master		
EEPROM	16 KB; Data Retention: 40 years; 1,000,000 erase/write cycles		
CF Card	8 GB (support up to 32 GB)		
64-bit Hardware Serial Number	Yes		
Dual Watchdog Timers	Yes		
Rotary Switch	Yes (0 ~ 9)		
DIP Switch	-	Yes (8 bits)	
VGA & Communication Ports			
VGA	640 x 480 ~ 1600 x 1200		
Ethernet	RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)		
USB 2.0	2		
COM 1	RS-232 (RxD, TxD and GND); non-isolated	Internal communication with I-87K modules in slots	
COM 2	RS-232 (RxD, TxD and GND); non-isolated		
COM 3 RS-485	D2+, D2-; internal self-turner ASIC		
COM 3 Isolated	3000 V_{DC}		
COM 4	RS-232/RS-485 (RxD, TxD, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated		
COM 5	RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated		
I/O Expansion Slots			
Slot	0 slot	3 slots	7 slots
Hot Swap * Will be available	-	For High Profile I-87K Modules Only	
Mechanical			
Dimensions (W x L x H)	137 mm x 132 mm x 125 mm	231 mm x 132 mm x 125 mm	355 mm x 132 mm x 125 mm
Installation	DIN-Rail or Wall Mounting		
Environmental			
Operating Temperature	-25 °C ~ +75 °C		
Storage Temperature	-30 °C ~ +85 °C		
Ambient Relative Humidity	5% ~ 90% RH, non-condensing		
Power			
Input Range	+10 V_{DC} ~ +30 V_{DC}		
Isolation	1 kV		
Redundant Power Inputs	Yes, with one power relay (1 A @ 24 V_{DC}) for alarm		
Capacity	1.8A, 5V supply to CPU and backplane, total 15 W	1.8A, 5V supply to CPU and backplane, 5.2A, 5V supply to I/O expansion slots, total 35 W	2.0A, 5V supply to CPU and backplane, 5.0A, 5V supply to I/O expansion slots, total 35 W
Consumption	14.4 W (0.6 A @ 24 V_{DC})	14.4 W (0.6 A @ 24 V_{DC})	16.8 W (0.7 A @ 24 V_{DC})

Appearance

XP-8341

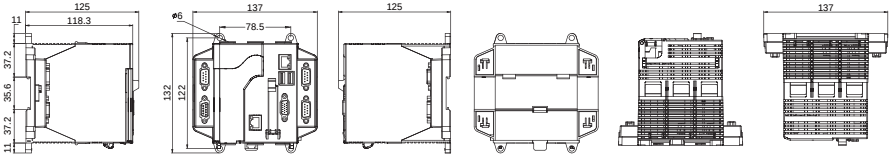


XP-8041

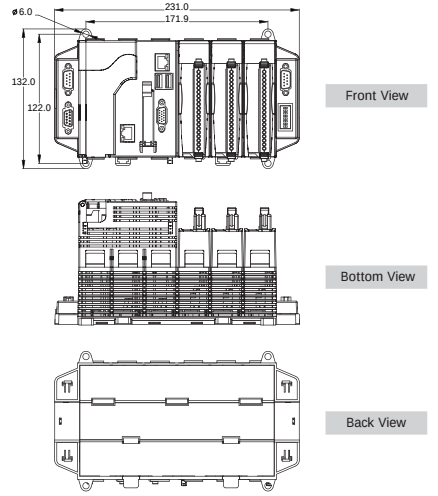


Dimensions (Unit: mm)

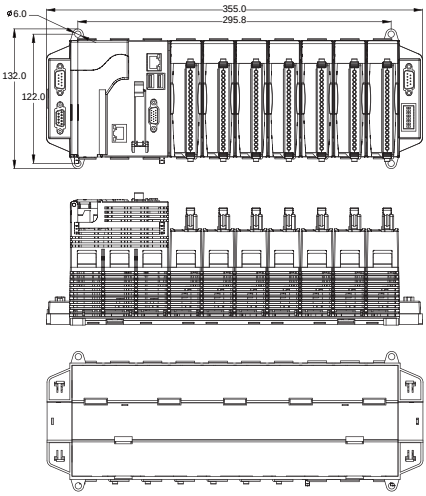
XP-8041



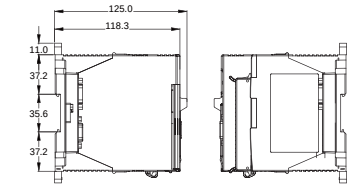
XP-8341



XP-8741



XP-8341/XP-8741



Ordering Information

XP-8041-EN CR	Standard XP-8000 with 0 I/O Slot (English Version of OS) (RoHS)
XP-8341-EN CR	Standard XP-8000 with 3 I/O Slots (English Version of OS) (RoHS)
XP-8741-EN CR	Standard XP-8000 with 7 I/O Slots (English Version of OS) (RoHS)
XP-8041-TC CR	Standard XP-8000 with 0 I/O Slot (Traditional Chinese Version of OS) (RoHS)
XP-8341-TC CR	Standard XP-8000 with 3 I/O Slots (Traditional Chinese Version of OS) (RoHS)
XP-8741-TC CR	Standard XP-8000 with 7 I/O Slots (Traditional Chinese Version of OS) (RoHS)
XP-8041-SC CR	Standard XP-8000 with 0 I/O Slot (Simplified Chinese Version of OS) (RoHS)
XP-8341-SC CR	Standard XP-8000 with 3 I/O Slots (Simplified Chinese Version of OS) (RoHS)
XP-8741-SC CR	Standard XP-8000 with 7 I/O Slots (Simplified Chinese Version of OS) (RoHS)

Accessories

DP-660	24 VDC/2.5 A, 60 W and 5 VDC/0.5 A, 2.5 W Power Supply with DIN-Rail Mounting
DP-1200	24 VDC/5.0 A, 120 W Power Supply with DIN-Rail Mounting
MDR-20-24	24 VDC/1.0 A, 24 W Power Supply with DIN-Rail Mounting
MDR-60-24	24 VDC/2.5 A, 60 W Power Supply with DIN-Rail Mounting

NEW

PDS-811/PDS-821

Programmable Device Server with I/O Expansion Slot(s)

Features

- Incorporate Serial Devices in an Ethernet network
- "Virtual COM" extends PC COM ports
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Programmable Internet/Ethernet Controller
- Watchdog Timer suitable for use in harsh environments
- 2-port 10/100 Base-TX Ethernet Switch (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- Power Reverse Polarity Protection
- 3-wire RS-232 Console Port
- RS-232 TxD/RxD LED Indicators
- System Status LED Indicator
- ESD Protection and Frame Ground Design
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- Low power consumption
- Made from fire retardant materials (UL94-V0 Level)

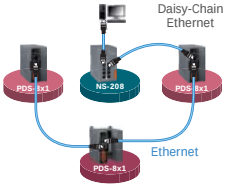
Introduction

The PDS-811 and PDS-821 programmable device servers (PDS) are compact, modular, intelligent, rugged, and are designed for networking RS-232 and RS-422/485 serial devices to an Ethernet network. The PDS-811 has one I/O expansion slot, while PDS-821 has two I/O expansion slots that can be used to attach various 2- or 4-port serial communication modules. Therefore, a maximum of 4 serial ports can be installed on the PDS-811 or a maximum of 8 serial ports can be installed on the PDS-821.

Note: There is no serial module built-in to the PDS-811 or PDS-821 by default.

The PDS-811 and PDS-821 controllers are equipped with a 2-port 10/100 Base-TX Ethernet Switch that can be used to connect two network segments. The Ethernet Switch processes and routes data on the data-link layer (layer 2) of the OSI model to create a different collision domain per switch port. Using a switch allows you to attain dedicated bandwidth on point-to-point connections with every computer, and therefore run in full duplex mode with no collisions. Furthermore, the built-in 2-port Ethernet Switch on the PDS-811/821 enables network wiring to be simplified by cascading your Ethernet devices.

The PDS-8x1 series contains a built-in operating system, the MiniOS7, which offers a stable and high performance environment that is similar to DOS. The MiniOS7 can boot up the PDS-8x1 series within just one second, with the added benefit of no virus problems and a small footprint. Furthermore, the PDS-8x1 series is designed for low power consumption, maintenance elimination (no hard disk and no fan), and is constructed from fire retardant materials (UL94-V0 level) with a robust case.



Applications

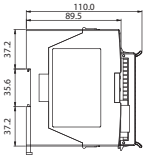
- Factory Automation
- Building Automation
- Home Automation

System Specifications

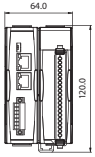
Models	PDS-811	PDS-821
CPU		
CPU	80186, 80 MHz or compatible	
SRAM	512 KB	
Flash Memory	512 KB	
EEPROM	16 KB	
NVRAM	-	
RTC (Real Time Clock)	-	
64-bit Hardware Serial Number	-	
Built-in Watchdog Timer	Yes	
I/O Expansion Slots	1 Slot	2 Slots
Communication Interface		
COM1 (Console)	RS-232 (TxD, RxD, GND)	
Ethernet	2-port 10/100 Base-TX Ethernet Switch (Auto-negotiating, auto MDI/MDI-X, LED indicator)	
COM Port Formats		
Speed	115200 bps max.	
Data Bit	7, 8	
Parity	None, Even, Odd	
Stop Bit	1	
LED Indicators		
TxD/RxD	Yes (for COM1 console port)	
System	Yes	
Power		
ESD Protection	Yes (with Frame Ground)	
Protection	Power Reverse Polarity Protection	
Required Supply Voltage	+10 V_{DC} ~ +30 V_{DC} (non-regulated)	
Power Consumption	0.6 A @ 5 V for CPU and Backplane, 1.0 A @ 5 V for Plug-in Modules, Total: 8 W	
Mechanical		
Flammability	Fire Retardant Materials (UL94-V0 Level)	
Dimensions (W x L x H, Unit: mm)	64 x 110 x 120	95 x 110 x 132
Installation	DIN-Rail	DIN-Rail or Wall mounting
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +80 °C	
Humidity	5 ~ 95% RH, non-condensing	

Dimensions (Unit: mm)

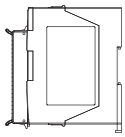
PDS-811



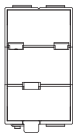
Left Side View



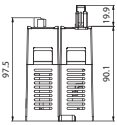
Front View



Right Side View



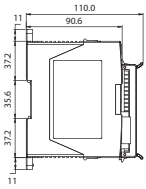
Back View



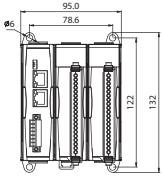
Bottom View

Top View

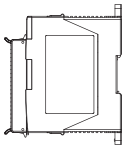
PDS-821



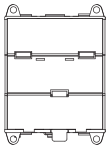
Left Side View



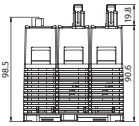
Front View



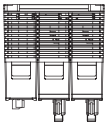
Right Side View



Back View

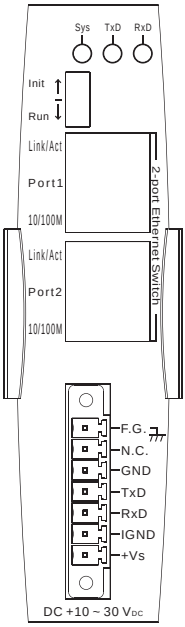


Bottom View



Top View

Pin Assignments



Ordering Information

PDS-811 CR	Programmable Device Server with 1 Expansion Slot (RoHS). Includes One CA-0910 Cable.
PDS-821 CR	Programmable Device Server with 2 Expansion Slots (RoHS). Includes One CA-0910 Cable.

Accessories

CA-0910	9-Pin Female D-Sub & 3-wire RS-232 Cable, 1 m Cable
MDR-20-24	24 VDC/1 A, 24 W Power Supply with DIN-Rail Mounting
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)

Available soon

PDS-842/PDS-882

Programmable Device Server with I/O Expansion Slot(s)

Features

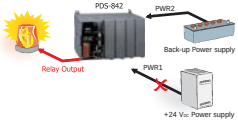
- Linux kernel 2.6.19 Inside
- Standard PDS-8x2 SDK for Windows and Linux operating systems
- Incorporate Serial Devices in an Ethernet network
- "Virtual COM" extends PC COM ports
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Programmable Internet/Ethernet Controller
- Watchdog Timer suitable for use in harsh environments
- Dual-LAN, 10/100 Base-TX Ethernet (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- Power Reverse Polarity Protection
- DB-9 RS-232 console port
- ESD Protection and Frame Ground Design
- Low power consumption
- Made from fire retardant materials (UL94-V0 Level)
- Supported Protocol: CAN bus Network, Industrial Modbus TCP/RTU, SNMP

Introduction

The PDS-842 and PDS-882 programmable device servers (PDS) are compact, modular, intelligent, rugged, and are designed for networking RS-232/422/485 serial devices to an Ethernet network. The PDS-842 has 4 I/O expansion slots, while the PDS-882 has 8 I/O expansion slots that can be used to attach various 2- or 4-port serial communication modules. Therefore, a maximum of 16 serial ports can be installed on the PDS-842 or a maximum of 32 serial ports can be installed on the PDS-882.

By using the PDS-842 or PDS-882, users can transparently access serial devices over the Internet.
This PDS, coupled with a large built-in RAM buffer, allows for fast transmission and prevents congestion of serial data on the network. A built-in powerful 32-bit RISC processor offers exceptional performance at low power consumption.

The PDS-842 and PDS-882 provides two Ethernet ports, which can be used to implement redundant Ethernet communication and separate Ethernet communication (one for global Internet, one for private Ethernet). To prevent the PDS-842 and PDS-882 from failing due to power loss, the power module is designed with two inputs, so that the module can continue working even if one power input fails, and, meanwhile, there is a relay output available for informing users about the power failure.



Applications

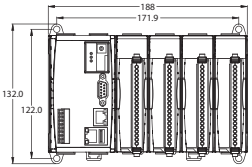
- Factory Automation
- Building Automation
- Home Automation

System Specifications

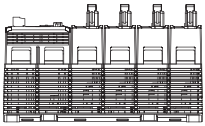
Models	PDS-842	PDS-882
CPU		
CPU	PXA270 or compatible (32-bit and 520 MHz)	
SDRAM	64 MB	
Flash Memory	64 MB	
EEPROM	16 KB	
NVRAM	-	
RTC (Real Time Clock)	No	
64-bit Hardware Serial Number	Yes	
Built-in Watchdog Timer	Yes	
I/O Expansion Slots	4 Slots	8 Slots
Programmable LED Indicator	1	
Communication Interface		
COM1 (Console)	RS-232	
COM2	RS-485 (D+, D-); 3000 VDC isolated	
Ethernet	RJ-45 x 2, Dual 10/100 Base-TX Ethernet Controller (Auto-negotiating, auto MDI/MDI-X, LED indicator)	
COM Port Formats		
Speed	115200 bps max.	
Data Bit	7, 8	
Parity	None, Even, Odd	
Stop Bit	1	
Power		
ESD Protection	Yes (with Frame Ground)	
Protection	Power Reverse Polarity Protection	
Redundant Power Inputs	Yes, with one relay for warning alarm	
Required Supply Voltage	+18 VDC ~ +48 VDC	
Power Consumption	8.4 W (0.35 A @ 24 VDC)	9.1 W (0.38 A @ 24 VDC)
Mechanical		
Flammability	Fire Retardant Materials (UL94-V0 Level)	
Dimensions (W x L x H, Unit: mm)	188 x 132 x 111	312 x 132 x 111
Installation	DIN-Rail or Wall mounting	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-30 °C ~ +85 °C	
Humidity	5 ~ 90% RH, non-condensing	

Dimensions (Unit: mm)

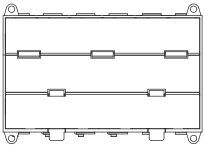
PDS-842



Front View

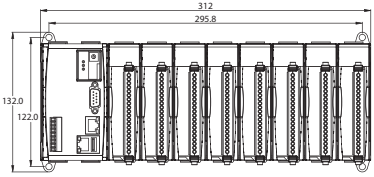


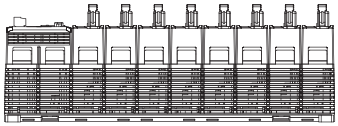
Bottom View

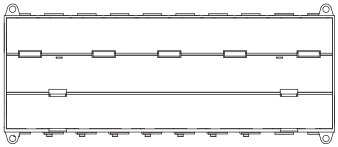


Back View

PDS-882

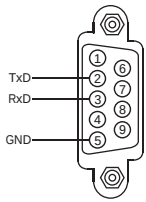




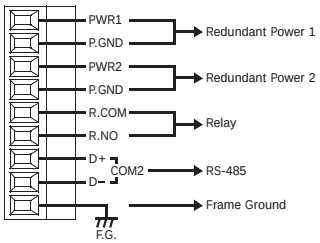


Pin Assignments

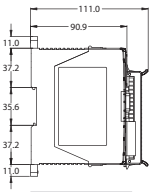
COM1: RS-232



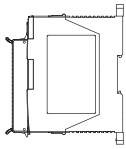
Terminal Block



PDS-842/882



Left Side View



Right Side View

Ordering Information

PDS-842	Programmable Device Server with 4 Expansion Slots
PDS-882	Programmable Device Server with 8 Expansion Slots

Accessories

KA-52F	24 VDC/1.04 A, 25 W Power Supply
DIN-KA52F	24 VDC/1.04 A, 25 W Power Supply with Din-Rail Mounting
MDR-60-24	24 VDC/2.5 A, 60 W Power Supply with DIN-Rail Mounting
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)

NEW

I-8112iW-G

2-port Isolated RS-232 Module

RS-232 Interface

Features

- High-profile Module
- 2500 V_{rms} Isolation
- Serial Port with +/-4 kV ESD Protection
- Internal 128-byte Hardware FIFO for each Port
- Baud Rate of up to 115200 bps
- LED Indicators for TxD, RxD and Power Status
- RoHS Compliant with no Halogen
- Low power consumption
- Made from fire retardant materials (UL94-V0 Level)

Introduction

The I-8112iW-G provides 2 isolated RS-232 serial ports. It is equipped with a 128-byte hardware FIFO for each port and offers speeds up to 115.2 kbps with support for full-duplex communication.

In harsh industrial environments, the onboard ESD protection devices attempt to divert any potentially damaging charges away from sensitive circuitry and protect the I-8112iW-G from permanent damage.

The serial communication modules are designed for use with intelligent devices like bar code readers, serial printers, intelligent sensors, instrumentation equipment, computers, and almost any device with an RS-232 or RS-422/485 port.

Applications

- Factory Automation
- Building Automation
- Home Automation

I/O Specifications

RS-232 Interface	
Number of Ports	2
Interface	TxD, RxD, RTS, CTS, DSR, DTR, DCD, RI, GND
Controller	16C950 Compatible
	Speed: 115200 bps max.
	Data Bit: 5, 6, 7, 8
	Stop Bit: 1, 1.5, 2
	Parity: None, Even, Odd, Mark, Space
	FIFO: Internal 128 bytes for each port
Interrupt	Shared Interrupt
Bus	Parallel I/O Module
Connector	DB-9 (Male)
Intra-module Isolated, Field to Logic	2500 V_{rms}
ESD Protection	+/-4 kV (Contact for each channel)

System Specifications

LED Indicators	
Power	1 LED
TxD	2 LEDs
RxD	2 LEDs
Power	
Power Consumption	1.5 W
Mechanical	
Dimensions (W x L x H)	31 mm x 86 mm x 114 mm
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-40 °C ~ +85 °C
Humidity	5 ~ 95% RH, non-condensing

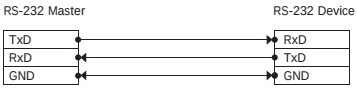
Software

Software
Supports interrupt driven software library
Supports VxCOM library

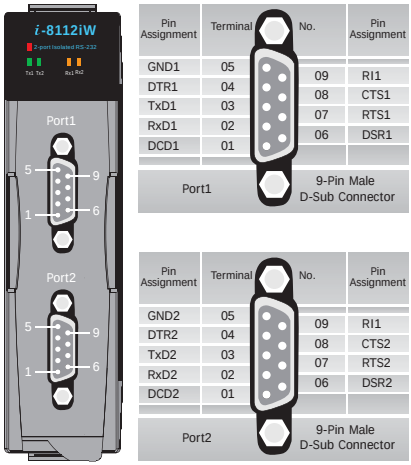
Wiring

DTE Device (Computer) DB-9		DTE to DCE Connections	DCE Device (Modem) DB-9	
Pin# DB-9	RS-232 Signal Names	Signal Direction	Pin# DB-9	RS-232 Signal Names
#1 Carrier Detector	DCD	←	#1 Carrier Detector	DCD
#2 Receive Data	RxD	←	#2 Transmit Data	TxD
#3 Transmit Data	TxD	→	#3 Receive Data	RxD
#4 Data Terminal Ready	DTR	→	#4 Data Set Ready	DSR
#5 Signal Ground/Common (SG)	GND	↔	#5 Signal Ground/Common (SG)	GND
#6 Data Set Ready	DSR	←	#6 Data Terminal Ready	DTR
#7 Request to Send	RTS	→	#7 Clear to Send	CTS
#8 Clear to Send	CTS	←	#8 Request to Send	RTS
#9 Ring Indicator	RI	←	#9 Ring Indicator	RI
Soldered to DB-9 Metal Shield	FGND	↔	Soldered to DB-9 Metal Shield	FGND

3-wire RS-232 Wiring



Pin Assignments



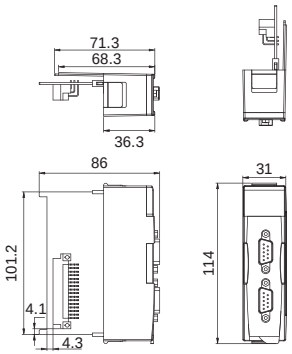
Pin Assignment	Terminal No.	Pin Assignment
GND1	05	
DTR1	04	09 RI1
TxD1	03	08 CTS1
RxD1	02	07 RTS1
DCD1	01	06 DSR1

Port1 — 9-Pin Male D-Sub Connector

Pin Assignment	Terminal No.	Pin Assignment
GND2	05	
DTR2	04	09 RI1
TxD2	03	08 CTS2
RxD2	02	07 RTS2
DCD2	01	06 DSR2

Port2 — 9-Pin Male D-Sub Connector

Dimensions (Unit: mm)



Ordering Information

I-8112iW-G CR	2-port Isolated RS-232 Module (RoHS)

Accessories

CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m

I-8114W-G/I-8114iW-G

I-8114W-G: 4-port RS-232 Module
I-8114iW-G: 4-port Isolated S-232 Module

RS-232 Interface

Features

- High-profile Module
- 2500 V_{rms} Isolation for I-8114iW
- Serial Port with +/-4 kV ESD Protection
- Internal 128-byte Hardware FIFO for each Port
- Baud Rate of up to 115200 bps
- LED Indicators for TxD, RxD and Power Status
- RoHS Compliant with no Halogen
- Low power consumption
- Made from fire retardant materials (UL94-V0 Level)

Introduction

The I-8114W-G provides 4 non-isolated RS-232 serial ports, while the I-8114iW-G provides 4 isolated RS-232 serial ports. It is equipped with a 128-byte hardware FIFO for each port and offers speeds up to 115.2 kbps with support for full-duplex communication.

In harsh industrial environments, the onboard ESD protection devices attempt to divert any potentially damaging charges away from sensitive circuitry and protect the I-8114W-G/I-8114iW-G from permanent damage.

The serial communication modules are designed for use with intelligent devices like bar code readers, serial printers, intelligent sensors, instrumentation equipment, computers, and almost any device with an RS-232 or RS-422/485 port.

Applications

- Factory Automation
- Building Automation
- Home Automation

I/O Specifications

Models	I-8114W	I-8114iW
RS-232 Interface		
Number of Ports	4	
Interface	TxD, RxD, RTS, CTS, DSR, DTR, DCD, RI, GND	TxD, RxD, RTS, CTS, GND
Controller	16C950 Compatible	
	Speed: 115200 bps max.	
	Data Bit: 5, 6, 7, 8	
	Stop Bit: 1, 1.5, 2	
	Parity: None, Even, Odd, Mark, Space	
	FIFO: Internal 128 bytes for each port	
Interrupt	Shared Interrupt	
Bus	Parallel I/O Module	
Connector	DB-37 (Female)	
Intra-module Isolated, Field to Logic	-	2500 V_{rms}
ESD Protection	+/-4 kV (Contact for each channel)	

System Specifications

Models	I-8114W	I-8114iW
LED Indicators		
Power	1 LED	
TxD	4 LEDs	
RxD	4 LEDs	
Power		
Power Consumption	1.25 W	1.75 W
Mechanical		
Dimensions (W x L x H)	31 mm x 85 mm x 114 mm	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +85 °C	
Humidity	5 ~ 95% RH, non-condensing	

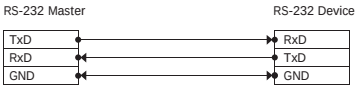
Software

Software
Supports interrupt driven software library
Supports VxCOM library

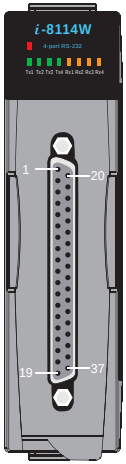
Wiring

DTE Device (Computer) DB-9		DTE to DCE Connections	DCE Device (Modem) DB-9	
Pin# DB-9	RS-232 Signal Names	Signal Direction	Pin# DB-9	RS-232 Signal Names
#1 Carrier Detector	DCD	←	#1 Carrier Detector	DCD
#2 Receive Data	RxD	←	#2 Transmit Data	TxD
#3 Transmit Data	TxD	→	#3 Receive Data	RxD
#4 Data Terminal Ready	DTR	→	#4 Data Set Ready	DSR
#5 Signal Ground/Common (SG)	GND	↔	#5 Signal Ground/Common (SG)	GND
#6 Data Set Ready	DSR	←	#6 Data Terminal Ready	DTR
#7 Request to Send	RTS	→	#7 Clear to Send	CTS
#8 Clear to Send	CTS	←	#8 Request to Send	RTS
#9 Ring Indicator	RI	←	#9 Ring Indicator	RI
Soldered to DB-9 Metal Shield	FGND	→	Soldered to DB-9 Metal Shield	FGND

3-wire RS-232 Wiring

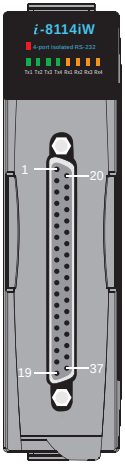


Pin Assignments



Pin Assignment	Terminal No.		Pin Assignment
N.C.	01	20	RI3
DCD3	02	21	DTR3
GND	03	22	DSR3
CTS3	04	23	RTS3
RxD3	05	24	TxD3
RI4	06	25	DCD4
DTR4	07	26	GND
DSR4	08	27	CTS4
RTS4	09	28	RxD4
TxD4	10	29	RI2
DCD2	11	30	DTR2
GND	12	31	DSR2
CTS2	13	32	RTS2
RxD2	14	33	TxD2
RI1	15	34	DCD1
DTR1	16	35	GND
DSR1	17	36	CTS1
RTS1	18	37	RxD1
TxD1	19		

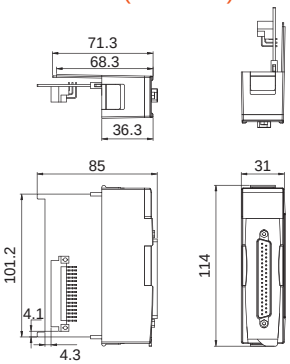
37-Pin Female D-Sub Connector



Pin Assignment	Terminal No.		Pin Assignment
N.C.	01	20	N.C.
N.C.	02	21	N.C.
GND3	03	22	N.C.
CTS3	04	23	RTS3
RxD3	05	24	TxD3
N.C.	06	25	N.C.
N.C.	07	26	GND4
N.C.	08	27	CTS4
RTS4	09	28	RxD4
TxD4	10	29	N.C.
N.C.	11	30	N.C.
GND2	12	31	N.C.
CTS2	13	32	RTS2
RxD2	14	33	TxD2
N.C.	15	34	N.C.
N.C.	16	35	GND1
N.C.	17	36	CTS1
RTS1	18	37	RxD1
TxD1	19		

37-Pin Female D-Sub Connector

Dimensions (Unit: mm)



Ordering Information

I-8114W-G CR	4-port RS-232 Module (RoHS)
I-8114W-G/D2 CR	4-port RS-232 Module (RoHS) Includes One CA-9-3705 Cable
I-8114iW-G CR	4-port Isolated RS-232 Module (RoHS)
I-8114iW-G/D2 CR	4-port Isolated RS-232 Module (RoHS) Includes One CA-9-3705 Cable

Accessories

CA-4002	37-Pin Male D-Sub Connector with Plastic Cover.
CA-9-3705	DB-37 Male (D-Sub) to 4-port DB-9 Male (D-Sub) Cable 0.5 m Cable for I-8114W-G/I-8114iW-G (90°)

I-8142iW-G/I-8144iW-G

I-8142iW-G: 2-port Isolated RS-422/485 Module
I-8144iW-G: 4-port Isolated RS-422/485 Module

RS-422/485 Interface

Features

- High-profile Module
- 2500 V_{rms} Isolation
- Serial Port with +/-4 kV ESD Protection
- Internal 128-byte Hardware FIFO for each Port
- Baud Rate of up to 115200 bps
- LED Indicators for TxD, RxD and Power Status
- Built-in Self-Tuner or Auto-Direction Control
- RoHS Compliant with no Halogen
- Low power consumption
- Made from fire retardant materials (UL94-V0 Level)

Introduction

The I-8142iW-G provides 2 isolated RS-422/485 serial ports, while the I-8144iW-G provides 4 isolated RS-422/485 serial ports. It is equipped with a 128-byte hardware FIFO for each port and offers speeds up to 115.2 kbps with support for RS-422 full-duplex communication.

In harsh industrial environments, the onboard ESD protection devices attempt to divert any potentially damaging charges away from sensitive circuitry and protect the I-8142iW-G/I-8144iW-G from permanent damage.

The serial communication modules are designed for use with intelligent devices like bar code readers, serial printers, intelligent sensors, instrumentation equipment, computers, and almost any device with an RS-232 or RS-422/485 port.

Applications

- Factory Automation
- Building Automation
- Home Automation

I/O Specifications

Models	I-8142iW	I-8144iW
RS-422/485 Interface		
Number of Ports	2	4
Interface	Isolated RS-422/485 (The RS-422 and RS-485 can not be used simultaneously) RS-422: TxD+, TxD-, RxD+, RxD-, GND RS-485: D+, D-, GND	
2-wire Cabling/ 4-wire Cabling	Belden 8941 (2P twisted-pair cable)/ Belden 8942 (4P twisted-pair cable), If different cables are used, the transmission distance may change	
Transfer Distance	Max. of 1,200 m at 9.6 kbps; Max. of 400 m at 115.2 kbps	
4-wire Cabling	Max. of 256 devices. in a single RS-485 network without using a repeater	
Controller	16C950 Compatible	
	Speed: 115200 bps max.	
	Data Bit: 5, 6, 7, 8	
	Stop Bit: 1, 1.5, 2	
	Parity: None, Even, Odd, Mark, Space	
	FIFO: Internal 128 bytes for each port	
Self-Tuner Asic inside	Yes	
Interrupt	Shared Interrupt	
Bus	Parallel I/O Module	
Connector	Removable 20-Pin Terminal Block	
Intra-module Isolated, Field to Logic	2500 V_{rms}	
ESD Protection	+/-4 kV (Contact for each channel)	

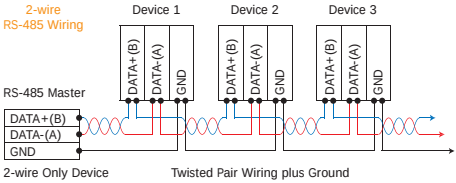
System Specifications

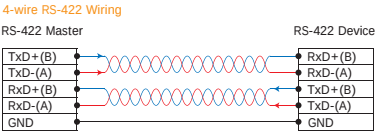
Models	I-8142iW	I-8144iW
LED Indicators		
Power	1 LED	
TxD	2 LEDs	4 LEDs
RxD	2 LEDs	4 LEDs
Power		
Power Consumption	1.5 W (Without Resistor)	1.75 W (Without Resistor)
	2 W (With 2 Resistors, 1/4 Watt, 120 Ω 5%)	3 W (With 4 Resistors, 1/4 Watt, 120 Ω 5%)
Mechanical		
Dimensions (W x L x H)	30 mm x 102 mm x 115 mm	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +85 °C	
Humidity	5 ~ 95% RH, non-condensing	

Software

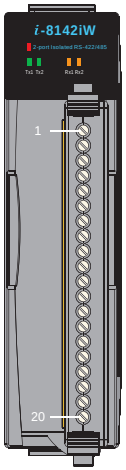
Software
Supports interrupt driven software library
Supports VxCOM library

Wiring

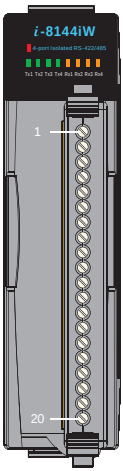




Pin Assignments

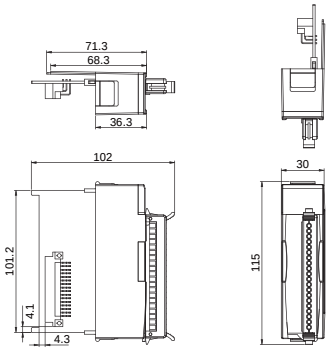


Terminal No.	Pin Assignment
01	D1+/TxD1+
02	D1-/TxD1-
03	RxD1+
04	RxD1-
05	GND1
06	D2+/TxD2+
07	D2-/TxD2-
08	RxD2+
09	RxD2-
10	GND2
11	N.C.
12	N.C.
13	N.C.
14	N.C.
15	N.C.
16	N.C.
17	N.C.
18	N.C.
19	N.C.
20	N.C.



Terminal No.	Pin Assignment
01	D1+/TxD1+
02	D1-/TxD1-
03	RxD1+
04	RxD1-
05	GND1
06	D2+/TxD2+
07	D2-/TxD2-
08	RxD2+
09	RxD2-
10	GND2
11	D3+/TxD3+
12	D3-/TxD3-
13	RxD3+
14	RxD3-
15	GND3
16	D4+/TxD4+
17	D4-/TxD4-
18	RxD4+
19	RxD4-
20	GND4

Dimensions (Unit: mm)



Ordering Information

I-8142iW-G CR	2-port Isolated RS-422/485 Module (RoHS)
I-8144iW-G CR	4-port Isolated RS-422/485 Module (RoHS)

3.7. μPAC-7186EX(D)-MTCP Modbus to Ethernet Gateway

NEW

μPAC-7186EX(D)-MTCP

Modbus/RTU to Modbus/TCP Gateway

Features

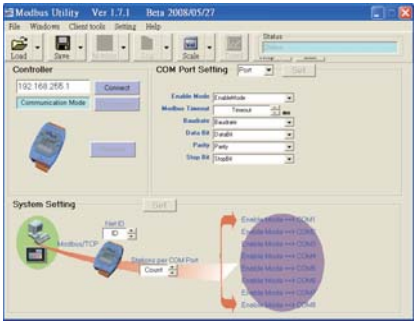
- Incorporate Serial Devices in an Ethernet network
- Supports Modbus/TCP and Modbus/RTU
- "Virtual COM" extends PC COM ports
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- Programmable Internet/Ethernet Controller
- Watchdog Timer suitable for use in harsh environments
- 10/100 Base-TX (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- Power Reverse Polarity Protection Circuit
- RS-485 Port ESD Protection Circuit
- Self-Tuner ASIC Controller on the RS-485 Port
- 5-digit LED Display (for versions with a display)
- RoHS Compliant with no Halogen
- Built-in High Performance MiniOS7 from ICP DAS
- Low power consumption
- Made from fire retardant materials (UL94-V0 Level)

Introduction

The Modbus communications protocol has become the de facto industry standard, and is now the most commonly available means of connecting industrial electronic devices.

Modbus allows for communication between many devices connected to the same network, for example a system that measures temperature and humidity and communicates the results to a computer. Modbus is often used to connect a supervisory computer with a remote terminal unit (RTU) in supervisory control and data acquisition (SCADA) systems.

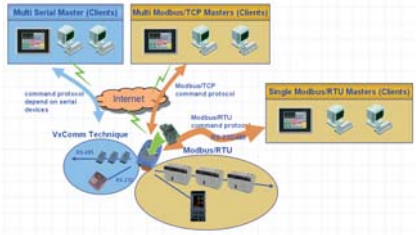
The μPAC-7186EX(D)-MTCP uses a default firmware to become a single Modbus/TCP to multiple Modbus/RTU converter. You can simply use the Modbus Utility to configure the device and then set the connection between the SCADA or HMI software and the μPAC-7186EX(D)-MTCP.



The μPAC-7186EX(D)-MTCP can also link to legacy serial devices that don't support Modbus/RTU. To use this function, you need to install the VxComm driver on the host PCs and create virtual COM ports for the remote serial ports on the μPAC-7186EX(D)-MTCP. You can then directly access the remote serial devices via the virtual COM ports.

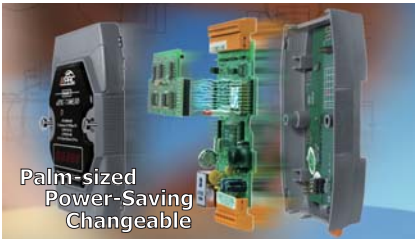
Using the Modbus SDK, users can develop their own custom Modbus firmware, allowing extra functions and integration of serial devices. In this way, the μPAC-7186EX(D)-MTCP becomes a powerful controller.

The μPAC-7186EX(D)-MTCP contains a built-in operating system, the MiniOS7, which offers a stable and high performance environment that is similar to DOS. The MiniOS7 can boot up the μPAC-7186EX(D)-MTCP within just one second, with the added benefit of no virus problems and a small footprint. Furthermore, the μPAC-7186EX(D)-MTCP is designed for low power consumption, maintenance elimination (no hard disk and no fan), and is constructed from fire retardant materials (UL94-V0 level) with a robust case.

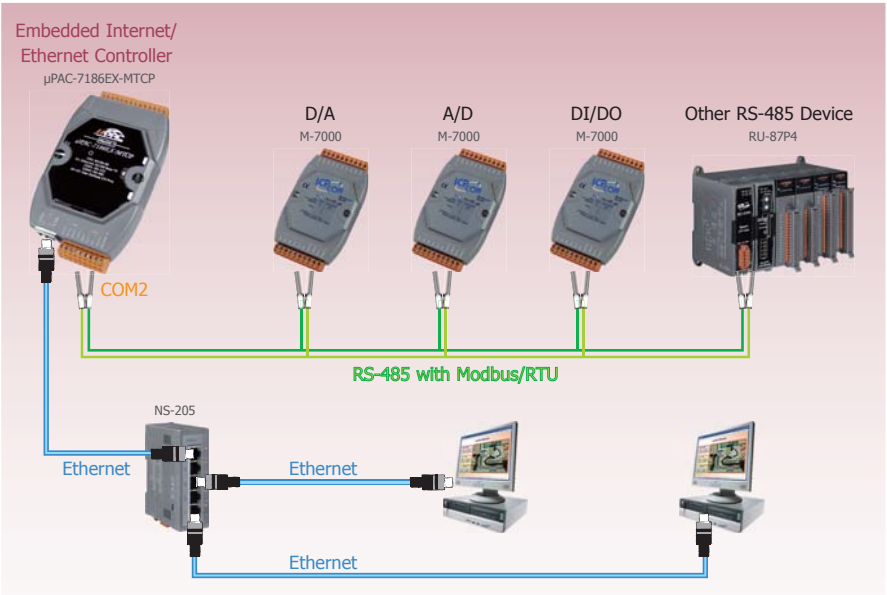


I/O Expansion Bus and Expansion Board

The μPAC-7186EX(D)-MTCP supports a single I/O expansion bus for plugging with a X-board. ICP DAS provides many optional X-boards for the μPAC-7186EX(D)-MTCP, which offers various I/O functions, such as D/I, D/O, A/D, D/A, Timer/Counter, UART, flash memory, battery backup SRAM and AsicKey... etc.



Applications



Specifications

Models	µPAC-7186EX-MTCP	µPAC-7186EXD-MTCP
CPU		
CPU	80186, 80 MHz or compatible	
SRAM	512 KB	
Flash Memory	512 KB	
EEPROM	16 KB	
NVRAM	31 Bytes (battery backup, data valid for up to 10 years)	
RTC (Real Time Clock)	Yes	
Hardware Serial Number	Yes (64-bit)	
Built-in Watchdog Timer	Yes	
Communication Interface		
COM1	RS-232 (TxD, RxD, RTS, CTS, GND)	
COM2	RS-485 (D2+, D2-, GND)	
Ethernet	10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)	
COM Port Formats		
Speed	115200 bps max.	
Data Bit	7, 8	
Parity	None, Even, Odd	
Stop Bit	1	
LED Indicators		
5-Digit 7 Segment	-	Yes
System	Yes	
Power		
ESD Protection	Yes (with Frame Ground)	
Protection	Power Reverse Polarity Protection	
Required Supply Voltage	+10 V_{DC} ~ +30 V_{DC} (non-regulated)	
Power Consumption	1.5 W	2.5 W
Mechanical		
Flammability	Fire Retardant Materials (UL94-V0 Level)	
Dimension (W x H x D)	72 mm x 123 mm x 35 mm	
Installation	DIN-Rail or Wall mounting	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +80 °C	
Humidity	5 ~ 95% RH, non-condensing	

Pin Assignments

µPAC-7186EX(D)-MTCP

Terminal No.		Pin Assignment
E1		Link/Act  10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

I/O Expansion Bus

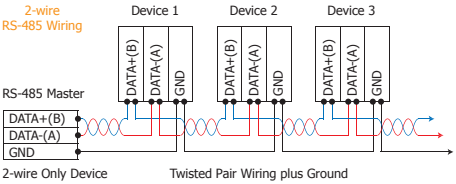
J1			
GND	01	02	GND
CLKOUTA	03	04	ARDY
INT0	05	06	INT1
VCC	07	08	RESET
GND	09	10	RESET\
TO0	11	12	TO1
TI0	13	14	TI1
SCLK	15	16	DIO9
DIO4	17	18	DIO14
VCC	19	20	VCC

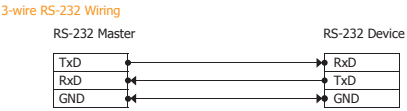
CON20A JDIP20P

J2			
MA0	01	02	AD0
MA1	03	04	AD1
MA2	05	06	AD2
MA3	07	08	AD3
MA4	09	10	AD4
MA5	11	12	AD5
MA6	13	14	AD6
MA7 (or NC)	15	16	AD7
INT4 (or NC)	17	18	WRITE\
CS\	19	20	READ\

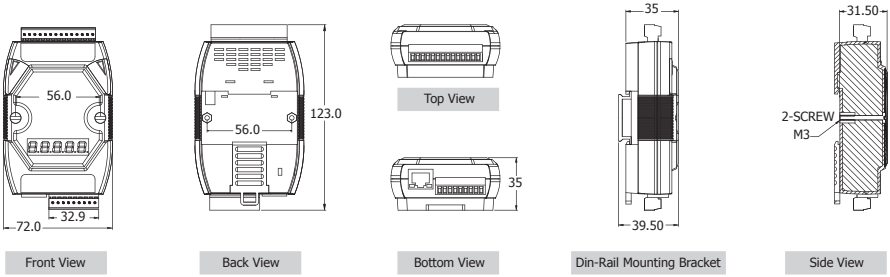
CON20A JDIP20P

Wiring





Dimensions (Unit: mm)



Ordering Information

µPAC-7186EX-MTCP CR	µPAC-7186EX with Default Modbus/TCP Firmware (RoHS)
µPAC-7186EXD-MTCP CR	µPAC-7186EXD with Default Modbus/TCP Firmware (RoHS)

Accessories

GPSU06U-6	24 V_{DC}/0.25 A, 6 W Power Supply
MDR-20-24	24 V_{DC}/1 A, 24 W Power Supply with DIN-Rail Mounting
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)

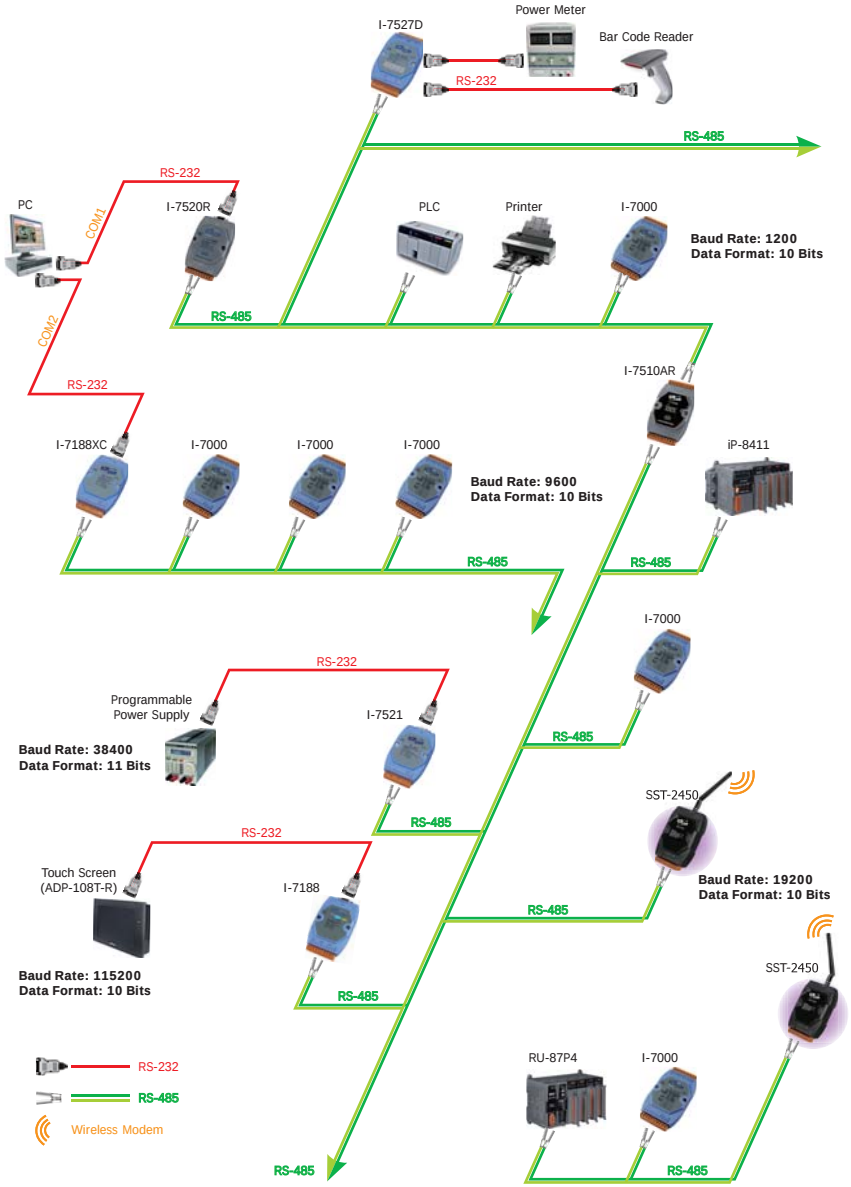
Converters, Repeaters and Hubs

4

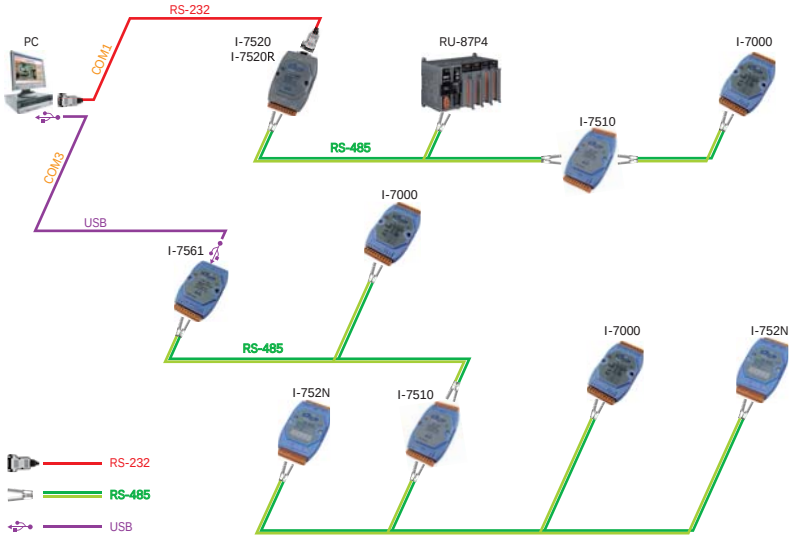
4.1. RS-485 Network Configuration

ICP DAS Self-tuner ASIC Features:

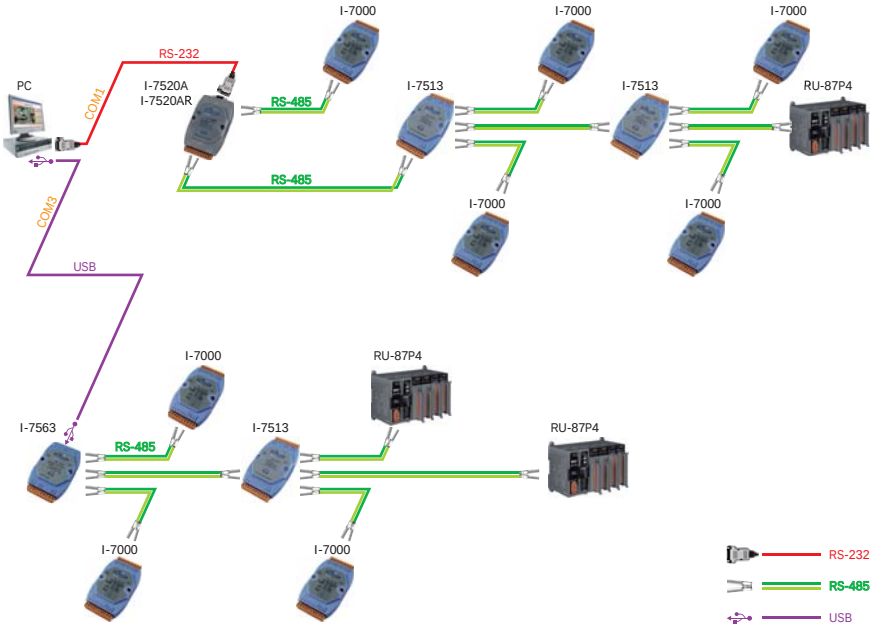
- **Supports Multiple Baud Rate**
- **Supports Multiple Data Format**
- **Automatic RS-485 Direction Control**



Bus Type



Star Type



4.2. RS-422/485 Repeaters

I-7510/I-7510A/I-7510AR

I-7510: Isolated RS-485 Repeater
I-7510A: Isolated RS-422/485 Repeater/Converter
I-7510AR: Three Way Isolated RS-422/485 Repeater/Converter

Features

- Auto Switching Baud Rate, 300 ~ 115200 bps
- 2-way 3000 V_{DC} Isolation Protection for I-7510/I-7510A
- 3-way 3000 V_{DC} Isolation Protection for I-7510AR
- ESD Protection for RS-485 Data Line
- Transmission Speed of up to 115200 bps
- Power Input of +10 ~ +30 V_{DC}
- Supports Operating Temperatures from -25 °C ~ +75 °C
- DIN-Rail

Introduction

The I-7510/I-7510A provides 2-way optical isolation between one piece of RS-422/RS-485 equipment and the rest of the system. It can also be used as a repeater to extend the transmission of an existing network. Additionally, an RS-485 system can be expanded beyond the 256 node limitation imposed by the standard. It can also be used to convert a four-wire RS-422 signal into a 2-wire RS-485 signal, and vice versa.

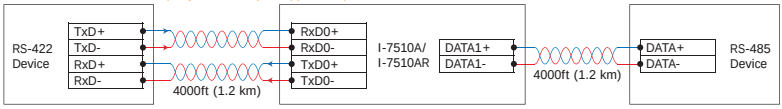
The I-7510AR is exactly the same as the I-7510A, except for the isolation site. The isolation site of the I-7510A is located in the input interface circuit, but the isolation site of the I-7510AR is located in the input and output interface circuit. In other words the I-7510AR is 3-way isolation repeater module.

Specifications

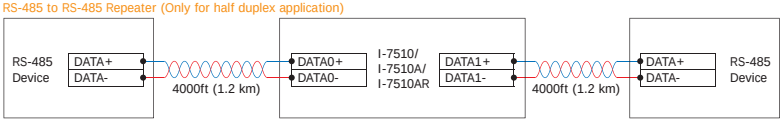
Models		I-7510	I-7510A	I-7510AR
Interface				
Serial Interface	RS-422	-	TxD+, TxD-, RxD+, RxD- The RS-422 and RS-485 cannot be used simultaneously	
	RS-485	Data+, Data-		
2-wire Cabling/4-wire Cabling		Belden 8941 (2P twisted-pair cable)/Belden 8942 (4P twisted-pair cable), if different cables are used, the transmission distance may change		
Transfer Distance		Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps		
Max. Devices Supported		256		
Self-Tuner Asic Inside		Yes		
Speed		300 ~ 115200 bps		
ESD Protection		Yes		
3000 V_{DC} Isolated Voltage		2-way Isolated		3-way Isolated
Connection		Removable 10-Pin Terminal Block x 2		
LED Indicators				
Power/Communication		Yes		
Power				
Input Voltage Range		+10 V_{DC} ~ +30 V_{DC} (Non-isolated)		
Power Consumption		2.16 W		
Mechanical				
Casing		Plastic		
Flammability		Fire Retardant Materials (UL94-V0 Level)		
Dimensions (W x H x D)		72 mm x 122 mm x 35 mm		
Installation		DIN-Rail		
Environment				
Operating Temperature		-25 °C ~ +75 °C		
Storage Temperature		-30 °C ~ +75 °C		
Humidity		10 ~ 90% RH, non-condensing		

Applications

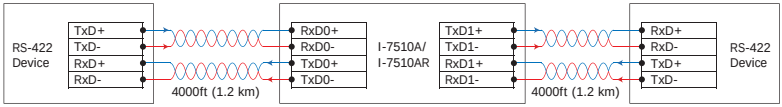
RS-422 to RS-485 Converter (Only for half duplex application)



RS-485 to RS-485 Repeater (Only for half duplex application)



RS-422 to RS-422 Repeater



Pin Assignments

I-7510

Terminal No.	Pin Assignment	Terminal No.	Pin Assignment
01	DATA+	20	DATA1+
02	DATA-	19	DATA1-
03	--	18	--
04	--	17	--
05	--	16	--
06	--	15	--
07	--	14	--
08	--	13	--
09	(R)+Vs	12	--
10	(B)GND	11	--

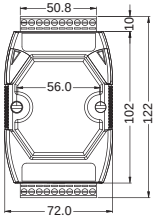
I-7510A / I-7510AR

Terminal No.		Pin Assignment	Pin Assignment
RS-485	01	DATA0+	DATA0+
	02	DATA0-	DATA0-
	03	--	--
RS-422	04	RxD0+	TxD0+
	05	RxD0-	TxD0-
	06	TxD0+	RxD0+
	07	TxD0-	RxD0-
	08	--	--
	09	(R)+Vs	(R)+Vs
	10	(B)GND	(B)GND

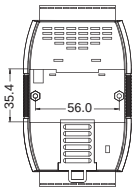
I-7510A/7510AR

Terminal No.		Pin Assignment
RS-485	20	DATA1+
	19	DATA1-
	18	--
RS-422	17	TxD1+
	16	TxD1-
	15	RxD1+
	14	RxD1-
	13	--
	12	--
	11	--

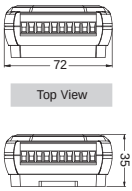
Dimensions (Unit: mm)



Front View

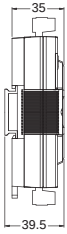


Back View

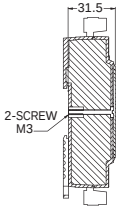


Top View

Bottom View



Din-Rail Mounting Bracket



Side View

Ordering Information

I-7510 CR	Isolated RS-485 Repeater (RoHS)
I-7510A CR	Isolated RS-422/485 Repeater/Converter (RoHS)
I-7510AR CR	Three Way Isolated RS-422/485 Repeater/Converter (RoHS)

Accessories

GPSU06U-6	24 VDC/0.25 A, 6 W Power Supply
DIN-KA52F	24 VDC/1.04 A, 25 W Power Supply with Din-Rail Mounting

RS-485 Star Wiring Hub

I-7514U

Isolated 4 Channels RS-485 Active Hub

Features

- True RS-485 Star Wiring Hub
- Independent RS-485 driver for each channel
- LEDs for indicating RS-485 TxD/RxD activity
- Auto Switching baud rate, 300 ~ 115200 bps and fixed baud rate setting via rotary switch, 1200 ~ 115200 bps
- 120Ω termination resistor for each channel
- Power Input, +10 ~ +30 V_{DC}
- Operating Temperatures, -25 °C ~ +75 °C
- DIN-Rail

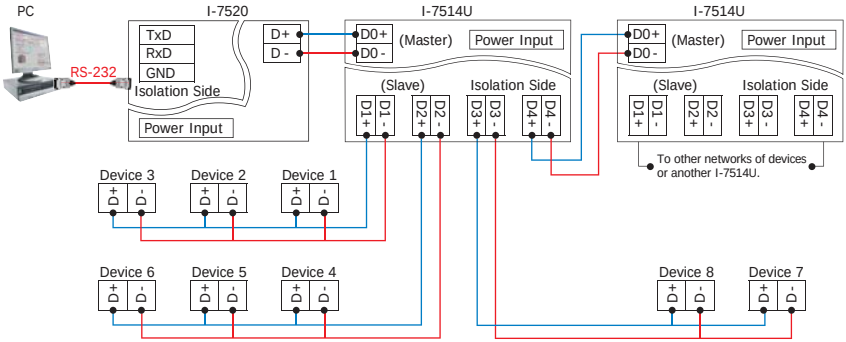
Introduction

RS-485 Active Hub
The I-7514U is a 4-ch RS-485 active star wiring hub, it has 4 independent RS-485 output channels and one RS-485 input channel. Each output channel is equipped with an individual driver. The data from a master to the input channel will simultaneously be forwarded to all the four output channels.
Baud Rate Setting
The I-7514U provides 2 modes of baud rate setting, one is Self-Tuner mode and the other is fixed baud rate mode. The Self-Tuner mode can support Multiple Baud Rate and Multiple Data Format. The Self-Tuner design is exactly the same as I-7513 and I-7510 series.
The Fixed baud rate mode offers a better quality for data transmission over long or lossy lines or electrically noisy environments.
RS-485 Short-Circuit
The Short-circuit protection can automatically shut off the breakdown channel, this kind of design can suffice to protect the communication system. When a connected RS-485 equipment breaks down, the breakdown channel will be isolated to ensure that other equipments work normally.
Termination resistors
In some critical environments, you may need to add termination resistors to prevent the reflection of serial signals.
The I-7514U includes a 120Ω termination resistor for each channel by jumper selectable (Default disable).
LED Indicators
The I-7514U has 6 LED to indicate the power status and network traffic.
The TxD/RxD LED will flash when the unit is being sent out or received data.

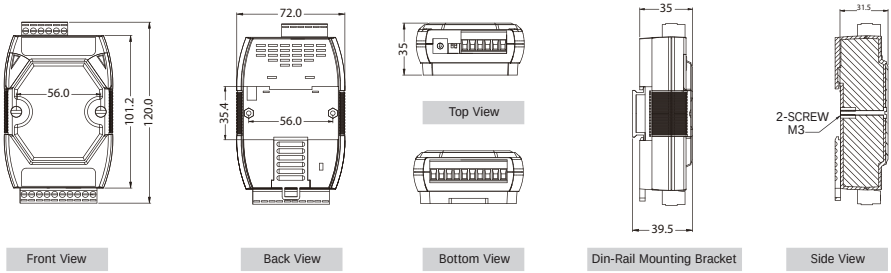
Specifications

Interface	
Input (Master)	1 RS-485 Channel: Data+, Data-
Output (Slave)	4 RS-485 Channels: Data+, Data-
2-wire Cabling	Belden 8941 (2P twisted-pair cable), if different cables are used, the transmission distance may change
Transfer Distance	Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps
Max. Devices Supported	256 (Each channel)
Self-Tuner Asic Inside	Yes
Speed	300 ~ 115200 bps via Auto Switching mode; 1200 ~ 115200 bps via Fixed Baud Rate mode
ESD Protection	Yes
2500 V_{DC} isolation on CH1~CH4	Yes
Connection	Removable 10-Pin Terminal Block x 1; Removable 6-Pin Terminal Block x 1
LED Indicators	
Power/Communication	Yes
Power	
Input Voltage Range	+10 V_{DC} ~ +30 V_{DC} (Non-isolated)
Power Consumption	1.2 W
Mechanical	
Casing	Plastic
Flammability	Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)	72 mm x 122 mm x 35 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-30 °C ~ +80 °C
Humidity	10 ~ 90% RH, non-condensing

Applications



Dimensions (Unit: mm)



Front View | Back View | Bottom View | Din-Rail Mounting Bracket | Side View

Pin Assignments

Terminal No.	Pin Assignment	
01	D1+	CH1
02	D1-	
03	D2+	CH2
04	D2-	
05	D3+	CH3
06	D3-	
07	D4+	CH4
08	D4-	
09	N.C.	
10	ISO.GND	

Terminal No.	Pin Assignment	
11	D0-	CH0
12	D0+	
13	D0-	
14	D0+	
15	(R)+Vs	
16	(B)GND	

Ordering Information

I-7514U-G CR	Isolated 4 Channels RS-485 Active Hub(Gray Cover) (RoHS)

Accessories

GPSU06U-6	24 VDC/0.25 A, 6 W Power Supply
DIN-KA52F	24 VDC/1.04 A, 25 W Power Supply with Din-Rail Mounting

I-7520U4

Isolated RS-232 to 4 Channels RS-485 Active Hub

Features

- True RS-485 Star Wiring Hub
- Independent RS-485 driver for each channel
- LEDs for indicating TxD/RxD activity
- Auto Switching baud rate, 300 ~ 115200 bps and fixed baud rate setting via rotary switch, 1200 ~ 115200 bps
- 120Ω termination resistor for each channel
- Power Input, +10 ~ +30 V_{DC}
- Operating Temperatures, -25 °C ~ +75 °C
- DIN-Rail

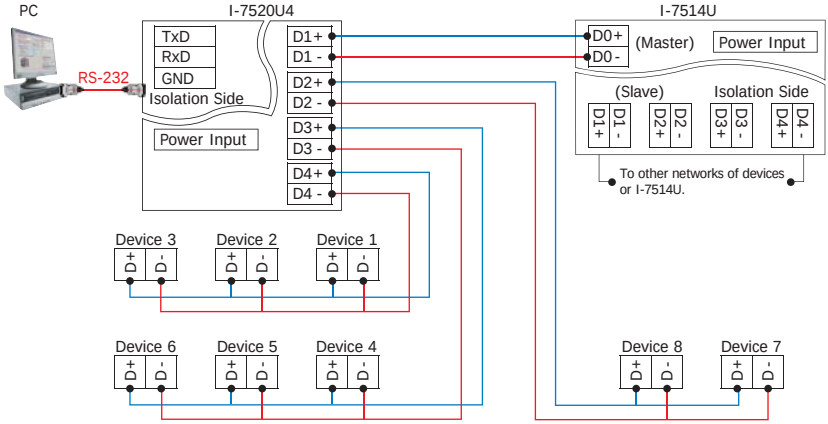
Introduction

RS-485 Active Hub
The I-7520U4 is isolated RS-232 to 4-ch RS-485 active star wiring hub, it has 4 independent RS-485 output channels and one RS-485 input channel. Each output channel is equipped with an individual driver. The data from a master to the input channel will simultaneously be forwarded to all the four output channels.
Baud Rate Setting
The I-7520U4 provides 2 modes of baud rate setting, one is Auto Switching mode and the other is fixed baud rate mode. The "Auto Switching" mode is the first version of self-tuner; it can support Multiple Baud Rate and Multiple Data Format.The "Auto Switching" design is exactly the same as I-7520 series. The "Fixed baud rate" mode offers a better quality for data transmission over long or lossy lines or electrically noisy environments.
RS-485 Short-Circuit
The Short-circuit protection can automatically shut off the breakdown channel, this kind of design can suffice to protect the communication system. When a connected RS-485 equipment breaks down, the breakdown channel will be isolated to ensure that other equipments work normally.
Termination resistors
In some critical environments, you may need to add termination resistors to prevent the reflection of serial signals.
The I-7520U4 includes a 120Ω termination resistor for each channel by jumper selectable (Default disable).
LED Indicators
The I-7520U4 has 6 LED to indicate the power status and network traffic.
The TxD/RxD LED will flash when the unit is being sent out or received data.

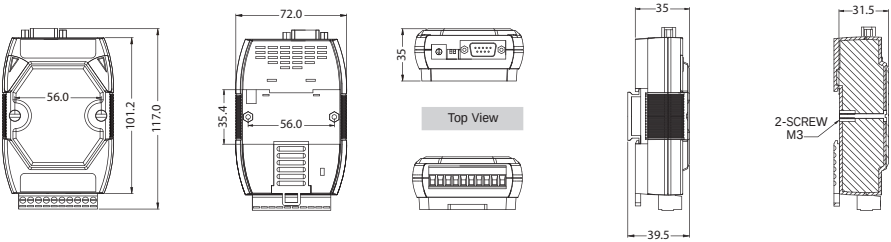
Specifications

Interface	
Input	1 RS-232 Channel: TxD, RxD and GND
Output	4 RS-485 Channels: Data+, Data-
2-wire Cabling	Belden 8941 (2P twisted-pair cable), if different cables are used, the transmission distance may change
Transfer Distance	Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps
Max. Devices Supported	256 (Each channel)
Self-Tuner Asic Inside	Yes
Speed	300 ~ 115200 bps via Auto Switching mode; 1200 ~ 115200 bps via Fixed Baud Rate mode
ESD Protection	Yes
2500 V_{DC} Three Way Isolated Protection	Yes
Connection	Removable 10-Pin Terminal Block x 1; 9-Pin Female D-Sub x 1
LED Indicators	
Power/Communication	Yes
Power	
Input Voltage Range	+10 V_{DC} ~ +30 V_{DC} (Non-isolated)
Power Consumption	1.2 W
Mechanical	
Casing	Plastic
Flammability	Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)	72 mm x 118 mm x 35 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-30 °C ~ +75 °C
Humidity	10 ~ 90% RH, non-condensing

Applications



Dimensions (Unit: mm)

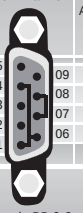


Front View | Back View | Bottom View | Din-Rail Mounting Bracket | Side View

Pin Assignments

Terminal No.		Pin Assignment
RS-485	01	D1+
	02	D1-
	03	D2+
	04	D2-
	05	D3+
	06	D3-
	07	D4+
	08	D4-
	09	(R)+Vs
	10	(B)GND

Pin Assignment	Terminal No.		Pin Assignment
GND	05	09	--
--	04	08	--
RxD	03	07	--
TxD	02	06	--
--	01		



RS-232: Female DB-9 Connector

Ordering Information

I-7520U4 CR	Isolated RS-232 to 4 Channels RS-485 Active Hub (Gray Cover) (RoHS)

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
DIN-KA52F	24 Vdc/1.04 A, 25 W Power Supply with Din-Rail Mounting
I-7510 CR	Isolated RS-485 Repeater (RoHS)
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m

I-7513

Three Way Isolated RS-485 Active Star Wiring Hub

Features

- RS-485 Active Star Wiring Applications
- Auto Switching Baud Rate, 300 ~ 115200 bps
- 3000 V_{DC} Three Way Isolation Protection
- ESD Protection for the RS-485 Data Line
- Power Input, +10 ~ +30 V_{DC}
- Operating Temperatures, -25 °C ~ +75 °C
- DIN-Rail

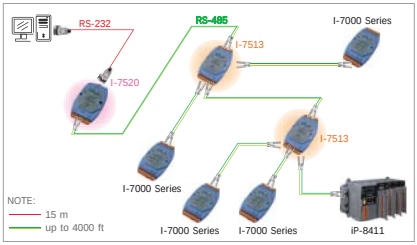
Introduction

The I-7513 is a 3-ch RS-485 Active Star Wiring Hub. The unit has three independent RS-485 output channels, each with their own driver, which can transmit signals across 4,000 ft (1200 m) of cable on each channel.

The I-7513 includes both Hub and Repeater functions, so each output channel can be connected to another hub.

The isolation site of the I-7513 is located in the input and output interface circuit. In other words, the I-7513 is a three-way isolation module.

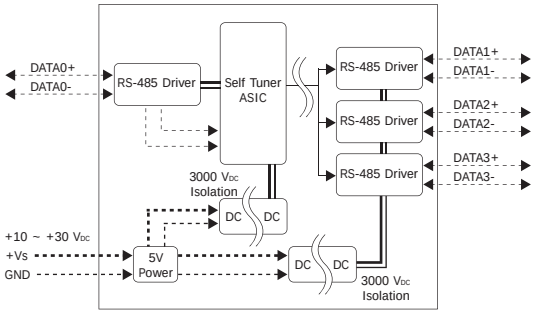
Applications



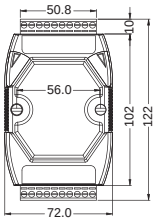
Specifications

Interface	
Input	1 RS-485 Channel: Data+, Data-
Output	3 RS-485 Channels: Data+, Data-
2-wire Cabling	Belden 8941 (2P twisted-pair cable), if different cables are used, the transmission distance may change
Transfer Distance	Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps
Max. Devices Supported	256 (Each channel)
Self-Tuner Asic Inside	Yes
Speed	300 ~ 115200 bps
ESD Protection	Yes
3000 V_{DC} Three Way Isolated Protection	Yes
Connection	Removable 10-Pin Terminal Block x 2
LED Indicators	
Power/Communication	Yes
Power	
Input Voltage Range	+10 V_{DC} ~ +30 V_{DC} (Non-isolated)
Power Consumption	2.16 W
Mechanical	
Casing	Plastic
Flammability	Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)	72 mm x 122 mm x 35 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-30 °C ~ +75 °C
Humidity	10 ~ 90% RH, non-condensing

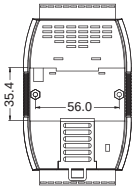
Internal I/O Structure



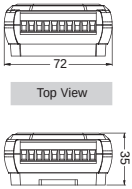
Dimensions (Unit: mm)



Front View

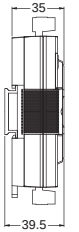


Back View

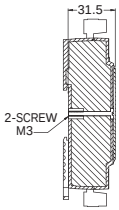


Top View

Bottom View



Din-Rail Mounting Bracket



Side View

Pin Assignments

Terminal No.	Pin Assignment
01	DATA+
02	DATA-
03	--
04	--
05	--
06	--
07	--
08	--
09	(R)+Vs
10	(B)GND

Terminal No.	Pin Assignment
20	DATA1+
19	DATA1-
18	--
17	--
16	--
15	DATA2+
14	DATA2-
13	--
12	DATA3+
11	DATA3-

Ordering Information

I-7513 CR	Three Way Isolated RS-485 Active Star Wiring Hub (RoHS)
I-7513-G CR	Three Way Isolated RS-485 Active Star Wiring Hub (Gray Cover) (RoHS)

Accessories

GPSU06U-6	24 VDC/0.25 A, 6 W Power Supply
DIN-KA52F	24 VDC/1.04 A, 25 W Power Supply with Din-Rail Mounting

4.4. RS-232/RS-422/485 Converters

PCISA-7520R/PCISA-7520AR

PCISA-7520R: Isolated RS-232 to RS-485 Converter Card
PCISA-7520AR: Isolated RS-232 to RS-422/485 Converter Card

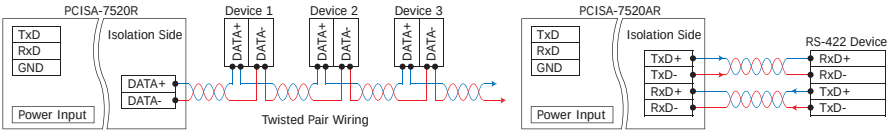
Features

- No External Power Supply required
- No Driver installation required
- Auto Switching Baud Rate, 300 ~ 115200 bps
- 3000 Vdc Isolation Protection
- ESD Protection for the RS-232/422/485 Data Line
- Transmission Speed of up to 115200 bps
- Can be used in an ISA Bus, a PCI Bus or any system with an RS-232 Interface

Introduction

The PCISA-7520A series is exactly the same as I-7520A series except for the PCI and ISA Interface and is designed for easy installation. The PCISA-7520A series is equipped with both an RS-232 serial port and an RS-485 serial port. The RS-232 port is designed to communicate with the local Host PC, the RS-485 is designed to communicate with the remote IO module.

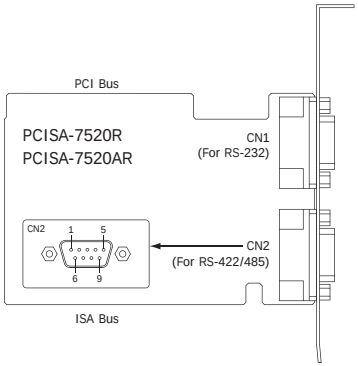
Applications



Specifications

Models		PCISA-7520R	PCISA-7520AR
Interface			
Serial Interface	RS-232	TxD, RxD, GND	
	RS-422	-	TxD+, TxD-, RxD+, RxD- The RS-422 and RS-485 cannot be used simultaneously
	RS-485	Data+, Data-	
2-wire Cabling/4-wire Cabling		Belden 8941 (2P twisted-pair cable)/Belden 8942 (4P twisted-pair cable), when different cables are used, the transmission distance may change	
Transfer Distance		Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps	
Max. Devices Supported		256 (Without repeater)	
Self-Tuner Asic Inside		Yes	
Speed		300 ~ 115200 bps	
ESD Protection		Yes	
Isolated Voltage		3000 Vdc on the RS-232 side	
Connection	RS-232	9-Pin Female D-Sub x 1	
	RS-422/485	9-Pin Male D-Sub x 1	
Power			
Input Voltage Range		+5 Vdc from the PC	
Power Consumption		1.0 W	
Mechanical			
Dimensions (L x W x D)		118 mm x 72 mm x 22 mm	
Environment			
Operating Temperature		0 °C ~ +50 °C	
Storage Temperature		-20 °C ~ +70 °C	
Humidity		0 ~ 90% RH, non-condensing	

Pin Assignments



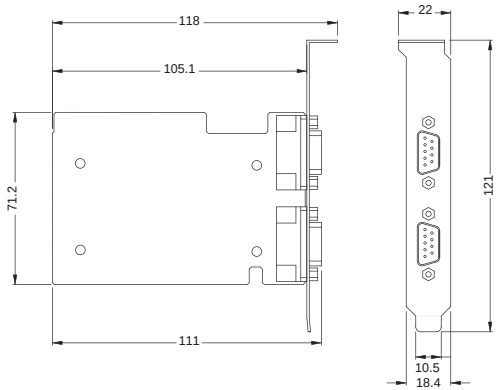
PCISA-7520R

Pin	2-wire for RS-485
01	DATA+
02	
03	NC
04	
05	
06	DATA-
07	
08	NC
09	

PCISA-7520AR

Pin	2-wire for RS-485	4-wire for RS-422
01	DATA+	Tx+
02		
03	NC	
04	NC	Rx+
05		
06	DATA-	Tx-
07		
08	NC	Rx-
09		

Dimensions (Unit: mm)



Ordering Information

PCISA-7520R CR	Isolated RS-232 to RS-485 Converter Card (RoHS)
PCISA-7520AR CR	Isolated RS-232 to RS-422/485 Converter Card (RoHS)

Accessories

I-7510 CR	Isolated RS-485 Repeater (RoHS)
I-7510A CR	Isolated RS-422/485 Repeater (RoHS)
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m

I-7520/I-7520A
I-7520R/I-7520AR

I-7520: Isolated RS-232 to RS-485 Converter
I-7520A: Isolated RS-232 to RS-422/485 Converter
I-7520R: RS-232 to Isolated RS-485 Converter
I-7520AR: RS-232 to Isolated RS-422/485 Converter

Features

- Auto Switching Baud Rate, 300~115200 bps
- 3000 V_{DC} Isolation Protection on the RS-485 side
- ESD Protection for the RS-232/422/485 Data Line
- Transmission Speed of up to 115200 bps
- Power Input of +10 ~ +30 V_{DC}
- Supports Operating Temperatures from -25 °C ~ +75 °C
- DIN-Rail

Introduction

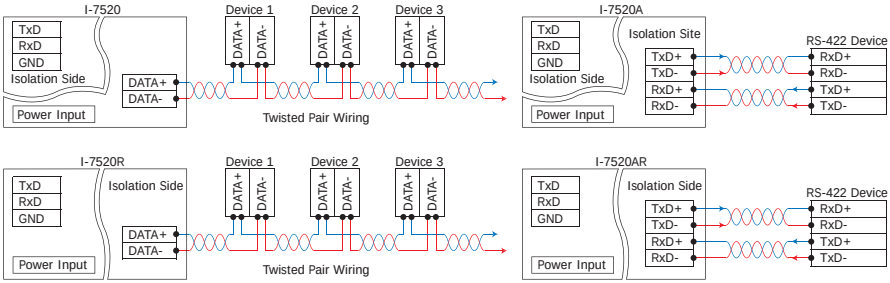
Most industrial computer systems provide standard RS-232 serial ports. Though widely accepted, RS-232 has limited transmission speed, range, and networking capabilities. The RS-422 and RS-485 standards overcome these limitations by using differential voltage lines for data and control signals, which transparently converts RS-232 signals into isolated RS-422 or RS-485 signal with no need to change any hardware or software. The I-7520/I-7520A lets you easily build an industrial grade, long-distance communication system using standard PC hardware.

The design of the isolation between the I-7520 and the I-7520R/AR is different. If the user wants to supply power from the PLC/PC, the I-7520R/AR should be used, otherwise the isolation will be broken. Refer to the I-7000 bus converter manual for detailed information.

Specifications

Models		I-7520	I-7520R	I-7520A	I-7520AR
Interface					
Serial Interface	RS-232	TxD, RxD, GND			
	RS-422	-		TxD+, TxD-, RxD+, RxD- The RS-422 and RS-485 cannot be used simultaneously	
	RS-485	Data+, Data-			
2-wire Cabling/4-wire Cabling		Belden 8941 (2P twisted-pair cable)/Belden 8942 (4P twisted-pair cable), if different cables are used, the transmission distance may change			
Transfer Distance		Max. 1,200 m for at speed 9.6 kbps; Max. 400 m at 115.2 kbps			
Max. Devices Supported		256 (Without repeater)			
Self-Tuner Asic Inside		Yes			
Speed		300 ~ 115200 bps			
ESD Protection		Yes			
3000 V_{DC} Isolated Voltage		On RS-232 side	On RS-485 side	On RS-232 side	On RS-485 side
Connection	RS-232	9-Pin Female D-Sub			
	RS-422/485	Removable 10-Pin Terminal Block			
LED Indicators					
Power/Communication		Yes			
Power					
Input Voltage Range		+10 V_{DC} ~ +30 V_{DC} (Non-isolated)			
Power Consumption		1.2 W			
Mechanical					
Casing		Plastic			
Flammability		Fire Retardant Materials (UL94-V0 Level)			
Dimensions (W x H x D)		72 mm x 118 mm x 35 mm			
Installation		DIN-Rail			
Environment					
Operating Temperature		-25 °C ~ +75 °C			
Storage Temperature		-30 °C ~ +75 °C			
Humidity		10 ~ 90% RH, non-condensing			

Applications



Pin Assignments

I-7520/I-7520R

Terminal No.		Pin Assignment
RS-485	01	DATA+
	02	DATA-
	03	--
	04	--
	05	--
	06	--
	07	--
	08	--
	09	(R)+Vs
	10	(B)GND

Pin Assignment	Terminal No.		Pin Assignment
GND	05	09	--
--	04	08	--
RxD	03	07	--
TxD	02	06	--
--	01		

RS-232: Female DB-9 Connector

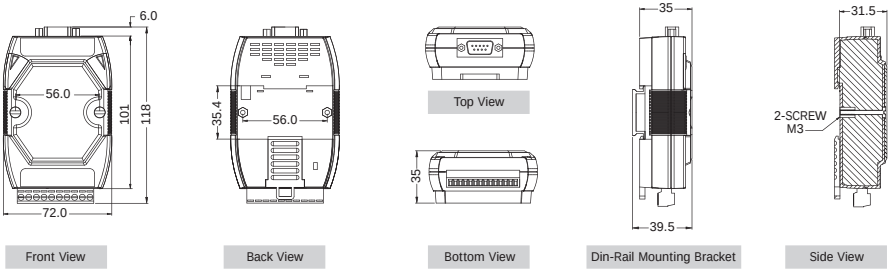
I-7520A/I-7520AR

Terminal No.		Pin Assignment
RS-485	01	DATA1+
	02	DATA1-
	03	--
RS-422/ 485	04	TxD+
	05	TxD-
	06	RxD+/DATA2+
	07	RxD-/DATA2-
	08	--
	09	(R)+Vs
	10	(B)GND

Pin Assignment	Terminal No.		Pin Assignment
GND	05	09	--
--	04	08	--
RxD	03	07	--
TxD	02	06	--
--	01		

RS-232: Female DB-9 Connector

Dimensions (Unit: mm)



Front View | Back View | Bottom View | Din-Rail Mounting Bracket | Side View

Ordering Information

I-7520 CR	Isolated RS-232 to RS-485 Converter (RoHS)
I-7520A CR	Isolated RS-232 to RS-422/485 Converter (RoHS)
I-7520-G CR	Isolated RS-232 to RS-485 Converter (Gray Cover) (RoHS)
I-7520A-G CR	Isolated RS-232 to RS-422/485 Converter (Gray Cover) (RoHS)
I-7520R CR	RS-232 to Isolated RS-485 Converter (RoHS)
I-7520AR CR	RS-232 to Isolated RS-422/485 Converter (RoHS)
I-7520R-G CR	RS-232 to Isolated RS-485 Converter (Gray Cover) (RoHS)
I-7520AR-G CR	RS-232 to Isolated RS-422/485 Converter (Gray Cover) (RoHS)

Accessories

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
DIN-KA52F	24 Vdc/1.04 A, 25 W Power Supply with Din-Rail Mounting
I-7510 CR	Isolated RS-485 Repeater (RoHS)
I-7510A CR	Isolated RS-422/485 Repeater (RoHS)
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m

I-7551

Isolated RS-232 to RS-232 Repeater

Features

- 3000 V_{DC} 3-way Isolation Protection
- ESD Protection
- Transmission Speed of up 115200 bps
- Power Input of +10 ~ +30 V_{DC}
- Supports Operating Temperatures from -25 °C ~ +75 °C
- DIN-Rail

Introduction

The I-7551 Photo coupler provides a complete full-duplex (including control signal) electrical isolation channel between two RS-232 devices. This isolation is an important consideration if a system uses different power sources, has noisy signals, or must operate at different ground potentials.

The I-7551 provides the option of reconfiguring which control signal is used. CTS can be selected instead of DSR, and RTS instead of DTR.

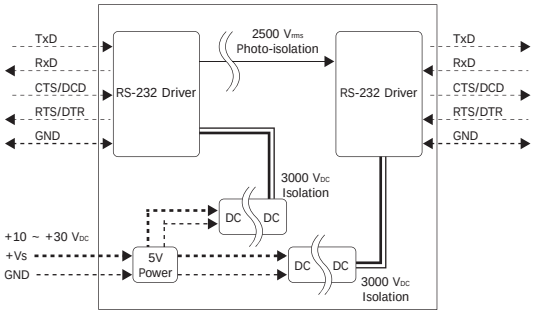
The I-7551 incorporates two DC-to-DC converters, the isolation site of the I-7551 is located in the input and output interface circuit. In other words, the I-7551 is 3-way isolation RS-232 to RS-232 repeater.

Applications

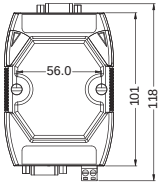
Specifications

Interface		
Input		TxD, RxD, CTS, RTS, GND or TxD, RxD, DSR, DTR, GND Jumpers JP1 and JP2 are used to select the RS-232 input source type
Output		TxD, RxD, CTS, RTS, GND or TxD, RxD, DSR, DTR, GND
2-wire Cabling/4-wire Cabling		Belden 8941 (2P twisted-pair cable)/Belden 8942 (4P twisted-pair cable), if different cables are used, the transmission distance may change
Transfer Distance		Max. 15 M at 115200 bps
Speed		300 ~ 115200 bps
ESD Protection		Yes
3000 V_{DC} Three Way Isolated Protection		Yes
Connection	RS-232 Input	9-Pin Female D-Sub
	RS-232 Output	9-Pin Male D-Sub
LED Indicators		
Power/Communication		Yes
Power		
Input Voltage Range		+10 V_{DC} ~ +30 V_{DC} (Non-isolated)
Power Consumption		1.2 W
Mechanical		
Casing		Plastic
Flammability		Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)		72 mm x 118 mm x 35 mm
Installation		DIN-Rail
Environment		
Operating Temperature		-25 °C ~ +75 °C
Storage Temperature		-30 °C ~ +75 °C
Humidity		10 ~ 90% RH, non-condensing

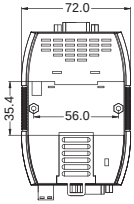
Internal I/O Structure



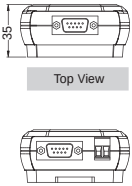
Dimensions (Unit: mm)



Front View

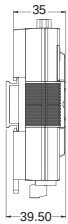


Back View

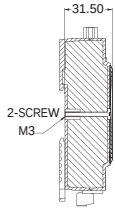


Top View

Bottom View



Din-Rail Mounting Bracket



Side View

Pin Assignments

Pin Assignment	Terminal No.	Pin Assignment
GND	01	
TxD	02	
RxD	03	
DSR	04	
--	05	
	06	DTR
	07	CTS
	08	RTS
	09	DSR

RS-232 Input: Female DB-9 Connector

Pin Assignment	Terminal No.	Pin Assignment
GND	05	
DTR	04	
TxD	03	
RxD	02	
--	01	
	09	--
	08	CTS
	07	RTS
	06	DSR

RS-232 Output: Male DB-9 Connector

Ordering Information

I-7551 CR	Isolated RS-232 to RS-232 Repeater (RoHS)
I-7551-G CR	Isolated RS-232 to RS-232 Repeater (Gray Cover) (RoHS)

Accessories

GPSU06U-6	24 VDC/0.25 A, 6 W Power Supply
DIN-KA52F	24 VDC/1.04 A, 25 W Power Supply with Din-Rail Mounting

4.5. Intelligent Communication Controllers

I-752N Series

Intelligent Communication Controller

Features

- Built-in "Addressable RS-485 to RS-232 Converter" firmware
- Programmable Intelligent Communication Controller
- Supports about 30 well-defined commands
- Supports Dual-Watchdog commands
- Supports power-up and safe value for DO
- Watchdog timer provides fault tolerance and recovery
- Low power consumption
- R.O.C. Invention Patent No. 086674, No.103060 and No. 132457
- Made from fire retardant materials (UL94-V0 Level)

Introduction

There are many RS-232 devices in industry applications. Nowadays it becomes important to link all those RS-232 devices together for automation and information. Usually those RS-232 devices are far away from the host-PC and 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. The I-752N series product can be used to link multiple RS-232 devices by a single RS-485 network. The RS-485 is famous for its easy maintenance, simple cabling, stable, reliable and low cost.

Onboard 1 KB Queue buffer

The I-752N series module is equipped with a 1 KB queue buffer for its local RS-232 device. All input data can be stored in the queue buffer until the Host PC has time to read it. This feature allows the Host PC to link to thousands of RS-232 devices without any loss of data.

3000V isolation on RS-485 side

COM2 of the I-752N modules is an isolated RS-485 port with 3000 V_{DC} isolation, which protects the local RS-232 devices from transient noises coming from the RS-485 network.

Self-Tuner ASIC inside

The built-in Self-Tuner ASIC on an RS-485 port can auto detect and control the send/receive direction of the RS-485 network. Thus, there is no need for application programs to be concerned about direction control of the RS-485 network.

Can be used as Addressable RS-485 to RS-232 Converter

Most RS-232 devices don't support device addressing. The ICP DAS I-752N module assigns a unique address for each RS-232 device installed. When Host PC sends a command with a device address to the RS-485 network, the destination I-752N module will remove the address field, and then pass the other commands to the specified local RS-232 devices. The response from the local RS-232 devices will be returned to the Host PC via the I-752N.

Master-type Addressable RS-485 to RS-232 Converter

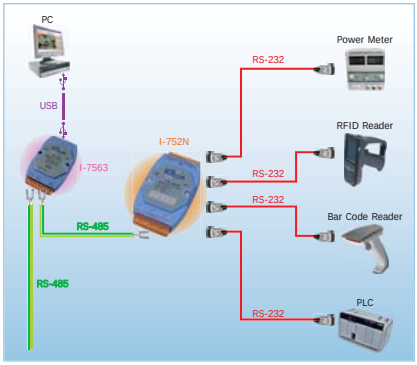
The ICP DAS I-752N product is unique. In that they are Master-type converters which use our R.O.C. Patent086674, while most other converters are Slave-type, which are helpless without a Host PC. In real industrial applications, many users are not satisfied with Slave-type converters as they cannot be adapted to individual requirement.
The powerful I-752N series analyzes the local RS-232 devices, DI and DO without the need for a Host PC. Refer to Applications 5 ~ 9 for more information in the manual.

Can be used as RS-232 to RS-485 Device Server

The Device Server is an appliance that networking any device with a serial communication port. The I-752N series Intelligent Communication Controller allows the RS-232 serial devices to connect to the RS-485 network. Also, there are PDS series products available from ICP DAS, which provide Ethernet connectivity for serial devices.

Applications

Factory, Building and Home Automation



I/O Specifications

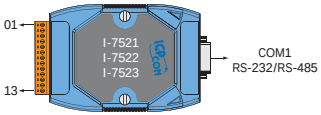
Models	I-7521(D)	I-7522(D)	I-7523(D)	I-7522A(D)	I-7524(D)	I-7527(D)
User-Defined I/O						
I/O Channel	3	-	-	-	-	-
Digital Output						
DI Channel	2	2	1	5	1	1
Input Type	Source (Dry Type), Common Ground, non-isolated					
Off Voltage	+1 V max.					
On Voltage	+3.5 V_{DC} ~ +30 V_{DC}					
Digital Output						
DO Channel	3	1	-	5	1	1
Output Type	Open Collector (Sink/NPN), non-isolated					
Load Voltage	+30 V_{DC} max.					
Load Current	100 mA max.					

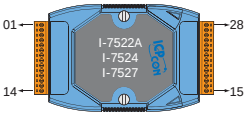
System Specifications

Models	I-7521(D)	I-7522(D)	I-7523(D)	I-7522A(D)	I-7524(D)	I-7527(D)
System						
CPU	80188, 20 MHz			80188, 40 MHz		
SRAM	128 KB			256 KB		
Flash	512 KB					
EEPROM	2 KB					
Real-Time Clock	-			Yes		
Watchdog Timer	Yes					
Operating System	MiniOS7					
Communication Interface						
COM1	5-wire RS-232 or 2-wire RS-485					
COM2	Isolated 2-wire RS-485			2-wire RS-485		
COM3	-	5-wire RS-232	5-wire RS-232	4-wire RS-422	5-wire RS-232	3-wire RS-232
COM4	-	-	3-wire RS-232	-	5-wire RS-232	3-wire RS-232
COM5	-	-	-	-	5-wire RS-232	3-wire RS-232
COM6	-	-	-	-	-	3-wire RS-232
COM7	-	-	-	-	-	3-wire RS-232
COM8	-	-	-	-	-	3-wire RS-232
Baud Rate	300 ~ 115200 bps					
Data Bit	COM1 ~ COM2: 7 or 8					
	COM3 ~ COM8: 5, 6, 7 or 8					
Parity	COM1 ~ COM2: None, Even, Odd					
	COM3 ~ COM8: None, Even, Odd, Mark , Space					
Stop Bit	COM1 ~ COM2: 1 or 2 (data bit must be 7)					
	COM3 ~ COM8: 1 or 2					
Connector	Male DB-9 x 1 13-Pin screw terminal block x 1 (for 16 ~ 26 AWG wires; 3.81 mm pitch)			14-Pin screw terminal block x 2 (for 16 ~ 22 AWG wires; 3.5 mm pitch)		
LED Indicators						
LED Display	5-digit 7-segment LED display for D versions					
Power						
Protection	Power input reverse polarity protection					
Power Requirement	Unregulated +10 V_{DC} ~ 30 V_{DC}					
Power Consumption	2 W (without display), 3 W (with display)					
Mechanical						
Casing	Plastic					
Flammability	Fire Retardant Materials (UL94-V0 Level)					
Dimensions (W x H x D)	72 mm x 118 mm x 35 mm			72 mm x 120 mm x 35 mm		
Installation	DIN-Rail					
Environment						
Operating Temperature	-25 °C ~ +75 °C					
Storage Temperature	-40 °C ~ +80 °C					
Humidity	0 ~ 90% RH, non-condensing					

Note:
3-wire RS-232: RxD, TxD, GND
5-wire RS-232: RxD, TxD, CTS, RTS, GND
2-wire RS-485: DATA+, DATA-, GND; Self-Tuner inside
Isolated 2-wire RS-485: DATA+, DATA-; Self-tuner inside; 3000 V_{DC} Isolation
4-wire RS-422: RxD+, RxD-, TxD+, TxD-, GND

Pin Assignments

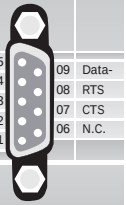




I-7521/I-7521D

Terminal No.		Pin Assignment
	01	X3
	02	X2
	03	X1
DO	04	DO3
	05	DO2
	06	DO1
DI	07	DI3
	08	DI2
	09	INIT*
COM2	10	(Y)D2+
	11	(G)D2-
Power Input	12	(R)+Vs
	13	(B)GND

Pin Assignment	Terminal No.	Pin Assignment
GND	05	09 Data-
N.C.	04	08 RTS
RxD	03	07 CTS
TxD	02	06 N.C.
Data+	01	



COM1: RS-232
Male DB-9 Connector

I-7522A/I-7522AD

Terminal No.		Pin Assignment
DO	01	DO
DI	02	DI
COM1	03	D1+
	04	D1-
	05	CTS1
	06	RTS1
	07	GND
	08	TxD1
	09	RxD1
	10	INIT*
COM2	11	(Y)D2+
	12	(G)D2-
Power Input	13	(R)+Vs
	14	(B)GND

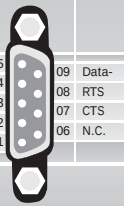
X507

Terminal No.		Pin Assignment
DO	28	DO3
	27	DO2
	26	DO1
	25	DO0
	24	DO.PWR
	23	GND
DI	22	DI3
	21	DI2
	20	DI1
	19	DI0
COM3	18	RxD3-
	17	RxD3+
	16	TxD3-
	15	TxD3+

I-7522/I-7522D

Terminal No.		Pin Assignment
COM3	01	CTS3
	02	RTS3
	03	RxD3
	04	TxD3
	05	GND
DO	06	DO1
DI	07	DI3
	08	DI2
	09	INIT*
COM2	10	(Y)D2+
	11	(G)D2-
Power Input	12	(R)+Vs
	13	(B)GND

Pin Assignment	Terminal No.	Pin Assignment
GND	05	09 Data-
N.C.	04	08 RTS
RxD	03	07 CTS
TxD	02	06 N.C.
Data+	01	



COM1: RS-232
Male DB-9 Connector

I-7524/I-7524D

Terminal No.		Pin Assignment
DO	01	DO
DI	02	DI
COM1	03	D1+
	04	D1-
	05	CTS1
	06	RTS1
	07	GND
	08	TxD1
	09	RxD1
	10	INIT*
COM2	11	(Y)D2+
	12	(G)D2-
Power Input	13	(R)+Vs
	14	(B)GND

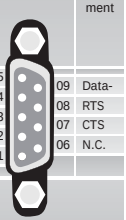
X505

Terminal No.		Pin Assignment
COM5	28	RxD5
	27	TxD5
	26	RTS5
	25	CTS5
	24	GND
COM4	23	RxD4
	22	TxD4
	21	RTS4
	20	CTS4
	19	GND
COM3	18	RxD3
	17	TxD3
	16	RTS3
	15	CTS3

I-7523/I-7523D

Terminal No.		Pin Assignment
COM3	01	CTS3
	02	RTS3
	03	RxD3
	04	TxD3
	05	GND
COM4	06	TxD4
	07	RxD4
DI	08	DI2
	09	INIT*
COM2	10	(Y)D2+
	11	(G)D2-
Power Input	12	(R)+Vs
	13	(B)GND

Pin Assignment	Terminal No.	Pin Assignment
GND	05	09 Data-
N.C.	04	08 RTS
RxD	03	07 CTS
TxD	02	06 N.C.
Data+	01	



COM1: RS-232
Male DB-9 Connector

I-7527A/I-7527AD

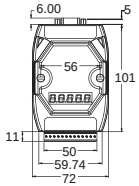
Terminal No.		Pin Assignment
DO	01	DO
DI	02	DI
COM1	03	D1+
	04	D1-
	05	CTS1
	06	RTS1
	07	GND
	08	TxD1
	09	RxD1
	10	INIT*
COM2	11	(Y)D2+
	12	(G)D2-
Power Input	13	(R)+Vs
	14	(B)GND

X506

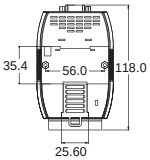
Terminal No.		Pin Assignment
COM7/8	28	TxD8
	27	RxD8
	26	TxD7
	25	RxD7
	24	GND
COM5/6	23	TxD6
	22	RxD6
	21	TxD5
	20	RxD5
	19	GND
COM3/4	18	TxD4
	17	RxD4
	16	TxD3
	15	RxD3

Dimensions (Unit: mm)

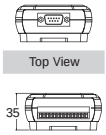
I-7521(D)/I-7522(D)/I-7523(D)



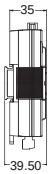
Front View



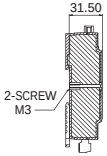
Back View



Bottom View

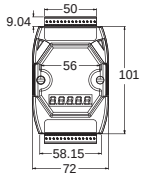


Din-Rail Mounting Bracket

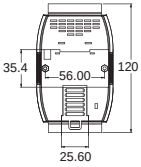


Side View

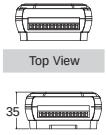
I-7522A(D)/I-7524(D)/I-7527(D)



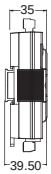
Front View



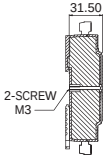
Back View



Bottom View



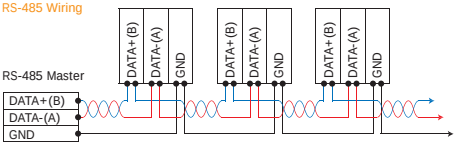
Din-Rail Mounting Bracket



Side View

Wiring

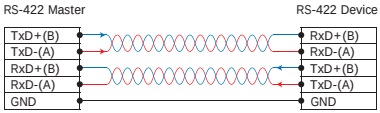
2-wire RS-485 Wiring



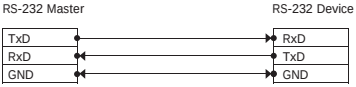
2-wire Only Device

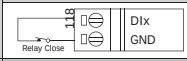
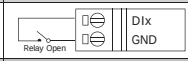
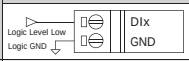
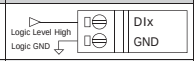
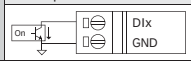
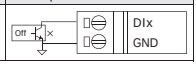
Twisted Pair Wiring plus Ground

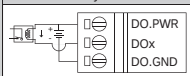
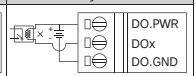
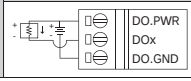
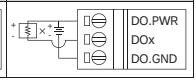
4-wire RS-422 Wiring



3-wire RS-232 Wiring



Input Type	DI Value as 0	DI Value as 1
Relay Contact	Relay ON	Relay Off
		
TTL/CMOS Logic	Voltage < 1V	Voltage > 3.5V
		
Open Collector	Open Collector On	Open Collector Off
		

Output Type	DO Command as 1	DO Command as 0
Drive Relay	Relay ON	Relay Off
		
Resistance Load		
		

Ordering Information

I-7521 CR	Intelligent Communication Controller (RoHS)
I-7521D CR	I-7521 with Display
I-7522 CR	Intelligent Communication Controller (RoHS)
I-7522D CR	I-7522 with Display
I-7522A CR	Intelligent Communication Controller (RoHS)
I-7522AD CR	I-7522A with Display
I-7523 CR	Intelligent Communication Controller (RoHS)
I-7523D CR	I-7523 with Display
I-7524 CR	Intelligent Communication Controller (RoHS)
I-7524D CR	I-7524 with Display
I-7527 CR	Intelligent Communication Controller (RoHS)
I-7527D CR	I-7527 with Display

Accessories

GPSU06U-6	24 VDC/0.25 A, 6 W Power Supply
MDR-20-24	24 VDC/1 A, 24 W Power Supply with DIN-Rail Mounting
KA-52F	24 VDC/1.04 A, 25 W Power Supply
DIN-KA52F	24 VDC/1.04 A, 25 W Power Supply with Din-Rail Mounting

4.6. USB to RS-232/422/485 Converters

I-7560

USB to RS-232 Converter

Features

- Fully Compliant with the USB 1.1/2.0 (High Speed)
- No External Power Supply is required as the I-7560 is powered from the USB Bus
- Transmission Speed of up to 115200 bps
- Supports Operating Temperatures from -25 °C ~ +75 °C
- Driver Supports Windows 98/ME/2000/XP/Vista (32-bit)/Linux

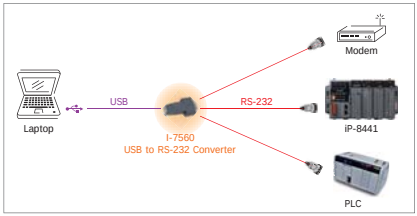
Introduction

The I-7560 contains a Windows serial com port via it's USB connection and is compatible with new and legacy RS-232 devices. USB Plug-and-Play allows easy serial port expansion and requires no IRQ, DMA, or I/O port resources.

The I-7560 features a full set of RS-232 modem data and control signals (TxD, RxD, RTS, CTS, DSR, DTR, DCD, RI and GND) on it's PC compatible DB-9 male connector. It also features a high-speed 115200 bps transmission rate.

The I-7560 is powered from the USB bus and no additional power supply is needed.

Applications



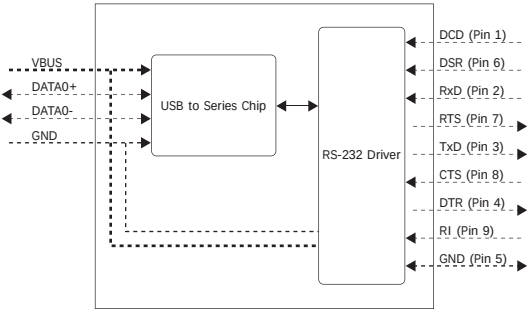
Software

Driver
Windows 98/ME/2000/XP/Vista (32-bit)/Linux

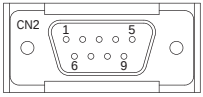
Specifications

Interface		
USB		Compatibility: USB 1.1 and 2.0 standards
RS-232		TxD, RxD, RTS, CTS, DSR, DTR, DCD, RI and GND; non-isolated
Speed		300 ~ 115200 bps
Connection	RS-232	9-Pin Male D-Sub
	USB	Type B
Cable Included		CA-USB18 (1.8 m Cable) x 1
LED Indicators		
Power		Yes
Power		
Input Voltage Range		+5 V_{DC} from USB
Power Consumption		0.3 W
Mechanical		
Casing		Plastic
Flammability		Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)		33 mm x 60 mm x 15 mm
Environment		
Operating Temperature		-25 °C ~ +75 °C
Storage Temperature		-30 °C ~ +75 °C
Humidity		10 ~ 90% RH, non-condensing

Internal I/O Structure

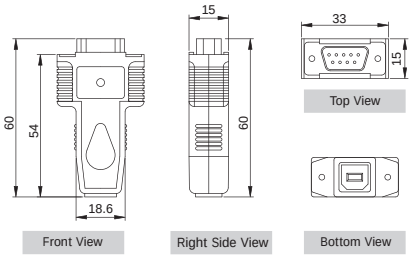


Pin Assignments



Pin	Signal		Mode
01	DCD	Data Carrier Detect	Input
02	RxD	Receive Data	Input
03	TxD	Transmit Data	Output
04	DTR	Data Term Ready	Output
05	GND	Ground	--
06	DSR	Data Set Ready	Input
07	RTS	Request To Send	Output
08	CTS	Clear To Send	Input
09	RI	Ring Indicator	Input

Dimensions (Unit: mm)



Ordering Information

I-7560 CR	USB to RS-232 Converter (RoHS)

Accessories

USB-2560 CR	Industrial 4-port USB 2.0 Hub
CA-USB18	USB Type A to Type B Cable

I-7561

USB to Isolated RS-232/422/485 Converter

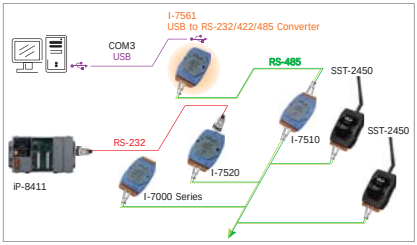
Features

- Fully Compliant with the USB 1.1/2.0 (High Speed)
- No External Power Supply is required as the I-7561 is powered from the USB Bus
- Transmission Speed of up to 115200 bps
- 3000 V_{DC} Isolation Protection on the RS-232/422/485 side
- ESD Protection for the RS-232/422/485 Data Line
- Supports Operating Temperatures from -25 °C ~ +75 °C
- Driver Supports Windows 98/ME/2000/XP/Vista (32-bit)/Linux
- DIN-Rail

Introduction

The I-7561 is a cost-effective module for transferring serial data via USB. It allows you to connect your serial devices to systems that use a USB interface. Connecting the I-7561 to a PC, you get one RS-232/422/485 port. Like the I-7520A, the I-7561 contains "Self Tuner" chip auto-tunes the Baud Rate and data format to the RS-485 network.The I-7561 module derives its power from the USB port and doesn't need any power adapter. It also features a high-speed 115.2 kbps transmission rate, and supports various O.S. independent RS-232/422/485 Ports.

Applications



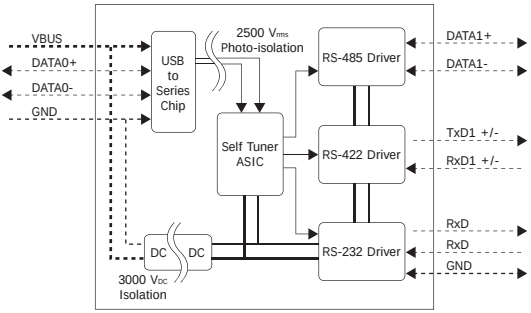
Software

Driver
Windows 98/ME/2000/XP/Vista (32-bit)/Linux

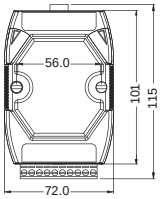
Specifications

Interface			
USB		Compatibility: USB 1.1 and 2.0 standards	
Serial Interface	RS-232	TxD, RxD, GND	The RS-232, RS-422 and RS-485 cannot be used simultaneously
	RS-422	TxD+, TxD-, RxD+, RxD-	
	RS-485	Data+, Data-	
2-wire cabling/4-wire cabling		Belden 8941 (2P twisted-pair cable)/Belden 8942 (4P twisted-pair cable), if different cables are used, the transmission distance may change	
RS-422/485 Transfer Distance		Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps	
Maximum Supported RS-485 Devices		256 (Without repeater)	
Self-Tuner Asic Inside (RS-485)		Yes	
Speed		300 ~ 115200 bps	
Connection	RS-232/422/485	Removable 10-Pin Terminal Block	
	USB	Type B	
Cable Included		CA-USB18 (1.8 m Cable) x 1	
LED Indicators			
Power		Yes	
Power			
Input Voltage Range		+5 V_{DC} from USB	
Power Consumption		0.5 W	
Mechanical			
Casing		Plastic	
Flammability		Fire Retardant Materials (UL94-V0 Level)	
Dimensions (W x H x D)		72 mm x 115 mm x 35 mm	
Installation		DIN-Rail	
Environment			
Operating Temperature		-25 °C ~ +75 °C	
Storage Temperature		-30 °C ~ +75 °C	
Humidity		10 ~ 90% RH, non-condensing	

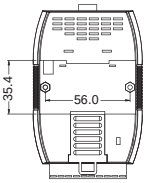
Internal I/O Structure



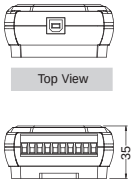
Dimensions (Unit: mm)



Front View

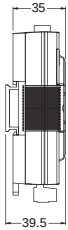


Back View

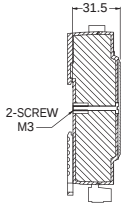


Top View

Bottom View



Din-Rail Mounting Bracket



Side View

Pin Assignments

Terminal No.		Pin Assignment
RS-485	01	DATA+
	02	DATA-
RS-422/485	03	TxD+
	04	TxD-
	05	RxD+/DATA2+
	06	RxD-/DATA2-
RS-232	07	TxD
	08	RxD
	09	(B)GND
	10	(B)GND

Ordering Information

I-7561 CR	USB to RS-232/422/485 Converter (RoHS)
I-7561-G CR	USB to RS-232/422/485 Converter (Gray Cover) (RoHS)
Include Cable	CA-USB18 (1.8 m Cable) x 1

Accessories

USB-2560 CR	Industrial 4-port USB 2.0 Hub
CA-USB18	USB Type A to Type B Cable

I-7563

USB to Isolated RS-485 Active Star Wiring Converter

Features

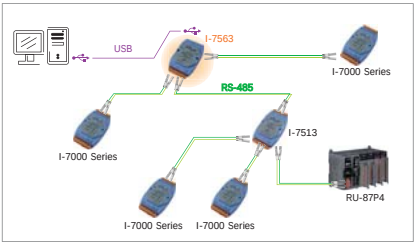
- Fully Compliant with USB 1.1/2.0 (High Speed)
- No External Power Supply is required as the I-7561 is powered from the USB Bus
- RS-485 Active Star Wiring Applications
- Transmission of up to 115200 bps
- 3000 V_{DC} Isolation Protection on the RS-485 side
- ESD Protection for the RS-485 Data Line
- Supports Operating Temperatures from -25 °C ~ +75 °C
- Driver Supports Windows 98/ME/2000/XP/Vista (32-bit)/Linux
- DIN-Rail

Introduction

The I-7563 is a cost-effective module for transferring serial data via USB. It allows you to connect your serial devices to systems that use a USB interface. Connecting the I-7563 to a PC. The I-7563 contains "Self-Tuner" This chip auto-tunes the Baud Rate and data format to the RS-485 network. The I-7563 module derives its power from the USB port and doesn't need any power adapter. It also features a high-speed 115.2 kbps transmission rate, and supports various O.S.

Do you have any RS-485 wiring problems I-7563 is a USB to 1-channel RS-485 converter with a 3-way RS-485 Hub. Each channel contains its own RS-485 driver IC, so it can support star-shaped wiring.

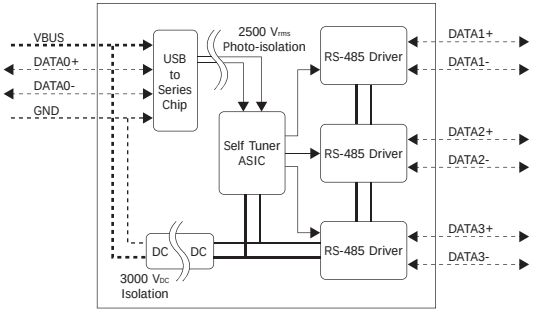
Applications



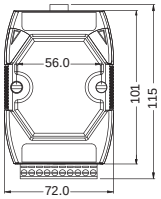
Specifications

Interface		
USB		Compatibility: USB 1.1 and 2.0 standards
RS-485		3 Channels: For active star wiring applications
		Data1+, Data1-
		Data2+, Data2-
		Data3+, Data3-
2-wire cabling		Belden 8941 (2P twisted-pair cable), if different cables are used, the transmission distance may change
RS-485 Transfer Distance		Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps
Maximum Supported RS-485 Devices		Max. of 256 devices
Self-Tuner Asic Inside for RS-485		Yes
Speed		300 ~ 115200 bps
Connection	RS-485	Removable 10-Pin Terminal Block
	USB	Type B
Cable Included		CA-USB18 (1.8 m Cable) x 1
LED Indicators		
Power		Yes
Power		
Input Voltage Range		+5 V_{DC} from USB
Power Consumption		0.5 W
Mechanical		
Casing		Plastic
Flammability		Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)		72 mm x 115 mm x 35 mm
Installation		DIN-Rail
Environment		
Operating Temperature		-25 °C ~ +75 °C
Storage Temperature		-30 °C ~ +75 °C
Humidity		10 ~ 90% RH, non-condensing

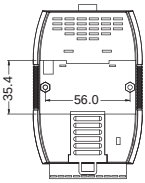
Internal I/O Structure



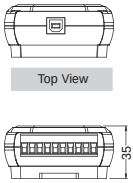
Dimensions (Unit: mm)



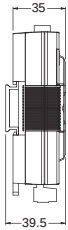
Front View



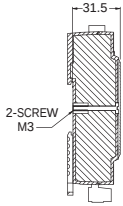
Back View



Bottom View



Din-Rail Mounting Bracket



Side View

Pin Assignments

Terminal No.		Pin Assignment
RS-485	01	DATA3+
	02	DATA3-
	03	--
	04	--
RS-485	05	DATA2-
	06	DATA2+
	07	--
	08	--
RS-485	09	DATA1-
	10	DATA1+

Ordering Information

I-7563 CR	USB to Isolated RS-485 Active Star Wiring Converter (RoHS)
I-7563-G CR	USB to Isolated RS-485 Active Star Wiring Converter (Gray Cover) (RoHS)
Include Cable	CA-USB18 (1.8 m Cable) x 1

Accessories

USB-2560 CR	Industrial 4-port USB 2.0 Hub
CA-USB18	USB Type A to Type B Cable

4.6. RS-232/422/485 to Fiber Optic Converters

I-2541

RS-232/422/485 to Fiber Optic Converter

Features

- Auto Switching Baud Rate, 300 ~ 115200 bps
- 3000 V_{DC} Isolation Protection on the RS-232 side
- ESD Protection for the RS-232/422/485 Data Line
- Transmission Speed of up to 115200 bps
- Power Input of +10 ~ +30 V_{DC}
- Supports Operating Temperatures from -25 °C ~ +75 °C
- DIN-Rail

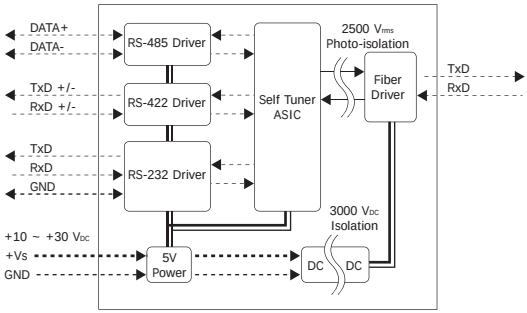
Introduction

The I-2541 is an RS-232/422/485 to fiber optic converter that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference. The I-2541 is used for RS-232/422 point-to-point connections and RS-485 multi-drop applications for transmitting a signal up to 2 km (6,600 ft) and is the perfect solution for applications where transmission must be protected from electrical exposure, surges, lightning or chemical corrosion.

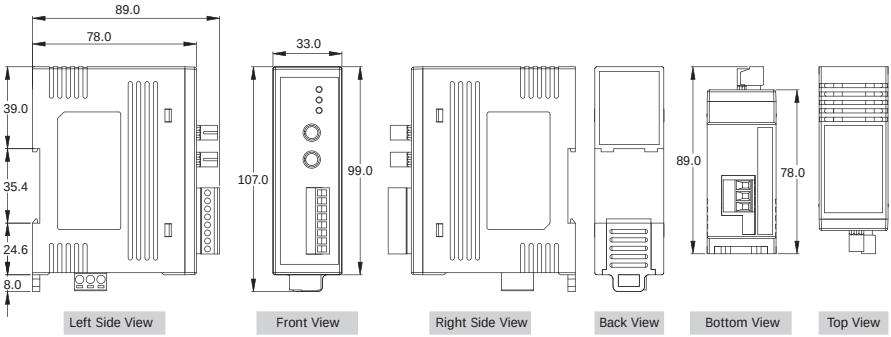
Specifications

Interface			
Fiber Interface	Fiber Port	Multi Mode; ST Connector	
	Wavelength	850 nm	
	Fiber Cable	50/125, 62.5/125, 100/140 µm	
	Distance	2 km, (62.5/125 µm recommended)	
Serial Interface	RS-232	TxD, RxD, GND	The RS-232, RS-422 and RS-485 cannot be used simultaneously
	RS-422	TxD+, TxD-, RxD+, RxD-	
	RS-485	Data+, Data-	
2-wire Cabling/4-wire Cabling		Belden 8941 (2P twisted-pair cable)/Belden 8942 (4P twisted-pair cable), if different cables are used, the transmission distance may change	
RS-422/485 Transfer Distance		Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps	
Maximum Supported RS-485 Devices		256 (Without repeater)	
Self-Tuner Asic Inside		Yes	
Speed		300 ~ 115200 bps	
ESD Protection		Yes	
Isolated Voltage		3000 V_{DC} on the RS-232 side	
RS-232/422/485 Connection		Removable 8-Pin Terminal Block	
LED Indicators			
Power/Communication		Yes	
Power			
Input Voltage Range		+10 V_{DC} ~ +30 V_{DC} (Non-isolated)	
Power Consumption		1.9 W	
Mechanical			
Casing		Plastic	
Flammability		Fire Retardant Materials (UL94-V0 Level)	
Dimensions (W x L x H)		33 mm x 89 mm x 107 mm	
Installation		DIN-Rail	
Environment			
Operating Temperature		-25 °C ~ +75 °C	
Storage Temperature		-30 °C ~ +75 °C	
Humidity		10 ~ 90% RH, non-condensing	

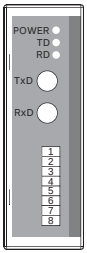
Internal I/O Structure



Dimensions (Unit: mm)



Pin Assignments



Terminal No.	Pin Assignment
TxD	Fiber TxD
RxD	Fiber RxD
01	TxD+/DATA+
02	TxD-/DATA-
03	RxD+
04	RxD-
05	NC
06	GND
07	TxD
08	RxD

Ordering Information

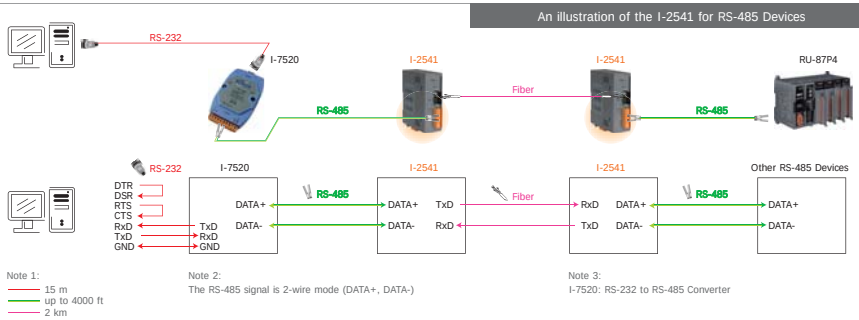
I-2541 CR	RS-232/422/485 to Fiber Optic Converter

Accessories

GPSU06U-6	24 VDC/0.25 A, 6 W Power Supply
DIN-KA52F	24 VDC/1.04 A, 25 W Power Supply with Din-Rail Mounting

Applications

An illustration of the I-2541 for RS-485 Devices

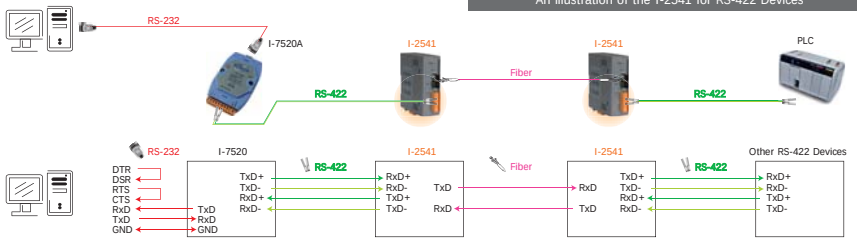


Note 1:
15 m
up to 4000 ft
2 km

Note 2:
The RS-485 signal is 2-wire mode (DATA+, DATA-)

Note 3:
I-7520: RS-232 to RS-485 Converter

An illustration of the I-2541 for RS-422 Devices

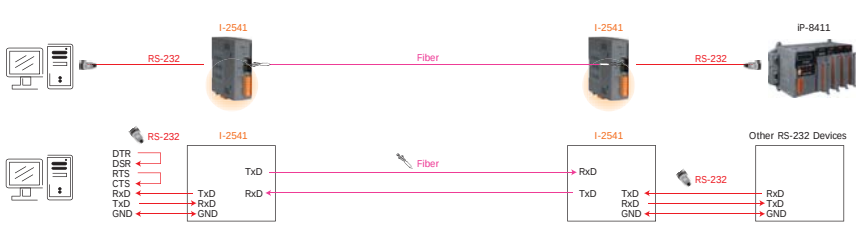


Note 1:
15 m
up to 4000 ft
2 km

Note 2:
The RS-422 signal is 4-wire mode (TxD+, TxD-, RxD+, RxD-)

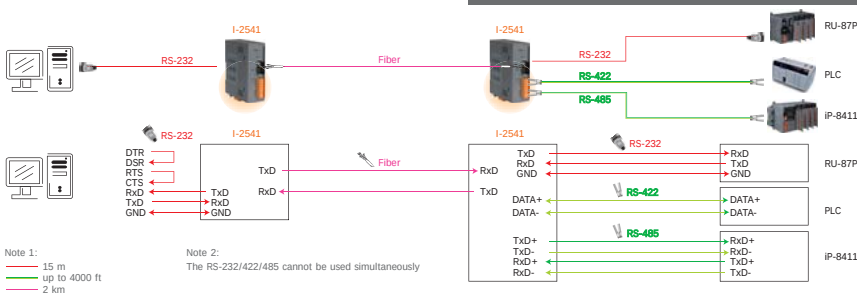
Note 3:
I-7520A: RS-232 to RS-485/422 Converter

An illustration of the I-2541 for RS-232 Devices



Note 1:
15 m
2 km

An illustration of the I-2541 for RS-232/422/485 Devices



Note 1:
15 m
up to 4000 ft
2 km

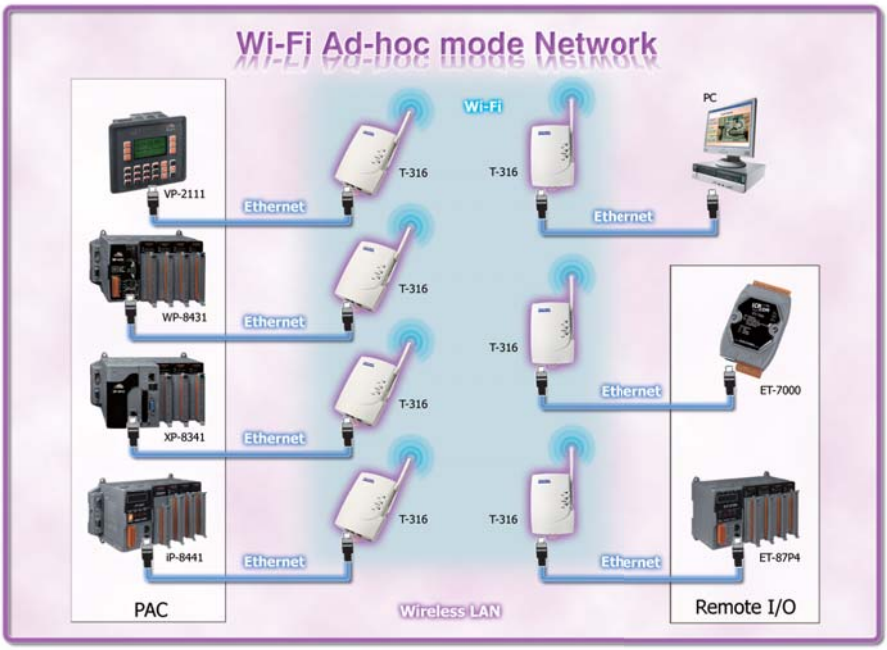
Note 2:
The RS-232/422/485 cannot be used simultaneously

Wireless Solutions

5

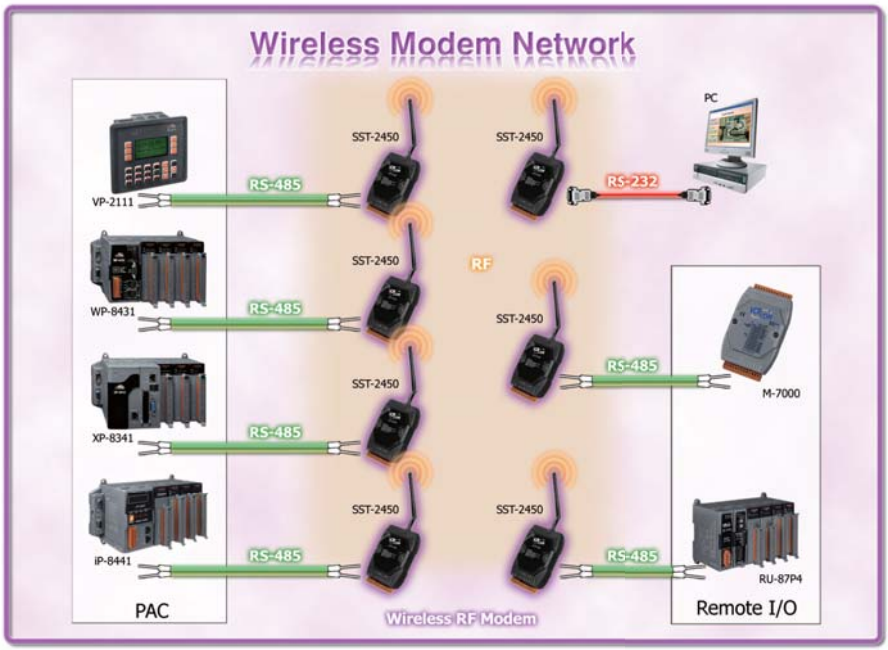
5.1. Wireless LAN & Wireless Modems

Wireless LAN



Nowadays, Wireless LAN applications are very popular. They're not only faster than traditional industrial transmissions, i.e. RS-232, RS-485, RS-422 etc, but are also able to minimize the need for troublesome wiring tasks and have a higher mobility than an Ethernet network. By taking full advantage of the integrated Web Server capability, configuration of the T-316 can easily be performed via a simple Web browser user interface.

Wireless Modems



The SST-2450 is a spread spectrum radio modem with an RS-232/RS-485 interface port and is designed for data acquisition and control applications between a host and remote sensors. It is also useful for those applications where the installation of cable wire is inconvenient. The SST-2450 can be used not only in peer-to-peer mode, but also in a multi-point structure.

The SST-2450 is based on a direct sequence spread spectrum using RF technology, operating in the ISM bands with a frequency range of 2410.496 MHz to 2471.936 MHz and a channel spacing of 4.096 MHz.

T-316

Smart WLAN Ethernet Client

Features

- 802.11b Ethernet Client
- Web-based Configuration
- Web-based Firmware Upgrades
- 64/128-bit WEP
- No Driver Installation Required
- Plug and Play Operation
- Directional 6dBi Gain Antenna
- AP Priority List
- Small and Compact
- DIN-Rail Mountable

Introduction

The T-316 is an Ethernet LAN to wireless LAN converter. It requires no software or drivers to be installed and the configuration process is very simple. The current hardware system or currently running programs do not need to be modified in order to enjoy the benefits of wireless transmission.

Operating Modes

Ad-hoc Mode

An Ad-hoc network is formed using a number of wireless stations (without an Access Point) and communicates via radio waves. For the user, the shared resources on the wireless network appear exactly as they would on a regular wired network. The wireless operation of the network is totally transparent.

Infrastructure Mode

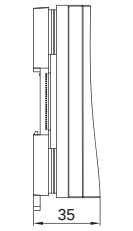
An Infrastructure network is formed using a number of stations together with one or more Access Points (APs), with the stations positioned within a set distance from the AP. This mode supports long distance transmissions.

Applications

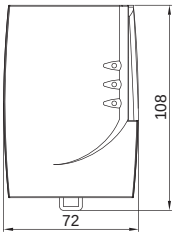
Specifications

Wireless		
Standard		IEEE 802.11b DSSS (2.4 GHz ISM radio band)
Data Rate		11 Mbps, 5.5 Mbps, 1 Mbps (Auto scaling)
Transmit Power		+15 dBm (typical)
Data Rate Sensitivity	11 Mbps	-84 dBm
	5.5 Mbps	-87 dBm
	1 Mbps	-90 dBm
Modulation	11 Mbps	CCK
	5.5 Mbps	CCK
	1 Mbps	DBPSK
Antenna		Internal patch antenna with diversity
Transmission Range		100 m
General		
System Interface		Ethernet (RJ-45)
LAN		802.3 compliant for wired LAN
LED Indicators		
Power		Yes
RF Activity		Yes
LAN Activity		Yes
Power		
Operating Voltage		+3.3 Vdc +/-5 % or +5.0 Vdc +/-5 %
Current Consumption		500 mA (max.)
Mechanical		
Dimensions (W x H x D)		72 mm x 108 mm x 35 mm
Weight		250 g
Environment		
Operating Temperature		0 °C ~ +55 °C
Humidity		10 ~ 95% RH, non-condensing

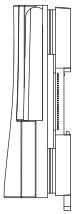
Dimensions (Unit: mm)

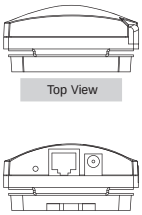


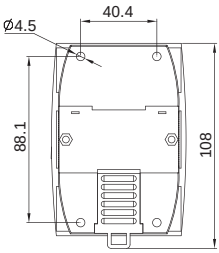
Left Side View



Front View


Right Side View


Top View
Bottom View



Back View

Ordering Information

T-316	Smart WLAN Ethernet Client

SST-2450

2450 MHz Wireless Modem

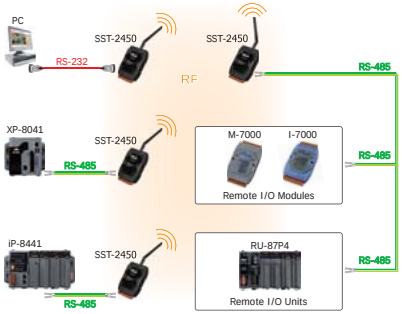
Features

- Half-duplex up to 57600 bps
- Internal Self-Tuner
- ISM Band 2.4 GHz
- Supports Full-duplex and Half-duplex communication
- Spread Spectrum Technology

Introduction

The SST-2450 is a spread spectrum radio modem with an RS-232/RS-485 interface port and is designed for data acquisition and control applications between host and remote sensors. It is also useful for those applications, the cable wire is inconvenient to be installed. The SST-2450 can be used in not only peer to peer mode but also multi-point structure.

Applications

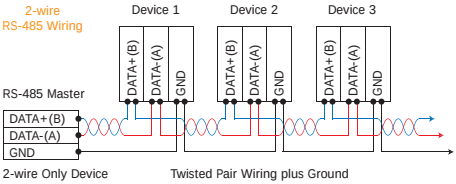


Specifications

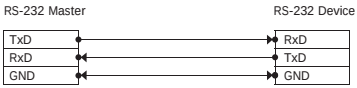
Wireless		
Operating Frequency Range		2.4 GHz (2410.496 MHz ~ 2471.936 MHz)
Channel Spacing		4.096 MHz
Output Power		0.05 W
Transmit Power		17 dBm +/-2 dBm
Modulation		MSKG
Radio Technique		Direct Sequence Spread Spectrum
Duplex Mode		TDD (for Full-duplex)
Number of Channel		16
Number of PN Code		16
PN Code Rate		1.365 Mchips/Sec.
Transmission Range		Typical 300 m
Data Bit Error Rate		< 1/1000 @ -102 dBm
Antenna		
Type		3 dBi Omni-directional, bendable
Connector		Reverse-Polarity SMA-Jack
Serial Link		
Interface	RS-232	TxD, RxD, GND
	RS-485	D+, D-; internal self-tuner ASIC; Non-isolated
Max. Data Transfer Rate in Asynchronous Mode	Full-duplex Mode	9600 bps
	Half-duplex Mode	28800 bps
Max. Data Transfer Rate in Synchronous Mode	Full-duplex Mode	19200 bps
	Half-duplex Mode	57600 bps
Data Format		N, 8, 1 or E, 8, 1
Power		
Operating Voltage		+10 V_{DC} ~ +30 V_{DC}
Current Consumption	Typical	Less than 250 mA
	Transmission	2 W
	Receive	1 W
Mechanical		
Dimensions (W x H x D)		72 mm x 117 mm x 35 mm
Environment		
Operating Temperature		-10 °C ~ +50 °C
Storage Temperature		-20 °C ~ +70 °C
Humidity		0 ~ 90% RH, non-condensing

Wiring

2-wire RS-485 Wiring



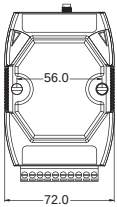
3-wire RS-232 Wiring



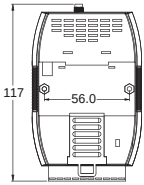
Pin Assignments

Terminal No.	Pin Assignment
01	SET
02	GND
03	--
04	RxD
05	TxD
06	GND
07	(Y)DATA+
08	(G)DATA-
09	(R)+Vs
10	(B)GND

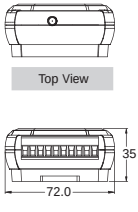
Dimensions (Unit: mm)



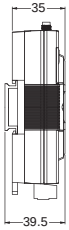
Front View



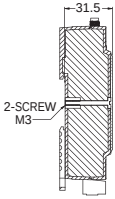
Back View



Bottom View



Din-Rail Mounting Bracket



Side View

Ordering Information

SST-2450	2450 MHz Wireless Modem

Accessories

ANT-8	1 km, 2.4 GHz External Antenna (Omni-directional). Gain: 8 dBi
ANT-15	5 km, 2.4 GHz External Antenna (Omni-directional). Gain: 15 dBi
ANT-18	9 km, 2.4 GHz External Antenna (Directional). Gain: 18 dBi
ANT-15YG	5 km, 2.4 GHz External Antenna (Directional). Gain: 15 dBi
ANT-21	12 km, 2.4 GHz External Antenna (Directional). Gain: 21 dBi
ANF-2401	1 W Amplifier

Available soon

SST-900

900 MHz Wireless Modem

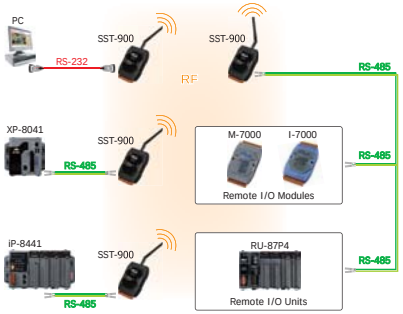
Features

- Half-duplex up to 115200 bps
- Internal Self-Tuner
- ISM Band 900 MHz

Introduction

The SST-900 is a radio frequency modem with an RS-232/RS-485 interface port and is designed for data acquisition and control applications between a host and remote sensors. It is also useful for those applications where the installation of cable wire is inconvenient. The SST-900 can be used not only in peer-to-peer mode but also in a multi-point structure.

Applications

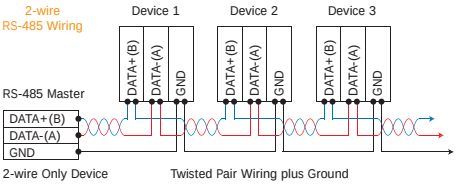


Specifications

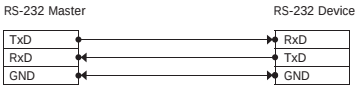
Wireless		
Operating Frequency Range		915 MHz (902 MHz ~ 928 MHz)
Channel Spacing		1.5 MHz
Transmit Power		15 dBm
Number of Channel		16
Transmission Range		Typical 300 m
Data Bit Error Rate		< 1/1000 @ -102 dBm
Antenna		
Type		3 dBi Omni-directional, bendable
Connector		Reverse-Polarity SMA-Jack
Serial Link		
Interface	RS-232	TxD, RxD, GND
	RS-485	D+, D-; internal self-tuner ASIC; Non-isolated
Max. Data Transfer Rate (Half-duplex Mode)		115200 bps
Data Format		N, 8, 1 or E, 8, 1
Power		
Operating Voltage		+10 V_{DC} ~ +30 V_{DC}
Mechanical		
Dimensions (W x H x D)		72 mm x 117 mm x 35 mm
Environment		
Operating Temperature		-10 °C ~ +50 °C
Storage Temperature		-20 °C ~ +70 °C
Humidity		0 ~ 90% RH, non-condensing

Wiring

2-wire
RS-485 Wiring



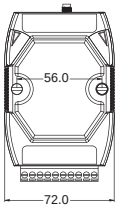
3-wire RS-232 Wiring



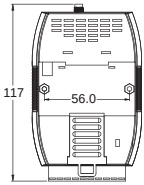
Pin Assignments

Terminal No.	Pin Assignment
01	SET
02	GND
03	--
04	RxD
05	TxD
06	GND
07	(Y)DATA+
08	(G)DATA-
09	(R)+Vs
10	(B)GND

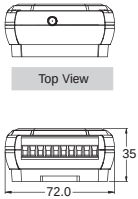
Dimensions (Unit: mm)



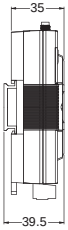
Front View



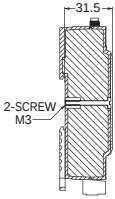
Back View



Bottom View



Din-Rail Mounting Bracket



Side View

Ordering Information

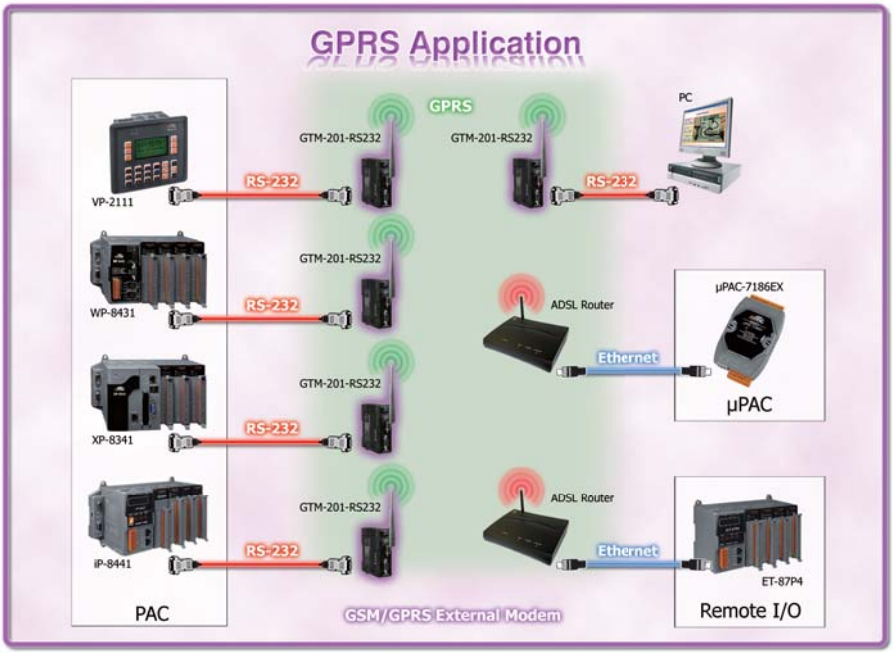
SST-900	900 MHz Wireless Modem

5.2. GPRS/GSM Wireless Products

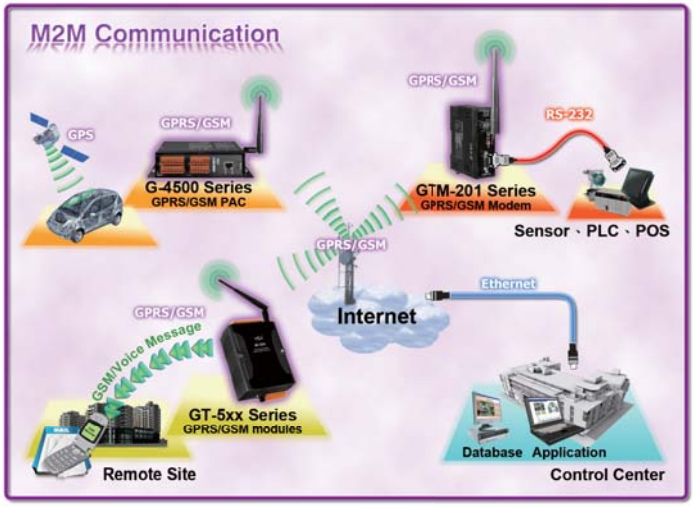
ICP DAS GPRS/GSM wireless solutions are uniquely designed to meet the challenges of implementing and Managing a small, medium and large number of unmanned remote devices as well as mobile terminals using the GPRS/GSM network. The ICP DAS GPRS/GSM wireless system is comprised of intelligent GPRS/GSM modems with versatile interfaces, a GPRS/GSM Data Server (DS) and GRPS/GSM PACs with embedded dynamic IP resolution technology to help system integrators and application service providers quickly integrate GPRS/GSM technology into their own solutions, and save development time with reduced costs and assured performance.

Advantages & Benefits

- There is no need to build an expensive fixed line network, saving substantially costs
- Plug & Play - Enable any device to be connected to the Internet via serial port over a GSM/GPRS network
- Communications - The most efficient method of handling data over a GPRS/GSM wireless network and the Internet
- Complete - A full turnkey solution that is designed for both fixed and mobile machine-to-machine applications



The Supreme has the same versatile Plug & Play form factor as previous M1306 products, and is packed with a host of new features that will carry your applications well into the future. For µPAC users, we provide GPRS, GSM and SMS lib files that allow you to quickly create custom application. For PAC users, the necessary software tools for GPRS, GSM and SMS are built to the OS.



Product	Functions	Applications
GTM-201 series 	Industrial GSM/GPRS modems • Quad-band 850/900/1800/1900 MHz • Different communication interfaces are provided, including RS-232 and USB, etc. • Uses AT commands • Designed for GPRS, data, fax, SMS and voice applications • Industrial design with surge protection • Supports TCP Server, TCP client, UDP client connection from GPRS	• Equipment automation • Remote monitoring systems • Remote Data acquisition systems • For the PC based/PLC/PAC-based applications
GT-5xx series 	Intelligent GPRS/GSM modules • Quad-band 850/900/1800/1900 MHz • Can act as a GPRS or SMS gateway module • SMS reception and transmission • Connect any serial device to GPRS and the Internet • Easily monitor remote processes • Plug and play. No special programming Knowledge required • Support for Voice alarm via GSM network • GUI-based Utility • Industrial design with surge protection	• Remote data monitoring and control • Water, gas and oil flow metering • Power station monitoring and control • Traffic signal monitoring and control • Remote I/O monitoring systems • Home automation • Vendor machine management systems • Voice alert system
G-4500 series 	Multi-function GPRS/GSM PACs • Supports a variety of TCP/IP features, including TCP, UDP, IP, ICMP and ARP, etc. • 10/100 BASE-T NE2000 compatible Ethernet Controller • Built-in Self-Tuner ASIC controller on the RS-485 port • Support the Modbus Protocol • GPS function • Free easy-to-use software development toolkits • Industrial design with surge protection	• Fleet management • Commercial vehicle monitoring and driver performance monitoring • Rental car monitoring and theft recovery • Emergency (ambulance and fire engine) • Hydrology monitoring systems

GTM-201-RS232
GTM-201-USB

Industrial Quad-band GPRS/GSM Modems

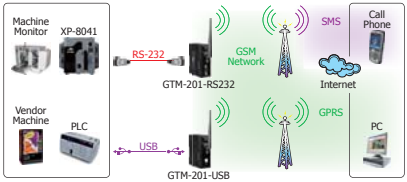
Features

- Quad-band GSM/GPRS Modem Operating of 850/900/1800/1900 MHz
- Designed for GPRS, Data, Fax, SMS and Voice Applications
- Supports TCP Server, TCP Client, UDP Client Connection from GPRS
- Supports Standard AT Commands
- Includes a Digital Input Channel to reset the System
- Provide 3.5 mm stereo jack for Audio Interface
- LED Indicators for GSM and Power Indication
- High reliability in harsh environments
- The RS-232 Port supports 9600 to 115200 bps (GTM-201-RS232)
- USB Driver for Windows, WinPAC (WinCE5.0), LinPAC (Linux 2.6) (GTM-201-USB)
- DIN-Rail mountable

Introduction

The GTM-201 is a series of industrial Quad-band GSM/GPRS modems with RS-232 and USB interfaces that work at frequencies of GSM 850 MHz, EGSM 900 MHz, DCS 1800 MHz and PCS 1900 MHz. The modems utilize the GSM/GPRS network for convenient and inexpensive data transfer from remote instruments, meters, computers or control systems in either live data or packet data acquisition. The GTM-201 series has an integrated TCP/IP stack so that even simple controllers with serial communications ports can be connected to the modem without the need for special installation of drivers. The features of the GTM-201 series allows a variety of PLC and PC applications to take advantage of SMS and GPRS connectivity. The voice interface allows these modems to be also applied to alarm systems with sounds.

Applications

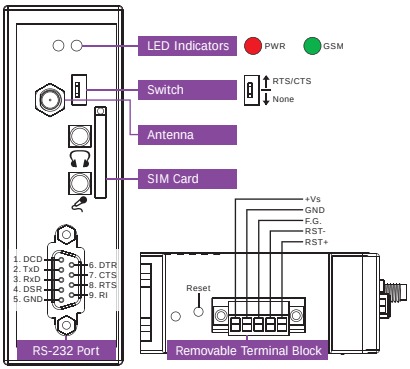


Specifications

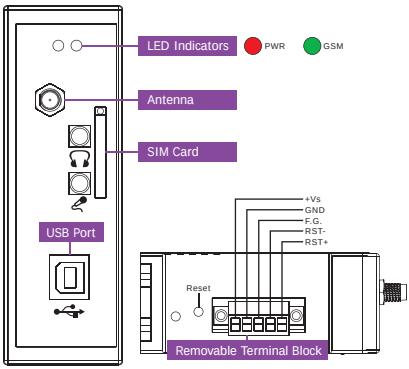
Models	GTM-201-RS232	GTM-201-USB
GSM/GPRS System		
GPRS/GSM Quad-band	850/900/1800/1900 MHz	
GPRS Multi-slot	Class 10/8	
GPRS Mobile Station	Class B	
GPRS Class 10	Max. download speed 85.6 kbps	
CSD	Up to 14.4 kbps	
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 850/900 MHz); Class 1 (1 W @ 1800/1900 MHz)	
Coding Schemes	CS 1, CS 2, CS 3, CS 4	
SMS	Text and PDU Mode	
Serial Ports		
Serial Standards	RS-232 (DB-9 Female)	USB (B-TYPE) to RS232(VCP)
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND	TxD, RxD, DTR, DSR, DCD, RI, GND
Baud Rate	9600 bps ~ 115200 bps	
Include Cable	RS-232 9-Pin Female to Male cable (CA-0915)	USB Type A to Type B cable (CA-USB18)
Compatibility	-	USB 1.1 and 2.0 standard
USB Driver Support	-	Windows 98 and 2000 Windows XP and XP 64-bit Windows Vista and Vista 64-bit WinPAC (WinCE 5.0) LinPAC (Linux kernel 2.6)
Reset Input		
Input Type	Isolated, 3750 V_{rms}	
On Voltage Level	+3.5 V_{DC} ~ +30 V_{DC}	
Off Voltage Level	+1V max.	
Input Impedance	3 kΩ, 0.25 W	
LED Indicators		
Power	Red	
GSM/GPRS	Green	
Power		
Protection	Power reverse polarity protection	
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot	
Required Supply Voltage	+10 V_{DC} ~ +30 V_{DC}	
Power Consumption	Idle: 25 mA @ 24 V_{DC}; Data Link: 100 ~ 400 mA (peak) @ 24 V_{DC}	
Connection	5-Pin 3.81 mm Removable Terminal Block	
Mechanical		
Casing	Plastic	
Flammability	UL 94V-0 materials	
Dimensions (W x L x H)	33 mm x 87 mm x 107 mm	
Installation	DIN-Rail	
Environment		
Operating Temperature	-25 °C ~ +55 °C	
Storage Temperature	-40 °C ~ +80 °C	
Humidity	5 ~ 90% RH, non-condensing	

Appearance

GTM-201-RS232

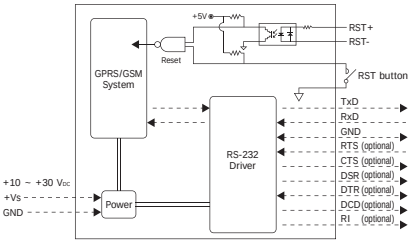


GTM-201-USB

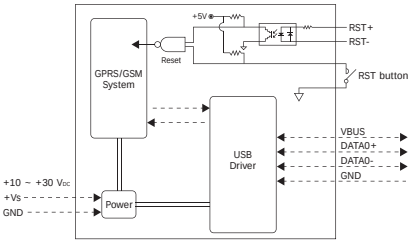


Internal I/O Structure

GTM-201-RS232

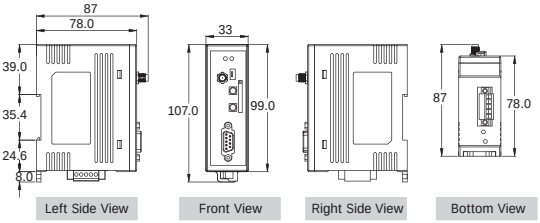


GTM-201-USB

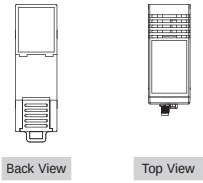


Dimensions (Unit: mm)

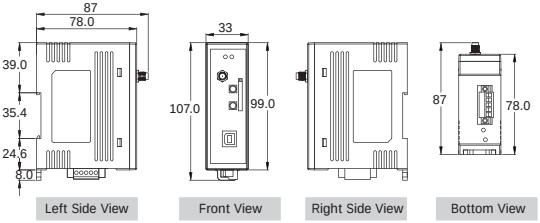
GTM-201-RS232



GTM-201-RS232/GTM-201-USB



GTM-201-USB



Ordering Information

GTM-201-RS232 CR	Industrial Quad-band GPRS/GSM Modem with RS-232 Interface (RoHS)
GTM-201-USB CR	Industrial Quad-band GPRS/GSM Modem with USB Interface (RoHS)

Accessories

ANT-421-01	3m external GPRS/GSM antenna

GT-530

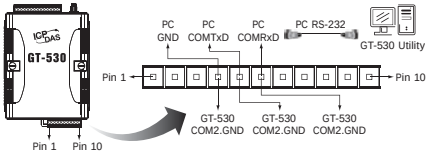
Intelligent SMS Alarm Controller

Features

- Support 900/1800/1900 MHz Tri-band frequency
- Identify ASCII or Unicode SMS Automatically
- Supports max. 140 ASCII Characters
- Supports max. 70 Unicode Characters
- Built-in ASCII Commands and Transparent Communication Modes
- Max. 10 Default Phone Numbers
- Industrial Design with Surge Protection
- Support SMS setting and control
- 10 DI (6 Counter), 2 DO, 2 RS-232 port
- Digital input support NC/NO/Counter modes
- Send alarm SMS by DI trigger or exceed Counter preset limits
- Support simple command to send SMS via RS-232
- Supports DC +10 V_{DC} ~ +30 V_{DC} Power Input
- Supports 3.7 V Li-ion Battery Backup

Introduction

GT-530 is an intelligent SMS controller for industry applications with the simple commands and SMS tunnel function, and power can be input by external power or Li-ion Battery. It supports UNICODE or 7 bit format for users to send SMS messages with in various languages. Applying GT-530, the SMS report can be sent by defined time or DI/counter event trigger. This can be a remote control and alarm system allowing you to use your mobile phone to monitor and control your business from any location. Its alarm facilities provide a flexible way to distribute critical alarm information to any number of mobile phone users. GT-530 can monitor up to 10 digital inputs (6 counters). The user can also interrogate the status of I/O through SMS messages. The GT-530 also has 2 Digital output which can be activated via DI trigger or SMS to control the lamps, pumps, heaters etc.



Tool Menu

Status Line

I/O Specifications

Digital Input	
Input Channel	10 (6 DI can set as counter + 4 DI work with Li-ion battery)
On Voltage Level	+3.5 V_{DC} ~ +30 V_{DC}
Off Voltage Level	+1V max.
Digital Output	
Output Channel	2
Output Type	Open Collector Output
Load Voltage	+24 V_{DC} max.
Load Current	500 mA max.

LED Indicators

Digital Input				
EXT (red)	On	The external Power is active		
	Off	The external Power is not active		
STA (orange)	EXT on	Normal	GSM Fail	PIN code is wrong
		Blinking (1 sec)	Always on or off	Blinking per 50 ms
	EXT off	Off (sleep mode) blinking (1 sec) (wake up)	Always on	Blinking per 50 ms
GSM (green)	Blinking 3 sec	Modem normal		
	On	Modem fail (or Blinking(not 3 sec))		

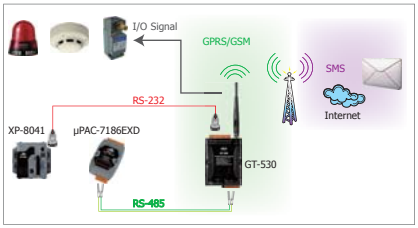
System Specifications

GSM/GPRS System	
GPRS/GSM Tri-band	900/1800/1900 MHz
GPRS Multi-slot	Class 10/8
GPRS Mobile Station	Class B
GPRS Class 10	Max. download speed 85.6 kbps
CSD	Up to 14.4 kbps
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 900 MHz) Class 1 (1 W @ 1800/1900 MHz)
Coding Schemes	CS 1, CS 2, CS 3, CS 4
SMS	Text and PDU Mode
Serial Ports	
COM2	RS-232: TxD, RxD, GND
COM3	RS-232: TxD, RxD, GND
Power	
Protection	Reverse polarity protection
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot
Required Supply Voltage	+10 V_{DC} ~ +30 V_{DC} with 600 mAh Li-ion battery backup (Option: 1200 mAh)
Mechanical	
Casing	Plastic
Flammability	UL 94V-0 materials
Dimensions (W x H x D)	91 mm x 132 mm x 52 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +55 °C
Storage Temperature	-40 °C ~ +80 °C
Humidity	5 ~ 95% RH, non-condensing

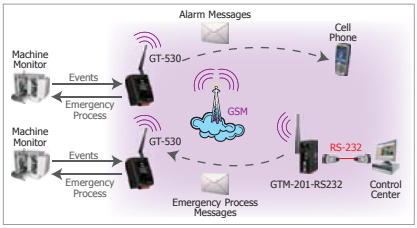
Applications

Machine, Standby Power Generator, Electrical Panels, Pumps, Vending Machines, Fire alarm Panels, Gas monitoring System, HVAC system, Door security, etc.

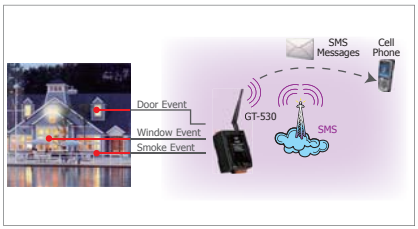
Signal Alarm and SMS Communication System



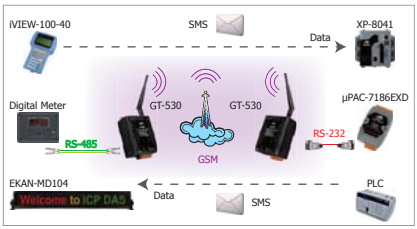
Remote Maintenance System



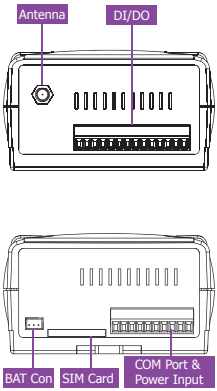
Home Security System

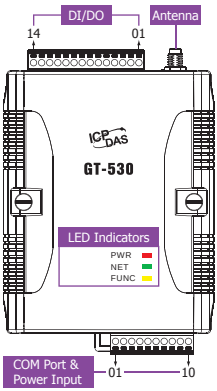


SMS Tunnel Communication System



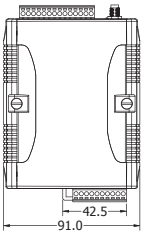
Appearance



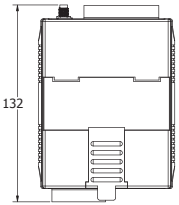


DI/DO			COM Port & Power Input		
Terminal No.		Pin Assignment	Terminal No.		Pin Assignment
DI	01	DI0	COM3 RS-232	01	GND
	02	DI1		02	RxD1
	03	DI2		03	TxD1
	04	DI3	COM2 RS-232	04	GND
	05	DI4		05	RxD2
	06	DI5		06	TxD2
	07	DI6	N/A	07	N/A
	08	DI7	Power Input: +10 Vdc ~ +30 Vdc	08	DC.+Vs
	09	DI8		09	DC.GND
	10	DI9	Frame Ground	10	F.G.
DO	11	DO0			
	12	DO1			
	13	DO.PWR			
DI/DO	14	Ext.GND			

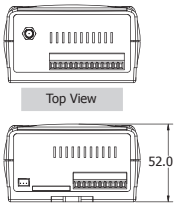
Dimensions (Unit: mm)



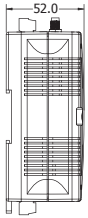
Front View



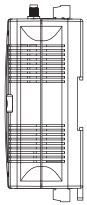
Back View



Bottom View



Left Side View



Right Side View

Ordering Information

GT-530 CR	Intelligent SMS Alarm Controller (RoHS)

Accessories

3S003	External GPRS/GSM Antenna

GT-540

Intelligent GPRS Remote Terminal Unit

Features

- Built-in 32 bit, 72 MHz CPU
- COM port: COM1 (5-wire RS-232), COM2 (RS-485),
- I/O: 6 channels DI, 2 channels DO, 1 channel AI
- Supports microSD Storage Card
- Quad-band 850/900/1800/1900 MHz
- Automatic/continuous GPRS Link Management
- Support Modbus RTU protocol to connect to Max 3 Modbus RTU devices via RS-485 port
- Support I/O data logger file transferring by E-mail
- Support M2M.OPC server and M2M.API tools
- Local I/O linkage function to make the simple local control
- Support 3.7V 600 mAH Li-battery

Introduction

The GT-540 is an intelligent Active GPRS Remote Terminal Unit. It can be used in M2M application fields to transfer the local I/O or Modbus device's data via GPRS by the defined period or DI/AI triggers. The local I/O data can also be stored in the SD card to become a remote data logger. In addition, the GT-540 also offers the e-mail mode to transfer the data by e-mail via GPRS for users to choose. With The simple I/O linkage function, the GT-540 can reach the real time control in local field.

I/O Specifications

Digital Input	
Input Channel	6
Input Type	Sink or Source, Isolated channel with common power or ground
Wet Contact	On Voltage Level: +3.5 V_{DC} ~ +30 V_{DC} Off Voltage Level: +1 V_{DC} max.
Digital Output	
Output Channel	2
Output Type	Open Collector (NPN)
Load Voltage	+30 V_{DC} max.
Max. Load Current	100 mA/channel
Analog Input	
Input Channel	1
Resolution	12-bit
Input Range/Type	0 ~ 20 mA
Sample Rate	1 kHz max. (Read one channel)

LED Indicators

Digital Input				
EXT (red)	On	The external Power is active		
	Off	The external Power is not active		
STA (orange)	EXT on	Normal	GSM Fail	PIN code is wrong
		Blinking (1 sec)	Always on or off	Blinking per 50 ms
GSM (green)	Blinking 3 sec	Modem normal		
	Off	Modem fail (or Blinking(not 3 sec))		

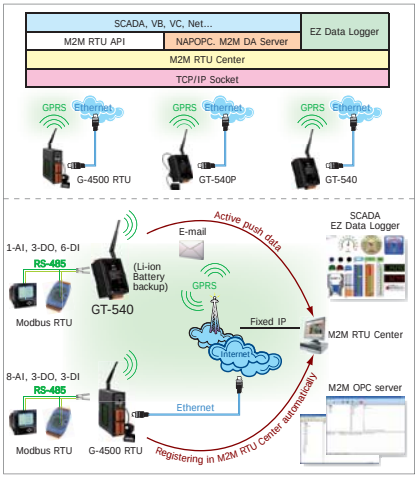
System Specifications

GSM/GPRS System	
GPRS/GSM Quad-band	850/900/1800/1900 MHz
GPRS Multi-slot	Class 10/8
GPRS Mobile Station	Class B
GPRS Class 10	Max. download speed 85.6 kbps
CSD	Up to 14.4 kbps
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 850/900 MHz) Class 1 (1 W @ 1800/1900 MHz)
Coding Schemes	CS 1, CS 2, CS 3, CS 4
SMS	Text and PDU Mode
Serial Ports	
COM1	RS-232: TxD, RxD, GND
COM2	RS-232, RS-485 (Transparency)
Power	
Protection	Reverse polarity protection
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot
Required Supply Voltage	+10 V_{DC} ~ +30 V_{DC}
Power Consumption	Idle: 35 mA @ 24 V_{DC} Data Link: 150 ~ 400 mA (peak) @ 24 V_{DC}
Mechanical	
Casing	Plastic
Flammability	UL 94V-0 materials
Dimensions (W x H x D)	91 mm x 132 mm x 52 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +55 °C
Storage Temperature	-40 °C ~ +80 °C
Humidity	5 ~ 95% RH, non-condensing

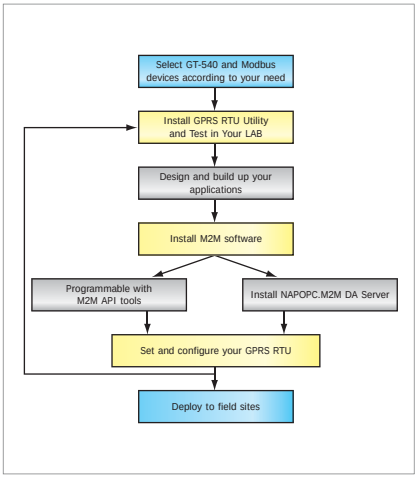
Applications

Machine, Standby Power Generator, Electrical Panels, Pumps, Vending Machines, Fire alarm Panels, Gas monitoring System, HVAC system, Door security, etc.

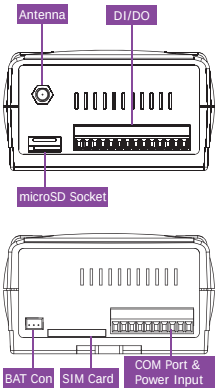
Software Solutions

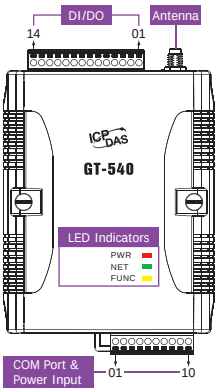


Application Flow Chard



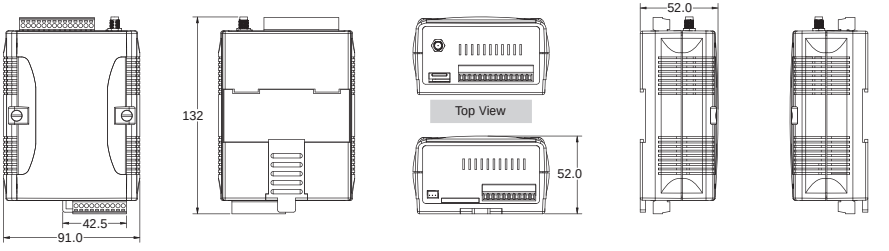
Appearance





DI/DO			COM Port & Power Input		
Terminal No.		Pin Assignment	Terminal No.		Pin Assignment
DI	01	DI0	COM1 RS-232	01	RxD1
	02	DI1		02	TxD1
	03	DI2	COM2 RS-232	03	RxD2
	04	DI3		04	TxD2
	05	DI4	Ground for COM	05	GND
	06	DI5	COM2 RS-485	06	D+
	07	DI6		07	D-
	08	DI7	Power Input: +10 Vdc ~ +30 Vdc	08	DC.+Vs
DO	09	DO0		09	DC.GND
	10	DO1	Frame Ground	10	F.G.
	11	DO2			
	12	DO3			
	13	DO.PWR			
DI/DO	14	Ext.GND			

Dimensions (Unit: mm)



Front View | Back View | Bottom View | Left Side View | Right Side View

Ordering Information

GT-540 CR	Intelligent GPRS Remote Terminal Unit (RoHS)

Accessories

ANT-421-01	3m external GPRS/GSM antenna

G-4500(D)-SIM340/ G-4500P(D)-SIM340

M2M Mini-Programmable Automation Controller Series

Features

- Embedded MiniOS7, anti-virus
- Supports a variety of TCP/IP features, including TCP, UDP, IP, ICMP, AR
- 10/100 Base-TX NE2000 Compatible Ethernet Controller
- COM1 (5-wire RS-232), COM2 (RS-485), COM3 (3-wire RS-232)
- Built-in Self-Tuner ASIC Controller on the RS-485 Port
- I/O: 3-ch DI, 3-ch DO, 8-ch AI
- Supports SD Storage Card
- GPRS/GSM: Tri-band 900/1800/1900 MHz, Quad-band 850/900/1800/1900 MHz (optional)
- GPS: 16-ch with All-In-View Tracking (optional)
- Support TCP Server, TCP Client, UDP Client Connection from GPRS
- 128 x 64-dots LCM Display (only for G-4500D(PD)-SIM340)
- Supports Virtual COM Technology
- Supports the Modbus Protocol
- Built-in RTC, NVRAM, EEPROM
- High reliability in harsh environments
- Free Easy-to-use Software Development Toolkits

Introduction

The G-4500 provided by ICP DAS is a series of M2M (Machine to Machine) mini programmable controllers with a cellular transceiver that can be used to monitor industrial equipment information that sends live data to the monitoring system, providing real-time status. With the optional GPS model, the G-4500 can also function as a GPS tracking system that can be used in vehicle management systems or maritime systems.
With a high performance CPU, the G-4500 series modules can handle a large amount of data and are suitable for the harsh industrial environments. The G-4500 series features a GPRS/GSM module, Ethernet interface, an optional GPS module, 3 digital inputs, 3 digital outputs, 8 analog inputs, 2 RS-232 and 1 RS-485 ports.

Applications

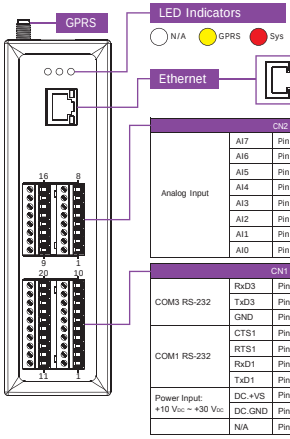
- Remote Control/Monitoring Systems
- Car Monitor Systems
- GIS Systems
- Redundant Communication Systems

Specifications

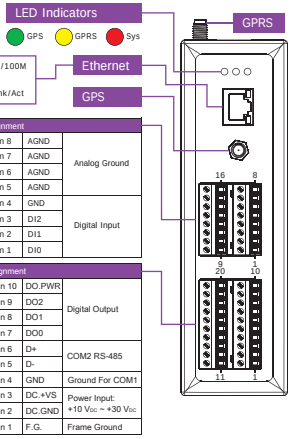
Models		G-4500-SIM340	G-4500D-SIM340	G-4500P-SIM340	G-4500PD-SIM340
CPU					
CPU		80 MHz internal microprocessor			
SRAM/Flash		512K/512K, real time clock, watchdog timer			
NVRAM		31 bytes, battery backup, data valid up to 10 years			
EEPROM		16 KB, data retention> 40 years. 1,000,000 erase/write cycles			
Communication Interface					
COM1		5-wire RS-232			
COM2		RS-485			
COM3		3-wire RS-232			
Ethernet		10/100 Base-TX Ethernet controller			
GPRS Interface					
Frequency Band	Quad-Band	850/900/1800/1900 MHz			
	GPRS Multi-slot	Class 10/8			
GPRS Connectivity		GPRS class 10; GPRS station class B			
DATA GPRS	Downlink Transfer	Max. 85.6 kbps			
	Uplink Transfer	Max. 42.8 kbps			
SMS		MT, MO, CB, Text and PDU mode			
GPS Interface					
General		-		32 channels with All-In-View tracking Built-in high gain amplifier and bandpass filter Extra high sensitivity: -159 dBm	
Acquisition Time		-		Cold/Warm Time: 42/35 sec. in air and stationary	
Reacquisition Time		-		0.1 second	
LCD Interface					
General	Effective Display Area	-	80.61 mm x 14.37 mm (W x H)	-	80.61 mm x 14.37 mm (W x H)
	Module Dimension	-	93 mm x 70 mm x 1.6 mm (W x H xT)	-	93 mm x 70 mm x 1.6 mm (W x H xT)
Life Time		-	Expected life is more than 100,000 hours under normal operations	-	Expected life is more than 100,000 hours under normal operations
LED Indicators					
System		Red			
GPRS		Yellow			
GPS		Green		Yes	
Power					
Protection		Power reverse polarity protection			
Frame Ground Protection		ESD, Surge, EFT, Hi-Pot			
Power Requirement		15 W; Unregulated +10 Vdc ~ +30 Vdc			
Power Consumption		Idle: 75 mA @ 24 Vdc; Data Link: 150 ~ 400 mA (peak) @ 24 Vdc			
Mechanical					
Casing		Metal			
Dimensions (W x L x H)		42 mm x 118 mm x 154 mm			
Installation		DIN-Rail			
Environment					
Operating Temperature		-25 °C ~ +50 °C			
Storage Temperature		-40 °C ~ +80 °C			
Humidity		5 ~ 90% RH, non-condensing			

Appearance

G-4500(D)-SIM340



G-4500P(D)-SIM340



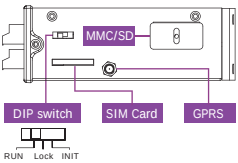
CN2 Pin Assignment

Analog Input	AI7	Pin 16	Pin 8	AGND	Analog Ground
	AI6	Pin 15	Pin 7	AGND	
	AI5	Pin 14	Pin 6	AGND	
	AI4	Pin 13	Pin 5	AGND	
	AI3	Pin 12	Pin 4	GND	Digital Input
	AI2	Pin 11	Pin 3	DI2	
	AI1	Pin 10	Pin 2	DI1	
	AI0	Pin 9	Pin 1	DI0	

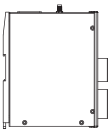
CN1 Pin Assignment

COM3 RS-232	RxD3	Pin 20	Pin 10	DO.PWR	Digital Output
	TxD3	Pin 19	Pin 9	DO2	
	GND	Pin 18	Pin 8	DO1	
COM1 RS-232	CTS1	Pin 17	Pin 7	DO0	
	RTS1	Pin 16	Pin 6	D+	COM2 RS-485
	RxD1	Pin 15	Pin 5	D-	
	TxD1	Pin 14	Pin 4	GND	Ground For COM1
Power Input: +10 Vdc ~ +30 Vdc	DC.+VS	Pin 13	Pin 3	DC.+VS	Power Input: +10 Vdc ~ +30 Vdc
	DC.GND	Pin 12	Pin 2	DC.GND	
	N/A	Pin 11	Pin 1	F.G.	Frame Ground

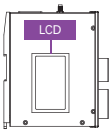
G-4500(D)/4500P(D)-SIM340



G-4500/ 4500P-SIM340

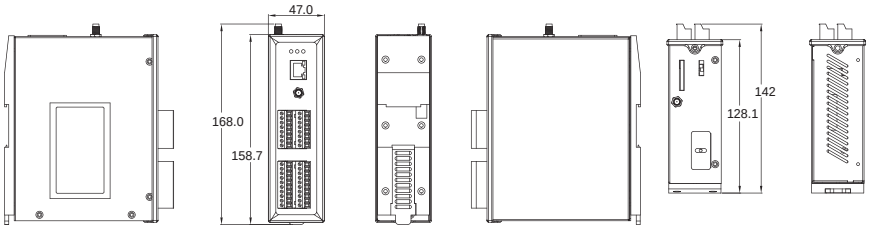


G-4500D/ 4500PD-SIM340



Dimensions (Unit: mm)

G-4500PD-SIM340



Right Side View | Front View | Back View | Left Side View | Top View | Bottom View

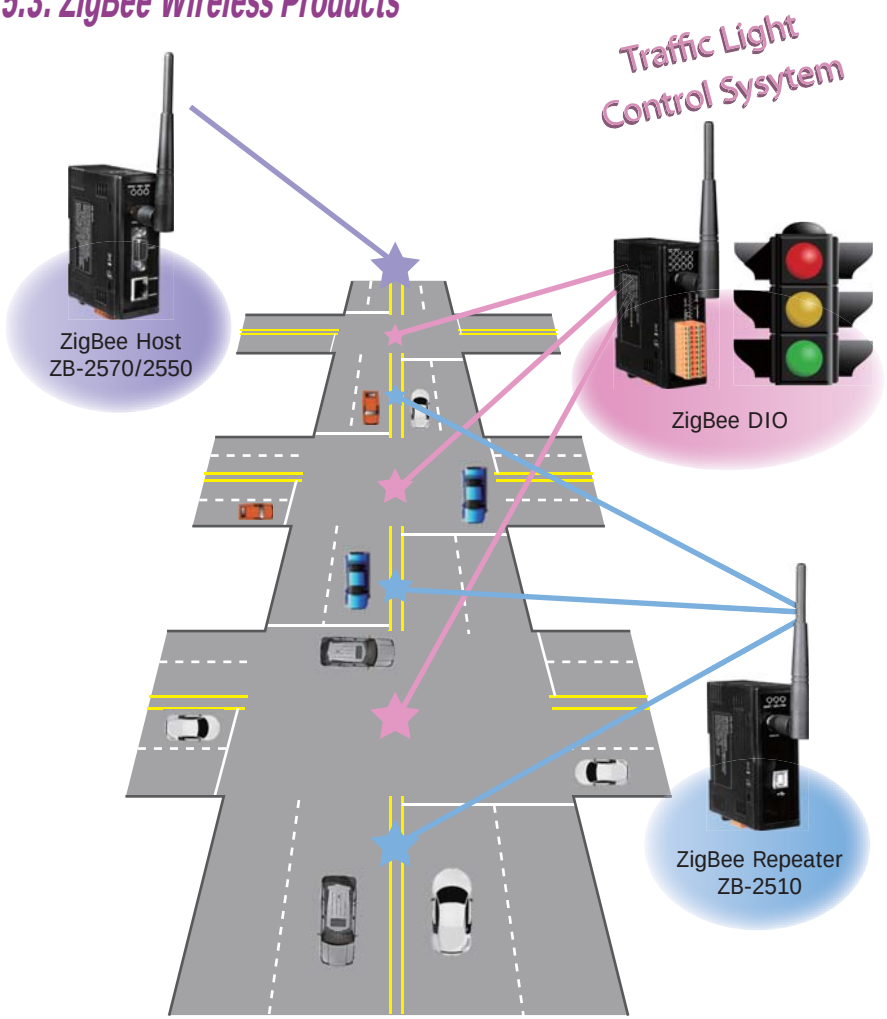
Ordering Information

G-4500-SIM340 CR	M2M Mini-Programmable Automation Controller (RoHS)
G-4500D-SIM340 CR	M2M Mini-Programmable Automation Controller with LCD Display (RoHS)
G-4500P-SIM340 CR	M2M Mini-Programmable Automation Controller with GPS Function (RoHS)
G-4500PD-SIM340 CR	M2M Mini-Programmable Automation Controller with LCD Display and GPS Function (RoHS)

Accessories

ANT-421-01	3m external GPRS/GSM antenna

5.3. ZigBee Wireless Products



ZigBee is a specification based on the IEEE 802.15.4 standard for wireless personal area networks (WPANs). ZigBee operates in the ISM radio bands and its focus is to define a general-purpose, inexpensive, self-organizing, mesh network that can be used for industrial control, embedded sensing, medical data collection, smoke and intruder warning, building automation, home automation, and domotics, etc.

● ZigBee Module Specifications

RF Channels	16
Receive Sensitivity	-102 dBm
Transmit Power	12 dBm
Network Topology Support	Star, Mesh and cluster tree
Certification	TUV (ZCP)
Antenna	2.4 GHz, 3 dBi Omni-directional antenna

Selection Guide

Ethernet/Serial to ZigBee Converters

Model Name	Interface			Transmission Range Up to 700 m (LOS)	Support High Gain Antenna	Page
	RS-232	RS-485	Ethernet			
ZB-2550	Yes	Yes	-	-	-	5-3-3
ZB-2551	Yes	Yes	-	-	-	5-3-3
ZB-2570	Yes	Yes	Yes	-	-	5-3-5
ZB-2571	Yes	Yes	Yes	-	-	5-3-5
ZB-2550P	Yes	Yes	-	Yes	Yes	5-3-3
ZB-2551P	Yes	Yes	-	Yes	Yes	5-3-3
ZB-2570P	Yes	Yes	Yes	Yes	Yes	5-3-5
ZB-2571P	Yes	Yes	Yes	Yes	Yes	5-3-5

ZigBee Repeater

Model Name	USB Configuration Interface	Repeater Function	Transmission Range Up to 700 m (LOS)	Support High Gain Antenna	Page
ZB-2510	Yes	Yes	-	-	5-3-7
ZB-2510P	Yes	Yes	Yes	Yes	5-3-7

ZB-2550 ZB-2550P
ZB-2551 ZB-2551P

RS-485/RS-232 to ZigBee Converter

Features

- ISM 2.4 GHz Operating Frequency
- Fully Compliant with 2.4 G IEEE802.15.4/ZigBee Specifications
- Wireless Transmission Range up to 100 m (ZB-2550/ZB-2551)
- Wireless Transmission Range up to 700 m (ZB-2550P/ZB-2551P)
- GUI Configuration Software (Windows Version)
- DIN-Rail Mountable

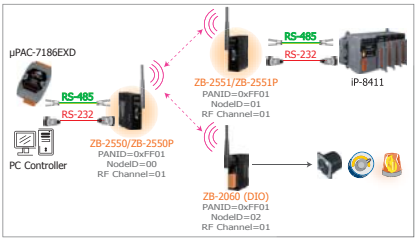
Introduction

The ZB-2550 and the ZB-2551 are small-sized wireless ZigBee converters based on the IEEE 802.15.4 standard. They allow RS-485/RS-232 interfaces to be converted to a ZigBee wireless network.

Only one ZB-2550 (Host) is allowed in a ZigBee network and is used to initialize and manage the data transmission routes. The ZB-2551 (Slave) ZigBee router is responsible for transmitting/receiving data from its child/parent router or the host. ICP DAS ZigBee products are designed for low data rates. The main benefit of ICP DAS ZigBee products is that they can be used to define a general-purpose, self-organizing mesh network, which can be highly advantageous for industrial control.

The typical transmission range of the ICP DAS ZigBee ZB-2550/ZB-2551 converter is 100 m, and the ZB-2550P/ZB-2551P is 700 m.

Applications

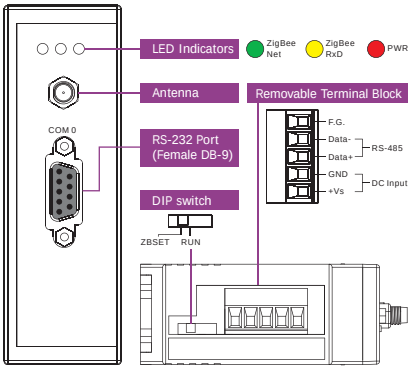


Specifications

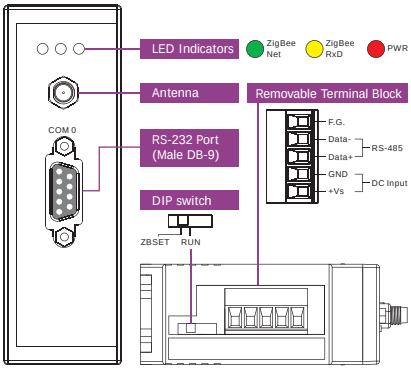
Models	ZB-2550	ZB-2550P	ZB-2551	ZB-2551P
Wireless				
RF Channels	16			
Receive Sensitivity	-102 dBm			
Transmit Power	12 dBm	18 ~ 24 dBm, adjustable	12 dBm	18 ~ 24 dBm, adjustable
Network Topology Support	Star, Mesh and Cluster tree			
Certification	TUV (ZCP)			
Antenna	2.4 GHz-3 dBi Omni-Directional antenna	2.4 GHz-5 dBi Omni-Directional antenna	2.4 GHz-3 dBi Omni-Directional antenna	2.4 GHz-5 dBi Omni-Directional antenna
Transmission Range	100 m	700 m	100 m	700 m
General				
CPU	8-bit microcontroller			
EEPROM	16 KB (8 blocks, each block has 256 bytes); Data retention > 40 years; 1,000,000 erase/write cycles			
Module Type	Host		Slave	
Communication Interface				
COM 0	RS-232 (TxD, RxD and GND); D-Sub 9 Female Non-isolated RS-485 (D+, D-; internal Self-Tuner ASIC); Non-isolated		RS-232 (TxD, RxD and GND); D-Sub 9 Male Non-isolated	
COM 0 Settings				
Baud Rate	1200 ~ 115200 bps			
Data Bit	8			
Parity Check	Even, Odd, None			
Stop Bit	1			
LED Indicators				
ZigBee Net State	Green			
ZigBee RxD	Yellow			
Power	Red			
Power				
Protection	Power reverse polarity protection			
EMS Protection	ESD, Surge, EFT			
Required Supply Voltage	+10 V_{DC} ~ +30 V_{DC}			
Power Consumption	0.5 W	2.0 W (max.)	0.5 W	2.0 W (max.)
Connection	5-Pin 5.08 mm Removable Terminal Block			
Mechanical				
Casing	Plastic			
Flammability	UL 94V-0 materials			
Dimensions (W x L x H)	33 mm x 78 mm x 107 mm			
Installation	DIN-Rail			
Environment				
Operating Temperature	-25 °C ~ +75 °C			
Storage Temperature	-40 °C ~ +80 °C			
Relative Humidity	5 ~ 95% RH, non-condensing			

Appearance

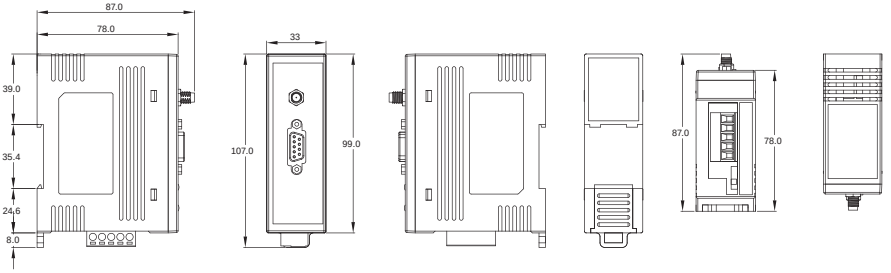
ZB-2550/2550P



ZB-2551/2551P



Dimensions (Unit: mm)



Left Side View | Front View | Right Side View | Back View | Bottom View | Top View

Ordering Information

ZB-2550 CR	RS-485/RS-232 to ZigBee Converter (Host) (RoHS)
ZB-2550/S CR	RS-485/RS-232 to ZigBee Converter (Host) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2551 CR	RS-485/RS-232 to ZigBee Converter (Slave) (RoHS)
ZB-2551/S CR	RS-485/RS-232 to ZigBee Converter (Slave) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2550P CR	RS-485/RS-232 to High Power Amplifier ZigBee Converter (Host) (RoHS)
ZB-2550P/S CR	RS-485/RS-232 to High Power Amplifier ZigBee Converter (Host) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2551P CR	RS-485/RS-232 to High Power Amplifier ZigBee Converter (Slave) (RoHS)
ZB-2551P/S CR	RS-485/RS-232 to High Power Amplifier ZigBee Converter (Slave) (RoHS) + GPSU06U-6 (Power Supply)

Accessories

Power Supply
ZigBee DIO
ZigBee Repeater
ZigBee Converter

ZB-2570/ZB-2570P
NEW ZB-2571/ZB-2571P

RS-485/RS-232 to ZigBee Converter

Features

- ISM 2.4 GHz Operating Frequency
- Fully Compliant with 2.4 G IEEE802.15.4/ZigBee Specifications
- Wireless Transmission Range up to 100 m (ZB-2570/ZB-2571)
- Wireless Transmission Range up to 700 m (ZB-2570P/ZB-2571P)
- GUI Configuration Software (Windows Version)
- DIN-Rail Mountable

Introduction

ZigBee Network
The ZB-2570/2570P is a host ZigBee converter, and the ZB-2571/2571P is a slave ZigBee converter. Each feature an Ethernet/RS-485/RS-232 interface. Devices that have an Ethernet/RS-485/RS-232 interface are also able to be connected using the ZB-2570/2570P/2571/2571P. By distributing host and slave ZigBee converters in the field, users can easily build a wireless network that can be used for both monitoring and control.

What are the benefits of using ZigBee?
ZigBee is a specification based on the IEEE 802.15.4 standard for wireless personal area networks (WPANs). It is targeted at applications that require secure networking as well as high flexibility for network expansion anytime new nodes are to be added. It is also widely used in the industrial control field, in hospitals, labs and in building automation. Three topologies are defined in the IEEE 802.15.4 standard: Star, Cluster Tree and Mesh. The typical transmission range for the 2570/2571 is 100 m, and the 2570P/2571P is 700 m.

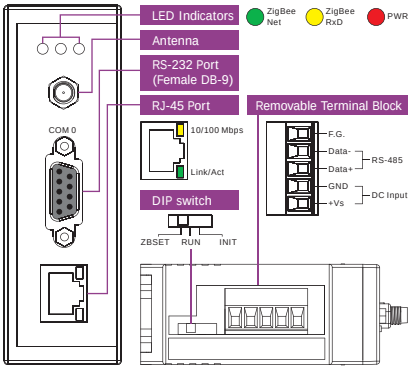
Applications

Specifications

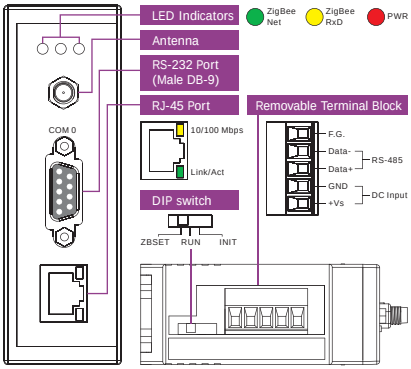
Models	ZB-2570	ZB-2570P	ZB-2571	ZB-2571P
Wireless				
RF Channels	16			
Receive Sensitivity	-102 dBm			
Transmit Power	12 dBm	18 ~ 24 dBm, adjustable	12 dBm	18 ~ 24 dBm, adjustable
Network Topology Support	Star, Mesh and Cluster tree			
Certification	TUV (ZCP)			
Antenna	2.4 GHz-3 dBi Omni-Directional antenna	2.4 GHz-5 dBi Omni-Directional antenna	2.4 GHz-3 dBi Omni-Directional antenna	2.4 GHz-5 dBi Omni-Directional antenna
Transmission Range	100 m	700 m	100 m	700 m
General				
CPU	80186, 80 MHz or compatible			
SRAM	512 KB			
Flash Memory	512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM	16 KB (8 blocks, each block contains 256 bytes); Data retention > 40 years; 1,000,000 erase/write cycles			
Module Type	Host		Slave	
Communication Interface				
COM 0	RS-232 (TxD, RxD and GND); D-Sub 9 Female Non-isolated RS-485 (D+, D-; internal Self-Turner ASIC); Non-isolated		RS-232 (TxD, RxD and GND); D-Sub 9 Male Non-isolated	
Ethernet	10/100 Base-TX (Auto-negotiating, auto MDI/MDI-X, LED indicators)			
COM 0 Settings				
Baud Rate	1200~115200 bps			
Data Bit	7, 8			
Parity	Even, Odd, None			
Stop Bit	1			
LED Indicators				
ZigBee Net State	Green			
ZigBee RxD	Yellow			
Power	Red			
Power				
Protection	Power reverse polarity protection			
EMS Protection	ESD, Surge, EFT			
Required Supply Voltage	+10 V_{DC} ~ +30 V_{DC}			
Power Consumption	2.5 W	4 W (max.)	2.5 W	4 W (max.)
Connection	5-Pin 5.08 mm Removable Terminal Block			
Mechanical				
Casing	Plastic			
Flammability	UL 94V-0 materials			
Dimensions (W x L x H)	33 mm x 78 mm x 107 mm			
Installation	DIN-Rail			
Environment				
Operating Temperature	-25 °C ~ +75 °C			
Storage Temperature	-40 °C ~ +80 °C			
Relative Humidity	5 ~ 95% RH, non-condensing			

Appearance

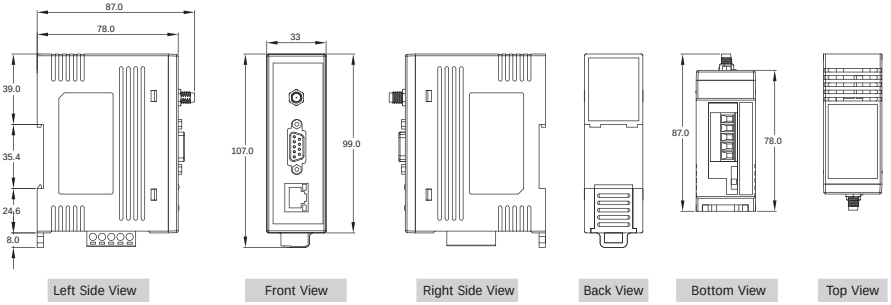
ZB-2570/2570P



ZB-2571/2571P



Dimensions (Unit: mm)



Ordering Information

ZB-2570 CR	Ethernet/RS-485/RS-232 to ZigBee Converter (Host) (RoHS)
ZB-2570/S CR	Ethernet/RS-485/RS-232 to ZigBee Converter (Host) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2571 CR	Ethernet/RS-485/RS-232 to ZigBee Converter (Slave) (RoHS)
ZB-2571/S CR	Ethernet/RS-485/RS-232 to ZigBee Converter (Slave) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2570P CR	Ethernet/RS-485/RS-232 to High Power Amplifier ZigBee Converter (Host) (RoHS)
ZB-2570P/S CR	Ethernet/RS-485/RS-232 to High Power Amplifier ZigBee Converter (Host) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2571P CR	Ethernet/RS-485/RS-232 to High Power Amplifier ZigBee Converter (Slave) (RoHS)
ZB-2571P/S CR	Ethernet/RS-485/RS-232 to High Power Amplifier ZigBee Converter (Slave) (RoHS) + GPSU06U-6 (Power Supply)

Accessories

Power Supply
ZigBee DIO
ZigBee Repeater
ZigBee Converter

ZB-2510/ZB-2510P

ZigBee Repeater

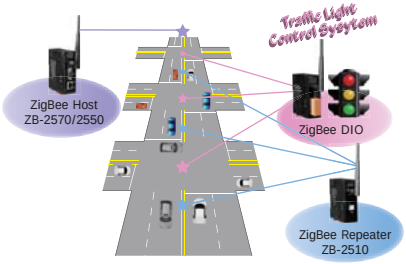
Features

- ISM 2.4 GHz Operating Frequency
- Fully Compliant with 2.4 G IEEE802.15.4/ZigBee Specifications
- Wireless Transmission Range up to 100 m (ZB-2510)
- Wireless Transmission Range up to 700 m (ZB-2510P)
- USB Setting Interface
- GUI Configuration Software (Windows Version)
- DIN-Rail Mountable

Introduction

The ZB-2510 and ZB-2510P are two ZigBee-based repeater modules included in the ICP DAS product line. The main difference between these two products is the transmission range. The ZB-2510 supports an extended transmission range of up to 100 meters, whereas the ZB-2510P can transmit to a maximum of 700 meters. Both modules are able to operate in broadcast and user-defined route modes. When the repeater is set to broadcast mode, the transmission route is constructed by the ZigBee Host. The repeater will forward any data that it receives using broadcast mode. The advantage of this mode is that the repeater can be deployed in a "haphazard" manner without any concern about positioning. However, the main flaw of this mode is that if there are too many broadcast data packets in a ZigBee network, it will cause the network to crash. In contrast, when the repeater is set to user-defined route mode, it will only forward data using the user-configured route. The benefit of this mode is that the data loading of the ZigBee network will be reduced, but the user must plan the data transmission route for the entire ZigBee network before setting up the application. If a mistake is made on even one repeater point, the entire ZigBee network will be invalid.

Applications

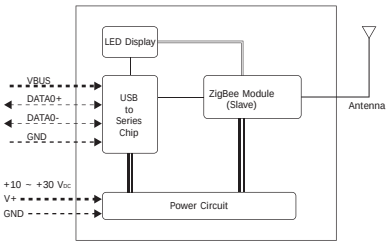


Specifications

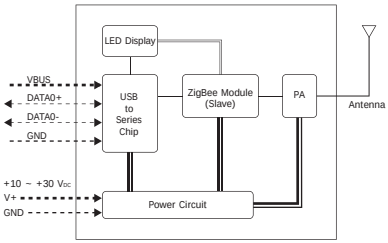
Models	ZB-2510	ZB-2510P
Wireless		
RF Channels	16	
Receive Sensitivity	-102 dBm	
Transmit Power	12 dBm	18 ~ 24 dBm, adjustable
Network Topology Support	Star, Mesh and Cluster tree	
Certification	TUV (ZCP)	
Antenna	2.4 GHz-3 dBi Omni-Directional antenna	2.4 GHz-5 dBi Omni-Directional antenna
Transmission Range	100 m	700 m
Setting Interface		
USB	Type B	
Include Cable	CA-USB18 (1.8 M Cable) x 1; USB Type A connector (Type A to Type B cable provided)	
Compatibility	USB 1.1 and 2.0 standard	
Driver Supported	Windows 98/ME/2000/XP/Linux/Vista	
COM 0 Settings		
Data Bit	8	
Parity	Even, Odd, None	
Stop Bit	1	
LED Indicators		
ZigBee Net State	Green	
ZigBee RxD	Yellow	
Power	Red	
Power		
Protection	Power reverse polarity protection	
EMS Protection	ESD, Surge, EFT	
Required Supply Voltage	+10 V_{DC} ~ +30 V_{DC}	
Power Consumption	1.5 W	3 W
Connection	3-Pin 5.08 mm Removable Terminal Block	
Mechanical		
Casing	Plastic	
Flammability	UL 94V-0 materials	
Dimensions (W x L x H)	33 mm x 87 mm x 107 mm	
Installation	DIN-Rail	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +80 °C	
Relative Humidity	5 ~ 95% RH, non-condensing	

Internal I/O Structure

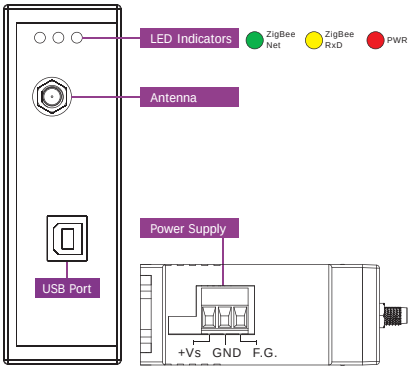
ZB-2510



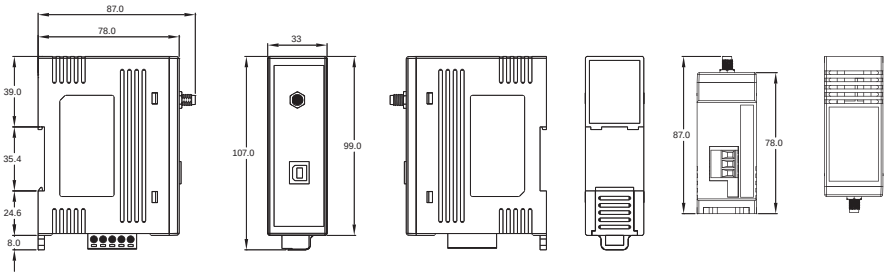
ZB-2510P



Appearance



Dimensions (Unit: mm)



Left Side View | Front View | Right Side View | Back View | Bottom View | Top View

Ordering Information

ZB-2510 CR	ZigBee Repeater (RoHS)
ZB-2510P CR	High Power Amplifier ZigBee Repeater (RoHS)

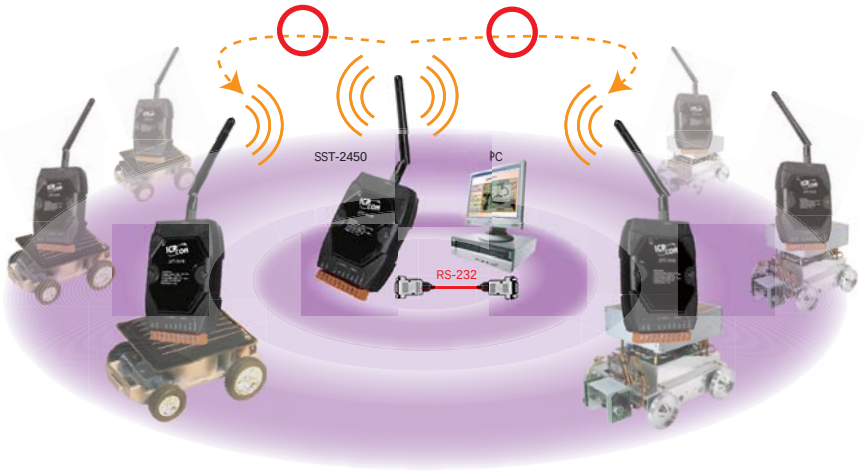
Accessories

Power Supply
ZigBee Repeater
ZigBee Converter

5.4. External Antennas

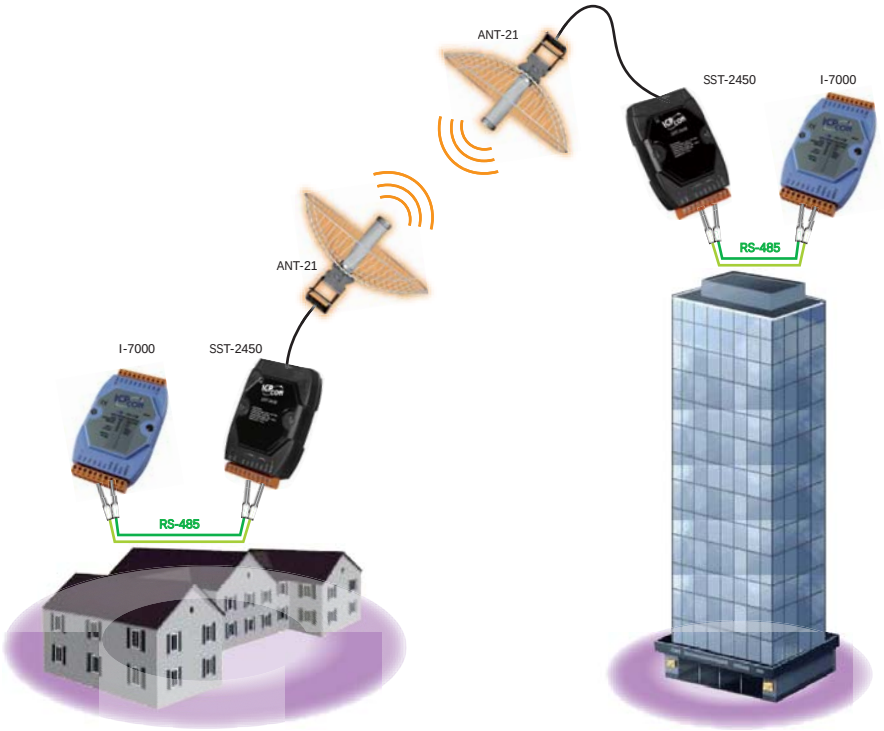
1. Omni-directional Antenna to Omni-directional Antenna

Note: As the antennas rely on line-of-sight for connection, they should be placed at the same height.

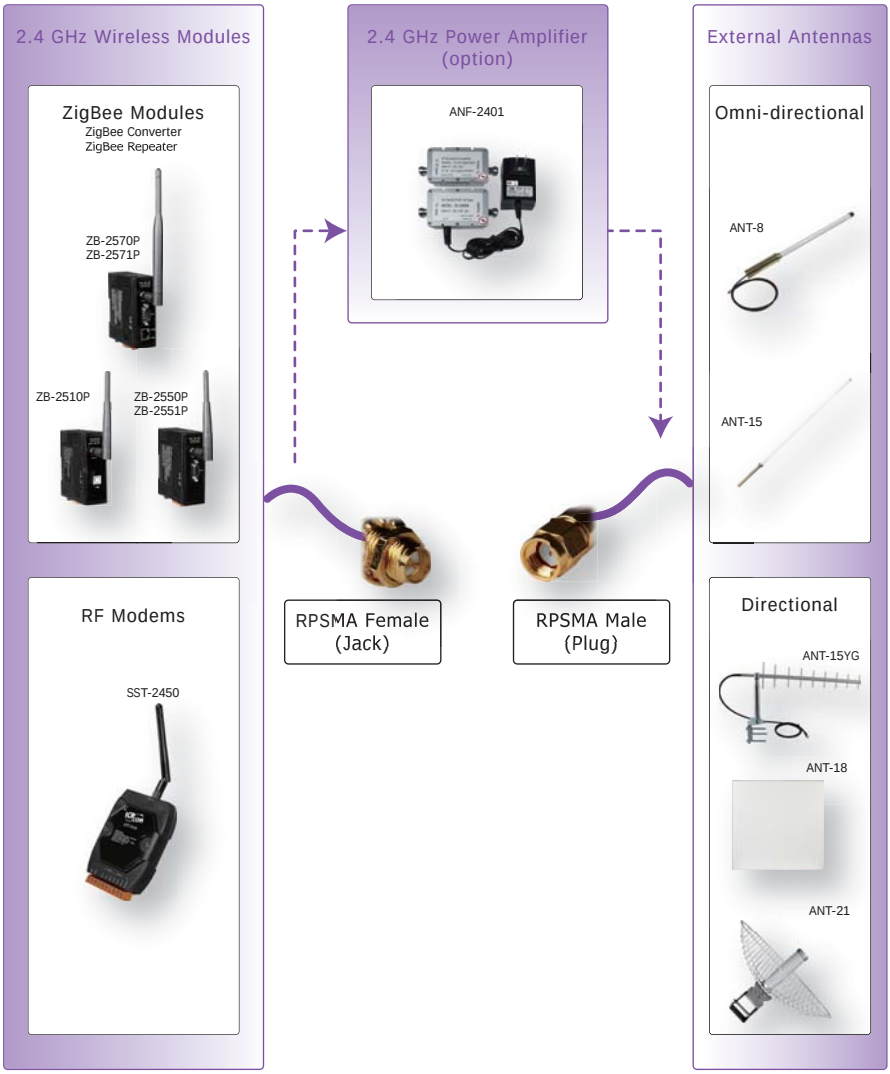


2. Omni-directional Antenna to Directional Antenna

3. Directional Antenna to Directional Antenna



4. Connector Type for 2.4 GHz Antenna



2.4 GHz Omni-directional Antennas

Model Name	Ordering Information	Connector	Radiation	Band	Gain (dBi)	Note	Page
ANT-8	1 km, 2.4 GHz External Antenna	RP SMA Male (Plug)	Omni-Directional	2.4 ~ 2.5 GHz	8	Dipole	5-4-4
ANT-15	5 km, 2.4 GHz External Antenna	RP SMA Male (Plug)	Omni-Directional	2.4 ~ 2.5 GHz	15	Dipole	5-4-4

ANT-8

Specifications

Antenna Type	
Operating Environment	Indoor or Outdoor
Radiation	Directional Sector
Electrical Specifications	
Frequency Range	2400 ~ 2500 MHz
Gain	9 dBi
VSWR	1.3:1 (max.)
Polarization	Linear
HPBW/Horizontal	360°
HPBW/Vertical	10°
Power Handing	15 W (max.)
Impedance	50 Ω +/-5 Ω
Cable	-
Connector	N Type Female
Environmental and Mechanical Characteristics	
Operating Temperature	-20 °C ~ +60 °C
Radome Material	Glass fiber
Weight	430 g
Dimensions (L x W)	420 mm x φ35 mm

Ordering Information

ANT-8	1 km, 2.4 GHz External Antenna (Omnidirectional) Gain: 8 dBi
Includes	3S004 x 1 HDF 200 Cable, 1 m N Type Male to SMA Male

Important Note: Distance data is for reference only. Actual results may be different depending on the environment.

ANT-15

Specifications

Antenna Type	
Operating Environment	Outdoor
Radiation	Directional Sector
Electrical Specifications	
Frequency Range	2400 ~ 2500 MHz
Gain	15 dBi
VSWR	1.3:1 (max.)
Polarization	Linear
HPBW/Horizontal	360°
HPBW/Vertical	10°
Power Handing	20 W (max.)
Impedance	50 Ω +/-5 Ω
Cable	RG-58, 100 cm
Connector	N Type Female
Environmental and Mechanical Characteristics	
Operating Temperature	-20 °C ~ +60 °C
Radome Material	Glass fiber
Weight	1050 g
Dimensions (L x W)	1600 mm x 35 mm

Ordering Information

ANT-15	5 km, 2.4 GHz External Antenna (Omnidirectional) Gain: 15 dBi
Includes	3S004 x 1 HDF 200 Cable, 1 m N Type Male to SMA Male

Important Note: Distance data is for reference only. Actual results may be different depending on the environment.

2.4 GHz Directional Antennas

Model Name	Ordering Information	Connector	Radiation	Band	Gain (dBi)	Note	Page
ANT-15YG	5 km, 2.4 GHz External Antenna	RP SMA Male (Plug)	Directional	2.4 ~ 2.5 GHz	15	Yagi	5-4-5
ANT-18	9 km, 2.4 GHz External Antenna	RP SMA Male (Plug)	Directional	2.4 ~ 2.5 GHz	18	Panel	5-4-6
ANT-21	15 km, 2.4 GHz External Antenna	RP SMA Male (Plug)	Directional	2.4 ~ 2.5 GHz	21	Grid	5-4-6

ANT-15YG

Specifications

Antenna Type	
Operating Environment	Outdoor
Radiation	Directional Sector
Electrical Specifications	
Frequency Range	2400 ~ 2500 MHz
Gain	15 dBi
VSWR	2:1 (max.)
Polarization	Linear
HPBW/Horizontal	25°
HPBW/Vertical	18°
Power Handing	10 W (max.)
Impedance	50 Ω
Cable	RG-58, 100 cm
Connector	N Type Female
Environmental and Mechanical Characteristics	
Operating Temperature	-40 °C ~ +85 °C
Radome Material	Aluminum
Weight	425 g
Dimensions (L x W x H)	325 mm x 70 mm x 15 mm

Ordering Information

ANT-15YG	5 km, 2.4 GHz External Antenna (Directional) Gain: 15 dBi

Important Note: Distance data is for reference only. Actual results may be different depending on the environment.

ANT-18

Specifications

Antenna Type	
Operating Environment	Outdoor
Radiation	Directional Patch
Electrical Specifications	
Frequency Range	2400 ~ 2500 MHz
Gain	18 dBi
VSWR	1.5:1 (max.)
Polarization	Vertical, vertical
HPBW/Horizontal	15°
HPBW/Vertical	15°
Power Handing	50 W (cw)
Impedance	50 Ω
Cable	RG-58, 100 cm
Connector	N Type Female
Environmental and Mechanical Characteristics	
Operating Temperature	-40 °C ~ +80 °C
Radome Material	ABS
Weight	1600 g
Dimensions (L x W x H)	360 mm x 360 mm x 16 mm

Ordering Information

ANT-18	9 km, 2.4 GHz External Antenna (Directional) Gain: 18 dBi
Includes	3S004 x 1 HDF 200 Cable, 1 m N Type Male to SMA Male

Important Note: Distance data is for reference only. Actual results may be different depending on the environment.

ANT-21

Specifications

Antenna Type	
Operating Environment	Outdoor
Radiation	Directional Sector
Electrical Specifications	
Frequency Range	2400 ~ 2500 MHz
Gain	21 dBi
VSWR	1.5:1 (max.)
Polarization	Linear
HPBW/Horizontal	8°
HPBW/Vertical	5°
Power Handing	20 W (max.)
Impedance	50 Ω +/-5 Ω
Cable	RG-58, 100 cm
Connector	N Type Female (Jack)
Environmental and Mechanical Characteristics	
Operating Temperature	-20 °C ~ +60 °C
Radome Material	ABS
Weight	2770 g
Dimensions (L x W)	610 mm x 248 mm

Ordering Information

ANT-21	15 km, 2.4 GHz External Antenna (Directional) Gain: 21 dBi

Important Note: Distance data is for reference only. Actual results may be different depending on the environment.

Power Amplifiers

Model Name	Ordering Information	Connector	Radiation	Band	Gain (dBi)	Note	Page
ANF-2401	1 W, 2.4 GHz Power Amplifier	N Type Male (Plug)	-	2.4 ~ 2.5 GHz	up to 10 dBm	-	5-4-7
ANF-2402	600 mW, 2.4 GHz Power Amplifier	RP SMA Male (Plug)	-	2.4 ~ 2.5 GHz	up to 18 dBm	-	5-4-7

ANF-2401

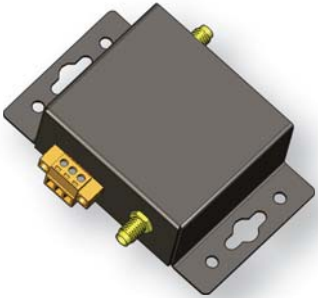
Specifications

Electrical Specifications		
Frequency Range		2400 ~ 2500 MHz
Power Consumption		1.2 A @ 12 V_{DC}
Transmitter Amplifier		
Transmit Gain		up to 12 dBm
Transmit Input Power		200 mW (max.)
Receiver Amplifier		
Receive Gain		up to 10 dBm
Environmental and Mechanical Characteristics		
Operating Temperature		-20 °C ~ +70 °C
Weight	Amplifier	410 g
	DC Injector	185 g
Dimensions (L x W x H)	Amplifier	110 mm x 60 mm x 29 mm
	DC Injector	90 mm x 78 mm x 30 mm

Ordering Information

ANF-2401	1 W Amplifier

Available soon



ANF-2402

Specifications

Electrical Specifications	
Frequency Range	2400 ~ 2500 MHz
Lightning Protection	Direct DC ground at antenna
Power Input	+10 V_{DC} ~ +30 V_{DC}
Power Consumption	0.6 W
Transmitter Amplifier	
Transmit Gain	up to 18 dBm
Transmit Current Consumption	300 mA (max.)
Receiver Amplifier	
Receive Gain	-15 dBm typical
Receive Current Consumption	15 mA (max.)
Environmental and Mechanical Characteristics	
Operating Temperature	-40 °C ~ +70 °C
Weight	200 g
Dimensions (L x H x D)	92 mm x 76 mm x 30 mm

Ordering Information

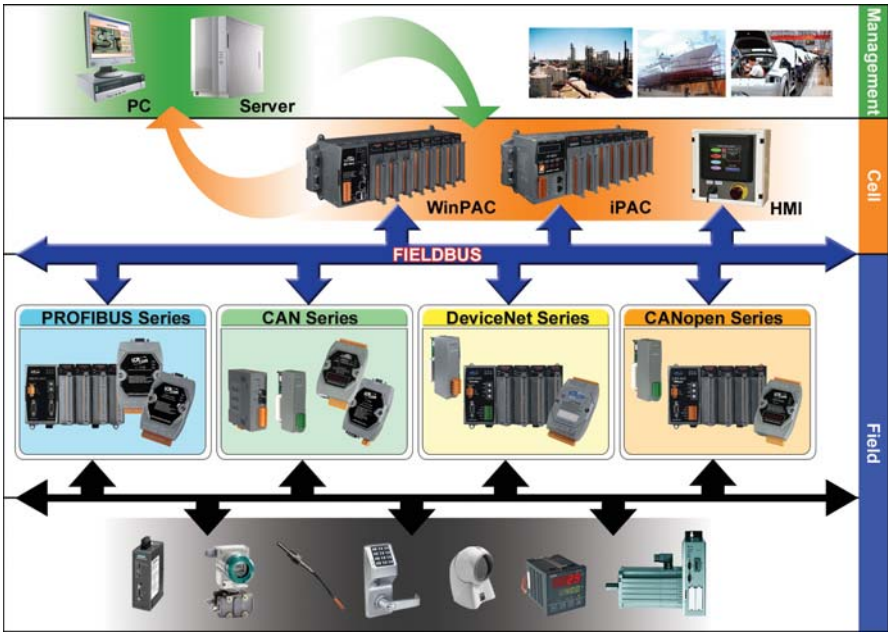
ANF-2402	600 mW, 2.4 GHz Power Amplifier

Fieldbus Solutions

6

6.1. Overview

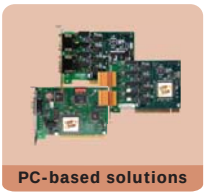
Fieldbus is an industrial network system for real-time distributed control. It is a way to connect instruments in a manufacturing plant. Fieldbus works on a network structure which typically allows daisy-chain, star, ring, branch, and tree network topologies. Fieldbus reduces both the length and the 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.



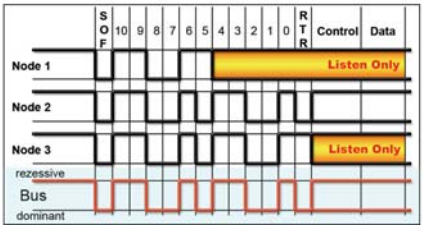
6.2. CAN bus Introduction & Products

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	
I-7565	USB to 1-port CAN bus Converter	6-2-3
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 resister 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 resister 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

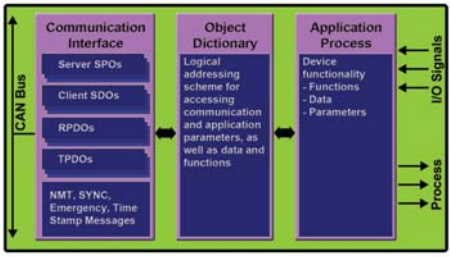
- Universal PCI card, supports both 5 V and 3.3 V PCI bus.
- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 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		

CANopen Converter and Gateways

USB / CANopen Master Converter

I-7565-CPM is an USB to CANopen master convertor. 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.
OS Support: Windows 2K/XP/Vista

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.
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

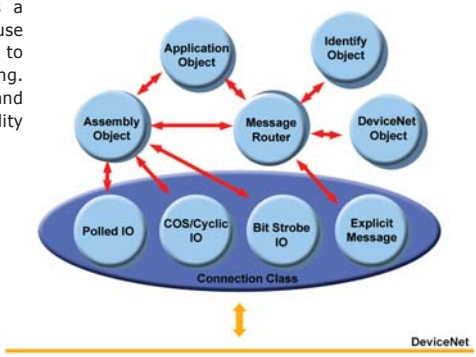
PISO-CAN400U with universal PCI interface has four independent CAN bus communication ports with 5-Pin screw terminal connector or 9-Pin D-Sub connector. It provides CANopen master lib for users to develop CANopen applications easily.
OS Support: Windows 2K/XP/Vista

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

6.4. 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	4-port CAN bus Universal PCI Interface Card with DeviceNet Master Library	
PISO-CAN400U-T		

DeviceNet Converter and Gateways

USB / DeviceNet Master Converter

NEW
I-7565-DNM CR

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.

- 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 / DCON Master Gateway

I-7241D CR

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

- 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 Slave / Modbus RTU Master Gateway

I-7242D CR

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".

- 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 insideProvide dynamic Assembly Objects mapping
- 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 Master / Modbus TCP Server Gateway

I-7243D CR

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.

- 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 CR

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.

- 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: Windwos 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: Windwos 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

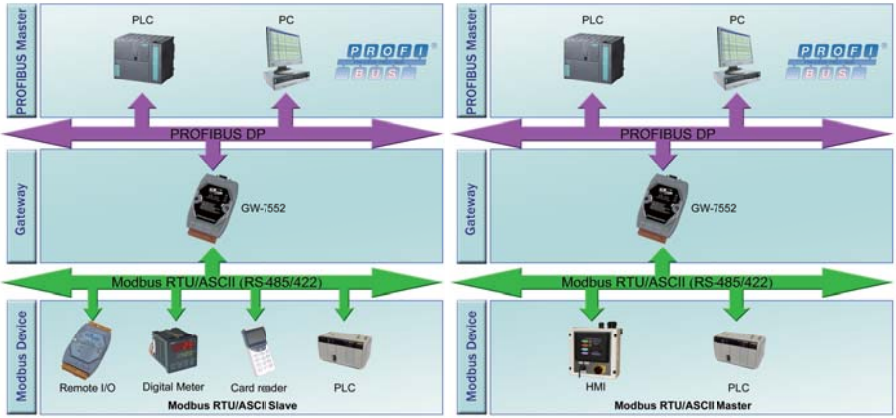
- Universal PCI card, supports both 5 V and 3.3 V PCI bus.
- Compatible with CAN specification 2.0 parts A and B
- Fully compatible with the ISO 11898-2 standard
- Support several kinds of baud rate from 10 kbps to 1 Mbps
- 2500 V_{rms} photo-couple isolation on the CAN side
- Built-in jumper for 120 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

6.5. 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

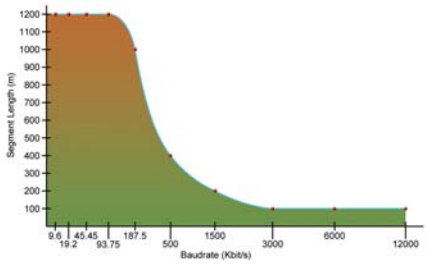
These fieldbus solutions also support multi-drop networking of devices on a single twisted-pair cable providing substantial cost savings in:

- 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_{rms} High Speed iCoupler
- 3000 V_{DC} isolation protection on PROFIBUS side

Ethernet Switches

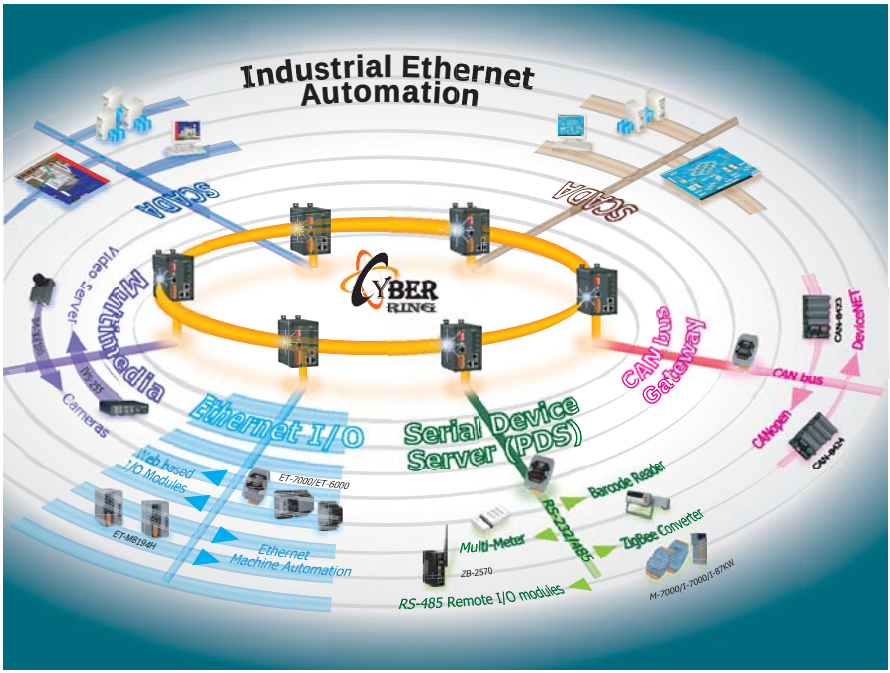
7

7.1. Overview

Ethernet is an ideal medium to transport large volumes of data, at speed, across great distances. Previously, multiple networks carrying specific protocols were installed side by side to carry out unique tasks. This inevitably led to project costs increasing as additional fiber optic or copper cables were installed to deal with the increasing volume of data. Using Ethernet, a single fiber optic cable can carry multiple protocols. Furthermore, manufacturers are exporting their legacy protocols onto Ethernet, designing new IP based communication protocols and providing embedded Web-Pages within devices that offer real-time information using simple tools like Internet Explorer and Netscape Navigator.

Early Ethernet were based on a hub or repeater. These units have no intelligence and therefore are unable to identify any information contained within the Header frame of an Ethernet packet. This means that it is not capable of determining which port to send the frame to. Therefore, every frame is sent to every port.

A switch, like a hub, has to forward and receive packets from one network or device to another. The switch could forward all packets, but if this was the case it would have similar behaviour to a hub. It would be more intelligent if the switch only forwarded packets which needed to travel from one network or device to another.

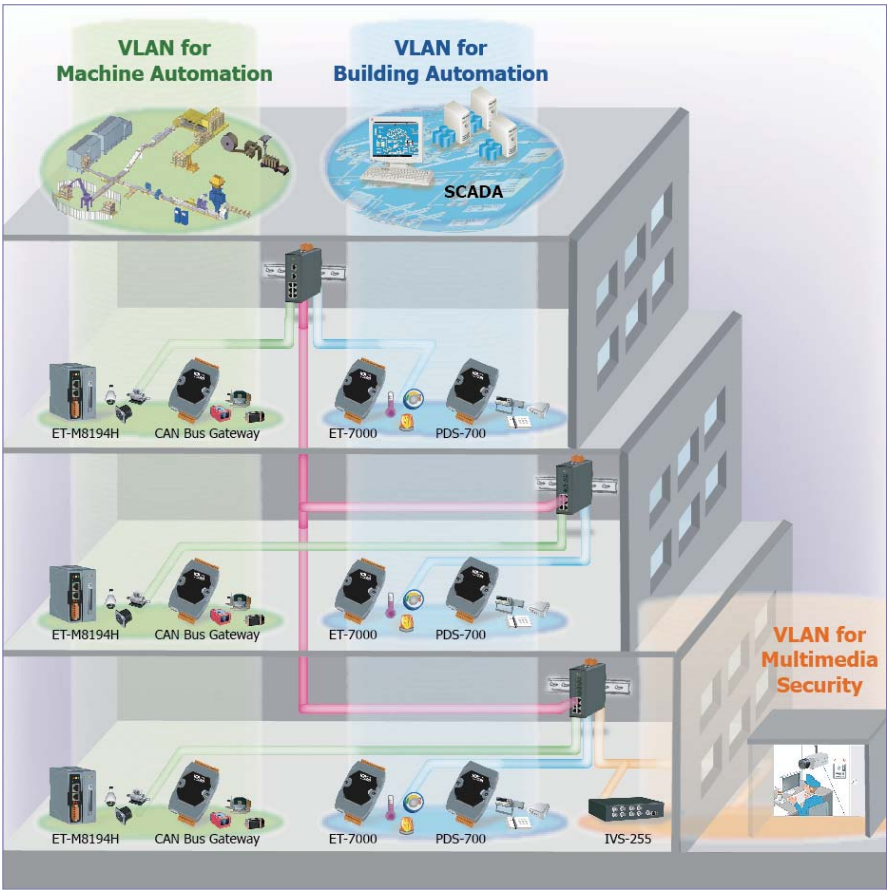


There are many poorly designed switches existing in the market, and most of them are fragile, easy to collapse, and always suffer from transmission delay and unreliable communication conditions due to packet collisions or other issues. Users who have bad experiences with those poor switches should try our high quality ones. ICP DAS's switches only choose “REAL INDUSTRIAL” grade switch chips that are temperature tolerant and highly reliable. They are all well-designed by skilled engineers and passed very strict communication and environment tests. All our switches can serve for a long life and guarantee to function perfectly under harsh environments.

Managed Switch for Industrial Ethernet Application

The managed switch can be configured through RS-232 port via serial console or Ethernet port using telnet or Web browser. In addition, the switch supports a lot of powerful managed functions, such as 802.1Q Tag-based VLAN, Port-based VLAN, 802.1p QoS (Quality of Service), Port Trunking, Spanning Tree, Cable Testing and Port Mirroring.

Built-in ICP DAS Cyber-Ring technique enables multiple switches to be placed into a redundant ring. The switch detects and recovers from a fiber or copper link failure within approximately 50 ms – for the majority of applications a seamless process. Modbus/TCP, Modbus/RTU and OPC supported, SCADA application can monitor status of Ethernet and fiber port with Modbus or OPC protocol.



Unmanaged Ethernet Switch

Industrial rated switches are intended to be installed in both harsh climatic environments and noisy electrical installations. Such switches are an excellent example of true industrial design principles

- Very high operating temperatures (down to -40 °C and up to 75 °C)
- DIN-Rail
- Wide DC operating voltages

Media Converter

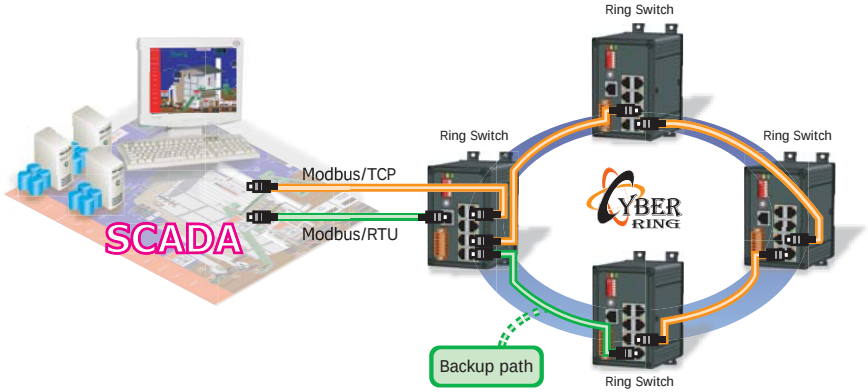
The utilization of fiber optic data transmission for industrial automation and process control has become increasingly popular over the past decade. A basic fiber optic system, using an optical transceiver circuit and fiber optic media, offers a wide array of benefits that are not available with traditional copper conductors.

IP67 Waterproof Switch

IP67 Ethernet Switches are designed for use in industrial waterproof/harsh environments. The rugged packaging and IP67 connectors guarantee a total protection that can withstand a variety of extreme conditions such as high temperatures, extreme shocks & vibrations, dust particles or even liquid immersion. They can be directly mounted to any machine or convenient flat surface.

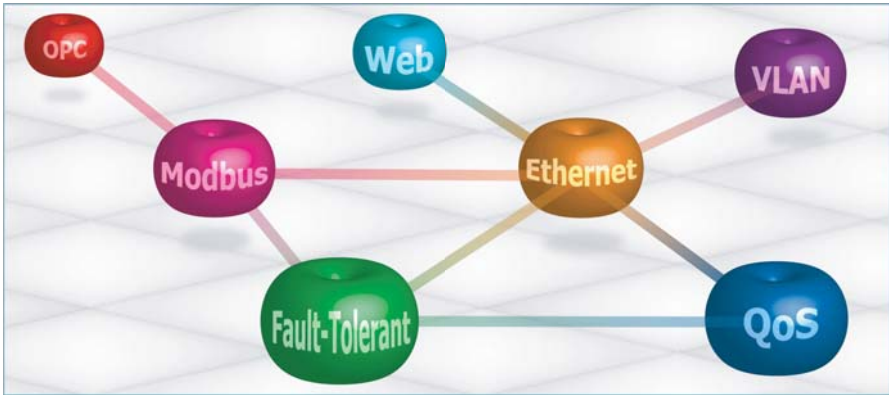
Real-time Redundant Ring Switch

The Real-time Redundant Ring Switch offers fault-tolerant industrial Ethernet with ring network topology. The built-in ICP DAS proprietary Cyber-Ring technology detects and recovers from a fiber or copper link failure within approximately 50 ms – for the majority of applications a seamless process. Modbus/TCP, Modbus/RTU and OPC supported, SCADA application can monitor status of Ethernet and fiber port with Modbus or OPC protocol. And, the relay output facility can deliver warning signal while dual power or network link fails.



Managed Ethernet Switch

The ICP DAS Managed Switch provides a cost-effective managed Ethernet solution for industrial control and automation. It provides lots of powerful managed functions, such as 802.1Q Tag-based VLAN, Port-based VLAN, 802.1p QoS (Quality of Service), Port Trunking, Spanning Tree, Cable Testing and Port Mirroring. These managed functions can be configured through RS-232 port via serial console or Ethernet port using telnet or Web browser. In addition, the built-in Cyber-Ring technology offers real-time fault-tolerant ring topology to increase the reliability and performance of network. It is an ideal Managed Switch for industrial environments.



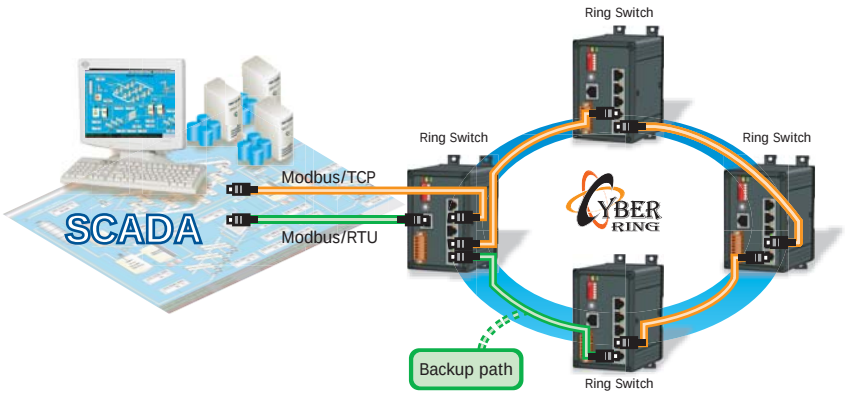
Cyber-Ring Ethernet Self-healing Technology

It is undoubted that the power of an Ethernet LAN (Local Area Network) is tremendous when applied to factory floor or industrial automation applications. However, you cannot just use commercial Ethernet switch there. Harsh environment will become a challenge to your switch, and, in many case, fault-tolerant network is also a must. To satisfy these, ICP DAS's Cyber-Ring technology provides you a rugged fault-tolerant, plug and play Ethernet solution.

Features

- High reliability and fault-tolerant
- Real-time deterministic performance
- Scalable and flexible ring topology
- Cost-effective industrial redundant Ethernet solution
- Plug and play

The ICP DAS's proprietary Cyber-Ring self-healing Ethernet technology can establish industrial Ethernet with high reliability and fault-tolerant capability. It can employ a ring topology network over either copper or fiber optic cable. While standard STP typically requires 20s to 30s for network structure reconfiguration following a link failure, Cyber-Ring technology reduces this downtime to within half a second. Average experience indicates a typical fault recovery time is 300 ms for Cyber-Ring fault-tolerant network.



Recovery Time

The recovery time of Cyber-Ring network consists of two parts, fault detected time and reconfiguration time. Recovery time of Cyber-Ring network is associated with the number of switches of the network and Cyber-Ring technology offers a variable preconfigured recovery time to support a wide range of number of switches. Typically, the recovery time of Cyber-Ring network with ten switches is less than 300 ms.

Fault Detected Time

Fault detected time is defined as the time from the occurrence of the fault until fault detected. There is a master switch of Cyber-Ring network checks the health condition of Cyber-Ring network periodically. If active path is not response after a preconfigured period of time, the master assumes that active path is failed and invokes reconfiguration mechanism to redirect traffics to the backup path.

Reconfiguration Time

The reconfiguration time of Cyber-Ring network is less than 5 ms per switch. For example, a Cyber-Ring fault-tolerant network that is comprised of ten switches, the expected worst case reconfiguration time will be 50 ms. When a fault is detected, the Cyber-Ring network will reconfigure to provide alternative traffic path of the ring within 50 ms.

7.2. Product Showcase

Unmanaged Ethernet Switches

5-port 10/100 Base-TX

The NS-205 series has 5 Ethernet Switching ports that support 10/100 Base-TX, with a 10/100M auto negotiation feature and auto MDI/MDI-X function.

NS-205 CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- Integrated look-up engine with dedicated 1024 unicast MAC addresses
- Store-and-forward architecture
- Supports +10 V_{DC} ~ +30 V_{DC} Reverse Polarity Protection
- Operating temperature range: -40 °C ~ +75 °C
- DIN-Rail

5-port 10/100/1000 Base-T

The NS-205G is 5-port unmanaged gigabit switch that support 10/100/1000 Base-T, with a 10/100/1000M auto negotiation feature and auto MDI/MDI-X function. It can connect 5 workstations and automatically switch the transmission speed (10 Mbps or 100 Mbps or 1000 Mbps) for corresponding connections.

NEW

NS-205G CR

- Power saving Technology
- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports 10/100 and 1000 Mbps speed auto negotiation
- Store-and-forward architecture
- 10 Gbps high performance memory bandwidth
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- Power Inputs +10 V_{DC} ~ +30 V_{DC}
- Operating temperature range: -40 °C ~ +75 °C
- DIN-Rail

4-port PoE and 1 RJ-45 Uplink

The NS-205PSE is a 5-port unmanaged PoE (Power over Ethernet) Industrial Ethernet Switch, it supports 4-PoE Port which are classified as power source equipments (PSE).

NEW

NS-205PSE CR

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Power Inputs +46 V_{DC} ~ +55 V_{DC}
- Operating temperature range: -40 °C ~ +75 °C
- DIN-Rail
- IEEE 802.3af compliant PoE ports
  4-PoE Port with power sourcing equipment (PSE) operation
  Auto-detection of PD (powered devices) and automatic power management over-temperature, over-current and over/under-voltage detection

8-port 10/100 Base-TX

The NS-208/NSM-108 series has 8 Ethernet Switching ports that support 10/100 Base-TX, with a 10/100M auto negotiation feature and auto MDI/MDI-X function.

NS-208 CR
NSM-108 CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 2 Gbps high performance memory bandwidth
- Power Inputs +10 V_{DC} ~ +30 V_{DC}
- Operating temperature range: -40 °C ~ +75 °C
- DIN-Rail

8-port 10/100/100 Base-T

The NS-208G/NSM-208G series has 8 Ethernet Switching ports that support 10/100/1000 Base-T, with a 10/100/1000M auto negotiation feature and auto MDI/MDI-X function. It can connect 8 workstations and automatically switches the transmission speed (10 Mbps or 100 Mbps or 1000 Mbps) for corresponding connections.

NEW

NS(M)-208G CR
NS(M)-208AG CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 and 1000 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 16 Gbps high performance memory bandwidth
- Supports +10 V_{DC} ~ +30 V_{DC} for NS-208G and NSM-208G
- Supports +10 V_{DC} ~ +30 V_{DC} for NS-208AG and NSM-208AG
- Operating temperature range: -40 °C ~ +75 °C
- DIN-Rail

4-port 10/100 Base-TX and 100 Base-FX Fiber

The NS-205F/NSM-205F series is a Unmanaged 4-port Industrial Ethernet (10/100 Base-TX) to Fiber Port (100 Base-FX) switch that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference.

NS(M)-205F CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Frame buffer memory: 512 Kbit
- Integrated look-up engine with dedicated 1024 unicast MAC addresses
- Supports +10 V_{DC} ~ +30 V_{DC}
- Operating temperature range: 0 °C ~ +70 °C

4-port 10/100 Base-TX and Dual 100 Base-FX Fiber

The NS-206F/NSM-206F series is a Unmanaged 4-port Industrial 10/100 Base-TX and Dual 100 Base-FX Switch that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference.

NS(M)-206F CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 1.6 Gbps high performance memory bandwidth
- Frame buffer memory: 256 Kbit
- Integrated look-up engine with dedicated 1024 unicast MAC addresses
- Supports +10 V_{DC} ~ +30 V_{DC}
- Operating temperature range: 0 °C ~ +70 °C
- Din-Rail

8-port 10/100 Base-TX and 100 Base-FX Fiber

The NS-209F/NSM-209F series is a Unmanaged 8-port Industrial 10/100 Base-TX and one 100 Base-FX Switch that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference.

NEW

NS-209F CR Series

Available soon

NSM-209F CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 2 Gbps high performance memory bandwidth
- Integrated look-up engine with dedicated 2048 unicast MAC addresses
- Supports +12 V_{DC} ~ +48 V_{DC}
- Operating temperature range: 0 °C ~ +70 °C
- DIN-Rail

5-port 10/100 Base-TX with IP67 Casing

NS-205-IP67 Ethernet switch are designed for use in industrial waterproof/harsh environments.

NEW

NS-205-IP67 CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 1.4 Gbps high performance memory bandwidth
- Integrated look-up engine with dedicated 1024 unicast MAC addresses
- Supports +10 VDC ~ +30 VDC with 1 kV isolation
  Reverse Polarity Protection
- Plastic casing with IP67
- Operating temperature range: -10 °C ~ +60 °C
- Din-Rail

Managed Ethernet Switches

5-port Real-time Redundant Ring Switch

The RS-405/RSM-405 series is a 5-port Industrial Ethernet (10/100 Base-TX) Real-Time Redundant Ring Switch.

NEW
RS(M)-405 CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Frame buffer memory: 1 Mbit
- Integrated look-up engine with dedicated 2048 unicast MAC addresses
- Redundant Power Inputs +10 Vdc ~ +30 Vdc
  Power failure alarm by relay output
- Operating temperature range: -40 °C ~ +75 °C
- DIN-Rail

5-port Real-time Redundant Ring Switch with 2-Fiber Port

The RS-405F/RSM-405F series is a 5-port Industrial Ethernet Real-Time Redundant Ring Switch with 2-Fiber Port that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference.

NEW
RS(M)-405F CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Frame buffer memory: 512 Kbit
- Integrated look-up engine with dedicated 1024 unicast MAC addresses
- Redundant Power Inputs +10 Vdc ~ +30 Vdc
  Power failure alarm by relay output
- Operating temperature range: 0 °C ~ +70 °C

8-port Real-time Redundant Ring Switch

The RS-408/RSM-408 series is an 8-port Industrial Ethernet (10/100 Base-TX) Real-Time Redundant Ring Switch.

NEW
RS(M)-408 CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Frame buffer memory: 1 Mbit
- Integrated look-up engine with dedicated 2048 unicast MAC addresses
- Redundant Power Inputs +10 Vdc ~ +30 Vdc
  Power failure alarm by relay output
- Operating temperature range: -40 °C ~ +75 °C
- DIN-Rail

8-port Industrial Ethernet Layer 2 Managed Switch

The MSM-508 is an 8-port Industrial Ethernet (10/100 Base-TX) Layer 2 Managed Switch. MSM-508 supports 10/100M auto negotiation feature and auto MDI/MDI-X function.

NEW
MSM-508 CR

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Frame buffer memory: 1 Mbit
- Integrated look-up engine with dedicated 2048 unicast MAC addresses
- Supports +12 Vdc ~ +48 Vdc
  Power failure alarm by relay output
- Operating temperature range: -40 °C ~ +75 °C
- DIN-Rail mount and Screw hole for wall mounting kit

8-port Industrial Ethernet Layer 2 Managed Switch with 2-Fiber Port

The MSM-508F series is an 8-port Industrial Ethernet Layer 2 Managed Switch with 2-Fiber Port that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference.

NEW
MSM-508F CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Each port supports 10/100 and 1000 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 3.2 Gbps high performance memory bandwidth
- Frame buffer memory: 1 Mbit
- Integrated look-up engine with dedicated 2048 unicast MAC addresses
- Supports +12 Vdc ~ +48 Vdc
  Power failure alarm by relay output
- Operating temperature range: 0 °C ~ +70 °C
- DIN-Rail mount and Screw hole for wall mounting kit

Media Converters

10/100 Base-TX to 100 Base-FX

The NS-200F series is a Ethernet (10/100 Base-TX) to Media (100 Base-FX) converter. The Ethernet supports 10/100M auto negotiation feature and auto MDI/MDI-X function.

NS-200F CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x flow control
- 1.4 Gbps high performance memory bandwidth
- Frame buffer memory: 256 Kbit
- Integrated look-up engine with dedicated 1024 unicast MAC addresses
- Supports +10 V_{DC} ~ +30 V_{DC} Reverse Polarity Protection
- Operating temperature range: 0 °C ~ +70 °C
- DIN-Rail

1000 Base-T to 1000 Base-SX/LX

The NS-200G series provides one RJ-45 auto sensing 10/100/1000 Base-T port and one 1000 Base-SX/LX SFP port. The RJ-45 port is full/half duplex capable.

Available soon

NS-200G CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Store-and-forward architecture
- Full duplex IEEE 802.3x
- Supports +12 V_{DC} ~ +48 V_{DC} Reverse Polarity Protection
- Operating temperature range: 0 °C ~ +70 °C
- DIN-Rail

Single-Strand 10/100 Base-TX to 100 Base-FX

Using the fiber optic medium for Ethernet applications has become more popular due to fiber optic's excellent physical features, especially for long distance networks.

NS-200WDM CR Series

- Automatic MDI/MDI-X crossover for plug-and-play
- Supports both 10/100 Mbps speed auto negotiation
- Store-and-forward architecture
- Full duplex IEEE 802.3x and half duplex backpressure flow control
- 1.4 Gbps high performance memory bandwidth
- Integrated look-up engine with dedicated 1024 unicast MAC addresses
- Supports +12 V_{DC} ~ +48 V_{DC} Reverse Polarity Protection
- Operating temperature range: 0 °C ~ +70 °C
- DIN-Rail

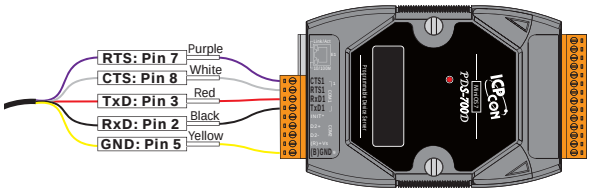
Accessories

8

8.1. Cables

CA-0903

Pin Assignments

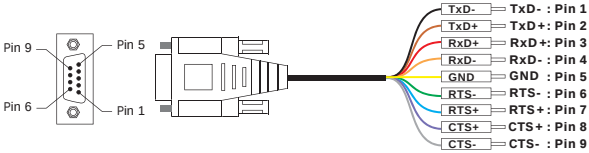


Ordering Information

CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm

CA-090910

Pin Assignments

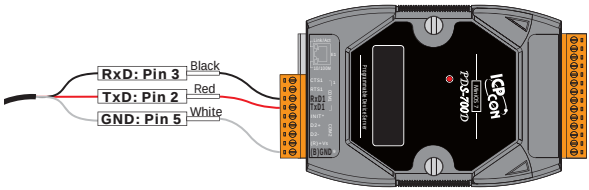


Ordering Information

CA-090910	9-Pin Female D-Sub Cable for RS-422 Connector, 1 m

CA-0910

Pin Assignments



Ordering Information

CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m

CA-0910F
CA-0915

Pin Assignments

Ordering Information

CA-0910F	9-Pin Female-Female D-Sub Cable, 1 m
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m

CA-9-2505D

Pin Assignments

Pin Assignment	Terminal No.		Pin Assignment
N/A	01	14	COM8_RxD
N/A	02	15	COM8_TxD
COM8_GND	03	16	COM7_RxD
N/A	04	17	COM7_TxD
COM7_GND	05	18	COM6_RxD
N/A	06	19	COM6_TxD
COM6_GND	07	20	COM5_RxD
N/A	08	21	COM5_TxD
COM5_GND	09	22	COM4_RxD
N/A	10	23	COM4_TxD
COM4_GND	11	24	COM3_RxD
N/A	12	25	COM3_TxD
COM3_GND	13	Shield	F.G.

25-Pin Male D-Sub Connector

Pin Assignment	Terminal No.		Pin Assignment
GND	05	09	--
--	04	08	--
TxD	03	07	--
RxD	02	06	--
--	01		

RS-232 Female DB-25 to Male DB-9 Connector

Ordering Information

CA-9-2505D	Male DB-25 to 6 Male DB-9 Cable, 0.5 m

CA-9-3705

CA-9-3715D

CA-9-3705
CA-9-3715D

Pin Assignments

Pin Assignment	Terminal No.		Pin Assignment
N.C.	01	20	RI3
DCD3	02	21	DTR3
GND	03	22	DSR3
CTS3	04	23	RTS3
RxD3	05	24	TxD3
RI4	06	25	DCD4
DTR4	07	26	GND
DSR4	08	27	CTS4
RTS4	09	28	RxD4
TxD4	10	29	RI2
DCD2	11	30	DTR2
GND	12	31	DSR2
CTS2	13	32	RTS2
RxD2	14	33	TxD2
RI1	15	34	DCD1
DTR1	16	35	GND
DSR1	17	36	CTS1
RTS1	18	37	RxD1
TxD1	19		

RS-232 Female DB-37 Connector

Pin Assignment	Terminal No.		Pin Assignment
GND	05	09	RI
DTR	04	08	CTS
TxD	03	07	RTS
RxD	02	06	DSR
DCD	01		

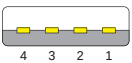
RS-232 Female DB-37 to Male DB-9 Connector

Ordering Information

CA-9-3705	Male DB-37 to 4 Male DB-9 Cable (90°), 0.5 m
CA-9-3715D	Male DB-37 to 4 Male DB-9 Cable (180°), 1.5 m

CA-USB18

Pin Assignments



Type A

Type B

Pin	Name	Description
1	VCC	+5V
2	D-	Data-
3	D+	Data+
4	GND	Ground

Ordering Information

CA-USB18	USB Type A to Type B Cable, 1.8 m

8.2. Power Supplies

KA-52F/DIN-KA52F
NEW KA52F-48/DIN-KA52F-48

Specifications

Models	KA-52F	DIN-KA52F	KA-52F-48	DIN-KA52F-48
Input				
Range	100 ~ 250 AC			
Frequency	50 Hz ~ 60 Hz			
Output				
Power	24 VDC/1.04 A max., 25 W		48 VDC/0.52 A max., 25 W	
Mechanical				
Dimensions (W x H x D, Unit: mm)	54 x 93 x 36	68 x 107 x 50	54 x 93 x 36	68 x 107 x 50
Installation	No-mounting	DIN-Rail Mounting	No-mounting	DIN-Rail Mounting
Environmental				
Operating Temperature	0 °C ~ +70 °C			
Storage Temperature	-40 °C ~ +85 °C			

Ordering Information

KA-52F	24 VDC/1.04 A, 25 W Power Supply
DIN-KA52F	24 VDC/1.04 A, 25 W Power Supply with Din-Rail Mounting
KA-52F-48	48 VDC/0.52 A, 25 W Power Supply
DIN-KA52F-48	48 VDC/0.52 A, 25 W Power Supply with Din-Rail Mounting

NEW

GPSU06U-6

Specifications

Input	
Range	100 ~ 250 AC
Frequency	50 Hz ~ 60 Hz
Output	
Power	24 VDC/0.25 A max., 6 W
Mechanical	
Dimensions (W x H x D)	32 mm x 66 mm x 68 mm
Installation	No-mounting
Environmental	
Operating Temperature	0 °C ~ +40 °C
Storage Temperature	-20 °C ~ +85 °C

Ordering Information

GPSU06U-6	24 VDC/0.25 A, 6 W Power Supply

NEW

MDR-60-24/
MDR-60-48 MDR-20-24

MDR-20-24
MDR-60-24
MDR-60-48

Specifications

Models	MDR-20-24	MDR-60-24	MDR-60-48
Input			
Range	100 ~ 250 AC		
Frequency	50 Hz ~ 60 Hz		
Output			
Power	24 VDC/1 A max., 24 W	24 VDC/2.5 A max., 60 W	48 VDC/1.25 A max., 60 W
Mechanical			
Dimensions (W x H x D) (Unit: mm)	22.5 x 90 x 100	40 x 90 x 100	40 x 90 x 100
Installation	DIN-Rail Mounting		
Environmental			
Operating Temperature	-20 °C ~ +70 °C		
Storage Temperature	-20 °C ~ +85 °C		

Ordering Information

MDR-20-24	24 VDC/1 A, 24 W Power Supply with DIN-Rail Mounting
MDR-60-24	24 VDC/2.5 A, 60 W Power Supply with DIN-Rail Mounting
MDR-60-48	48 VDC/1.25 A, 60 W Power Supply with DIN-Rail Mounting

DP-660 DP-1200

DP-660
DP-1200

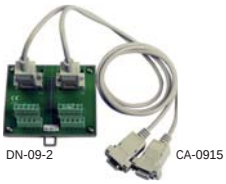
Specifications

Models	DP-660	DP-1200
Input		
Range	100 ~ 250 AC	
Frequency	50 Hz ~ 60 Hz	
Output		
Power	24 Vdc/2.5 A max., 60 W and 5 Vdc/0.5 A max., 2.5 W	24 Vdc/5.0 A max., 120 W
Mechanical		
Dimensions (W x H x D)	44 mm x 145 mm x 158 mm	65 mm x 111 mm x 125 mm
Installation	DIN-Rail Mounting	
Environmental		
Operating Temperature	0 °C ~ +50 °C	-10 °C ~ +70 °C
Storage Temperature	-20 °C ~ +85 °C	-25 °C ~ +85 °C

Ordering Information

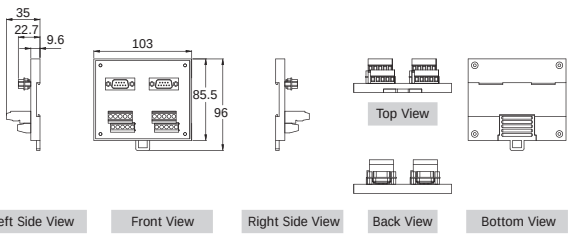
DP-660	24 Vdc/2.5 A, 60 W and 5 Vdc/0.5 A, 2.5 W Power Supply with DIN-Rail Mounting
DP-1200	24 Vdc/5.0 A, 120 W Power Supply with DIN-Rail Mounting

8.3. Terminal Boards & Connector



DN-09-2
DN-09-2F

Dimensions (Unit: mm)



Ordering Information

DN-09-2	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header Includes: CA-0915 x 2 (9-Pin Male-Female D-Sub Cable 1.5 M)
DN-09-2F	I/O Connector Block with DIN-Rail Mounting and Two 9-Pin Male Header Includes: CA-0910F x 2 (9-Pin Female-Female D-Sub Cable 1.0 M)

CA-4002

CA-PC09F

Ordering Information

CA-4002	37-Pin Male D-Sub Connector with Plastic Cover
CA-PC09F	9-Pin Female D-Sub Connector with Plastic Cover

8.4. Hub

NEW

USB-2560

4-port Industrial USB 2.0 Hub

Features

- Compliant with USB Specification Revision 2.0
- Built-in NEC uPD720114 USB 2.0 Hub Controller
- Supports High-speed (480 Mbps) and Full-speed (12 Mbps)
- Provides 4 Downstream Ports
- Only Supports Self-powered Mode
  +12 ~ 48 V_{DC} Power Input (power adapter included)
- Supports Downstream Port Status with LED
- DIN-Rail

Introduction

The USB-2560 allows you to add multiple high performance USB 2.0 peripheral devices to your computer (Or XP-8000 series). It supports the USB 2.0 high-speed mode that can achieve 480 Mbps data transmitting rate.
The USB-2560 only supports self-powered mode (drawing power from an external power supply). Externally powered USB hubs are the only way to guarantee the broadest compatibility for USB devices.

Specifications

Interface	
Ports	Upstream x 1 (Type B)
	Downstream x 4 (Type A)
Compatibility	Universal serial bus
	Specification Rev. 2.0/1.1/1.0
Transfer Speed	480 Mbit/s-high speed mode
	12 Mbit/s- full speed mode
	1.5 Mbit/s-low speed mode
Supply Current	500 mA max. per port
Include Cable	CA-USB18 (1.8 m Cable) x 1
Power Supply Included (USB-2560/S Only)	GPSU06U-6 x 1 for 250 mA per port
LED Indicators	
Power	1 LED
Downstream Ports	4 LEDs
Power	
Input Voltage Range	+12 ~ +48 V_{DC}
Power Consumption	0.25 A @ 24 V_{DC} for 250 mA per port 0.5 A @ 24 V_{DC} for 500 mA per port
Power Input Connection	Removable 3-Pin Terminal Block
Mechanical	
Casing	Plastic
Flammability	UL 94V-0 materials
Dimensions (W x L x H)	33 mm x 78 mm x 107 mm
Installation	DIN-Rail
Environment	
Operating Temperature	0 °C ~ +70 °C
Storage Temperature	-20 °C ~ +80 °C
Humidity	10 ~ 90% RH, non-condensing

Ordering Information

USB-2560 CR	4-port Industrial USB 2.0 Hub (RoHS)
USB-2560/S CR	4-port Industrial USB 2.0 Hub with GPSU06U-6 (Power Supply) (RoHS)

Accessories

DIN-KA52F	24 V_{DC}/1.04 A, 25 W Power Supply with DIN-Rail Mounting
MDR-20-24	24 V_{DC}/1 A, 24 W Power Supply with DIN-Rail Mounting

Related Products

9

9.1. Ethernet LED Display

NEW

EKAN-MD104

Ethernet Modbus LED Display

Features

- Support RS-485 and Ethernet technology
- Simultaneously support Modbus RTU and Modbus TCP protocol
- Double Color
- Dynamic entry and exit effects
- User authentication, authorization
- Real-time pre-recorded message
- Built-in watchdog timer for harsh environment
- One buzzer inside
- Programmable

Introduction

EKAN-MD104 Modbus LED Display

Bigger, brighter, better! ICP DAS uses the full power of your IP connection. No custom protocols to learn or program. The EKAN-MD104 LED display is based on RS-485 and Ethernet technology, supports the Modbus RTU/TCP Protocol, and can accept up to 26 Modbus TCP clients at the same time. So you can control your display anywhere you have a connection. This saves you time and money. Even if you don't currently use the Modbus TCP Protocol, we provide the EKAN-MD104 Utility, the EZ Data Logger and the NAPOPC DA Server for easy system integrator. The user friendly feel of these programs will ensure that they can be seamlessly implemented into your facility's communications system. Using the EKAN-MD104 Utility, you can create your "Message (Regular and Emergency)", and "Variable Value" with the ease of a text editor. Leverage the power of your data, and make it work for you. Using the Modbus TCP Protocol, a different message will appear when an event or condition occurs, and people will know immediately. Whether you are announcing company regulations, factory production flow control, restaurant order control or campus message displays, you can keep people "in the know" using the EKAN-MD104 Modbus LED display. Let ICP DAS show you how powerful, useful, and flexible our displays can be for your application.

Display Message Easily

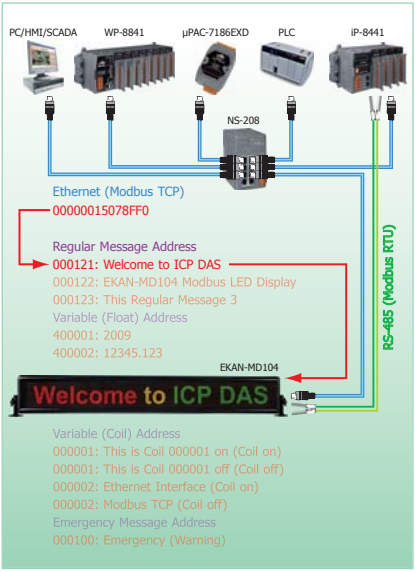
Prerecord a message and any variables including Boolean values, Integer values, and Float values in the EKAN-MD104 Modbus LED display. And the message will be display using the Modbus RTU/TCP Protocol.

The EKAN-MD104 Display supports the Modbus TCP Protocol

The Modbus TCP protocol is a variation of the Modbus protocol. It was developed in 1999 to allow the Internet community to access Ethernet devices. Most of SCADA (Supervisor Control And Data Acquisition) and HMI software supports Modbus. For example: Citect, ICONICS, iFIX, InduSoft, Intouch, Entivity Studio, Entivity Live, Entivity VLC, Trace Mode, Wizcon, and Wonderware etc.

What are the benefits of using Modbus RTU and Modbus TCP

1. Open source, no license fees.
2. Widely supported by SCADA and HMI software
3. Easy to use
4. Easily integrate variant devices
5. Low development cost
6. Wide knowledge case

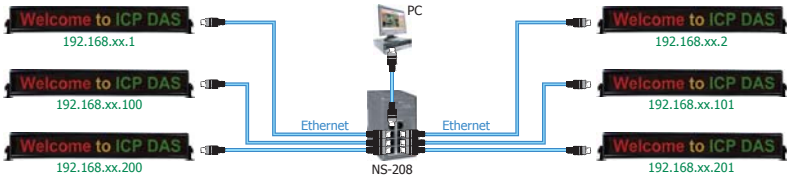


Applications

- Office Notification
- Factory production flow control
- ATM, Kiosk, Vending Machine Display
- Display for Data Acquisition Systems
- Game and Lottery machines
- Restaurant Notification
- Hotel Notification
- Fast food Notification
- Machinery & Equipment Display
- Transportation message Display
- Campus Message Display
- Company Regulation Announcements
- Manager messages to all employees
- Emergency Message Broadcast
- Productivity below target Announcement
- Quality result below standard Announcement
- Machine status and parts availability

EKAN-MD104 Display revolutionizes the Factory Automation Industry

As a manager, it is not easy to effectively communicate with our employees, especially when the factory environment is so noisy and the working area is so large. Our EKAN-MD104 display is an excellent choice for helping the manager to communicate with his/her employees in real time. The EKAN-MD104 displays provide an Ethernet interface to connect with your manufacturing systems. It displays "Must Know" production information. Relevant and important mission critical data can be disseminated not just to employees at remote workstations, but also to the entire production line team. ICP DAS also provides the EKAN-MD104 Utility, the EZ Data Logger, the NAPOPC DA Server for easy system integration. The user friendly feel of these programs will ensure that they can be seamlessly implemented into your facility's communications system.

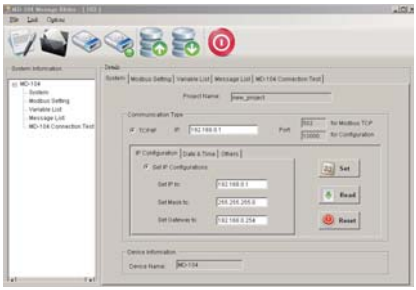


Software For PC

ICP DAS provides the EKAN-MD104 Utility, the EZ Data Logger, the NAPOPC DA Server to enable the user to control the EKAN-MD104.

EKAN-MD104 Utility

The EKAN-MD104 Utility is used to edit and upload messages to the EKAN-MD104 as a pre-recorded message, download pre-recorded messages from the EKAN-MD104, and test the EKAN-MD104 LED display. User could create the "Message (Regular/Emergency)" and "Variable(Float/Coil)" project file by EKAN-MD104 Utility. User can create many different Message project files so that message content can be changed quickly.



EZ Data Logger

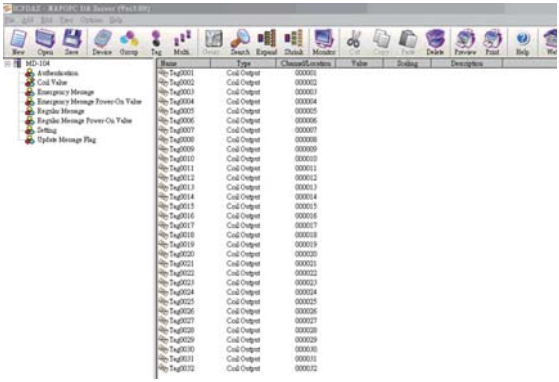
The EZ Data Logger is a small data logger utility. With its user-friendly interface, users can quickly and easily build a data logger application without needing any programming skills. Click the link below for more details regarding the EZ Data Logger.
(http://www.icpdas.com/products/Software/ez_data_logger/ez_data_logger.html)

Specifications

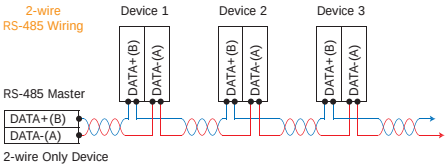
Core	
CPU	80186, 80 MHz or compatible
SRAM	512 KB
Flash Memory	512 KB; Erase unit is one sector (64 Kb); 100,000 erase/write cycles
EEPROM	16 KB (8 blocks, each block has 256 bytes); Data retention > 40 years; 1,000,000 erase/write cycles.
Watchdog Timer	Yes
Communication Interface	
Ethernet	10/100 Base-TX, (Auto-negotiating, auto MDI/MDI-X, LED indicator)
COM0	RS-485 (D+, D-; self-tuner ASIC inside); non-isolated
COM 0 Settings	
Baud Rate	1200 ~ 115200 bps
Data Bit	8
Parity Check	Even, Odd, None
Stop Bit	1
Features	
Pixel Color	Basic Colors (Red, Yellow, Green, Mixed, Rainbow, Auto)
Display Effect	16 Different Display Effects
Character Sets	ASCII, BIG5
Character Array	ASCII (half-width characters): 16 x 2 ~ 16 x 10 matrix (Depends on the character)
	ASCII (wide-shaped character): 16 x 10 matrix
	BIG5: 16 x 10 matrix
Pixel Size (Diameter)	0.4 cm
Center-to-Center Pixel Spacing	0.4 cm
Authentication	Password-based
Buzzer	One internal buzzer
Message Capacity	20/40 (Regular/Emergency) Messages and 32/64/64 (Coil/Float/Integer) Variable
Protocol	Modbus TCP/Modbus RTU
Power	
Input Voltage Range	+9 V_{DC} ~ +19 V_{DC}
Power Consumption	16 W ~ 25 W
Mechanical	
Housing (L x H x D)	808 mm x 120 mm x 40 mm
Display Area (L x H)	760 mm x 85 mm
Display Weight	2460 g
Display Array	16 rows x 160 columns
Display Memory	10000 characters
Environment	
Operating Temperature	0 °C ~ +40 °C
Storage Temperature	-10 °C ~ +50 °C
Humidity	5 ~ 95% RH, non-condensing

NAPOPC DA Server

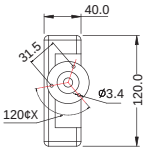
The NAPOPC DA Server uses an Explorer-style user interface to display a hierarchical tree of modules and groups with their associated tags. An individual group can be defined as a subdirectory containing one or more tags. Click the link below for more details regarding the NAPOPC DA Server.(http://www.icpdas.com/products/Software/NAPOPC/napopc.htm)



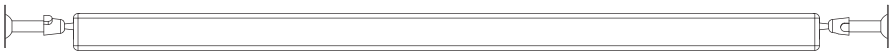
Wiring



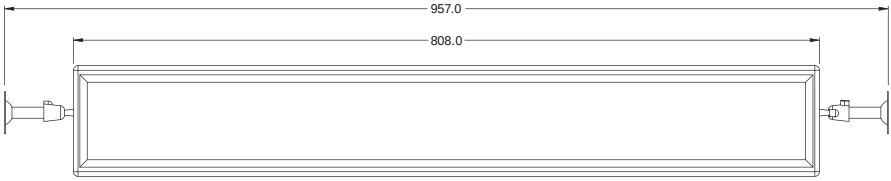
Dimensions (Unit: mm)



Right Side View



Top View



Front View

Ordering Information

EKAN-MD104-MT	Modbus LED Display Using Traditional Chinese Fonts
EKAN-MD104-MJ	Modbus LED Display Using Japanese Fonts
EKAN-MD104-MS	Modbus LED Display Using Simplified Chinese Fonts

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- M-7000 Series Remote I/O Modules
  (Modbus & DCON Protocols Supported)
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- PROFIBUS Coverters
- PROFIBUS Gateways
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  - µPAC-7186 G Series Advance ISaGRAF SoftLogic µPAC
  - I-7188 E Series Ethernet µPAC
  - I-7188 X Series non-Ethernet µPAC
  - I-7188 G Series ISaGRAF SoftLogic µPAC
- Expansion Solutions
  - Expansion Board: X-board
  - Expansion Unit: RU-87Pn Units

PAC Family

Embedded Ethernet/
Internet Micro-PAC
µPAC-7186 Series

PAC with Display
ViewPAC Series

M2M Mini-PAC
G-4500 Series

Windows Embedded
Standard 2009 PAC
XP-8000 Series
Linux kernel 2.6.18
based PAC
LP-8x81 Series

Windows CE 5.0 Based PAC
WP-8000 Series
Linux 2.6.19 Based PAC
LP-8000 Series

MiniOS7 Based PAC
iP-8000 Series

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